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Alameda County  
Environmental Health

May 14, 2007

**WORKPLAN  
FOR  
SOIL AND GROUNDWATER INVESTIGATION  
AND  
INTERIM SOURCE REMOVAL**

20957 Baker Road  
Castro Valley, California 94546

Leak Case RO0002739  
AEI Project # 10509

Prepared For

Darlene and Nat Piazza  
7613 Peppertree Road  
Dublin, California 94568-3343

Prepared By

**AEI Consultants**  
2500 Camino Diablo Blvd.  
Walnut Creek, CA 94597  
(800) 801-3224



May 14, 2007

Darlene and Nat Piazza  
7613 Peppertree Road  
Dublin, California 94568-3343

**Re: Workplan for Soil and Groundwater Investigation and Interim Source Removal**

20957 Baker Road  
Castro Valley, California 94546  
Leak Case RO0002739  
AEI Project # 10509

Dear Mr. and Mrs. Piazza,

The following workplan has been prepared on behalf of Mr. and Mrs. Nat Piazza (client), owners of the above referenced property. AEI Consultants (AEI) has been retained by the client to provide environmental engineering and consulting services associated with releases from two previously removed underground storage tank (USTs) on the property. This workplan has been prepared in response to a request from the Alameda County Health Care Services Agency (ACHCSA) for preparation of a work plan for a soil and groundwater investigation to determine the horizontal and vertical extent of impacted groundwater resulting from the hydrocarbon release from the former USTs.

**SITE DESCRIPTION AND BACKGROUND**

The subject property (hereafter referred to as the “site” or “property”) is located at 20957 Baker Road in Castro Valley, California (Figure 1: Site Location Map). The site is located in a mixed residential and commercial/light-industrial area of Castro Valley. The site is approximately 160 feet by 300 feet in area and is currently undeveloped. The site is partially covered with asphalt surfacing and concrete slabs with the remainder of the site graveled.

***Tank Removal***

On April 21, 2004, AEI removed two 1,000 gallon USTs from the site (Figure 2). The removal was performed under permit from the ACHCSA. The tank removal was observed by Robert Weston, Inspector for the ACHCSA. Two soil samples were collected from underneath each UST and analyzed for Total Petroleum Hydrocarbons as gasoline (TPH-g), benzene, toluene, ethylbenzene, xylenes (BTEX) and Methyl tert-butyl ether (MTBE) by EPA Method

8021B/8015Cm. Fuel oxygenates and 1,2 Dibromoethane (EDB) and 1,2 Dichloroethane (1,2 DCA) were analyzed by EPA Method 8260. Total Petroleum Hydrocarbons as diesel (TPH-d) was analyzed by EPA Method 8015C and total lead by EPA method 7010.

Hydrocarbons were detected in all the soil samples, TPH-g at concentrations ranging from 160 milligrams per kilogram (mg/kg) (T1W-EB8') to 1,400 mg/kg (T2W-EB8') and TPH-d at concentrations ranging from 1,400 mg/kg (T2E-EB8') to 10,000 mg/kg (T1E-EB8'). Total xylenes were reported in two samples at 8.4 mg/kg (T2W-E8') and 0.25 mg/kg (T2E-EB8'). No fuel oxygenates, EDB, or DCA were detected in the samples. Total lead was reported at concentrations ranging from 6.1 mg/kg to 24 mg/kg (stockpile sample STKP1-4).

### ***Preliminary Site Assessment***

AEI performed the subsurface investigation at the property on May 18, 2005. Eight (8) soil borings (SB-1 through SB-8) were advanced to depths ranging from 14 ft. to 18 ft. below ground surface (bgs) using a Geoprobe<sup>®</sup> model 5410 direct-push drilling rig. The locations of the soil borings are shown on Figure 2 and 3.

Detectable concentrations of TPH-g, TPH-d, TPH-mo, MTBE or BTEX, were not reported in any of the soil samples from depths of 7.5 to 11 feet bgs above detection limits of 1.0 mg/kg, 1.0 mg/kg, 5.0 mg/kg, 0.05 mg/kg, and 0.005 mg/kg, respectively.

TPH-g was reported at a concentration of 7,300 micrograms per liter ( $\mu\text{g/L}$ ) in SB-2 (SB2-W). No TPH-g was reported in groundwater samples from any other borings at or above a detection limit of 50  $\mu\text{g/L}$ .

The maximum concentration of TPH-d was reported in the groundwater sample from boring SB-2 at a concentration of 23,000  $\mu\text{g/L}$ . LNAPL was observed in the field and reported by the laboratory in the groundwater sample from SB-2. TPH-d was reported in the other seven borings at concentrations ranging from ND<50  $\mu\text{g/L}$  (SB-7) to 670  $\mu\text{g/L}$  (SB-5).

TPH-mo was not reported in groundwater samples from borings SB-3, SB-4 and SB-7 at or above a detection limit of 250  $\mu\text{g/L}$ . TPH-mo was reported in groundwater samples from borings SB-1, SB-2, SB-5, SB-6 and SB-8 at concentrations ranging from 300  $\mu\text{g/L}$  (SB-6) to 1400  $\mu\text{g/L}$  (SB-1 and SB-5).

MTBE was not reported by EPA Method 8021B in groundwater samples from any of the eight soil borings at or above a detection limit of 0.5  $\mu\text{g/L}$ .

The results of the groundwater analyses are summarized in Table 2 (Groundwater Sample Analytical Data) and shown on Figures 4 through 7.

## **GEOLOGICAL SETTING**

The site is located at approximately 180 feet above mean sea level (msl). The site is relatively flat and the local topography slopes very gently to south-southwest toward an unnamed stream (Figure 1).

The lithology observed in the borings drilled to date typically consists of 1 to 2 feet of gravelly clay – clayey gravel (Fill). The fill is underlain by silty clay, which becomes clayey silt downward to a depth of 6 to 8 feet bgs. The silt and clay are underlain by silty and gravelly sands to the top of the bedrock at depths of 13 to 17 feet bgs (Figure 7). In several borings saprolitic clay is present between the sandy sediments and the claystone (shale) bedrock. Groundwater, where present, was encountered at depths of 9 to 11 feet bgs in May 2005. During the later part of the dry season groundwater may not be present above the top of the bedrock. The overall northward slope to the bedrock surface and the local low in the area of SB-2, may result in hydrocarbon up or across the normal groundwater gradient if the groundwater level drops below the top of the bedrock. AEI does not believe that the shallow groundwater at the site has potential for use as drinking water. The relationships of the sediments that underlie the site are shown on cross sections A-A' and B-B' (Figure 8).

No groundwater monitoring wells are present on the site and no historical hydraulic gradient data is available. Hydraulic gradient data from UST sites to the north along Castro Valley Boulevard are variable but typically are in a southerly direction.

The nearest surface water body to the site is a small unnamed creek, located approximately 500 feet southwest of the site that drains into San Lorenzo Creek.

## **PREFERENTIAL PATHWAY SURVEY**

A survey of underground utilities was performed to determine if utilities onsite or beneath the adjacent street intersected the groundwater or the hydrocarbon plume originating from the former USTs. No known underground utilities are present under the parcel identified as 20957 Baker Road. The location of the utilities in the adjacent street are shown on Figure 9: Utility Map. Based on available data, the only utilities intersecting the groundwater in the vicinity of the site are the sanitary sewers in both Baker and Rutledge Roads which are located approximately 175 feet to the east and 100 feet to the west, respectively. Underground utilities do not appear to be located in positions to affect the migration of the groundwater in the immediate vicinity of the former USTs.

