R02749 SL

ARCADIS

Infrastructure, environment, facilities

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Mr. Bruce H. Wolfe
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street - Suite 1400
Oakland, California 94612

Attention: Cleet Carlton 510-622-2374

Alameda County
NOV 28 2006
Environmental Health

ENVIRONMENT

Subject:
Groundwater Investigation Work Plan, Busick-Gearing Properties, LLC – 6341 Scarlett Court, Dublin, California

Date:
15 November 2006

Contact:
John Johnsen

Phone:
562-221-2270

Email:
JJohnsen@arcadis-us.com

Our ref:
RC000670.0004

Dear Wolfe:

This letter presents the groundwater investigation work plan requested in the Regional Water Quality Control Board (RWQCB) letter dated September 1, 2006 (File No. 01S0505 [CFC]), for the Busick-Gearing Properties, LLC (Site), Dublin, California. The proposed scope was discussed during a meeting at the RWQCB office on September 26, 2006. The work plan proposes an investigation to assess the extent of the trichloroethene (TCE) plume in groundwater associated with the Site.

This work plan contains the following information:

- Site background and history
- Plan view and cross section drawings that include relevant lithologic and TCE data from discrete groundwater collected during CPT that has been obtained down gradient of the on-site source to date;
- Cross sections prepared using appropriate CPT and monitoring well data;
- Plan view drawings showing all sampling locations and associated groundwater (TCE) data that has been collected to date;
- TCE iso concentration maps;

Appears that RWQCB is the Lead. Alcohol
e: ccarlton@waterboards.ca.gov

- Proposed investigation activities to evaluate potential preferential pathways of TCE in groundwater and to provide information to assess, plan, and design potential remedial actions as required;
- Field and analytical methods;
- Investigation and reporting schedule;
- Draft of Notification of Site Clean Up Oversight (Appendix A); and
- Draft Property Owner Notification list (Appendix B).

Background

The Busick-Gearing Properties, LLC site is the central building ("Building 2")of three buildings located within a commercial/light industrial area of Dublin, California (Figures 1 and 2). According to previous investigation reports, Building 2 was constructed in 1971 and the southern portion was originally occupied by Nuclear Specialties, a company that performed metal fabrication of chassis for electronic equipment (Harza Consulting Engineers and Scientists [Harza] 1996). Nuclear Specialties later merged with Precision Metal Fabricators, Inc., which continued to occupy the space until 1981. Immediately after Precision Metal Fabricators vacated the space in 1981, the space was leased to Dublin Multilayer, Inc., which manufactured printed circuit boards.

The southeast portion of Building 2 contained a sump that was used to collect fluids from the manufacturing process. Reportedly, volatile organic compounds (VOCs) were released from the sump and the connecting sanitary sewer line into underlying soil. These contaminants eventually migrated to the groundwater. The sump and surrounding soil was excavated and removed from Building 2 in 1991 under the supervision of Dr. Ravi Arulanantham of the Alameda County Department of Environmental Health. A soil sample collected during the excavation activities from approximately 3 feet below ground surface (bgs) contained Freon 113 (400 micrograms per kilograms [µg/kg]), TCE (2,900 µg/kg), tetrachloroethene (PCE; 300 µg/kg), total xylenes (200 µg/kg), and cis-1,2-dichloroethene (cDCE; 300 µg/kg). Soil was excavated to approximately 6 feet bgs, or 3 feet below the base of the sump, to achieve soil source removal (Williams 1991). Approximately 21.5 cubic yards of soil were excavated from three areas within the plating room, along the path of the sanitary sewer, and immediately adjacent to Building 2.

Nine monitoring wells (MW-1S through MW-9S) were installed on the property from 1990 to 1992, into the shallow portion of the saturated zone to a depth of 15 feet bgs, of which seven wells were found to contain elevated concentrations of VOCs (Harza 1996), with TCE as the primary constituent of concern (COC). The results of groundwater monitoring from these wells indicated the presence of a small VOC plume within Site boundaries, with decreasing concentrations observed over time.

Four cone penetrometer test (CPT) investigations were conducted to delineate the down-gradient extent of the groundwater plume both vertically and laterally from 1997 to 1999. The first two investigations were conducted in July 1997 and October 1998 and consisted of advancing borings CPT-1A through CPT-1L along Scarlett Court. The third investigation was conducted in December 1998 further down-gradient to the south and consisted of advancing borings CPT-1M through CPT-1P. The fourth investigation was conducted in March 1999 south of Interstate 580 further southwest and down-gradient of the Site and consisted of advancing borings CPT-1Q through CPT-1T (Montgomery Watson 1999). The CPTs were advanced to depths ranging from 37 to 60 feet bgs. The results of these investigations indicated that TCE impacts were present at higher concentrations within a deeper groundwater zone (approximately 30 to 50 feet bgs). TCE was detected at a maximum concentration of 14,000 µg/L (in the 40 feet bgs sample in CPT-1O approximately 350 feet south of the Site boundary). TCE was also identified at a location approximately 900 feet down-gradient of the Site (9.47 µg/L in the 44 feet bgs sample in CPT-1Q).

Two monitoring wells (MW-10 and MW-11) were installed on September 22 and 24, 2004. Analytical results from groundwater samples collected from MW-10 and MW-11 revealed TCE impacted groundwater at depths between 35 and 50 feet bgs and extending beneath Interstate 580 (ARCADIS 2005a).

An on-site interim remedial action (IRA) work plan was submitted on April 11, 2005 proposing enhanced reductive dechlorination (ERD) to limit further TCE impact to groundwater and to migration from the source area (ARCADIS 2005b). ERD employs an easily degradable carbohydrate (e.g. molasses) solution which is injected into the groundwater via injection wells. The subsequent biodegradation of the carbohydrate creates the reducing conditions required for the dechlorination of VOCs.

In accordance with the RWQCB-approved Work Plan and IRA, ARCADIS installed six injection wells (IW-1 through IW-6) and three monitoring wells (MW-12D, MW-13D, and MW-14D) from May 18 through May 26, 2005. An injection test to evaluate the injection

volume and dosage required to create the IRZ was performed on June 6, 2005, and the initial injection event was performed on July 5, 2005 (ARCADIS 2005c).

From December 1 through December 9, 2005, five additional CPTs (CPT-2A through CPT-2E) were conducted in the Interstate 580 right-of-way south of the freeway lanes. HydroPunch™ grab groundwater samples were collected from direct-push boreholes drilled within two feet of the CPT locations and submitted for analysis. The data collected from this event provided chemical and lithologic data to supplement data from previous investigations in attempting to delineate and characterize the TCE plume (ARCADIS 2006a).

Regional Geology

The Site is located at the west end of Livermore Valley, an east-west trending topographic and structural depression within the central part of the Diablo Range. The Calaveras, Greenville, and Las Positas fault zones have controlled the tectonic development of the Livermore Valley (Harza 1996).

The Franciscan Formation and marine sedimentary rocks of the Great Valley sequence comprise the oldest rocks, Jurassic to Cretaceous age, in the region. Pliocene to Pleistocene age sediments are the youngest exposed rocks and Quaternary alluvium covers the valley floor. The alluvial deposits, alternating layers of clay, sands and gravels, were generally deposited by stream and lakebed outwash sediments associated with geologic uplift of the region (Harza 1996).

The Site has no active faults; however active faults in the area include the Calaveras fault, the Pleasanton fault, the Verona fault and the Greenville fault. The Parks fault, an inactive fault, is also located near the Site (Harza 1996).

Local Stratigraphy

The local stratigraphy consists of Quaternary alluvial deposits of unconsolidated clay, silt, sand, and gravel up to 400 feet thick. As with any alluvial system, these layers of sands and finer grained silts and clays intermingle and can be laterally discontinuous. A regional aquifer is present at depths greater than 100 feet bgs.

Clays, clayey silts, and silts directly underlie the Site and adjacent area to the south to an approximate depth of 20 to 30 feet bgs. The first occurrence of groundwater is at approximately 17 feet bgs and is referred to as the shallow groundwater zone.

This zone grades to a clayey- to silty-sand zone called the deeper groundwater zone. This more transmissive zone continues to approximately 50 feet bgs where another clay layer is encountered.

As you move offsite, the silt to silty-clay layer thickens and the deeper groundwater zone is not encountered until approximately 35 to 45 feet bgs. Locally, this zone contains lenses of fine grained materials. A clay layer of approximately 10 to 30 feet in thickness separates the deeper groundwater zone from next encountered sandy zone, which may be the regional aquifer. According to regional investigations, the valley floor is capped with this thick silty continuous clay deposit or the upper aquiclude that regionally ranges from approximately 50 to 70 feet thick and confines the regional aquifer (Harza 1996).

Groundwater Gradient

On the basis of the historical groundwater elevations and assessments, the Site has been characterized as having groundwater flow to the south. This characterization is consistent with groundwater gradient maps for the Site distributed by the Zone 7 Water Agency. This assessment is also consistent with analytical data suggesting a migration of TCE impacted groundwater to the south of the source area.

Groundwater Analytical Results

The historical analytical results of groundwater samples collected during various phases of investigation suggest the migration of TCE impacted groundwater from the source area to an area South of Interstate 580. Figure 3 illustrates the site plan with monitoring well and CPT locations. Table 1 contains analytical results from monitoring well groundwater samples. Table 2 contains analytical results from CPT groundwater samples. Figure 4 illustrates the estimated extent of groundwater with concentrations of TCE in excess of 5 ug/L.

Conceptual Site Model

A Conceptual Site Model (CSM) was originally presented in the ARCADIS work plan submitted on April 11, 2005 (ARCADIS 2005b) and was based on a review of previously reported data and lithology. The CSM incorporates the understanding of local geology, local hydrogeology, sources areas, and distribution of contaminants in soil and groundwater. The CSM, illustrated in Figure 5, has been revised with additional information obtained from the lithologic logs generated during the

installation of monitoring and injection wells in May 2005, and the lithology descriptions obtained during the CPT investigation performed in December 2005 (ARCADIS 2006a). The cross sections used to develop the CSM have been revised based on new monitoring well and CPT boring logs. The cross section locations are shown on Figure 6 and cross sections are Figures 7A through 7D.

The source area at the Site is predominantly underlain by low-permeability clays and clayey silts. Contaminants, consisting predominantly of TCE, were released to the shallow soil from the former Building 2 sump. Infiltration of rainwater leached the TCE into the shallow groundwater, then through the fine-grained silty materials beneath the clayey silts. A more transmissive zone, consisting predominantly of a silty sand lens, at a depth of approximately 35 to 50 feet bgs appears to be the preferred pathway for TCE impacted groundwater to the south of the release area. An underlying aquitard has been documented separating the TCE groundwater plume from the underlying regional aquifer, reported to be 100 feet bgs (Harza 1996).

The CSM will continue to be used as a guide for any additional investigative activities and interim and final remedial actions and it will be expanded and revised as additional data are collected.

