

July 15, 1992
SCI 447.036

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Mr. Brian Oliva
Alameda County Health Care Services Agency
80 Swan Way, Room 200
Oakland, California 94621

Work Plan
Groundwater Characterization
Connell Oldsmobile Facility
3093 Broadway
Oakland, California

611

STP 469

Dear Mr. Oliva:

The following is a work plan for additional groundwater characterization of gasoline releases at the referenced site. The purpose of this work plan is to outline future groundwater investigation and provide data for possible future remediation system design.

Project Background

Three underground fuel storage tanks containing ~~gasoline, diesel,~~ and ~~waste oil~~ were removed from the site in December 1989. Samples obtained by Subsurface Consultants, Inc. (SCI) during tank removal indicated that soil and groundwater were impacted by releases from the tanks. The results were summarized in a report by SCI dated ~~March 14, 1990.~~ Two subsequent phases of site characterization were performed and have been recorded in reports by SCI dated ~~December 7, 1990~~ and ~~April 26, 1991.~~ The results of these investigations indicated that a significant free product plume of gasoline extends more than 200 feet downgradient from the tank area, as shown on the attached Site Plan, Plate 1.

Interim Remediation

~~In December 1991, SCI implemented free product recovery~~ as an interim remediation measure. Free floating gasoline is being removed from monitoring wells MW-1, MW-4, and MW-6. These wells are presently being pumped on a weekly basis using a bladder pump designed specifically for the recovery of free floating product. To date, approximately 70 gallons of gasoline have been removed

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from the three referenced wells. SCI will continue to monitor and bail free product from the existing wells and the proposed wells on a regular basis.

Project Approach

Based on our understanding of site conditions, we believe that an additional investigation is required before deciding upon a remediation plan. Additional investigation is necessary to 1) refine our understanding of the extent of groundwater contamination and aquifer characteristics and 2) generate the data required for design of a remediation system, if required.

SCI proposes to perform the investigation in tasks as follows:

- Task 1. Install three groundwater monitoring wells and groundwater extraction wells,
- Task 2. Prepare a technical report

Task 1. Install Five Groundwater Wells

This phase of the investigation will involve drilling borings ~~3 of [redacted] and [redacted]~~ groundwater monitoring ~~and [redacted]~~ ~~2~~ inch-diameter wells designed to enhance free product recovery and possibly be used for groundwater extraction, if required. The proposed test boring/well locations are shown on the attached Site Plan. Two of the boring/wells will be situated within City of Oakland right-of-ways.

SCI will obtain groundwater monitoring well protection ordinance permits and right-of-way encroachment permits prior to drilling the test borings. The test borings will be drilled using truck-mounted 8-inch-diameter or 12-inch-diameter hollow stem auger equipment. Based on studies to date, we judge that the borings will be about 30 to 40 feet deep. The borings will be sampled frequently to determine lithology, aquifer characteristics and to provide samples for chemical analysis. Cuttings generated during drilling will be added to the existing soil stockpile.

The three borings completed as groundwater monitoring wells will consist of 2-inch diameter Schedule 40 PVC pipe having flush threaded joints. A schematic showing typical well completion details is presented on the attached Plate 2. The wells will be appropriately developed and sampled. Water generated during well development will be stored on-site in drums for later treatment.

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We propose to install ~~two extraction wells at the locations~~ shown on Plate 1. ~~Exact locations will be selected based on the lithology and chemical analyses of the borings/wells installed during Task 1.~~ The wells will be about 40 feet deep and will consist of 6-inch diameter Schedule 40 PVC pipe. The wells will be installed within 12-inch diameter boreholes drilled using hollow stem auger drilling equipment. The wells will be appropriately developed. Pump tests will be performed to evaluate aquifer characteristics. Well development water will be stored on-site in a Baker Tank for later treatment. Soil cuttings will be added to the existing stockpile.

