aqua science engineers inc.

FAX BEING SENT BY:

Aqua Science Engineers, Inc.
208 W. El Pintado Road
Danville, CA 94526
Phone (925) 820-9391
Fax (925) 837-4853

DATE: 3-31-99

TO: Larry Seto

FROM: Robert Kitay

NUMBER OF PAGES TO FOLLOW: 11

**********Please Phone If This Fax Is Received Incomplete**********

MESSAGE:

aqua science engineers inc.

March 31, 1999

WORKPLAN
for a
SOIL AND GROUNDWATER ASSESSMENT
at
The Salvation Army
810 Clay Street
Oakland, California

Submitted by:
AQUA SCIENCE ENGINEERS, INC.
208 West El Pintado
Danville, CA 94526
(925) 820-9391

INTRODUCTION

This submittal outlines Aqua Science Engineers, Inc. (ASE)'s workplan for a soil and groundwater assessment at the Salvation Army property located at 810 Clay Street in Oakland, California (Figure 1). The proposed site assessment activities were initiated by Major Al Summerfield of the Salvation Army to meet the requirements of the Alameda County Health Care Services Agency (ACHCSA) as outlined in their letter dated March 5, 1999 (Appendix A). The scope of work presented is based on the requirements of the ACHCSA as discussed between Mr. Larry Seto of the ACHCSA and ASE senior geologist Robert Kitay in a telephone conversation on March 15, 1999.

BACKGROUND INFORMATION

Prior to the construction of the current site structure in 1965, a gasoline service station was located at the site. It is believed that the former underground storage tanks (USTs) for the station were located in the area of the current basement for the building. No information regarding the condition of the USTs upon the closing of the service station was available.

In January 1999, Ceres Associates of Oakland, California drilled three (3) soil borings at the site to assess subsurface environmental conditions for a potential buyer of the site (Figure 2). Soil samples were collected from each boring at a depth of 15-feet below ground surface (bgs) and groundwater samples were collected from a depth of 28-feet bgs. The soil sample collected from 15-feet bgs in boring SB-1 contained 3,800 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPH-G), 1,000 ppm total petroleum hydrocarbons as diesel (TPH-D), 22 ppm benzene, 88 ppm toluene, 28 ppm ethylbenzene and 170 ppm total xylenes. The groundwater sample collected from boring SB-1 contained 610 parts per billion (ppb) TPH-G, 610 ppb TPH-D, 47 ppb benzene, 30 ppb toluene, 26 ppb ethylbenzene and 120 ppb total xylenes. Borings SB-2 and SB-3 contained much lower concentrations of hydrocarbons, below levels that are typically of concern to regulators.

PROPOSED SCOPE OF WORK (SOW)

Based on the site history and requirements of the ACHCSA, ASE's proposed scope of work is to:

1) Prepare a workplan and health and safety plan for the site.

2) Obtain a drilling permit from the Alameda County Public Works Agency and an excavation permit from the City of Oakland.

3) Using a Geoprobe, drill two soil borings to a depth not to exceed 35-feet bgs in the Clay Street sidewalk on each side of former boring SB-1 and collect soil and groundwater samples from the borings for analysis (Figure 2).

4) Analyze two soil samples collected from each of the borings described in task 3 as well as the groundwater samples at a CAL-EPA certified analytical laboratory for TPH-G by EPA Method 5030/8015M, TPH-D by EPA Method 3510/8015M, benzene, toluene, ethylbenzene and total xylenes (collectively known as BTEX) by EPA Method 8020 and methyl tertiary butyl ether (MTBE) by EPA Method 8020.

5) Drill four soil borings in the basement using a hand auger and collect soil samples from 1-foot below the base of the concrete.

6) Analyze one soil sample collected from each of the four borings described in task 5 at a CAL-EPA certified analytical laboratory for TPH-G by EPA Method 5030/8015M, TPH-D by EPA Method 3550/8015M, and BTEX and MTBE by EPA Method 8020.

7) Prepare a report presenting the results of the soil and groundwater assessment.

Details of the assessment are presented below.

