August 18, 2009

Mr. Mark Detterman
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

RE: Work Plan
Subsurface Site Characterization
15796 E. 14th Street, San Leandro, California
ACEH Case No. RO0000168

Dear Mr. Detterman:

Environmental Risk Specialties Corporation (ERS) has prepared this Work Plan to conduct subsurface site characterization at the subject property. To assist in the preparation of this Work Plan, ERS reviewed data available on the State Water Resources Control Board (SWRCB) GEOTRACKER database and data on Alameda County's FTP database.

The goal of this proposed site characterization is to confirm current subsurface conditions in the immediate vicinity of the three former underground storage tanks (USTs), bring the case into regulatory compliance, and move the case towards regulatory closure. This Work Plan outlines the proposed tasks to collect representative soil and grab groundwater samples in a cost-effective manner.

If you have any questions about this Work Plan, please contact me at (925) 938-1600, extension 109 or email me at ddement@erscorp.us.

Sincerely,

David DeMent, PG
Senior Geologist

REGISTERED GEOLOGIST
DAVID R. DEMENT
NO. 5974
STATE OF CALIFORNIA

cc: Mr. Clifford Welch

WORK PLAN
SUBSURFACE INVESTIGATION

1.0 INTRODUCTION

Environmental Risk Specialties Corporation (ERS) presents this Work Plan to perform subsurface characterization in the vicinity of three underground storage tanks (USTs) at 15976 E. 14th Street, San Leandro, California (Site). The general goals of this investigation are to: 1) define subsurface conditions for purposes of estimating migration potential and preparing an initial Conceptual Site Model (CSM); 2) determine the current degree and approximate horizontal and vertical extent of residual total petroleum hydrocarbons as gasoline (TPHg), and benzene, toluene, ethylbenzene, and total xylenes (BTEX), and methyl tert-butyl ether (MTBE) in soil and groundwater; and 3) prepare a report for submission to Alameda County Environmental Health (ACEH) as the lead regulatory agency. In addition, ERS will coordinate uploading all pertinent available documents for the project to the State Water Resources Control Board (SWRCB) GEOTRACKER database.

The specific goals of this investigation will be to: 1) document expected decreases in residual petroleum hydrocarbons in soil and groundwater from those reported following UST removal; 2) log continuously-cored exploratory soil borings to better estimate the migration potential in the subsurface primarily from 8 feet below ground surface (bgs) to 12.0 feet bgs (the approximate depth of first encountered groundwater); 3) obtain data necessary to address known regulatory concerns regarding assessing human health risk associated with residual petroleum hydrocarbons in subsurface soil and groundwater; 4) evaluate the necessity of further subsurface investigation; and 5) obtain the additional data necessary to pursue full regulatory case closure for the Site in regards to the former USTs.

2.0 BACKGROUND

The site is located on west side of E. 14th Street in the northeast corner of the intersection with Thrush Avenue in San Leandro, California (Figure 1). The Site is occupied by Clyde's Electronics and Ace Moving Company. The roughly triangular-shaped Site is approximately 30 feet long along Thrush Avenue and 60 feet long along E. 14th Street. The USTs were reportedly installed between 1950 and 1970, and gasoline was reportedly not stored in the USTs after the late 1970's.

2.1 UST Removal

According to information available on ACEH's FTP database, Semco removed one 200 gallon gasoline and two 2,000-gallon gasoline USTs on December 16, 1999. Tank T1, located southwest of 15798 E. 14th Street near Thrush Avenue, reported 610 milligrams per kilogram (mg/kg) total petroleum hydrocarbons as gasoline (TPHg) and 1.6 mg/kg benzene at 8.5 feet below ground surface (bgs). Tank T2, located at the approximate border of 15796 and 15798 E. 14th Street, reported 590 mg/kg TPHg at 10 feet bgs at the north end of the tank and 650 mg/kg TPHg at 9 feet at the south end of the tank, and 1.3 and 0.96 mg/kg benzene in the two samples respectively. Tank T3, located immediately northwest of the border of 15796 E. 14th Street and tank T2, reported 620 mg/kg TPHg at 10 feet bgs at the north end of the tank and 1,300 mg/kg TPHg at 9 feet bgs at the south end of the tank, and 2.9 mg/kg benzene in the south soil sample.

