J.W. SILVEIRA CO.

499 Embarcadero
Oakland, CA 94606

Tel: (510) 834-9810 Fax: (510) 763-9996
jw_silveira@hotmail.com

Real Estate

January 7, 2009

Mr. Jerry Wickham
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

SUBJECT: SUBSURFACE INVESTIGATION WORK PLAN CERTIFICATION
County File # RO 504
William Wurzbach Company
1200 20th Avenue
Oakland, CA 94606

Dear Mr. Wickham:

You will find enclosed one copy of the following document prepared by P&D Environmental, Inc.

- Subsurface Investigation Work Plan (B3 Through B8 and SG1) dated January 7, 2009 (document 0405.W1).

I declare under penalty of perjury, that the information and/or recommendations contained in the above-mentioned report for the subject site is true and correct to the best of my knowledge.

Should you have any questions, please do not hesitate to contact us at (510) 834-9811.

Sincerely,

J.W. Silveira Realty

J.W. Silveira

0405.L1

P&D ENVIRONMENTAL, INC.
55 Santa Clara Ave, Suite 240
Oakland, CA 94610
(510) 658-6916

January 7, 2009
Work Plan 0405.W1

Mr. Jerry Wickham
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

RE: SUBSURFACE INVESTIGATION WORK PLAN
(B3 THROUGH B8 AND SG1)
County File # RO 504
William Wurzbach Company
1200 20th Avenue
Oakland, California

Dear Mr. Wickham:

P&D Environmental, Inc. (P&D) is pleased to present this work plan for the drilling of six boreholes designated as B3 through B8 in the vicinity of the subject site to characterize the horizontal and vertical extent of petroleum hydrocarbons in soil and groundwater. In addition, soil gas samples will be collected inside the site building adjacent to the former UST pit at depths of 5 and 10 feet at one location designated as SG1. A Site Location Map (Figure 1) and a Site Vicinity Map showing the proposed drilling locations (Figure 2) are attached with this work plan.

Four of the boreholes (B3 through B6) will be drilled adjacent to the former Underground Storage Tank (UST) pit to evaluate the presence of residual petroleum hydrocarbons at locations described in the UST removal report as having residual elevated petroleum hydrocarbon concentrations in soil following over-excavation of petroleum-impacted soil. Groundwater grab samples will be collected from first encountered groundwater in boreholes B3 and B6 to further define the horizontal extent of petroleum hydrocarbons in groundwater. Two boreholes (B7 and B8) will be drilled to evaluate the horizontal extent of petroleum hydrocarbons in first encountered groundwater at locations downslope of the former UST pit in the presumed downgradient direction based on topography and interpretation of boring logs for existing wells MW-1 through MW-3 and previously drilled boreholes SB-1 and SB-2. The vertical extent of petroleum hydrocarbons in groundwater will be evaluated using soil conductivity logs at proposed locations B4, B7 and B8 to a depth of 70 feet to identify water-bearing zones below first encountered groundwater. One depth-discrete groundwater grab sample will be collected from each of boreholes B4, B7 and B8 using a Hydropunch for evaluation of the vertical extent of petroleum hydrocarbons in groundwater. Borehole B7 will also be continuously cored to a maximum depth of 70 feet for visual correlation of subsurface materials with the soil conductivity logs. Soil gas samples will be collected at depths of 5 and 10 feet at location SG1 to evaluate the presence of residual petroleum hydrocarbons in soil beneath the site building at a location adjacent to the former UST pit. Soil gas samples will be collected instead of soil samples because of limited access inside the building.

This work plan is written in response to requests for subsurface investigation set forth in letters from the Alameda County Department of Environmental Health (ACDEH) dated July 19, 2005

and November 1, 2005. Submittal of the requested well survey to identify sensitive receptors and the underground utility survey to identify potential preferential pathways will be submitted under separate cover from this work plan. A work plan prepared by TetraTech dated October 11, 2005 was previously submitted to and approved by ACDEH that included the proposed installation of two groundwater monitoring wells to address concerns for calculated hydraulic gradients that were the opposite of the site topography. P&D proposes to install additional wells after the geology at the site is better defined by proposed boreholes B3 through B8.

All work will be performed under the direct supervision of an appropriately registered professional. This work plan is prepared in accordance with guidelines set forth in the document "Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites" dated August 10, 1990 and "Appendix A - Workplan for Initial Subsurface Investigation" dated August 20, 1991 and California Code of Regulations Title 23 Sections 2720-2728.

BACKGROUND

Historic investigations at the site have included the following.

- Removal of two gasoline USTs on January 19, 1994. Field activities are documented in a Results of Soil Sampling During Removal of Two Underground Storage Tanks report prepared by Epigene International of Fremont, California (Epigene) dated February 14, 1994. The report stated that the bottoms of the USTs were at a depth of approximately 8 feet, and that the UST pit was excavated to a depth of approximately 15 feet because of significant staining in the soil, especially below the UST closest to Solano Way. A total of two soil samples were collected from the bottom of the UST pit at depths of 15.5 and 15.0 feet from beneath the USTs, and a total of four sidewall samples were collected at a depth of 9 feet. One of the sidewall samples (sample S-6 collected from the 20th Avenue sidewall at the end of the UST located closest to Solano Way) had TPH-G and benzene concentrations of 2,300 and 2.9 mg/kg, respectively. However, the pit bottom samples and one of the sidewall samples (S-3) did not have detectable concentrations of petroleum hydrocarbons. Two of the sidewall samples contained detectable concentrations of petroleum hydrocarbons, but none of these soil sample results exceeded their respective May 2008 SFRWQCB ESL Table A values for both residential and commercial land use with the exception of 0.080 mg/kg benzene in pit sidewall sample S-4. Groundwater was not encountered in the UST pit. The report concluded that over-excavation appears to have removed petroleum-impacted soil from beneath the USTs, but that there is still petroleum-impacted soil along the western sidewall of the excavation beneath Solano Way and beneath a portion of 20th Avenue. A figure obtained during a file review at the J.W. Silveira Realty offices that shows the former UST locations and associated piping is provided in Appendix A. It is presently unknown where the suction lines shown on the figure extend to inside the existing storage warehouse. The figure shows that the fill ports for both USTs were located at the ends of the USTs closest to 20th Avenue. In addition, figures from the UST removal report showing the sample collection locations, descriptions from the report of the sample collection locations, and the laboratory report summarizing the soil sample results are attached with this work plan as Appendix A. Although the Site Plan from the UST removal report shows the end of

the end of the UST that was described in the report as containing holes as the "area of leak," it is possible that the petroleum release detected at the site resulted from overfill events at the fill end of the UST, and that the holes cathodically corroded in the end of the UST after the release. This interpretation is supported by the absence of elevated petroleum concentrations in the UST pit sidewall soil samples S-4 and S-5 (collected at a depth of 9 feet from the end of the UST closest to the building and from the side of the UST closest to Solano Way) and the presence of elevated petroleum concentrations in the UST pit sidewall soil sample S-6 (collected at a depth of 9 feet at the fill end of the UST).

- Installation of wells MW-1 through MW-3 on February 13 and 14, 1995. Field activities are documented in an Installation of Monitoring Wells and First Quarter Monitoring report prepared by Epigene dated March, 1995. Well MW-1 was installed in 20th Avenue adjacent to the former UST pit, well MW-2 was installed in 20th Avenue uphill from the former UST pit, and well MW-3 was installed on the opposite side of 20th Avenue from the former UST pit. The locations of the wells are shown in Figure 2. Wells MW-1 and MW-3 were installed to a depth of 30 feet. Because the site is located on a hillside that slopes to the southwest, uphill well MW-2 was installed to a depth of 35 feet. The report text states that groundwater was encountered in wells MW-1 and MW-3 at a depth of approximately 20 feet. Review of the boring logs for all of the boreholes for the wells shows that the depth to groundwater on the boring logs for wells MW-1 and MW-2 was 21 and 28 feet, respectively, and that no water level is shown on the boring log for MW-3. It is unclear from the report and the boring logs if the depth to groundwater shown on the boring logs was measured during drilling, or was subsequently measured in the wells. The subsurface materials encountered in each of the boreholes consisted of both fine-grained material and sand layers. A total of two soil samples were collected from each of the boreholes for the wells. The analytical results of soil samples collected from the boreholes shows that petroleum hydrocarbons were detected only from the borehole for MW-1. Additionally, because of poor sample recovery, no soil sample was collected from the borehole for MW-1 at a depth of 10 feet, which approximately corresponds with the depth in the adjacent former UST pit where elevated residual petroleum concentrations were detected on the side of the UST pit closest to the borehole for well MW-1. The analytical results of groundwater samples collected from the wells showed that 1,900 ug/L TPH-G, 92 ug/L benzene, and other petroleum hydrocarbons were detected in well MW-1, and that no petroleum hydrocarbons were detected in any of the other wells. The report stated that the tops of the wells were surveyed to Mean Sea Level relative to a City of Oakland datum. However, no further information regarding how the wells were surveyed is provided. The measured depth to water in the wells ranged from approximately 21 feet in well MW-3 to approximately 28 feet in well MW-2, with the measured depth to water in well MW-1 as approximately 22 feet. Review of the calculated groundwater flow direction based on the measured depth to groundwater in the wells shows that the groundwater flow direction is to the north (uphill). Copies of the soil sample results from the boreholes, the wellhead elevations and associated measured depth to groundwater in each well, and the boring logs and associated well construction information are attached with this work plan as Appendix B.
- Drilling of boreholes SB-1 and SB-2. Field activities are documented in an Additional Site Characterization Report prepared by Tetra Tech EM, Inc. (Tetra Tech) that is

undated. Borehole SB-1 was drilled in June 1999 at a location to the south of the former UST pit, and borehole SB-2 was drilled in August 1999 at a location to the southwest of the former UST pit. The boreholes were each drilled to refusal at depths of 36 and 37.7 feet, respectively. No groundwater samples were collected from either of the boreholes. Borehole SB-1 was left open for approximately two weeks to see if groundwater would seep in. The report stated that groundwater was not detected in the borehole after 24 hours, that after one week 6 inches of water was measured in the bottom of the boring, and that after two weeks the boring had closed in at a depth of 34.5 feet and groundwater was not detected at this depth. Groundwater was not detected during drilling in borehole SB-2. Review of the boring logs for both boreholes shows that the only materials encountered in the boreholes was clay, with the exception of clayey gravel and clayey sand layers at depths of less than 13 feet in SB-1, clayey gravel in SB-2 at depths of less than 6.5 feet, and clayey sand in SB-2 between the depths of approximately 25.5 and 27.5 feet. No mention of the presence or absence of petroleum hydrocarbons is provided on either boring log, and no PID readings are provided on the boring logs. Because there was no evidence of petroleum hydrocarbons in the soil samples from borehole SB-1, no soil samples were retained for laboratory analysis. Soil samples were retained at depths of 8.5 and 26.5 feet for laboratory analysis from borehole SB-2. The report text states that no petroleum hydrocarbons were detected in either of the soil samples. The three wells were also sampled on April 1, 1999 as part of the site investigation. Copies of the boring logs are attached as Appendix C.

- Quarterly monitoring and sampling of wells on various dates. Review of water quality summary tables provided in a Site Closure Report prepared by Tetra Tech dated December, 2003 shows that the three wells were sampled thirteen times between February 1995 and December 2000. The report shows that well MW-1 only was also sampled in August 2001. With the exception of the well sampling documented in the well installation report referenced above the measured depth to water in the wells is not provided in any of the reports. Groundwater elevations in the wells are provided in the report documenting the drilling of SB-1 and SB-2 and associated sampling of the wells on April 1, 1999, and in the Site Closure Report documenting the 2000 and 2001 sampling events. No reports documenting the well sampling events between well installation in 1995 and well sampling by Tetra Tech in 1999 were available for review. The Tetra Tech Site Closure Report states that prior to 1999 well sampling was performed by another environmental consultant. Review of the water quality data provided in the summary tables in the Site Closure Report shows that in well MW-1 TPH-G concentrations have consistently exceeded 1,000 ug/L and benzene concentrations have ranged from 92 to 3,700 ug/L with all benzene concentrations exceeding 100 ug/L except for the February 1995 sampling event. In wells MW-2 and MW-3, petroleum hydrocarbons were detected during periodic sampling events between June 1995 and January 1997, but were subsequently not detected in either well the six sampling events from July 1998 through December 2000. The Tetra Tech Site Closure Report also discusses the groundwater flow direction and gradient for the monitoring events in 200 and 2001, stating that the groundwater flow direction ranged from N13E to N29E with a gradient ranging from 0.038 to 0.06. Most recently, the wells were monitored and sampled by P&D on June 6, 2007. All available depth to water measurements and water table elevations for the wells is summarized in Table 3.

All available water quality data obtained from summary tables in the Site Closure Report is summarized in Table 4.

