

August 22, 1990

Mr. Dennis J. Byrne  
Hazardous Materials Specialist  
Alameda County Health Care Services Agency  
Division of Hazardous Materials  
Department of Environmental Health  
80 Swan Way, Room 200  
Oakland, CA 94261

**Subject: Workplan for Soil Remediation and  
Monitoring Well Installations for the Property at  
914 San Pablo Avenue,  
Albany, CA  
(Project No. 9032)**

Dear Mr. Byrne:

Aqua Terra Technologies  
Consulting Engineers  
& Scientists

2950 Buskirk Avenue  
Suite 120  
Walnut Creek, CA  
9 4 5 9 6  
415 934-4884

The following work plan for soil excavation and remediation and monitoring well installations for the property at 914 San Pablo Avenue in Albany, California is hereby submitted in accordance with the San Francisco Bay Region of the Regional Water Quality Control Board (RWQCB) Staff Recommendations for the Initial Investigation of Underground Fuel Storage Tanks (June, 1988), the California Leaking Underground Fuel Tank (LUFT) Task Force LUFT Field Manual (October, 1989) guidelines, the California Department of Health Services (DHS) regulations as outlined in Title 22 and 23 of the California Code of Regulations (CCR), and the requirements of the Alameda County Health Care Services Agency (CHCSA).

## **INTRODUCTION**

### **Scope of Work**

Aqua Terra Technologies, Inc. (ATT) intends to conduct an investigation to determine the aerial extent of the potential impacts to soil and groundwater from underground waste oil and gasoline storage tanks removed from the subject property in, 1989. This investigation will involve the removal of hydrocarbon contaminated soil from the former tanks excavation with onsite soil remediation and subsequent offhaul to the appropriate landfill as required by federal, state, and local regulations. ATT will also install up to three groundwater monitoring wells to determine groundwater flow direction, gradient, and quality.

### **Site Background**

The subject property is located in the City of Albany, California. An underground fuel storage tank removal permit was filed by Petroleum Engineering, Inc. (Attachment A) on March 13, 1989. Two, steel, underground storage tanks for gasoline and waste oil were removed from the subject property on March 20, 1989.

## **SITE DESCRIPTION**

### **Geologic and Hydrogeologic Setting**

The site is within the Oakland Upland and Alluvial Plain Groundwater Subarea of the East Bay Plain [Geohydrology and Groundwater - Quality Overview, East Bay Plain Area, Alameda County, California: Alameda County Flood Control and Water Conservation District

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(ACFCWCD) Report No. 205 (J), 1988]. Soils underlying the site consist of Pleistocene age Older alluvium composed of interbedded, poorly consolidated clay, silt, sand, and gravel. The shallow, unconfined groundwater is approximately 25 to 30 feet below grade with a flow direction toward the southwest (ACFCWCD, 1988).

### **Regional Setting**

The subject property is in Alameda County in the City of Albany, approximately 0.5 miles east of the Buchanan Street - Interstate 80 interchange (Plate 1, Attachment B).

### **Site Setting**

The site is located on the west side of San Pablo Avenue between Solano Avenue and Buchanan Street (Plate 2, Attachment B). The property contains a building which is leased to commercial businesses; the building is currently vacant.

### **Soil Contamination History**

ATT was not involved with the tank removal or soil sampling from the tank excavations; therefore, the following information was provided by Petroleum Engineering, Incorporated of Santa Rosa, California. On March 20, 1989 two small (approximately 550 gallon) underground storage tanks were removed from the property. The gasoline tank was removed from the sidewalk area in front of the property (along San Pablo Avenue) and the waste oil tank from the parking area at the rear of the building (along Adams Street).

Soil samples were collected after tank removal and submitted to a DHS certified laboratory. Sample analyses indicated that total petroleum hydrocarbons (TPH) as gasoline concentrations ranged from 270 to 1,300 mg/Kg gasoline and TPH as waste oil and diesel was below instrument detection limits (Table 1, Attachment C and Attachment D).

### **PROPOSED WORK PLAN**

#### **Methods For Determining Soil Contamination**

TPH (as gasoline) contaminated soils will be re-excavated from the former tank excavation. Excavation will proceed until TPH gasoline and waste oil and grease concentrations are below RWQCB guidelines or to the limits of the building without impairing the building's structural integrity. A portable photoionization device or HNu meter will be used onsite to determine initial TPH (gasoline) concentrations. Samples will be collected and submitted to a DHS certified laboratory, on a 48 hour turnaround, to verify remaining TPH (gasoline and oil and grease) concentrations.

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#### Sampling Methods and Procedures

Soil samples will be collected from the excavation after re-excavation, to determine if sufficient contaminated soil has been removed. Samples will be collected from the bottom of the excavation and side walls; samples will be collected in accordance with the protocols outlined in Attachment E and pursuant to ACWD guidelines (February 1990 revision). Soil samples will be stored in a cooler with dry ice. Samples analysis will conform to LUFT Manual guidelines; samples methods and analyses are listed in Table 2 (Attachment D).

#### Soil Excavation Methods

Contaminated soil will be re-excavated from the former gasoline tank excavation using a track excavator. Excavated soils will be removed to the parking area to the rear of the building. Soils will be placed on visqueen and aerated in accordance with the Bay Area Air Quality Management District (BAAQMD) Regulation 8, Rule 40 guidelines. Upon completion of aeration, soil will be offhauled to a Class II-I landfill; soil samples will be collected to verify that hydrocarbon concentrations are within regulatory agency requirements for disposal at such a facility.

If contaminated soil extends to the building, excavation may have to be discontinued so as to not undermine or jeopardize the building foundation. If contaminated soil cannot be removed, other methods of in situ remediation will be evaluated.

#### Site Security

A temporary barrier or fence will be placed around the excavation during the re-excavation phase.

#### **Methods For Determining Groundwater Contamination**

##### Monitoring Well Location

Three, two-inch diameter, groundwater monitoring wells will be installed; two monitoring wells will be placed through the backfill of the former gasoline and waste oil tank excavations. Monitoring wells will be placed flush with the street in a steel casing with a locking cover. Prior to the monitoring well installations, ATT will determine, and verify, the depth to the shallow, unconfined groundwater and the flow direction and gradient from monitoring wells installed in the immediate vicinity of the subject property. If offsite monitoring wells can not be located in the immediate vicinity of the subject property, a third monitoring well will be installed to determine the shallow, unconfined groundwater flow direction and gradient.

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Monitoring Well Construction

The monitoring well will conform with RWQCB and Alameda County Water District (ACWD) Groundwater Monitoring Guidelines (February 1990 revision). Monitoring well construction will adhere to the protocol outline in Attachment F.

Groundwater Sampling

Groundwater samples will be collected from the completed and developed groundwater monitoring wells; groundwater samples will be stored in a cooler with bagged ice. Sample collection will conform to the protocol outlined in Attachment F. Sample analyses and methods will conform to LUFT Manual guidelines as listed in Table 2 (Attachment D).


**SITE SAFETY PLAN**

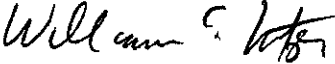
A site safety plan for this investigation is presented in Attachment G.

ATT is completing this work plan at the request of Mr. William Foley, Attorney for Ms. Josephine Dibble, property owner. Please contact us if you have any questions or comments.

Sincerely

AQUA TERRA TECHNOLOGIES, INC.

  
Terrance E. Carter  
Senior Environmental Engineer  
Project Manager

  
William E. Motzer, Ph.D.  
Senior Hydrogeologist  
California Registered Geologist #4202  
(Expires 6/30/92)

TEC/WEM:mp

Attachments  
9032/082290/BRYNE.WRK

**ATTACHMENT A**

**Underground Fuel Storage Tank  
Removal Permit**

# PERMIT APPLICATION

*City of Albany*



1000 SAN PABLO, ALBANY CA. 94706  
PUBLIC WORKS OFFICE

FOR INSPECTION - PHONE: 528-5760

A.P. NO: \_\_\_\_\_

PERMIT NO. \_\_\_\_\_

DATE \_\_\_\_\_

TOTAL FEES, TAXES  
AND DEPOSITS \_\_\_\_\_

## FOR APPLICANT TO FILL IN

## DESCRIPTION OF WORK

### BUILDING PROJECT IDENTIFICATION

Address of Building 914-916 SAN PABLO AVE. ALBANY

Owner(s) Name JOSEPHINE H. DIDDLE

Telephone No. \_\_\_\_\_

Contractor's Name PETROLEUM ENGINEERS, INC.