Identification of Data Gaps

After review of available historical and current analytical data including geologic cross sections and the CSM, the following data gaps were identified for site assessment:

- Lack of groundwater samples and analytical data from sufficient locations to adequately delineate the extent of TCE in groundwater to the drinking water standard of 5 µg/L;

- Lack of groundwater samples and analytical data from sufficient locations to adequately characterize TCE impacted groundwater to assess preferential pathways for TCE migration;

- Lack of groundwater samples and analytical data from sufficient locations to adequately characterize TCE impacted groundwater to assess potential remediation actions.

Proposed Scope of Work

The proposed scope of work presented in this work plan was formulated to address the data gaps identified in the previous section. Prior to initiating field investigation activities, all necessary well installation permits will be obtained from ACDEH, the city of Pleasanton, the City of Dublin, and the California Department of Transportation. In addition, all proposed subsurface work will be cleared of underground utilities by notice to Underground Service Alert (USA) a minimum of 48 hours prior to the subsurface work and clearance of the area of disturbance by a private utility locator prior to initiating work.

Cone Pentrometer Testing and Hydropunch™ Sampling

Cone pentrometer tests (CPTs) will be conducted using a piezocone connected by stainless steel rods to a hydraulic system that pushes the piezocone through the soil. The piezocone measures friction, tip resistance, and pore pressure, which are logged and used to evaluate soil types on a nearly continuous geologic log. The CPTs will be performed in accordance with revised (2002) American Society for Testing and Materials (ASTM) standards (D 5778-95).

HydroPunch™ technology will be used to collect depth-specific groundwater samples from targeted permeable intervals based on the CPT results. A direct-push drill rig will be used to hydraulically advance 1-¾ inch, hollow push rods to the bottom of the desired sampling interval. The push rods will then be retracted, exposing an encased filter screen and allowing groundwater to infiltrate hydrostatically from the formation into the inlet screen. A small-diameter bailer (approximately ½- or ¾-inch) will be lowered through the push rods into the screen section for sample collection. Upon filling, the bailer will be retrieved and the groundwater will be decanted into the appropriate laboratory-supplied sample containers. Upon completion of sample collection, the equipment will be retrieved to the ground surface and decontaminated. This process will be repeated as necessary to collect samples from additional depths at the same location.

Proposed CPT and Sampling Locations

Fourteen (14) CPTs will be completed and attempts to collect groundwater samples from the 14 proposed locations will be made using Hydropunch™ technology. The groundwater samples will be submitted for analysis to attempt delineation of the lateral extent and characterize the impact of TCE in groundwater. Figure 7 illustrates

the proposed CPT locations in relation to the estimated plume area. Table 3 summarizes the sampling depths, rationale for location selection, and proposed analytical program for each proposed location.

In seven (7) proposed CPT locations (CPT-3A, CPT-3C, CPT-3H, CPT-3K, CPT-3L, CPT-3M, and CPT-3N), CPTs will be advanced at the toe and on the east and west sides (cross gradient) of the estimated plume area. These locations will attempt to delineate the lateral extent of the TCE impacted groundwater plume to a concentration below the TCE drinking water standard of 5 ug/l. One groundwater sample will be collected at each of these locations. The sampling interval will be determined on a review of the CPT data attempting to target the sand lens present in previous investigations at approximately 40 and 50 feet below ground surface (bgs). Previous CPTs and analytical data from discreet sampling suggest this sand lens is the preferential pathway for TCE migration in groundwater.

The field work will be initiated at locations CPT-3L, CPT-3M and CPT-3N. Groundwater samples from these three locations will be analyzed on a rush basis to help ascertain whether or not the leading edge of the plume has been delineated. Should the sample results show concentrations of TCE above 5 ug/l, a step-out location will be identified, and an additional boring may be installed. The location of the step-out boring will be determined after a review of the newly obtained groundwater TCE data. The data review will be conducted to help identify a location where the probability of obtaining a result at or below 5 ug/l can be reasonably expected. Should the additional boring still show TCE concentrations above 5 ug/l, an additional step-out location may be chosen.

In seven (7) proposed CPT locations, CPTs will be advanced in the central area of the estimated plume. These locations will attempt to characterize TPE impact to groundwater in the plume. Three (3) of the six locations (proposed CPT-3B, CPT-3E, and CPT-3F) will be advanced in the area where the highest concentration of TCE is anticipated. Collection of groundwater samples at two discreet depths at these locations will be attempted. The lower sampling interval will be determined on a review of the CPT data attempting to target the sand lens present in previous investigations at approximately 40 and 50 feet below ground surface (bgs). The upper sampling interval will also be determined on a review of the CPT data attempting to target the upper strata of groundwater. It is anticipated that the upper groundwater sample will be collected from between 10 and 25 feet bgs. One groundwater sample will be collected in the remaining four (4) CPT locations within the central area of the estimated plume. The sampling interval will be determined on

a review of the CPT data attempting to target the sand lens present in previous investigations at approximately 40 and 50 feet below ground surface (bgs).

The CPT and Hydropunch™ boreholes will be backfilled from the bottom up to prevent cross contamination. A grout collar will be added to the lead CPT rod; once the CPT reaches the desired depth of the borehole, the grout collar will be released and the borehole will be grouted as the rods are retracted from the borehole. Following groundwater sample collection, the Hydropunch™ rods will be used as a tremie pipe and the borehole will be grouted from the bottom up.

Groundwater Analysis

Groundwater samples will be analyzed for VOCs by EPA Method 8260B using the 8010 analyte list. Refer to Table 1 for a summary of the analytical program. Groundwater samples will be placed in laboratory provided containers, sealed, labeled, and placed on ice in a cooler. Samples will be transported to a California-certified laboratory under chain-of-custody protocol.

Quality Assurance/Quality Control (QA/QC)

Field QA will include oversight and assessment of field activities to verify compliance with standard methods and procedures. Field QC samples are collected to assess potential field and sampling impacts on data quality and will be collected at the following frequencies:

- Field duplicates; 10 percent
- Rinsate blanks: one per day or 10 percent (whichever is less)
- Matrix spike/matrix spike duplicates: 5 percent
- Trip blanks: one per cooler

Laboratory QA will include oversight and assessment of laboratory activities to ensure compliance with methods and procedures as well as QC samples.

Investigation-derived Waste Management

Liquid waste (decontamination water) will be stored in Department of Transportation - approved 55-gallon drums. Waste material generated will be handled, stored and disposed of in accordance with applicable rules and regulations. At completion of the investigation the liquid will be profiled and properly disposed.

Health and Safety

All on-Site activities will be performed in accordance with a Site-specific health and safety plan that identifies potential chemical and physical hazards which may be encountered during the course of field activities, and that meets Occupational Safety and Health Administration (OSHA) requirements set forth in 29 CFR 1910.120 for hazardous waste operations and emergency response. All personnel involved in conducting field activities will be OSHA 40-hour hazardous waste operations and emergency response trained.

Reporting and Schedule

The field program will commence in December pending approval from the RWQCB, obtaining all necessary permits, and obtaining access from offsite down-gradient property owners. A summary report including the chemical data results will be submitted to the RWQCB 45 days after receipt of the laboratory certified analytical reports.

Please contact the undersigned at (562) 221 - 2270 if you have any questions or comments concerning this investigation work plan.

Sincerely,

ARCADIS G&M, Inc.

John R. Johnsen
Project Manager

Attachments:

Table 1 – Analytical Results from Monitoring Well Groundwater Samples
Table 2 – Analytical Results from CPT Groundwater Samples
Table 3 - Proposed CPT Locations and Sampling Program

Figure 1 – Site Location Map
Figure 2 – Aerial Photograph of Site and Surrounding Area
Figure 3 - Site Plan with Monitoring Well and CPT Locations
Figure 4 – Isoconcentration Plume Map
Figure 5 – Conceptual Site Model
Figure 6 – Site Map with Cross Section Locations
Figures 7A through 7D – Geologic Cross Sections
Figure 8 – Proposed CPT Locations

Appendix A – Draft Notification of Site Clean Up Oversight
Appendix B – Draft Property Owner Notification List

References

ARCADIS. 2005a. *Monitoring Well Installation and Groundwater Monitoring Results Report*, Busick-Gearing Property, 6341 Scarlett Court, Dublin, California. February 18.

__. 2005b. *Work Plan for Subsurface Investigation and On-Site Interim Remedial Action Activities*, Busick-Gearing Property, 6341 Scarlett Court, Dublin, California. April 11.

__. 2005c. *Well Installation and IRZ Injection System Start-Up Report*, Busick-Gearing Property, 6341 Scarlett Court, Dublin, California. November 1.

__. 2006a. *IRZ Performance Evaluation and Offsite Investigation Report*, Busick-Gearing Property, 6341 Scarlett Court, Dublin, California. May 10.

Harza Consulting Engineers and Scientists. 1996. *Site Characterization Studies*, Scarlett Court Property, Dublin, California. April 3.

Montgomery Watson. 1999. *Results of Additional Groundwater Characterization*, 6341 Scarlett Court, Dublin, Alameda County. May 7.

Regional Water Quality Control Board. 2005. *Approval of Work Plan for Subsurface Investigation and On-Site Interim Remedial Action Activities*, Busick-Gearing Properties at 6341 Scarlett Court, Dublin, Alameda County. April 18.

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Table 1
Analytical Results from Monitoring Well Groundwater Samples
Busick Gearing Properties, LLC
6341 Scarlett Court
Dublin, California

Well	Date	Notes	PCE µg/L	TCE µg/L	cDCE µg/L	tDCE µg/L	1,2-DCA µg/L	Vinyl Chloride µg/L	Ethene µg/L	Ethane µg/L	Methane µg/L	TOC mg/L	Nitrate mg/L	Sulfate mg/L	Dissolved Iron µg/L
MW-1S	11/1/1990		<300	10,000	4,400	<200	NA	<300	NA	NA	NA	NA	NA	NA	NA
	2/1/1992		<50	7,300	4,300	250	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/23/1994		<100	3,300	1,800	190	NA	<100	NA	NA	NA	NA	NA	NA	NA
	6/21/1995		17	3,700	2,100	210	NA	13	NA	NA	NA	NA	NA	NA	NA
	9/30/2004		<7.1	170	170	17	1,200	<7.1	NA	NA	NA	NA	NA	NA	NA
	6/2/2005		<7.1	110	170	21	940	17	NA	NA	NA	NA	NA	NA	NA
	1/25/2006		<3.6	89	150	15	610	<3.6	NA	NA	NA	NA	NA	NA	NA
MW-2S	7/24/1991		500	27,000	1,400	<200	NA	<300	NA	NA	NA	NA	NA	NA	NA
	2/1/1992		600	56,000	2,200	<400	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/21/1995		270	17,000	750	16	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	7/1/1997		NA	12,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/2/2005		94	2,700	92	<20	180	<20	NA	NA	NA	NA	NA	NA	NA
	1/25/2006		95	2,500	85	<20	190	<20	NA	NA	NA	NA	NA	NA	NA
MW-3S	7/24/1991		<0.5	<0.3	<0.4	<0.4	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	2/1/1992		<0.3	<0.3	<0.4	<0.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/21/1995		<0.5	9.0	<0.5	<0.5	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	7/1/1997		NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/2/2005	a	<0.5	1.2	0.8	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA
MW-4S	4/20/1992		<0.5	18	0.5	<0.4	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	6/21/1995		<0.5	3.5	<0.5	<0.5	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	7/1/1997		NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/2/2005		<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
MW-5S	4/20/1992		<0.5	7.5	<0.4	<0.4	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	6/21/1995		<0.5	6.6	<0.5	<0.5	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	9/30/2004		<0.5	<0.5	<0.5	<0.5	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	6/2/2005		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA
MW-6S	4/20/1992		<0.5	41	<0.4	<0.4	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	6/21/1995		<0.5	51	<0.5	<0.5	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	9/30/2004		<0.5	0.8	<0.5	<0.5	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	5/31/2005		<0.5	1.7	0.8	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA

Table 1
Analytical Results from Monitoring Well Groundwater Samples
Busick Gearing Properties, LLC
6341 Scarlett Court
Dublin, California

Well	Date	Notes	PCE µg/L	TCE µg/L	cDCE µg/L	tDCE µg/L	1,2-DCA µg/L	Vinyl Chloride µg/L	Ethene µg/L	Ethane µg/L	Methane µg/L	TOC mg/L	Nitrate mg/L	Sulfate mg/L	Dissolved Iron µg/L
MW-7S	8/6/1992		<0.5	48	0.8	<0.4	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	11/23/1994		2.1	110	2.8	<2	NA	<2	NA	NA	NA	NA	NA	NA	NA
	6/21/1995		3.9	220	3.9	<0.5	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	9/30/2004		<0.5	5.4	100	1.0	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	6/2/2005		<0.5	3.3	1.2	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA
MW-8S	8/6/1992		<0.5	<0.3	<0.4	<0.4	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	11/23/1994		<0.5	<0.5	<0.5	<0.5	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	7/1/1997		NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/31/2005		<0.5	2.2	0.6	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA
MW-9S	8/6/1992		<0.5	<0.3	<0.4	<0.4	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	11/23/1994		0.57	<0.5	<0.5	<0.5	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	6/21/1995		<0.5	<0.5	<0.5	<0.5	NA	<0.5	NA	NA	NA	NA	NA	NA	NA
	7/1/1997		NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/2/2005		<0.5	<0.5	<0.5	<0.5	1.5	<0.5	NA	NA	NA	NA	NA	NA	NA
MW-10D	9/30/2004		11	1,600	57	<7.1	NA	<7.1	NA	NA	NA	NA	NA	NA	NA
	5/31/2005		34	3,700	80	<31	<31	<31	0.63	0.074	29	2.1	0.33	260	<100
	8/4/2005		26	3,100	79	<20	<20	<20	NA	NA	NA	1.5	NA	NA	NA
	10/31/2005		36	3,900	990	<25	<25	<25	NA	NA	NA	2.4	<0.05	250	280
	10/31/2005	DUP	56	4,300	1,100	<25	<25	<25	NA	NA	NA	2.4	<0.05	260	280
	1/25/2006		58	4,200	230	<25	<25	<25	0.160	0.026	53	1.7	NA	NA	NA
	4/27/2006		66	4,800	250	<36	<36	<36	0.220	0.042	110	1.7	NA	NA	NA
MW-11D	9/30/2004		45	5,100	69	<10	NA	<10	NA	NA	NA	NA	NA	NA	NA
	6/2/2005		160	7,200	190	<63	<63	<63	0.23	0.048	51	1.7	<0.05	490	<100
	1/25/2006		47	5,200	160	<36	<36	<36	NA	NA	NA	NA	NA	NA	NA
	4/27/2006		69	6,500	140	<42	<42	<42	0.13	0.026	14	1.5	NA	NA	NA
MW-12D	5/31/2005		6.7	220	7.3	<1.3	<1.3	<1.3	0.59	0.16	14	1.8	0.50	170	<100
	5/31/2005	DUP	6.5	210	7.0	<1.3	<1.3	<1.3	NA	NA	NA	1.9	0.47	160	<100
	8/4/2005		<4.2	23	140	<4.2	<4.2	<4.2	1.0	0.091	63	1,700	<0.25	19	130
	10/31/2005		<1.0	4.8	130	<1.0	<1.0	<1.0	0.12	<0.025	5,200	1,300	<0.10	<1.0	71,000
	1/25/2006		<1.0	1.4	89	<1.0	<1.0	<1.0	0.073	<0.025	12,000	860	NA	NA	NA
	4/27/2006		<2.5	<2.5	120	<2.5	<2.5	<2.5	0.200	0.046	12,000	710	NA	NA	NA

Table 1
Analytical Results from Monitoring Well Groundwater Samples
Busick Gearing Properties, LLC
6341 Scarlett Court
Dublin, California

Well	Date	Notes	PCE µg/L	TCE µg/L	cDCE µg/L	tDCE µg/L	1,2-DCA µg/L	Vinyl Chloride µg/L	Ethene µg/L	Ethane µg/L	Methane µg/L	TOC mg/L	Nitrate mg/L	Sulfate mg/L	Dissolved Iron µg/L
MW-13D	6/2/2005		61	4,500	42	<31	<31	<31	0.44	0.21	19	1.6	0.33	260	<100
	8/4/2005		64	6,100	83	<36	<36	<36	NA	NA	NA	1.3	NA	NA	NA
	10/31/2005		28	1,600	20	<10	<10	<10	NA	NA	NA	1.6	<0.10	510	<100
	1/25/2006		4.8	290	4.8	<2.0	<2.0	<2.0	0.040	0.070	21	1.7	NA	NA	NA
	4/27/2006		57	5,200	120	<42	<42	<42	0.077	<0.025	24	1.3	NA	NA	NA
MW-14D	6/1/2005		140	3,600	<20	<20	<20	<20	0.64	0.33	6.4	1.6	<0.05	120	<100
	1/25/2006		120	2,800	210	<20	<20	<20	NA	NA	NA	NA	NA	NA	NA
	4/27/2006		120	3,100	140	<20	<20	<20	NA	NA	NA	NA	NA	NA	NA

Abbreviations and Symbols:

PCE	Tetrachloroethene
TCE	Trichloroethene
cDCE	cis-1,2-dichloroethene
tDCE	trans-1,2-dichloroethene
1,2-DCA	1,2-dichloroethane
mg/L	milligrams per liter
µg/L	micrograms per liter
NA	Not Available
<	Analyte not detected at this reporting limit
bgs	below ground surface

Notes:

a	Laboratory reports 1,1-dichloroethene at 22 µg/L and 1,1-dichloroethane at 0.8 µg/L.
DUP	Duplicate Sample

Table 2
Analytical Results from CPT Groundwater Samples
Busick Gearing Properties, LLC
6341 Scarlett Court
Dublin, California

Well	Date	Notes	Sample Depth (feet bgs)	PCE µg/L	TCE µg/L	cDCE µg/L	tDCE µg/L	1,2-DCA µg/L	Vinyl Chloride µg/L
CPT-1B	6/1/1997		30	22	110	NA	NA	NA	NA
	6/1/1997		40	101	2,600	NA	NA	NA	NA
	6/1/1997		50	ND	0.71	NA	NA	NA	NA
	6/1/1997		60	ND	8.8	NA	NA	NA	NA
CPT-1C	6/1/1997		40	ND	9.6	NA	NA	NA	NA
	6/1/1997		50	ND	2.3	NA	NA	NA	NA
CPT-1D	6/1/1997		45	75	11,000	NA	NA	NA	NA
	6/1/1997		55	ND	180	NA	NA	NA	NA
CPT-1E	6/1/1997		40	8.7	580	NA	NA	NA	NA
CPT-1F	6/1/1997		40	110	15,000	NA	NA	NA	NA
	6/1/1997		50	0.7	40	NA	NA	NA	NA
CPT-1J	6/1/1997		45	NA	<10	NA	NA	NA	NA
CPT-1K	6/1/1997		45	NA	<10	NA	NA	NA	NA
	6/1/1997		55	NA	<10	NA	NA	NA	NA
CPT-1L	6/1/1997		40	NA	<10	NA	NA	NA	NA
	6/1/1997		50	NA	<10	NA	NA	NA	NA
CPT-1M	12/17/1998		37	<2.0	36	<2.0	<2.0	NA	NA
CPT-1N	12/17/1998		42	<2.0	3.3	<2.0	<2.0	NA	NA
	12/17/1998		48	<2.0	17	<2.0	<2.0	NA	NA
CPT-1O	12/17/1998		40	70	14,000	12	<2.0	NA	NA
	12/17/1998		46	<5.0	380	<5.0	<5.0	NA	NA
CPT-1P	12/17/1998		37	<500	8,300	<500	<500	NA	NA
CPT-1Q	3/26/1999		44	<0.500	9.47	<0.500	<0.500	NA	NA
	3/26/1999		55	<0.500	1.4	<0.500	<0.500	NA	NA
CPT-1R	3/26/1999		60	<0.500	3.44	<0.500	<0.500	NA	NA

Table 2
Analytical Results from CPT Groundwater Samples
Busick Gearing Properties, LLC
6341 Scarlett Court
Dublin, California

Well	Date	Notes	Sample Depth (feet bgs)	PCE µg/L	TCE µg/L	cDCE µg/L	tDCE µg/L	1,2-DCA µg/L	Vinyl Chloride µg/L
CPT-1S	3/26/1999		47	<0.500	<0.500	<0.500	<0.500	NA	NA
CPT-2	4/1/1999		5	<5	<5	NA	NA	NA	NA
	4/1/1999		27	18	16	NA	NA	NA	NA
	4/1/1999		32	5.0	190	NA	NA	NA	NA
CPT-2A	12/1/2005		44	<0.5	110	1.7	<0.5	<0.5	<0.5
	12/1/2005		50	<0.5	97	1.7	<0.5	<0.5	<0.5
CPT-2B	12/1/2005		45	<1.3	210	3.7	<1.3	<1.3	<1.3
	12/1/2005		55	<0.5	8.4	<0.5	<0.5	<0.5	<0.5
CPT-2C	12/9/2005		54	<0.5	47	<0.5	<0.5	<0.5	<0.5
CPT-2D	12/9/2005		53	<0.5	44	<0.5	<0.5	<0.5	<0.5
CPT-2E	12/9/2005		28	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12/9/2005		44	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Latest Data Bolded

Notes, Abbreviations and Symbols:

Groundwater samples not collected from CPT-1A, CPT-1G, CPT-1H, CPT-1I, and CPT-1T. Lithology data only.