The underlying bedrock is mapped as Joaquin Miller formation (R.W. Graymer, OFR 96-252) and consists of shale with thin bedded sandstones which are not like to contain sufficient water for drinking water purposes. The Joaquin Miller Formation is not likely to contain primary porosity pathways that would facilitate downward migration of contaminants. The bedrock is

likely fractured and these fractures could act as conduits for vertical and lateral migration, however during much of the year the topographically higher areas to the north and south would like act as re-charge areas with net groundwater flow through the fractured rock being from the topographically high areas toward San Lorenzo Creek.

## **ENVIRONMENTAL CONCERNS**

Analysis of soil samples collected from beneath the two previously removed 1000-gallon fuel USTs reported maximum TPH-g and TPH-d concentrations of 1,400 mg/kg and 10,000 mg/kg, respectively from a depth of 8.0 bgs. No soil samples the collected during the 2005 PSA reported any detectable concentrations of TPH or MBTEX, however obviously impacted greenish gray sand was observed below the groundwater in boring SB-2. Based on the available data, impacted soil is limited to an area approximately 10 feet by 40 feet, essentially the footprint of the previous tank hold and the low in the bedrock surface around boring SB-2.

Analyses of groundwater from the 2005 Preliminary Site Assessment (PSA) hydrocarbon reported contaminant concentrations in the groundwater exceed RWQCB ESLs in three soil borings. The reported concentration of TPH-g exceeded the detection limit of 50 µg/L only in SB-2 where TPH-g was reported at a concentration of 7,300 µg/L. The reported concentrations of BTEX exceeded the detection limit of 0.5 µg/L only SB-2 where toluene and total xylenes were reported at concentrations of 11 µg/L and 27 µg/L, respectively.

The reported concentration of TPH-d exceeded the detection limit of 50 µg/L in seven of the eight borings, however the RWQCB ESL for protection of non-drinking water of 640 µg/L was exceeded only in borings SB-2 and SB-5 where TPH-d was reported at concentrations of 23,000 µg/L and 670 µg/L, respectively. The reported concentration of TPH-mo exceeded the detection limit of 250 µg/L in three of the eight borings. The RWQCB ESL for protection of non-drinking water of 640 µg/L was exceeded in borings SB-1, SB-2 and SB-5 where TPH-mo was reported at concentrations of 1,400 µg/L 1,300 µg/L and 1,400 µg/L, respectively. Based on the available data, impacted groundwater is limited to an area approximately 20 feet by 50 feet, essentially the footprint of the previous tank hold extending to the low in the bedrock surface around boring SB-2 and up gradient boring SB-1.

## **SCOPE OF WORK**

Based on the results of the soil and groundwater analyses from the UST removal and the preliminary site investigation, the ACHCSA has requested a scope of work to define the extent of the dissolved phase plume. Based on the data discussed above, AEI believes the extent of the impacted soil and groundwater has been effectiveness delineated to non-detectable concentrations to the north (up gradient), east (cross gradient) and south (down gradient).

AEI proposes to drill five (5) 2-inch diameter groundwater monitoring wells as shown on Figure 3. The locations of three wells (MW-1, MW-2, and MW-3) were chosen to allow interim

remediation (in-situ oxidation) of the light non-aqueous phase liquids in the area of the tank hold and boring SB-2 by injection of hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>). Wells MW-4 and MW-5 are located to confirm the down gradient edge of the groundwater plume, further delineate the western extend of the groundwater plume, and monitor the effectiveness of H<sub>2</sub>O<sub>2</sub> injection.

Chemical oxidation of hydrocarbons in the source area will produce an oxygenated environment which will result in an increase in the natural biomass and accelerated bio-remediation in the surrounding soil and groundwater.

### **Monitoring Well Installation**

Prior to the initiation of field activities a drilling permit will be obtained from Alameda County Public Works Department (ACPWA) and notification will be made to Underground Service Alert (USA, North). All drilling will be carried out by an appropriately licensed driller (CA C-57). The borings will be drilled using nominal 8-inch diameter hollow stem augers. An experienced AEI professional geologist will be onsite for all drilling and sampling activities. The soil borings will be logged by an AEI geologist using the Unified Soil Classification System (USCS).

Soil samples will be collected a minimum of 5 foot intervals with a split spoon sampler advanced ahead of the auger bit. Samples will be utilized to characterize the sediments beneath the site and for geotechnical and chemical analyses. Soil samples will be sealed in brass liners with Teflon tape and plastic end caps. All samples will be stored on ice and transported under appropriate chain-of-custody protocols to a California certified laboratory for analysis.

### Field Screening and Sample Analysis

Soil samples will be field screened using a Photo Ionization Detector (PID). Based on the results of field screening, samples will be selected for chemical analyses. A minimum of one soil sample will be selected for analysis from each boring, typically from the capillary fringe. Additional soil samples may be retained at the AEI professional geologist's discretion. All samples selected for laboratory analysis will be analyzed for TPH-g, TPH-d, TPH-mo and MBTEX by method 8015/8021. Two representative soil samples will be analyzed for CAM-17 metals, hexavalent chromium and sieve analyses. The purposes of CAM 17 metals and hexavalent chromium is present in the soil and to allow determination if insitu chemical oxidation (ISCO) effects concentrations of CAM 17 metals and hexavalent chromium.

### Well Completion

Wells MW-1, MW-2, and MW-3 will be drilled near former soil borings SB-2, SB-1, and SB-5, respectively, and will be used to monitor groundwater quality and for injection of H<sub>2</sub>O<sub>2</sub>. Wells MW-4 and MW-5 will be located down gradient of the source area will be used to monitor remediation progress. All wells will be completed with 2-inch diameter schedule 80 PVC casing

with 0.020 slotted casing with appropriately sized sand pack. The slotted interval in each well will extend from total depth (16 feet) to approximately 6 feet bgs. A traffic-rated, flush-mounted well box will be installed at the surface.

The wells will be developed no sooner than 72 hours after seal placement by surging, bailing, and purging to remove accumulated fines from the casing and sand pack.

#### XYZ Survey

The newly installed wells will be surveyed to meet GeoTracker requirements by a California licensed land surveyor. The survey data will be utilized to calculate groundwater flow direction and hydraulic gradient.

#### Initial Groundwater Sampling

The initial groundwater monitoring event will occur within 7 days following well development. Ongoing monitoring and sampling of the onsite wells will continue on a quarterly basis.

Water sampling will be done with a peristaltic pump as follows:

- 1 During purging the pump rate will be maintained at less than 0.5 liter per minute.
- 2 The standard groundwater parameters of pH, temperature, conductivity, dissolved oxygen (DO) and oxidation-reduction potential (ORP) will be measured.
- 3 Groundwater sampled will be collected when the groundwater parameters stabilize.
- 4 Stabilization will be defined as follows: pH  $\pm$  0.1 units, conductivity  $\pm$  3%  $\mu$ s/cm, DO  $\pm$  0.3 milligrams per liter, and ORP  $\pm$  10 millivolts.

The groundwater samples will be analyzed for TPH-g, BTEX, TPH-d, TPH-mo by method 8015/8012. The groundwater samples from well MW-1 and MW-5 will be analyzed for dissolved metals, CAM-17 and hexavalent chromium to determine if ISCO is precipitating or mobilizing metals.

#### Waste Storage

Drill cuttings will be stored in DOT approved 55-gallon drums in a secure location onsite, pending the results of sample analyses. Upon receipt of analytical data, drill cutting and waste liquid disposal will be arranged with a properly licensed waste hauler and disposal facility(s).

#### Decontamination

Sampling equipment will be decontaminated between samples using a triple rinse system containing Alconox™ or similar detergent. Rinse water will be contained in sealed labeled DOT approved 55-gallon drums in a secure location onsite pending proper disposal.

