Environmental
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October 20, 1993

Ms. Juliet Shin
Hazardous Materials Specialist
Alameda County Health Agency
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

SUBJECT: **WORKPLAN FOR PRELIMINARY SITE ASSESSMENT,
AMERICAN RED CROSS
2017 CENTRAL AVENUE, ALAMEDA, CALIFORNIA
ESE PROJECT NO. 6-93-5143**

Dear Ms. Shin:

Environmental Science & Engineering, Inc. (ESE) presents on behalf of the American Red Cross (ARC), a workplan for a preliminary site assessment (PSA) for your review. The proposed work is being conducted in response to a request by Alameda County Health Agency, Department of Environmental Health (ACHA) dated May 4, 1993 for additional soil and ground water assessment following the removal of an underground heating oil tank at the subject site. Tasks associated with the work are described herein, and a proposed progress and reporting schedule is also presented.

BACKGROUND

The subject site is located in a residential area at 2017 Central Avenue in Alameda (Figure 1 - Vicinity Map). The site currently contains a large woodframe house and garage and is used as American Red Cross Headquarters for Alameda. A 250-gallon heating oil underground storage tank was removed from the site on December 22, 1992. The tank was noted to be in good condition at the time of removal, however, staining was noted in the soil in the area surrounding the fill pipes.

Soil samples were collected by ESE beneath the tank invert and vent piping, and from the floor and sidewalls of a subsequent overexcavation (Figure 2 - Partial Site Plan). The tank area was excavated vertically to ground water (found at a depth of 10.5 feet below ground surface (bgs)) and laterally to nonimpacted soil or the extent possible with an unshored excavation. Soil samples were collected from the excavation sidewalls. Only one sample contained detectable concentrations of Total Petroleum Hydrocarbons as diesel (TPH-d) in

excess of 100 parts per million (ppm) and was located at ARC-7-10.5 feet (below piping and next to the house). Sample ARC-8 from 10.5 feet bgs along the northern sidewall of the excavation contained 69 ppm TPH-d and 110 parts per billion (ppb) benzene (Figure 2).

Soil from the excavation was observed to be the fine grained Merrit Sand typically found in this area. Upon completion, the excavation was backfilled with clean imported soil. Approximately 108 cubic yards of impacted soil was hauled to BFI's Class III landfill on Vasco Road in Livermore.

A report dated March 23, 1993 was prepared by ESE and documented the tank removal and overexcavation activities, sampling, analytical results and soil disposal.

It is ESE's understanding that a PSA is required to identify the lateral extent of soil contamination and the severity of ground water contamination which may have resulted from a release at the site. It is also our understanding that the American Red Cross has negotiated a limited scope of work for this PSA based on logistical problems at the site. That scope of work is as follows:

SCOPE OF WORK

ESE proposes to drill two shallow soil borings at the approximate locations of ARC-7 and ARC-8 as shown on Figure 2. All drilling and analytical services described below will be conducted by appropriately licensed and certified contractors. In addition, all field work and reporting will be overseen by a California Registered Geologist.

Task 1: Secure Permits and Site Clearance
ESE will submit an application to Alameda County Zone 7 for permits to drill the proposed borings.

ESE will secure site clearance from buried utilities through Underground Service Alert (USA) prior to initiating field work. ESE will also review available plans for the site indicating the possible locations of other underground obstructions.

A site health and safety plan (HASP) will be prepared and reviewed by all onsite personnel. The plan will detail site safety and emergency procedures in accordance with OSHA regualtions.

Task 2: Conduct Field Investigation
After the appropriate permits and site clearance have been secured, ESE will drill the proposed borings at the approximate locations shown on Figure 2. ESE anticipates that ground water will be found at the site at an approximate depth of 10 feet bgs, therefore

each boring will be advanced to approximately 9 feet bgs to facilitate collection of ground water samples using a Hydropunch® tool.

