



# GETTLER-RYAN INC.

## TRANSMITTAL

TO: Ms. Rosanna Garcia-La Grille  
 Alameda County  
 Environmental Health Services  
 1131 Harbor Bay Parkway, Ste. 250  
 Alameda, CA 94502

DATE: February 23, 2005  
 PROJ. #: 948209.04  
 SUBJECT: Report  
 Schwieckert Property  
 515 South Livermore Avenue  
 Livermore, California  
 Alameda County Site #R00002595

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 ENVIRONMENTAL HEALTH SERVICES  
 ALAMEDA COUNTY  
 FEB 23 2005

FROM:  
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 Project Geologist  
 Gettler-Ryan Inc.  
 3140 Gold Camp Drive, Suite 170  
 Rancho Cordova, California 95670

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COPIES	DATED	DESCRIPTION
1	February 23, 2005	Additional Subsurface Assessment Report

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### COMMENTS:

On behalf of Mrs. Marie Schwieckert, Gettler-Ryan Inc. is submitting the above referenced report.

If you have any questions, please feel free to contact our Rancho Cordova office at (916) 631-1300.



# GETTLER-RYAN INC.

## ADDITIONAL SUBSURFACE ASSESSMENT REPORT

at  
Marie Schweickert Property  
515 South Livermore Avenue  
Livermore, California

Report No. 948209.04  
Alameda County Site #R00002595

### Prepared for:

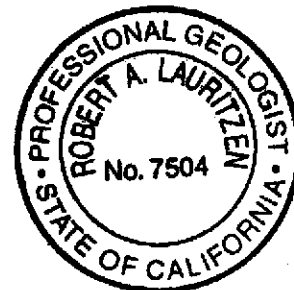
Marie Schweickert  
3834 Inverness Way  
Livermore, California

### Prepared by:

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PG #7504



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February 23, 2005

## TABLE OF CONTENTS

<b>INTRODUCTION.....</b>	<b>1</b>
<b>SITE DESCRIPTION.....</b>	<b>1</b>
<b>PREVIOUS ENVIRONMENTAL WORK.....</b>	<b>1</b>
<b>FIELD ACTIVITIES.....</b>	<b>2</b>
Piezometer Installation.....	2
Groundwater Monitoring and Sampling.....	3
Wellhead Survey.....	3
<b>RESULTS OF THE SUBSURFACE INVESTIGATION.....</b>	<b>3</b>
<b>CHEMICAL ANALYTICAL RESULTS .....</b>	<b>3</b>
Chemical Analytical Procedures .....	4
Soil Analytical Results.....	4
Groundwater Analytical Results .....	4
Water Level Survey.....	4
<b>DISCUSSION .....</b>	<b>5</b>
<b>ADDITIONAL WORK.....</b>	<b>5</b>

## TABLES

- Table 1. Soil and Groundwater Chemical Analytical Data  
Table 2. Groundwater Monitoring Data

## FIGURES

- Figure 1. Vicinity Map  
Figure 2. Site Map  
Figure 3. Cross Section A-A'  
Figure 4. Cross Section B-B'  
Figure 5. Potentiometric Map  
Figure 6. TPHd Concentration Map-Grab Groundwater Samples  
Figure 7. TPHd Concentration Map-No-Purge Groundwater Samples

## APPENDICES

- Appendix A. Field Methods and Procedures  
Appendix B. Permits  
Appendix C. Boring Logs and Well Completion Reports  
Appendix D. Piezometer Monitoring Field Data Sheets  
Appendix E. Surveyor's Report  
Appendix F. Chemical Analytical Report and Chain-of-Custody Forms

## ADDITIONAL SUBSURFACE ASSESSMENT REPORT

at  
Marie Schweickert Property  
515 South Livermore Avenue  
Livermore, California

Report No. 948209.04  
Alameda County Site #R00002595

### INTRODUCTION

This report presents the results of a subsurface investigation performed by Gettler-Ryan Inc. (GR) at the above referenced site. This work was performed at the request of Marie Schweickert to evaluate the extent of petroleum hydrocarbons in soil and groundwater at the site, in response to an Alameda County Environmental Health (ACEH) letter dated March 5, 2004, which requested the preparation of a Work Plan. The scope of work performed included: updating the site safety plan; obtaining drilling permits from the Alameda County Zone 7 Water Agency (Zone 7); obtaining encroachment permit from City of Livermore, drilling eight soil borings, collecting soil samples and grab groundwater samples from the soil borings for description and possible chemical analysis; analyzing selected soil and groundwater samples; converting six of the eight borings to piezometers; surveying the piezometers; collecting water level measurements and groundwater samples from the piezometers; and preparing a report documenting the work performed. The scope of work performed during this investigation was originally proposed in GR report #948209.03, *Preferential Pathway Study and Workplan*, dated May 11, 2004 and the *Workplan Addendum* dated November 3, 2004 and was approved by the ACEH in a letters dated October 27, 2004 and November 5, 2004.

### SITE DESCRIPTION

The subject site is located at 515 Livermore Avenue in Livermore, California (Figure 1). Topography in the vicinity of the subject site is relatively flat at an elevation of approximately 500 feet above mean sea level. The closest surface water is Arroyo Mocho Creek, which is approximately 2,700 feet south of the site. One 350-gallon heating oil underground storage tank (UST) was reportedly installed in 1957 and in use until 1960 when the furnace was converted to gas. Pertinent site features and the location of the former UST are shown on Figure 2

### PREVIOUS ENVIRONMENTAL WORK

On July 29, 2003, GR conducted compliance soil sampling during the removal of the 350-gallon, steel-walled, heating oil UST (Figure 2). No indications of a release such as holes or cracks were observed in the UST and no groundwater was observed in the excavation. Soil directly beneath the UST had no

observable field indications of a leak such as strong odors or discolored soils. One soil sample (TP-1(5)) was collected at the base of the UST excavation at 5 feet below ground surface (bgs).

Laboratory results indicated that a Total Petroleum Hydrocarbons as diesel (TPHd) concentration 36 parts per million (ppm) was detected in excavation sample TP-1(5). Laboratory results also indicated that concentrations of benzene, toluene, ethylbenzene, and total xylenes (BTEX) and oil and grease (O&G) were below laboratory method detection limits.

In November 2003, GR advanced one Geoprobe soil boring to 50 feet bgs. Soil samples collected at depths of approximately 10, 20, 30, and 40 feet bgs in the soil boring contained TPHd concentrations of 65, 35, 1,900, and 350 ppm, respectively. Following silica-gel cleanup, TPHd concentrations in these samples were 61, 31, 2,000, and 330 ppm, respectively. A grab groundwater sample was collected from the soil boring at 50 feet bgs and contained TPHd at a concentration of 100,000 parts per billion (ppb). A summary of historical analytical data is included in Table 1.

## **FIELD ACTIVITIES**

To evaluate the extent of petroleum hydrocarbons in soil and groundwater beneath the site, GR completed eight soil borings. Field work was performed in accordance with GR's Site Safety Plan #948209.04, dated November 30, 2004. GR Field Methods and Procedures are included in Appendix A. Copies of drilling permits nos. 24145 and 24149 from Zone 7 and encroachment permit no. EN040583 from the City of Livermore are included in Appendix B. Underground Service Alert was notified prior to beginning site activities. The piezometers were installed by Fisch Environmental Exploration Services (C57 #683865).

Soil borings PZ-1 and B-2 were advanced on December 2 and 3, 2004. Soil boring B-3 was advanced on December 17, 2004. Soil borings PZ-2 through PZ-5 were advanced on January 13, 14, 17 and 18, 2005, and soil boring PZ-6 was advanced on January 24, 2005. Soil borings PZ-1, B-2, PZ-2, PZ-3, and PZ-4 were advanced to a depth of 71 bgs using a truck-mounted Geoprobe rig. Soil borings B-3, PZ-5, and PZ-6 were advanced to 65.5 feet, 60 feet, and 65 feet bgs, respectively, which were the depths of drilling refusal. A GR geologist observed the drilling activities. Soil samples were collected from each soil boring at 5-foot intervals for visual description, log preparation, and for possible chemical analysis. Grab groundwater samples were collected from each boring at a depth interval of 40 to 45 feet bgs. Boring logs are included in Appendix C. Location of soil borings are shown on Figure 2. No soil cuttings were generated during drilling activities. Soil borings B-2 and B-3 were properly abandoned with neat cement.

### Piezometer Installation

Soil borings PZ-2, PZ-4, and PZ-6 were converted to piezometers by backfilling each boring with neat cement from the total depth explored to 35 feet bgs and reaming the existing boring to 35 feet bgs with 3 inch diameter rods. Piezometers PZ-1, PZ-3 and PZ-5 were installed in separate borings advanced adjacent to soil borings due to difficulty encountered in reaming the original soil borings with 3 inch diameter rods. Piezometers PZ-1 through PZ-6 were constructed using 2-inch diameter pre-packed screen casing and 0.010-inch machine-slotted screen material. Piezometer PZ-1 was screened from 30 to 40 feet bgs. Piezometer PZ-2 through PZ-6 were screened from 25 to 35 feet bgs. The remaining annular space around the screens in each piezometer was packed with Lonestar #3 graded sand. The sandpack was

followed by a seal of bentonite chips hydrated with clean water, then grouted with neat cement to ground surface. The top of each piezometer was completed with a vault box installed flush with ground surface, and set in concrete, with a locking well cap and lock. Piezometer construction details were included with the boring logs in Appendix C.

### Groundwater Monitoring and Sampling

No purge groundwater samples were collected from the piezometers on January 28, 2005. Depth-to-water was measured in all groundwater monitoring piezometers at the site and a groundwater potentiometric map was generated from the data (Figure 5). Each piezometer was checked for the presence of separate phase hydrocarbons (SPHs). No SPHs were observed in the piezometers. Groundwater monitoring and sampling procedures are included in Appendix A. Copies of the piezometer monitoring forms are included in Appendix D. Monitoring data are summarized in Table 2.

### Wellhead Survey

Following installation of the piezometers, the top of casing elevations were surveyed by Morrow Surveying (license #PLS 6151). Top of casing and vault box elevations were measured relative to mean sea level (MSL), and horizontal locations of each piezometer was measured, including GPS latitude and longitude. The surveyor's report is included in Appendix E. Piezometer elevations are summarized in Table 2.

## **RESULTS OF THE SUBSURFACE INVESTIGATION**

Soil encountered during this investigation generally consisted of the following:

- Sand and gravel from ground surface to approximately 15 feet bgs;
- Silt from 15 feet to approximately 20 feet bgs;
- Sand and gravel from 20 feet to approximately 35 feet bgs;
- Silt from 35 feet to approximately 40 feet bgs;
- Sand and gravel from 40 to approximately 50 feet bgs;
- Silt from 50 feet to approximately 55 feet bgs;
- Sand with silt from 55 feet to approximately 62 feet bgs;
- And silt from 62 feet to the total depth explored of 71 feet bgs.

Groundwater was encountered during drilling in the borings between approximately 30 and 35 feet bgs, and stabilized between 27 and 29 feet bgs following drilling. Detailed descriptions of the soils encountered during drilling are presented on the boring logs in Appendix C. Subsurface lithology, soil

TPHd concentrations, and groundwater level data are graphically presented in cross-section diagrams (Figures 3 and 4).

## **CHEMICAL ANALYTICAL RESULTS**

A total of 55 soil samples from the soil borings, and eight grab groundwater sample were submitted under chain-of-custody for chemical analysis. Analyses were performed by Kiff Analytical (ELAP #2236). Copies of the laboratory reports and chain-of-custody forms are included in Appendix F. Soil and groundwater chemical analytical data are summarized in Table 1.

### Chemical Analytical Procedures

Soil and groundwater samples were analyzed for Total Petroleum Hydrocarbons as diesel (TPHd) by EPA Method 8015M.

### Soil Analytical Results

A summary of the laboratory-reported analytical results for each boring is as follows:

- PZ-1 - TPHd concentrations ranged from 1.0 ppm at 50 feet bgs to 320 ppm at 60 feet bgs.
- B-2 - TPHd concentrations ranged from 1.4 ppm at 40 feet bgs to 60 ppm at 60 feet bgs.
- B-3 - TPHd concentrations ranged from 2.1 ppm at 30 feet bgs to 81 ppm at 65 feet bgs.
- PZ-2 - TPHd concentrations that ranged from 2.0 ppm at 60 feet bgs to 5.6 ppm at 10 feet bgs.
- PZ-3 - TPHd concentrations that ranged from 1.2 ppm at 20 and 70 feet bgs to 5.2 ppm at 5 feet bgs.
- PZ-4 and PZ-5 - TPHd concentrations of 1.4 ppm and 1.3 ppm, respectively at 60 feet bgs.
- PZ-6 - TPHd concentrations ranged from 1.2 ppm at 50 feet bgs to 2.9 ppm at 10 feet bgs.

A summary of the analytical results has been presented in Table 1 and shown on cross section diagrams, Figures 3 and 4.

### Groundwater Analytical Results

TPHd concentrations were below laboratory reported method detection limits in grab groundwater samples collected from soil borings PZ-3 and PZ-6. TPHd concentrations ranged from 69 ppb in grab groundwater sample PZ-5 to 10,000 ppb in grab groundwater sample PZ-1. A summary of grab groundwater analytical results has been presented in Table 1 and shown on Figure 6.

TPHd concentrations for no-purge groundwater samples ranged from 76 ppb in piezometer PZ-4 to 1,800 ppb in piezometer PZ-1. A TPHd concentration of 250 ppb was detected in the no-purge groundwater sample from upgradient piezometer PZ-6. A summary of groundwater analytical results has been presented in Table 2 and shown on Figure 7.

#### Water Level Survey

Depth to water level measurements were collected on January 28, 2005 and ranged from 27.57 feet (PZ-6) below top of casing (btoc) to 28.52 (PZ-4) feet btoc. Based on the groundwater monitoring data collected on January 28, 2005, the shallow groundwater flow direction beneath the site is to the northwest with a variable gradient of between 0.01ft/ft to 0.02 ft/ft (Figure 5).

#### **DISCUSSION**

The purpose of this investigation was to evaluate the extent of petroleum hydrocarbons in soil and groundwater beneath the site. Based on the results of this and previous investigations, TPHd-impacted soil appears to be confined to the immediate vicinity of the former heating oil UST at the Schwieckert property. The source area piezometer (PZ-1) groundwater samples contained elevated concentrations of TPHd. Piezometers PZ-3 and PZ-4 both contained TPHd concentrations below 100 ppb. Piezometer PZ-5 and PZ-6 both contained TPHd concentrations above 200 ppb. Shallow groundwater flow beneath the site on January 28, 2005 was to the northwest as previously mentioned. In addition, currently upgradient and cross-gradient piezometers PZ-5 and PZ-6 contained TPHd concentrations of 210 ppb and 250 ppb, respectively, during the January 28, 2005 sampling event.

#### **ADDITIONAL WORK**

After reviewing the soil and groundwater data for borings B-2, B-3 and PZ-1, ACEH, in a telephone consultation on January 12, 2005, requested additional work (borings) near the source area. This proposed work includes four additional hydropunch borings (as shown on Figure 2) for collection of grab groundwater samples at depths of 40 to 45 feet bgs and 65 to 70 feet bgs from each boring. To accomplish the collection of the deeper (65-70) grab groundwater samples, each boring will need to be temporarily cased from ground surface to approximately 55 feet bgs to prevent cross contamination from shallow groundwater. Please confirm that ACEH is still requiring this scope, and if so, GR will submit a brief letter workplan for approval.



**Table 1 - Soil and Groundwater Chemical Analytical Results**

Marie Schweickert Property  
515 South Livermore Ave.  
Livermore, California

Sample ID	Sample Depth (ft)	Sample Date	TPHd (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	MtBE (ppm)	TBA (ppm)	O&G (ppm)
<b>Historical Soil Data</b>										
TP-1(5)	5.0	7/29/2003	36	<0.0050	<0.0050	<0.0050	<0.0050	---	---	<0.0050
Comp-1(A,B,C,D)	---	7/29/2003	29	<0.0050	<0.0050	<0.0050	<0.0050	---	---	<0.0050
B1-10.0	10.0	11/21/2003	65/61*	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---
B1-20.0	20.0	11/21/2003	35/31*	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---
B1-30.0	30.0	11/21/2003	1,900/2,000*	<0.0050	<0.0050	<0.0050	0.015	<0.0050	<0.010	---
B1-40.0	40.0	11/21/2003	350/330*	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---
<b>Soil Boring B-2</b>										
B2-5	5.0	12/2/2004	2.2 <sup>1</sup>	---	---	---	---	---	---	---
B2-10	10	12/2/2004	3.6 <sup>1</sup>	---	---	---	---	---	---	---
B2-20	20	12/2/2004	2.3 <sup>1</sup>	---	---	---	---	---	---	---
B2-30	30	12/2/2004	74	---	---	---	---	---	---	---
B2-40	40	12/3/2004	1.4 <sup>1</sup>	---	---	---	---	---	---	---
B2-50	50	12/3/2004	<1.0	---	---	---	---	---	---	---
B2-60	60	12/3/2004	60	---	---	---	---	---	---	---
B2-70	70	12/3/2004	11/12*	---	---	---	---	---	---	---
<b>Soil Boring B-3</b>										
B3-5	5.0	12/17/2004	2.9 <sup>1</sup>	---	---	---	---	---	---	---
B3-10	10	12/17/2004	2.3 <sup>1</sup>	---	---	---	---	---	---	---

**Table 1 - Soil and Groundwater Chemical Analytical Results**

Marie Schweickert Property  
515 South Livermore Ave.  
Livermore, California

Sample ID	Sample Depth (ft)	Sample Date	TPHd (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	MtBE (ppm)	TBA (ppm)	O&G (ppm)
<b>Soil Boring B-3 (con't)</b>										
B3-20	20	12/17/2004	3.9	---	---	---	---	---	---	---
B3-30	30	12/17/2004	2.1 <sup>1</sup>	---	---	---	---	---	---	---
B3-40	40	12/17/2004	3.5 <sup>1</sup>	---	---	---	---	---	---	---
B3-50	50	12/17/2004	3.4	---	---	---	---	---	---	---
B3-60	60	12/17/2004	14	---	---	---	---	---	---	---
B3-65	65	12/17/2004	81	---	---	---	---	---	---	---
<b>Soil Boring PZ-1</b>										
PZ1-50	50	12/2/2004	1.0	---	---	---	---	---	---	---
PZ1-60	60	12/2/2004	320	---	---	---	---	---	---	---
PZ1-70	70	12/2/2004	7.0/7.0 <sup>1</sup>	---	---	---	---	---	---	---
<b>Soil Boring PZ-2</b>										
PZ2-5	5.0	1/13/2005	<1.0	---	---	---	---	---	---	---
PZ2-10	10	1/13/2005	5.6 <sup>1</sup>	---	---	---	---	---	---	---
PZ2-20	20	1/13/2005	2.4 <sup>1</sup>	---	---	---	---	---	---	---
PZ2-30	30	1/13/2005	<1.0	---	---	---	---	---	---	---
PZ2-40	40	1/13/2005	<1.0	---	---	---	---	---	---	---
PZ2-50	50	1/13/2005	<1.0	---	---	---	---	---	---	---
PZ2-60	60	1/13/2005	2.0 <sup>1</sup>	---	---	---	---	---	---	---
PZ2-70	70	1/13/2005	3.9 <sup>1</sup>	---	---	---	---	---	---	---
<b>Soil Boring PZ-3</b>										
PZ3-5	5.0	1/14/2005	5.2 <sup>1</sup>	---	---	---	---	---	---	---
PZ3-10	10	1/14/2005	4.5 <sup>1</sup>	---	---	---	---	---	---	---
PZ3-20	20	1/14/2005	1.2 <sup>1</sup>	---	---	---	---	---	---	---

