RO-213

Shell Oil Products US

February 28, 2005

Robert W. Schultz, R.G.
Hazardous Materials Specialist
Department of Environmental Health
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

RE: **Soil and Groundwater Investigation Work Plan**
Shell-branded Service Station at 11989 Dublin Boulevard, Dublin, California

Dear Mr. Schultz:

I declare, under penalty of perjury, that the information and recommendations contained in the attached document are true and correct to the best of my knowledge.

Please call me at (559) 645-9306 if you have any questions.

Best Regards,
Shell Oil Products US

Karen Petryna

Karen Petryna, P.E.
Sr. Environmental Engineer
HSEQ/Science & Engineering

Attached – Delta Environmental Consultants, Inc., Soil and Groundwater Investigation Work Plan, Shell-branded Service Station: 11989 Dublin Boulevard, Dublin, California, dated February 28, 2005.

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February 28, 2005
Project SJ11989-1.2005

Mr. Robert Schultz
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: Work Plan
Shell-branded Service Station
11989 Dublin Boulevard
Dublin, California

Dear Mr. Schultz,

Delta Environmental Consultants, Inc. (Delta), on behalf of Shell Oil Products US (Shell), has prepared this work plan for a soil and groundwater investigation at the site referenced above (Figure 1). In a letter to Shell dated December 29, 2004, the Alameda County Health Care Services Agency (ACHCSA) requested the submittal of a Soil and Groundwater Investigation (SWI) Work Plan to define the three-dimensional extent of petroleum hydrocarbons and fuel oxygenates in groundwater beneath and downgradient of the site. The ACHCSA also requested that Shell provide a regional geologic and hydrogeologic study as part of the work plan.

BACKGROUND

The subject property is located on the southwest corner of the intersection of Dublin Boulevard and San Ramon Road in Dublin, California (Figure 2). The property is currently the site of an active Shell-branded service station.

The Shell service station has three gasoline underground storage tanks (USTs), one diesel UST, and four fuel dispenser islands (Figure 2). The site is located in a commercial area with retail businesses adjacent to the station.

Site assessment activities began in 1997 and are summarized in the table below. Historic soil analytical data is summarized in Table 1. Soil sampling locations are shown in maps provided as Attachment A. Groundwater analytical data is summarized in Tables 2 and 3.

Date	Activity	Reference Document
Notes	bg = below grade Cambria = Cambria Environmental Technology, Inc. ug/l = micrograms per liter mg/kg = milligrams per kilogram MTBE = methyl tert-butyl ether TPPH = total purgeable petroleum hydrocarbons TEPH = total extractable petroleum hydrocarbons TPH-G = total petroleum hydrocarbons as gasoline TPH-D = total petroleum hydrocarbons as diesel	
May and June 1997	Soil sampling was performed beneath dispensers and piping. TPPH and TEPH were detected at 690 mg/kg and 12,000 mg/kg, respectively, adjacent to southwest dispenser. MTBE was detected at 8.9 mg/kg.	Cambria, *Stockpile, Piping, and Dispenser Soil Sampling Report*, August 4, 1997.
November 1997	Four soil borings (SB-1 through SB-4) were drilled adjacent to pump islands. Depth of borings ranged from 31 to 41 feet bg. Groundwater was encountered in only one boring (SB-2) at 22 feet bg. TPH-G and TPH-D were detected in soil at maximum concentrations of 11 mg/kg and 300 mg/kg, respectively. MTBE was detected in soil at maximum concentration of 0.11 mg/kg. MTBE was detected in the groundwater sample from boring SB-2 at 370 ug/l.	Cambria, *Subsurface Investigation Report*, February 24, 1998.
August 1998	Two soil borings (SB-1 and SB-2) were drilled southwest of fuel USTs. Borings were drilled to 30 feet bg. Groundwater was encountered in both borings at 25 feet bg. TPPH and TEPH were detected in groundwater at 140,000 ug/l and 54,000 ug/l, respectively in the groundwater sample from boring SB-1. MTBE was detected in the groundwater sample from boring SB-1 at 16,000 ug/l.	Cambria, *Secondary Subsurface Investigation Report*, February 3, 1999.
June 1999	Installation of three on-site groundwater monitoring wells (MW-1, MW-2, and MW-3). TPPH, TEPH, and MTBE were detected in groundwater at maximum concentrations of 2,600 ug/l, 699 ug/l, and 9,370 ug/l, respectively (Well MW-2).	Cambria, *Well Installation Report*, February 29, 2000.
January 2000	Quarterly groundwater sampling event. Groundwater flow direction was to the east. MTBE was detected in Well MW-2 at 13,400 ug/l downgradient of site USTs.	Cambria, *First Quarter 2000 Monitoring Report*, March 29, 2000.
October 2000	Potential Receptor Survey and Conduit Study. No municipal water supply wells identified within ½ mile of the site. One domestic water supply well was identified approximately 800 feet west (upgradient) of the site.	Cambria, *Potential Receptor Survey and Conduit Study*, November 8, 2000.

Date	Activity	Reference Document
July 2001	Installation of off-site downgradient groundwater monitoring well MW-4. A groundwater sample collected from Well MW-4 on August 13, 2001 contained TPPH at 2,400 ug/l and MTBE at 8,300 ug/l .	Cambria, *Offsite Monitoring Well Installation Report and Site Conceptual Model*, September 26, 2001.
April 2003	Three off-site soil borings (SB-1 through SB-3) were drilled downgradient (east) of Well MW-4. Borings SB-1 and SB-2 were drilled to 36 bg. Boring SB-3 was drilled to 32 feet bg. Groundwater was encountered in borings at depths ranging from 27 to 31 feet bg. TPH-G and MTBE were detected in the groundwater sample from the farthest downgradient boring (SB-1) at 100 ug/l and 38 ug/l, respectively	Cambria, *Subsurface Investigation and Groundwater Monitoring Report* – Second Quarter 2003, June 19, 2003.
October 2004	UST failed tightness test. UST emptied on October 26, 2004.	Underground Storage Tank Unauthorized Release (Leak)/Contamination Site Report dated 11/3/04

UNDERGROUND STORAGE TANK UNAUTHORIZED RELEASE REPORT – NOVEMBER 2004

The following is a summary of site activities and observations related to the issuance by Shell of an Underground Storage Tank Unauthorized Release (Leak)/Contamination Site Report (URR) to the ACHCSA dated November 11, 2004 (Attachment B). The summary is based on notes and conversations with Aura Sibley, Shell's Compliance Coordinator, and Rod Brownlee of Able Maintenance, Inc. (Able Maintenance), and from field notes prepared by Containment Solutions, Inc. (CSI).

On October 22, 2004, Shell received a Periodic Test fail alarm for the regular grade UST. On October 25, 2004, the UST was emptied. A precision tank test was performed by AffordaTest on October 29, 2004. The UST did not pass the tightness test. Shell's contractor Able Maintenance applied for an Emergency Tank Repair permit from ACHCSA and the City of Dublin Fire Department. Based on the test failure, Shell submitted an URR to the ACHCSA dated November 11, 2004.

On November 11, 2004, the UST was washed and triple rinsed. On December 8, 2004, representatives of CSI entered the regular grade tank to make an inspection and make any required repairs. Robert Weston from ACHSCA was on-site during the inspection. CSI field notes state "Entered and inspected one single wall tank. Inspection found two small 'star crazes' in shell wall." Rod Brownlee of Able Maintenance reports that "star crazes" are small radial imperfections in the tank wall and are not necessarily associated with a product release. As a precautionary measure, CSI placed a fiberglass patch on the two "star crazes." During its inspection, CSI was unable to locate any tank damage that might have caused the tank to fail the tightness test.

While the tank was empty, CSI sealed the center wrap seam and installed seven deflector plates on the bottom of the tank beneath openings along the top of the tank. Deflector plates consist of a ¼-inch thick steel plate and are now standard on all USTs. A copy of CSI's field report dated December 8, 2004 is provided as Attachment C. After tank upgrades, the UST was retested and passed the tightness test.

The results of the UST test were forward to ACHSCA and the City of Dublin Fire Department and the tank was approved for filling. The UST was placed back in service on December 15, 2004.

A release of gasoline to groundwater was not detected by the most recent monitoring event. Well MW-2 is located immediately downgradient of the site USTs. Well MW-2 was most recently sampled on January 26, 2005. TPH-G was detected in the groundwater sample from Well MW-2 at 6,600 ug/l, nearly the same concentration as detected in the January 2004 sample (6,500 ug/l). Benzene was detected in the January 26, 2004 sample at 94 ug/l compared to 22 ug/l in January 2003.

HYDROGEOLOGIC SETTING

The ACHCSA, in its letter dated December 29, 2004, requested that Shell perform a study of the regional geologic and hydrogeologic setting of the site. The following specific items were requested:

- a concise narrative discussion of the regional geologic and hydrogeologic setting;
- figure(s) summarizing findings;
- synthesis and interpretation of regional data with the site-specific data;
- references for documents used and;
- photocopies of regional geologic maps, groundwater contour maps, cross-sections, etc.