- Groundwater remediation at well MW-1. The Tetra Tech Site Closure Report states that following the December 2000 sampling event nine oxygen-releasing compound (ORC) socks manufactured by Regenesis, Inc. were placed in well MW-1 until one month before the August 2001 sampling event. The report concluded that placement of the socks in the well appeared to have little to no effect on the groundwater analytical results.
- ACDEH request for additional investigation. In a letter dated July 19, 2005 the ACDEH referenced the December 2003 Tetra Tech Site Closure Report and requested that the following items be addressed.
  - Resolve concerns associated with the calculated groundwater flow direction at the site. The concern is primarily associated with the calculated elevation of water in well MW-2 being consistently lower than in wells MW-1 and MW-3, resulting in a calculated northerly (uphill) groundwater flow direction.
  - Show that the lateral extent of petroleum in soil is not under the building.
  - Define the extent of petroleum in soil and groundwater vertically.
  - Identify existing wells within 2,000 feet of the site (perform a well survey).
  - Perform a preferential pathway survey for underground utilities in the vicinity of the site.
  - Identify sensitive receptors in the site vicinity.
  - Evaluate the potential for groundwater and contaminants to migrate in permeable zones identified in boring logs.
  - Survey wellhead elevations.
  - Upload to GeoTracker all analytical data dated after September 1, 2001 and all reports dated after July 1, 2005.
- Work plan submittal for additional subsurface investigation. Tetra Tech submitted to ACDEH a Draft Work Plan dated October 11, 2005 for additional subsurface investigation at the subject site. The work plan included installation of two groundwater monitoring wells to address the historic northerly groundwater flow direction at the site, surveying of all wellhead elevations, identification of wells within 2,000 feet of the site, a review of available underground utility information, and installation of as many as two additional soil borings to further define the extent of petroleum in soil and in groundwater.
- Work plan approval by ACDEH. In a letter dated November 1, 2005 the ACDEH conditionally approved the October 11, 2005 Tetra Tech work plan. The ACDEH comments included requests for collection and analysis of additional soil samples above and below petroleum-impacted zones; additional laboratory analysis of soil samples for TPH-D, 1,2-DCA and EDB; sampling of existing wells when new wells are sampled; and identification of reporting limits on tables and figures. The ACDEH letter also commented that delineation of the vertical extent of petroleum hydrocarbons had not been addressed and might be required in the future.
- Well sampling in 2007. The wells were monitored and sampled by P&D on June 6, 2007. The measured depth to water in all of the wells was approximately 5 feet higher in all of the wells than reported during prior monitoring and sampling events. The water quality results also showed no detectable petroleum hydrocarbons in wells MW-2 and MW-3, and elevated petroleum concentrations in well MW-1 (9,000 ug/L TPH-

G and 1,200 ug/L benzene). The results of sample analysis for EDB, 1,2-DCA and TPH-D showed that EDB was not detected, 1,2-DCA was detected at a concentration of 59 ug/L, and that TPH-D was detected at a concentration of 1,900 ug/L. However, review of the laboratory analytical report shows that the results reported as TPH-D are gasoline-range compounds. The results of the groundwater monitoring and sampling are presented in a Groundwater Monitoring and Sampling Report prepared by P&D dated January 7, 2009 (document 0405.R1).

- Resurveying of wellhead elevations. On January 5, 2009 P&D personnel performed a cursory survey using a hand level and stadia rod to survey the approximate top of casing elevations of wells MW-1 through MW-3 relative to one another. The purpose of the cursory survey was to determine if gross errors in surveyed wellhead elevations were historically reported that could explain the anomalously low groundwater surface elevation in well MW-2 relative to wells MW-1 and MW-3 and the associated anomalous northerly groundwater flow direction for the site. The survey results showed that relative to well MW-1, the top of casing elevations for wells MW-2 and MW-3 were 0.11 feet lower and 0.05 feet higher, respectively, than the survey data provided by Epigene in the 1995 well installation report. The general agreement of the survey data to within approximately 0.1 feet indicates that resurveying the existing wellhead elevations by a State-licensed surveyor will not provide new information for groundwater flow direction at the subject site. The cause for the lower groundwater surface elevation at well MW-2 appears to be related to the site geology, and is not understood at this time with the available subsurface and regional geologic information.
- Additional monitoring of groundwater levels in groundwater monitoring wells. On January 5, 2009 P&D personnel removed the expandable plugs from the top of each of the three groundwater monitoring wells. Following a water level equilibration period, an electric water level indicator was used to measure the depth to water to the nearest 0.01 foot twice in each well. Approximately 20 minutes elapsed between water level readings to ensure that the groundwater levels in the wells had equilibrated. A very strong positive pressure was present in well MW-2 when the expandable plug was removed. The measured depth to water in wells MW-1, MW-2 and MW-3 was 11.90, 16.12, and 11.03 feet, respectively. The wellhead covers for wells MW-1 and MW-2 consisted of unsecured EBMUD valve box covers, and the wellhead cover for well MW-3 consisted of a wellbox with a 3-bolt well lid pattern. However, none of the bolts were present to hold the lid in place, and the threads in the bolt holes appeared to have been stripped out. In addition, the wellbox for well MW-3 was filled entirely with sand and muck from surface water runoff that had accumulated in the wellbox.

GEOLOGY AND HYDROGEOLOGY

Review of Figure 1 shows that the Brooklyn Basin (connected to San Francisco Bay by way of a Tidal Canal to the south and the Oakland Inner Harbor to the north) is located approximately 1,100 feet to the southwest of the subject site, and Sausal Creek is located approximately 4,300 feet to the east of the subject site. Review of Figure 2 shows that the site is located on a hillside that slopes to the southwest.

Review of groundwater flow direction information for nearby sites that have groundwater monitoring wells (see Figure 2) shows that the groundwater flow direction at 2200 East 12th Street (located approximately 685 feet southeast of the subject site) has historically been to the west-southwest, and the groundwater flow direction at 2345 International Boulevard (located approximately 1,600 feet southeast of the subject site) has historically been to the southwest. Additionally, the groundwater flow direction at 2301 East 12th Street (located approximately 1,440 feet southeast of the subject site) has historically been calculated to be to the northwest. However, the calculated groundwater flow direction at the site on June 4, 2007 was to the west-southwest.

Prior to 2002, the calculated groundwater elevations in wells MW-1 and MW-3 ranged from approximately 0.4 to -4.9 feet, and in well MW-2 ranged from approximately -2.0 to -7.7 feet. Review of the water level data from prior to 2002 shows that in 1995 the calculated groundwater elevations in wells MW-1 and MW-3 were approximately -5 feet, and in well MW-2 was approximately -7.5 feet. In 2007 and 2009, the calculated groundwater elevations in the wells were approximately 5 to 6 feet in wells MW-1 and MW-3, and approximately 4 to 5 feet in well MW-2. Since 1995, the water levels in wells MW-1 and MW-3 have increased by approximately 10 to 11 feet, and in well MW-2 have increased by approximately 6.5 to 7.5 feet. Historic water level data are summarized in Table 3. The groundwater flow direction at the subject site has historically been calculated to be to the north-northeast. However, the calculated groundwater flow direction is uphill, and is questionable based on the calculated groundwater elevations in well MW-2. The cause for the lower groundwater surface elevation at well MW-2 appears to be related to the site geology, and is not understood at this time with the available subsurface and regional geologic information.

Review of the water level data in the Site Closure Report water level summary table shows that the water levels reported for February 9, 2000 are the same as the April 1, 1999 water levels reported in the undated Tetra Tech Additional Site Characterization Report. No purge data sheets or other field documents were available for review with either of the Tetra Tech reports. Based on the reporting of the April 1, 1999 water level data in a report issued prior to the Site Closure Report, it appears that the water levels reported for February 9, 2000 in the summary table in the Site Closure Report were incorrectly reported.

Figures 4, 5, and 6 show geologic cross sections A-A', B-B', and C-C', respectively. The surface elevations for cross sections with wells were approximated based on surveyed well head elevations. Similarly, the ground surface elevations for geologic cross section C-C' were approximated based on the top of casing elevations for wells MW-1 and MW-3. Review of Figures 4 and 5 shows that a sand layer located beneath the water table is interpreted to be continuous between the locations of all three wells. Additionally, the layers of unconsolidated sediments all appear to slope to the south-southeast.

At cross section C-C', the almost complete absence of sand layers and the absence of detected groundwater in the boreholes suggests that the sand layer detected in boreholes MW-1, MW-2 and MW-3 does not extend to the south of 20th Avenue and is limited in extent to the south in the vicinity of the subject site by clayey materials. The southerly slope of the unconsolidated sediment layers in B-B' also suggests that petroleum hydrocarbons detected in MW-1 may be generally limited in the sand layer to the south side of 20th Avenue. The southwesterly slope of

the topography in the vicinity of the subject site in conjunction with the continuous presence of the sand layer in cross section A-A' suggests that the sand layer extends downslope towards the southwest. The sand layer could be a natural conduit for the southwesterly migration of dissolved petroleum hydrocarbons that are located to the northwest of the former UST pit and detected in well MW-1. Proposed locations B8 and B9 shown on Figure 3 are intended to evaluate the presence of the sand layer to the southwest of the former UST pit and the southwesterly migration of dissolved petroleum hydrocarbons in groundwater.

SCOPE OF WORK

To evaluate the horizontal and vertical extent of petroleum-impacted groundwater in the vicinity of the subject site, P&D proposes to perform the following activities.

- Obtain permits.
- Prepare a health and safety plan and mark drilling locations for Underground Service Alert.
- Arrange to repair existing wellhead enclosures.
- Oversee soil sample collection at four locations (B3 through B6) and groundwater grab sample collection at four locations (B3 and B6 through B8).
- Oversee soil gas sample collection at depths of 5 and 10 feet at location SG1 inside the subject site building.
- Arrange for sample analysis.
- Prepare a subsurface investigation report.

Each of these is discussed below.

Following delineation of the presence of a sand layer beneath the water table and the extent of petroleum hydrocarbons downslope of the former UST pit, additional wells will be proposed, as necessary. Additional wellhead surveying by a State-licensed surveyor will be performed for any new wells and the existing wells in the event that new wells are installed. The results of a sensitive receptor/well survey and a utility survey will be provided under separate cover.

Obtain Permits

A permit will be obtained from the Alameda County Public Works Agency for borehole drilling. In addition, encroachment and excavation permits will be obtained from the City of Oakland for drilling at locations in the public right-of-way. All necessary permit-related notifications will be made prior to drilling. Notification will also be provided to the ACDEH at least 72 hours prior to drilling.

Prepare a Health and Safety Plan

A health and safety plan will be prepared for the scope of work identified in this work plan. In addition, Underground Service Alert will be notified for underground utility location, and traffic control and pedestrian control plans will be prepared. Utility maps used for preparation of the Preferential Pathway Survey Report for the subject site will also be used for identification of underground utilities at the time of drilling.

Repair Existing Wellhead Enclosures

In accordance with a reference in the Tetra Tech October 11, 2005 work plan to repair of wellhead enclosures that was requested by the ACDEH during a site walk, the wellhead enclosures for existing wells MW-1 through MW-3 will be replaced with watertight wellhead enclosures.

Soil and Groundwater Grab Sample Collection

Four of the boreholes (B3 through B6) will be drilled adjacent to the former Underground Storage Tank (UST) pit to a depth of 25 feet to evaluate the presence of residual petroleum hydrocarbons at locations described in the UST removal report as having residual elevated petroleum hydrocarbon concentrations in soil following over-excavation of petroleum-impacted soil. Soil samples will be retained for laboratory analysis at 5 foot intervals beginning at a depth of 5 feet to the total depth explored of 25 feet. In addition, soil samples will be retained for laboratory analysis from zones of detected contamination, and at locations of approximately 2 feet above and below any zones of detected contamination.

Groundwater grab samples will be collected from first encountered groundwater in boreholes B3 and B6 to further define the horizontal extent of petroleum hydrocarbons in groundwater in the vicnity of the former UST pit. In addition, groundwater grab samples will be collected from first encountered groundwater in boreholes B7 and B8 to evaluate the horizontal extent of petroleum hydrocarbons in first encountered groundwater at locations downslope of the former UST pit in the presumed downgradient direction based on topography and interpretation of boring logs for existing wells MW-1 through MW-3 and previously drilled boreholes SB-1 and SB-2. Based on the measured depth to groundwater in the existing groundwater monitoring wells at the site and the measured depth to sand layers encountered in the boreholes for wells MW-1, MW-2 and MW-3, the maximum depth of exploration anticipated to obtain first encountered groundwater is 25 feet.

The vertical extent of petroleum hydrocarbons in groundwater will be evaluated using soil conductivity logs at proposed locations B4, B7 and B8 to a depth of 70 feet to identify water-bearing zones below first encountered groundwater. One depth-discrete groundwater grab sample will be collected from each of B4, B7 and B8 using a Hydropunch for evaluation of the vertical extent of petroleum hydrocarbons in groundwater. Borehole B4 will also be continuously cored to a maximum depth of 70 feet for visual correlation of subsurface materials with the soil conductivity logs.

