Xtra OIL COMPANY
2307 PACIFIC AVENUE
ALAMEDA, CA 94501
(510) 865-9503 FAX (510) 865-1889

December 15, 2016

Ms. Karel Detterman
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

SUBJECT: SUBSURFACE INVESTIGATION WORK PLAN CERTIFICATION
(B16 THROUGH B21, AND VP1)
County LOP Case Number RO 0002990
Auto Depot
4171 Broadway
Oakland, California

Dear Ms. Detterman**:**

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

- Subsurface Investigation Work Plan dated December 15, 2016 (document 0398.W3).

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) 865-9506.

Sincerely,

Xtra Oil Company

Keith Simas

Enclosure

0398.L11

P&D ENVIRONMENTAL, INC.

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

December 15, 2016
Work Plan 0398.W3

Ms. Karel Detterman
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

SUBJECT: SUBSURFACE INVESTIGATION WORK PLAN
(B16 THROUGH B21, AND VP1)
County LOP Case Number RO 0002990
Auto Depot/Xtra Oil Company
4171 Broadway
Oakland, California

Dear Ms. Detterman:

P&D Environmental, Inc. (P&D) has prepared this subsurface investigation work plan to further evaluate the presence and extent of subsurface petroleum hydrocarbons at and near the subject site. This work plan is prepared in accordance with recommendations set forth in P&D's December 13, 2016 Subsurface Investigation Report (document 0398.R2) and in response to a request for work plan preparation in an email dated May 29, 2015 from the Alameda County Environmental Health Department (ACDEH).

A Site Location Map is attached as Figure 1 and a Site Map showing former UST and borehole locations is attached as Figure 2. The currently known extent of Total Petroleum Hydrocarbons as Gasoline (TPH-G), Total Petroleum Hydrocarbons as Diesel (TPH-D), benzene, and naphthalene in groundwater and proposed borehole and Vapor Pin locations are shown in Figures 3, 4, 5 and 6, respectively.

BACKGROUND

The site is presently used for vehicle parking by the adjacent car dealership. The site was previously operated as a retail gasoline station. Review of available documents for the site obtained at the ACDEH Local Oversight Program website, at the GeoTracker website, and in response to a request to the property owner for available documents related to USTs and subsurface investigation has identified the following document related to sample collection following removal of the site USTs.

- December 31, 1986 Removal and Disposal of One Underground Diesel Tank, Five Underground Gasoline Tanks, and One Underground Waste Oil Tank Report prepared by Aqua Science Engineers, Inc. (the report is 3 pages in length, consisting of a narrative, a site map showing sample collection locations, and a laboratory report).

A complete copy of the report is attached with P&D's August 4, 2014 Data Gap Evaluation and Subsurface Investigation Work Plan. The 1986 underground storage tank closure report described soil sample collection from the bottom of each UST pit as follows: two soil samples were collected from both ends of each of the four gasoline and the one diesel UST at a depth of approximately 12.0 feet below the ground surface (bgs), and one soil sample was collected beneath the former waste oil UST at a depth of approximately 8.0 feet bgs. The report does not mention encountering groundwater in any of the excavations, and does not mention sample collection or analysis associated with the UST piping or dispensers, or if the UST piping was removed.

All of the soil samples were analyzed as follows:

- The diesel UST pit soil samples (2) were analyzed for TPH-D.
- The gasoline UST pit soil samples (8) were analyzed for TPH-G, benzene, toluene, and total xylenes.
- The waste oil UST pit soil sample (1) was analyzed for Total Petroleum Hydrocarbons as Motor Oil (TPH-MO).

None of the samples were analyzed for methyl-tert-butyl ether (MTBE) or any other Volatile Organic Compounds (VOCs) including ethylbenzene, or for lead. The sample results are summarized in Table 1 attached with P&D's August 4, 2014 Data Gap Evaluation and Subsurface Investigation Work Plan (document 0398.W1).

On August 19 and 20, 2014 IMX, Inc. of Oakland, California (IMX) personnel used a magnetometer to identify buried pipe locations. An electrical signal was applied to the exposed piping and a magnetometer was used by to locate accessible UST system piping. A jackhammer was used to remove concrete surface cover material at the curbside fill ports that are located adjacent to Garnet Street, at the dispenser islands, and at several areas identified during the UST piping survey in an effort to identify the locations of underground UST piping. In addition, in areas where the magnetometer was not successful in identifying the pipe trenches, exploratory excavation was performed to evaluate the presence of UST piping at the locations of the former UST piping trenches. The locations of subsurface piping identified during the investigation are shown on Figure 2.

On August 19, 2014 P&D personnel oversaw hand augering using a 3.5-inch outside diameter stainless steel auger to a depth of either 4.0 or 4.5 feet below the ground surface (bgs) at locations F1 (located at the curbside UST fill ports) and D1 through D6 (located at each end of the former pump island dispensers). The hand augered boreholes at the

former dispenser islands were hand augered at locations where dispensers were formerly located based on the presence of dispenser-sized rectangular penetrations in the dispenser islands and the presence of piping within the dispenser island penetrations. The locations of the hand augered boreholes are shown in Figure 2. Slight to strong petroleum hydrocarbon odors were observed in all seven hand augered boreholes and soil discoloration was observed in hand augered boreholes D3 and D4.

On August 22, 2104 P&D personnel returned to the site and oversaw drilling at locations B1 through B7 (see Figure 2) by Vironex, Inc. of Concord, California (Vironex) using Geoprobe direct push technology. Continuous cores were collected from each borehole using a Geoprobe Macrocore barrel sampler lined with transparent PVC sleeves at locations B1 through B7 to total depths of 15.5, 15.5, 15.5, 25.0, 21.0, 20.0, and 25.0 feet bgs, respectively.