Regional Geology

The site is located in the northwest portion of the Livermore Valley Groundwater Basin (see Basin 2-10, Groundwater Basins in California Map, Attachment D). A description of the Livermore Valley Groundwater Basin (Basin) is provided in California Department of Water Resources (DWR) Bulletin 118. The following are excerpts from Bulletin 118:

> "The entire floor of Livermore Valley and portions of the upland areas on all sides of the valley overlay 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."
>
> "The Holocene age surficial valley-fill materials range in thickness from a few tens of feet to nearly 400 feet. They occur as stream channel deposits, alluvial fan deposits, and terrace deposits, and are composed of unconsolidated sand, gravel, silt, and clay. In the central and southern portions of the valley, 50 to 80 percent of the valley-fill is comprised of aquifer material that yields significant quantities of water to wells. Clay deposits up to 40 feet thick cap the valley-fill in the western portion of the Basin; where deep wells draw groundwater from underlying aquifer material."

The site is located in the western portion of the Basin and thus surficial deposits consist primarily of clay. In 2000, Cambria requested Water Well Drillers Reports (Reports) from the DWR for the site area (1/2-mile radius). The DWR identified 65 wells within ½-mile of the site (see Cambria report titled Potential Receptor Survey and Conduit Study, dated November 8, 2000). The 65 wells consisted of the following:

- 47 groundwater monitoring wells associated with fuel UST release sites:
- 6 domestic wells, the closest being located approximately 800 feet west (upgradient) of the site;

- 1 irrigation well;
- 2 test wells; and
- 5 destroyed wells.

The DWR provided boring logs for all of the shallow groundwater monitoring wells and for six deep irrigation and test wells. The shallow monitoring wells were all between 20 and 40 feet deep. The primary soil types encountered by borings for the monitoring wells were clay (Unified Soil Classification CL and CH) and silt (ML) with lesser amounts of silty sand (SM) and silty gravel (GM). Depth to groundwater ranged from 5 to 25 feet bg.

The well driller's logs for deep wells reflect the predominance of fine-grained deposits in the western portion of the Livermore Valley Groundwater Basin. The following boring log is typical:

- 0 to 13 feet bg – black loam
- 13 to 22 feet bg – yellow clay
- 22 to 33 feet bg – yellow clay, sand, gravel, water
- 33 to 81 feet bg – yellow clay
- 81 to 88 feet bg – yellow clay, some gravel
- 88 to 110 feet bg – yellow clay
- 110 to 122 feet bg – blue clay
- 122 to 128 feet bg – gray clay
- 128 to 134 feet bg – gray clay, some sand

Site geologic conditions are consistent with regional information. On- and off-site borings encountered primarily clay (CL) and silt (ML) with lesser amounts of silty sand (SM), clayey sand (SC), and silty gravel (GM) to the total depth explored of approximately 40 feet bg. A geologic cross section based on site borings and wells is presented on Figure 3.

Regional Hydrogeology

Delta obtained regional hydrogeologic information from the Alameda County Flood Control and Water Conservation District, Zone 7 (Zone 7). A schematic hydrogeologic cross-section was obtained from the Zone 7 website showing the shape of the Livermore Valley groundwater basin and depth to groundwater (see cross-section in Attachment D). DWR Bulletin 118 describes hydrogeologic conditions in the Livermore Valley Groundwater Basin as:

> "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 range from poor to excellent, with most waters in the good to excellent range."

A groundwater elevation contour map prepared by Zone 7 for the fall of 2003, is provided in Attachment D. Depth to groundwater in what is referred to as the "Upper Aquifer" is approximately 40 feet in the site area. The 40-foot depth was calculated by Delta based on a ground surface elevation of 365 feet above mean sea level (msl) at the site (Figure 1) and a groundwater elevation of 325 feet from the Zone 7 groundwater elevation contour map. The groundwater elevation on the contour map appears to be associated with an aquifer within the primarily fine-grained deposits in the site area. The groundwater

elevation contour map indicates that the groundwater flow direction in the "Upper Aquifer" beneath the site area is to the south-southeast.

With the exception of the northwest portion of the site, groundwater is first encountered at a depth of approximately 20 feet bg. Groundwater was encountered in the boring for Well MW-1 at approximately 8 feet bg in June 1999. Depth to groundwater in Well MW-1 has consistently been approximately 6 feet below top of casing. The flow direction of shallow groundwater beneath the site has consistently been to the east.

WORK PLAN

The following tasks are proposed to 1) determine the hydrogeologic conditions beneath the site area and 2) define the lateral and vertical extent of petroleum hydrocarbons and MTBE in soil and groundwater. All work will be performed under the direction and supervision of a California Certified Hydrogeologist.

TASK 1 – PREFIELD ACTIVITIES

Prior to drilling, Delta will mark the locations of all borings, contact Underground Services Alert 48 hours prior to drilling, arrange the drilling schedule, and mobilize drilling equipment and materials. In addition, a utility locator contractor will be retained to perform a geophysical survey of the proposed boring locations. Each location will be air-knifed to a depth of approximately five feet to minimize the possibility of drilling equipment encountering underground utilities. Delta will prepare a site-specific health and safety plan prior to initiating field activities. Delta will obtain all required drilling permits prior to commencement of any field work. ACHCSA will be notified a minimum of 48 hours prior to commencement of any field activities.

TASK 2 – COLLECTION OF SOIL AND GROUNDWATER SAMPLES

Delta proposes to use Geoprobe™ drilling equipment to establish the horizontal extent of petroleum hydrocarbons and fuel oxygenates in soil and groundwater. Soil and groundwater samples will be collected at five locations (GP-1 through GP-5, Figure 2). The drilling equipment will be provided and operated by Gregg Drilling (License C57- 485165).

Borings GP-1 and GP-2 will be drilled adjacent to the site USTs (Figure 2). Soil and groundwater analytical data from the two borings and groundwater monitoring data from Well MW-2 will be used to evaluate the potential product release in October 2004. Borings GP-3, GP-4, and GP-5 will be used to define the downgradient lateral extent of MTBE and TBA in first encountered groundwater at a depth of approximately 20 feet bg.

Geoprobe™ borings GP-1 and GP-2 will be continuously sampled to their total depth of approximately 25 feet bg. Borings GP-3, GP-4, and GP-5 will be sampled at 5-foot depth intervals to a total depth of approximately 25 feet bg. Discrete soil samples from borings will be retained in acetate liners at 5-foot intervals. Samples will be capped with Teflon tape and a tight fitting cap, and placed in a cooler with ice for transportation to Severn Trent Laboratories, Inc. (STL) in Pleasanton, California. A photo-ionization detector (PID) will be used to measure soil hydrocarbon concentrations at 5-foot intervals. The PID soil samples will be placed in a sealed plastic bag. After approximately 5-minutes, the PID probe will be

inserted into the plastic bag and soil gas allowed to pass through the PID until readings stabilize. The resulting concentration reading will be recorded on the geologist's field log.

The field geologist will carefully examine the soil core samples as they are collected. Soils will be classified based on the Unified Soil Classification System using the American Society for Testing and Materials (ASTM) Method D-2487 published in May 2000. In addition to classifying the soils, the geologist will examine the core for such features as root-holes, fractures, mineralization, and thin micro-bedding as well as petroleum hydrocarbon discoloration and odor.

A sample of groundwater will be collected from each boring. Groundwater samples will be collected utilizing a stainless steel bailer Groundwater will be decanted into laboratory provided 40-milliliter glass vials, and placed in a cooler with ice for transport to STL.

All down-hole drilling tools will be decontaminated between holes. The decontamination process will consist of multiple wash and rinse cycles. The first washing involves scrubbing all trace soil or contaminants from the drilling tools, then washing them with a non-phosphate detergent and water. Following the initial washing with detergent, the tools are then dip-rinsed and sprayed with water. A final rinse is performed using clean water that is poured directly over the sampling tools, followed by placement into a clean container for air drying.

Immediately after collecting the soil and groundwater samples, each boring will be filled to the surface with a Portland cement/bentonite slurry mixture (5% bentonite).

Soil and groundwater samples will be logged on to a chain-of-custody form. Samples will be shipped to the laboratory in a cooler with ice. Excess soils generated from the drilling activities will be placed in sealed containers with proper labeling. After return of soil analytical data, Delta will arrange for the proper disposal of the soil.

TASK 3– SOIL AND GROUNDWATER ANALYSES/TESTING

Discrete soil and groundwater samples will be analyzed for TPH-G, TPH-D, benzene, toluene, ethylbenzene, and xylene (BTEX compounds), and fuel oxygenates MTBE and TBA. All analyses, with the exception of TPH-D, will be performed by EPA Method 8260B. Analyses for TPH-D will be performed by EPA Method 8015M.

