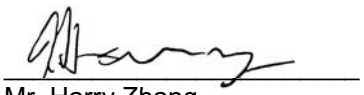
January 01, 2018

Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Subject: RO0003265

I have read and acknowledge the content and recommendations contained in the attached Soil, Groundwater and Soil Gas Investigation Workplan document submitted on my behalf to the State Water Board's GeoTracker website.



Mr. Harry Zhang
Reveriez Construction, Inc.

Soil, Groundwater, and Soil Gas Investigation Workplan

229 & 255 International Blvd.
Oakland, California
ACDEH Case # RO0003265

November 29, 2017

Prepared for:
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1.0 INTRODUCTION

Almar Environmental (Almar) appreciates the opportunity to work on the 229 & 255 International Blvd. project in Oakland, California (Figures 1 through 3). Almar has been retained to prepare this *Soil, Groundwater, and Soil Gas Investigation Workplan* for the subject site.

In May 2017, Phase-1 Environmental Services (Phase-1 ES) prepared a Phase I Environmental Site Assessment (ESA) and in August 2017 a follow up Limited Phase II ESA for the subject property. The results of these investigations found, in part, that elevated concentrations of Total Petroleum Hydrocarbons as gasoline (TPHg) exists in shallow groundwater at the site. The source of the contamination is unknown at this time but historical operations, including two printing companies and an auto repair service station, are known to have handled hazardous materials in the past. Based upon these results, and because the property owner wishes to redevelop the site, a Voluntary Remedial Action Agreement (VRAA) was entered with the Alameda County Environmental Health Department (ACEHD). The first steps of the VRAA are to further assess the extent of subsurface contamination and adequately characterize hazards at the site as they pertain to the proposed residential redevelopment. As such, the purpose of the Workplan is to propose a specific set of tasks that, when completed, will further assess the extent of onsite subsurface contamination. In general, the proposed scope of work consists of collecting soil and "grab" groundwater samples from ten temporary borings as well as installing and sampling five soil gas sampling points. Almar, herein, presents the details of the proposed scope of work.

2.0 SITE INFORMATION

The project site is located at 229 and 255 International Blvd. in the city of Oakland, California (Figure 1). The site consists of a roughly L-shaped property associated with Alameda County Assessor's parcel number 20-127-6-3. The site is located on the northwest corner of the intersection of 3rd Avenue and International Blvd. An Aerial Photograph of the Site Area is included as Figure 2 and a detailed Site Map is included as Figure 3.

2.1 Physical Setting

Based on the U.S. Geological Survey Oakland West, California Quadrangle 7.5 Minute Series Topo Map, the subject property is approximately 20 feet (ft) above mean sea level (msl). The topographic slope of the subject property and surrounding areas is generally to the southwest, towards the San Francisco Bay (Figure 1).

According to the *Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California*, the site lies upon Quaternary older alluvium deposits (Qo) (Graymer, 1996). Site specific soils, encountered during previous investigations were identified as predominately Silty Clay (CL) of varying consistency and plasticity from the ground surface until the total depths explored (approximately 12.5 feet bgs) (Phase-1 ES, 2017).

The nearest surface water to the site is Lake Merritt, located approximately 950 feet north west of the subject site. The larger Inner Harbor of the San Francisco Bay is located approximately 0.75 miles southwest of the site (Figure 1). Based upon topography of the area, regional groundwater flow is expected to be to the west/southwest (towards the San Francisco Bay). However, nearby Lake Merritt may also influence groundwater flow direction.

2.2 Site History

Maps and records indicate that an Oil and Gas Service Station existed on the Property at 255 International Blvd. (then E. 14th St.) from 1926 to 1957; two printing companies occupied 237 E. 14th St. from 1937 through 1952, and; an Auto Service Repair Garage occupied 229-245 E. 14th St. from 1951 to at least as late as 1952. The property is currently vacant and surrounded by a chain link fence.

2.3 Summary of Previous Environmental Investigations

Phase I Environmental Site Assessment (ESA) – May, 2017

In May 2017 Phase-1 ES completed a Phase I ESA for the subject site. During the Phase I site inspection, the parking areas of the Property were filled with mostly wrecked or abandoned vehicles, and the surface areas beneath them was not able to be inspected. It was recommended that the vehicles and debris on the Property be cleared, and the building and site be fully accessible. The Phase I recommended that a subsurface investigation be performed in the areas of the previous businesses referenced above.

