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Environmental Health

WORK PLAN FOR ADDITIONAL SOIL AND GROUNDWATER INVESTIGATION

JUNE 2009

751 - 785 Seventh Street
Oakland, California

Alameda County Case No. RO0002586

For:
Brush Street Group, LLC
Oakland, California

Y0323-03.01276

5900 Hollis Street, Suite D • Emeryville, California 94608

19 June 2009

Mr. Jerry Wickham, CHG
Alameda County Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

**Subject: Transmittal of Work Plan for Additional Soil and Groundwater
Investigation, 751-785 7th Street, Oakland, California, Case No.
RO0002586**

Dear Mr. Wickham:

Please find attached the above-referenced report for the 751 - 785 Seventh Street site in Oakland prepared by BASELINE Environmental Consulting. I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

Sincerely,



Tom McCoy
Brush Street Group, LLC

BASELINE
ENVIRONMENTAL CONSULTING

19 June 2009
Y0323-03

Mr. Jerry Wickham, CHG
Alameda County Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

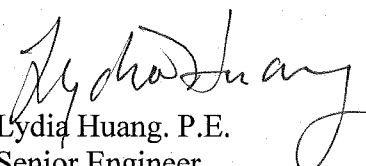
Subject: Work Plan for Additional Soil and Groundwater Investigation, 751-785 7th Street, Oakland, California, Case No. RO0002586

Dear Mr. Wickham:

On behalf of the Brush Street Group, BASELINE Environmental Consulting is submitting the attached Work Plan for Soil and Groundwater Investigation at the 751-785 7th Street, Oakland. The Work Plan was prepared to address the comments contained in your 5 November 2008 and 5 May 2009 letters. This report was prepared by myself or by other professionals directly under my supervision.

We look forward to working with the Alameda County Health Care Services Agency on this project. Should you have any questions or need additional information, please do not hesitate to contact us at your convenience.

Sincerely,


Lydia Huang, P.E.
Senior Engineer



jgm

Enclosure

cc: Tom McCoy – Brush Street Group

WORK PLAN FOR ADDITIONAL SOIL AND GROUNDWATER INVESTIGATION

June 2009

751 - 785 Seventh Street
Oakland, California

For:

Brush Street Group, LLC
Oakland, California

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BASELINE Environmental Consulting
5900 Hollis Street, Suite D • Emeryville • California 94608
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WORK PLAN FOR ADDITIONAL SOIL, GROUNDWATER, AND SOIL GAS INVESTIGATION

**751 - 785 Seventh Street
Oakland, California**

1 INTRODUCTION

On the behalf of the Brush Street Group, LLC, BASELINE Environmental Consulting ("BASELINE") has prepared this work plan for an additional soil and groundwater investigation at 751 - 785 Seventh Street, located in Oakland ("site") (Figure 1). A plating facility was operated at the site from 1957 until 1998, at which time it was abandoned. The abandoned plating facility contained hazardous materials and wastes which were removed during an emergency response action directed by U.S. EPA, Office of Emergency Response in 1998/1999. Subsequent soil and groundwater investigations have found that the soil and groundwater at the site have been impacted by metals, in particular hexavalent chromium ("Cr-VI"), and chlorinated volatile organic compounds ("VOCs"), in particular, trichloroethene ("TCE"). The site is currently under the regulatory oversight of the Alameda County Environmental Health Services ("ACEH") (Alameda County SLIC Case No. RO0002586).

Environmental investigation of the site began in February 2003 and has occurred in several phases. The primary source of metals and VOCs appears to have been a former below-grade structure referred to as the Frog Pond (Figure 2). Between June and December 2007, the Frog Pond was removed and the removal activities were documented in BASELINE's report, *Documentation of Frog Pond Removal Activities*, dated 29 February 2008. The report was submitted and reviewed by the ACEH. In a letter to the Brush Street Group, LLC, dated 5 November 2008, the ACEH requested that a work plan be prepared to address the following issues:

1. Provide an evaluation as to whether the material used to backfill the sump effectively seals the sump and prevents vertical migration of water from the former Frog Pond to groundwater (information provided in Section 3);
2. Investigate the groundwater quality in the area of the former Frog Pond's eastern sump (addressed in work plan in Section 4);
3. Assess the vertical extent of contamination in the area of the former Frog Pond (addressed in work plan in Section 4);
4. Assess whether a plume of dissolved metals and VOCs extends a significant distance off-site, including sampling of an off-site well, MW-9 associated with the Shell service station at 610 Market Street (addressed in work plan in Section 4);
5. Define the extent of metal contamination in the shallow soils near a drainage ditch in the rear yard (information provided in Section 3);
6. Describe why the soils with elevated concentrations of metals are not considered a potential source of releases of metals to groundwater (information provided in Section 3);

7. Prepare a plan to collect soil vapor samples to evaluate the potential for vapor intrusion into indoor air for future site occupants (information provided in Section 3); and
8. Use Environmental Screening Levels (“ESLs”) established by the Regional Water Quality Control Board (“Water Board”) to evaluate soil and groundwater concentrations (information provided in Section 3).

This work plan has been prepared in response to the issues raised in the ACEH letter.

2 BACKGROUND

The site is bounded by Seventh Street to the north, Brush Street to the east, a vacant building and lot to the south, and a Shell gas station to the west. The adjacent Shell station is also under ACEH oversight, Alameda County Case No. RO0000493, due to petroleum releases. The eastern portion of the site (former plating building and rear yard) has been improved and the existing building upgraded. The current address of the eastern portion of the site is 85 Brush Street.

The Frog Pond was a below-grade, concrete-lined structure that measured approximately 70 feet long by 15 feet wide, and four feet deep. It is unknown when the Frog Pond was initially constructed. The former plating operations apparently used the Frog Pond to contain some plating activities, and to contain wastewater, liquids, and solids from on-site treatment of wastes. Sometime before the Brush Street Group became the owner of the site in 2003, the Frog Pond had been covered with an asphalt concrete cap.

A 2006 investigation by BASELINE to assess the presence of VOCs focused on the southwestern corner of the site, adjacent to the Frog Pond. During that investigation, high chromium concentrations were identified in one grab groundwater sample for the first time. This finding suggested that a source of metals contamination could be present in or under the Frog Pond. Therefore, the Brush Street Group removed the entire Frog Pond in 2007.

3 INFORMATION REQUESTED IN ACEH COMMENTS

This section provides information and clarification as requested by the ACEH in the November 2008 letter.

3.1 Comment #1 - Frog Pond Backfill

The removal of the concrete column and backfilling of the entire Frog Pond was directed and overseen by the Brush Street Group. BASELINE understands that the void created by the removal of the concrete column was backfilled with soil that was excavated to access the column and soil that was adjacent to the column. The upper portion of the Frog Pond was reportedly backfilled with clean imported gravel. The current surface of the former Frog Pond appears to be compacted aggregate base, and the Brush Street Group plans to pave the surface with asphalt or concrete before the next wet season.

3.2 Comment #5 - Former Drainage Ditch in Rear Yard

The Brush Street Group has recently filled in and sealed the former drainage ditch with concrete. The previous boring B-FP11 was offset from the drainage ditch approximately two feet to the west and shallow soil samples contained elevated metal concentrations (but were nondetect for hexavalent chromium). Other soil samples near the former drainage ditch were also collected from borings B-FP10 and B-FP12, and groundwater monitoring well MW-FP2 is located in the downgradient direction from the ditch.

Since the ditch has been sealed, there is no current exposure to occupants of the site. The available soil and groundwater data from near the former drainage ditch suggest that impacts associated with the ditch are not pervasive and are of a significant lower magnitude than those associated with the Frog Pond. Therefore, further investigation of the area surrounding the former drainage ditch would not be performed at this time, but would be revisited when the status of the entire site is evaluated as a whole.

3.3 Comment #6 - Source Materials

BASELINE stated in the report, *Documentation of Frog Pond Removal Activities*, that “A significant effort has been made in search of potential source materials that may be continuing to release contaminants to the soil and groundwater. No source materials have been found.” The term “source material” was used to refer to the original materials that were the source of the contaminants, such as plating wastes including plating solutions, treatment sludge, and filter cakes. The term was not meant to include soil and/or groundwater which may have been impacted by the source materials. The statement was intended to convey that the investigation did not find any abandoned hazardous materials or wastes in or underlying the Frog Pond, or in the other uncovered subsurface vaults. Affected soils could be continuing to be a source of contaminants to the groundwater.

