SOMA
CORPORATION

FINAL WORK PLAN
FOR
LIMITED SITE INVESTIGATION
AND TANK CLOSURE

1421 Park Avenue Property
Emeryville, California

June 5, 1997
SOMA 97-2110

97 JUN 16 AM 9:55
ENVIRONMENTAL
PROTECTION

Prepared for:

Ms. Theresa Dyer
1421 Park Avenue Associates
181 Second Avenue, Suite 600
San Mateo, California 94401

Prepared by

SOMA Corporation
1260B 45th Street
Emeryville, California 94608
(510) 654-3900
(510) 654-1960 Facsimile

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

June 5, 1997 SOMA 97-2110

FINAL WORK PLAN
LIMITED SITE INVESTIGATION AND TANK CLOSURE

1421 Park Avenue
Emeryville, California

1.0 INTRODUCTION

At the request of Ms. Theresa Dyer of 1421 Park Avenue Associates, SOMA Corporation ("SOMA") has prepared this Limited Site Investigation and Tank Closure Work Plan. Soil and groundwater will be evaluated in the vicinity of two underground storage tanks located at 1421 Park Avenue in Emeryville, California (the "Site"; Figure 1) and based on the study results, tank closure will be sought.

This Work Plan was prepared in accordance with the Alameda County Department of Environmental Health (ACDEH) guidelines and in response to comments from ACDEH (Letter to Ms. Theresa Dyer from Ms. Susan Hugo of ACDEH dated May 20, 1997). This Work Plan describes the approach for conducting soil and groundwater sampling activities. The purpose of sampling soil and groundwater is to assess the potential lateral and vertical extent of residual concentrations of chemicals near the two underground storage tanks (USTs) at the Site. The site investigation will be limited to analysis of soil and groundwater samples for total petroleum hydrocarbons (TPH) as gasoline (TPHg); TPH as diesel (TPHd); benzene, toluene, ethylbenzene, and xylenes (BTEX), and organic lead.

2.0 SITE DESCRIPTON

The property at 1421 Park Avenue was part of a former metal plating facility owned by Electro-Coatings, Inc. that occupied the two adjacent properties at 1421 and 1401 Park Avenue,

Emeryville, California (Figure 1). The existing buildings at the project site located at 1421 Park Avenue are presently being used for commercial purposes. The building located along the northeast side of the property is being used as an artist's studio and the warehouse building at the rear of the property along the southeast side of the property is being used by Universal Neon, a business that makes neon light signage fixtures (Figure 2).

The Site was used for metal plating since 1952 when Industrial Hard Chrome Plating Corporation began a chrome plating business. In the late 1950s, Industrial Hard Chrome Plating Corporation began nickel plating. ECI began metal plating operations at the Site in 1963 after buying the assets of Industrial Hard Chrome Plating Corporation. ECI performed hard chrome plating prior to 1989 and nickel plating until 1994.

Industrial Hard Chrome Plating Corporation used trichloroethene (TCE) prior to 1963 for degreasing metal parts prior to plating. ECI used TCE until 1973. In 1992, ECI replaced vapor degreasing with a liquid alkaline soak process.

---

1 Geraghty & Miller 1996a.

2 Geraghty & Miller 1996b.

3.0 SITE BACKGROUND

A subsurface survey of the underground storage tank area was recently conducted by Geraghty & Miller. The presence of two independent vent pipes was traced to two separate locations on either side of a dispensing island (Figure 2). This observation was interpreted to indicate the existence of two separate underground storage tanks. The fill ports associated with the tanks have presumably been covered over and their locations are unknown; however, the existence of cracks in the asphalt and subsidence confirms the assumption that the tanks lie on each side of the dispensing island.

4.0 LIMITED SITE INVESTIGATION SCOPE OF WORK

The scope of work for the proposed activities at the Site will consist of the following tasks:

Task 1: Development of a Health and Safety Plan

Task 2: Identification of Tank Fill Ports

Task 3: Verification of Tank Contents and Size

Task 4: Product Removal

Task 5: Tank Abandonment

Task 6: Soil Sampling

Task 7: Groundwater Reconnaissance Sampling

Task8: Laboratory Analyses

Task 9: Profiling and Disposal of Soil Cuttings and Decontamination Water

Task 10: Preparation of a Limited Site Investigation and Tank Closure Report

These tasks are described in detail below.