Limited Phase II Environmental Site Assessment (ESA) – August, 2017

Based upon the recommendations of the above Phase I, on August 30, 2017 a Limited Phase II ESA, was prepared for the subject site by Phase-1 ES. The Limited Phase II consisted of collecting soil samples from seven (7) shallow borings, collecting one (1) "grab" groundwater sample, and performing an underground storage tank (UST) probing investigation. Although no USTs were discovered, the results of the investigation found, in part, that elevated concentrations of TPHg exists in shallow groundwater at the site. As stated in the introduction, based upon these findings, the property owner entered a VRAA with the ACEHD. The first steps of the VRAA are to further assess the extent of subsurface contamination and adequately characterize hazards at the site as it pertains to the proposed residential redevelopment. These specific set of tasks to complete the investigation are outlined in the following sections.

3.0 PROPOSED SOIL AND GROUNDWATER SCOPE OF WORK

This portion of the investigation will, in general, consist of the collection of soil and "grab" groundwater samples from ten boring locations at the site. The proposed boring locations are spread out in a partial grid formation to cover as much of the property as possible. The proposed borings will be identified as DP-1 through DP-10 and are shown on Figure 5. The exact locations and number of borings may be moved or changed in the field at the discretion of the field geologist based upon encountered subsurface conditions. A detailed description of the proposed tasks to install the borings is presented as follows.

3.1 Task 1: Regulatory Liaison, Permitting, and Project Management

Almar will represent the client with regulatory agencies and onsite businesses or residences in meetings and/or communications. A representative of Almar will also coordinate, oversee, and/or conduct all activities detailed in this Workplan. Almar will obtain the appropriate subsurface drilling permit from the Alameda County Public Works Agency ACPWA. As required by law, Almar will mark the subject property and notify Underground Service Alert (USA) to clear the proposed boring locations of underground

utilities prior to drilling activities. A Health and Safety Plan (HASP) will be been prepared, maintained onsite, and will comply with 29 CFR 1910.120 and Cal OSHA regulations.

3.2 Task 2: Drilling and Soil Sampling

Soil borings will be drilled by a C57 licensed driller under the direction of a licensed State of California Professional Geologist. As required by law, the top five (5) feet of each boring will be dug by hand to ensure that underground utilities are not encountered. Following hand clearing, a truck-mounted Geoprobe™ direct-push sampling rig capable of continuous core soil sampling will be used to drill each of the proposed borings (DP-1 through DP-10). The Geoprobe™ will direct-push (hammer) a 2-inch diameter steel Macrocore barrel until groundwater is first encountered (estimated 10 - 12 ft bgs). The core barrels will be lined with clear plastic disposable tubing to facilitate continuous soil coring and soil logging for description. Soils will be logged using the United Soil Classification System (USCS). Soil samples will be collected at five (5) foot intervals, where contamination is observed in the field, and at the soil-groundwater interface. A minimum of two (2) soil samples from each boring will be retained for laboratory analysis. All soil samples will be collected by cutting the desired section of disposable plastic tubing, sealing the ends of the tube with Teflon™ tape, and capped. The caps will be sealed with silicone tape, labeled, sealed in individual plastic bags, and placed in a pre-chilled ice chest with ice to remain at 4º Celsius (ºC) until they arrive at the lab.

Soil cuttings generated during drilling operations will be contained 55-gallon drums and remain on site. Water used in the decontamination and cleaning of drilling equipment will also be stored on site in 55-gallon drums.

3.3 Task 3: Groundwater Sampling

Once groundwater is encountered in each of the borings, and a sufficient amount is present for sampling, the Macrocore sampler will be removed from the boring, and a temporary flush threaded, ¾-inch schedule 40 polyvinyl chloride (PVC) casing will be placed within the boring. The bottom cap will be flush threaded, and based on previously observed conditions, the screened casing will be 0.010-inch slots. Based upon previous investigations, the groundwater recharge rate at the site is known to be slow. The casing may need to be left in the boring for up to 24 hours for enough water to be present for sampling. Groundwater samples will then be collected from the temporary casing using a disposable polyethylene bailer or a peristaltic pump.

Each groundwater sample will be collected in laboratory supplied EPA Testing Method approved containers, labeled, sealed in individual plastic bags, and placed in a pre-chilled ice chest with ice to remain at 4 degrees Celsius (ºC) until they arrive at the lab. Samples will be properly decanted into 40 ml VOAs using bailer attachments to minimize agitation of the sample. Samples collected in VOAs will be checked for headspace. VOA vials will be ordered with hydrochloric acid preservative and amber liters without preservatives. Typically, three VOAs and one amber liter will be collected for each groundwater sample.

3.4 Task 4: Laboratory Analysis – Soil and Groundwater Samples

Once all soil and groundwater samples are collected and appropriately packed, they will be transported, observing formal chain-of-custody (COC) procedures to a State of California-certified testing laboratory. All soil and groundwater samples will be collected and analyzed for Total Petroleum Hydrocarbons as gasoline (TPHg) and, as requested by the ACEHD, the full suite of VOCs by EPA Test Method 8260b.

