



76 Broadway
Sacramento, California 95818

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9:28 am, May 26, 2009

Alameda County
Environmental Health

May 20, 2009

Paresh C. Khatri
Alameda County Health Agency
1131 Harbor Bay parkway, Suite250
Alameda, California 94502-577

Re: ***Work Plan for CPT Vertical Delineation as Reviewed 05/07/09 via Teleconference***
76 Service Station # 7176 RO # 0000482
7850 Amador Valley Blvd.
Dublin, CA

Dear Mr. Khatri:

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 me at (916) 558-7666.

Sincerely,

Terry L. Grayson
Site Manager
Risk Management & Remediation

May 20, 2009

Mr. Paresh Khatri
Alameda County Health Agency
Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577



RE: WORK PLAN FOR CPT VERTICAL DELINEATION
DELTA PROJECT C107176
RO# 0482
AOC 1635

Service Station

76 Service Station No. 7176

Location

7850 Amador Valley Blvd
Dublin, California

Prepared for:
ConocoPhillips Company
76 Broadway
Sacramento, CA 95818

cc: Mr. Terry Grayson, ConocoPhillips (electronic copy)

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1.0 CERTIFICATION

This report was prepared under the supervision and direction of the undersigned California Professional Geologist.

Delta Consultants



John R. Reay, P.G.
Senior Project Manager, Delta Consultants, COP West
California Registered Professional Geologist No. 4716





Alan M. Buehler
Staff Geologist
Delta Consultants, COP West

2.0 DECLARATION

On behalf of ConocoPhillips Company (COP), Delta Consultants (Delta) is submitting this *Work Plan for CPT Vertical Delineation* as **per agreements made during a phone conference between Paresh Khatri, Terry Grayson, and John Reay, on May 7, 2009**. This work plan defines a scope of work to determine the vertical extent of fuel hydrocarbon contamination in groundwater at this site.

3.0 SITE BACKGROUND AND DESCRIPTION

3.1 SITE BACKGROUND

The site is located at the Southwest corner of Amador Valley Boulevard and Regional Street in Dublin, CA (Figure 1). The site is a working service station. It has 3 underground storage tanks (USTs) located at the eastern edge of the property adjacent to Regional Street. There are 4 fuel dispensers on 2 pump islands, oriented parallel to the USTs (Figure 2). The pump islands are located at the north of the site adjacent to Amador Valley Boulevard.

3.2 PREVIOUS ASSESSMENT

November 1994: Unocal Corporation (Unocal) replaced the fuel underground storage tanks (USTs), removed the used-oil UST and associated product piping, and removed the oil/water separator. No holes or signs of leakage were observed in the fuel USTs, however, eight holes up to 0.5-inches in diameter were observed in the used oil UST.

October 1995: Six soil borings (B1 through B6) and three on-site monitor wells (U1 through U3) were installed.

March 1998: Tosco Marketing Company (Tosco, now ConocoPhillips) conducted an off-site soil and groundwater investigation that included the installation of two off-site groundwater monitoring wells (MW4 and MW5).

August 2000: A *Request and Work Plan for Case Closure* was submitted that presented results of a groundwater receptor survey, risk-based corrective action Tier II analysis and requested environmental closure. No active groundwater production wells were positively identified within the survey radius during the agency and field groundwater receptor surveys.

June 2001: The *Addendum to Request and Work Plan for Case Closure* was completed.

November 2004: Four soil borings (SB-1 through SB-4) were advanced. The site data is documented in the December 10, 2004 *Limited Phase II Environmental Site Assessment* report. Based on the report of findings, residual concentrations of total petroleum hydrocarbons as diesel (TPHd) [7.1 milligrams per kilogram (mg/kg)] were reported in the vicinity of SB-3. Dissolved hydrocarbon concentrations were reported in each soil boring with the exception of SB-4. Maximum concentrations were reported as follows: TPHd [1,100 micrograms per liter ($\mu\text{g/L}$) in SB-1], total petroleum hydrocarbons as gasoline (TPHg) (9,700 $\mu\text{g/L}$ in SB-3) and methyl tertiary butyl ether (MTBE) (3.0 $\mu\text{g/L}$ in SB-1). Benzene was not reported above the laboratories indicated reporting limit of 2.5 $\mu\text{g/L}$.

January 2005: ATC became the new site lead consultant.

September 2005: Site environmental consulting responsibilities were transferred to Delta Consultants.