TASK 4 – INSTALLATION OF ADDITIONAL GROUNDWATER MONITORING WELL

Delta proposes to install an additional groundwater well in order to monitor the downgradient extent of the MTBE and TBA in first encountered groundwater. MTBE was detected in a groundwater sample collected in April 2003 from boring SB-1 at 38 ug/l. The new well (MW-5) will be installed along the eastern boundary of the Hooters Restaurant property, approximately 75 feet downgradient of boring SB-1 (Figure 2). The well will be installed using hollow-stem auger drilling equipment provided by Gregg Drilling (License C57- 485165).

Soil samples will be collected every 5 feet from the ground surface to the total depth of the boring for the well installation (approximately 30 feet bg). The well will be constructed of 2-inch diameter PVC casing and well screens. Delta anticipates constructing the well with screens from 20 to 30 feet bg. The well will be developed by cycles of surging followed by pumping until clear water is obtained. The well will be

sampled by Blaine Tech Services (Blaine) a minimum of 24 hours after development. The location and top of casing elevation of the well will be established by a California licensed surveyor.

The groundwater sample from the well will be analyzed for TPH-G, TPH-D, BTEX compounds, and fuel oxygenates MTBE and TBA. All analyses, with the exception of TPH-D, will be performed by EPA Method 8260B. Analysis for TPH-D will be performed by EPA Method 8015M.

TASK 5 – CONE PENETRATION TEST BORING

Delta proposes to drill three cone penetration test (CPT) borings to define the vertical of extent of petroleum hydrocarbons and fuel oxygenates detected in first encountered groundwater. The locations of the CPT borings (CPT-1 through CPT-3) are shown on Figure 2. Soil classification will be based on the cone penetration resistance, sleeve friction, and friction ratio. A soil classification graph will be generated during drilling of the CPT borehole. CPT borings will be advanced to a depth of approximately 75 feet bg in order to define the thickness of predominantly clay soil beneath the site. Grout will be pumped into the borehole behind the cone by using a grout collar (retraction grouting).

A second CPT borehole will be drilled at each location for collection of depth discrete groundwater samples. Sand layers throughout the stratigraphic profile will be targeted for sampling. Collection of groundwater samples will be attempted at depths of approximately 30, 45, 60, and 75 feet bg. A sealed PVC hydropunch screen will be pushed to the desired sampling depth. The push rod will then be retracted exposing the hydropunch screen. Groundwater should flow hydrostatically from the formation into the sampler. The predominance of silt and clay may prevent collection of groundwater samples from all depth intervals. A small diameter stainless steel bailer will be lowered through the hollow push rods, into the screen section for sample collection. The groundwater samples will be transferred to 40-milliliter glass VOA bottles. The bottles will be placed on ice for transportation to the laboratory.

After sample collection, the push rods will be removed from the hole. The rods will be steam cleaned and a new hydropunch screen installed. The sealed screen will then be advanced to the next sampling depth and the above described process repeated. After collection of the final groundwater sample, grout will be pumped through the push rods as they are extracted from the borehole. Groundwater samples will be analyzed for TPH-G, BTEX compounds, MTBE, and TBA by EPA Method 8260B.

TASK 6 – SOIL AND GROUNDWATER INVESTIGATION REPORT

Delta will prepare a report describing field methods and summarizing the results of chemical analyses of soil and groundwater. The report will contain a boring and well location map, boring logs, hydrogeologic cross-sections with analytical soil and groundwater data, certified analytical reports, and chain of custody documentation. The report will provide recommendations for additional site assessment activities as appropriate.

TASK 7 – GROUNDWATER MONITORING PROGRAM

ACHCSA, in its letter dated December 29, 2004, requested that Shell present a revised groundwater monitoring program for the site. Delta proposes to eliminate Well MW-1 from the groundwater monitoring program. Well MW-1 was constructed to a depth of 20 feet bg compared to 33 feet bg for Wells MW-2 and MW-3. Well MW-1 appears to monitor an anomalous perched groundwater zone. Depth to groundwater in Well MW-1 is approximately 6 feet below top of casing compared to 20 for all other

wells. TPH-G, BTEX compounds, and MTBE have never been detected in Well MW-1. The well will be destroyed with the permission of the ACHCSA.

Delta recommends that existing Wells MW-2, MW-3, and MW-4 and proposed Well MW-5 be gauged and sampled on a quarterly basis. Delta will make recommendations regarding the need for additional monitoring wells based on the results of the tasks described above.

SCHEDULE

The following schedule is proposed for completion of the tasks described above:

- Submittal of an access agreement to the owner(s) of the Hooters Restaurant property within two weeks of authorization to proceed.
- Submittal of an encroachment permit application to the City of Dublin for drilling of CPT-2 in San Ramon Road within two weeks of authorization to proceed.
- Drilling of soil borings, installation of the additional monitoring wells, and analyses of soil and groundwater samples within 30 days of receiving access to the Hooters Restaurant property.
- Drilling of CPT boring within 30 days of receiving an encroachment permit from the City of Dublin.
- Completion of a soil and groundwater investigation report within 60 days of the start of field activities.

If you have any questions, please call me at (408) 224-4724.

Sincerely,
Delta Environmental Management, Inc.

R. Lee Dooley
Senior Hydrogeologist
CHG 183

PROFESSIONAL GEOLOGIST
R. LEE DOOLEY
No. 0183
CERTIFIED
HYDROGEOLOGIST
STATE OF CALIFORNIA

Attachments: Table 1 – Soil Analytical Data
Table 2 – Groundwater Analytical Data from Borings
Table 3 – Groundwater Analytical Data 1Q05

Figure 1 – Site Location Map
Figure 2 – Proposed Boring and Well Location Map
Figure 3 – Geologic Cross Section A to A'

Attachment A - Soil Sampling Location Maps
Attachment B – Unauthorized Release Report
Attachment C – Containment Solutions, Inc. Report
Attachment D – Regional Hydrogeologic Data

cc. Karen Petryna, Shell Oil Products US

Table 1
Summary of Soil Analytical Data
Shell-branded Service Station
11989 Dublin Boulevard
Dublin, California

Sample/ Boring/Well Designation	Date Sampled	Depth (feet)	TPH-G (mg/kg)	TEPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl benzene (mg/kg)	Xylene (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)
P-1	6/17/97	4 to 5	24	**97.0**	<0.025	**0.27**	**0.098**	2.5	6.3	NA
P-2	6/17/97	4 to 5	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.025	NA
P-3	6/17/97	4 to 5	<1.0	**1.4**	<0.005	<0.005	<0.005	<0.005	<0.025	NA
P-4	6/17/97	4 to 5	<1.0	160.0	<0.005	<0.005	<0.005	**0.015**	**0.027**	NA
D-1	6/17/97	4 to 5	<1.0	9.9	<0.005	**0.014**	**0.0062**	**0.068**	**0.060**	NA
D-2	6/17/97	4 to 5	<1.0	20.0	**0.55**	**3.3**	**0.99**	**7.8**	**8.9**	NA
TS-1	6/20/97	4 to 5	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.025	NA
TS-2	6/20/97	4 to 5	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.025	NA
TS-3	6/20/97	4 to 5	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.025	NA
TS-4	6/20/97	4 to 5	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.025	NA
TS-5	6/20/97	4 to 5	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.025	NA
TS-6	6/20/97	4 to 5	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.025	NA
TS-7	6/20/97	4 to 5	**690**	**12,000**	<0.25	<0.25	<0.25	<0.25	<1.2	NA
TS-8	6/20/97	4 to 5	<1.0	**1.3**	<0.005	<0.005	<0.005	<0.005	<0.025	NA
TS-9	6/20/97	4 to 5	<1.0	**2.2**	<0.005	<0.005	<0.005	<0.005	<0.025	NA
TS-10	6/20/97	4 to 5	<1.0	**2.6**	<0.005	<0.005	<0.005	<0.005	<0.025	NA
TS-11	6/20/97	4 to 5	<1.0	**11.0**	<0.005	<0.005	<0.005	<0.005	<0.025	NA
TS-12	6/20/97	4 to 5	<1.0	**3.7**	<0.005	<0.005	<0.005	<0.005	<0.025	NA
SB-1	11/19/97	10	<1.0	**1.3**	<0.005	<0.005	<0.005	<0.005	<0.025	NA
	11/19/97	20	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.025	NA
	11/19/97	35	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.025	NA
SB-2	11/19/97	10	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.025	NA
	11/19/97	20	**1.8**	**19**	<0.005	<0.005	<0.005	<0.005	**0.11**	NA
SB-3	11/19/97	10	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.025	NA
	11/19/97	25	**11**	**300**	**0.0051**	**0.18**	<0.005	**0.013**	**0.069**	NA
	11/19/97	35	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.025	NA
SB-4	11/19/97	10	**1.8**	<1.0	<0.005	<0.005	<0.005	<0.005	**0.031**	NA
	11/19/97	25	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.025	NA
SB-1	8/5/98	5	<1.0	**13**	<0.005	<0.005	<0.005	<0.005	<0.025	NA
	8/5/98	10	<1.0	**2.4**	<0.005	<0.005	<0.005	<0.005	<0.025	NA
	8/5/98	15	<1.0	**1.6**	<0.005	<0.005	<0.005	<0.005	**0.074**	NA
	8/5/98	20	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	**0.90**	NA
	8/5/98	25	**46**	**120**	<0.025	**1.0**	<0.025	**0.052**	**1.4**	NA
	8/5/98	30	**26**	**2.3**	<0.025	**0.35**	**0.037**	**0.093**	**1.1**	NA
SB-2	8/5/98	5	<1.0	**3.2**	<0.005	<0.005	<0.005	<0.005	<0.025	NA
	8/5/98	10	<1.0	**1.3**	<0.005	<0.005	<0.005	<0.005	<0.025	NA
	8/5/98	15	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.025	NA
	8/5/98	20	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.025	NA
	8/5/98	25	**91**	**13**	**1.0**	**0.26**	<0.025	**0.22**	**0.43**	NA
	8/5/98	30	**250**	**42.0**	**2.8**	**0.72**	<0.10	**0.69**	<0.50	NA
MW-1	6/9/99	5	<0.40	<5.0	<0.002	<0.002	<0.002	<0.004	<0.010	NA
	6/9/99	10	<0.40	<5.0	<0.002	<0.002	<0.002	<0.004	<0.010	NA
	6/9/99	15	<0.40	<5.0	<0.002	<0.002	<0.002	<0.004	<0.010	NA
	6/9/99	20	<0.40	<5.0	<0.002	<0.002	<0.002	<0.004	<0.010	NA
MW-2	6/8/99	10.5	<0.80	<5	<0.004	<0.004	<0.004	<0.008	<0.02	NA
	6/8/99	15.5	<0.80	<5	<0.004	<0.004	<0.004	<0.008	<0.02	NA
	6/8/99	20.5	<0.80	<5	<0.004	<0.004	<0.004	<0.008	<0.02	NA