4.1 Task 1: Development of a Health and Safety Plan

In accordance with Occupational Safety and Health Administration (OSHA) guidelines, SOMA has developed an HSP for the Limited Site Investigation and Tank Closure. The HSP was included as Attachment 2 of the Project Plan for Commercial Property Development, 1421 Park Avenue, Emeryville, California prepared by SOMA, dated April 11, 1997 and submitted to ACDEH. The HSP includes an analysis of potential hazards encountered by on-site workers conducting the proposed work and precautions to mitigate the identified hazards. The health and safety measures presented in the HSP will be implemented during the investigation activities.

4.2 Task 2: Identification of Tank Fill Ports

Shallow excavation to the top of each tank and length will be conducted using a backhoe in the vicinity of the UST locations to locate the fill port(s). The areas to be excavated will be cleared for underground utilities by a private underground utility locator prior to initiation of excavation activities. Underground Services Alert will also be notified to assist in locating underground utilities.

The depth of shallow excavation is anticipated to be approximately 5 feet below ground surface and is not expected to impact site remediation activities currently being conducting by Geraghty & Miller in the vicinity of the USTs. Stockpiled/excavated soil generated during closure of the USTs will be characterized for proper disposal. Upon completion of tank abandonment in place,

described in Section 4.5 below, the shallow excavation will be backfilled with the soils removed and compacted in lifts using the backhoe bucket, pending approval by the ACDEH. If soils cannot be reused at the site due to the presence of elevated chemical concentrations, clean soil will be used to backfill the excavation.

4.3 Task 3: Verification of Tank Contents and Size

Upon locating the fill port of each tank, the presence and depth of product in each tank will be verified using a non-sparking probe. Additionally, the probe will be used to estimate the diameter and length of each tank to estimate the tank volume. The tank contents will be checked for flammability using a combustible gas indicator. Should the tank contents be unidentifiable as gasoline or diesel product, a sample will be collected from each tank for laboratory analysis.

4.4 Task 4: Product Removal

Should one or both tanks contain product or other hazardous materials (based on laboratory analysis), a registered hazardous waste transporter will remove the liquid contents of the tank(s) and properly dispose of the tank contents.

4.5 Task 5: Tank Abandonment

Product piping will be disconnected from the tank and capped. The drop tube, fill pipe, gauge pipe, vapor recovery truck connection, submersible pumps and any other tank appurtenances, if present, will be removed. All non-product lines (i.e. vapor recovery lines), except for the vent line, will be removed. The vent line will remain connected until the tank is purged. All other tank openings will be temporarily plugged until the tank(s) have been purged as described below.

The tank will be purged of flammable vapors using an inert gas such as carbon dioxide or nitrogen. Vapors will be vented a minimum of 12 feet above grade, and three feet above any

adjacent roof lines. The tank will be monitored for flammable vapor with a combustible gas indicator until the tank atmosphere has decreased to less than 20% of the lower explosive limit (LEL).

Although the American Petroleum Institute (API) recommends the use of sand for in-place tank closures, a material that will solidify in-place will be used for tank closure. This method is preferred in place of sand to prevent the accumulation of hexavalent chromium- and TCE-affected groundwater in the tank. The presence of rust holes in the tank could permit the backflow of chemical-affected groundwater into the tank(s).

A suitable solid, inert material such as a cement slurry will be introduced through openings in the top of the tank. After the tank is filled with inert material, all tank openings will be permanently plugged or capped. The vent line will also be permanently capped or removed.