Based on the measured presence of free product in borehole B1 in the former diesel UST pit, and based on the sample results, P&D recommended further subsurface investigation of the extent of petroleum at the site. Discussion of former fill port, fuel dispenser, and drilling activities and results for boreholes B1 through B7 is provided in P&D's Subsurface Investigation Report (document 0398.R1) dated September 30, 2014.

P&D's Subsurface Investigation Work Plan (document 0398.W2) dated May 22, 2015 proposed boreholes for subsurface evaluation at locations B4A and B8 through B15 to evaluate the extent of free product encountered in the former diesel UST pit in borehole B1, evaluate soil at the former waste oil UST pit, the extent of petroleum in the vicinity of the fuel dispensers, and for evaluation of offsite petroleum migration.

The P&D May 22, 2015 work plan also proposed evaluation of the presence of petroleum soil vapor concentrations in soil gas at the site by constructing one soil gas well to a depth of 7.0 feet bgs at location SG1. The work plan was approved in an email from the ACDEH dated May 29, 2015. The ACDEH work plan approval requested that soil samples also be collected from the boreholes.

Documentation of the implementation of the P&D May 22, 2015 work plan is provided in P&D's December 12, 2016 Subsurface Investigation Report (document 0398.R2). Based on the sample results P&D recommended that soil and groundwater samples be collected at six locations and that a sub-slab soil gas sample be collected at the adjacent Downtown Toyota facility to further evaluate the extent of subsurface petroleum hydrocarbons.

The Downtown Toyota facility located at 4145 Broadway in Oakland borders the subject site on the west and south (see Figures 2 through 6). Aerial photographs of the Downtown Toyota facility show that there is car parking on the roof of the Downtown Toyota building. Subsurface investigation of a petroleum release at the Downtown Toyota facility was performed under the direction of the ACDEH (case number RO 509) and the case was closed by the ACDEH on September 24, 2014. The Downtown Toyota site investigation identified a petroleum release at the Downtown Toyota property at a location adjacent to Broadway approximately 50 feet to the southwest of the subject site.

Figures showing the extent of the petroleum release at the Downtown Toyota property are attached with this report as Figures 3 through 6. Review of the figures shows that the extent of petroleum hydrocarbons at the Downtown Toyota site was defined to the northeast between the Downtown Toyota release and the subject site.

SCOPE OF WORK

To further evaluate the extent of petroleum hydrocarbons at the subject site and to address LTCP data gaps, P&D will perform the following activities.

- Obtain drilling permits and site access, prepare a health and safety plan (HASP), and mark drilling locations with white paint and notify Underground Service Alert (USA) for underground utility location.
- Observe drilling for soil and groundwater grab sample collection at nine locations.
- Install one Vapor Pin and collect a sub-slab soil gas sample and one duplicate soil gas sample.
- Arrange for sample analysis.
- Report preparation.

Each of these is discussed below.

Site Access, Permits, HASP, and USA

Site access authorization will be obtained for offsite drilling at the Downtown Toyota facility, and site access will be obtained and arrangements will be made to move vehicles that are presently parked at the subject site. Permits will be obtained from the City of Oakland for borehole drilling in the public right-of-way and also from the Alameda County Public Works Agency (ACPWA) for borehole drilling. All necessary permit-related notifications will be made to the permitting agencies prior to drilling. In addition, notification will be provided to the ACDEH of the scheduled drilling dates. A health and safety plan will be prepared for the scope of work identified in this work plan, the drilling locations will be marked with white paint and Underground Service Alert will be notified for underground utility location.

Drilling Observation and Sample Collection

Boreholes B16 through B21 will be drilled at locations shown in Figures 3 through 6. All of the boreholes will be drilled and soil and groundwater samples collected in accordance with methods and procedures described in P&D's December 12, 2016 Subsurface Investigation Report. All of the boreholes will be continuously cored by Cascade Drilling, LP of West Sacaramento, California (Cascade) using Geoprobe direct-push technology to drive a 2.5-inch outside diameter Geoprobe macrocore 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 PID equipped with a 10.6 eV bulb and calibrated using a 100 ppm isobutylene standard.

Based on the presence of free product in borehole B1 (located in the former diesel UST pit), and based on the previous investigation sample results, P&D proposes the following activities to further evaluate the presence and extent of subsurface petroleum hydrocarbons at the subject site at locations shown on Figures 3, 4, 5, and 6:

- Drilling of boreholes B16, B17 and B18 to evaluate the presence and extent of petroleum at the former remote fill ports (B16) and to define the northeastern extent of TPH-G, TPH-D and naphthalene in groundwater.
- Drilling of boreholes B19 through B21 to define the southeastern (B19), southern (B20) and southwestern (B21) extent of TPH-G, TPH-D, benzene, and naphthalene in groundwater.

Soil samples will be retained from each of the boreholes at depths of 4 and 9 feet below the ground surface for laboratory analysis by selecting the interval to be sampled and cutting a 6-inch section of the liner corresponding to the sample collection depth. In addition, soil samples will be collected for laboratory analysis in boreholes where evidence of contamination is encountered based on odors, PID values, staining, and discoloration. The ends of the selected sections of tubes will be sequentially capped with aluminum foil and plastic endcaps. The samples will then be labeled and stored in a cooler with ice pending delivery to a State-accredited hazardous waste testing laboratory. Chain of custody procedures will be observed for all sample handling.