Table 1
Summary of Soil Analytical Data
Shell-branded Service Station
11989 Dublin Boulevard
Dublin, California

Sample/ Boring/Well Designation	Date Sampled	Depth (feet)	TPH-G (mg/kg)	TEPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl benzene (mg/kg)	Xylene (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)
MW-2 cont'd	6/8/99	25.5	<4.00	**103**	<0.02	<0.02	<0.02	<0.04	**1.28**	NA
	6/8/99	30.5	<4.00	<5	<0.02	<0.02	<0.02	<0.04	**1.76**	NA
MW-3	6/8/99	10.5	<0.800	<5.0	<0.004	<0.004	<0.004	<0.008	<0.02	NA
	6/8/99	15.5	<0.800	<5.0	<0.004	<0.004	<0.004	<0.008	<0.02	NA
	6/8/99	20.5	<0.800	<5.0	<0.004	<0.004	<0.004	<0.008	<0.02	NA
	6/8/99	25.5	**4.10**	**35.2**	<0.004	<0.004	<0.004	<0.008	**0.0597**	NA
	6/8/99	30.5	**1.39**	<5.0	<0.004	<0.004	<0.004	<0.008	**0.0630**	NA
MW-4	7/26/01	25.5	**<1.0**	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
SB-1	4/1/03	5	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
	4/1/03	10	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
	4/1/03	15	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
	4/1/03	20	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
	4/1/03	25	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
	4/1/03	30	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
	4/1/03	35	**7.0**	NA	<0.005	<0.005	<0.005	<0.005	**0.0099**	NA
SB-2	4/1/03	5	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
	4/1/03	10	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
	4/1/03	15	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
	4/1/03	20	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
	4/1/03	25	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
	4/1/03	30	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
	4/1/03	35	<1.0	NA	<0.005	<0.005	<0.005	<0.005	**0.250**	NA
SB-3	4/1/03	5	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
	4/1/03	10	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
	4/1/03	15	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
	4/1/03	20	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
	4/1/03	25	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA
	4/1/03	30	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	NA

Notes:
mg/kg = milligrams per kilogram
TPH-G = Total petroleum hydrocarbons as gasoline
TEPH = Total extractable petroleum hydrocarbons as diesel
MTBE = Methyl tert-butyl ether
TBA = Tert-Butyl alcohol
NA = not analyzed

Table 2
Summary of Groundwater Analytical Data From Borings
Shell-branded Service Station
11989 Dublin Boulevard
Dublin, California

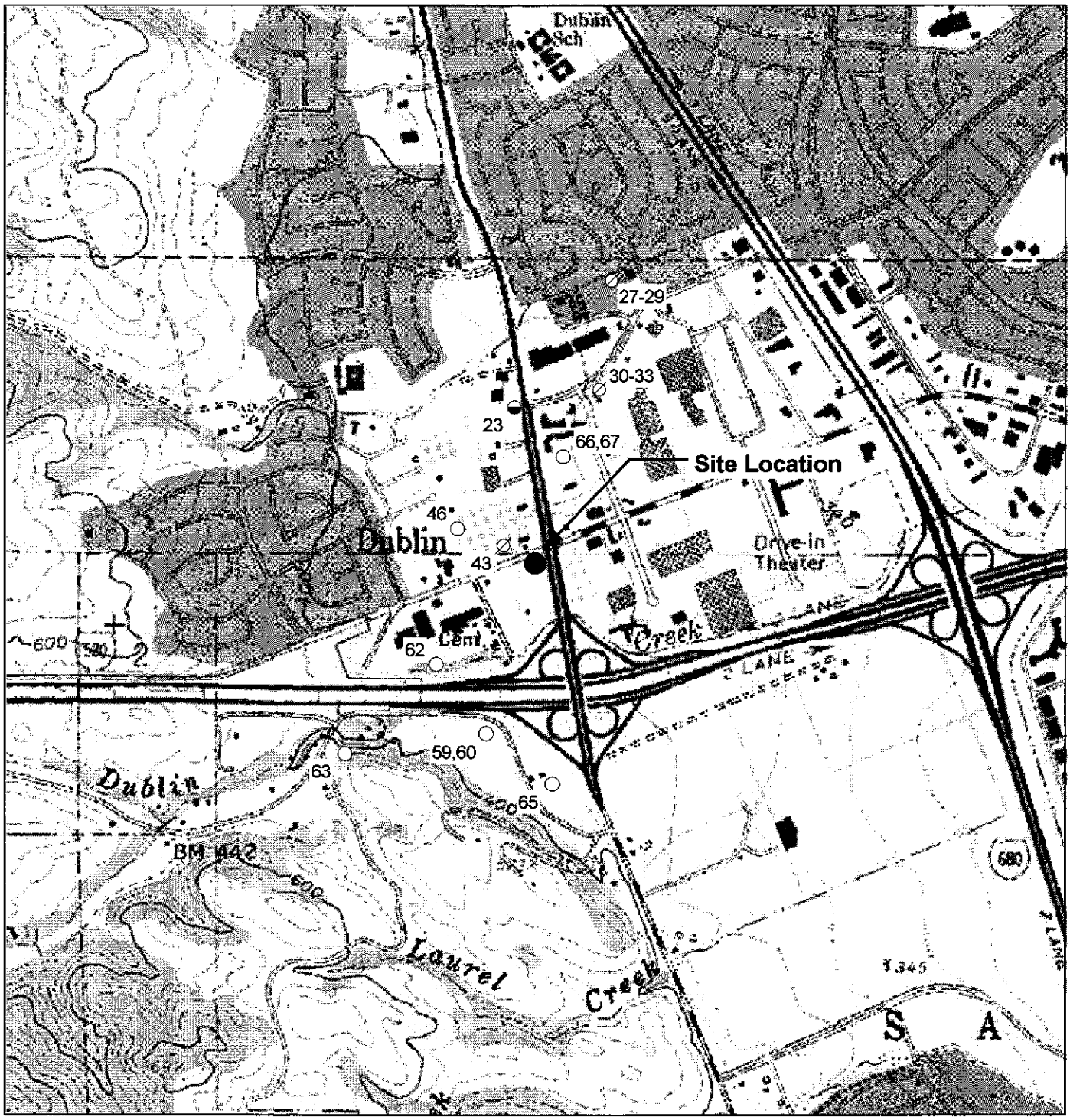
Soil Boring/Sample Designation	Date Sampled	Depth (feet)	TPH-G (ug/l)	TEPH (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethyl benzene (ug/l)	Xylene (ug/l)	MTBE (ug/l)	TBA (ug/l)
SB-2	11/19/97	22	**470**	**4,900**	**17**	**2**	<1.0	**1.1**	**370**	NA
SB-1	8/6/98	25	**140,000**	**54,000**	<1000	<1000	<1000	<1000	**16,000**	NA
SB-2	8/6/98	25	**10,000**	**7,000**	<25	210	<25	<25	**8,400**	NA
SB-1	4/1/03	36 - 40	**100**	NA	<0.50	<0.50	<0.50	<1.0	**38**	NA
SB-2	4/1/03	36 - 40	**200**	NA	<0.50	<0.50	<0.50	<1.0	**17**	NA
SB-3	4/1/03	27	**120**	NA	<0.50	<0.50	<0.50	<1.0	**9**	NA
SB-3	4/1/03	32 - 36	**3,000**	NA	<0.50	<0.50	<0.50	<1.0	**12**	NA

