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ENVIRONMENTAL & ENGINEERING SERVICES

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December 17, 2007

Mr. Steven Plunkett  
Environmental Health Services – Environmental Protection  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

**RECEIVED**

3:23 pm, Dec 18, 2007

Alameda County  
Environmental Health

**Subject: Well Installation and Monitoring report**  
20957 Baker Road  
Castro Valley, California 94546  
Leak Case RO0002739  
AEI Project # 273928

Dear Mr. Plunkett:

Attached is a copy of the report summarizing the well installation activities and first groundwater monitoring event at the above referenced site. I just got the perjury statement today.

I think the site is essentially clean. Donna had some questions about how lateral migration from the tanks occurred. I think the various gradient maps show that after a dry spell the surface of the groundwater and local gradients can be pretty variable. I don't have any defensible theories as to what is happening with the flow directions, however I suspect the bedrock high combined with recharge from fractures in the bed rock have something to do with the variability. I suspect that MW-4 will be worthless as a monitoring well except during periods when the groundwater is above the sand at around 8 feet bgs. By the next monitoring event the groundwater level should be close to normal.

If you have any questions I can be reached at 925-944-2899, extension 122.

Sincerely,  
**AEI Consultants**



Robert F. Flory, P.G.

CERTIFICATION STATEMENT

I DECLARE , UNDER PENALTY OF PERJURY, THAT THE INFORMATION AND/OR RECOMMENDATIONS CONTAINED IN THE ATTACHED DOCUMENT OR REPORT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

*Natale Piazza*  
NATALE PIAZZA

12-17-07  
DATE

*Darlene J. Piazza*  
DARLENE J. PIAZZA

12-17-07  
DATE

-----

November 29, 2007

**WELL INSTALLATION  
REPORT**

20957 Baker Road  
Castro Valley, California 94546  
ACHCS Leak Case RO 2739

AEI Project No. 273928

Prepared For

Nat and Darlene Piazza  
7613 peppertree Road  
Dublin, CA 94568

Prepared By

**AEI Consultants**  
2500 Camino Diablo  
Walnut Creek, CA 94597

**AEI**

# TABLE OF CONTENTS

<b>1.0 INTRODUCTION</b> .....	<b>1</b>
<b>2.0 SITE DESCRIPTION</b> .....	<b>1</b>
<b>3.0 BACKGROUND</b> .....	<b>1</b>
3.1 Tank Removal .....	1
3.2 Preliminary Site Investigation.....	2
<b>4.0 GEOLOGY AND HYDROLOGY</b> .....	<b>3</b>
<b>5.0 PRE-INVESTIGATION ENVIRONMENTAL CONCERNS</b> .....	<b>3</b>
<b>6.0 SCOPE OF WORK</b> .....	<b>4</b>
<b>7.0 MONITORING WELL INSTALLATION</b> .....	<b>4</b>
7.1 Well Installation and Construction.....	4
7.2 Soil Analyses .....	5
7.3 Soil Analytical Results .....	5
7.4 Groundwater Monitoring Well Development.....	5
7.5 Groundwater Sampling .....	6
7.6 Field Results .....	6
7.7 Groundwater Analytical Results .....	7
<b>8.0 WELL SURVEY</b> .....	<b>7</b>
<b>9.0 WELL VAPOR SURVEY</b> .....	<b>8</b>
<b>10.0 CONCLUSIONS AND RECOMMENDATIONS</b> .....	<b>8</b>
<b>11.0 REFERENCED DOCUMENTS</b> .....	<b>10</b>

## **LIST OF FIGURES**

FIGURE 1	SITE LOCATION MAP
FIGURE 2	SITE PLAN
FIGURE 3	SOIL SAMPLES
FIGURE 4	GROUNDWATER GRADIENT (10/15/07)
FIGURE 5	GROUNDWATER GRADIENT (10/18/07)
FIGURE 6	GROUNDWATER GRADIENT (10/22/07)
FIGURE 7	GROUNDWATER GRADIENT (11/06/07))
FIGURE 8	GROUNDWATER ANALYSES (5/18/05 & 10/18/07)
FIGURE 9	CROSS SECTIONS A-A' AND B-B'

## **LIST OF TABLES**

TABLE 1	SOIL ANALYTICAL DATA
TABLE 2	GROUNDWATER ANALYTICAL DATA
TABLE 3	GROUNDWATER ELEVATION DATA AND FLOW DIRECTION
TABLE 4	WELL CONSTRUCTION DETAILS
TABLE 5	SOIL ANALYTICAL DATA - METALS
TABLE 6	GROUNDWATER ANALYTICAL DATA – METALS
TABLE 7	SOIL VAPOR DATA

## **LIST OF APPENDICES**

APPENDIX A	DRILLING PERMIT
APPENDIX B	WELL LOGS
APPENDIX B	BORING/WELL LOGS
APPENDIX C	FIELD SAMPLING FORMS
APPENDIX D	SOIL LABORATORY ANALYSES
APPENDIX E	GROUNDWATER LABORATORY ANALYSES
APPENDIX F	SIEVE ANALYSES
APPENDIX F	WELL ELEVATION SURVEY

## **1.0 INTRODUCTION**

AEI Consultants (AEI) has prepared this report on behalf of Mr. and Mrs. Nat Piazza (client), owners of the above referenced property. AEI has been retained by the client to provide environmental engineering and consulting services associated with a release from two previously removed underground storage tank (USTs) on the property. This investigation was carried out in response to a request from the Alameda County Environmental Health Services (ACEHS) for a soil and groundwater investigation. The purpose of the investigation was to determine the lateral and vertical extent of impact to the soil and groundwater that resulted from the hydrocarbon release. AEI has prepared this report to summarize the activities and results of the investigation.

## **2.0 SITE DESCRIPTION**

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 81 feet by 300 feet in area and is currently undeveloped and not in use. The site is partially covered with asphalt surfacing and concrete slabs with the remainder of the site graveled. The site occupies the southern two thirds of the fenced in area.

Baker Road makes up the east boundary of the site with residential property to the east of the road. Rutledge Road bounds the property to the west with commercial and residential property west of the road. The property is bounded to the north by a partially vacant lot. The parcel to the north is split by a fence, with the southern half of the adjacent lot appearing to be part of the subject site. Two residential buildings are located in the northeast quadrant of is adjacent lot. To the south, the east half of the property is by an apartment complex and on the west half bounded to the south by a plumbing contractor. The locations of these buildings relative to the subject site and locations of the former UST are shown on Figure 2, “Site Map”.

## **3.0 BACKGROUND**

### **3.1 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 ACEHS. Robert Weston, Inspector for the ACEHS, observed the tank removal. 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 tertiary butyl ether (MTBE) by EPA Method 8021B/8015Cm. Total Petroleum Hydrocarbons as diesel (TPH-d) was analyzed by EPA Method 8015C and total lead by EPA method 7010.

Hydrocarbons were reported in all the soil samples analyzed. TPH-g was reported at concentrations ranging from 160 milligrams per kilogram (mg/kg) (T1W-EB8’) to 1,400 mg/kg

(T2W-EB8'). TPH-d was reported 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'). Benzene and ethylbenzene were reported as not detected. Total lead was reported at concentrations ranging from 6.1 mg/kg (T1W-E8') to 24 mg/kg (stockpile sample STKP1-4). The results of hydrocarbon analyses of soil samples collected from the tank removal are included in Table 1.

### **3.2 Preliminary Site Investigation**

AEI performed a Preliminary 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® Model 5410 direct-push drilling rig. The locations of the soil borings are shown on Figure 2, Site Map.

No detectable concentrations of TPH-g, TPH-d, TPH-mo, MTBE or BTEX, were reported in any of the soil samples from depths of 7.5 to 11 feet bgs at or 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 in the groundwater sample from soil boring SB-2 (SB-2W) at concentration of 7,300 micrograms per liter ( $\mu\text{g/L}$ ). No TPH-g was reported in groundwater samples from any other borings at or above the detection limit of 50  $\mu\text{g/L}$ .

The maximum concentration of TPH-d was reported at a concentration of 23,000  $\mu\text{g/L}$  in the in the groundwater sample from boring SB-2 (SB-2W). LNAPL was observed both in the field and by the laboratory in this groundwater sample. 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).

No TPH-mo was 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).

No MTBE was reported in the groundwater samples from any of the borings at or above a detection limit of 5.0  $\mu\text{g/L}$ .

The results of the groundwater analyses are summarized in Table 2 (Groundwater Sample Analytical Data) and shown on Figure 4, "Soil Boring Groundwater Samples".

## **4.0 GEOLOGY AND HYDROLOGY**

The site is located at approximately 160 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). During periods of rain, surface drainage on the bulk of the site is to the southwest then onto the storm drains along Rutledge Road.

The lithology observed in the borings drilled to date typically consists of 1 to 2 feet of gravelly clay – clayey gravel (Fill). The surface fill is underlain by silty clay, which becomes clayey silt downward to a depth of 6 to 8 feet bgs. This silt and clay unit is underlain by silty and gravelly sands to the top of the bedrock at depths of 13 to 17 feet bgs (Figure 9). In several borings saprolitic clay is present between the sandy sediments and the claystone bedrock.

Groundwater, where present, was encountered at depths of 9 to 11 feet bgs in May 2005. On October 12, 2007 groundwater was encountered at depths ranging from 13.3 feet bgs in well IN-1 to 15.5 feet bgs in well MW-1. This indicates that during at least part of the dry season, groundwater is not present above the top of the bedrock. The overall northward slope to the bedrock surface under the former USTs and the local bedrock low in the area of SB-2 could have resulted in hydrocarbon migration up or across the normal groundwater gradient at times if the groundwater level is below the top of the bedrock. The relationships of the sediments that underlie the site are shown on Figure 10 (Cross sections A-A' and B-B'). Copies of the boring/well logs are included in Appendix B, Boring/Well Logs

Between October 12 and November 6, 2007, the groundwater flow direction ranged from southwest to southeast with highly variable gradients (Table 3, Figures 4 through 7). The high variability is believed to be the result of the low groundwater level and scattered light rainfall during this period.

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.

## **5.0 PRE-INVESTIGATION ENVIRONMENTAL CONCERNS**

Analysis of soil samples collected from beneath the two previously removed 1000-gallon fuel USTs in 2004 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.

Analysis of soil samples collected during the 2005 Preliminary Site Investigation reported no detectable concentrations of TPH or MBTEX, however obviously impacted greenish gray sand was observed below the top groundwater in boring SB-2. Field screening of sample SB-2-11.5 reported organic vapors at a concentration of 175 ppmv. Based on the data from the 2004 UST removal and 2005 preliminary Site Investigation data, impacted soil appeared to be limited to an area approximately 10 feet by 40 feet, essentially the footprint of the previous tank hold and in the bedrock low around boring SB-2.



Analysis of groundwater samples collected from soil borings in 2005, reported concentrations of TPH-g exceeding the detection limit of 50 µg/L only in SB-2. In SB-2 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 in SB-2 where toluene and total xylenes were reported at concentrations of 11 µg/L and 27 µg/L, respectively.

TPH-d was reported at concentrations up to 23,000 µg/L (SB-2). TPH-mo was reported at concentrations of up to 1,400 µg/L (SB-1 and SB-5). The results of the groundwater analyses are summarized on Figure 3.

## **6.0 SCOPE OF WORK**

The scope of work for this investigation consisted of the following:

- Install four (4) 2-inch diameter groundwater monitoring wells, one on each side of the former tank hold and two down gradient of the former tank hold.
- Install one (1) 2-inch diameter injection through the center of the former tank hold.
- Prepare a report summarizing well installation and development activities

## **7.0 MONITORING WELL INSTALLATION**

Prior to the initiation of field activities well construction permits W2007-0964 to W2007-0968 were obtained from Alameda County Department of Public Works (DPW), the work area was marked, and Underground Service Alert (USA North) was notified more than 2 working days prior to the initiation of drilling activities. A copy of the drilling permit is attached in Appendix A. H E W Drilling, California C-57 license number 604987, installed the wells on October 12, 2007.

### **7.1 Well Installation and Construction**

Four (4) two-inch diameter groundwater monitoring wells (MW-1 through MW-4) and two-inch diameter injection well IN-1 were installed onsite with a CME-75 drilling rig the locations shown on Figure 2. Wells MW-1 and MW-2 were located west and east ends of the UST excavation, respectively. Wells MW-3 and MW-4 were located down gradient of the UST excavation. Injection well IN-1 was installed in the center of the UST excavation.

The soil borings were advanced to a depth of 16.5 feet bgs using a CME 75 drilling rig with nominal 8 ¼-inch diameter continuous flight, hollow stem augers. Soil samples were typically collected at depths of 5, 8, 10, and 12 feet bgs with an 18-inch long modified California split-spoon sampler. Samples were also collected at a depth of 15 feet bgs in wells MW-2 and MW-4. No sample was collected at a depth of 5 feet bgs in well IN-1. In well IN-1 soil sampling began at a depth of 8 feet bgs, just above the base of UST excavation. Selected soil samples were retained for

possible laboratory analysis. The sample sleeves were sealed with Teflon tape, plastic caps, and labeled with a unique identifier. The samples were then placed in a cooler filled with water ice, and transported under appropriate chain-of-custody documentation for analysis to McCampbell Analytical Inc., (DOHS Certification Number 1644) of Pittsburg, California. Selected soil samples were analyzed for TPH-g, TPH-d, TPH-mo, and TPH bunker oil (TPH-bo) by EPA method 8015, benzene, toluene, ethylbenzene, and xylenes (collectively referred to as BTEX), and MTBE by EPA method 8021B. Soil samples were described by an AEI staff geologist and logged using the Unified Soil Classification System. Selected samples were field screened using a photo ionization detector (PID)

The wells were constructed at a total depth of 16.5 feet bgs with 10 feet of 0.020-inch factory slotted, 2-inch diameter schedule 40 PVC screen. The annular space around the slotted casing was filled with #2/16 Monterey sand to a depth approximately 6.0 feet bgs. Approximately 1 foot of 3/8-inch bentonite chip was placed on top of the sand and hydrated with clean water. The balance of the boring was then sealed with neat cement grout. A flush mount well box was cemented at the surface. The details of well construction are summarized in Table 4, *Well Construction Details*.

## 7.2 Soil Analyses

Two soil samples from borings MW-1 through MW-3 and three soil samples from wells MW-4 and IN-1 were analyzed for TPH-g and MBTEX by EPA Method 8015/8021B and TPH-d, TPH-mo, and TPH-bo by method 8015C. In addition one sample from well MW-2 and one sample from well IN-1 were analyzed for Hexavalent chromium by Alkaline Digestion and IC-UV Analysis, CAM 17/CCR Metals by ICP/MS, chemical oxygen demand (COD) by method SM5220D, and pH by method SW9045C. Three samples were forwarded to a geotechnical laboratory for sieve analysis.

## 7.3 Soil Analytical Results

No TPH-g, TPH-d, TPH-mo, TPH-bo, BTEX or MTBE was reported in any of the soil samples analyzed from wells MW-1 through MW-4. No TPH-g, TPH-mo, BTEX or MTBE was reported in soil samples from well IN-1. TPH-d was reported concentrations of 4.0 mg/kg, 5.1 mg/kg, and ND<1.0 at depths of 8.5 feet bgs, 10 feet bgs, and 12 feet bgs, respectively. The results of soil analyses for hydrocarbons and MBTEX are summarized in Table 2, *Soil Analytical Data*. COD was reported at 2,400 mg/kg and 1,800 mg/kg in samples IN-1-8.5 and MW-2-11.5, respectively. pH was reported as 7.37 at 24.1 degrees Celsius and 5.82 at 23.8 degrees Celsius in samples IN-1-8.5 and MW-2-11.5, respectively. The results of Cam 17 metal analysis in samples IN-1-8.5 and MW-2-11.5 were all reported within normal background ranges. Hexavalent chromium was reported as below the detection limit in both samples. The results of COD, pH, and metal analyses are summarized on Table 5, *Soil Analytical Data-Metals and Miscellaneous Analyses*. Laboratory results and chain of custody documents are included in Appendix D.

## 7.4 Groundwater Monitoring Well Development

The wells were initially developed on October 15, 2007. The wells were developed by a combination of over pumping, and surging. Depth to water at the time the wells were developed ranged from 11.00 feet bgs (IN-1) to 14.57 (MW-4).

On October 18, 2007, at the time of the initial sampling event, the depth to groundwater ranged from 10.89 (IN-1) feet bgs to 14.92 feet bgs (MW-4). On October 22, 2007, monitoring well MW-4 was re-developed by loading the well with water (Safeway's house brand drinking water) and surged for 15 minutes. Depth to water in the wells was on November 6, 2007 ranged from 8.00 feet bgs (MW-4) to 11.37 bgs (MW-2) feet bgs. Depth to water in well MW-4 was anomalously low when the wells were installed and at the three times depth to water was measured in October. The anomalously high water level on November 6, 2006 suggests that the permeability development in the well is insufficiently developed for use of the well as a monitoring well. Depth to water measurements are summarized in Table 3, *Groundwater Elevation Data*.

## **7.5 Groundwater Sampling**

The initial groundwater monitoring event occurred on November 18, 2007. Prior to sampling the wells, the well caps were all removed and the wells were allowed to equilibrate with the atmosphere for at least 15 minutes. The depth to water was then measured in each well to  $\pm 0.01$  foot using an electronic depth to water meter. Each well purged using a peristaltic pump with ¼-inch polyethylene drop tube. The wells were low flow<sup>(12)</sup> or micro-purged at a rate of approximately 0.5-liter per minute. During well purging temperature, pH, specific conductivity, dissolved oxygen, and oxidation-reduction potential (ORP) was measured at one-minute intervals. The wells were purged until the three successive readings are within  $\pm 0.1$  for pH,  $\pm 3\%$  for conductivity,  $\pm 10$  mv for ORP, and  $\pm 10\%$  for temperature between three consecutive measurements or until the well dewatered. Visual estimates of turbidity were noted during the purging of the wells.

Once the groundwater parameters stabilized water samples were collected from each well using the peristaltic pump. Water samples were collected into containers with appropriate preservatives to each analysis. Samples for volatile analytes were collected into 40 milliliter (mL) hydrochloric acid preserved volatile organic analysis (VOA) vials, with zero headspace (no air bubbles). Samples to be analyzed for CAM 17 and Hexavalent Chromium were filtered in the field. Samples were entered of an appropriate chain-of-custody and placed in a cooler on water ice under chain of custody protocols to McCampbell Analytical, Inc. of Pittsburg, California (Department of Health Services Certification #1644).

Groundwater samples were analyzed for TPH-g, MBTEX by method SW8021B/8015Cm and Total petroleum Hydrocarbons as Bunker oil (TPH-bo – C10+), TPH-d (C10-23) and TPH0mo (C18+) by method SW8015C. Two groundwater samples, MW-2 and MW-3, were analyzed for Cam 17 metals and Hexachrome by ICP MS and IC respectively.

## **7.6 Field Results**

No sheen or free product was encountered during monitoring activities. No petroleum odors were noted in the groundwater purged from any well prior to sample collection.

Copies of the Field Data Sheets are attached in Appendix C. Groundwater elevation data is summarized in Table 3.

Depth to groundwater was measured prior to well development, prior to sampling, at the time of the redevelopment of MW-4 on November 6, 2007. The groundwater elevation contours and groundwater flow direction are shown in Figures 4 through 7. Significant variability is observed in the contours on the top of the groundwater. This is probably related to variable recharge from fractures in the underlying bedrock following the early part of the wet season and the irregularity of the shallow bedrock surface. This variability is expected to decrease as groundwater levels rise and groundwater flow stabilizes as the wet season progresses.

Groundwater elevations at the time of the current monitoring event ranged from 144.77 feet bgs (MW-4) to 148.96 feet bgs (IN-1). The direction of the groundwater flow at the time of measurement was variable ranging from the southeast to east southeast. The calculated apparent groundwater gradient ranged from 0.015 to 0.026 ft/ft.

Groundwater elevations on November 6, 2007 ranged from 148.59 (MW-3) to 151.69 feet bgs (MW-4) to 148.96 feet bgs (IN-1). The direction of groundwater flow at the time of measurement was to the south southeast with a groundwater gradient of 0.002 ft/ft.

## **7.7 Groundwater Analytical Results**

No TPH-g, BTEX or MTBE were reported at or above standard reporting limits in any of the groundwater samples. No TPH-bo, TPH-d, or TPH-mo, were reported in samples from wells MW-2 through MW-4 and IN-1 at or above detection limits of 100 µg/L, 50 µg/L, and 250 µg/L, respectively. TPH-bo (C10+, middle - heavy residual fuel), TPH-d (C10 - 23, middle residual fuel), and TPH-mo (C28+ heavy residual fuel) were reported in the water sample from well MW-1 at concentrations of 56 µg/L, 140 µg/L, and ND<250 µg/L, respectively. The difference between concentrations reported for TPH-bo and TPH-d indicate that the heavy residual concentration is approximately 86 µg/L. All metal analyses were reported within normal background ranges. A summary of groundwater analytical data is presented in Tables 2 and 6. Laboratory results and chain of custody documents are included in Appendix C.