The boreholes for soil and groundwater sample collection will be drilled using GeoProbe direct push technology to drive a 2.5-inch outside diameter Geoprobe macrocore barrel sampler lined with transparent PVC sleeves. The soil from the borings will be logged in the field in accordance with standard geologic field techniques and the Unified Soil Classification System. All soil from the boreholes will be evaluated with a Photoionization Detector (PID) equipped with a 10.6 eV bulb and calibrated using a 100 ppm isobutylene standard.

Soil samples will be retained for laboratory analysis from designated intervals identified above by cutting six-inch long sections from the transparent PVC sleeve. The ends of the sleeve section

will be sequentially covered with aluminum foil and plastic endcaps. The sleeve section will then be labeled and stored in a cooler with ice pending delivery to the laboratory. Chain of custody procedures will be observed for all sample handling.

First encountered groundwater samples will be collected from the boreholes by placing temporary 1-inch diameter slotted PVC pipe into the boreholes and using disposable polypropylene tubing with a stainless steel footvalve. The Hydropunch groundwater samples will be collected from the Hydropunch rods using polypropylene tubing with a stainless steel footvalve. Groundwater samples will be transferred to 40-millileter VOAs and 1-liter glass amber bottles, all of which will be supplied by the laboratory and contain hydrochloric acid preservative. The sample bottles will be labeled and placed in a cooler with ice pending delivery to the laboratory. Chain of custody procedures will be observed for all sample handling.

Immediately following withdrawl of each soil conductivity probe the soil conductivity probe borehole will be grouted using neat cement and a tremie pipe to minimize the potential for vertical movement of shallow impacted groundwater. Hydropunch sample collection intervals will be determined based on the depths of permeable zones identified in the soil conductivity logs. The Hydropunch samples will be collected at locations approximately 5 feet away from the soil conductivity probe locations to define the vertical extent of impacted groundwater. Prior to retracting the Hydropunch rods to expose the Hydropunch screen, the interior of the Hydropunch rods will be evaluated with an electric water level indicator to verify that water is not present inside the drill rods. Borehole B4 will also be continuously cored for visual correlation of the soil conductivity logs with subsurface materials.

All drilling and sampling equipment will be cleaned by steam cleaning with an Alconox solution followed by a clean water rinse prior to use in each borehole. Following completion of logging and sample collection activities, the boreholes will be filled with neat cement grout. All soil and water generated during subsurface investigation will be stored in 55-gallon drums at the site and labeled pending characterization and proper disposal.

Soil Gas Sample Collection

Because of limited access considerations, collection of soil samples inside the subject site building in the vicinity of the former UST pit is not possible. To address ACDEH concerns regarding potential residual petroleum hydrocarbons beneath the building adjacent to the UST pit, soil gas samples will be collected at location SG1 (see Figure 2) at depths of 5 and 10 feet to evaluate risk posed by petroleum and HVOC (1.2-DCA) soil vapor at the subject site. The soil gas samples will be collected in accordance with general procedures set forth in the Department of Toxic Substances Control (DTSC) January 13, 2003 Advisory - Active Soil Gas Investigations. Sample collection will not be performed within 24 hours following a precipitation event.

The soil gas samples will be collected using temporary soil gas sampling wells. The temporary wells will be constructed by driving a hollow 1-inch diameter Geoprobe rod with an expendable tip to a depth of 5 feet and then inserting a 7-foot length of 0.250-inch outside diameter (0.187-inch inside diameter) Teflon tube to the bottom of the hollow rod. Prior to inserting the Teflon tubing the lowermost 6 inches of the Teflon tube will be perforated at several locations by

notching the sides of the tube with a clean razor blade. A #2/16 Lonestar sack sand will then be added to the annular space between the hollow rod and the Teflon tube as the hollow rod is withdrawn from the ground until the lowermost 8 inches of the hole is filled with sand. Granular bentonite (with grains the size of kitty litter) will be placed in the annular space above the sand to the ground surface. The bentonite will be hydrated and the temporary well will be undisturbed for a minimum of 30 minutes prior to purging for sample collection to allow soil gas equilibration. Following collection of the soil gas sample at a depth of 5 feet, the process of temporary soil gas well construction will be repeated at an adjacent location to a depth of 10 feet.

Prior to purging the soil gas from the temporary soil gas sampling well, the sample canister will be checked for vacuum with a vacuum gauge, followed by a 10 minute leak check of the sampling manifold. The leak check will be performed by closing the valve located between the filter and the pressure gauge and opening the purge canister and recording the manifold system vacuum (see Figure 7 for a picture of a typical soil gas sample collection manifold). Following successful verification of the manifold leak check, the purge volume will be calculated. No purge testing will be done because no mobile laboratory will be at the site. A default of three purge volumes will be extracted prior to sample collection. All purge volume calculation information will be provided in the report documenting field activities. Based on the temporary well construction information provided in this work plan, purge volume calculations are provided in Appendix B of this work plan.

Following completion of purging 3 purge volumes, the valve to the purge canister will be closed and a tracer gas (2-Propanol) will be placed in a dish adjacent to the purge canister and a clear Rubbermaid bin will be placed over the top of the temporary well, the sampling manifold, and the 1-liter sample canister. The vapor concentration of the 2-Propanol will be monitored with a photoionization detector until 2-Propanol vapor concentrations appear to have equilibrated. The Rubbermaid bin will then be temporarily and partially lifted long enough to open the sample canister valve and the bin will then be replaced over the sampling equipment and the 2-Propanol vapor concentrations will then again be monitored with the PID. Once the vacuum for the sample canister decreases to 6 inches of Mercury, the Rubbermaid lid will be removed and the sample canister valve closed.

One duplicate soil gas sample will be collected into a one-liter Summa canister using procedures described above immediately after the collection of one original sample. The void space and tubing will not be purged of three purge volumes prior to collection of the duplicate sample. Following soil gas sample collection, the soil gas samples will be stored in a box and promptly shipped to the laboratory for extraction and analysis. The requested laboratory analysis will include the tracer gas 2-Propanol. Soil gas sampling will not be performed during or following a precipitation event.

All drilling rods and associated drilling fittings will be cleaned with an Alconox solution wash and clean water rinse followed by a clean water rinse using steam distilled water. New Teflon tubing will be used at each sample collection location. Clean, unused vacuum gages and stainless steel tee and valve assemblies will be used at each sample collection location. Following soil gas sample collection the Teflon tubing will be pulled from each temporary soil gas sampling well and a 1-inch diameter solid steel rod will be driven through the bentonite and

sand to a total depth of 5 feet. The solid steel rod will then be removed, and the borehole filled with neat cement.

Sample Analysis

All of the soil and groundwater samples will be analyzed at McCampbell Analytical, Inc. (McCampbell) in Pittsburg, California for TPH-G by EPA Method 5030 in conjunction with modified EPA Method 8015; MBTEX, EDB and 1,2-DCA by EPA Method 8260B; and for total lead by EPA Methods 200.8 and 6010. Although analysis was requested by the ACDEH for TPH-D, the results of the groundwater sample collected from MW-1 in 2007 showed that TPH-D was not detected in groundwater at the site. McCampbell is a State-accredited hazardous waste testing laboratory. Chain of custody documentation will accompany the samples to the laboratory.

All of the soil gas samples will be analyzed at Air Toxics Limited of Folsom California for TPH-G, MBTEX, 1,2-DCA, and 2-Propanol (the tracer gas) using EPA Method TO-15.

Report Preparation

Upon receipt of the laboratory analytical results, a report will be prepared. The report will document soil and groundwater and soil gas sample collection procedures and sample results. The report will include a site vicinity map showing the drilling locations, tables summarizing the sample results, recommendations based on the results, and the stamp of an appropriately registered professional.

In accordance with the California Code of Regulations Sections 2729 and 2729.1, P&D will submit analytical data, survey coordinates of permanent monitoring points, and an electronic copy of the summary report in PDF format to the State Water Resources Control Board GeoTracker system.

Should you have any questions, please do not hesitate to contact us at 510-658-6916.

Sincerely,

P&D Environmental, Inc.

Paul H. King

Paul H. King
Professional Geologist #5901
Expires: 12/31/09

Attachments:

Table 1 – UST Pit Soil Sample Results
Table 2 – Soil Boring Soil Sample Results
Table 3 – Historic Water Levels
Table 4 – Historic Well Water Quality

Figure 1 – Site Location Map
Figure 2 – Site Location Map Detail
Figure 3 – Site Vicinity Map Showing Cross Section and Proposed Drilling Locations
Figure 4 – Geologic Cross Section A-A'
Figure 5 – Geologic Cross Section B-B'
Figure 6 - Geologic Cross Section C-C'
Figure 7 – Typical Soil Gas Sample Collection Manifold

Appendix A – UST Removal Information
Appendix B – MW-1, MW-2 and MW-3 Historic Boring Logs and Well Construction Details
Appendix C – SB-1and SB-2 Historic Boring Logs

Cc: J.W. Silveira, J.W. Silveira Realty

PHK
0405.W1

TABLES

Table 1

UST Pit Soil Sample Results from Results of Soil Sampling During Removal of Two Underground Storage Tanks dated February 14, 1994. Prepared by Epigene International Consulting Geologists.

ONSITE
ENVIRONMENTAL
LABORATORIES, INC.

Analytical Laboratory Report

EPA Methods 8015 Modified / 8020

Date Sampled:	1/19/94	**Proj Mgr:**	John Alt
Date Received:	1/19/94	**Client:**	Epigene International
TPHg/BTEX Analyzed:	1/24, 25/94	**Project:**	94-005, 1200-20th Ave.
TPHd Extracted:	NR	**Matrix:**	Soil
TPHd Analyzed:	NR	**Lab #:**	2A005
Date Reported:	1/31/94	**Report #:**	401030.rpt

Lab ID No.	Field ID No.	TPHG/BTEX DL Factor	Benzene	Toluene	Ethyl benzene	Xylenes - Total	TPHg	TPHd	TPHd DL Factor
01	S-1 15'	1	ND	ND	ND	ND	ND	NR	
02	S-2 15'	1	ND	ND	ND	ND	ND	NR	
03	S-3 9'	1	ND	ND	ND	ND	ND	NR	
04	S-4 "	1	0.080	0.011	0.020	0.071	8.5	NR	
05	S-5 "	1	0.042	0.13	0.072	0.38	11	NR	
06	S-6 "	10	2.9	33	28	150	2300	NR	
07	P-1, P-2 COMPOSITE	1	0.045	0.094	0.67	2.1	52	NR	
08	P-3, P-4 COMPOSITE	1	0.064	0.17	0.60	2.1	37	NR	
Detection Limits (DL)			0.005 mg/kg	0.005 mg/kg	0.005 mg/kg	0.005 mg/kg	1.0 mg/kg		

NOTES:
NR - Analysis not requested.
COC - Chain of custody
ND - Analytes not detected at, or above the stated detection limit.
TPHg - Total petroleum hydrocarbons as gasoline.
TPHd - Total petroleum hydrocarbons as diesel #2.
mg/kg - Milligrams per kilogram (PPM).
ug/L- Microgram per Litre (PPB).
DL - Detection limit.
DF - Dilution Factor
PQL - Practical Quantitation Limit - Multiply DL by the DF to obtain the PQL for a specific sample.

PROCEDURES:
BTEX - This analysis was performed using EPA Method 8020, and EPA Method 5030 .
TPHg - This analysis was performed using EPA Method 8015 Mod., and EPA Method 5030.
TPHd - This analysis was performed using EPA Method 8015 Mod. and LUFT Manual.

CERTIFICATION:
California Department of Health Services ELAP Certificate #1842
Onsite Environmental Laboratories, 5500 Boscell Common, Fremont, CA 94538 (510) 490-8571

Emma P. Pylene
Laboratory Director

1-31-94
Date

Table 2

Soil Boring Soil Sample Results from Installation of Monitoring Wells and First Quarter Monitoring dated March 31, 1995. Prepared by Epigene International Consulting Geologists.

