

R01

FUGRO WEST, INC.

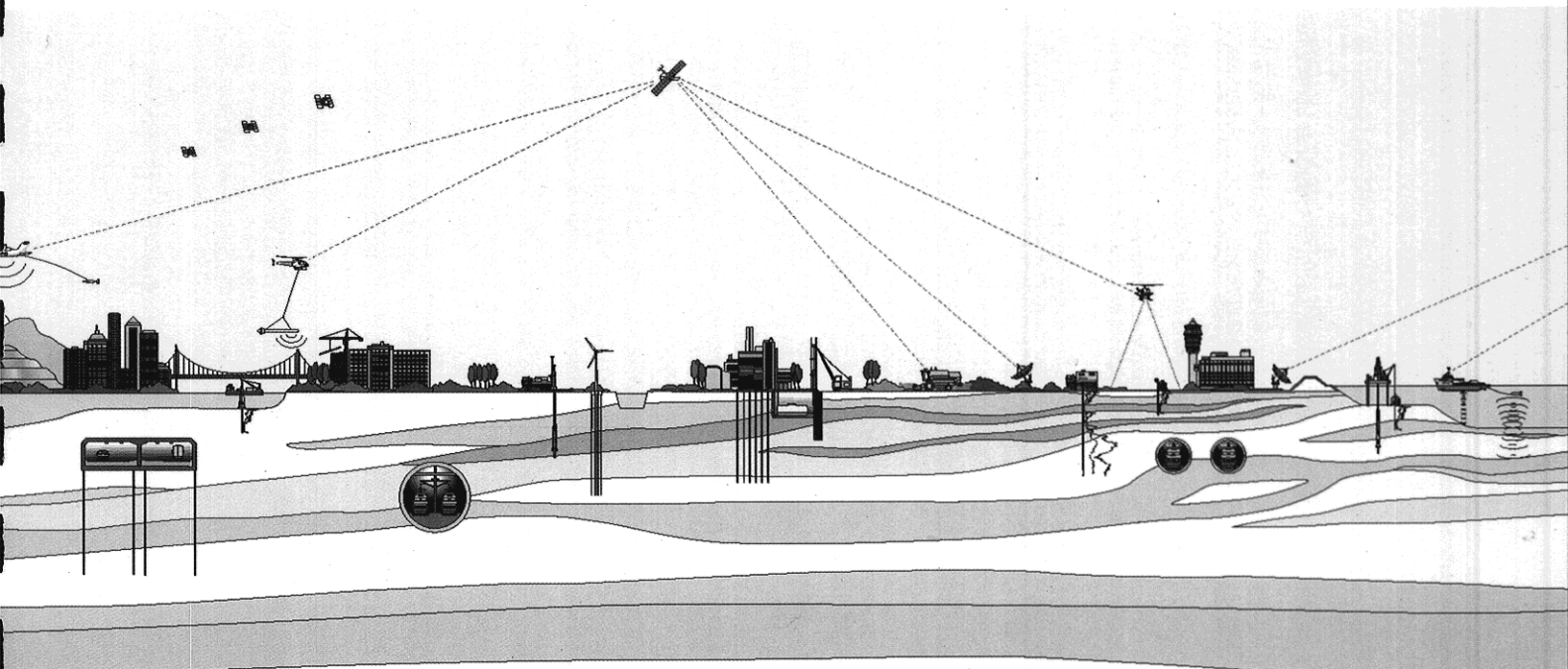


**WORK PLAN
ADDITIONAL SITE STUDY
2801 MacARTHUR BOULEVARD
OAKLAND, CALIFORNIA**

Prepared for:
ALAMEDA COUNTY ENVIRONMENTAL HEALTH SERVICES

OCTOBER 2005

Project No. 838.006



RO1

ANIKO MOLNAR

7 Morning Sun Avenue
Mill Valley, CA 94941

October 11, 2005

Mr. Don Hwang
Alameda County Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Alameda County
OCT 13 2005
Environmental Health

RE: Mailing List of Record Fee Title Owners
2801 MacArthur Blvd., Oakland, CA 94602
Fuel Leak Case No. RO0000001

Dear Mr. Hwang:

APA Fund hereby submits the following in accordance with the requirements outlined in Item 8 of your letter dated July 28, 2005.