## **Interim Source Removal**

### H<sub>2</sub>O<sub>2</sub> Injection

H<sub>2</sub>O<sub>2</sub> will be injected into wells MW-1 through MW-3 using a double diaphragm pump. The procedures during injection will be as follows:

- 1 Depth to water (DTW) in wells MW-1 and MW-5 will be measured prior to adding the fluid. DTW will be measured periodically in the wells throughout the injection to determine any effect in that well.
- 2 5% H<sub>2</sub>O<sub>2</sub> solution will be made up by adding sufficient 35% H<sub>2</sub>O<sub>2</sub> solution to 50 gallons of water in a poly tank. The poly drum will be equipped with a bottom drain.
- 3 Initially, approximately 1,000 gallons of 5% H<sub>2</sub>O<sub>2</sub> solution will be injected into the pea gravel that makes up the basal backfill in tank excavation through well MW-2, located within the former tank excavation.
- 4 Approximately 500 gallons of 5% H<sub>2</sub>O<sub>2</sub> will be injected, in turn, into wells MW-1 and MW-3.
- 5 Steps 3 and 4 will then be repeated until 6,000 gallons of H<sub>2</sub>O<sub>2</sub> has been injected into the area around the former tank hold. It is expected that two days will be required to complete injection of the H<sub>2</sub>O<sub>2</sub>.

### Water Sampling

Groundwater samples will be collected from each of the five (5) wells described above at two-week intervals for one month then monthly until the next quarterly monitoring event. All groundwater samples will be analyzed TPH-d and TPH-mo by EPA method 8015.

### Data Analysis

The results of groundwater analyses will be evaluated as they are received. Following the second sampling, a decision will be made after consultation with the client whether or not additional injection of H<sub>2</sub>O<sub>2</sub> is warranted.

## **SITE SAFETY**

Prior to commencement of field activities, a site specific Health and Safety Plan conforming to Part 1910.120 (i) (2) of 29 CFR will be prepared. A copy of site safety plan to will be on site at all times during the project. A site safety meeting will be held at a designated command post near the working area. Emergency procedures will be outlined at this meeting, including an explanation of the hazards of the known or suspected chemicals of interest. All site personnel will be in modified Level D personal protection equipment, which is the anticipated maximum amount of protection needed. A working area will be established with barricades and warning



tape to delineate the zone where hard hats and steel-toed shoes must be worn, and where unauthorized personnel will not be allowed. During H<sub>2</sub>O<sub>2</sub> injection, waterproof Tyvex and eye protection in the form of either a faceplate or goggles will be required of all personnel in the work area.

## **REPORTING**

Upon installation of the monitoring wells, receipt of the results of the initial groundwater monitoring event, and receipt of all analytical and well survey data, a *Soil and Groundwater Investigation Report* will be prepared. The report will detail the methods and findings of the installation and sampling of the wells. This report will include figures, data tables, cross sections, logs of borings, well construction details, and interpretation of the contaminant distributions. Quarterly monitoring reports will be submitted within approximately one month of monitoring and sample collection activities. Following the second quarterly groundwater monitoring event an Interim Source Remediation and Groundwater Monitoring report will be prepared. This report will include figures, data tables, cross sections, logs of borings, well construction details, a summary of H<sub>2</sub>O<sub>2</sub> injection activities and interpretation of the results with recommendations for closure or additional follow-up actions if deemed necessary.

## **ESTIMATED SCHEDULE**

Once the scope of work has been approved by the ACHCSA, project permitting will begin. Drilling will be scheduled upon approval of permits. Reports will be available within approximately 1 month of receipt of all necessary data.

## **CLEAN UP GOALS**

AEI proposes using the RWQCB's ESLS for protection of the groundwater where groundwater has no current or potential use as drinking water for TPH-g, TPH-d, and TPH-mo of 500 µg/L, 640 µg/L, 640 µg/L, respective as cleanup goals.


Upon reaching these goals, AEI will submit a workplan for confirmation sampling and monitoring as deemed necessary and advisable.

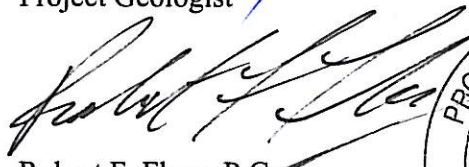
20957 Baker Road, 20630 Rutledge Road  
Castro Valley, California  
ACEHS # RO002739  
May 14, 2007  
Page 9

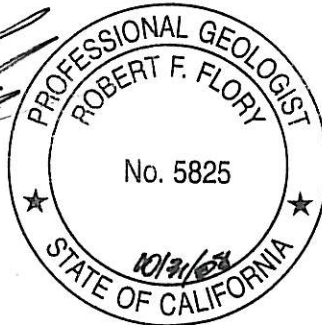
AEI requests your comments and approval to proceed with this project. Please contact me at (925) 944-2899, extension 122, if you have any questions or need any additional information.

Sincerely,

**AEI Consultants**

  
Adrian Angel  
Project Geologist

  
Robert F. Flory, P.G.  
Senior Project Manager



## REFERENCED REPORTS

1. *Geotechnical Exploration and Engineering Study, Proposed Baker Road Apartments*, December 3, 1986, prepared by JMK Environmental Solutions, Inc.
2. *Underground Storage Tank removal Final Report*, May 19, 2004, prepared by AEI Consultants
3. *Preliminary Site Investigation Report*, June 5, 2005, prepared by AEI Consultants
3. Preliminary geologic map emphasizing bedrock formations in Alameda County, California, 1996, R.W. Graymer, et al., U.S.G.S. Open File Report 96-252

**Figure 1** – Site Location Map

**Figure 2** – Site Map

**Figure 3** – Detail Site Plan

**Figure 4** – Groundwater Analytical Results (5/18/05)

**Figure 5** – TPH-d Isopleths

**Figure 6** – TPH-mo Isopleths

**Figure 7** – Depth to Bedrock

**Figure 8** – Cross Sections

**Figure 9** – Utility Map

**Table 1** – Soil Sample Analytical Data

**Table 2** – Groundwater Sample Analytical Data

Distribution:

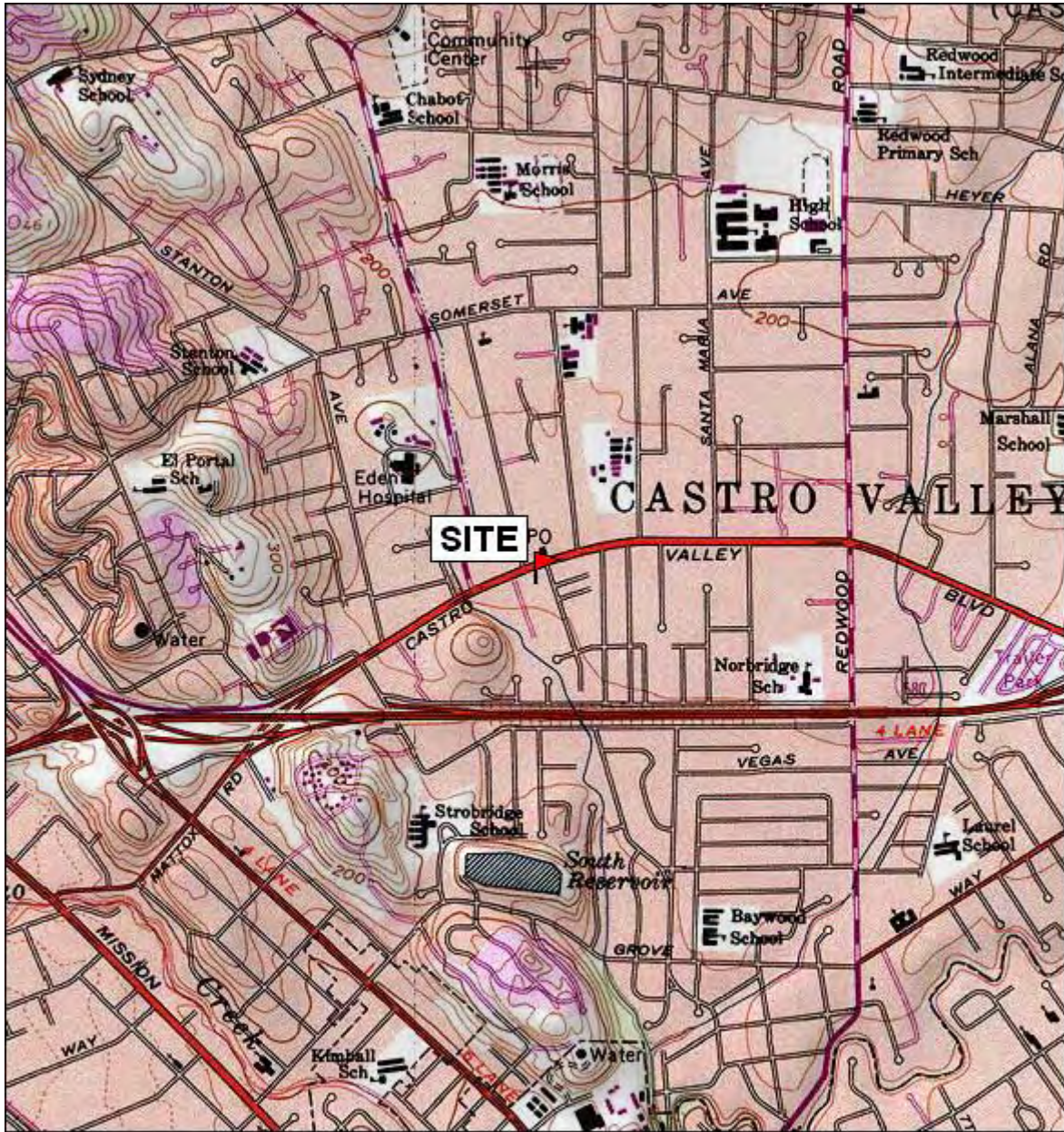
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Nat Piazza, 7613 Pepper Tree Road, Dublin, California, 94568-3343 -2 copies

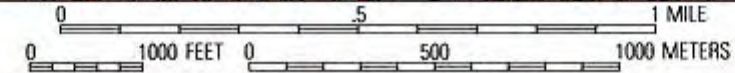
Donna Drogos, Alameda County Environmental Health Care Services, 1131 Harbor Bay parkway, Suite 250,  
Alameda, California 94502-6577

Geotracker

## **FIGURES**



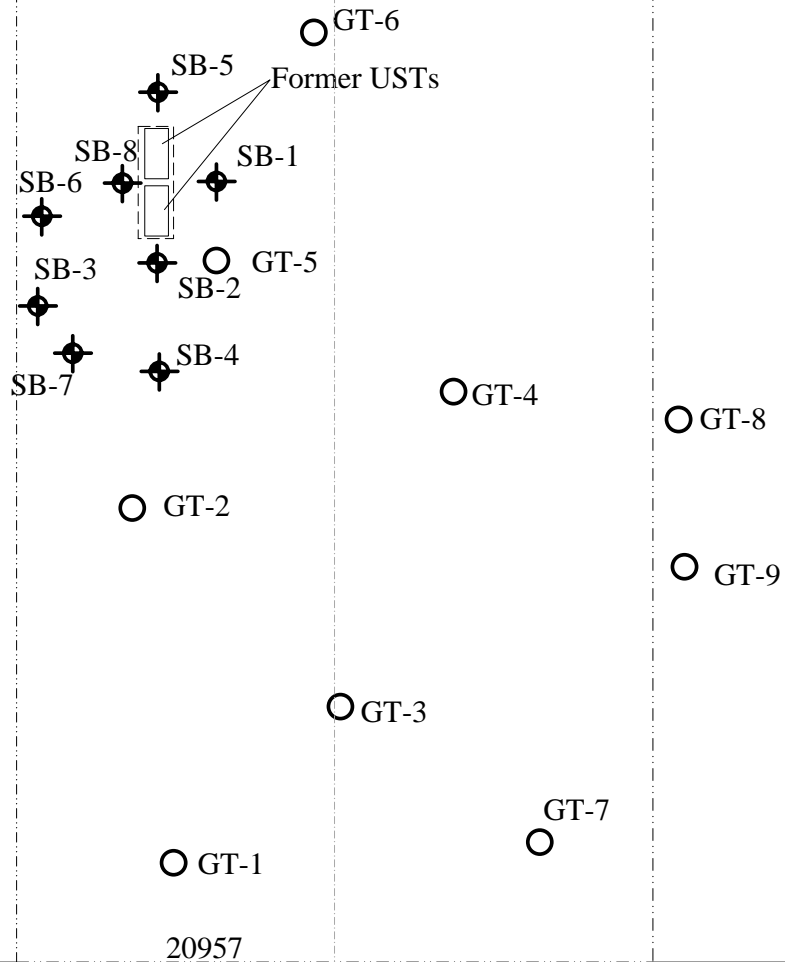
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<b>AEI CONSULTANTS</b>	
<b>SITE LOCATION MAP</b>	
20957 BAKER ROAD CASTRO VALLEY, CALIFORNIA	<b>FIGURE 1</b> PROJECT No. 10509

Rutledge Road



○ GT-1 Geotechnical Boring - 1986

⊕ SB-1 Soil Borings - 5/18/2005



Site Boundary



SCALE 1inch = 50 feet

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2500 CAMINO DIABLO, WALNUT CREEK, CA

