

Real Estate
Oakland, CA 94606

e-mail: jwsilveiraco@yahoo.com

J.W. SILVEIRA CO.

Tel: (510) 834-9810
Fax: (510) 763-9996

RECEIVED

3:51 pm, Sep 21, 2010

Alameda County
Environmental Health

September 10, 2010

Mr. Mark Detterman
Alameda County Environmental Health Department
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

SUBJECT: SUB-SLAB VAPOR SAMPLE WORK PLAN CERTIFICATION

County File # RO 387
Mel Senna Brake Service
2301 East 12th Street
Oakland, CA

Dear Mr. Detterman:

P&D Environmental, Inc. has prepared the following document:

- Sub-Slab Vapor Sample Work Plan dated September 10, 2010 (document 0404.W2).

I declare under penalty of perjury that the contents and conclusions in the document are true and correct to the best of my knowledge.

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

Sincerely,

J.W. Silveira Realty


J.W. Silveira

P&D ENVIRONMENTAL, INC.

55 Santa Clara Avenue, Suite 240

Oakland, CA 94610

(510) 658-6916

September 10, 2010
Work Plan 0404.W2

Mr. Mark Detterman
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

SUBJECT: SUB-SLAB VAPOR SAMPLING WORK PLAN (SG7 THROUGH SG10)
County File # RO 387
Mel Senna Brake Service
2301 East 12th Street
Oakland, CA

Dear Mr. Detterman:

P&D Environmental, Inc. (P&D) is pleased to present this work plan for sub-slab soil gas investigation at the subject site. Permanent sub-slab vapor sampling probes for the collection of sub-slab soil gas samples will be installed at a total of four on-site locations, designated as SG7 through SG10, to evaluate the sub-slab presence and extent of petroleum hydrocarbons in soil gas, and for risk and hazard analysis of potential vapor intrusion to indoor air. This work plan is written in response to a request set forth in a letter dated July 26, 2010 from the Alameda County Department of Environmental Health (ACDEH) for a subsurface soil gas investigation work plan. A Site Plan showing underground utilities and proposed soil gas sampling locations is attached as Figure 1.

All work will be performed under the direct supervision of a professional geologist. This work plan is prepared in accordance with guidelines set forth in the following documents.

- 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,
- Department of Toxic Substances Control (DTSC) "Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties" dated January, 2005,
- DTSC "Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air" revised February 7, 2005,
- San Francisco Bay Regional Water Quality Control Board (SFRWQCB) "Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater" dated May 2008,

- DTSC “Vapor Intrusion Mitigation Advisory” revised May 8, 2009.
- DTSC “Advisory - Active Soil Gas Investigations” dated March 3, 2010,

BACKGROUND

A detailed discussion of the site history and historical site investigations is provided in P&D’s December 16, 2008 Subsurface Investigation Work Plan (document 0404.W1) and P&D’s Subsurface Investigation Report dated July 7, 2009 (document 0404.R4).

Following soil gas sample collection at locations adjacent to the subject site building, P&D recommended in P&D’s Subsurface Investigation Report dated July 7, 2009 (document 0404.R4) that additional soil gas samples be collected from beneath the building at locations SG7 through SG10. In a letter dated July 26, 2010 from the ACDEH installation of permanent vapor sampling probes and to account for potential vapor intrusion pathways potentially allowed by utility conduits to interior air spaces by vapor probe placement.

In August, 2010 JRA Associates, Inc. of San Jose located underground utilities beneath the subject site building floor slab using a magnetometer. In September, 2010 P&D also retained a plumber to augment information provided by JRA related to the location of sewer pipes beneath the building floor slab. The utilities identified by JRA and the plumber are shown in Figure 1.

SCOPE OF WORK

P&D will perform the following tasks.

- Permitting.
- Health and safety plan preparation and mark drilling locations with white paint.
- Install four permanent sub-slab vapor sampling probes.
- Soil gas sample collection.
- Arrange for soil gas sample analysis.
- Report preparation.

Each of these is discussed below in detail.

Permitting

A permit will be obtained from the Alameda County Public Works Agency for installation of four permanent sub-slab vapor sampling probes.

Health and Safety Plan Preparation

A health and safety plan will be prepared for the scope of work identified in this work plan. Prior to the beginning of fieldwork, the drilling locations will be marked with white paint and Underground Service Alert will be notified for underground utility location. Notification of the scheduled date of investigation will also be provided to the ACDEH.