Once groundwater is encountered in each borehole, a 1-inch diameter temporary slotted PVC pipe will be placed in each borehole and a groundwater sample will be collected at each location (with the exception of B10 and B11 where groundwater samples will not be collected) using polyethylene tubing and a peristaltic pump. The groundwater samples will be transferred directly from the discharge tubing to 40-milliliter VOA bottles, all of which will be supplied by the laboratory and contain hydrochloric acid preservative. In addition, groundwater will also be collected at each location directly from the discharge tubing into one non-preserved 1-liter amber glass bottle supplied by the laboratory. 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.

All drilling and sampling equipment will be cleaned by steam cleaning or 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.

Vapor Pin Installation and Sub-Slab Soil Gas Sample Collection

Flush-mounted Vapor Pin VP1 will be installed by IMX through the building floor slab at the approximate location shown in Figures 3 through 6 at the Downtown Toyota facility in accordance with Vapor Pin manufacturer recommendations to evaluate the presence of petroleum soil gas concentrations beneath the building floor slab. The sub-slab soil gas samples will be collected in accordance with procedures recommended in the December 2013 San Francisco Bay Regional Water Quality Control Board (SFRWQCB) User's Guide: Derivation and Application of Environmental Screening Levels, 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.

The Vapor Pin drilling location will be evaluated to verify that the concrete slab has been fully penetrated. No soil will be removed from the ground at the Vapor Pin drilling location, and for this reason no boring logs will be prepared. Following construction, the Vapor Pin will not be sampled for a minimum of 2 hours. A Vapor Pin sub-slab soil gas sample will not be collected if more than ½ inch of precipitation has occurred during the five days prior to the scheduled sampling date. Following Vapor Pin sub-slab soil gas sample collection the Vapor Pin will be left in place and capped pending review of the results by the ACDEH.

A Vapor Pin sub-slab soil gas sampling manifold with a 1-liter Summa canister as the sampling canister for each location (see Figure 7) 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 temporary well through the bottom of the shroud. 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 7). Following successful verification of the manifold shut-in test, a default of 3 purge volumes of the Vapor Pin and tubing will be purged prior to sample collection. 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 3 purge 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. 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. Following completion of Tedlar bag shroud air sample collection the Tedlar bag will be placed in a cooler with the lid closed pending delivery to the laboratory.

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 7) 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 Vapor Pin sub-slab soil gas sample will be collected into a Summa canister from the Vapor Pin using a stainless steel sampling tee for the Summa canister using methods described above. The Vapor Pin sub-slab soil gas Summa canister samples will be stored in a box and promptly shipped to the laboratory for extraction and analysis.

In addition to collection of Summa canister samples as described above, a sorbent tube sample will be collected as follows. The manifold will be equipped with a tee located downstream from the flow controller. At the time that the manifold is assembled (prior to the shut-in test), a sorbent tube will be connected inside the shroud to the tee that is located downstream from the flow controller with a valve located between the sorbent tube and the tee. The downstream side of the sorbent tube will be connected with a polyethylene tube to a flow meter and a vacuum pump. Following Summa canister sample collection, a dish containing 2-Propanol will be placed in the shroud to be used as a tracer gas for EPA Method TO-17 sample analysis.

The Summa canister will be isolated from the manifold with a valve, and the valve between the manifold and the sorbent tube will be opened. A vacuum pump will be used to apply a vacuum to the sorbent tube and a flow meter will be used to measure the soil gas flow rate at a nominal flow rate of 150 cubic centimeters per minute for collection of a 60 cubic centimeter sample. In addition one replicate sample will be collected. Following collection of the soil gas sample the ends of the sorbent tube will be sealed. During sorbent tube sample collection a Tedlar bag shroud atmosphere sample will be collected using methods described above.

Before and after connection of the sorbent tube to the manifold the sorbent tube will be stored in a cooler with ice. 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. 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. Clean, unused vacuum gages and a stainless steel sampling manifold will be used for Vapor Pin sub-slab soil gas sample collection.

Sample Analysis

All of the soil samples will be analyzed at McCampbell Analytical, Inc. (McCampbell) in Pittsburg, California for the following analytes:

- TPH-G using EPA Method 5030B in conjunction with EPA Method 8021B and/or modified EPA Method 8015B.
- TPH-D, TPH-BO, and TPH-MO using EPA Method 3550B in conjunction with EPA Method 8015B.
- VOCs (including MTBE, benzene, toluene, ethylbenzene, and xylenes (MBTEX), and fuel oxygenates and lead scavengers, and naphthalene) using EPA Method 8260B.

All of the groundwater samples will be analyzed at McCampbell for the following analytes:

- TPH-G using EPA Method 5030B in conjunction with EPA Method 8021B and/or modified EPA Method 8015B.
- TPH-D, TPH-BO, and TPH-MO using EPA Method 3510 in conjunction with EPA Method 8015B.
- VOCs (including MBTEX, and fuel oxygenates and lead scavengers, and naphthalene) using EPA Method 8260B.

The Vapor Pin sub-slab soil gas sample collected into one-liter Summa canisters will be analyzed for TPH-G and VOCs including MBTEX and the tracer gas DFA using EPA Method TO-15 and the soil gas sample collected into the sorbent tube will be analyzed for TPH-D and naphthalene and the tracer gas 2-Propanol using EPA Method TO-17.

The Tedlar bag collected from the shroud during Summa canister sample collection will be analyzed for the tracer gas DFA, and the Tedlar bag collected from the shroud during sorbent tube sample collection will be analyzed for the tracer gas 2-Propanol using EPA Method TO-15.

