

RECEIVED

By Alameda County Environmental Health 1:57 pm, Jun 09, 2017

June 7, 2017

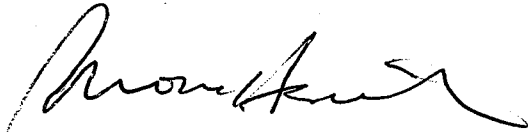
Mr. Keith Nowell
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Ste. 250
Alameda, CA 94502-6577
keith.nowell@acgov.org

Subject: **Additional Soil Gas Investigation Workplan**
3101 35th Avenue, Oakland, CA
Fuel Leak Case No. RO0003238; Global ID T10000010421

Dear Mr. Nowell,

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached *Additional Soil Gas Investigation Workplan* are true and correct to the best of my knowledge.

Sincerely,



Ms. Mona Hsieh
Responsible Party Representative



June 7, 2017

Alameda County Health Care Services Agency
Environmental Protection
Attn: Mr. Keith Nowell
1131 Harbor Bay Parkway, Ste. 250
Alameda, California 94502
keith.nowell@acgov.org

Subject: Additional Soil Gas Investigation Workplan
Green Oak Builders – RO0003238
3101 35th Avenue, Oakland, California

Dear Mr. Nowell,

As you requested in previous email correspondences and phone conversations, Almar Environmental (Almar) is presenting, herein, an *Additional Soil Gas Investigation Workplan* for the above referenced project. The purpose of this workplan is to present a series of tasks, which when completed, will further delineate the extent of chlorinated solvents (specifically, tetrachloroethene – PCE) previously detected on site and possibly identify a contaminant source. A detailed site history, including previous investigations and historical data tables, can be found in the online case file at:

http://geotracker.waterboards.ca.gov/profile_report?global_id=T10000006539

In general, Almar proposes to install and sample a series of ten (10) semi-permanent five foot soil vapor sampling points at various locations across the site (Figure 4). Two of the borings (SV-4 and SV-6) will be advanced to 15 feet below ground surface (bgs) and will be constructed as dual-completion sample points. The specific set of tasks proposed by Almar to complete this investigation is presented as follows:

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 Association (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.

Task 2: Drilling and Soil and Water 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

Almar Environmental

Phone: 831.420.7923 • 407 Almar Avenue, Santa Cruz, CA 95060 • cook.forrest@gmail.com

www.almarenvironmental.com

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 (SV-1 through SV-10). The Geoprobe™ will direct-push (hammer) a 2-inch diameter steel Macrocore barrel until the desired depths (5 or 15 feet bgs) are reached. 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 Unified 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 (if encountered). A minimum of one (1) 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 4° Celsius (°C) until they arrive at the lab.

If groundwater is encountered in either of the deeper, 15 foot borings (SV-4 and SV-6), a “grab” groundwater sample will be collected for laboratory analysis. The boring will then be backfilled to a depth of 5 feet bgs and the boring will be constructed as a single completion sample point in the manner described in the following section.

Task 3: Construction of Single Completion Soil Gas Sample Points

As described above, all borings (except SV-4 and SV-6) will be advanced with a direct-push geoprobe rig to approximately 5.5 ft bgs at the locations shown on Figure 4. The licensed driller 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.

Task 4: Construction of Dual-Completion Soil Gas Sample Points

In addition to the single completion soil vapor points described in the previous section, two dual-completion sample points (SV-4 and SV-6) will also be installed. These two borings will be advanced to a depth of 15.5 feet bgs. If no groundwater is encountered, the driller will place a ¼-inch diameter Teflon tubing attached to a polyethylene vapor implant to 15.0 ft bgs; install a sand pack of #2/12 or #2/16 sand adjacent to the soil-gas implant within the borings from 15.5 to 14.5 feet bgs; place approximately 12-inches of dry granular bentonite above the sand pack, followed by a hydrated bentonite seal to approximately 5.5 feet bgs. Then a second soil vapor point will be installed to 5.0 feet bgs in the same manner described in Task 3.

Task 5: Purging and Sampling of Soil Vapor Sampling Points

In general accordance with the DTSC’s guidelines for Active Soil Gas Investigations, WTI will sample each of the newly installed soil gas sampling points a minimum of 48 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.

Task 6: Laboratory Analysis

Each of the soil gas samples collected from the soil gas sampling points will be analyzed at California State-certified laboratory. Each sample will be analyzed for VOCs by EPA Test Method 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.

Additionally, each soil and groundwater sample (if any) 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 analyzed for the full suite of VOCs by EPA Test Method 8260b.

Task 7: 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.

Estimated Timeline

The following is an estimated timeline to complete the tasks outlined above:

Task 1 – Will be completed prior to beginning Task 2.