PCE	Tetrachloroethene
TCE	Trichloroethene
cDCE	cis-1,2-dichloroethene
tDCE	trans-1,2-dichloroethene
1,2-DCA	1,2-dichloroethane
mg/L	milligrams per liter
µg/L	micrograms per liter
NA	Not Available
ND	Not Detected; specific reporting limit not previously reported
<	Analyte not detected at this reporting limit
bgs	below ground surface

Table 3
Proposed CPT Location and Sampling Program
Busick Gearing Properties, LLC
Dublin, California
Groundwater Investigation Work Plan

CPT	Proposed Approximate Sampling Depth[1]	Rationale	Analyses
CPT-3A	45 feet bgs	Evaluate cross gradient 5 µg/L extent of plume	USEPA Method 8260B (with 8010 Analyte List)
CPT-3B	45 feet bgs 10 to 30 feet bgs	Evaluate elevated TCE concentration in central plume area. Evaluate the shallow vertical extent of the plume.	USEPA Method 8260B (with 8010 Analyte List)
CPT-3C	45 feet bgs	Evaluate cross gradient 5 µg/L extent of plume	USEPA Method 8260B (with 8010 Analyte List)
CPT-3D	45 feet bgs	Evaluate cross gradient 5 µg/L extent of plume.	USEPA Method 8260B (with 8010 Analyte List)
CPT-3E	45 feet bgs 10 to 30 feeet bgs	Evaluate elevated TCE concentration in central plume area. Evaluate the shallow vertical extent of the plume.	USEPA Method 8260B (with 8010 Analyte List)
CPT-3F	45 feet bgs 10 to 30 feet bgs	Evaluate elevated TCE concentration in central plume area. Evaluate the shallow vertical extent of the plume.	USEPA Method 8260B (with 8010 Analyte List)
CPT-3G	45 feet bgs	Evaluate cross gradient 5 µg/L extent of plume	USEPA Method 8260B (with 8010 Analyte List)
CPT-3H	45 feet bgs	Evaluate cross gradient 5 µg/L extent of plume	USEPA Method 8260B (with 8010 Analyte List)
CPT-3I	45 feet bgs	Evaluate downgradient area of elevated TCE plume	USEPA Method 8260B (with 8010 Analyte List)
CPT-3J	45 feet bgs	Evaluate downgradient area of elevated TCE plume	USEPA Method 8260B (with 8010 Analyte List)
CPT-3K	45 feet bgs	Evaluate cross gradient 5 µg/L extent of plume	USEPA Method 8260B (with 8010 Analyte List)
CPT-3L	45 feet bgs	Evaluate the toe of the plume	USEPA Method 8260B (with 8010 Analyte List)
CPT-3M	45 feet bgs	Evaluate the toe of the plume	USEPA Method 8260B (with 8010 Analyte List)
CPT-3N	45 feet bgs	Evaluate the toe of the plume	USEPA Method 8260B (with 8010 Analyte List)

Abbreviations:
CPT cone penetrometer test location
bgs below ground surface
USEPA U.S. Environmental Protection Agency

Notes:
1 Groundwater sample collection depth will be determined based on CPT data in field.

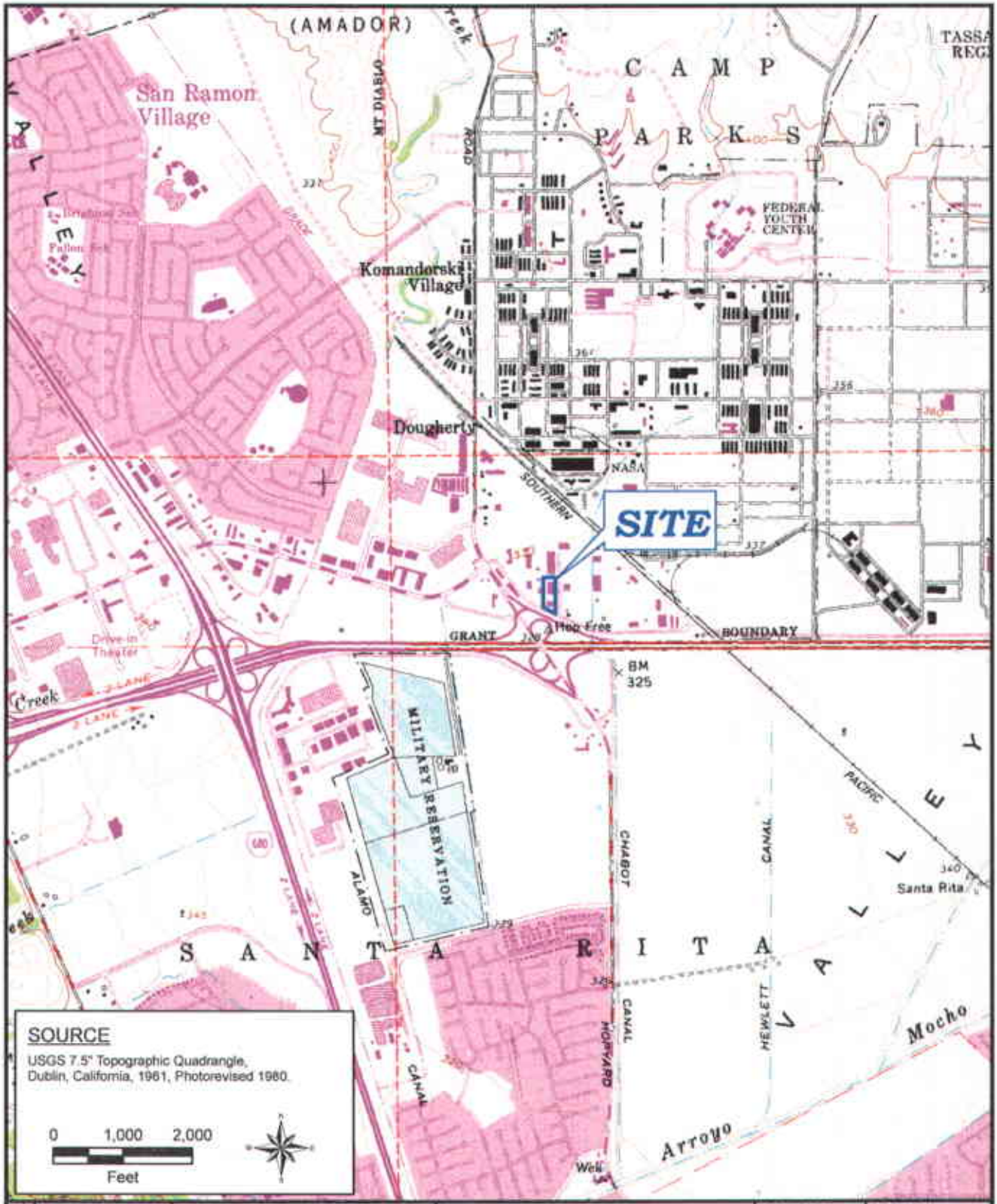

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FIGURE 1
SITE LOCATION MAP
BUSICK GEARING PROPERTIES, LLC
6341 SCARLETT COURT
DUBLIN, CALIFORNIA

APPROVED BY: J. Johnson	CHECKED BY: E. Buckler
DESIGNED BY: E. Buckler	DRAWN BY: J. Narlock
PROJECT NUMBER: RC000670.004 Setup-Topo.mxd 11/01/06	DRAWING NUMBER: 1 OF 11

REV	ISSUED DATE	DESCRIPTION
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FIGURE 2
AERIAL PHOTOGRAPH OF SITE
AND SURROUNDING AREA

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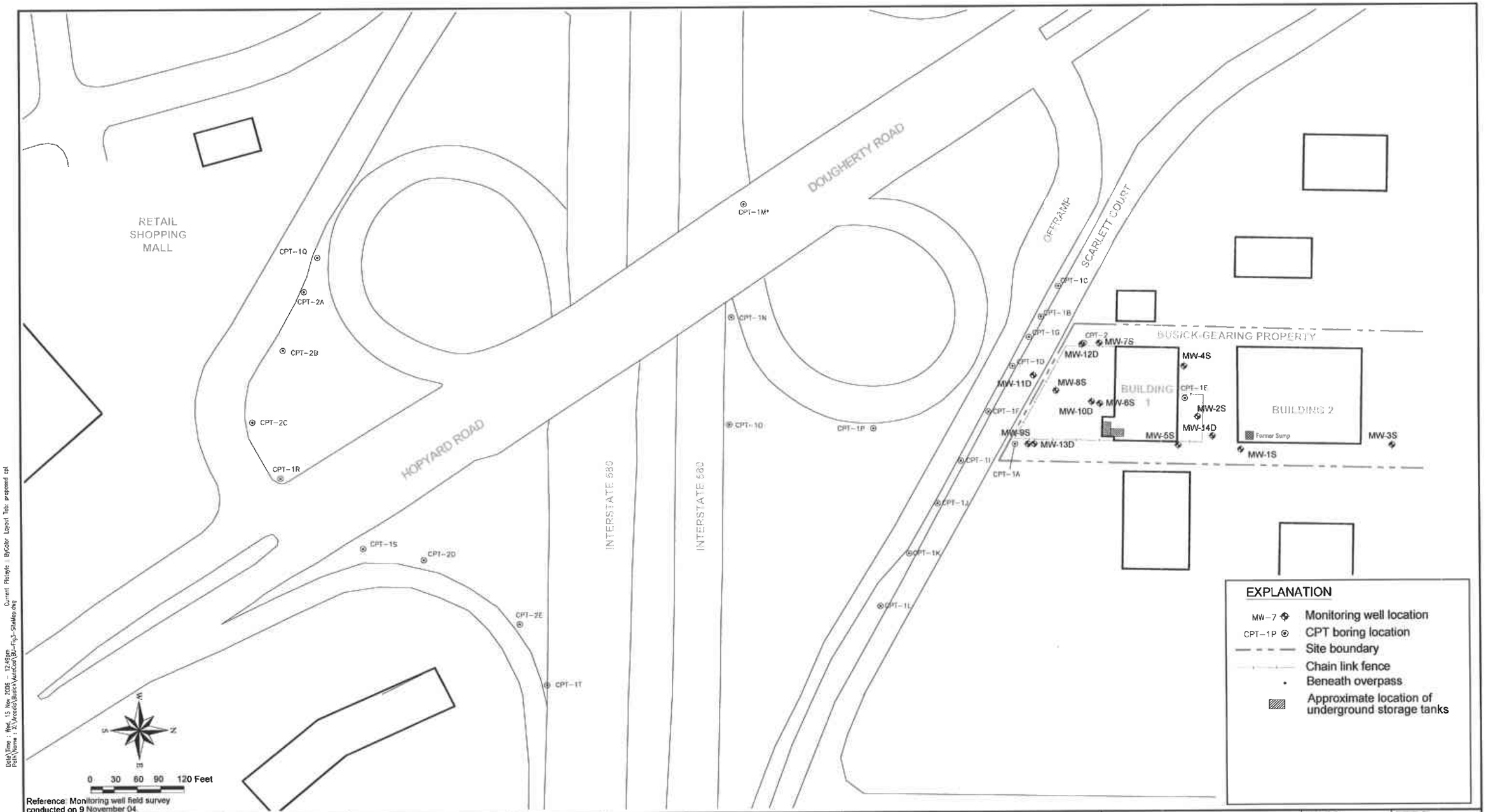
J. Johnsen	E. Buckler
DESIGNED BY:	DRAWN BY:
E. Buckler	J. Narlock
PROJECT NUMBER: B0D0W670.004 BU Fig2.mxd 11/09/06	DRAWING NUMBER: 2 OF 11



Reference: Monitoring well field survey conducted on 9 November 04.