As required to obtain a discharge permit, groundwater from the wells will ~~be sampled and analyzed to characterize the proposed treatment plant influent.~~ The testing program will include the following:

1. Heavy metals,
2. Cyanide,
3. Total volatile hydrocarbons,
4. Benzene, toluene, ethylbenzene, xylenes,
5. Total extractable hydrocarbons,
6. Total oil and grease,
7. Purgeable organics,
8. Semi-volatile organics, and
9. Pesticides.

As part of site characterization, ~~one soil and water~~ samples will be transmitted to Curtis & Tompkins, Ltd., the primary analytical laboratory used during previous studies. The testing program will include the following analyses, as appropriate:

1. Total volatile ~~hydrocarbons as gasoline~~, EPA 8015/5030
2. Total ext~~tractable~~ hydrocarbons (~~as gasoline~~), EPA 8015/3550
3. Oil and grease, SMW 17:5520 B&F
4. Halogenated volatile organics, EPA 8010
5. Benzene, toluene, ethylbenzene, xylenes, EPA 8020.

Task 2. Prepare Technical Report

We will prepare a technical report describing the results of our field investigations. The report will include maps showing the extent of groundwater contamination, lithologic cross sections, isoconcentration maps, as well as boring logs, well completion details, well development and sampling forms, pump test data,

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analytical test data and Chain-of-Custody documents.

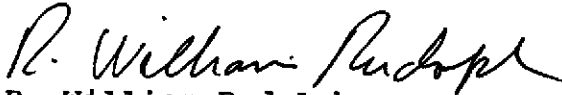
If you have any questions regarding this work plan, please call.

Yours very truly,

Subsurface Consultants, Inc.



Sean O. Carson
Civil Engineer 45074 (expires 3/31/94)