4.6 Task 6: Soil Sampling

Soil samples will be collected from three soil borings located in the vicinity of the UST locations. According to Geraghty & Miller (1996c), the direction of groundwater flow at the site is to the west. One soil boring will be located on the upgradient side of the location of the USTs; two soil borings will be located on the downgradient side of the UST locations. The approximate locations of the proposed exploratory borings are shown on Figure 2. It is expected that groundwater will be encountered at approximately 15 feet below the top of the asphalt paving at the Site, based on water level measurements at DP-1. The soil samples are therefore expected to be collected from approximately 10 and 15 feet below ground surface (bgs).

Soil boring permits will be obtained from Alameda County Water Management District Zone 7 ("Zone 7") prior to initiation of drilling activities. The three soil boring locations will be cleared

of underground utilities by a private underground utility locator. Underground Services Alert will also be notified to assist in locating underground utilities.

The three soil borings will be cored using a Geoprobe™ or equivalent hydraulic push/drive sampling system that simultaneously drives two nested, steel sampling rods into the soil. As the sampling rods are advanced, the soil core will be collected in a 1-7/8–inch diameter, 3 foot long sample barrel which is attached to the inner rods. After being advanced 3 feet, the inner rods will be removed from the borehole with a hydraulic sample barrel (containing clean brass liners).

Soil samples will be collected from the borings at selected intervals for laboratory analysis based on observed significant lithologic changes, and at areas that are visibly stained and/or where hydrocarbon odors are detected. Soil sampling will continue to the first encountered groundwater in each boring, expected to be encountered at approximately 15 feet below ground surface (bgs). The brass liners will be retrieved from the sampler, screened with the portable photoionization detector (PID), and immediately lined with aluminum foil, capped with air-tight plastic lids, sealed and labeled. After being sealed and labeled, soil samples will be maintained at a temperature of 4°C or lower using crushed ice during delivery to the laboratory and prior to analysis by the laboratory. Sample documentation and custody procedures included in Appendix A will be followed. Samples will be analyzed at the laboratory within specific holding times.

It is anticipated that two soil samples from each boring location will be analyzed for constituents to be selected based on the identification of tank contents. We anticipate that the analyses selected will include Total Petroleum Hydrocarbons as gasoline (TPHg), TPH as diesel (TPHd), benzene, toluene, ethylbenzene, and xylenes (BTEX), and organic lead.

The soil samples and drill cuttings will be screened for volatile organic vapors using a PID. Drill cuttings and soil samples will be examined for lithologic description. The sampling system will

be steam-cleaned prior to use in each boring. The sampler will be washed with Alconox (a laboratory grade detergent), rinsed with tap water, and fitted with clean brass liners between each soil sampling interval.

4.7 Task 7: Reconnaissance Groundwater Sampling

Reconnaissance groundwater samples will be collected from each soil boring using an appropriate sampling device (Teflon or stainless steel mini-bailer or Hydropunch™ sampler). As described earlier, it is anticipated that groundwater will be encountered at approximately 15 feet bgs. The samples to be analyzed for TPHg and BTEX will be transferred directly into 40-ml VOA vials with Teflon septa with no headspace. Samples to be analyzed for TPHd will be collected in a 1 liter amber glass bottle. The sample to be analyzed for organic lead will be collected in a 500 mL amber glass bottle with no headspace. One duplicate reconnaissance groundwater sample will also be collected for analysis of TPHg, TPHd, BTEX and organic lead for quality assurance/quality control purposes.

The samples will be stored in a chilled cooler (4°C) containing crushed ice for delivery to the laboratory. A travel blank will also be analyzed for quality control purposes. Sample documentation and custody procedures included in Appendix A will be followed. In addition, observations regarding odor and possible oily sheens during sampling will also be noted.

The equipment used during reconnaissance groundwater sampling activities that might come into contact with the groundwater will be thoroughly cleaned before and after each use. This will be accomplished by washing with Alconox (a laboratory-grade detergent) and/or steam cleaning and rinsing with deionized water.

Following collection of the reconnaissance groundwater samples, the soil borings will be grouted

to ground surface using a neat cement grout or bentonite pellets. In the event standing water is present, the neat cement grout will be placed by means of a tremie pipe lowered to within three feet of the underlying layer of material or bottom of the soil boring. The tremie pipe will remain in place in the neat cement grout until placement is complete.

