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December 28, 2005

Mr. Don Hwang
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: Texaco Gasoline Service Station (Formerly Freedom ARCO Station)
Site Address: 15101 Freedom Avenue, San Leandro, California
STID 4473/RO0000473

Dear Mr. Hwang:

SOMA's "Workplan to Conduct an Additional Soil and Groundwater Investigation at the Texaco Gasoline Service Station" for the subject property has been uploaded to the State's GeoTracker database for your review.

Thank you for your time in reviewing our report. Please do not hesitate to call me at (925) 734-6400, if you have questions or comments.

Sincerely,

Mansour Sepehr, Ph.D.,PE
Principal Hydrogeologist

REGISTERED PROFESSIONAL ENGINEER
MANSOUR SEPEHR
No. C042928
Exp. 3-31-06
CIVIL
STATE OF CALIFORNIA

cc: Mr. Mohammad Pazdel w/report enclosure

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WORKPLAN TO CONDUCT AN ADDITIONAL SOIL AND GROUNDWATER INVESTIGATION AT THE TEXACO GASOLINE SERVICE STATION 15101 FREEDOM AVENUE SAN LEANDRO, CALIFORNIA

December 28, 2005

Project 2550

Prepared for

Mr. Mohammad Pazdel
1770 Pistacia Court
Fairfield, California 94533

Prepared By

SOMA Environmental Engineering, Inc.
6620 Owens Drive, Suite A
Pleasanton, California 94588

CERTIFICATION

This workplan has been prepared by SOMA Environmental Engineering, Inc. on behalf of Mr. Mohammad Pazdel, the property owner of 15101 Freedom Avenue, San Leandro, Fairfield, California. This workplan was prepared in response to the Alameda County Health Care Services Agency's request dated November 21, 2005.

Mansour Sepehr, Ph.D., P.E.
Principal Hydrogeologist

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1.0 INTRODUCTION

This workplan has been prepared by SOMA Environmental Engineering, Inc., (SOMA) on behalf of Mr. Mohammad Pazdel, the property owner of 15101 Freedom Avenue, which is located between 151st Street and Fairmont Boulevard, just west of Freeway 580 in San Leandro, California (the "Site"). Formerly, the property was known as Freedom ARCO Station, however, currently, the Site is an operating service station under the brand name of Texaco. This workplan has been prepared based on the Alameda County Health Care Services Agency's (ACHCS's) request dated November 21, 2005.

Since the 1960's, the Site has been used as a gasoline service station. In 1985, Mr. Mohammad Pazdel purchased the business and in 1992 he purchased the property from Mr. Mohammad Mashhoon. From 1985 until 1997, when Mr. Pazdel sold the business, the Site operated under the name "Freedom ARCO Station". To comply with the underground storage tank (UST) upgrade regulation, in 1999 three 10,000-gallon single-walled USTs were removed and replaced with new double-walled fuel tanks. During the UST upgrades petroleum chemicals were detected in the subsurface soils beneath the old USTs.

This report presents the current status of the Site's environmental conditions and proposes an additional field investigation to further characterize the extent of the soil and groundwater contamination beneath the Site, as requested by the ACHCS.

1.1 Previous Activities

On May 20, 1999, Geo-Logic oversaw the removal of three 10,000-gallon USTs, approximately 250 feet of product piping, and six dispensers at the Site. Paradiso Mechanical, Inc. removed and over-excavated the old USTs. The on-site participating agency was the ACHCS.

After excavating and removing the three USTs and product piping, they were transported to ECI's facility, in Richmond, California, for proper disposal. Soil samples were collected from beneath the USTs, product piping, and dispensers by Geo-Logic from May 20 to May 21, 1999. On May 20, 1999, seven soil samples were collected from the west and east sides of the tank excavation pit (T1W, T2W, T3W, T1E, T2E, T3E, and an additional soil sample at T1W), ranging in depth from 12 to 14 feet below ground surface (bgs). In addition, six soil samples were collected from beneath the dispensers (P1, P2, P4, P5, P6, and P7), ranging in depth from 2.5 to 3 feet bgs. One soil sample was collected from beneath the product lines (P3) at 2.5 feet bgs. On May 21, 1999, eight additional soil samples (P8, P9, P10, P11, P12, P13, P14, and P15) were collected from beneath the product piping and in the area of the dispensers at depths ranging from 3 to 3.5 feet bgs. Stockpiled soil samples were collected on May 21, 1999.