Notes:
ug/l = micrograms per liter
TPH-G = Total petroleum hydrocarbons as gasoline
TEPH = Total extractable petroleum hydrocarbons as diesel
MTBE = Methyl tert-butyl ether
TBA = Tert-Butyl alcohol
NA = not analyzed

Table 3
Summary of Groundwater Analytical Data 1Q05
Shell-branded Service Station
11989 Dublin Boulevard
Dublin, California

Well Designation	Date Sampled	**TPH-G** (ug/l)	**Benzene** (ug/l)	**Toluene** (ug/l)	**Ethyl benzene** (ug/l)	**Xylene** (ug/l)	**MTBE** (ug/l)	**TBA** (ug/l)
MW-1	1/26/05	<50	<0.50	<0.50	<0.50	<1.0	<0.50	NA
MW-2	1/26/05	**6,600**	**94**	<13	<13	<25	**1,700**	**16,000**
MW-3	1/26/05	**1,000**	**0.53**	<0.50	<0.50	<1.0	**20**	**820**
MW-4	1/26/05	**1,200**	<10	<10	<10	<20	<10	**3,700**

Notes:
ug/l = micrograms per liter
TPH-G = Total petroleum hydrocarbons as gasoline
MTBE = Methyl tert-butyl ether
TBA = Tert-Butyl alcohol
NA = not analyzed



GENERAL NOTES:
Base Map from: DeLorme Yarmouth, ME 04096
Source Data: USGS

QUADRANGLE LOCATION

Legend

- ○ Domestic Well
- ◒ Irrigation Well
- ∅ Destroyed/Abandoned Well

North

0 1,800 3,600

Scale, Feet

FIGURE 1
SITE LOCATION MAP

SHELL-BRANDED SERVICE STATION
11989 Dublin Blvd.
Dublin, California

PROJECT NO. SJ11-989-1.2005	DRAWN BY VF 10/22/03
FILE NO. SJ11-989-1.2005	PREPARED BY VF
REVISION NO.	REVIEWED BY

Delta
Environmental
Consultants, Inc.