**SITE MAP**

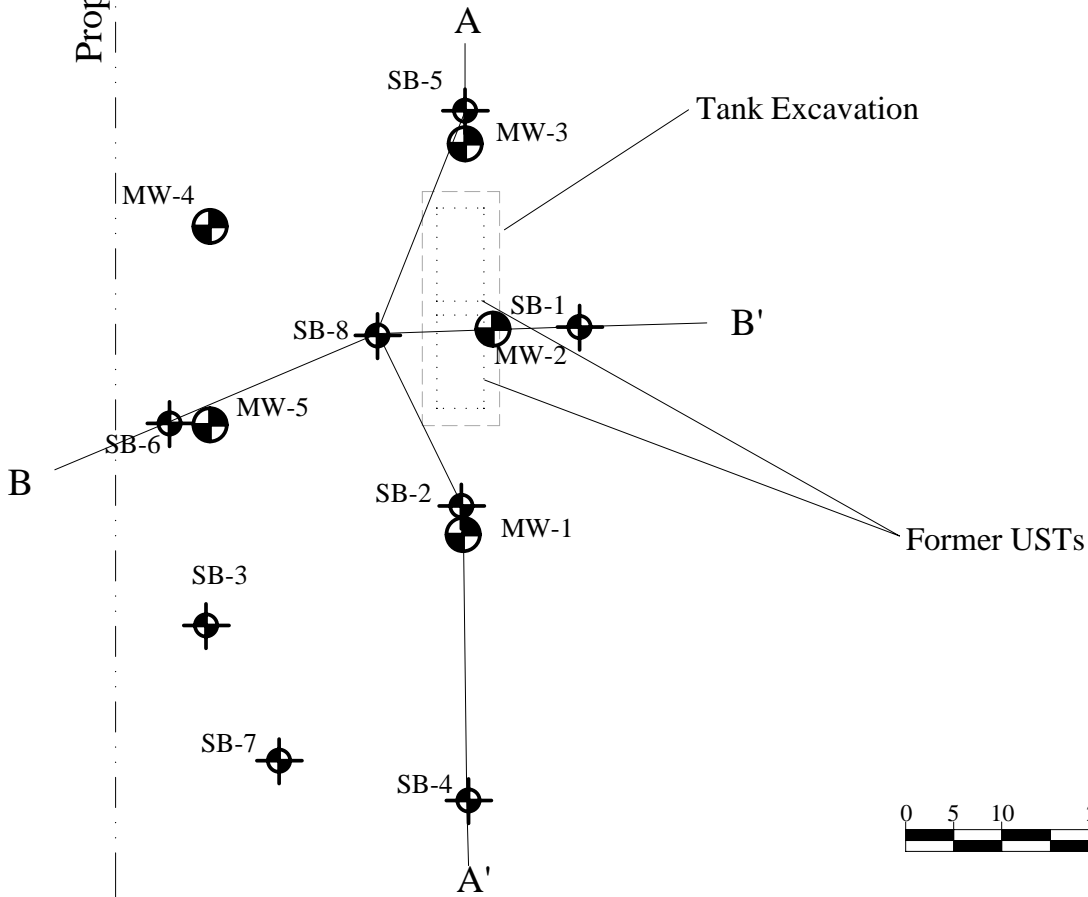
20957 BAKER ROAD  
CASTRO VALLEY, CA




FIGURE 2  
Project No. 10509

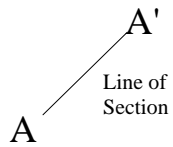
Rutledge Road



Property Boundary



-  SB-1 Soil Borings - 5/18/05
-  MW-1 Proposed Wells
-  Former USTs



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**DETAIL SITE PLAN**

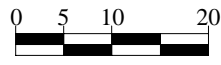
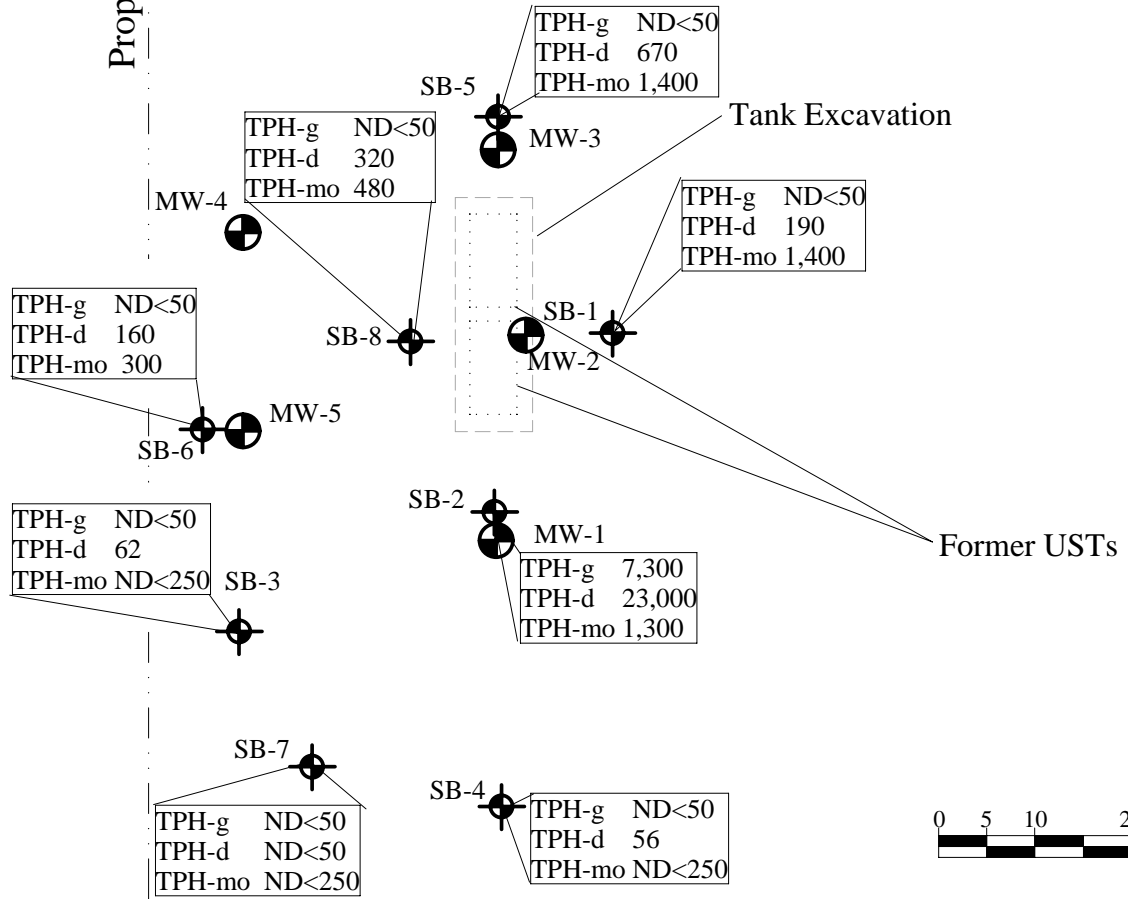
20957 BAKER ROAD  
CASTRO VALLEY, CA

FIGURE 3  
Project No. 10509

# Rutledge Road



Property Boundary



- SB-1 Soil Borings - 5/18/05
- MW-1 Proposed Wells
- Former USTs

TPH-g 7,300  
 TPH-d 23,000  
 TPH-mo 1,300  
 Units µg/L

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**GROUNDWATER ANALYTICAL RESULTS (5/18/05)**