On June 2, 1999, additional soil samples were collected during the over-excavation activities from beneath the product piping and bottom of the tank excavation pit. An additional soil sample (P12) was collected from beneath the product piping at a depth of 5 feet bgs. In order to define the vertical extent of hydrocarbon contamination, three additional soil samples were collected from the western portion of the tank cavity and ranged in depths from 16.5 to 24.5 feet bgs.

The soil samples collected during the removal and over-excavation activities were submitted to Calcoast Analytical in Emeryville, California. Soil samples were analyzed for total petroleum hydrocarbons as gasoline (TPH-g) using EPA Method 8015, benzene, toluene, ethylbenzene, total xylenes (BTEX) compounds and Methyl tertiary Butyl Ether (MtBE) using EPA Method 8020 and total lead using 6010A.

The presence of MtBE was confirmed using EPA Method 8260. The concentrations of TPH-g detected in the soil samples ranged between 0.76 mg/kg (P3-2.5 feet bgs) and 4,000 mg/kg (T1W-24.5 feet bgs). Benzene concentrations ranged between 28 mg/kg (T1W-13.5 feet bgs) and non-detectable levels (P2 through P6 and P14) at depths ranging from 2.5 to 3 feet bgs. MtBE concentrations ranged between 0.93 mg/kg (P12-3.5 feet bgs) and non-detectable levels (T3W, T3E, P2 through P6, P10, P14, and stockpile soil sample S1).

On July 7, 1999, Paradiso Mechanical, Inc installed a 20,000-gallon gasoline UST, an 8,000-gallon gasoline UST, and a 6,000-gallon diesel tank in the tank cavity.

In July 2001, CSS Environmental Services of San Rafael, California (CSS), at the request of the ACHCS, conducted an additional soil and groundwater investigation to further investigate the potential petroleum hydrocarbon contamination discovered during the removal and upgrade of USTs at the Site. During this investigation, CSS drilled five hydropunches (SB-1 through SB-5) using the direct-push method. Figure 1 shows the locations of the soil borings drilled by CSS. The soil borings were advanced to a maximum depth of 31 feet. It appeared that the groundwater beneath the Site was semi-confined so that after drilling, groundwater stabilized at depths of 17 to 20 feet bgs. The results of this investigation indicated that petroleum-impacted soils are generally encountered below a 19-foot depth interval and they are predominantly present within the capillary fringe, just above saturated zone. The maximum concentrations of TPH-g and BTEX in the soil samples collected between 19 and 25.5 feet bgs were 470, 2.6, 16, 12, and 73 mg/kg, respectively. MtBE was not detected in any of the soil samples, at the analytical method reporting limit of 0.005 mg/kg. The maximum concentrations of the TPH-g and BTEX in the groundwater samples collected from the soil borings were 83, 19, 1.8, 1.5, and

73 mg/l, respectively. MtBE was detected in groundwater at each of the borings, except SB-4. The maximum reported concentration was 87 mg/l in SB-2.

On April 22 and 23, 2002, SOMA installed five (4-inch diameter) on-site groundwater monitoring wells (MW-1 to MW-5) to evaluate the groundwater flow gradient, the extent of petroleum hydrocarbons, and MtBE contamination beneath the Site. Figure 2 displays the locations of the monitoring wells.

Based on SOMA's approved workplan, submitted on July 22, 2003, an additional off-site investigation was performed to evaluate the lateral extent of the soil and groundwater contamination. The off-site investigation included a sensitive receptor survey to locate water supply wells and/or water bodies within a 2,000-foot radius of the Site. In September 2003, six temporary well boreholes were advanced to depths of at least 40 feet bgs. Figure 2 shows the location of the temporary well boreholes.