3.5 Task 5: Backfilling of Borings

Once all soil and groundwater samples are collected, each temporary boring will be backfilled with neat cement grout. The backfilling procedures will be witnessed by a representative of the ACPWA as dictated by the permit.

4.0 PROPOSED SOIL GAS INVESTIGATION SCOPE OF WORK

To assess potential vapor intrusion concerns to the proposed residential redevelopment, Almar proposes to conduct a soil gas investigation at the subject site. The investigation will, in general, consist of the collection of soil gas samples from a total of five (5) semi-permanent soil gas sampling points. The sample points will be referred to as SG-1 through SG-5. A site map showing the proposed boring locations is included as Figure 5. The rationale for the proposed boring locations is based on locations of important site features, historical sampling data, and the assumed groundwater flow direction. The exact locations of the borings may be moved in the field at the discretion of the field geologist based upon encountered subsurface conditions. The details of the proposed soil gas investigation are presented in the following sections.

4.1 Task 6: Boring and Construction of Soil Gas Sampling Points

Almar will advance five borings (SG-1 through SG-5) in general accordance with the Department of Toxic Substance Control's (DTSC's) guidelines for Active Soil Gas Investigations. The boring will be advanced with a direct-push geoprobe rig to approximately 5.5 ft bgs at the locations shown on Figure 5. Almar will then place ¼-inch diameter Teflon tubing attached to a polyethylene vapor implant to 5.0 ft bgs; install a sand pack of #2/12 or #2/16 sand adjacent to the soil-gas implant within the borings from 5.5 to 4.5 feet bgs; place approximately 12-inches of dry granular bentonite above the sand pack, followed by a hydrated bentonite seal to the ground surface. The seal should minimize ambient air from the atmosphere from intruding into the area of the polyethylene probe.

4.2 Task 7: Purging and Sampling of Soil Gas Sampling Points

In general accordance with the DTSC's guidelines for Active Soil Gas Investigations, Almar will sample each of the newly installed soil gas sampling points a minimum of 2 hours after installation. Prior to sampling, Almar will purge the Teflon tubing and the voids within the sand-pack and granular bentonite portions of each soil-gas sampling point of three volumes of air using a 60 ml syringe or a SUMA® canister (purge canister) and will collect soil gas samples at a flow rate less than 200 milliliters per minute in either one or six liter laboratory-supplied evacuated sample-collection SUMA® canisters. Sampling will be aborted if soil gas flow rates are less than 10 ml/minute, or vacuum exceeds 10-in of mercury. Each soil-gas sampling point will be sampled in a Helium enriched atmosphere. The Helium will provide a quantifiable method (inert tracer) to ensure that representative soil gas samples are collected from each well.

4.3 Task 8: Laboratory Analysis - Soil Gas Sampling Points

The soil gas sample collected from the soil gas sampling point will be analyzed at California State-certified laboratory. Each sample will be analyzed for TPHg and VOCs by EPA Test TO-15, percent oxygen, and helium. The samples will be transported to the contract laboratory under chain-of-custody-record, within a dark ambient temperature container (Suma® canister). An electronic deliverable report (EDF) will be requested in addition a PDF copy of the certified laboratory report of the results for the soil gas sample testing work order.

4.4 Task 9: Reporting

A written report documenting the soil, water, and soil gas sampling work performed will be provided by Almar approximately two (2) weeks following completion of the field work and receipt of the laboratory results. The report will include field sheets, boring logs, laboratory data, etc. The report will contain the appropriate conclusions and recommendations based upon the conditions encountered in the field and the laboratory analytical results. The report will be signed and stamped by a registered professional.

5.0 TIMELINE

The following is an estimated timeline to complete the tasks outlined in Sections 3.0 and 4.0:

Task 1 – Will be completed within two (2) weeks of regulatory approval of this Workplan.

Tasks 2, 3, and 6 – Will take place within two (2) weeks of receipt of the required permit from the ACPWA (Task 1). Almar expects these tasks to be completed in 2 businesses days.

Task 4 – Will occur two weeks following completion of Tasks 2 and 3.

Task 5 – Will be completed the same day as Tasks 2 and 3.

Task 7 – Will be completed a minimum of 2 hours after task 6.

Task 8 – Will be completed within one week of completion of task 8.

Task 9 – Will be completed no more than two (2) weeks following receipt of all laboratory analytical data.