In accordance with section 25297.15(a) of Chapter 6.7 of the Health and Safety Code, I, Aniko Molnar Client Representative for APA Fund, certify that the following is a complete list of current record fee title owners and their mailing addresses for 2801 MacArthur Blvd., Oakland, CA:

Raymond and Grace Yu
c/o Alpha TV
2819 MacArthur Blvd.
Oakland, CA
94602

Sincerely,



Aniko Molnar

cc: Nicholas D. Molnar, APA Fund



FUGRO WEST, INC.

1000 Broadway, Suite 200
Oakland, California 94607
Tel: (510) 268-0461
Fax: (510) 268-0137

October 11, 2005
Project No. 838.006

Alameda County Environmental Health
1161 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Attention: Mr. Donald Hwang, Hazardous Materials Specialist

Subject: Work Plan for Additional Site Study
2801 MacArthur Boulevard
Oakland, California

Alameda County
OCT 13 2005
Environmental Health

Dear Mr. Hwang:

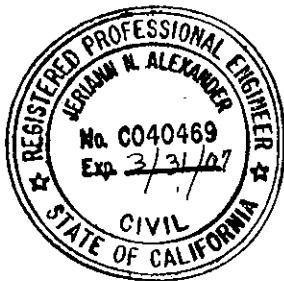
Fugro West, Inc., (Fugro) is pleased to present this Work Plan response to the Alameda County Environmental Health (ACEH) letter dated July 28, 2005, which requested a Work Plan for additional study at the referenced property. The enclosed Work Plan describes soil and groundwater investigation tasks to complete additional characterization of the former tank areas, and groundwater monitoring activities.

Please call if you have any questions regarding the information contained herein.

Sincerely:

FUGRO WEST INC.

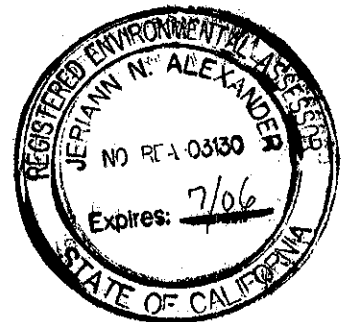
Obiajulu Nzewi
Project Geologist



Jeriann Alexander, P.E., R.E.A.
REA No. 03130 (Exp. 7/06)
CE No. 40469 (Exp. 3/07).

ON/JNA:rp

Copies Submitted: Addressee (1)
Ms. Aniko Molnar for APA Fund (2)
Mr. Raymond Yu (1)





CONTENTS

	Page
1.0 INTRODUCTION.....	1
2.0 SITE DESCRIPTION.....	1
3.0 OVERVIEW OF UST REMOVAL, REMEDIATION AND INVESTIGATIONS.....	2
4.0 WORK PLAN FOR ADDITIONAL SITE STUDIES.....	3
4.1 Well Location Verification	3
4.2 Soil and Groundwater Sampling	3
4.3 Monitoring Well M-3 Decommissioning.....	6
4.4 Semi-Annual Groundwater Monitoring Event.....	6
5.0 CLOSING STATEMENT	7

PLATES

	Plate
Vicinity Plan	1
Site Plan: Approximate Well Locations, and Proposed Sampling Locations	2

APPENDICES

APPENDIX A	ACDPW WELL DECOMMISSIONING PERMIT FOR P-3
------------	---



1.0 INTRODUCTION

The purpose of this Work Plan is to address concerns raised by the Alameda County Environmental Health (ACEH) for the property located at 2801 MacArthur Boulevard, Oakland, California (Site) (Plate 1). Specifically, the ACEH letter dated July 28, 2005, requested submittal of a Work Plan to address the following tasks:

- Confirmation of locations of monitoring wells M-1, and M-2, and piezometer P-3;
- Address presentation of historical hydraulic gradients for the Site;
- Verification of subsurface conditions in the source areas;
- Evaluation of the potential presence of a contaminated groundwater plume between monitoring wells P-2 and M-4 at the western edge of the plume; and
- Evaluating potential effects of submerged well screen intervals in onsite monitoring wells, on detected concentrations of chemicals of concern in groundwater.