**Table 1 - Soil and Groundwater Chemical Analytical Results**

Marie Schweickert Property  
515 South Livermore Ave.  
Livermore, California

Sample ID	Sample Depth (ft)	Sample Date	TPHd (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	MtBE (ppm)	TBA (ppm)	O&G (ppm)
<b>Soil Boring PZ-3 (con't)</b>										
PZ3-30	30	1/14/2005	2.4 <sup>1</sup>	---	---	---	---	---	---	---
PZ3-40	40	1/14/2005	1.3 <sup>1</sup>	---	---	---	---	---	---	---
PZ3-50	50	1/14/2005	1.5 <sup>1</sup>	---	---	---	---	---	---	---
PZ3-60	60	1/14/2005	4.4 <sup>1</sup>	---	---	---	---	---	---	---
PZ3-70	70	1/14/2005	1.2 <sup>1</sup>	---	---	---	---	---	---	---
<b>Soil Boring PZ-4</b>										
PZ4-10	10	1/17/2005	<1.0	---	---	---	---	---	---	---
PZ4-20	20	1/17/2005	<1.0	---	---	---	---	---	---	---
PZ4-30	30	1/17/2005	<1.0	---	---	---	---	---	---	---
PZ4-40	40	1/17/2005	<1.0	---	---	---	---	---	---	---
PZ4-50	50	1/17/2005	<1.0	---	---	---	---	---	---	---
PZ4-60	60	1/17/2005	1.4 <sup>1</sup>	---	---	---	---	---	---	---
PZ4-70	70	1/17/2005	<1.0	---	---	---	---	---	---	---
<b>Soil Boring PZ-5</b>										
PZ5-10	10	1/18/2005	<1.0	---	---	---	---	---	---	---
PZ5-20	20	1/18/2005	<1.0	---	---	---	---	---	---	---
PZ5-30	30	1/18/2005	<1.0	---	---	---	---	---	---	---
PZ5-40	40	1/18/2005	<1.0	---	---	---	---	---	---	---
PZ5-50	50	1/18/2005	<1.0	---	---	---	---	---	---	---
PZ5-60	60	1/18/2005	1.3 <sup>1</sup>	---	---	---	---	---	---	---
<b>Soil Boring PZ-6</b>										
PZ6-10	10	1/24/2005	2.9 <sup>1</sup>	---	---	---	---	---	---	---
PZ6-20	20	1/24/2005	1.5 <sup>1</sup>	---	---	---	---	---	---	---
PZ6-30	30	1/24/2005	1.5 <sup>1</sup>	---	---	---	---	---	---	---
PZ6-40	40	1/24/2005	<1.0	---	---	---	---	---	---	---

**Table 1 - Soil and Groundwater Chemical Analytical Results**

Marie Schweickert Property  
515 South Livermore Ave.  
Livermore, California

Sample ID	Sample Depth (ft)	Sample Date	TPHd (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	MtBE (ppm)	TBA (ppm)	O&G (ppm)
<b>Soil Boring PZ-6 (cont'd)</b>										
PZ6-50	50	1/24/2005	1.2 <sup>1</sup>	---	---	---	---	---	---	---
PZ6-60	60	1/24/2005	1.9 <sup>1</sup>	---	---	---	---	---	---	---
PZ6-65	65	1/24/2005	1.9 <sup>1</sup>	---	---	---	---	---	---	---
Sample ID	Screen Interval (ft)	Sample Date	TPHd (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	MtBE (ppb)	TBA (ppb)	
<b>Historical Groundwater Data</b>										
B-1	45-50	11/21/2003	100,000*	<0.50	<0.0050	<0.0050	3.1	<0.50	<5.0	
<b>Grab Groundwater Data</b>										
B-2	40-45	12/3/2004	7,100	---	---	---	---	---	---	
B-3	40-45	12/17/2004	370	---	---	---	---	---	---	
PZ-1	40-45	12/2/2004	10,000	---	---	---	---	---	---	
PZ-2	40-45	1/13/2005	220	---	---	---	---	---	---	
PZ-3	40-45	1/14/2005	<50	---	---	---	---	---	---	
PZ-4	40-45	1/17/2005	79 <sup>1</sup>	---	---	---	---	---	---	
PZ-5	40-45	1/18/2005	69 <sup>1</sup>	---	---	---	---	---	---	
PZ-6	40-45	1/24/2005	<50	---	---	---	---	---	---	

**Explanation:**

TPHd = Total Petroleum Hydrocarbons as diesel  
BTEX = Benzene, toluene, ethylbenzene, xylenes  
MtBE = Methyl tert-butyl ether  
TBA = tert-Butyl alcohol  
ppm = parts per million  
ppb = parts per billion  
--- = not analyzed  
\* = TPHd (silica gel)

**Analytical Methods:**

TPHd by EPA Method 8015  
BTEX, MtBE and TBA by EPA Method 8260B

**Analytical Laboratory:**

Kiff Analytical (ELAP # 2236)

<sup>1</sup> Hydrocarbons reported as TPHd in this sample do not exhibit a typical diesel chromatographic pattern.

**Table 2**  
 Groundwater Monitoring Data<sup>+</sup>  
 Schwieckert Residence  
 515 S. Livermore Avenue  
 Livermore, California

Sample ID	Sample Date	TOC (feet)	DTW (feet)	FPP Thickness (feet)	GWE (feet)	TPHd (ppb)
PZ-1	1/28/05	504.29	28.15	0.00	476.14	1,800
PZ-2	1/28/05	503.40	27.58	0.00	475.82	93
PZ-3	1/28/05	503.44	27.77	0.00	475.67	83
PZ-4	1/28/05	504.00	28.52	0.00	475.48	76
PZ-5	1/28/05	502.98	27.13	0.00	475.85	210
PZ-6	1/28/05	504.23	27.57	0.00	476.66	250

**Explanations**

+ = no purge groundwater sampling

ppb = parts per billion

TPHd = Total Petroleum Hydrocarbons as diesel

\* GWE corrected due to the presence of free product;

correction factor:  $[(\text{TOC}-\text{DTW})+(\text{product thickness} \times 0.75)]$

-- = Not measured

FPP = Free Phase Product

TOC = Top of Casing elevation measured relative to mean sea level

DTW = Depth to Water

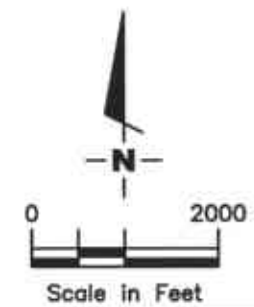
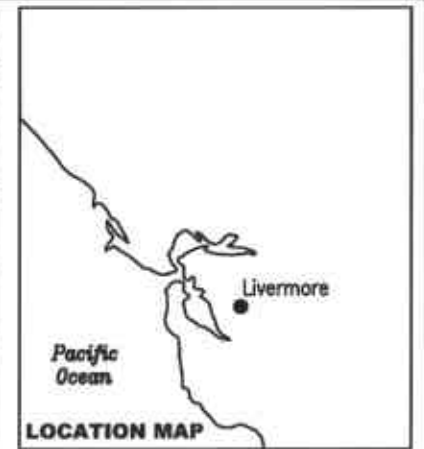
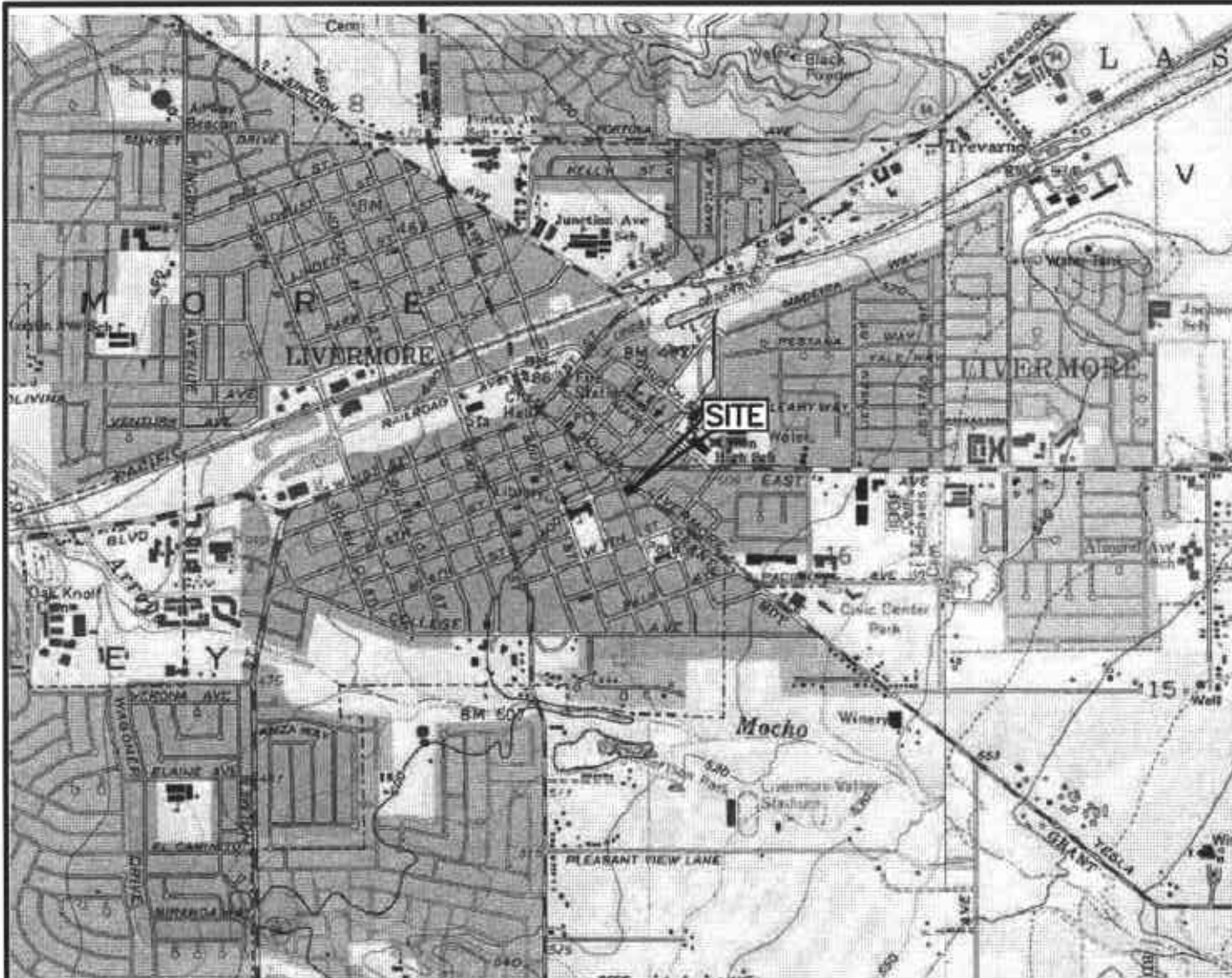
TOC surveyed by Morrow Surveying (PLS 5161) on February 7, 2005

**Analytical Laboratory:**

Kiff Analytical (ELAP# 2236)

**Analytical Methods:**

TPHg by EPA Method 8015M



Source: National Geographic California Seamless USGS Topographic Maps on CD-ROM.

**GETTLER - RYAN INC.**  
 6747 Sierra Ct., Suite J  
 Dublin, CA 94568 (925) 551-7555

**VICINITY MAP**  
 Marie Schweickert Property  
 515 South Livermore Avenue  
 Livermore, California

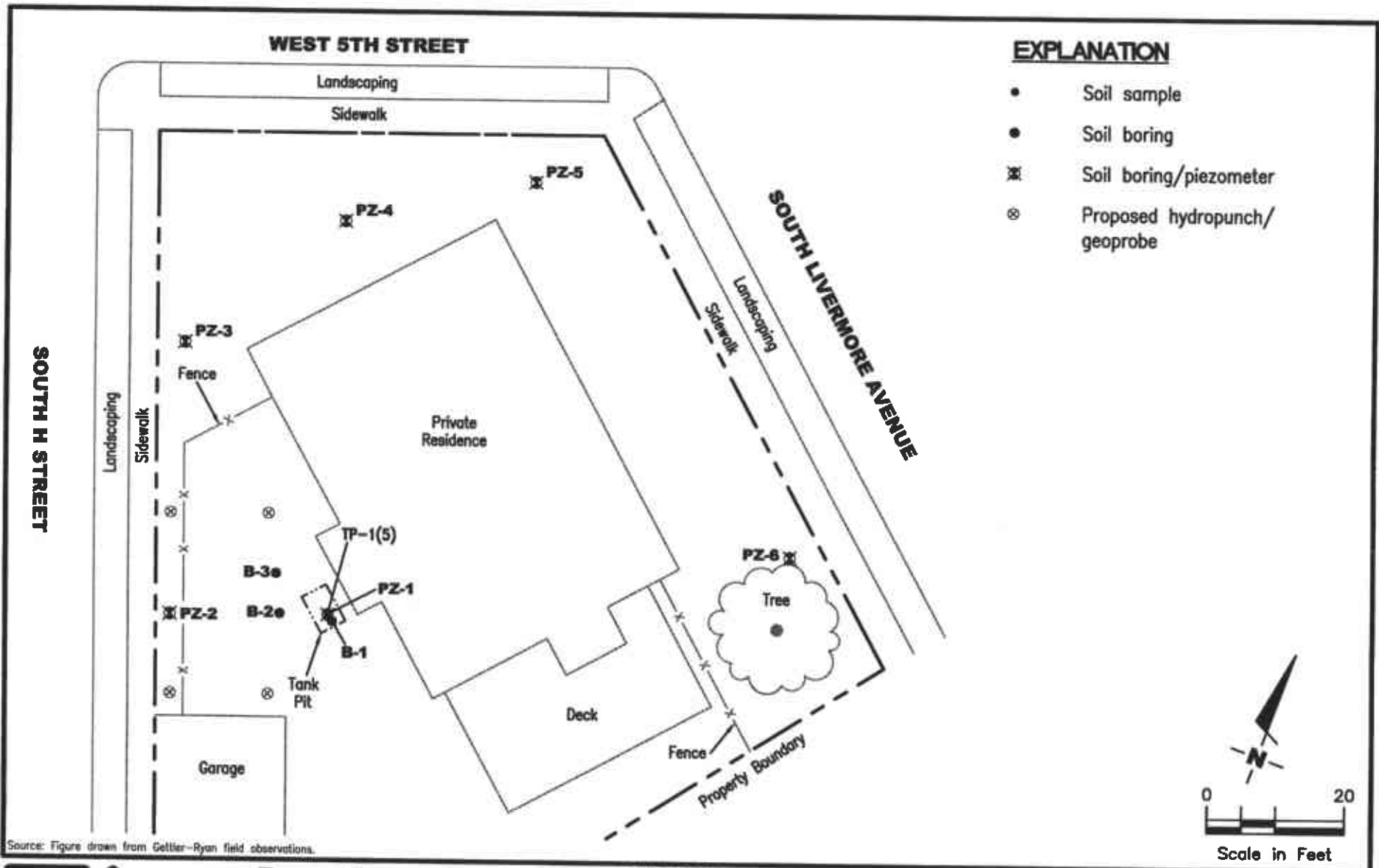
FIGURE  
**1**

PROJECT NUMBER  
**948209**

REVIEWED BY

DATE  
**11/03**

REVISED DATE



Source: Figure drawn from Gettler-Ryan field observations.

