CONESTOGA-ROVERS
& ASSOCIATES

19449 Riverside Drive, Suite 230, Sonoma, California 95476
Telephone: 707-935-4850 Facsimile: 707-935-6649
www.CRAworld.com

February 7, 2008

Mr. Jerry Wickham
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: **Site Investigation Work Plan**
Former Shell Service Station
2350 Harrison Street
Oakland, California
SAP Code 173318
Incident No. 97743969
Fuel Leak Case No. RO0000505

Dear Mr. Wickham:

Conestoga-Rovers & Associates (CRA) prepared this site investigation work plan on behalf of Equilon Enterprises LLC dba Shell Oil Products US (Shell) to investigate the extent of soil and groundwater impacts at the site, as requested by Alameda County Health Care Services Agency (ACHCSA) in their letter dated November 16, 2007. The proposed scope of work is presented in this document which complies with ACHCSA and Regional Water Quality Control Board (RWQCB) guidelines.

SITE LOCATION AND DESCRIPTION

The subject property is a former Shell service station located at the intersection of Harrison Street and Bay Place in Oakland, California (Figure 1). The former station layout included underground fuel storage tanks (USTs), a waste oil tank, three dispenser islands, and a station building (Figure 2). The site is currently occupied by a 7-Elevin Store and the area surrounding the station is predominantly a mix of commercial and residential use. Lake Merritt is located approximately 700 feet south of the site.

WORK PLAN

Technical Rationale for Proposed Scope of Work

- Based on a review of information available for the subject sit, and environmental investigations performed at adjacent sites, the groundwater at this site is presumed to flow south, toward Lake Merritt.

- Based on a review of information available from other environmental investigations on adjacent sites, the depth to groundwater at this site is anticipated to be between 7 and 10 feet below grade (fbg).
- To assess the extent of soil and groundwater impacts at the site, six groundwater monitoring wells are proposed for the collection soil and groundwater samples.
- To monitor chemical concentration, groundwater flow direction, and gradient trends, quarterly groundwater monitoring is proposed for the six wells for a minimum of one hydrogeologic cycle (one year).

Work Tasks

Permits: CRA will obtain the required drilling permit(s) from Alameda County Public Works Agency (ACPWA).

Site Safety Plan: CRA will prepare a comprehensive Site-Specific Safety Plan to protect site workers. The plan will be reviewed and signed by each site worker and kept on the site during field activities.

Utility Clearance: CRA will mark the proposed drilling locations and will clear the locations through Underground Service Alert (USA) prior to drilling. A private utility locating service will also be used to verify clearance of each boring from subsurface utilities or other obstructions. Additionally, the first five feet of each boring will be cleared to a diameter of three inches larger than the lead auger using an air-knife, or a water-knife, to minimize potential damage to underground structures not identified through USA or the utility locating service.

Site Investigation: Six soil borings (S-1, S-2, S-3, S-4, S-5, and S-6) are proposed at the locations shown on Figure 2. All the soil borings will be drilled using hollow-stem auger (HSA) equipment, and soil borings will be converted to groundwater monitoring wells S-1, S-2, S-3, S-4, S-5, and S-6.

A CRA geologist will supervise the drilling and describe encountered soils in the borings using the Unified Soil Classification System and Munsell Soil Color Charts. During the HSA work, soil samples will be collected continuously from 5 fbg to the bottom of the boring for lithologic description. Soil samples will be screened in the field for organic vapors using a photo-ionization detector (PID). Exploratory boring logs will be prepared for each boring. PID measurements will be recorded on the boring logs.

Soil samples designated for chemical analyses will be retained at five-foot intervals from each of the borings in steel, brass, or plastic tubes. The tubes will be covered on both ends with Teflon sheets and plastic end caps. Each soil sample will be labeled, entered onto a chain-of-custody record, and placed into a cooler with ice for transport to a State of California certified laboratory for analysis. A standard two week turn-around time will be requested for laboratory results.