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Acad Version : R15.06
User Name : jpann

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FIGURE 3
SITE MAP
WITH MONITORING WELL
AND CPT WELL LOCATIONS

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DESIGNED BY	DRAWN BY
E. Buckler	J. Narlock
PROJECT NUMBER	DRAWING NUMBER
RC000670.0004	

SHEET 3 OF 11

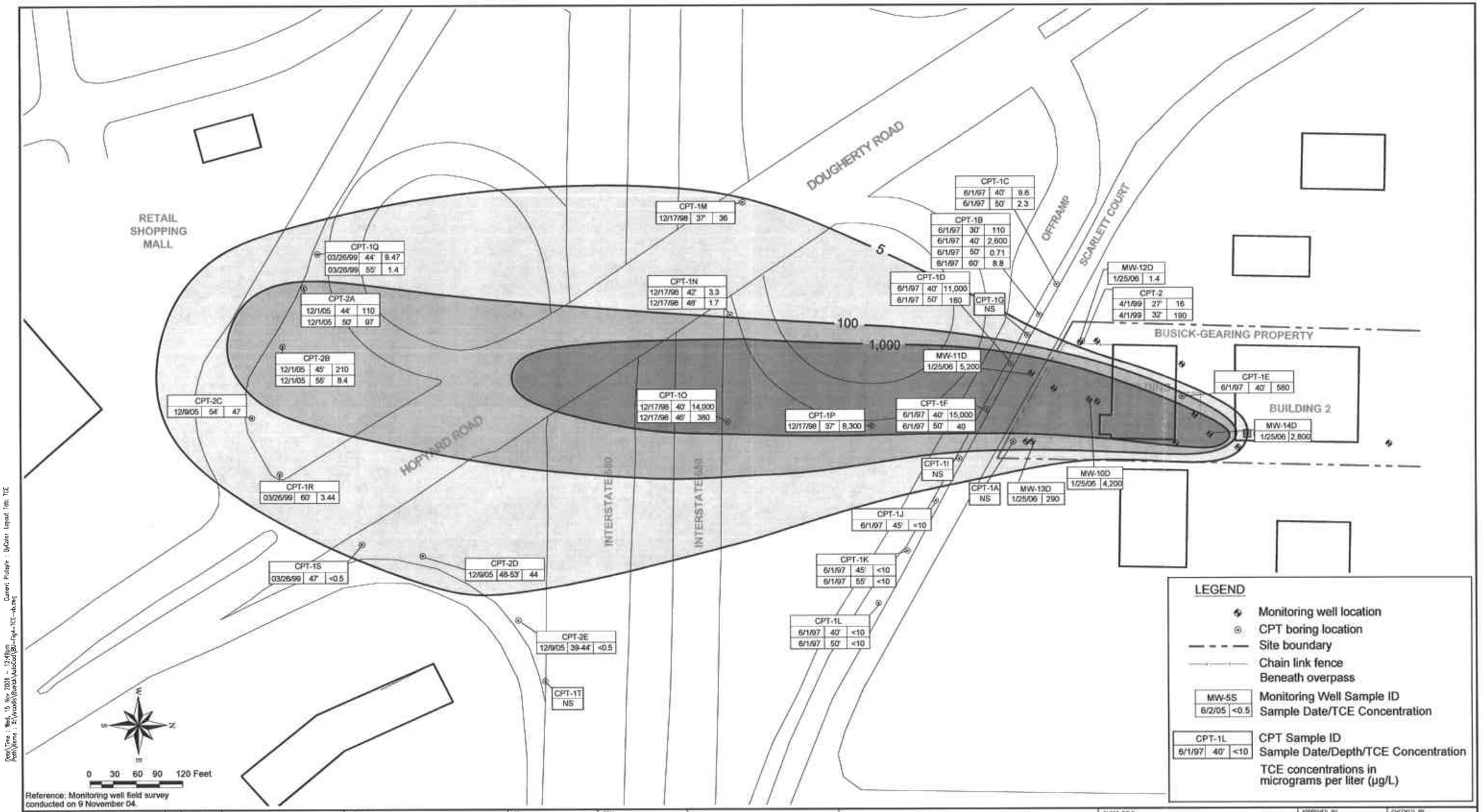

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FIGURE 4
TCE CONCENTRATION IN THE DEEPER GROUNDWATER ZONE WITH ESTIMATED ISOCONCENTRATION CONTOURS

APPROVED BY	CHECKED BY
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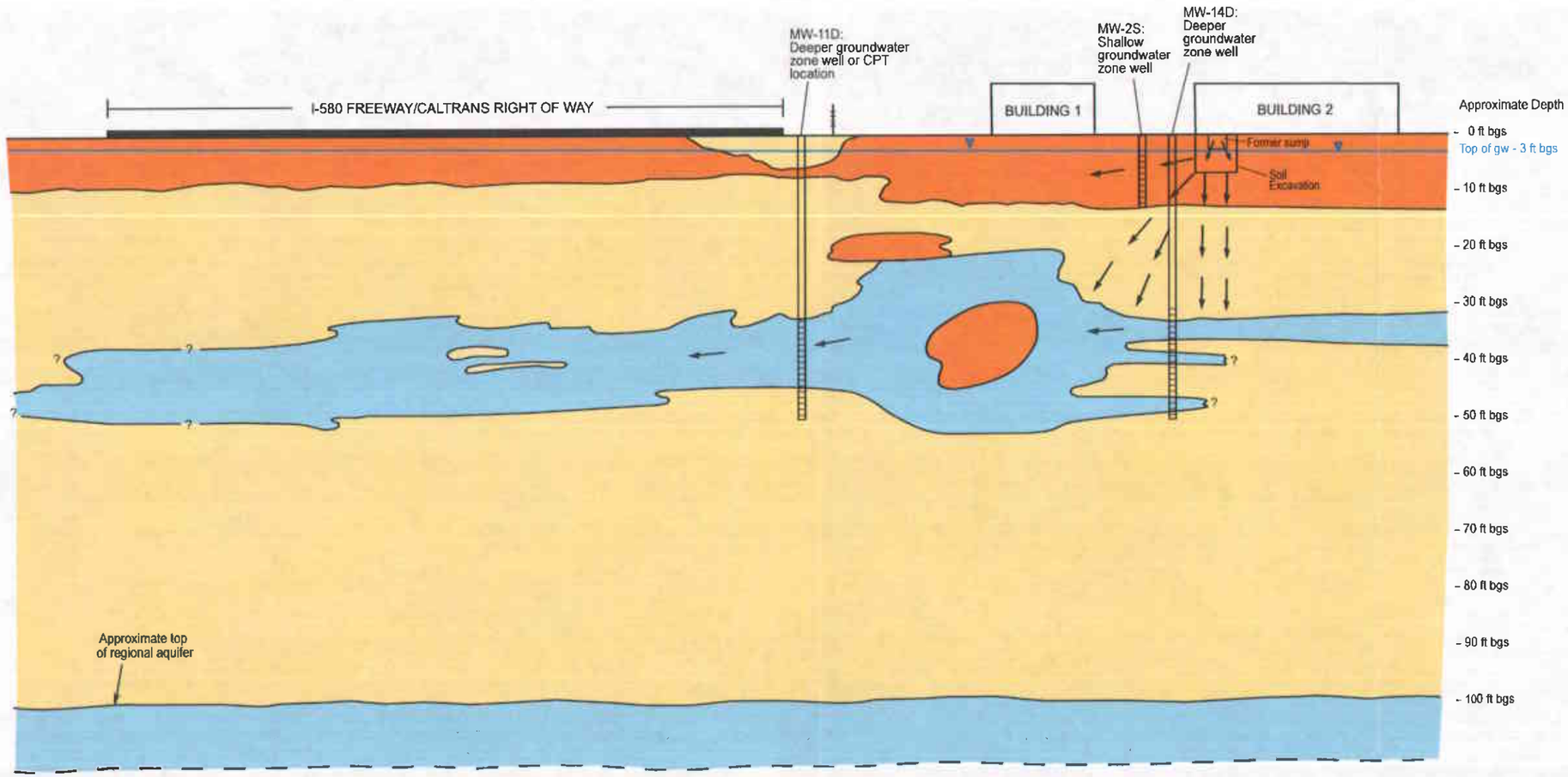
E. Buckler	J. Narlock
PROJECT NUMBER	DRAWING NUMBER
RC000670.0004	
	SHEET 4 OF 11



NOT TO SCALE

EXPLANATION

- Clay
- Predominantly fine grained silts and silty clays
- Predominantly sand and sandy-silty sands
- ft bgs — Feet Below Ground Surface
- gw — Groundwater
- Infiltration of contaminant to subsurface and contaminant movement in groundwater
- Boundary Fence

Project Director	Area Manager
J. PETERS	J. PETERS
Task Manager	Technical Review
D. GOMES	D. GOMES
Drawing Date	Drawing By
29 MAR 06	M. CHIU

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FIGURE 5
CONCEPTUAL SITE MODEL
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Project Number: RC000670.0002
Figure: 5