6.0 CERTIFICATION AND DISTRIBUTION

To the best of our knowledge, all statements made in this workplan are true and correct. This workplan is based on data provided by the client and others, site conditions observed, samples collected and analytical data. No warranty whatsoever is made that this workplan addresses all contamination found on the site.

Respectfully submitted,

Forrest N. Cook
Owner/Principal Scientist
Almar Environmental
California Professional Geologist #8201 (exp 9/18)

cc:

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7.0 REFERENCES

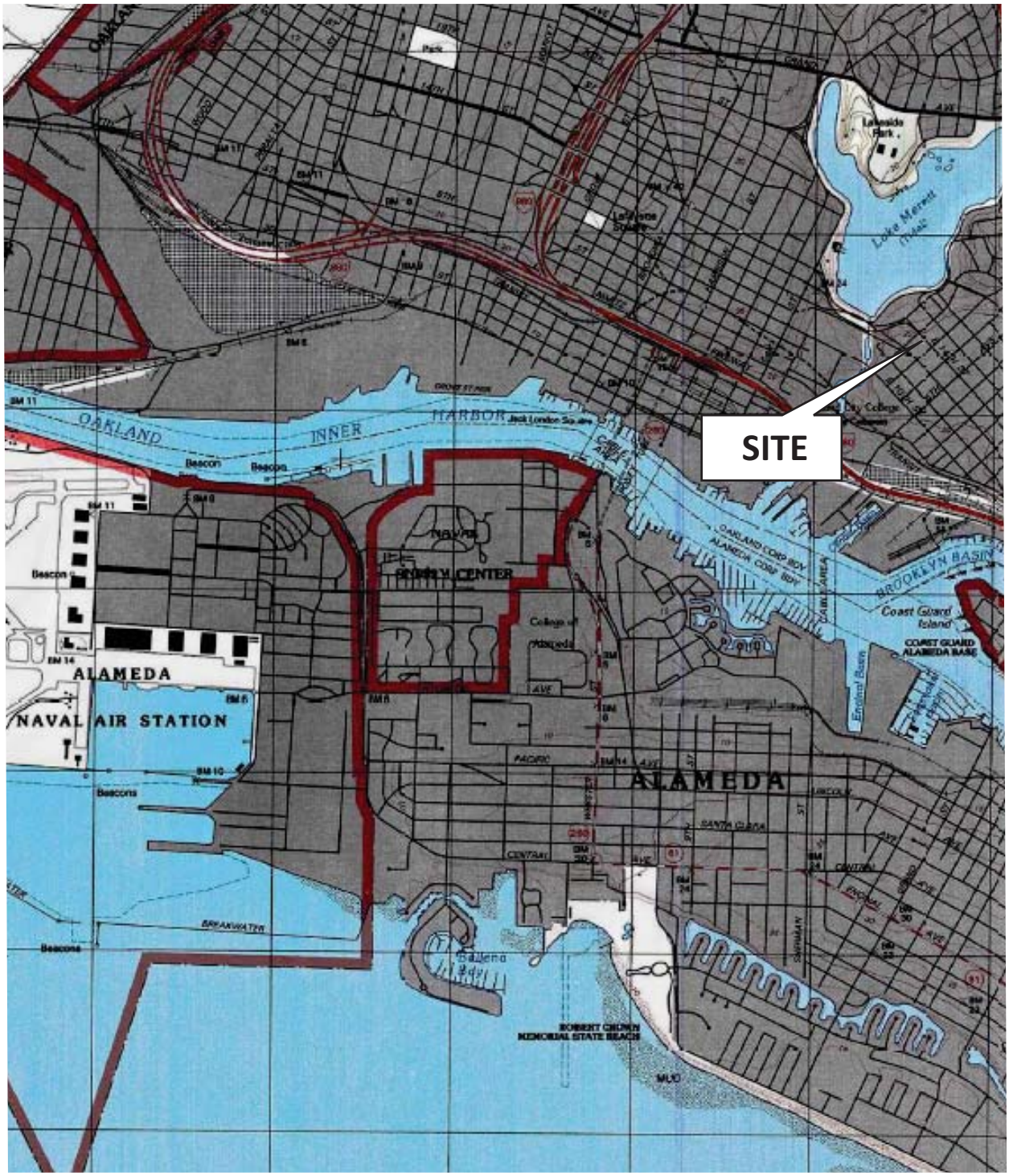
Graymer, R.W. 1996. *Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California*. U.S. Geological Survey, Menlo Park, CA.

Phase-1 Environmental Services. May 2017. *Phase I Environmental Site Assessment.* 229-255 International Blvd., Oakland, CA.

Phase-1 Environmental Services. August 30, 2017. Limited *Phase II Site Investigation.* 229-255 International Blvd., Oakland, CA.