Photographs indicate the two 2,000-gallon USTs were oriented northwest to southeast directly in front of 15796 and 15798 E. 14th Street (Figure 1), and tank T1 was located based on an interview with the own of Ace Moving Company who witnessed the tank removals. The excavation was subsequently backfilled and the Site restored; however, the area of the former tanks has remained unpaved since 1999. The initial confirmation soil sample analytical results and stockpiled soil analytical results are summarized in Table 1.

TABLE 1 – TPHg/BTEX/MTBE ANALYTICAL RESULTS

Sample ID	Depth (ft bgs)	TPHg (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)
T1-1	8.5	610	1.6	1.6	3.5	6.8	<0.25
T2-N	10.5	590	1.3	0.8	3.0	5.8	<0.25
T2-S	9.5	650	0.96	1.8	2.1	8.0	<0.25
T3-N	9.75	620	<0.125	1.5	9.8	6.8	<0.25
T3-S	9.25	1,300	2.9	2.9	22	130	<0.25
SP-1		250	<0.125	0.56	1.0	4.8	<0.125
SP-2		120	<0.125	0.67	0.13	0.61	<0.125

Notes: mg/kg = milligrams per kilogram (approximately equivalent to ppm)
< = Concentration is below the laboratory reporting limit

2.2 Subsurface Conditions

According to subsurface investigation reported for the 76 Service Station at 15803 E. 14th Street, located 265 feet southeast of the Site, soil consist of clays, silty clays, and sandy clays to the depth of 25 feet bgs. Soil boring logs prepared by ATC Associates Inc. (ATC) reported CL and CH clays or MH clayey silts with moderate to high plasticity to 20 feet bgs. Groundwater was encountered in silty clays between 18 to 20 feet bgs; however, based on the soil type at the depth groundwater was observed in soil boring ATC-1 through ATC-6, it is likely that semi-confined groundwater entered the soil boring from a deeper depth. Depth to water in monitoring wells indicates groundwater is semi-confined.

2.3 Initial Conceptual Site Model

Based on Site history and initial subsurface investigation findings, the CSM is relatively straightforward. The exact release scenario is unknown but observations made during UST removal indicate that gasoline may have been released from small corrosion holes in the steel tanks. Soil sample analytical results suggest the release primarily occurred at the southeastern end of the 2,000-gallon UST designated T3 (Figure 1). Please note that due to the relatively small area of the project site, and the loss of approximately 12 of property along E. 14th Street during previous road widening (note the location of the manhole which is also shown on Semco's Site Map), the scale of Figure 1 is one inch equals 10 feet.

Residual petroleum hydrocarbons are likely localized in fine-grain soils mmediately adjacent to each former USTs. Based on nearby subsurface investigation findings, native soils in the vicinity of the UST pit consist of silts and moderately plastic clays. No groundwater was encountered during UST removal and saturated soils are not expected shallower than 18 feet bgs. Confirming the degree and estimating the approximate extent of suspect petroleum hydrocarbon impact in first encountered groundwater is a goal of this investigation.

Based on current Site use, the only known complete exposure pathway is worker exposure (dermal, inhalation) during potential future soil excavation activities. Since the site has remained unpaved since the USTs were removed in 1999, significant natural attenuation of any residual petroleum hydrocarbons is expected. Exploratory soil borings and representative soil and grab groundwater sampling will confirm this, and obtain current soil and groundwater data necessary to assess potential human health risk. A revised CSM will be presented in the technical report of findings.

