



**THE SALVATION ARMY**  
Adult Rehabilitation Centers Command  
180 East Ocean Boulevard, 3<sup>rd</sup> Floor  
Long Beach, CA 90802-4709

WILLIAM BOOTH  
Founder

LINDA BOND  
General

JAMES KNAGGS  
Territorial Commander

MAN-HEE CHANG  
ARC Commander

**RECEIVED**

*By Alameda County Environmental Health at 3:44 pm, Mar 04, 2013*

March 1, 2013

Re: Revised Subsurface Investigation Workplan  
The Salvation Army Adult Rehabilitation Center  
601 Webster Street  
Oakland, CA 94607

“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.”

Submitted by,

Mark Nelson, Major  
ARC Command Secretary for Business

MN:kp

February 28, 2013

Mr. Keith Nowell, PG, CHG  
Hazardous Materials Specialist  
Alameda County Health Care Services Agency  
Environmental Health Services, Environmental Protection  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502

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Subject: **Revised Subsurface Investigation Workplan**  
The Salvation Army  
601 Webster Street, Oakland, California  
Fuel Leak Case No. RO0003084  
Geotracker Global ID T10000003428

Dear Mr. Nowell,

Cardno ATC, formerly ATC Associates Inc., has prepared this revised workplan, on behalf of The Salvation Army to conduct a subsurface investigation evaluating the presence of petroleum hydrocarbon impacted soil and/or groundwater beneath the site. The detection of residual petroleum hydrocarbons in soil samples collected during the underground storage tank (UST) removal activities on November 22 and 23, 2010 prompted this proposed investigation.

This revised workplan supersedes ATC Associates Inc.'s workplan dated June 21, 2012.

## **SITE LOCATION**

The site is located at 601 Webster Street in Oakland, California, as shown on Figure 1. The site is developed as a warehouse and distribution center for The Salvation Army (TSA). The principal land use in the vicinity of the site consists of commercial properties including restaurants, a hotel, and several gas stations.

## **BACKGROUND**

According to TSA, the USTs at the site were used to fuel their fleet of commercial trucks. In early 2010, TSA made the decision to discontinue on-site fueling operations and remove the USTs and dispenser equipment from the site. In November 2010, a project to excavate and remove of the 12,000-gallon diesel UST and the 8,000-gallon gasoline UST and the former fuel dispensers was planned and executed by Terry Hamilton, a California licensed (Ca. License 339108) general engineering contractor.

The UST removal activities began on November 22, 2010, and were completed on November 23, 2010. The two USTs were triple rinsed and rendered inert with dry ice, tested and certified

non-hazardous by a Certified Marine Chemist, loaded onto a flatbed truck and transported to Stanislaus County on November 23, 2010 for use as non-potable water tanks in a fire-suppression system. The USTs appeared to be in good condition, with no visible holes or signs of leakage.

Laboratory analysis of soil samples collected from the UST pit indicated that petroleum hydrocarbons related to gasoline were present, however diesel was not detected.

In early 2011, TSA retained Cardno ATC to assist follow up with any obligations that may have resulted from the gasoline detected in the soil samples collected.

After initial contact with Oakland City Fire Department (OFD), Cardno ATC developed a limited-scope workplan dated March 18, 2011 for the purpose of deriving information about the magnitude of the release to assist OFD in determining if the case could be closed or if the case should be forwarded to the Alameda County, Health Care Services Agency Environmental Health Services, Environmental Protection (ACEH) as a Local Oversight Program (LOP) case. ACEH was a copied recipient of this workplan.

In May and November 2012, ACEH requested changes to the March 18, 2011 OFD workplan.

In February 2013, ACEH hosted a meeting where representatives of ACEH, TSA, and Cardno ATC reviewed the known information regarding the UST system that had been in operation at the site and the results of the soil sampling that had occurred during the UST system removal activities performed in the fall of 2010. Then the nature and scope of the next phase of work was discussed and agreed upon. The content of the meeting was recorded in meeting summary developed by ACEH and distributed to TSA and Cardno ATC.

## **PROJECT GOALS**

The immediate goals of the project are as follows:

1. Investigate the regulatory history of the USTs removed in 2010.
2. Evaluate the lateral and vertical presence of the absorbed phase hydrocarbons at the site. This initial investigation may or may not fully define the extent of absorbed phase hydrocarbons at the site.
3. Determine if the established petroleum hydrocarbon release at the site has impacted groundwater.
4. Use the information gained through the proposed investigation to construct a site conceptual model (SCM).
5. Use the information gained to address many of the elements contained within State Water Resources Control Board's Low Threat Closure Policy (SWRCB's LTCP).