TASK 1 - PREPARE A WORKPLAN AND HEALTH AND SAFETY PLAN

Based on the site history and the analytical results of the soil and groundwater samples collected during the previous soil and groundwater assessment, ASE has prepared this workplan and a site-specific health and safety plan. A nearby hospital is designated in the site safety plan as the emergency medical facility of first choice. A copy of the site specific Health and Safety Plan will be available on-site at all times.

TASK 2 - OBTAIN NECESSARY PERMITS

ASE will obtain a drilling permit from the Alameda County Public Works Agency and an excavation permit from the City of Oakland. ASE will also notify Underground Service Alert (USA) to have underground utility lines marked in the site vicinity at least 48 hours prior to drilling.

TASK 3 - DRILL TWO SOIL BORINGS AT THE SITE AND COLLECT SOIL AND GROUNDWATER SAMPLES FROM THE BORINGS

ASE will drill two soil borings at the locations shown on Figure 2. The borings will be drilled using a Geoprobe or similar type drill rig. The drilling will be directed by a qualified ASE geologist. Undisturbed soil samples will be collected at least every 5-feet, at lithographic changes, and from just above the water table for subsurface hydrogeologic description and possible chemical analysis. The samples will be described by the ASE geologist according to the Unified Soil Classification System. The samples will be collected in brass or acetate tubes using a drive sampler advanced ahead of the boring as the boring progresses. Each sample will be immediately removed from the sampler, trimmed, sealed with Teflon tape and plastic caps, secured with duct tape, and labeled with the site location, sample designation, date and time the sample was collected, and the initials of the person collecting the sample. The samples will then be placed into an ice chest containing wet ice for delivery under chain of custody to a CAL-EPA certified analytical laboratory.

Soil from the remaining tubes not sealed for analysis will be removed for hydrogeologic description and will be screened for volatile compounds with an organic vapor meter (OVM). The soil will be screened by emptying soil from one of the tubes into a plastic bag. The bag will be sealed and placed in the sun for approximately 10 minutes. After the hydrocarbons have been allowed to volatilize, the OVM will measure the vapor through a small hole punched in the bag. These OVM readings will be used as a screening tool only since these procedures are not as rigorous as those used in an analytical laboratory.

A groundwater sample will be collected from each boring. Drilling will be halted at the water table and a Powerpunch or similar type device will be utilized to collect groundwater samples from the borings. The groundwater samples for TPH-G, BTEX and MTBE will be contained in 40-ml volatile organic analysis (VOA) vials pre-preserved with hydrochloric acid and sealed without headspace. The samples collected for TPH-D analysis will be contained in 1-liter amber glass containers. All of the samples will be labeled with the site location, sample designation, date and time the samples were collected, and the initials of the person collecting the samples, placed in protective foam sleeves, and cooled in an ice chest with wet ice for transport to a state-certified analytical laboratory under chain-of-custody.

All sampling equipment will be cleaned in buckets with brushes and a TSP or Alconox solution, then rinsed twice with tap water. Rinsates will be contained on-site in 55-gallon steel drums until off-site disposal can be arranged.

TASK 4 - ANALYZE THE SOIL AND GROUNDWATER SAMPLES

At least two soil samples from each boring, as well as each groundwater sample, will be analyzed at a CAL-EPA certified analytical laboratory for TPH-G by EPA Method 5030/8015M, TPH-D by EPA Method 3510/8015M and BTEX and MTBE by EPA Method 8020. The soil samples analyzed will be chosen based on field observations such as odors, staining and OVM readings. If no field indications of contamination are present, a soil sample from 15-feet bgs and the unsaturated sample closest to the water table will be analyzed.

TASK 5 - DRILL FOUR SHALLOW BORINGS IN THE BASEMENT AREA

ASE will core drill through the concrete basement floor in four locations. This basement appears to be the area where the former USTs were located. Soil samples will be collected 1 foot beneath the concrete floor using a hand auger. The samples will be contained in laboratory supplies glass containers and labeled with the site location, sample designation, date and time the samples were collected, and the initials of the person collecting the sample. The samples will then be placed into an ice chest containing wet ice for delivery under chain of custody to a CAL-EPA certified analytical laboratory.

