

April 13, 1998

61877.0004

Alameda County Health Care Services Agency  
Environmental Health Services  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502

Attention: Ms. Pamela J. Evans

SUBJECT: WORK PLAN FOR WELL INSTALLATION AND QUARTERLY  
GROUNDWATER MONITORING AT 1750 WEBSTER STREET, OAKLAND,  
CALIFORNIA

Dear Ms. Evans:

On behalf of Prentiss Properties Limited, Inc., ATC Associates Inc. (ATC) has prepared this work plan to present the scope and schedule to install three groundwater monitoring wells and to perform one year of quarterly groundwater monitoring at the auto parking parcel located at 1750 Webster Street in Oakland, California (site; Figure 1).

## BACKGROUND

An environmental site assessment (ESA) was prepared for the site by Applied Geosciences Inc. (AGI) in January 1993. Subsequent work at the site in March 1993 by AGI involved a geophysical survey and a subsurface investigation, including the collection and analyses of soil and groundwater samples. No USTs were identified by the geophysical survey, but elevated concentrations of total petroleum hydrocarbons (TPH) as gasoline (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX), were detected in groundwater samples collected from the site during this investigation. The highest concentrations of TPHg and BTEX were reported in the groundwater sample collected from HP-1 (200, 18, 24, 2.9, and 13 milligrams per liter {mg/l}, respectively). Lower concentrations of TPHg and BTEX were reported in HP-2 (42, 0.046, 0.90, 2.2, and 5.5 mg/l, respectively). An additional subsurface investigation was conducted at the site by AGI in May 1993 to assess the likelihood of an on-site source for the TPHg and BTEX, and to conduct an additional geophysical survey. Four soil borings were installed around the previous groundwater sampling locations and near an area identified as patched asphalt. The borings were drilled to depths of approximately 20 feet below ground surface (bgs), and two sample were analyzed from each boring. No significant concentration of TPH-G or BTEX were detected in any of the soil samples. No USTs were identified by the geophysical survey.

The results of the additional investigation (May 1993) did not, in the judgment of Applied Geosciences Inc., indicate the presence of an on-site source for the constituents reported in the groundwater. Based on the results, it was suspected that the source for the TPHg and BTEX was migration from an off-site source, likely a documented leaking underground storage tank (LUST) located immediately across Webster Street to the east (Douglas Parking site). The most recent investigations (February 1998) of the Douglas Parking site suggest that the shallow groundwater gradient is to the north-northeast.

On February 7 and 8, 1998, ATC conducted a soil and groundwater investigation to confirm that no USTs exist at the Site, and to determine whether the source of the groundwater contamination is off-site or on-site. The results of the investigation were presented in the March 19, 1998 report *Soil and Groundwater Investigation for 1750 Webster Street, Oakland, California*, and submitted to the ACHCSA. The February 1998 subsurface investigation involved a geophysical survey, installation of twelve borings throughout the Site, and collection of soil and groundwater samples for analysis. A magnetometer survey indicated four anomalies at the Site, but due to heavy rains during the survey, the anomalies could not be confirmed on the same day with ground penetrating radar (GPR). Despite the fact that the anomalies could not be confirmed by the GPR, the soil boring locations were adjusted to locations adjacent to the magnetometer anomalies to test for the presence of petroleum hydrocarbons in the soil. The GPR survey was rescheduled and completed on February 17, 1998 and did not detect the presence of USTs beneath the Site.

Twelve soil borings were advanced using a *Geoprobe*<sup>TM</sup> sampling rig on February 7 and 8, 1998 (see Figure 3 for boring locations). Two samples were collected from each boring and analyzed for TPH-G, BTEX and methyl tert-butyl ether (MTBE). One groundwater grab sample was also collected from each boring and analyzed for TPH-G, BTEX and MTBE. Groundwater samples from five of the borings were also analyzed for halogenated volatile organic compounds (HVOCs). Groundwater was detected at a depth of approximately 20 feet bgs. None of the soil samples collected from above that depth had detectable concentrations of TPH-G, BTEX or MTBE. All of the groundwater samples did have detectable concentrations of TPH-G, BTEX and MTBE, and three had detectable concentrations of HVOCs.

