James P. Bowers, PE
R. William Rudolph, Jr., PE

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LETTER OF TRANSMITTAL

TO:

Ms. Juliet Shin
Alameda County Health Care Services Agency
Hazardous Materials Division
80 Swan Way, Room #200
Oakland, California 94621

DATE: July 24, 1992
PROJECT 2204 Mariner Square Drive/2900 Main Street, Alameda
SCI JOB NUMBER: 554.006

WE ARE SENDING YOU:

- ☐ _____copies of our final report
- ☐ a draft of our report
- ☐ a Service Agreement
- ☐ a proposed scope of services
- ☐ specifications
- ☐ grading/foundation plans
- ☐ soil samples/groundwater samples
- ☐ an executed contract
- ☐ _____

- ☐ if you have any questions, please call
- ☐ for your review and comment
- ☐ please return an executed copy
- ☐ for geotechnical services
- ☐ with our comments
- ☐ with Chain of Custody documents
- ☐ for your use
- ☐ _____
- ☐ _____

REMARKS:

Enclosed is a Work Plan for 2204 Mariner Square Drive and the requested Site Plan and well details for 2900 Main Street. We have charged our analytical plan to include testing for total lead at 2900 Main Street, as requested.

COPIES TO:

BY: Sean O Carson

Sean O. Carson

■ Subsurface Consultants, Inc.

171 12th Street • Suite 201 • Oakland, California 94607 • Telephone 510-268-0461 • FAX 510-268-0137

James P. Bowers, PE
R. William Rudolph, Jr., PE

July 24, 1992
SCI 554.006

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

Work Plan
Preliminary Groundwater Assessment
Mariner Warehouse Site
2204 Mariner Square Drive
Alameda, California 94501

Dear Ms. Shin:

The following is a work plan for a preliminary groundwater assessment of confirmed hydrocarbon releases (USTs) at the referenced site. This work plan is in response to a letter by the Alameda County Health Care Services Agency (ACHCSA) dated June 10, 1992 requesting an investigation of the releases.

In November 1988, one 10,000-gallon gasoline and two 10,000-gallon diesel under ground storage tanks were removed from the site. The tanks were located as shown on the attached Site Plan (Plate 1). A subsequent environmental assessment of the property was conducted by SCI, the results of which are presented in a report dated May 23, 1989.

The environmental assessment identified several areas of containing oil and grease, diesel and kerosene contamination. The sources of contamination were an undercoating booth, a car wash conveyor trench, the underground diesel/kerosine storage tanks, and hydraulic hoists inside the service building (see Plate 1).

Approximately 9100 cubic yards of diesel, and oil and grease contaminated soil were subsequently excavated and bioremediated. The Regional Water Quality Control Board approved the reuse of soil which had less than 100 parts per million (ppm) oil and grease. Approximately 9050 cubic yards of remediated soil was used to backfill the excavations. Fifty cubic yards were above the

allowable limit and are currently stockpiled and undergoing bio-treatment. The soil was recently, sampled and analyzed. The test results will be presented in a letter when the fate of the soil is determined. Our Closure Report dated March 2, 1990 summarized all remedial activities conducted at the site for that phase of work.

This work plan outlines a groundwater assessment to preliminarily evaluate the impacts of the petroleum hydrocarbon releases on groundwater at the site. The assessment will consist of the following tasks:

1. Drill borings and install 5 groundwater monitoring wells,
2. Develop, sample and survey wells,
3. Analyze soil and groundwater samples, and
4. Prepare an assessment report.

These tasks are described below.

Task 1 - Drill Borings and Install Groundwater Monitoring Wells

A. Drilling and Sampling

Groundwater conditions will be evaluated by drilling five (5) test borings in the areas shown on the Site Plan. The borings will be advanced to a depth of about 10 to 15 feet with a truck-mounted drill rig, equipped with hollow-stem augers.

Our field engineer/geologist will observe drilling operations and prepare logs of the conditions encountered. Soil samples will be obtained at 5-foot intervals or at significant lithologic changes using a California Drive sampler. Soil from each sampling interval will be field tested for organic vapor content using a photoionization detector (PID). Drilling and sampling equipment will be steam-cleaned prior to each use.

The five boreholes will be completed as groundwater monitoring wells as described below. Soil cuttings generated during drilling will be encapsulated in polyethylene sheeting for later disposal.