3.3 SENSITIVE RECEPTOR SURVEY

July 2007: Delta conducted a sensitive receptor survey to identify all water supply wells within a one-mile radius of the site and sensitive receptors within 1,000 feet from the site. Using the DWR well logs, a total of 28 water supply wells were identified as being within a one-mile radius of the subject site. The closest down-gradient well is a cathodic protection well located approximately 0.8 miles southeast of the site. The closest water supply well is a domestic well located approximately 0.4 miles southwest of the site. No water bodies, schools, daycare centers, hospitals, or churches acting as a potential school or daycare facilities were identified within the survey area. Site Locator Sensitive Receptor Map is included as Attachment A.

3.4 HYDROGEOLOGIC SITE CONDITIONS

The sediments underlying the Livermore Valley Basin consist of recent alluvium of Pleistocene to Pliocene age, comprised of thick gravel deposits, interbedded with sand and clay. The Calaveras Fault is located approximately 1/2-mile west of the site which may have a regional effect of groundwater (Engineering Associates, *Exxon Service Station*, dated February 1992).

The site is located within the Dublin sub-basin, which is the west part of the Livermore Valley Basin at the foot of the Dublin Hills. The area is part of the San Francisco Bay Hydrologic Region. The entire floor of Livermore Valley and portions of the upland areas on all sides of the valley are groundwater-bearing materials. The materials are continental deposits from alluvial fans, outwash plains, and lakes. They include valley-fill materials, the Livermore Formation, and the Tassajara Formation. Under most conditions, the valley-fill and Livermore sediments yield adequate to large quantities of groundwater to all types of wells. The quality of water produced from these rocks ranges from poor to excellent, with most waters in the good to excellent range.

4.0 PRE-FIELD ACTIVITIES AND UTILITY LOCATION

4.1 PERMITTING/HASP PREPERATION

Drilling permits will be obtained for the boring and the monitoring wells as necessary from the appropriate parties prior to commencing field work. Delta will prepare a Health and Safety Plan (HASP) specific to the site and work being performed in accordance with Title 8, Section 5192 of the California Code of Regulations. This will contain a list of emergency contacts, as well as hospital route maps to the nearest emergency facility and Occupational Heath Center, and will be reviewed daily by field personnel.

4.2 UNDERGROUND UTILITY LOCATION

The proposed boring locations will be marked in the field prior to drilling, and Underground Services Alert (USA) will be contacted at least 48 hours prior to initiating drilling to minimize the risk of damaging underground utilities. A private utility locator will also be retained to survey the locations and further minimize the risk of damaging underground utilities. Additionally, an air-knife vacuum truck will be used to clear the proposed boring and monitoring well locations to a depth of at least 5 feet below grade (fbg) prior to drilling.

5.0 PROPOSED OBJECTIVES AND SCOPE OF WORK

The objective of this assessment is to utilize direct push Cone Penetrometer Test (CPT) technology to clearly define subsurface stratigraphy and to characterize the vertical distribution of petroleum hydrocarbons including MTBE, TPHg, and benzene, which are identified as the primary contaminants of concern (COCs) in groundwater at this site. Previously conducted investigation efforts have utilized hollow stem auger technology to install monitoring wells with between 15 and 20 feet of screened interval thus allowing for the potential for cross communication between aquifer sands and have not adequately defined vertical extent of contamination. In order to better define the vertical extent of the plume, Delta proposes to do the following:

- Advance one direct push CPT to 60 fbg or refusal.
- Collect depth discrete soil and groundwater grab samples based on real time CPT stratigraphic correlation.
- Prepare a final report documenting CPT drilling activities, groundwater and soil sampling procedures, laboratory analytical results, and conclusions and recommendations.

5.1 CLEANUP GOAL DETERMINATION

Cleanup goals are determined for this site based utilizing the most restrictive "look up" table values published in *Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater*, November 2007, CRWQCB, San Francisco Bay Region [Environmental Screening Levels (ESLs)] and *A Compilation of Water Quality Goals*, July 2008, CRWQCB, Central Valley Region [Maximum Contaminant Levels (MCLs) and California Public Health Goals (CA PHGs)] (Table 1). Because groundwater underlying this site is considered potential drinking water the most restrictive value is considered as the proposed cleanup goal.

