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10:53 am, Dec 23, 2010 Alameda County Environmental Health

December 20, 2010

Ms. Barbara Jakub Alameda County Health Care Services Agency 1131 Harbor Bay Parkway, Suite 250 Alameda, CA 94502-6577

Subject:

Monitoring Well Installation Work Plan

Site:

76 Station No. 6277 15803 East 14th Street

San Leandro, California

Fuel Leak Case No. RO0002969

Dear Ms. Jakub:

I declare under penalty of perjury that to the best of my knowledge the information and/or recommendations contained in the attached report is/are true and correct.

If you have any questions or need additional information, please call:

Brian Whalen
Platinum Energy
30343 Canwood Street, Suite 200
Agoura Hills, Ca 91301
Tel: (818) 206-5704

Fax: (818) 206-5721 bwhalen@platinum-energy.net

Sincerely,

PLATINUM ENERGY

BRIAN WHALEN

Attachment

December 20, 2010

Ms. Barbara Jakub Hazardous Materials Specialist Alameda County Health Care Services Agency 1131 Harbor Bay Parkway, Suite 250 Alameda, California 94502

RE: Monitoring Well Installation Work Plan 76 Service Station No. 6277 15803 East 14th Street San Leandro, California Fuel Leak Case No. RO00002969

Dear Ms. Jakub:



Delta Consultants (Delta) has prepared this work plan as recommended in the *Subsurface Soil and Groundwater Investigation Report* dated March 23, 2010. The purpose of the proposed scope of work is to further assess the vertical and horizontal extent of petroleum hydrocarbons and fuel oxygenates in the soil and groundwater beneath the subject site. The site location is shown on **Figure 1**.

GENERAL SITE DESCRIPTION

The site is currently an operating 76 service station located at 15803 East 14th Street in San Leandro, California. The site's current underground storage tanks (USTs) configuration includes two fuel 12,000-gallon USTs (unleaded and premium unleaded gasoline), one 520-gallon waste-oil UST and two fuel dispenser islands. All USTs are double walled, steel with fiberglass coating added to the outside. The piping is also double walled fiberglass. The site is characterized by gently sloping, southwest trending topography, and is located approximately three miles northeast of the present shoreline of San Francisco Bay. Figure shows the current site configuration.



PREVIOUS ASSESSMENT

1969 - Reported site history indicates the site was first developed as a gas station from an empty lot in 1969.

March 1989 - Two 10,000-gallon gasoline USTs, one 550-gallon waste-oil UST, and the product piping were removed from the site during UST replacement activities. Kaprealian Engineering Inc. (KEI) advanced two exploratory borings designated as EB-1 and EB-2 at the site. The borings were advanced at the request of Alameda County to assess the possible presence of hydrocarbon impact to the soil in the vicinity of the proposed UST excavation.

The borings were advanced to depths of 10.5 feet below ground surface (bgs) and 13.5 feet bgs. Ground water was encountered in the borings at depths of 11 to 12 feet bgs. The analytical results of the soil samples were as follows:

- At a depth of 5 feet bgs soil samples analyzed for total petroleum hydrocarbons as gasoline (TPHg) ranged from below the laboratory's indicated reporting limit in boring EB-2 to 2.1 parts per million (ppm) in boring EB-1.
- At a depth of 10 feet bgs TPHg concentrations ranged from 200 ppm in boring EB-1 to 620 ppm in boring EB-2.

Based on results of this preliminary investigation, KEI recommended that the contractor excavate the existing UST excavation to a depth of approximately 13 feet bgs. Water was encountered in the fuel UST excavation at a depth of approximately 11 feet bgs, thus prohibiting the collection of any soil samples from immediately beneath the USTs.

Six soil samples, labeled SW1 through SW6, were collected from the sidewalls of the fuel UST pit at depths of approximately 1 foot above the water table; and one soil sample, labeled W0-1, was collected from beneath the waste-oil UST at a depth of about 10 feet bgs. Based on observations in the field, it was decided to excavate additional soil from three of the four excavation sidewalls.

<u>March 14, 1989</u>: Four trenches were installed to assess the limits of additional soil excavation needed. Four soil samples were then collected at depths of approximately 10 feet bgs. The soil analytical results were as follows:

- In the fuel UST excavation TPHg concentrations ranged from 24 ppm to 150 ppm.
- A sample collected adjacent to the existing station building indicated that TPHg was present at a concentration of 3,500 ppm.
- The soil sample collected after excavating 2 feet of sidewall toward the station building indicated that TPHg was present at a concentration of 100 ppm.
- Soil sample (SW-2) contained TPHq at a concentration of 390 ppm.
- The soil sample collected from the waste-oil UST excavation (WO-1) contained total oil and grease (TOG) at a concentration of 280 ppm. A side wall sample, SW-7 collected after excavating 14 feet of sidewall contained TOG at a concentration of 41 ppm.

The analytical results of the water sample (W1) collected from the waste-oil/fuel UST excavation contained TPHg at a concentration of 19,000 parts per billion (ppb) and benzene at a concentration of 230 ppb.