## **8.0 WELL ELEVATION SURVEY**

The location and elevation of each newly installed well was surveyed by Morrow Surveying of West Sacramento, California, a California licensed land surveyor. As required, survey data was obtained utilizing global positioning system (GPS) technology, and was reported at a level of precision and in a format acceptable for submission to the California GeoTracker database. A copy of the site survey is attached as Appendix G.

## 9.0 WELL VAPOR SURVEY

During the first groundwater monitoring event the soil vapors present in the vadose zone of impacted wells were measured using a RKI Eagle gas analyzer. The Eagle measures hydrocarbon, oxygen, carbon dioxide, and methane concentrations. The relative presence of these gases can be used as an estimate of the amount and type of biodegradation taking place in the subsurface.

Vapor samples were collected from the vadose zone in each of the five wells on site. Eagle gas detector contains multiple detectors that measure Total Hydrocarbons, methane, oxygen, and carbon dioxide. No hydrocarbons were detected in any of the wells, this is consistent with the results of soil and groundwater analyses which reported little or no light hydrocarbons. Oxygen content ranged from near normal, 20.8% in MW-1, to slightly depressed, 7.9% in MW-3, 15.9% in MW-2, and 12.4 % in IN-1. Carbon dioxide content ranged from near normal, 0.4% in MW-1 to significantly elevated in MW-3 (7.3%) and IN-1 (5.0%). The vapor survey field data is found on the Field data sheets and attached in Appendix C and is summarized of Table 7.

Normal air composition is approximately 20.9% Oxygen and 0.03% carbon dioxide. The depressed concentrations of oxygen and elevated concentrations of carbon dioxide in the soil gas is consistent with relatively low levels of biodegradation and low levels of residual hydrocarbons.

## 10.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of field screening, soil and groundwater analysis from this investigation, the hydrocarbons observed in soil at the base of the tank excavation in 2004 and in the groundwater from soil borings in 2005 has been reduced by natural attenuation processes over the last three years. No TPH-g, MBTE, or TPH-mo was identified by this investigation in the soil or groundwater. TPH-d was reported in the soil of only one well, IN-1, in soil underlying the UST excavation at trace concentrations. The current investigation found TPH-bo, TPH-d, or TPH-mo in wells MW-2 through IN-1 at or above standard reporting limits. In well MW-1, TPH-mo was reported as ND<250. TPH-bo and TPH-d were reported at concentrations of 140 µg/L and 56 µg/L, respectively. Subtracting the reported concentration of TPH-d (C10-23), from the concentration of TPH-bo (C10+) gives an approximate concentration of residual fuels of 84 µg/L. These concentrations are below the Regional Water Quality control boards November 2007 ESLs (Table F-1a)

No remedial action is warranted as it appears that the site is essentially clean and is a candidate to site closure.

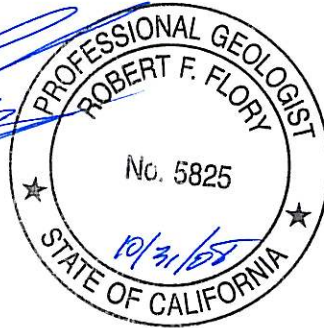
AEI recommends continued groundwater monitoring on a quarterly basis. The next quarterly monitoring event is tentatively scheduled for mid January 2008. If the results of groundwater analysis at that time are consistent with the currently reported results, AEI will submit a formally request site closure at that time.

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

Sincerely,  
**AEI Consultants**



Robert F. Flory, PG  
Project Manager



## 11.0 REFERENCED DOCUMENTS

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. *Workplan for Soil and Groundwater Investigation and Interim Source Removal*, September 20, 2007, prepared by AEI Consultants

### Distribution:

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Steven Plunkett, Alameda County Environmental Health Services

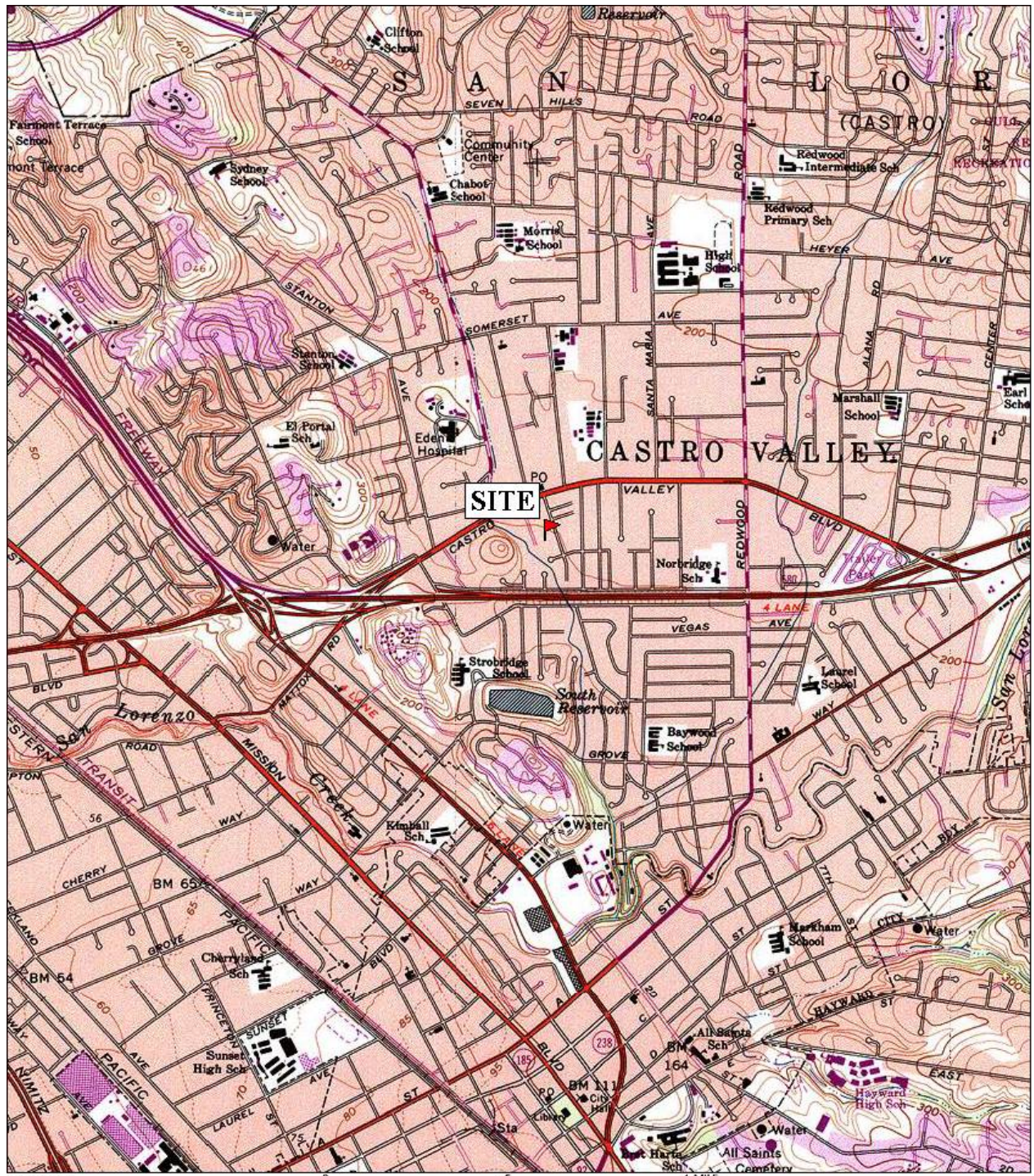
electronic

Geotracker

electronic

## **FIGURES**





TN MN  
15°

0 1000 FEET 0 500 1000 METERS  
0 1 MILE

Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

<b>AEI CONSULTANTS</b>	
<b>SITE LOCATION MAP</b>	
20957 BAKER ROAD CASTRO VALLEY, CALIFORNIA	<b>FIGURE 1</b> PROJECT NO. 273928

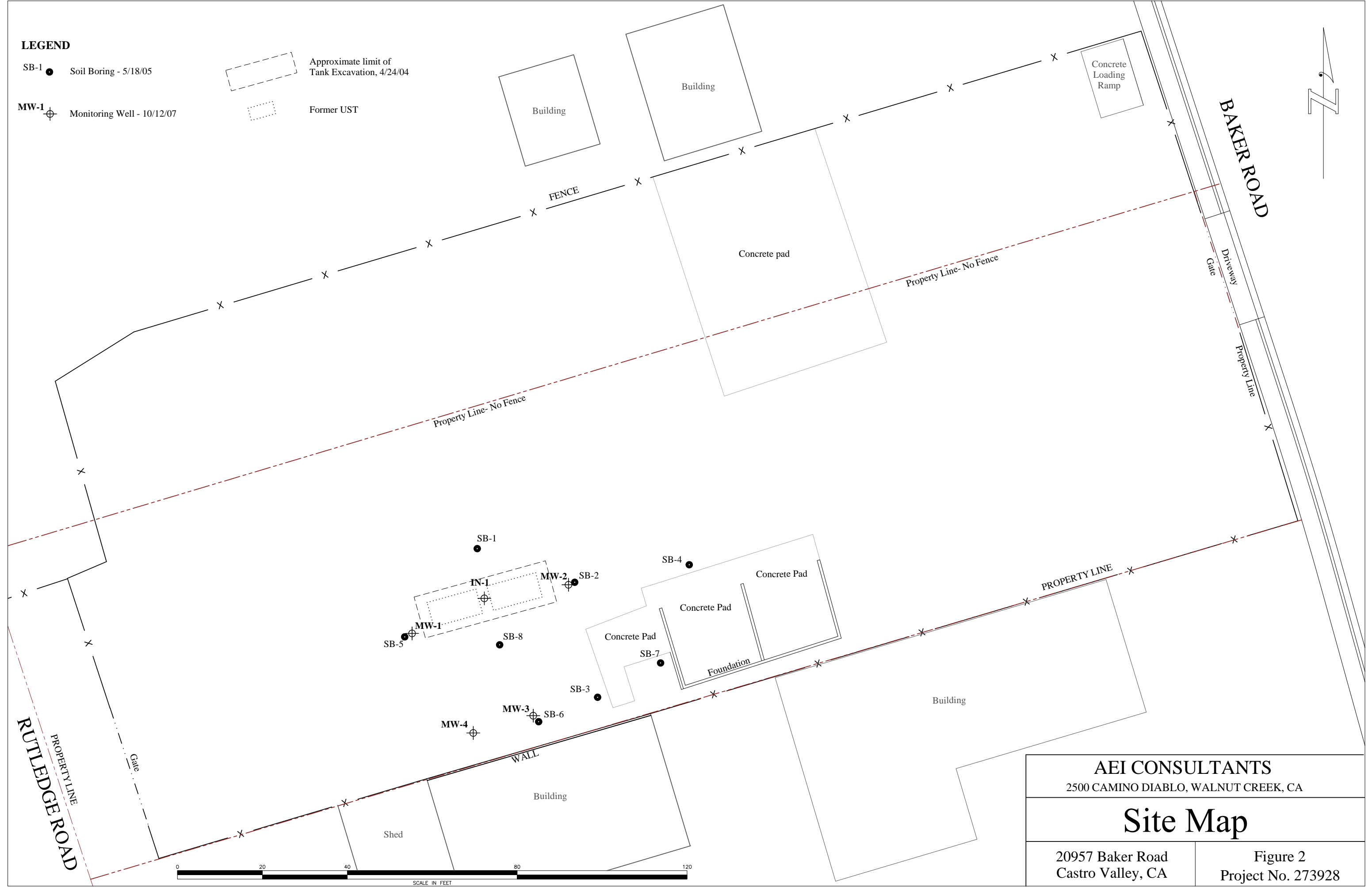
**LEGEND**

SB-1 ● Soil Boring - 5/18/05

MW-1 ⊕ Monitoring Well - 10/12/07

Approximate limit of Tank Excavation, 4/24/04

Former UST



AEI CONSULTANTS 2500 CAMINO DIABLO, WALNUT CREEK, CA	
<b>Site Map</b>	
20957 Baker Road Castro Valley, CA	Figure 2 Project No. 273928

**LEGEND**

- SB-1 ● Soil Boring - 5/18/05
- MW-1 ⊕ Monitoring Well - 10/12/07
- ◆ Tank Excavation Sample, 4/24/04
- Approximate limit of Tank Excavation, 4/24/04
- Former UST

T1W-EB8'  
 TPH-g 160  
 TPH-d 1,400  
 MBTEX ND

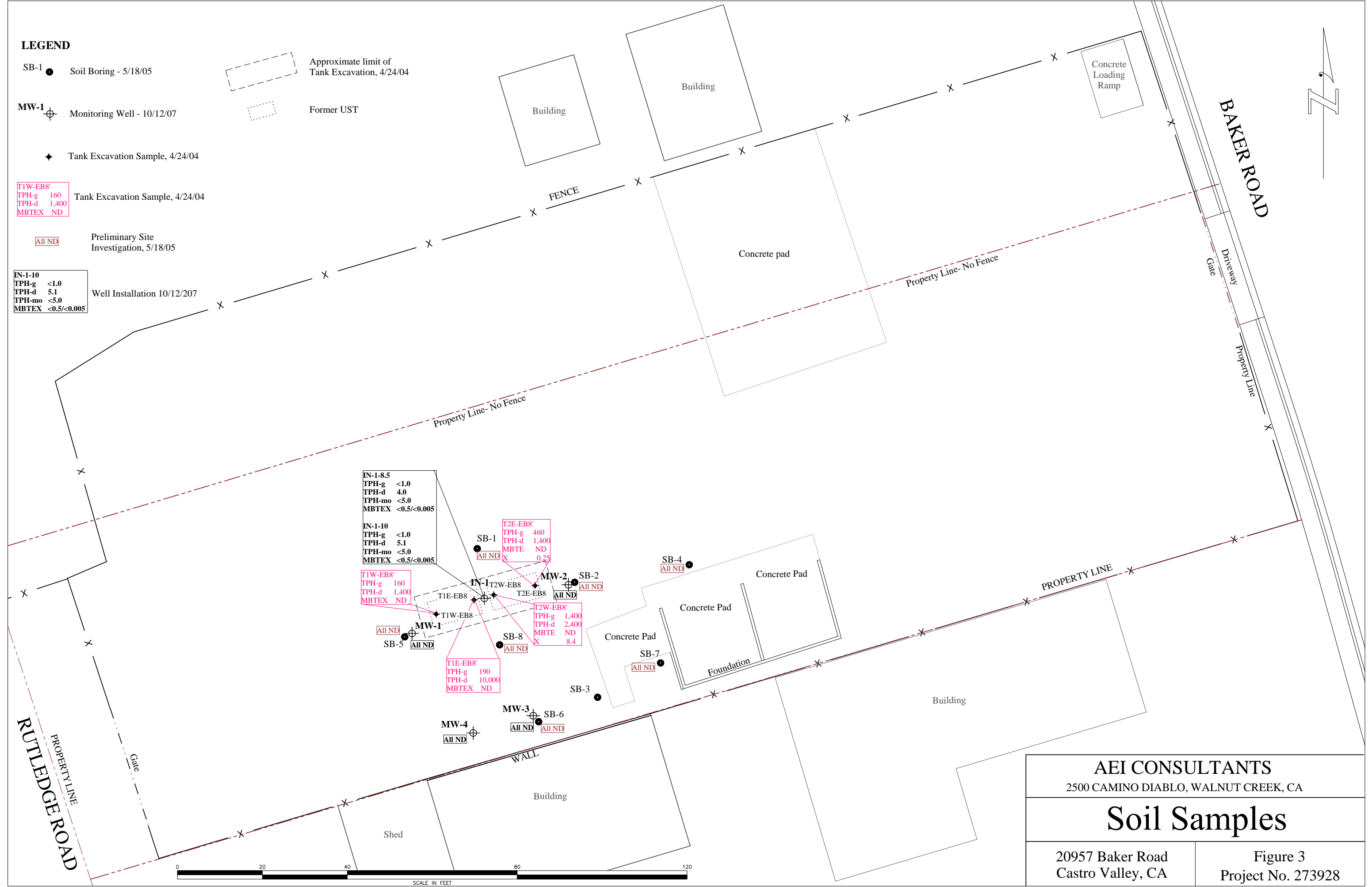
Tank Excavation Sample, 4/24/04

All ND

Preliminary Site Investigation, 5/18/05

IN-1-10  
 TPH-g <1.0  
 TPH-d 5.1  
 TPH-mo <5.0  
 MBTEX <0.5/<0.005

Well Installation 10/12/207



IN-1-8.5  
 TPH-g <1.0  
 TPH-d 4.0  
 TPH-mo <5.0  
 MBTEX <0.5/<0.005

IN-1-10  
 TPH-g <1.0  
 TPH-d 5.1  
 TPH-mo <5.0  
 MBTEX <0.5/<0.005

T2E-EB8'  
 TPH-g 460  
 TPH-d 1,400  
 MBTE ND  
 X 0.25

T1W-EB8'  
 TPH-g 160  
 TPH-d 1,400  
 MBTEX ND



T2W-EB8'  
 TPH-g 1,400  
 TPH-d 2,400  
 MBTE ND  
 X 8.4

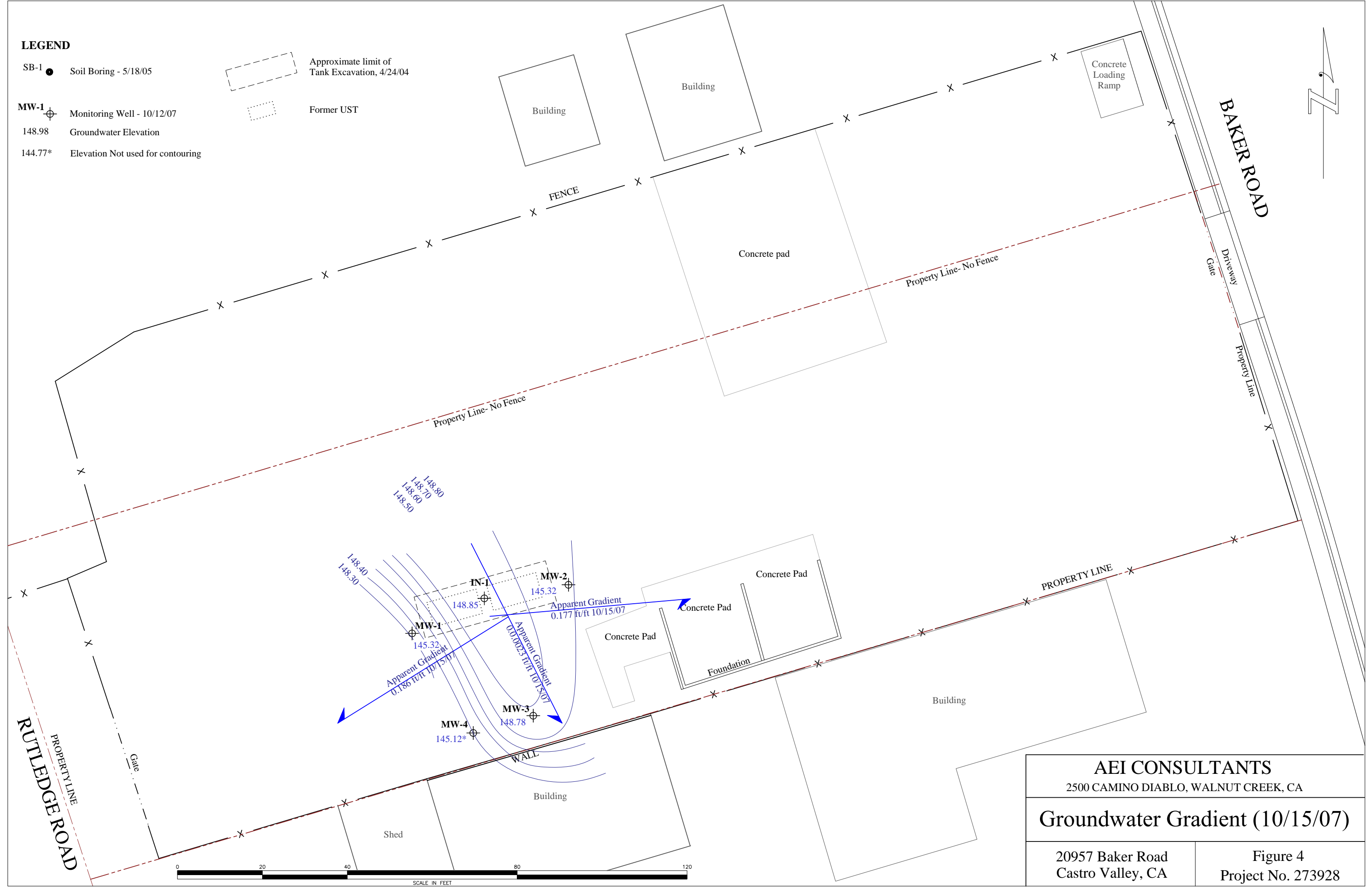
T1E-EB8'  
 TPH-g 190  
 TPH-d 10,000  
 MBTEX ND