Soil samples for environmental testing will be retained in 2-inch diameter brass liners. Teflon sheeting will be placed over the liner ends prior to capping and sealing them with duct tape. The samples will be refrigerated on-site in an ice-filled cooler.

B. Monitoring Well Construction

Groundwater monitoring wells will be installed in the five boreholes. Well permits will be obtained from the Alameda County Flood Control and Water Conservation District and prior to installing the wells.

In general, the wells will consist of 2-inch-diameter Schedule 40 PVC well casing. The lower 5 to 10 feet of each well will consist of slotted well screen. The upper portion will consist of blank casing. The wellheads will be set below grade in utility boxes. The casing sections will be connected with threaded flush joints; no PVC cement will be used. The annular space around the slotted portion of the wells will be backfilled with No. 3 washed sand. A one-foot-thick bentonite seal will be placed above the sand pack. The upper portion of the annular space will be backfilled with a cement grout. The wellheads will be provided with locking caps.

Task 2 - Develop, Sample and Survey Wells

The wells will be developed by removing water until the water is relatively clear. Well development water will be stored on-site in 55-gallon drums. Appropriate disposal methods will be evaluated after the analytical test results are received. If the water does not contain contaminates at concentrations above detection limits, the water will be put into the sanitary sewer system. However, if the water is contaminated, facilities appropriately permitted to handle the material will be contacted and disposal will be arranged. SCI will observe the material being removed.

Once the wells recover to within 80% of their initial volume, they will be sampled. Water samples will be retained in containers pre-cleaned by the supplier according to EPA protocol. Water samples will remain under refrigeration until delivery to the analytical laboratory. The samples will be analyzed for TEH as diesel and BTEX. Sample handling will be recorded using Chain-of-Custody documents. All well development and sampling equipment will be steam-cleaned prior to each use.

After well installation, a level survey of the tops of the casings will be performed using an assumed elevation datum. Periodically the groundwater elevation in the wells will be measured and based on the data, the gradient of groundwater flow at the site will be determined.

Task 3 - Analyze Soil and Groundwater Samples

Selected soil and ground water samples will be submitted to a State of California Department of Health Services analytical laboratory for testing. Sample handling will be recorded using Chain-of-Custody documents. The number of analytical tests performed will depend upon the results of the field OVM readings. We judge that 1 sample from each boring will be analytically tested. The testing program will include:

1. Total extractable hydrocarbons (TEH, as diesel), sample preparation and analysis using EPA Methods 3550 (purge and trap) and 8015 (gas chromatograph coupled to a flame ionization detector), and

2. Benzene, toluene, ethylbenzene, xylene (BTEX), sample preparation and analysis using EPA Methods 5030 (purge and trap) and 8020/602 (gas chromatograph coupled to a photo ionization detector).

3. Total volatile hydrocarbon (TVH, as gasoline), sample preparation and analysis using EPA methods 5030 and 8013.

4. Oil and Grease (O&G), sample preparation and analysis using methods SMWW 17:5520 B+F

Task 4 - Prepare an Assessment Report

Based on the results of the assessment, we will develop conclusions and recommendations regarding:

1. Soil and groundwater conditions;

2. Groundwater gradient and flow direction;

3. The presence of O&G, TVH and BTEX in the samples tested;

4. The significance of contaminant levels with respect to local and state criteria;

5. The scope of future investigation, if necessary.

We will submit our conclusions and recommendations in a written report. The report will include borings logs, analytical test data, and Chain-of-Custody Documents.

Task 5 - Quarterly Groundwater Monitoring

In accordance with ACHCSA requirements, a groundwater monitoring program will be implemented. The program will involve sampling and analyzing groundwater from the five new wells for a period of one year (initial event plus 3 subsequent events).

Prior to sampling the depth to groundwater will be measured below each top of casing and the groundwater gradient will be determined. The wells will then be checked for free floating product using a steel tape and petroleum product sensitive paste. The wells will then be purged of at least 3 well volumes of water. Measurements of water pH, conductivity and temperature will be made during purging. Once the wells recharge to within 80 percent of their initial volume, they will be sampled. Well purge water will be stored in 55-gallon drums which will be left on-site for later disposal by others. Appropriate disposal alternative(s) will be evaluated based on the results of analytical tests as discussed in Task 3.

Samples will be retained in containers precleaned by the supplier and refrigerated until delivery to the analytical laboratory. The samples will be analyzed for TEH, TVH and BTEX.

