

P & D ENVIRONMENTAL

A Division of Paul H. King, Inc.

4020 Panama Court

Oakland, CA 94611

(510) 658-6916

January 30, 2003

Work Plan 0298.W1

Mr. Amir Gholami

Alameda County Department of Environmental Health

1131 Harbor Bay Parkway, Suite 250

Alameda, CA 94502

Alameda County
FEB 07 2003
Environmental Health

SUBJECT: SUBSURFACE INVESTIGATION WORK PLAN
Fuel Leak Site RO0000357
2678 Coolidge Ave.
Oakland, CA

Dear Mr. Gholami:

P&D Environmental, a division of Paul H. King, Inc. (P&D), is pleased to present this work plan for the following scope of work.

- Placement of a hydrocarbon-absorbent sock in the well containing separate phase hydrocarbon near the site.
- Purge and sample the two wells at the subject site.
- Drill five exploratory boreholes for the collection of soil and groundwater samples in an effort to define the extent of petroleum hydrocarbons in soil and groundwater at and near the subject site.
- Collection of soil samples from planters at the site where soil excavated from the UST pit was placed.
- Arrange for laboratory analysis.
- Report preparation.

This work plan is prepared in response to a written request from the Alameda County Department of Environmental Health (ACDEH) dated August 1, 2002.

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.

A Site Location Map is attached as Figure 1. A Site Vicinity Map showing site features prepared by others that does not have a scale is attached as Figure 2. A scaled Site Vicinity Map showing the existing well and proposed borehole locations is attached as Figure 3.

BACKGROUND

Review of the file for the subject site at the ACDEH offices identified the following reports documenting underground tank removal and subsurface investigation at the subject site.

- Tank Removal Activities and Work Plan For a Preliminary Groundwater Investigation dated August 21, 1990 prepared by C.M. Chambers and Associates.
- Proposal for Work Plan and Site Safety Plan dated July 30, 1993 prepared by Joslin Geotechnical.
- Interim Report on Underground Tank Release Investigation dated May 20, 1994 prepared by Joslin Geotechnical (the report documents installation of two groundwater monitoring wells).
- Transmittal of Test Results dated November 30, 1998 prepared by Joslin Geotechnical. The following documents were attached to the transmittal.
 - March 5, 1991 letter prepared by C.M. Chambers and Associates documenting soil disposal related to the UST removal activities.
 - January 20, 1994 letter prepared by Joslin Geotechnical documenting soil (collected on January 4, 1994) and water (collected on January 26, 1994) sample results associated with installation of the two groundwater monitoring wells.
 - July 27, 1994 letter prepared by Joslin Geotechnical documenting water sample results for samples collected from the two wells on May 31, 1994.
 - August 20, 1994 letter prepared by Joslin Geotechnical documenting water sample results for samples collected from the two wells on July 29, 1994.
 - October 5, 1994 letter prepared by Joslin Geotechnical documenting water sample results for samples collected from the two wells on September 14, 1994.
 - January 20, 1995 letter prepared by Joslin Geotechnical documenting water sample results for samples collected from the two wells on December 22, 1994.
 - June 10, 1995 letter prepared by Joslin Geotechnical documenting water sample results for samples collected from the two wells on May 15, 1995.
 - November 20, 1998 letter prepared by Joslin Geotechnical documenting water sample results for samples collected from the two wells on November 3, 1998.

The site is presently operated as a dry cleaning establishment, and is reported to have historically been used for dry cleaning operations since approximately 1907. Review of the above documents shows that a total of six underground storage tanks (USTs) were removed from the site in 1990. Soil samples collected from beneath the USTs showed detectable concentrations of petroleum hydrocarbons identified as paint thinner. The quality of the sample results is questionable because the samples were stored in glass jars and extracted at the laboratory 30 days or more after the date of sample collection. Limited excavation of soil from the UST pit was performed to remove discolored soil and soil that exhibited a head space concentration greater than 100 ppm using a combustible gas indicator. The UST pit dimensions after excavation were reported to be approximately 9 feet by 40 feet and 15 feet deep.

Based on conversations with Mr. Turner, the property owner, some of the excavated soil was placed into planters and landscaped areas surrounding the site building. During a site visit by P&D personnel, a total of seven areas were identified where the soil had been placed. The calculated volume of the soil is approximately 13 cubic yards. The locations of the planters and landscaped areas are shown on Figure 2. In addition, Mr. Turner is in the process of determining the disposition of excavated soil that was removed from the site.