Bulleted tasks 1 to 4 will be addressed in this Work Plan. The results of the evaluation contemplated by the last bullet will be presented in a separate document.

2.0 SITE DESCRIPTION

The Site occupies the western third portion of the parcel bounded by MacArthur Boulevard to the north, Coolidge Avenue to the west, Georgia Street to the south and residential properties to the east. Remnants of a former gasoline service station, including the station building and canopy occupy this portion of the parcel. Currently, the station building is being used by an auto repair business. The eastern portion of the parcel is occupied by a strip mall shopping center. The open areas of the parcel are occupied by asphalt concrete paved parking areas.

The Site is located within an upland area near the western flank of the Oakland Hills. The topography of the area is characterized by rolling terrace deposits. The Site is underlain by alluvial soils of interlayered stiff to very stiff sandy clays and dense clayey sand and gravels. The Site is commercially zoned, and surrounding properties are primarily commercial; however, residential structures exist southwest of the Site across Georgia Street.

Historical groundwater depths have ranged from approximately 20 to 41 feet below ground surface (bgs). Based on the most recent groundwater-monitoring event (March 2003), the depth to groundwater ranged from 24 to 34 feet bgs. The groundwater flow direction based on historical data has been consistently to the south and southeast.



The Site is located in an area identified by the City of Oakland¹ for urban residential land use in a district-shopping zone. The parcel owner, Mr. Raymond Yu, has expressed an interest in redeveloping the Site into a residential/mixed commercial complex, with either a full or partial basement used for parking. Conceptual plans show the entire parcel including the former station area being completely redeveloped.

3.0 OVERVIEW OF UST REMOVAL, REMEDIATION AND INVESTIGATIONS

In May 1989, three underground storage tanks and associated fuel dispensing equipment were removed from the Site (Plate 2). Approximately 435 cubic yards of fuel-impacted soils were also subsequently excavated, and removed from the Site and clean fill was replaced into the resulting excavation. Groundwater monitoring performed at the site between 1990 and 1996 showed that the dissolved gasoline plume had migrated about 150 feet down gradient from the source area. Subsurface Consultants, Inc., (SCI) (a wholly-owned subsidiary of Fugro West, Inc.) performed a Tier 2 Risk Assessment (October 28, 1997), which indicated that the impacted material onsite appeared to pose no significant risk to human health or the environment considering the commercial use of the property.

Following discussions with ACEH regarding their concerns with respect to a lack of data in the area of the former pump islands, SCI prepared a Work Plan (April 7, 1998) to perform additional subsurface investigation to evaluate soil and soil gas concentrations in the area of the former Boring B-9 and the pump islands. Results of the field investigation presented in the SCI report dated February 1, 1999, suggested that soil impacts in the area of the former waste oil tank had decreased as a result of source removal and ongoing natural degradation; however, residual soils containing elevated concentrations of gasoline and BTEX still remained in place below the former pump island area.

SCI prepared a Corrective Action Plan (CAP) dated August 13, 1999, which was approved by the ACEH in their letter dated August 20, 1999. Remedial actions including excavation of impacted soils north of the former station building and in the vicinity of the former pump islands, was implemented in November 2000 by WRS Consultants, and observed by Chaney, Walton and McCall LLC. Review of data generated during the CAP implementation suggests the following;

- Approximately 800 cubic yards of impacted soils to a depth of 15 to 18 feet bgs had been excavated and removed from north of the former station building as shown on Plate 2.
- The resulting excavation was backfilled with clean, imported soil.
- Piezometer P-3 was decommissioned during CAP excavation activities. Fugro contacted the Alameda County Department of Public Works and retrieved a copy of the well decommissioning permit. A copy of the permit is included in Appendix A.

¹ City of Oakland General Plan and Zoning Map, Community & economic Development Agency, Planning and Zoning Division, January 1, 2005



It was subsequently observed that the backfilled CAP area failed to meet the required specifications resulting in subsidence of the former excavation area. In 2001, Geomatrix was retained to observe the re-excavation and re-compaction of imported materials in the CAP excavation area, north of the onsite building. Geomatrix (January 2, 2002) confirmed that the previous CAP excavation measured approximately 30 feet by 50 feet in plan dimension and extended to a depth of between 15-18 feet bgs.