The *Soil and Groundwater Investigation* report concluded that the source, or sources, of the groundwater contamination at the Site is located off-site, possibly to the south and/or southwest. A number of potential off-site sources were identified in the Environmental Assessment of the Site prepared by Applied Geosciences, Inc. (1993a), including the Douglas Parking site, and the former Chevron site located at the southwest corner of 17<sup>th</sup> Street and Harrison. Both of these sites have been identified as sources of groundwater petroleum hydrocarbon contamination, and are located generally up-gradient of the 1750 Webster Street Site. Groundwater samples from the Chevron site also contained concentrations of the same HVOCs detected at the Site. Other potential off-site sources of groundwater contamination may be as-of-yet unidentified. A Custom Detail Radius Report was run by Environmental Risk Imaging and Information Services (ERIIS) for the Site on March 9, 1998. This report lists sites within specified distances of the subject property which are

listed in governmental environmental databases. Forty three sites within on quarter mile of the subject Site were identified in the ERIIS Custom Detail Radius Report. These sites are potential sources of groundwater contamination.

## **OBJECTIVE**

The objective of the proposed scope of work is to determine the groundwater gradient at the site and to monitor groundwater quality.

## **SCOPE OF WORK**

The following scope of work has been proposed to meet the objectives:

- Task 1. Well Installation;
- Task 2. Well Installation Report Preparation; and
- Task 3. Quarterly Monitoring and Reporting.

## **WORK DESCRIPTION**

### **Task 1. Well Installation**

In order to determine the groundwater gradient at the site, and to perform regular groundwater monitoring, three groundwater monitoring wells will be installed at the site. Figure 3 shows the proposed well locations. Two wells will be located along the southern boundary of the site property adjacent to the apartment building, approximately 80 feet apart. The third will be located in the northeastern portion of the site property, approximately 30 feet from the eastern boundary of the site property. Well installation permits will be obtained from the Alameda County Public Works Agency (ACPWA). The boreholes will be drilled and the wells installed by a drilling contractor with a current C-57 license.

The borehole locations will be marked and cleared for under ground utilities prior to drilling. Three borings will be advanced with 8-inch outside diameter (O.D.) hollow stem augers to a depth of approximately 30 feet below ground surface (bgs). The augers will be steam cleaned prior to commencing each boring. Soil samples will be collected at five foot intervals for lithologic logging and screened with a photo ionization detector (PID) for evidence of petroleum hydrocarbon vapors. Soil samples will be classified in accordance with the Unified Soil Classification System (USCS). Two soil samples will be selected from each boring for laboratory analysis. The soil samples collected will be analyzed by a California-certified laboratory for TPH-G by Environmental Protection Agency (EPA) Method 8015M, and for

BTEX, and MTBE by EPA Method 8020. The soil cuttings generated during the drilling will be drummed and left on site pending chemical analysis.

The wells will be constructed of 2-inch diameter schedule 40 PVC with approximately 15 feet of 0.01-inch slotted casing for well screen. The wells will be installed through the center of the augers while the augers are in place and at the required depth. The sand pack will consist of size 2/16 Lone Star sand placed from 30 feet bgs to two feet above the top of the well screen (approximately 17 feet of sand pack). The sand will be poured through the annulus of the well and the auger. More sand will be added and tapped down as the auger is gradually removed from the bore hole. When sufficient sand has been placed in the borehole, the sand pack and well will be developed to ensure that the sand has settled in place and more sand will be added to achieve the desired sand pack thickness. A three-foot layer of bentonite seal will be placed above the sand pack, and the well will be grouted from the bentonite seal to the surface with neat cement in accordance with California Well Standards. The wells will be completed with flush mounted traffic-rated well boxes, and locking well caps. LUFT guidelines for well installation will be followed. After the wells have been constructed and the grout has cured, the wells will be developed.