Sub-Slab Vapor Sampling Probe Installation

Permanent sub-slab vapor sampling probes will be installed in accordance with the DTSC 2010 and 2005 Advisories for Active Soil Gas Investigation at locations shown in Figure 1. Figure 2 is a schematic diagram of a typical sub-slab sampling probe showing the proposed construction for the permanent sub-slab vapor sampling probes.

The holes for the permanent sub-slab vapor sampling probes will be drilled by Vironex, Inc. of Pacheco, California using a rotohammer with a 1-inch diameter drill bit to a depth of approximately 3 inches below the bottom of the concrete floor slab. The sub-slab vapor sampling probes will be constructed by Vironex Inc. using a 2-inch long permeable vapor probe tip will be placed in the bottom of each borehole with a Teflon separator located at the top of the vapor probe tip. A ¼-inch diameter stainless steel tube will extend from the top of the vapor probe tip to ¼ inch below the top of the concrete floor slab. A bentonite slurry will be poured into each borehole to a height of two inches above the top of the Teflon separator. The remaining borehole will be filled with neat cement. The top of each steel tube will be covered with a recessed threaded cap in the floor slab. The sub-slab vapor sampling probes will be constructed to prevent potential vapor intrusion from beneath the floor slab to indoor air.

Review of the soil gas sample results in P&D's Subsurface Investigation Report dated July 7, 2009 (document 0404.R4) shows that the highest TPH-G and benzene soil gas concentrations were encountered in the central portion of the property in the vicinity of the former western UST pit (to the northwest and southwest of proposed location SG7. Review of Figure 1 shows that the sewer lines identified below the subject site floor slab are located only in the vicinity of proposed locations SG7 and SG8. Proposed locations SG7 and SG8 will monitor the sub-slab portion of the building in the vicinity of potential sub-slab preferential pathways for vapor migration (the sewer trenches). Proposed locations SG9 and SG10 will monitor portions of the sub-slab portion of the building where potential sub-slab preferential pathways for vapor intrusion were not identified during the sub-slab utility survey. Soil gas samples will be collected at least 30 minutes after completion of probe construction.

Sub-Slab Soil Gas Sample Collection

Soil gas samples will be collected from each of the sub-slab soil gas sampling probes by connecting a 6-liter Summa purge canister and 1-liter Summa sample canister to the sub-slab soil gas sampling probe with Teflon tubing using the configuration shown in Figure 3. At the time that the sampling manifold is assembled, the vacuum for the sample canister will be checked with a vacuum gauge and recorded.

Prior to purging the soil gas from the sub-slab soil gas sampling probe, a 10 minute leak check of the sampling manifold will be performed by closing the valve located between the filter and the pressure gauge, opening the purge canister valve, and recording the manifold system vacuum (see Figure 3). No purge testing for purge volume determination will be performed because the samples are shallow soil gas samples (collected at less than five feet below the ground surface). Following successful verification of the manifold leak check, a default of three purge volumes will be extracted prior to sample collection. The purge time will be calculated using a nominal flow rate provided by the flow controller of 50 milliliters per minute. Following completion of

purging three purge volumes, the valve to the purge canister will be closed, 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 (PID) 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 be monitored again with the PID. Once the vacuum for the sample canister valve has decreased to 5 inches of mercury, the Rubbermaid bin will be removed and the sample canister valve closed. The pressure gage on the inlet side of the flow controller (see Figure 3) will be monitored during sample collection to ensure that the vacuum applied to the temporary well does not exceed 100 inches of water.

Following collection of the Summa canister sample, the same manifold will be used to collect a soil gas sample using an adsorbent tube. The adsorbent tube will be kept in a cooler with ice prior to use and after use. At the time of sample collection, the inlet for the sampling tube will be connected to the manifold where the 1-liter Summa canister was connected. A vacuum pump will be connected to the downstream side of the sorbent tube using swage lock fittings, and the Rubbermaid bin will be placed over the manifold and sorbent tube (the vacuum pump will be located outside of the Rubbermaid bin). A vacuum will be applied with the vacuum pump to the sorbent tube for 20 minutes. The flow controller in the manifold will result in a nominal flow rate of 50 milliliters per minute, for a total volume of 1,000 milliliters drawn through the adsorbent tube. The pressure gage on the inlet side of the flow controller (see Figure 3) will be monitored during sample collection to ensure that the vacuum applied to the temporary well does not exceed 100 inches of water. Following completion of the 20 minute sample collection period, the sorbent tube will be removed from the manifold, the ends of the tube will be sealed, and the tube stored in a cooler with ice pending delivery to the laboratory.