4.0 WORK PLAN FOR ADDITIONAL SITE STUDIES

A review of soil and groundwater data collected from source removal activities, site characterization, groundwater monitoring events and CAP implementation indicates that the groundwater plume is stable, that no significant offsite migration appears to have occurred and that no significant risks to human health are posed given the commercial use of the property. Some data gaps do exist in the vicinity of the former tank excavations. These data gaps should be addressed to verify that CAP activities have been successful in furthering cleanup objectives. In addition, plume stability should be checked prior to moving forward with site redevelopment plans. The study tasks outlined herein will address ACEH concerns regarding current site conditions.

4.1 WELL LOCATION VERIFICATION

The last groundwater monitoring event conducted by Blaine Tech Services (2003), indicated that wells M-1 and M-2 located near the former gasoline tank excavation might have been paved over. Also piezometer P-1 has not been sampled since December 1999, which may also suggest that it has been paved over.

The services of an underground utility locator will be retained to attempt to locate these wells. If located, the wells will be rehabilitated and redeveloped, as necessary and then resurveyed to a known site benchmark. If these sampling points cannot be located, two replacement borings will be installed and sampled in the vicinity of the former gasoline tank excavation and one boring will be installed northwest of and in close proximity to former piezometer P-1. These selected sample locations in addition to the existing monitoring wells onsite, will provide necessary data to further define the limits of impacted groundwater and address whether or not the impacted groundwater poses a risk to human health. Description of sampling and analytical testing are presented in Section 4.2.

4.2 SOIL AND GROUNDWATER SAMPLING

To address the requirements of the ACEH, it is proposed to advance 5 to 8 hollow-stem-auger borings (depending on whether wells M-1, M-2, and piezometer P-1 are located and rehabilitated) to depths of about 35-45 feet bgs for the purpose of collecting soil and grab groundwater samples. Two of the proposed borings will be located between piezometer P-2 and well M-4 to determine the extent of the contaminated plume between these two points. Two of the borings will be located in close proximity to the former gas tank excavation area to check conditions remaining at the limits of excavation. One boring will be located through the center of



the CAP excavation area to check conditions at depth. Proposed boring locations are shown on Plate 2.

A licensed and experienced drilling subcontractor will be retained to advance these borings using hollow-stem-auger drilling equipment according to standard industry practices regarding worker safety, equipment decontamination, and sample handling. Before beginning fieldwork, drilling permits will be obtained from the Alameda County Public Works Agency, and all boring locations will be cleared by contacting Underground Service Alert and by contracting with a private utility locator. The borings will be frequently sampled (every 3 to 5 feet) to check for changes in lithology, and the vapor content of the soil samples will be checked in the field using a photoionization detector (PID). Lithology will be graphically logged and soils will be classified in accordance with the Unified Soil Classification System (USCS).

Soil samples will be retained in clean, stainless steel tubes or acetate liners; liners will be capped with Teflon sheeting and plastic end caps, and placed into ice-cooled chests. It is proposed to submit 3 to 4 selected soil samples from each boring for analytical testing to supplement previous data and fill data gaps following CAP implementation. If the soil conditions at a depth of 35 feet indicate the presence of contamination (i.e., discoloration, strong odor, or high PID reading), a boring will be extended to a maximum depth of 45 feet bgs check for signs of contamination. Proposed depths for samples that will be submitted for analytical testing are presented in the table below.

Boring Locations	Number of Samples to be Submitted for Analytical Testing and Approximate Sample Depths
Boring in CAP Area	1 boring, 3 samples; at 20 ft, 30 ft, and 40 ft bgs.
Borings in Former Gasoline Tank Area	1 to 3 borings, 4 samples each, at 10 ft, 25 ft, 30 ft and 40 ft bgs.
Remaining Borings at Edge of Plume	3 to 4 borings, 3 samples each, at 25ft, 30ft and 40ft bgs.