Soil borings will be drilled in accordance with ESE Standard Operating Procedure (SOP) No. 1 for Soil Borings and Soil Sampling with Hollow-Stem Augers in Unconsolidated Formations (attached). Great Sierra Exploration of Novato, California will provide drilling services as a subcontractor to ESE. ESE will log each soil boring in accordance with the Unified Soil Classification System (USCS), and will collect soil samples for possible laboratory analysis at approximate five-foot intervals and from one foot above the ground water table. The anticipated soil collection intervals will be at 5 and 9.5 feet bgs. As described in SOP No. 1, samples and cuttings will be screened in the field for organic vapors using a photoionization detector (PID).

When ground water is found in each boring, ESE will collect a sample of ground water using Hydropunch® technique. Briefly, this approach involves drilling through the unsaturated zone using conventional drilling techniques (as described in SOP No. 1) to a depth approximating the occurrence of ground water. The Hydropunch® tool will then be driven through the center of the augers to a depth of 2-3 feet into the undisturbed saturated zone, and the tool's outer sheath will be retracted to expose a Teflon screen. Ground water will then be allowed to flow into the screen over a period of 15-20 minutes, at which time ESE will collect a ground water sample using a dedicated disposable bailer. Sample collection will be conducted in accordance with paragraph 3 of the attached ESE SOP No.3 for Ground Water Monitoring and Sampling from Monitoring Wells.

After collection of ground water samples, borings will be backfilled with a cement/bentonite grout and the asphalt surface will be patched. Backfilling of borings will be conducted in strict accordance with Tri-Regional Board Staff Recommendations. Soil cuttings, asphalt/grout debris, decontamination rinseate, and excess ground water will be contained onsite in appropriately labelled 55-gallon DOT-rated drums pending receipt of analytical results for soil and ground water. These materials will be recycled and/or disposed as appropriate, based on analytical results.

Analytical services will be provided by Curtis and Tompkins, Ltd. (C&T) of Berkeley, California. C&T is a State-certified analytical laboratory. One soil sample from each boring from the approximate 9.5 foot depth and one ground water sample from each location will be analyzed for TPH-d and BTEX using EPA Method 8015 modified and 8020, respectively. Additional soil samples may be analyzed if necessary. For quality control purposes, a trip blank will be analyzed for BTEX. All samples will be analyzed on a 10-day turnaround basis.

Task 3: Prepare Report

Approximately two weeks following receipt of analytical results for soil and ground water samples, ESE will submit a report of findings to ACHA. The report will present analytical results in tabular form, with a brief discussion of findings and recommendations for additional work, as appropriate. All supporting data (field logs, boring logs, laboratory reports, etc.) will be incorporated as appendices to the report. The report will also detail the means by which drummed soil cutting and water will be disposed.

PROGRESS AND REPORTING SCHEDULE

ESE will perform the scope of work presented above on the approximate schedule presented below:

Activity	Estimated Completion Date
1) Prepare/submit workplan for ACHA review	October 21, 1993
2) Secure permits/site clearance	November 4, 1993
3) Conduct field investigation	November 8, 1993
4) Submit report of findings	December 7, 1993

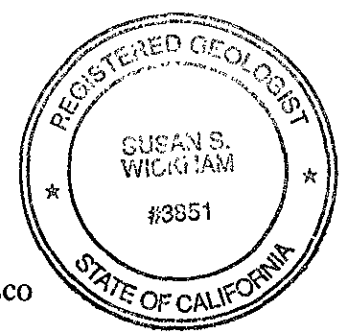
If you have any questions or comments regarding the workplan, please contact Sue Wickham of ESE at 510/685-4053 or John Watson of ARC at 415/ 202-0600.

Sincerely,

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

Susan S. Wickham

Susan S. Wickham, RG
Senior Geologist



Attachments: SOP#1, #3, Figures 1, 2.