Tasks 2, 3, and 4 – Are scheduled to take place on June 15, 2017.

Tasks 5 and 6 – Will be completed the week of June 19, 2017.

Task 7 – A meeting between the responsible party, environmental consultant and the local oversight agency is scheduled for July 7, 2017. The figures and tables for this report will be completed prior to the meeting for reference and the final report will be completed within a week following the meeting.

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,

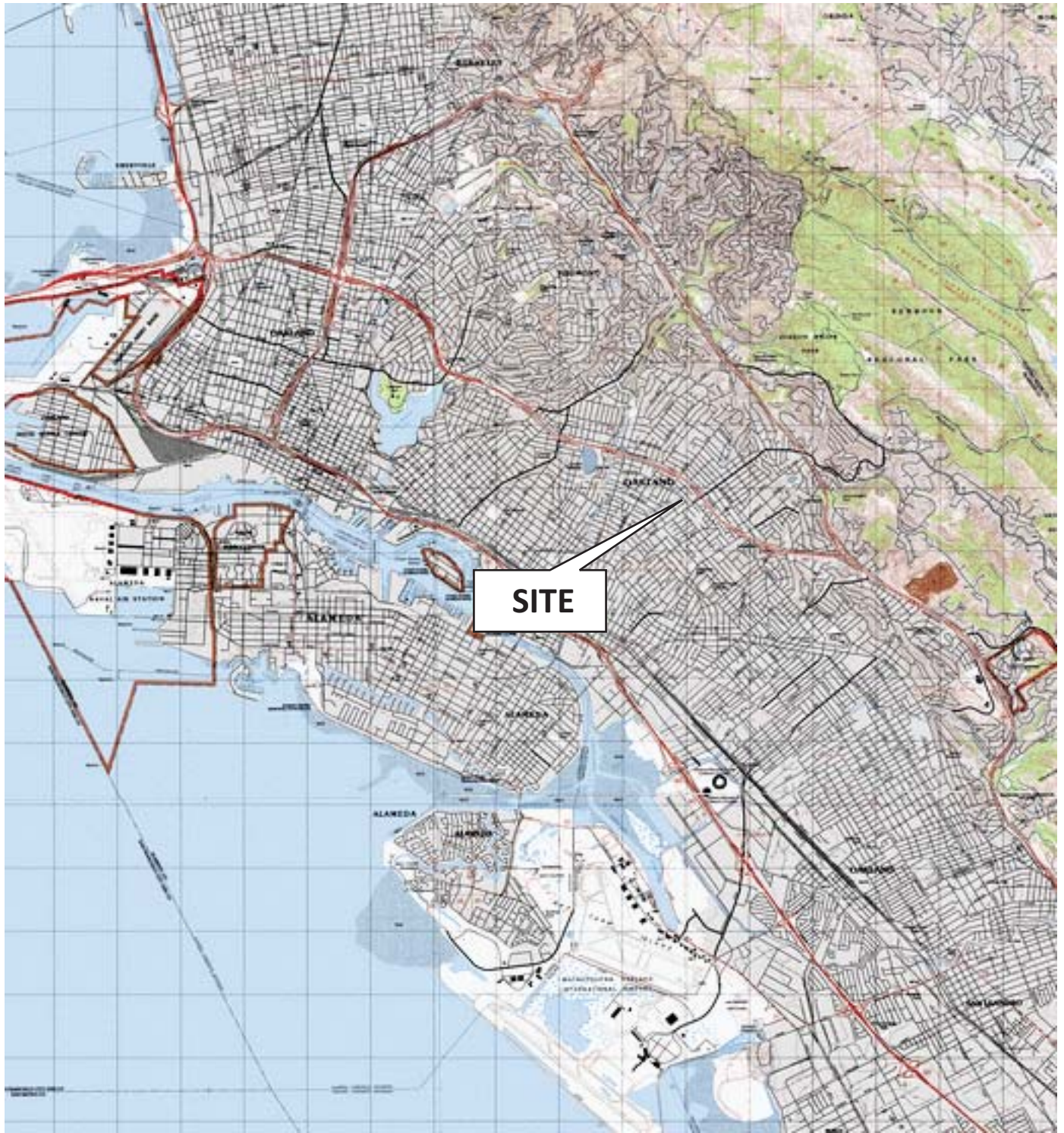


Forrest N. Cook
Owner/Principal Scientist
Almar Environmental
California Professional Geologist #8201 (exp 9/18)

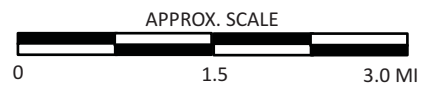
CC:

Mr. Keith Nowell
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Ste. 250
Alameda, CA 94502-6577
keith.nowell@acgov.org

FIGURES



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



3101 35th AVENUE
OAKLAND, CALIFORNIA

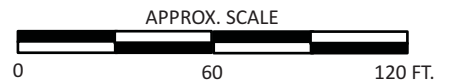
SITE VICINITY TOPO MAP

FIGURE

1



SOURCE: Google Earth, 2015

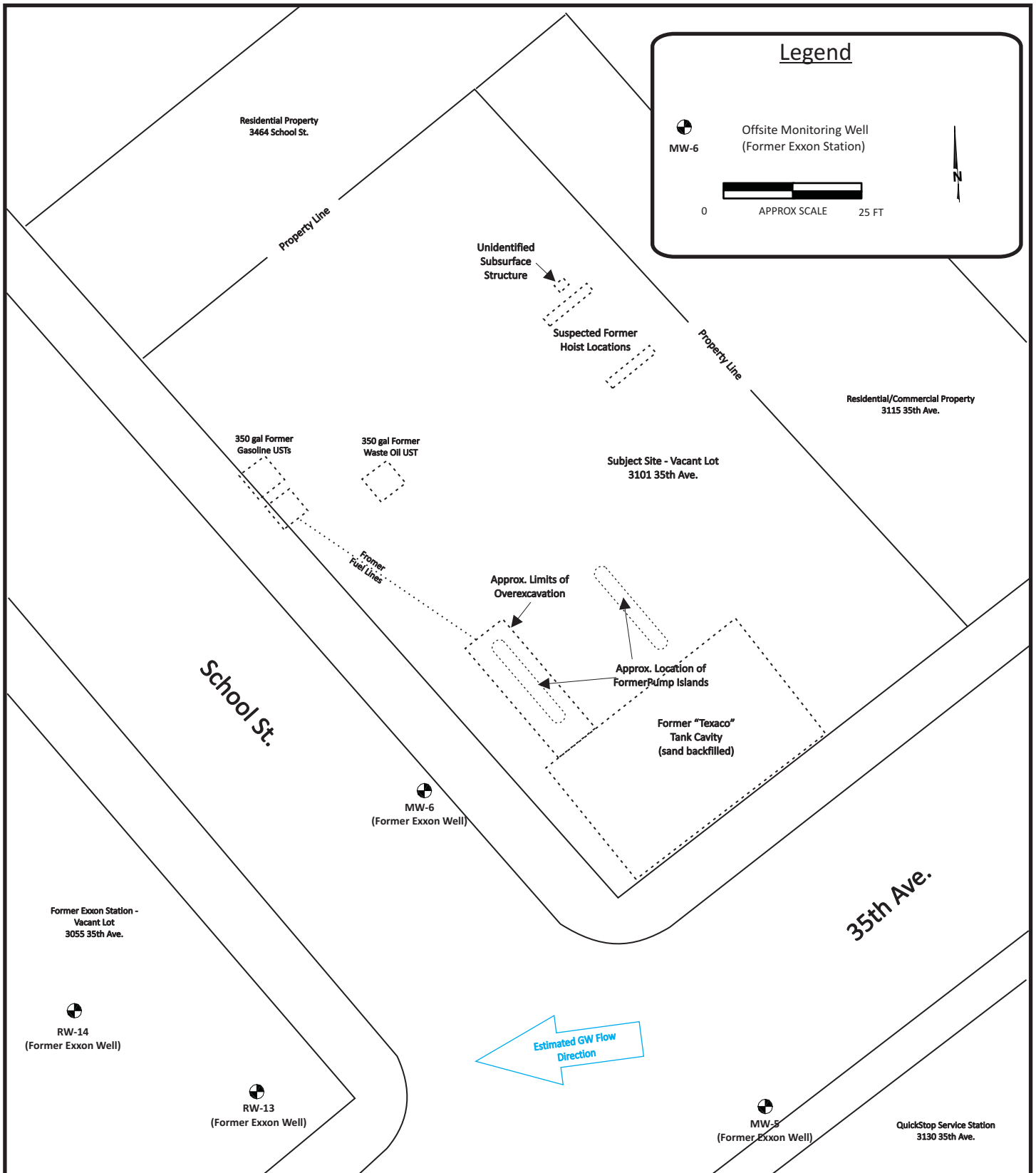


3101 35th AVENUE
OAKLAND, CALIFORNIA

AERIAL PHOTOGRAPH
OF SITE AREA

FIGURE

2

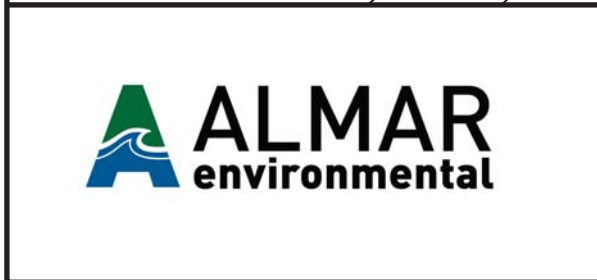


Legend

Offsite Monitoring Well
 (Former Exxon Station)

