Weiss Associates Environmental and Geologic Services

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July 19, 1996

STID 4017

ENVIRONMENTAL PROTECTION
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Dale Klettke
Hazardous Materials Specialist
Alameda County Environmental Health Services
Local Oversight Program
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Re: **Preliminary Site Assessment Work Plan**
Shell Service Station
WIC #204-5508-5702
610 Market Street
Oakland, California
WA Job #81-1103-04

Dear Mr. Klettke:

On behalf of Shell Oil Products Company (Shell), Weiss Associates (WA) submits this work plan to perform a preliminary site assessment at the above referenced service station (Figure 1). The purpose of this investigation is to assess if petroleum hydrocarbons detected during dispenser replacement activities in August 1995, have impacted ground water beneath the site and to comply with your request for an additional investigation as stated in your June 18, 1996 letter to Shell.

Based on the August 1995 soil sampling and over-excavation activities, and the inferred ground water flow direction, WA proposes three HydroPunch borings (HP-1, HP-2, and HP-3) at the locations shown on Figure 2. HP-1 and HP-2 have been located to characterize soil and ground water conditions in the inferred downgradient direction of the dispensers, as outlined in your June 18, 1996 letter to Shell. HP-3 will establish background soil and ground water conditions upgradient of the dispensers. The proposed scope of work is discussed below.

Proposed Scope Of Work

In order to assess if petroleum hydrocarbons have impacted ground water beneath the site, WA proposes the following scope of work:

Permitting: Boring permits will be obtained from the Alameda County Water District, Zone 7 (Zone 7) for the on-site borings. No permits are required by the Alameda County

Department of Environmental Health Services. There is no charge for the Zone 7 permits, however this task includes costs for labor to obtain the permits.

Soil Boring and Ground Water Sampling: WA will drill the soil borings at the locations shown on Figure 2. We anticipate that water is approximately 10 feet below ground surface and the borings will be drilled at least 3 feet into the water table, for a total depth of approximately 13 feet. Soil samples at 2.5 feet, 5.0 feet, and 10.0 feet below ground surface and one ground water sample will be collected from each hydropunch boring. WA's standard field procedures are included as Attachment A.

Soil and Ground Water Analysis: Selected soil and ground water samples will be sent to a state certified laboratory to be analyzed for total petroleum hydrocarbons as gasoline (TPH-g) by modified EPA Method 8015, benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl tertiary-butyl ether (MTBE) by modified EPA Method 8020. Additionally one soil sample will be analyzed for selected geophysical properties: bulk density, moisture content, grain size distribution, pH, and fraction organic carbon.

Report Results: WA will prepare a report documenting field activities and presenting the analytical results of the subsurface investigation. The report will include the following: a description of subsurface geology, the depth to ground water, and other pertinent information obtained through the investigation process. Based on the results of the investigation ,WA will evaluate the presence of hydrocarbons in the subsurface materials and whether additional investigation may be required.

WA will proceed once we receive your written approval of this work plan. Please call if you have any questions or comments.

Sincerely,
Weiss Associates

Chuck Headlee
Staff Geologist

James W. Carmody, C.H.G.
Senior Project Hydrogeologist

Encl: Figures
Attachment A - Standard Field Procedures

cc: R. Jeff Granberry, Shell Oil Products Company, P.O. Box 4023, Concord, California, 94524