The drilling, logging, and soil and groundwater sampling activities will be performed under the supervision of a California Registered Geologist or Professional Engineer.

4.8 Task 8 Laboratory Analyses

The soil and reconnaissance groundwater samples will be analyzed by a California State-certified laboratory for:

- TPHd using EPA Method 3550/GCFID;
- TPHg using EPA Method 5030/GCFID;
- BTEX using EPA Method 8020; and
- Organic lead using DHS–LUFT Method.

As requested by ACDEH, in addition to the above constituents, at least one soil sample and one groundwater reconnaissance sample will be analyzed for chlorinated solvents and hexavalent chromium using EPA Methods 8010 and 7196, respectively. These samples will be analyzed on the laboratory's normal two-week turnaround basis.

4.9 Task 9: Profiling and Disposal of Soil Cuttings and Decontamination Water

The soil cuttings will be placed in a labeled 5-gallon bucket with a secure lid for temporary

storage pending receipt of soil sampling analytical results. Because of the low volume of soil cuttings typically generated using a push/hydraulic sampling system, the soil sampling analytical results will be used for purposes of characterizing soil cuttings for waste disposal. Equipment decontamination water will be collected and stored onsite in a secure location in Department of Transportation approved containers pending receipt of analytical results.

Analytical results for the soil and reconnaissance groundwater samples will be used for purposes of waste characterization. Additional analyses may be performed on the waste characterization samples, including a depending on the requirements of the disposal facility and results of this investigation. Upon review of the analytical results, SOMA will assist 1421 Park Avenue Associates with the coordination of the removal and appropriate disposal of these residuals. The waste profile will be submitted to an appropriately licensed waste disposal facility for review and acceptance.

4.10 Task 10: Preparation of a Limited Site Investigation and Tank Closure Report

This task will include evaluating the field and laboratory analytical data obtained during the soil and reconnaissance groundwater sampling at the Site. A written report will be prepared following completion of limited site investigation activities. The report will present:

- Field investigation activities (shallow excavation, tank size verification, product removal)
- Field observations, measurements and readings
- Lithologic logs
- Laboratory analytical results
- Manifests for tank contents
- Findings regarding the extent of the petroleum-affected soils and groundwater

This report will be submitted to ACDEH under the seal of a California Registered Geologist or Registered Civil Engineer within three weeks following receipt of laboratory analytical results.

5.0 IMPLEMENTATION SCHEDULE

The approximate estimated duration for each task and the schedule for the work at the Site is presented below. The estimated durations and proposed schedule do not include work delays due to unfavorable weather conditions, acts of God, labor strikes, and other events beyond the control of 1421 Park Avenue Associates and SOMA.

5.1 Estimated Durations

Activity	Estimated Duration (Working Days)
Task 1: Development of a Health and Safety Plan	1 - 2
Task 2: Identification of Tank Fill Ports	1
Task 3: Verification of Tank Contents and Size	1
Task 4: Product Removal	1
Task 5: Tank Abandonment	1-2
Task 6: Soil Sampling	1
Task 7: Reconnaissance Groundwater Sampling	1
Task 8: Laboratory Analyses	10 - 15
Task 9: Profiling and Disposal of Soil and Decontamination Water Residuals	30
Task 10: Preparation of a Limited Site Investigation Report	10

5.2 Tentative Schedule

The tentative schedule presented below for the site assessment activities is based on a start date of no later than 23 June 1997.