TABLE 1

Contaminants	ESL¹	MCL	CA PHG
TPHg	<i>100</i>	non listed	non listed
TPHd	non listed	non listed	non listed
Benzene	<i>1</i>	<i>1</i>	<i>0.15</i>
Toluene	<i>40</i>	<i>150</i>	<i>150</i>
Ethylbenzene	<i>30</i>	<i>300</i>	<i>300</i>
Xylenes	<i>20</i>	<i>1750</i>	<i>1800</i>
MTBE	<i>5</i>	<i>13</i>	<i>13</i>
ETBE	non listed	non listed	non listed
DIPE	non listed	non listed	non listed
TAME	non listed	non listed	non listed
TBA	non listed	non listed	non listed
EDB	non listed	non listed	non listed
EDC	non listed	non listed	non listed
Ethanol	non listed	non listed	non listed

Table Notes:

Values listed in *Italic* are designated cleanup values

1. Table F-1a. Groundwater Screening Levels (groundwater IS a current or potential drinking water resource)

5.2 SOIL SAMPLING AND LABORATORY ANALYSIS

Soil samples will be collected for laboratory analysis at field selected depths based on CPT log analysis. A pre-calibrated photo-ionization detector (PID) will be used to field screen soil samples for the presence of organic vapors. Discrete soil samples retained for analysis will be capped with Teflon sheeting and tight-fitting plastic end caps, properly labeled with a unique identification number, placed in an ice-chilled cooler, and transported to a California-certified analytical laboratory with chain of custody documentation. Soil samples will be analyzed for TPHg, TPHd by EPA Method 8015M, benzene, toluene, ethylbenzene, xylenes, MTBE, ethyl tertiary butyl ether (ETBE), di-isopropyl ether (DIPE), tertiary amyl methyl ether (TAME), tert butyl alcohol (TBA), ethylene dibromide (EDB), ethylene dichloride (EDC) and ethanol by EPA Method 8260.

5.3 GROUNDWATER SAMPLING AND LABORATORY ANALYSIS

Groundwater grab samples will be collected from all CPT borings from field selected depth discrete intervals based on CPT logs. The groundwater samples will be placed into laboratory supplied sample bottles labeled with a unique identification number. The samples will then be placed into an ice-chilled cooler and transported to a California-certified analytical laboratory with chain of custody documentation. Groundwater samples will be analyzed for TPHg, TPHd by EPA Method 8015M, benzene, toluene, ethylbenzene, xylenes, MTBE, ETBE, DIPE, TAME, TBA, EDB, EDC, and ethanol by EPA Method 8260.

5.4 SAMPLE POINT SURVEY

Following the completion of the sampling event, a California licensed surveyor will survey the northing and easting of the CPT boring locations using Datum NGVD29 or NAD 88. A global positioning system (GPS) will also be used to survey in the latitude and longitude of the wells to be uploaded into California's GeoTracker database system. The survey of the well locations will be to sub-meter accuracy.

5.5 DISPOSAL OF DRILL CUTTINGS AND WASTEWATER

Drill cutting, purge and decontamination water generated during the sampling event 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, TPHd by EPA Method 8015M, benzene, toluene, ethylbenzene, xylenes, MTBE, ETBE, DIPE, TAME, TBA, EDB, EDC, and ethanol by EPA Method 8260. 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 a ConocoPhillips (COP) approved facility.

6.0 REPORTING

Anticipated schedule of work includes:

- 2nd Q 09: Work Plan Submitted by June 1, 2009
- 3rd Q 09: Comments to Work Plan received from ACEH
- Proceed with field work within 90 days of receipt of ACEH comments
- 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