3.0 SCOPE OF WORK

Additional subsurface soil characterization is necessary to further determine the degree and extent of suspect TPHg and TPHg impact in soil in the area of the replaced USTs and further evaluate potential human health risk associated with residual petroleum hydrocarbons in the subsurface. This proposed scope of work will utilize "direct push" sampling technology to obtain discrete representative soil and groundwater samples and minimize disrupting Site operations to the extent feasible. A soil boring permit will be obtained from the Alameda County Public Works Agency prior to field work. The ultimate goal of this investigation is to address ACEH concerns and help justify regulatory closure in regards to the former USTs.

3.1 Rationale for Sampling Strategy

The only subsurface characterization data currently available was obtained during UST removal and is almost 10 years old. Current residual petroleum hydrocarbon concentrations in soil and groundwater is necessary to assess the degree of anticipated natural attenuation, determine if there are any significant sources of petroleum hydrocarbon impact in/to groundwater present at the Site, and determine if there is an unacceptable human health risk associated with any remaining residual hydrocarbons

Due to severe financial hardship for the responsible party, a cost effective initial subsurface investigation is proposed. Seven continuously cored Geoprobe® soil borings can be advanced at select locations adjacent to the former USTs in one half-day. Continuously coring and logging six or more soil borings, screening soil every 2 feet with a photoionization detector (PID), and collecting and analyzing representative soil and grab groundwater samples should maximize the quality of characterization data obtained in one half-day mobilization. Proposed soil boring locations are depicted on Figure 1.

Proposed sample analyses are summarized in Table 2. Soil borings B1 will evaluate soil adjacent to the former product dispenser. Soil boring B2 will evaluate soil adjacent to former UST T1. Soil boring B3 will evaluate soil adjacent to former UST T2 and help assess the extent of TPHg and BTEX reported in soil sample T3-S, which reported 1,300 mg/kg. Soil boring B4 will evaluate soil adjacent to former UST T3 and help assess the extent of TPHg and BTEX reported in soil sample T3-S. Soil boring B5 will evaluate soil adjacent to former UST T3 and help assess the extent of TPHg and BTEX reported in soil sample T3-S. Soil boring B6 will evaluate soil between former USTs T1 and T2.

Soil boring B7 is being advanced in a representative step-out location to evaluate groundwater in the estimated downgradient direction of the former USTs. Soil boring B7 will be advanced either in the tree well, or if this is unsuccessful, at the alternate B7 location (Figure 1). A grab groundwater sample will also be collected in soil boring B3.

Please note that the proposed scope of work may change slightly based on field observations. While ERS is mobilized onsite, we will maximize obtaining as much data as possible in one-half business day while analyzing samples in a logical fashion based on PID readings and/or field indications of petroleum hydrocarbon impact as characteristic odor or soil discoloration. ERS may advance borings deeper than 16.0 feet bgs or advance additional soil borings in the event field indications of impact are noted in one or more proposed soil borings and further characterization is warranted.

TABLE 2 - PROPOSED SAMPLE ANALYSES

Soil Boring	Depth	Location	Matrix	Constituent Analysis
B1	3.5-4.0 7.5-8.0	Product Dispenser	Soil Soil*	TPHg, BTEX, MTBE
B2	7.5-8.0	Adjacent to T1	Soil	TPHg, BTEX, MTBE
B3	10.0-10.5 16-20	Adjacent to T2	Soil Groundwater	TPHg, BTEX, MTBE TPHg, BTEX, MTBE
B4	10.0-10.5	Adjacent to T3	Soil	TPHg, BTEX, MTBE
B5	10.0-10.5	Adjacent to T3	Soil	TPHg, BTEX, MTBE
B6	10.0-10.5 14.0-14.5	Between T2 & T3	Soil Soil*	TPHg, BTEX, MTBE TPHg, BTEX, MTBE
B7	12-16	Adjacent to E. 14th St.	Groundwater	TPHg, BTEX, MTBE

Note: * Potential sample analysis will be based on PID readings or field indications of impact (odor and/or soil discoloration)

3.4 Sampling Methods

Soil Sampling

Soil samples collected with the truck-mounted Geoprobe® equipment will be collected in pre-cleaned Geoprobe® stainless steel macro cores equipped with Geoprobe®-supplied, 2 inch by 48 inch disposable clear acetate liners. Select depth intervals will be cut from the 2-foot or 4-foot-long acetate liners and logged, screened with the PID, and/or prepared for analysis. Soil intervals saved for analysis will be immediately

covered with polyethylene sheeting and tight-fitting plastic caps, labeled, placed in resealable plastic bags, and stored in a pre-chilled insulated container. Soil samples collected for analysis will be sealed and cooled as soon as feasible to minimize potential volatilization. Processed samples will be kept in a locked vehicle or in direct observation at all times.