March 23, 1989: KEI returned to the site for pipe trench soil sampling. Six soil samples, labeled P1 through P6, were collected from beneath the product lines at depths of approximately 3 to 3.5 feet below grade. The analytical results of the soil samples P1 through P6 collected from the pipe trenches indicated concentrations of TPHq ranging from 1.1 ppm to 6.8 ppm.

The fuel UST pit and the waste-oil UST pit were over-excavated in order to remove hydrocarbon-impacted soil. The majority of the hydrocarbon-impacted soil appeared to have been removed from the site, except for the capillary fringe in the vicinity of the former UST pit and the building.

May 24, 1989: Four two-inch diameter monitoring wells, MW-1 through MW-4 were installed at the site. The four wells were installed to depths ranging from 24.5 to 25 feet bgs. Ground water was encountered at depths ranging from 11 to 12 feet beneath during drilling.

July 1989: The monitoring and sampling program was initiated.

February 1990: Monitoring well MW-2 was destroyed on February 1 in preparation for additional soil excavation in the vicinity of this well. Soil was excavated to a depth of approximately 6 to 12 inches below the level of the groundwater, which was encountered at a depth of about 11.5 feet below grade. After additional excavation, four soil samples were collected from the sidewalls of the excavation, each approximately 6 to 12 inches above ground water. Soil excavation activities were terminated due to the close proximity of the former and new UST excavations and the site's property line.

The analytical results of three soil samples indicated that TPHg was present at concentrations ranging from 140 ppm to 1,100 ppm, while concentrations of total petroleum hydrocarbons as diesel (TPHd) ranged from below the laboratory's indicated reporting limits to 280 ppm. The analytical results also indicated Environmental Protection Agency (EPA) Method 8010 constituents and TOG from each of the four samples were below the laboratory's indicated reporting limits, except in sample SW11A which contained TOG at a concentration of 210 ppm.

Over-excavation in the vicinity of monitoring well MW-2 was completed in April of 1990. Monitoring well MW-2 was then replaced with a new monitoring well (MW-2A) in March 1991.

1991: Due to the regular occurrence of tetrachloroethene (PCE), trichloroethene (TCE) and 1,2-dichlorethane (1,2-DCA) in sampled groundwater, a review of records documenting historic site activities was performed in 1991 to assess whether there were any up-gradient sources contributing to the impacted groundwater at the site. The file review was conducted by KEI at the Regional Water Quality Control Board (RWQCB).

The review focused on three sites with monitoring wells located within a half mile of the station. The Okada property, located at 16109 Ashland Avenue, a former USA Petroleum station located at 15120 Hesperian Boulevard, and Kaufman and Broad, located at 1620 162nd Avenue, approximately 1,800 feet east-southeast of the site.

The file review is outlined in Delta's Addendum to Additional Site Assessment Work Plan, dated April 3, 2009.

<u>December 1992</u>: A file review was conducted at the ACHCSA. Four sites with existing or former USTs were located in the vicinity of the site during the file review. These sites are as follows: 1.) Nayou Properties, 1500 Thrush Avenue; 2.) ABC Auto Repair, 15960 East 14th Street; 3. Petsas Property, 16035 East 14th Street, and; 4.) SpeeDee Oil Change, 15900 East 14th Street.

1991-1993: The California EPA, Department of Toxic Substances Control (DTSC), identified regional chlorinated solvent contamination of the upper aquifer in the San Leandro area.

1993: Based on the results of the site history research, site reconnaissance, and file review, and based upon the fact that no evidence of an on-site solvent source area in the vicinity of monitoring wells MW-3 and MW-4 was found, it was concluded that there was no likely on-site source of the halogenated volatile organic compound (HVOC) impact.

The potential of an off-site HVOC source is further supported by the fact that the highest HVOC concentrations have been reported in samples collected from monitoring wells MW-3 and MW-4, located on the up-gradient side of the site. HVOC concentrations reported in the groundwater samples collected from these monitoring wells are likely coming from a source (E.G. reaching sanitary sewer lines, etc.) up-gradient of the site.

March 1993: Monitoring wells MW-5 and MW-6 were installed on March 9, 1993. These wells were monitored monthly and sampled on a quarterly basis until 1996. Groundwater flow predominantly ranged from southwest to north during the course of the investigation. Chlorinated solvents have consistently been reported in up-gradient wells MW-3 and MW-4, and it appears that the chlorinated solvent impact at the site may be due to an unidentified source (or sources) located up-gradient of the site, or is part of a regional chlorinated solvent plume. The perimeter monitoring wells, MW-5 and MW-6, have historically shown a maximum concentration of 72 micrograms per liter (μg/L) of TPHg and below the laboratory's indicated reporting limits for benzene, toluene, ethylbenzene, and total xylenes (BTEX).