Table 1 Summary of Soil Sample Analysis Results in PPM; 1200 20th Ave., Oakland

Boring	Depth	TPH(g)	Ben-zene	Toluene	Ethyl-benzene	Xylenes	Total Lead
MW-1	5 ft	4.8	0.005	0.011	0.012	0.026	5.2
	15 ft	1.3	0.16	0.023	0.044	0.068	ND
MW-2	15 ft	ND	ND	ND	ND	ND	ND
	25 ft	ND	ND	ND	ND	ND	ND
MW-3	10 ft	ND	ND	ND	ND	ND	5.9
	20 ft	ND	ND	ND	ND	ND	8.5

Table 3

Historic Groundwater Levels

Table 3
Historic Groundwater Levels

Well Number	Date Monitored	*Top of Casing Elevation (ft msl)	Depth to Water (ft)	Groundwater Elevation (ft-msl)
MW-1	1/5/2009	17.15	**11.90**	5.25
	6/6/2007		**11.23**	5.92
	8/30/2001		19.53	**-2.38**
	12/18/2000		19.60	**-2.45**
	9/27/2000		19.93	**-2.78**
	5/23/2000		16.73	**0.42**
	2/9/2000		17.08	**0.07**
	4/1/1999		17.08	**0.07**
	Jul-98	No Report with Data Available for Review		
	Jan-97	No Report with Data Available for Review		
	Sep-96	No Report with Data Available for Review		
	Jun-96	No Report with Data Available for Review		
	Feb-96	No Report with Data Available for Review		
	Oct-95	No Report with Data Available for Review		
	Jun-95	No Report with Data Available for Review		
	3/7/1995		**22.09**	-4.94
	2/22/1995		**21.98**	-4.83

NOTES:
ft-msl = feet above mean sea level
ft = feet
***** = From Epigene International Consulting March 31, 1995 Installation of Monitoring Wells and First Quarter Monitoring report.
Values in **BOLD** are reported values; values not in bold are calculated from reported values.
Groundwater elevation for 4/1/99 obtained from undated Tetratech Additional Site Characterization Report.
Groundwater elevation for 2/9/00 obtained from summary table in December 2003 Tetratech Site Closure Report.

Table 3
Historic Groundwater Levels
(Continued)

Well Number	Date Monitored	*Top of Casing Elevation (ft-msl)	Depth to Water (ft)	Groundwater Elevation (ft-msl)
MW-2	1/5/2009	20.11	**16.12**	3.99
	6/6/2007		**15.36**	4.75
	8/30/2001		24.62	**-4.51**
	12/18/2000		25.05	**-4.94**
	9/27/2000		25.05	**-4.94**
	5/23/2000		22.14	**-2.03**
	2/9/2000		22.61	**-2.50**
	4/1/1999		22.61	**-2.50**
	Jul-98	No Report with Data Available for Review		
	Jan-97	No Report with Data Available for Review		
	Sep-96	No Report with Data Available for Review		
	Jun-96	No Report with Data Available for Review		
	Feb-96	No Report with Data Available for Review		
	Oct-95	No Report with Data Available for Review		
	Jun-95	No Report with Data Available for Review		
	3/7/1995		**27.63**	-7.52
	2/22/1995		**27.82**	-7.71

NOTES:
ft-msl = feet above mean sea level
ft = feet
***** = From Epigene International Consulting March 31, 1995 Installation of Monitoring Wells and First Quarter Monitoring report.
Values in **BOLD** are reported values; values not in bold are calculated from reported values.
Groundwater elevation for 4/1/99 obtained from undated Tetratech Additional Site Characterization Report.
Groundwater elevation for 2/9/00 obtained from summary table in December 2003 Tetratech Site Closure Report.

Table 3
Historic Groundwater Levels
(Continued)

Well Number	Date Monitored	*Top of Casing Elevation (ft msl)	Depth to Water (ft)	Groundwater Elevation (ft-msl)
MW-3	1/5/2009	16.06	**11.03**	5.03
	6/6/2007		**10.39**	5.67
	8/30/2001		18.60	**-2.54**
	12/18/2000		19.04	**-2.98**
	9/27/2000		18.72	**-2.66**
	5/23/2000		15.91	**0.15**
	2/9/2000		16.16	**-0.10**
	4/1/1999		16.16	**-0.10**
	Jul-98	No Report with Data Available for Review		
	Jan-97	No Report with Data Available for Review		
	Sep-96	No Report with Data Available for Review		
	Jun-96	No Report with Data Available for Review		
	Feb-96	No Report with Data Available for Review		
	Oct-95	No Report with Data Available for Review		
	Jun-95	No Report with Data Available for Review		
	3/7/1995		**21.04**	-4.98
	2/22/1995		**21.00**	-4.94

NOTES:
ft-msl = feet above mean sea level
ft = feet
***** = From Epigene International Consulting March 31, 1995 Installation of Monitoring Wells and First Quarter Monitoring report.
Values in **BOLD** are reported values; values not in bold are calculated from reported values.
Groundwater elevation for 4/1/99 obtained from undated Tetratech Additional Site Characterization Report.
Groundwater elevation for 2/9/00 obtained from summary table in December 2003 Tetratech Site Closure Report.

Table 4

Historic Well Water Quality Data
from December 2003 Site Closure Report Prepared by Tetra Tech EM Inc.,
and from January 7, 2009 Groundwater Monitoring and Sampling Report Prepared by P&D Environmental, Inc.

TABLE 2
VOCs AND TPH CONCENTRATIONS IN GROUNDWATER
MONITORING WELL MW-1
FEBRUARY 1995 TO AUGUST 2001
1200 20TH AVENUE, OAKLAND

Date	TPH (µg/L)	VOC (µg/L)				
	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
Feb-95	1,900	92	39	57	260	--
Jun-95	4,100	410	32	14	180	--
Oct-95	1,300	180	22	32	81	--
Feb-96	1,700	200	21	41	120	--
Jun-96	1,900	160	7	34	31	--
Sep-96	4,700	460	66	190	680	--
Jan-97	2,200	230	35	100	330	--
Jul-98	23,000	3,500	450	1,000	3,100	--
Apr-99	14,000	2,600	560	340	1,600	--
Feb-00	3,000	280	17	92	118	ND
May-00	18,000	3,700	430	770	2,440	ND
Sep-00	4,300	1,200	59	420	330	ND
Dec-00	3,200	500	26	130	130	ND
Aug-01	5,400	850	64	230	~~200~~ 330	ND

Notes:

MTBE	Methyl tertiary-butyl ether
µg/L	Micrograms per liter
'--	Not analyzed
ND	Not detected
TPH	Total petroleum hydrocarbons
VOC	Volatile organic compound

For the Aug-01 xylenes result, m,p-xylenes = 200 µg/L, o-xylenes = 130 µg/L, total xylenes = 330 µg/L. The summary table only reported 200 µg/L for xylenes. Previous xylenes results in the summary table are suspect for not having o-xylene results included in the total xylenes result.

TABLE 3
VOCs AND TPH CONCENTRATIONS IN GROUNDWATER
MONITORING WELL MW-2
FEBRUARY 1995 TO AUGUST 2001
1200 20TH AVENUE, OAKLAND

Date	TPH (µg/L)	VOC (µg/L)				
	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
Feb-95	ND	ND	ND	ND	ND	- -
Jun-95	ND	1.8	ND	1.1	0.62	- -
Oct-95	55	2.2	ND	1.5	ND	- -
Feb-96	ND	3.3	2.7	0.99	2.4	- -
Jun-96	ND	ND	0.6	ND	1.2	- -
Sep-96	ND	9.3	0.57	1.3	1.9	- -
Jan-97	ND	2.6	ND	ND	0.76	- -
Jul-98	ND	ND	ND	ND	ND	- -
Apr-99	ND	ND	ND	ND	ND	- -
Feb-00	ND	ND	ND	ND	ND	ND
May-00	ND	ND	ND	ND	ND	ND
Sep-00	ND	ND	ND	ND	ND	ND
Dec-00	ND	ND	ND	ND	ND	ND
Aug-01	- -	- -	- -	- -	- -	- -

Notes:

MTBE	Methyl tertiary-butyl ether
µg/L	Micrograms per liter
'- -	Not analyzed
ND	Not detected
TPH	Total petroleum hydrocarbons
VOC	Volatile organic compound

TABLE 4
VOCs AND TPH CONCENTRATIONS IN GROUNDWATER
MONITORING WELL MW-3
FEBRUARY 1995 TO AUGUST 2001
1200 20TH AVENUE, OAKLAND

Date	TPH (ug/L)	VOC (ug/L)				
	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
Feb-95	ND	ND	ND	ND	ND	- -
Jun-95	160	0.6	ND	0.6	0.72	- -
Oct-95	130	5.8	ND	3.2	ND	- -
Feb-96	54	5.6	2.8	2.9	8.1	- -
Jun-96	ND	ND	ND	ND	ND	- -
Sep-96	96	12	7.1	4	6.2	- -
Jan-97	ND	ND	ND	ND	ND	- -
Jul-98	ND	ND	ND	ND	ND	- -
Apr-99	ND	ND	ND	ND	ND	- -
Feb-00	ND	ND	ND	ND	ND	ND
May-00	ND	ND	ND	ND	ND	ND
Sep-00	ND	ND	ND	ND	ND	ND
Dec-00	ND	ND	ND	ND	ND	ND
Aug-01	- -	- -	- -	- -	- -	- -

Notes:

MTBE	Methyl tertiary-butyl ether
µg/L	Micrograms per liter
'- -	Not analyzed
ND	Not detected
TPH	Total petroleum hydrocarbons
VOC	Volatile organic compound

Table 2. Summary of Laboratory Analytical Results

Well Number	Sample Date	TPH-D	TPH-G	MTBE	Benzene	Toluene	Ethylbenzene	Total Xylenes	EDB	1,2-DCA
MW1	6/6/2007	1,900, a	9,000	ND < 160	1,200	63	130	74.0	ND < 5.0	59.0
MW2	6/6/2007	ND < 50	ND < 50	ND < 5.0	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
MW3	6/6/2007	ND < 50	ND < 50	ND < 5.0	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5

Abbreviations and Notes:

TPH-D = Total Petroleum Hydrocarbons as Diesel
TPH-G = Total Petroleum Hydrocarbons as Gasoline
MTBE = Methyl tertiary-butyl ether analyzed by EPA Method 8021B.
EDB = Ethylene Dibromide analyzed by EPA Method 8260B.
1,2-DCA = 1,2-Dichloroethane analyzed by EPA Method 8260B.
Benzene, Toluene, Ethylbenzene and Total Xylenes analyzed by EPA Method 8021B.
ND = Not detected.
a = Laboratory Note: gasoline range compounds are significant.
Results in micrograms per liter (µg/L) unless otherwise specified.

FIGURES

Figure 1
Site Location Map
William Wurzbach Company
1200 20th Avenue
Oakland, California

N

Base Map From:
U.S.Geological Survey
Oakland East and
Oakland West, California
7.5 Minute Quadrangles
Photorevised 1980