One duplicate soil gas sample will be collected using a stainless steel sampling tee for each of the methods (Summa canister and sorbent tube) described above. Following soil gas sample collection, a PID will be connected to the Teflon tubing to obtain a preliminary field value for the sample collection location. The soil gas samples will then be stored in a box and promptly shipped to the laboratory for extraction and analysis. Chain of custody procedures will be observed for all sample handling. Measurements of vacuums, purging and equilibration time intervals, and PID readings will be recorded on Soil Gas Sampling Data Sheets.

All drill bits used for construction of the sub-slab vapor sampling probes will be cleaned with an Alconox solution wash followed by a clean water rinse prior to each use. New, unused sub-slab vapor sampling probe components will be used at each location. New Teflon tubing and clean, unused vacuum gages and stainless steel sampling manifolds will be used at each sample collection location. A new stainless steel tee will be used in the sampling manifold for collection of the duplicate sample.

Arrange for Soil Gas Sample Analysis

The soil gas samples will be analyzed at Air Toxics, Limited in Folsom, California. Analysis will be performed for MTBE, benzene, toluene, ethylbenzene, xylenes (BTEX), and the tracer gas 2-Propanol, in addition to other compounds historically detected in groundwater at the site which include acetone, 2-Butanone (MEK), chloroethane, PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride using EPA Method TO-15 Full Scan; naphthalene and the tracer gas 2-Propanol using EPA Method TO-17; and for TPH-Gasoline using EPA Method TO-3.

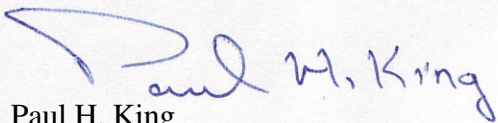
Report Preparation

Following completion of soil gas sample collection, a report will be prepared. The report will document soil gas sample collection methods and sample results. The report will include a site plan showing sample collection locations, copies of field data sheets generated during sample collection, copies of the soil gas sample laboratory reports, tables summarizing the sample results, risk and hazard analysis for preliminary evaluation of potential vapor intrusion to indoor air, and the stamp of a professional geologist.

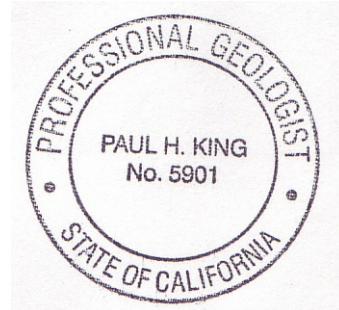
Should you have any questions, please do not hesitate to contact us at (510) 658-6916.

Sincerely,

P&D Environmental, Inc.



