

**ANDERSON
CONSULTING
GROUP**

ALCO
HAZMAT

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16 May 1994

*Geotechnical and
Environmental
Engineering
Solid Waste
Management*

Alameda County Health Agency
Department of Environmental Health
80 Swan Way, Room 350
Oakland, CA 94621

Attention: Juliet Shin

Subject: Beck Roofing Company, Inc.
21123 Meekland Avenue
Hayward, CA 94541
**WORKPLAN FOR SUPPLEMENTAL
SUBSURFACE INVESTIGATION**

Dear Ms. Shin:

Following is our proposed scope of work to further delineate the extent of petroleum contaminated soil at the above referenced property.

As you are aware, a 1,000 gallon gasoline tank was removed from the property in May 1990. Contaminated soil adjacent to and beneath the tank was also excavated to a depth of 17 feet and stockpiled onsite. Subsequently, three monitoring wells were installed, and several exploratory borings were advanced to define the extent of contamination.

Results of that work determined that the soil contamination is fairly extensive and the groundwater has been impacted. However, the extent of the soil and groundwater contamination have not yet been adequately defined. Consequently, we feel further characterization of soil and groundwater contamination is necessary to evaluate remedial alternatives. Specifically, areas that have not yet been adequately defined include:

- Vadose soil beneath the tank excavation - Contaminated soil, proximal to the underground tank was excavated to a depth of 17 feet. Apparently, no effort has been directed at characterizing soil contamination from 17 feet to groundwater at approximately 30 feet below the surface.
- Downgradient zero line of groundwater contamination. Based on groundwater elevation measurements, and laboratory analysis of groundwater samples collected from the 3 onsite monitoring wells, it appears local groundwater flow (and hydrocarbon migration) is southwesterly. Groundwater contaminant concentrations measured in MW3, southwest of the tank excavation have consistently been well above applicable Maximum Contaminant Levels (MCLs) established by the State Department of Toxic Substances Control (DTSC).

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- Zero line of soil contamination. Soil sample analysis, performed while drilling MW2 and MW3, essentially established limits of the soil contamination to the northeast and southeast. The limit of soil contamination to the northwest and southwest of the tank excavation have not been established.

1.0 OBJECTIVE OF INVESTIGATION

The purpose of this additional investigation is to accomplish the following objectives.

1. Establish the zero line of the groundwater contamination plume on the southwest side of the property or determine if groundwater contamination has extended beyond the southwest property line.
2. Attempt to delineate the zero line of the soil contamination on the southwest and northwest sides of the tank excavation. The existing building may impede investigation northwest of the tank excavation.
3. Characterize contaminant concentrations in vadose soil directly underneath the tank excavation (from 17 to 30 feet below the surface).
4. Analyze and recommend appropriate remedial measures and possibly continued groundwater monitoring.

2.0 METHODOLOGY

To accomplish the above stated objectives we propose to advance 5 to 6 additional exploratory borings to a depth of approximately 30 feet. One of the borings will be drilled to a depth of approximately 40 feet and converted to a two-inch diameter monitoring well. The enclosed site plan depicts the proposed borings and well locations. If petroleum contaminants are not detected in soil and groundwater samples collected in SB-18, the new well (MW4) may be constructed at this location.

2.1 Soil Borings/Temporary Wells (Hydropunch)

All of the soil borings will be performed by Turner Exploration, from Rancho Cordova, California (C-57 License No. 602720). A truck mounted Mobile B-53 drill rig will be utilized to advance eight-inch hollow stem augers to a depth immediately above groundwater. Soil samples will be collected at maximum 5 feet vertical intervals with a split-spoon sampler driven through the hollow stem auger.

Soil samples will be retrieved from the sampler in their brass liners, covered with teflon tape, capped, sealed with duct tape, and immediately placed in a precooled ice chest.

To prevent cross contamination, all sampling equipment will be cleaned between samples with a dilute water and trisodium phosphate solution and rinsed with distilled water. In addition augers will be steam cleaned between borings.