<b>AEI CONSULTANTS</b> 2500 CAMINO DIABLO, WALNUT CREEK, CA	
<h1>Soil Samples</h1>	
20957 Baker Road Castro Valley, CA	Figure 3 Project No. 273928

**LEGEND**

- SB-1 ● Soil Boring - 5/18/05
- MW-1 ⊕ Monitoring Well - 10/12/07
- 148.98 Groundwater Elevation
- 144.77\* Elevation Not used for contouring

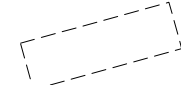

-  Approximate limit of Tank Excavation, 4/24/04
-  Former UST

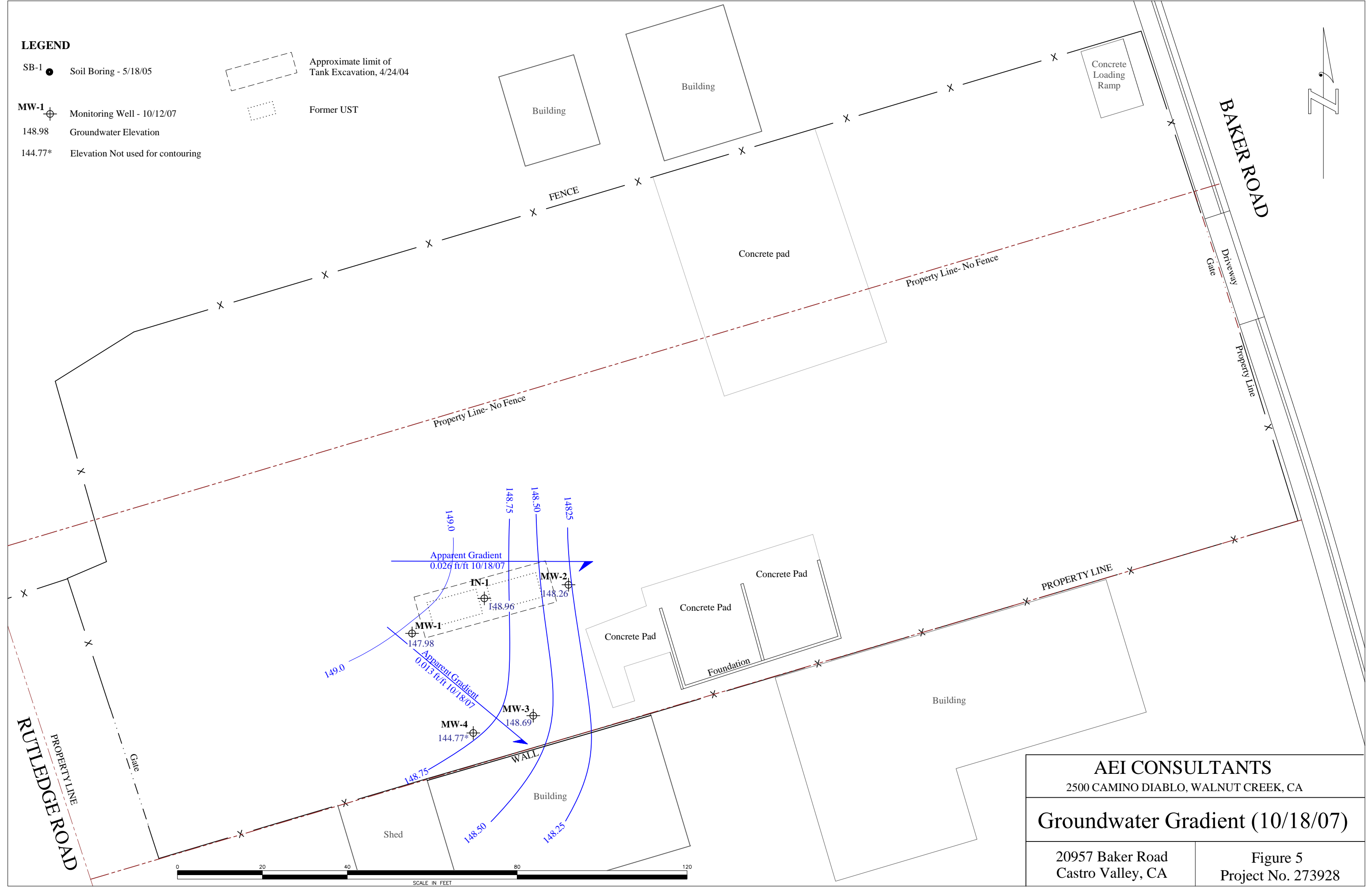


<p><b>AEI CONSULTANTS</b> 2500 CAMINO DIABLO, WALNUT CREEK, CA</p>	
<p><b>Groundwater Gradient (10/15/07)</b></p>	
<p>20957 Baker Road Castro Valley, CA</p>	<p>Figure 4 Project No. 273928</p>

**LEGEND**

- SB-1 ● Soil Boring - 5/18/05
- MW-1 ⊕ Monitoring Well - 10/12/07
- 148.98 Groundwater Elevation
- 144.77\* Elevation Not used for contouring

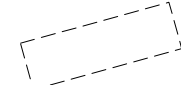

-  Approximate limit of Tank Excavation, 4/24/04
-  Former UST

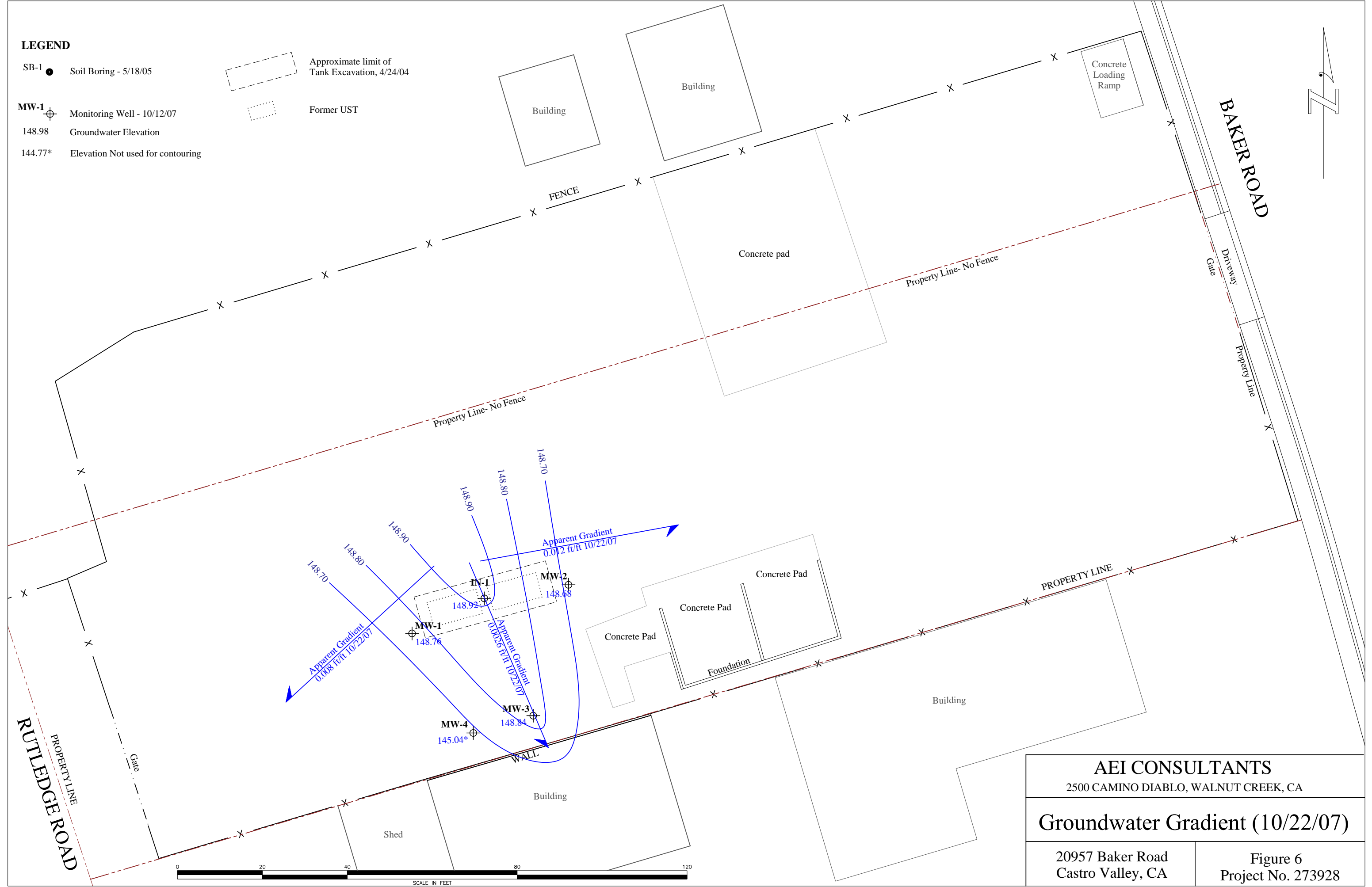


<p><b>AEI CONSULTANTS</b> 2500 CAMINO DIABLO, WALNUT CREEK, CA</p>	
<p><b>Groundwater Gradient (10/18/07)</b></p>	
<p>20957 Baker Road Castro Valley, CA</p>	<p>Figure 5 Project No. 273928</p>

**LEGEND**

- SB-1 ● Soil Boring - 5/18/05
- MW-1 ⊕ Monitoring Well - 10/12/07
- 148.98 Groundwater Elevation
- 144.77\* Elevation Not used for contouring

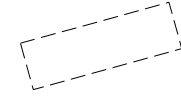

-  Approximate limit of Tank Excavation, 4/24/04
-  Former UST

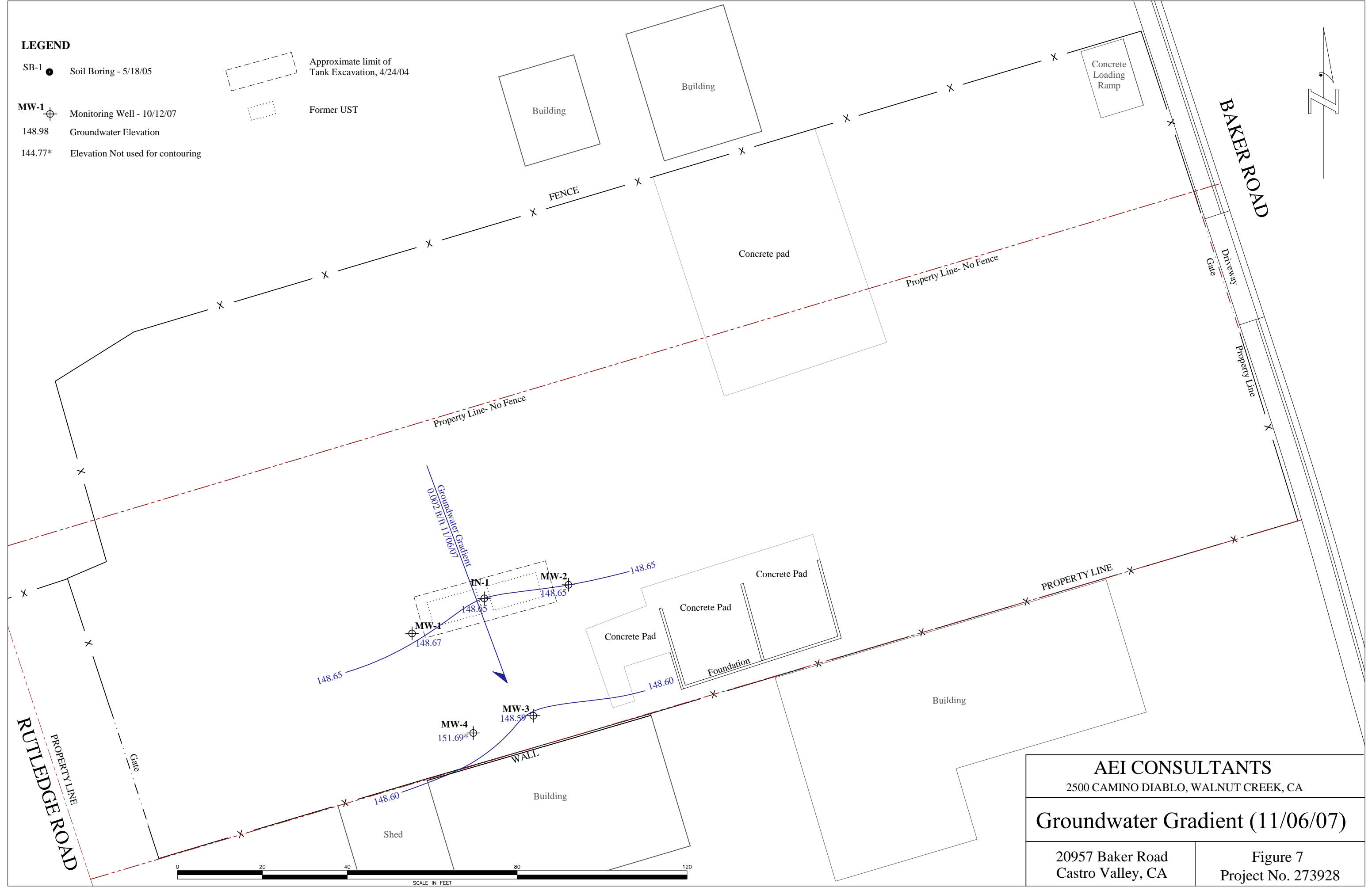


<p><b>AEI CONSULTANTS</b> 2500 CAMINO DIABLO, WALNUT CREEK, CA</p>	
<p><b>Groundwater Gradient (10/22/07)</b></p>	
<p>20957 Baker Road Castro Valley, CA</p>	<p>Figure 6 Project No. 273928</p>

**LEGEND**

- SB-1 ● Soil Boring - 5/18/05
- MW-1 ⊕ Monitoring Well - 10/12/07
- 148.98 Groundwater Elevation
- 144.77\* Elevation Not used for contouring

-  Approximate limit of Tank Excavation, 4/24/04
-  Former UST



<p><b>AEI CONSULTANTS</b> 2500 CAMINO DIABLO, WALNUT CREEK, CA</p>	
<p><b>Groundwater Gradient (11/06/07)</b></p>	
<p>20957 Baker Road Castro Valley, CA</p>	<p>Figure 7 Project No. 273928</p>