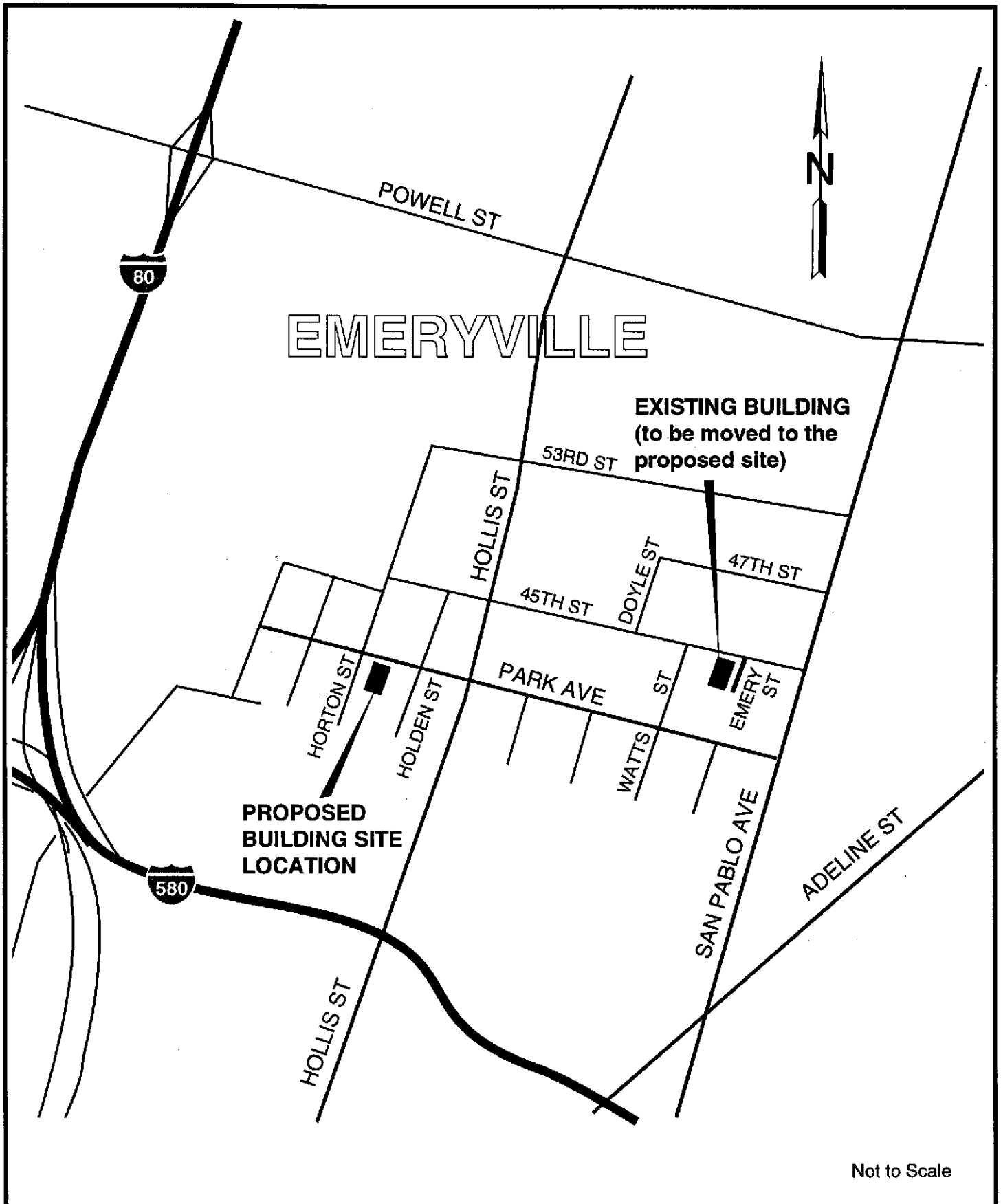
Activity	Estimated Completion Date (1997)
Task 1: Development of a Health and Safety Plan	Complete
Task 2: Identification of Tank Fill Ports	June 23
Task 3: Verification of Tank Contents and Size	June 30
Task 4: Product Removal	July 3
Task 5: Tank Abandonment	July 7-8
Task 6: Soil Sampling	June 24
Task 7: Reconnaissance Groundwater Sampling	June 24
Task 8: Laboratory Analyses	July 9
Task 9: Profiling and Disposal of Soil and Decontamination Water Residuals	July 23
Task 10: Preparation of a Limited Site Investigation Report	July 23

6.0 REFERENCES

Geraghty and Miller. 1996a. Pilot Study Results, Electro-Coatings, Inc. Facility, 1401 and 1421 Park Avenue, Emeryville, California. October 9.