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pc: Rich Hiett, RWQCB - San Francisco

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
CONCORD, CALIFORNIA OFFICE

STANDARD OPERATING PROCEDURE NO. 1
FOR SOIL BORINGS AND SOIL SAMPLING WITH HOLLOW-STEM AUGERS IN UNCONSOLIDATED FORMATIONS

Environmental Science & Engineering, Inc. (ESE) typically drills soil borings using a truck-mounted, continuous-flight, hollow-stem auger drill rig. The drill rig is owned and operated by a drilling company possessing a valid State of California C-57 license. The soil borings are conducted under the direct supervision and guidance of an experienced ESE geologist. The ESE geologist logs each borehole during drilling in accordance with the Unified Soil Classification System (USCS). Additionally, the ESE geologist observes and notes the soil color, relative density or stiffness, moisture content, odor (if obvious) and organic content (if present). The ESE geologist will record all observations on geologic boring logs.

Soil samples are collected during drilling at a minimum of five-foot intervals by driving an 18-inch long Modified California Split-spoon sampler (sampler), lined with new, thin-wall brass sleeves, through the center of and ahead of the hollow stem augers, thus collecting a relatively undisturbed soil sample core. The brass sleeves are typically 2-inches in diameter and 6-inches in length. The sampler is driven by dropping a 140-pound hammer 30-inches onto rods attached to the top of the sampler. Soil sample depth intervals and the number of hammer blows required to advance the sampler each six-inch interval are recorded by the ESE geologist on geologic boring logs. The ends of one brass sleeve are covered with Teflon sheeting, then covered with plastic end caps. The end caps are sealed to the brass sleeve using duct tape. Each sample is then labeled and placed on ice in a cooler for transport under chain of custody documentation to the designated analytical laboratory. A portion of the remaining soil in the sampler is placed in either a new Ziploc® bag or a clean Mason Jar® and set in direct sunlight to enhance the volatilization of any Volatile Organic Compounds (VOCs) present in the soil. After approximately 15-minutes that sample is screened for VOCs using a photoionization detector (PID). The PID measurements will be noted on the geologic boring logs. The PID provides qualitative data for use in selecting samples for laboratory analysis. Soil samples from the saturated zone (beneath the ground-water table) are collected as described above, are not screened with the PID, and are not submitted to the analytical laboratory. The samples from the saturated zone are used for descriptive purposes. Soil samples from the saturated zone may be retained as described above for physical analyses (grain size, permeability and porosity testing).

If the soil boring is not going to be completed as a well, then the boring is typically terminated upon penetrating the saturated soil horizon or until a predetermined interval of soil containing no evidence of contamination is penetrated. This predetermined interval is typically based upon site specific regulatory or client guidelines. The boring is then backfilled using either neat cement, neat cement and bentonite powder mixture (not exceeding 5% bentonite), bentonite pellets, or a sand and cement mixture (not exceeding a 2:1 ratio of sand to cement). However, if the boring is to be completed as a monitoring well, then the boring is continued until either a competent, low estimated-permeability, lower confining soil layer is found or 10 to 15-feet of the saturated soil horizon is penetrated, whichever occurs first. If a low estimated-permeability soil layer is found, the soil boring will be advanced approximately five-feet into that layer to evaluate its competence as a lower confining layer, prior to the termination of that boring.

All soil sampling equipment is cleaned between each sample collection event using an Alconox® detergent and tap water solution followed by a tap water rinse. Additionally, all drilling equipment and soil sampling equipment is cleaned between borings, using a high pressure steam cleaner, to prevent cross-contamination. All wash and rinse water is collected and contained onsite in Department of Transportation approved containers (typically 55-gallon drums) pending laboratory analysis and proper disposal/recycling.