Monitoring Well Installation: For proposed wells S-1, S-2, S-3, S-4, S-5, and S-6, each well screen will extend from approximately 5 feet above to no more than 10 feet below first encountered groundwater, depending on lithology. Based on data from other environmental investigations in the vicinity, first encountered groundwater is anticipated to be between 7 and 10 fbg at the site. Each well will be constructed using 4-inch diameter Schedule 40 PVC casing using a screen slot size of 0.020 and a #2/12 filter pack, or similar. The sandpack in each well will be placed 1 to 2 feet above the top of the well screen followed by a 1 to 2 foot thick bentonite seal and cement grout to grade. Actual well construction details will be based on field conditions encountered during drilling. Each well will be secured with a locking cap under a traffic-rated well box.

Well Development and Sampling: Blaine Tech Services, Inc. (Blaine) of San Jose, California will develop the new wells prior to sampling. No sooner than 48-hours after well development, Blaine will sample the wells and submit the samples to a State of California certified laboratory for chemical analyses.

Chemical Analyses: Based on the information presented in ACHCSA's November 16, 2007 letter, groundwater and select soil samples will be analyzed for oil and grease by EPA Method 1664A, total petroleum hydrocarbons as motor oil, total petroleum hydrocarbons as diesel, and total petroleum hydrocarbons as gasoline by EPA Method 8015M, and benzene, toluene, ethylbenzene, and xylenes, and the oxygenates methyl-tertiary butyl ether, tertiary butyl alcohol, di-isopropyl ether, ethyl tertiary butyl ether, and tertiary amyl methyl ether by EPA Method 8260B.

Wellhead Survey Activities: Following monitoring well installation, a licensed surveyor will survey wellhead elevations relative to mean sea level and the latitude and longitude of each well location. The information will be uploaded into the State of California GeoTracker database, as required.

Report Preparation: Following the receipt of analytical results from the laboratory, CRA will prepare a written report which will include a description of the field procedures, a presentation of the analytical results, tabulated data, figures showing sample locations, the complete analytical laboratory reports, boring logs with well construction details, findings and conclusions.

CERTIFICATION

The scope of work described in this work plan will be performed under the supervision of a California professional geologist or engineer.

SCHEDULE

CRA is prepared to begin work upon approval of this work plan by ACHCSA and receipt of approved drilling permit(s) from ACPWA.

CLOSING

If you have any questions regarding the scope of work outlined in this work plan, please call Dennis Baertschi at (707) 268-3813.

