2101 Williams Associates, LLC
2228 Livingston Street
Oakland, CA 94606
Telephone (510) 261-5500

February 22, 2016

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

SUBJECT: SUB-SLAB SOIL GAS INVESTIGATION WORK PLAN CERTIFICATION
County Case # RO 2468
Former James River Corporation Site
2101 Williams Street
San Leandro, CA

Dear Mr. Detterman:

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

- Sub-Slab Soil Gas Investigation Work Plan dated February 22, 2016.

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

Please don't hesitate to call me if you have any questions.

Sincerely,

2101 Williams Associates, LLC

Carey Andre

0660.L9

P&D ENVIRONMENTAL, INC.

55 Santa Clara Avenue, Suite 240
Oakland, CA 94610
(510) 658-6916

February 22, 2016
Work Plan 0660.W4

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

SUBJECT: SUB-SLAB SOIL GAS INVESTIGATION WORK PLAN
(VP13 THROUGH VP17)
County Case # RO 2468
Former James River Corporation Site
2101 Williams Street
San Leandro, California

Dear Mr. Detterman:

P&D Environmental, Inc. (P&D) has prepared this work plan to further evaluate the extent of areas with elevated tetrachloroethene (PCE) soil gas concentrations beneath the subject site building. This work plan has been requested by the Alameda County Department of Environmental Health (ACDEH) to better understand the origin and transport of the PCE at the site and to aid in defining any future mitigation measures. The scope of work in this work plan is consistent with recommendations set forth in P&D's October 29, 2015 Indoor Air Investigation Report (document 0660.R2). The procedures and analytical methods in this work plan are the same as the procedures and analytical methods provided in P&D's September 4, 2014 Sub-Slab Soil Gas Investigation Work Plan (document 0660.W1) that was approved by the ACDEH in correspondence dated October 1, 2014.

A Site Location Map is attached with this work plan as Figure 1, and a Site Plan Aerial Photograph Detail showing the site, historical Vapor Pin, Indoor Air, and Ambient Air sample collection locations, and proposed Vapor Pin sub-slab soil gas sample collection locations is attached as Figure 2. All work will be performed under the direct supervision of an appropriately licensed California professional.

BACKGROUND

PCE from sources offsite and upgradient of the subject site has been detected in groundwater on the upgradient and downgradient sides of the subject site building. The presence of the PCE impacts to groundwater has been well-documented on the adjacent upgradient property at 2075 Williams Street in San Leandro and is recognized by the San Francisco Bay Regional Water Quality Control Board (SFRWQCB) to originate from some unknown upgradient location.

Vapor Pins VP1 through VP6 were installed on November 4, 2014 and were sampled on November 5, 2014. Based on the initial sample results, Vapor Pins VP3 through VP6 were sampled a second time on December 10, 2014. Following discussions with the ACDEH regarding the sample results and related data gaps, Vapor Pins VP7 through VP12 were installed on February 3, 2015 and sampled on February 16 and 17, 2015. The ACDEH had approved the locations for Vapor Pins VP7 through VP12 in an e-mail dated January 29, 2015. The historical Vapor Pin sub-slab soil gas sample results with the highest detected PCE concentrations at each location are shown on Figure 2 of this work plan. A discussion of sub-slab soil gas sample collection methods and the results of the investigation can be found in P&D's Sub-Slab Soil Gas Investigation Data Transmittal Report dated March 24, 2015 (document 0660.R1).

Based on the sub-slab soil gas sample results and existing groundwater data for the site, the ACDEH required submittal of a work plan for sampling of indoor air in existing site structures, as well as further subsurface sampling to evaluate the extent of PCE subsurface contamination at the site. In response, P&D prepared an Indoor Air Investigation Work Plan (document 0660.W2) dated May 13, 2015 and, following a May 24, 2015 meeting with the ACDEH, a Subsurface Investigation Work Plan (document 0660.W3) dated May 26, 2015. The May 13, 2015 Indoor Air Investigation Work Plan was conditionally approved in a letter from the ACDEH dated June 1, 2015.