Contractor's Mailing Address 11 W. 9th ST. - SANTA ROSA CA 95701

PK (707) 545-0360 City Bus Lic \_\_\_\_\_

Architect and/or Engineer CONTRACTOR

Architect and/or Engineer's Address SAME AS ABOVE

Ph (707) 545-0360 Lic. No. 224358

### LICENSED CONTRACTORS DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect

License Class A Lic. Number 224358

Date 3-13-89 Contractor PETROLEUM ENGR, INC

### OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec 7031.5, Business and Professions Code. Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law Chapter 9 (commencing with Sec. 7000) of Division 3 of the Business and Professions Code, or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars (\$500)).

I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure if not intended or offered for sale (Sec. 7044, Business and Professions Code. The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees provided that such improvements are not intended or offered for sale. If however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code. The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law). All work constructed by

1 REMOVE AND DISPOSE OF (1) SMALL GASOLINE TANK IN SIDEWALK AREA AND (1) SMALL WASTE OIL TANK AT THE REAR OF PROPERTY

### PLUMBING PERMIT

CONTRACTOR \_\_\_\_\_  
STATE LICENSE NO. AND CLASSIFICATION \_\_\_\_\_ FEE \$ \_\_\_\_\_

WC	LAV	BATH T.	SHOWER	SINK	DISHWASHER	LAUNDRY T.	SLDP SINK
CLOTHES WASHER	FLOOR SINK	URNAL	DRINKING FOUNTAIN	GAS SYSTEMS OUTLETS	WATER HTR		
WASTE INTERCEPTOR	WATER PIPING TREATING EQUIP	SEWER	WTR PIPING SYSTEMS	SOLAR	PER 100 SQ. FT.		

### ELECTRICAL PERMIT

CONTRACTOR \_\_\_\_\_  
STATE LICENSE NO. AND CLASSIFICATION \_\_\_\_\_ FEE \$ \_\_\_\_\_

SERVICE AMP	CIRCUITS	OUTLETS	FIXTURES	SWITCHES	WATER HTR	RANGE	DRYER
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ARCH. ENGR  
 OWNER  
 CONTRACTOR  
 OWNER / BUILDER

ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY  
DEPARTMENT OF ENVIRONMENTAL HEALTH  
HAZARDOUS MATERIALS DIVISION  
470 - 27TH ST., RM. 322  
OAKLAND, CA 94612  
PHONE NO. 415/874-7237

U528865

UNDERGROUND TANK CLOSURE/MODIFICATION PLANS

1. Business Name Automobile Dealership Building (Vacant)  
Business Owner See Land Owner
2. Site Address 914 San Pablo Avenue  
City Albany, California Zip 94706 Phone \_\_\_\_\_
3. Mailing Address Josephine Dibble c/o Foley McIntosh & Foley  
1225 Solano Avenue  
City Albany, California Zip 94706-1734 Phone (415) 524-4123
4. Land Owner Josephine H. Dibble  
Address 2759 Perch Drive City, State Napa, CA Zip 94558
5. EPA I.D. No. CAC000156989
6. Contractor Petroleum Engineering, Inc.  
Address 11 West Ninth Street  
City Santa Rosa, California 95401 Phone (707) 545-0360  
License Type A,B,C10,C61 ID# 224358
7. Other (Specify) N/A  
Address \_\_\_\_\_  
City \_\_\_\_\_ Phone \_\_\_\_\_

8. Contact Person for Investigation

Name Donald C. Marchant Title Vice President  
Phone (707) 545-0360

9. Total No. of Tanks at facility 2

10. Have permit applications for all tanks been submitted to this office? Yes  No

11. State Registered Hazardous Waste Transporters/Facilities

a) Product/Waste Tranporter

Name H & H Environmental Services TSD # 38-001-78  
EPA I.D. No. CAD004771168  
Address 220 China Basin  
City San Francisco, State CA Zip 94107

b) Rinsate Transporter

Name N/A EPA I.D. No. \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

c) Tank Transporter

Name H & H Environmental Services TSD # 38-001-78  
EPA I.D. No. CAD004771168  
Address 220 China Basin  
City San Francisco State CA Zip 94107

d) Contaminated Soil Transporter

Name N/A EPA I.D. No. \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

12. Sample Collector

Name T. Scott Gibson  
Company Pace Laboratories  
Address 11 Digital Drive  
City Novato State CA zip 94949 Phone (415) 883-6100



13. Sampling Information for each tank or area

Tank or Area		Material sampled	Location & Depth
Capacity	Historic Contents (past 5 years)		
<u>Gasoline</u> Unknown	Unknown	To advise	To advise
<u>Waste Oil</u> Unknown	Unknown	To advise	To advise

14. Have tanks or pipes leaked in the past? Yes [ ] No [ ] (X) UNKNOWN

If yes, describe. \_\_\_\_\_

15. NFPA methods used for rendering tank inert? Yes [X] No [ ]

If yes, describe. 15#-20# per 1000 gallon capacity of dry ice.

16. Laboratories

Name Pace Laboratories, Inc.

Address 11 Digital Drive

City Novato State CA Zip 94949

State Certification No. 148

17. Chemical Methods to be used for Analyzing Samples

Contaminant Sought	EPA, DHS, or Other Sample Preparation Method Number	EPA, DHS, or Other Analysis Number
<u>Gasoline Tank</u> TPH Light BTXE	5030/8015 Modified 8020	
<u>Waste Oil Tank</u> TPH Heavy	3550/8015	

18. Site Safety Plan submitted?      Yes       No [ ]

19. Workman's Compensation:      Yes       No [ ]

Copy of Certificate enclosed?      Yes [ ]      No  On file

Name of Insurer Republic Indemnity

20. Plot Plan submitted?      Yes       No [ ]

21. Deposit enclosed?      Yes       No [ ]

22. Please forward to this office the following information within 60 days after receipt of sample results.

- a) Chain of Custody Sheets
- b) Original Signed Laboratory Reports
- c) TSD to Generator copies of wastes shipped and received
- d) Attachment A summarizing laboratory results

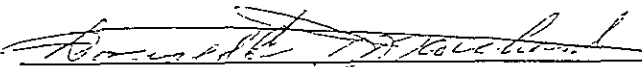
I declare that to the best of my knowledge and belief the statements and information provided above are correct and true. I understand that information in addition to that provided above may be needed in order to obtain an approval from the Department of Environmental Health and that no work is to begin on this project until this plan is approved.

I understand that any changes in design, materials or equipment will void this plan if prior approval is not obtained.

I will notify the Department of Environmental Health at least two (2) working days (48 hours) in advance to schedule any required inspections. I understand that site and worker safety are solely the responsibility of the property owner or his agent and that this responsibility is not shared nor assumed by the County of Alameda.

Signature of Contractor

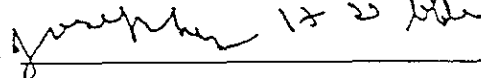
Name (please type) Donald C. Marchant

Signature 

Date 3-15-89

Signature of Site Owner or Operator

Name (please type) Josephine H. Dibble

Signature 

Date \_\_\_\_\_

NOTES:

1. Any changes in this document must be approved by this Department.
2. Any leaks discovered must be submitted to this office on an underground storage tank unauthorized leak/contamination site report form within 5 days of its discovery.
3. Three (3) copies of this plan must be submitted to this Department. One copy must be at the construction site at all times.
4. A copy of your approved plan must be sent to the landowner.

5. Triple rinse means that:

- a) final rinse must contain less than 100 ppm of Gasoline (EPA method 8020 for soil, or EPA method 602 for water) or Diesel (EPA method 418.1) Other methods for halogenated volatile organics (EPA method 8010 for soil, EPA method 601 for water) may be required. The composition of the final rinse must demonstrated by an original or facsimile report from a laboratory certified for the above analyses.
- b) tank interior is shown to be free from deposits or residues upon a visual examination of tank interior.
- c) tank should be labelled as "tripled rinsed; laboratory certified analysis available upon request" with the name and address of the contractor.