Sincerely,
Conestoga-Rovers & Associates

Dennis Baertschi
Project Manager

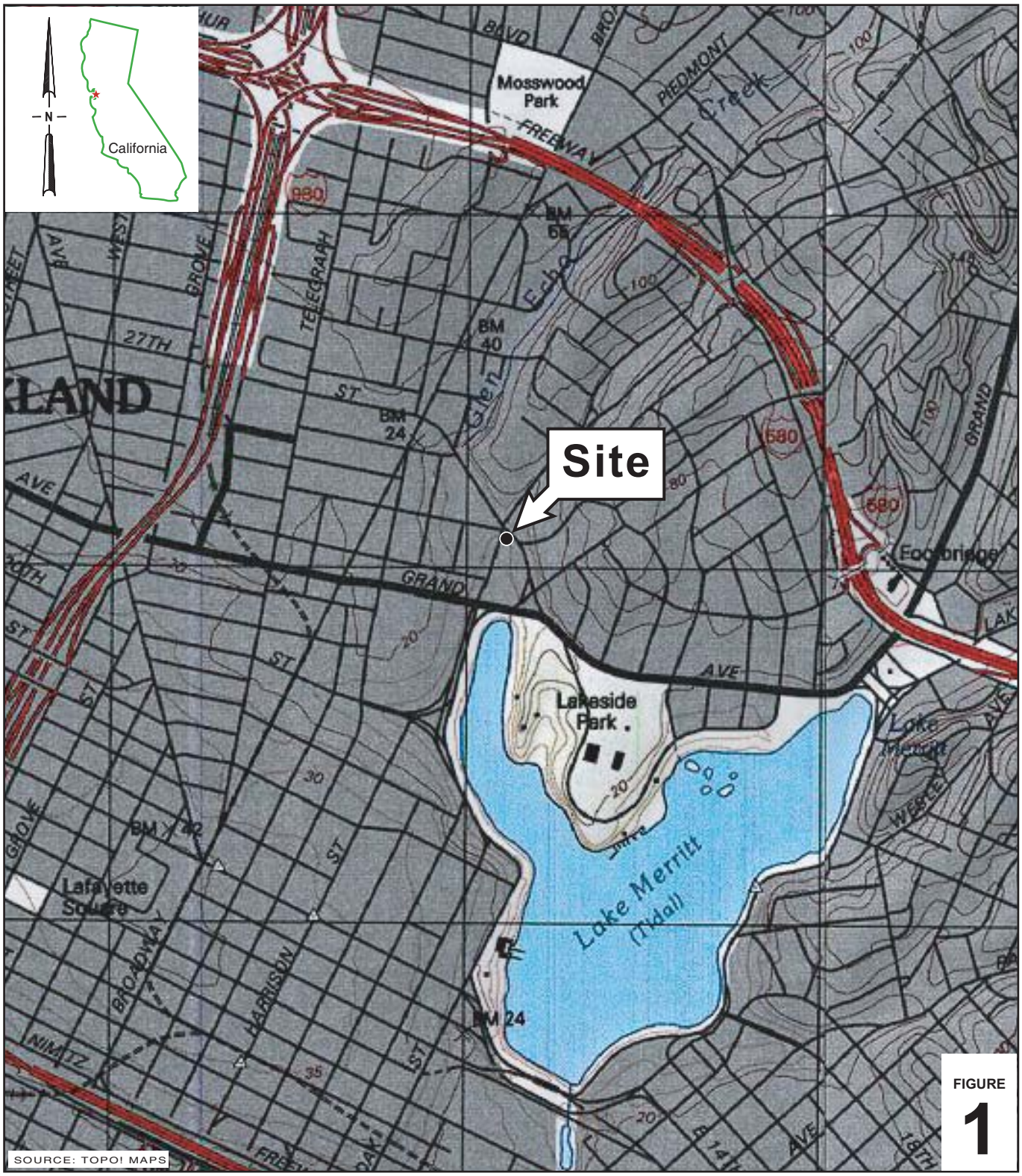
Joe W. Neely, PG

Attachments

Figure 1. Vicinity Map
Figure 2. Proposed Well Location Map

cc: Denis Brown, Shell Oil Products US
Richard Burge, Burge-Pacific Enterprises, 490 Grand Ave., Suite 200, Oakland, CA 94610
David Siegel, ERAS Environmental, Inc.

01/16/08



SOURCE: TOPO! MAPS

FIGURE
1

0 1/8 1/4 1/2 1

SCALE : 1" = 1/4 MILE

I:\SONOMA\SHELL\OAKLAND 2350 HARRISON\FIGURES\VICINITY.AI

Former Shell Service Station

2350 Harrison Street

Oakland, California

CONESTOGA-ROVERS & ASSOCIATES

Vicinity Map

02/05/08

Proposed Well Location Map

EXPLANATION

PROPOSED WELL LOCATION

PROPERTY BOUNDRY

Commercial Buildings

crosswalk

median

planter

S-3

driveway

driveway

FORMER DISPENSER ISLAND

FORMER DISPENSER ISLAND

Former Shell Station
2350 Harrison St.

FORMER DISPENSER ISLAND

S-4

sidewalk

parking lot

S-2

FORMER FUEL TANK CAVITY

FORMER WASTE OIL TANK

S-6

planter

sidewalk

planter

lamp post

driveway

median

HARRISON STREET

7-11 Store Building

fenced enclosure

S-1

S-5

planter

Commercial Buildings

BAY PLACE

0 10 20 40

Scale (ft)

N

Basemap modified from Google Earth image

FIGURE

2

Former Shell Service Station

2350 Harrison Street

Oakland, California

CONESTOGA-ROVERS & ASSOCIATES

I:\SONOMA.SHELL\OAKLAND 2350 HARRISON\FIGURES\PROPOSED WELL LOC.DWG