EAST BAY ASIAN LOCAL
DEVELOPMENT CORPORATION

BUILDING HEALTHY, VIBRANT AND SAFE NEIGHBORHOODS

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By Alameda County Environmental Health 11:26 am, Jul 03, 2017

June 28, 2017

Ms. Dilan Roe, P.E., Program Manager
Ms. Karel Detterman, P. G., Hazardous Materials Specialist
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

RE: Work Plan, Ground Water and Methane Investigation
Properties at 760 22nd Street and 2201 Brush Street, Oakland, California 94612
Fuel Leak Case No. RO0003153
Geotracker Global ID T10000006348

Dear Alameda County Environmental Health:

Please find attached for your review the following document:

- **Work Plan, Ground Water and Methane Investigation**, Properties at 760 22nd Street and 2201 Brush Street, Oakland, California 94612. (ACEH Document No. RO3153_WP_R_2017-06-28)

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

Please call me at (510) 287-5353 ext. 339 if you have any questions.

Sincerely,

Everett Cleveland Jr.
Senior Project Manager

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San Francisco, CA 94104
1-800-595-7616 Phone
510-380-6610 Fax

June 27, 2017

Ms. Dilan Roe, P.E., Program Manager
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

RE: Work Plan, Ground Water and Methane Investigation, Properties at 760 22nd Street and 2201 Brush Street, Oakland, California 94612.
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1.0 INTRODUCTION

East Bay Asian Local Development Corporation (EBALDC) has requested that Essel Environmental Consulting (Essel) prepare this work plan proposing ground water and soil vapor sampling at the properties located at 760 22nd Street and 2201 Brush Street in Oakland, California. In a June 6, 2017 electronic mail to EBALDC, Alameda County Environmental Health (ACEH) requested a work plan proposing additional sampling of the ground water to evaluate whether the recent 2016-2017 rainy season has affected ground-water level and ground-water quality in three areas of petroleum-hydrocarbon impact at the site. In addition, the ACEH has requested that EBALDC assess methane in soil gas at locations where secondary source material has been identified. To meet this request, Essel proposes to advance four small-diameter borings at the site, collect ground-water samples from three borings and a soil-vapor sample from one boring for laboratory analyses.

1.1 Site Description and Background

At present, the northern and larger parcel at 760 22nd Street is occupied by a metal frame/metal siding shop building, contains two mobile trailers and several parked buses, and is paved with concrete. A below grade pit, historically used for servicing large vehicles (trucks and buses) and referred to as the oil-changing pit, is located in the northern portion of the shop building. The smaller south-adjacent and abutting parcel at 2201 Brush Street is unpaved and also used to park buses. A 7,000-gallon diesel UST and a 2,000-gallon gasoline UST formerly were located at and next to (off-site, beneath the city sidewalk) the northeastern corner of the site, respectively. A small, raised concrete pedestal located at the east-central edge of the property is the location of a former fuel dispenser. During geophysical utility-locating work in September 2015, an area of unusually low-density soil and a nearby standpipe indicative of a UST vent pipe were identified at the west-central edge of the site. This area is referred to as the geophysical anomaly area. Plate 1 presents the locations of the above-described features.

In 2015 and 2016, Essel conducted three subsurface investigations at the site and off-site to the west to evaluate impacts to soil, soil vapor, and ground water related to the former USTs, former fueling facilities, former vehicle maintenance operations, and the geophysical anomaly. The subsurface investigations identified notable petroleum-hydrocarbon impact to soil and ground water in the areas of the former USTs and geophysical anomaly and moderate petroleum-hydrocarbon impact to soil and ground water at the location of the former fuel dispenser. Minor concentrations of other contaminants of potential concern (COPC) were detected in the soil and ground water at these locations. Several COPC were detected in soil

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vapor; however, a focused human health risk assessment performed to evaluate vapor intrusion risk in the area of the former USTs found insignificant carcinogenic and non-carcinogenic health risk from intrusion of contaminant vapors into a future residential building.

During the September 2015 subsurface investigation, average depth to ground water in temporary wells installed at the site was approximately 14¼ feet below the ground surface. In February and June 2016, ground water was measured at approximately 13 feet below the ground surface. The notable 2015/2016 rainy season resulted in a rise in the ground water level of approximately 1¼ feet.