If all the above requirements cannot be met, the tank must be transported as a hazardous waste.

6. Any cutting into tanks requires local fire department approval.

UNDERGROUND TANK CLOSURE/MODIFICATION PLANS

ATTACHMENT A

SAMPLING RESULTS

Tank or Area	Contaminant	Location & Depth	Results (specify units)

## INSTRUCTIONS

### 2. SITE ADDRESS

Address at which closure or modification is taking place.

### 5. EPA I.D. NO.

This number may be obtained from the State Department of Health Services, 916/324-1781.

### 6. CONTRACTOR

Prime contractor for the project.

### 7. OTHER

List professional consultants here.

### 12. SAMPLE COLLECTOR

Persons who are collecting samples.

### 13. SAMPLING INFORMATION

Historic contents - the principal product(s) used in the last 5 years.

Material sampled - i.e., water, oil, sludge, soil, etc.

### 16. LABORATORIES

Laboratories used for chemical and geotechnical analyses.

### 17. CHEMICAL METHODS:

All sample collection methods and analyses should conform to EPA or DHS methods.

Contaminant - Specify the chemical to be analyzed.

Sample Preparation Method Number - The means used to prepare the sample prior to analyses - i.e., digestion techniques, solvent extraction, etc. Specify number of method and reference if not an EPA or DHS method.

Analysis Method Number - The means used to analyze the sample - i.e., GC, GC-MS, AA, etc. Specify number of method and reference if not a DHS or EPA method.

#### NOTE:

Method Numbers are available from certified laboratories.

### 18. SITE SAFETY PLAN

A plan outlining protective equipment and additional specialized personnel in the event that significant amount of hazardous materials are found. The plan should consider the availability of respirators, respirator cartridges, self-contained breathing apparatus (SCBA) and industrial hygienists.

19. ATTACH COPY OF WORKMAN'S COMPENSATION

20. PLOT PLAN

The plan should consists of a scaled view of the facility at which the tank(s) are located and should include the following information:

- a) Scale
- b) North Arrow
- c) Property Line
- d) Location of all Structures
- e) Location of all relevant existing equipment including tanks and piping to be removed
- f) Streets
- g) Underground conduits, sewers, water lines, utilities
- h) Existing wells (drinking, monitoring, etc.)
- i) Depth to ground water
- j) All existing tanks in addition to the ones being pulled

NORTH

ADAMS STREET

Sidewalk

W.O. Tank

Parking

Parking

(Other businesses and structures)

Sidewalk

SOLANO AVENUE

Gasoline Tank

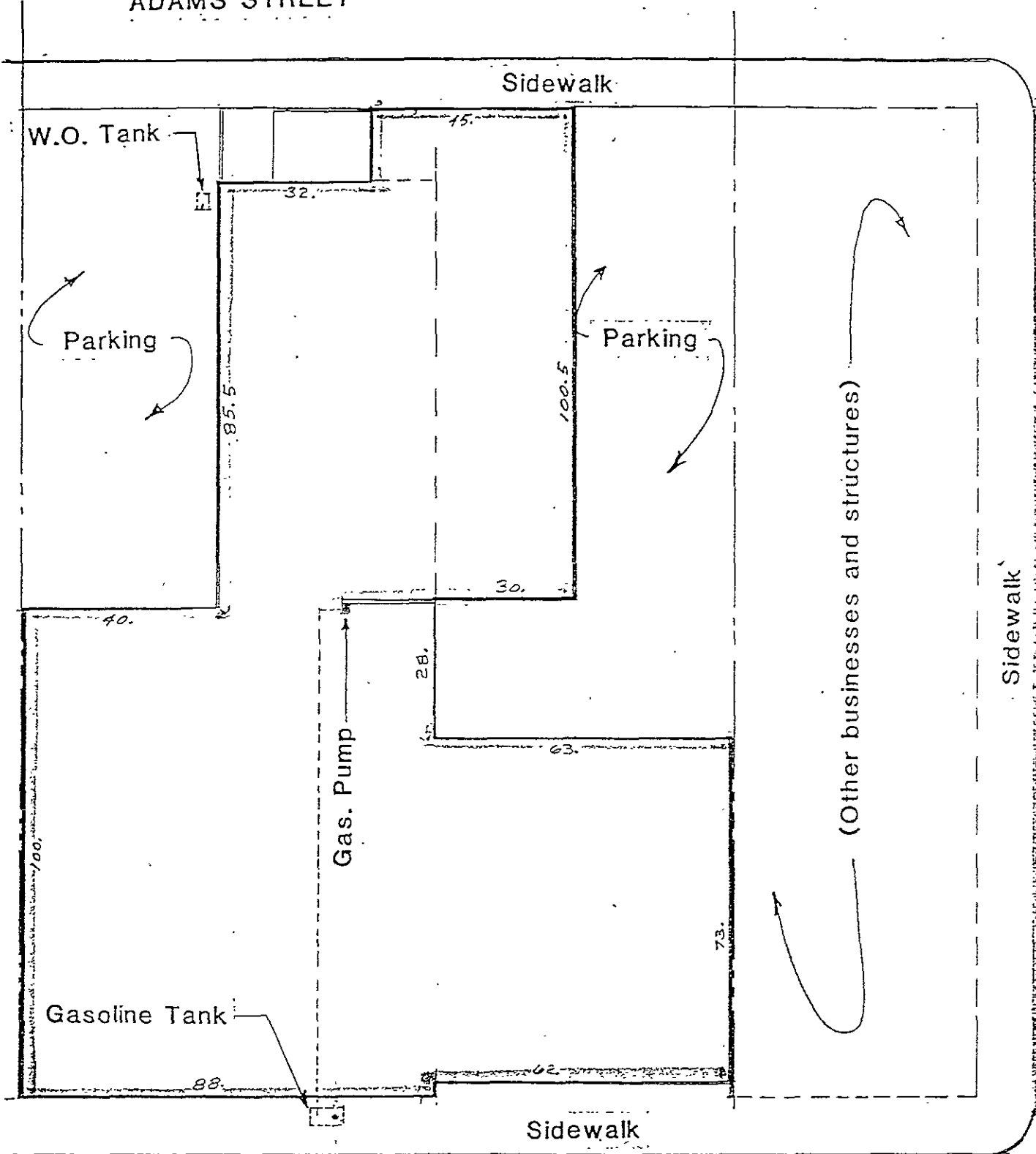
Gas. Pump

Sidewalk

SAN PABLO AVENUE

AUTO SALES & SERVICE  
914 - 916 San Pablo Avenue  
Albany, California

1"=30'