TASK 6 - ANALYZE THE SHALLOW SOIL SAMPLES

Analyze the soil samples collected from the basement area (described in task 5) at a CAL-EPA certified analytical laboratory for TPH-G by EPA Method 5030/8015M, TPH-D by EPA Method 3510/8015M and BTEX and MTBE by EPA Method 8020.

TASK 7 - PREPARE A SUBSURFACE ASSESSMENT REPORT

ASE will submit a report outlining the methods and findings of this assessment. The report will be submitted under the seal of state registered civil engineer or geologist. This report will include a summary of all work completed during this assessment including tabulated soil and groundwater analytical results, conclusions and recommendations.

Copies of the analytical report and chain of custody will be included as appendices.

SCHEDULE

ASE plans to begin field activities at this site immediately upon approval of this workplan by the ACHCSA. Drilling is tentatively scheduled for the week of April 5, 1999.

Should you have any questions or comments, please call us at (925) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

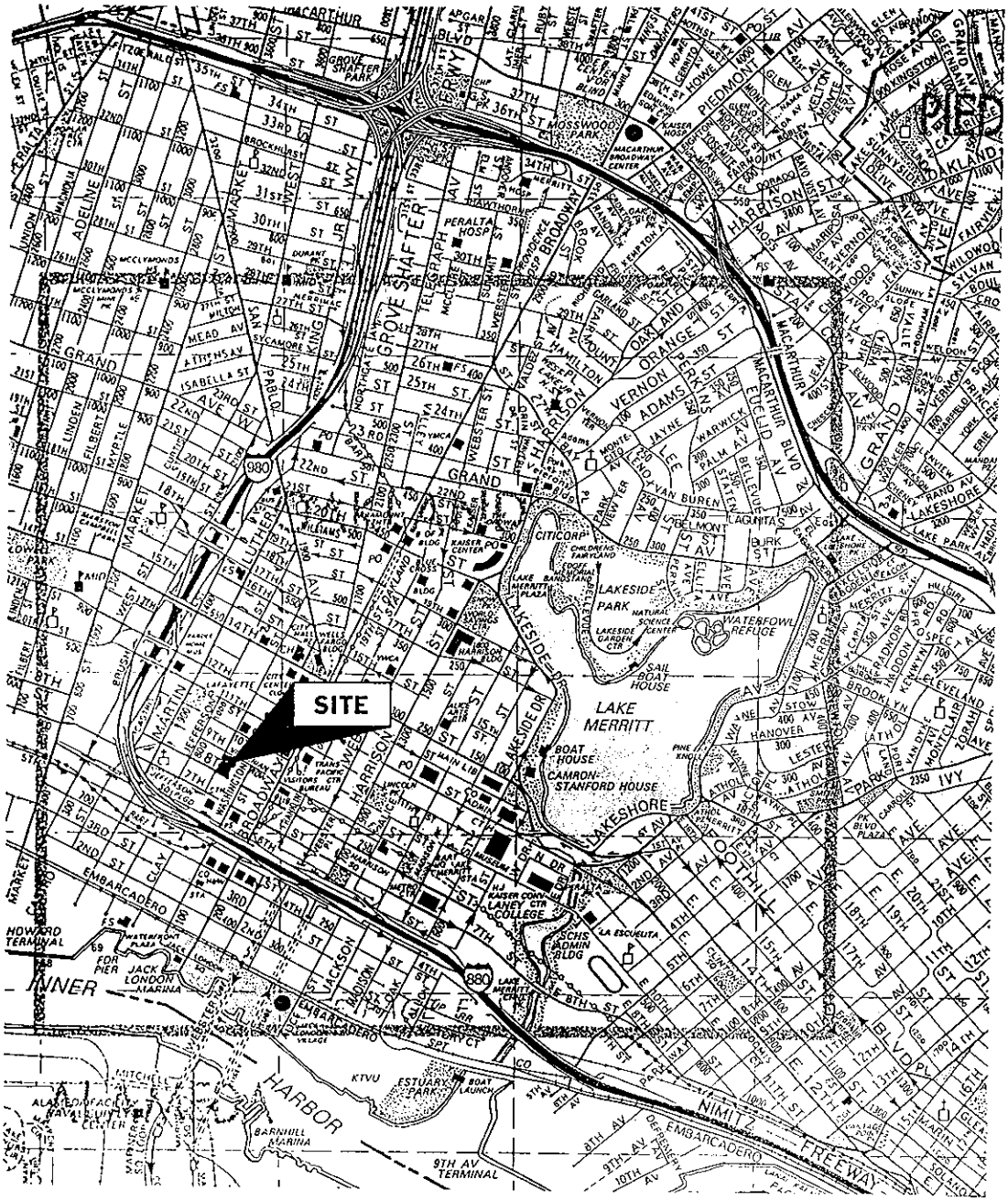
Robert E. Kitay, R.G., R.E.A.
Senior Geologist