3.4 Comment #7 - Soil Gas Impacts

A focused VOC investigation, including a soil gas survey, was originally proposed and partially implemented in 2006 near the southwestern corner of the Frog Pond. It was during the soil and groundwater sample collection activities during the VOC investigation that the first evidence of chromium groundwater impacts was discovered. When a grab groundwater sample was found to contain high concentrations of metals, especially chromium, the soil gas survey was not performed because the metals contamination was obviously the more significant issue that needed to be addressed. A soil gas survey at that time would have been premature because it was unknown what actions may be needed to address the metals impacts.

A soil gas survey would still be premature at this time because possible future remediation activities to address metals impacts may disturb the subsurface in the area. Secondly, there are no plans to redevelop this portion of the site at this time and there are no receptors who may be exposed. VOC impacts would need to be evaluated after the metals impacts have been better defined, and likely remediation activities and plans for redevelopment of the site identified. A soil gas survey may be appropriate at a future time.

3.5 Comment #8 - Use of Water Board ESLs

It does not appear that any comparison against screening levels was included in the report, *Documentation of Frog Pond Removal Activities*. That report documented the activities involved with the removal of the Frog Pond and presented soil and groundwater data. However, future evaluation of soil and groundwater results would be conducted using the Water Board's ESLs.

4 INVESTIGATION WORKPLAN

Past investigations indicate that the lithology is consistent across the site. A layer of fill, between about three and four feet thick, is present across the entire site. Very fine- to fine-grained sands of the Merritt Sand underlie the fill, which is part of the San Antonio Formation, and extends beyond the maximum depth explored of 26.5 feet below ground surface ("bgs"). Groundwater in the Merritt Sand is unconfined. Based on a hydrogeologic study conducted in the area¹, the Merritt Sand layer is estimated to be over 60 feet thick in the vicinity of the site and is underlain by Old Bay Mud. The Old Bay Mud is the confining layer for the shallow groundwater in the area.

Groundwater levels in the two wells that have been constructed at the site have been measured to be between 12.3 to 15.5 feet below the top of the well casing ("TOC") in February 2003 and November 2005. Since there are only two wells at the site, a site-specific groundwater flow direction and gradient have not been determined. However, the November 2008 groundwater monitoring report from the adjacent Shell service station indicates the local shallow groundwater was flowing in a southwesterly direction.²

4.1 On-Site Groundwater Investigation

An on-site soil and groundwater investigation would be conducted to address ACEH comments #2 (assess contamination possibly associated with the "eastern sump" in former Frog Pond) and #3 (assess vertical extent of groundwater near the Frog Pond). BASELINE would contract with a California-licensed drilling company to install three shallow and one deep groundwater monitoring wells at the site. The borehole for proposed upgradient monitoring well MW-FP3 would be advanced through the fill and Merritt Sand to the top of the Old Bay Mud to determine the thickness of the Merritt Sand at the site. Once the top of the Bay Mud has been encountered, the well would be backfilled with coated bentonite pellets³ to 25 feet bgs. Proposed downgradient monitoring wells MW-FP4A and MW-FP5 would be drilled to a total depth of 25 feet bgs near the southwestern and southeastern corner of the former Frog Pond, respectively. One soil sample would be collected from each of the three boreholes at five feet bgs, corresponding to just below the bottom of the former Frog Pond and other underground vaults previously uncovered. The three shallow groundwater monitoring wells would be drilled using hollow-stem augers and be constructed of 2-inch PVC with 10 feet of 0.010-inch slotted screen

¹ Draft Hydrogeologic Investigation, -50 Foot Navigation Improvement Project, Port of Oakland, prepared by Subsurface Consultants and Todd Engineers, December 1997.

² Groundwater Monitoring Report, Third Quarter 2008, Shell-Branded Service Station, 610 Market Street, Oakland, CA, prepared by Conestoga-Rovers & Associates, 4 November 2008.