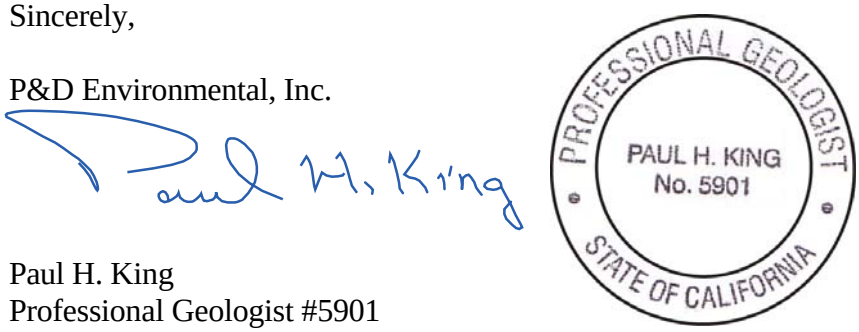
Report Preparation

Upon receipt of the laboratory analytical results for the soil and groundwater samples and the sub-slab soil gas samples, a report will be prepared. The report will document soil and groundwater sample collection procedures and sample results. The report will include a site map showing the drilling locations, tables summarizing the sample results, documentation of investigation-derived waste, recommendations based on the results, and the stamp of an appropriately registered professional. Copies of the report will be uploaded to the County ftp site and to the SWRCB GeoTracker site.

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

Sincerely,

P&D Environmental, Inc.



Paul H. King
Professional Geologist #5901
Expires: 12/31/17

Attachments:

Figure 1 - Site Location Map
Figure 2 - Site Map Showing Sample Collection Locations
Figure 3 - Site Vicinity Aerial Photograph Showing TPH-D Groundwater Concentrations
Figure 4 - Site Vicinity Aerial Photograph Showing TPH-G Groundwater Concentrations
Figure 5 - Site Vicinity Aerial Photograph Showing Benzene Groundwater Concentrations
Figure 6 - Site Vicinity Aerial Photograph Showing Naphthalene Groundwater Concentrations
Figure 7 - Site Map Showing Soil Gas Well Location and Petroleum and VOC Concentrations in Soil Gas
Figure 8 - Typical Soil Gas Sampling Manifold

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FIGURES

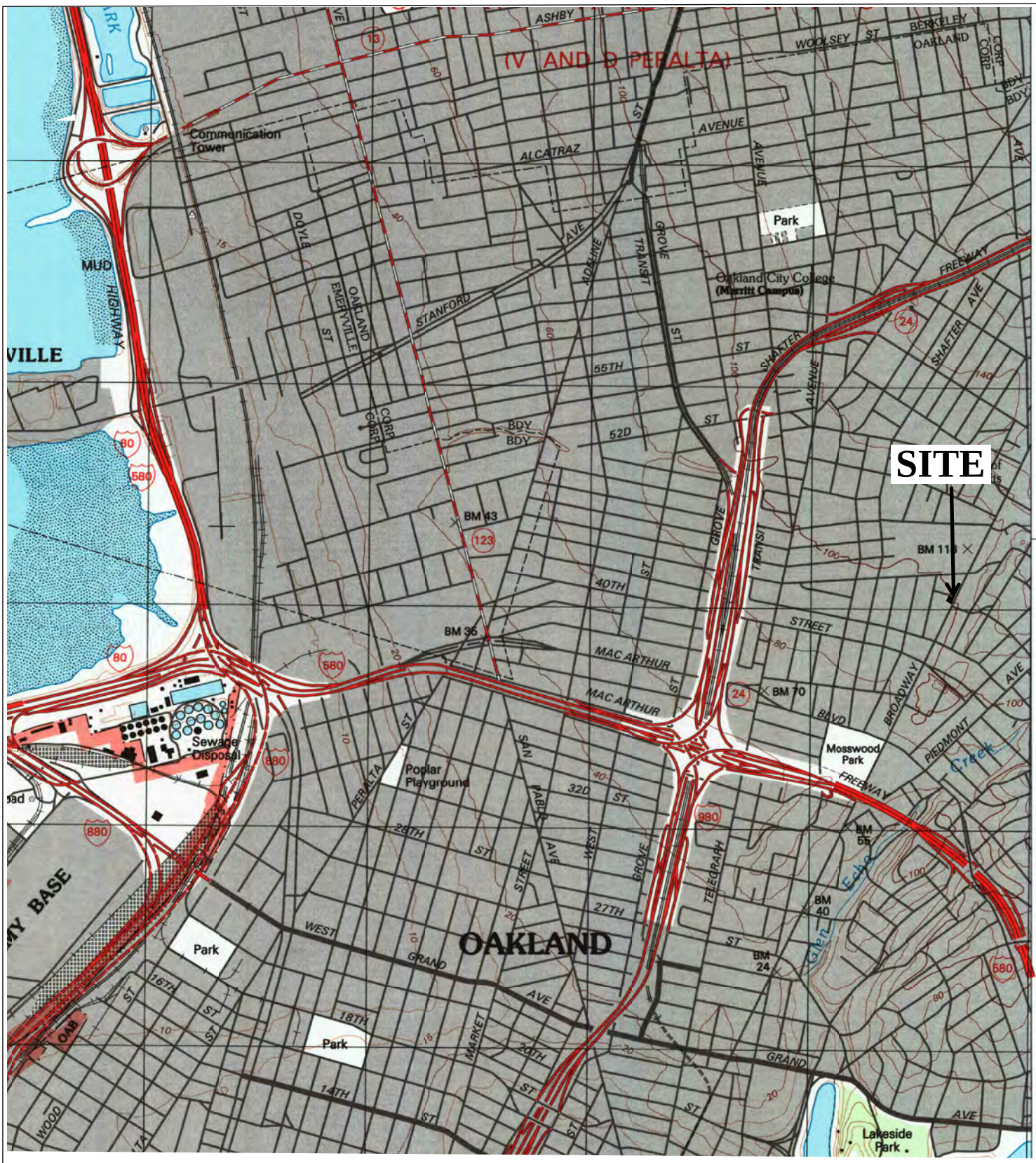

Figure 1
Site Location Map
Auto Depot
4171 Broadway
Oakland, California

Base Map From:
US Geological Survey Oakland West, California 7.5-Minute Quadrangles
Map updated 1996