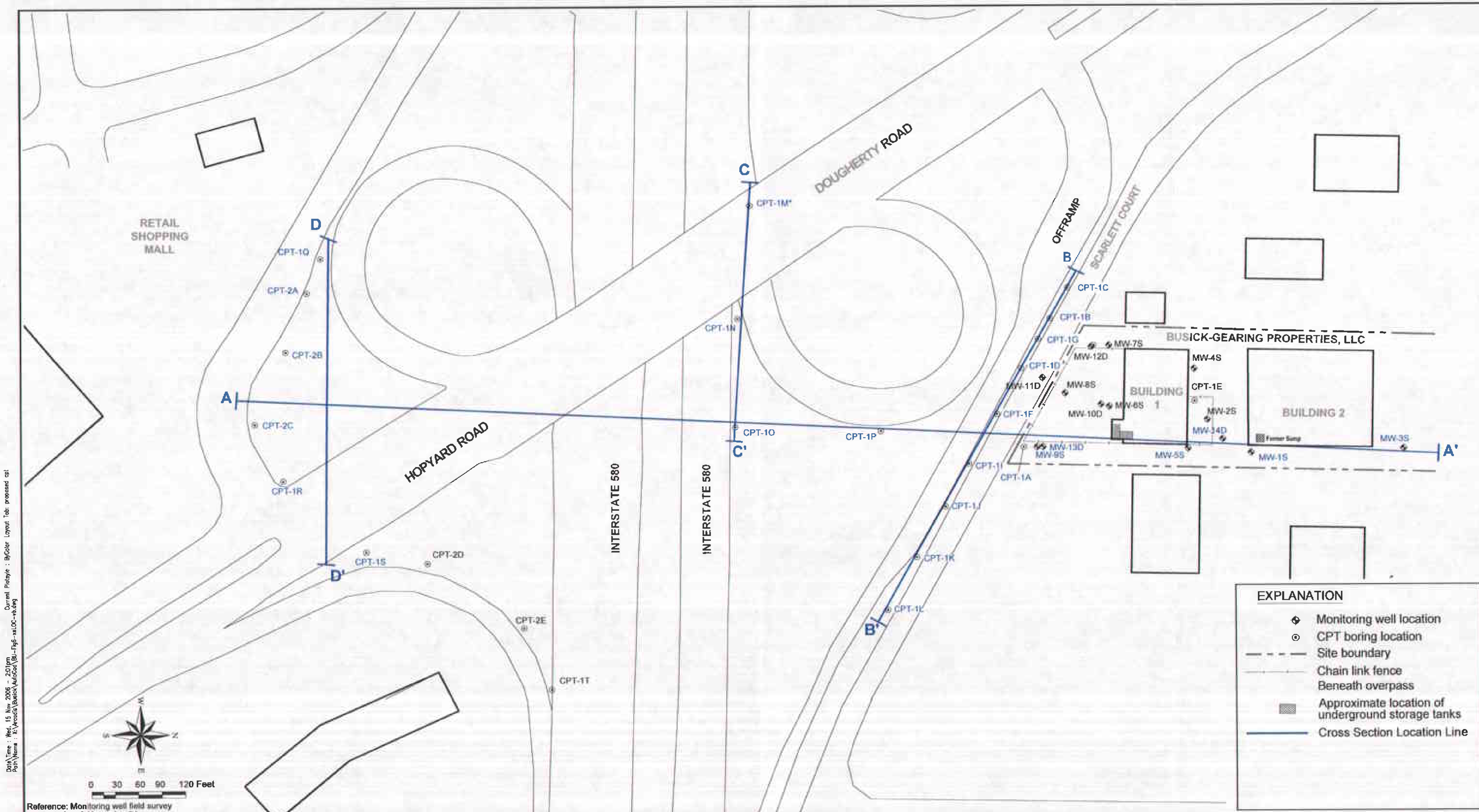

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FIGURE 6
SITE MAP
WITH
CROSS SECTION LOCATIONS

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DESIGNED BY: E. Buckler	DRAWN BY: J. Narlock
PROJECT NUMBER: RC000670.0004	DRAWING NUMBER
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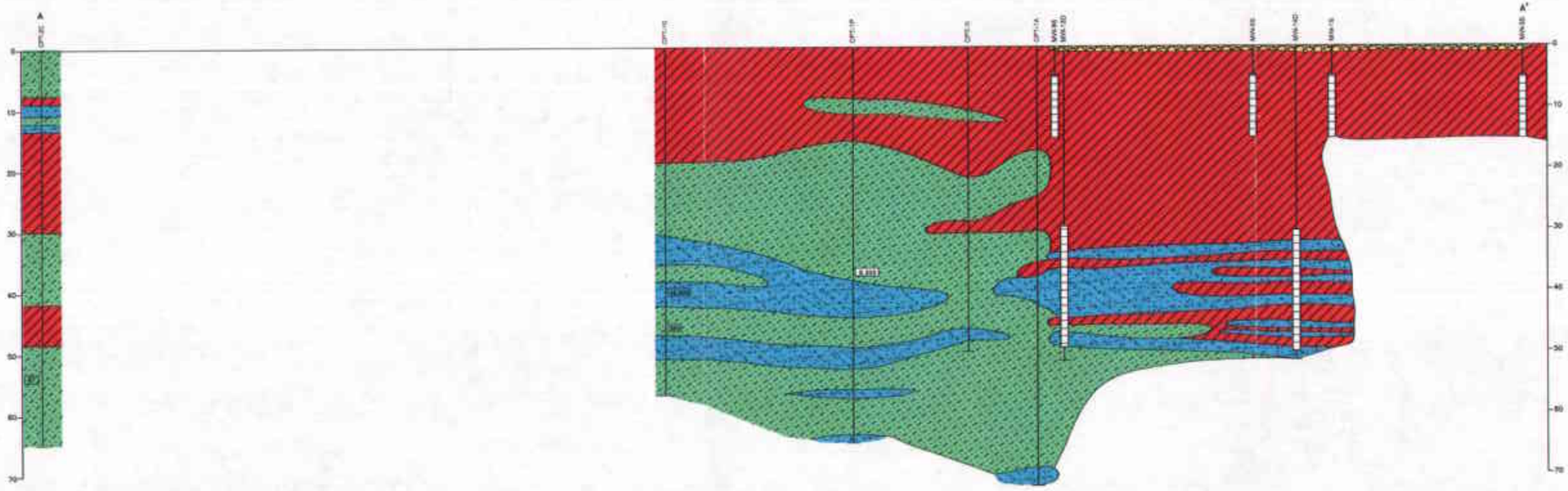

LEGEND

- TCE/cis-1,2-DCE/VC ANALYTICAL RESULTS
- SCREENED INTERVAL
- SOIL SAMPLE INTERVAL
- END OF BORING
- CLAY, SILTY CLAY
- SILT, CLAYEY SILT
- SANDY SILT, SILTY SAND
- SILTY GRAVEL

VERTICAL SCALE (IN FEET): 10

HORIZONTAL SCALE (IN FEET): 60

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FIGURE 7A
LITHOGRAPHIC CROSS SECTION
A-A'

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H. Phillips	H. Phillips
DESIGNED BY	DRAWN BY: L. Sax
PROJECT NUMBER: RC000670.0004	DRAWING NUMBER: 7A
	SHEET OF

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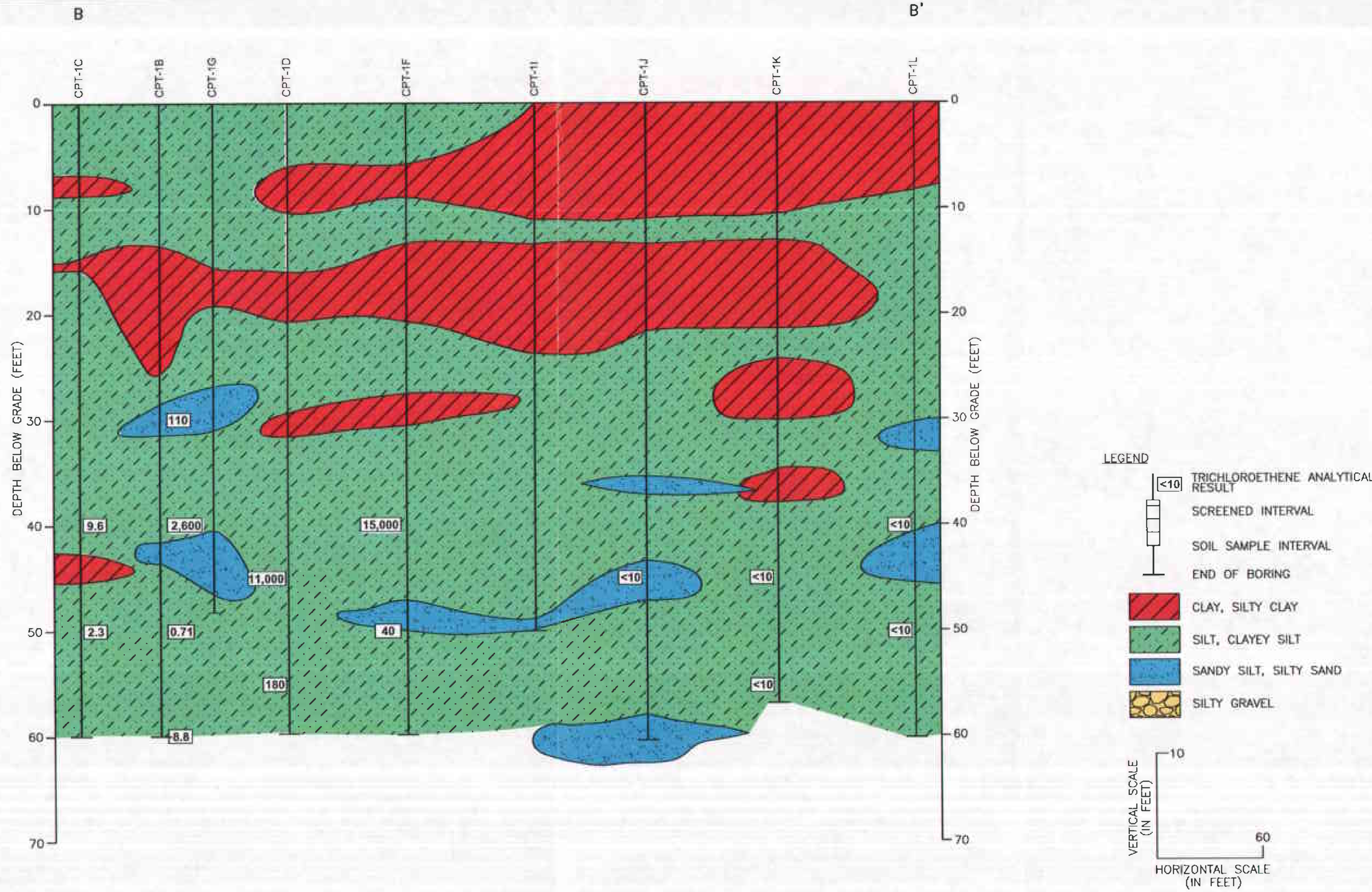

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FIGURE 7B
LITHOGRAPHIC CROSS SECTION
B-B'

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DESIGNED BY:	DRAWN BY: L. Sax
PROJECT NUMBER: RC000670.0004	DRAWING NUMBER: 7B
	SHEET OF