³ Coated bentonite pellet have unique biodegradable non-sticking coating that prevent bentonite from swelling upon contact with water for a specific time. Coated bentonite pellets are most suitable bentonite sealant for use in deep hole sealing.

sections. A sand filter pack (#2/16 sand) would be placed through the hollow-stem auger as it is being raised, filling the annular space between the borehole walls and the well casings to approximately two feet above the screen interval. A minimum of a one-foot thick bentonite seal would be placed on top of the filter pack. The remaining annular space would be grouted with neat cement to the surface and the well heads would be finished with a traffic-rated Christy box.

One deep well, MW-FP4B, would be installed adjacent to MW-FP4A to about 45 feet bgs and screened from approximately 35 to 45 feet bgs. Construction of the deep well would otherwise be the same as the shallow wells.

The top of casings ("TOCs") in all the wells would be notched or marked to serve as reference for surveying the horizontal and vertical position of the groundwater monitoring wells. The horizontal and vertical survey would be based on the North American Datum of 1983 and the North American Vertical Datum of 1988, respectively. The survey will be performed by a California-licensed surveyor.

No less than 48 hours after well installation, the new monitoring wells would be developed using a surge block and a peristaltic pump equipped with new disposable polyethylene tubing. Prior to well development, the water level in the monitoring wells would be measured from the TOC. The peristaltic pump would be used to remove accumulated sediment, while the surge block would be used to dislodge fine-grained sediments from the filter pack. Well development would continue until the purged groundwater becomes clear. The two existing wells would be redeveloped, if needed. Purge water from well development would be placed in a properly labeled 55-gallon drum stored on-site for subsequent disposal, pending receipt of analytical results.

All five wells would be sampled using a low-flow method in accordance with U.S. Environmental Protection Agency ("EPA") guidance.⁴ BASELINE would immediately seal and label the sample containers and store the samples in a cooler containing ice. The soil and groundwater samples would be submitted to a State-certified laboratory under chain-of-custody procedures for the following analyses:

- Title 22 Metals by EPA Methods 6000/7000 Series (laboratory would filter the groundwater samples before analysis); and
- Cr-VI by EPA Method 7196A.

In addition to metals, the groundwater samples would also be analyzed for VOCs by EPA Method 8260B.

4.2 Off-Site Groundwater Investigation

The ACEH letter requested sampling of the adjacent Shell service station groundwater monitoring well MW-9 (comment #4), located downgradient from the site on Sixth Street (Figure 3). If ACEH were able to facilitate obtaining permission from Shell for BASELINE to sample this well, BASELINE would collect a groundwater sample from MW-9.

⁴ EPA, Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures, April 1996.

BASELINE would sample MW-9 using a low-flow sampling method in accordance with EPA guidance. BASELINE would submit the groundwater samples under chain-of-custody protocol to a California-certified analytical laboratory for the following analyses:

- Title 22 Metals by EPA Methods 6000/7000 Series (laboratory would filter the groundwater samples before analysis);
- Cr-VI by EPA Method 7196A; and
- VOCs by EPA Method 8260B.

Alternatively, ACEH may consider requesting Shell to analyze their next set of groundwater samples for these analyses.

If a sample from MW-9 cannot be obtained for these analyses, BASELINE would advance a boring in the downgradient direction along Sixth Street (B-FP32 in Figure 3). Two grab groundwater samples would be collected from this boring drilled using hollow stem augers. One sample would be collected from near the top of the groundwater table, estimated to be about 20 feet bgs, and one from approximately 40 feet bgs. A hydropunch sampler would be driven ahead of the auger at each sample depth to facilitate groundwater collection. BASELINE would submit the groundwater samples under chain-of-custody protocol to a California-certified analytical laboratory for the same analyses listed above. The borehole would be sealed in accordance with permit conditions.

5 INVESTIGATION DERIVED WASTE

Soil cuttings, groundwater, and decontamination water from soil borings, monitoring well installations, and groundwater sampling would be placed in properly labeled 55-gallon drums and stored on-site. Pending receipt of analytical results, the waste would be disposed of in accordance with state, federal, and local regulations.