Select representative soil intervals will be screened for volatile constituents and selected representative soil samples will be prepared for analysis. Soil screening will be done with a calibrated PID. At each sample location, representative soil samples will be screened for volatile constituents using the PID approximately every 2.0 to 4.0 feet. Soil screening with the PID will be performed by placing approximately 1.0 inch of sample core in a resealable bag, sealing it, crushing the soil sample to the extent feasible, and placing the PID inlet hose in the headspace of the bag after approximately 5 minutes have elapsed. Soil screening for volatiles will be performed at consistently as possible to minimize the variation due to methodology. Soil samples will be collected for analysis when characteristic odor and elevated PID readings are observed, or at select representative depths in each soil boring.

Advancing soil borings B1 through B7 constitute one half day of truck-mounted Geoprobe® work with the contingency of potentially advancing one additional soil boring based on observations and field indications of TPHg and TPHg impact. Soil borings will be continuously cored to a minimum depth of 12.0 feet bgs or first encountered groundwater to visually log and screen every foot of encountered soil. Proposed soil sample analyses are summarized in Table 2. Actual soil sample depths may vary slightly based on field indications of impact or elevated PID reading. Proposed soil boring locations are illustrated on ERS Figure 1. Minor deviations to these proposed sampling locations and/or depths may be required based on conditions encountered in the field.

Groundwater Sampling

Grab groundwater samples collected with the track-mounted Geoprobe® equipment will be collected either by continuously coring to first encountered groundwater and bailed in the open annulus or in pre-cleaned Geoprobe® stainless steel HydroPunch tools. The 4-foot-long HydroPunch tool is driven to the desired depth plus one foot, the tool is then raised one foot to remove the disposable tip, and the tool is retracted four feet to expose the stainless steel screen to the formation. Water samples are then collected from the interior of the tool with either a disposable polyethylene bailer or brought to the surface using disposable tubing and a peristaltic pump. Groundwater is

then slowly decanted immediately into appropriate laboratory-supplied sample containers to minimize potential volatilization, checked for headspace, and capped.

Grab groundwater sample containers saved for analysis will be immediately labeled, placed in resealable plastic bags, and stored in a pre-chilled insulated container. Grab groundwater samples collected for analysis will be sealed and cooled as soon as feasible to minimize potential volatilization. Processed samples will be kept in a locked vehicle or in direct observation at all times.

Sample Containers and Preservation

Soil samples collected with the Geoprobe® rig will be collected in new Geoprobe®-supplied, 2.0 inch by 48.0 inch disposable clear acetate liners. Samples will be labeled with pre-printed laboratory-supplied labels, placed in new resealable plastic bags, and immediately placed in a pre-chilled, insulated container maintained at four degrees Celsius pending transport to the analytical laboratory. Each sample cooler will be chilled with ice and no blue ice containers will be used.

Sample Packaging and Shipment

All samples will be handled according to ERS sampling protocols. Bagged processed samples will be placed in a pre-chilled, insulated container pending transport to ERS's Walnut Creek office. ERS will properly refrigerate the samples until they are picked up by the analytical laboratory courier. Standard chain of custody documentation will be maintained at all times.

Sample Documentation

ERS will utilize a unique sample numbering system to identify sample locations and depths. Each sample will be designated with the following: 1) Unique boring number – "B1"; 2) matrix type – "S" for soil and "W" for water – "B1-S"; and 3) maximum depth – "B1-S-9.0". A sample designated B1-S-9.0 is therefore a soil sample collected in soil boring B1 at 8.5-9.0 feet bgs. Each respective sample designation will be placed at the top of the sample label and on its own line of the chain of custody form.