In January, 1994 two groundwater monitoring wells were installed in Davis Street approximately five feet south of the former UST pit. Figure 3 shows the area of fresh concrete sidewalk, presumably from resurfacing of the UST pit. Well B1 (the well closest to Coolidge Avenue, and subsequently re-named as well MW1) was drilled to a total depth of 46.1 feet, and was constructed using 2-inch diameter PVC pipe. The screened interval is from 25 to 45 feet below the ground surface. Groundwater was initially encountered at a depth of 42.1 feet and subsequently stabilized at a depth of approximately 29 feet below the ground surface. The subsurface materials encountered in the borehole consisted predominantly of clay and silty clay. No evidence of petroleum hydrocarbons was detected in the borehole at the time of drilling, and no petroleum hydrocarbons were detected in soil samples from the borehole or water samples from the well.

Well B2 (subsequently re-named as well MW2) was drilled to a total depth of approximately 26.5 feet, and was constructed using 4-inch diameter PVC pipe. The screened interval is from 11 to 26 feet below the ground surface. Groundwater was initially encountered at a depth of approximately 18.5 feet, and subsequently stabilized at a depth of approximately 18.5 feet. The subsurface materials encountered in the borehole consisted predominantly of clayey sand and clayey gravel between the depths of approximately 10 and 21 feet below the ground surface. Petroleum odors were detected in materials from the borehole at the time of drilling, and in soil samples from the borehole. A layer of separate phase hydrocarbons was detected on the water in the well. The laboratory identified the petroleum hydrocarbons as Stoddard solvent. The water in well MW2 was interpreted to be perched water.

Review of the historical water sample results from the wells shows that no hydrocarbons have been detected in well MW1, and have been consistently detected in well MW2. Although mention of removal of separate phase hydrocarbons appears in the quarterly groundwater sampling reports, no measurements of depth to water or free product thickness are provided. Based on discussions with Mr. Turner, it is P&D's understanding that no free product removal activities have occurred at the site to date.

On January 18, 2003 P&D personnel monitored the two wells for depth to water and the presence of free product. Depth to water was measured using an electric water level indicator to the nearest 0.01 foot. Free product was measured using a steel tape with water-finding and product-finding paste. The measured depth to water in well MW1 was 20.06 feet. No free product was present in the well, and no odors or other evidence of petroleum hydrocarbons were detected in the well. In well MW2, the measured depth to water was 11.55 feet, and 0.02 feet of free product was measured in the well.

The groundwater flow direction at the site is unknown. Review of Figure 1 shows that the topography in the site vicinity slopes to the east and south. Peralta Creek is located approximately 400 feet to the southeast of the subject site. During a site visit on January 18, 2003, portions of the creek directly to the east of the site were observed to be lined with concrete. Portions of the creek to the southeast of the site at the Peralta Hacienda Historic Park were not observed to be lined with concrete. Although the vicinity topography slopes to the east and south, the area between Coolidge Avenue (bordering the property on the west) and 34th Avenue (the first street encountered to the east of the site) is remarkably flat. Based on these observations, the anticipated groundwater flow direction at the site is toward the southeast, with a relatively low gradient.

SCOPE OF WORK

In order to determine the extent of petroleum hydrocarbons in groundwater in the vicinity of the subject site, P&D will perform the following tasks:

- Regulatory agency coordination, including permitting for drilling of five soil borings, scheduling inspection of borehole grouting, and access to the public right-of-way.
- Health and safety plan preparation.
- Installation of a petroleum absorbent sock in well MW2.
- Purge and sample the two existing groundwater monitoring wells.
- Soil boring oversight.
- Collection of one soil and one groundwater grab sample from each borehole.
- Collection of soil samples from planters and landscaped areas where soil associated with the UST removal was placed.
- Arrange for sample analysis.
- Report preparation documenting collection of groundwater samples and the laboratory analytical results.

Each of these is discussed below in detail.

Permitting and Regulatory Agency Coordination

Following ACDEH approval of this work plan, permits will be obtained for the installation of the soil borings and for access to the public right-of-way. Notification will be provided to the ACDEH of the scheduled drilling dates prior to drilling.