20957 BAKER ROAD  
 CASTRO VALLEY, CA

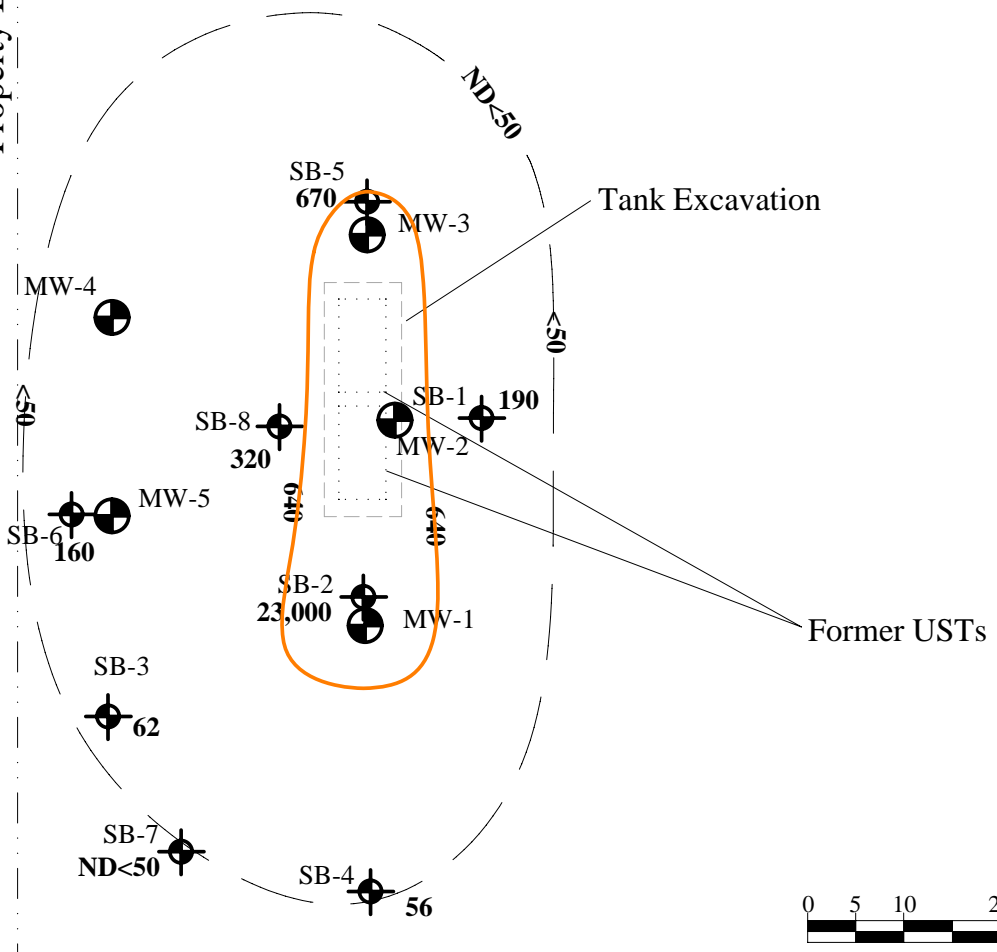
FIGURE 4  
 Project No. 10509






Rutledge Road



Property Boundary



-  SB-1 Soil Borings - 5/18/05 Units µg/L
-  MW-1 Proposed Wells
-  Former USTs

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**TPH-d Isopleths**

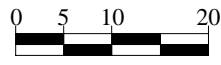
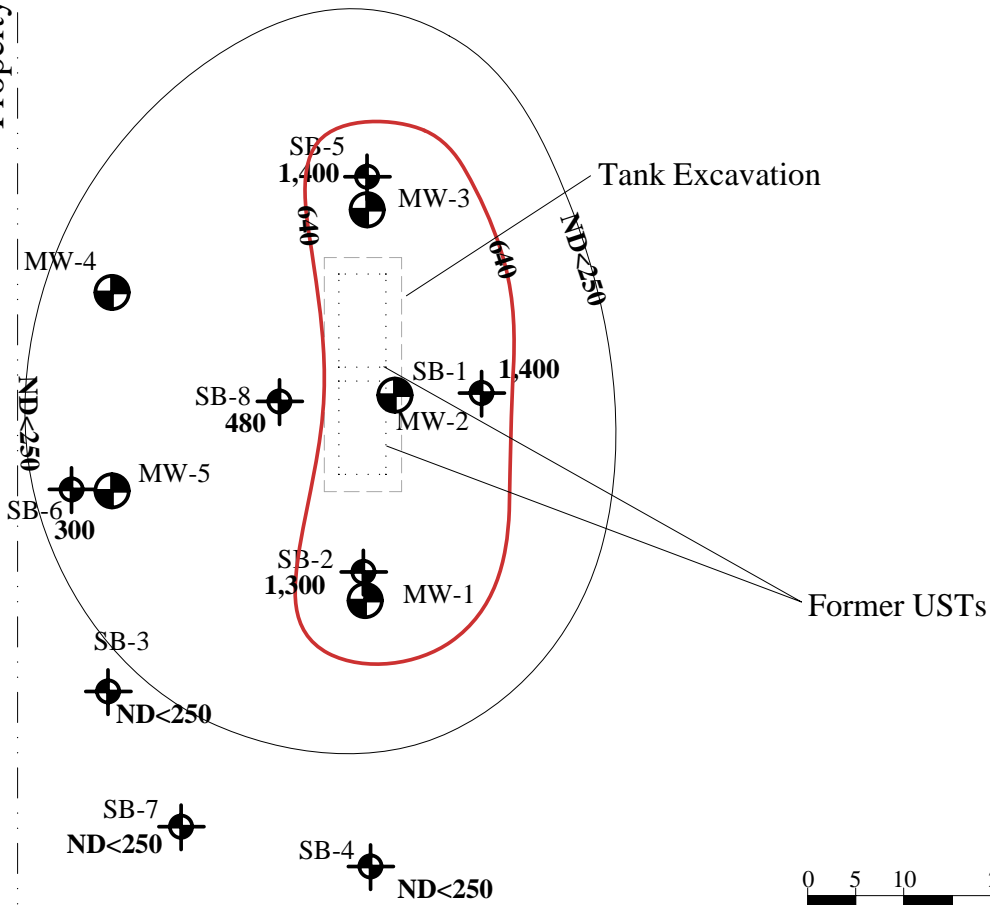
20957 BAKER ROAD  
CASTRO VALLEY, CA