2.0 PROPOSED WORK

The proposed work will include investigating the current ground-water level and quality in three areas of the site and investigating the presence and concentration of methane in soil vapor at the geophysical anomaly.

2.1 Permit, Utility Clearance, and Health and Safety

Essel will submit a permit application to advance the borings to the Alameda County Public Works Agency (ACPWA) and will notify the ACPWA a minimum of 5 working days before the start of on-site activities. Essel will also notify the ACEH a minimum of 3 working days before the start of on-site activities. The four boring locations will be marked and Essel will notify Underground Services Alert of Northern California and Nevada a minimum of 48 hours before the date of planned drilling. The existing site-specific Health and Safety Plan (Plan) will be updated before conducting fieldwork and this Plan will be available at the site during field activities. Essel and subcontractor personnel will be apprised of potential on-site hazards during a field orientation meeting that will be conducted before field work begins.

2.2 Ground-Water Investigation

Soil borings will be advanced at the following locations, as shown on Plate 1, to assess water level and water quality.

- One boring will be advanced near boring ECB-3 where the highest concentrations of total petroleum hydrocarbons were detected in ground water in the former UST area.
- One boring will be advanced near boring ECB-5 at the location of the former fuel dispenser.
- One boring will be advanced near boring ECB-15 where the highest concentrations of total petroleum hydrocarbons were detected in ground water in the area of the geophysical anomaly.

A licensed drilling contractor will advance borings using a direct-push drill rig equipped with a 2½-inch-outside-diameter, hollow steel rod. Borings are anticipated to be advanced to a maximum depth of 15 feet below the ground surface. Continuous soil cores will be collected from the borings in clear plastic sleeves that will be contained inside the steel rod. Each sleeve will be removed from the core barrel after each sampling interval and replaced with a clean plastic sleeve for the next lower sampling interval. Soil cores retrieved from the borings will be screened in the field for moisture content to attempt to identify the depth to first ground water, including possible perched ground water. Drilling equipment will be decontaminated between boring locations. After drilling and sampling, each borehole will be backfilled with neat cement slurry from the total depth of the boring to the ground surface. A representative of the ACPWA will witness backfilling of the boreholes per requirements of the drilling permit.

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Ground-water samples will be collected from the three borings through ¾-inch-diameter polyvinyl chloride (PVC) casings that will be placed in each borehole. After placement, each temporary well will be gauged for depth to ground water using an electronic water-level indicator. Water samples will be collected using ¼-inch-diameter polyethylene tubing, which will be inserted into the PVC casings and either fitted with a bottom check valve or attached to a peristaltic pump. Water samples will be placed into laboratory-supplied containers that will be of appropriate size and contain the appropriate preservative for the laboratory analyses requested. Sample containers will be filled completely to eliminate air bubbles, sealed with the container caps, labeled with a unique identifying number, and placed on ice in a closed cooler. Essel will complete a Chain-of-Custody form for the ground-water samples and this form will accompany the samples to the laboratory.

2.3 Methane Investigation

Seven soil vapor wells have been installed in the vicinities of the former USTs and dispenser island. Soil vapor from five of these wells (SV-1 through SV-5) were analyzed for methane (along with the fixed gases) with detected concentrations ranging from 130 to 680 parts per million vapor (ppmv), which are less than the recommended 5,000 ppmv action level.

No methane data are available for the geophysical anomaly area where secondary source soil is present and one soil vapor probe is proposed to be installed near the location of boring ECB-15 to assess the methane concentration where the highest petroleum hydrocarbon impact was found. Clay is the dominant soil type in the shallow subsurface at the geophysical anomaly. The boring for the soil vapor probe will be advanced to a depth between 6 and 10 feet below grade to attempt to locate a silt unit encountered in this depth interval in previous borings. Plate 1 shows the location of the boring/soil vapor probe proposed for soil vapor sampling.