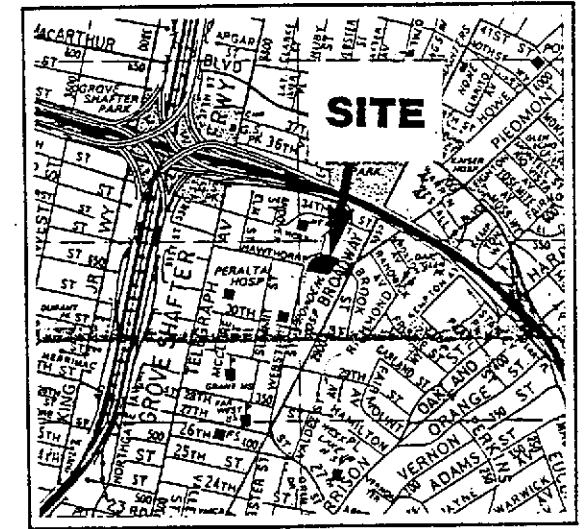


R. William Rudolph
Geotechnical Engineer 741 (expires 12/31/92)

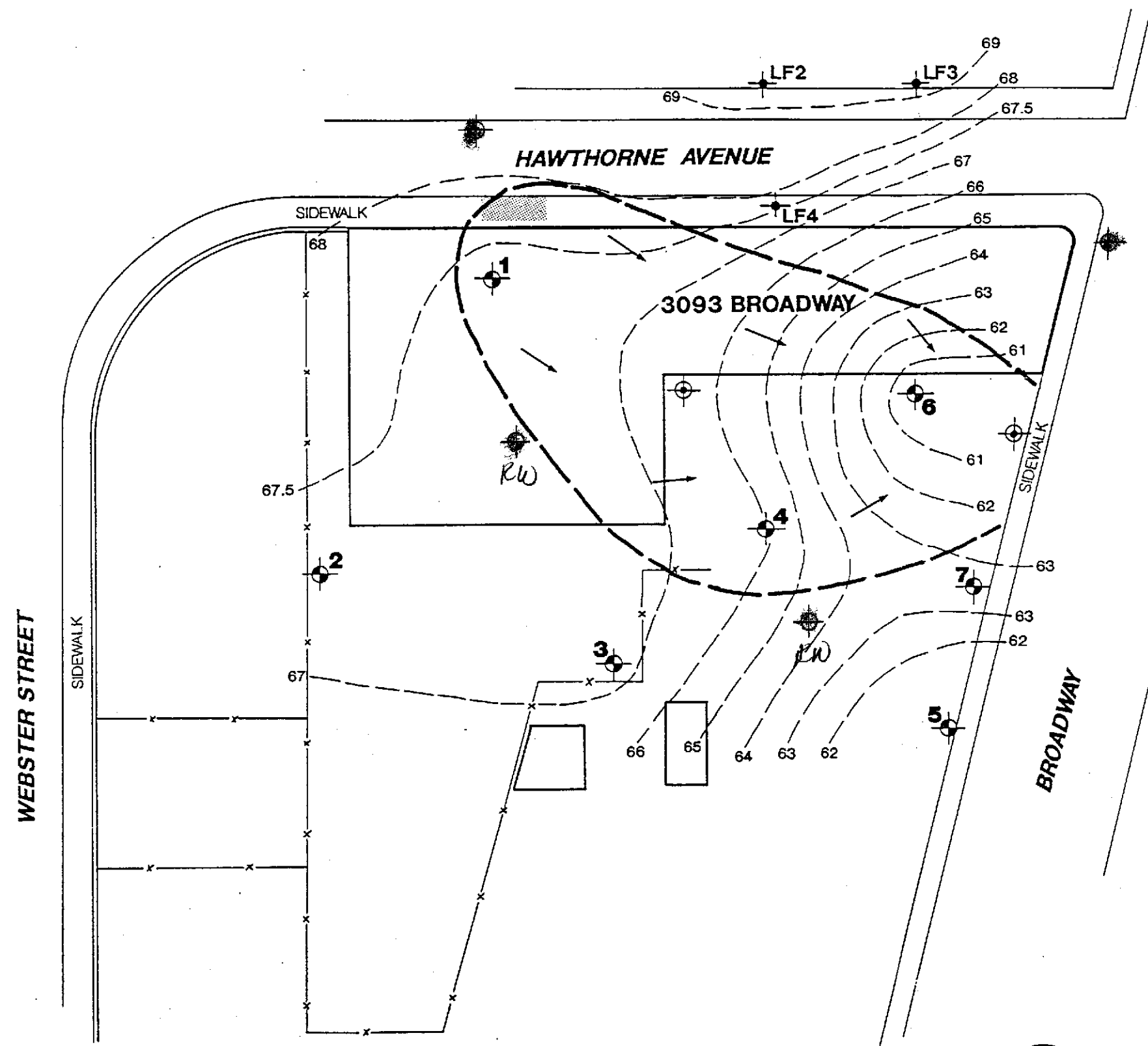
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Attachments: Plate 1. Site Plan
Plate 2. Well Details

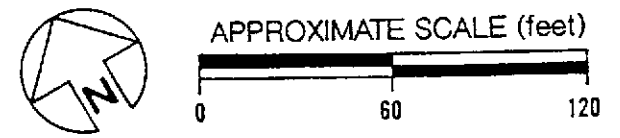
cc: Mr. Jonathan Redding
Fitzgerald, Abbott & Beardsley
1221 Broadway, 21st Floor
Oakland, California 94612