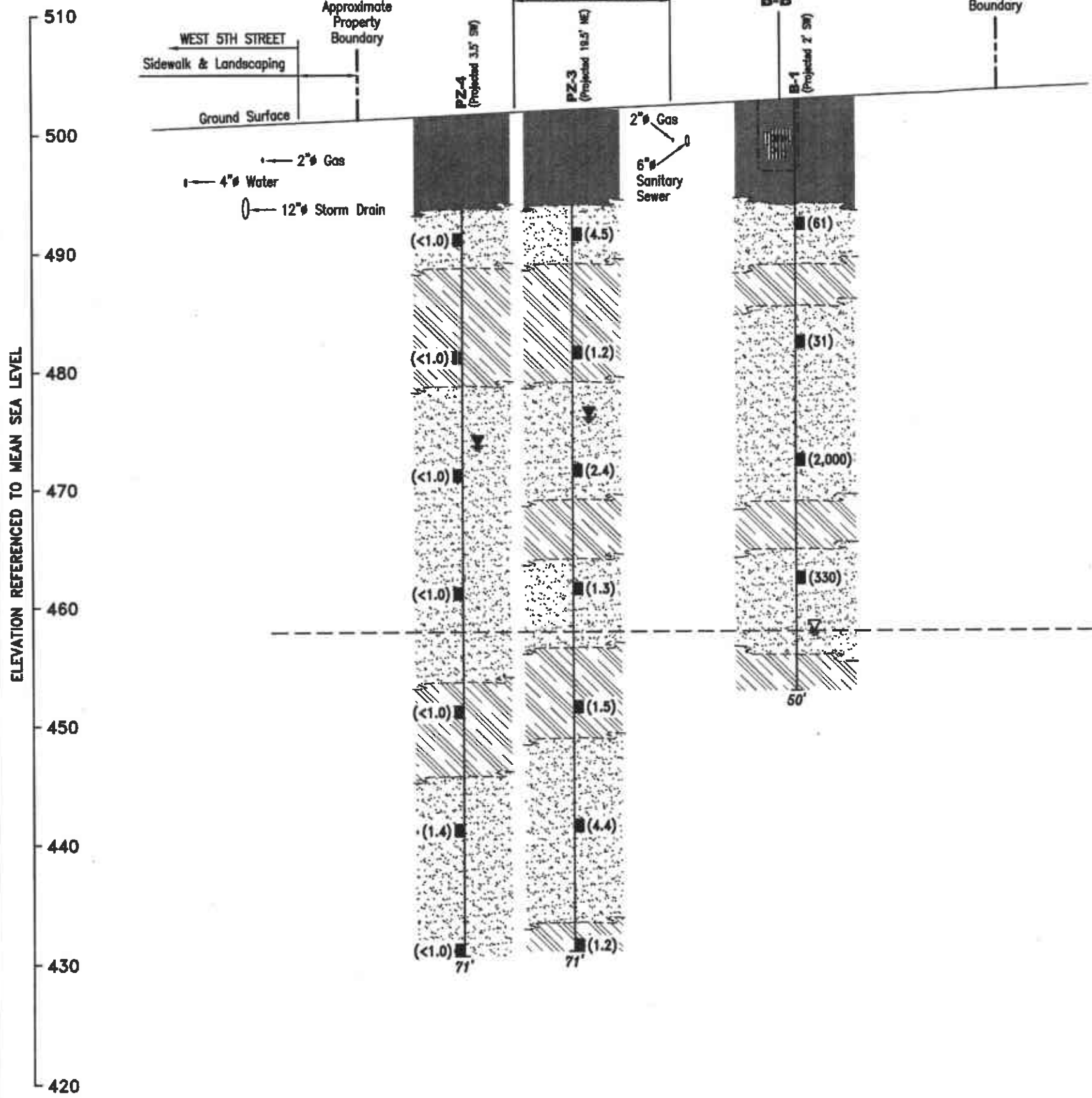
**GETTLER - RYAN INC.**  
 6747 Sierra Court, Suite J  
 Dublin, CA 94568 (925) 551-7555

**SITE PLAN**  
 Marie Schweickert Property  
 515 South Livermore Avenue  
 Livermore, California

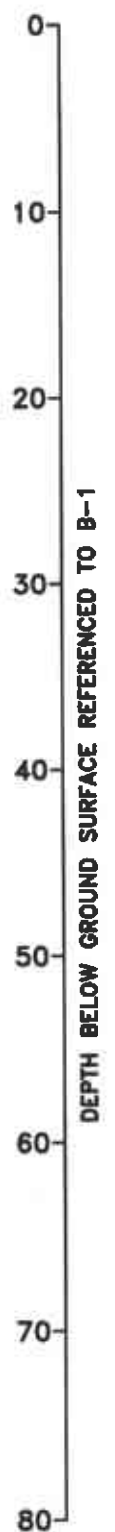
FIGURE  
**2**

PROJECT NUMBER 948209	REVIEWED BY	DATE 2/05	REVISED DATE
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NW  
A

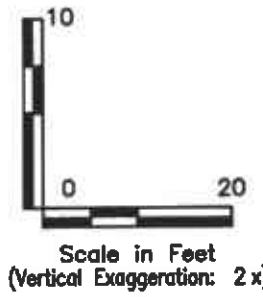


SE  
A'



**EXPLANATION**

- Boring
- 50' Depth to bottom of boring
- Groundwater level encountered during drilling (11/21/03)
- Static Groundwater level measured on 1/28/05
- fill material
- Sand with gravel
- Silt and clay
- Soil sample (TPHd concentration in ppm)



**GETTLER - RYAN INC.**  
6747 Sierra Court, Suite J  
Dublin, CA 94568  
(925) 551-7555

**CROSS SECTION A-A'**  
Marie Schwickert Property  
515 South Livermore Avenue  
Livermore, California

PROJECT NUMBER 948209.3  
DATE 02/05  
REVIEWED BY  
FILE NAME: F:\Enviro\Marie Schwickert Property\A03-MARIE SCHWICKERT.DWG | Layout: tab: X-sec A 04-04



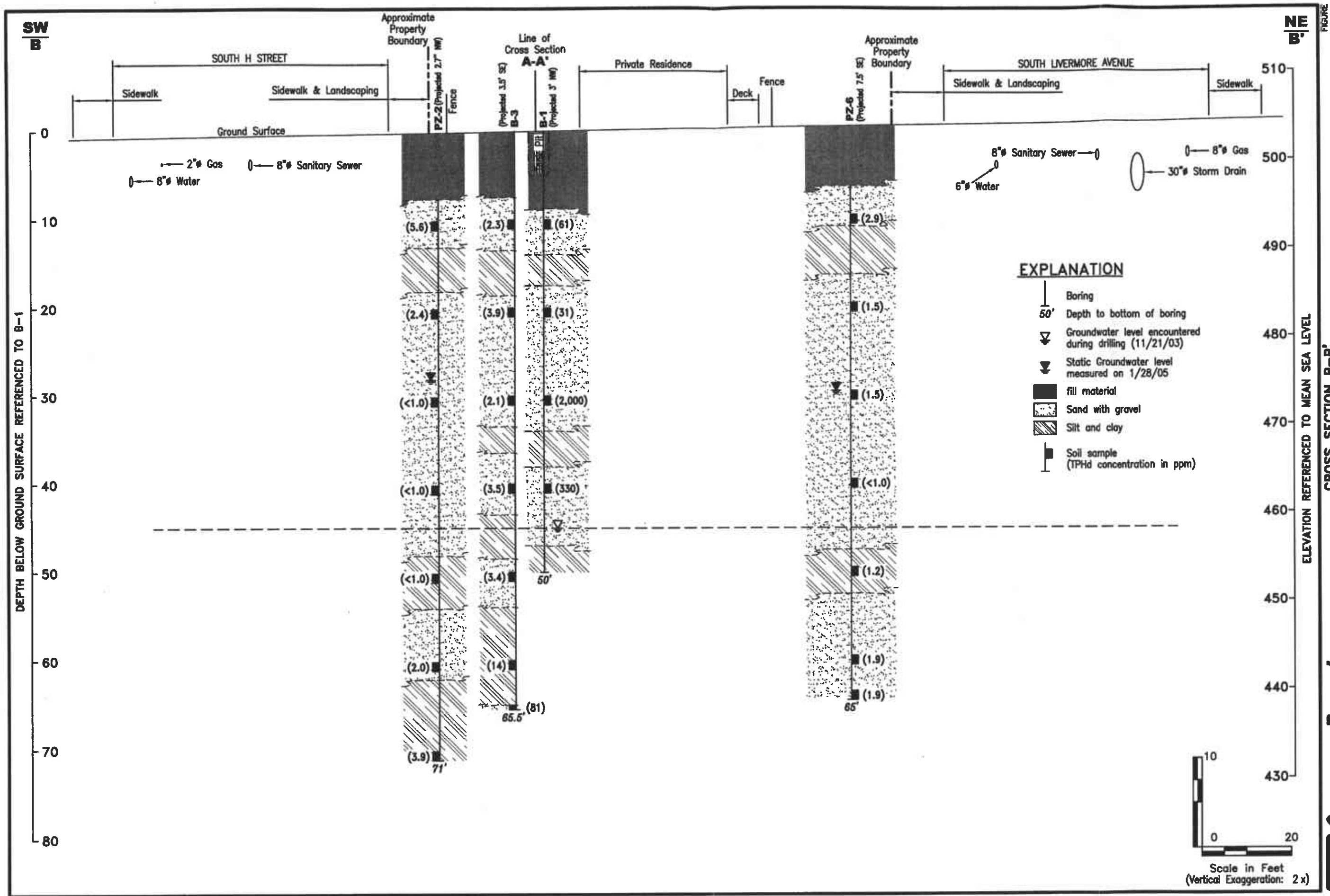


FIGURE 4

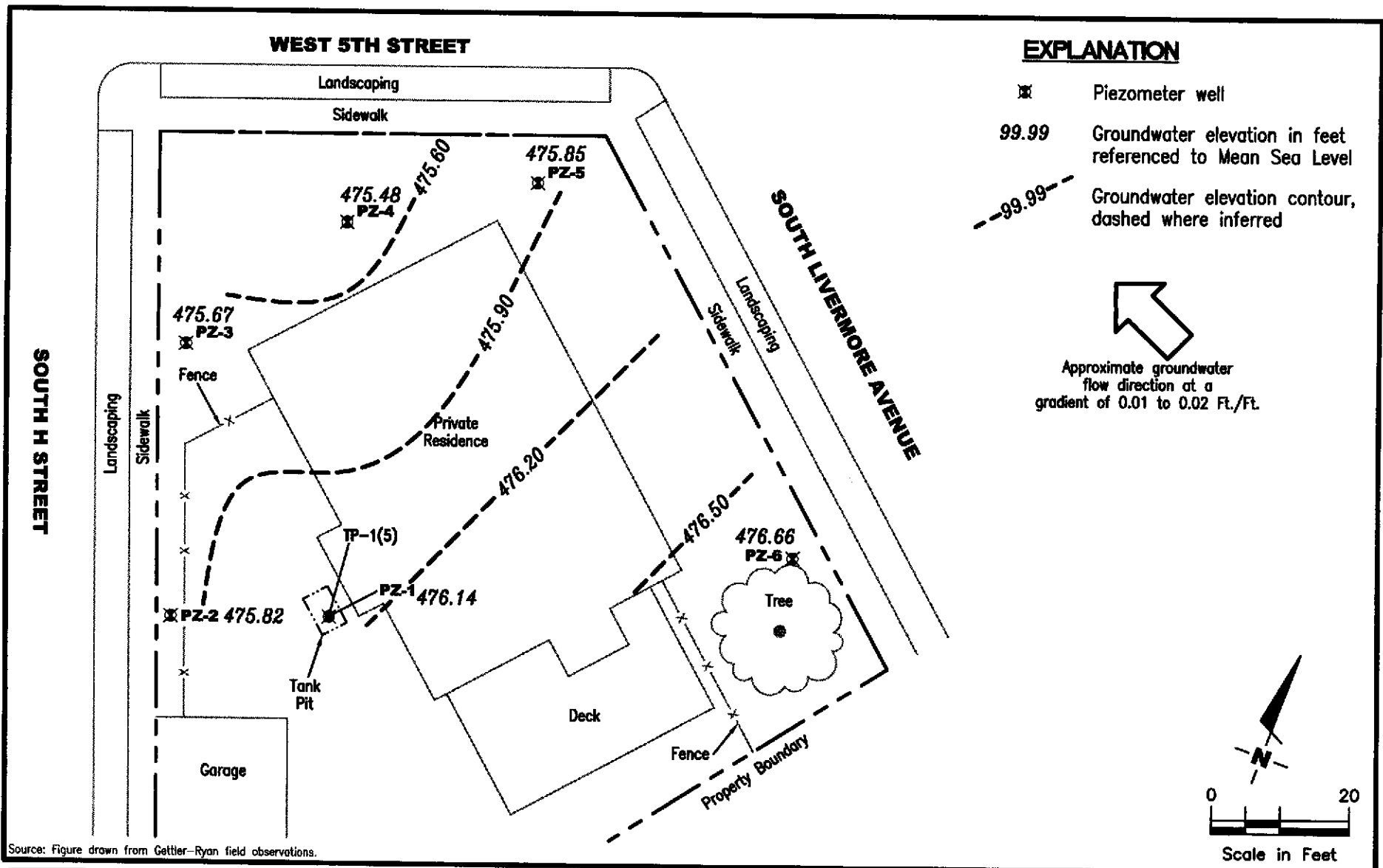
**CROSS SECTION B-B'**  
 Marie Schweickert Property  
 515 South Livermore Avenue  
 Livermore, California

**GETTLER - RYAN INC.**  
 6747 Sierra Court, Suite J  
 Dublin, CA 94568  
 (925) 551-7555

REVIEWED BY: DATE: 02/05

PROJECT NUMBER: 948209.3

FILE NAME: P:\Enviro\Marie Schweickert Property\A03-MARIE SCHWEICKERT.DWG | Layout Tab: X-sect B 04-04



Source: Figure drawn from Gettler-Ryan field observations.

**GETTLER - RYAN INC.**  
6747 Sierra Court, Suite J  
Dublin, CA 94568 (925) 551-7555

**POTENTIOMETRIC MAP**  
Marie Schweickert Property  
515 South Livermore Avenue  
Livermore, California

FIGURE

**5**

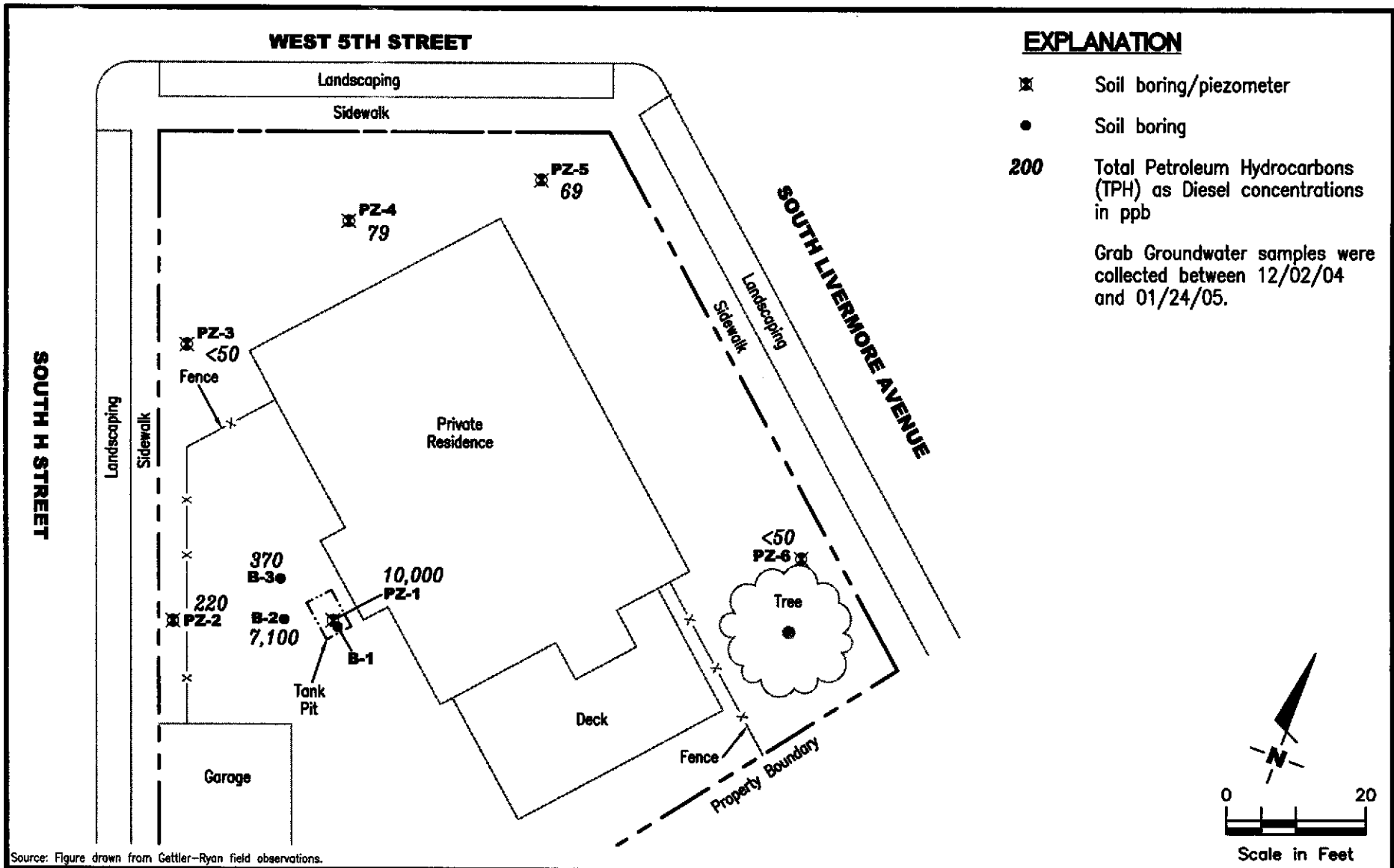
PROJECT NUMBER  
**948209**

REVIEWED BY

DATE  
**January 28, 2005**

REVISED DATE

FILE NAME: P:\Enviro\Marie Schweickert Property\A03-MARIE SCHWEICKERT.DWG | Layout Tab: Pot1



**GETTLER - RYAN INC.**

6747 Sierra Court, Suite J  
Dublin, CA 94568 (925) 551-7555

**TPHD CONCENTRATION MAP - GRAB GW SAMPLES**

Marie Schweickert Property  
515 South Livermore Avenue  
Livermore, California

FIGURE

**6**

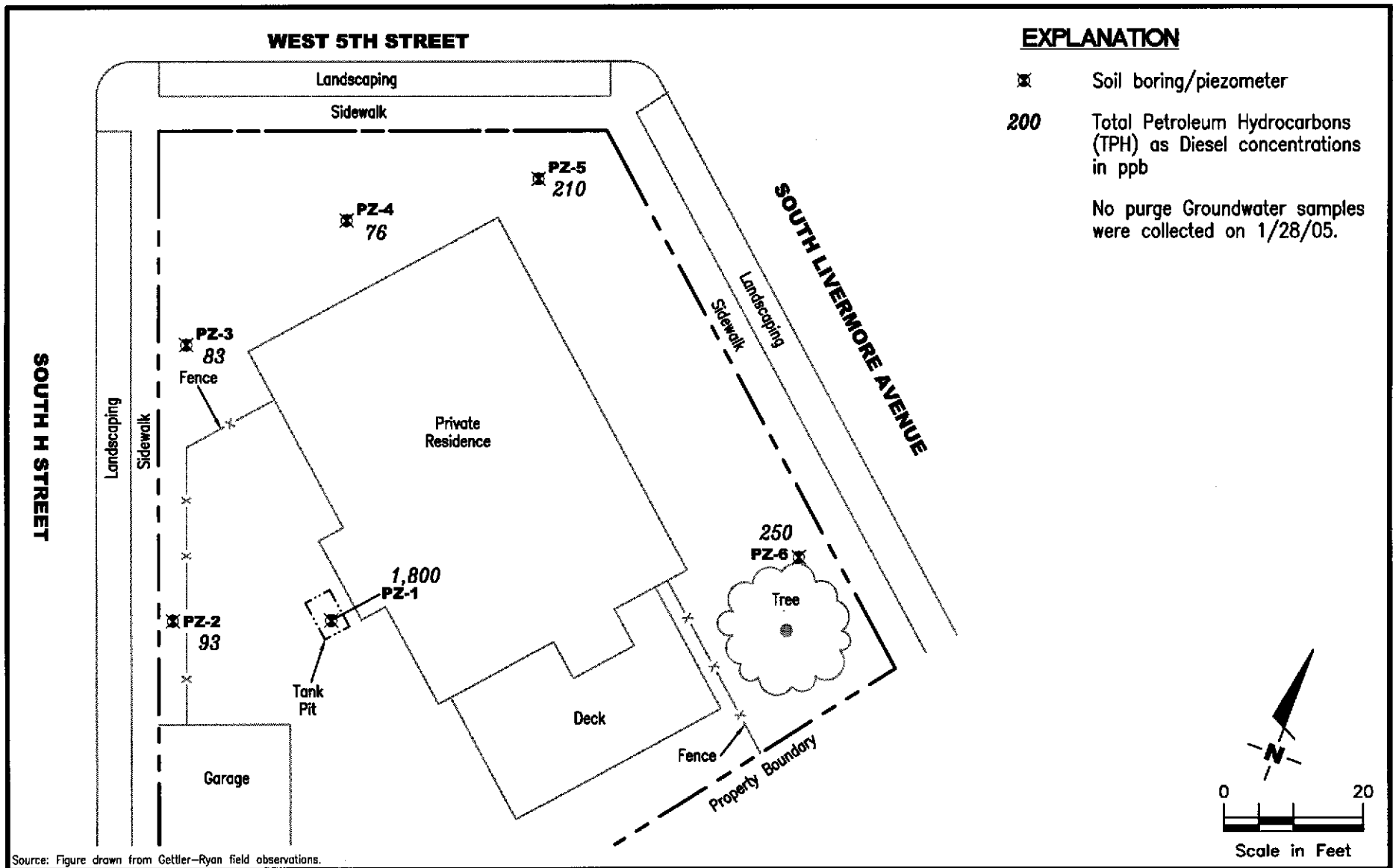
PROJECT NUMBER  
**948209**

REVIEWED BY

DATE

January 28, 2005

REVISED DATE



**GETTLER - RYAN INC.**  
 6747 Sierra Court, Suite J  
 Dublin, CA 94568 (925) 551-7555

**TPHD CONCENTRATION MAP - NO PURGE GW SAMPLES**  
 Marie Schweickert Property  
 515 South Livermore Avenue  
 Livermore, California

FIGURE  
**7**

PROJECT NUMBER <b>948209</b>	REVIEWED BY	DATE <b>January 28, 2005</b>	REVISED DATE
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# GETTLER-RYAN INC.