In September 2004, SOMA installed four off-site wells (MW-6 to MW-9). Figure 2 shows the locations of the on- and off-site groundwater monitoring wells.

2.0 SCOPE OF WORK

The ACHCS in their letter dated November 21, 2005, requested a workplan to conduct a subsurface investigation that would include the following:

1. An evaluation of the vertical and horizontal extent of petroleum hydrocarbons in the on- and off-site areas using geologic cross sections;
2. A remedial investigation of the on-site source remediation for preventing off-site migration of chemicals; and
3. An evaluation of the remedial alternatives for source control.

Based on the ACHCS's request, the scope of work will include performing the following tasks:

Task 1: **Permit Acquisition and Preparation of a Site Health and Safety Plan**

Task 2: **Conducting a CPT/MIP Study to Evaluate the Site's Hydrogeology and Extent of Soil and Groundwater Contamination**

Task 3: **Soil and Groundwater Sampling**

Task 4: **Laboratory Analysis**

Task 5: **Evaluation of Alternatives for Source Control**

Task 6: **Report Preparation**

The following is a brief description of the above tasks.

2.1 Permit Acquisition and Preparation of Site Health and Safety Plan

Before drilling, the necessary permits will be obtained from the Alameda County Public Works Agency, Water Resources Section.

Prior to commencing field activities, a site-specific health and safety plan will be prepared by SOMA. The health and safety plan (HASP) is designed to address safety provisions during field activities. It provides procedures to protect the field crew from physical and chemical hazards resulting from drilling, well installation, and groundwater monitoring and sampling. The HASP establishes personnel responsibilities, general safe work practices, field procedures, personal protective equipment standards, decontamination procedures, and emergency action plans.

2.2 Conducting a CPT/MIP Study to Evaluate the Site's Hydrogeology and Extent of Soil and Groundwater Contamination

Currently, there are five on-site and four off-site groundwater monitoring wells at the Site. Previously, five soil borings (SB-1 through SB-5) were drilled and soil and groundwater samples were collected. The maximum depth of the soil borings or groundwater monitoring wells was about 30 feet bgs. As the data indicates, at 30 feet bgs the presence of petroleum hydrocarbons were detected in the groundwater and a medium to strong odor of petroleum hydrocarbons were reported. In terms of the Site's geology or extent of chemical contamination, no information is available below 30 feet bgs. Therefore, the Site's conceptual model is not well defined at this time.

To evaluate the vertical extent of the chemical plume(s), SOMA proposes continuously logging the subsurface lithology and stratigraphy with a cone penetrometer test (CPT) study. CPT is a process whereby subsurface soil characteristics are determined when a cone penetrometer attached to a data acquisition system is pushed into the subsurface using a hydraulic ram. The CPT provides a rapid, reliable and economical means of determining soil stratigraphy, relative density, strength and hydrogeologic information using direct push methodology.

In addition to CPT, SOMA is proposing to utilize a membrane interface probe (MIP) to evaluate the vertical extent of the petroleum hydrocarbons. The actual depth of the borehole will be dependent upon the extent of the petroleum hydrocarbons, as indicated by the MIP study. By calibrating the MIP device, residual levels of petroleum hydrocarbons that may exist at different depth intervals can also be identified.

The additional site characterization data will be used to construct accurate geologic cross-sections in order to address the Site's conceptual hydrogeologic model, as requested by the ACHCS. SOMA has extensive experience in conducting CPT and MIP studies at various sites to evaluate and understand the site's conceptual model.

In order to calibrate the CPT readings, SOMA proposes drilling a stratigraphy borehole using a hollow stemmed auger (HSA) adjacent to the CPT hole. This borehole may be continuously sampled and logged throughout the entire depth of the hole. The data will then be compared with the CPT readings for calibration purposes. The geological information gathered in conducting this task will be used to identify different water-bearing zones, aquitards, as well as different lenses of clay layers beneath the Site. Figure 3 shows the proposed locations of the HSA, CPTs and MIPs.