United States Department of the Interior Geologic Survey (USGS). 1954, Revised 1994. Oakland East, California 7.5-Minute Quadrangle.

FIGURES



SOURCE: USGS 1:24,000 SCALE SERIES OAKLAND WEST, CA QUAD

APPROX. SCALE

0 0.5 1.0 MI

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229-255 INTERNATIONAL BLVD.
OAKLAND, CALIFORNIA

SITE VICINITY TOPO MAP

FIGURE

1

SOURCE: Google Earth, 2017

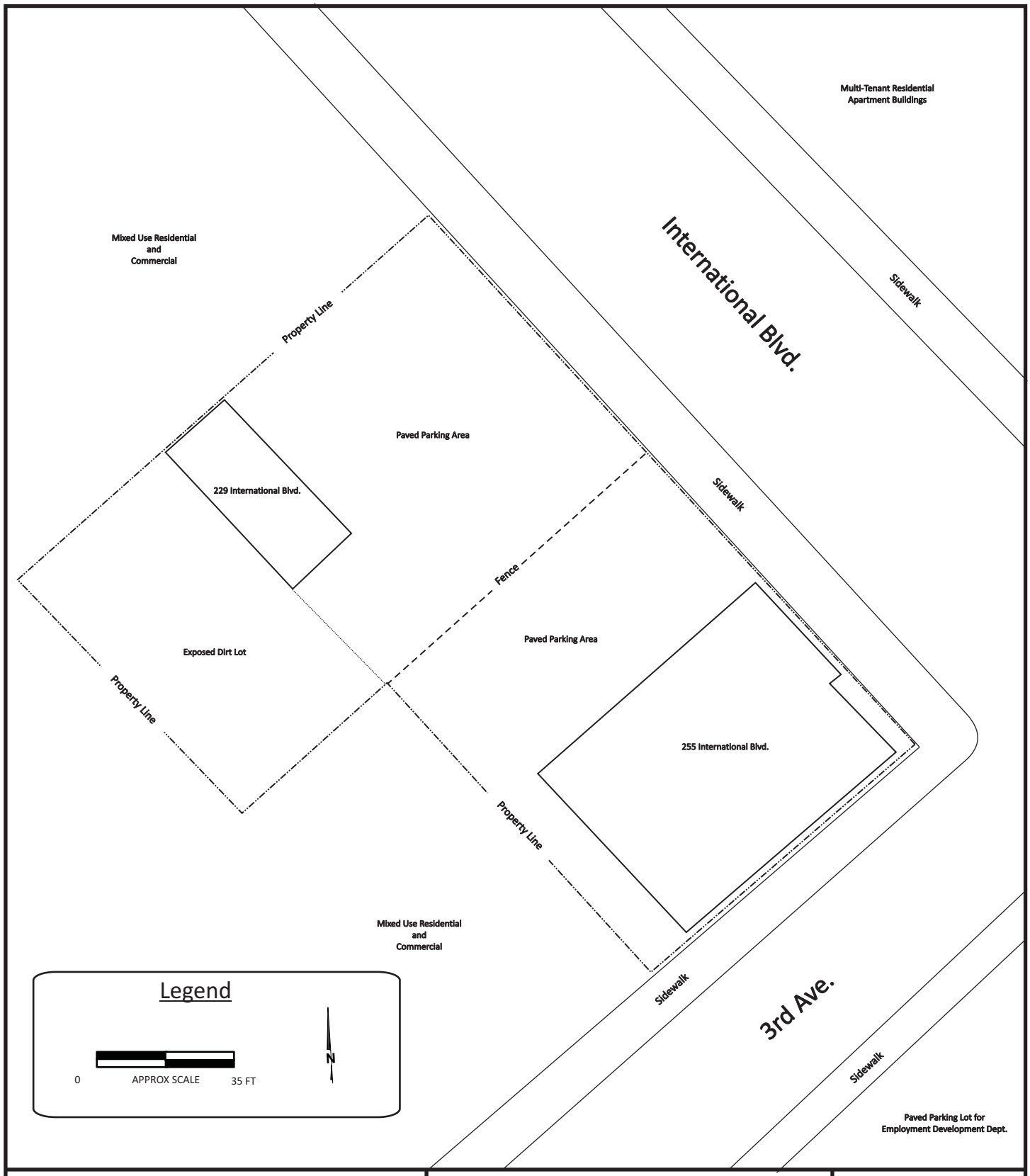
APPROX. SCALE
0 35 70 FT.