March 1997: An off-site investigation was conducted in March 1997 to assess any impacts in the down-gradient direction from monitoring well MW-1. Monitoring well MW-1 is the most down-gradient of the wells at the site and has historically contained the highest concentrations of petroleum hydrocarbons in groundwater throughout the duration of the site investigation.

Three direct push borings (EB-3, EB-4, and EB-5) were advanced through East 14th Street in a northerly transect from the site. The three borings were each advanced to total depths ranging from 11 to 15 feet below grade. Groundwater was encountered at depths ranging from 10.5 to 15 feet bgs during drilling. No reportable target compounds were identified in either soil or groundwater samples.

1998 – A Case Closure Summary was prepared by the Alameda County Environmental Protection Department. This document concluded that drinking water wells are not

affected. It also documented the maximum contaminant concentrations – before and after cleanup as follows:

Contaminant	Soil (ppm)	Soil (ppm)			Water (ppb)	
	Before	After		Before	After	
		 -				
TPHg	3,500	1100		19,000	510	
TPHd	ND	6.2		NA	NA	
Benzene	40	8		230	72	
Toluene	280	43		79	ND	
Xylenes	600	230		1,300	17	
Ethyl-benzene	100	37		ND	ND	
Methyl tert-butyl						
ether (MTBE)	NA	NA		NA	390	
TOG	7,700	1,300		NA	NA	
Heavy Metals	NA	NA		NA	NA	
Other HVOC TCE	0.063	ND	TCE	4.4	ND	
			PCE	110	950	
			1,2-			
			DCA	2.8	ND	

The Case Closure Summary concluded that "there are no known municipal or residential water wells or surface water bodies within 750 feet down-gradient of the subject site that would be impacted by shallow groundwater from this site".

December 2000: The ACHCSA issued a Case Closure letter dated December 26, 2000.

2003: Six groundwater monitoring wells (MW-1, MW-2A, and MW-3 through MW-6) destroyed. Groundwater was at 6-11 feet bgs.

September 2007: Six soil borings (ATC-1 through ATC-6) were advanced in the vicinity of the existing fuel and waste-oil USTs and dispensers on September 25 and 26, 2007. The borings were advanced to total depths of approximately 20 feet bgs (ATC-2, ATC-3, ATC-4, and ATC-5) and 25 feet bgs (ATC-1 and ATC-6). Groundwater was initially encountered at depths ranging from 14 feet bgs to 24 feet bgs during drilling activities.

Groundwater samples were collected from each of the six borings. A duplicate groundwater sample designated as "Duplicate B-1" was collected from boring ATC-1. Photo ionization detector (PID) readings from the screened soil samples ranged from 1.4 ppm to 2,272 ppm. The analytical results from the ATC Investigation are outlined in Delta's Addendum to Additional Site Assessment Work Plan dated April 3, 2009.

<u>December 2009</u>: Delta advanced six soil borings (B-1 through B-5, and B-7) to assess the extent of petroleum hydrocarbon impact to the soil and groundwater. The borings were advanced to total depths ranging from 24 to 32 feet bgs. First groundwater was encountered at depths ranging from 21 to 28.5 feet bgs during drilling activities.

Soil and groundwater samples were collected from each of the six borings. PID readings from the screened soil samples ranged from 0.2 ppm to 197 ppm. The analytical results indicated that TPHg was present in the soil at a maximum concentration of 603 mg/kg (B-1 at 12 feet) and in the groundwater at a maximum concentration of 2,110 μ g/L (B-1). The analytical results from the December 2009 Investigation are outlined in Delta's Subsurface Soil and Groundwater Investigation Report dated March 23, 2010.

Sensitive Receptor Survey

1991: The well survey performed by KEI focused on the area within a one-half mile radius of the subject site, and was based upon data obtained from the Alameda County Flood Control and Water Conservation District. The information revealed the presence of 15 producing wells designated as irrigation wells and had depths ranging from 20 to 440 feet bgs.

The Alameda County Flood Control and Water Conservation District records suggested that the status of many of the irrigation wells is unknown. In the 1991 survey, it was stated that "no producing wells that could possibly influence the groundwater flow direction at the subject site were located". The closest irrigation well (148 feet deep) installed in 1949 was noted in the North corner of East 14th Street and 159th Avenue.

2008: This survey entailed a request to the California Department of Water Resources (DWR) office in Sacramento to provide well log records. DWR well log records were reviewed in order to assess the location of any water-supply wells in the vicinity of the subject site. Using the DWR well logs, a total of five wells had verifiable addresses within a half-mile radius of the site.

Stains and spills have been documented at the adjacent site to the east, SpeeDee Oil Change shop, located at 15900 East 14th Street, including staining from leaking automobiles, spills not cleaned up immediately, a spill migrating toward a storm drain inlet, a spill in the driveway not cleaned up, and a spill beneath the waste-oil UST was not appropriately addressed. Moreover, it is documented that solvents were used at this adjacent site in 1993 and based on that site history; it appears that solvents have been used at that site for decades.

Utility Maps

Delta contacted the Alameda County Public Works (ACPW) for utility maps in March 2009. Mr. Allen Humes of the ACPW supplied maps for sewer and storm sewer. The utility maps have been re-drawn for clarity and to outline piping depths.