Paul H. King
California Professional Geologist #5901
Expires: 12/31/11

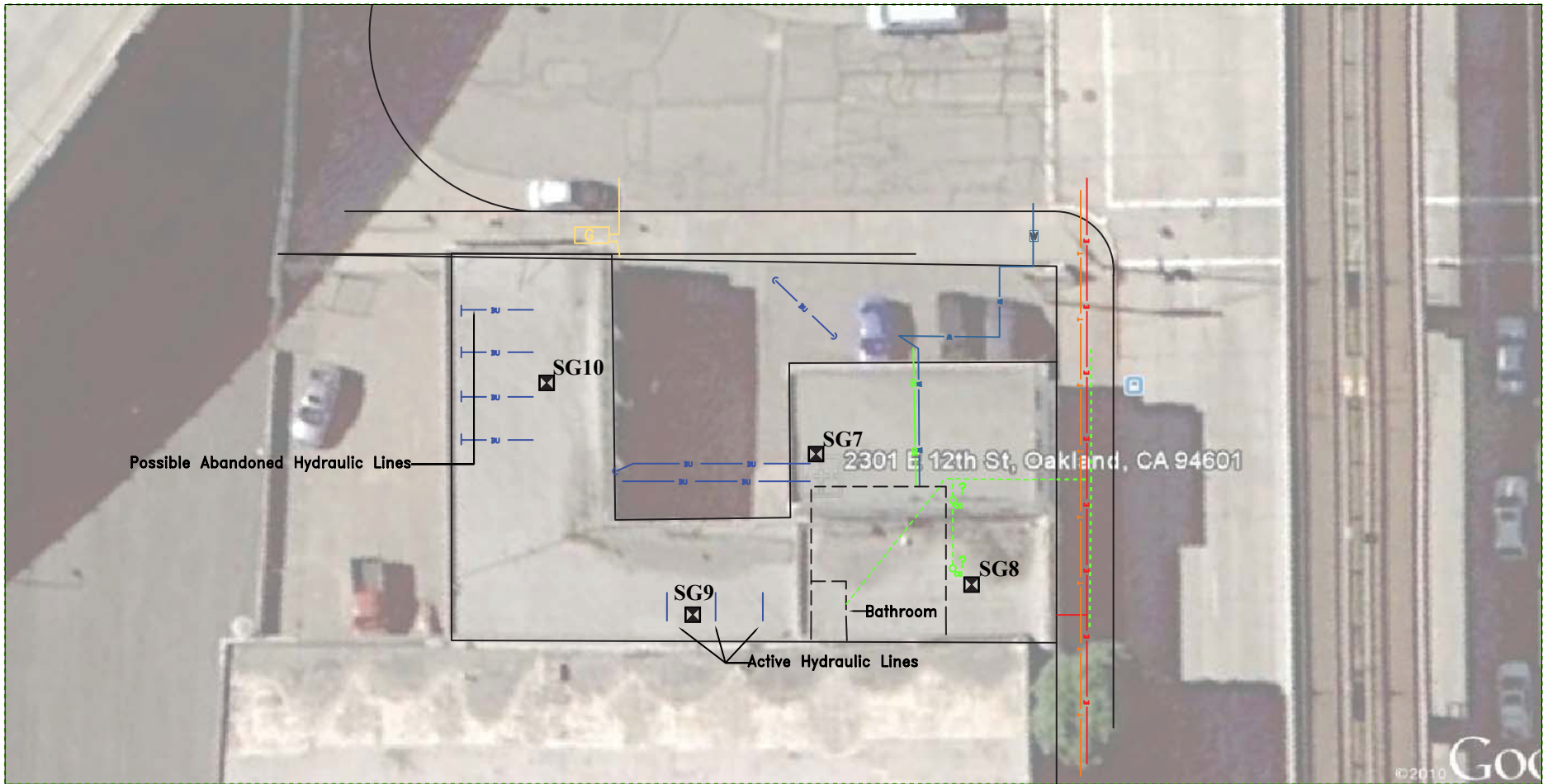


Attachments:

- Figure 1 – Site Plan Showing Underground Utility and Proposed Soil Gas Sampling Locations
- Figure 2 – Schematic of a Sub-Slab Sampling Probe
- Figure 3 – Typical Soil Gas Sampling Manifold

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FIGURES



EXPLANATION:

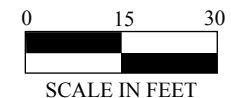
- | | | | |
|--|-------------------------------|--|--|
| | BURIED TELEPHONE | | SEWER CLEANOUT |
| | BURIED PIPE | | BURIED SEWER IDENTIFIED BY P&D |
| | BURIED ELECTRIC | | Proposed Sub-Slab Soil Gas Sample Location |
| | BURIED GAS | | |
| | BURIED SEWER | | |
| | BURIED WATER | | |
| | POSSIBLE BURIED PIPE LOCATION | | |
| | SIGNAL FROM PIPE TERMINATES | | |

NOTE: THIS DRAWING SHOWS THE APPROXIMATE LOCATIONS OF UTILITIES FOUND DURING OUR INVESTIGATION. THERE MAY BE ADDITIONAL UTILITIES AND PIPES THAT WERE NOT DETECTED DURING OUR INVESTIGATION AND ARE NOT SHOWN ON THIS DRAWING.