2.3 Collect Soil and Groundwater Samples

Once the Site's stratigraphy, the locations of the "hot spots", and number of water-bearings zones are determined, soil and groundwater sampling will be performed. Data generated by the MIP study will indicate the screening levels of petroleum hydrocarbons in the soil and groundwater. Using direct push technology (DPT), a sampling rod lined with plastic sleeves will be hydraulically advanced in to the CPT-identified soil layers. SOMA field personnel will seal the ends of the sample with Teflon foil and plastic end caps and then label the soil-filled sleeve. The sample will then be placed into a chilled cooler with the appropriate chain of custody documentation.

To collect groundwater samples at different depth intervals, additional boreholes will be advanced with a Geoprobe™ Dual Tube DT-21 groundwater profiler and soil sampler. This sampling system is ideal for water-bearing zones with low hydraulic head because the sampling chamber can be decontaminated downhole. The CPT data will reveal whether or not the water-bearing zone is under low/high hydraulic head. However, water-bearing zones with high hydraulic head will flood the sampling chamber and cross-contaminate subsequent samples and water–bearing zones. Decontaminating the DT-21 profiler under these conditions is awkward, time consuming, and inefficient. For water-bearing zones under elevated hydraulic pressure, the Geoprobe™ SP-15 groundwater sampling system would be more feasible. The SP-15 sampler can conveniently be withdrawn with the groundwater samples and, after decontamination, replaced inside the same borehole.

The results of the groundwater sampling will define the vertical and horizontal extent of the groundwater contamination. Per SOMA's experience, groundwater sampling from several water-bearing zones can be accomplished within one borehole. Because the lead cone and rods are the same diameter, the sampling system does not create an annulus to allow for aquifer cross-contamination. With this sampling system, soil and contaminant residuum from overlying soil units is easily squeezed off the smooth outside probe surface by lateral confining pressures. The groundwater sampling chamber will also be over-purged, the entire probe will be retrieved, and the sampling chamber will be decontaminated. After groundwater sampling, the boreholes will be tremie grouted from the bottom up, to further reduce the potential for cross-contaminating different water-bearing zones, if any.

In order to define the horizontal extent of the chemical plumes, if any, the location of the groundwater sampling will be around the USTs and in the downgradient direction. Since the groundwater flow direction is known, the locations of the CPT and MIPs have been aligned along the groundwater flow direction. Additional CPT and MIPs boreholes in an east to west direction have been proposed to not only construct a longitudinal cross-section, but to construct transverse cross-sections to better define the Site's conceptual model.

2.4 Laboratory Analysis

Soil and groundwater samples will be analyzed for:

- Total petroleum hydrocarbons as diesel (TPH-d) using EPA Method 8015M
- Total petroleum hydrocarbons as gasoline (TPH-g) and as motor oil (TPH-mo) using EPA Method 8015M
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) and Methyl tertiary Butyl Ether (MtBE) using EPA Method 8260B.

2.5 Evaluation of Alternatives for Source Control

Once the extent of the soil and groundwater near the former USTs are identified, SOMA will evaluate different source control alternatives for preventing further migration of the chemicals to the off-site areas. The alternatives will include pump and treat, air sparging coupled with soil vapor extraction, and enhanced bio-remediation. Due to the close proximity of the current USTs to the chemical source area, ozone sparging does not seem to be a safe and feasible alternative.

2.6 Report Preparation

Upon completing the above-mentioned tasks, SOMA will prepare a written report containing a detailed description of the procedures, present the results of the field investigation, and discuss our recommendations for further studies, including the installation of additional groundwater monitoring wells, if warranted. The report will include tables and figures to help explain the results of the investigation.