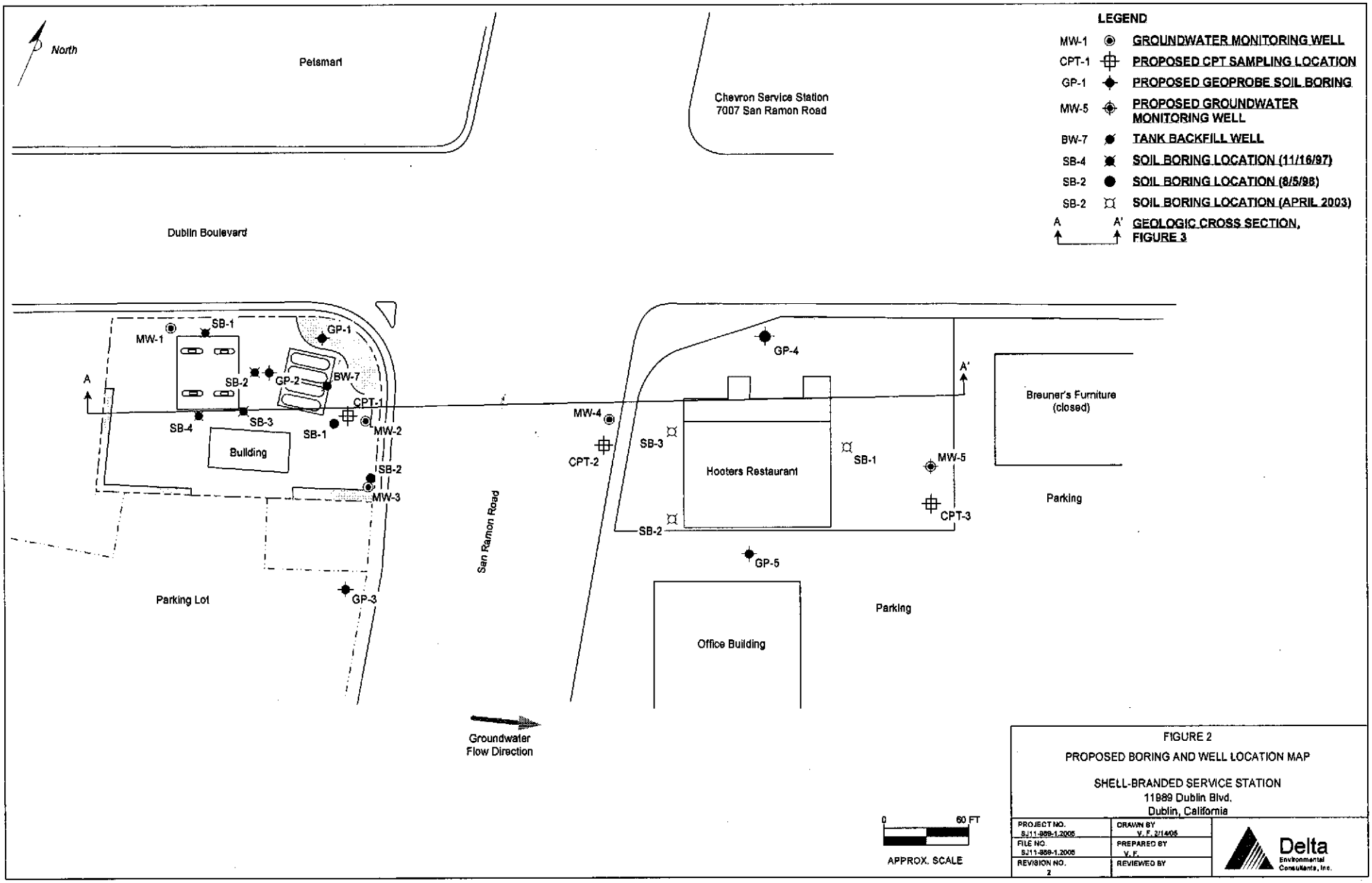


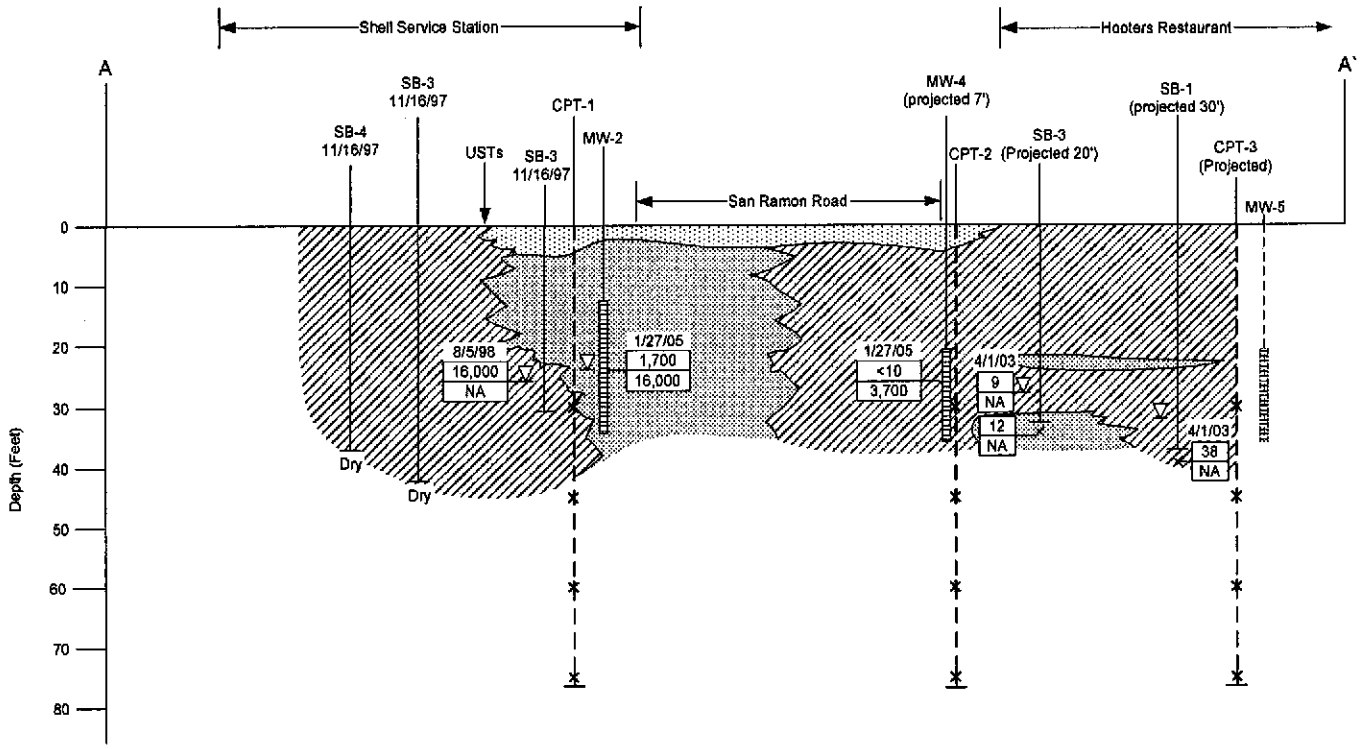
FIGURE 2

PROPOSED BORING AND WELL LOCATION MAP

SHELL-BRANDED SERVICE STATION
11989 Dublin Blvd.
Dublin, California

PROJECT NO. SJ11-989-1.2005	DRAWN BY V. F. 2/14/05
FILE NO. SJ11-989-1.2005	PREPARED BY V. F.
REVISION NO. 2	REVIEWED BY

Delta Environmental Consultants, Inc.



LEGEND

- FILL - SAND AND GRAVEL
- CLAYEY SAND (SC), SILTY SAND (SM), SILTY GRAVEL (SM)
- CLAY (CL) AND SILT (ML)
- MONITORING WELL (DASHED WERE PROPOSED)
- SCREENED INTERVAL
- SOIL BORING
- PROPOSED CPT BORING
- PROPOSED GROUNDWATER SAMPLE

▽ GROUNDWATER LEVEL ENCOUNTERED IN BORINGS

1/27/05 GROUNDWATER SAMPLE DATE

<10 / 3,700 MTBE (UG/L) / TBA (UG/L)

NA NOT ANALYZED

0 60 FT

APPROX. SCALE

FIGURE 3

GEOLOGIC CROSS SECTION A TO A`

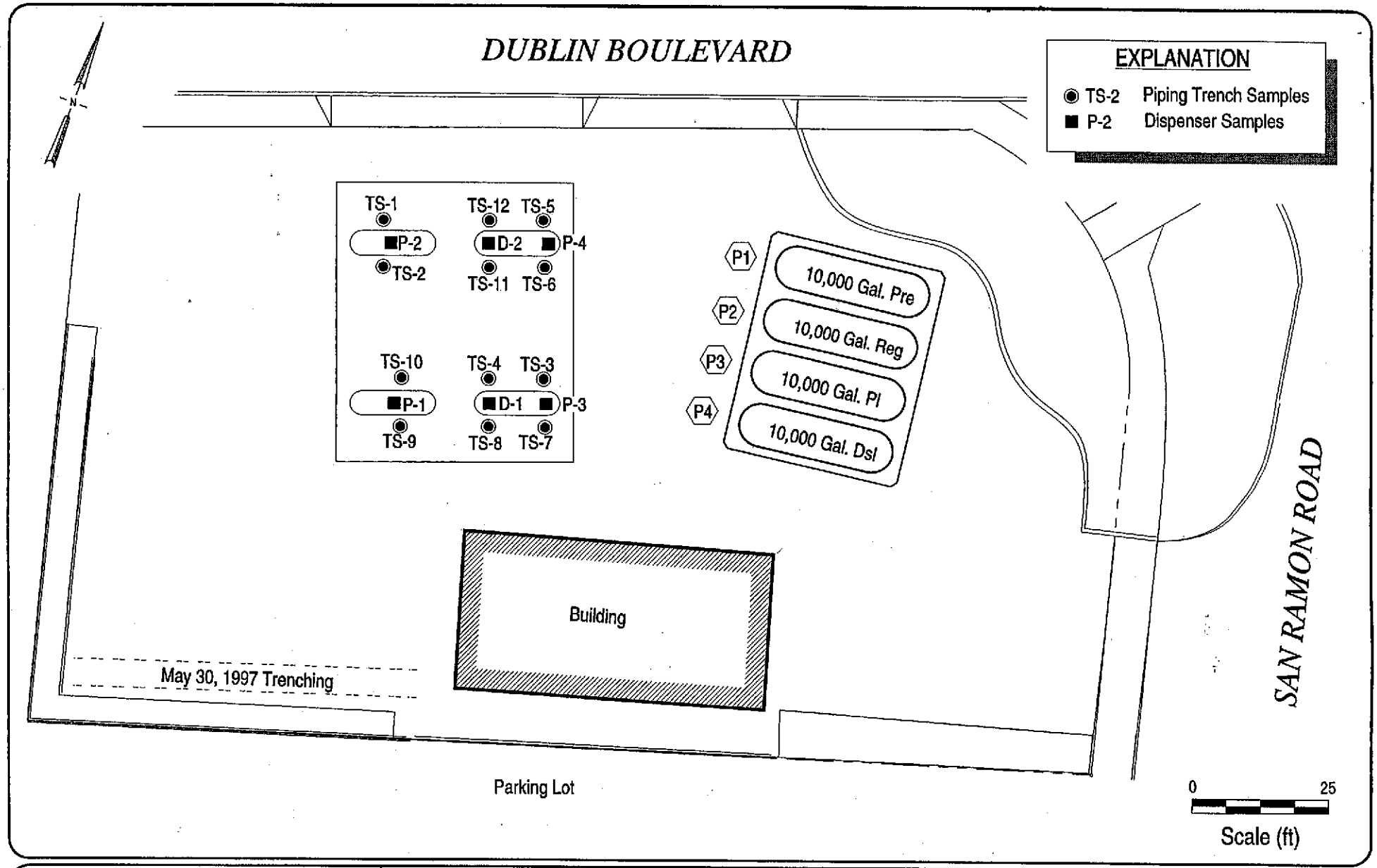
SHELL -BRANDED SERVICE STATION
11989 Dublin Blvd.
Dublin, California

PROJECT NO. SJ11-989-1.2005	DRAWN BY V. F. 2/14/05
FILE NO. SJ11-989-1.2005	PREPARED BY V. F.
REVISION NO. 2	REVIEWED BY

Delta Environmental Consultants, Inc.

Attachment A

SOIL SAMPLING LOCATION MAPS



CAMBRIA
Environmental Technology, Inc.

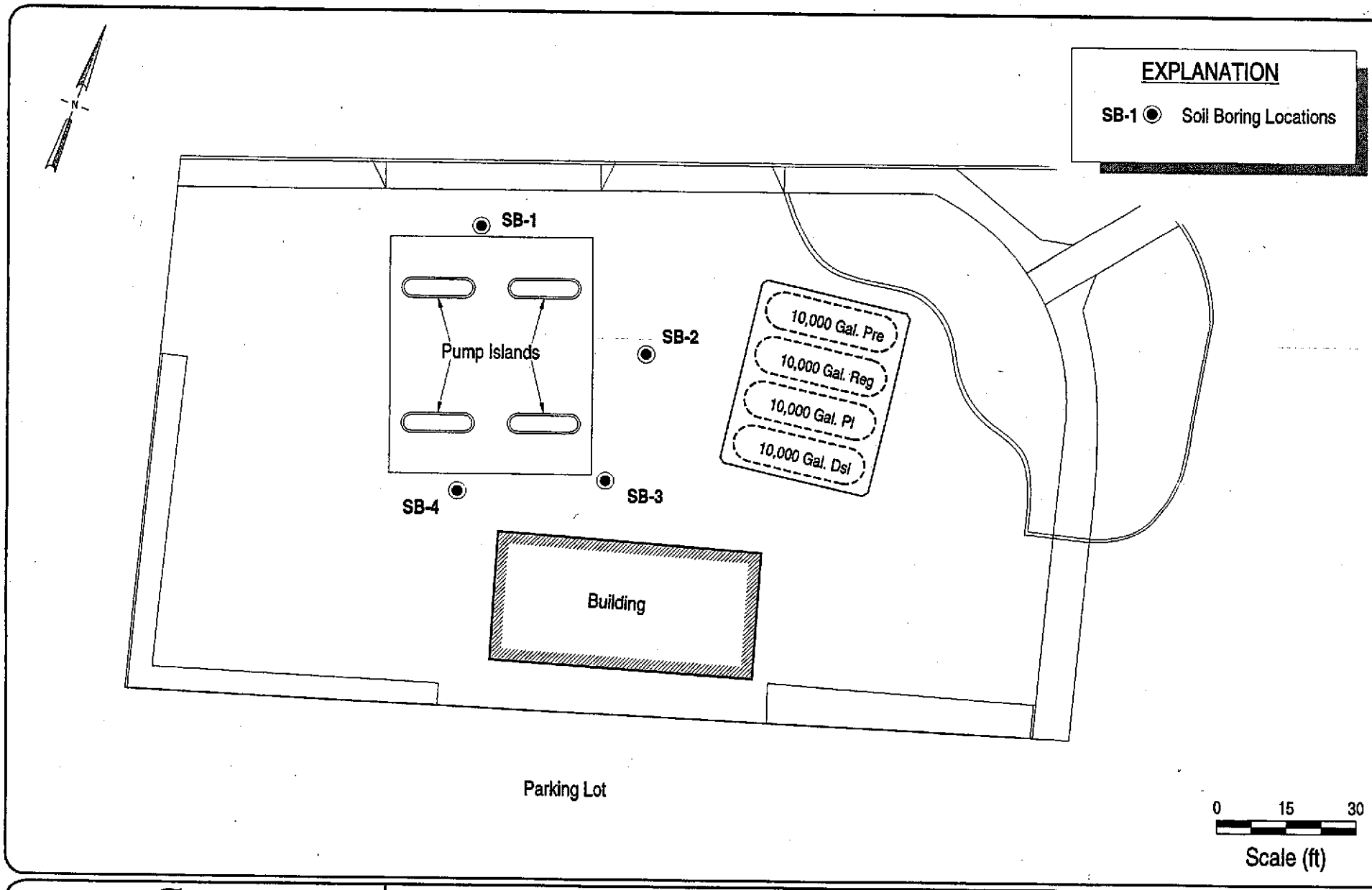
Shell Service Station
11989 Dublin Boulevard
Dublin, California