6 REPORTING

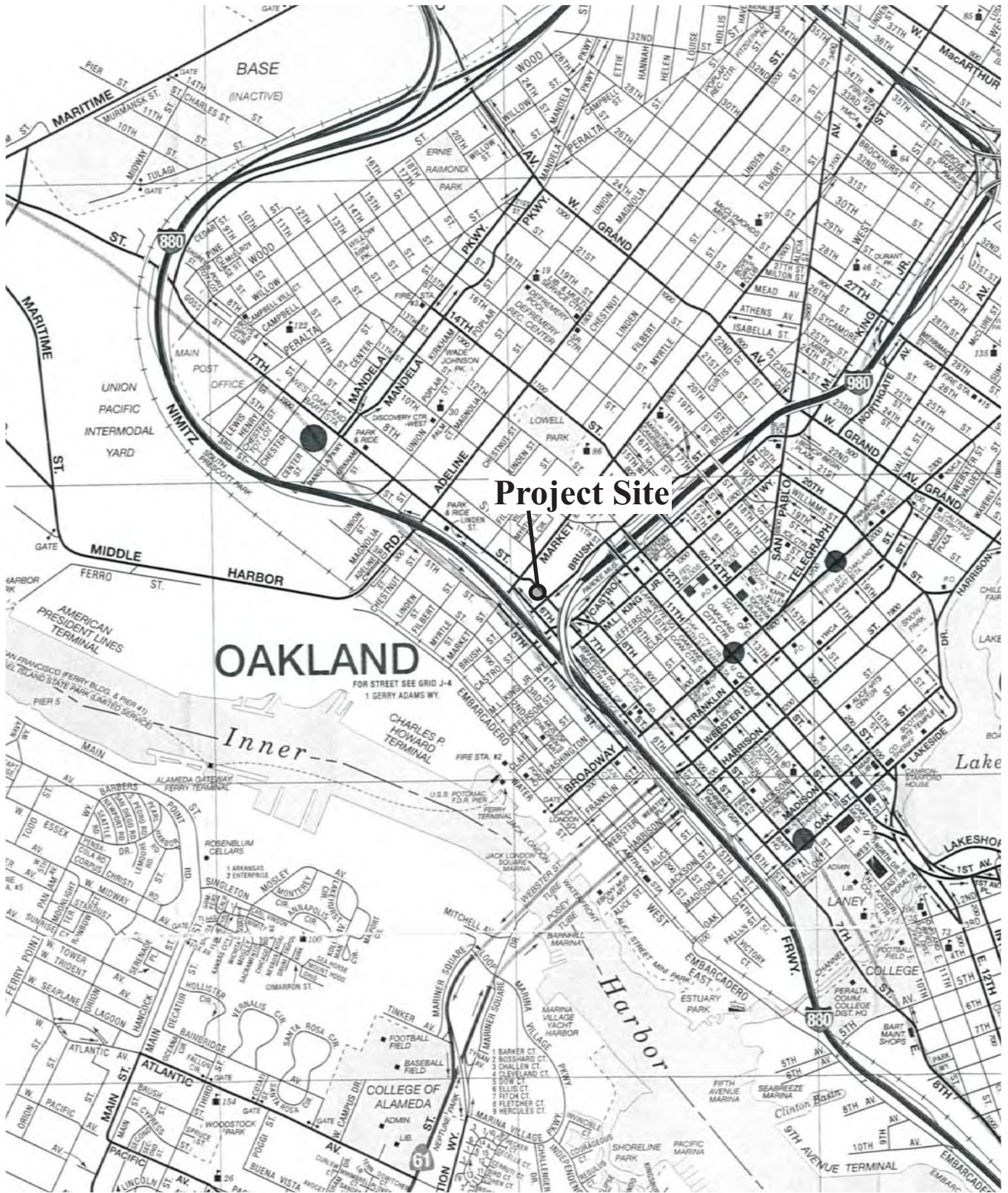
BASELINE would prepare a report documenting the results from the soil and groundwater sampling activities. A Tier I health screening evaluation would be performed by screening the soil and groundwater results against the Water Board ESLs for shallow soils where groundwater is not a potential drinking water source (Table A-2).⁵ The report would summarize the result in tables and present the results graphically to aid in evaluating the impacts. The report would also provide conclusions and recommendations for further investigation work, if appropriate.

⁵ San Francisco Regional Water Quality Control Board, 2005, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater - Interim Final, February, as updated May 2008.