VICINITY MAP

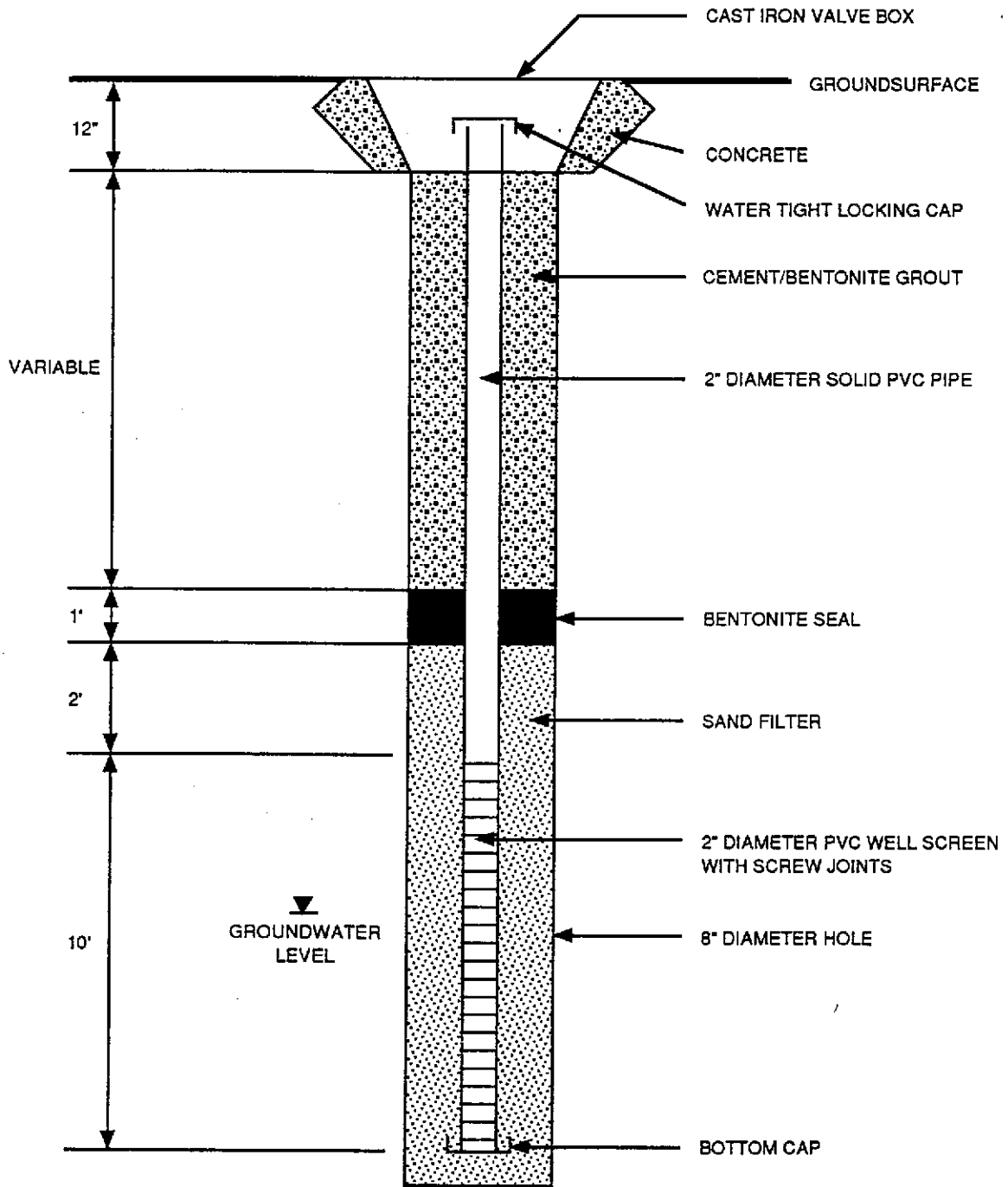


- SCI PROPOSED EXTRACTION WELL
- SCI MONITORING WELL
- SCI PROPOSED MONITORING WELL
- LEVINE FRICKE MONITORING WELL
- FENCE
- RETAINING WALL
- GROUNDWATER CONTOUR
- PREVIOUS TANK AREA
- EXTENT OF DISSOLVED & FREE PRODUCT PLUMES
- FLOW DIRECTION



PROPOSED WELL LOCATIONS		PLATE 1
CONNELL OLDSMOBILE - OAKLAND, CA		
JOB NUMBER PW91.004	DATE 1/8/92	APPROVED

Subsurface Consultants



GROUNDWATER
MONITORING WELL DESIGN

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CONNELL OLDSMOBILE - OAKLAND, CA

PLATE

JOB NUMBER
447.036

DATE
7/15/92

APPROVED

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