F:\PROJECT\SHELL\DUB11989\FIGURES\DSP-SMPL.DWG

Dispenser and Trench (Piping) Samples

FIGURE
1

07/10/97



CAMBRIA
Environmental Technology, Inc.

Shell Service Station
11989 Dublin Boulevard
Dublin, California

F:\PROJECT\SHELL\DUB11989\FIGURES\BOR-LOC.DWG

Soil Boring Location Map

November 19, 1997

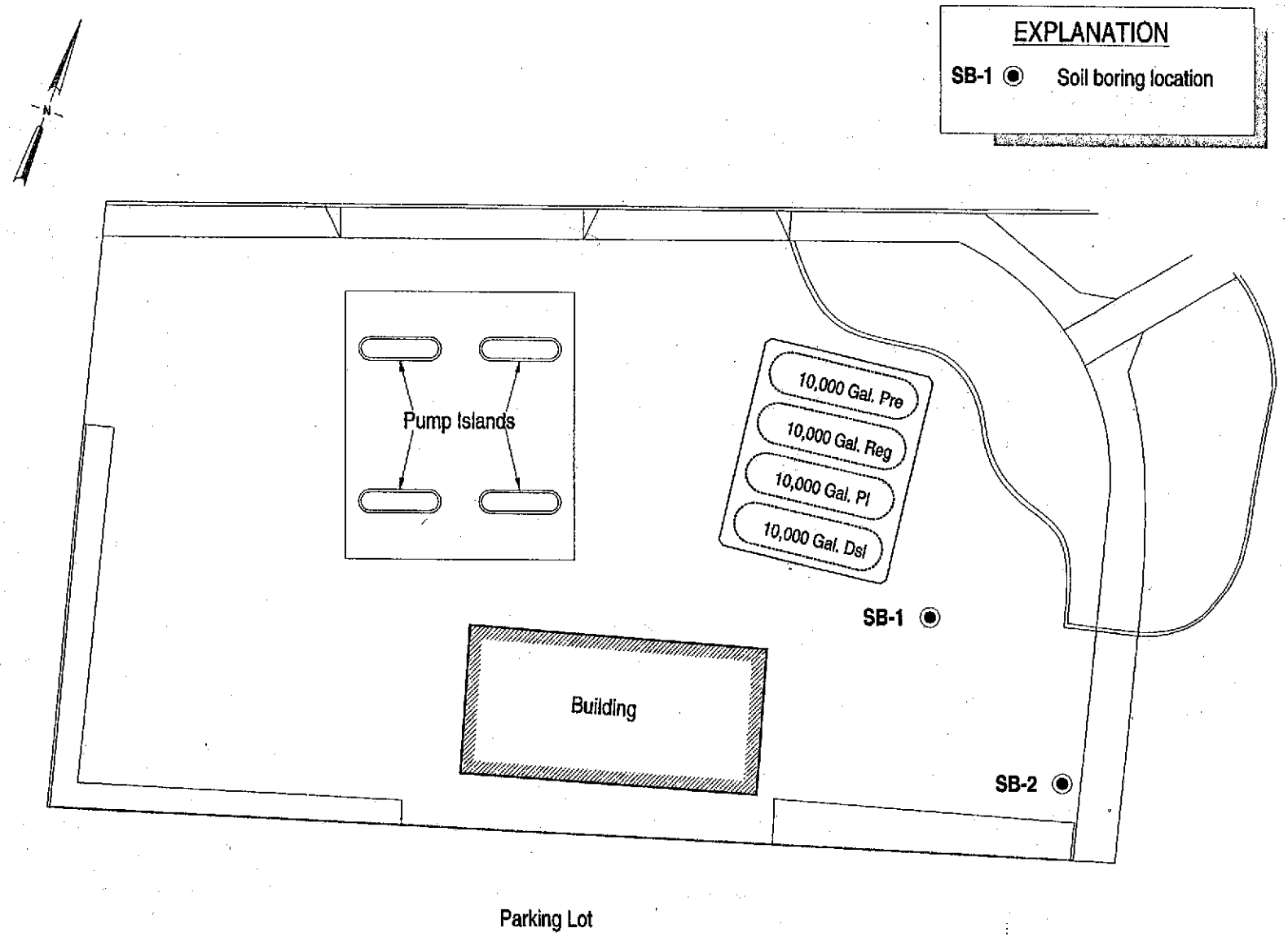
FIGURE
1

01/27/98

G:\11989 DUBLIN\FIGURES\SOR-LOC2.DWG

Shell Service Station

11989 Dublin Boulevard
Dublin, California



Soil Boring Location Map

FIGURE
1

CAMBRIA

August 4, 1998

G:\11989 DUBLIN\FIGURES\BOR-LOC2.DWG

Shell Service Station

11989 Dublin Boulevard
Dublin, California

CAMBRIA

Soil Boring Location Map

August 4, 1998

FIGURE
1

10/05/98

Attachment B

UNAUTHORIZED RELEASE REPORT

UNDERGROUND STORAGE TANK UNAUTHORIZED RELEASE (LEAK) / CONTAMINATION SITE REPORT

EMERGENCY: ☐ YES ☒ NO

HAS STATE OFFICE OF EMERGENCY SERVICES REPORT BEEN FILED? ☐ YES ☐ NO

FOR LOCAL AGENCY USE ONLY
I HEREBY CERTIFY THAT I HAVE DISTRIBUTED THIS INFORMATION ACCORDING TO THE DISTRIBUTION SHOWN ON THE INSTRUCTION SHEET ON THE BACK PAGE OF THIS FORM.
SIGNED: DATE:

REPORT DATE: 11/03/04
CASE #:

REPORTED BY
NAME OF INDIVIDUAL FILING REPORT: Aura Sibley | PHONE: (916) 240-1610 | SIGNATURE: Aura Sibley for Spiks
REPRESENTING: ☒ OWNER/OPERATOR ☐ REGIONAL BOARD ☐ LOCAL AGENCY ☐ OTHER
COMPANY OR AGENCY NAME: Shell Oil Products US
ADDRESS: 20945 S. Wilmington, Carson CA 90810 (STREET / CITY / STATE / ZIP)

RESPONSIBLE PARTY
NAME: Shell Oil Products US ☐ UNKNOWN | CONTACT PERSON: Aura Sibley | PHONE: (916) 240-1610
ADDRESS: (see above) (STREET / CITY / STATE / ZIP)

SITE LOCATION
FACILITY NAME (IF APPLICABLE): Shell Branded Service Station | OPERATOR: Ben Maghzoudi | PHONE: (925) 828-2770
ADDRESS: 11987 Dublin Blvd. | CITY: Dublin | COUNTY: Alameda | ZIP:
CROSS STREET: San Ramon Road

AGENCIES IMPLEMENTING
LOCAL AGENCY: Alameda County Health Agency | CONTACT PERSON: Rob Weston | PHONE: (510) 567-6791
REGIONAL BOARD: SFBRWQCB | CONTACT PERSON: Betty Graham | PHONE: (510) 622-2358

SUBSTANCES INVOLVED
(1) NAME: Gasoline | QUANTITY LOST (GALLONS): ☒ UNKNOWN
(2) NAME: | QUANTITY LOST (GALLONS): ☐ UNKNOWN