Last year Delta obtained utility maps from Jerry Cabral of PG&E. On March 20, 2009, Delta contacted PG&E to obtain depths of the electric and gas utilities. Based on PG&E data the depth of their utilities are usually 2 to 3 feet deep. The utility lines do not appear to be acting as preferential pathway based on the groundwater depth of approximately of 14 feet bgs in 2007. However, groundwater has been observed at 6-11 feet bgs.

Site Geology and Hydrogeology

The lithology underlying the site generally consists of clays, silts, sandy clay, and gravel from the ground surface to approximately 25 feet bgs, the maximum extent of exploration during the September 2007 ATC Investigation. The subsurface soils are shown in the cross sections presented as **Figure 3** and **Figure 4**.

Soils encountered in December 2009 were mostly lean clays with fine sands and gravels to 20 feet bgs. Silty sands interbedded with gravels were observed to a depth of 32 feet bgs, the maximum extent of exploration. First groundwater was reported at depths ranging from 21.5 feet bgs to 28.5 feet bgs.

PROPOSED ACTIVITIES

Permitting, Utility Notification and Borehole Clearance

Before commencing field activities, Delta will update the site specific Health and Safety Plan in accordance with state and federal requirements for use during on-site assessment activities.

In addition, drilling permits will be obtained for the soil borings from the Alameda County Public Works Agency (ACPWA). Prior to drilling, Underground Service Alert (USA) will be notified as required by law to mark the location of underground utilities in the vicinity of the proposed monitoring well locations. In addition, a private utility locator will be retained to locate and mark underground utilities in the vicinity of the proposed monitoring wells. An air- or water-knife will also be used to clear each borehole location to a depth of 5 feet bgs prior to drilling.

Monitoring Well Installation

The monitoring well borings for the proposed monitoring wells, MW-7 through MW-10 will be advanced to a depth of approximately 25 feet bgs using a truck mounted drill-rig equipped with 8-inch outside diameter hollow-stem augers. Soil samples will be collected continuously beginning at a depth of approximately 5 feet bgs from the borings and logged using the Unified Soil Classification System (USCS) for lithologic interpretation and field screened for the presence of volatile organic compounds (VOCs) by headspace analysis using a pre-calibrated PID. Soil samples with the highest PID readings, changes in lithology, just above first encountered groundwater, and the bottom of each boring will be retained for laboratory analysis. A chain-of-custody will accompany the samples during transportation to the laboratory. The proposed well locations are shown on **Figure 2**.

Soil samples retained for analysis will be analyzed for TPHg by the California LUFT Method, BTEX, MTBE, tertiary amyl methyl ether (TAME), di-isopropyl ether (DIPE), ethyl tertiary-butyl ether (ETBE), tertiary butyl alcohol (TBA), 1,2-dichloroethane (1,2-DCA), ethylene dibromide (EDB), and ethanol by EPA Method 8260; total petroleum hydrocarbons as motor oil (TPHmo) by EPA Method 8015; and total lead by EPA Method 6010.

The groundwater monitoring well casing will be installed in the well borings while the augers are in place. The monitoring wells will consist of 2-inch diameter schedule 40 poly vinyl chloride (PVC) well casing with a screen interval to be determined in the field based on the encountered lithology. The screen interval is anticipated to be 10 feet in length from 15 to 25 feet bgs to correspond with the anticipated first encountered groundwater. The perforation size in the screen interval will be 0.020-inch. A sand pack consisting of RMC Lonestar Sand #3 or equivalent will be installed into the annular space and extend approximately one (1) foot above the top of the screen interval.

A two (2) foot thick bentonite seal will be placed on top of the sand pack. The remainder of the annular space will be filled with neat cement and the monitoring wells will be fitted with a locking cap and encased in a traffic-rated protective vault placed at existing ground level. Well construction details are shown on **Figure 5**.

Upon completion of each monitoring well all down-hole tools will be decontaminated by steam cleaning to avoid cross contamination. The decontamination procedure will entail multiple wash and rinse cycles using potable water and a non-phosphate detergent.

Well Development, Monitoring, and Sampling

The monitoring wells will be developed a minimum of 72 hours after construction. A minimum of 10 casing volumes of groundwater will be removed from each monitoring well during the development process.

The monitoring wells will be sampled a minimum of 48 hours after they have been developed, and will be incorporated into a quarterly sampling schedule.

Groundwater samples collected for analysis from each monitoring well will be analyzed for TPHg by the California LUFT Method, BTEX, MTBE, TAME, DIPE, ETBE, TBA, 1,2-DCA, EDB, and ethanol by EPA Method 8260

Wellhead Survey

Following the completion of the new monitoring wells, a California licensed surveyor will survey the northing and easting of the monitoring wells using Datum NGVD29 or NAD83. The monitoring well elevation will be surveyed relative to mean sea level, with an accuracy of +/- 0.01 foot. A global positioning system (GPS) will also be used to survey the latitude and longitude of each well to be uploaded into California's Geo Tracker database system. The survey of the well locations will be to sub-meter accuracy.