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

0 1000 2000
Approximate Scale in Feet

N

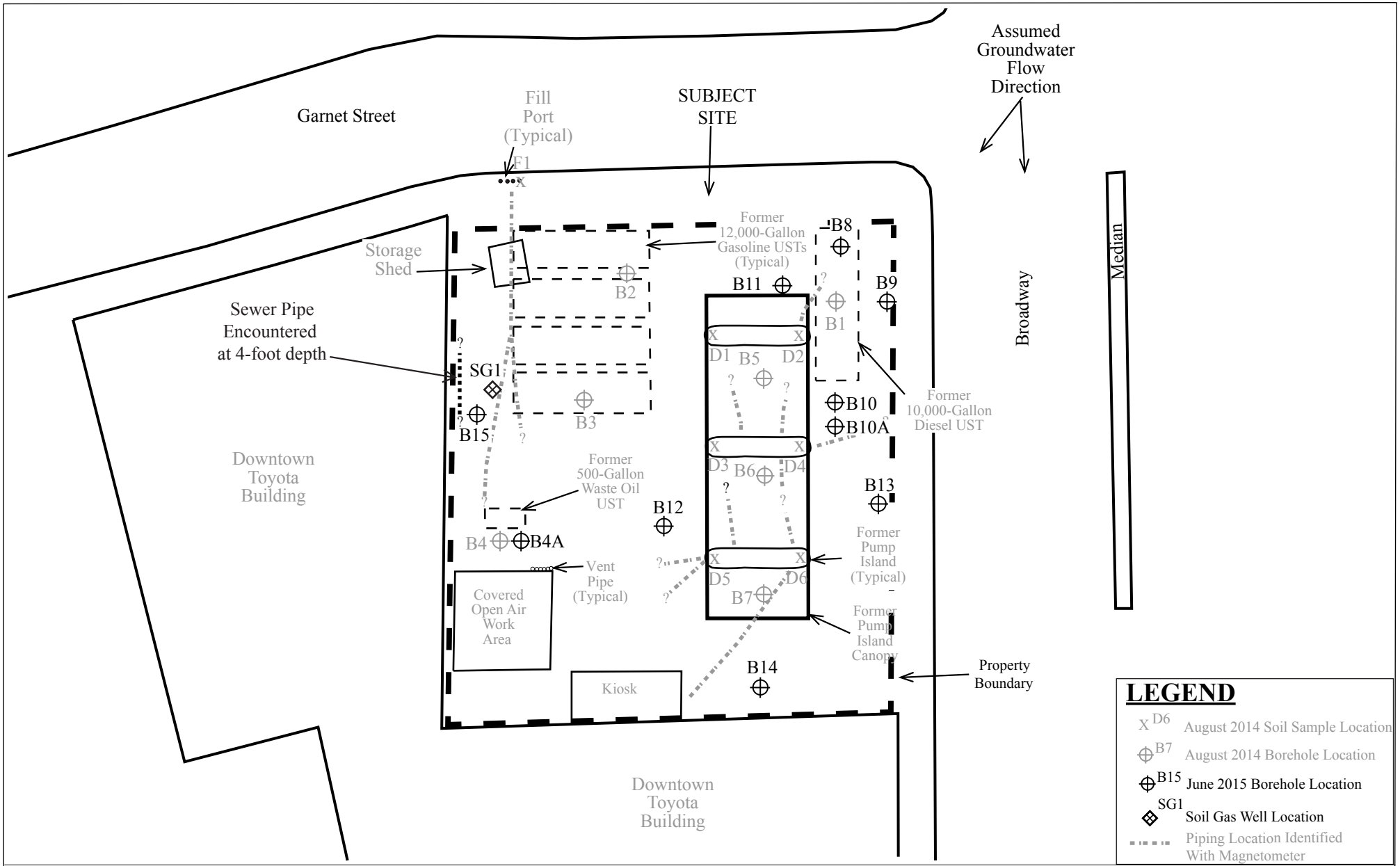

Figure 2
Site Map Showing Sample Collection Locations
Auto Depot
4171 Broadway
Oakland, California

Base Map from:
Auqua Science Engineers, Inc., dated 12/31/1986, Google Earth, 2014