FIGURES

REGIONAL LOCATION

Figure 1

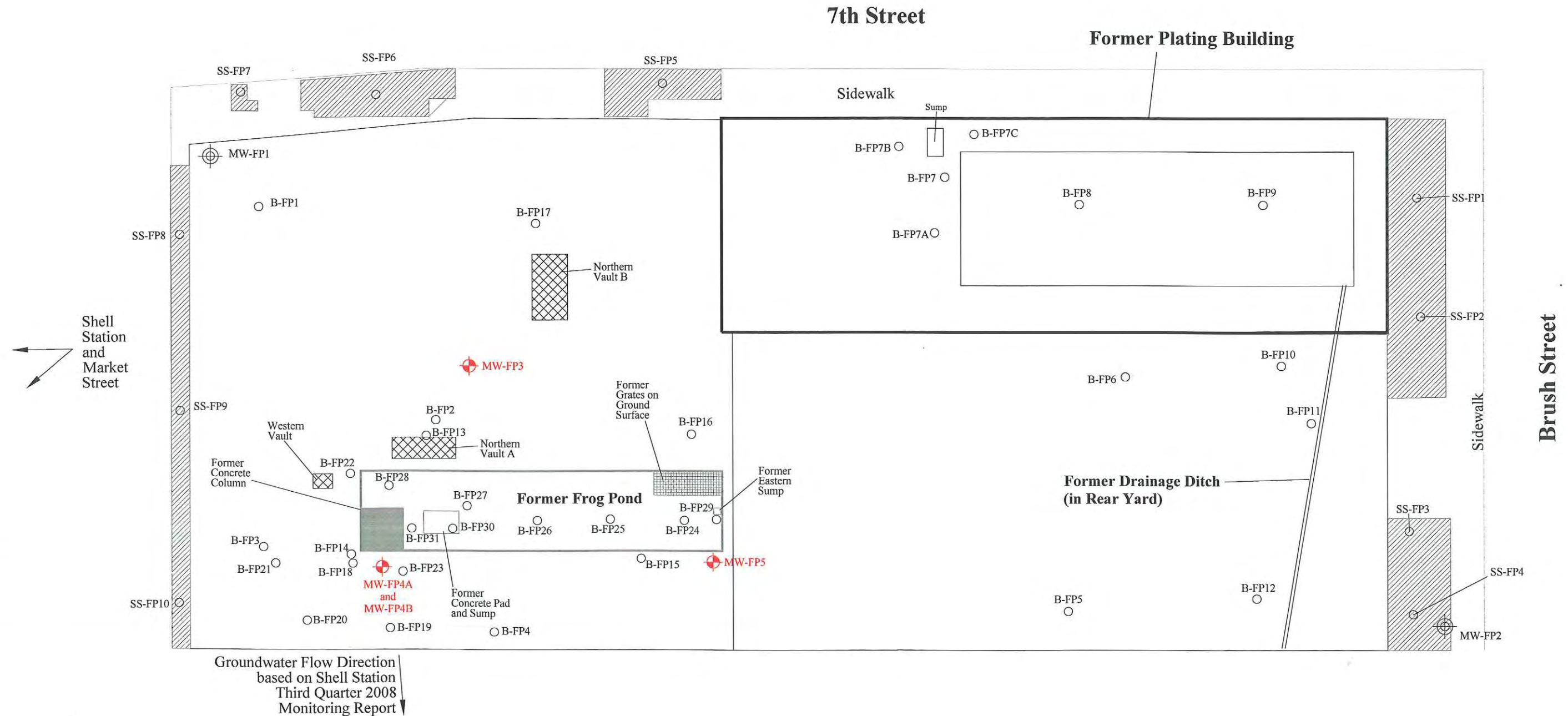


**751-785 Seventh Street
Oakland, California**



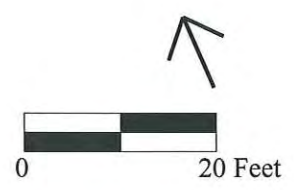
PROPOSED ON-SITE SAMPLE LOCATIONS

Figure 2



**751 - 785 Seventh Street
Oakland, California**

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BASELINE

OFF-SITE GROUNDWATER SAMPLE LOCATION

Figure 3



751 - 785 Seventh Street Oakland, California

--- Site Boundary

⊕ Existing Shell Station Well



Possible Off-Site Grab
Groundwater Sample
Location