0 APPROX SCALE 25 FT

N

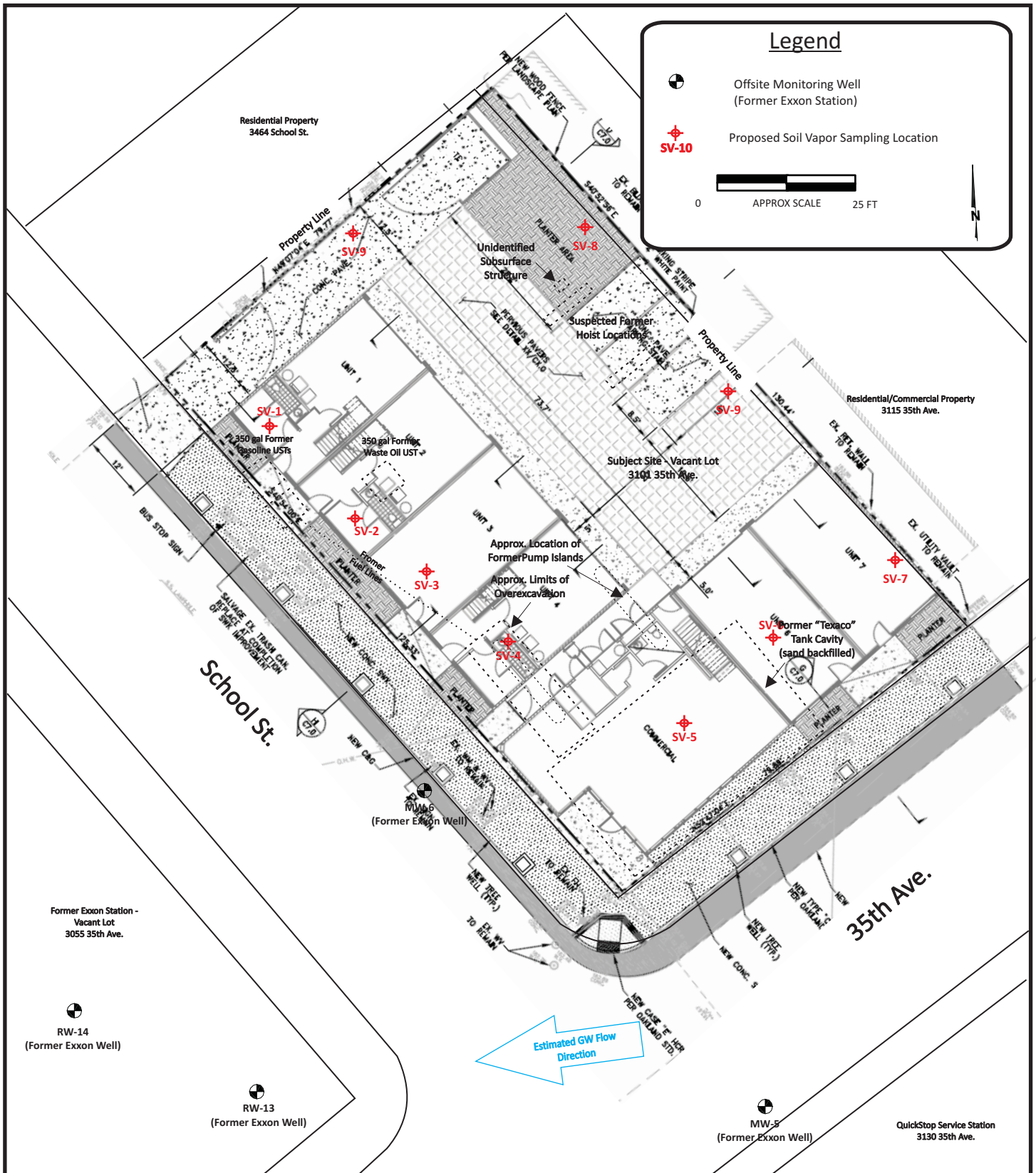


**3101 35th AVENUE
 OAKLAND, CALIFORNIA**

DETAILED SITE MAP

FIGURE

3



3101 35th AVENUE
OAKLAND, CALIFORNIA

FIGURE

SITE MAP SHOWING PROPOSED
SOIL VAPOR SAMPLING LOCATIONS

4