ALMAR environmental

229-255 INTERNATIONAL BLVD.
OAKLAND, CALIFORNIA

AERIAL PHOTOGRAPH
OF SITE AREA

FIGURE
2



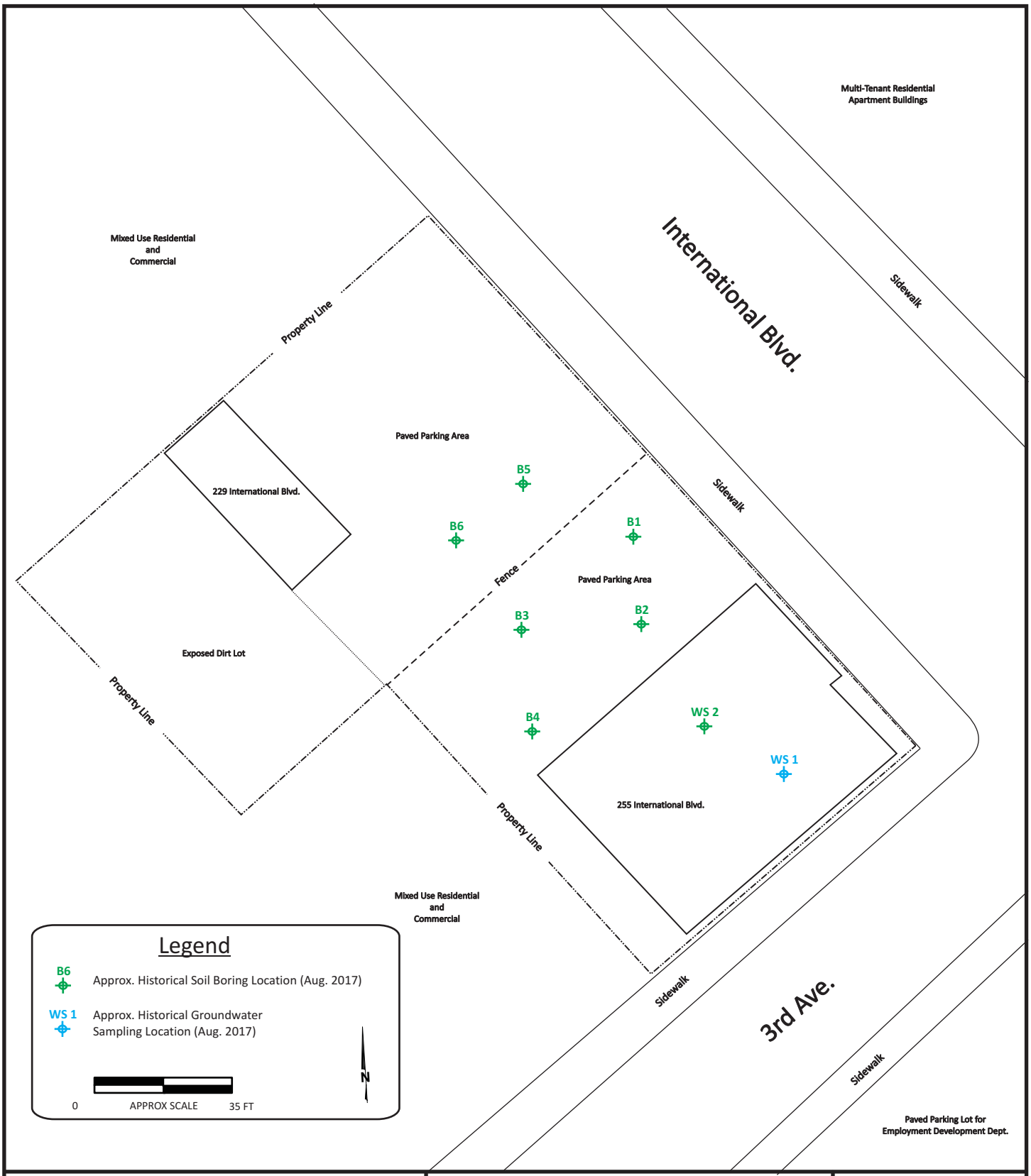
ALMAR environmental

229 - 255 INTERNATIONAL BLVD.
OAKLAND, CALIFORNIA

SITE MAP

FIGURE

3



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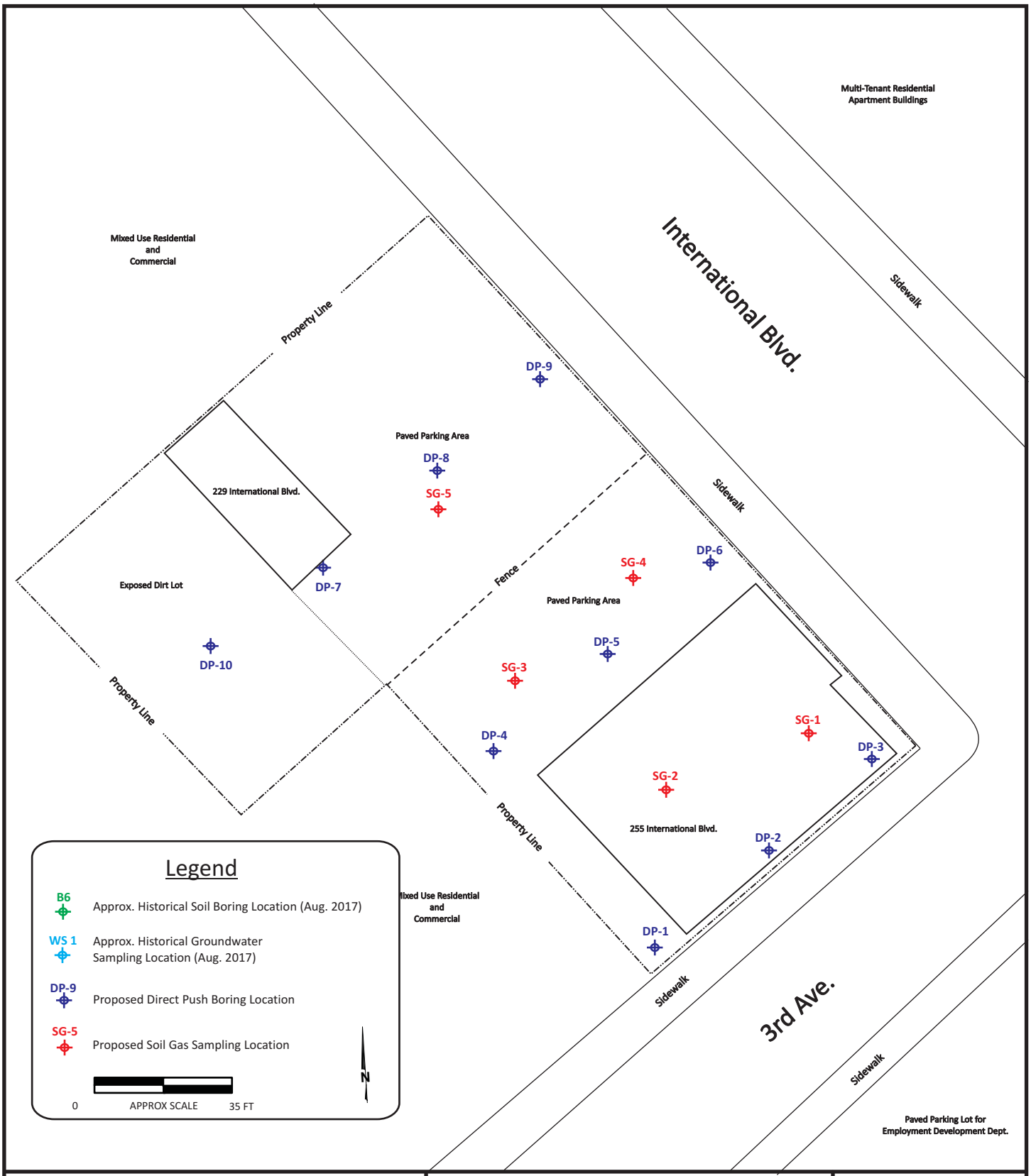
229 - 255 INTERNATIONAL BLVD.
OAKLAND, CALIFORNIA

SITE MAP SHOWING HISTORICAL BORING LOCATIONS

FIGURE

4



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229 - 255 INTERNATIONAL BLVD.
OAKLAND, CALIFORNIA

SITE MAP SHOWING PROPOSED SAMPLING LOCATIONS

FIGURE

5

TABLES

TABLE 1
SUMMARY OF HISTORICAL SOIL ANALYTICAL DATA
229 - 255 International Blvd.
Oakland, California