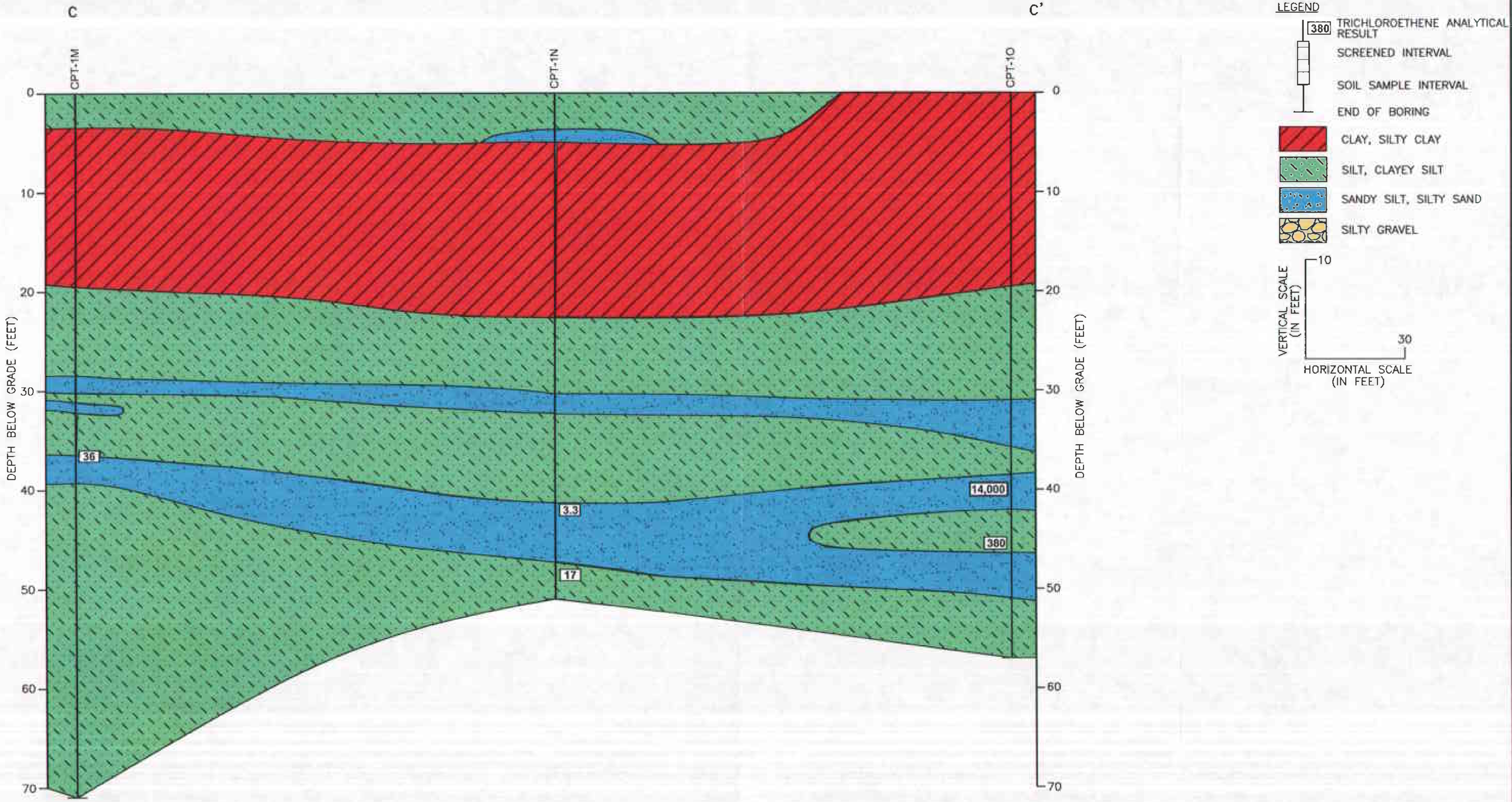

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FIGURE 7C
LITHOGRAPHIC CROSS SECTION
C-C'

APPROVED BY: H. Phillips	CHECKED BY: H. Phillips
DESIGNED BY:	DRAWN BY: L. Sax
PROJECT NUMBER: RC000670.0004	DRAWING NUMBER: 7C
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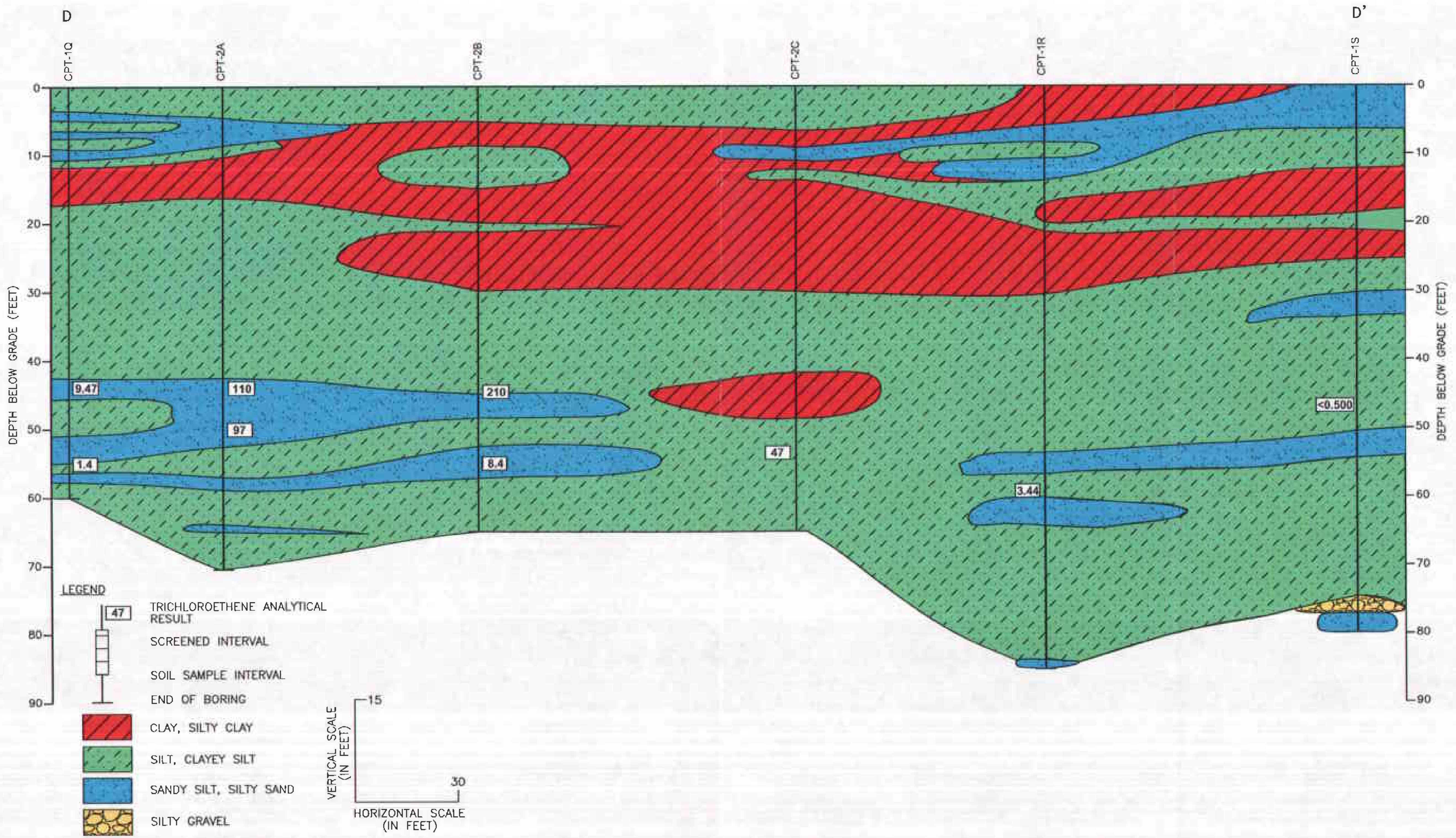

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SHEET TITLE
FIGURE 7A
LITHOGRAPHIC CROSS SECTION
D-D'

APPROVED BY: H. Phillips	CHECKED BY: H. Phillips
DESIGNED BY:	DRAWN BY: L. Sax
PROJECT NUMBER: RC000670.0004	DRAWING NUMBER: 7D
	SHEET OF

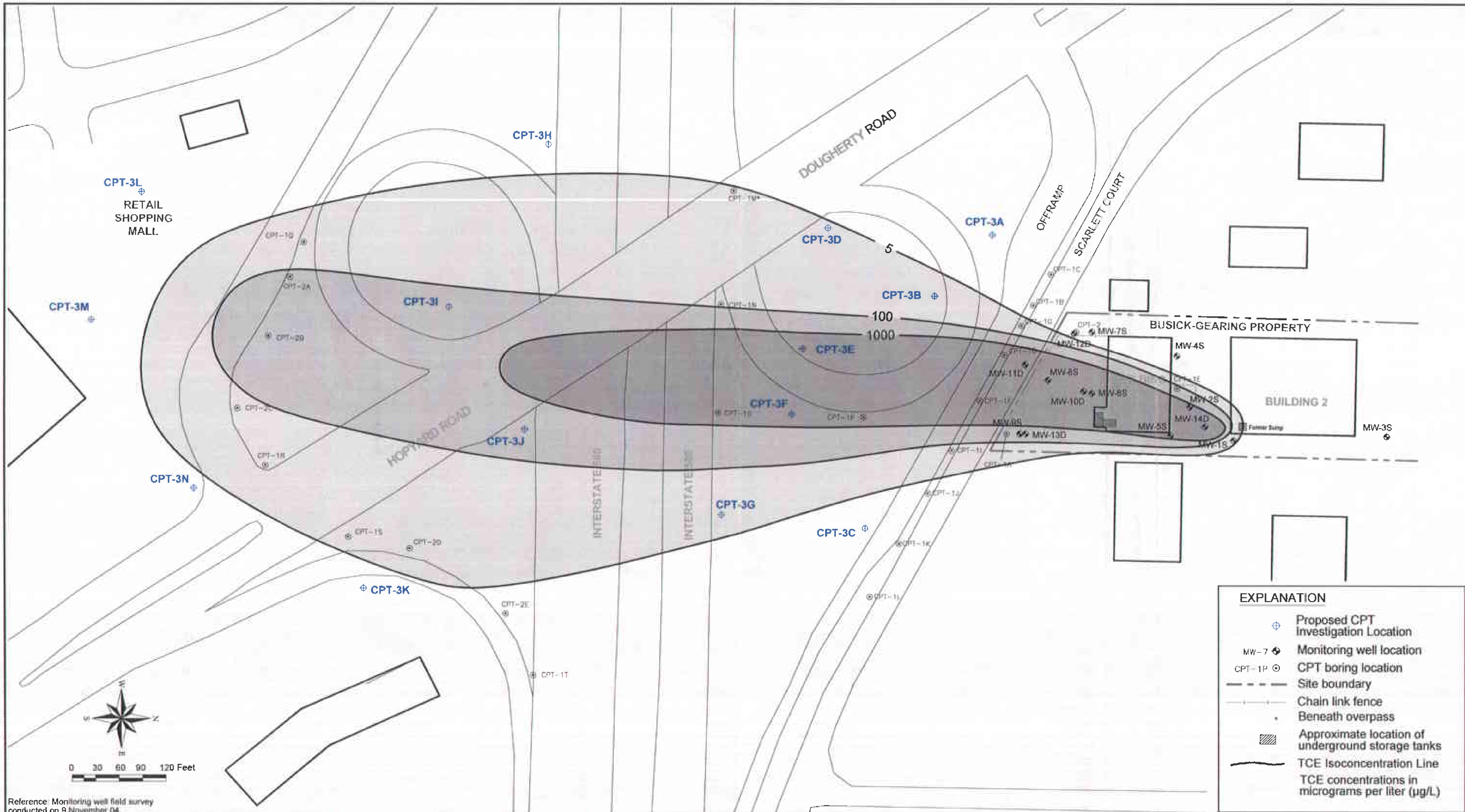

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FIGURE 8
PROPOSED CPT LOCATION MAP

APPROVED BY: J. Johnson	CHECKED BY: E. Buckler
DESIGNED BY: E. Buckler	DRAWN BY: J. Narlock
PROJECT NUMBER: RC000670.0004	DRAWING NUMBER
	SHEET 8 of 11

Appendix A

Draft Notification of Site Clean Up Oversight

California Regional Water Quality Control Board
San Francisco Bay Region

Dan Skopec
Acting Agency Secretary

1515 Clay Street, Suite 1400, Oakland, California 94612
(510) 622-2300 • Fax (510) 622-2460
http://www.waterboards.ca.gov/sanfranciscobay

Arnold Schwarzenegger
Governor

Notification of Site Cleanup Oversight

6341 Scarlett Court, Dublin
Alameda County

November 2006

This notification is being provided to nearby landowners and residents/occupants as well as other interested persons. It describes site background, past work to investigate and clean up site contamination, next steps, the Water Board's oversight process for the site, and how you can obtain more information.