FIGURE 5  
Project No. 10509

Rutledge Road



Property Boundary



-  SB-1 Soil Borings - 5/18/05 Units µg/L
-  MW-1 Proposed Wells
-  Former USTs

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**TPH-mo Isopleths**

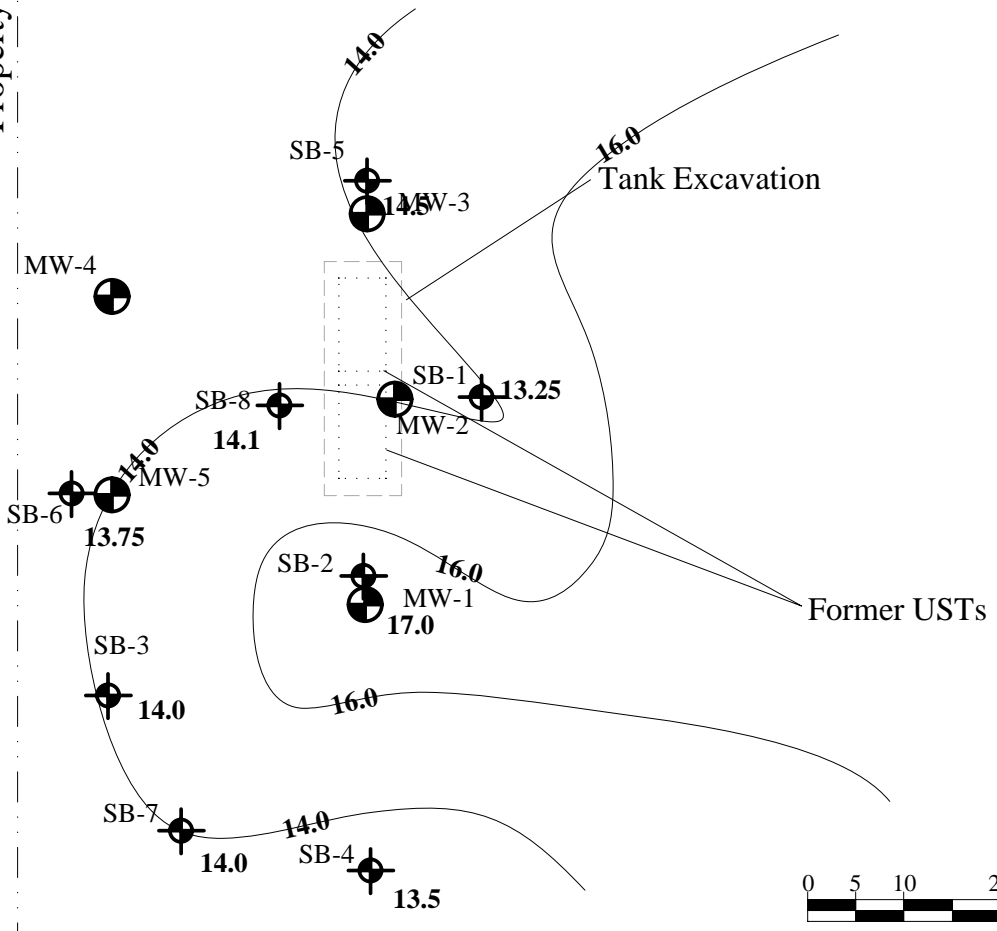
20957 BAKER ROAD  
CASTRO VALLEY, CA




FIGURE 6  
Project No. 10509

Rutledge Road



Property Boundary



-  SB-1 Soil Borings - 5/18/05
-  MW-1 Proposed Wells
-  Former USTs

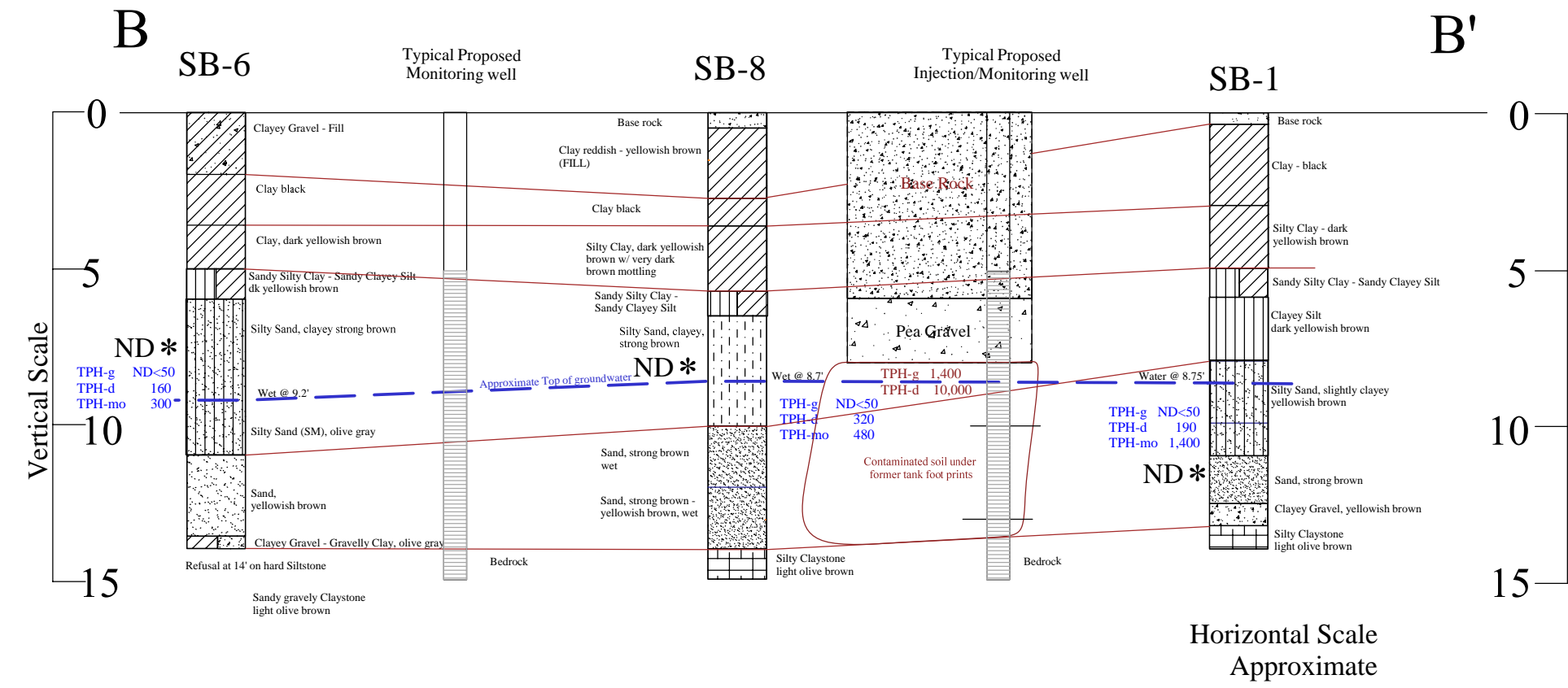
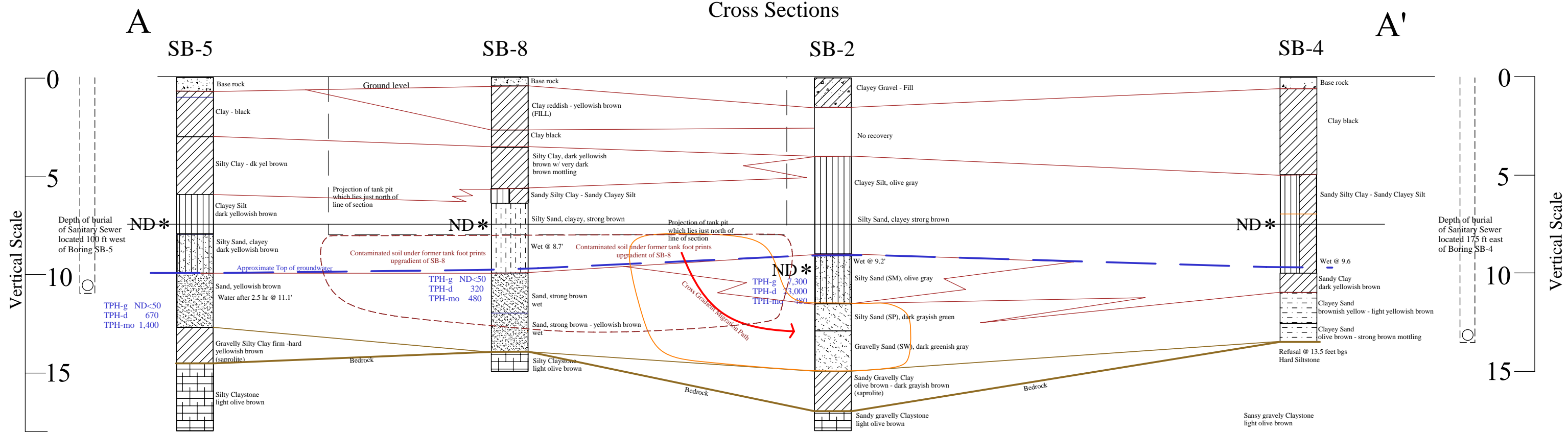
**AEI CONSULTANTS**  
2500 CAMINO DIABLO, WALNUT CREEK, CA