After reaching final depth in the borings, the drilling subcontractor will install temporary PVC well casings to facilitate groundwater sampling. Groundwater samples will be collected from each boring with a clean disposable plastic bailer, and the water will be decanted into laboratory prepared containers. Samples will be stored in a chilled cooler and delivered to a state-certified chemical testing laboratory under chain-of-custody documentation. The borings will be backfilled with neat cement grout upon completion of sampling. Quality assurance/quality control samples will consist of the following:

- The laboratory will analyze one method blank per day of field sampling to confirm the effectiveness of the decontamination procedures.



- The laboratory will perform one duplicate sample for each day of field operation. The duplicate sample will be collected at the same depth and location as the primary sample, and in a separate sample container.

Groundwater monitoring of the existing monitoring wells and piezometers located onsite will also be conducted concurrent with the soil and grab groundwater sampling activities. Initially water levels in the existing wells will be measured and checked for the presence of free floating product. Each well will be purged of at least three well volumes of water while monitoring changes in temperature, pH, and conductivity. Groundwater samples will be collected once water levels stabilize. Clean disposable bailers will be used to collect water samples, which will be decanted into laboratory cleaned and prepared containers. Samples will be stored in ice-cooled chests and shipped under chain of custody documentation to a certified chemical testing laboratory.

Select soil samples, grab groundwater samples, and groundwater samples from the existing wells will be submitted to a State of California certified analytical laboratory for the following analysis:

- Total Petroleum Hydrocarbons within the gasoline range (TPHg) using EPA Method 8015m;
- Total Petroleum Hydrocarbons within the diesel range (TPHd) using EPA Method 8015m with silica gel cleanup;
- Total Petroleum Hydrocarbons within the motor oil range (TPHmo) using EPA Method 8015m with silica gel cleanup;
- Benzene, toluene, ethylbenzene, and total xylenes, (BTEX) using EPA Method 8020;
- Five fuel oxygenates including Methyl tert butyl ether (MTBE) using EPA Test Method 8260; and
- Lead Scavengers using EPA Test Method 8260.

Five selected soil samples will also be submitted to a certified laboratory for various soil properties testing including grain-size distribution, bulk density, moisture content and porosity.

The results of the proposed investigation described herein will be presented in a comprehensive written report. The report will include at a minimum the following items:

- Analytical data reports from the current study,
- Tabulated comprehensive analytical data for both soil and groundwater,
- Groundwater concentration contour plates for the primary contaminants of concern for the most recent groundwater monitoring event,
- A discussion and graphical representation of the historic groundwater flow direction and gradients for the Site,
- Conclusions regarding the lateral and vertical limits of soil and groundwater impacts, and



- Conclusions regarding whether additional data gap investigation is needed to complete an evaluation of risks posed to human health and the environment.

For comparison purposes, analytical data will be compared to the most updated version of the Environmental Screening Levels (ESLs) established by the Regional Water Quality Control Board (RWQCB) and appropriate City of Oakland screening values.

4.3 MONITORING WELL M-3 DECOMMISSIONING

Monitoring Well M-3 is located on the east side of the property, and appears to be hydraulically separated from the former gasoline station area by a topographic ridge. Noticeable differences in stratigraphy and groundwater depths exist on either sides of the ridge. Results of groundwater monitoring conducted between 1993 and 1995 did not detect any chemicals of concern in groundwater samples from well M-3. Further, this well does not currently enhance the understanding of groundwater conditions onsite. Consequently it is proposed that the well be decommissioned. Prior to well decommissioning a drilling permit for Alameda County Department of Public Works (ACDPW) will be completed and submitted.

Once approved, a licensed drilling subcontractor will be retained to conduct well decommissioning activities according to the applicable ACDPW permit requirements. In general well decommissioning will consist of the following

- The 2-inch-diameter PVC well casing will be sounded to confirm that no obstructions are present.
- The drilling subcontractor will remove the casing and annular seal to about 2 feet below grade.
- The well will then be pressure grouted from the bottom up using a tremie pipe. The annular space between the well casing and soil, and the well casing itself will be filled with neat cement.
- The well box will be removed using a jackhammer; the resulting hole will be filled with concrete.

Fieldwork will be conducted using standard industry practices regarding worker safety, equipment decontamination, and sample handling.