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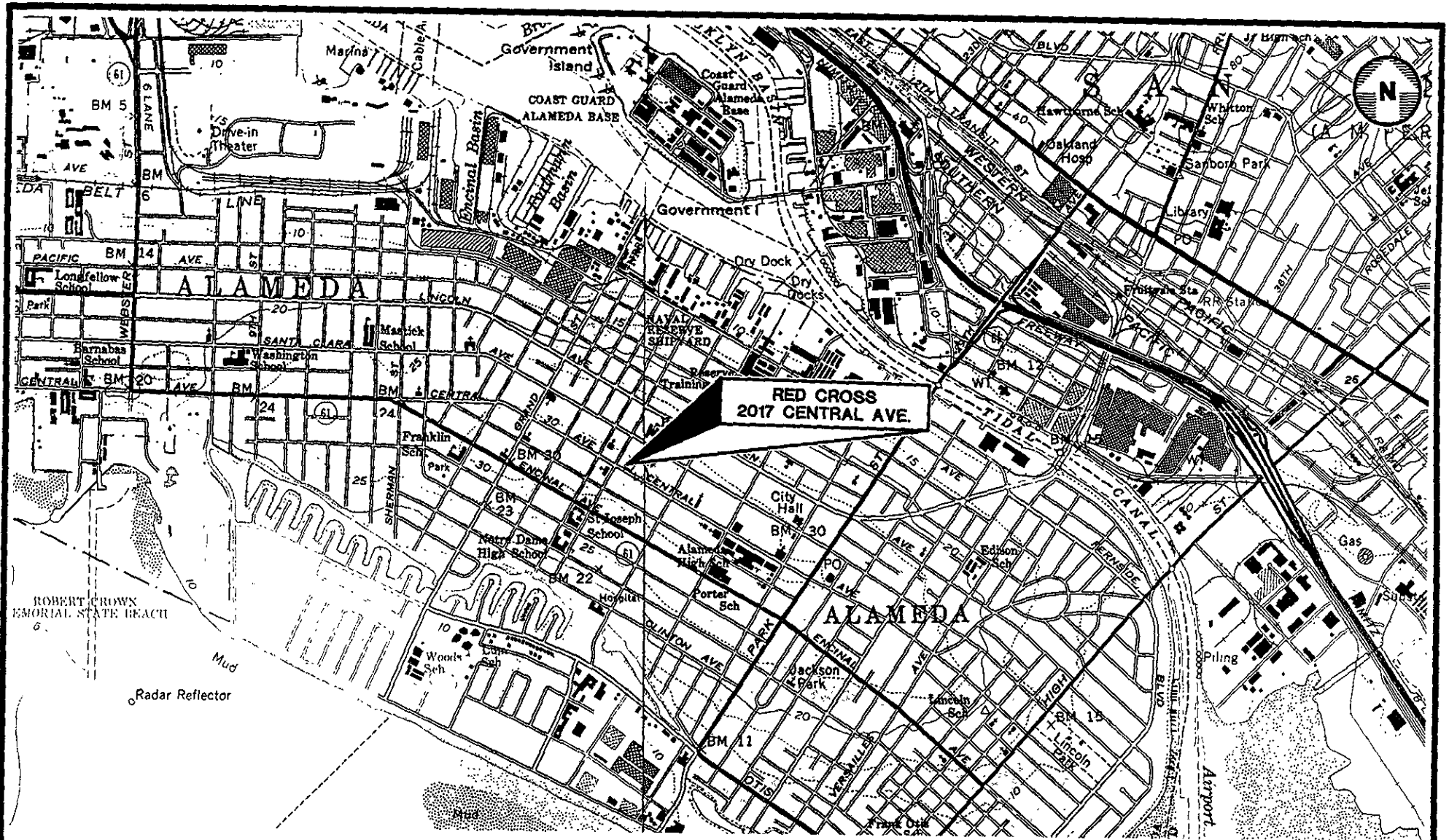
STANDARD OPERATING PROCEDURE NO. 3
FOR GROUND-WATER MONITORING AND SAMPLING FROM MONITORING WELLS

Environmental Science & Engineering, Inc. (ESE) typically performs ground-water monitoring at project sites on a quarterly basis. As part of the monitoring program an ESE staff member will first gauge the depth to water and free product (if present) in each well, then collect ground-water samples from each well. Depth to water measurements are taken by lowering an electric fiberglass tape measure into the well and recording the occurrence of water in feet below a fixed datum set on the top of the well-casing. If free-phase liquid hydrocarbons (free product) are known or suspected to be present in the well, then an electric oil/water interface probe is used to determine the depth to the occurrence of ground-water and the free product in feet below the fixed datum on the top of the well-casing. Depth to water and depth to product measurements are measured and recorded within an accuracy of 0.005-foot. The electric tape and the electric oil/water interface probe are washed with an Alconox® detergent and tap water solution then rinsed with tap water between uses in different wells.