Soil cuttings and decontamination water generated during the well installation, and from the subsurface investigation activities performed by ATC in February 1998, will be disposed of following receipt of the laboratory analytical results. The cuttings and decontamination water will be transported for disposal or recycling by a licensed hazardous waste hauler.

The site wells will be surveyed in order to accurately determine the groundwater gradient at the site. The wells will be surveyed by a professional licensed surveyor. The well head elevations will be measured to within one hundredth of a foot, relative to mean sea level, and tied into a United States Geological Survey (USGS) benchmark.

## **Task 2. Well Installation Report Preparation**

A report on the well installation activities will be prepared after all of the results are received from the analytical laboratory. The report will include: assessment procedures, a well location map, soil boring logs, a tabulated summary of analytical results, laboratory data sheets and chain of custody documentation, evaluation of the data collected, and conclusions. The report will also include the results of the first quarterly monitoring event.

## **Task 3. Quarterly Monitoring**

ATC will perform quarterly monitoring, sampling, and reporting for the three groundwater monitoring wells at the site for a period of one year (four sampling events) beginning with the second quarter of 1998. The reports will be prepared and submitted no later than the fifteenth of the month following each quarter.

The static water level and floating product level, if present, in each well that contained water will be measured with an ORS Interphase Probe Model No. 1068018 or Solonist Water Level Indicator. The water level indicator will be rinsed with deionized water between measurements. These instruments are accurate to the nearest 0.01 foot. The groundwater depths will be subtracted from wellhead elevations, including corrections for product thickness, when necessary, for gradient evaluation by multiplying product thickness (PT) by a correction factor of 0.8 and subtracting from the DTW (Adjusted DTW = DTW - [PT x 0.8]).

Water samples collected for subjective evaluation will be collected by gently lowering approximately half the length of a new disposable or Teflon® bailer past the air-water interface (if possible) and collecting a sample from near the surface of the water in the well. The samples will be checked for measurable floating hydrocarbon product.

Before collecting samples from the groundwater monitoring wells, the wells will be purged until stabilization of the temperature, pH, and conductivity parameters are obtained. Approximately three to four well casing volumes will be purged before those parameters are stabilized. The quantity of water purged from each well calculated is as follows:

$$\text{One Well Casing Volume} = \pi r^2 h(7.48)$$

Where:

- r = radius of the well casing in feet
- h = column of water in the well in feet (depth-to bottom, depth-to-water)
- 7.48 = conversion constant from cubic feet to gallons

After purging, each well will be allowed to recharge to at least 80% of the initial water level. Water samples will be collected with a new disposable bailer and carefully poured into 40-milliliter (ml) glass vials, filled so as to produce a positive meniscus. Each vial will be preserved with hydrochloric acid, sealed with a cap containing a Teflon® septum, and subsequently examined for air bubbles to avoid headspace. The samples will be promptly transported in iced storage in a thermally-insulated ice chest, accompanied by a Chain of Custody Record, to a California-certified laboratory.

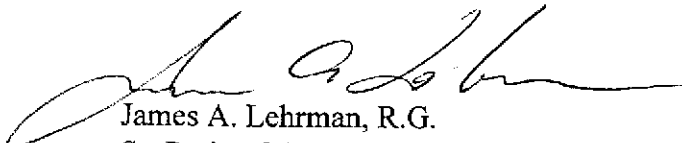
The monitoring reports will meet the requirements of the ACHCSA, and will include tabulated results of all sample analyses and monitoring, along with a groundwater gradient map. The results of the first round of quarterly monitoring will be included in the Well Installation Report. Groundwater samples from the site will be analyzed for TPH-G, by EPA Method 8015M, and BTEX, and MTBE by EPA Method 8020, and for HVOCs by EPA Method 8010. No trip blanks or duplicate samples will be analyzed. Disposal of purge water generated during the sampling events will be performed by a licensed hazardous waste hauler.