Geraghty and Miller. 1996b. Risk Assessment Report, Electro-Coatings, Inc. Facility, Emeryville, California. December.

Geraghty and Miller. 1996c. Groundwater Contour Map, Electro-Coatings, Inc. Facility, Emeryville, California. December.

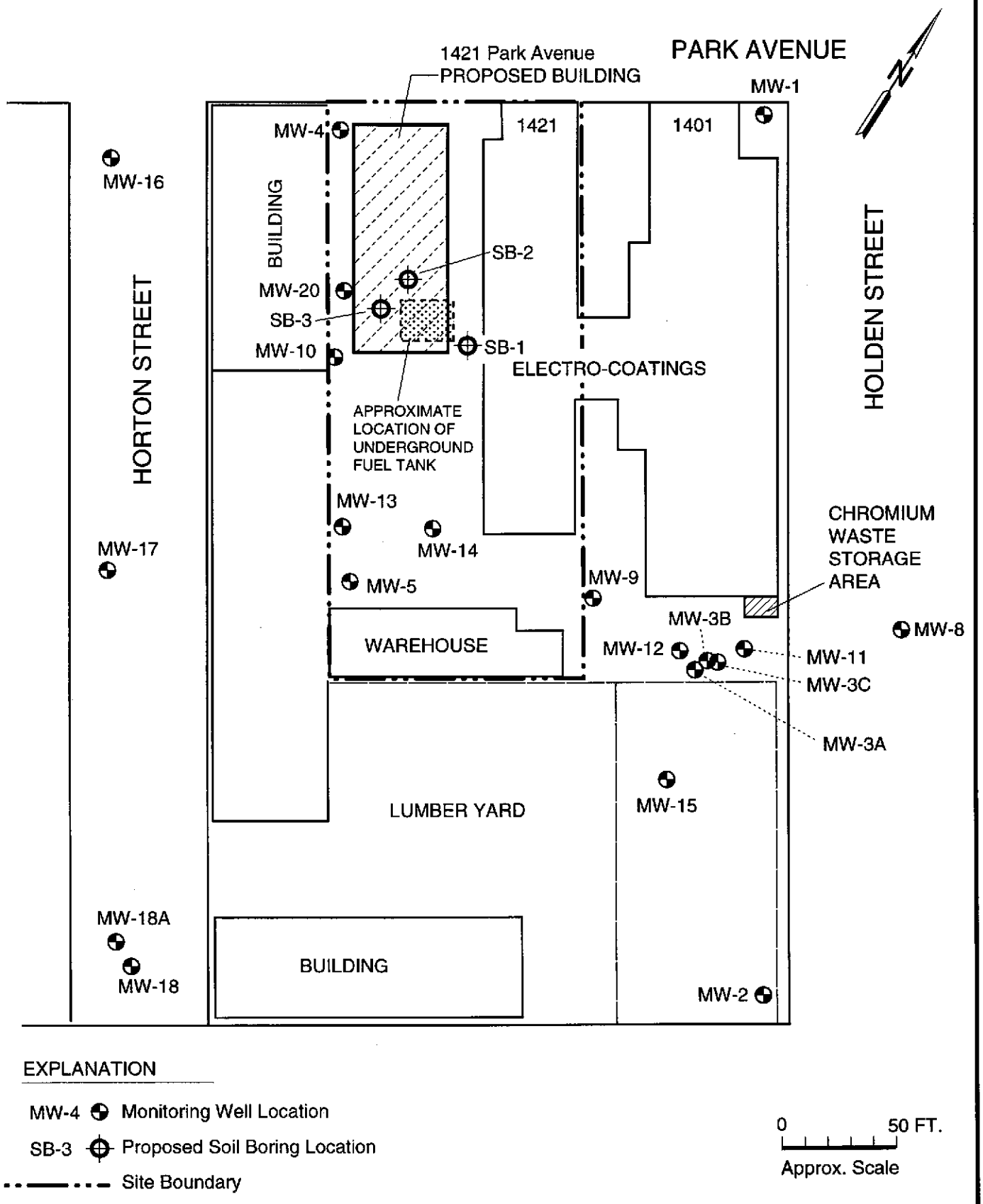


SOMA CORPORATION

Site Location Map

1421 Park Avenue, Emeryville, CA

Proj. No. 97-2110	June 1997	Figure 1



SOMA CORPORATION

Site Plan

1421 Park Avenue, Emeryville, CA

Proj. No. 97-2110	June 1997	Figure 2

APPENDIX A

SAMPLE DOCUMENTATION
AND
CUSTODY PROCEDURES

SAMPLE DOCUMENTATION AND CUSTODY PROCEDURES

DOCUMENTATION

The following information will be entered on the sample collection data forms at the time of sampling:

- Project name and number
- Sampler's name
- Time and date of sampling
- Sampling location
- Sampling method
- Sample number
- Sample condition (disturbed/undisturbed)
- Laboratory analyses requested
- Type of preservative, if any

Each sample will be packaged and transported appropriately, as described in the following protocol:

- Collect samples in appropriately-sized and prepared containers
- Properly seal and package sample containers.
- Fill out field sample log and chain-of-custody and analyses request forms.
- Separate and place samples into coolers according to laboratory destination. Samples will be packaged so that the potential for shipping damage is minimized.
- Chill samples to approximately 4°C. Blue ice or regular crushed ice used in the coolers will be sealed in a plastic bag other than the one in which it was purchased.
- Seal the top two copies of the chain-of-custody form inside a zip-lock bag. Use strapping tape to hold the packet on the inside of the cooler.
- Seal cooler with several strips of strapping tape.

SAMPLE CUSTODY

In order to check and link each reported datum with its associated sample, sample custody and documentation tracking procedures were established. Three separate, interlinking documentation and custody procedures for field, office, and laboratory can be described. The chain-of-custody (COC) forms, which are central to these procedures, are attached to all samples and their associated data throughout the tracking process.

FIELD CUSTODY PROCEDURES