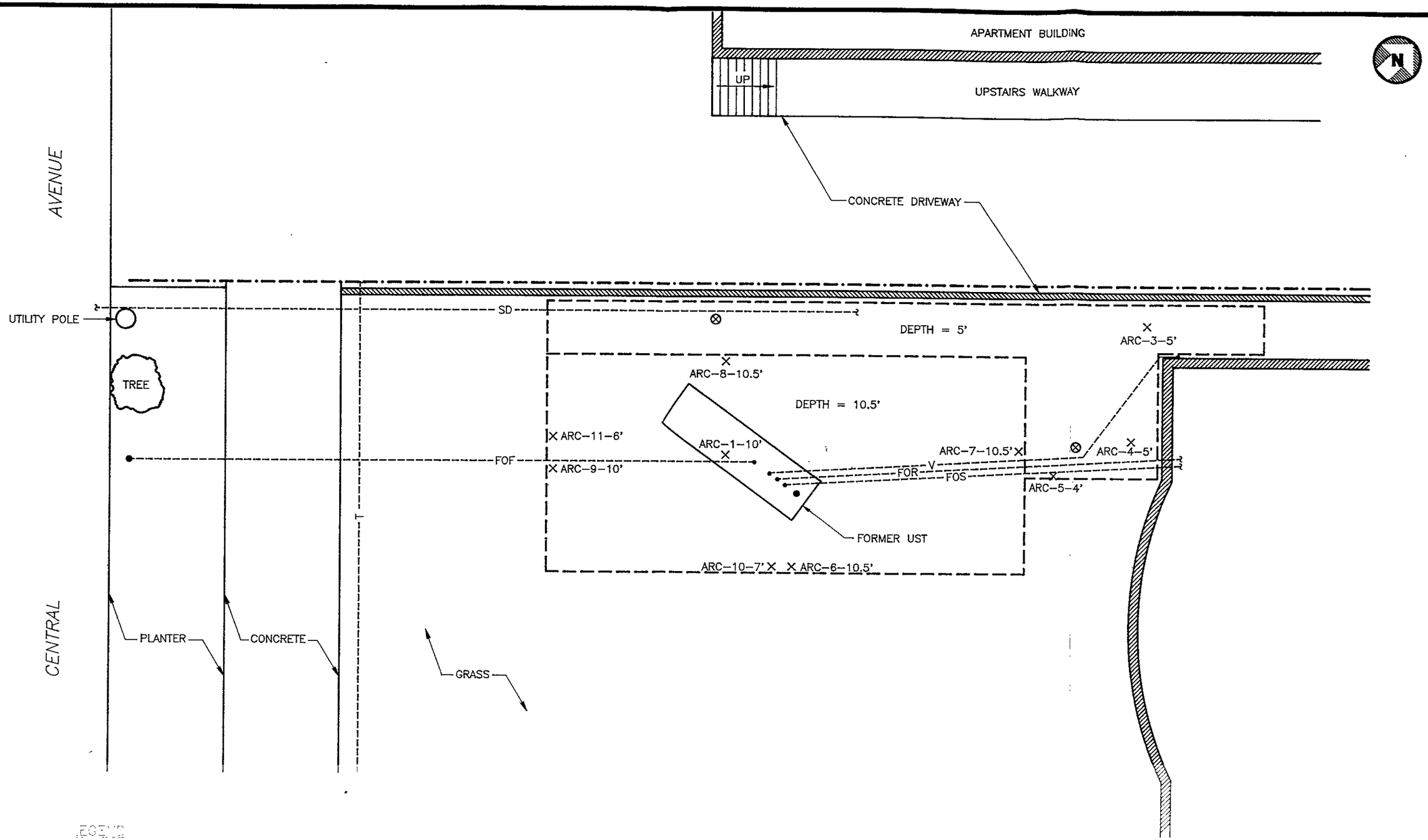
Ground-water samples are collected from a well subsequent to purging a minimum of three to four well-casing volumes of ground water from the well, if the well bails dry prior to the removal of the required minimum volume, then the samples are collected upon the recovery of the ground water in that well to 80% of its initial static level. Ground water is typically purged from monitoring wells using either a hand-operated positive displacement pump, constructed of polyvinylchloride (PVC); a new (precleaned), disposable polyethylene bailer; or, a variable-flow submersible pump, constructed of stainless steel and Teflon®. The hand pumps and the submersible pumps are cleaned between each use with an Alconox® detergent and tap water solution followed by a tap water rinse. During the well purging process the conductivity, pH and temperature of the ground water are monitored by the ESE staff member. Ground-water samples are collected from the well subsequent to the stabilization of the of the conductivity, pH and temperature of the purge water, and the removal of four well-casing volumes of ground-water (unless the well bails dry). The parameters are deemed to have stabilized when two consecutive measurements are within 10% of each other, for each respective parameter. The temperature, pH, conductivity and purge volume measurements, and observations of water clarity and sediment content will be documented by the ESE staff member on ESE Ground-Water Sampling Data Forms.