The results of each monitoring event will be summarized in a letter report. The reports will include a discussion of field services, analytical test reports, well sampling forms, and Chain-of-Custody documents.

If you have any questions regarding this Work Plan, please call.

Yours very truly,

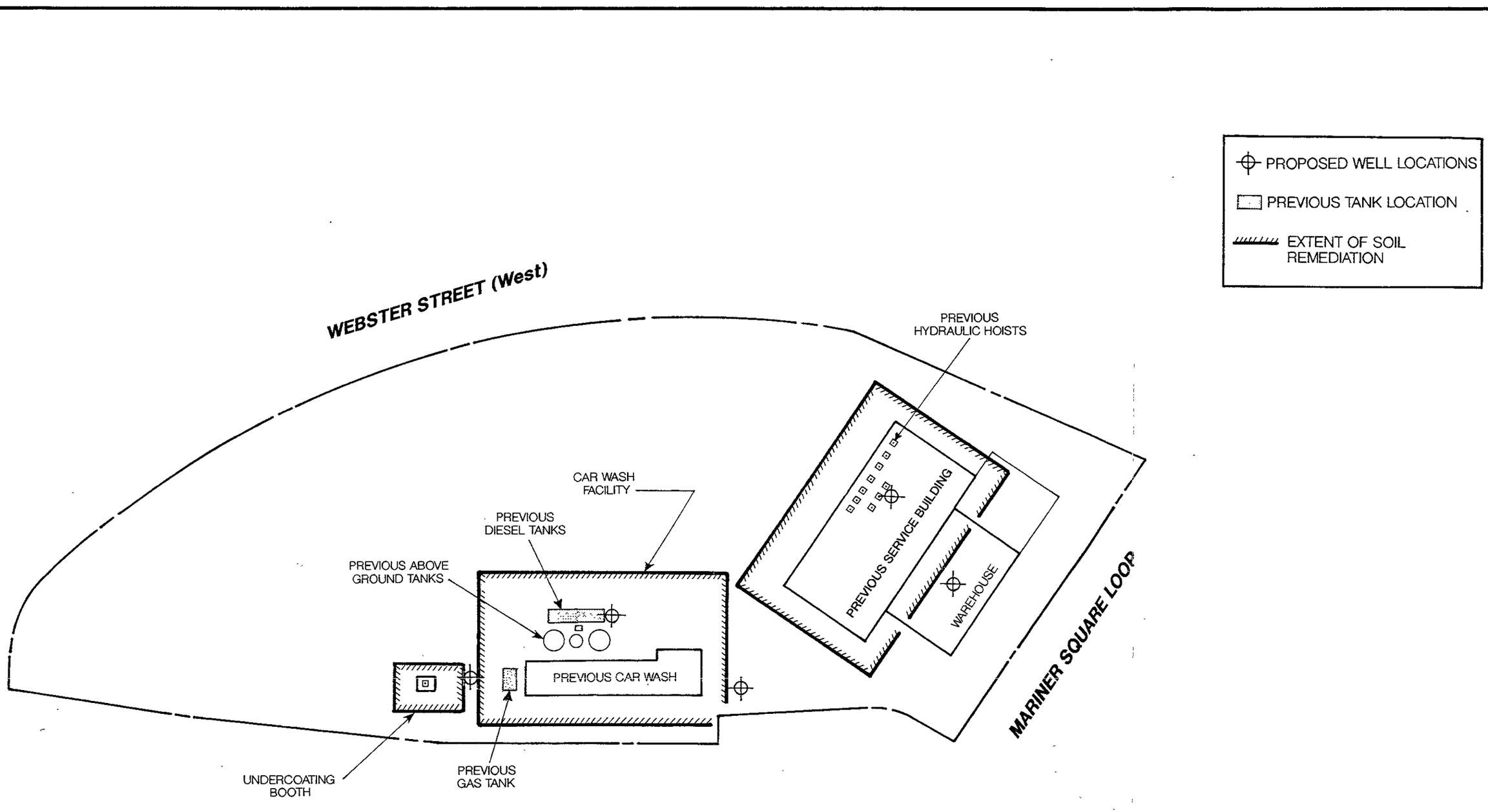
Subsurface Consultants, Inc.