4.4 SEMI-ANNUAL GROUNDWATER MONITORING EVENT

The APA Fund will re-institute semi-annual groundwater monitoring for the Site. During each well sampling event, the depth to water will be measured, and at least three casing volumes of water will be removed while monitoring changes in pH, temperature, and conductivity parameters. The wells will be sampled with clean disposable bailers. Groundwater samples will be placed in laboratory-prepared containers, stored in cooled ice-chests, and transported to a state-certified analytical laboratory under chain-of-custody protocol. Groundwater samples will be analyzed for the items listed on the following page:



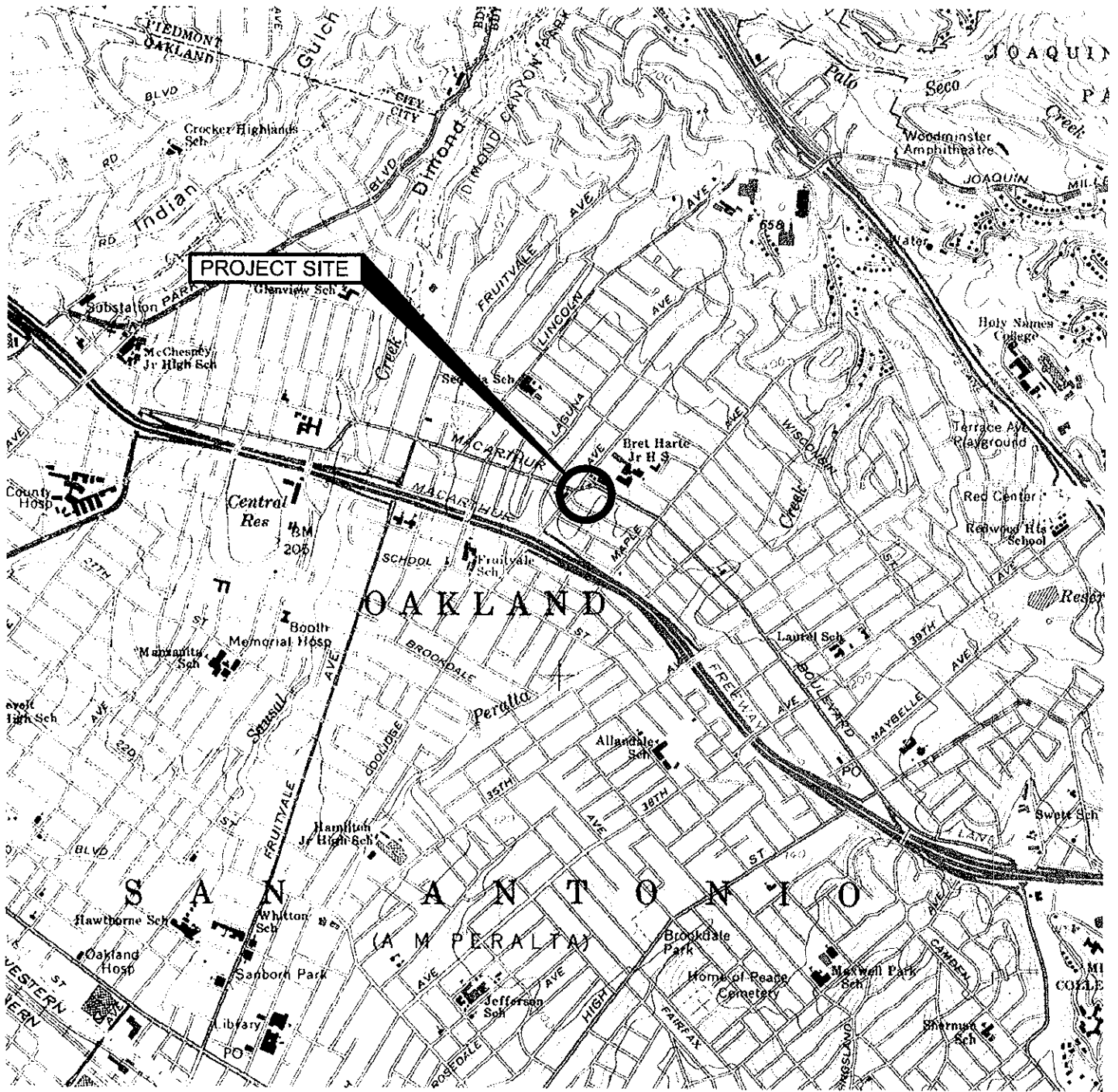
- Total Petroleum Hydrocarbons within the gasoline range (TPHg) using EPA Method 8015m;
- Total Petroleum Hydrocarbons within the diesel range (TPHd) using EPA Method 8015m with silica gel cleanup;
- Total Petroleum Hydrocarbons within the motor oil range (TPHmo) using EPA Method 8015m with silica gel cleanup;
- Benzene, toluene, ethylbenzene, and total xylenes, (BTEX) and MTBE using EPA Method 8020;
- Five fuel oxygenates including Methyl tert butyl ether (MTBE) using EPA Test Method 8260; and
- Lead Scavengers using EPA Test Method 8260.