A teflon coated temporary well screen (hydropunch) will be driven into the water bearing zone from the bottom of select soil borings to facilitate collection of discreet groundwater samples from those borings. Water samples will be collected with a stainless steel bailer and transferred to sterile 40-milliliter containers sealed with TFE lined septae and screw caps. The groundwater samples will also be placed immediately in a precooled ice chest.

All soil cuttings generated while drilling will be disposed of in the onsite soil stockpile remaining from the tank excavation stored on site. All of the borings will be backfilled with neat cement grout.

2.2 Monitoring Well Installation

The monitoring well will also be constructed by Turner Exploration. The two inch diameter pvc well casing will be installed through the hollow stem auger, and the auger will be progressively retrieved as the sand pack is set. The annulus will be sealed with a neat cement grout and finished with a flush mount, traffic rated enclosure, set in concrete. After completion a level survey will be performed of the new well, and the existing three wells to determine local groundwater flow characteristics

2.2.1 Well development and Sampling

On the day following completion of the well, it will be developed by alternating bailing and surging until turbidity diminishes appreciably. Purge water will be contained in sealed and labeled 55-gallon drums and stored onsite. Disposition of the purge water will be determined when results from groundwater analyses are available.

Regular quarterly sampling of all of the wells will resume as soon as the above field investigation and construction of the new well (MW4) are complete. Prior to sampling, 3-4 well volumes will be purged from each well. Samples will be collected with a new disposable teflon bailer when field measurements indicate pH, conductivity, and temperature have stabilized. The samples will be transferred to appropriate sterilized and preserved containers. Those intended for volatile organics analysis will be transferred with a nozzle designed to reduce aeration of the sample. All samples will be placed immediately in a precooled ice chest and kept refrigerated until they are delivered to the laboratory.

The samples will be submitted to a State Certified Laboratory where they will be analyzed for:

- Total Petroleum Hydrocarbons, as gasoline (modified EPA Method 8015)
- Volatile Organics (EPA Method 602)

- Total Lead (EPA Method 7420)

2.3 Laboratory Analysis

Soil and water samples will be submitted to a California Certified Laboratory and analyzed for Total Petroleum Hydrocarbons, as gasoline (EPA Method 8015 modified), and Volatile Hydrocarbons (EPA Method 8020/602). We anticipate utilizing an onsite mobile laboratory during the field work. This provides analytic data while the work is in progress that may warrant modification to the proposed boring locations.

3.0 **PREPARATION OF PROBLEM ASSESSMENT REPORT (PAR)**

When the field and laboratory work are complete, we will issue a written report describing our methods and summarizing the analytic data. The report will define the extent of contamination and propose remedial measures.

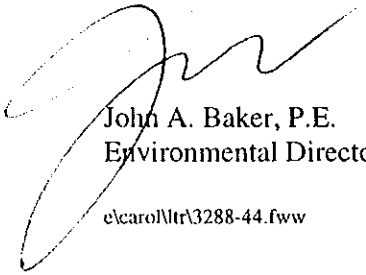
If you have any questions regarding this workplan, please do not hesitate to call.