**LEGEND**

SB-1 ● Soil Boring - 5/18/05

MW-1 ⊕ Monitoring Well - 10/12/07

TPH-g	7,300
TPH-d	23,000
TPH-mo	1,300
MBE	<5.0/0.5
T	11
X	27

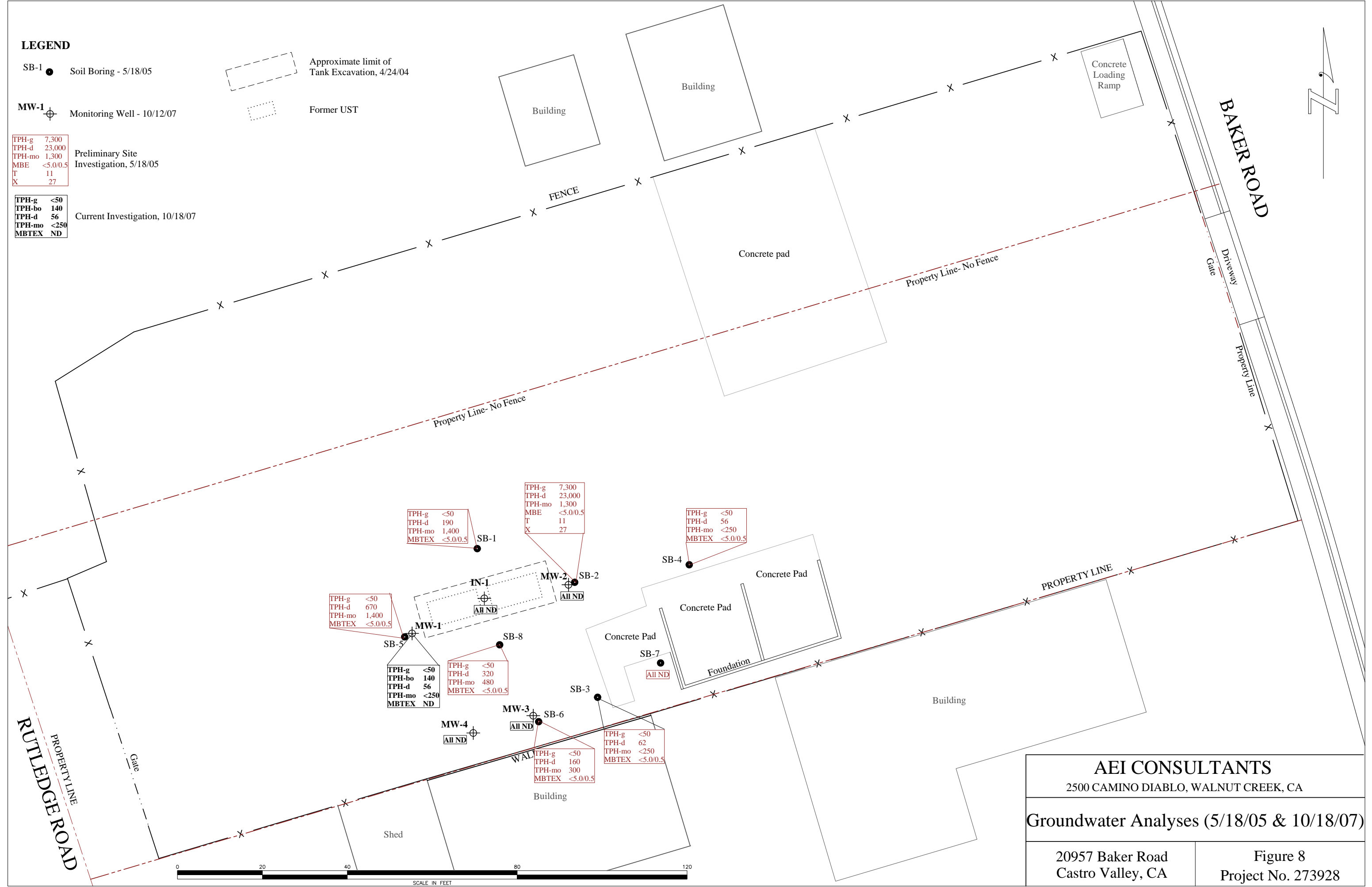
Preliminary Site Investigation, 5/18/05

TPH-g	<50
TPH-bo	140
TPH-d	56
TPH-mo	<250
MBTEX	ND

Current Investigation, 10/18/07

Approximate limit of Tank Excavation, 4/24/04

Former UST



SB-1

TPH-g	7,300
TPH-d	23,000
TPH-mo	1,300
MBE	<5.0/0.5
T	11
X	27

SB-4

TPH-g	<50
TPH-d	56
TPH-mo	<250
MBTEX	<5.0/0.5

SB-5

TPH-g	<50
TPH-bo	140
TPH-d	670
TPH-mo	1,400
MBTEX	<5.0/0.5

SB-8

TPH-g	<50
TPH-d	320
TPH-mo	480
MBTEX	<5.0/0.5

MW-1

TPH-g	<50
TPH-bo	140
TPH-d	56
TPH-mo	<250
MBTEX	ND

SB-3

TPH-g	<50
TPH-d	160
TPH-mo	300
MBTEX	<5.0/0.5

MW-4

TPH-g	<50
TPH-bo	140
TPH-d	56
TPH-mo	<250
MBTEX	ND

MW-3

TPH-g	<50
TPH-d	62
TPH-mo	<250
MBTEX	<5.0/0.5

SB-6

TPH-g	<50
TPH-d	160
TPH-mo	300
MBTEX	<5.0/0.5

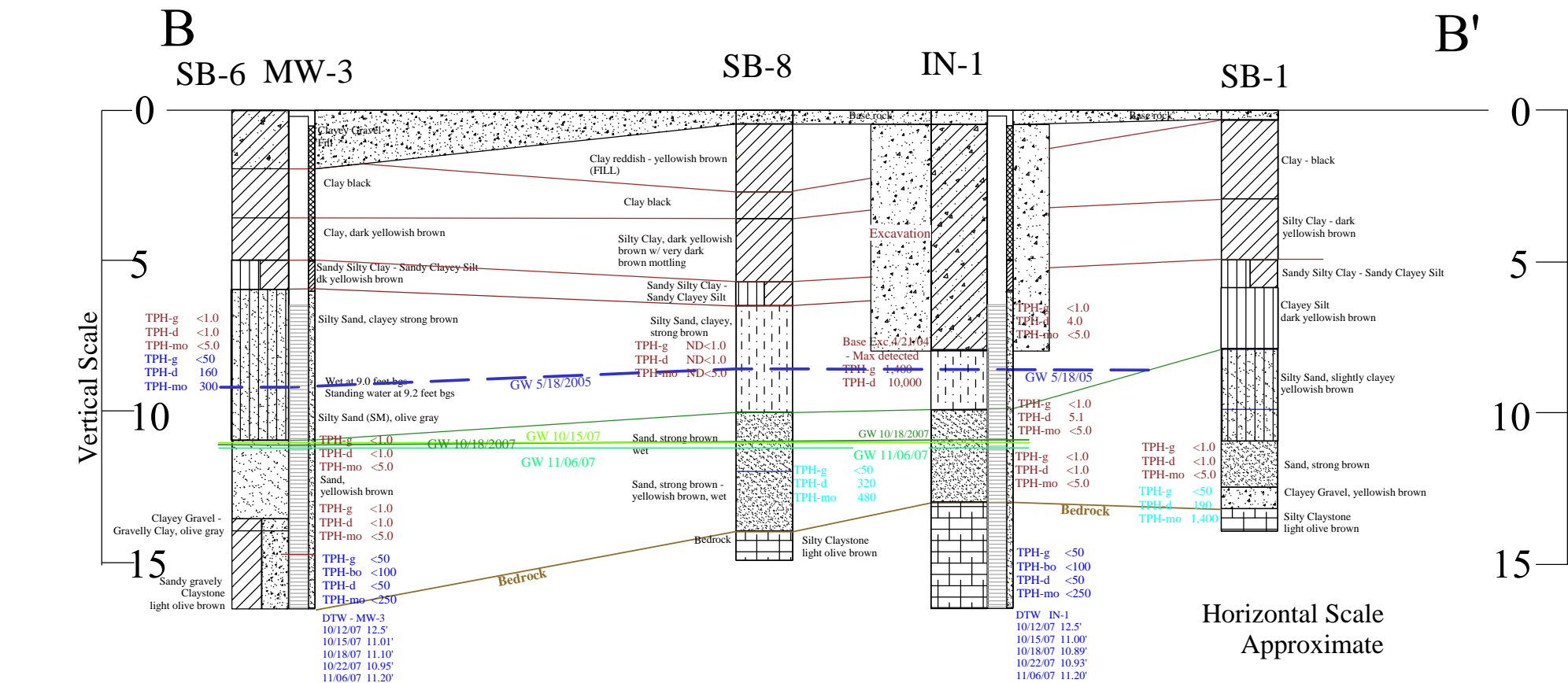
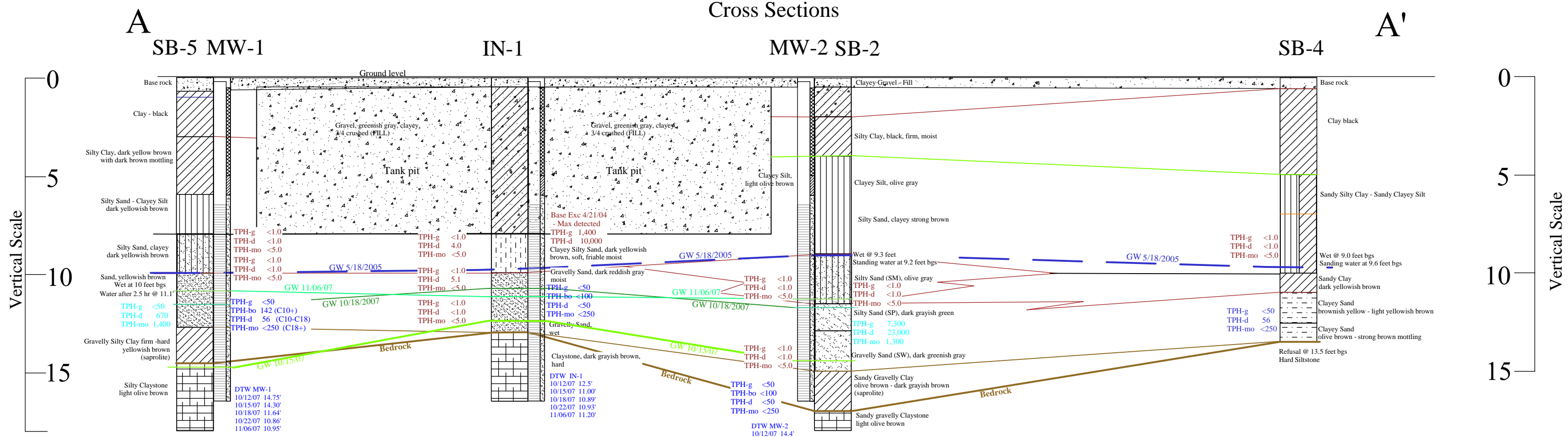
SB-7

TPH-g	<50
TPH-d	62
TPH-mo	<250
MBTEX	<5.0/0.5

<b>AEI CONSULTANTS</b> 2500 CAMINO DIABLO, WALNUT CREEK, CA	
<b>Groundwater Analyses (5/18/05 &amp; 10/18/07)</b>	
20957 Baker Road Castro Valley, CA	Figure 8 Project No. 273928



# Cross Sections



### KEY

- Clay
  - Sandy Clay
  - Silt
  - Silty Sand
  - Clayey Sand
  - Sand
  - Gravel
- TPH-g ND<1.0  
TPH-d 4.0  
TPH-mo ND<5.0
- TPH-g <50  
TPH-bo <100  
TPH-d <50  
TPH-mo <250
- TPH-g <50  
TPH-bo <100  
TPH-d <50  
TPH-mo <250
- Groundwater analyticals  
10/18/07 in ug/L
- Groundwater analyticals  
5/18/05 in ug/L
- Typical Well  
- 2-inch blank riser  
- 10 ft. slotted casing

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

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

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Piazza 20957 Baker Road Castro Valley, California	FIGURE 9 Project No. 273928
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Drafted 12/8/05 by RFF  
Rev 10/29/07

## **TABLES**

**Table 1 Soil Analytical Data  
Piazza, 20957 Baker Road, Castro Valley, CA**

Sample ID	Date	TPH-g	TPH-d	TPH-mo	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes
		mg/kg							
		8015 C				8021 B			
IN-1-8.5	10/12/2007	<1.0	4.0 <sup>1</sup>	<5.0	<0.05	<0.005	<0.005	<0.005	<0.005
IN-1-10	10/12/2007	<1.0	5.1 <sup>1</sup>	<5.0	<0.05	<0.005	<0.005	<0.005	<0.005
IN-1-12	10/12/2007	<1.0	<1.0	<5.0	<0.05	<0.005	<0.005	<0.005	<0.005
MW-1-8.5	10/12/2007	<1.0	<1.0	<5.0	<0.05	<0.005	<0.005	<0.005	<0.005
MW-1-9	10/12/2007	<1.0	<1.0	<5.0	<0.05	<0.005	<0.005	<0.005	<0.005
MW-2-11.5	10/12/2007	<1.0	<1.0	<5.0	<0.05	<0.005	<0.005	<0.005	<0.005
MW-2-13.5	10/12/2007	<1.0	<1.0	<5.0	<0.05	<0.005	<0.005	<0.005	<0.005
MW-3-11	10/12/2007	<1.0	<1.0	<5.0	<0.05	<0.005	<0.005	<0.005	<0.005
MW-3-13	10/12/2007	<1.0	<1.0	<5.0	<0.05	<0.005	<0.005	<0.005	<0.005
MW-4-11	10/12/2007	<1.0	<1.0	<5.0	<0.05	<0.005	<0.005	<0.005	<0.005
MW-4-12	10/12/2007	<1.0	<1.0	<5.0	<0.05	<0.005	<0.005	<0.005	<0.005
MW-4-16	10/12/2007	<1.0	<1.0	<5.0	<0.05	<0.005	<0.005	<0.005	<0.005
SB1-11.5	5/18/2005	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	5/18/2005	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	5/18/2005	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	5/18/2005	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	5/18/2005	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	5/18/2005	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	5/18/2005	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	5/18/2005	ND<1.0	ND<1.0	ND<5.0	ND<0.05	ND<0.005	ND<0.005	ND<0.005	ND<0.005
T1W-EB8'	4/21/2004	160	4,900	----	ND<0.50	ND<0.05	ND<0.05	ND<0.05	ND<0.05
T1E-EB8'	4/21/2004	190	10,000	----	ND<1.7	ND<0.17	ND<0.17	ND<0.17	8.4
T2W-EB8'	4/21/2004	1,400	2,400	----	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<1.0
T2E-EB8'	4/21/2004	460	1,400	----	ND<0.50	ND<0.05	ND<0.05	ND<0.05	0.25

Notes:

1 - Aged diesel ? is significant

Lead in excavation samples 6.1 mg/kg to 18 mg/kg, stockpile 22 mg/kg to 24 mg/kg

**Table 2 Groundwater Analytical Data  
Piazza, 20957 Baker Road, Castro Valley, CA**

Sample ID	Date	Depth to Water feet	TPH-g	TPH-d	TPH-mo	TPH-bo	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes
			C6-C12 µg/L	C10-C23 µg/L	C18+ µg/L	C10+ µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EPA Method 8015						EPA Method 8021B					
<b>IN-1</b>	<b>10/18/07</b>	<b>10.89</b>	<b>ND&lt;50</b>	<b>ND&lt;50</b>	<b>ND&lt;250</b>	<b>ND&lt;100</b>	<b>ND&lt;5.0</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>
SB-1 W	5/18/2005	8.75	ND<50	190 <sup>1,2</sup>	1,400	----	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
<b>MW-1</b>	<b>10/18/07</b>	<b>11.64</b>	<b>ND&lt;50</b>	<b>56</b>	<b>ND&lt;250 (86)<sup>6</sup></b>	<b>140<sup>2</sup></b>	<b>ND&lt;5.0</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>
SB5-W	5/18/2005	11.60	ND<50	670 <sup>1,2</sup>	1,400	----	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
<b>MW-2</b>	<b>10/18/07</b>	<b>11.74</b>	<b>ND&lt;50</b>	<b>ND&lt;50</b>	<b>ND&lt;250</b>	<b>ND&lt;100</b>	<b>ND&lt;5.0</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>
SB-2 W	5/18/2005	9.20	7,300 <sup>3,4</sup>	23,000 <sup>1,2,4,5</sup>	1,300	----	ND<50	ND<5.0	11	ND<5.0	<b>27</b>
<b>MW-3</b>	<b>10/18/07</b>	<b>11.10</b>	<b>ND&lt;50</b>	<b>ND&lt;50</b>	<b>ND&lt;250</b>	<b>ND&lt;100</b>	<b>ND&lt;5.0</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>
SB6-W	5/18/2005	8.62	ND<50	160 <sup>1,2</sup>	300	----	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
<b>MW-4</b>	<b>10/18/07</b>	<b>14.92</b>	<b>ND&lt;50</b>	<b>ND&lt;50</b>	<b>ND&lt;250</b>	<b>ND&lt;100</b>	<b>ND&lt;5.0</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>	<b>ND&lt;0.5</b>
SB-1 W	5/18/2005	8.75	ND<50	190 <sup>1,2</sup>	1,400	----	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
SB-2 W	5/18/2005	9.20	7,300 <sup>3,4</sup>	23,000 <sup>1,2,4,5</sup>	1,300	----	ND<50	ND<5.0	11	ND<5.0	<b>27</b>
SB3-W	5/18/2005	8.56	ND<50	62	ND<250	----	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
SB4-W	5/18/2005	9.60	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	5/18/2005	11.60	ND<50	670 <sup>1,2</sup>	1,400	----	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
SB6-W	5/18/2005	8.62	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	5/18/2005	8.56	ND<50	ND<50	ND<250	----	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
SB8-W	5/18/2005	8.70	ND<50	320 <sup>1,2</sup>	480	----	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
RWQCB ESLs**			100	100	100	----	5.0	1.0	40	30	20

Notes

Soil boring data from 2005 is paired with twin 2007 groundwater monitoring well data for comparison purposes.

**BOLD** = Current groundwater data

1 - oil range compounds are significant

TPH-g = total petroleum hydrocarbons as gasoline

2 = diesel range compounds are significant, no recognizable pattern

TPH-d = total petroleum hydrocarbons as diesel

3 = no recognizable pattern

TPH-mo = total petroleum hydrocarbons as motor oil

4 = lighter than water immiscible sheen/product is present

MTBE = methyl tert-butyl ether

5 = gasoline range compounds are significant

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

6 = value in parenthesis is approximate "residual fuel", C10+ value minus TPH-d value

ft amsl = feet above mean sea level

ND = Not reported at or above the indicated method detection limit

\*\* = RWQCB ESLs November 2007, TABLE F-1a. Groundwater Screening levels, Groundwater is a current or potential drinking water resource

**Table 3 Groundwater Elevation Data  
Piazza, 20957 Baker Road, Castro Valley, CA**

<b>Well ID</b>	<b>Date</b>	<b>Well Elevation (ft amsl)</b>	<b>Depth to Water (ft)</b>	<b>Groundwater Elevation (ft amsl)</b>	<b>Elevation Change (ft)</b>
<b>IN-1</b>	10/15/07	159.85	11.00	148.85	----
	10/18/07	159.85	10.89	148.96	0.11
	10/22/2007*	159.85	10.93	148.92	-0.04
	<b>11/06/07</b>	<b>159.85</b>	<b>11.20</b>	<b>148.65</b>	<b>-0.27</b>
<b>MW-1</b>	10/15/07	159.62	14.30	145.32	----
	10/18/07	159.62	11.64	147.98	2.66
	10/22/07	159.62	10.86	148.76	0.78
	<b>11/06/07</b>	<b>159.62</b>	<b>10.95</b>	<b>148.67</b>	<b>-0.09</b>
<b>MW-2</b>	10/15/07	160.00	13.28	146.72	----
	10/18/07	160.00	11.74	148.26	1.54
	10/22/07	160.00	11.32	148.68	0.42
	<b>11/06/07</b>	<b>160.00</b>	<b>11.35</b>	<b>148.65</b>	<b>-0.03</b>
<b>MW-3</b>	10/15/07	159.79	11.01	148.78	----
	10/18/07	159.79	11.10	148.69	-0.09
	10/22/07	159.79	10.95	148.84	0.15
	<b>11/06/07</b>	<b>159.79</b>	<b>11.20</b>	<b>148.59</b>	<b>-0.25</b>
<b>MW-4</b>	10/15/07	159.69	14.57	145.12	----
	10/18/07	159.69	14.92	144.77	-0.35
	10/22/07	159.69	14.65	145.04	0.27
	10/22/07 Well loaded with fresh water- surged for 15 minutes- water level dropping slowly @ 4.0 feet bgs				
	<b>11/06/07</b>	<b>159.69</b>	<b>8.00</b>	<b>151.69</b>	<b>6.65</b>

Depth to water measured from the top of well casing  
ft amsl = feet above mean sea level

**Table 3a                    Groundwater Elevation and Gradient  
Piazza, 20957 Baker Road, Castro Valley, CA**

<b>Event</b>	<b>Date</b>	<b>Average Water Table Elevation (ft amsl)</b>	<b>Water Table Elevation Change (ft)</b>	<b>Hydraulic Gradient Flow Direction (ft/ft)</b>
Develop wells	10/15/07	147.42	----	variable
1	<b>10/18/07</b>	<b>148.47</b>	<b>1.06</b>	<b>variable</b>
Develop well MW- 4	10/22/07	148.80	0.33	variable
----	<b>11/06/07</b>	<b>148.64</b>	<b>-0.16</b>	<b>0.002/SSE</b>

Notes

\* = average groundwater elevation of wells, IN-1, MW-1 through MW-3, Well MW-4 has no apparent permeability below 8 feet bgs.

**Table 4: Well Construction Details****Piazza, 20957 Baker Road, Castro Valley, CA**

<b>Well ID</b>	<b>Date Installed</b> (feet)	<b>Top of casing</b> (feet)	<b>Top of Well Box</b> (feet)	<b>Depth To Water 10/18/07</b> (feet)	<b>Casing Material</b>	<b>Total Depth Boring</b> (feet)	<b>Total Depth Well</b> (feet)	<b>Borehole Diameter</b> (inches)	<b>Casing Diameter</b> (inches)	<b>Screened Interval</b> (feet)	<b>Slot Size</b> (inches)	<b>Filter Pack Interval</b> (feet)	<b>Filter Pack Sand</b> (feet)	<b>Bentonite Interval</b> (feet)	<b>Grout Interval</b> (feet)
IN-1	10/12/07	160.12	159.85	140.87	PVC	16.5	16.5	8 1/4	2.0	6.5-16.5	0.020	6.0-16.5	2/12	5.0-5.5	.05-5.0
MW-1	10/12/07	159.84	159.62	11.64	PVC	16.5	16.5	8 1/4	2.0	6.5-16.5	0.020	6.0-16.5	2/12	5.0-6.5	.05-5.0
MW-2	10/12/07	160.30	160.00	11.74	PVC	16.5	16.5	8 1/4	2.0	6.5-16.5	0.020	6.0-16.5	2/12	5.0-6.5	.05-5.0
MW-3	10/12/07	160.04	159.79	11.1	PVC	16.5	16.5	8 1/4	2.0	6.5-16.5	0.020	6.0-16.5	2/12	5.0-6.5	.05-5.0
MW-4	10/12/07	159.95	159.69	14.92	PVC	16.5	16.5	8 1/4	2.0	6.5-16.5	0.020	6.0-16.5	2/12	5.0-6.5	.05-5.0

**Table 5****Soil Analytical Data - Metals and Misc.  
Piazza, 20957 Baker Road, Castro Valley, CA**

Analyte	Sample ID	
	IN-1-8.5 mg/kg	MW-2-11.5 mg/kg
Antimony	0.51	0.60
Arsenic	4.4	5.3
Barium	73	80
Beryllium	<0.5	<0.5
Cadmium	<0.25	<0.25
Chromium (Total)	22	22
Chromium VI	<0.8	<0.2
Cobalt	4.3	11
Copper	11	14
Lead	4	7.4
Mercury	<0.05	<0.012
Molybdenum	<0.5	<0.5
Nickel	18	27
Selenium	<0.5	<0.5
Silver	<0.5	<0.5
Thallium	<0.5	<0.5
Vanadium	26	34
Zinc	26	39
COD	2400	1800
pH	7.37 @24.1 C	5.86 @ 23.8 C

Sampled 10/12/07  
mg/kg = micrograms per kilogram



**Table 6****Groundwater Analytical Data - Metals  
Piazza, 20957 Baker Road, Castro Valley, CA**

Analyte	Sample ID	
	MW-2	MW-3
	µg/L	µg/L
Antimony	0.72	<0.5
Arsenic	2.3	0.82
Barium	300	360
Beryllium	<0.5	<0.5
Cadmium	<0.25	<0.25
Chromium (Total)	0.57	0.55
Chromium VI	<0.2	<0.2
Cobalt	<0.2	<0.5
Copper	2.00	1.3
Lead	<0.5	<0.5
Mercury	0.017	<0.012
Molybdenum	4.7	0.70
Nickel	1.6	2.0
Selenium	1.9	1.4
Silver	<0.19	<0.19
Thallium	<0.5	<0.5
Vanadium	2.1	1.3
Zinc	180	190

Sampled 10/18/07

µg/L = micrograms per kilogram

**Table 7      Soil Vapor Data**  
**Piazza, 20957 Baker Road, Castro Valley, CA**

<b>Sample</b>	<b>Date</b>	<b>DTW</b>	<b>Hydrocarbons</b>	<b>Methane</b>	<b>Oxygen</b>	<b>Carbon Dioxide</b>
<b>ID</b>				<b>Percent (%)</b>		
				<i>RKI Eagle Gas Detector</i>		
MW-1	10/18/2007	11.64	0.0	0.0	20.8	0.4
MW-2	10/18/2007	11.74	0.0	0.0	15.9	2.9
MW-3	10/18/2007	11.1	0.0	0.0	7.9	7.3
MW-4	10/18/2007	14.92	0.0	0.0	19.0	1.3
IN-1	10/18/2007	10.89	0.0	0.0	12.4	5.0

## **APPENDIX A**

### **Well Permits**

# Alameda County Public Works Agency - Water Resources Well Permit



399 Elmhurst Street  
Hayward, CA 94544-1395  
Telephone: (510)670-6633 Fax:(510)782-1939

**Application Approved on: 08/31/2007 By jamesy**

**Permit Numbers: W2007-0964 to W2007-0968**  
**Permits Valid from 10/05/2007 to 10/09/2007**

**Application Id:** 1188588659887  
**Site Location:** 20957 Baker Road  
**Project Start Date:** 09/11/2007  
**Extension Start Date:** 10/05/2007  
**Extension Count:** 1

**City of Project Site:** Castro Valley

**Completion Date:** 09/11/2007  
**Extension End Date:** 10/09/2007  
**Extended By:** vickyh1

**Applicant:** AEI Consultants - Robert Flory  
2500 Camino Diablo, Walnut Creek, CA 94597  
**Property Owner:** Nat Piazza  
7613 Peppertree Road, Dublin, CA 94568  
**Client:** \*\* same as Property Owner \*\*  
**Contact:** Robert Flory

**Phone:** 925-944-2899

**Phone:** 925-828-1577

**Phone:** 925-944-2899  
**Cell:** 925-457-7517

**Total Due:** \$1500.00  
**Total Amount Paid:** \$1500.00  
**Receipt Number: WR2007-0389** Paid By: VISA  
**Payer Name : Peter J McIntyre** **PAID IN FULL**

**Works Requesting Permits:**

Well Construction-Monitoring-Monitoring - 5 Wells  
Driller: HEW Drilling - Lic #: 384167 - Method: hstem

**Work Total: \$1500.00**

**Specifications**

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2007-0964	08/31/2007	12/10/2007	MW-1	8.25 in.	2.00 in.	7.00 ft	20.00 ft
W2007-0965	08/31/2007	12/10/2007	MW-2	8.25 in.	2.00 in.	7.00 ft	20.00 ft
W2007-0966	08/31/2007	12/10/2007	MW-3	8.25 in.	2.00 in.	7.00 ft	20.00 ft
W2007-0967	08/31/2007	12/10/2007	MW-4	8.25 in.	2.00 in.	7.00 ft	20.00 ft
W2007-0968	08/31/2007	12/10/2007	MW-5	8.25 in.	2.00 in.	7.00 ft	20.00 ft

**Specific Work Permit Conditions**

1. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.
2. Permitte, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.
3. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required

## Alameda County Public Works Agency - Water Resources Well Permit

for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits and requirements have been approved or obtained. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

4. Compliance with the well-sealing specifications shall not exempt the well-sealing contractor from complying with appropriate State reporting-requirements related to well construction or destruction (Sections 13750 through 13755 (Division 7, Chapter 10, Article 3) of the California Water Code). Contractor must complete State DWR Form 188 and mail original to the Alameda County Public Works Agency, Water Resources Section, within 60 days. Including permit number and site map.