Soil samples will be logged and fully described on pre-printed ERS log forms. These log forms are designed to facilitate preparing boring logs for the final report of findings and prompt the ERS field geologist to obtain and document specific types of information.

ERS proposes that no duplicate or trip blank quality assurance/quality control (QA/QC) samples be analyzed due to the immediate bagging of each sample in resealable plastic bags prior to placing them in the insulated container, cost, and limited benefit.

Analytical Methods and Detection Limits

AccuTest, a state-certified laboratory, in Santa Clara, California, will analyze all samples. All samples will be analyzed for TPHg, BTEX, and MTBE by EPA Method 8260.

Laboratory reporting limits are set by the laboratory. Reporting limits (RL) may be increased due to interference effects and required laboratory dilution. Accutest also typically reports the method detection level (MDL), which is lower than the RL.

TPHg in soil	1.0 mg/kg
BTEX, MTBE in soil	0.005 mg/kg
TPHg in groundwater	50 µg/L
BTEX, MTBE in groundwater	0.5 µg/L

Decontamination

All sampling equipment will be either new disposable equipment or pre-cleaned, stainless steel sampling equipment. Decontamination of the Geoprobe® sampling probes and HydroPunch sampler will be performed between sample locations by washing the equipment with a tap water and Alconox cleaning solution, rinsing the equipment with clean tap water, and a second final rinse with tap water. New clean nitrile surgical gloves will be worn at each new sample location. Gloves will be replaced before the collection and/or handling of every grab groundwater sample.

Waste Management

As necessary, soil removed from the soil borings will be containerized in a 55-gallon steel drum, labeled, sampled, and profiled for appropriate disposal at an accepting, permitted landfill.

Backfilling Soil Borings

The soil borings will be backfilled with cement slurry consisting of approximately six gallons of water mixed with 94 pounds of Portland cement. The cement slurry will be prepared with an electric mixing rod to minimize cement lumps in the slurry mix. The

surface of the soil boring will be covered with approximately 4 inches of concrete to match the existing surface.

3.5 Data Evaluation

Analytical results will be initially compared to previous soil sample analytical results and applicable Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) to estimate human health risk. Newly obtained data will be used in the revised CSM and evaluated to determine if criteria for regulatory closure have been met. Comparison to applicable ESLs will help determine if remedial soil removal and/or additional human health risk evaluation is warranted.