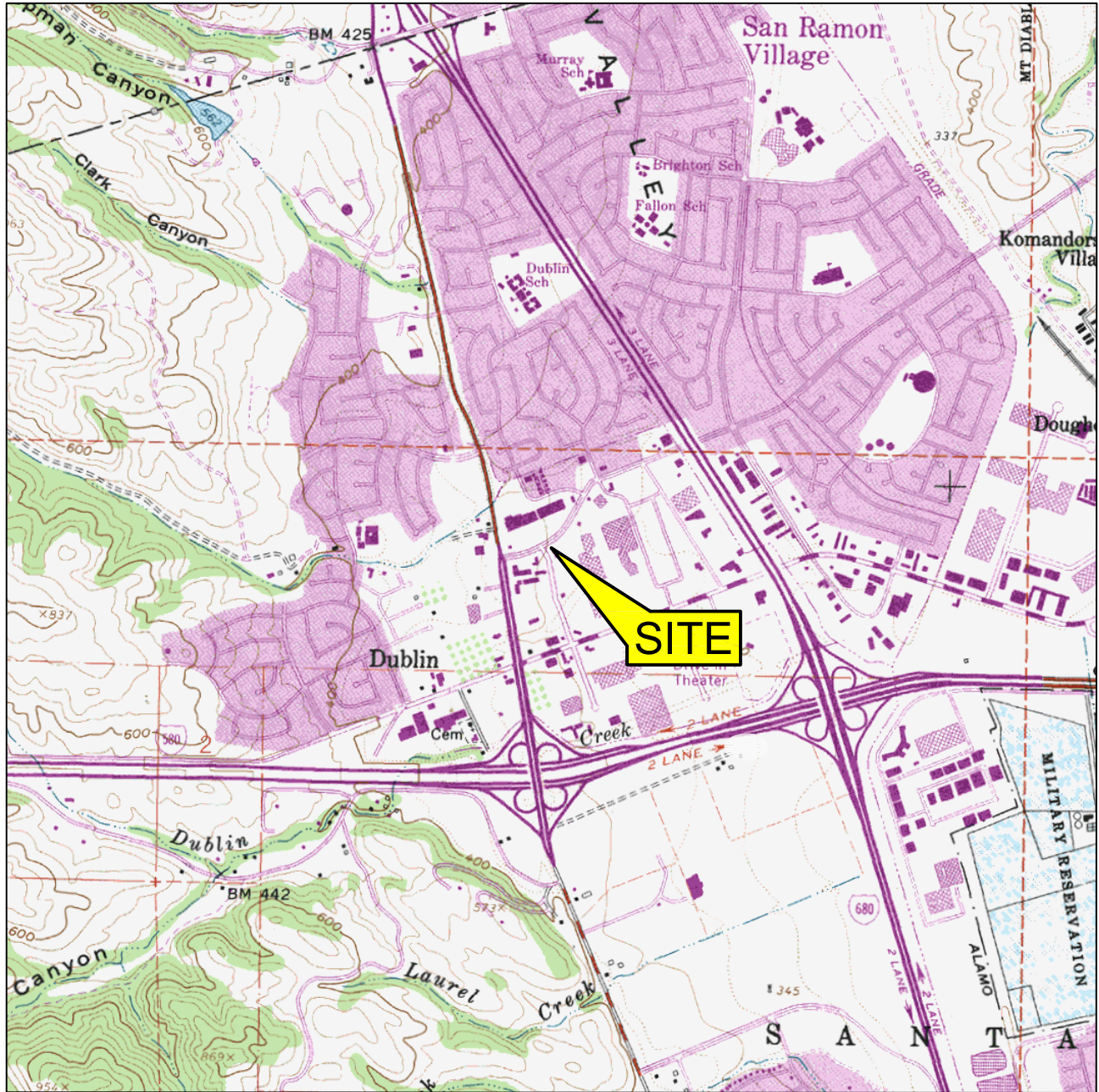
details of disposal activities and copies of disposal documents. Required electronic submittals will be uploaded to the State Geotracker and Alameda County databases.

7.0 REMARKS

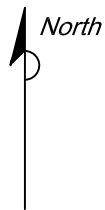
The recommendations contained in this report represent Delta's professional opinions based upon the currently available information and are arrived at in accordance with currently acceptable professional standards. This report is based upon a specific scope of work requested by the client. The Contract 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 questions regarding this report, please contact John Reay at (916) 503-1260 or Terry Grayson at 916-558-7666.