5. Applicant shall contact Vicky Hamlin for an inspection time at 510-670-5443 or email to vickyh@acpwa.org at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

6. Wells shall have a Christy box or similar structure with a locking cap or cover. Well(s) shall be kept locked at all times. Well(s) that become damaged by traffic or construction shall be repaired in a timely manner or destroyed immediately (through permit process). No well(s) shall be left in a manner to act as a conduit at any time.

7. Minimum surface seal thickness is two inches of cement grout placed by tremie

8. Minimum seal (Neat Cement seal) depth for monitoring wells is 5 feet below ground surface(BGS) or the maximum depth practicable or 20 feet.

9. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of \$500.00.

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**Scheduling Work/Inspections:**

Alameda County Public Works Agency (ACPWA), Water Resources Section requires scheduling and inspection of permitted work. All drilling activities must be scheduled in advance. Availability of inspections will vary from week to week and will come on a first come, first served bases. To ensure inspection availability on your desired or driller scheduled date, the following procedures are required:

Please contact **James Yoo at 510-670-6633** to schedule the inspection date and time (You must have drilling permit approved prior to scheduling).

Schedule the work as far in advance as possible (at least 5 days in advance); and confirm the scheduled drilling date(s) at least 24 hours prior to drilling.

Once the work has been scheduled, an ACPWA Inspector will coordinate the inspection requirements as well as how the Inspector can be reached if they are not at the site when Inspection is required. Expect for special circumstances given, all work will require the inspection to be conducted during the working hours of 8:30am to 2:30pm., Monday to Friday, excluding holidays.

**Request for Permit Extension:**

Permits are only valid from the start date to the completion date as stated on the drilling permit application and Conditions of Approval. To request an extension of a drilling permit application, applicants must request in writing prior to the completion date as set forth in the Conditions of Approval of the drilling permit application. Please send fax or email to Water Resources Section, Fax 510-782-1939 or email at [wells@acpwa.org](mailto:wells@acpwa.org). There are no additional fees for permit extensions or for re-scheduling inspection dates. You may not extend your drilling permit dates beyond 90 days from the approval date of the permit application. **NO refunds** shall be given back after 90 days and the permit shall be deemed voided.

**Cancel a Drilling Permit:**

Applicants may cancel a drilling permit only in writing by mail, fax or email to Water Resources Section, Fax 510-782-1939 or email at [wells@acpwa.org](mailto:wells@acpwa.org). If you do not cancel your drilling permit application before the drilling completion date or notify in writing within 90 days, Alameda County Public Works Agency, Water Resources Section may void the permit and No refunds may be given back.

**Refunds/Service Charge:**

A service charge of \$25.00 dollars for the first check returned and \$35.00 dollars for each subsequent check returned.

Applicants who cancel a drilling permit application **before** we issue the approved permit(s), will receive a **FULL** refund (at any amount) and will be mailed back within two weeks.

Applicants who cancel a drilling permit application **after** a permit has been issued will then be charged a service fee of \$50.00 (fifty Dollars).

To collect the remaining funds will be determined by the amount of the refund to be refunded (see process below).

Board of Supervisors Minute Order, File No. 9763, dated January 9, 1996, gives blanket authority to the Auditor-Controller to process claims, from all County departments for the refund of fees which do not exceed \$500 (Five Hundred Dollars)(with the exception of the County Clerk whose limit is \$1,500).

Refunds over the amounts must be authorized by the Board of Supervisors Minute Order, File No. 9763 require specific approval by the Board of Supervisors. The forms to request for refunds under \$500.00 (Five Hundred Dollars) are available at this office or any County Offices. If the amount is exceeded, a Board letter and Minute Order must accompany the claim. Applicant shall fill out the request form and the County Fiscal department will process the request.

**Enforcement**

Penalty. Any person who does any work for which a permit is required by this chapter and who fails to obtain a permit shall be guilty of a misdemeanor punishable by fine not exceeding Five Hundred Dollars (\$500.00) or by imprisonment not exceeding six months, or by both such fine and imprisonment, and such person shall be deemed guilty of a separate offense for each and every day or portion thereof during which any such

## **APPENDIX B**

### **Boring/Well Logs**

**Project: Piazza**  
**Project Location: 20957 Baker Road, Castro Valley, CA**  
**Project Number: 273928**

**Log of Boring MW-1**  
 Sheet 1 of 1

Date(s) Drilled <b>October 12, 2007</b>	Logged By <b>Leah Levine-Goldberg</b>	Checked By <b>Robert F. Flory, PG</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>8 1/4 inch</b>	Total Depth of Borehole <b>16.5 feet bgs</b>
Drill Rig Type <b>CME-75</b>	Drilling Contractor <b>HEW Drilling</b>	Surface Elevation <b>159.84 feet MSL</b>
Groundwater Level and Date Measured <b>14.75 feet ATD</b>	Sampling Method(s) <b>ModCal</b>	Permit # <b>W2007-0964</b>
Borehole Backfill <b>Well Completion</b>	Location	

Depth, feet	Sample Type	Sample Number	Sampling Resistance, blows/foot	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
0				Asphalt		Asphalt 2", base rock 4"			TOC 159.62 ft
				CL		Clay, black 10YR 2/1, firm, stiff, moist			MW-1 is a twin to boring 5 (SB-5)
				CL		Silty Clay, dark yellowish brown 10YR3/4 with very dark brown mottling 10YR 2/2			Blank 2" diameter schedule 40 PVC
5		MW-1-5	5/7/7	CL					Neat cement grout
				SM-ML		Clayey Silt - Silty Sand, dark yellowish brown 10YR3/4 with some 10YR 4/6 mottling, firm, slightly moist	<1		3/8" bentonite pellets
		MW-1-8	4/6/7	SM		Sand, yellowish brown 10YR 4/6, very fine grained, clayey, firm - moderately firm, friable, very moist	<1		
10		MW-1-10	5/7/10	SP		Sand, yellowish brown 10YR 4/6, very fine grained - coarse grained, firm, wet ?	<1		
		MW-1-12	5/10/13	CL		Gravelly Clay - Silty Clay, olive - olive brown 5y 4/4 - 2.5 4/4, firm - hard, slightly moist - (saprolite)	<1		
15				Claystone		Silty Claystone, light olive brown 2.5Y 4/4, firm - hard, indurated (ATD) $\nabla$			

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**Project: Piazza**  
**Project Location: 20957 Baker Road, Castro Valley, CA**  
**Project Number: 273928**

**Log of Boring MW-2**  
 Sheet 1 of 1

Date(s) Drilled <b>October 12, 2007</b>	Logged By <b>Leah Levine-Goldberg</b>	Checked By <b>Robert F. Flory, PG</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>8 1/4 inch</b>	Total Depth of Borehole <b>18 feet bgs</b>
Drill Rig Type <b>CME-75</b>	Drilling Contractor <b>HEW DRILLING</b>	Surface Elevation <b>160.3 feet</b>
Groundwater Level and Date Measured <b>13.7 feet ATD</b>	Sampling Method(s) <b>ModCal</b>	Permit # <b>W2007-0965</b>
Borehole Backfill <b>Well Completion</b>	Location	

Depth, feet	Sample Type	Sample Number	Sampling Resistance, blows/foot	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
0				GC		Clayey Gravel, black - dark yellow brown 10YR 2/1 - 3/4, firm, dry (FILL?)			TOC 160 ft
				CL		Silty Clay, black 10YR 2/1, firm, moist			
				ML		Clayey Silt, light olive brown 2.5Y 5/6, moderately firm, moist			
5		MW-2-5	3/3/5			becoming sandy downward	<1		Well twin to boring SB-2
		MW-2-8	7/14/17				<1		
10		MW-2-11.5	5/6/7	SM		Silty Sand, light olive brown 2.5Y 5/6, clayey, moderately firm, moist,			# 2/12 Monterey sand
		MW-2-12	6/7/10	SP		Silty Sand, dark greenish gray 10GY 4/1, moderately firm, very moist, becoming wet downward.	2.5		
15		MW-2-15	9/14/25	CL		Sandy Gravelly Clay, olive brown - dark grayish brown 2.5Y 4/4 - 4/2, firm, slightly moist (saprolite)	12.5		
				Claystone		Sandy Gravelly Claystone, light olive brown 2.5Y 4/4, firm - hard, indurated	(ATD) $\nabla$		

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**Project: Piazza**  
**Project Location: 20957 Baker Road, Castro Valley, CA**  
**Project Number: 273928**

**Log of Boring MW-3**  
 Sheet 1 of 1

Date(s) Drilled <b>October 12, 2007</b>	Logged By <b>Leah Levine-Goldberg</b>	Checked By <b>Robert F. Flory, PG</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>8 1/4 inch</b>	Total Depth of Borehole <b>16.5 feet bgs</b>
Drill Rig Type <b>CME-75</b>	Drilling Contractor <b>HEW Drilling</b>	Surface Elevation <b>160.04 feet MSL</b>
Groundwater Level and Date Measured <b>13.3 feet ATD</b>	Sampling Method(s) <b>ModCal</b>	Permit # <b>W2007-0966</b>
Borehole Backfill <b>Well Completion</b>	Location	

Depth, feet	Sample Type	Sample Number	Sampling Resistance, blows/foot	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
0				Asphalt GC		Asphalt			TOC 159.79 ft
						Clayey Gravel, gray, FILL			
				CL		Clay, black 10YR 2/1, soft, moist			Blank 2" diameter schedule 40 PVC
				CL		Silty Clay, dark yellowish brown 10YR3/4 with very dark brown mottling 10YR 2/2			Neat cement grout
5	MW-3-5	3/5/5		CL-ML		Sandy Silty Clay - Clayey Silt, dark yellowish brown 10YR3/4 with some 10YR 4/6 mottling, firm, moist	<1		3/8" bentonite pellets
				SM		Silty Sand, dark brown 10YR 5/8, very fine grained, slightly clayey, firm - moderately firm, friable, moist			
10	MW-3-8	3/7/11					<1		
	MW-3-10	6/7/8					<1		
				SP		Sandy Gravel, yellowish brown 10YR 5/4, well graded, moderately firm, moist			
				SW		Gravelly Sand, yellowish brown 10YR 5/4, well graded, moderately firm, wet.			
	MW-3-12	7/11/14					<1		
				GC-CL		Clayey Gravel - Gravelly Clay, olive gray - olive 4/2 - 5/3, firm, wet, (saprolite)			(ATD) ▽
15									
						Bottom of Boring at 16.5 feet bgs			

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**Project: Piazza**  
**Project Location: 20957 Baker Road, Castro Valley, CA**  
**Project Number: 273928**

**Log of Boring MW-4**  
 Sheet 1 of 1

Date(s) Drilled <b>October 12, 2007</b>	Logged By <b>Leah Levine-Goldberg</b>	Checked By <b>Robert F. Flory, P.G</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>8 1/4 inch</b>	Total Depth of Borehole <b>16.5 feet bgs</b>
Drill Rig Type <b>CME-75</b>	Drilling Contractor <b>HEW Drilling</b>	Surface Elevation <b>159.95 feet MSL</b>
Groundwater Level and Date Measured <b>15.4 feet ATD</b>	Sampling Method(s) <b>ModCal</b>	Permit # <b>W2007-0967</b>
Borehole Backfill <b>Well Completion</b>	Location	

Depth, feet	Sample Type	Sample Number	Sampling Resistance, blows/root	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
0				Asphalt					TOC 159.69 ft
				GC		Clayey Gravel, gray, FILL			
				CL		Clay, Black 10YR 2/1			Blank 2" diameter schedule 40 PVC Neat cement grout
5		MW-4-6	5/8/9	CL		Sandy Silty Clay, dark brown, 10YR 3/6, moist, firm	<1		
		MW-4-8	5/7/10	SC		Clayey Silty Sand, dark olive brown - light olive brown 2.5Y 3/3 - 5/6, moderately firm, moist	<1		
10		MW-4-11	3/8/11	CL		Gravelly Clay, light brownish gray, weathered claystone with green siltstone clasts, firm, moist	<1		
		MW-4-12	6/8/12				<1		
15		MW-4-16	5/7/10	Claystone		Silty Claystone, grayish brown 2.5Y 5/2, saprolitic with purplish black clasts, firm, moist	<1		(ATD) ∇
						Bottom of Boring at 16.5 feet bgs			

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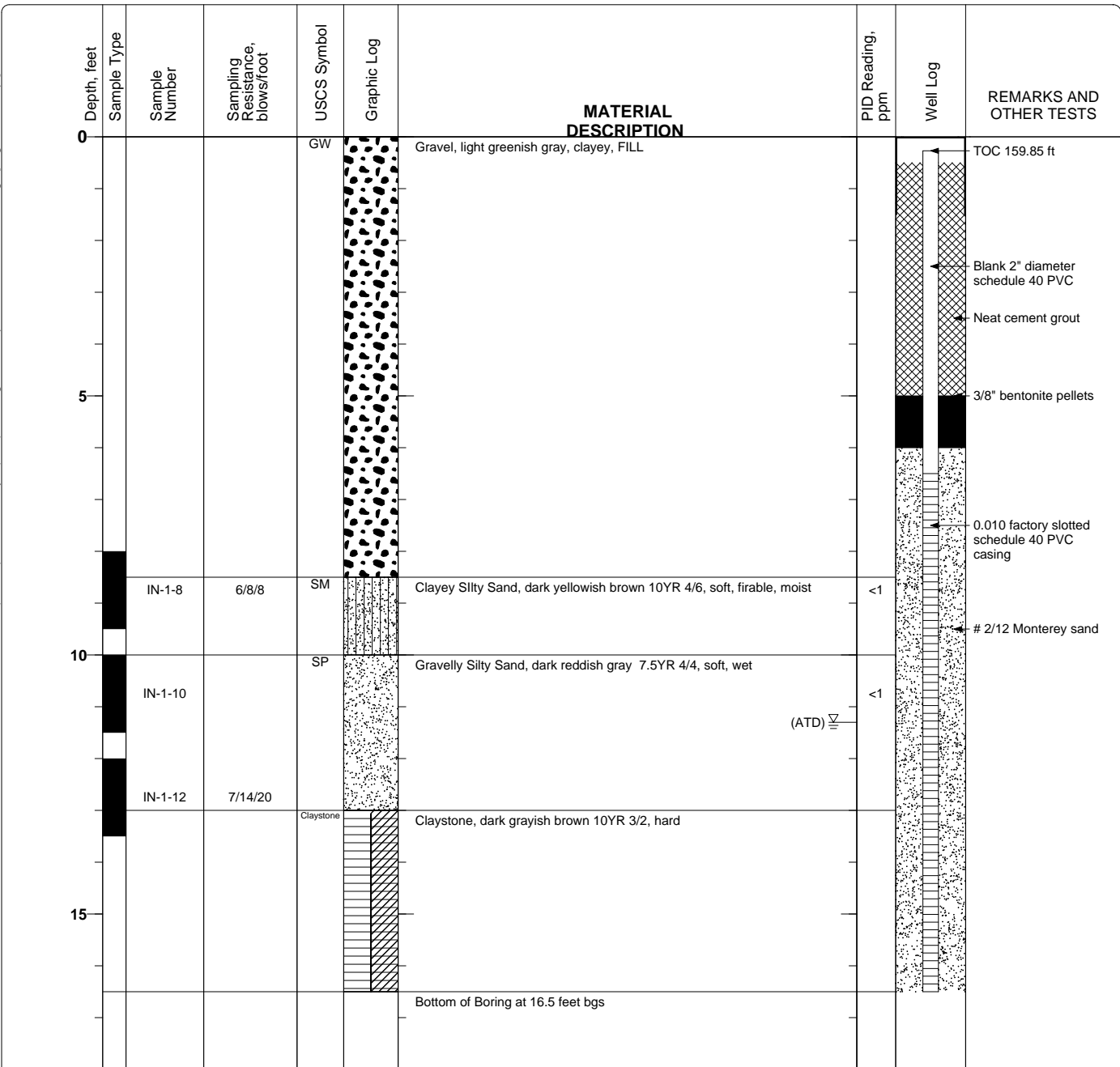


**Project: Piazza**  
**Project Location: 20957 Baker Road, Castro Valley, CA**  
**Project Number: 273928**

**Log of Boring IN-1**  
 Sheet 1 of 1

Date(s) Drilled <b>October 12, 2007</b>	Logged By <b>Leah Levine-Goldberg</b>	Checked By <b>Robert F. Flory, P.G</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>8 1/4 inch</b>	Total Depth of Borehole <b>16.5 feet bgs</b>
Drill Rig Type <b>CME-75</b>	Drilling Contractor <b>HEW Drilling</b>	Surface Elevation <b>160.12 feet MSL</b>
Groundwater Level and Date Measured <b>11.3 feet ATD</b>	Sampling Method(s) <b>ModCal</b>	Permit # <b>W2007-0968</b>
Borehole Backfill <b>Well Completion</b>	Location	

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## **APPENDIX C**

### **Groundwater Monitoring Well Field Sampling Forms**

**AEI CONSULTANTS**  
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

**Monitoring Well Number: MW-1**

Project Name:	Nat Piazza	Date of Sampling:	10/18/2007
Job Number:	273928	Name of Sampler:	R. Bartlett
Project Address:	20957 Baker Road, Castro valley, California		

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	159.84		
Depth of Well	16.50		
Depth to Water (from top of casing)	11.64		
Water Elevation (feet above msl)	148.20		
Well Volumes Purged	Micropurged		
Actual Volume Purged (liters)	2.0		
Appearance of Purge Water	Clear		
Free Product Present?	No	Thickness (ft):	----

**GROUNDWATER SAMPLES**

Number of Samples/Container Size				3 - 40 ml VOA, 1 1-liter Amber, 2 - 500 ml Poly			
Time	Vol Removed (liter)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
11.49	0.5	22.03	7.40	2340	6.03	28.3	
11.53	1.0	22.38	7.35	2170	6.30	28.4	
11.56	1.5	22.52	7.34	2134	6.44	26.9	
11.58	2.0	22.60	7.34	2095	6.59	26.8	
<b>Eagle readings</b>	<b>HC</b>	<b>CH4</b>	<b>O2</b>	<b>CO2</b>			
	0.0	0.0	20.8	0.4			

**COMMENTS (i.e., sample odor, well recharge time & percent, etc.)**

Purge water clear with no odor

**AEI CONSULTANTS**  
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

**Monitoring Well Number: MW-2**

Project Name:	Nat Piazza	Date of Sampling:	10/18/2007
Job Number:	273928	Name of Sampler:	R. Bartlett
Project Address:	20957 Baker Road, Castro valley, California		

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	160.30		
Depth of Well	16.50		
Depth to Water (from top of casing)	1174.00		
Water Elevation (feet above msl)	-1013.70		
Well Volumes Purged	Micropurged		
Actual Volume Purged (liters)	2.0		
Appearance of Purge Water	Clear		
Free Product Present?	No	Thickness (ft):	----

**GROUNDWATER SAMPLES**

Number of Samples/Container Size				3 - 40 ml VOA, 1 1-liter Amber			
Time	Vol Removed (liter)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
1153	0.5	23.14	7.48	1488	5.09	51.6	
1156	1.0	22.83	7.33	1765	4.71	54.6	
1159	1.5	22.81	7.30	2133	4.74	54.3	
1202	2.0	22.77	7.32	2190	4.87	53.7	
<b>Eagle readings</b>	<b>HC</b>	<b>CH4</b>	<b>O2</b>	<b>CO2</b>			
	0.0	0.0	15.9	2.9			