3.0 REFERENCES

Geo-Logic, Geotechnical and Environmental Consulting Services, June 11, 1999 "Report of Soil Sampling During Tank Removal and Station Upgrade"

CSS Environmental Services, Inc. August 15, 2001 "Preliminary Site Assessment for the Property Located at 15101 Freedom Avenue, San Leandro, California"

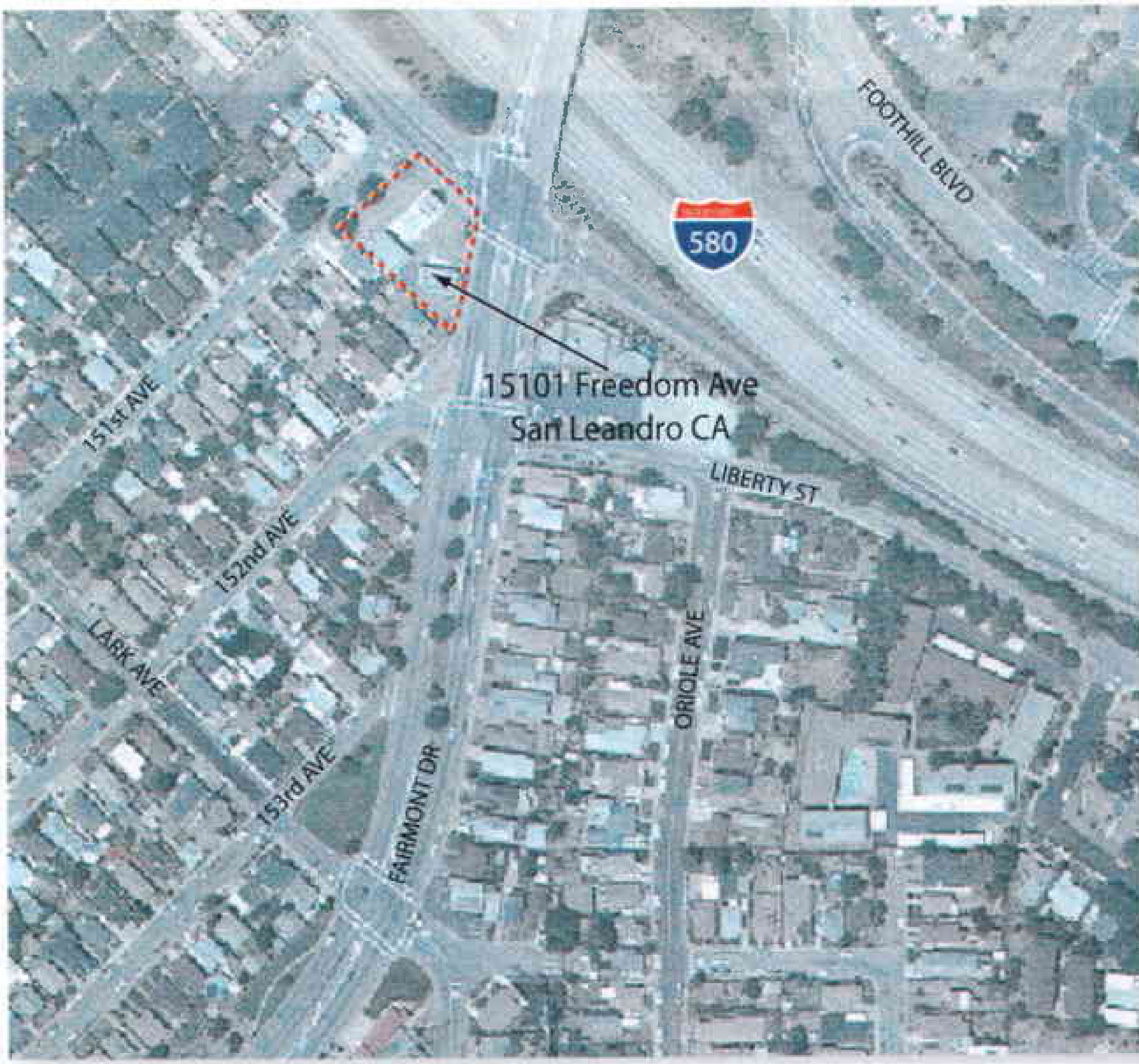
SOMA Environmental Engineering, Inc., June 5, 2002, "Monitoring Well Installation Report."

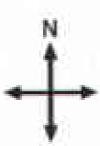
SOMA Environmental Engineering, Inc. November 5, 2003, "Off-site Soil and Groundwater Investigation Report"

SOMA Environmental Engineering, Inc., October 4, 2004, "Off-site Groundwater Monitoring Installation Report"

SOMA Environmental Engineering, Inc. December 2005, "Fourth Quarter 2005, Groundwater Monitoring Report"

FIGURES





approximate scale in feet

0 250 500

Figure 1: Site vicinity map.