Both the development of the SCM and the gathering of information specified in the LTCP will be key in determining if additional investigation, or remediation is warranted, or if the site can be closed.

## **SCOPE OF WORK**

Cardno ATC will attempt to define the vertical and lateral extent of the hydrocarbons present in the soil and groundwater at the site by advancing ten direct-push soil borings to collect soil and water samples, subjecting the collected samples to laboratory analysis to determine the presence of petroleum hydrocarbons. Cardno ATC will then use this collected information in developing the SCM and evaluating the site for closure using the LTCP.

## **UST File Review**

Cardno ATC will review the available UST compliance records at the City of Oakland's designated Certified Unified Program Agency (CUPA), City of Oakland Fire Department. The goal of this file review will be to obtain the regulatory history of the USTs removed in 2010. This regulatory history will be used to construct the SCM and determine the likely formulation of the released gasoline including the gasoline fuel additives that could be present with the total petroleum hydrocarbons – gasoline (TPHg) and the benzene toluene, ethyl-benzene, and total xylenes (BTEX). An older release is likely to have contained tetraethyl lead, whereas a more recent release is likely to have methyl tertiary-butyl ether (MTBE).

## **Utility Clearance**

Cardno ATC will seek to locate potential underground utilities at the site by notifying Underground Services Alert (USA) as required by law and also employ a private utility locating service to locate both public and private underground utilities that may be present in the proposed work areas.

## **Planning, Permitting & Scheduling**

Cardno ATC will obtain the necessary drilling permits from Alameda County Public Works Agency-Water Resources for the advancement of up to ten soil borings. Cardno ATC will obtain the necessary encroachment permit to advance a single boring in the sidewalk paralleling 7<sup>th</sup> Street, provided that the underground utility study identifies one or more possible locations where a boring can be advanced without encountering subsurface utilities.

Cardno ATC will schedule field personnel and equipment, and perform other necessary field preparation and job start-up activities. Cardno ATC will notify ACEH 48 hours in advance of drilling.

## **Advancement of Soil Borings**

Cardno ATC will utilize a State-licensed (C57) drilling company at the site to advance up to ten soil borings utilizing Geoprobe® narrow diameter, direct push technology mounted on a truck. The boring locations are shown on Figure 2. Soil samples will be continuously collected and field screened with a Photo-Ionization Detection (PID) meter by a Cardno ATC field geologist. The field geologist will record the PID readings, sample collection intervals, and descriptions of the soil types encountered on the field boring logs.

Research conducted by Cardno ATC into the local groundwater flow regime based on other UST investigation sites in the immediate vicinity is inconclusive. Consequently, to achieve an indication of the direction of the groundwater flow and to assist in the future placement of monitoring wells at the site, Cardno ATC will advance seven borings along two intersecting transecting lines, one which is parallel to 7<sup>th</sup> Street and the other parallel to Franklin Street. In addition, two soil borings will be advanced within the former UST pit. One additional boring is proposed immediately north northwest of the former UST pit, within the sidewalk parallel to 7<sup>th</sup> Street.

Each soil boring will be advanced to the first encountered groundwater, estimated to be encountered at approximately 16 to 25 feet below ground surface (bgs). If contamination is established in one or both of the two borings within the former UST pit these borings will be advanced beyond the established groundwater level to aid in the vertical delineation of the impacts of the release. During advancement of these borings below the groundwater surface, soil samples will be collected at a minimum of 5 foot intervals, until a depth at which soil samples appear free of hydrocarbons as determined by the PID meter and visual clues.

No fewer than four soil samples from each boring will be selected for submission to laboratory analysis. These four samples will be collected from the following depths:

1. Within the interval from 0 to 5 feet bgs (~2.5 feet bgs),
2. Within the interval from 5 to 10 feet bgs (~7.5 feet bgs),
3. Within the interval from 10 feet bgs to first encountered groundwater (~12.5 feet bgs),
4. At the soil/groundwater interface.