Disposal of Drill Cuttings and Wastewater

Drill cuttings, decontamination water, and development water generated during monitoring well installation activities will be placed into properly labeled 55-gallon Department of Transportation (DOT) approved steel drums and temporarily stored on the property. Samples of the drill cuttings and wastewater will be collected, properly labeled and placed on ice for submittal to a California-certified laboratory and analyzed for TPHg by the California LUFT Method, BTEX, and MTBE by EPA Method 8260, and total lead by EPA Method 6010. A chain-of-custody will accompany the samples during transportation to the laboratory.

Subsequent to receiving the laboratory analytical results, the drummed drill cuttings and wastewater will be profiled, transported, and disposed of at an approved facility.

Reporting

Following completion of the field work and receipt of analytical results, a site investigation report will be prepared and submitted within 60 days. The report will present the details of the boring activities, including copies of boring permits, and details of disposal activities and copies of disposal documents. Required electronic submittals will be uploaded to the State Geotracker database.

REMARKS/SIGNATURES

The recommendations contained in this report represent Delta's professional opinions based upon the currently available information and are arrived at in accordance with currently acceptable professional standards. This report is based upon a specific scope of work requested by the client. The Contract between Delta and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report will be performed. This report is intended only for the use of Delta's Client and anyone else specifically listed on this report. Delta will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Delta makes no express or implied warranty as to the contents of this report.

If you have any questions regarding this project, please contact Dennis Dettloff at (916) 503-1261.

Sincerely,

DELTA CONSULTANTS

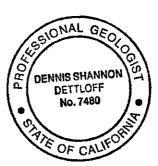
Jonathan Fillingame

Staff Geologist

Dennis S. Dettloff, P.G.