Sincerely,

ANDERSON CONSULTING GROUP



F. William Welter
Project Engineer



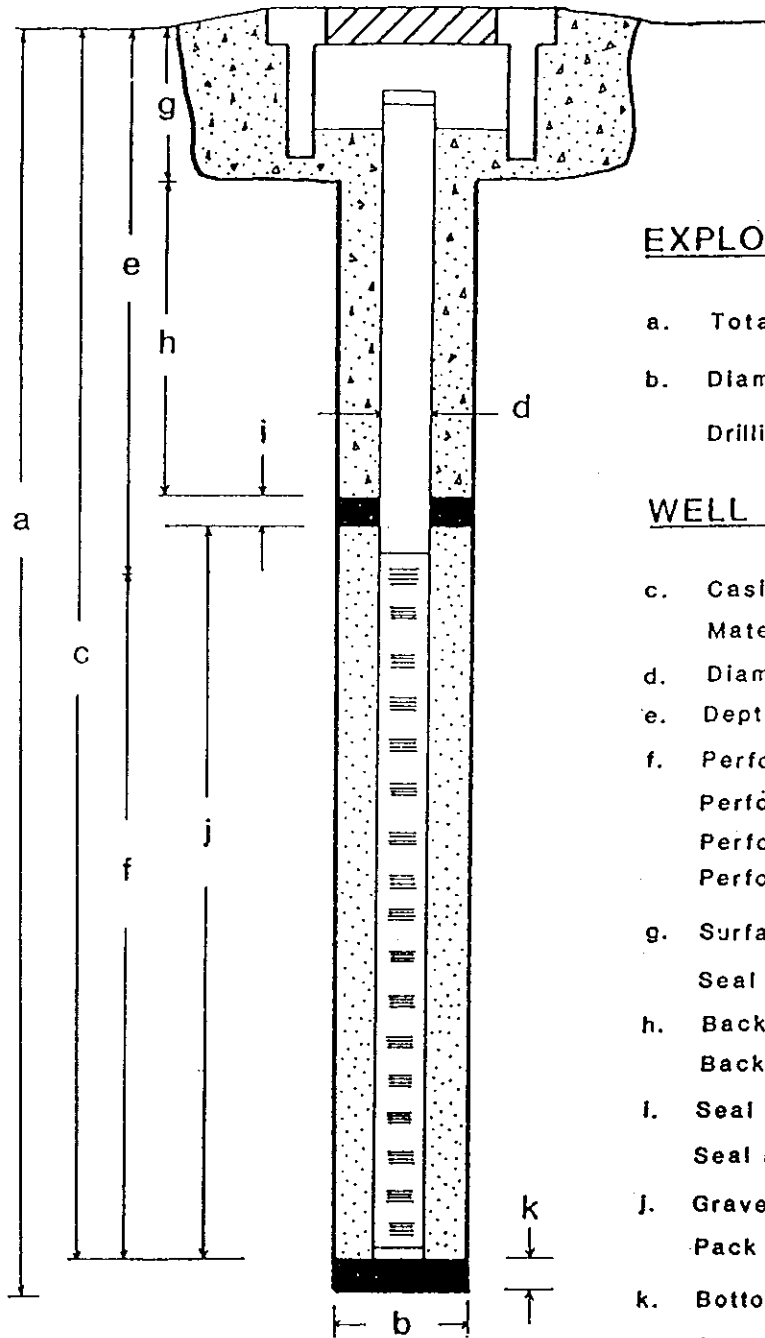
John A. Baker, P.E.
Environmental Director

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Schematic of Monitoring Well