Ground-water samples are collected by lowering a new (precleaned), disposable polyethylene bailer into the well using new, disposable nylon cord. The filled bailer is retrieved, emptied, then filled again. The ground water from this bailer is decanted into appropriate laboratory supplied glassware and/or plastic containers (if sample preservatives are required, they are added to the empty containers at the laboratory prior to the sampling event). The containers are filled carefully so that no headspace is present to avoid volatilization of the sample. The filled sample containers are then labeled and placed in a cooler with ice for transport under chain of custody documentation to the designated analytical laboratory. The ESE staff member will document the time and method of sample collection, and the type of sample containers and preservatives (if any) used. These facts will appear on the ESE Ground-Water Sampling Data Forms. ESE will collect a duplicate ground-water sample from one well for every ten wells sampled at each site. The duplicate will be a blind sample (its well designation will be unknown to the laboratory). The duplicate sample is for Quality Assurance and Quality Control (QA/QC) purposes, and provides a check on ESE sampling procedures and laboratory sample handling procedures. When VOCs are included in the laboratory analyses, ESE will include a trip blank, if required, in the cooler with the ground-water samples for analysis for the identical VOCs. The trip blank is supplied by the laboratory and consists of deionized water. The trip blank is for QA/QC purposes and provides a check on both ESE and laboratory sample handling and storage procedures. Since disposable bailers are used for sample collection, and are not reused, no equipment blank (rinsate) samples are collected.



ADAPTED FROM U.S.G.S. OAKLAND EAST AND OAKLAND WEST, CALIFORNIA, 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAPS, 1959, PHOTOREVISED 1980.

ESE A CILCORP Company — Environmental Science & Engineering, Inc.	DATE 10/93	VICINITY MAP	FIGURE NO. 1
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	REVISED	RED CROSS 2017 CENTRAL AVENUE ALAMEDA, CALIFORNIA	PROJ. NO. 6-93-5143
	CAD FILE 51431002		



ESE Environmental Science & Engineering, Inc. (A CILCORP Company)	DATE 10/93	PARTIAL SITE PLAN	FIGURE NO 2
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	REVISED	RED CROSS 2017 CENTRAL AVENUE ALAMEDA, CALIFORNIA	PROJ NO 6-93-5143
	CAD FILE 51431001		