Health and Safety Plan Preparation

A health and safety plan and a traffic plan will be prepared for the scope of work identified in this work plan. Prior to the beginning of field work, Underground Service Alert will be notified for underground utility location.

Hydrocarbon Absorbent Sock Installation

Immediately following ACDEH approval of this work plan, a petroleum hydrocarbon-absorbent sock will be placed in well MW2 to remove the free product (approximately ¼-inch thick layer) measured in the well on January 18, 2002.

Purge and Sample the Two Existing Groundwater Monitoring Wells

The two existing groundwater monitoring wells for the site will be purged and sampled. Prior to sampling, the depth to groundwater will be measured to the nearest 0.01 foot using an electric water level indicator. The wells will then be evaluated for the presence of free product or sheen using a transparent bailer. The wells will then be purged of a minimum of three casing volumes of water or until the wells are purged dry. During purging operations, the field parameters of pH, electrical conductivity and temperature will be monitored. Once the field parameters have been observed to stabilize and a minimum of three casing volumes have been purged, or the wells are purged dry, the wells will be sampled using a clean Teflon bailer. The samples will be transferred from the bailer to 40-milliliter VOA vials and one-liter amber bottles. The VOAs will be overturned and tapped to ensure that no air bubbles are present. The containers will be labeled and stored in a cooler with ice pending delivery to a State-accredited hazardous waste testing laboratory. Chain of custody documentation procedures will be observed for all sample handling. Groundwater purged from the wells will be stored in a drum onsite pending characterization and appropriate disposal.

Soil Boring Oversight and Sample Collection

A total of five soil borings, designated as borings B3 through B7, will be drilled to characterize subsurface conditions at and in the vicinity of the subject site. The boreholes will be drilled to a depth of two feet below first encountered groundwater, which is expected to be approximately 18 feet below grade for perched water at the site, and approximately 40 feet for regional groundwater. One groundwater grab sample will be collected from each borehole. The groundwater grab sample will be collected using a Teflon or stainless steel bailer. The samples will be placed into 40-milliliter VOAs and one-liter amber bottles and stored in a cooler with ice pending delivery to the laboratory. Chain of custody procedures will be observed for all sample handling. The proposed locations of the soil borings are shown on the attached Site Vicinity Map, Figure 3.

Each boring will be drilled using GeoProbe technology. The boreholes will be continuously cored. The soil from all of the borings will be logged in the field in accordance with standard geologic field techniques and the Unified Soil Classification System. All soil samples from the boreholes will be evaluated with a Photoionization Detector (PID) equipped with a 10.3 eV bulb and calibrated using a 100 ppm isobutylene standard. One soil sample will be retained from each borehole for laboratory analysis. The soil sample will be selected based upon PID values. In the event that no organic vapors are detected with the PID, a soil sample will be collected from the capillary fringe for laboratory analysis. The soil sample will be retained in a six-inch long section

of cellulose acetate tube. The ends of the tube will be sequentially covered with aluminum foil and plastic endcaps. The tube 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.

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

Collection Of Soil Samples From Planters And Landscaped Areas

The locations of planters and landscaped areas where soil excavated from the UST pit was placed are shown on Figure 2, and are identified as locations 1 through 7. The volume of soil associated with each location is summarized in Table 1, attached with this work plan. Locations 1 through 5 consist of wooden planter boxes, and locations 6 and 7 consist of landscaped areas. The combined volume of soil at locations 1 through 5 is approximately 3.2 cubic yards, and the combined volume of soil at locations 6 and 7 is approximately 9.7 cubic yards.

For locations 1 through 5, a hand auger or shovel will be used to dig to a depth of approximately six inches at the center of each of the five planters. Soil excavated in the planters will be evaluated with a PID. One soil sample will be collected from each planter into a brass or stainless steel tube measuring 2-inches in diameter and 6-inches in length. The ends of each tube will be sequentially covered with aluminum foil and plastic endcaps. The tube 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.

For location 6, a hand auger will be used to excavate boreholes and samples will be collected from each borehole into brass or stainless steel tubes using a stainless steel percussion sampler. The tubes will be handled as described above. Soil samples will be collected at a depth of 8 inches to determine if the soil placed in the planter is impacted by petroleum hydrocarbons, and at a depth of 3 feet to determine if petroleum hydrocarbons have leached into underlying soil.