CH/JWC:all

ATTACHMENT A

STANDARD FIELD PROCEDURES

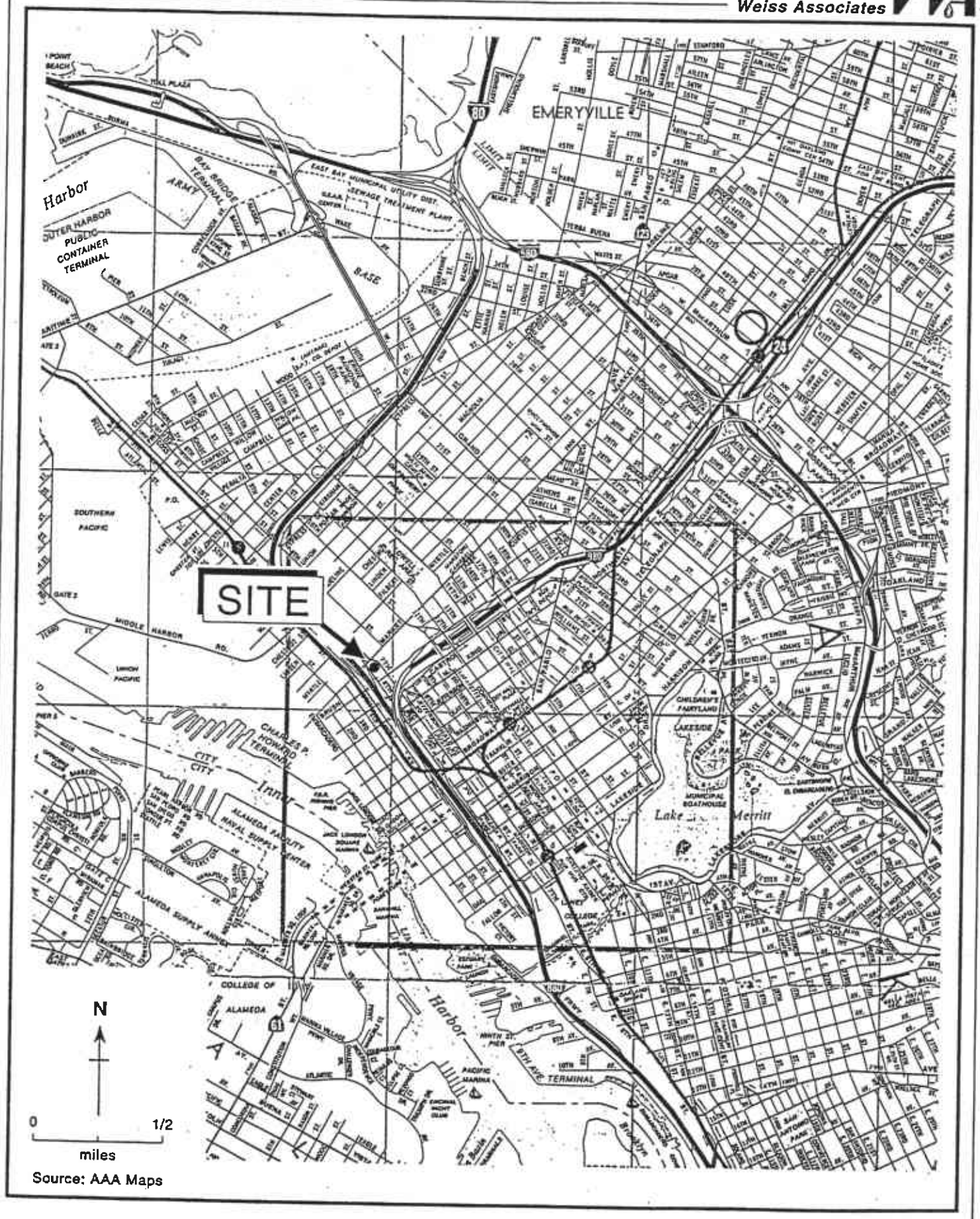

Figure 1. Site Location Map - Shell Service Station WIC# 204-5508-5702 - 610 Market Street, Oakland, California