3.6 Quality Assurance and Quality Control Measures

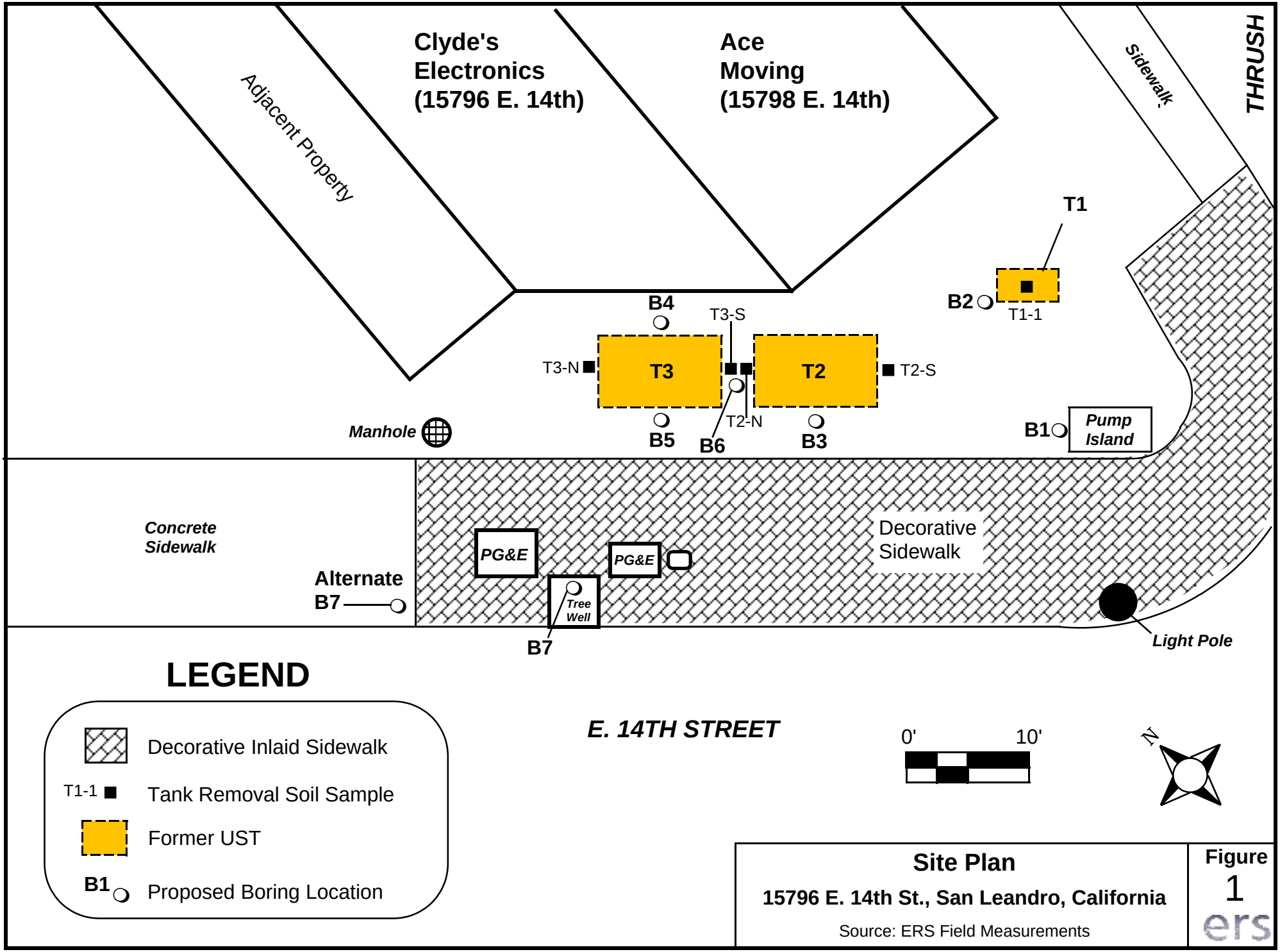
Samples will be collected in an accurate and consistent manner to eliminate variability associated with sample collection. Samples will be immediately sealed and placed in resealable plastic bags to eliminate potential contamination during transportation. Due to undue expense and questionable benefit, ERS proposes that no QA/QC duplicate soil samples, travel blanks, or equipment blanks be anlyzed. AccuTest employs extensive internal QA/QC procedures consistent with the respective laboratory method. To minimize laboratory variability, ERS will specifically request that any samples submitted for analysis be analyzed within a respective calibrated sample run.

4.0 HEALTH & SAFETY PLAN

The current site-specific Site Safety Plan (SSP), which encompasses the proposed work at the Site and complies with the requirements of 29 CFR Part 1910.120 will be prepared and present during field activities. All personnel involved with sample collection will be 40 hour trained according to requirements of 29 CFR Part 1910.120, will review and sign the SSP, and are presently in medical surveillance programs administered by their employer.

5.0 TECHNICAL REPORT OF FINDINGS

A technical report discussing field work, observations and findings, analytical results, conclusions, and recommendations will be prepared for submission to the ACEH. The technical report will present a revised Conceptual Site Model and specifically discuss the findings and conclusions of this subsurface investigation, and evaluate the findings in terms of currently accepted UST site closure criteria.



Site Plan

15796 E. 14th St., San Leandro, California

Source: ERS Field Measurements

Figure 1

ers

ERS Corporation