cc: Major Al Summerfield, The Salvation Army, 810 Clay Street, P.O. Box 12397, Oakland, CA 94604

Mr. Larry Seto, Alameda County Health Care Services Agency, 1131 Harbor Bay Parkway, Suite 250, Alameda, CA 94502

Mr. Chuck Headlee, California Regional Water Quality Control Board, San Francisco Bay Region, 1515 Clay Street, Suite 1400, Oakland, CA 94612

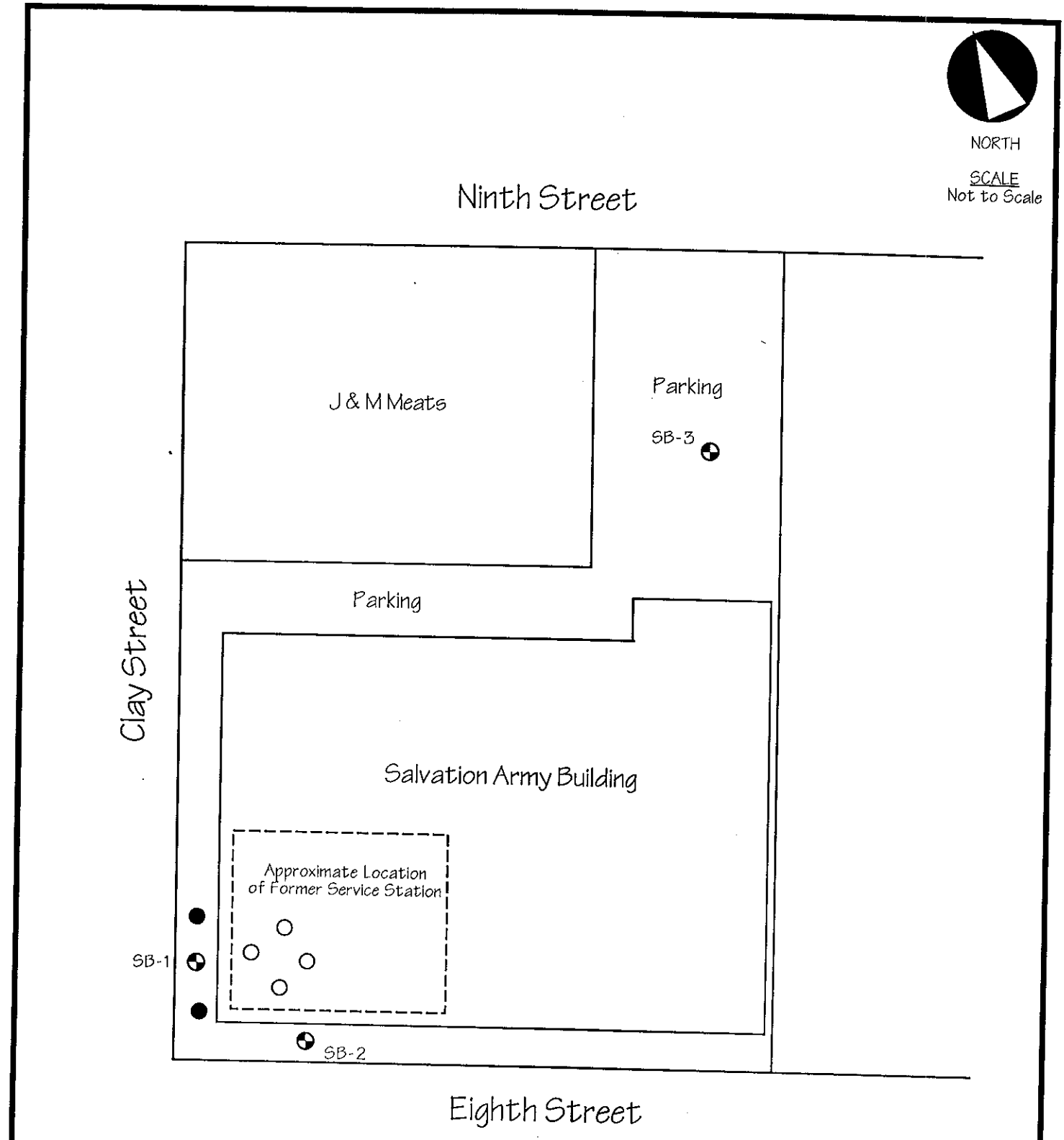
FIGURES



SITE LOCATION MAP

THE SALVATION ARMY
810 CLAY STREET
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC. | Figure 1



LEGEND

- Previous Soil Boring
- Proposed Deep Boring
- Proposed Shallow Boring

SOIL BORING LOCATION MAP

THE SALVATION ARMY
810 CLAY STREET
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC. | Figure 2

APPENDIX A

Alameda County Health Care Services Agency Letter

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

Certified Mailer # Z 773 036 540

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION (LOP)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

March 5, 1999

Major Al Summerfield
The Salvation Army
810 Clay Street
P.O. Box 12397
Oakland, CA 94604

RE: 810 Clay Street, Oakland, CA 94604

Dear Major Summerfield:

I have reviewed the Soil and Groundwater Sampling Report dated January 25, 1999 that was prepared by Ceres Associates. Three (3) Geoprobe borings were advanced in and/or around areas suspected of previously containing underground storage tanks on January 11, 1999. Soil and groundwater samples were taken. Up to 1000 ppm, 3800 ppm, 22 ppm of TPH(diesel), TPH(gas), and benzene respectively were detected in the soil samples. Up to 610 ppb, 610 ppb, and 47 ppb of TPH(diesel), TPH(gas), and benzene respectively were detected in the groundwater sample.