NORTH

Site

Natick Hospital

EMERYVILLE

UNIVERSITY OF CALIFORNIA

Sailing Basin

BERKELEY

MARINA

RECREATION PIER

South

UNIVERSITY AV

PARK

WEST FRONTAGE

ACQUATIC

RADIO STA

UNIVERSITY

DELAWARE

FRANCISCO

CLAY

CLAY

CLAY

CLAY

CLAY

CLAY

CLAY

SPINNER

PUBLIC RESTAURANT

MOOSEHOLE PARK

ADVENTURE PLO

UNIVERSITY

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NORTH WATERFRONT PARK

PUBLIC RESTAURANT

MOOSEHOLE PARK

ADVENTURE PLO

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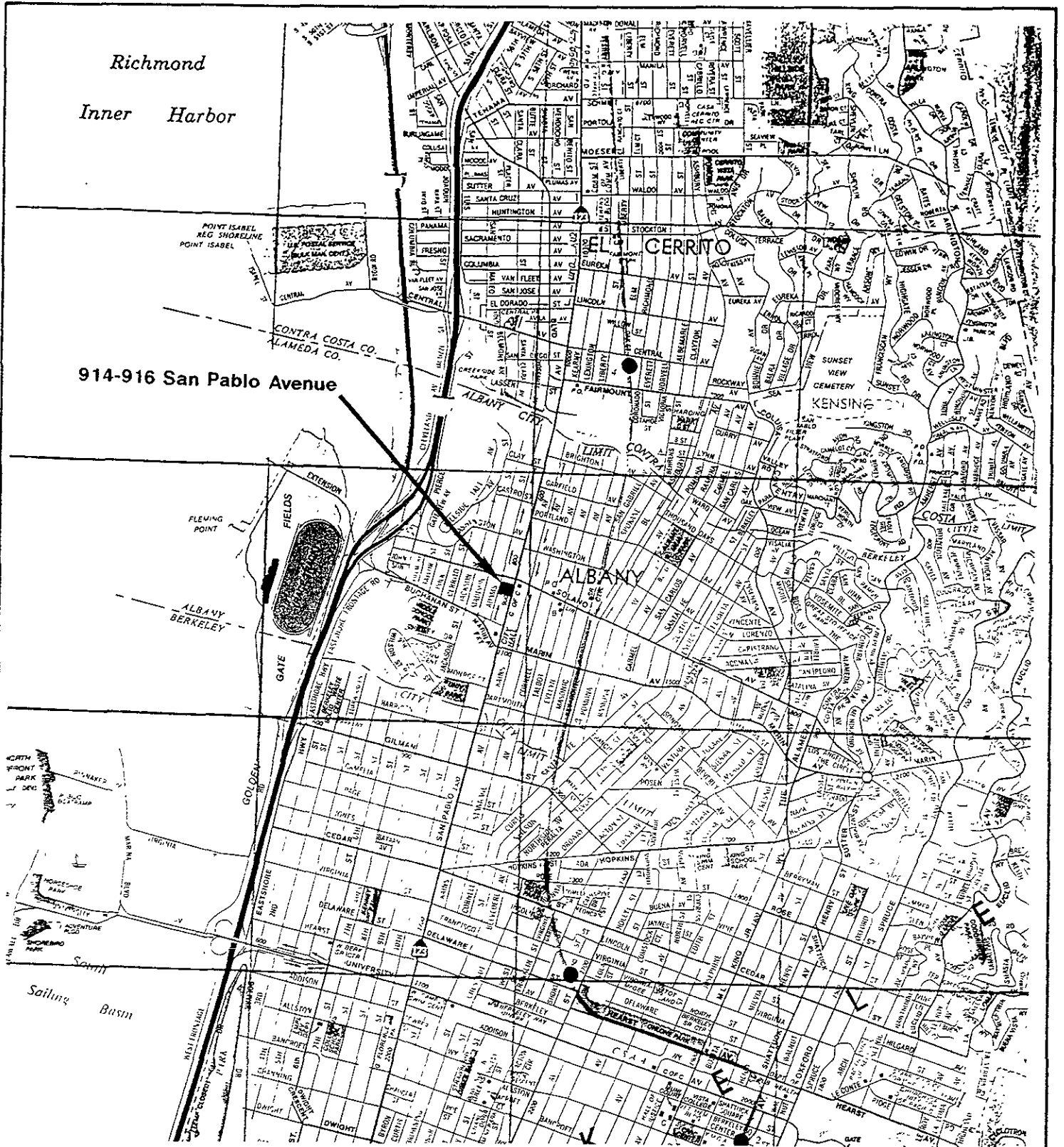
UNIVERSITY

**ATTACHMENT B**

**Plates**

Richmond  
Inner Harbor

914-916 San Pablo Avenue



0 1/2 1 mile  
SCALE



Site Location

J. Dibble

PLATE

JOB NUMBER  
9124

DATE  
5/90

1

**ATT** Aqua Terra Technologies  
Consulting Engineers  
& Scientists

SOLANO AVENUE

Sidewalk

Other Businesses and Structures

Property Boundary

Parking

Building at  
914-916 San Pablo Avenue  
Albany, California

Former Gasoline Tank

Former Waste Oil Tank

Parking

ADAMS STREET

Sidewalk

Sidewalk

SAN PABLO AVENUE



Facility Location

J. Dibble

PLATE

**ATT**

Aqua Terra Technologies  
Consulting Engineers  
& Scientists

JOB NUMBER

9124

DATE

5/90

2

**ATTACHMENT C**

**Tables**

Table 1. Chemical Analyses<sup>a</sup> for Gasoline and Waste Oil Tank Excavation Soils  
 914 San Pablo Avenue  
 Albany, CA

Sample Identification	Sample No.	-----TPH-----			-----Hydrocarbons <sup>b</sup> -----			
		Gasoline (mg/Kg)	Waste Oil (mg/Kg)	Diesel (mg/Kg)	B	T	E	X
Gasoline Tank Excavation	H-1	1,300	NA	NA	8.6	100	41	320
Gasoline Tank Stockpile	H-4	270	NA	NA	<0.13	1.6	<0.13	22
Waste Oil Tank Excavation	H-2	ND	ND	ND	ND	0.026	ND	0.040
Waste Oil Tank Stockpile	H-3	ND	ND	ND	ND	0.009	ND	0.007

- a. Soil Sample analyses by Pace Laboratories, Inc. Novato, California
- b. TPH = total petroleum hydrocarbons
- B = benzene
- T = toluene
- E = ethylbenzene
- X = total xylenes
- NA = not analyzed
- ND = not detected

Table 2. Laboratory<sup>a</sup> Analytical Methods and Detection Limits  
 914 San Pablo Avenue  
 Albany, CA

Matrix	TPH		Hydrocarbons			
	Gasoline	Oil & Grease	B	T	E	X
<u>Soil</u> Detection Limit (mg/Kg)	GCFID (3550) 1.0	503 O+E -	8020 0.005	8020 0.005	8020 0.005	8020 0.005
<u>Water</u> Detection Limit (mg/L)	GCFID (3510) 50.0	5030+E 30.0	0.5	0.5	0.5	0.5

- a. Sample analyses to be conducted by a California Department of Health Services Certified Laboratory
- b. TPH = total petroleum hydrocarbons  
 B = benzene  
 T = toluene  
 E = ethylbenzene  
 X = xylene

**ATTACHMENT D**

**DHS Certified Laboratory  
Data Sheets**



Petroleum Engineering  
11 West 9th St.  
Santa Rosa, CA 95401

April 17, 1989  
PACE Project Number: 490327503

Attn: Mr. Jeff Mikalson

APR 19 1989

James Chevrolet - 914-916 SAN FERRER AVENUE, ALBANY, CA.

Date Sample(s) Collected: 03/27/89  
Date Sample(s) Received: 03/27/89

PACE Sample Number:  
Parameter

Parameter	Units	MDL	717100 H-1	717110 H-2	717120 H-3
<u>ORGANIC ANALYSIS</u>					
INDIVIDUAL PARAMETERS					
Purgeable Fuels, as Gasoline (EPA 8015)	mg/kg wet	1.0	1300	ND	ND
PURGEABLE AROMATIC COMPOUNDS, EPA 8020					
Benzene	mg/kg	0.005	8.6	ND	ND
Ethylbenzene	mg/kg	0.005	41	ND	ND
Toluene	mg/kg	0.005	100	0.026	0.009
Xylenes, Total	mg/kg	0.005	320	0.040	0.007
TOTAL OIL AND GREASE (GRAV. EPA 9071)					
Total Oil and Grease (Freon Extractable)	mg/kg wet	50	-	ND	ND
Date Extracted				04/04/89	04/04/89
EXTRACTABLE FUELS					
Extractable Fuels, as Diesel	mg/kg	10	-	ND	ND
Soxhlet Extraction Date Started				04/10/89	04/10/89
VOLATILE ORGANICS, EPA METHOD 8240 GC/MS					
Dichlorodifluoromethane	ug/kg	10	-	ND	ND
Chloromethane	ug/kg	10	-	ND	ND
Vinyl Chloride	ug/kg	10	-	ND	ND
Bromomethane	ug/kg	10	-	ND	ND
Chloroethane	ug/kg	10	-	ND	ND
Trichlorofluoromethane	ug/kg	5	-	ND	ND
2-Butanone (MEK)	ug/kg	10	-	ND	ND
Iodomethane	ug/kg	5	-	ND	ND
1,1-Dichloroethene	ug/kg	5	-	ND	ND
Carbon Disulfide	ug/kg	5	-	ND	ND
Acrylonitrile	ug/kg	5	-	ND	ND

MDL Method Detection Limit  
ND Not detected at or above the MDL.