Notification of the schedule for proposed tenant notification, chemical inventory, indoor air sampling, and subsurface investigation was provided to the ACDEH by the property owner on July 27, 2015. The notification confirmed that the absence of an HVAC system in the sampling area eliminated the requirement that sampling be conducted with the HVAC system on. In addition, the notification confirmed completion of actions requested by the ACDEH related to the posting of site data on GeoTracker. In an e-mail dated July 27, 2015 the ACDEH responded to the notification and approved an extension for submittal of the indoor air investigation report.

Indoor air samples IA1 through IA3 and ambient air sample AA1 were collected during a 24-hour period from August 24, 2015 to August 25, 2015. Further discussion of indoor and ambient air sample collection and the results of the investigation are provided in P&D's Indoor Air Investigation Report dated October 29, 2015 (document 0660.R2).

Between August 31, 2015 and September 10, 2015 P&D personnel oversaw drilling at six locations designated as M1 through M6 to a depth of 40 feet below the ground surface (bgs) using a MiHpt probe, which combines a Membrane Interface Probe (MIP), a Hydraulic Profiling Tool (HPT), and an Electrical Conductivity Probe (EC). Additionally, depth-discrete groundwater samples were collected at two different depths at each of locations M1 through M6 using Geoprobe continuous coring for collection of first-encountered groundwater samples and a Geoprobe Hydropunch for collection of deeper depth-discrete groundwater samples. The objective of the investigation was to evaluate the extent of PCE in soil gas and groundwater along the upgradient property boundary and at the center of the site. A discussion of the investigation and sample results

is provided in P&D's Subsurface Investigation Report dated October 30, 2015 (document 0660.R3).

SCOPE OF WORK

To address the data gaps identified by the ACDEH relating to the presence of PCE in sub-slab soil gas at the subject site, P&D proposes to perform the following activities.

- Prepare a health and safety plan and mark drilling locations for Underground Service Alert.
- Oversee installation and sampling of Vapor Pins at 5 locations designated as VP13 through VP17.
- Arrange for sample analysis.
- Prepare a subsurface investigation report.

Each of these is discussed below.

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, the drilling locations will be marked with white paint and Underground Service Alert will be notified for underground utility location.

Vapor Pin Installation and Sample Collection

Flush-mounted Vapor Pins VP13 through VP17 will be installed through the building floor slab at the approximate locations shown in Figure 2 in accordance with Vapor Pin manufacturer recommendations by IMX, Inc. of Oakland, California, to evaluate the presence of PCE soil vapor concentrations beneath the building floor slab. The soil gas samples will be collected in accordance with procedures recommended in the December 2013 SFRWQCB User's Guide: Derivation and Application of Environmental Screening Levels, the October 2014 SFRWQCB Draft Interim Framework for Assessment of Vapor Intrusion at TCE-Contaminated Sites in the San Francisco Bay Region, and the following Department of Toxic Substances Control (DTSC) documents:

- July 2015 Advisory - Active Soil Gas Investigations,
- March 2013 – FAQ for the 2012 Advisory,
- April 2012 Advisory - Active Soil Gas Investigations,
- October 2011 – Vapor Intrusion Guidance,
- October 2011 – Vapor Intrusion Mitigation Advisory.

Each drilling location will be evaluated to verify that the concrete slab has been fully penetrated. No soil will be removed from the ground at any of the drilling locations, and for this reason no boring logs will be prepared. Following soil gas sample collection the Vapor Pins will be left in place and capped pending review of the results by the ACDEH.

Following construction, the Vapor Pins will not be sampled for a minimum of 2 hours. Soil gas samples will not be collected if more than ½ inch of precipitation has occurred during the five days prior to the scheduled sampling date.

A soil gas sampling manifold with a 1-liter Summa canister as the sampling canister for each location (see Figure 3) will be assembled in a shroud consisting of a 35-gallon Rubbermaid bin that has been modified by cutting viewing ports into the sides of the shroud and covering the viewing ports with transparent polycarbonate sheets. A hole measuring approximately two inches square in the bottom of the shroud allows the shroud to cover the vapor pin while still allowing access to the Vapor Pin through the bottom of the bin. At the time that the sampling manifold is assembled, the vacuum for the sample canister will be verified with a vacuum gauge and recorded.