Sincerely,

DELTA CONSULTANTS



0 1000 FT 2000 FT
 SCALE: 1 : 24,000



SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP, DUBLIN QUADRANGLE, 1967

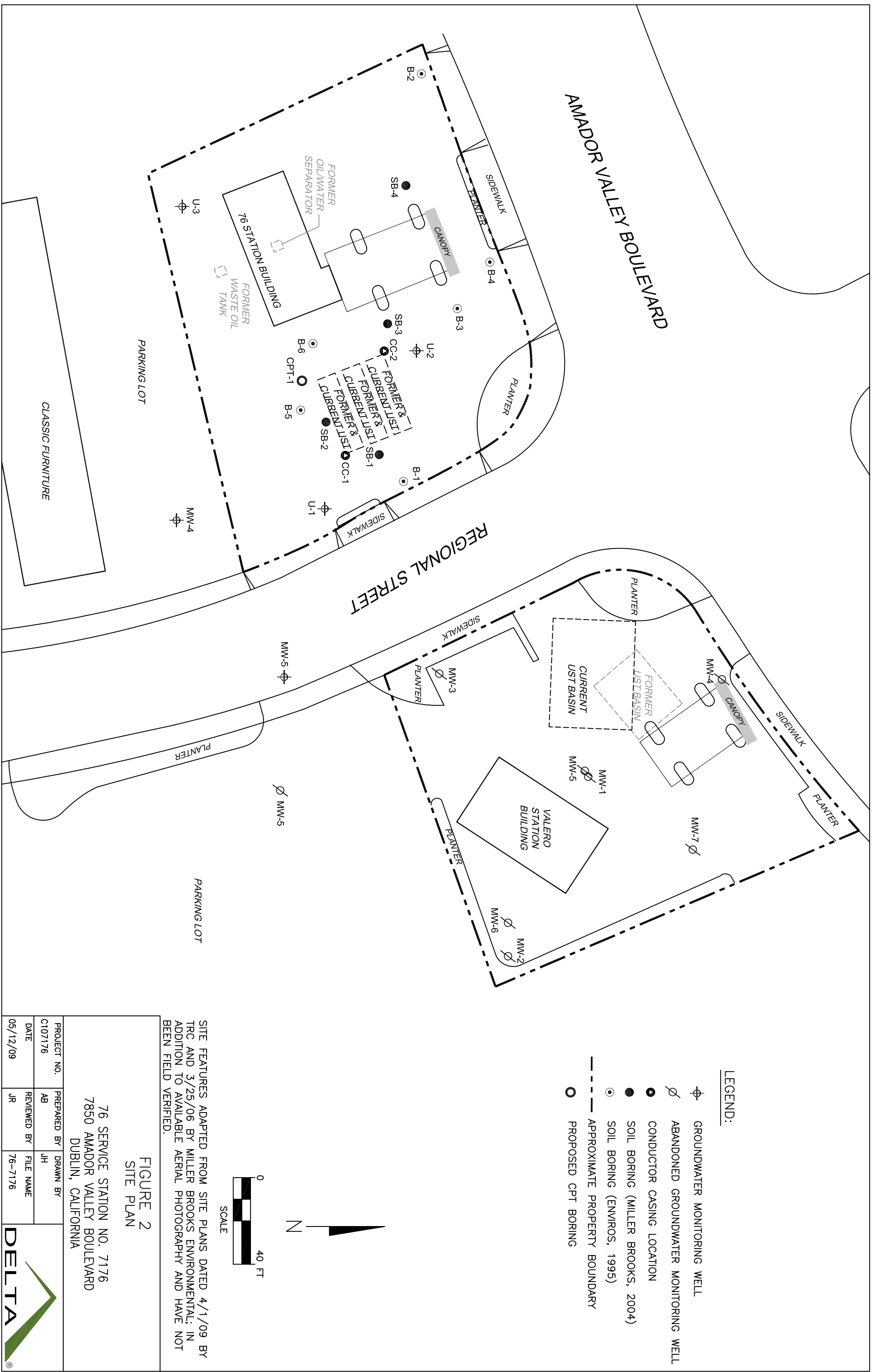
FIGURE 1

SITE LOCATION MAP

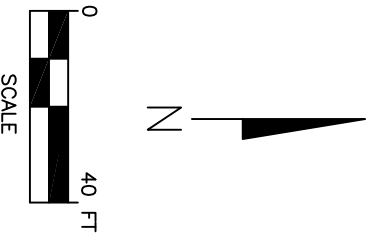
76 STATION NO. 7176
 7850 AMADOR VALLEY BOULEVARD
 DUBLIN, CALIFORNIA

PROJECT NO. C107-176	DRAWN BY JH 04/14/09
FILE NO. Site Locator 7176	PREPARED BY AB
REVISION NO. 3	REVIEWED BY JR





- LEGEND:**
- ⊕ GROUNDWATER MONITORING WELL
 - ∅ ABANDONED GROUNDWATER MONITORING WELL
 - CONDUCTOR CASING LOCATION
 - SOIL BORING (MILLER BROOKS, 2004)
 - SOIL BORING (ENVIROS, 1995)
 - - - APPROXIMATE PROPERTY BOUNDARY
 - PROPOSED CPT BORING



SITE FEATURES ADAPTED FROM SITE PLANS DATED 4/1/09 BY TRC AND 3/25/06 BY MILLER BROOKS ENVIRONMENTAL; IN ADDITION TO AVAILABLE AERIAL PHOTOGRAPHY AND HAVE NOT BEEN FIELD VERIFIED.

**FIGURE 2
SITE PLAN**

76 SERVICE STATION NO. 7176
7850 AMADOR VALLEY BOULEVARD
DUBLIN, CALIFORNIA

PROJECT NO. C107176	PREPARED BY AB	DRAWN BY JH
DATE 05/12/09	REVIEWED BY JR	FILE NAME 76-7176