## SCHEDULE

Following approval of this work plan by the ACHCSA, we expect that mobilization for the field work will require approximately 2 weeks. The summary report will be submitted within 6 weeks of the start of the field work.

On behalf of Prentiss Properties Limited, Inc., ATC Associates Inc. appreciates your involvement with this project. If you have any questions regarding this proposal, please feel free to contact me at your convenience at (510) 460-5300.

Sincerely,  
ATC ASSOCIATES INC.

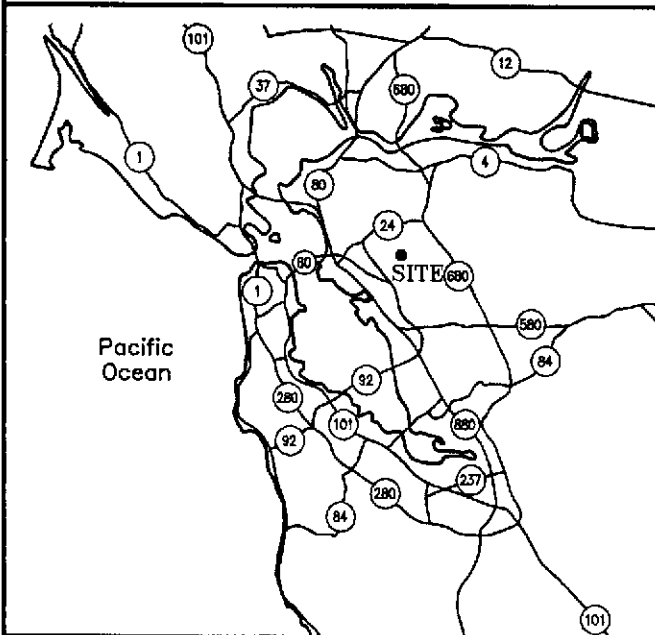
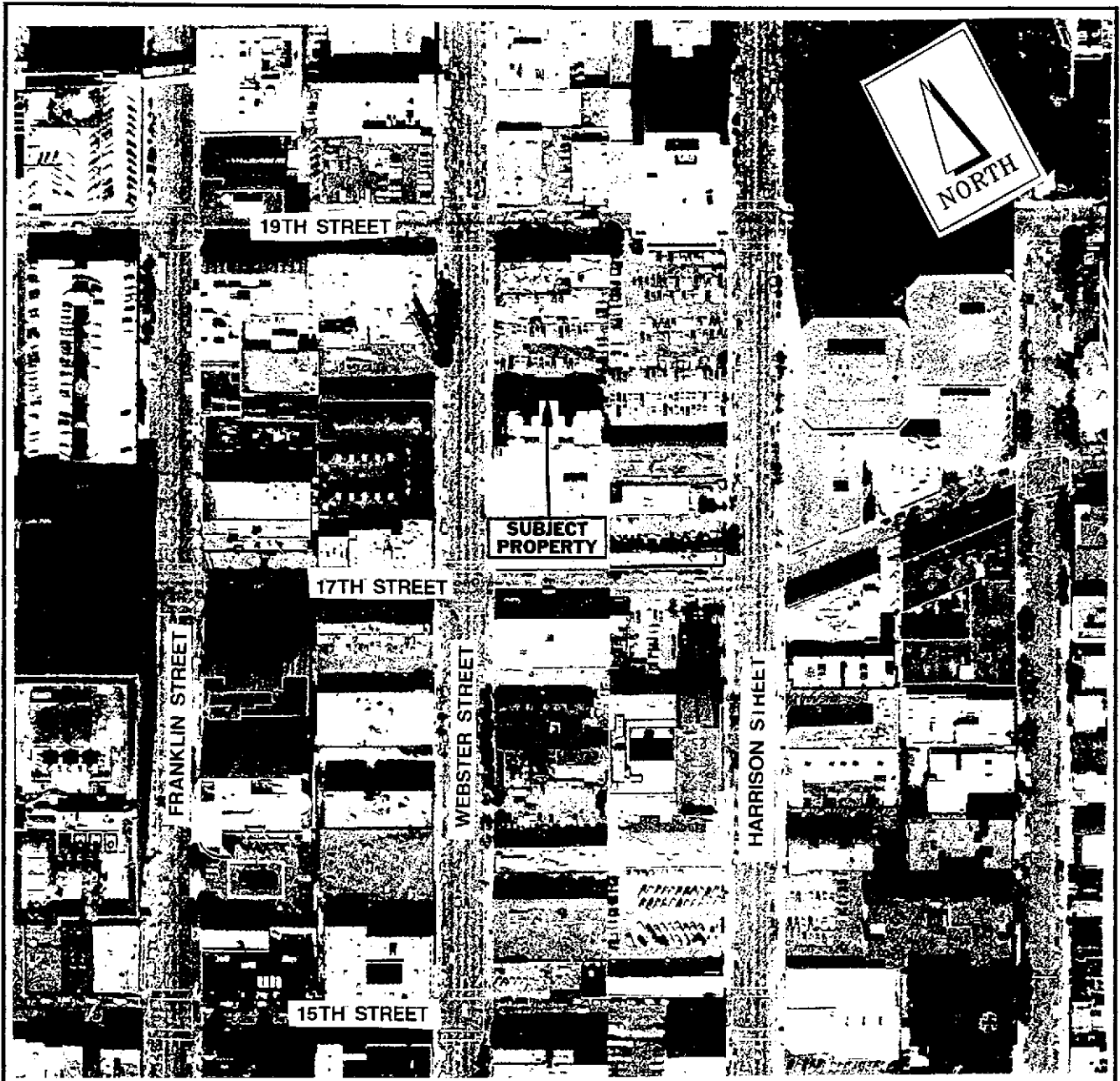