## FIELD METHODS AND PROCEDURES

### Site Safety Plan

Field work performed by Gettler-Ryan Inc. (GR) is conducted in accordance with GR's Health and Safety Plan and the Site Safety Plan. GR personnel and subcontractors who perform work at the site are briefed on the contents of these plans prior to initiating site work. The GR geologist or engineer at the site when the work is performed acts as the Site Safety Officer. GR utilizes a photoionization detector (PID) to monitor ambient conditions as part of the Health and Safety Plan.

### Collection of Soil Samples

Soil borings are drilled by a California-licensed well driller. A GR geologist is present to observe the drilling, collect soil samples for description, physical testing, and chemical analysis, and prepare a log of the exploratory soil boring. Soil samples obtained with a Geoprobe® rig are collected from the soil boring with a split-barrel sampling device fitted with 1.5-inch-diameter, clean brass tubes. The Geoprobe® drives the sampling device approximately 24 inches, and the filled sampler is then retrieved from the boring. The encountered soils are described using the Unified Soil Classification System (ASTM 2488-84) and the Munsell Soil Color Chart or GSA Rock Color Chart.

After removal from the sampling device, soil samples for chemical analysis are covered on both ends with teflon sheeting, capped, labeled, and placed in a cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the selected soil samples to the analytical laboratory. Samples are selected for chemical analysis based on:

- a. depth relative to underground storage tanks and existing ground surface
- b. depth relative to known or suspected groundwater
- c. presence or absence of contaminant migration pathways
- d. presence or absence of discoloration or staining
- e. presence or absence of obvious gasoline hydrocarbon odors
- f. presence or absence of organic vapors detected by headspace analysis

### Field Screening of Soil Samples

A PID is used to perform head-space analysis in the field for the presence of organic vapors from the soil sample. This test procedure involves placing a plastic cap over the end of the tube and allowing the sample to sit for several minutes. The PID probe is then inserted through a hole in the cap and the atmosphere within tested. Head-space screening results are recorded on the boring log. Head-space screening procedures are performed and results recorded as reconnaissance data. GR does not consider field screening techniques to be verification of the presence or absence of hydrocarbons.

### Grab Groundwater Sampling

Grab samples of groundwater are collected from the boring using a peristaltic pump or micro-bailer. With the peristaltic pump, new Tygon® tubing is placed in the pump prior to collection of each sample. The tubing is

lowered into the boring through the GeoProbe equipment after groundwater has been allowed to collect. The peristaltic pump is used to evacuate water from the boring where it is discharged to laboratory-supplied containers appropriate for the anticipated analyses. With the micro-bailer, the cleaned bailer is lowered through the GeoProbe equipment into the groundwater. The bailer is allowed to fill, then is brought to the surface where the water is decanted into the sample container. The micro-bailer may also consist of a clean piece of tubing with a check valve at the bottom. The tubing is pumped up and down to bring the water sample to the surface and discharge the sample to the appropriate container.

Following collection of the groundwater sample, the sample bottles are then labeled and placed in chilled storage for transport to the analytical laboratory. A chain-of-custody form is initiated in the field and accompanies the groundwater samples to the analytical laboratory.

### **Soil Vapor Sampling**

Soil vapor samples are collected by advancing the Geoprobe® to a discrete depth. Once the desired depth is attained, a 1/4-inch polyethylene tubing is threaded through the inside diameter of the drive rods and connected either to a tedlar bag or summa canister. The bottom portion of the drive rod is retracted and a vacuum is induced to purge a soil vapor sample. Used tubing is discarded after each sample.

## STANDARD OPERATING PROCEDURE - QUARTERLY GROUNDWATER SAMPLING

Gottler-Ryan field personnel adhere to the following procedures for the collection and handling of groundwater samples prior to analyses by the analytical laboratory. Prior to sample collection, the type of analyses to be performed is determined. Loss prevention of volatile compounds is controlled and sample preservation for subsequent analyses is maintained.

Prior to sampling, the presence or absence of free-phase hydrocarbons is determined using a MMC flexi-dip interface probe. Product thickness, if present, is measured to the nearest 0.01 foot and is recorded in the field notes. In addition, static water level measurements are collected with the interface probe and are also recorded in the field notes.

After water levels are collected and prior to sampling, each well is purged a minimum of three well casing volumes of water using pre-cleaned pumps (stack, suction, Grundfos), or polyvinyl chloride bailers. Temperature, pH, and electrical conductivity are measured a minimum of three times during purging. Purging continues until these parameters stabilize.

Groundwater samples are collected using disposable bailers. The water samples are transferred from the bailer into appropriate containers. Pre-preserved containers, supplied by analytical laboratories are used when possible. When pre-preserved containers are not available, the laboratory is instructed to preserve the sample as appropriate. Duplicate samples are collected for the laboratory to use in maintaining quality assurance/quality control standards. The samples are labeled to include job number, sample identification, collection date and time, analyses, preservative (if any), and the sample collector's initials. The water samples are placed in a cooler, maintained at 4 °C for transport to the laboratory. Once collected in the field, all samples are maintained under chain of custody until delivery to the laboratory.

The chain of custody includes the job number, type of preservation, if any, analyses requested, sample identification, date and time collected, and the sample collector's name. The chain of custody is signed and dated (including time of transfer) by each person who receives or surrenders the samples, beginning with the field personnel and ending with the laboratory personnel.

A laboratory-supplied trip blank accompanies each sampling set. For sampling sets greater than 20 samples, 5% trip blanks are included. The trip blank is analyzed for some or all of the same compounds as the groundwater samples.



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE

PLEASANTON, CALIFORNIA 94588-5127

PHONE (925) 484-2600 FAX (925) 462-3914

November 16, 2004

Mr. Geoffrey D. Risse  
Gettler-Ryan, Inc.  
3140 Gold Camp Drive, Suite 170  
Rancho Cordova, CA 95670

Dear Mr. Geoffrey:

Enclosed is drilling permit 24145 for a contamination investigation at 515 S. Livermore Avenue in Livermore for Marie Schwieckert. Also enclosed are current drilling permit applications for your files.

Please note that permit conditions A-2 and G requires that a report be submitted after completion of the work. The report should include drilling and completion logs, location sketch, permit number and any analysis of the soil and water samples. Please submit the original of your completion report. We will forward your submittal to the California Department of Water Resources.

If you have any questions, please contact me at extension 235 or Matt Katen at extension 234.

Sincerely,

Wyman Hong  
Water Resources Technician II

Enc.





5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588-5127 VOICE (925) 484-2600 X235 FAX (925) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 515 South Livermore Avenue, Livermore

PERMIT NUMBER 24145
WELL NUMBER 3S/2E 9N8
APN 97 0052 001 00

California Coordinates Source Accuracy ft.
CCN ft. CCE ft.
APN

PERMIT CONDITIONS

Circled Permit Requirements Apply

CLIENT Name Marie Schwieckert
Address 3834 Livermore Way
City Livermore Phone (925) 447-2532
Zip 94551

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 log and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approve date.

APPLICANT Name Gettler-Ryan Inc
Geoffrey D. Risse Fax (916) 631-1300
Address 3140 Gold Camp Dr. #100 Phone (916) 631-1300
City Rancho Cordova Zip 95670

B. WATER SUPPLY WELLS

- 1. Minimum surface seal diameter is four inches greater than the well casing diameter.
2. Minimum seal depth is 50 feet for municipal and industrial well; or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.
3. Grout placed by tremie.
4. An access port at least 0.5 inches in diameter is required on the wellhead for water level measurements.
5. A sample port is required on the discharge pipe near the wellhead.

TYPE OF PROJECT:

- Well Construction
Well Destruction
Cathodic Protection
Geotechnical Investigation
Contamination Investigation
Other

PROPOSED WELL USE:

- Domestic
Municipal
Industrial
Dewatering
Irrigation
Remediation
Groundwater Monitoring
Other

DRILLING METHOD:

- Mud Rotary
Cable Tool
Air Rotary
Direct Push
Hollow Stem Auger
Other

DRILLING COMPANY Fish Environmental
DRILLER'S LICENSE NO. C-57 687865

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS

- 1. Minimum surface seal diameter is four inches greater than the well or piezometer casing diameter.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.
3. Grout placed by tremie.

WELL SPECIFICATIONS:

Drill Hole Diameter 2 1/4 in.
Casing Diameter 2 1/4 in.
Surface Seal Depth 39 ft.
Temporary Piezometer
Maximum Depth 50 ft.
Number 1

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.

SOIL BORINGS:

Number of Borings 2
Hole Diameter 2 1/4 in.
Maximum Depth 70 ft.

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

F. WELL DESTRUCTION. See attached.

G. SPECIAL CONDITIONS: Submit to Zone 7 within 60 days after completion of permitted work the well installation report including all soil and water laboratory analysis results.

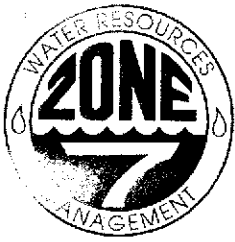
ESTIMATED STARTING DATE 12/2/04
ESTIMATED COMPLETION DATE 12/3/04

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

APPLICANT'S SIGNATURE Geoffrey D. Risse Date 11/3/04

Approved Wyman Hong Date 11/16/04

ATTACH SITE PLAN OR SKETCH



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE

PLEASANTON, CALIFORNIA 94588-5127

PHONE (925) 484-2600 FAX (925) 462-3914

December 2, 2004

Mr. Geoffrey Risse  
Gottler-Ryan, Inc.  
3140 Gold Camp Drive, Suite 170  
Rancho Cordova, CA 95670

Dear Mr. Risse:

Enclosed is drilling permit 24149 for a monitoring (piezometer) well construction project at 515 S. Livermore Avenue in Livermore for Marie Schwieckert. Also enclosed are current drilling permit applications for your files.

Please note that permit condition A-2 requires that a well construction report be submitted after completion of the work. The report should include drilling and completion logs, location sketch, and permit number. Please submit the original of your completion report. We will forward your submittal to the California Department of Water Resources.

If you have any questions, please contact me at extension 235 or Matt Katen at extension 234.

Sincerely,

Wyman Hong  
Water Resources Technician II

Enc.



ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588-5127 VOICE (925) 484-2600 X235 FAX (925) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 515 South Livermore Avenue, Livermore

PERMIT NUMBER 24149
WELL NUMBER 3S/2E 9N10 to 9N14
APN 97 0052 001 00

California Coordinates Source Accuracy ft.
CCN ft. CCE ft.

PERMIT CONDITIONS

Circled Permit Requirements Apply

CLIENT Name Marie Schwieckert
Address 3834 Endicott Way Phone (925) 447-2532
City Zip

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 permitter work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling log; and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

APPLICANT Name Gettler-Ryan Inc
Address 3140 Gold Camp Rd Phone (916) 631-1300
City Sacramento Zip 95610

B. WATER SUPPLY WELLS

- 1. Minimum surface seal diameter is four inches greater than the well casing diameter.
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.
3. Grout placed by tremie.
4. An access port at least 0.5 inches in diameter is required on the wellhead for water level measurements.
5. A sample port is required on the discharge pipe near the wellhead.

TYPE OF PROJECT:

- Well Construction
Well Destruction
Cathodic Protection
Geotechnical Investigation
Contamination Investigation
Other

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS

- 1. Minimum surface seal diameter is four inches greater than the well or piezometer casing diameter.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.
3. Grout placed by tremie.

PROPOSED WELL USE:

- Domestic
Municipal
Industrial
Dewatering
Irrigation
Remediation
Groundwater Monitoring
Other

D. GEOTECHNICAL. Backfill bore hole with compacted cuttings of 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.

DRILLING METHOD:

- Mud Rotary
Air Rotary
Cable Tool
Direct Push
Hollow Stem Auger
Other

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

DRILLING COMPANY Fisch Environmental
DRILLER'S LICENSE NO. C-57 683865

F. WELL DESTRUCTION. See attached.

WELL SPECIFICATIONS: 1 Temporary Piezometer
Drill Hole Diameter 2 1/2 in. Maximum
Casing Diameter 3 1/4 in. Depth 50 ft.
Surface Seal Depth 34 ft. Number 5

G. SPECIAL CONDITIONS: Submit to Zone 7 within 60 days after completion of permitted work the well installation report including all soil and water laboratory analysis results.

SOIL BORINGS:

Number of Borings
Hole Diameter in. Maximum Depth ft.

ESTIMATED STARTING DATE 1/3/05
ESTIMATED COMPLETION DATE 1/6/05

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

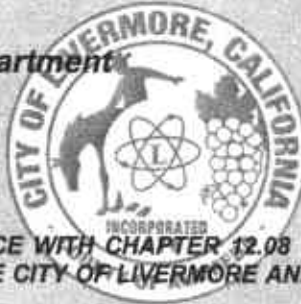
Approved Wyman Hong Date 12/2/04

APPLICANT'S SIGNATURE [Signature] Date 11/8/04

ATTACH SITE PLAN OR SKETCH

# City of Livermore

Community Development Department  
1052 S. Livermore Avenue  
Livermore, CA 94550  
(925) 960-4500



Encroachment  
Permit No. EN040583  
Other

PERMIT TO DO WORK IN ACCORDANCE WITH CHAPTER 12.08 OF THE LIVERMORE MUNICIPAL CODE AND SPECIFICATIONS AS ADOPTED BY THE CITY OF LIVERMORE AND ANY SPECIAL REQUIREMENTS SHOWN OR LISTED HEREIN.

Permit Fee: \$53.00  
Inspection Fee: \$80.00  
Bond: \$0.00

**Applicant/Permittee:**

Name: Getter-Ryan Inc.  
Address: 3140 Gold Camp Drive, Suite 170  
Rancho Cordova, CA, 95670  
Phone: 916-631-1300

**Total: \$133.00**

**Contractor:**

Name: Fisch Environmental Exploration  
Address: 399 Sheri's Place  
Valley Springs, CA 95252  
Phone: 209-772-3570

PLEASE READ THIS PERMIT CAREFULLY. KEEP IT AT THE WORK SITE. TO ARRANGE FOR AN INSPECTION, PHONE (925) 960-4500 AT LEAST 24 HOURS BEFORE YOU START WORK.

**JOB LOCATION:** 515 Livermore Avenue, South \*\*\*\*  
**DESCRIPTION OF WORK:** temporary sidewalk closure on South Livermore Ave and South H Street to install temporary monitoring well on private property

Length of Excavation: \_ L.F.                      Width: \_ L.F.                      Depth: \_ L.F.

Attention is directed to the General Provisions printed on the reverse side of this permit and to the attached special requirements (to be determined as needed by the Engineering Division).

Prosecution of Work: All work authorized by the permit shall be performed in a workmanlike, diligent, and expeditious manner, and must be completed to the satisfaction of the City Engineer.

Liability and Damages: The permittee shall be responsible for all liability imposed by law for personal injury or property damage which may arise out of the work permitted and done by permittee under this permit, or which may arise out of the failure on the part of the permittee to perform his obligations under said permit in respect to maintenance and encroachment. The permittee shall protect and indemnify the City of Livermore, its officers and employees, and save them harmless in every way from all action at law for damage or injury to persons or property that may arise out of or be occasioned in any way because of his operations as provided in this permit.