Sample ID	Sample Depth (ft.)	Sample Date	TPHg (mg/Kg)	TPHd (mg/Kg)	TPHmo (mg/Kg)	B (mg/Kg)	T (mg/Kg)	E (mg/Kg)	X (mg/Kg)	Other Hydrocarbons (mg/Kg)
WS2-110"	9.0	08/10/17	ND<5.0	ND<1.2	ND<6.5	ND<0.0013	ND<0.0012	ND<0.0015	ND<0.0034	All ND
B1-2.5'	2.5	08/10/17	ND<5.0	ND<1.2	**8.5**	---	---	---	---	All ND
B2-2.5'	2.5	08/10/17	ND<5.0	ND<1.2	ND<6.5	---	---	---	---	All ND
B3-2.5'	2.5	08/10/17	ND<5.0	ND<1.2	ND<6.5	---	---	---	---	All ND
B4-2.5'	2.5	08/10/17	ND<5.0	ND<1.2	**13**	---	---	---	---	All ND
B5-2.5'	2.5	08/10/17	ND<5.0	ND<1.2	ND<6.5	ND<0.0013	ND<0.0012	ND<0.0015	ND<0.0034	All ND
B6-2.5'	2.5	08/10/17	ND<5.0	ND<1.2	**24**	---	---	---	---	All ND
ESL Res. Direct Exposure (Table S-1)			**740**	**230**	**11,000**	**0.230**	**970**	**5.1**	**560**	**varies**
ESL Leaching to nondrinking water (Table S-2)			**3,400**	**3,600**	**---**	**0.049**	**9.3**	**1.4**	**11**	**varies**
ESL Gross Contamination Level (Table S-3)			**1,000**	**2,300**	**5,100**	**870**	**650**	**400**	**420**	**varies**
ESL Res. Odor Nuisance Level (Table S-4)			**100**	**500**	**---**	**500**	**500**	**500**	**500**	**varies**
LTCP Residential (0' to 5')			**---**	**---**	**---**	**1.9**	**---**	**21.0**	**---**	**varies**
LTCP Residential (5' to 10')			**---**	**---**	**---**	**2.8**	**---**	**32.0**	**---**	**varies**

Notes:

Other Hydrocarbons = Additional constituents of fuel fingerprint test EPA 8015b/FFP
--- = Parameter not analyzed or not established
<0.5 / ND = Not present at or above practical laboratory detection limit
mg/Kg = micrograms per kilogram = parts per million = ppm
ESLs = RWQCB Environmental Screening Levels - Feb. 2016 (Rev. 3)
LTCP = Low Threat Closure Policy - Table 1: Concentrations of Petroleum Constituents in soil that will have no significant risk of adversly affecting human health
TPHg = Total Petroleum Hydrocarbons as gasoline
TPHd = Total Petroleum Hydrocarbons as diesel
TPHmo = Total Petroleum Hydrocarbons as motor oil
B = Benzene
T = Toluene
E = Ethylbenzene
X = Total Xylenes

Bolded Value =detected concentration
Shaded Value = concentration excedes either ESL or LTCP value

TABLE 2
SUMMARY OF HISTORICAL GROUNDWATER ANALYTICAL DATA
229 - 255 International Blvd.
Oakland, California

Sample ID	Sample Date	TPHg (ug/L)	TPHd (ug/L)	TPHmo (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MtBE (ug/L)	Naphth. (ug/L)	Other Hydrocarbons (ug/L)
WS1-150"	08/10/17	**6,800**	ND<68	ND<130	ND<0.83	ND<0.93	ND<0.98	ND<3.6	---	---	All ND
MCL Priority (ESL Table GW-1)		**220**	**150**	**---**	**1.0**	**40**	**30**	**20**	**5.0**	**0.17**	**varies**
Aquatic Freshwater Habitat Goal (ESL Table GW-2)		**440**	**640**	**---**	**46**	**130**	**290**	**---**	**66000.0**	**24**	**varies**
Res. Vapor Intusion Health Risk (ESL Table GW-3)		**---**	**---**	**---**	**1.1**	**3600**	**13**	**1,300**	**1200.0**	**20**	**varies**
Gross Contamination Levels (ESL Table GW-4)		**5,000**	**2,500**	**50,000**	**50,000**	**50,000**	**50,000**	**50,000**	**50,000**	**16,000**	**varies**
Odor Nuisance Levels (ESL Table GW-5)		**100**	**100**	**---**	**170**	**40**	**30**	**20**	**5.0**	**210**	**varies**

Notes:

Other Hydrocarbons = Additional constituents of fuel fingerprint test EPA 8015b/FFP
All samples collected as "grab" groundwater samples
--- = Parameter not analyzed or not established
<0.5 / ND = Not present at or above laboratory practical quantitation limit
ug/L = micrograms per Liter = parts per billion = ppb
ESLs = RWQCB Environmental Screening Levels - Feb. 2016 (Rev. 3)

TPHg = Total Petroleum Hydrocarbons as gasoline
TPHd = Total Petroleum Hydrocarbons as diesel
TPHmo = Total Petroleum Hydrocarbons as motor oil
B = Benzene
T = Toluene
E = Ethylbenzene
X = Total Xylenes
Naphth. = Naphthalene
MtBE = Methyl-t-butyl ether

Bolded Value =detected concentration
Shaded Value = concentration excedes either ESL or LTCP value