Additional soil samples will be selected and submitted for laboratory analysis if they meet the following criteria:

1. At significant changes in lithology
2. At signs of contamination (odor, discoloration, PID responses, etc.)

If there are any signs of vadose zone contamination in a particular boring, additional soil samples will be selected for analysis from the interval between 10 feet bgs and first encountered groundwater to ensure the Petroleum Vapor Intrusion to Indoor Air criterion of the LTCP are met. Sample discoloration along with a response on the Photo-Ionization Detection (PID) meter will be used to determine the presence of vadose zone contamination.

All groundwater samples will be collected from each boring at the depth groundwater is first encountered, which is anticipated to be approximately 16 to 25 feet below ground surface (bgs). Groundwater samples will be collected utilizing a Geoprobe® Screen Point 15 Groundwater Sampler threaded onto the leading end of the Geoprobe® direct pushrod train. While the sampler is advanced, O-ring seals and an expendable drive point will provide a watertight system to ensure sample integrity. When the sampler has been advanced to the desired depth, extension rods will be sent down the boring to brace the bottom of the sample screen as the tool casing is retracted. When the casing is retracted, up to 41-inches of screen with slot sizes of 0.004 inches will be exposed. A length of Teflon® tubing with a check valve attached to one end will be inserted down the casing until it is immersed in groundwater. Water will then be pumped through the tubing and to the ground surface for collection using a peristaltic pump.

All soil and groundwater samples collected from the soil borings will be immediately placed in a cooler with ice and delivered under chain-of-custody documentation to a State-certified analytical laboratory.

Following the soil and groundwater sample collection, the borings will be backfilled with neat cement grout to the ground surface. Drill cuttings, if generated, will be stored on-site in a 5-gallon container pending laboratory results.

## **Chemical Analyses**

Since diesel was not detected in the soil samples collected during the removal of the former USTs that contained diesel, it is the opinion of Cardno ATC that the release was composed entirely of gasoline. To confirm this theory, all water samples collected will be analyzed for diesel. All soil samples will be preserved and held in reserve during the analysis of the groundwater samples for diesel. If diesel is detected in the groundwater samples, then the soil samples will be also analyzed for diesel.

Soil and groundwater samples will be analyzed for total petroleum hydrocarbons as gasoline (TPHg) utilizing EPA Method 8015M; BTEX, MTBE, tertiary butyl alcohol (TBA), di-isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), 1,2-dichloroethane (1,2-DCA), and ethyl dibromide (EDB) utilizing EPA Method 8260B, and total organic lead by EPA Method 200.8. All soil samples collected from the upper 10 feet of the vadose zone are to be also analyzed for naphthalene utilizing EPA Method 8260B to supply data used in the Direct Contact to Outdoor Air Exposure evaluation of the LTCP. Additionally, the soil and groundwater samples may be analyzed for additional analytes consistent with the nature of the release as determined by the file review.

## Report Preparation

Upon receipt of the analytical data from collected soil and groundwater samples, Cardno ATC will perform a risk analysis of the impacts of the released hydrocarbons. This risk analysis will include a comparison of soil and groundwater data to established Environmental Screening Levels (ESLs) as provided by the California Regional Water Quality Control Board (RWQCB) San Francisco Bay Region to determine if any detected hydrocarbons present threaten human health, the environmental, or future projected groundwater usages. Cardno ATC will then prepare a report for submission to ACEH that describes field activities, includes the boring/well logs, the laboratory derived analytical data presented in tabular form, isoconcentration maps that depict the estimated horizontal extent of petroleum impacted soil and groundwater, and a description of the risk analysis process and conclusions. This report will also include recommendations for further courses of action, if warranted.

## PROJECTED SCHEDULE

Once approval of this workplan has been received from ACEH, Cardno ATC will confirm a schedule for drilling activities. Cardno ATC will notify ACEH at least 48 hours prior to beginning any field activities. The summary report will be submitted to ACEH approximately 60 days following ACEH approval of this workplan.

If you have any questions or require additional information regarding this workplan, please contact us at (209) 579-2221.