**Signature of Permittee:**

By: [Signature]  
Date: 11/22/04

**City Engineer**

By: [Signature]  
Date of Issue: 11/19/04

**Work Completed:**

Date: \_\_\_\_\_

Inspector: \_\_\_\_\_

# **City of Livermore**

Community Development Department  
1052 S. Livermore Avenue  
Livermore, CA 94550  
(925) 960-4500



Encroachment Permit No. EN040583

## **SPECIAL REQUIREMENTS APPLICABLE TO WORK ASSOCIATED WITH**

**JOB LOCATION:**

515 Livermore Avenue, South \*\*\*\*

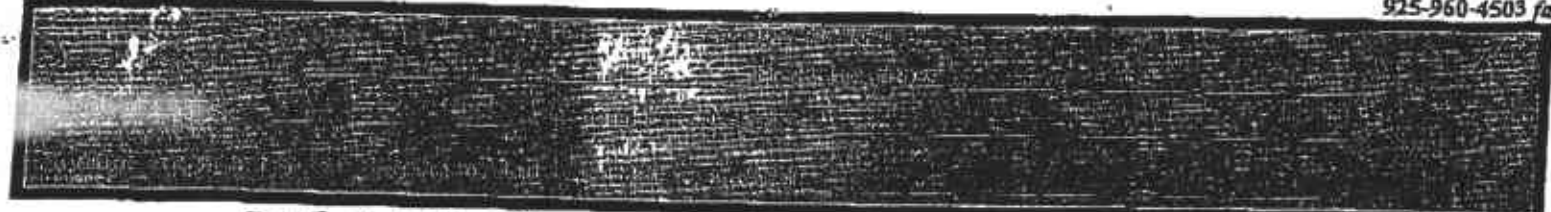
**DESCRIPTION OF WORK:** *temporary sidewalk closure on South Livermore Ave and South H Street to install temporary monitoring well on private property*

- 1: *See Attached Drawing/Plans*
- 2: *All lane closures/ traffic control shall be done per Cal Trans Standards.*
- 3: *Contractor shall repair/replace all damaged curb, gutter and sidewalk damaged as a result of current work being completed per the City Livermore Standard Details.*
- 4: *Pedestrian access must be maintained at all times, including if necessary, escorting pedestrians through the work area.*
- 5: *Area will be kept clean and free of debris and litter.*

### CITY OF LIVERMORE -ENCROACHMENT PERMIT- APPLICATION/WORKSHEET

City of Livermore  
1052 S. Livermore Avenue  
Livermore, CA 94550

Public Works Inspector:  
925-960-4501  
925-960-4503 fax



Project address: 515 S. Livermore Ave Tract# \_\_\_\_\_ Lot# \_\_\_\_\_ APN# \_\_\_\_\_  
Applicant's Name: Getler-Ryan INC Telephone number: (916) 444-531-1300  
Applicant's Address: 3140 Gold Camp Dr City Rancho Cordova State CA Zip 95670  
Ste. 170

**PROPERTY OWNER:**

Name: Marie Schwiebert  
Address: 3834 Inverness Way  
City/Zip: Livermore, CA 94551  
Telephone Number: (925) 447-2532

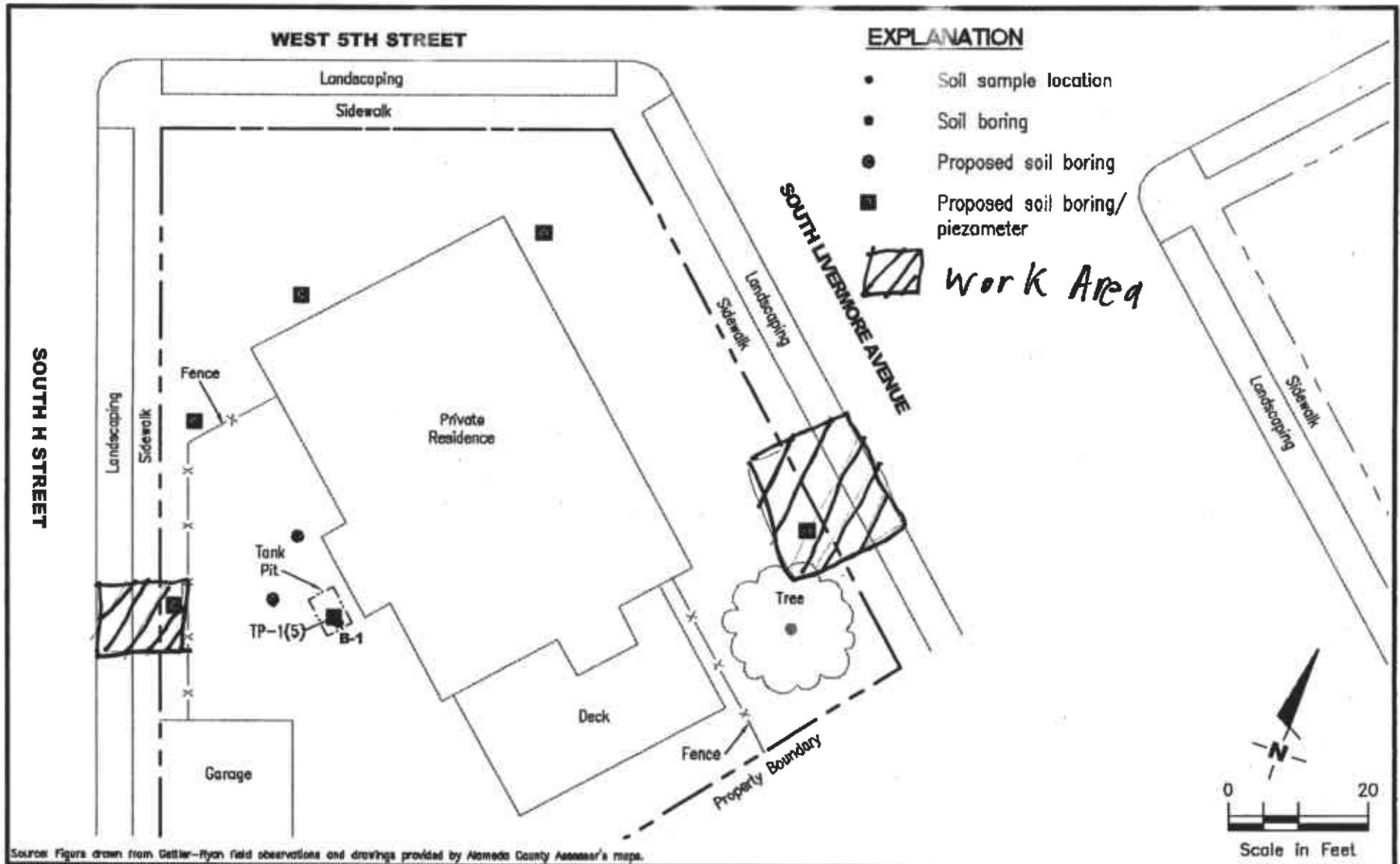
**CONTRACTOR:**

Name: Fisch Environmental Exploration  
Address: 399 Sheri's Place  
City/Zip: Valley Springs, CA 95252  
Telephone Number: (209) 772-3570  
State License Number: 683865 Type A, C-57

Description of work: Temporary sidewalk closure on S. Livermore Avenue and S. H Street in order to install and eventually abandon two (2) wells in the adjacent private property located at 515 S. Livermore Avenue

**SKETCH**

See Attached Plans



Source: Figures drawn from Gettler-Ryan field observations and drawings provided by Alameda County Assessor's maps.

**GETTLER · RYAN INC.**  
 6747 Sierra Ct., Suite J  
 Dublin, CA 94568 (925) 551-7555

**SITE PLAN**  
 Marie Schweickert Property  
 515 South Livermore Avenue  
 Livermore, California

FIGURE  
**2**

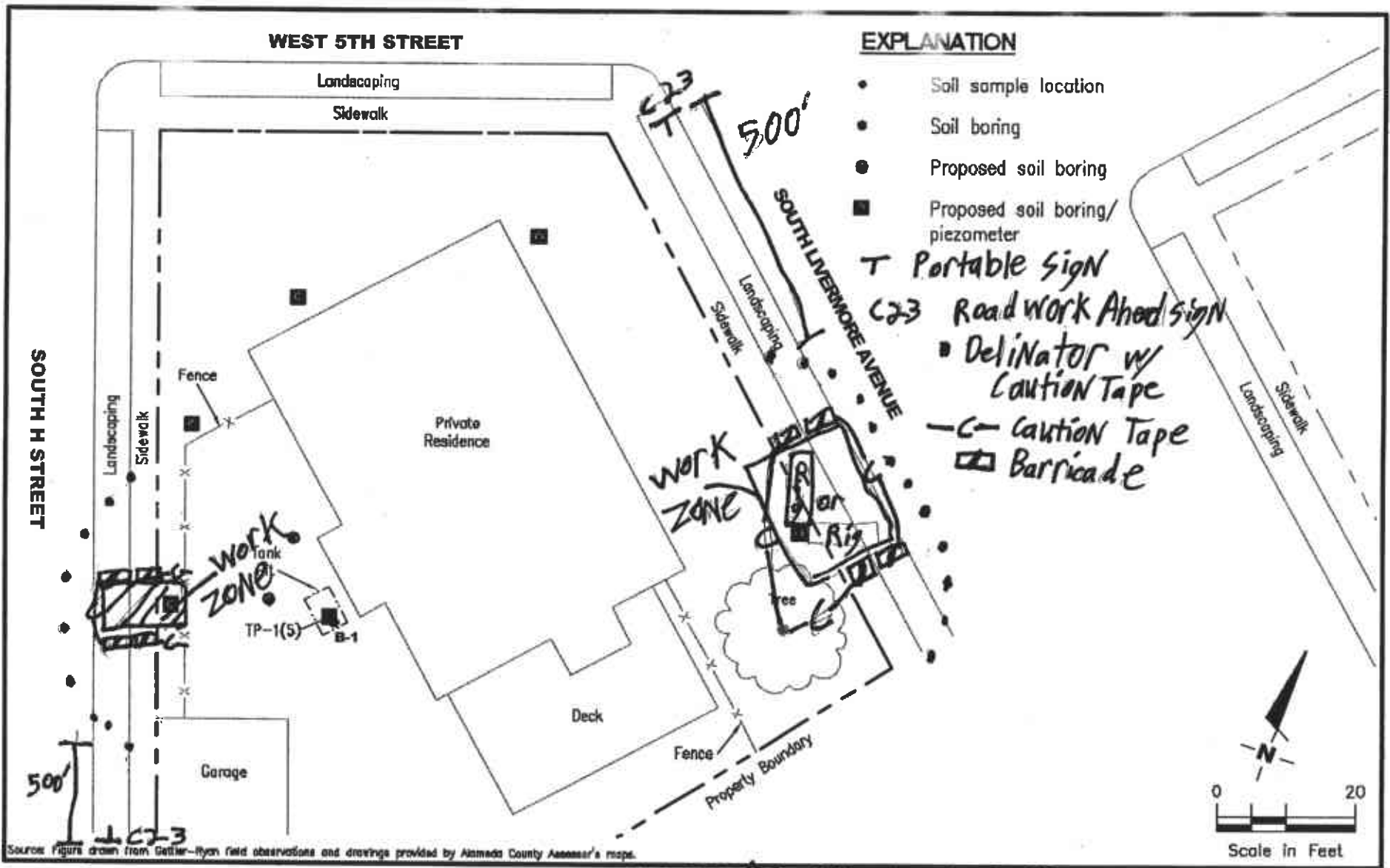
PROJECT NUMBER  
 948209.3

REVIEWED BY

DATE  
 11/04

REVISED DATE

FILE NAME: P:\Enviro\Marie Schweickert Property\W03-MARIE SCHWEICKERT.DWG | Layout Tab: Work Plan 11-04



Source: Figures drawn from Gettler-Ryan field observations and drawings provided by Alameda County Assessor's maps.

**GETTLER · RYAN INC.**  
 6747 Sierra Ct., Suite J  
 Dublin, CA 94568 (925) 551-7555

**SITE PLAN/Traffic Control Plan**  
 Marie Schweickert Property  
 515 South Livermore Avenue  
 Livermore, California

FIGURE  
**2**

PROJECT NUMBER  
 948209.3

REVIEWED BY

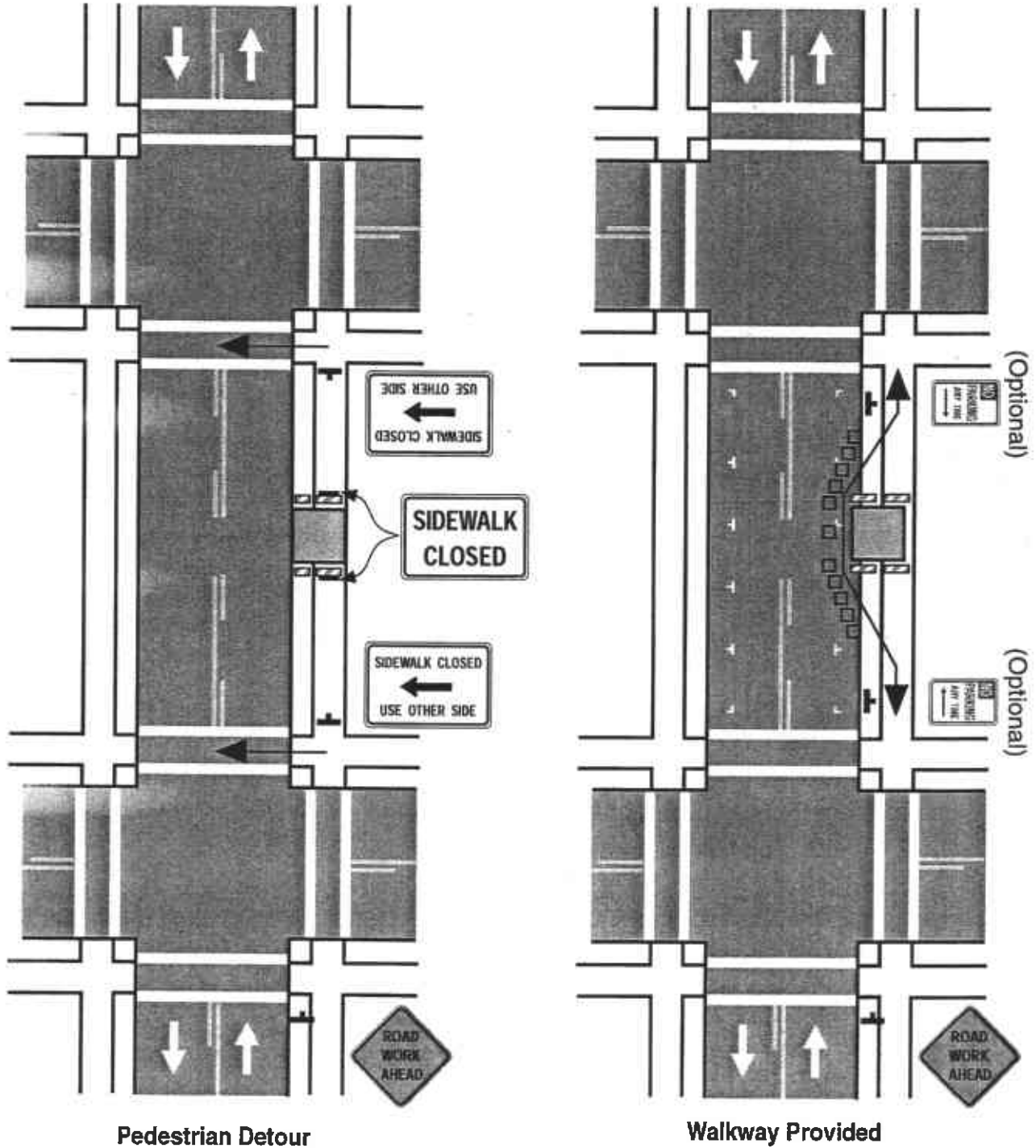
DATE  
 11/04

REVISED DATE

FILE NAME: P:\Environ\Marie Schweickert Property\A03-MARIE SCHWEICKERT.DWG | Layout Tab: Work Plan 11-04



### Typical Application 5-28 Sidewalk Closures and Bypass Walkway



CalTRANS Traffic Manual, Chapter 5, 1996 2nd Revision,  
issued January 3, 2000

CITY OF LIVERMORE, CA

RECVD BY: C ARCHER      E1000003852  
PAYOR: GETTLER-RYAN INC.  
TODAY'S DATE: 11/19/04  
REGISTER DATE: 11/19/04    TIME: 11:57:30

DESCRIPTION	AMOUNT
STREET & CURB PERMITS CUST ID: ENG40583	\$33.00
2022 STREET & CURB PERMITS 001-31300	
PUB WORKS-INSPECTION F CUST ID: ENG40583	\$50.00
2015 PUB WORKS-INSPECTION FEES 001-35350	

TOTAL DUE:      \$133.00






CHECK PAID:      \$133.00  
CHECK NO: 23451  
TENDERED:      \$133.00  
CHANGE:      \$ .00



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 Dublin, CA 94568  
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 FAX: (925) 551-7888

## Log of B-2

PROJECT NUMBER: 948209.04	DATE STARTED: 12-02-04
PROJECT NAME: Marie Schwieckert Residence	DATE COMPLETED: 12-03-04
LOCATION: 515 S. Livermore Ave., Livermore, CA	DEPTH TO WATER: 35 feet    DATE: 12-03-03    TIME: 11:55
DRILLING METHOD: Direct Push - 1 1/4"	TOTAL DEPTH: 71 feet
SAMPLING METHOD: Core Sampler	LOGGED BY: Geoffrey D. Risse
	DRILLER: Fisch Environmental Exploration Service

DEPTH (ft. bgl)	BLOWS / 1/2 ft	PDI (ppm)	SAMPLE NO.	RECOVERY	GRAPHIC LOG	U.S.C.S.	GEOLOGIC DESCRIPTION	WELL DIAGRAM
5	-	0	B2-5	█			Fill, dry, loose	Boring backfilled to 1 foot bgs with neat cement completed to ground surface with native soil
10	-	0	B2-10	█			Fill, dry, loose	
15	-	0	B2-15	█		CL	CLAY (CL), brown (7.5YR 4/3), dry, soft, 80% clay, 20% silt	
20	-	0	B2-20	█		GP	Poorly graded GRAVEL with SILT and SAND (GP), brown (7.5YR 4/2), moist, medium dense, 60% gravel, 30% sand, 10% silt	
25	-	0		█		GP		
30	-	0	B2-30	█		GP	Poorly graded GRAVEL with SAND (GP), brown (7.5YR 4/3), dry, medium dense, 70% gravel, 30% sand	
35	-	0	B2-35	█		GC	CLAYEY GRAVEL (GC), brown (7.5YR 4/2), saturated, medium dense, 70% gravel, 20% clay, 10% silt	



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## Log of B-2

DATE STARTED: 12-02-04

PROJECT NUMBER: 948209.04

DATE COMPLETED: 12-03-04

PROJECT NAME: Marie Schwieckert Residence

DEPTH TO WATER: 35 feet DATE: 12-02-03 TIME: 11:55

LOCATION: 515 S. Livermore Ave., Livermore, CA

TOTAL DEPTH: 71 feet

DRILLING METHOD: Direct Push - 1 1/4"

LOGGED BY: Geoffrey D. Risse

SAMPLING METHOD: Core Sampler

DRILLER: Fisch Environmental Exploration Services

DEPTH (ft. bgl)	BLOWS / 12 R	POI (ppm)	SAMPLE NO.	RECOVERY	GRAPHIC LOG	U.S.C.S.	GEOLOGIC DESCRIPTION	WELL DIAGRAM
40	-	0	B2-40	█		GM	SILTY GRAVEL (GM), brown (7.5YR 4/3), saturated, medium dense, 80% fine to coarse gravel, 20% silt  hit refusal at 39 feet, moved over 1 foot and advanced second hole to 40 feet, collected grab GW sample at 40 feet	Boring backfilled to 1 foot bga with neat cement completed to ground surface with native soil
45	-	0	B2-45	█		GM	same as above	
50	-	0	B2-50	█		CL	CLAY (CL), brown (7.5YR 4/3), saturated, stiff, 90% clay, 10% silt  color change at 50' to grey and strong odor, stiff, 70% clay, 30% silt (5/N)	
55	-	0	B2-55	█		GC	CLAYEY GRAVELLY (GC), reddish brown (7.5YR 4/2), saturated, dense, 70% fine to coarse gravel, 30% clay, faint odor	
60	-	0	B2-60	█		CL	GRAVELLY CLAY (GC), brown (7.5YR 4/2), saturated, very dense, 80% clay, 20% medium to coarse gravel	
65	-	0	B2-65	█		GC	CLAYEY GRAVELLY (GC), reddish brown (7.5YR 4/2), saturated, very dense, 70% gravel, 30% silt	
70	-	0	B2-70	█		CL	CLAY (GC), reddish brown (7.5YR 4/2), saturated, very dense, 90% clay, 10% coarse gravel	
							Bottom of bore hole at 71 feet	