James A. Lehrman, R.G.  
Sr. Project Manager

### Attachments:

- Figure 1. Site Location Map
- Figure 2. Site Plan
- Figure 3. Proposed Monitoring Well Locations

cc: Charles A. Sumner II, Prentiss Properties Limited, Inc.



Notes:

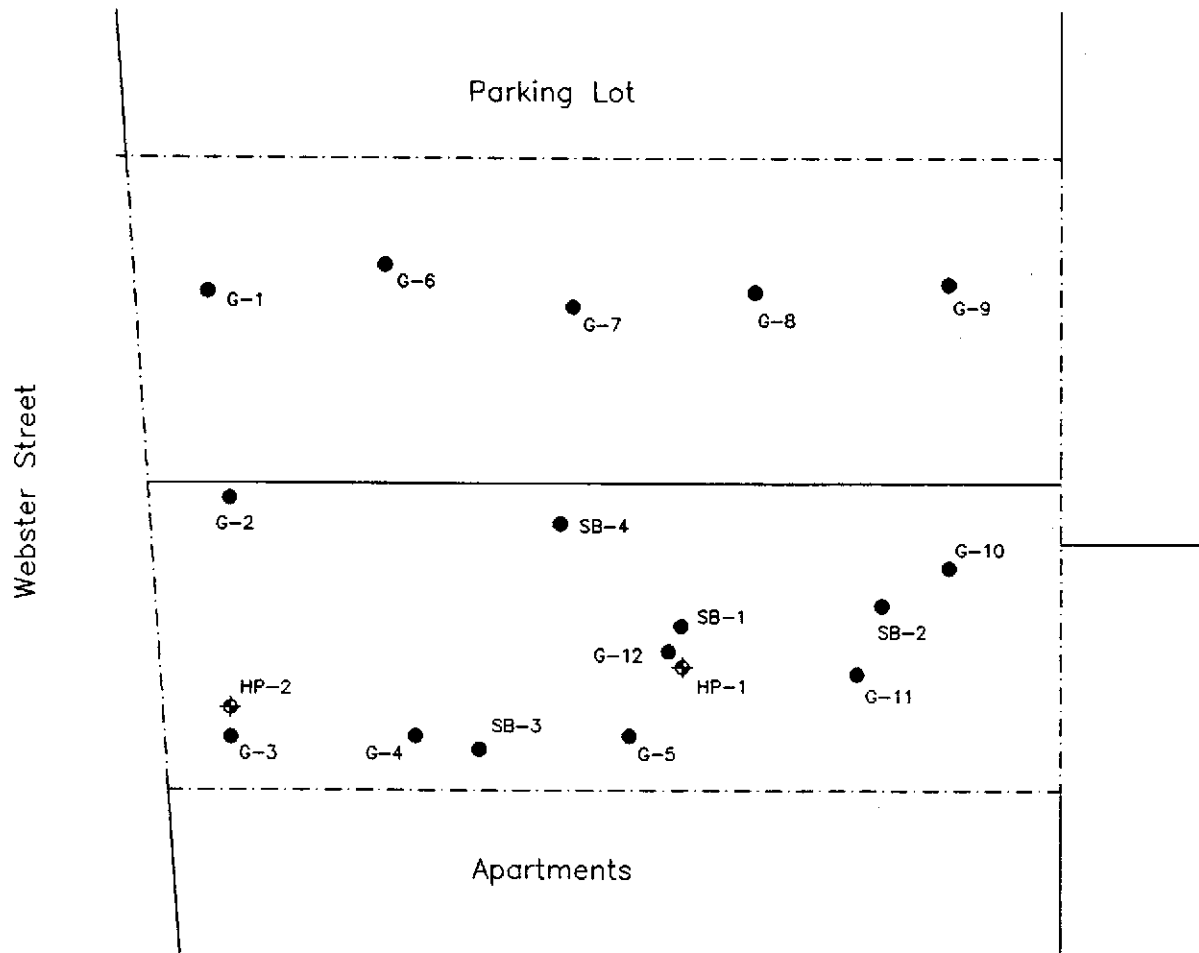
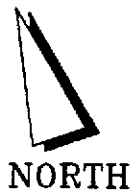
- 1) All locations and dimensions are approximate.
- 2) Base map from City Of Oakland, Office of Planning & Building Dept. date of photography 3-31-94.

APPROXIMATE SCALE: 1" = 200'

**ATC ASSOCIATES INC.**  
Environmental, Geotechnical and Materials Professionals

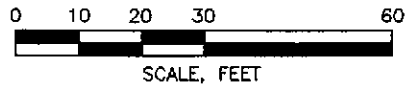
SITE VICINITY MAP  
1750 WEBSTER STREET  
OAKLAND, CALIFORNIA

PROJECT NO. 61877.0001 | FIGURE 1



EXPLANATION

- ◆ HP-1 Previous Hydropunch Location and Designation
- SB-1 Previous Soil Boring Location and Designation