Mr. Jeff Mikalson  
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April 17, 1989  
PACE Project Number: 490327503

PACE Sample Number: Parameter	Units	MDL	717100 H-1	717110 H-2	717120 H-3
<u>ORGANIC ANALYSIS</u>					
VOLATILE ORGANICS, EPA METHOD 8240 GC/MS					
Methylene Chloride	ug/kg	5	-	8	35
trans-1,2-Dichloroethene	ug/kg	5	-	ND	ND
1,1-Dichloroethane	ug/kg	5	-	ND	ND
Chloroform	ug/kg	5	-	ND	ND
1,1,1-Trichloroethane	ug/kg	5	-	ND	ND
1,2-Dichloroethane	ug/kg	5	-	ND	ND
Carbon Tetrachloride	ug/kg	5	-	ND	ND
Benzene	ug/kg	5	-	ND	ND
1,2-Dichloropropane	ug/kg	5	-	ND	ND
Trichloroethene	ug/kg	5	-	ND	ND
Dibromomethane	ug/kg	5	-	ND	ND
Bromodichloromethane	ug/kg	5	-	ND	ND
trans-1,3-Dichloropropene	ug/kg	5	-	ND	ND
3-Methyl-2-pentanone (MIBK)	ug/kg	10	-	ND	ND
Toluene	ug/kg	5	-	ND	ND
cis-1,3-Dichloropropene	ug/kg	5	-	ND	ND
1,1,2-Trichloroethane	ug/kg	5	-	ND	ND
2-Chloroethylvinyl Ether	ug/kg	5	-	ND	ND
Ethylmethacrylate	ug/kg	5	-	ND	ND
Dibromochloromethane	ug/kg	5	-	ND	ND
Tetrachloroethene	ug/kg	5	-	ND	ND
Chlorobenzene	ug/kg	5	-	ND	ND
Ethylbenzene	ug/kg	5	-	ND	ND
Bromoform	ug/kg	5	-	ND	ND
Xylene(s) Total	ug/kg	5	-	ND	ND
1,1,2,2,-Tetrachloroethane	ug/kg	5	-	ND	ND
1,2,3-Trichloropropane	ug/kg	5	-	ND	ND
1,4-Dichloro-2-butene	ug/kg	5	-	ND	ND
1,3-Dichlorobenzene	ug/kg	5	-	ND	ND
1,4-Dichlorobenzene	ug/kg	5	-	ND	ND
1,2-Dichlorobenzene	ug/kg	5	-	ND	ND

MDL Method Detection Limit  
ND Not detected at or above the MDL.

Mr. Jeff Mikalson  
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April 17, 1989  
PACE Project Number: 490327503

PACE Sample Number: Parameter	Units	MDL	717100 H-1	717110 H-2	717120 H-3
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ORGANIC ANALYSIS

VOLATILE ORGANICS, EPA METHOD 8240 GC/MS

1,2-Dichloroethane-d4 (Surrog. Recovery)			-	99%	104%
Toluene-d8 (Surrogate Recovery)			-	103%	101%
4-Bromofluorobenzene (Surrog. Recovery)			-	99%	124%

EXTRACTABLE ORGANICS BY EPA 8270 (GC/MS)

N-Nitrosodimethylamine	ug/kg	300	-	ND	ND
Aniline	ug/kg	300	-	ND	ND
Bis(2-chloroethyl) ether	ug/kg	300	-	ND	ND
1,3-Dichlorobenzene	ug/kg	300	-	ND	ND
Benzyl Alcohol	ug/kg	300	-	ND	ND
1,4-Dichlorobenzene	ug/kg	300	-	ND	ND
1,2-Dichlorobenzene	ug/kg	300	-	ND	ND
Bis(2-chloroisopropyl) ether	ug/kg	300	-	ND	ND
N-Nitrosodipropylamine	ug/kg	300	-	ND	ND
Hexachloroethane	ug/kg	300	-	ND	ND
Nitrobenzene	ug/kg	300	-	ND	ND
Isophorone	ug/kg	300	-	ND	ND
Bis(2-chloroethoxy)methane	ug/kg	300	-	ND	ND
1,2,4-Trichlorobenzene	ug/kg	300	-	ND	ND
Naphthalene	ug/kg	300	-	ND	ND
4-Chloroaniline	ug/kg	300	-	ND	ND
Hexachlorobutadiene	ug/kg	300	-	ND	ND
2-Methylnaphthalene	ug/kg	300	-	ND	ND
Hexachlorocyclopentadiene	ug/kg	300	-	ND	ND
2-Chloronaphthalene	ug/kg	300	-	ND	ND
2-Nitroaniline	ug/kg	1500	-	ND	ND
Dimethylphthalate	ug/kg	300	-	ND	ND
Acenaphthylene	ug/kg	300	-	ND	ND
2,6-Dinitrotoluene	ug/kg	300	-	ND	ND
3-Nitroaniline	ug/kg	1500	-	ND	ND
Acenaphthene	ug/kg	300	-	ND	ND

MDL Method Detection Limit  
ND Not detected at or above the MDL.

Mr. Jeff Mikalson  
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April 17, 1989  
PACE Project Number: 490327503

PACE Sample Number: Parameter	Units	MDL	717100 H-1	717110 H-2	717120 H-3
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ORGANIC ANALYSIS

EXTRACTABLE ORGANICS BY EPA 8270 (GC/MS)

Dibenzofuran	ug/kg	300	-	ND	ND
2,4-Dinitrotoluene	ug/kg	300	-	ND	ND
Diethylphthalate	ug/kg	300	-	ND	ND
Fluorene	ug/kg	300	-	ND	ND
4-Nitroaniline	ug/kg	1500	-	ND	ND
4-Chlorophenylphenylether	ug/kg	300	-	ND	ND
N-Nitrosodiphenylamine	ug/kg	300	-	ND	ND
1,2-Diphenylhydrazine	ug/kg	300	-	ND	ND
4-Bromophenylphenylether	ug/kg	300	-	ND	ND
Hexachlorobenzene	ug/kg	300	-	ND	ND
Phenanthrene	ug/kg	300	-	ND	ND
Anthracene	ug/kg	300	-	ND	ND
Di-n-butylphthalate	ug/kg	300	-	ND	ND
Fluoranthene	ug/kg	300	-	ND	ND
Benzidine	ug/kg	1500	-	ND	ND
Pyrene	ug/kg	300	-	ND	ND
Butylbenzylphthalate	ug/kg	300	-	ND	ND
Benzo(a)anthracene	ug/kg	300	-	ND	ND
3,3'-Dichlorobenzidine	ug/kg	600	-	ND	ND
Chrysene	ug/kg	300	-	ND	ND
Bis(2-ethylhexyl)phthalate	ug/kg	300	-	ND	ND
Di-n-octylphthalate	ug/kg	300	-	ND	ND
Benzo(b)fluoranthene	ug/kg	300	-	ND	ND
Benzo(k)fluoranthene	ug/kg	300	-	ND	ND
Benzo(a)pyrene	ug/kg	300	-	ND	ND
Ideno(1,2,3-cd)pyrene	ug/kg	300	-	ND	ND
Dibenzo(a,h)anthracene	ug/kg	300	-	ND	ND
Benzo(g,h,i)perylene	ug/kg	300	-	ND	ND
Phenol	ug/kg	300	-	ND	ND
2-Chlorophenol	ug/kg	300	-	ND	ND
2-Methylphenol	ug/kg	300	-	ND	ND

MDL Method Detection Limit  
ND Not detected at or above the MDL.