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## Log of B-3

DATE STARTED: 12-17-04

PROJECT NUMBER: 948209.04

DATE COMPLETED: 12-17-04

PROJECT NAME: Marie Schwieckert Residence

DEPTH TO WATER: 35 feet DATE: 12-17-03 TIME: 09:46

LOCATION: 515 S. Livermore Ave., Livermore, CA

TOTAL DEPTH: 65.5 feet

DRILLING METHOD: Direct Push - 1 1/4"

LOGGED BY: Geoffrey D. Risse

SAMPLING METHOD: Core Sampler

DRILLER: Fisch Environmental Exploration Service

DEPTH (ft. bgl)	BLOWS / 12 IN	PDI (ppm)	SAMPLE NO.	RECOVERY	GRAPHIC LOG	U.S.C.S.	GEOLOGIC DESCRIPTION	WELL DIAGRAM
5	-	0	B3-5	█			Fill, dry, loose (gravel)	Boring backfilled to 1 foot bgs with neat cement completed to ground surface with native soil
10	-	0	B3-10	█		GP	GRAVEL with SAND (GP), brown (7.5YR 4/4) dry, loose, 85% gravel, 15% sand	
15	-	0	B3-15	█		CL	CLAY (CL), brown (7.5YR 4/4), moist, medium stiff, 70% clay, 30% silt	
20	-	0	B3-20	█		GM	SILTY GRAVEL (GM), brown (7.5YR 4/3), dry, medium dense, 80% fine to coarse gravel, 20% silt	
25	-	0	B3-25	█		GM	same as above, dense	
30	-	0	B3-30	█		GM	same as above, moist, 10% fine sand	
35	-	0	B3-35	█		CL	GRAVELLY CLAY (CL), reddish brown (5YR 4/4), saturated, stiff, 70% clay, 20% fine to medium gravel, 10% silt	



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### Log of B-3

DATE STARTED: 12-17-04

PROJECT NUMBER: 948209.04

DATE COMPLETED: 12-17-04

PROJECT NAME: Marie Schwieckert Residence

DEPTH TO WATER: 35 feet DATE: 12-17-03 TIME: 09:46

LOCATION: 515 S. Livermore Ave., Livermore, CA

TOTAL DEPTH: 65.5 feet

DRILLING METHOD: Direct Push - 1 1/4"

LOGGED BY: Geoffrey D. Risse

SAMPLING METHOD: Core Sampler

DRILLER: Fisch Environmental Exploration Services

DEPTH (ft. bgl)	BLOG/VS / 1/2 ft	PDI (ppm)	SAMPLE NO.	RECOVERY	GRAPHIC LOG	U.S.C.S.	GEOLOGIC DESCRIPTION	WELL DIAGRAM
40	-	0	B3-40	█		SP	SAND with GRAVEL and SILT (SP), reddish brown (2.5YR 4/4), saturated, stiff, 80% sand, 10% silt, 10% gravel	Boring backfilled to 1 foot bgs with neat cement completed to ground surface with native soil
45	-	0	B3-45	█		ML	SILT (ML), brown (10YR 4/3), saturated, stiff, 80% silt, 20% clay	
50	-	0	B3-50	█		GP	Poorly graded GRAVEL with SILT and SAND (GP), Brown (7.5YR 4/4), saturated, dense, 70% fine to medium gravel, 20% sand, 10% silt	
55	-	4	B3-55	█		CL	CLAY (CL), greyish brown (10YR 5/2), saturated, stiff, 80% clay, 15% sand, 5% silt, faint odor	
60	-	11	B3-60	█		CL	same as above, grey (5/N), strong odor	
65	-	8	B3-65	█		GP	Poorly graded GRAVEL (GP), brown (7.5YR 4/4), dry, very dense, 85% fine to medium gravel, 10% sand, 5% silt	
65.5	-						refusal at 65.5'	
70							Bottom of bore hole at 65.5 feet	



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## Log of PZ-1

DATE STARTED: 12-02-04

PROJECT NUMBER: 948209.04

DATE COMPLETED: 12-03-04

PROJECT NAME: Marie Schwieckert Residence

DEPTH TO WATER: 40 feet DATE: 12-02-03 TIME: 09:09

LOCATION: 515 S. Livermore Ave., Livermore, CA

TOTAL DEPTH: 71 feet TOC Elevation: 504.29 feet

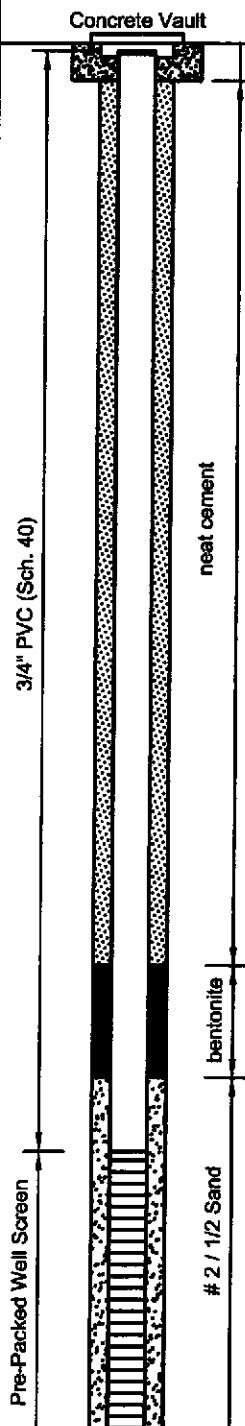
DRILLING METHOD: Direct Push - 1 1/4"

LOGGED BY: Geoffrey D. Risse

SAMPLING METHOD: Core Sampler

DRILLER: Fisch Environmental Exploration Service

DEPTH (ft. bgl)	BLOWS / 1/2 ft	PDI (ppm)	SAMPLE NO.	RECOVERY	GRAPHIC LOG	U.S.C.S.	GEOLOGIC DESCRIPTION	WELL DIAGRAM
0							upper 40 feet not logged due to proximity to B-1	Concrete Vault
5								
10								
15								
20								
25								
30								
35							water measured at 35 feet 12-03-04 at 10:00	Pre-Packed Well Screen





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## Log of PZ-1

DATE STARTED: 12-02-04

PROJECT NUMBER: 948209.04

DATE COMPLETED: 12-03-04

PROJECT NAME: Marie Schwieckert Residence

DEPTH TO WATER: 40 feet DATE: 12-02-03 TIME: 09:09

LOCATION: 515 S. Livermore Ave., Livermore, CA

TOTAL DEPTH: 71 feet TOC Elevation: 504.29 feet

DRILLING METHOD: Direct Push - 1 1/4"

LOGGED BY: Geoffrey D. Risse

SAMPLING METHOD: Core Sampled

DRILLER: Fisch Environmental Exploration Services

DEPTH (ft. log)	BLOWS / 12 ft	PDI (ppm)	SAMPLE NO.	RECOVERY	GRAPHIC LOG	U.S.C.S.	GEOLOGIC DESCRIPTION	WELL DIAGRAM
							upper 40 feet not logged due to proximity to B-1	
40	-	-	PZ1-40		GC	GC	CLAYEY GRAVEL (GC), grey (6/N), saturated, medium dense, 70% gravel, 20% silt, 10% sand, strong Hydrocarbon odor	
			PZ-1 Water				collected grab GW sample at 44 feet	
45	-	-	PZ1-45		CL	CL	CLAY (CL), grey (6/N), saturated, medium stiff, 80% clay, 15% silt, 5% sand	
50	-	-	PZ1-50		CL	CL	CLAY (CL), reddish brown (2.5YR 4/3), saturated, medium stiff, 80% clay, 20% silt, faint odor	
							Poorly graded GRAVEL with SILT (GP), grey (6/N), saturated, dense, 80% gravel, 10% silt, 10% sand, faint odor	
55	-	-	PZ1-55		CL	CL	CLAY (CL), reddish brown (2.5YR 4/3), saturated, stiff, 80% clay, 20% silt	
60	-	-	PZ1-60		GM	GM	SILT GRAVEL (GM), Grey (6/N), saturated, very dense, 80% gravel, 20% silt	
65	-	-	PZ1-65		GP	GP	Poorly graded GRAVEL with SAND (GP), reddish brown (2.5YR 4/3), moist, very dense, 70% gravel, 25% sand, 5% silt	
70	-	-	PZ1-70		GP	GP	same as above	
							Bottom of bore hole at 71 feet	





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## Log of PZ-2

DATE STARTED: 01-13-05

PROJECT NUMBER: 948209.04

DATE COMPLETED: 01-13-05

PROJECT NAME: Marie Schwieckert Residence

DEPTH TO WATER: 30 feet DATE: 01-13-05 TIME: 09:11

LOCATION: 515 S. Livermore Ave., Livermore, CA

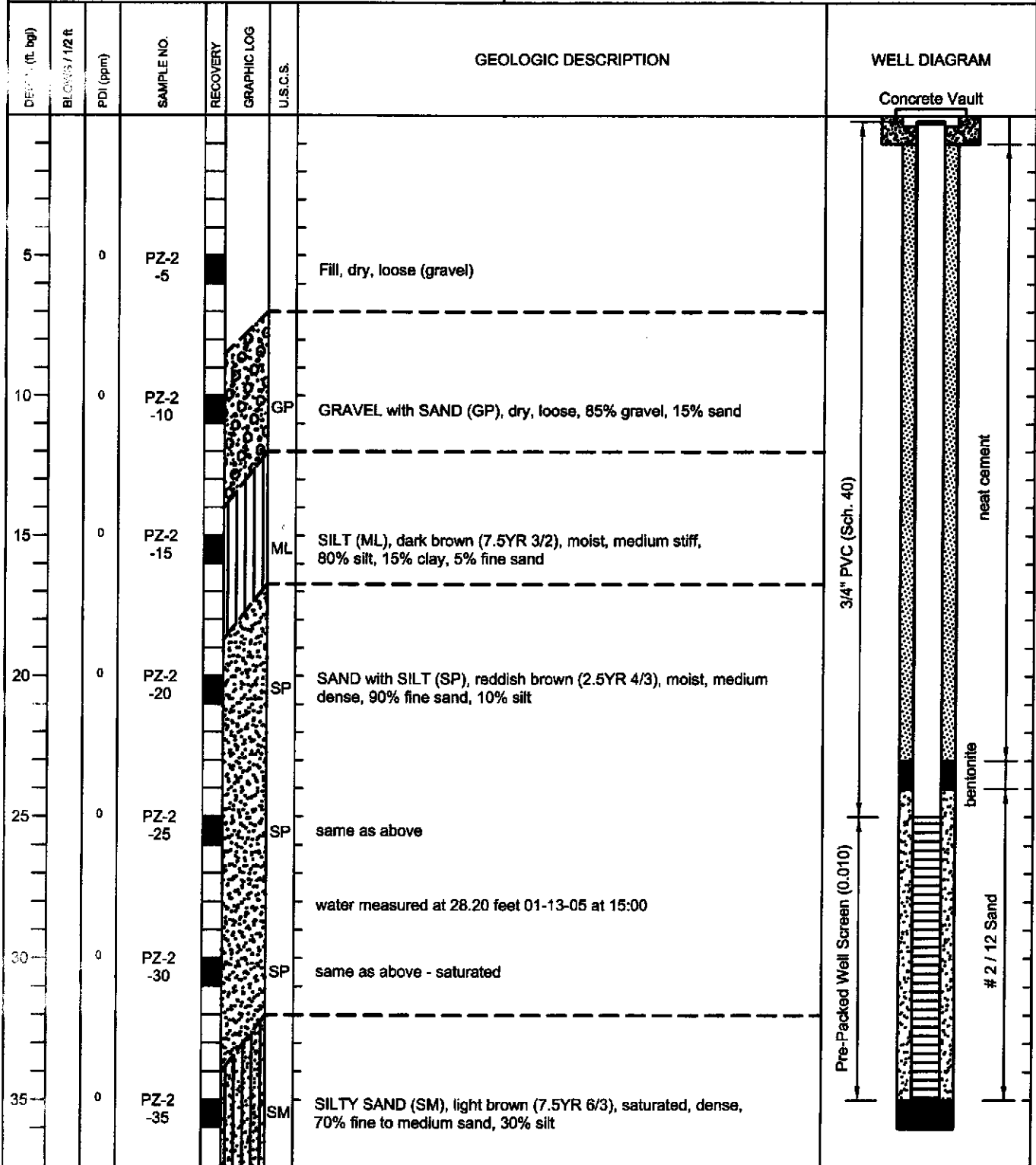
TOTAL DEPTH: 71 feet TOC Elevation: 503.40 feet

DRILLING METHOD: Direct Push - 1 1/4"

LOGGED BY: Geoffrey D. Risse

SAMPLING METHOD: Core Sampler

DRILLER: Fisch Environmental Exploration Service





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## Log of PZ-2

DATE STARTED: 01-13-05

PROJECT NUMBER: 948209.04

DATE COMPLETED: 01-13-05

PROJECT NAME: Marie Schwieckert Residence

DEPTH TO WATER: 30 feet DATE: 01-13-05 TIME: 09:11

LOCATION: 515 S. Livermore Ave., Livermore, CA

TOTAL DEPTH: 71 feet TOC Elevation: 503.40 feet

DRILLING METHOD: Direct Push - 1 1/4"

LOGGED BY: Geoffrey D. Risse

SAMPLING METHOD: Core Sampler

DRILLER: Fisch Environmental Exploration Service

DEPTH (ft. bgl)	BLOWS / 1/2 ft	PDI (ppm)	SAMPLE NO.	RECOVERY	GRAPHIC LOG	U.S.C.S.	GEOLOGIC DESCRIPTION	WELL DIAGRAM
								Concrete Vault
40	0		PZ-2 -40	■	SM	SM	SILTY SAND (SM), brown (7.5YR 4/2), saturated, dense, 70% fine to medium sand, 20% silt, 10% fine gravel	Backfilled with bentonite from 71' to 35'
45			PZ-2 water	△			collected grab GW sample at 44 feet sample refusal at 45 feet, 1'	
50	0		PZ-2 -50	■	ML	ML	SILT (ML), dark brown (7.5YR 3/2), saturated, very stiff, 90% silt, 10% clay	
55	0		PZ-2 -55	■	SP	SP	SAND with SILT (SP), light brown (7.5YR 6/3), saturated, very dense, fine to coarse sand, 90% sand, 10% silt	
60	0		PZ-2 -60	■	SP	SP	same as above	
65	0		PZ-2 -65	■	ML	ML	SILT (ML), dark brown (7.5YR 3/2), saturated, very stiff, 95% silt, 5% clay	
70	0		PZ-2 -70	■	ML	ML	same as above - moist	
							Bottom of bore hole at 71 feet	



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## Log of PZ-3

DATE STARTED: 01-14-05

PROJECT NUMBER: 948209.04

DATE COMPLETED: 01-14-05

PROJECT NAME: Marie Schwieckert Residence

DEPTH TO WATER: 35 feet DATE: 01-14-05 TIME: 09:17

LOCATION: 515 S. Livermore Ave., Livermore, CA

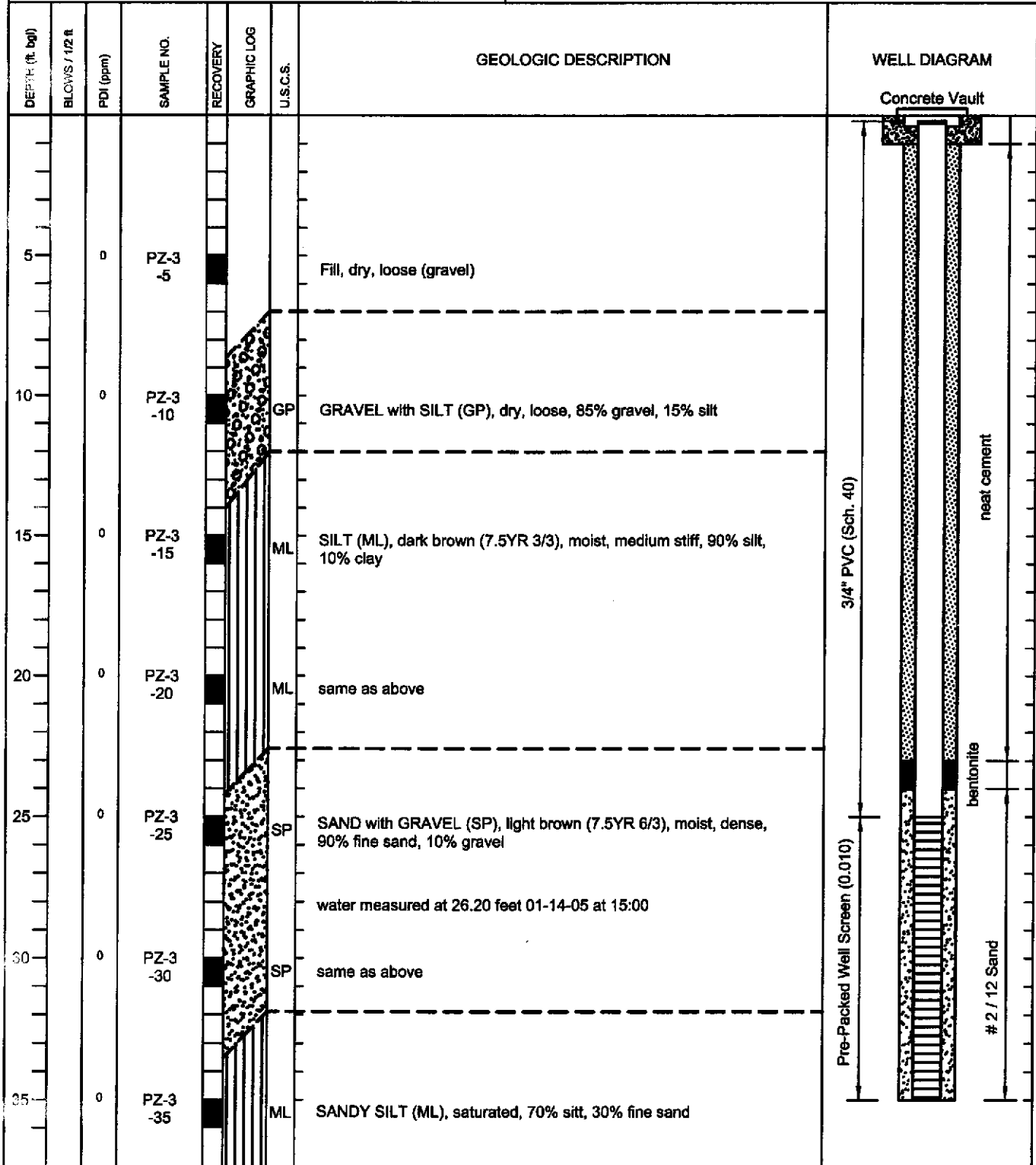
TOTAL DEPTH: 71 feet TOC Elevation: 503.44 feet