Prior to sampling the Vapor Pin, a 10 minute shut-in test 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. Following successful verification of the manifold shut-in test, a default of three purge volumes will be extracted prior to sample collection. The purge volume will be calculated based on the void space below the Vapor Pin plus the volume of the tube that extends through the vapor pin and the volume of the tubing that connects the Vapor Pin to the sample media. The purge time will be calculated using a nominal flow rate provided by the flow controller of 150 cubic centimeters per minute.

Following completion of the purging of three volumes, a lid will be placed onto the shroud and a tracer gas 1,1-Difluoroethane (DFA) will be sprayed into the shroud interior for one second through a tube connected to a hole in the side of the shroud. Gloves in the lid of the shroud will be used to open the sample canister valve. After verifying that low flow conditions are not present associated with the soil gas sample, an air sample will be collected from the shroud atmosphere to quantify the shroud tracer gas concentration while the soil gas sample is being collected. The shroud atmosphere sample will be collected into a Tedlar bag that is placed into a vacuum chamber with the Tedlar bag inlet connected to a new piece of Teflon or polyethylene tubing that is inserted into the shroud atmosphere through a hole in the side of the shroud.

Once the vacuum for the sample canister valve has decreased to 5 inches of mercury, the gloves in the lid of the bin will be used to close the sample canister valve. 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 soil gas well does not exceed 100 inches of water.

One duplicate soil gas sample will be collected into a Summa canister from one of the Vapor Pins using a stainless steel sampling tee for the Summa canisters using methods described above. Following soil gas sample collection, a PID will be connected to the Vapor Pin to obtain a preliminary field value for the sample collection location. The soil

gas Summa canisters will 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 Vapor Pin construction equipment will be cleaned with an Alconox solution wash followed by a clean water rinse prior to use at each location. New or cleaned Vapor Pins with new silicone sleeves will be used at each sample collection location. Clean, unused vacuum gages and stainless steel sampling manifolds will be used at each sample collection location. The Vapor Pins will be left in the floor slab pending review of the sample results with the ACDEH.

Sample Analysis

All of the Summa canister soil gas samples will be analyzed at Air Toxics Limited of Folsom California for Volatile Organic Compounds (VOCs) including PCE and for DFA (the tracer gas) using EPA Method TO-15. The analyses will be performed with detection limits that equal or are less than SFRWQCB December 2013 Table E-2 soil gas commercial/industrial Environmental Screening Levels (ESLs).

All of the Tedlar bags will be analyzed using EPA Method TO-15 for the tracer gas DFA.

Report Preparation

Upon receipt of the laboratory analytical results, a report will be prepared. The report will document the results of the soil gas sample collection procedures and sample results. The report will include maps showing the sample collection locations, tables summarizing the sample results, recommendations based on the results, and the stamp of an appropriately registered professional. A copy of the report and associated laboratory information will be uploaded to the County ftp site and to GeoTracker.

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: 12/31/17

Attachments:

Figure 1 - Site Location Map
Figure 2 - Site Plan Aerial Photograph Detail Showing Proposed Soil Gas Investigation Locations
Figure 3 - Typical Soil Gas Sample Collection Manifold