For location 7, two boreholes will be hand augered, and samples will be collected at a depth of one foot to determine if the soil placed in the planter is impacted by petroleum hydrocarbons, and at a depth of 4 feet to determine if petroleum hydrocarbons have leached into underlying soil.

Arrange for Sample Analysis

All of the samples will be analyzed on a normal (five working day) turn around basis at McCampbell Analytical, Inc (McCampbell) of Pacheco, California. McCampbell is a State-Approved hazardous waste testing laboratory.

The water samples from the wells will be analyzed for TPH Multi-Range (TPH as Stoddard Solvent and TPH as Motor Oil) using Modified EPA Method 8015, and for BTEX and chlorinated hydrocarbons (including perchloroethylene) using EPA Method 8260.

The soil and groundwater samples from the boreholes will be analyzed for TPH Multi-Range (TPH as Stoddard Solvent and TPH as Motor Oil) using Modified EPA Method 8015. In the event that perchloroethylene is detected in the water samples from the wells, the samples from the boreholes will also be analyzed for BTEX and chlorinated hydrocarbons (including perchloroethylene) using EPA Method 8260. In the event that perchloroethylene is not detected in the water samples from the wells, the samples from the boreholes will also be analyzed for BTEX using EPA Method 8020.

The five soil samples from planter locations 1 through 5 will be composited (one 5-point composite) at the laboratory prior to analysis. The two soil samples collected in landscaped location 6 at a depth of 8 inches, and the two soil samples collected in landscaped location 6 at a depth of 3 feet will be composited (two 2-point composite samples) prior to analysis. Similarly, the two soil samples collected in landscaped location 7 at a depth of 1 foot, and the two soil samples collected in landscaped location 7 at a depth of 4 feet will be composited (two 2-point composite samples) prior to analysis. All of the soil samples collected from the planters and landscaped areas will be analyzed for TPH Multi-Range (TPH as Stoddard Solvent and TPH as Motor Oil) using Modified EPA Method 8015. In the event that perchloroethylene is detected in the water samples from the wells, the samples from the boreholes will also be analyzed for BTEX and chlorinated hydrocarbons (including perchloroethylene) using EPA Method 8260. In the event that perchloroethylene is not detected in the water samples from the wells, the samples from the boreholes will also be analyzed for BTEX using EPA Method 8020.

Report Preparation

Upon receipt of the laboratory analytical results, a report will be prepared. The report will document soil and groundwater sample collection and sample results. The report will include a site vicinity map showing the drilling locations, tables summarizing the sample results, recommendations for additional soil borings or well installation, and the stamp of an appropriately registered professional.

In the event that the extent of petroleum hydrocarbons is not defined by the five proposed boreholes, additional soil borings will be proposed to define the extent of petroleum hydrocarbons in soil and groundwater. Following delineation of the extent of petroleum hydrocarbons in soil and water, additional groundwater monitoring wells will be recommended to verify groundwater flow direction and the extent of petroleum hydrocarbons in groundwater.

In the event that petroleum hydrocarbons are detected in soil samples from the planters or landscaped areas, arrangements will be made to remove the petroleum-impacted soil to an appropriately licensed disposal facility.

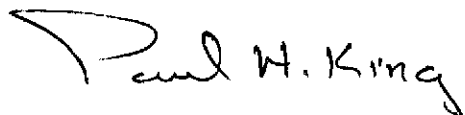
January 30, 2003
Work Plan 0298.W1

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

Sincerely,

P&D Environmental

A handwritten signature in black ink that reads "Paul H. King". The signature is written in a cursive, slightly slanted style.

Paul H. King
President
California Registered Geologist #5901
Expires: 12/31/03

Attachments: Table 1
Site Location Map (Figure 1)
Site Vicinity Map (Figure 2)
Site Vicinity Map (Figure 3)