**COMMENTS (i.e., sample odor, well recharge time & percent, etc.)**

Purge water clear with no odor

**AEI CONSULTANTS**  
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

**Monitoring Well Number: MW-3**

Project Name:	Nat Piazza	Date of Sampling:	10/18/2007
Job Number:	273928	Name of Sampler:	R. Bartlett
Project Address:	20957 Baker Road, Castro valley, California		

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	160.04		
Depth of Well	16.50		
Depth to Water (from top of casing)	11.10		
Water Elevation (feet above msl)	148.94		
Well Volumes Purged	Micropurged		
Actual Volume Purged (liters)	2.0		
Appearance of Purge Water	Clear		
Free Product Present?	No	Thickness (ft):	----

**GROUNDWATER SAMPLES**

Number of Samples/Container Size				3 - 40 ml VOA, 1 1-liter Amber, 2 - 500 ml Poly			
Time	Vol Removed (liter)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
1051	0.5	20.34	6.72	829	3.31	109.7	
1053	1.0	20.72	6.85	805	2.83	89.4	
1055	1.5	20.87	6.88	783	2.92	86.2	
1057	2.0	20.98	6.89	740	3.13	83.1	
<b>Eagle readings</b>	<b>HC</b>	<b>CH4</b>	<b>O2</b>	<b>CO2</b>			
	0.0	0.0	7.9	7.3			

**COMMENTS (i.e., sample odor, well recharge time & percent, etc.)**

Purge water clear with no odor



**AEI CONSULTANTS**  
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

**Monitoring Well Number: MW-4**

Project Name:	Nat Piazza	Date of Sampling:	10/18/2007
Job Number:	273928	Name of Sampler:	R. Bartlett
Project Address:	20957 Baker Road, Castro valley, California		

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	159.95		
Depth of Well	16.50		
Depth to Water (from top of casing)	14.92		
Water Elevation (feet above msl)	145.03		
Well Volumes Purged	Micropurged		
Actual Volume Purged (liters)	2.0		
Appearance of Purge Water	Clear		
Free Product Present?	No	Thickness (ft):	----

**GROUNDWATER SAMPLES**

Number of Samples/Container Size				3 - 40 ml VOA, 1 1-liter Amber, 2 - 500 ml Poly			
Time	Vol Removed (liter)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
1126	0.5	19.67	7.09	2709	5.10	85.8	
1128	1.0	20.02	7.24	2246	5.70	50.0	
1130	1.5	20.24	7.33	1721	6.87	47.6	
1132	2.0	20.30	7.30	1936	6.65	46.4	
<b>Eagle readings</b>	<b>HC</b>	<b>CH4</b>	<b>O2</b>	<b>CO2</b>			
	0.0	0.0	19.0	1.3			

**COMMENTS (i.e., sample odor, well recharge time & percent, etc.)**

Well went dry @ 11:32, sampled A 11:36
Purge water clear with no odor

**AEI CONSULTANTS**  
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

**Monitoring Well Number: IN-1**

Project Name:	Nat Piazza	Date of Sampling:	10/18/2007
Job Number:	273928	Name of Sampler:	R. Bartlett
Project Address:	20957 Baker Road, Castro valley, California		

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	160.12		
Depth of Well	16.50		
Depth to Water (from top of casing)	10.89		
Water Elevation (feet above msl)	149.23		
Well Volumes Purged	Micropurged		
Actual Volume Purged (liters)	2.0		
Appearance of Purge Water	Clear		
Free Product Present?	No	Thickness (ft):	----

**GROUNDWATER SAMPLES**

Number of Samples/Container Size				3 - 40 ml VOA, 1 1-liter Amber, 2 - 500 ml Poly			
Time	Vol Removed (liter)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
1221	0.5	22.80	7.54	856	2.47	50.9	
1223	0.1	22.82	7.11	793	2.33	55.8	
1225	0.5	22.67	7.02	792	2.28	57.4	
1228	0.2	22.73	6.88	731	2.47	61.5	
<b>Eagle readings</b>	<b>HC</b>	<b>CH4</b>	<b>O2</b>	<b>CO2</b>			
	0.0	0.0	12.4	5.0			

**COMMENTS (i.e., sample odor, well recharge time & percent, etc.)**

Purge water clear with no odor, becoming brown & purging dry @ 2 liters.

## **APPENDIX D**

### **Laboratory Analyses With Chain of Custody Documentation**



**McC Campbell Analytical, Inc.**

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Web: www.mcccampbell.com E-mail: main@mcccampbell.com  
Telephone: 877-252-9262 Fax: 925-252-9269

AEI Consultants 2500 Camino Diablo, Ste. #200 Walnut Creek, CA 94597	Client Project ID: #273928; Piazza	Date Sampled: 10/12/07
		Date Received: 10/15/07
	Client Contact: Robert Flory	Date Reported: 10/22/07
	Client P.O.:	Date Completed: 10/22/07

**WorkOrder: 0710502**

October 22, 2007

Dear Robert:

Enclosed are:

- 1). the results of **12** analyzed samples from your **#273928; Piazza project**,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McC Campbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Best regards,

Angela Rydelius, Lab Manager

0710502

1/2

**McCampbell Analytical, Inc.**  
 1534 WILLOW PASS ROAD  
 PITTSBURG, CA 94565-1701  
 Telephone: (925) 252-9262 Fax: (925) 252-9269

**CHAIN OF CUSTODY RECORD**  
**TURN AROUND TIME**  RUSH  24 HR  48 HR  72 HR  5 DAY  
 GeoTracker EDF  PDF  Excel  Write On (DW)

**Report To:** Robert Flory/Leah Goldberg **Bill To:** Same  
**Company:** AEI Consultants  
 2500 Camino Diablo  
 Walnut Creek, CA 94597 **E-Mail:** rflory@aeiconsultants.com  
**Tel:** (925) 944-2899, extension 122 **Fax:** (925) 944-2895  
**Project #:** 273928 **Project Name:** Piazza  
**Project Location:** 20957 Baker Road, Castro Valley, CA  
**Sampler Signature:** Leah Levine - Hobbly

Analysis Request										Other	Comments												
SAMPLE ID	Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED		BTEX & TPH as Gas (602/8020 + 8015)/MTBE TPH Multirange (8015) (TPH-d & TPH-mo) Total Petroleum Oil & Grease (5520 E&F/B&F) Total Petroleum Hydrocarbons (418.1) HVOCS EPA 8260 (8010 list) BTEX ONLY (EPA 602 / 8020) Pesticides EPA 608 / 8080 PCBs EPA 608 / 8080 EPA 624 / 8260 (9) Oxygenates & scavengers EPA 625 / 8270 PAH's / PNA's by EPA 625 / 8270 / 8310 CAM-17 Metals LUFT 5 Metals Lead (7240/7421/239.2/6010) Chromium VI	Filter Samples for Metals Analysis: Yes / No									
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl			HNO <sub>3</sub>	Other							
MW3-5	MW3	10/12/07	8:50																				
MW3-9			8:55																				
MW3-11			9:00																				
MW3-13			9:10																				
MW4-6			10:00																				
MW4-11			10:10																				
MW4-12			10:15																				
MW4-16			10:25																				
MW1-6			11:00																				
MW1-8.5			11:05																				
MW1-9			11:05																				
MW1-11			11:10																				
MW1-12			11:15																				

**Relinquished By:** Leah Levine - Hobbly **Date:** 10/14/07 **Time:** 2:35 **Received By:** [Signature]  
**Relinquished By:** [Signature] **Date:** 10/15/07 **Time:** 4:00 **Received By:** K. BURKE  
**Relinquished By:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Time:** \_\_\_\_\_ **Received By:** \_\_\_\_\_

ICE/C° 7.8  
 GOOD CONDITION \_\_\_\_\_  
 HEAD SPACE ABSENT \_\_\_\_\_  
 DECHLORINATED IN LAB \_\_\_\_\_  
 PRESERVATION \_\_\_\_\_  
 APPROPRIATE CONTAINERS \_\_\_\_\_  
 PERSERVED IN LAB \_\_\_\_\_  
 VOAS | O&G | METALS | OTHER

<b>McCampbell Analytical, Inc.</b> 1534 WILLOW PASS ROAD PITTSBURG, CA 94565-1701 Telephone: (925) 252-9262      Fax: (925) 252-9269				<b>CHAIN OF CUSTODY RECORD</b> <b>TURN AROUND TIME</b> <input type="checkbox"/> RUSH <input type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input type="checkbox"/> 72 HR <input checked="" type="checkbox"/> 5 DAY GeoTracker EDF <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> Excel <input type="checkbox"/> Write On (DW) <input type="checkbox"/>																															
Report To: Robert Flory/Leah Goldberg    Bill To: Same				<b>Analysis Request</b>						<b>Other</b>		<b>Comments</b>																							
Company: AEI Consultants 2500 Camino Diablo Walnut Creek, CA 94597    E-Mail: rflory@aeiconsultants.com				BTEX & TPH as Gas (602/8020 + 8015)/MTBE TPH Multirange (8015) (TPH-d & TPH-mo) Total Petroleum Oil & Grease (5520 E&F/B&F) Total Petroleum Hydrocarbons (418.1) HVOCs EPA 8260 (8010 list) BTEX ONLY (EPA 602 / 8020) Pesticides EPA 608 / 8080 PCBs EPA 608 / 8080 EPA 624 / 8260 (9) Oxygenates & scavengers EPA 625 / 8270 PAH's / PNA's by EPA 625 / 8270 / 8310 CAM-17 Metals LUFT 5 Metals Lead (7240/7421/239.2/6010)						Chromium VI <i>SIVE Analysis</i>		Filter Samples for Metals Analysis: Yes / No																							
Tel: (925) 944-2899, extension 122    Fax: (925) 944-2895																																			
Project #: 273928    Project Name: Piazza																																			
Project Location: 20957 Baker Road, Castro Valley, CA																																			
Sampler Signature: <i>Leah Levine-Gaddy</i>																																			
Sampler Signature: <i>Leah Levine-Gaddy</i>																																			
SAMPLE ID	Field Point Name	SAMPLING		# Containers	Type Containers					MATRIX				METHOD PRESERVED																					
		Date	Time		Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other	BTEX & TPH as Gas (602/8020 + 8015)/MTBE	TPH Multirange (8015) (TPH-d & TPH-mo)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	HVOCs EPA 8260 (8010 list)	BTEX ONLY (EPA 602 / 8020)	Pesticides EPA 608 / 8080	PCBs EPA 608 / 8080	EPA 624 / 8260 (9) Oxygenates & scavengers	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	Chromium VI							
IN-1-8.5		10/12/07	12:00										X	X											X	X	X								
IN-1-10			12:05										X	X													X	X							
IN-1-12			12:10										hold	hold																					
MW2-8			13:20										hold	hold																					
MW2-11.5			13:25										X	X											X	X	X								
MW2-13.5			13:30										X	X													X								
MW2-16.5			13:35										hold	hold																					
Relinquished By: <i>Leah Levine-Gaddy</i> Date: 10/14/07    Time: 9:35				Received By: <i>Pam Krauss</i>												ICE/t° 7.8				VOAS				O&G				METALS				OTHER			
Relinquished By: <i>Pam Krauss</i> Date: 10/15/07    Time: 5:00				Received By: <i>K. BURKA</i>												GOOD CONDITION _____				PRESERVATION APPROPRIATE _____				CONTAINERS _____				PERSERVED IN LAB _____							
Relinquished By: _____    Date: _____    Time: _____				Received By: _____												HEAD SPACE ABSENT _____				DECHLORINATED IN LAB _____				PERSERVED IN LAB _____											

# McC Campbell Analytical, Inc.



1534 Willow Pass Rd  
Pittsburg, CA 94565-1701  
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD

WorkOrder: 0710502

ClientID: AEL

EDF     Excel     Fax     Email     HardCopy     ThirdParty

**Report to:**

Robert Flory  
AEI Consultants  
2500 Camino Diablo, Ste. #200  
Walnut Creek, CA 94597

Email: rflory@aeiconsultants.com  
TEL: (925) 283-6000    FAX: (925) 944-2895  
ProjectNo: #273928; Piazza  
PO:

**Bill to:**

Denise Mockel  
AEI Consultants  
2500 Camino Diablo, Ste. #200  
Walnut Creek, CA 94597  
dmockel@aeiconsultants.com

**Requested TAT: 5 days**

*Date Received: 10/15/2007*

*Date Printed: 10/17/2007*

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
0710502-003	MW3-11	Soil	10/12/2007	<input type="checkbox"/>			A	A	A							
0710502-004	MW3-13	Soil	10/12/2007	<input type="checkbox"/>			A		A							
0710502-006	MW4-11	Soil	10/12/2007	<input type="checkbox"/>			A		A							
0710502-007	MW4-12	Soil	10/12/2007	<input type="checkbox"/>			A		A							
0710502-008	MW4-16	Soil	10/12/2007	<input type="checkbox"/>			A		A							
0710502-010	MW1-8.5	Soil	10/12/2007	<input type="checkbox"/>			A		A							
0710502-011	MW1-9	Soil	10/12/2007	<input type="checkbox"/>			A		A							
0710502-014	IN-1-8.5	Soil	10/12/2007	<input type="checkbox"/>	A	A	A		A							
0710502-015	IN-1-10	Soil	10/12/2007	<input type="checkbox"/>			A		A							
0710502-016	IN-1-12	Soil	10/12/2007	<input type="checkbox"/>			A		A							
0710502-018	MW2-11.5	Soil	10/12/2007	<input type="checkbox"/>	A	A	A		A							
0710502-019	MW2-13.5	Soil	10/12/2007	<input type="checkbox"/>			A		A							

**Test Legend:**

1	218_6m_S	2	CAM17MS_S	3	G-MBTX_S	4	PREDF REPORT	5	TPH(DMO)_S
6		7		8		9		10	
11		12							

The following SampIDs: 014A, 018A contain testgroup.

**Prepared by: Ana Venegas**

**Comments:** Joanne no longer with AEI; invoices to dmockel@aeiconsultants.com

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.



**Sample Receipt Checklist**

Client Name: **AEI Consultants**

Date and Time Received: **10/15/07 4:31:29 PM**

Project Name: **#273928; Piazza**

Checklist completed and reviewed by: **Ana Venegas**

WorkOrder N°: **0710502** Matrix Soil

Carrier: Client Drop-In

**Chain of Custody (COC) Information**

- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Sample IDs noted by Client on COC? Yes  No
- Date and Time of collection noted by Client on COC? Yes  No
- Sampler's name noted on COC? Yes  No

**Sample Receipt Information**

- Custody seals intact on shipping container/cooler? Yes  No  NA
- Shipping container/cooler in good condition? Yes  No
- Samples in proper containers/bottles? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No

**Sample Preservation and Hold Time (HT) Information**

- All samples received within holding time? Yes  No
- Container/Temp Blank temperature Cooler Temp: 7.8°C NA
- Water - VOA vials have zero headspace / no bubbles? Yes  No  No VOA vials submitted
- Sample labels checked for correct preservation? Yes  No
- TTLC Metal - pH acceptable upon receipt (pH<2)? Yes  No  NA

Client contacted:

Date contacted:

Contacted by:

Comments:





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 Telephone: 877-252-9262 Fax: 925-252-9269

AEI Consultants  2500 Camino Diablo, Ste. #200  Walnut Creek, CA 94597	Client Project ID: #273928; Piazza	Date Sampled: 10/12/07
		Date Received: 10/15/07
	Client Contact: Robert Flory	Date Extracted: 10/17/07
	Client P.O.:	Date Analyzed 10/17/07

**T TLC Hexachrome by Alkaline Digestion and IC-UV Analysis\***

Analytical Method: E218.6m

Work Order: 0710502

Lab ID	Client ID	Matrix	Hexachrome	DF
0710502-014A	IN-1-8.5	S	ND	1
0710502-018A	MW2-11.5	S	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	NA
	S	0.8 mg/Kg

\* All samples are reported in mg/kg unless otherwise requested. All samples and QC were cleaned up prior to analysis.  
 j) reporting limit raised due to matrix interference; k) reporting limit raised due to insufficient sample amount.



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AEI Consultants  2500 Camino Diablo, Ste. #200  Walnut Creek, CA 94597	Client Project ID: #273928; Piazza	Date Sampled: 10/12/07
		Date Received: 10/15/07
	Client Contact: Robert Flory	Date Extracted: 10/15/07
	Client P.O.:	Date Analyzed 10/16/07

### CAM / CCR 17 Metals\*

Lab ID	0710502-014A	0710502-018A			Reporting Limit for DF =1; ND means not detected above the reporting limit	
Client ID	IN-1-8.5	MW2-11.5				
Matrix	S	S			S	W
Extraction Type	TOTAL	TOTAL			mg/Kg	mg/L

### ICP-MS Metals, Concentration\*

Analytical Method: 6020A

Extraction Method: SW3050B

Work Order: 0710502

Dilution Factor	1	1			1	1
Antimony	0.51	0.60			0.5	NA
Arsenic	4.4	5.3			0.5	NA
Barium	73	80			5.0	NA
Beryllium	ND	ND			0.5	NA
Cadmium	ND	ND			0.25	NA
Chromium	22	22			0.5	NA
Cobalt	4.3	11			0.5	NA
Copper	11	14			0.5	NA
Lead	4.0	7.4			0.5	NA
Mercury	ND	ND			0.05	NA
Molybdenum	ND	ND			0.5	NA
Nickel	18	27			0.5	NA
Selenium	ND	ND			0.5	NA
Silver	ND	ND			0.5	NA
Thallium	ND	ND			0.5	NA
Vanadium	26	34			0.5	NA
Zinc	26	39			5.0	NA
%SS:	97	96				

#### Comments

\*water samples are reported in µg/L, product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

# means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.

WET = Waste Extraction Test (STLC).

DI WET = Waste Extraction Test using de-ionized water.

i) aqueous sample containing greater than ~1 vol. % sediment; for DISSOLVED metals, this sample has been preserved prior to filtration; for TOTAL^ metals, a representative sediment-water mixture was digested; j) reporting limit raised due to insufficient sample amount; J) analyte detected below quantitation limits; k) reporting limit raised due to matrix interference; m) estimated value due to low/high surrogate recovery, caused by matrix interference; n) results are reported on a dry weight basis; p) see attached narrative.





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AEI Consultants  2500 Camino Diablo, Ste. #200  Walnut Creek, CA 94597	Client Project ID: #273928; Piazza	Date Sampled: 10/12/07
		Date Received: 10/15/07
	Client Contact: Robert Flory	Date Extracted: 10/15/07-10/17/07
	Client P.O.:	Date Analyzed 10/16/07-10/18/07

## Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE\*

Extraction method SW5030B

Analytical methods SW8021B/8015Cm

Work Order: 0710502

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
003A	MW3-11	S	ND	ND	ND	ND	ND	ND	1	84
004A	MW3-13	S	ND	ND	ND	ND	ND	ND	1	78
006A	MW4-11	S	ND	ND	ND	ND	ND	ND	1	80
007A	MW4-12	S	ND	ND	ND	ND	ND	ND	1	79
008A	MW4-16	S	ND	ND	ND	ND	ND	ND	1	74
010A	MW1-8.5	S	ND	ND	ND	ND	ND	ND	1	91
011A	MW1-9	S	ND	ND	ND	ND	ND	ND	1	75
014A	IN-1-8.5	S	ND	ND	ND	ND	ND	ND	1	82
015A	IN-1-10	S	ND	ND	ND	ND	ND	ND	1	80
016A	IN-1-12	S	ND	ND	ND	ND	ND	ND	1	83
018A	MW2-11.5	S	ND	ND	ND	ND	ND	ND	1	82
019A	MW2-13.5	S	ND	ND	ND	ND	ND	ND	1	85

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	NA	NA	NA	NA	NA	NA	NA	1	ug/L
	S	1.0	0.05	0.005	0.005	0.005	0.005	0.005	1	mg/Kg

\* water and vapor samples and all TCLP & SPLP extracts are reported in µg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) reporting limit raised due to high organic / MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern; n) TPH(g) value derived using a client specified carbon range; o) results are reported on a dry weight basis; p) see attached narrative.