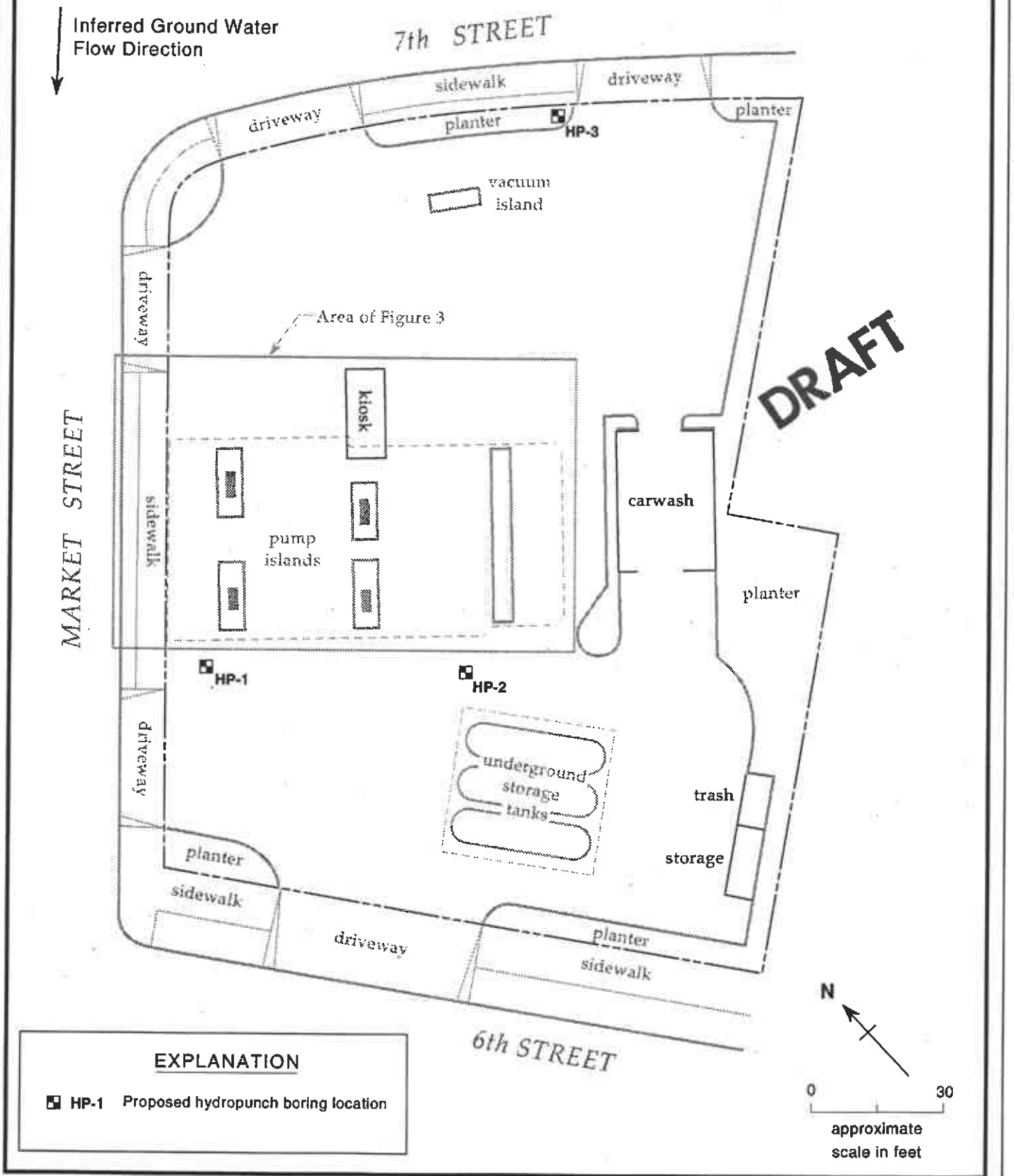

Figure 2. Proposed Hydropunch Boring Locations - Shell Service Station WIC# 204-5508-5702, 610 Market Street, Oakland, California

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ATTACHMENT A

STANDARD FIELD PROCEDURES

STANDARD FIELD PROCEDURES

WA has developed standard procedures for drilling and sampling soil borings and installing, developing and sampling ground water monitoring wells. These procedures comply with Federal, State and local regulatory guidelines. Specific procedures are summarized below.

Soil Boring and Sampling

Objectives/Supervision

Soil sampling objectives include characterizing subsurface lithology, assessing whether the soils exhibit obvious hydrocarbon or other compound vapor or staining, and collecting samples for analysis at a State-certified laboratory. All borings are logged using the Unified Soil Classification System by a trained geologist working under the supervision of a California Registered Geologist (RG) or a Certified Engineering Geologist (CEG).

Soil Boring and Sampling

Deep soil borings or borings for well installation are typically drilled using hollow-stem augers. Split-barrel samplers lined with steam-cleaned brass or stainless steel tubes are driven through the hollow auger stem into undisturbed sediments at the bottom of the borehole using a 140 pound hammer dropped 30 inches. Soil samples can also be collected without using hollow-stem augers by progressively driving split-barrel soil samplers to depths of up to 30 ft.

Soil samples are collected at least every five ft to characterize the subsurface sediments and for possible chemical analysis. Near the water table and at lithologic changes, the sampling interval may be less than five ft.

Drilling and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Analysis

After noting the lithology at each end of the sampling tubes, the tube chosen for analysis is immediately trimmed of excess soil and capped with Teflon tape and plastic end caps. The sample is labeled, stored in crushed ice at or below 4°C, and transported under chain-of-custody to a State-certified analytic laboratory.

Screening

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable photoionization detector (PID) measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. PID measurements are used along with the stratigraphy and ground water depth to select soil samples for analysis.

Grouting

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe. If wells are completed in the borings, the well installation, development and sampling procedures summarized below are followed.