Senior Project Manager

California Registered Professional Geologist No. 7480



Figures

Figure 1 - Site Location Map

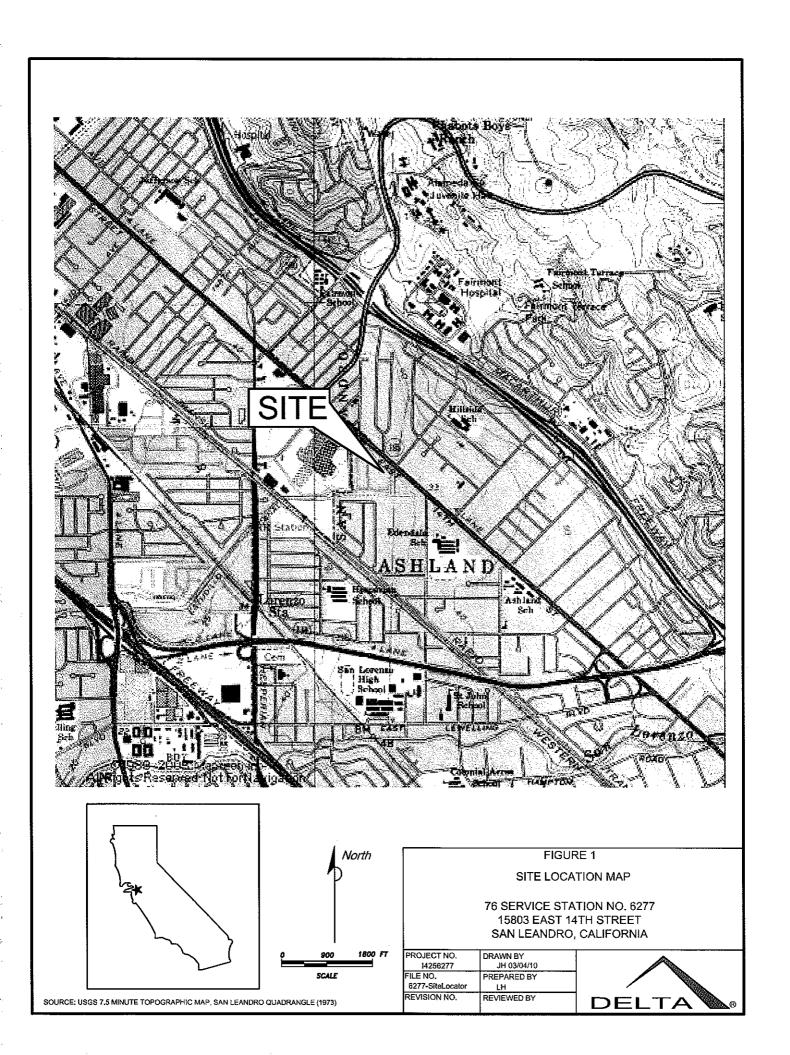
Figure 2 - Site Plan

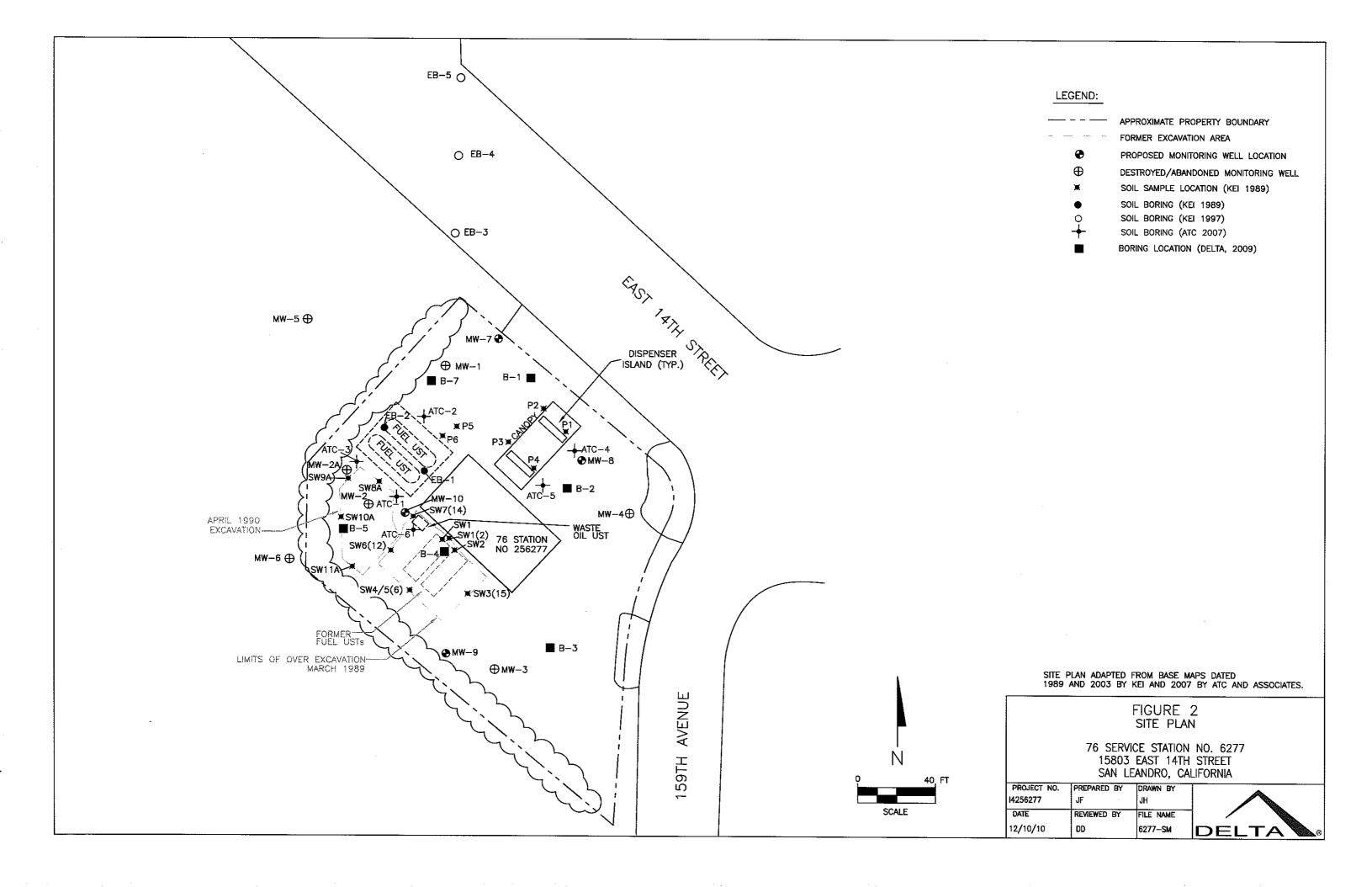
Figure 3 - Cross Section A-A'