P&D Environmental, Inc.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610

0 1,000 2,000
SCALE IN FEET

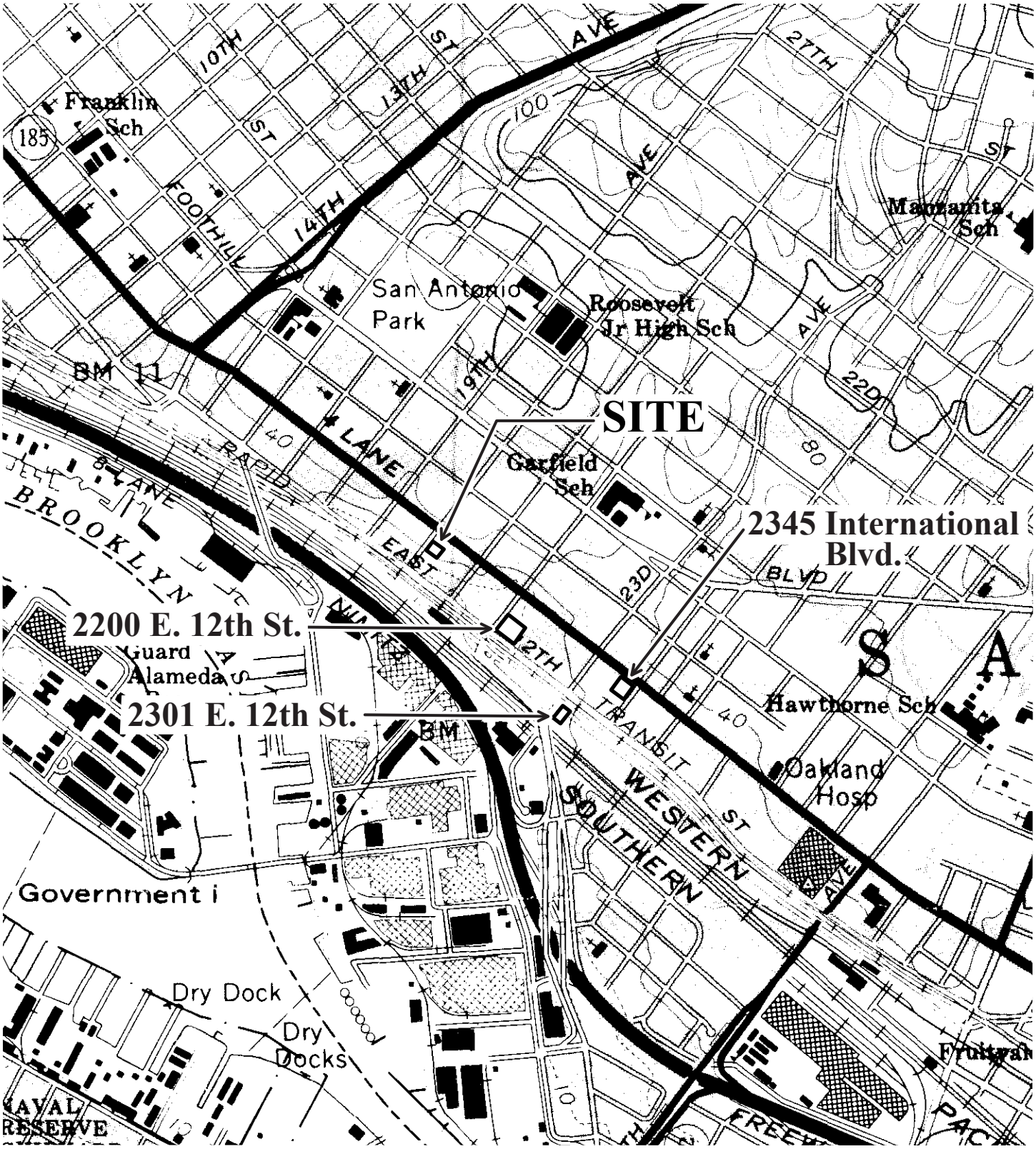


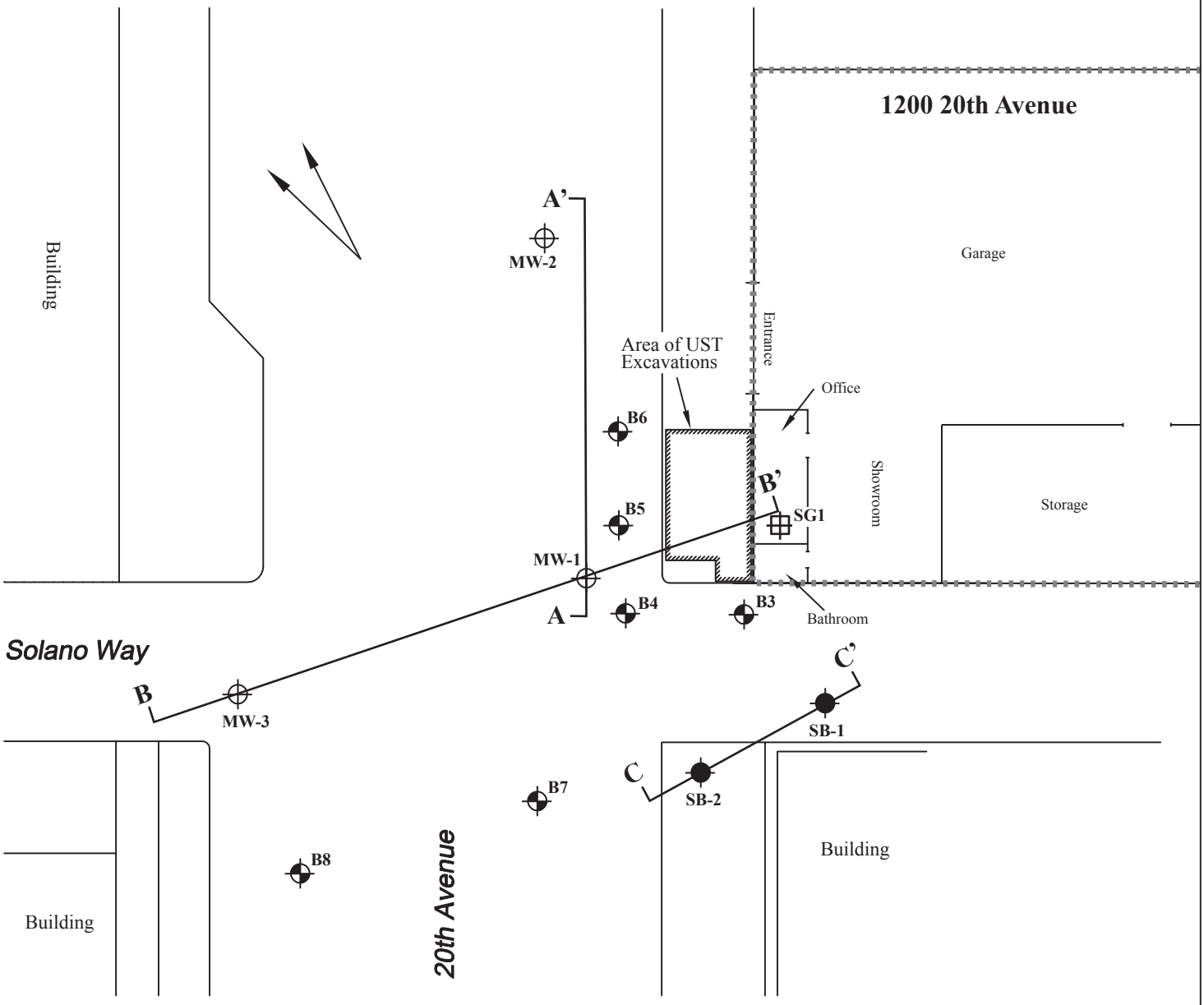
Figure 2
Site Location Map Detail
William Wurzbach Company
1200 20th Avenue
Oakland, California

N

Base Map From:
U.S.Geological Survey
Oakland East, California
7.5 Minute Quadrangle
Photorevised 1980

P&D Environmental, Inc.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610

0 500 1,000
SCALE IN FEET



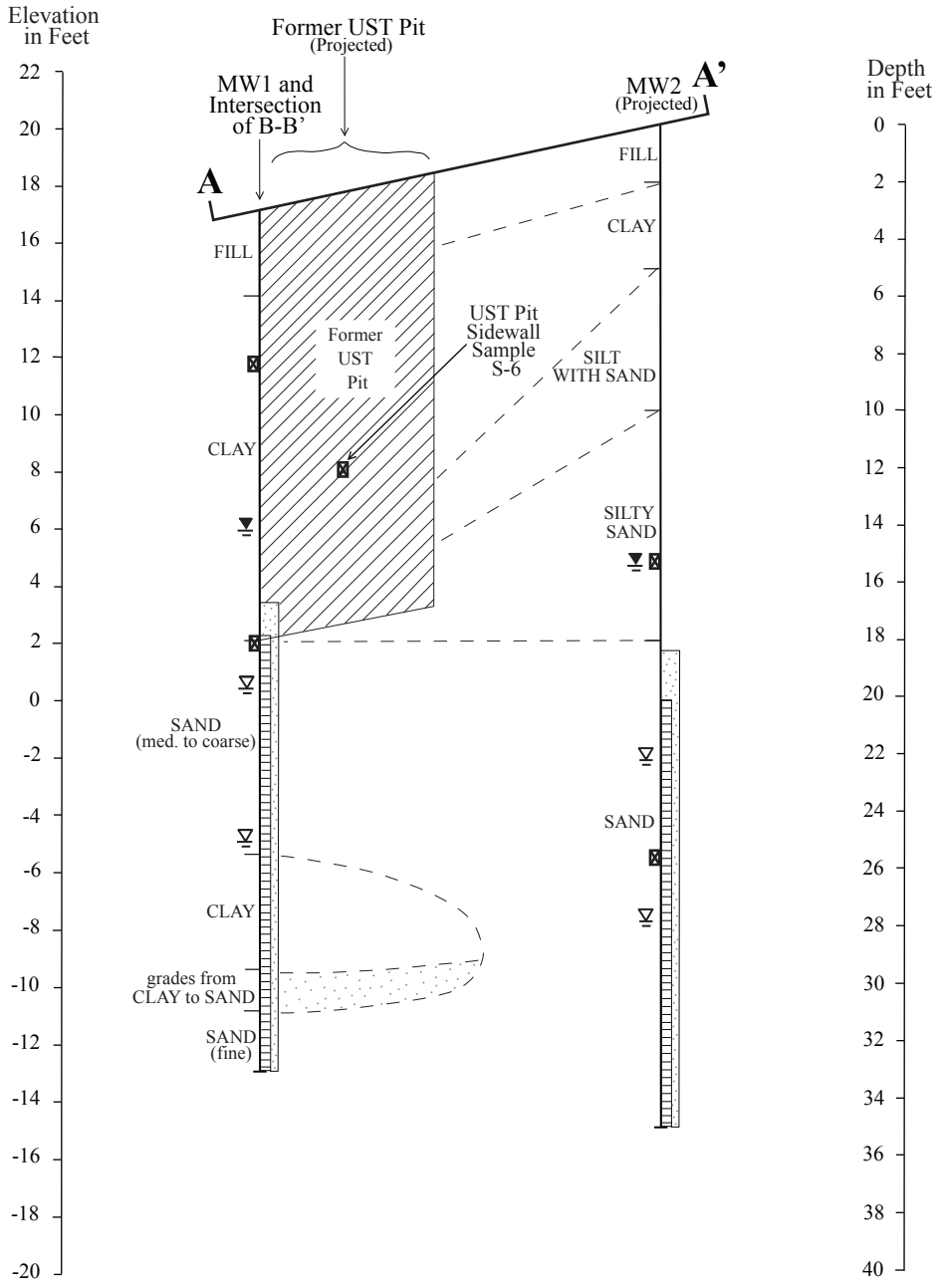
LEGEND

- MW-3 — Existing Monitoring Well
- SB-2 — Existing Soil Boring
- B8 — Proposed Borehole
- SG1 — Proposed Soil Gas Sample Collection Location
- C — C' — Geologic Cross Section Location
- Historical Range of Groundwater Flow Direction

Figure 3
Site Vicinity Map Showing Cross Section and Proposed Drilling Locations
William Wurzbach Company
1200 20th Avenue
Oakland, California

N

Base Map From:	P&D Environmental, Inc.	0 10 20
Tetra Tech EM Inc. Site Location Map	55 Santa Clara Avenue, Suite 240 Oakland CA 94610	SCALE IN FEET



LEGEND

- Screened Interval of Well, with Sand Pack
- Soil Sample Analysis Interval
- Former UST Pit
- Historical Range of Water Levels Prior to 2002
- Historical High Water Level After 2002

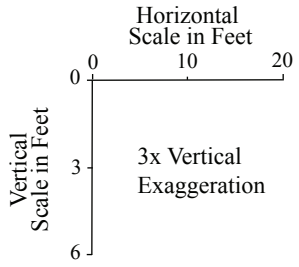
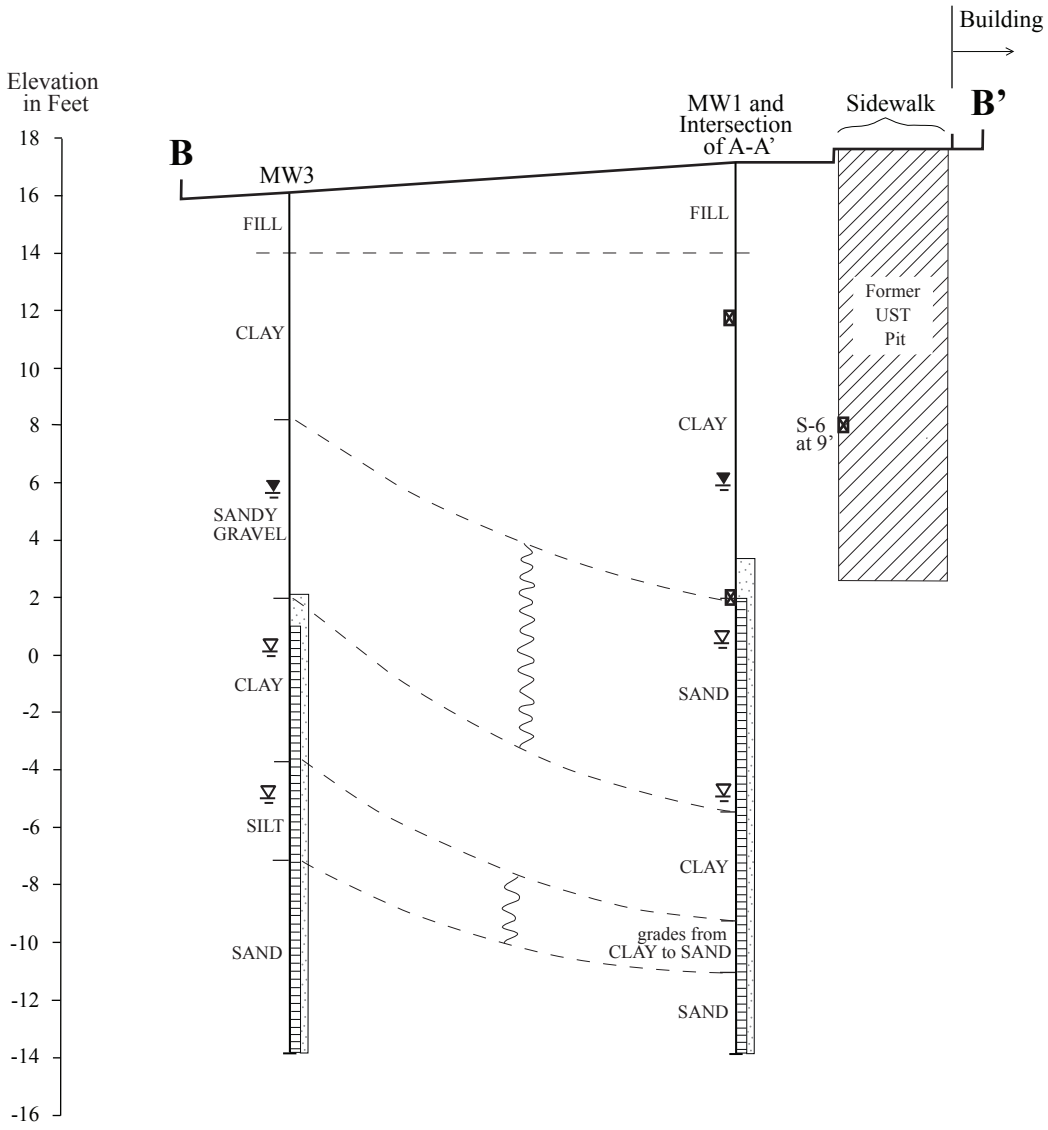