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

0 15 30
Approximate Scale in Feet

N

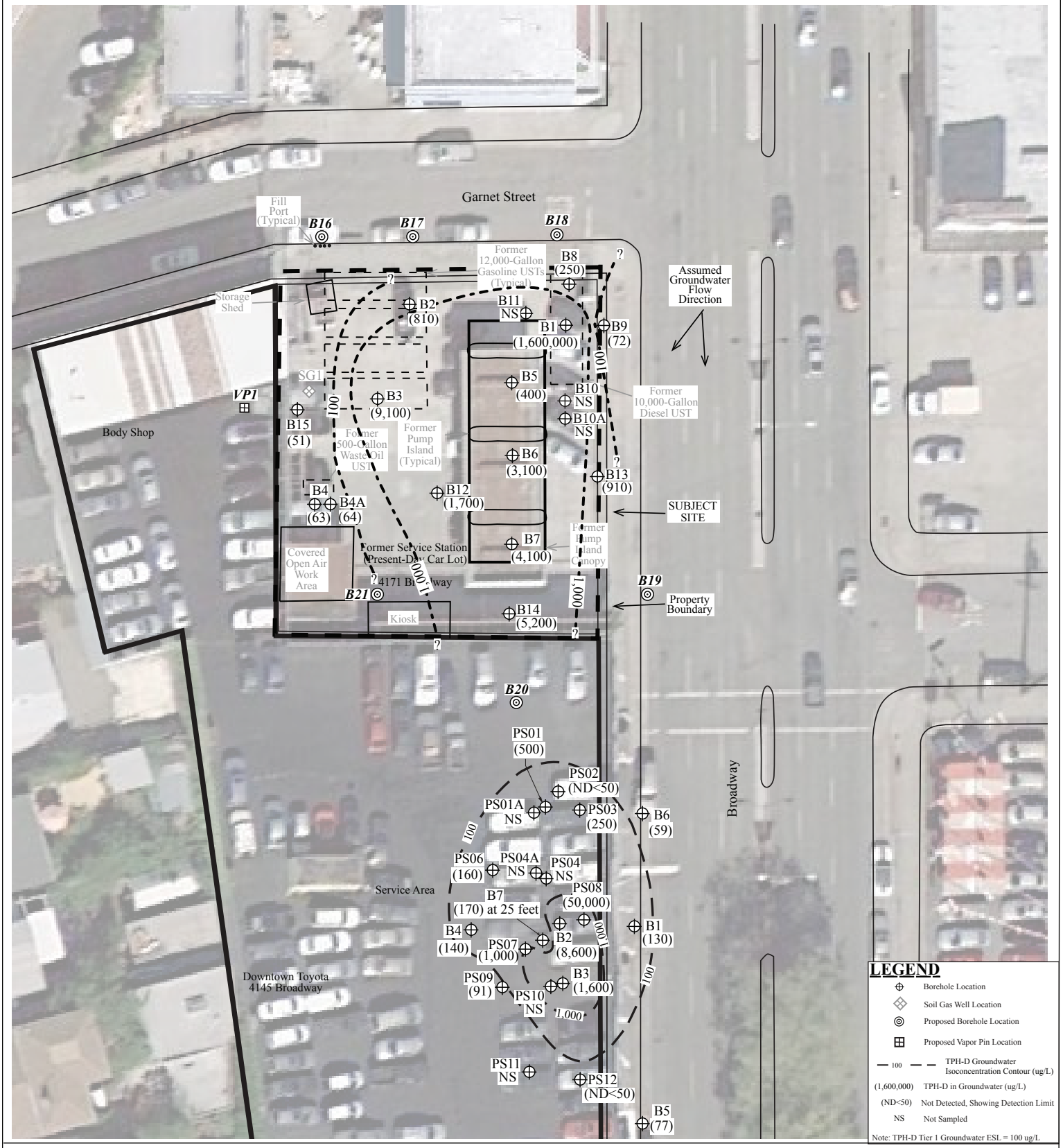

Figure 3
Site Vicinity Aerial Photograph Showing TPH-D Groundwater Concentrations
Auto Depot
4171 Broadway
Oakland, California

Base Map From: Andrew P. Anderson, Architect Doten Pontiac Site Plan, June 1966, and Google Earth, image dated October 2009	P&D Environmental, Inc. 55 Santa Clara Avenue, Suite 240 Oakland, CA 94610	0 20 40 Approximate Scale in Feet N