The vapor probe will consist of a stainless-steel filter screen inserted into ¼-inch-diameter Teflon tubing, which will extend to the ground surface. The filter screen will be suspended at a depth of approximately 6 inches above the bottom of the borehole. The vapor probe will be completed by placing 6 inches of #3 Monterey sand below and 6 inches of sand above the filter screen, placing 1 foot of dry granular bentonite above the sand, and placing granular bentonite in lifts to the ground surface. Each lift of bentonite will be hydrated with clean water to provide an airtight seal above the sand and filter screen and around the tubing. The top end of the tubing will be capped with a valve to prevent atmospheric air from entering the probe hole.

Subsurface conditions will be allowed to equilibrate for a period of at least 2 hours before purging and sampling the soil vapor probe. The soil-vapor probe purging and sampling system will consist of a 1-liter purging Summa canister; a 1-liter sampling Summa canister; and a manifold containing vacuum gauges, a flow controller, and moisture filter. Each Summa canister will be evacuated to a negative pressure (i.e. vacuum) of approximately 30 inches of mercury. Before purging, Essel will perform a shut-in test of the purging and sampling canister and connecting manifold assembly to check for potential leaks in the system. The shut-in test will be performed for a period slightly longer than 1 minute. After the shut-in test, the probe will be purged from one to three volumes (tubing void space and air space in the sand pack) and sampled. A shroud (box) will be placed over the sampling assembly and a tracer gas will be introduced into the shroud as a leak check during sampling. Soil-vapor samples will be collected at a controlled flow rate of approximately 167 milliliters per minute. At the completion of sampling, the valve on the sampling canister will be closed, the manifold assembly disconnected, and the canisters will be packaged in boxes. Essel will

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prepare a Chain-of-Custody form for the vapor sample and this form will accompany the sample to the laboratory.

2.4 Laboratory Testing

Ground-water samples will be analyzed by a state of California certified testing laboratory. The samples will be submitted for analysis for total petroleum hydrocarbons as gasoline, as diesel, and as motor oil using United States Environmental Protection Agency (USEPA) Method 8015, volatile organic compounds using USEPA Method 8260, and polycyclic aromatic hydrocarbons using USEPA Method 8270-selective ion mode. The soil vapor sample will be submitted to a certified air-testing laboratory and will be analyzed for methane, oxygen, nitrogen, and carbon dioxide (American Society for Testing & Materials Method D-1946), and for the tracer gas (USEPA Method TO-15).

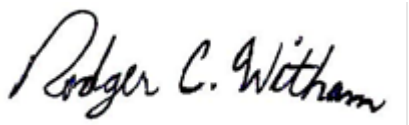
2.5 Technical Report of Subsurface Investigation

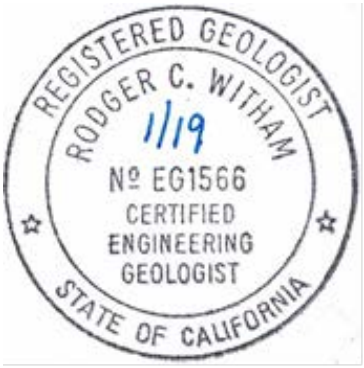
A technical report will be prepared for the investigation and will present the results of field and laboratory work. The report will be signed and stamped by an appropriately licensed person.

2.6 Health-Risk Evaluation

A toxicologist acceptable to the ACEH will review the laboratory analytical data and evaluate potential health risk to future sensitive receptors. A separate report of the results of this risk evaluation will be prepared and submitted with the subsurface investigation report.