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AEI Consultants  2500 Camino Diablo, Ste. #200  Walnut Creek, CA 94597	Client Project ID: #273928; Piazza	Date Sampled: 10/12/07
		Date Received: 10/15/07
	Client Contact: Robert Flory	Date Extracted: 10/15/07-10/17/07
	Client P.O.:	Date Analyzed 10/16/07-10/18/07

### Diesel (C10-23) and Oil (C18+) Range Extractable Hydrocarbons as Diesel and Motor Oil\*

Extraction method: SW3550C

Analytical methods: SW8015C

Work Order: 0710502

Lab ID	Client ID	Matrix	TPH(d)	TPH(mo)	DF	% SS
0710502-003A	MW3-11	S	ND	ND	1	90
0710502-004A	MW3-13	S	ND	ND	1	91
0710502-006A	MW4-11	S	ND	ND	1	92
0710502-007A	MW4-12	S	ND	ND	1	88
0710502-008A	MW4-16	S	ND	ND	1	99
0710502-010A	MW1-8.5	S	ND	ND	1	93
0710502-011A	MW1-9	S	ND	ND	1	91
0710502-014A	IN-1-8.5	S	4.0,c	ND	1	82
0710502-015A	IN-1-10	S	5.1,c	ND	1	88
0710502-016A	IN-1-12	S	ND	ND	1	101
0710502-018A	MW2-11.5	S	ND	ND	1	91
0710502-019A	MW2-13.5	S	ND	ND	1	93

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	NA	NA	ug/L
	S	1.0	5.0	mg/Kg

\* water samples are reported in µg/L, wipe samples in µg/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLC / SPLP / TCLP extracts are reported in µg/L.

# cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant; d) gasoline range compounds are significant; e) unknown medium boiling point pattern that does not appear to be derived from diesel (asphalt?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; k) kerosene/kerosene range/jet fuel; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirit; o) mineral oil; p) see attached narrative.



### QC SUMMARY REPORT FOR E218.6m

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder 0710502

EPA Method E218.6m		Extraction SW3060A			BatchID: 31407			Spiked Sample ID: 0710502-014a				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Hexachrome	ND	40	99	104	5.21	108	108	0	80 - 120	20	90 - 110	10

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 31407 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710502-014A	10/12/07 12:00 PM	10/17/07	10/17/07 8:23 PM	0710502-018A	10/12/07 1:25 PM	10/17/07	10/17/07 8:42 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



### QC SUMMARY REPORT FOR 6020A

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder 0710502

EPA Method 6020A		Extraction SW3050B				BatchID: 31308				Spiked Sample ID 0710447-014A			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	Spiked	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	mg/Kg	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Antimony	ND	50	114	105	8.18	10	106	106	0	70 - 130	20	80 - 120	20
Arsenic	7.3	50	115	105	7.71	10	98.3	95	3.42	70 - 130	20	80 - 120	20
Barium	250	500	120	106	8.61	100	93.1	92.8	0.376	70 - 130	20	80 - 120	20
Beryllium	ND	50	100	93.9	6.44	10	97.6	97.6	0	70 - 130	20	80 - 120	20
Cadmium	ND	50	112	103	8.48	10	97.9	97.5	0.409	70 - 130	20	80 - 120	20
Chromium	35	50	105	94.4	6.15	10	93.2	92.4	0.787	70 - 130	20	80 - 120	20
Cobalt	10	50	106	98.1	6.23	10	99.9	99.6	0.271	70 - 130	20	80 - 120	20
Copper	22	50	113	103	6.44	10	97.9	96.9	0.996	70 - 130	20	80 - 120	20
Lead	7.6	50	113	104	7.39	10	94.1	93.2	0.940	70 - 130	20	80 - 120	20
Mercury	ND	1.25	106	100	5.85	0.25	86.3	90	4.13	70 - 130	20	80 - 120	20
Molybdenum	0.59	50	110	102	7.23	10	87.3	89.2	2.09	70 - 130	20	80 - 120	20
Nickel	33	50	116	105	6.41	10	96.6	95.1	1.61	70 - 130	20	80 - 120	20
Selenium	ND	50	117	110	5.85	10	98.5	101	2.17	70 - 130	20	80 - 120	20
Silver	ND	50	113	105	7.37	10	98.1	97.8	0.388	70 - 130	20	80 - 120	20
Thallium	ND	50	109	102	6.65	10	91.8	91.3	0.513	70 - 130	20	80 - 120	20
Vanadium	55	50	109	94.7	6.80	10	92.7	91.8	0.998	70 - 130	20	80 - 120	20
Zinc	56	500	112	103	7.61	100	110	109	0.641	70 - 130	20	80 - 120	20
%SS:	109	250	118	108	8.65	250	128	116	9.75	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 31308 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710502-014A	10/12/07 12:00 PM	10/15/07	10/16/07 10:49 PM	0710502-018A	10/12/07 1:25 PM	10/15/07	10/16/07 10:56 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte





### QC SUMMARY REPORT FOR SM5220D

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder 0710502

EPA Method SM5220D		Extraction SM5220D			BatchID: 31406			Spiked Sample ID: 0710502-014A				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
COD	2400	10000	95.5	97.8	1.98	98.4	101	2.40	80 - 120	20	90 - 110	20
<p>All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions: NONE</p>												

BATCH 31406 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710502-014A	10/12/07 12:00 PM	10/22/07	10/22/07 4:36 PM	0710502-018A	10/12/07 1:25 PM	10/22/07	10/22/07 4:42 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



### QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder 0710502

Analyte	EPA Method SW8021B/8015Cm		Extraction SW5030B			BatchID: 31310			Spiked Sample ID: 0710453-020A			
	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) <sup>£</sup>	ND	0.60	92.1	90.4	1.93	104	114	8.57	70 - 130	30	70 - 130	30
MTBE	ND	0.10	82.7	85.8	3.79	103	82	22.4	70 - 130	30	70 - 130	30
Benzene	ND	0.10	84.2	90.1	6.79	112	92.9	18.5	70 - 130	30	70 - 130	30
Toluene	ND	0.10	77.2	82	5.67	108	93.8	14.1	70 - 130	30	70 - 130	30
Ethylbenzene	ND	0.10	90.3	94.5	4.60	115	109	5.29	70 - 130	30	70 - 130	30
Xylenes	ND	0.30	86.3	90.7	4.90	117	107	8.96	70 - 130	30	70 - 130	30
%SS:	89	0.10	81	85	4.83	106	92	14.4	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 31310 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710502-003A	10/12/07 9:00 AM	10/15/07	10/16/07 9:10 PM	0710502-004A	10/12/07 9:10 AM	10/15/07	10/16/07 10:52 PM
0710502-006A	10/12/07 10:10 AM	10/15/07	10/16/07 10:43 AM	0710502-007A	10/12/07 10:15 AM	10/15/07	10/16/07 10:13 AM
0710502-010A	10/12/07 11:05 AM	10/15/07	10/17/07 1:09 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

# cluttered chromatogram; sample peak coelutes with surrogate peak.



### QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder 0710502

Analyte	EPA Method SW8021B/8015Cm		Extraction SW5030B			BatchID: 31341			Spiked Sample ID: 0710502-019A			
	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) <sup>£</sup>	ND	0.60	113	101	11.5	106	107	0.997	70 - 130	30	70 - 130	30
MTBE	ND	0.10	81	73.1	10.3	81.2	79.5	2.01	70 - 130	30	70 - 130	30
Benzene	ND	0.10	92.2	90.5	1.84	96.3	97.4	1.16	70 - 130	30	70 - 130	30
Toluene	ND	0.10	90.6	87	3.88	94.1	95.4	1.34	70 - 130	30	70 - 130	30
Ethylbenzene	ND	0.10	96.1	97	1.01	101	103	1.72	70 - 130	30	70 - 130	30
Xylenes	ND	0.30	91.3	91.3	0	96	96.3	0.347	70 - 130	30	70 - 130	30
%SS:	85	0.10	77	78	0.685	81	82	1.44	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 31341 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710502-011A	10/12/07 11:05 AM	10/15/07	10/16/07 11:14 AM	0710502-014A	10/12/07 12:00 PM	10/15/07	10/17/07 1:43 AM
0710502-015A	10/12/07 12:05 PM	10/15/07	10/16/07 7:39 AM	0710502-018A	10/12/07 1:25 PM	10/15/07	10/16/07 7:06 AM
0710502-019A	10/12/07 1:30 PM	10/15/07	10/16/07 8:12 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

# cluttered chromatogram; sample peak coelutes with surrogate peak.



### QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder 0710502

Analyte	EPA Method SW8021B/8015Cm		Extraction SW5030B			BatchID: 31358			Spiked Sample ID: 0710502-016A			
	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) <sup>£</sup>	ND	0.60	108	102	6.16	101	97.7	3.34	70 - 130	30	70 - 130	30
MTBE	ND	0.10	102	114	11.5	110	118	6.60	70 - 130	30	70 - 130	30
Benzene	ND	0.10	94.6	95.1	0.496	96.5	92.8	3.94	70 - 130	30	70 - 130	30
Toluene	ND	0.10	105	106	1.16	107	102	4.46	70 - 130	30	70 - 130	30
Ethylbenzene	ND	0.10	103	104	0.578	105	100	4.76	70 - 130	30	70 - 130	30
Xylenes	ND	0.30	113	113	0	120	110	8.70	70 - 130	30	70 - 130	30
%SS:	83	0.10	97	111	14.1	85	92	8.02	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 31358 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710502-016A	10/12/07 12:10 PM	10/16/07	10/17/07 11:00 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

# cluttered chromatogram; sample peak coelutes with surrogate peak.



### QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder 0710502

Analyte	EPA Method SW8021B/8015Cm		Extraction SW5030B			BatchID: 31381			Spiked Sample ID: 0710502-008A			
	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) <sup>£</sup>	ND	0.60	104	102	2.53	110	113	3.10	70 - 130	30	70 - 130	30
MTBE	ND	0.10	101	100	0.430	102	108	5.65	70 - 130	30	70 - 130	30
Benzene	ND	0.10	95.3	98.1	2.92	104	102	2.25	70 - 130	30	70 - 130	30
Toluene	ND	0.10	92	94.6	2.73	98.3	95.3	3.14	70 - 130	30	70 - 130	30
Ethylbenzene	ND	0.10	102	103	1.37	109	105	3.54	70 - 130	30	70 - 130	30
Xylenes	ND	0.30	96.7	100	3.39	103	103	0	70 - 130	30	70 - 130	30
%SS:	74	0.10	90	91	1.53	96	93	2.75	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 31381 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710502-008A	10/12/07 10:25 AM	10/17/07	10/18/07 1:33 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

# cluttered chromatogram; sample peak coelutes with surrogate peak.



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### QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: pH

Matrix: S

WorkOrder: 0710502

Method Name: SW9045C		Units ±, pH units @ °C			BatchID: 31344	
SampleID	Sample	DF	Dup / Ser. Dil.	DF	RD	Acceptance Criteria
0710502-014A	7.37 @ 24.1°C	1	7.37 @ 24.1°C	1	0	±0.05
0710502-018A	5.86 @ 23.8°C	1	5.85 @ 23.9°C	1	0.01	±0.05

#### BATCH 31344 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710502-014A	10/12/07 12:00 PM	10/17/07	10/17/07 6:50 PM	0710502-018A	10/12/07 1:25 PM	10/17/07	10/17/07 7:00 PM

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

RD = Absolute Value (Sample - Duplicate); RPD = 100 \* (Sample - Duplicate) / [(Sample + Duplicate) / 2].



### QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder 0710502

EPA Method SW8015C		Extraction SW3550C			BatchID: 31312			Spiked Sample ID: 0710453-020A				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(d)	ND	20	113	114	0.471	116	113	2.71	70 - 130	30	70 - 130	30
%SS:	105	50	105	105	0	106	103	2.69	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 31312 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710502-003A	10/12/07 9:00 AM	10/15/07	10/16/07 9:13 PM	0710502-004A	10/12/07 9:10 AM	10/15/07	10/18/07 6:46 AM
0710502-006A	10/12/07 10:10 AM	10/15/07	10/16/07 6:52 PM	0710502-007A	10/12/07 10:15 AM	10/15/07	10/17/07 6:33 AM
0710502-010A	10/12/07 11:05 AM	10/15/07	10/16/07 8:03 PM	0710502-011A	10/12/07 11:05 AM	10/15/07	10/16/07 9:13 PM
0710502-014A	10/12/07 12:00 PM	10/15/07	10/17/07 3:03 AM	0710502-015A	10/12/07 12:05 PM	10/15/07	10/17/07 4:12 AM
0710502-018A	10/12/07 1:25 PM	10/15/07	10/18/07 7:56 AM	0710502-019A	10/12/07 1:30 PM	10/15/07	10/18/07 10:16 AM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



### QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder 0710502

EPA Method SW8015C		Extraction SW3550C			BatchID: 31347			Spiked Sample ID: 0710517-004A				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(d)	920	20	NR	NR	NR	121	121	0	70 - 130	30	70 - 130	30
%SS:	93	50	95	95	0	115	116	1.03	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 31347 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710502-016A	10/12/07 12:10 PM	10/16/07	10/18/07 6:03 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.





### QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder 0710502

EPA Method SW8015C		Extraction SW3550C			BatchID: 31402			Spiked Sample ID: 0710597-037A				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(d)	1.4	20	107	108	0.843	119	110	7.17	70 - 130	30	70 - 130	30
%SS:	98	50	74	76	3.18	100	79	23.4	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 31402 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710502-008A	10/12/07 10:25 AM	10/17/07	10/18/07 3:16 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery =  $100 * (MS - Sample) / (Amount\ Spiked)$ ;  $RPD = 100 * (MS - MSD) / ((MS + MSD) / 2)$ .

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



**McC Campbell Analytical, Inc.**

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Telephone: 877-252-9262 Fax: 925-252-9269

AEI Consultants 2500 Camino Diablo, Ste. #200 Walnut Creek, CA 94597	Client Project ID: #273928; Piazza	Date Sampled: 10/08/07-10/18/07
		Date Received: 10/18/07
	Client Contact: Robert Flory	Date Reported: 10/25/07
	Client P.O.:	Date Completed: 10/25/07

**WorkOrder: 0710655**

October 25, 2007

Dear Robert:

Enclosed are:

- 1). the results of **5** analyzed samples from your **#273928; Piazza project**,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McC Campbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Best regards,

Angela Rydelius, Lab Manager

0710655



**McCAMPBELL ANALYTICAL, INC.**  
 1534 WILLOW PASS ROAD  
 PITTSBURG, CA 94565-1701  
 Website: [www.mccampbell.com](http://www.mccampbell.com) Email: [main@mccampbell.com](mailto:main@mccampbell.com)  
 Telephone: (877) 252-9262 Fax: (925) 252-9269

**CHAIN OF CUSTODY RECORD**

**TURN AROUND TIME**  RUSH  24 HR  48 HR  72 HR  5 DAY  
**GeoTracker EDF**  **PDF**  **Excel**  **Write On (DW)**   
 Check if sample is effluent and "J" flag is required

**Report To:** Bob Flory **Bill To:** SAME  
**Company:** A&I Consultants  
 2500 Camino Diablo  
 Walnut Creek, CA **E-Mail:** Rflory@aiconsultants.com  
**Tele:** (925) 944-2899 **Fax:** (925) 944-2895  
**Project #:** 273928 **Project Name:** Piazza  
**Project Location:** 20957 Baker Rd, Castro Valley, CA  
**Sampler Signature:** R. Booth

**Analysis Request** **Other** **Comments**

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				BTEX & TPH as Gas (602 / 8021 + 8015) / MTBE TPH as Diesel (8015)	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	MTBE / BTEX ONLY (EPA 602 / 8021)	EPA 505 / 608 / 8081 (CI Pesticides)	EPA 608 / 8082 PCB'S ONLY; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic CI Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAS)	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	Lead (200.7 / 200.8 / 6010 / 6020)	Hexavalent Chromium (218.6)	Filter Samples for Metals analysis: Yes / No					
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO <sub>3</sub>	Other																						
(+) MW-1		10/18	11:05	4		X					X	X																								
✓ MW-2		10/18	12:15	6		X					X	X	X	X												X										Filtered in field
✓ MW-3		10/18	10:05	6		X					X	X	X	X											X											Filtered in field
+ MW-4		10/18	1:35	4		X					X	X	X	X																						
<del>MW-5</del>		10/18	11:30	4		X					X	X	X	X																						
+ IN-1						X					X	X																								

**Relinquished By:** [Signature] **Date:** 10/18 **Time:** 4:00pm **Received By:** K. BERRY **ICE/°** 9.2 **COMMENTS:** \* MW-4. TPH-d 2 micro extraction.

**Relinquished By:** **Date:** **Time:** **Received By:**

**Relinquished By:** **Date:** **Time:** **Received By:**

VOAS O&G METALS OTHER  
 PRESERVATION pH<2

**McC Campbell Analytical, Inc.**



1534 Willow Pass Rd  
 Pittsburg, CA 94565-1701  
 (925) 252-9262

**CHAIN-OF-CUSTODY RECORD**

**WorkOrder: 0710655**

**ClientID: AEL**

EDF     Excel     Fax     Email     HardCopy     ThirdParty

<b>Report to:</b> Robert Flory AEI Consultants 2500 Camino Diablo, Ste. #200 Walnut Creek, CA 94597	<b>Email:</b> rflory@aeiconsultants.com <b>TEL:</b> (925) 283-6000 <b>FAX:</b> (925) 283-6121 <b>ProjectNo:</b> #273928; Piazza <b>PO:</b>	<b>Bill to:</b> Denise Mockel AEI Consultants 2500 Camino Diablo, Ste. #200 Walnut Creek, CA 94597 dmockel@aeiconsultants.com	<b>Requested TAT: 5 days</b>  <b>Date Received: 10/18/2007</b> <b>Date Printed: 10/18/2007</b>
---	---	--	---

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
0710655-001	MW-1	Water	10/18/07 11:05:00	<input type="checkbox"/>			B		B	A						
0710655-002	MW-2	Water	10/18/07 12:15:00	<input type="checkbox"/>	D	C	B	C		A						
0710655-003	MW-3	Water	10/18/07 10:05:00	<input type="checkbox"/>	D	C	B	C		A						
0710655-004	MW-4	Water	10/18/07 1:35:00	<input type="checkbox"/>			B			A						
0710655-005	IN-1	Water	10/8/07 11:30:00	<input type="checkbox"/>			B			A						

**Test Legend:**

1	218_6_W	2	CAM17MS DISS	3	G-MBTEX_W	4	PRDISSOLVED	5	PREFD REPORT
6	TPH(D)_W	7		8		9		10	
11		12							

**Prepared by: Ana Venegas**

**Comments:** Joanne no longer with AEI; invoices to dmockel@aeiconsultants.com

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.



**Sample Receipt Checklist**

Client Name: **AEI Consultants**

Date and Time Received: **10/18/07 5:40:28 PM**

Project Name: **#273928; Piazza**

Checklist completed and reviewed by: **Ana Venegas**

WorkOrder N°: **0710655** Matrix Water

Carrier: Client Drop-In

**Chain of Custody (COC) Information**

- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Sample IDs noted by Client on COC? Yes  No
- Date and Time of collection noted by Client on COC? Yes  No
- Sampler's name noted on COC? Yes  No

**Sample Receipt Information**

- Custody seals intact on shipping container/cooler? Yes  No  NA
- Shipping container/cooler in good condition? Yes  No
- Samples in proper containers/bottles? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No

**Sample Preservation and Hold Time (HT) Information**

- All samples received within holding time? Yes  No
- Container/Temp Blank temperature Cooler Temp: 9.2°C NA
- Water - VOA vials have zero headspace / no bubbles? Yes  No  No VOA vials submitted
- Sample labels checked for correct preservation? Yes  No
- TTLC Metal - pH acceptable upon receipt (pH<2)? Yes  No  NA

Client contacted:

Date contacted:

Contacted by:

Comments:



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AEI Consultants  2500 Camino Diablo, Ste. #200  Walnut Creek, CA 94597	Client Project ID: #273928; Piazza	Date Sampled: 10/18/07
		Date Received: 10/18/07
	Client Contact: Robert Flory	Date Extracted: 10/18/07
	Client P.O.:	Date Analyzed: 10/18/07

## Hexachrome by IC\*

Analytical Method: E218.6

Work Order: 0710655

Lab ID	Client ID	Matrix	Hexachrome	DF
0710655-002D	MW-2	W	ND	1
0710655-003D	MW-3	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.2 µg/L	
	S	NA	

\* water samples are reported in µg/L.

N/A means surrogate not applicable to this analysis; # surrogate diluted out of range or surrogate coelutes with another peak.

h) a lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to matrix interference; p) see attached narrative.



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AEI Consultants  2500 Camino Diablo, Ste. #200  Walnut Creek, CA 94597	Client Project ID: #273928; Piazza	Date Sampled: 10/18/07
		Date Received: 10/18/07
	Client Contact: Robert Flory	Date Extracted: 10/18/07
	Client P.O.:	Date Analyzed 10/19/07-10/23/07

### CAM / CCR 17 Metals\*

Lab ID	0710655-002C	0710655-003C			Reporting Limit for DF =1; ND means not detected above the reporting limit	
Client ID	MW-2	MW-3				
Matrix	W	W			S	W
Extraction Type	DISS.	DISS.			mg/kg	µg/L

### ICP-MS Metals, Concentration\*

Analytical Method: E200.8

Extraction Method: E200.8

Work Order: 0710655

Dilution Factor	1	1			1	1
Antimony	0.72	ND			NA	0.5
Arsenic	2.3	0.82			NA	0.5
Barium	300	360			NA	5.0
Beryllium	ND	ND			NA	0.5
Cadmium	ND	ND			NA	0.25
Chromium	0.57	0.55			NA	0.5
Cobalt	ND	ND			NA	0.5
Copper	2.0	1.3			NA	0.5
Lead	ND	ND			NA	0.5
Mercury	0.017	ND			NA	0.012
Molybdenum	4.7	0.70			NA	0.5
Nickel	1.6	2.0			NA	0.5
Selenium	1.9	1.4			NA	0.5
Silver	ND	ND			NA	0.19
Thallium	ND	ND			NA	0.5
Vanadium	2.1	1.3			NA	0.5
Zinc	180	190			NA	5.0
%SS:	N/A	N/A				

### Comments

\*water samples are reported in µg/L, product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

# means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.

WET = Waste Extraction Test (STLC).