Figure 4
Geologic Cross Section A-A'
William Wurzbach Company
1200 20th Avenue
Oakland, California

P&D Environmental, Inc.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610



LEGEND

- Screened Interval of Well, with Sand Pack
- Soil Sample Analysis Interval
- Former UST Pit
- Historical Range of Water Levels Prior to 2002
- Historical High Water Level After 2002

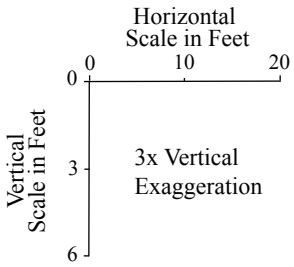


Figure 5
Geologic Cross Section B-B'
William Wurzbach Company
1200 20th Avenue
Oakland, California

P&D Environmental, Inc.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610

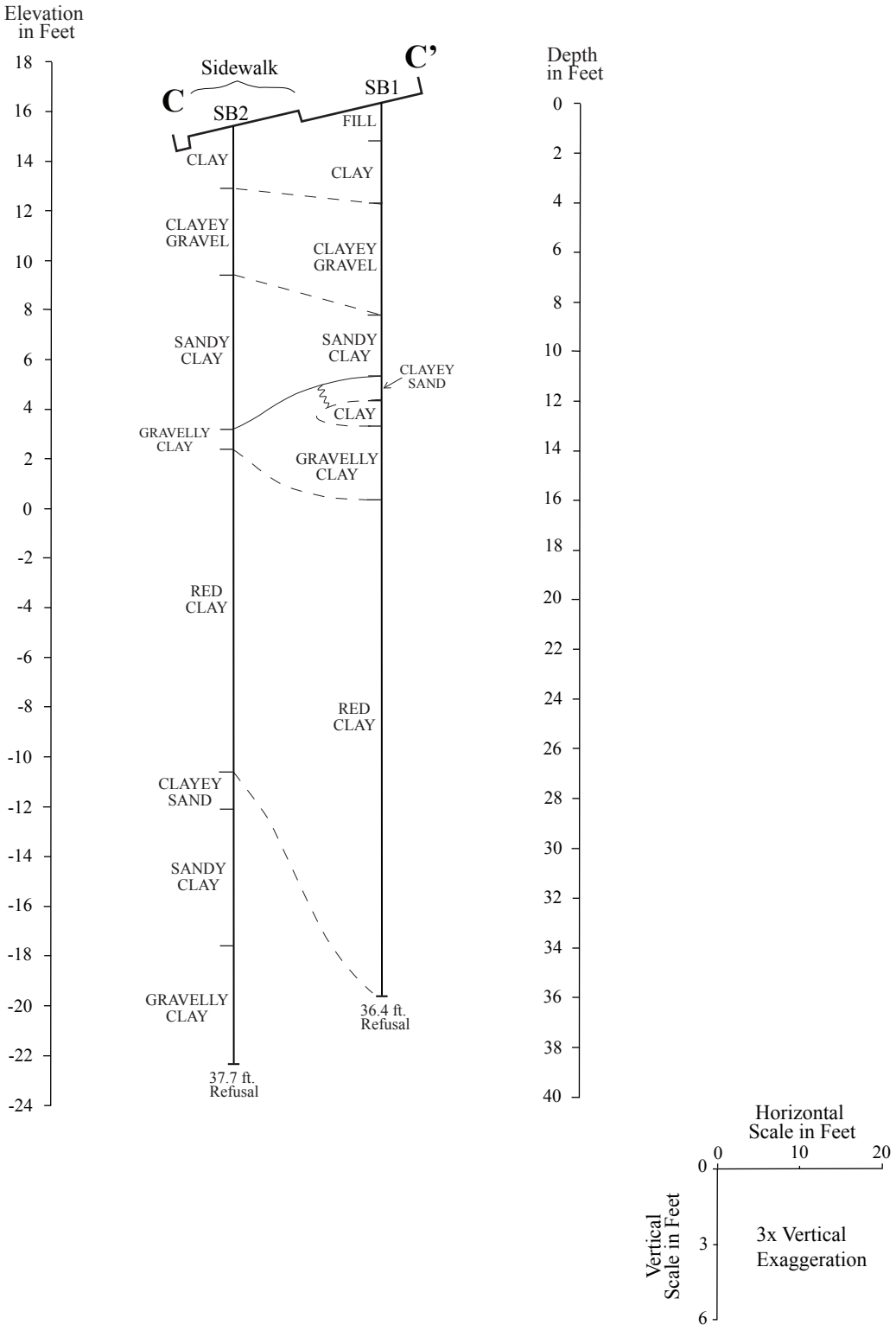


Figure 6
Geologic Cross Section C-C'
William Wurzbach Company
1200 20th Avenue
Oakland, California

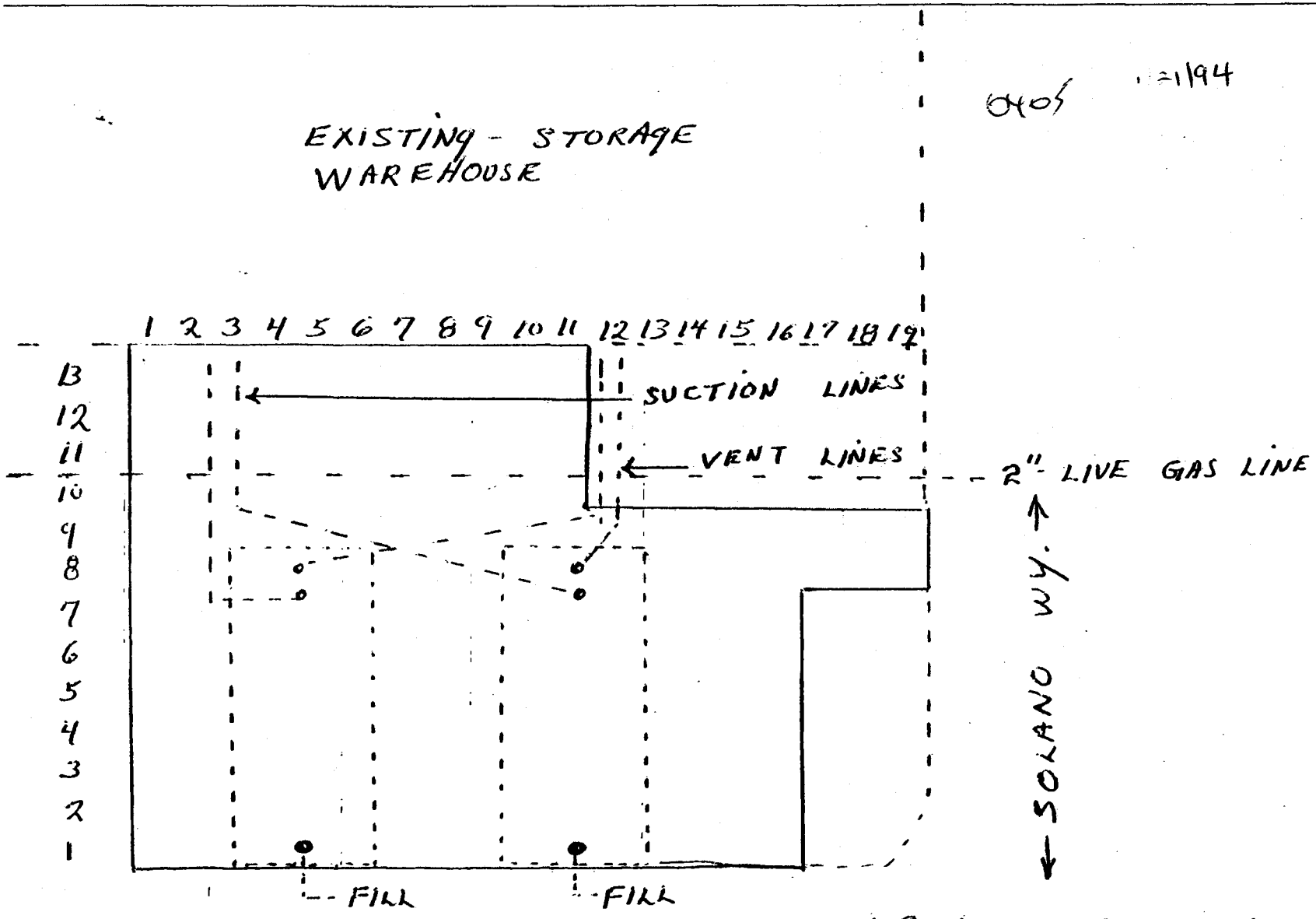
P&D Environmental, Inc.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610

Figure 7. Typical Soil Gas Sample Collection Manifold

APPENDIX A
UST Removal Information

- **From J.W Silveira Realty File Review**

- **From Results of Soil Sampling During Removal of Two Underground Storage Tanks dated February 14, 1994.**



1 9 4 SQUARE FEET
OVER ALL CONCRETE
REPLACEMENT.

L.W. SILVIERA PROPERTIES
1200 - 20TH AVE
OAKLAND, CA. 94606

#1 and the western tank as tank #2.

The tanks were removed from the excavation by backhoe and after being inspected and photographed, were placed on a flatbed. They were taken from the site by H and H Ship Services under manifest for destruction. The bottom of the tanks were at a depth of approximately 8 feet. The native soils below the tanks consists primarily of clay to silty clay. Due to significant staining in the soil especially below tank #2, the excavation was extended to a depth of 15 feet. The lateral extent of the excavation was limited by 20th Avenue on the north, Solano Way on the west and an existing gas line and the foundation for the building on the south.

Soil samples were collected by having the backhoe dig at selected areas of the bottom and sidewalls of the excavation. A clean brass tube was driven into the soil in the backhoe bucket just above the teeth. Each tube was sealed, labeled and placed in a cooled ice chest for transport to a State-certified Laboratory under chain-of-custody control. Mr. Barney Chan of the Alameda County Dept. of Environmental Health was on site to observe the sampling activities. The locations of the samples are listed below.