cc: Mr. Harold Turner

PHK
0298.W1

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TABLE 1						
PLANTER AND LANDSCAPED AREA						
SOIL VOLUMES						
2768 Coolidge Avenue, Oakland, CA						
Area	Description	Length	Width	Depth	Volume	Volume
		(ft)	(ft)	(ft)	(cu ft)	(cu yd)
1	Planter On Concrete	14.5	3.8	1	55.1	2.040741
2	Planter Box	8	0.75	1.2	7.2	0.266667
3	Planter Box	4	0.75	1	3	0.111111
4	Planter Box	10	1	1	10	0.37037
5	Planter Box	10	1	1	10	0.37037
6	Landscaping	55.75	2	1.17	130.455	4.831667
7	Landscaping	17.5	3	2.5	131.25	4.861111
				TOTAL	347.005	12.85204
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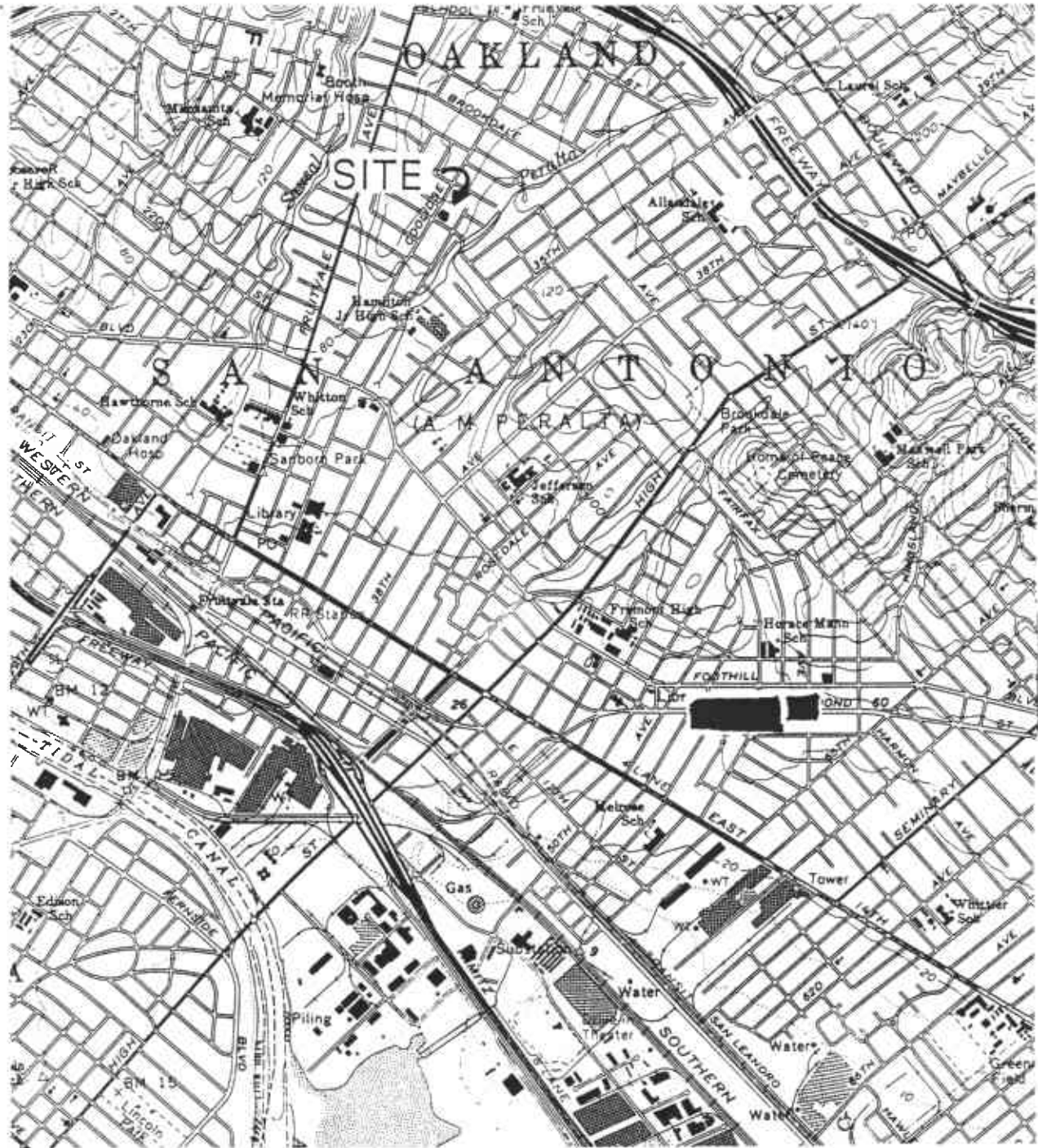
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Base Map From
U.S. Geological Survey
Oakland East, Calif.
7.5 Minute Quadrangle
Photorevised 1980