DI WET = Waste Extraction Test using de-ionized water.

i) aqueous sample containing greater than ~1 vol. % sediment; for DISSOLVED metals, this sample has been preserved prior to filtration; for TOTAL^ metals, a representative sediment-water mixture was digested; j) reporting limit raised due to insufficient sample amount; k) reporting limit raised due to matrix interference; m) estimated value due to low/high surrogate recovery, caused by matrix interference; n) results are reported on a dry weight basis; p) see attached narrative.



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AEI Consultants  2500 Camino Diablo, Ste. #200  Walnut Creek, CA 94597	Client Project ID: #273928; Piazza	Date Sampled: 10/08/07-10/18/07
		Date Received: 10/18/07
	Client Contact: Robert Flory	Date Extracted: 10/19/07
	Client P.O.:	Date Analyzed: 10/19/07

### Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE\*

Extraction method: SW5030B

Analytical methods: SW8021B/8015Cm

Work Order: 0710655

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001B	MW-1	W	ND	ND	ND	ND	ND	ND	1	103
002B	MW-2	W	ND	ND	ND	ND	ND	ND	1	103
003B	MW-3	W	ND	ND	ND	ND	ND	ND	1	102
004B	MW-4	W	ND	ND	ND	ND	ND	ND	1	110
005B	IN-1	W	ND	ND	ND	ND	ND	ND	1	123

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	50	5.0	0.5	0.5	0.5	0.5	1	µg/L
	S	NA	NA	NA	NA	NA	NA	1	mg/Kg

\* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern; n) TPH(g) range non-target isolated peaks subtracted out of the TPH(g) concentration at the client's request; p) see attached narrative.





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AEI Consultants  2500 Camino Diablo, Ste. #200  Walnut Creek, CA 94597	Client Project ID: #273928; Piazza	Date Sampled: 10/08/07-10/18/07
		Date Received: 10/18/07
	Client Contact: Robert Flory	Date Extracted: 10/18/07
	Client P.O.:	Date Analyzed 10/19/07-10/24/07

## Bunker Oil (C10+), Diesel (C10-C23) & Motor Oil Range (C18+) Extractable Hydrocarbons as Bunker Oil, Diesel & Motor Oil<sup>#</sup>

Extraction method: SW3510C

Analytical methods: SW8015C

Work Order: 0710655

Lab ID	Client ID	Matrix	TPH(bo)	TPH(d)	TPH(mo)	DF	% SS
001A	MW-1	W	140,b	56	ND	1	94
002A	MW-2	W	ND	ND	ND	1	112
003A	MW-3	W	ND	ND	ND	1	112
004A	MW-4	W	ND	ND	ND	1	113
005A	IN-1	W	ND	ND	ND	1	88

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	100	50	250	µg/L
	S	NA	NA	NA	mg/Kg

\* water samples are reported in µg/L, wipe samples in µg/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLC / SPLP / TCLP extracts are reported in µg/L.

# cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant); d) gasoline range compounds are significant; e) unknown medium boiling point pattern that does not appear to be derived from diesel; f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; k) kerosene/kerosene range/jet fuel range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirit.



### QC SUMMARY REPORT FOR E218.6

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder 0710655

EPA Method E218.6		Extraction E218.6				BatchID: 31430			Spiked Sample ID: N/A			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Hexachrome	N/A	25	N/A	N/A	N/A	94.2	93.8	0.426	N/A	N/A	90 - 110	10

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

BATCH 31430 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710655-002D	10/18/07 12:15 PM	10/18/07	10/18/07 8:47 PM	0710655-003D	10/18/07 10:05 AM	10/18/07	10/18/07 8:28 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery =  $100 * (MS - Sample) / (Amount\ Spiked)$ ; RPD =  $100 * (MS - MSD) / ((MS + MSD) / 2)$ .

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



### QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder 0710655

EPA Method SW8021B/8015Cm		Extraction SW5030B			BatchID: 31425			Spiked Sample ID: 0710655-004B				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) <sup>£</sup>	ND	60	79.1	80	1.25	91.7	101	10.1	70 - 130	30	70 - 130	30
MTBE	ND	10	97	104	7.04	105	101	3.80	70 - 130	30	70 - 130	30
Benzene	ND	10	101	106	4.42	86.5	94.2	8.47	70 - 130	30	70 - 130	30
Toluene	ND	10	100	105	4.64	97.3	106	8.27	70 - 130	30	70 - 130	30
Ethylbenzene	ND	10	101	105	4.16	95.3	102	6.96	70 - 130	30	70 - 130	30
Xylenes	ND	30	93.5	95.1	1.74	107	113	6.06	70 - 130	30	70 - 130	30
%SS:	110	10	107	107	0	83	88	5.27	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 31425 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710655-001B	10/18/07 11:05 AM	10/19/07	10/19/07 8:28 AM	0710655-002B	10/18/07 12:15 PM	10/19/07	10/19/07 7:58 AM
0710655-003B	10/18/07 10:05 AM	10/19/07	10/19/07 7:27 AM	0710655-004B	10/18/07 1:35 PM	10/19/07	10/19/07 6:57 AM
0710655-005B	10/08/07 11:30 AM	10/19/07	10/19/07 6:26 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

# cluttered chromatogram; sample peak coelutes with surrogate peak.



### QC SUMMARY REPORT FOR E200.8

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder 0710655

EPA Method E200.8	Extraction E200.8			BatchID: 31427			Spiked Sample ID: 0710657-001A			Acceptance Criteria (%)			
	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	MS / MSD	RPD	LCS/LCSD	RPD	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD					
Antimony	0.55	10	98.9	99.9	0.953	108	107	0.834	70 - 130	20	80 - 120	20	
Arsenic	37	10	116	116	0	100	99.1	1.18	70 - 130	20	80 - 120	20	
Barium	33	100	99.6	99.8	0.151	101	100	0.596	70 - 130	20	80 - 120	20	
Beryllium	ND	10	85.1	86	1.12	102	101	1.18	70 - 130	20	80 - 120	20	
Cadmium	ND	10	94	93.5	0.499	102	101	0.891	70 - 130	20	80 - 120	20	
Chromium	12	10	89.3	90.9	0.747	96.2	96.7	0.550	70 - 130	20	80 - 120	20	
Cobalt	1.4	10	83	84	1.01	104	105	0.383	70 - 130	20	80 - 120	20	
Copper	130	10	NR	NR	NR	94.2	93.9	0.255	70 - 130	20	80 - 120	20	
Lead	6.1	10	100	101	0.124	100	102	1.51	70 - 130	20	80 - 120	20	
Mercury	0.057	0.25	88.8	88.1	0.647	86.6	87.2	0.736	70 - 130	20	80 - 120	20	
Molybdenum	66	10	116	118	0.284	97.3	96.2	1.18	70 - 130	20	80 - 120	20	
Nickel	8.7	10	103	118	7.58	98.4	101	2.48	70 - 130	20	80 - 120	20	
Selenium	26	10	111	115	0.987	103	103	0	70 - 130	20	80 - 120	20	
Silver	ND	10	90.6	91.1	0.619	103	102	0.974	70 - 130	20	80 - 120	20	
Thallium	ND	10	94.3	94.8	0.518	94.2	95	0.772	70 - 130	20	80 - 120	20	
Vanadium	20	10	96.1	97.2	0.372	99.3	98.2	1.06	70 - 130	20	80 - 120	20	
Zinc	210	100	99.7	98.8	0.288	102	104	1.74	70 - 130	20	80 - 120	20	
%SS:	105	750	108	109	0.676	105	103	2.07	70 - 130	20	70 - 130	20	

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 31427 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710655-002C	10/18/07 12:15 PM	10/18/07	10/19/07 1:15 AM	0710655-002C	10/18/07 12:15 PM	10/18/07	10/23/07 2:37 PM
0710655-003C	10/18/07 10:05 AM	10/18/07	10/19/07 1:23 AM	0710655-003C	10/18/07 10:05 AM	10/18/07	10/23/07 7:26 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



### QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder 0710655

EPA Method SW8015C		Extraction SW3510C			BatchID: 31428			Spiked Sample ID: N/A				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(d)	N/A	1000	N/A	N/A	N/A	111	112	1.39	N/A	N/A	70 - 130	30
%SS:	N/A	2500	N/A	N/A	N/A	73	80	9.22	N/A	N/A	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 31428 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710655-001A	10/18/07 11:05 AM	10/18/07	10/22/07 8:31 PM	0710655-002A	10/18/07 12:15 PM	10/18/07	10/19/07 11:43 PM
0710655-003A	10/18/07 10:05 AM	10/18/07	10/20/07 12:50 AM	0710655-004A	10/18/07 1:35 PM	10/18/07	10/20/07 1:57 AM
0710655-005A	10/08/07 11:30 AM	10/18/07	10/24/07 3:05 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

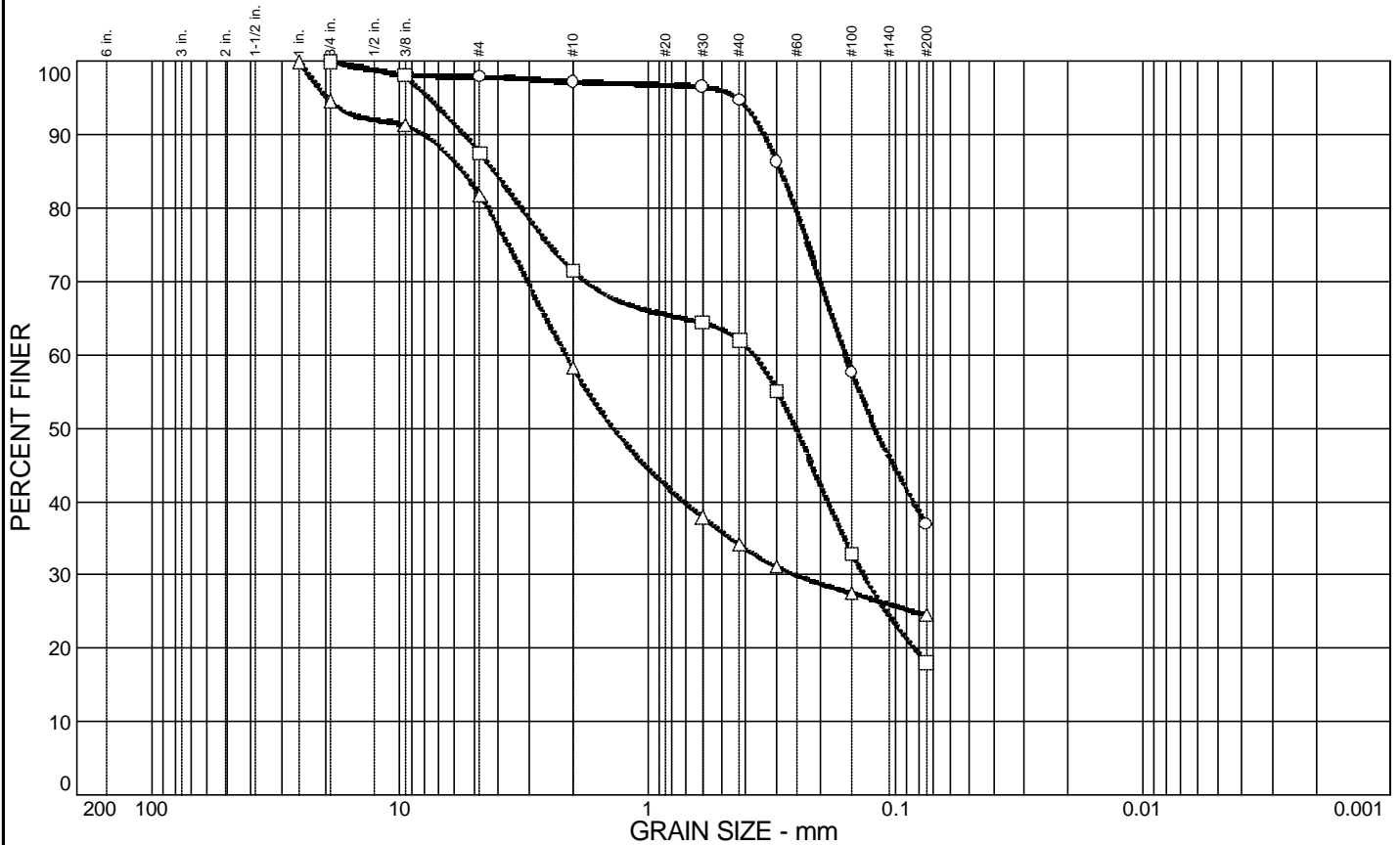
N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

## **APPENDIX E**

### **Sieve Analyses**

# PARTICLE SIZE DISTRIBUTION TEST REPORT



	% + 3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		2.1	61.0		36.9				
□		12.5	69.5		18.0				
△		18.3	57.2		24.5				

SIEVE inches size	PERCENT FINER			SIEVE number size	PERCENT FINER			SOIL DESCRIPTION
	○	□	△		○	□	△	
1			100.0	#4	97.9	87.5	81.7	○ Reddish Brown Silty SAND  □ Olive Silty SAND  △ Brown Clayey SAND w/ Gravel
3/4	100.0	100.0	94.6	#10	97.2	71.5	58.2	
3/8	98.2	98.1	91.3	#30	96.5	64.4	37.9	
				#40	94.7	62.0	34.1	
				#50	86.3	55.1	31.1	
				#100	57.6	32.9	27.5	
				#200	36.9	18.0	24.5	
GRAIN SIZE								
D <sub>60</sub>	0.159	0.373	2.14					REMARKS: ○  □  △
D <sub>30</sub>		0.135	0.253					
D <sub>10</sub>								
COEFFICIENTS								
C <sub>c</sub>								
C <sub>u</sub>								

○ Source: IN-1-8.5  
 □ Source: MW2-11.5  
 △ Source: MW2-13.5

Sample No.: 0710502-014A  
 Sample No.: 0710502-018A  
 Sample No.: 0710502-019A

<b>COOPER TESTING LABORATORY</b>	Client: McCampbell Analytical, Inc. Project: Piazza - 273928 Project No.: 385-034
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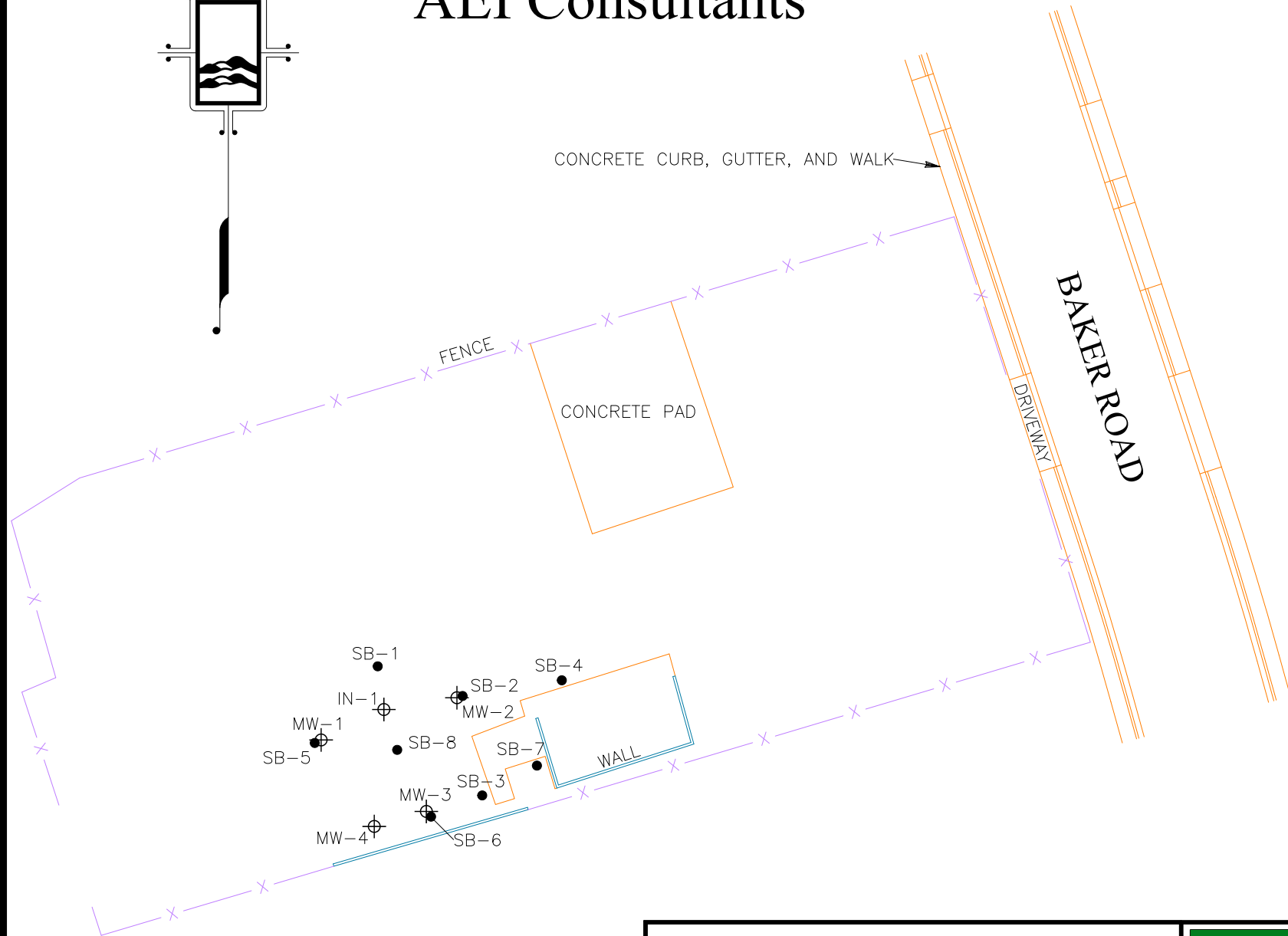
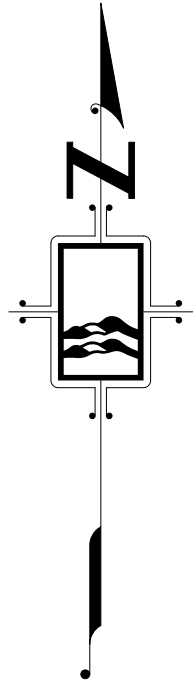
## **APPENDIX F**

### **Well Elevation Survey Data**



# Monitoring Well Exhibit

Prepared For:  
**AEI Consultants**



DESCRIPTION	NORTHING	EASTING	ELEV < PVC >	ELEV < BOX >	ELEV < GND >
IN-1	2078970.9	6103272.5	159.85	160.12	
MW-1	2078962.6	6103255.5	159.62	159.84	
MW-2	2078974.1	6103292.3	160.00	160.30	
MW-3	2078943.2	6103284.0	159.79	160.04	
MW-4	2078939.2	6103269.9	159.69	159.95	
SB-1	2078982.6	6103270.8			160.0
SB-2	2078974.5	6103293.9			
SB-3	2078947.6	6103299.2			159.8
SB-4	2078978.8	6103320.8			160.3
SB-5	2078961.8	6103253.8			159.6
SB-6	2078941.8	6103285.3			159.9
SB-7	2078955.7	6103314.0			160.1
SB-8	2078959.9	6103276.1			160.1

DESCRIPTION	LATITUDE	LONGITUDE
IN-1	37.6938001	-122.0843653
MW-1	37.6937767	-122.0844236
MW-2	37.6938098	-122.0842970
MW-3	37.6937248	-122.0843239
MW-4	37.6937129	-122.0843724
SB-1	37.6938322	-122.0843717
SB-2	37.6938131	-122.0843220
SB-3	37.6937374	-122.0842718
SB-4	37.6938242	-122.0841990
SB-5	37.6937744	-122.0844295
SB-6	37.6937210	-122.0843194
SB-7	37.6937603	-122.0842210
SB-8	37.6937703	-122.0843522

**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(CORS).

DATUM ELLIPSOID IS GRS80.

REFERENCE GEOID IS GEOID99.

CORS STATIONS USED WERE TIBB AND SUTB.

VERTICAL DATUM IS NAVD 88 FROM GPS OBSERVATIONS.



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Date: 11-16-07  
Scale: 1" = 40'  
Sheet 1 of 1  
Revised: 11-20-07  
Field Book: MW-37  
Dwg. No. 0116-038 PG