Sean Carson
Project Manager

JW:SOC:RWR:sld

cc: Mr. Ron Doll, c/o Mariner Development Company
2236 Mariner Square Drive, Alameda, California 94501

Attachments: Plate 1 - Site Plan
Plate 2 - Monitoring Well Detail



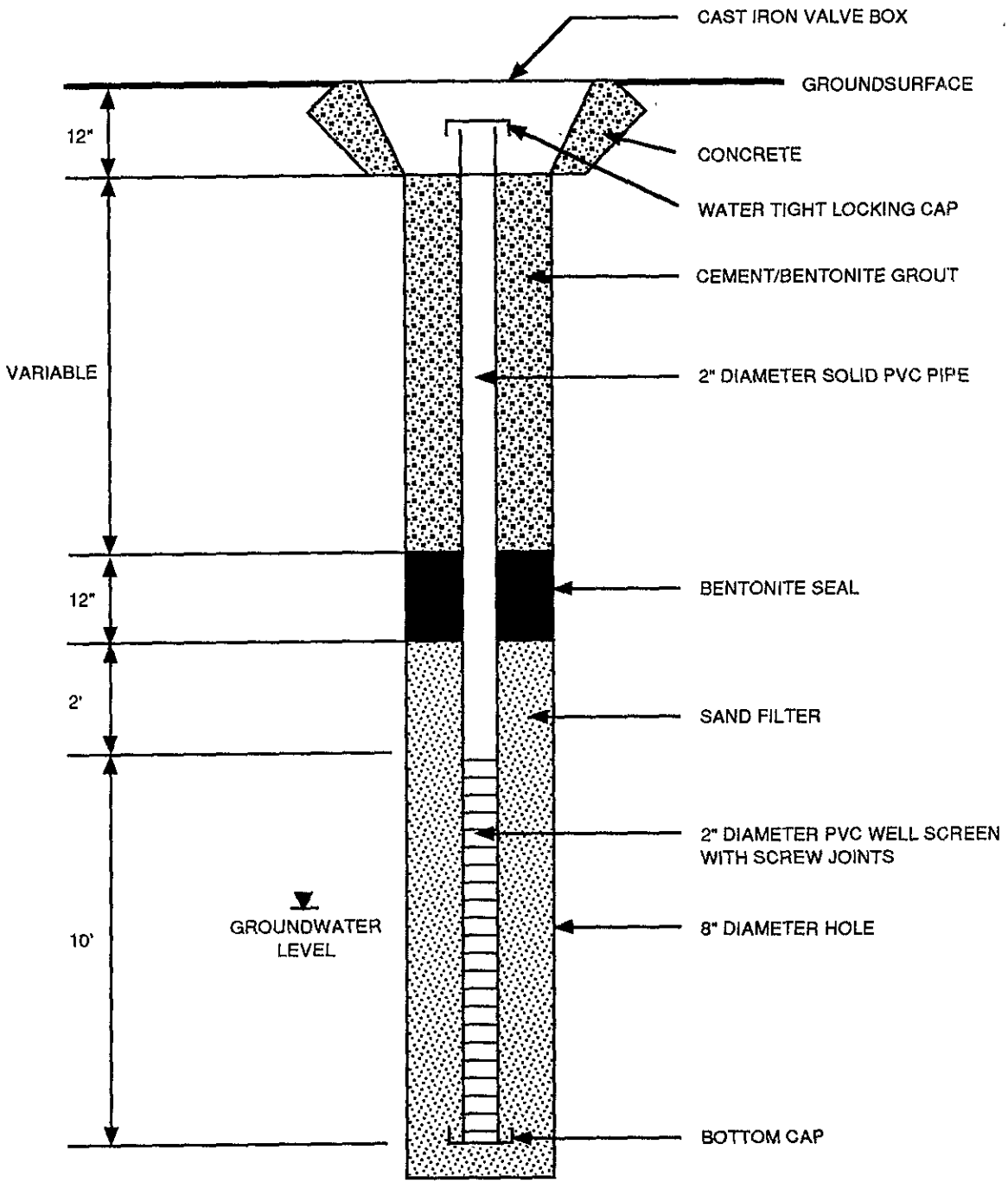
SITE PLAN

Subsurface Consultants

MARINER WAREHOUSE – ALAMEDA CA

JOB NUMBER	DATE	APPROVED
554 006	7/6/92	

PLATE 1



GROUNDWATER MONITORING WELL DESIGN

Subsurface Consultants

2204 MARINER SQUARE DRIVE - ALAMEDA, CA

JOB NUMBER	DATE	APPROVED
554.006	7/24/92	

PLATE 2