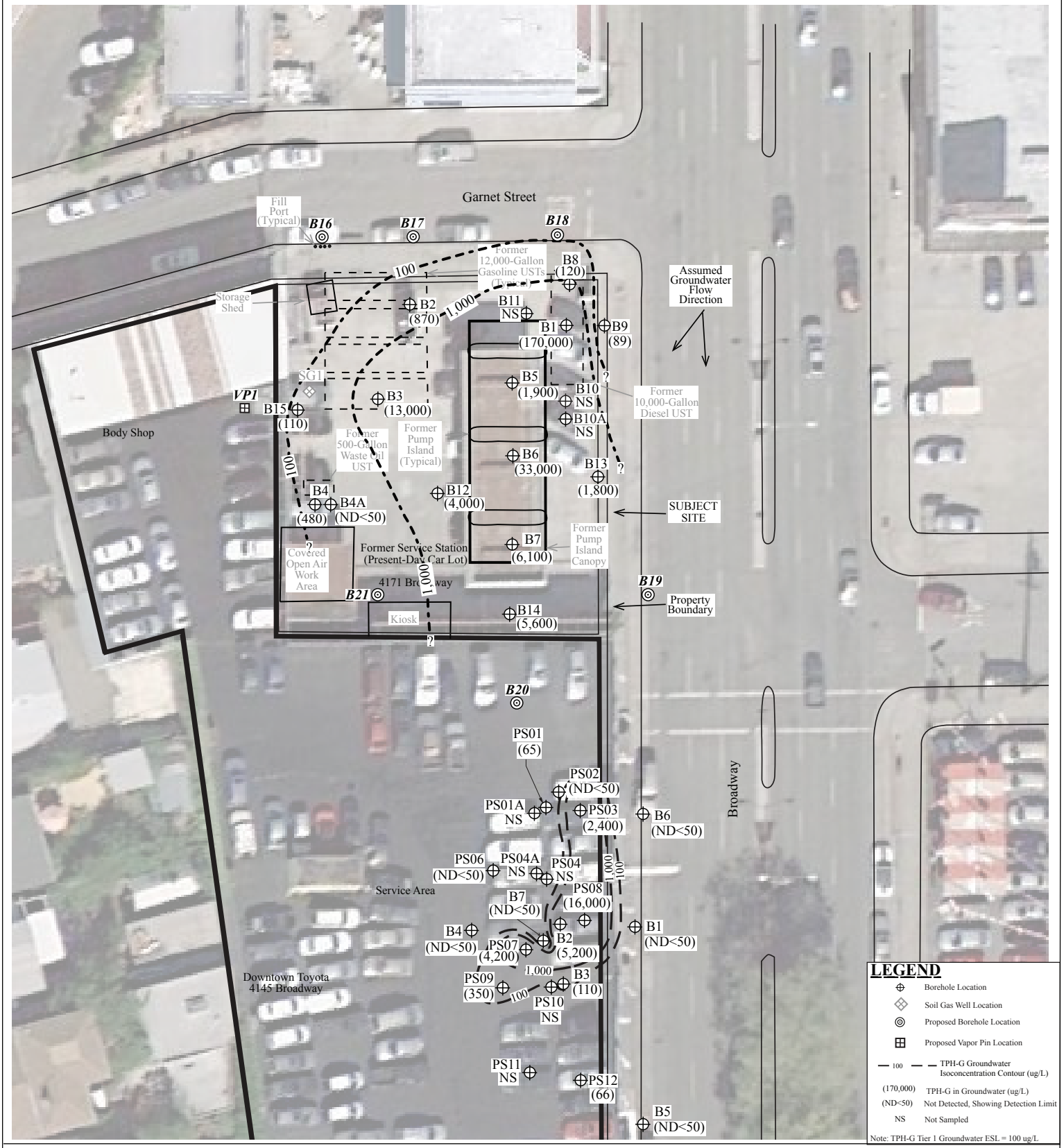

Figure 4
Site Vicinity Aerial Photograph Showing TPH-G Groundwater Concentrations
Auto Depot
4171 Broadway
Oakland, California

Base Map From: Andrew P. Anderson, Architect Doten Pontiac Site Plan, June 1966, and Google Earth, image dated October 2009	P&D Environmental, Inc. 55 Santa Clara Avenue, Suite 240 Oakland, CA 94610	0 20 40 Approximate Scale in Feet N

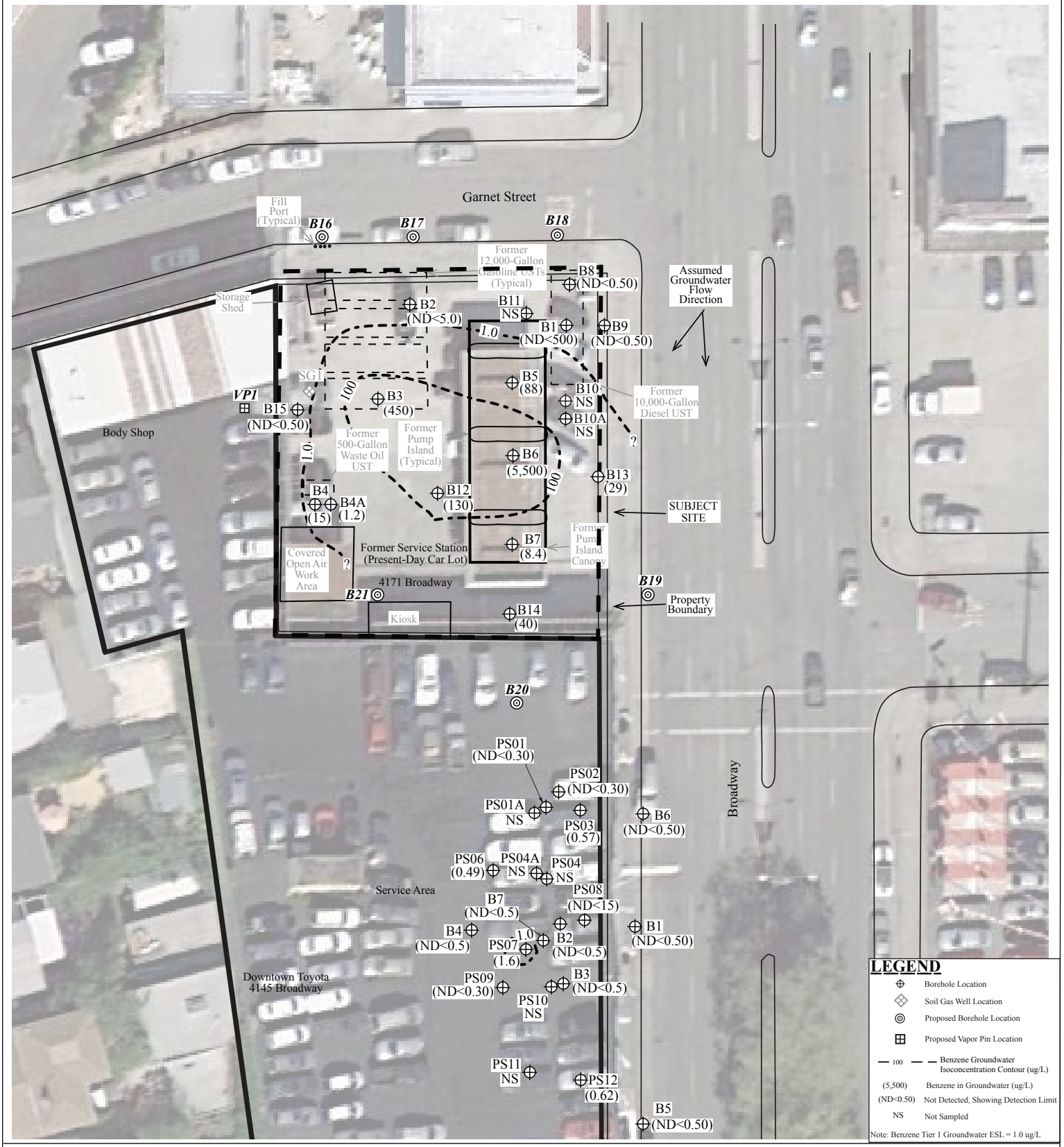

Figure 5
Site Vicinity Aerial Photograph Showing Benzene Groundwater Concentrations
Auto Depot
4171 Broadway
Oakland, California