**Depth to Bedrock**

20957 BAKER ROAD  
CASTRO VALLEY, CA

FIGURE 7  
Project No. 10509

# Cross Sections



**KEY**

- Clay
- Sandy Clay
- Silt
- Silty Sand
- Clayey Sand
- Sand
- Gravel

**ND\*** Soil Analytical (5/10/2005)

TPH-g 1,400  
TPH-d 10,000      Soil analyticals (maximum) mg/kg

TPH-g ND<50  
TPH-d 190  
TPH-mo 1,400      Groundwater analyticals ug/L

Typical Well

- 2-inch blank riser
- 10 ft. slotted casing

**AEI CONSULTANTS**  
2500 CAMINO DIABLO, WALNUT CREEK, CA

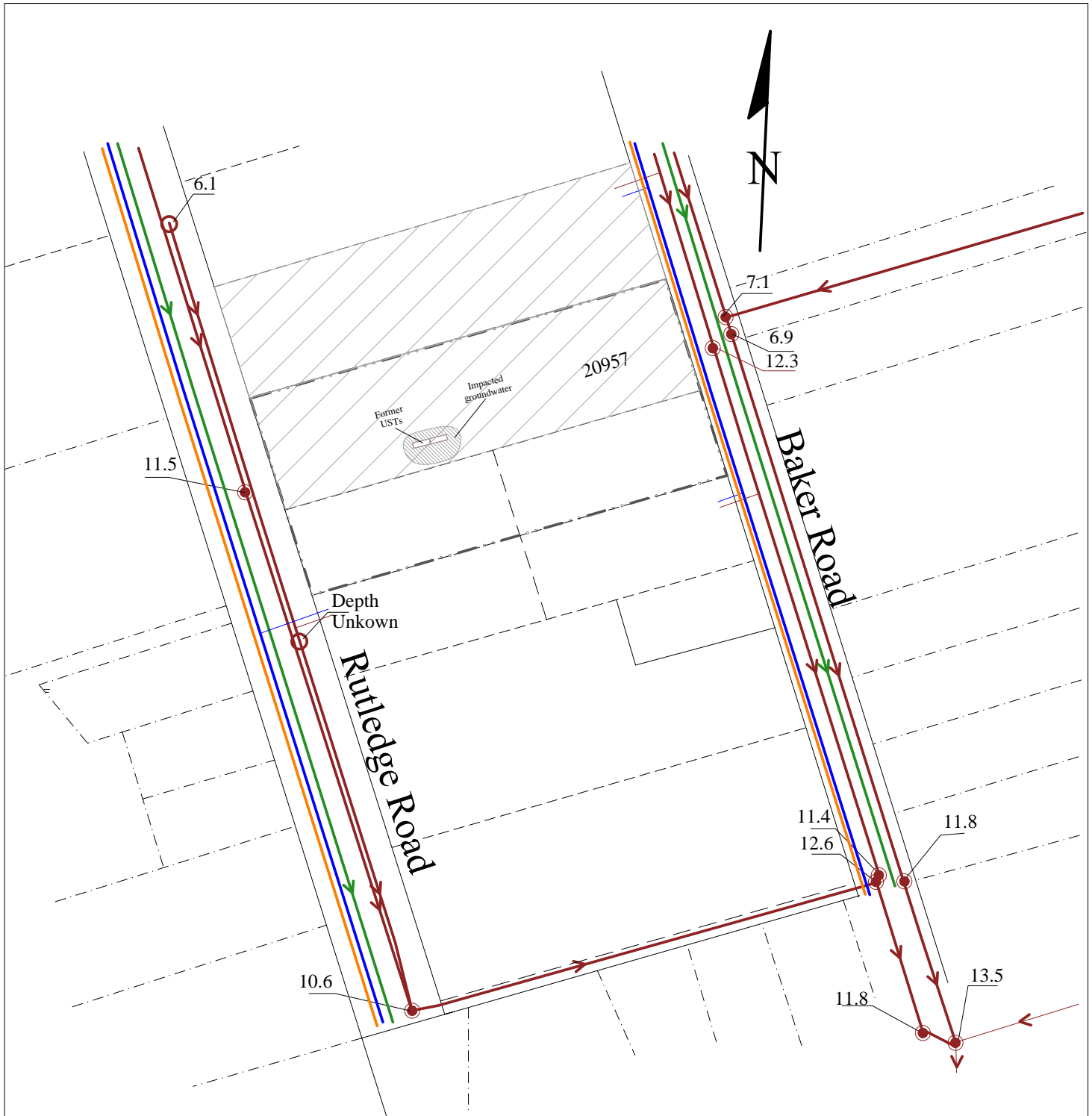
**Cross Sections A-A' and B - B'**



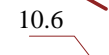





Piazza  
20957 Baker Road  
Castro Valley, California

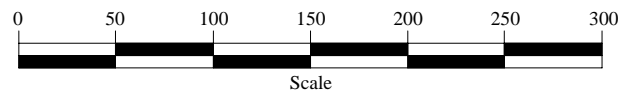
**FIGURE 8**  
Project No. 10509

Drafted 12/8/05 by RFF  
Rev 4/27/2007

Horizontal Scale  
Approximate



-  Subject Site
-  Sanitary Sewer 6.1 - 13.5 feet bgs
-  Manhole - invert in feet
-  Storm Drain 6-8 feet
-  Water line 2-4 feet bgs
-  Gas line 2-4 feet bgs
-  Former UST
-  Impacted groundwater



<b>AEI CONSULTANTS</b> 2500 CAMINO DIABLO, WALNUT CREEK, CA	
<b>UtilityMap</b>	
20957 BAKER ROAD CASTRO VALLEY, CA	Figure 9 Project No. 10509

## **TABLES**

**Table 1, Soil Sample Analytical Data, 20957 Baker Road, Castro Valley, California**

Sample ID	TPH-g	TPH-d	TPH-mo	MTBE	Benzene	Toluene	E'benzene	Xylenes
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
<i>EPA method 8015</i>			<i>EPA method 8021B</i>					
SB1-11.5	ND<1.0	ND<1.0	ND<5.0	ND<0.05	ND<0.005	ND<0.005	ND<0.005	ND<0.005
SB2-10	ND<1.0	ND<1.0	ND<5.0	ND<0.05	ND<0.005	ND<0.005	ND<0.005	ND<0.005
SB3-7.5	ND<1.0	ND<1.0	ND<5.0	ND<0.05	ND<0.005	ND<0.005	ND<0.005	ND<0.005
SB4-7.5	ND<1.0	ND<1.0	ND<5.0	ND<0.05	ND<0.005	ND<0.005	ND<0.005	ND<0.005
SB5-7.5	ND<1.0	ND<1.0	ND<5.0	ND<0.05	ND<0.005	ND<0.005	ND<0.005	ND<0.005
SB6-7.5	ND<1.0	ND<1.0	ND<5.0	ND<0.05	ND<0.005	ND<0.005	ND<0.005	ND<0.005
SB7-8	ND<1.0	ND<1.0	ND<5.0	ND<0.05	ND<0.005	ND<0.005	ND<0.005	ND<0.005
SB8-7.5	ND<1.0	ND<1.0	ND<5.0	ND<0.05	ND<0.005	ND<0.005	ND<0.005	ND<0.005

Notes            Samples collected May 18, 2005  
 TPH-g = total petroleum hydrocarbons as gasoline  
 TPH-d = total petroleum hydrocarbons as diesel  
 TPH-mo = total petroleum hydrocarbons as motor oil  
 MTBE = methyl tert-butyl ether  
 mg/kg = micrograms per liter (parts per billion)

**Table 2, Groundwater Sample Analytical Data, 20957 Baker Road, Castro Valley, California**

Sample ID	TPH-g	TPH-d	TPH-mo	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes
	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
<i>EPA method 8015</i>			<i>EPA method 8021B</i>					
SB-1 W	ND<50	190 <sup>1,2</sup>	<b>1,400</b>	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
SB-2 W	<b>7,300</b> <sup>3,4</sup>	<b>23,000</b> <sup>1,2,4,5</sup>	<b>1,300</b>	ND<50	ND<5.0	11	ND<5.0	27
SB3-W	ND<50	62	ND<250	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
SB4-W	ND<50	56 <sup>2</sup>	ND<250	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
SB5-W	ND<50	<b>670</b> <sup>1,2</sup>	<b>1,400</b>	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
SB6-W	ND<50	160 <sup>1,2</sup>	300	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
SB7-W	ND<50	ND<50	ND<250	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
SB8-W	ND<50	320 <sup>1,2</sup>	480	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
Protection of GW - Not Potential drinking water	500	640	640	1,800	46	130	290	100

Notes

Samples collected May 18, 2005

Values in **BOLD** exceed the RWQCB ESL for protection of groundwater where groundwater is not potential drinking water

1 - oil range compounds are significant

2 = diesel range compounds are significant, no recognizable pattern

3 = no recognizable pattern

4 = lighter than water immiscible sheen/product is present

5 = gasoline range compounds are significant

TPH-g = total petroleum hydrocarbons as gasoline

TPH-d = total petroleum hydrocarbons as diesel

TPH-mo = total petroleum hydrocarbons as motor oil

MTBE = methyl tert-butyl ether

µg/l = micrograms per liter (parts per billion)