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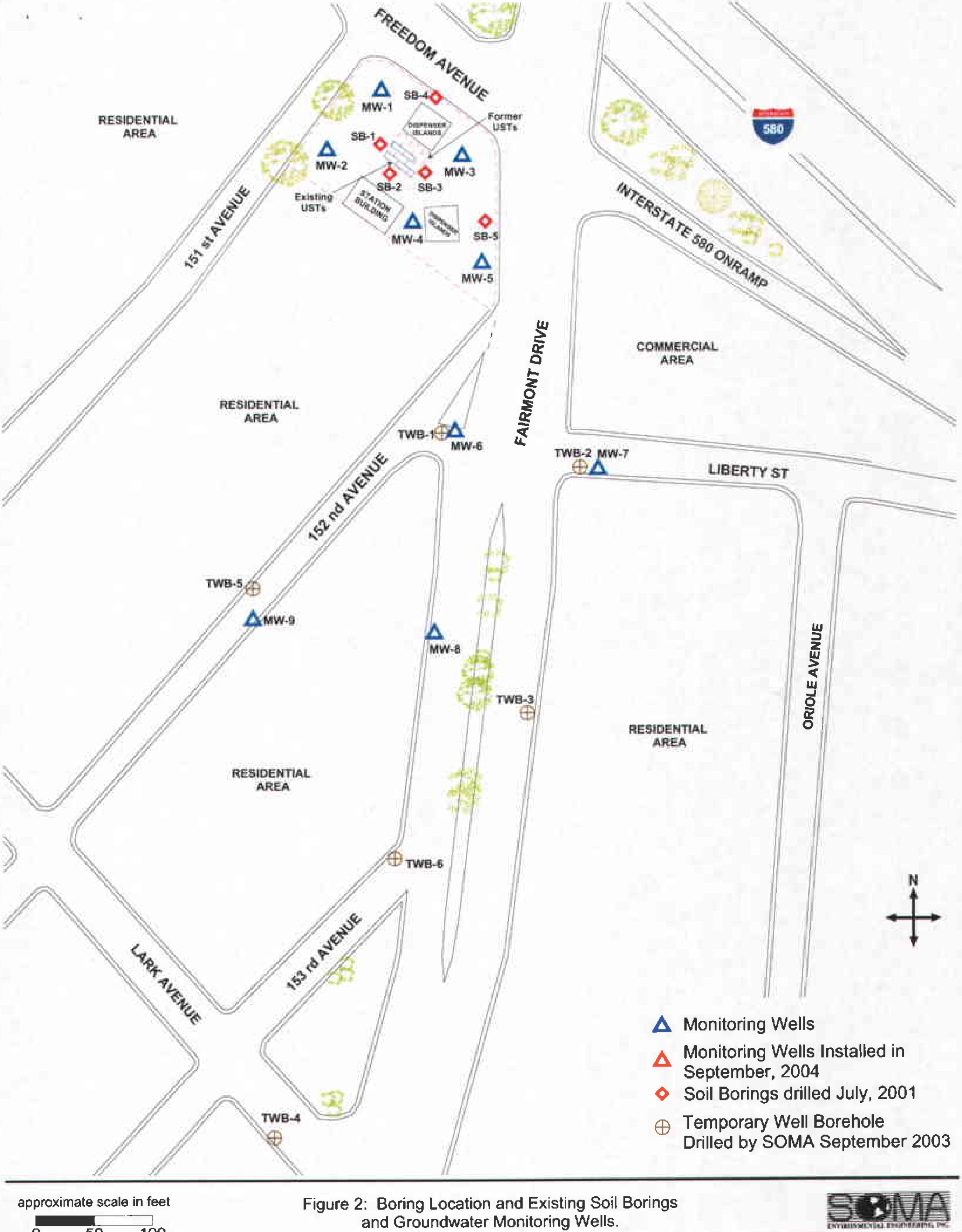

Figure 2: Boring Location and Existing Soil Borings and Groundwater Monitoring Wells.