DISCOVERY/ABATEMENT
DATE DISCOVERED: 10/29/04 | HOW DISCOVERED: ☒ TANK TEST ☐ INVENTORY CONT ROL ☐ SUBSURFACE MONITORING ☐ NUISANCE CONDITIONS ☐ TANK REMOVAL ☐ OTHER Precision Tank Test
DATE DISCHARGE BEGAN: ☒ UNKNOWN
HAS DISCHARGE BEEN STOPPED? ☒ YES ☐ NO IF YES, DATE:
METHOD USED TO STOP DISCHARGE (CHECK ALL THAT APPLY): ☒ REMOVE CONTENTS ☐ CLOSE TANK & REMOVE ☐ REPAIR PIPING ☐ REPAIR TANK ☐ CLOSE TANK & FILL IN PLACE ☐ CHANGE PROCEDURE ☐ REPLACE TANK ☐ OTHER Awl corrosion

SOURCE/CAUSE
SOURCE OF DISCHARGE: ☐ TANK LEAK ☒ UNKNOWN ☐ PIPING LEAK ☐ OTHER
CAUSE(S): ☐ OVERFILL ☐ RUPTURE/FAILURE ☐ SPILL ☐ CORROSION ☒ UNKNOWN ☐ OTHER

CASE TYPE
CHECK ONE ONLY: ☒ UNDETERMINED ☐ SOIL ONLY ☐ GROUNDWATER ☐ DRINKING WATER - (CHECK ONLY IF WATER WELLS HAVE ACTUALLY BEEN AFFECTED)

CURRENT STATUS
CHECK ONE ONLY:
☒ NO ACTION TAKEN
☐ LEAK BEING CONFIRMED
☐ REMEDIATION PLAN
☐ PRELIMINARY SITE ASSESSMENT WORKPLAN SUBMITTED
☐ PRELIMINARY SITE ASSESSMENT UNDERWAY
☐ CASE CLOSED (CLEANUP COMPLETED OR UNNECESSARY)
☐ POLLUTION CHARACTERIZATION
☐ POST CLEANUP MONITORING IN PROGRESS
☐ CLEANUP UNDERWAY

REMEDIAL ACTIONS
CHECK APPROPRIATE ACTION(S) (SEE BACK FOR DETAILS)
☐ CAP SITE (RC)
☐ CONTAINMENT BARRIER (CB)
☐ VACUUM EXTRACT (VE)
☐ EXCAVATE & DISPOSE (ED)
☐ EXCAVATE & TREAT (ET)
☐ NO ACTION REQUIRED (NA)
☒ OTHER (OT) Not yet known
☐ REMOVE FREE PRODUCT (FP)
☐ PUMP & TREAT GROUNDWATER (GT)
☐ TREATMENT AT HOOKUP (HU)
☐ ENHANCED BIO DEGRADATION (BT)
☐ REPLACE SUPPLY (RS)
☐ VENT SOIL (VS)

COMMENTS
Based on preliminary results a confirmation precision test of Affordable Test was scheduled Affordable Test could not do test until 10/29; tank was emptied on 10/26

rev 05/99

Attachment C

CONTAINMENT SERVICES, INC. REPORT

CONTAINMENT SOLUTIONS

field agreement - Type C

Ph. # 1-800-822-1997; Fax # 814-542-5020

		Containment Solutions, Svc. order no.
		job no. 34448
		date of agreement 12/8/04
original invoicee	final owner	job name Shell Station
address	address	address 11989 Dublin Blvd.
		Dublin, CA

product description, size, serial no. Single Wall 10,000		material being stored Fuel
date shipped	tank installation date	producing plant

description of work required: Enter & Inspect One single wall tank. Inspection found 2 small "Star crazes" in shell wall. Sealed Centerwrap seam and installed 7 deflector plates as standard procedure. Air/Soap test manway and all exposed openings @ 3 psi for 1 hour with no drop in pressure.

estimate

____	labor hrs. at $ /hr.	
____	travel hrs. at $ /hr.	
____	miles at $ per mile	
____	per diem at $ /night or $ /day	
	material at list price	
	subtotal	
	plus 25%	
	total	

will this repair be warranted for 1 year? yes X no ____

if no, reason for no warranty: ____

Containment Solutions Svc. technician signature [signature] date 12/8/04

Customer agrees to pay Containment Solutions, Svc. for this work at Containment Solutions, Svc., Field Service rates net 30 upon receipt of invoice.

authorized representative of company to invoice:

customer signature X [signature] title ____ date ____

company to invoice for this work:

company ____ P.O. no. ____

address ____ zip code ____

Attachment D

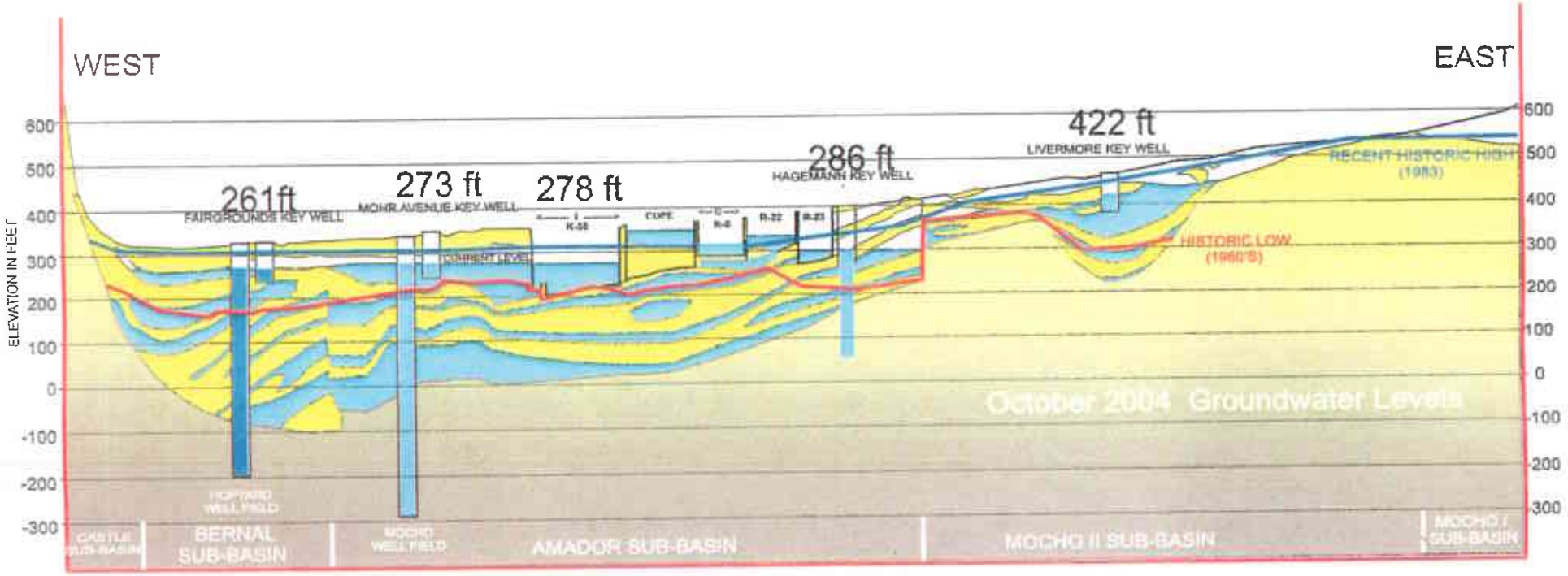
REGIONAL HYDROGEOLOGIC DATA

Groundwater Basins in California

z7xsec_1004-Llr.cdr
10/06/04

Fig 4

LIVERMORE-AMADOR VALLEY GROUNDWATER BASIN
WEST-EAST CROSS-SECTION



	Bernal	Amador	Mocho II	Total
Area (Ac)	3,100	9,900	4,300	17,300
Saturated Thickness (ft)	246	159	98	168
Storage Coefficient	0.07	0.08	0.06	0.07
Groundwater Vol. (A-F)	53,000	126,000	25,000	204,000
Available Operational Storage	12,000	43,000	22,000	77,000

FIGURE 4-1

E:projects\storage\xsect\z7xsec1004-Llr

FIGURE 4-1

Well location with water elevation (Ft MSL)

Groundwater Contours (Ft MSL)
Contour Interval = 25 Feet

Basin Boundary

Water elevation in lake (Ft MSL)

Site

0 3000 6000
FEET

ZONE 7 WATER AGENCY 5997 PARKSIDE DRIVE, PLEASANTON, CA 94588	DWN: Tom Rooze DES.: Gerry Gates CHK: APPD:	Semi Annual Groundwater Gradient Map 2003 Water Year, Fall 2003 (September) Upper Aquifer, Livermore Valley Basin, California	FILE: 2003GWUpper.dwg DATE: Aug 5, 2004 FIGURE NUMBER: 4