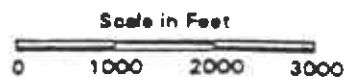
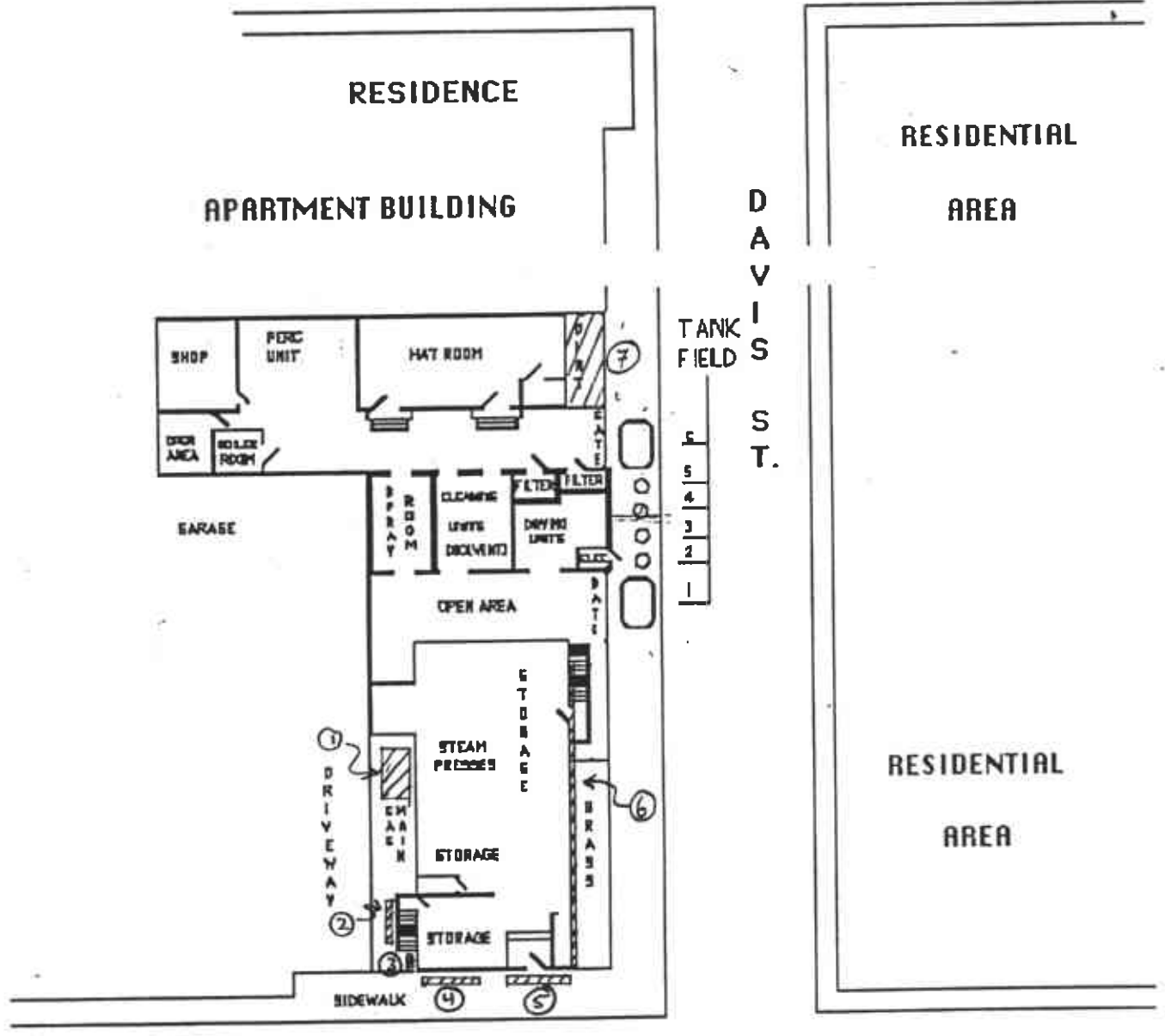