Mr. Jeff Mikalson  
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April 17, 1989  
PACE Project Number: 490327503

PACE Sample Number: Parameter	Units	MDL	717100 H-1	717110 H-2	717120 H-3
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ORGANIC ANALYSIS

EXTRACTABLE ORGANICS BY EPA 8270 (GC/MS)

4-Methylphenol	ug/kg	300	-	ND	ND
2-Nitrophenol	ug/kg	300	-	ND	ND
2,4-Dimethylphenol	ug/kg	300	-	ND	ND
Benzoic Acid	ug/kg	1500	-	ND	ND
2,4-Dichlorophenol	ug/kg	300	-	ND	ND
4-Chloro-3-methylphenol	ug/kg	300	-	ND	ND
2,4,6-Trichlorophenol	ug/kg	300	-	ND	ND
2,4,5-Trichlorophenol	ug/kg	300	-	ND	ND
2,4-Dinitrophenol	ug/kg	1500	-	ND	ND
4-Nitrophenol	ug/kg	1500	-	ND	ND
2-Methyl-4,6-dinitrophenol	ug/kg	1500	-	ND	ND
Pentachlorophenol	ug/kg	300	-	ND	ND
alpha-BHC	ug/kg	300	-	ND	ND
beta-BHC	ug/kg	300	-	ND	ND
gamma-BHC	ug/kg	300	-	ND	ND
delta-BHC	ug/kg	300	-	ND	ND
Heptachlor	ug/kg	300	-	ND	ND
Aldrin	ug/kg	300	-	ND	ND
Heptachlor Epoxide	ug/kg	300	-	ND	ND
Endosulfan I	ug/kg	300	-	ND	ND
4,4'-DDE	ug/kg	1500	-	ND	ND
Dieldrin	ug/kg	300	-	ND	ND
Endrin	ug/kg	300	-	ND	ND
Endosulfan II	ug/kg	300	-	ND	ND
4,4'-DDD	ug/kg	300	-	ND	ND
Endrin Aldrin	ug/kg	1500	-	ND	ND
4,4'-DDT	ug/kg	300	-	ND	ND
Endosulfan Sulfate	ug/kg	1500	-	ND	ND
Aroclor-1016	ug/kg	3000	-	ND	ND
Aroclor-1221	ug/kg	3000	-	ND	ND
Aroclor-1232	ug/kg	3000	-	ND	ND

MDL Method Detection Limit  
ND Not detected at or above the MDL.

Mr. Jeff Mikalson  
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April 17, 1989  
PACE Project Number: 490327503

PACE Sample Number: Parameter	Units	MDL	717100 H-1	717110 H-2	717120 H-3
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ORGANIC ANALYSIS

EXTRACTABLE ORGANICS BY EPA 8270 (GC/MS)

Aroclor-1242	ug/kg	3000	-	ND	ND
Aroclor-1248	ug/kg	3000	-	ND	ND
Aroclor-1254	ug/kg	3000	-	ND	ND
Aroclor-1260	ug/kg	3000	-	ND	ND
Nitrobenzene-d5 (Surrogate Recovery)			-	38%	34%
2-Fluorobiphenyl (Surrogate Recovery)			-	43%	40%
Terphenyl-d14 (Surrogate Recovery)			-	49%	51%
2-Fluorophenol (Surrogate Recovery)			-	58%	47%
Phenol-d5 (Surrogate Recovery)			-	51%	47%
2,4,6-Tribromophenol (Surrogate Recovery)			-	44%	43%
Date Extracted			-	04/04/89	04/04/89

MDL Method Detection Limit  
ND Not detected at or above the MDL.

Mr. Jeff Mikalson  
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April 17, 1989  
PACE Project Number: 490327503

PACE Sample Number:			717130
<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u>H-4</u>

ORGANIC ANALYSIS

INDIVIDUAL PARAMETERS

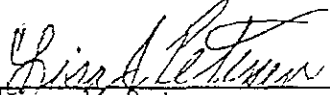
Purgeable Fuels, as Gasoline (EPA 8015)	mg/kg wet	1.0	270
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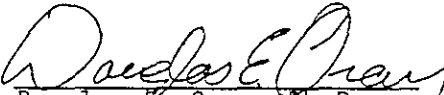
PURGEABLE AROMATIC COMPOUNDS, EPA 8020

Benzene	mg/kg	0.005	LT 0.13
Ethylbenzene	mg/kg	0.005	LT 0.13
Toluene	mg/kg	0.005	1.6
Xylenes, Total	mg/kg	0.005	22

MDL Method Detection Limit  
ND Not detected at or above the MDL.

Approval:

  
\_\_\_\_\_  
Lisa J. Petersen  
Project Manager for  
PACE Laboratories

  
\_\_\_\_\_  
Douglas E. Oram, Ph.D  
Technical Reviewer for  
PACE Laboratories

CHAIN OF CUSTODY RECORD

ASK JEFF about invoice  
490327.503

PROJ. NO. 0999-11	PROJECT NAME JAMES CHEVROLET 914 SAN PABLO ALBANY	P.O. NO	NO OF CON-TAINERS	REMARKS
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SAMPLERS: Signature *Brian Fritz* Send report attention to; Fritz

STA NO	DATE	TIME	COMP.	GRAB	STATION LOCATION	TOG-503E	TPH-G	TPH-D	B240 CHL	B270 PCB	BTEX
H-1	3/27	4:20 PM			EAST TANK 9' BGS	X	✓				
H-2	3/27	4:45 PM			WEST TANK 8.5' BGS	✓	✓	✓	✓	✓	✓
H-3	3/27	4:50 PM			WEST STOCKPILE COMPOSITE	✓	✓	✓	✓	✓	✓
H-4	3/27	5:15 PM			EAST TANK STOCKPILE COMPOSITE	X	✓			✓	
Cancelled by phone 3/28 by B. Fritz											

STANDARD PRIORITY



**CROSBY & OVERTON**  
Environmental Management Inc.  
2430 Amelia Street • Oakland, California 94621  
(415) 633-0336 FAX (415) 633-0359

Relinquished by: Signature <i>Brian Fritz</i>	Date/Time 3/27/89 17:25	Received by: Signature <i>Jeff</i>	Date/Time	REMARKS: SEND RESULTS PETROLEUM ENGINEERING (707)-545-0300
Relinquished by: Signature <i>Michelle Casey</i>	Date/Time 3/27 6:20 PM	Received by: Signature	Date/Time	
Relinquished by: Signature	Date/Time	Received by: Signature	Date/Time	

Company Name: PACE P.O. # 24520  
Address:



TELECOPIER TRANSMITTAL

DATE 7-27-89 TIME 10:30 AM

TO: BILL MOTZER  
AQUA TERRA TECHNOLOGIES  
WALNUT CREEK, CA

PHONE: 415 934 0418

TYPE OF MACHINE:  
RICOH RAPICOM 205  
PHONE NO.  
(707) 545-7068

FROM DON M  
PETROLEUM ENGINEERING, INC.

\*NUMBER OF PAGES BEING SENT 10 (INCLUDING THIS COVER SHEET)

\*IF YOU DO NOT RECEIVE THE TOTAL NUMBER OF PAGES, PLEASE CALL  
DON AT (707) 545-0360 IMMEDIATELY.

ADDITIONAL COMMENTS OR INSTRUCTIONS:

PER YOUR REQUEST.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**ATTACHMENT E**

**Soil & Groundwater Sample  
Collection & Handling Protocol**

## ATTACHMENT E

### SOIL & GROUNDWATER SAMPLE COLLECTION & HANDLING PROTOCOL

#### INTRODUCTION & PURPOSE

Because reliable and representative test results must be generated from soil and groundwater samples, it is essential to establish a sampling procedure which assures that all samples are:

- Collected by approved and repeatable methods
- Representative of the materials(s) at the desired location and depth
- Uncontaminated by container and sampling equipment

The following sampling protocol is designed to be a guide to the sampling and handling procedures for soil and groundwater samples to be collected. Based on conditions which may be encountered in the field, some modifications to this protocol may be required to fit the needs of an individual site.

#### SAMPLING PROCEDURES

##### Groundwater Sampling

Prior to collecting groundwater samples, monitoring wells will be purged by bailing until pH, conductivity, and temperature levels stabilize. Wells will be purged and groundwater samples will be obtained using a Teflon bailer and nylon rope. New nylon rope is used for each well.

The appropriate number of sample containers and type will be used for each sample collected, in accordance with the analytical laboratory requirements and EPA protocol. The bottles will be filled using the bailer. All sample bottles will be pre-cleaned by the supplier according to EPA protocols.

To prevent cross contamination of groundwater samples by the sampling equipment, all equipment used in sampling will be washed with a trisodium phosphate solution, triple rinsed with distilled water, and allowed to air dry prior to each use. A sample of the distilled water used in the final rinse will be retained for analysis as part of sample quality assurance.