DRILLING METHOD: Direct Push - 1 1/4"

LOGGED BY: Geoffrey D. Risse

SAMPLING METHOD: Core Sampler

DRILLER: Fisch Environmental Exploration Service





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## Log of PZ-3

DATE STARTED: 01-14-05

PROJECT NUMBER: 948209.04

DATE COMPLETED: 01-14-05

PROJECT NAME: Marie Schwieckert Residence

DEPTH TO WATER: 35 feet DATE: 01-14-05 TIME: 09:17

LOCATION: 515 S. Livermore Ave., Livermore, CA

TOTAL DEPTH: 71 feet TOC Elevation: 503.44 feet

DRILLING METHOD: Direct Push - 1 1/4"

LOGGED BY: Geoffrey D. Risse

SAMPLING METHOD: Core Sampler

DRILLER: Fisch Environmental Exploration Service

DEPTH (ft. bgl)	BLOWS / 1/2 ft	PDI (ppm)	SAMPLE NO.	RECOVERY	GRAPHIC LOG	U.S.C.S.	GEOLOGIC DESCRIPTION	WELL DIAGRAM
						ML		
40	0		PZ-3 -40			SP	Poorly graded SAND with SILT (SP), light brown (7.5YR 6/3), saturated, medium dense, 90% fine to coarse sand, 10% silt	
45	0		PZ-3 water PZ-3 -45			SP	collected grab GW sample at 44 feet same as above	
50	0		PZ-3 -50			ML	SILT (ML), dark brown (7.5YR 3/2), saturated, stiff, 90% clay, 10% silt	
55	0		PZ-3 -55			SP	same as above	
60	0		PZ-3 -60			SP	SAND with SILT (SP), brown (7.5YR 4/3), saturated, very dense, 90% fine sand, 10% silt	
65	0		PZ-3 -65			SP	same as above	
70	0		PZ-3 -70			CL	same as above	
						CL	CLAY (CL), reddish brown (5YR 4/4), moist, very stiff, 85% clay, 15% silt	
							Bottom of bore hole at 71 feet	



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## Log of PZ-4

DATE STARTED: 01-17-05

PROJECT NUMBER: 948209.04

DATE COMPLETED: 01-17-05

PROJECT NAME: Marie Schwieckert Residence

DEPTH TO WATER: 30 feet DATE: 01-17-05 TIME: 09:07

LOCATION: 515 S. Livermore Ave., Livermore, CA

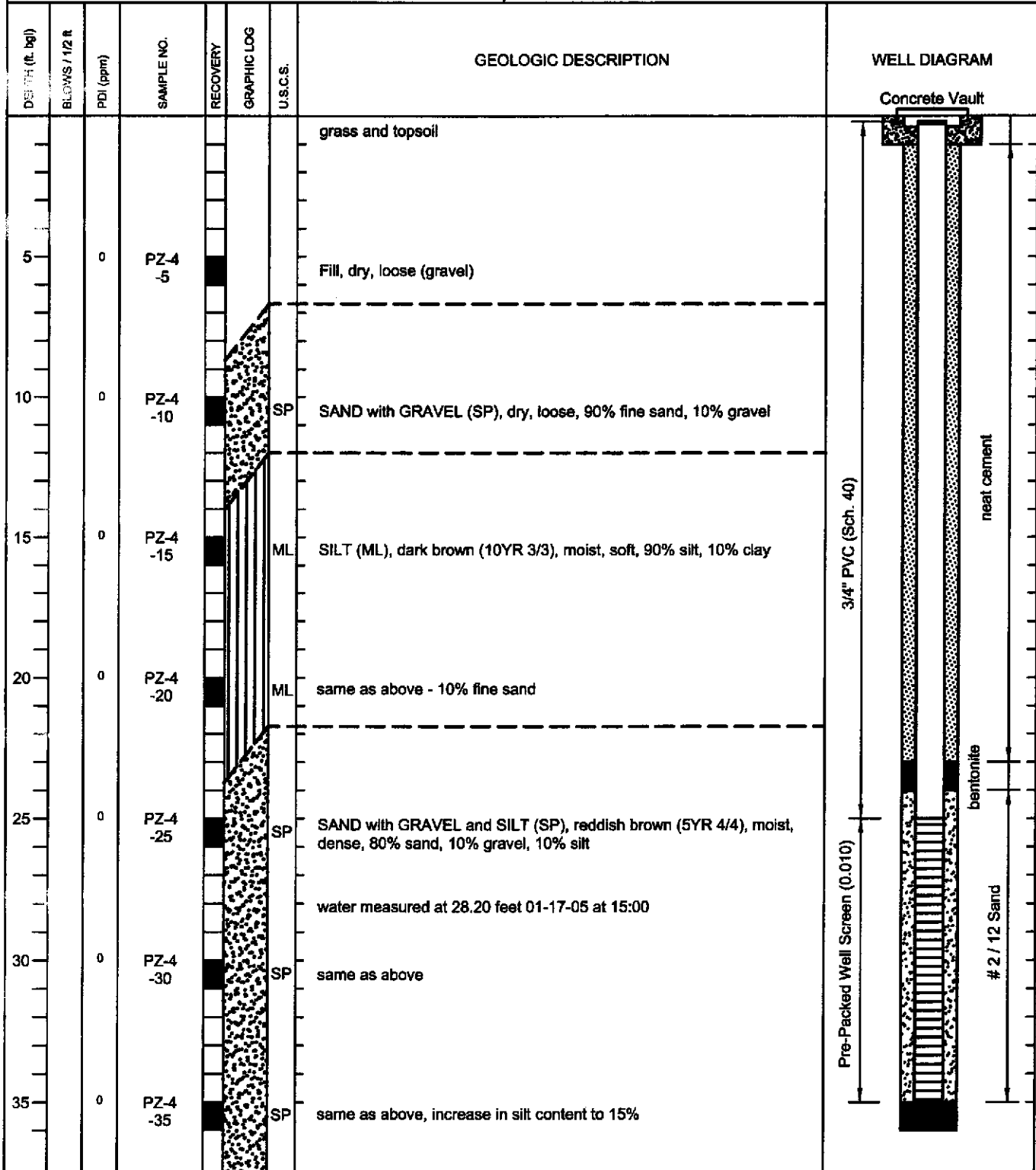
TOTAL DEPTH: 71 feet TOC Elevation: 504.00 feet

DRILLING METHOD: Direct Push - 1 1/4"

LOGGED BY: Geoffrey D. Riese

SAMPLING METHOD: Core Sampler

DRILLER: Fisch Environmental Exploration Service





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## Log of PZ-4

DATE STARTED: 01-17-05

PROJECT NUMBER: 948209.04

DATE COMPLETED: 01-17-05

PROJECT NAME: Marie Schwieckert Residence

DEPTH TO WATER: 30 feet DATE: 01-17-05 TIME: 09:07

LOCATION: 515 S. Livermore Ave., Livermore, CA

TOTAL DEPTH: 71 feet TOC Elevation: 504.00 feet

DRILLING METHOD: Direct Push - 1 1/4"

LOGGED BY: Geoffrey D. Risse

SAMPLING METHOD: Core Sampler

DRILLER: Fisch Environmental Exploration Service

DEPTH (ft. bgl)	BLOWS / 1/2 ft	PDI (ppm)	SAMPLE NO.	RECOVERY	GRAPHIC LOG	U.S.C.S.	GEOLOGIC DESCRIPTION	WELL DIAGRAM
40	0		PZ-4 -40			SM	SILTY SAND (SM), brown (7.5YR 5/3), saturated, dense, 80% fine sand, 20% silt	Concrete Vault  Backfilled with bentonite from 71' to 35'
			PZ-4 water				collected grab GW sample at 42 feet	
45							sample refusal at 45 feet	
50	0		PZ-4 -50			CL	CLAY (CL), light brown (7.5YR 6/4), saturated, medium stiff, 90% clay, 10% silt	
55	0		PZ-4 -55			CL	same as above	
60	0		PZ-4 -60			SP	SAND with GRAVEL and SILT (SP), reddish brown (7.5YR 4/4), saturated, dense, 80% fine sand, 10% gravel, 10% silt	
65	0		PZ-4 -65			SM	SILTY SAND (SM), brown (7.5YR 5/4), moist, dense, 70% fine sand, 25% silt, 5% fine to medium gravel	
70	0		PZ-4 -70			SM	same as above - very dense	
							Bottom of bore hole at 71 feet	



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## Log of PZ-5

DATE STARTED: 01-18-05

PROJECT NUMBER: 948209.04

DATE COMPLETED: 01-18-05

PROJECT NAME: Marie Schwieckert Residence

DEPTH TO WATER: 30 feet DATE: 01-18-05 TIME: 09:00

LOCATION: 515 S. Livermore Ave., Livermore, CA

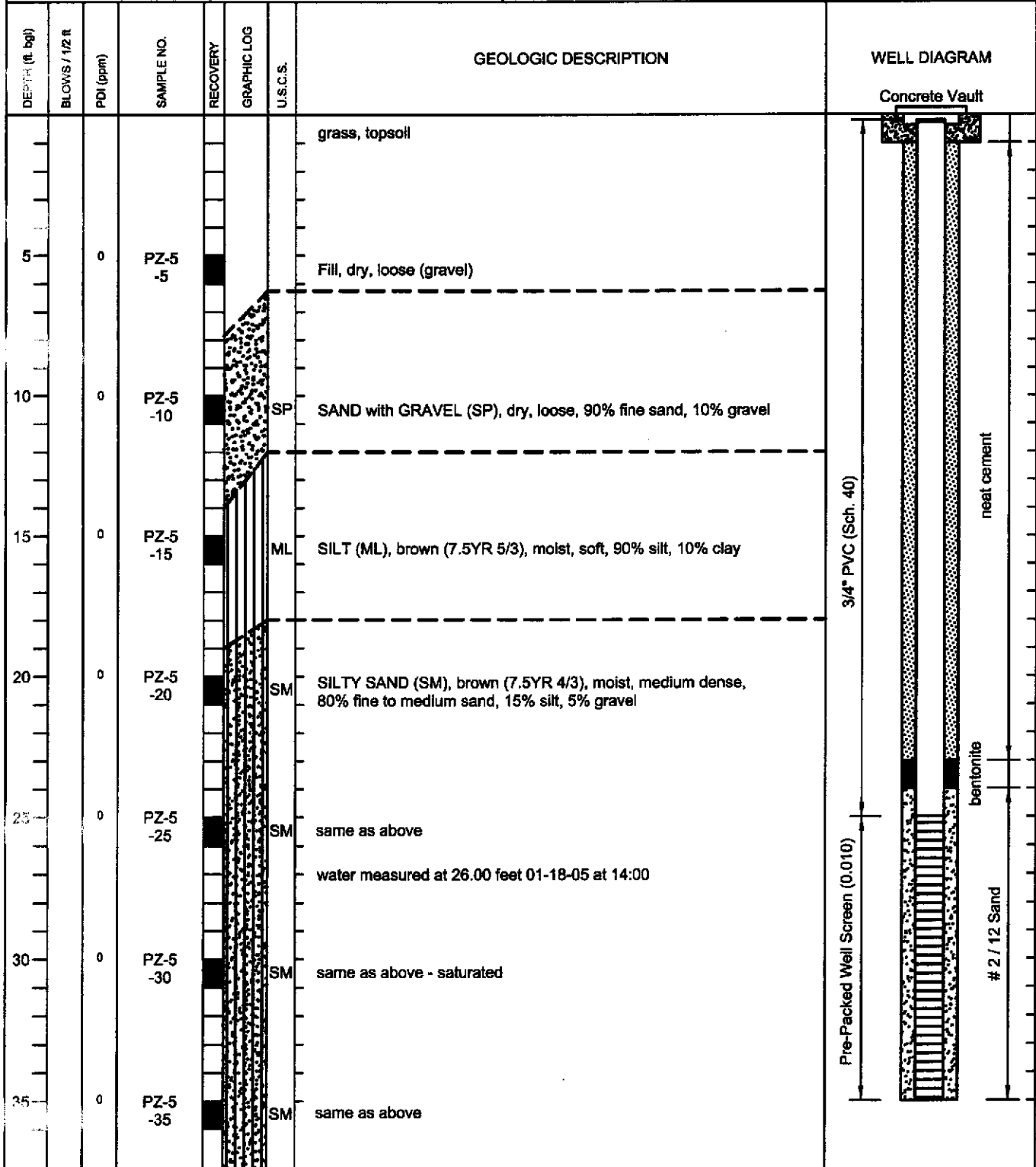
TOTAL DEPTH: 61 feet TOC Elevation: 502.98 feet

DRILLING METHOD: Direct Push - 1 1/4"

LOGGED BY: Geoffrey D. Risse

SAMPLING METHOD: Core Sampler

DRILLER: Fisch Environmental Exploration Service





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## Log of PZ-5

DATE STARTED: 01-18-05

PROJECT NUMBER: 948209.04

DATE COMPLETED: 01-18-05

PROJECT NAME: Marie Schwieckert Residence

DEPTH TO WATER: 30 feet DATE: 01-18-05 TIME: 09:00

LOCATION: 515 S. Livermore Ave., Livermore, CA

TOTAL DEPTH: 61 feet TOC Elevation: 502.98 feet

DRILLING METHOD: Direct Push - 1 1/4"

LOGGED BY: Geoffrey D. Risse

SAMPLING METHOD: Core Sampler

DRILLER: Fisch Environmental Exploration Service

DEPTH (ft. bgl)	BLOW'S / 1/2 FT	PDI (ppm)	SAMPLE NO.	RECOVERY	GRAPHIC LOG	U.S.C.S.	GEOLOGIC DESCRIPTION	WELL DIAGRAM
40	0		PZ-5 -40	█	SM	SM	SILTY SAND (SM), light brown (7.5YR 6/3), saturated, medium dense, 80% fine to medium sand, 20% silt	
			PZ-5 water				collected grab GW sample at 42 feet	
45	0		PZ-5 -45	█	ML	ML	SILT (ML), dark brown (7.5YR 3/2), saturated, stiff, 90% silt, 10% clay	
50	0		PZ-5 -50	█	ML	ML	same as above - stiff	
55	0		PZ-5 -55	█	SP	SP	Poorly graded SAND with SILT and GRAVEL (SP), light brown (7.5YR 6/4), saturated, dense, 70% fine to coarse sand, 20% fine to medium gravel, 10% silt	
60	0		PZ-5 -60	█	SP	SP	same as above - very dense	
							Bottom of bore hole at 61 feet	
							Refusal at 61 feet - due to gravel	
65								
70								





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## Log of PZ-6

DATE STARTED: 01-24-05

PROJECT NUMBER: 948209.04

DATE COMPLETED: 01-24-05

PROJECT NAME: Marie Schwieckert Residence

DEPTH TO WATER: 30 feet DATE: 01-24-05 TIME: 09:30

LOCATION: 515 S. Livermore Ave., Livermore, CA

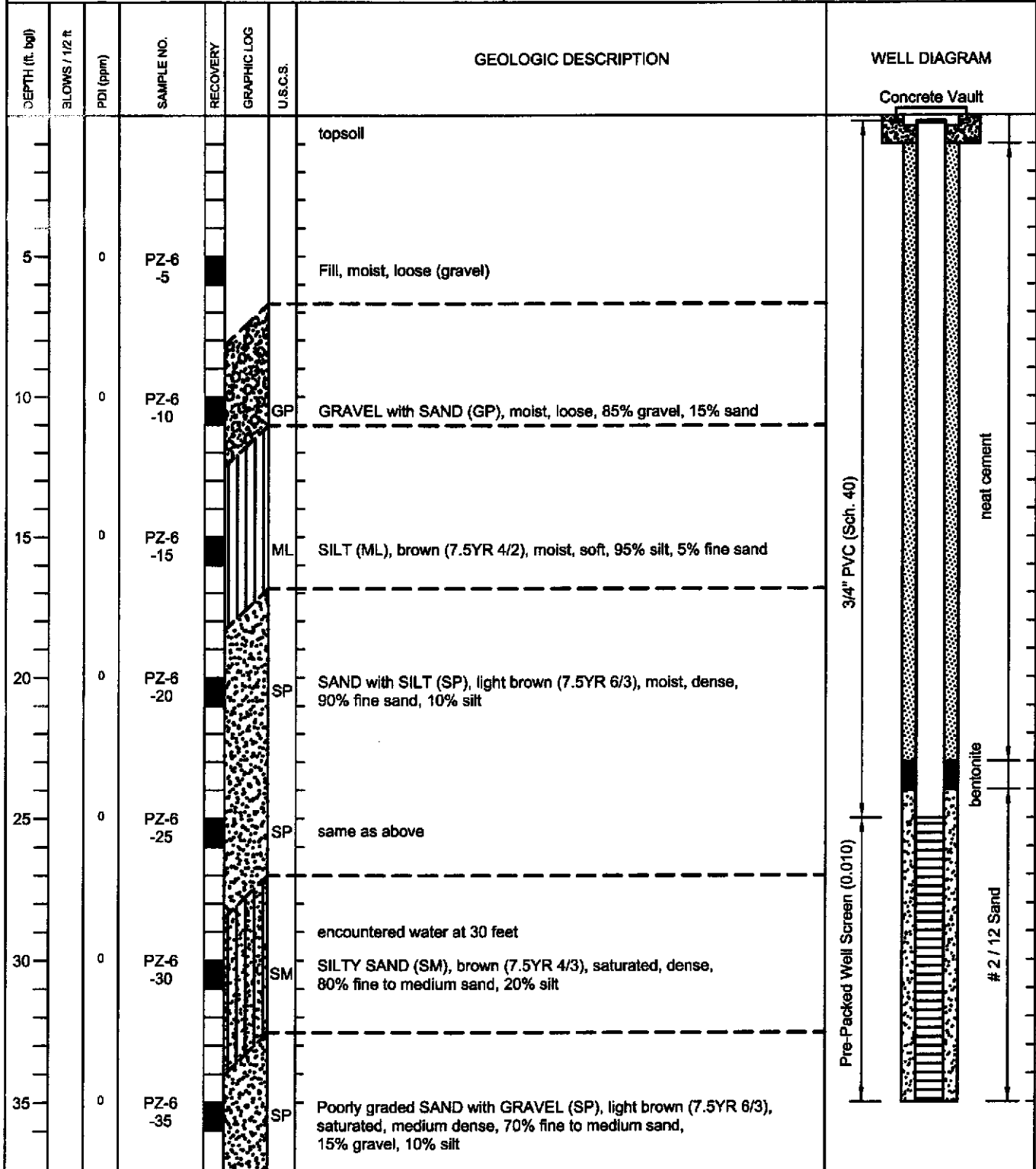
TOTAL DEPTH: 65 feet TOC Elevation: 504.23 feet