Cc: Ms. Carey Andre, 2101 Williams Street, LLC

PHK/sjc
0660.W4

FIGURES

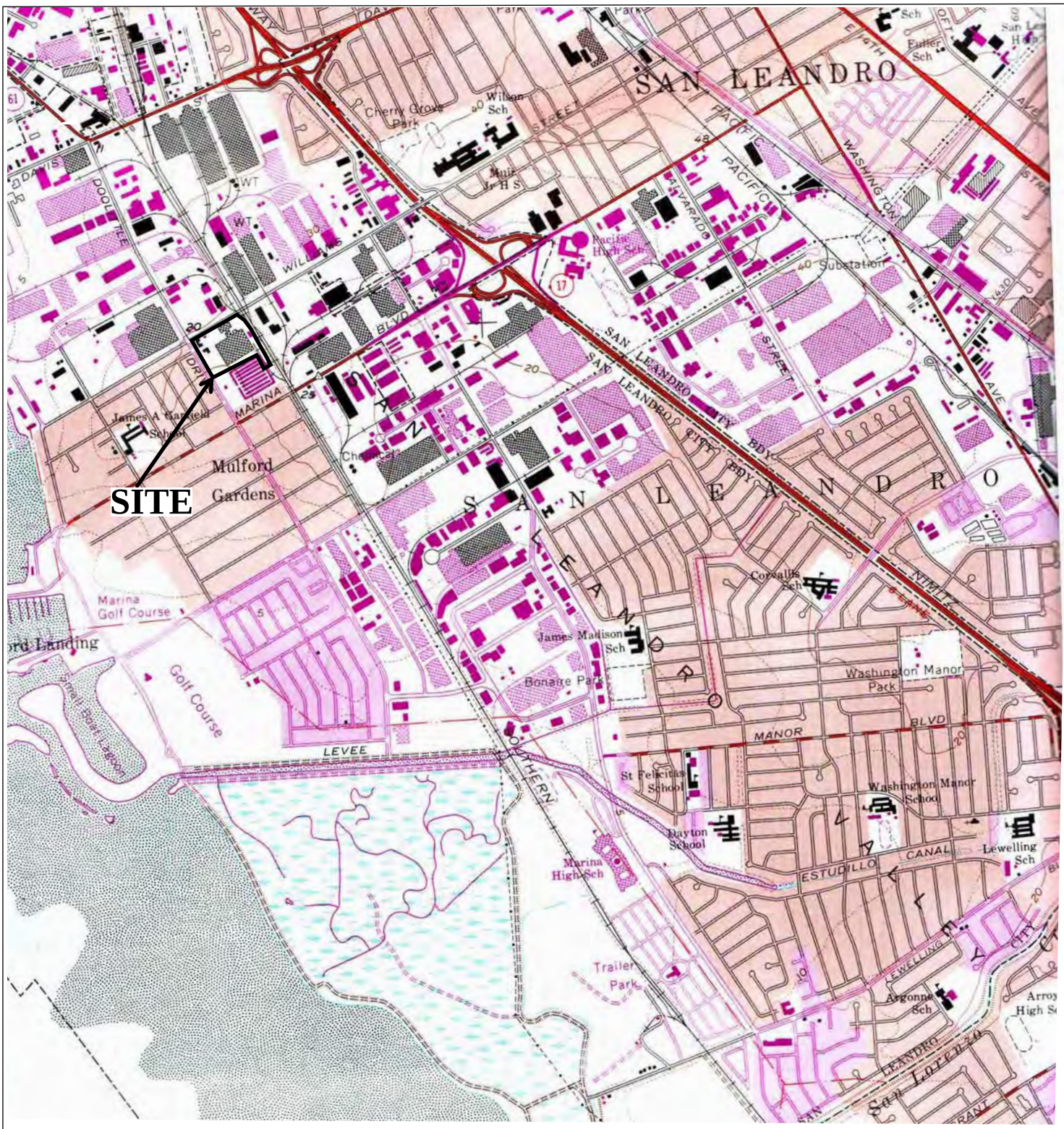

Figure 1
Site Location Map
2101 Williams Street
San Leandro, California

Base Map From:
US Geological Survey San Leandro, California, 7.5-Minute Quadrangles
Map Edited 1980