An additional subsurface investigation needs to be conducted to define the extent of soil and groundwater impact by the petroleum hydrocarbons release at the above site.

In accordance to Title 23, California Code of Regulations, Article 11, you are require to submit a Soil and Water Investigation workplan within 45 days of the receipt of this letter. This workplan must be prepared by a State of California-Registered Geologist, Certified Engineering Geologist, or Registered Civil Engineer.

If you have any questions, please contact me at (510) 567-6774.

Sincerely,

Larry Seto
Sr. Hazardous Materials Specialist

Cc: Leroy Griffin, City of Oakland-Fire Department, 505-14th Street, 7th Floor, Oakland, CA 94612
√ Robert Kitay, Aqua Science Engineers, 208 W. El Pintado Road, Danville, CA 94526
Files

aqua science engineers inc.

ENVIRONMENTAL PROTECTION

99 APR 12 PM 3:56

April 5, 1999

Mr. Larry Seto
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Re: WORKPLAN ADDENDUM
The Salvation Army
810 Clay Street
Oakland, CA 94604

Dear Mr. Seto:

This letter presents an addendum to ASE's March 31, 1999 workplan for the above-referenced site. Per our telephone conversation on April 2, 1999, you requested that one additional boring be drilled across the street from the site in the anticipated downgradient direction. Attached, please find a map showing the proposed additional boring location. If you have any questions or have any other comments or concerns, please feel free to call me at (925) 820-9391.