Sincerely,



Mike Sonke  
Project Manager  
for Cardno ATC  
Direct Line +1 209 579 2221  
Email: mike.sonke@cardno.com

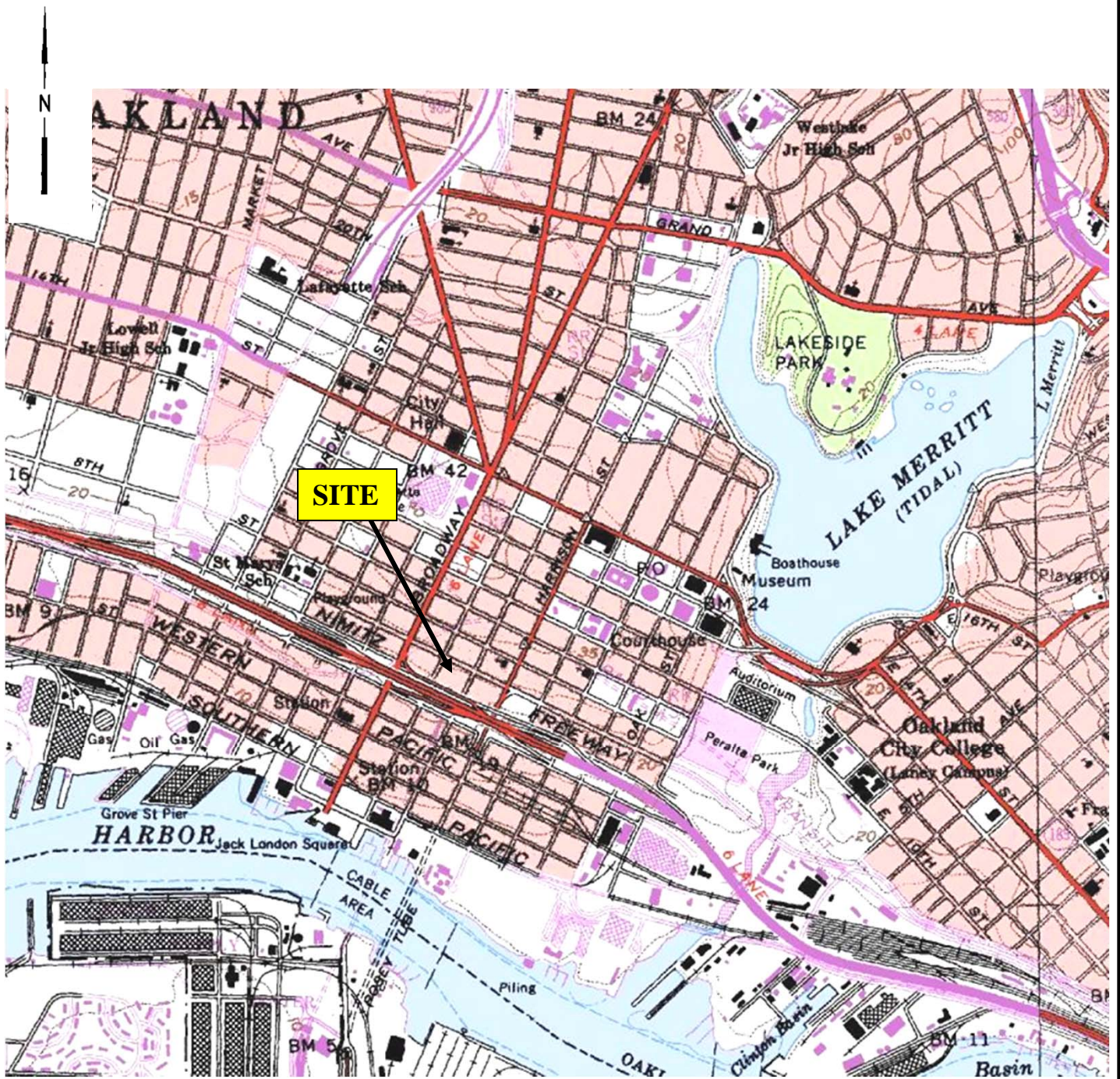


Jeanne Homsey, P.E.  
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for Cardno ATC  
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enc:

cc: Kaye Patterson, Property Project Manager, The Salvation Army, ARC Command (via email)



SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP  
 OAKLAND WEST QUADRANGLE, CALIFORNIA, DATED 1959, PHOTO-UPDATED 1980.