Figure 1
SITE LOCATION MAP
2678 Coolidge Ave
Oakland, CA

SNOW CLEANERS
2678 COOLIDGE AVE.
OAKLAND, CA

34TH AVENUE



Based Map From
Underground Tank Closure/
Modification Plans
June 16, 1990

COOLIDGE AVENUE

North

NO SCALE

RESIDENTIAL AREA

DUPLEX

CORNER
STORE

Figure 2
SITE VICINITY MAP
2678 Coolidge Ave.
Oakland, CA

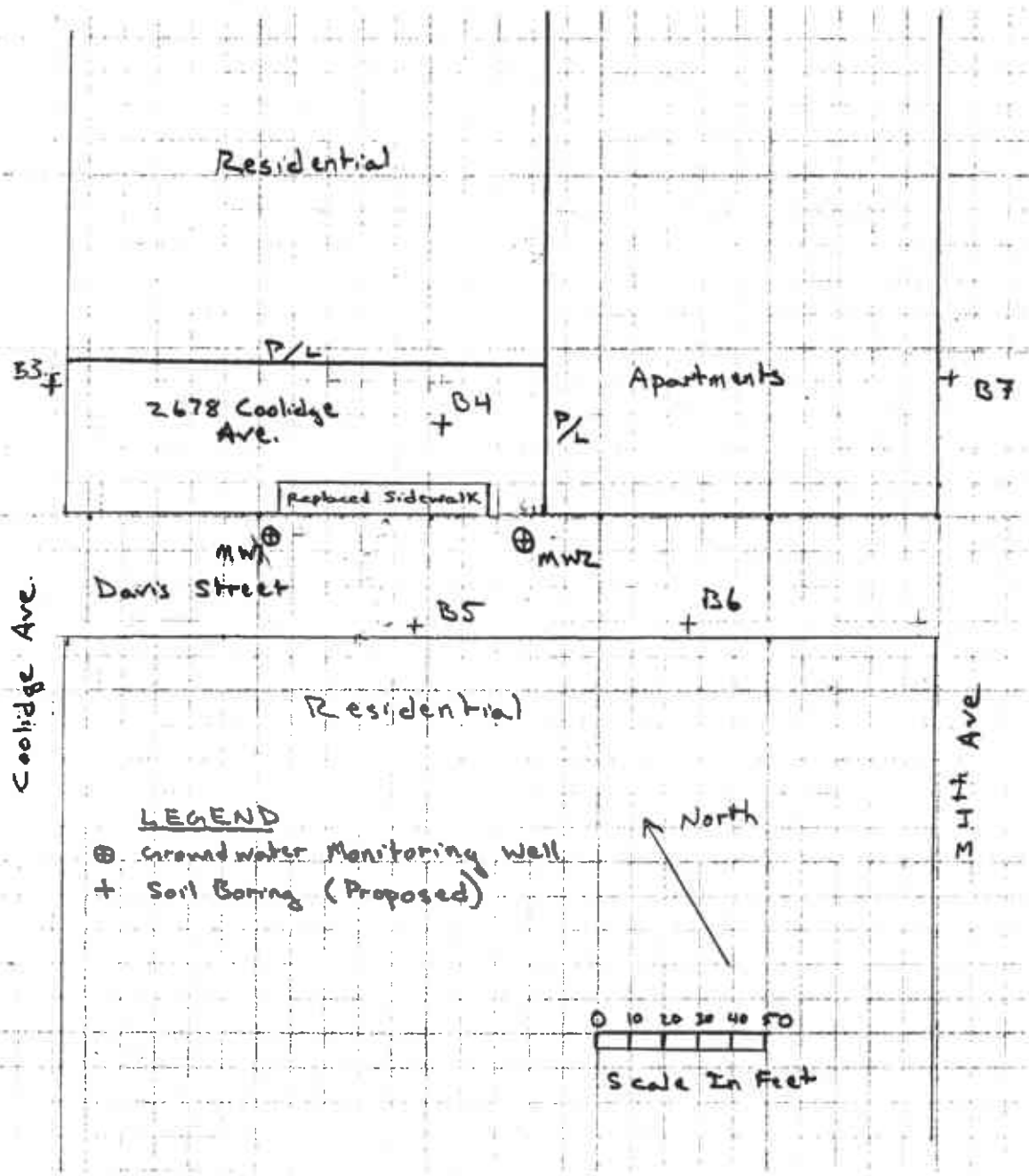
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Based Map Prepared
By P&D Environmental
Using A Rolatape
January 18, 2003

Figure 3
SITE VICINITY MAP
2678 Coolidge Ave.
Oakland, CA