Figure 1
 Site Plan Showing Underground Utility and Proposed Soil Gas Sampling Locations
 Mel Senna Brake Service
 2301 East 12th Street
 Oakland, California

Base Map From:
 JR Associates Civil and Environmental Geophysics, San Jose, CA
 August 2010

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



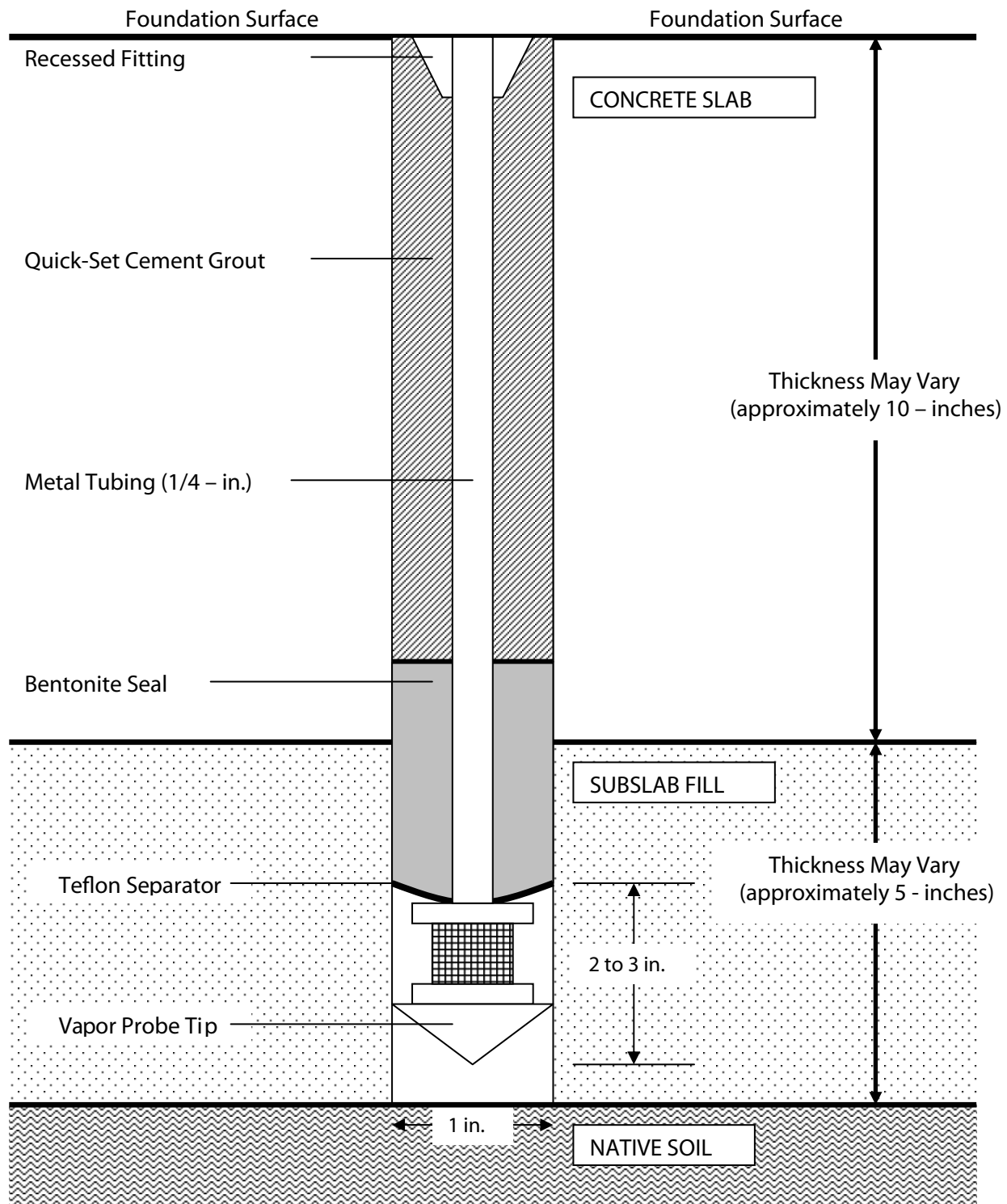


Figure 2
 Schematic Diagram of a Sub-Slab Sampling Probe
 Mel Senna Brake Service
 2301 East 12th Street
 Oakland, California



Figure 3
Typical Soil Gas Sample Collection Manifold
Mel Senna Brake Service
2301 East 12th Street
Oakland, California

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