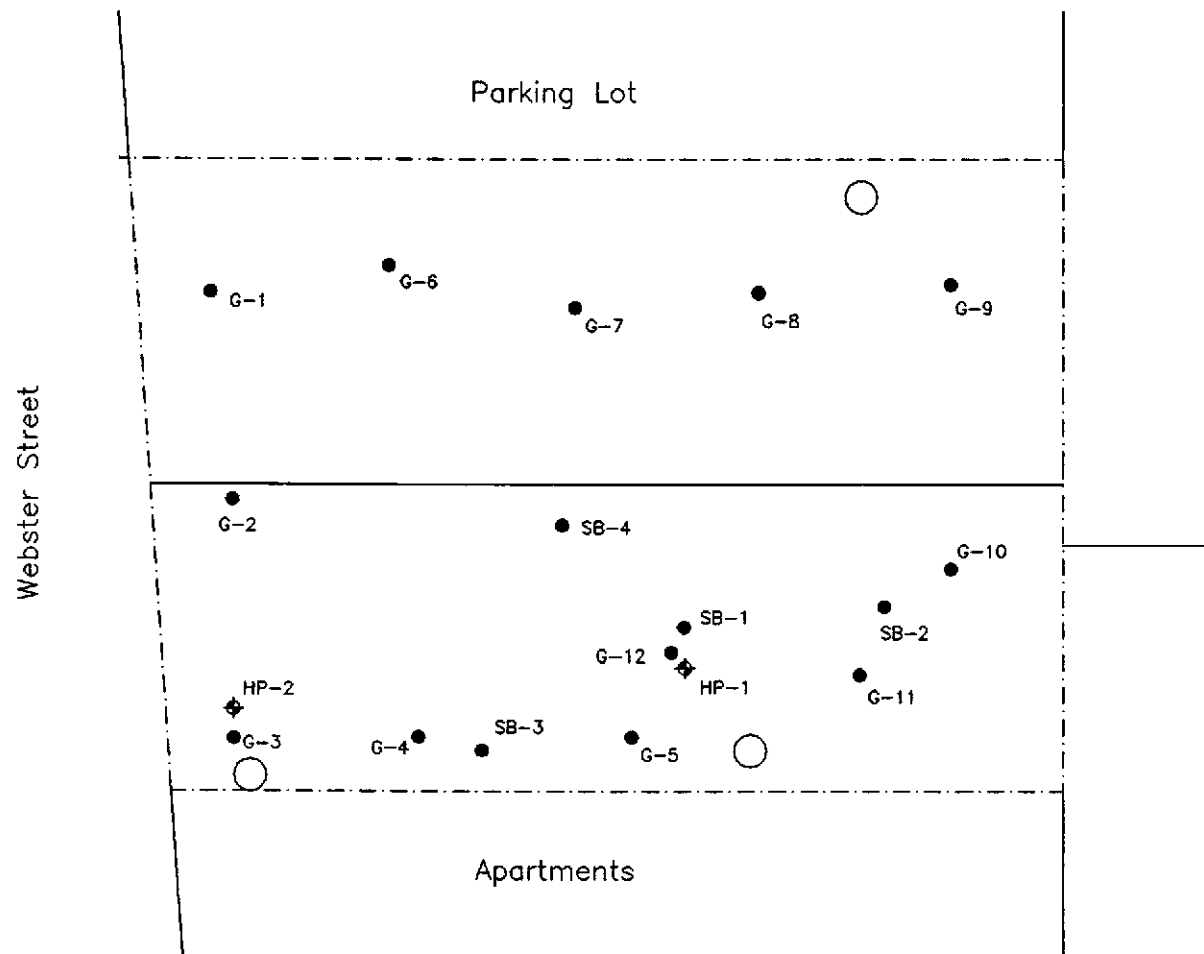
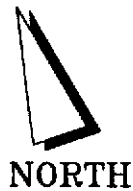


NOTES




- 1) All locations and dimensions are approximate.

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SITE PLAN 1750 WEBSTER STREET OAKLAND, CALIFORNIA	
PROJECT NO. 61877.0004	FIGURE 2



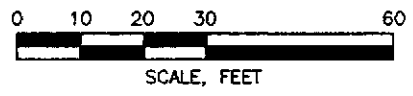



EXPLANATION

-  Proposed monitoring well location
-  HP-1 Previous Hydropunch Location and Designation
-  SB-1 Previous Soil Boring Location and Designation

NOTES

1) All locations and dimensions are approximate.



 <b>VATC ASSOCIATES INC.</b> ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS	
<b>PROPOSED MONITORING WELL          LOCATION MAP</b> <b>1750 WEBSTER STREET          OAKLAND, CALIFORNIA</b>	
PROJECT NO. 61877.0004	FIGURE 3