P&D Environmental, Inc.
55 Santa Clara Avenue
Oakland, CA 94610

0 1000 2000
Approximate Scale in Feet

N

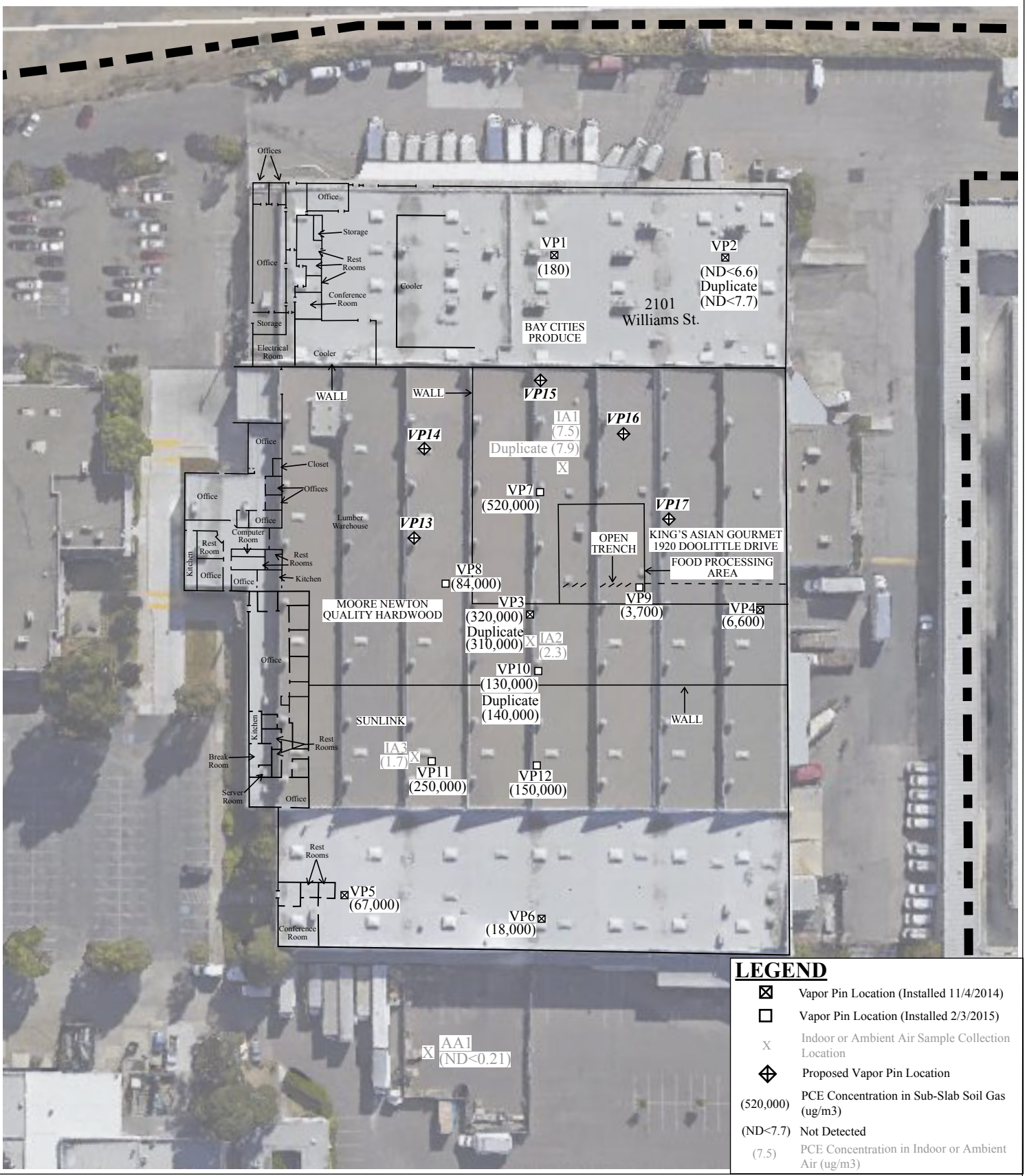

Figure 2
Site Plan Aerial Photograph Detail Showing Proposed Soil Gas Investigation Locations
2101 Williams Street
San Leandro, California

Base Map from:
Google Earth, image dated August 28, 2012

P&D Environmental, Inc.
55 Santa Clara Avenue
Oakland, CA 94610

0 30 60
Approximate Scale in Feet

N

Figure 3
Typical Soil Gas Sampling Manifold
2101 Williams Street
San Leandro, California