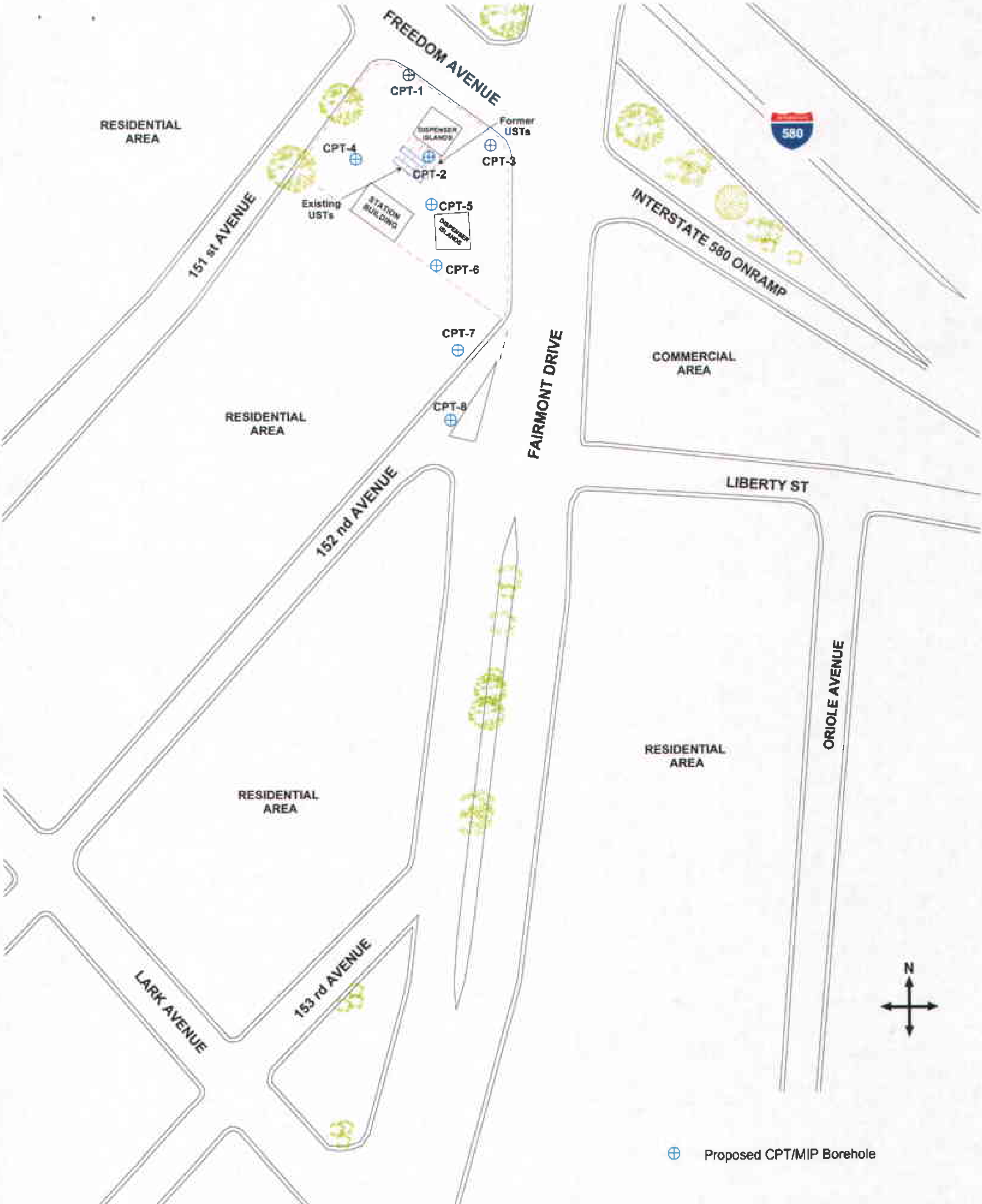

Figure 3: Proposed Locations of CPT/MIP Boreholes.

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