ESSEL ENVIRONMENTAL CONSULTING

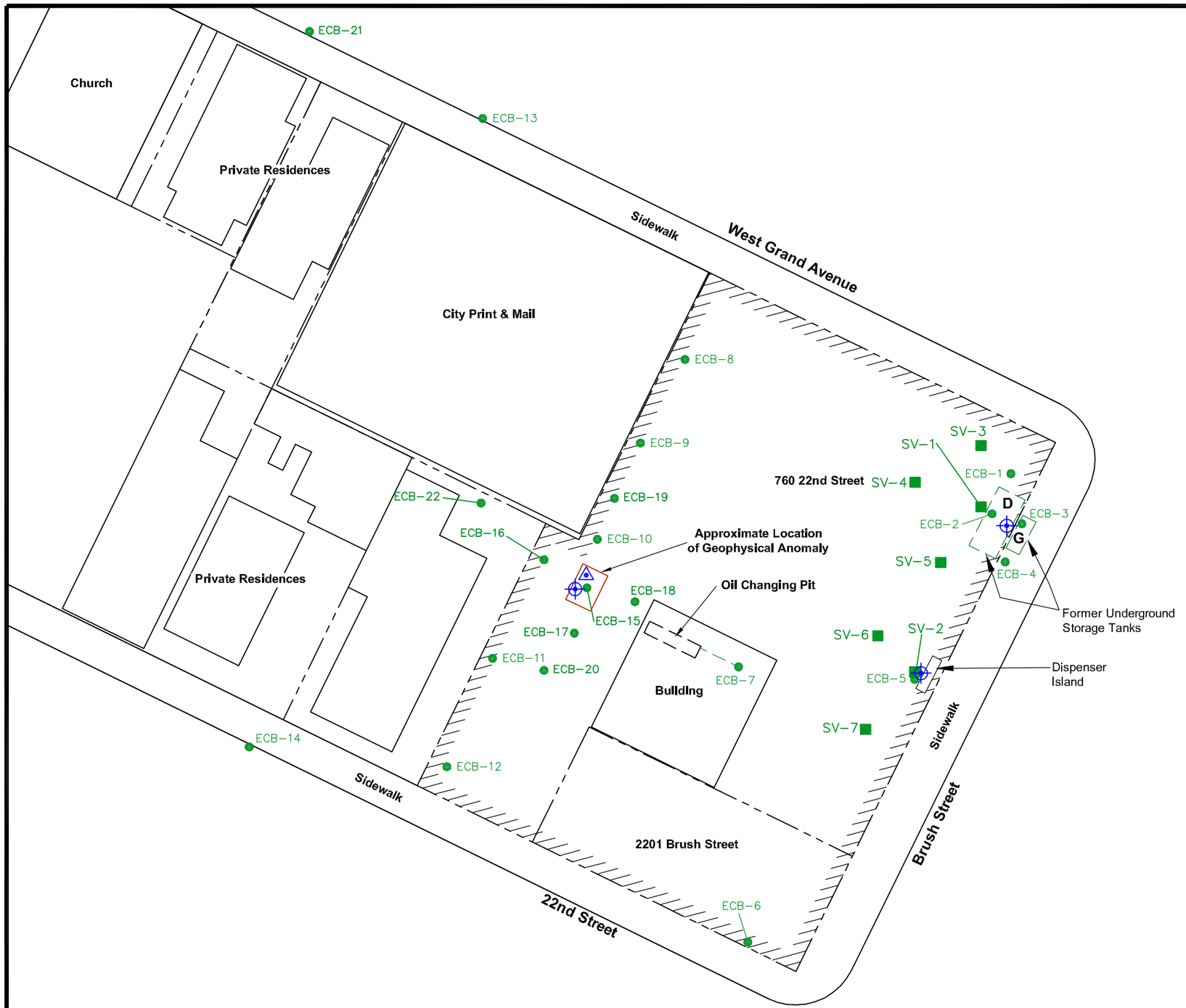




Rodger C. Witham, P.G., C.E.G.
Senior Geologist

Nik Lahiri
Principal

Plate 1 – Site Plan and Proposed Boring Locations



EXPLANATION

- SITE BOUNDARY
- APPROXIMATE PROPERTY BOUNDARY
- SOIL BORING LOCATION (ESSEL 2015, 2016)
- SOIL VAPOR WELL LOCATION (ESSEL, 2015, 2016)
- D DIESEL
- G GASOLINE
- PROPOSED BORING FOR SAMPLING WATER
- PROPOSED SOIL VAPOR PROBE FOR SAMPLING METHANE AND FIXED GASES

NOTE: UNDERGROUND STORAGE TANK LOCATIONS FROM HAGEMAN–SCHANK, INC. (1987)

N

Approximate Scale

0 30 60

feet

PROJECT NO.	DRAWN BY	REPORT DATE
15166	EC	June 2017

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Site Plan and
Proposed Boring Locations
760 22nd Street and
2201 Brush Street
Oakland, California

PLATE 1