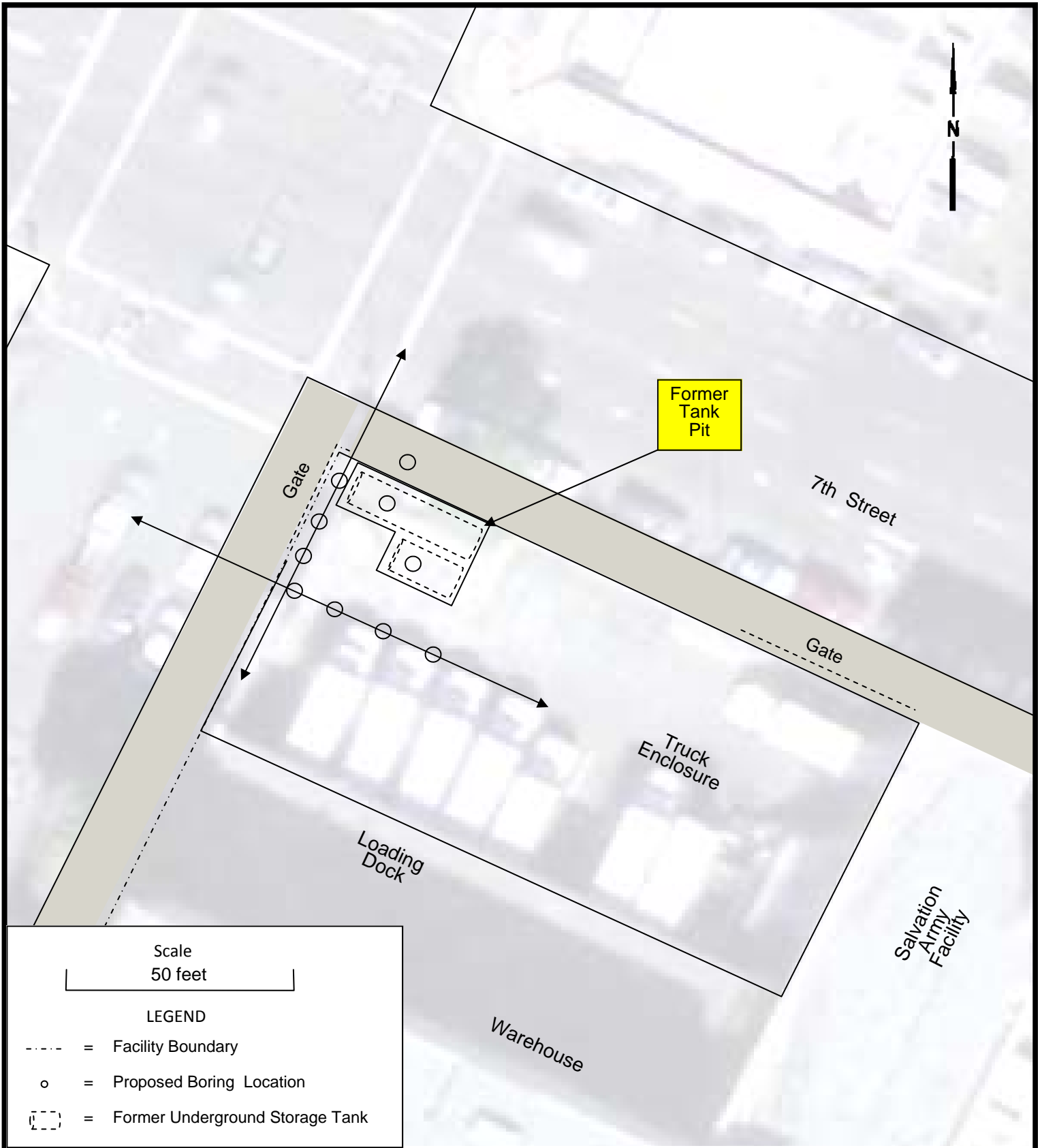
FIGURE 1  
**SITE LOCATION MAP**

THE SALVATION ARMY  
 601 WEBSTER STREET  
 OAKLAND, CALIFORNIA



1117 Lone Palm Ave, Ste 201B  
 Modesto, CA 95351  
 (209) 579-2221

PROJECT NO: 54.25026.0001		
DESIGNED BY: JK	SCALE: 1:24,000	REVIEWED BY: JH
DRAWN BY: JK	DATE: 05/12	FILE: LOCATION



Scale  
50 feet

LEGEND

- = Facility Boundary
- o = Proposed Boring Location
- [- - -] = Former Underground Storage Tank

 **Cardno**  
**ATC**  
Shaping the Future

1117 Lone Palm Ave, Suite 201  
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Figure  
2

Proposed Boring Locations

PROJECT NO: 54.25026.00001		
DESIGNED BY: MS	DRAWN BY: MS	REVIEWED BY: JH
DATE: 02/27/2013		

The Salvation Army  
601 Webster Street  
Oakland , California