Field documentation will include sample labels, daily field activities logbook, and chain-of-custody and analyses request forms. These documents will be filled out in indelible ink. Any corrections to the document will be made by drawing a line through the error and entering the correct value without obliterating the original entry. Persons correcting the original document will be expected to initial any changes made.

Sample Labels

Labels will be used to identify samples. The label is made of a waterproof material with a water-resistant adhesive. The sample label, to be filled out using waterproof ink, will contain at least the following information:

- Sampler's name
- Sample number
- Date
- Time
- Sample location
- Preservative used

Field Log of Daily Activities

A field log will be used to record daily field activities. The field geologist/engineer is responsible for making sure that a copy of the field log is sent to the project file as soon as each sampling round is completed. Field log entries will include the following:

- Field worker's name
- Field log number
- Date and time data are entered
- Location of activity
- Personnel present on-site
- Sampling and measurement methods
- Total number of samples collected
- Sample numbers
- Sample distribution (laboratory)
- Field observations, comments
- Sample preservation methods used, if any

Chain-of-Custody (and Analysis Request) Form

The chain-of-custody (COC) form is filled out for groups of samples collected at a given location on a given day. The COC will be filled out in triplicate form, and will accompany every shipment of samples to the respective analytical laboratories.

Two copies will accompany the samples to the analytical laboratory. The third copy is kept in the SOMA QA/QC file. The COC makes provision for documenting sample integrity and the identity of any persons involved in sample transfer. Other information entered on the COC includes:

- Project name and number
- Field logbook number
- COC serial number
- Project location

- Sample number
- Sampler's/recorder's signature
- Date and time of collection
- Collection location
- Sample type
- Number of sample containers for each sample
- Analyses requested
- Results of laboratory's inspection of the condition of each sample and the presence of headspace, upon receipt by the laboratory
- Inclusive dates of possession
- Name of person receiving the sample
- Laboratory sample number
- Date of sample receipt
- Address of analytical laboratory