The results of the initial monitoring event will be submitted with the report described in Task 4.2. The results of each subsequent event will be presented in a stand-alone report. The groundwater-monitoring event activities will be documented along with a summary of the field methodology undertaken, tabulated chemical test data, chain-of-custody documents, and sample collection forms. Hydraulic gradients will be presented using a Rose Diagram as requested by ACEH.

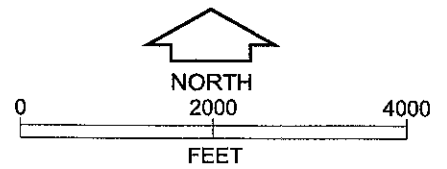
5.0 CLOSING STATEMENT

Pending written approval of this Work Plan by the ACEH, APA Fund intends to proceed and implement the recommendations of this Work Plan.

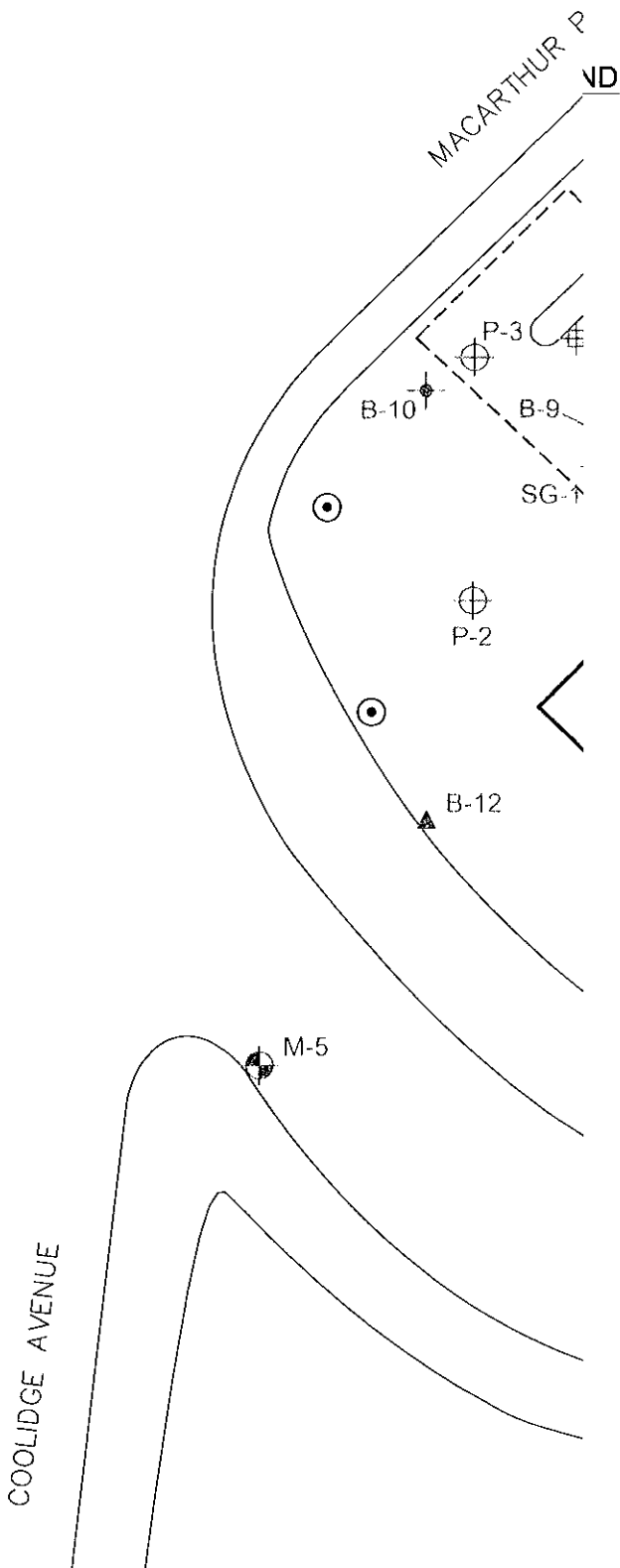
PLATES



SOURCE: This Vicinity Map is based on Subsurface Consultants, Inc., Plate 1 dated 08/99.

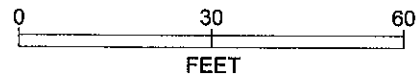
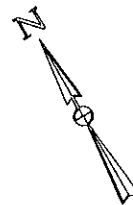


VICINITY MAP
APA Fund 2801 MacArthur Blvd.
Oakland, California



Explanation:

- Monitoring Well by SCI
- Test Boring by SCI
- Monitoring Well by others
- Test Boring by others
- Soil Vapor and Soil Sampling Location
- Former Tank Excavation (1989)
- Proposed HSA Boring Locations
- Proposed HSA Boring Locations if necessary
- CAP Excavation Area

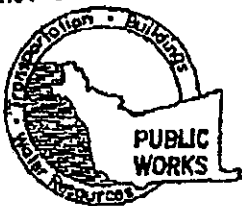


SITE PLAN
APA Fund 2801 MacArthur Blvd.
Oakland, California

BASE MAP SOURCE: This Site Plan is based on Subsurface Consultants,

G:\jdbdocs\838\838.006\Plates ... Drawings\8838.006_001.dwg 10-11-05 03:05:27 PM rwong

APPENDIX A
ACDPW WELL DECOMMISSIONING PERMIT FOR P-3



ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMBURST ST. HAYWARD CA. 94544-1395
PHONE (510) 470-5554
FAX (510) 782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 2801 McARTHUR BLVD
OAKLAND

PERMIT NUMBER W00-799
WELL NUMBER _____
APN _____

CLIENT Name APA FUND LTD
Address _____ Phone _____
City _____ Zip _____

APPLICANT Name CHADLEY, WALTER & McCALL (LLC)
Address 35 Embarcadero Phone 510 554 5528
City Oakland Zip 94608