##### Soil Sampling

After the soil sampler is driven to the desired depth and the samples are retrieved, each end of the ring containing the soil sample to be retained for laboratory analysis will be sealed with Teflon sheeting, covered with plastic end caps, and sealed with PVC tape. All sample containers (tubes and end caps) will be steamed cleaned and air dried prior to use. The soil sample recovered in the ring just above the sample retained for chemical analysis will be examined in the field for visual and olfactory indications of chemical contamination and used for lithologic description.

The Unified Soil Classification System (USCS) will be used to log and describe the soil by the on-site geologist. These logs will also include details of the sampling process such as depth, apparent odors, discoloration, and any other factors which may be required to evaluate the presence of contamination at the site.

#### **POST SAMPLING PROCEDURES**

One field/travel blank consisting of one sample bottle filled with distilled water will accompany soil and groundwater sample containers at all times, including during transport to and from the site. Distilled water field/travel blanks will be analyzed according to the appropriate EPA Methods corresponding to the soil/groundwater sample analyses.

Sample containers will be labeled with sample number, project number, date, and the initials of the person collecting the sample. A separate sample collection record will be maintained for each groundwater sample collected.

Soil and groundwater samples collected will be analyzed by an analytical laboratory certified by the California Department of Health Services (DHS) for complete chemical analysis of hazardous waste as well as drinking water samples. Quality assurance documentation will accompany all analytical reports generated by the laboratory.

The samples will be placed in an ice cooler immediately following collection, and will remain in the ice cooler until refrigerated at the analytical laboratory. The samples will be delivered to the laboratory direct by courier or overnight freight within 48 hours of time of collection. Appropriate chain of custody forms will be used for all samples.

**ATTACHMENT F**

**Drilling Procedures & Groundwater  
Monitoring Well Construction/Design**

## ATTACHMENT F

### DRILLING PROCEDURES & GROUNDWATER MONITORING WELL CONSTRUCTION/DESIGN

#### DRILLING AND SAMPLING PROCEDURES

All borings for well construction will be drilled using eight-inch diameter or larger hollow stem auger equipment. A California Registered Geologist will direct the collection of undisturbed samples of the soils encountered and the preparation of detailed logs of each boring.

Soil sampling will be conducted using a modified California drive sampler, a standard penetration sampler, or a five-foot continuous sampler. Representative samples of each soil type will be retained in either Ziploc bags or two-inch to three-inch diameter, six-inch long, clean, brass tubes. The samples will be retained for verification of soil classification and for chemical laboratory analytical testing, as appropriate. Teflon sheeting will be placed between the soil sample and the cap, and the cap will be sealed with PVC tape.

When access limitations do not allow drilling with truck mounted equipment, either a trailer mounted drilling rig, portable power driven, or manually operated soil sampling equipment will be utilized. If soil samples are to be retained for analysis, they will be collected in clean brass tubes fitted within a thin walled drive sampler. The soil samples will be capped and sealed as described above.

All down hole sampling, drilling, and well construction equipment and materials, including augers, casing, and screens will be steam cleaned prior to their initial use. The sampling equipment will be cleaned prior to each assembly by washing with a trisodium phosphate solution, rinsing with distilled water, and allowing to air dry. The auger flights, drill bit, and sampler will be steam cleaned at each boring location.

#### MONITORING WELL CONSTRUCTION

Monitoring wells will be constructed in accordance with applicable local water district or California Department of Water Resources guidelines. The specific completion details for each well will be determined in the field at the time of drilling by a California Registered Geologist experienced in groundwater monitoring system design and installation.

Monitoring wells consist of two or four-inch diameter, Schedule 40 PVC casing and screens with flush, threaded joints. No PVC glue was used. The screened sections will be machine slotted with either 0.010-inch (0.255 mm) 0.020-inch (0.51 mm) openings. The smaller slot size will be used where the wells are screened within fine-grained sandy soils, and the larger slots will be used where coarse sand or gravels are encountered. The slotted sections will be fitted with a slip-on cap and placed opposite the water-bearing strata in the boring. The blank pipe will be connected to the perforated pipe and will extend to just below the ground surface.

The annulus between the side of the borehole and the slotted section will be filled with a clean sand pack to variable depths, but not less than one or two feet above the perforated pipe. The annulus will be packed with either Lonestar No. 1/20 (where 0.010-inch slotted pipe is used) or No. 3 (where 0.020-inch slotted pipe is used) washed sand filter material. The gradation of the filter material is summarized below:

U.S. Sieve No.	Opening (mm)	Percent Passing (No. 3)	Percent Passing (No. 1/20)
6	3.35	100	
8	2.36	99 - 100	
12	1.70	62 - 78	
16	1.18	15 - 33	100
20	0.85	0 - 8	90 - 100
30	0.60	0 - 4	14 - 40
40	0.425		0 - 5

A seal of bentonite pellets approximately 24-inches thick will be placed above the sand pack to reduce the risk of grout penetration into the sand. The bentonite pellets will be hydrated with distilled water to form a tight plug. A cement/bentonite grout will be placed above the bentonite plug to a depth of approximately two feet below the ground surface. The grout will be pumped into the boreholes using a tremie pipe. Concrete will be placed from the top of the cement/bentonite mixture to the ground surface.

At most sites in sedimentary formations, it is not practical to "rationally design" a filter pack based on sieve analyses. From experience, Lonestar No. 1/20 or No. 3 washed sand as a filter material has been selected for use in the proposed wells. The 0.010-inch and 0.020-inch slot sizes were selected to retain 100 percent of the filter material.

The completed wells will be enclosed in a traffic rated enclosure placed flush with grade or in an above-ground metal enclosure, and will be fitted with a locking cap. If a groundwater level contour map is to be prepared, well head elevations will be determined by a level survey, and well coordinates will be determined by a traverse survey. The level/traverse survey will be referenced to a bench mark of known elevation and coordinates. Once water levels have stabilized, water levels in all wells will be measured.

After the wells have been completed, they will be developed by pumping and surging to clean and stabilize the soils around the screens. A manually operated, positive displacement surge pump and Teflon bailer, surge block, and/or centrifugal pump will be used for development. A minimum of 10 well casing volumes of water will be removed during development; however, development will continue until water flows clear and pH, temperature, and conductivity have stabilized. All development equipment will be steam cleaned prior to its initial use in each well. A well development log will be maintained which will include 1) a record of development water parameters at frequent intervals, 2) the quantity of water removed during development, and 3) flow rates during development.

Soil cuttings generated during drilling will be wrapped in plastic sheeting, and water generated during well development will be retained in secured 55-gallon drums until chemical analytical data from samples are received.

**ATTACHMENT G**

**Site Safety Plan**



## AQUA TERRA TECHNOLOGIES SITE SAFETY PLAN

### A. GENERAL INFORMATION

Site: J. Dibble Property

Location: 914 San Pablo Avenue  
Albany, CA

Plan Prepared By: William E. Motzer, Ph.D.      Date: May 15, 1990  
Senior Hydrogeologist

Plan Approved By: Terrance E. Carter      Date: May 15, 1990  
Senior Environmental Eng.

Objectives:

- 1) Evacuation and offhaul of waste oil and grease contaminated soil.
- 2) Onsite aeration of gasoline contaminated soil.
- 3) Installation of groundwater monitoring wells.

Proposed Date of Investigation: June, 1990

Background Review:      Complete: X      Preliminary:

Documentation/Summary: Aqua Terra Technologies, Inc. (ATT)  
workplan of May 15, 1990 (attached)

Overall Hazard:      Serious:      Moderate:  
Low: X      Unknown:

### B. SITE/WASTE CHARACTERISTICS

Waste Type(s):      Liquid:      Solid: X      Sludge:      Gas:

Characteristic(s):      Corrosive:      Ignitable:      Radioactive:  
Volatile: X      Toxic:      Reactive:      Unknown:      Other(name):

Facility Description: Property building is currently vacant; underground tanks removed in 1989.

Principal Disposal Method (type and location): Disposal of excavated soil by truck of soils containing trace quantities of waste oil to a Class II or Class III landfill as per regulatory agency requirements. Storage of groundwater monitoring well cuttings with the soils; storage of groundwater development water in 17-H, 55-gallon drums. Final destination of drill cuttings and monitoring well development water to be determined from soil and groundwater sample analyses by a California Department of Health Services (DHS) certified laboratory.