Base Map From: Andrew P. Anderson, Architect Doten Pontiac Site Plan, June 1966, and Google Earth, image dated October 2009	P&D Environmental, Inc. 55 Santa Clara Avenue, Suite 240 Oakland, CA 94610	0 20 40 Approximate Scale in Feet N

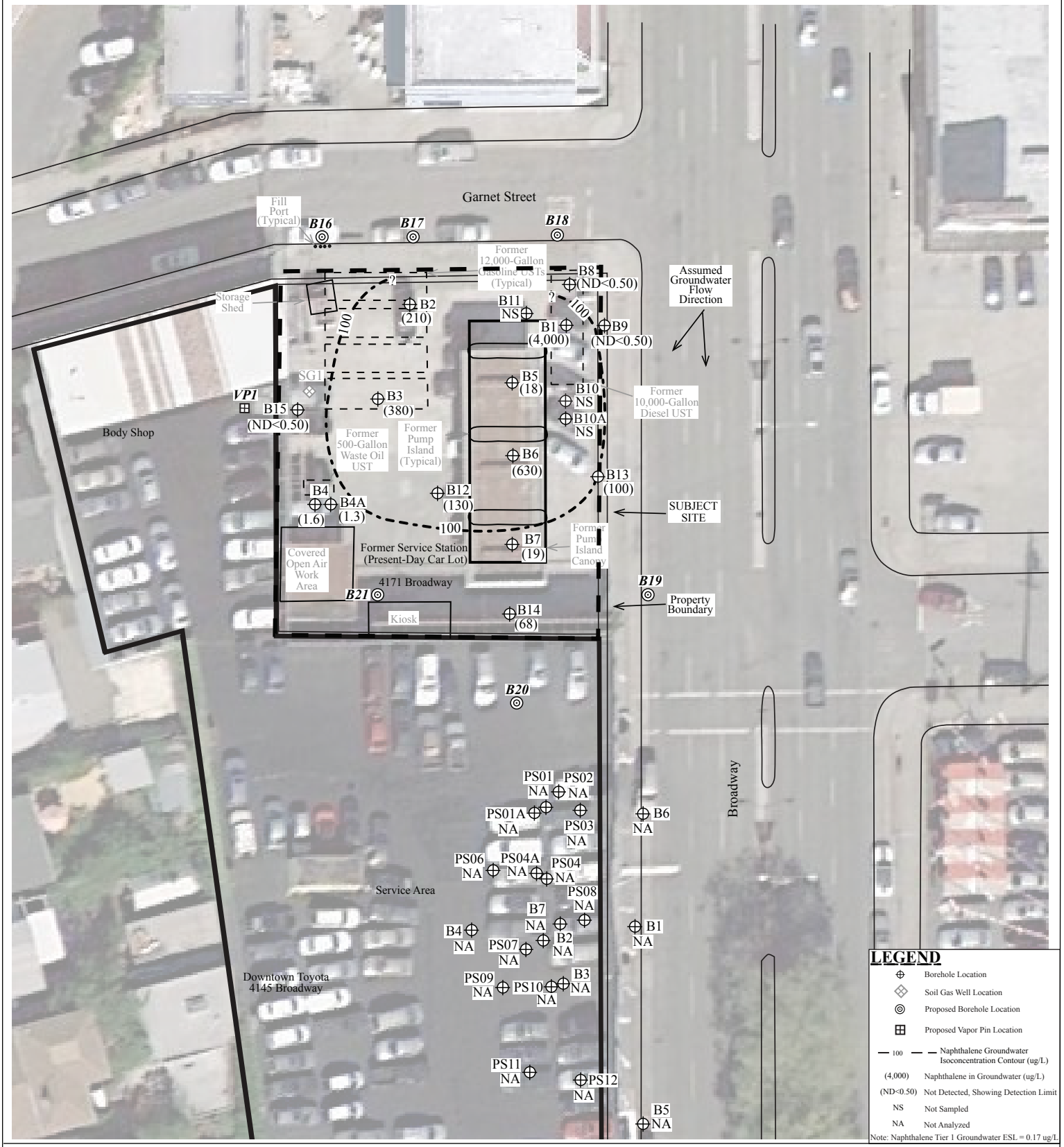

Figure 6
Site Vicinity Aerial Photograph Showing Naphthalene Groundwater Concentrations
Auto Depot
4171 Broadway
Oakland, California

Base Map From: Andrew P. Anderson, Architect Doten Pontiac Site Plan, June 1966, and Google Earth, image dated October 2009	P&D Environmental, Inc. 55 Santa Clara Avenue, Suite 240 Oakland, CA 94610	0 20 40 Approximate Scale in Feet N

Figure 7
Typical Soil Gas Sampling Manifold
Auto Depot
4171 Broadway
Oakland, California