TYPE OF PROJECT
Well Construction Geotechnical Investigation
Cathodic Protection General
Water Supply Contamination
Monitoring Well Destruction

PROPOSED WATER SUPPLY WELL USE
New Domestic Replacement Domestic
Municipal Irrigation
Industrial Other _____

DRILLING METHOD:
Mud Rotary Air Rotary Auger
Cable Other

DRILLER'S NAME Kvilhaug Drilling
DRILLER'S LICENSE NO. C57-482390

WELL PROJECTS
Drill Hole Diameter _____ in. Maximum _____
Casing Diameter 2 in. Depth 45 ft.
Surface Seal Depth _____ ft. Owner's Well Number P-3

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum _____
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE 9/16/00
ESTIMATED COMPLETION DATE 9/16/00 10/10 - per phone message 11/5/00

Applicant agrees to comply with all requirements of this permit and Alameda County Ordinance No. 75-68

APPLICANT'S SIGNATURE Jonathan Goldsmit DATE 2/16/00

PRINT NAME JONATHAN GOLDSMIT Rev. 6-3-00

PERMIT CONDITIONS

Circled Permit Requirements Apply

- A. GENERAL
 1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
 2. Submit to ACPWA within 60 days after completion of permitted original Departments of Water Resources-Well Completion Report.
 3. Permit is void if project not begun within 90 days of approval date.

- B. WATER SUPPLY WELLS
 1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
 2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

- C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
 1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
 2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

- D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout and ground mixture. Upper two-three feet replaced in kind or with compacted cuttings.

- E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

- F. WELL DESTRUCTION
See attached requirements for destruction of shallow wells. Send a map of work site. A different permit application is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [Signature] DATE 11-8-00

FAXED
11-8-00