DRILLING METHOD: Direct Push - 1 1/4"

LOGGED BY: Geoffrey D. Risse

SAMPLING METHOD: Core Sampler

DRILLER: Fisch Environmental Exploration Service





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 TELEPHONE: (925) 551-7555  
 FAX: (925) 551-7888

## Log of PZ-6

DATE STARTED: 01-24-05

PROJECT NUMBER: 948209.04

DATE COMPLETED: 01-24-05

PROJECT NAME: Marie Schwieckert Residence

DEPTH TO WATER: 30 feet DATE: 01-24-05 TIME: 09:30

LOCATION: 515 S. Livermore Ave., Livermore, CA

TOTAL DEPTH: 65 feet TOC Elevation: 504.23 feet

DRILLING METHOD: Direct Push - 1 1/4"

LOGGED BY: Geoffrey D. Risse

SAMPLING METHOD: Core Sampler

DRILLER: Fisch Environmental Exploration Service

DEPTH (ft. log)	BLOWS / 1/2 ft	PDI (ppm)	SAMPLE NO.	RECOVERY	GRAPHIC LOG	U.S.C.S.	GEOLOGIC DESCRIPTION	WELL DIAGRAM
40	0		PZ-6 -40	■		SP	SAND with SILT (SP), light brown (7.5YR 6/3), saturated, dense, 85% fine sand, 15% silt	Backfilled with bentonite from 65' to 35'
45			PZ-6 water				collected grab GW sample at 44 feet	
45				▲		SP	sample refusal at 45 feet	
50	0		PZ-6 -50	■		ML	SILT (ML), brown (7.5YR 4/2), saturated, stiff, 90% silt, 5% clay, 5% fine sand	
55	0		PZ-6 -55	■		SM	SILTY SAND (SM), light brown (7.5YR 6/3), saturated, dense, 80% fine to medium sand, 20% silt	
60	0		PZ-6 -80	■		SM	same as above	
65				■		SM	same as above	
65							Bottom of bore hole at 65 feet Refusal at 65 feet - due to gravel	
70								

**CONFIDENTIAL**

STATE OF CALIFORNIA DWR  
WELL COMPLETION REPORT  
(WELL LOGS)

**REMOVED**

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STATE OF CALIFORNIA DWR  
WELL COMPLETION REPORT  
(WELL LOGS)

**REMOVED**

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WELL COMPLETION REPORT  
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**REMOVED**



**CONFIDENTIAL**

STATE OF CALIFORNIA DWR  
WELL COMPLETION REPORT  
(WELL LOGS)

**REMOVED**

**CONFIDENTIAL**

STATE OF CALIFORNIA DWR  
WELL COMPLETION REPORT  
(WELL LOGS)

**REMOVED**

## **APPENDIX D**

**WELL MONITORING/DEVELOPMENT  
FIELD DATA SHEET**

Client/Facility: Schwieckert Residence Job#: 948209.04  
 Address: 515 S. Livermore Avenue Date: 1/28/05  
 City: Livermore, CA Sampler: Geoffrey A. Risse

Well ID: PZ-1 Well Condition: \_\_\_\_\_  
 Well Diameter: 3/4 in. Hydrocarbon Thickness: \_\_\_\_\_ Ft. Amount Bailed (product/water): \_\_\_\_\_ (gal.)  
 Total Depth: \_\_\_\_\_ ft.  
 Depth to Water: 28.15 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

\_\_\_\_\_ X VF \_\_\_\_\_ = \_\_\_\_\_ X 10 (case volume) = Estimated Purge Volume: \_\_\_\_\_ (gal.)

Purge Equipment: Disposable Bailer  
 Bailer  
 Stack  
 Suction  
 Grundfos  
 Other: \_\_\_\_\_

Sampling Equipment: Disposable Bailer  
 Bailer  
 Pressure Bailer  
 Grab Sample  
 Other: \_\_\_\_\_

Starting Time: \_\_\_\_\_ Weather Conditions: Cloudy  
 Sampling Time: 12:52 Water Color: Clear Odor: None  
 Purging Flow Rate: \_\_\_\_\_ gpm. Sediment Description: Ab  
 Did well de-water? \_\_\_\_\_ If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>PZ-1</u>	<u>3 VOA</u>	<u>ICE</u>	<u>HCL</u>	<u>KFT</u>	<u>TPHd</u>

COMMENTS: \_\_\_\_\_

**WELL MONITORING/DEVELOPMENT  
FIELD DATA SHEET**

Client/  
Facility Schwieckert Residence  
Address: 515 S. Livermore Ave  
City: Livermore, CA

Job#: 948209.04  
Date: 1/29/05  
Sampler: Geoffrey D. Risse

Well ID PZ-2  
Well Diameter 3/4 in.  
Total Depth \_\_\_\_\_ ft.  
Depth to Water 27.58 ft.

Well Condition: \_\_\_\_\_  
Hydrocarbon Thickness: \_\_\_\_\_ Ft. Amount Bailed (product/water): \_\_\_\_\_ (gal.)  

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

\_\_\_\_\_ X VF \_\_\_\_\_ = \_\_\_\_\_ X 10 (case volume) = Estimated Purge Volume: \_\_\_\_\_ (gal.)

Purge Equipment: Disposable Bailer  
Bailer  
Stack  
Suction  
Grundfos  
Other: \_\_\_\_\_

Sampling Equipment: Disposable Bailer  
Bailer  
Pressure Bailer  
Grab Sample  
Other: \_\_\_\_\_

Starting Time: \_\_\_\_\_  
Sampling Time: 1237  
Purging Flow Rate: \_\_\_\_\_ gpm.  
Did well de-water? \_\_\_\_\_

Weather Conditions: RAINY  
Water Color: BROWN Odor: NONE  
Sediment Description: SILT  
If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>PZ-2</u>	<u>3 VOAS</u>	<u>ICE</u>	<u>HCL</u>	<u>KIFT</u>	<u>TPHd</u>

COMMENTS: \_\_\_\_\_

**WELL MONITORING/DEVELOPMENT  
FIELD DATA SHEET**

Client/Facility: Schwieckert Residence Job#: 948209.04  
 Address: 515 S. Livermore Ave Date: 1/7 8/05  
 City: Livermore, CA Sampler: Geoffrey A. Risse

Well ID: PZ-3  
 Well Diameter: 3/4 in.  
 Total Depth: \_\_\_\_\_ ft.  
 Depth to Water: 27.77 ft.

Well Condition: \_\_\_\_\_

Hydrocarbon Thickness:	Amount Bailed (product/water):		
	Ft.		(gal.)
Volume	2" = 0.17	3" = 0.38	4" = 0.66
Factor (VF)	6" = 1.50	12" = 5.80	

\_\_\_\_\_ X VF \_\_\_\_\_ = \_\_\_\_\_ X 10 (case volume) = Estimated Purge Volume: \_\_\_\_\_ (gal.)

Purge Equipment: Disposable Bailer  
 Bailer  
 Stack  
 Suction  
 Grundfos  
 Other: \_\_\_\_\_

Sampling Equipment: Disposable Bailer  
 Bailer  
 Pressure Bailer  
 Grab Sample  
 Other: \_\_\_\_\_

Starting Time: \_\_\_\_\_  
 Sampling Time: 11:16  
 Purging Flow Rate: \_\_\_\_\_ gpm.  
 Did well de-water? \_\_\_\_\_

Weather Conditions: Rainy, cloudy  
 Water Color: clear/brown Odor: None  
 Sediment Description: SH  
 If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>PZ-3</u>	<u>3 VOA</u>	<u>ICE</u>	<u>HCL</u>	<u>KSA</u>	<u>TPHd</u>

COMMENTS: \_\_\_\_\_

**WELL MONITORING/DEVELOPMENT  
FIELD DATA SHEET**

Client/Facility: Schwiebert Residence Job#: 948209.04  
 Address: 515 S. Livermore Ave Date: 1/28/05  
 City: Livermore, CA Sampler: Geoffrey D. Risse

Well ID: PZ-4  
 Well Diameter: 3/4 in.  
 Total Depth: \_\_\_\_\_ ft.  
 Depth to Water: 28.52 ft.

Well Condition: \_\_\_\_\_  
 Hydrocarbon Thickness: \_\_\_\_\_ Ft. Amount Bailed (product/water): \_\_\_\_\_ (gal.)  

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

\_\_\_\_\_ X VF \_\_\_\_\_ = \_\_\_\_\_ X 10 (case volume) = Estimated Purge Volume: \_\_\_\_\_ (gal.)

Purge Equipment: Disposable Bailer  
 Bailer  
 Stack  
 Suction  
 Grundfos  
 Other: \_\_\_\_\_  
 Sampling Equipment: Disposable Bailer  
 Bailer  
 Pressure Bailer  
 Grab Sample  
 Other: \_\_\_\_\_

Starting Time: \_\_\_\_\_ Weather Conditions: RAINY  
 Sampling Time: 1134 Water Color: LT BROWN Odor: NONE  
 Purging Flow Rate: \_\_\_\_\_ gpm. Sediment Description: SILT  
 Did well de-water? A If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>PZ-4</u>	<u>3</u> <u>VOA</u>	<u>ICE</u>	<u>HCL</u>	<u>K&amp;H</u>	<u>TPHcd</u>

COMMENTS: \_\_\_\_\_

**WELL MONITORING/DEVELOPMENT  
FIELD DATA SHEET**

Client/Facility: Schwieckert Residence Job#: 948209104  
 Address: 515 S. Livermore Ave Date: 1/28/09  
 City: Livermore, CA Sampler: Geoffrey V. Risse

Well ID: PZ-5 Well Condition: \_\_\_\_\_  
 Well Diameter: 3/4 in. Hydrocarbon Amount Bailed  
 Thickness: \_\_\_\_\_ Ft. (product/water): \_\_\_\_\_ (gal.)  
 Total Depth: \_\_\_\_\_ ft.  
 Depth to Water: 27.13 ft.

Volume	2" = 0.17	3" = 0.38	4" = 0.66
Factor (VF)	6" = 1.50	12" = 5.80	

\_\_\_\_\_ X VF \_\_\_\_\_ = \_\_\_\_\_ X 10 (case volume) = Estimated Purge Volume: \_\_\_\_\_ (gal.)

Purge Equipment: Disposable Bailer  
 Bailer  
 Stack  
 Suction  
 Grundfos  
 Other: \_\_\_\_\_

Sampling Equipment: Disposable Bailer  
 Bailer  
 Pressure Bailer  
 Grab Sample  
 Other: \_\_\_\_\_

Starting Time: \_\_\_\_\_ Weather Conditions: RAINY  
 Sampling Time: 1153 Water Color: BROWN Odor: NONE  
 Purging Flow Rate: \_\_\_\_\_ gpm. Sediment Description: Silt  
 Did well de-water? \_\_\_\_\_ If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>PZ-5</u>	<u>3</u>	<u>VOAS</u>	<u>ICE</u>	<u>HLL</u>	<u>KIT</u>

COMMENTS: \_\_\_\_\_



**WELL MONITORING/DEVELOPMENT  
FIELD DATA SHEET**

Client/Facility: Schwieckert Residence Job#: 948209.04  
 Address: 515 S. Livermore, CA Date: 1/28/05  
 City: Livermore, CA Sampler: Geoffrey V. Risse

Well ID: PZ-6 Well Condition: \_\_\_\_\_  
 Well Diameter: 3/4 in. Hydrocarbon Amount Bailed  
 Thickness: \_\_\_\_\_ Ft. (product/water): \_\_\_\_\_ (gal.)  
 Total Depth: \_\_\_\_\_ ft.  
 Depth to Water: 27.57 ft.

Volume	2" = 0.17	3" = 0.38	4" = 0.66
Factor (VF)	6" = 1.50	12" = 5.80	

\_\_\_\_\_ X VF \_\_\_\_\_ = \_\_\_\_\_ X 10 (case volume) = Estimated Purge Volume: \_\_\_\_\_ (gal.)

Purge Equipment: Disposable Bailer  
 Bailer  
 Stack  
 Suction  
 Grundfos  
 Other: \_\_\_\_\_

Sampling Equipment: Disposable Bailer  
 Bailer  
 Pressure Bailer  
 Grab Sample  
 Other: \_\_\_\_\_

Starting Time: \_\_\_\_\_ Weather Conditions: RAINY  
 Sampling Time: 12:24 Water Color: BROWN Odor: NONE  
 Purging Flow Rate: \_\_\_\_\_ gpm. Sediment Description: SILT  
 Did well de-water? \_\_\_\_\_ If yes; Time: \_\_\_\_\_ Volume: \_\_\_\_\_ (gal.)

Time	Volume (gal.)	pH	Conductivity $\mu$ mhos/cm	Temperature $^{\circ}$ C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)

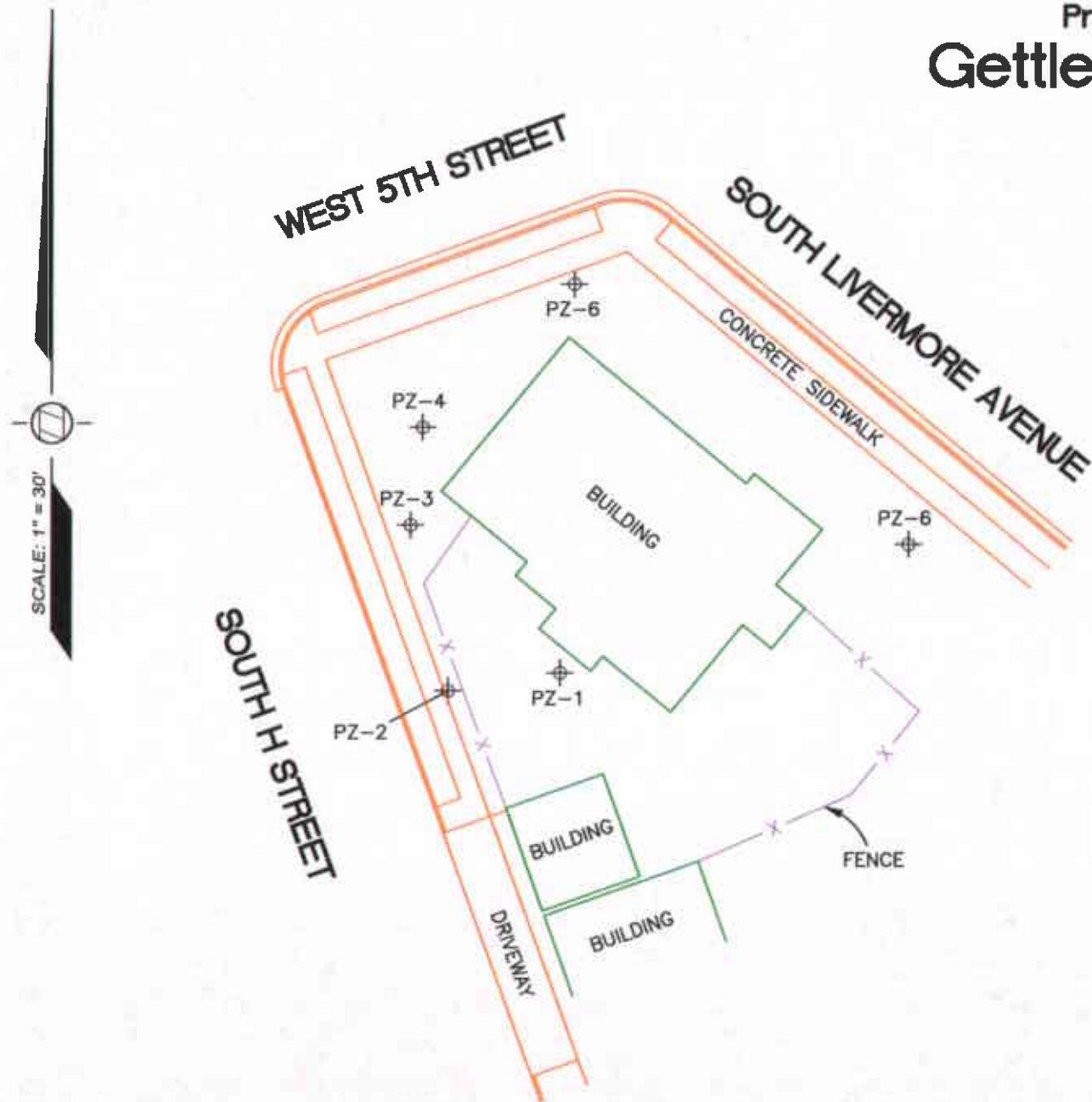
**LABORATORY INFORMATION**

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>PZ-6</u>	<u>3 VOAS</u>	<u>ICE</u>	<u>HCL</u>	<u>KIFF</u>	<u>TPHd</u>

COMMENTS: \_\_\_\_\_

# Monitoring Well Exhibit

Prepared For:  
**Gettler-Ryan Inc.**



DESCRIPTION	NORTHING	EASTING	LATITUDE	LONGITUDE	ELEV (PVC)	ELEV (BOX)
PZ-1	2072271.3	6195697.9	37.6792662	-121.7646427	504.29	504.50
PZ-2	2072267.9	6195677.4	37.6792563	-121.7647136	503.40	503.59
PZ-3	2072298.5	6195670.4	37.6793399	-121.7647390	503.44	503.63
PZ-4	2072316.5	6195672.7	37.6793895	-121.7647321	504.00	504.12
PZ-5	2072342.9	6195700.5	37.6794629	-121.7646373	502.98	503.22
PZ-6	2072295.0	6195761.9	37.6793337	-121.7644229	504.23	504.37

#### BASIS OF COORDINATES AND ELEVATIONS:

COORDINATES ARE CALIFORNIA STATE PLANE ZONE 3 COORDINATES FROM GPS OBSERVATIONS USING UNIVERSITY OF CALIFORNIA BAY AREA DEFORMATION CORS STATION OBSERVATION FILES AND BASED ON THE CALIFORNIA SPATIAL REFERENCE CENTER DATUM, REFERENCE EPOCH 2000.35.

COORDINATE DATUM IS NAD 83(1986).

DATUM ELLIPSOID IS GRS80.

REFERENCE GEOID IS NGS99.

CORS STATIONS USED WERE FARB AND DIAB.

VERTICAL DATUM IS NAVD 88 FROM GPS OBSERVATIONS.



Marie Schweickert Property  
515 South Livermore Avenue  
Livermore  
Alameda County  
California



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West Sacramento  
California 95691  
(916) 372-8124  
jeff@morrrowsurveying.com

Date: 2-7-05  
Scale: 1" = 30'  
Sheet 1 of 1  
Revised:  
Field Book: MW-19  
Dwg. No. 2480-036 JL