Background

The site is located at 6341 Scarlett Court in Dublin, which is the central building ("Building 2") of a three-building group located in an area of light industrial and commercial land uses. The building is owned by Busick-Gearing Properties, LLC.

Nuclear Specialties manufactured metal chassis for electronic equipment at this location starting in 1971. Nuclear Specialties later merged with Precision Metal Fabricators, Inc., which continued to occupy the space until 1981. The space was leased in 1981 to Dublin Multilayer, Inc., which manufactured printed circuit boards.

The southern portion of Building 2 contained a sump that was used to collect fluids from the manufacturing process. Reportedly, volatile organic compounds (VOCs) were released from the sump and the connecting sanitary sewer line into underlying soil. These contaminants eventually migrated to the groundwater.

Site Investigation and Remediation

In 1991, the sump was removed from Building 2. Prior to sump removal a soil sample was collected at approximately three feet below ground surface (bgs) that contained a number of industrial solvents, principally trichloroethene (TCE) at 2,900 micrograms per kilogram (µg/kg). Soil was excavated to 6 feet bgs or 3 feet below the base of the sump to remove any contaminated soil. The Alameda County Department of Environmental Health oversaw this work and determined that no further action was needed to remediate soil.

Since then, nine monitoring wells have been installed to a depth of 15 feet bgs near and down-gradient from the sump area, and four cone penetrometer test (CPT) investigations have been conducted to delineate the downgradient extent of the groundwater plume both vertically and laterally. The results of these investigations indicate that although there are some TCE impacts at shallower depths (15 feet bgs) on-site and immediately down-gradient from the sump area, TCE impacts are present at higher

concentrations within a deeper groundwater zone (approximately 35 to 50 feet bgs). TCE was detected at 14,000 µg/L in one 40 feet bgs sample approximately 350 feet south of the property boundary. TCE has been detected in this deeper groundwater zone, and as far as 900 feet down-gradient of the property boundary (9.47 µg/L in one 44 feet bgs sample). Neither the shallow (15 feet bgs) nor the deeper (35-50 feet bgs) zones are used as a water supply source in the area of the site.

To further characterize the conditions in the deeper groundwater zone, five additional monitoring wells were installed in 2004 and 2005. TCE concentrations detected in these wells were consistent with the CPT results.

In 2004, the Regional Water Quality Control Board (RWQCB) approved a remedial approach down-gradient from the sump area consisting of enhanced reductive dechlorination (ERD) in the deeper groundwater zone. ERD is a bioremediation process which stimulates naturally-occurring microorganisms with a highly biodegradable food source (generally molasses) to reduce the amount of TCE and other VOCs dissolved in the groundwater and attached to the soil. These microorganisms use up the available oxygen to produce energy as they consume the food source. When the oxygen in groundwater is depleted, these microorganisms are able to substitute VOCs for the depleted oxygen to produce the energy required for metabolism. When VOCs are substituted for oxygen to produce energy, the VOCs are broken down though a series of reactions, ultimately ending with nontoxic constituents.

Six injection wells were installed into the deeper groundwater zone in June 2005. Molasses injections were initiated in July 2005 and are continuing on a periodic basis.

Next Steps

Four additional molasses injection wells will be installed in November 2006 to increase the areal extent of the ERD. The Property owner will also conduct additional work to delineate the offsite portion of the VOC plume. This work is scheduled to be completed in early 2007.

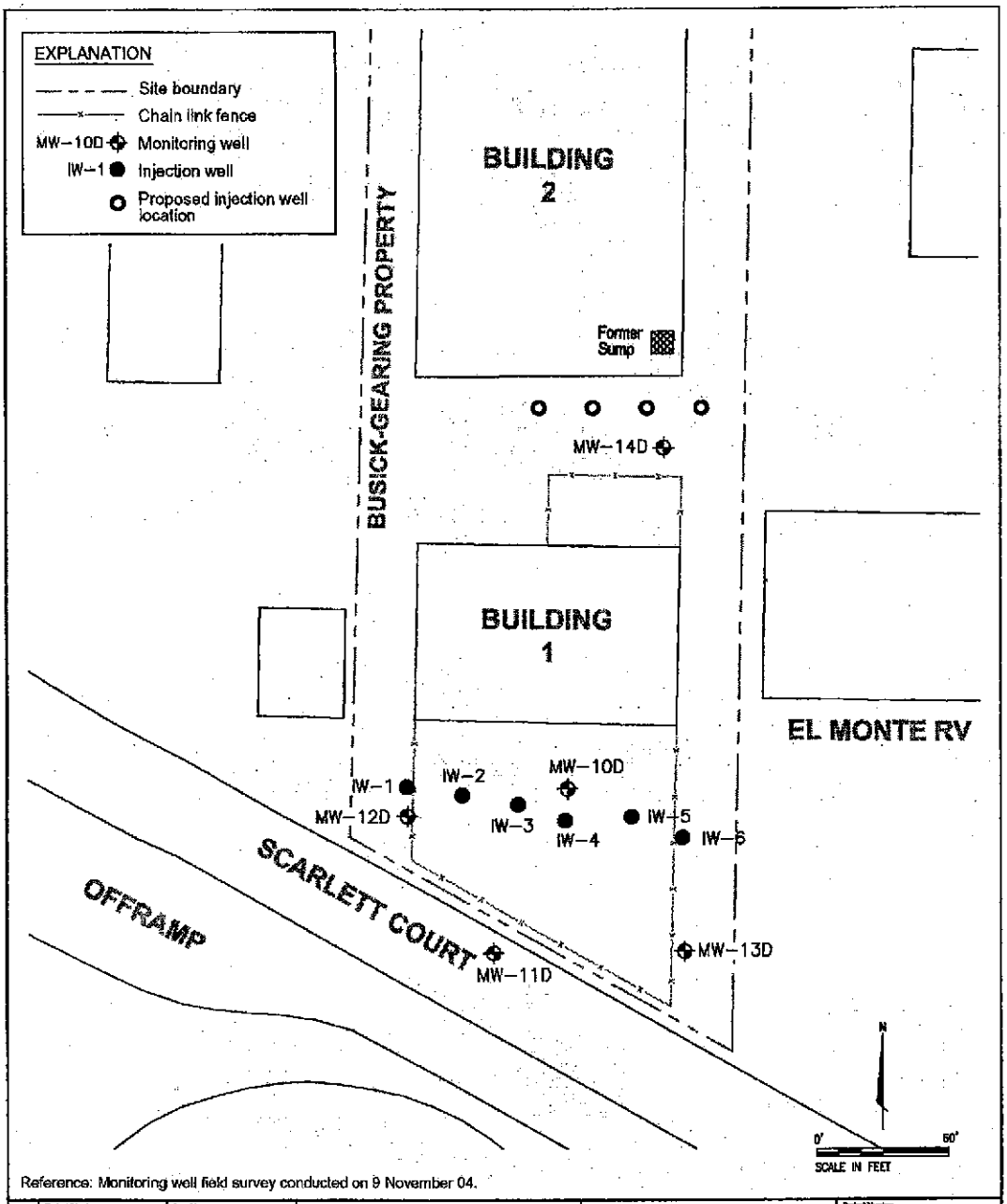
Water Board Oversight Process

The Water Board oversees more than 3,000 site cleanup cases in the Bay Area, including more than 2,000 leaking fuel tank cases.

Water Board staff direct investigation or cleanup work and set cleanup standards under Water Code authority. Responsible parties (e.g. past operators) propose specific measures, perform the actual work, and submit technical reports documenting task completion.

As part of this process, we make key documents available to interested persons and the public and provide an opportunity for comment on these documents. Interested persons include other agencies, local officials, non-profit organizations, and interested landowners and residents/occupants in the site vicinity. Please let us know if you would like to be included on our list of interested persons for this site.

For additional information: contact Water Board project manager Cleet Carlton at (510) 622-2374 or ccarlton@waterboards.ca.gov



Reference: Monitoring well field survey conducted on 9 November 04.

Project Director: PETERS	Area Manager: PETERS	ARCADIS	PROPOSED INJECTION WELLS BUSICK GEARING PROPERTY 6341 SCARLETT COURT DUBLIN, CALIFORNIA
Task Manager: GOMES	Technical Review: GOMES	ARCADIS G&M, Inc. 1000 Atlantic Way South Richmond, CA 94804 Tel: 510-233-3300 Fax: 510-233-3304 www.arcadis-us.com	Project Number: RC000670.0002
Drawing Date: 10/MAR06	Drawn By: CHU		Figure: 7

Appendix B

Draft Property Owner Notification List

Property Owner Information

Addresses Within 500' Downgradient of Plume

Facility Name	Address	City	Zip	Owner
Ramada Inn (formerly Super 8)	5375 Owens Court	Pleasanton	94588	Khatri Brothers PTP
El Monte RV	6301 Scarlett Court	Dublin	94568	Schork Family Partnership
In N' Out Burger	6015 Johnson Drive	Pleasanton	94588	Dokco LLC
Comp USA	5775 Johnson Drive	Pleasanton	94588	Dokco LLC
Beverages and More	5765 Johnson Drive	Pleasanton	94588	Dokco LLC
Cycle Gear	5755 Johnson Drive	Pleasanton	94588	Dokco LLC
Leather Showroom	5745 Johnson Drive	Pleasanton	94588	Dokco LLC
Larkspur Landing Hotel	5535 Johnson Drive	Pleasanton	94588	Dokco LLC
Prudential	6111 Johnson Court	Pleasanton	94588	Dokco LLC
Dublin Honda (formerly Dolan)	6363-6393 Scarlett Court	Dublin	94568	CRMX 115 Inc.
U-Haul	6265 Scarlett Court	Dublin	94568	Eight SAC Self Storage Corp.
Busick-Gearing Properties	6335-6355 Scarlett Court	Dublin	94568	Busick-Gearing Properties LLC

Source: Alameda County Assessor's Office (510-272-3787)