Respectfully submitted,

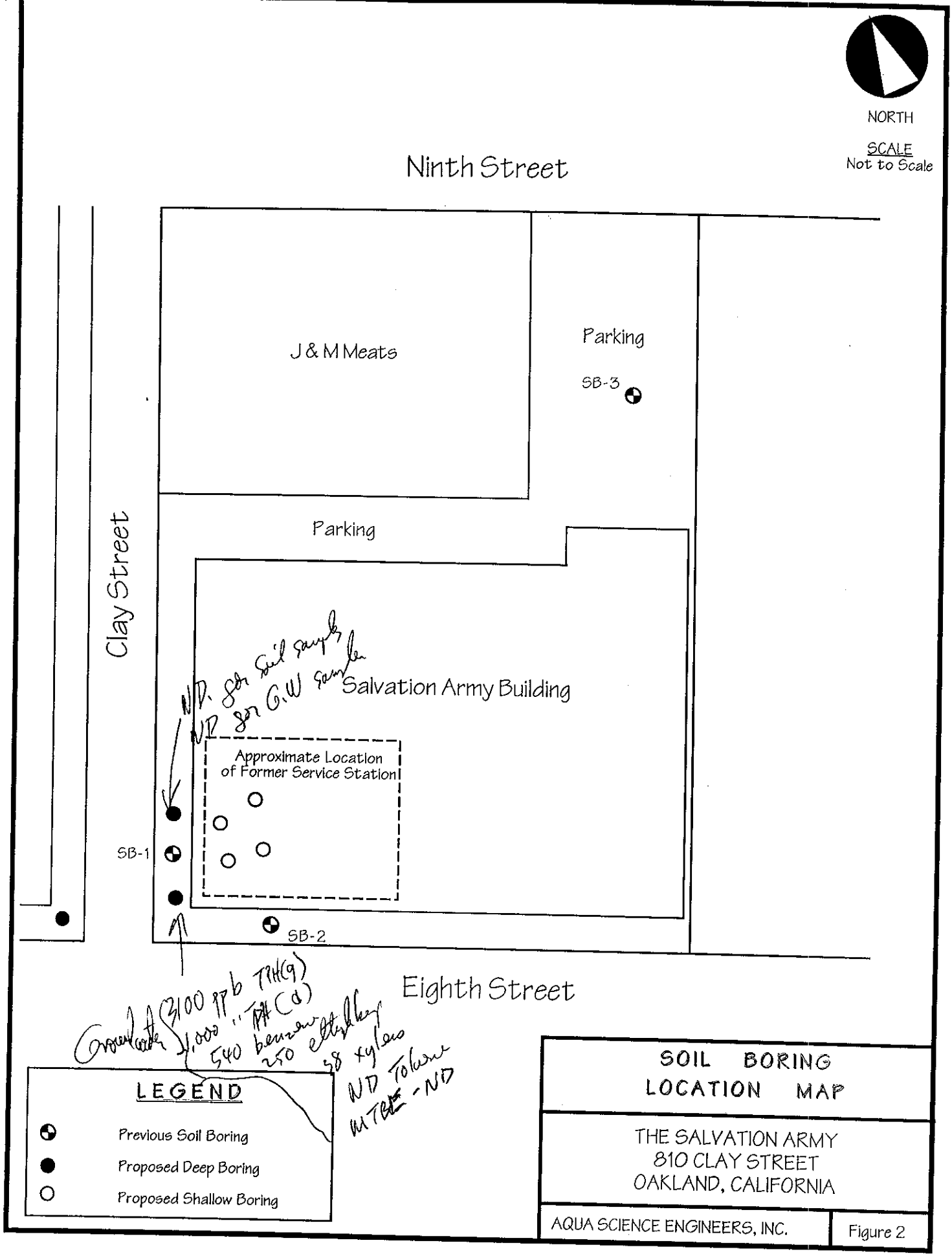
AQUA SCIENCE ENGINEERS, INC.

REGISTERED GEOLOGIST
ROBERT E. KITAY
No. 6586
STATE OF CALIFORNIA

Robert E. Kitay, R.G., R.E.A.
Senior Geologist

cc: Major Al Summerfield, The Salvation Army, 810 Clay Street, P.O. Box 12397. Oakland, CA 94604

208 W. El Pintado Road, Danville, California 94526 • 925-820-9391 • Fax 925-837-4853



SOIL BORING LOCATION MAP

THE SALVATION ARMY
810 CLAY STREET
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC. | Figure 2