Not to Scale



EXPLORATORY BORING

- a. Total depth 40 ft.
 b. Diameter 8 in.
 Drilling method Hollow Stem Auger

WELL CONSTRUCTION

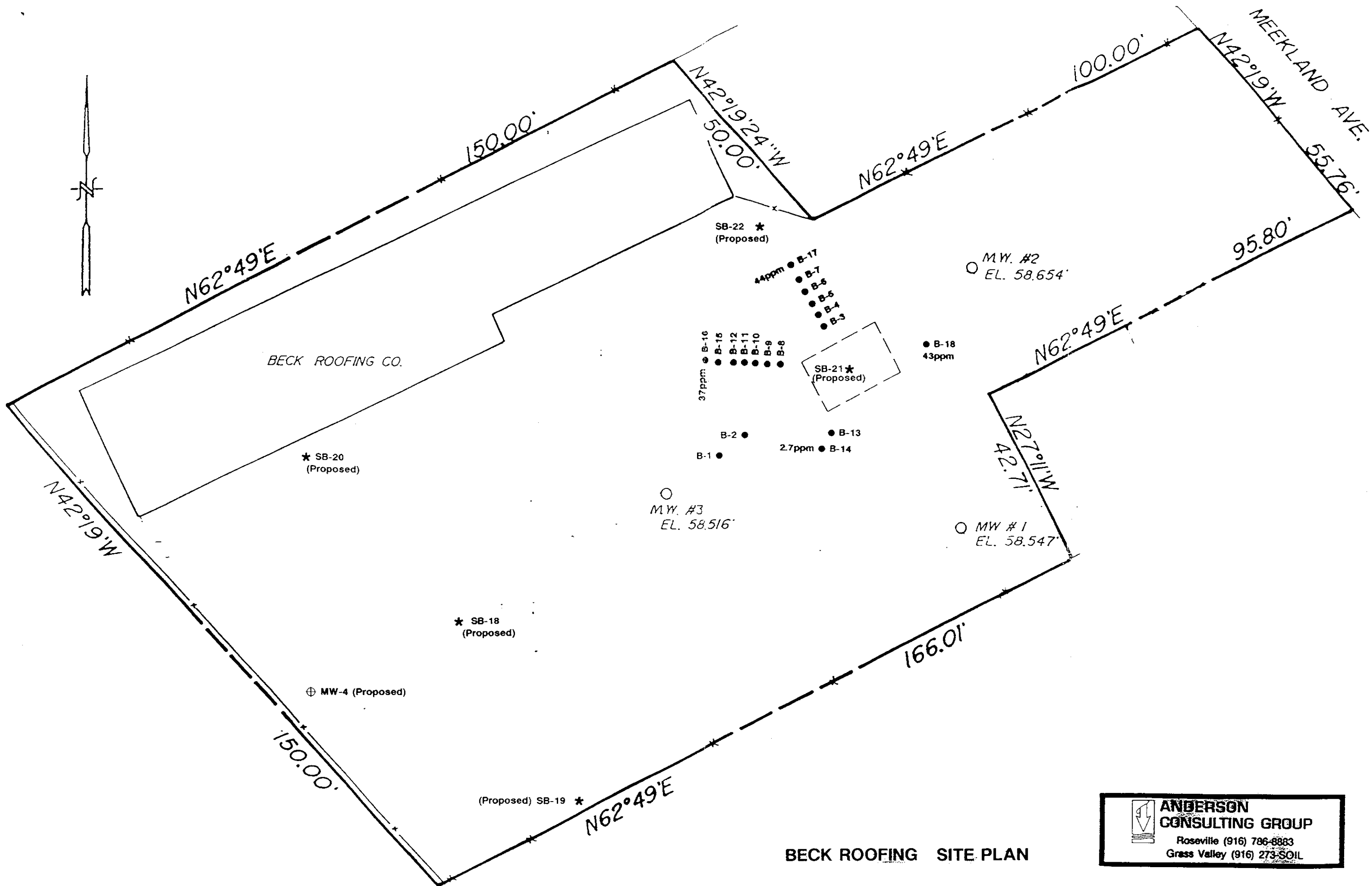
- c. Casing length 40 ft.
 Material Schedule 40 PVC
 d. Diameter 2 in.
 e. Depth to top perforations 30.0 ft.
 f. Perforated length 10 ft.
 Perforated interval from 30 to 40 ft.
 Perforation type Factory Slot
 Perforation size .02-inch
 g. Surface seal (0 to 2.0 ft.) 2.0 ft.
 Seal material Neat Cement Grout
 h. Backfill (2.0 to 27 ft.) 25.0 ft.
 Backfill material Neat Cement Grout
 i. Seal (27 to 29 ft.) 2.0 ft.
 Seal material Bentonite
 j. Gravel pack (29 to 40 ft.) 11.0 ft.
 Pack material 030 Sand
 k. Bottom seal _____ ft.
 Seal material PVC End Cap

FILE NO. 3288-44
 PROJECT Beck Roofing
 WELL NO. MW4
 DATE COMPLETED _____



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