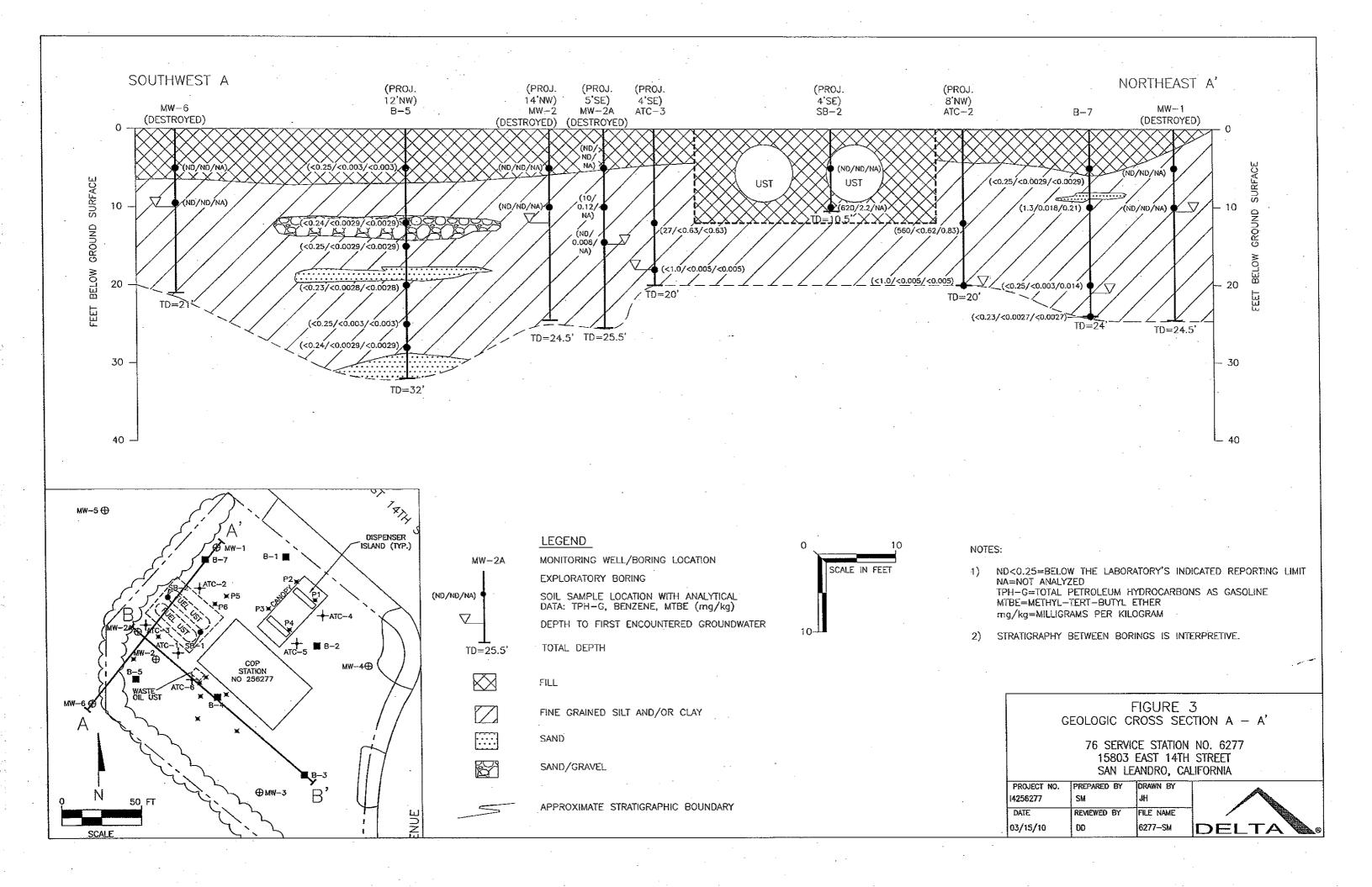
Figure 4 - Cross Section B-B'

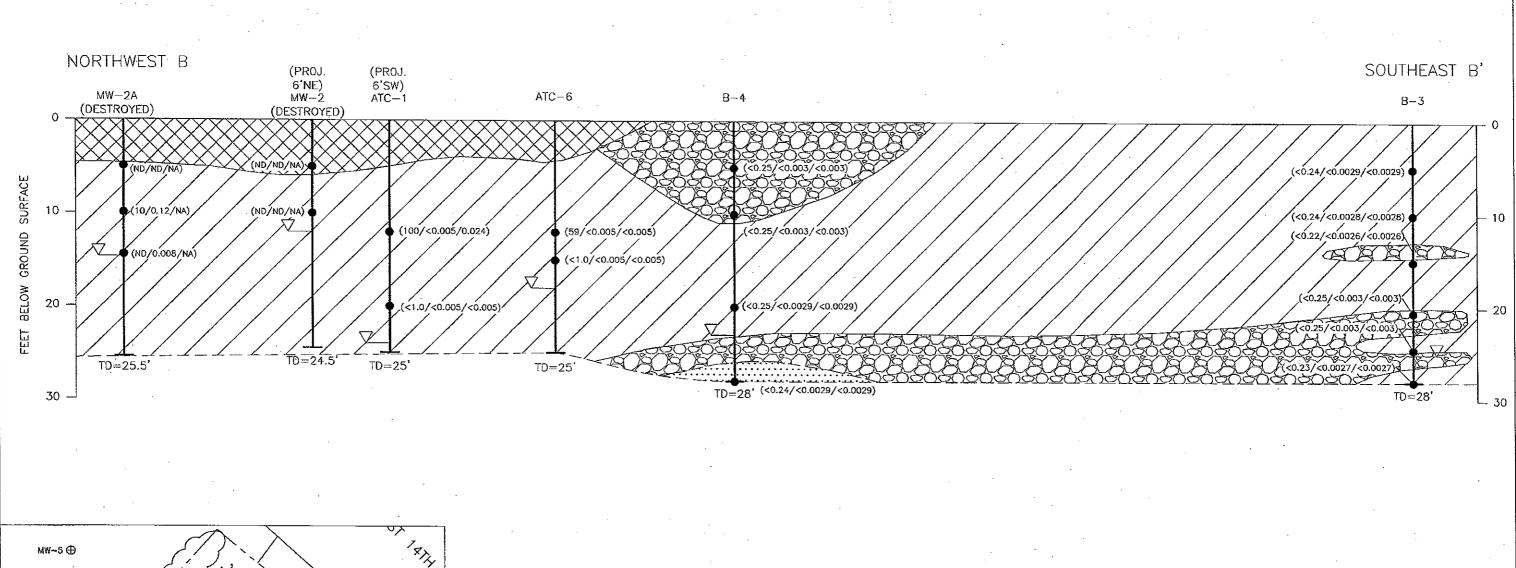
Figure 5 - Proposed Groundwater Monitoring Well Construction Detail