S-1 was collected at a depth of 15 feet below the south end of tank #2 ✓

S-2 was collected at a depth of 15.5 feet below the center of tank #1 ✓

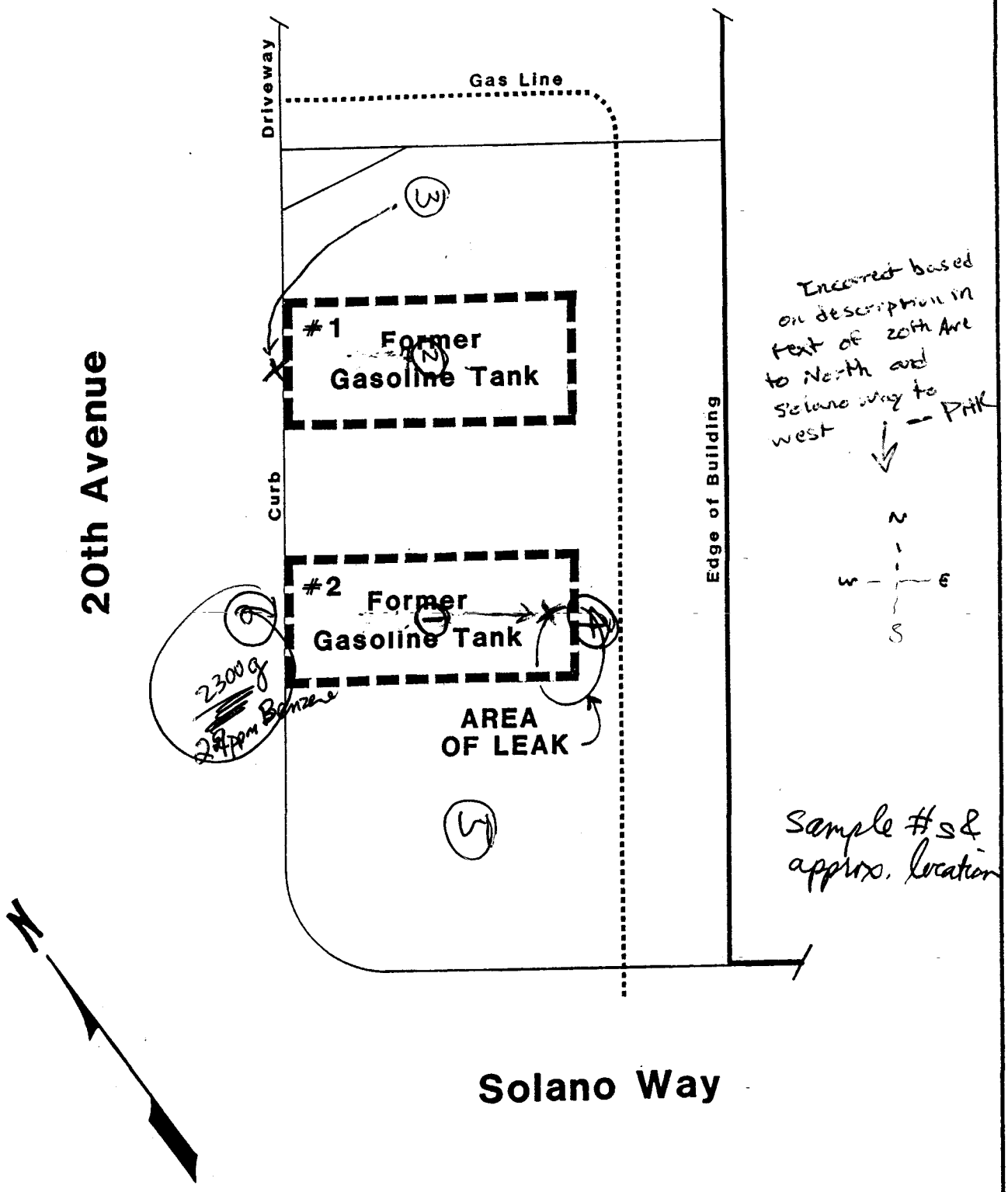
S-3 was collected at a depth of 9 feet in the northern sidewall for tank #1 ✓

S-4 was collected at a depth of 9 feet in the (SE) southern sidewall for tank #2 ✓

S-5 was collected at a depth of 9 feet in the southwest sidewall at tank #2 ✓

S-6 was collected at a depth of 9 feet in the northwest sidewall at tank #2 ✓

The results of the analysis and copies of Chain-of-custody documentation are presented



EPIGENE INTERNATIONAL	Project #94067 1200 20th Avenue, Oakland, California.

Fig. 3

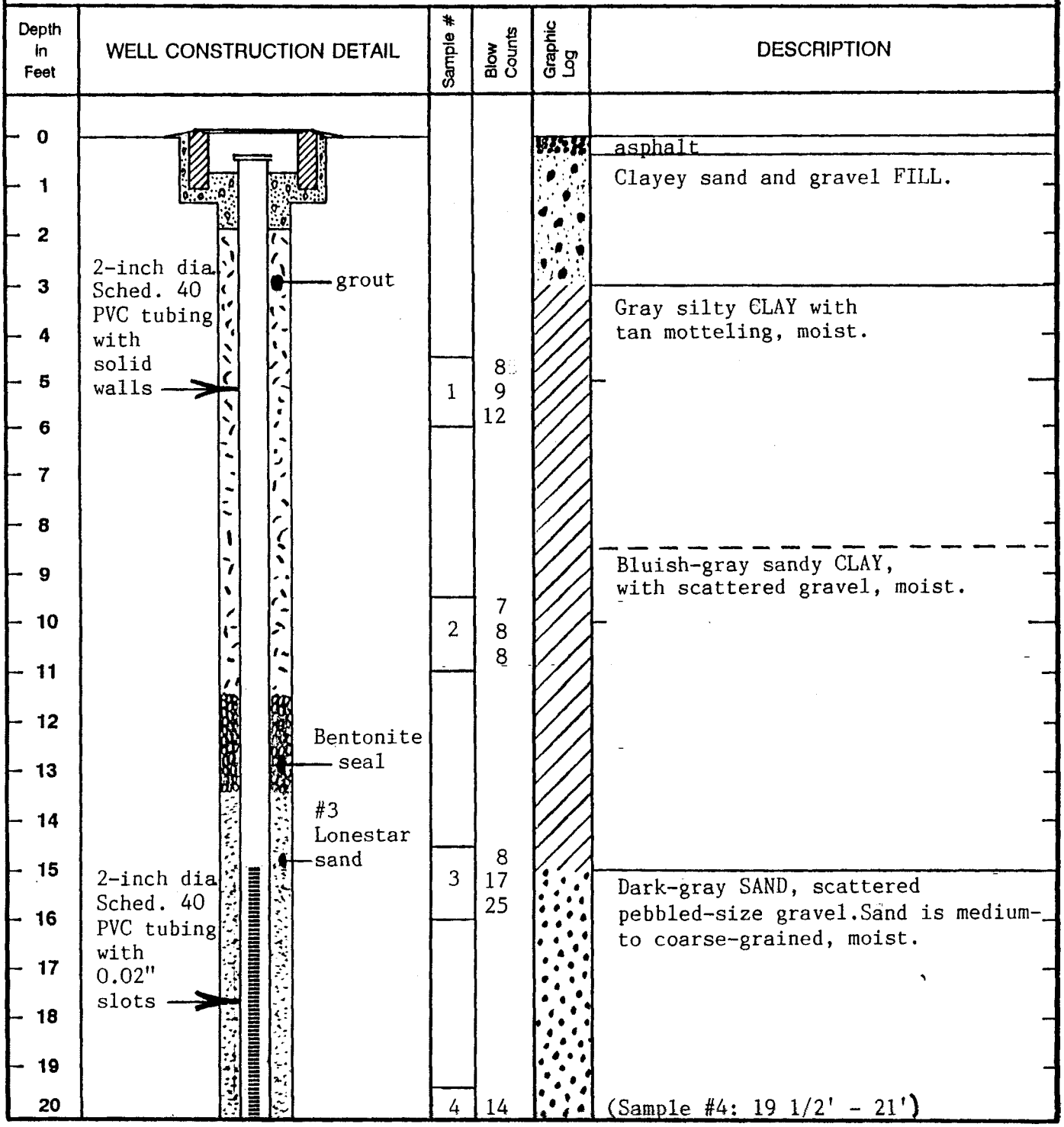
SITE PLAN

APPENDIX B
MW-1, MW-2, and MW-3 Historical Boring Logs and Well Construction Details

From Installation of Monitoring Wells and First Quarter Monitoring dated March 31, 1995. Prepared by Epigene International Consulting Geologists.

WELL LOG

Project	1200 20th Avenue.	Well Number	MW-1
Location	1200 20th Ave., Oakland, California.	Diameter of Boring	8 inches
Project #	94-067	Total Depth of Boring	30 feet
Geologist	J. Alt, CEG	Date Started	February 13, 1995
Drill Company	Soils Exploration Services	Date Completed	February 13, 1995
Comments			



EPIGENE INTERNATIONAL

WELL LOG

Project Name 1200 20th Avenue. Well Number MW-1

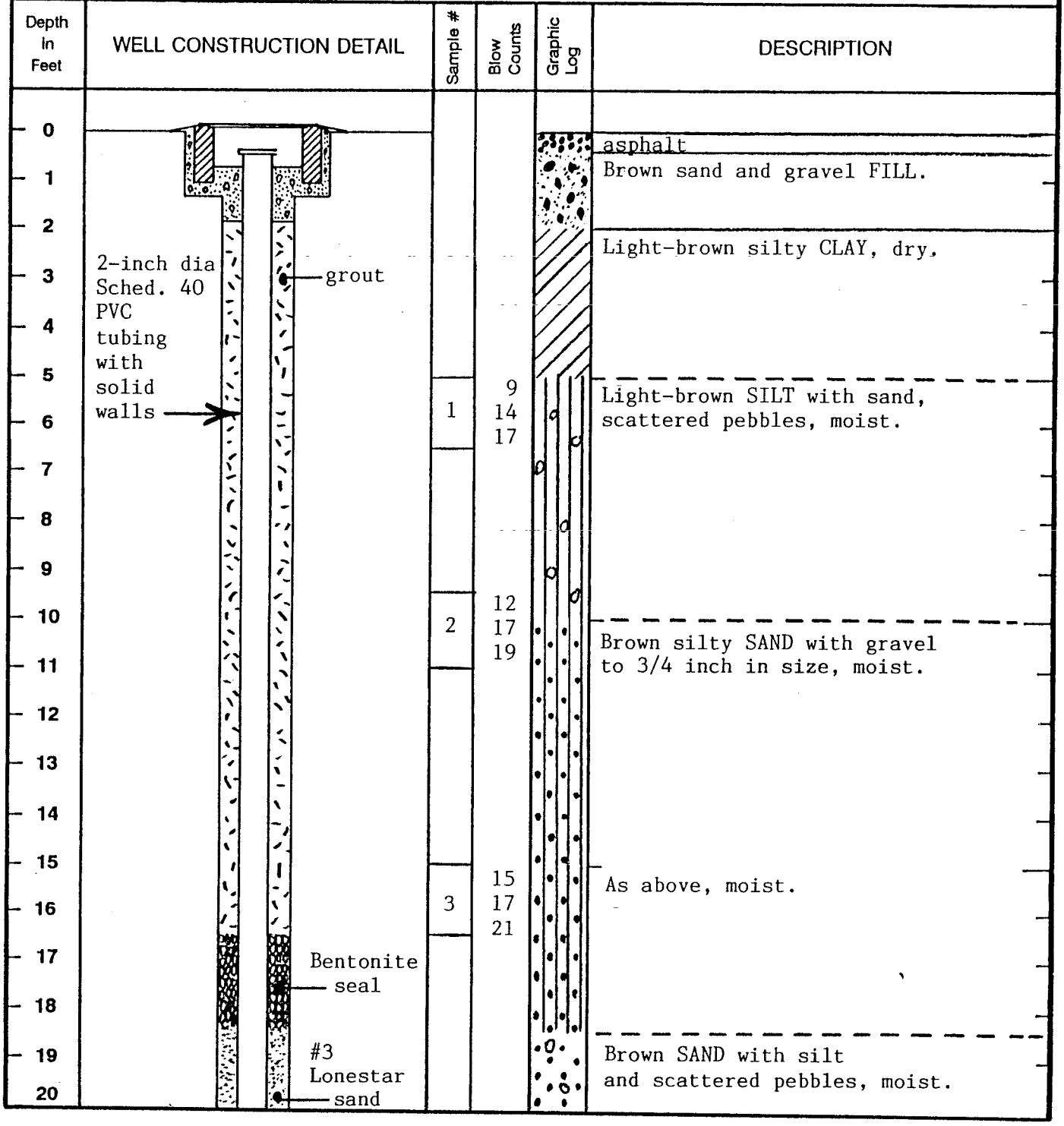
Project Number 94-067 Page 2 of 2

Depth In Feet	WELL CONSTRUCTION DETAIL	Sample #	Blow Counts	Graphic Log	DESCRIPTION
20	2-inch dia PVC sched. 40 tubing with 0.02" slots; #3 Lonestar sand; Slip-on end cap	4	14 30 41		Dark gray SAND (as above), scattered pebble-size gravel. Sand is medium- to coarse-grained, moist.
21					
22					
23					Grayish-tan silty CLAY with lenses of brown silty sand,
24					
25		5	5 8 10		grading
26					to
27					
28					brown fine-grained SAND.
29					
30					Bottom of boring.
31		6	6 14 31		Bottom of sampling.
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					

EPIGENE INTERNATIONAL

WELL LOG

Project	1200 20th Avenue.	Well Number	MW-2
Location	1200 20th Ave., Oakland, California.	Diameter of Boring	8 inches
Project #	94-067	Total Depth of Boring	35 feet
Geologist	J. Alt, CEG	Date Started	February 13, 1995
Drill Company	Soils Exploration Services.	Date Completed	February 13, 1995
Comments			