**AQUA TERRA TECHNOLOGIES SITE SAFETY PLAN (continued)**

Unusual Features (power lines, terrain, utilities, etc.): The subject property building in close proximity to former underground storage tank locations. Therefore, re-excavation of soils from the former gasoline tank excavation should not be closer than ten feet from the building's foundation.

Status:                      Active:                      Inactive: X                      Unknown:

History (agency action, complaints, injuries, etc.): Hazardous materials in drums removed from the property in accordance with Alameda County Department of Environmental Health requirements.

**C. HAZARD EVALUATION**

<u>Parameter:</u>	TLV (ppm)	IDLH (ppm)	LEL (%)	HEALTH skin/eyes/inge./inha.
	_____	_____	<u>20%</u>	X

Special Precautions and Comments: Use NIOSH approved gloves when handling soil samples. Sampling to be conducted in open air. Excavated soil to be treated via aeration, to be covered during periods of precipitation.

**D. SITE SAFETY WORK PLAN**

Perimeter Establishment:

Map/Sketch Attached: see attached work plan

Site Secured: with temporary fence

Perimeter established: see attached work plan

Zone(s) of Contamination Identified: zones to be identified during re-excavation work and groundwater sampling.

Personal Protection:

Level of Protection: A\_\_\_\_\_B\_\_\_\_\_C\_\_\_\_\_D X

Modifications: If necessary, tyvek suits will be used with NIOSH approved face masks. All personnel collecting soil samples will wear gloves. Hard hats and steel toed shoes will be worn at all times.

**AQUA TERRA TECHNOLOGIES SITE SAFETY PLAN (continued)****Surveillance Equipment & Materials:**

Instrument: LEL Meter      Action Level: 20%

Site Entry Procedures: Permission of property owner (through attorney).

Decontamination Procedures:

**Personal:** Wash hands, face, clothes. Smoking or consumption of food and beverage not permitted onsite during active excavation or drilling.

**Equipment:** Steel toed boots, gloves, hard hat, NIOSH approved respirator.

First Aid (type of equipment available): Fully stocked first aid kit and emergency eyewash with company vehicles.

Work Limitations (time of day, weather, heat/cold stress): Winds less than 10 mph; no work during periods of precipitation; work hours: 8:00 A.M. to 5:00 P.M. Monday through Friday.

Investigation-Derived Material Disposal: Excavated soil from the former waste oil tank to be offhauled to a Class II or Class III landfill as required by regulatory agency guidelines and regulations. Soil removed from the former gasoline tank excavation to be aerated onsite and removed to an appropriate landfill upon receipt of final soil analyses. Groundwater monitoring well boring cuttings and development water to remain onsite until receipt of DHS certified laboratory analyses.

## AQUA TERRA TECHNOLOGIES SITE SAFETY PLAN (continued)

Team Composition:

<u>Team Member</u>	<u>Responsibility</u>
Terrance E. Carter	Project Manager/Engineer
William E. Motzer	Project Hydrogeologist
Bruce L. Berman	Project Safety Manager

**E. EMERGENCY INFORMATION**Local Resources:

Ambulance: 911  
 Hospital Emergency Room: 911  
 Poison Control Center: 1-800-523-2222  
 Police: 911  
 Fire Department: 911  
 Explosives Unit: 911  
 Agency Contact: National Response Center (NAC)  
 Toxic Chemical and Oil Spills: 1-800-424-8802

Site Resources:

Water Supply: onsite  
 Telephone: none  
 Radio: none  
 Other: unknown

Emergency Contacts:

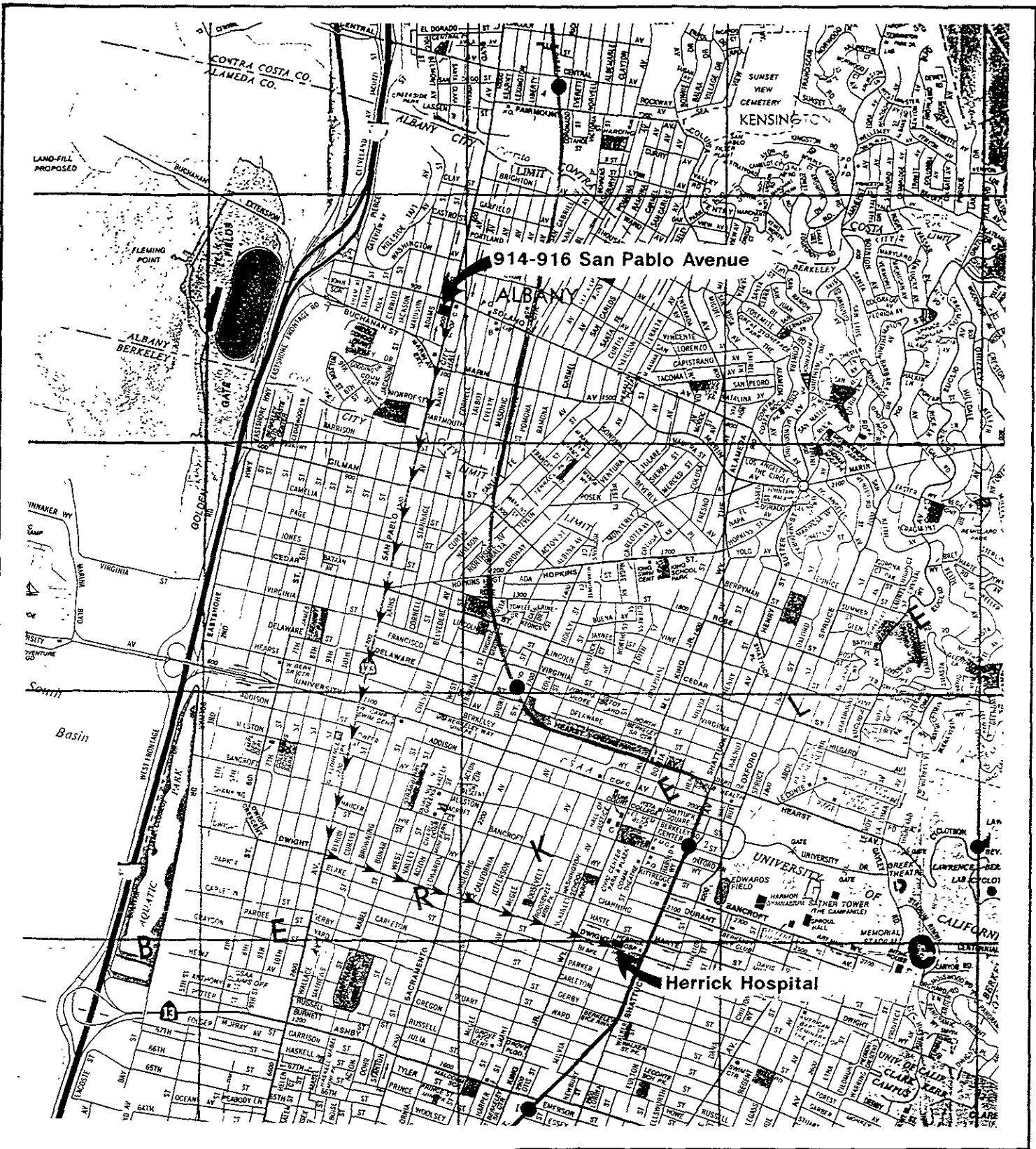
Name: Mr. William Foley                      Phone: (415) 524-4123  
           Attorney at Law

Emergency Routes:

Hospital: Herrick Hospital and Health Center  
           2001 Dwight Way and Shattuck  
           Berkeley, CA

From property due south on San Pablo Avenue for 2.1 miles; left turn (headed east) on Dwight Way. East of Dwight Way for 1.15 miles to Herrick Hospital

Site Sketch: Attached (Plate H-1).



**Hospital Emergency Route**

<b>J. Dibble</b>		<b>PLATE</b>
<b>JOB NUMBER</b>	<b>DATE</b>	<b>G-1</b>
9124	5/90	

**ATT** Aqua Terra Technologies  
 Consulting Engineers  
 & Scientists