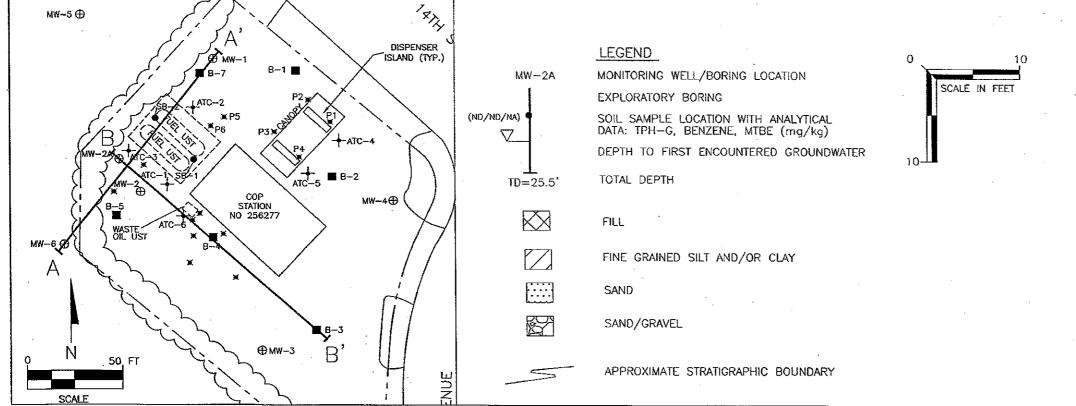
Figures











NOTES:

- 1) ND<0.25=BELOW THE LABORATORY'S INDICATED REPORTING LIMIT NA=NOT ANALYZED TPH-G=TOTAL PETROLEUM HYDROCARBONS AS GASOLINE MTBE=METHYL-TERT-BUTYL ETHER mg/kg=MILLIGRAMS PER KILOGRAM
- 2) STRATIGRAPHY BETWEEN BORINGS IS INTERPRETIVE.

FIGURE 4 GEOLOGIC CROSS SECTION B-B'

76 SERVICE STATION NO. 6277 15803 EAST 14TH STREET SAN LEANDRO, CALIFORNIA

PROJECT N	O. PREPARED BY	DRAWN BY
14256277	SM	JH
DATE	. REVIEWED BY	FILE NAME
03/15/10	DD .	6277SM



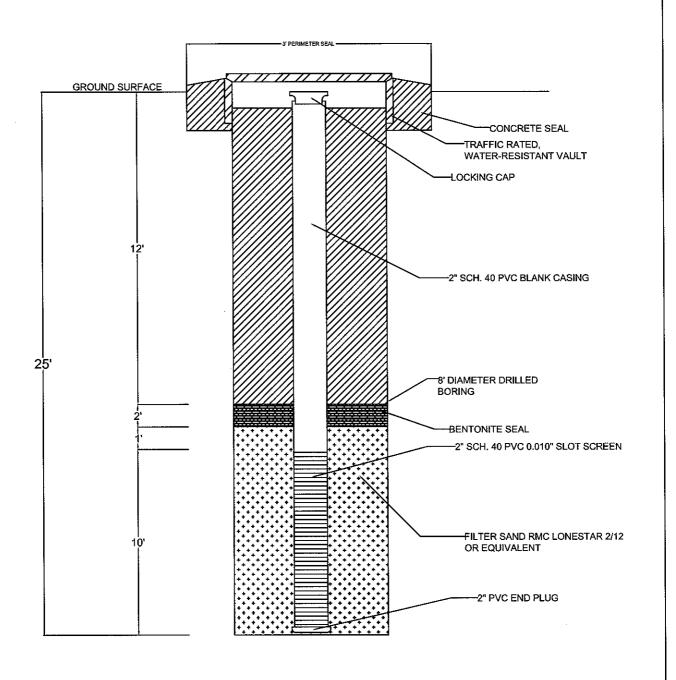


FIGURE 5
GROUNDWATER MONITORING
WELL CONSTRUCTION DETAIL
76 SERVICE STATION NO. 6277
15803 EAST 14TH STREET
SAN LEANDRO, CALIFORNIA

L			
PROJECT NO.	PREPARED BY	DRAWN BY	
14256277	JF	JH	
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