EPIGENE INTERNATIONAL

WELL LOG

Project Name 1200 20th Avenue. Well Number MW-2

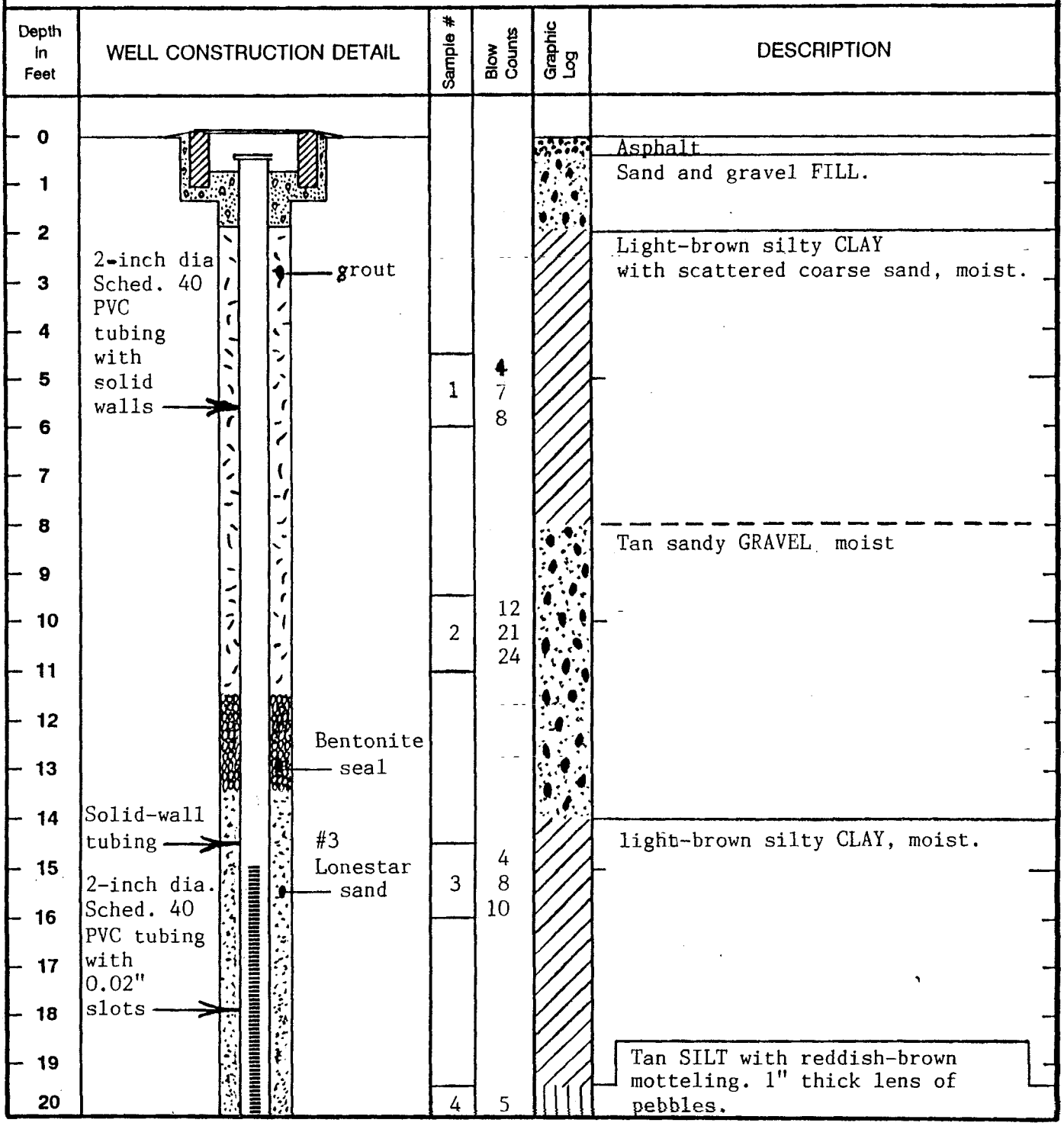
Project Number 94-067 Page 2 of 2

Depth In Feet	WELL CONSTRUCTION DETAIL	Sample #	Blow Counts	Graphic Log	DESCRIPTION
20	solid wall				Brown SAND (as above) with silt and scattered pebbles, moist.
21	2" dia. Sched. 40, PVC tubing with 0.02" slots	4	10 19 32		
22	#3 Lonestar sand				
23					
24					
25		5	16 23 34		As above.
26					
27					
28					
29					
30		6	6 10 9		As above, wet. Lenses of brown silt.
31					
32					
33	#3 Lonestar sand				
34					
35	Slip-on end cap	7	8 14 18		Bottom of boring Brown gravelly SAND with silt, gravel to 1 1/2" in size, sub-round to sub-angular (chert, shale, SS).
36					
37					Bottom of sampling
38					
39					
40					
41					
42					
43					
44					
45					

EPIGENE INTERNATIONAL

WELL LOG

Project	1200 20th Avenue.	Well Number	MW-3
Location	1200 20th Ave., Oakland, California.	Diameter of Boring	8 inches
Project #	94-067	Total Depth of Boring	30 feet
Geologist	J. Alt, CEG	Date Started	February 14, 1995
Drill Company	Soils Exploration Services.	Date Completed	February 14, 1995
Comments			



EPIGENE INTERNATIONAL

WELL LOG

Project Name 1200 20th Avenue. Well Number MW-3

Project Number 94-067 Page 2 of 2

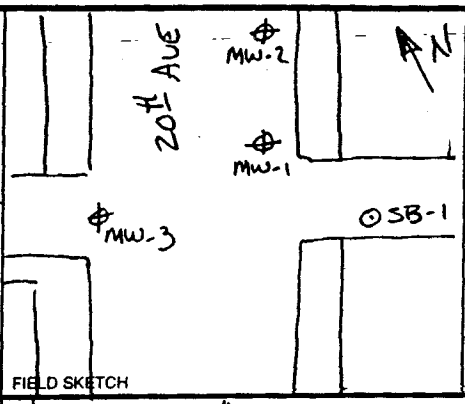
Depth in Feet	WELL CONSTRUCTION DETAIL	Sample #	Blow Counts	Graphic Log	DESCRIPTION
20	2-inch dia Sched. 40 PVC tubing with 0.02" slots; #3 Lonestar sand	4	5 7 4		Tan SILT with reddish-brown motteling (as above). 1"-thick lens of pebbles.
21					
22					
23					Tan SAND, fine-grained, moist.
24					
25		5	4 11 13		
26					
27					
28					
29					As above, saturated.
30	Slip-on end cap				Bottom of boring.
31		6	7 11 15		
32					Bottom of sampling
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					

EPIGENE INTERNATIONAL

APPENDIX C
SB-1 and SB-2 Historical Boring Logs

From Additional Site Characterization Report (Undated). Prepared by Tetra Tech EM Inc.

Tetra Tech EM Inc.
135 MAIN STREET, SUITE 1800
SAN FRANCISCO, CA 94105
415-543-4880



BORING ID: SB-1
SITE: 1200 20th AVE
PROJECT: SILVEIRA - OAKLAND
PROJECT NO.: P1106
DATE: 6-7-99
LOGGED BY: ROY GLENN

SAMPLE ID	SAMPLE TIME	SAMPLE DEPTH	PID READING	DRIVE INTERVAL	INCHES RECOVERED / INCHES DRIVEN	DEPTH (ft bgs)	USCS SOIL TYPE	
						1		ASPHALT 6".
								FILL, SANDY-SILT, VERY PALE BROWN (10YR 7/4), MOIST, SOFT.
					46/48	2	CL	SILTY-CLAY, LIGHT YELLOWISH BROWN (10YR 6/4), LOW PLASTICITY, DRY, STIFF
						3		
						4		CLAYEY-GRAVEL, BROWN (10YR 4/3), FINE, SUB-ROUNDED, MEDIUM DENSE GRAVEL, WELL GRADED, DRY
					48/48	5	GC	
						6		
						7		
						8		
					44/48	9	CL	SANDY-CLAY, GRAYISH-BROWN (2.5Y 5/2), LOW PLASTICITY DAMP, VERY STIFF, w/15% COARSE SAND.
						10		
						11	SC	CLAYEY-SAND, BROWN (10YR 4/3), SUB-ANGULAR, COARSE GRAINED SAND, MOIST, DENSE
						12	CH	CLAY, OLIVE YELLOW (2.5Y 6/6), HIGH PLASTICITY, DAMP, VERY STIFF.
					45/48	13		GRAVELY-CLAY, MOTTLED BROWN (7.5YR 5/2) & GRAY (5Y 6/1) LOW PLASTICITY, MOIST, STIFF, w/20% FINE GRAVEL.
						14	CL	
						15		
						16		NO RECOVERY
					0/36	17		
						18		
						19		CLAY, REDDISH BROWN (5YR 4/4), HIGH PLASTICITY, DAMP, VERY STIFF
					35/36	20	CH	

SAMPLE ID	SAMPLE TIME	SAMPLE DEPTH	PID READING	DRIVE INTERVAL	INCHES RECOVERED / INCHES DRIVEN	DEPTH (ft bgs)	USCS SOIL TYPE
					22/24	22	CH
					21/24	24	
					23/24	26	
					18/18	28	
					24/24	29	
					17/18	31	
					22/24	33	
					11/12	35	
						36	
						37	
						38	
						39	
						40	
						41	
						42	
						43	
						44	

Tetra Tech EM Inc.
135 MAIN STREET, SUITE 1800
SAN FRANCISCO, CA 94105
415-543-4880

BORING ID: SB-1
SITE: 1200 20th AVENUE
PROJECT: SILVEIRA - OAKLAND

SAME AS ABOVE: CLAY, REDDISH BROWN (5YR 4/4)
HIGH PLASTICITY, DAMP, VERY STIFF.

w/1.5% VERY FINE GRAVEL 2-5mm

NO GRAVEL PRESENT

w/10% MEDIUM SAND

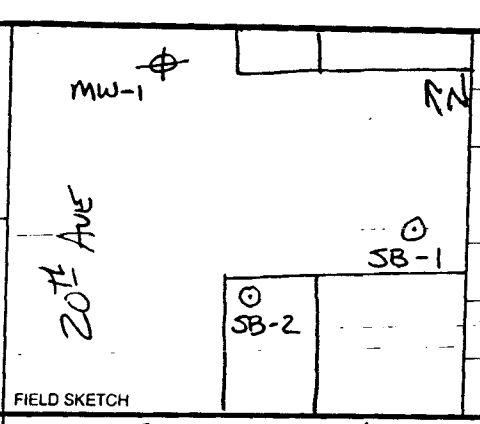
TD = 36 ft bgs. SAMPLER REFUSAL

Tetra Tech EM Inc.

135 MAIN STREET, SUITE 1800
SAN FRANCISCO, CA 94105
415-543-4880

BORING ID: SB-2
SITE: 1200 20th Ave
PROJECT: Silveira - Oakland
PROJECT NO.: P1106
DATE: 8-10-99
LOGGED BY: Roy Glenn

FIELD SKETCH



SAMPLE ID	SAMPLE TIME	SAMPLE DEPTH	PID READING	DRIVE INTERVAL / INCHES RECOVERED / INCHES DRIVEN	DEPTH (ft bgs)	USCS SOIL TYPE	
				42/46	1	CL	Silty-Clay, Light Yellowish Brown (10 YR 6/4), Low Plasticity, Dry, Stiff.
					2		
					3	GC	Clayey-Gravel, Brown (10 YR 4/3), Medium Grained, Sub-Rounded, Well Graded Gravel, Medium Dense, Dry.
					4		
				46/46	5		Damp
					6		
					7	CL	Sandy-Clay, Olive Brown (2.5 Y 4/3), Low Plasticity, Damp, Very Stiff, w/20% medium sand.
JW2-05	1055				8		
				46/46	9		
					10		
					11	CL	Gravely-Clay, Mottled Brown (7.5 YR 5/2) & Gray (5Y 6/1) Low Plasticity, Moist, Stiff, w/15% Fine Gravel 5-6 mm
				45/46	12		
					13		
					14	CH	Clay, Dark Red (2.5 YR 4/6), High Plasticity, Damp, Very Stiff
					15		
					16		
				46/46	17		w/10% Very Fine Gravel 2-4 mm
					18		
					19		
					20		

Tetra Tech EM Inc.
135 MAIN STREET, SUITE 1800
SAN FRANCISCO, CA 94105
415-543-4880

BORING ID: SB-2
SITE: 1200 20th Ave
PROJECT: Silveira - Oakland

SAMPLE ID	SAMPLE TIME	SAMPLE DEPTH	PID READING	DRIVE INTERVAL	INCHES RECOVERED / INCHES DRIVEN	DEPTH (ft bgs)	USCS SOIL TYPE	
					34/36	22		Same As Above: Clay, Dark Red (2.5 YR 4/6) High Plasticity, Damp, Very Stiff, w/ 10% Very Fine Gravel 2-4mm
						23	CH	
					31/36	24		
						25		
						26		
JW2-006	1200				36/36	27	SC	Clayey-Sand, Brown (7.5 YR 5/2), Medium Grained, Poorly Graded Sand, Very Dense, Damp
						28		Sandy-Clay, Grayish Brown (2.5 Y 5/2), Low Plasticity Damp, Very Stiff, w/ 15% Fine Grained Sand
						29		
					21/24	30	CL	
						31		w/ 5% Medium Gravel 8-12mm
					24/24	32		
						33		Gravelly-Clay, Yellowish Brown (10YR 5/4), Low Plasticity Damp, Very Stiff, w/ 20% Fine to Medium Gravel 6-14mm
					16/18	34		
						35	CL	
					17/18	36		
					12/12	37		
					8/9	38		TD = 37.7 ft bgs. Equipment Refusal
						39		Dry. No Groundwater Encountered.
						40		
						41		
						42		
						43		
						44		