Allterra Environmental, Inc.
849 Almar Avenue, Suite C
No. 281
Santa Cruz, California 95060

Client: Mary Dudum
Project Location: 2512 107th Avenue, Oakland, California
Subject: Work Plan for Additional Subsurface Investigation
Report Date: March 27, 2013

To Whom It May Concern:

I have reviewed the report referenced above and approve its distribution to the necessary regulatory agencies. Should any of the regulatory agencies require it, "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached proposal or report is true and correct to the best of my knowledge."

Sincerely,

Mary Dudum

Work Plan for Additional Subsurface Investigation
2512 107th Avenue, Oakland, California
SLIC Case No. RO0002657, Global ID T06019737919

Date:
March 27, 2013

Project No.:
2512

Prepared For:
Michael and Mary Dudum
2601 37th Avenue
San Francisco, California 94116

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March 27, 2013

Michael and Mary Dudum
2601 37th Avenue
San Francisco, California 94116

Subject: Work Plan for Additional Subsurface Investigation, Former Grand Auto, 2512 107th Avenue, Oakland, California

Dear Mr. and Mrs. Dudum:

On your behalf, Allterra Environmental, Inc. (Allterra) has prepared this *Work Plan for Additional Subsurface Investigation* for the property located at 2512 107th Avenue in Oakland, California (Site). The purpose of the proposed work is to collect and evaluate groundwater samples to assess current subsurface conditions beneath at the Site, as well as confirm that groundwater beneath the Site has not been significantly impacted by the release of hydraulic oil associated with the former hydraulic hoists. As indicated, soil samples may also be collected and evaluated. This document was prepared pursuant to technical comments presented in the March 7, 2013 letter issued by Alameda County Environmental Health (ACEH). All work will be conducted in accordance with guidelines established by the ACEH, San Francisco Bay Regional Water Quality Control Board (RWQCB), and Allterra's field protocols presented in Appendix A.

Site Location and Description
The Site is a commercial property located at the intersection of 107th Avenue and MacArthur Boulevard in Oakland, California (Figure 1). The Site was previously occupied by a Grand Auto Store that ceased operation in November 1992. Five hydraulic hoists and associated reservoirs were removed from the Site in December 1992. Soil and groundwater samples collected following the hoist removals indicated the presence of heavy range petroleum hydrocarbons beneath the Site, particularly in the vicinity of former reservoir pit T3/T4. Historic soil and groundwater analytical results are summarized in Table 1. Pertinent site features, including the location of the former Grand Auto service area, are presented on Figure 2. Approximate locations of previous sampling completed in 1992 and 1993 are shown on Figure 3 and taken from various reports prepared by AllWest Environmental, Inc. (AllWest).

Proposed Scope of Work
The ACEH recently performed a review of the case file for the Site to determine likely next steps to reach case closure. Based on their review, the ACEH recommended conducting further investigation work to confirm that groundwater beneath the Site has not been significantly impacted by the release of hydraulic oil. The following is a discussion of sampling activities proposed at the Site to comply with this request and satisfy requirements for case closure. The proposed scope of work is as follows:

- Obtain a drilling permit from the Alameda County Public Works Agency prior to the commencement of field activities;

- Contact Underground Service Alert (USA) to identify the work area for underground municipal utilities;
- Retain a private utility location contractor to further identify underground utilities at each proposed boring location;
- Advance Geoprobe® borings at three locations (B-1 through B-3) to depths of approximately 35 feet below ground surface (bgs) for the collection of soil and grab groundwater samples;
- Analyze soil and groundwater samples for total petroleum hydrocarbons (TPH) as hydraulic oil by EPA Method 8015M; and
- Evaluate investigation field data and prepare report.

Field Activities

Permitting and Underground Utility Locating

A drilling permit will be obtained from the Alameda County Public Works Agency prior to the commencement of field activities.

A private utility locating contractor will be retained to identify underground utilities at each proposed boring location. Additionally, the Underground Service Alert (USA) will be notified at least 48 hours prior to the commencement of drilling activities to identify the public service utilities in the work area.

Geoprobe® Borings

To assess current soil and groundwater conditions beneath the Site, Geoprobe® borings will be advanced at three locations in the vicinity and downgradient of the former reservoir pit T3/T4. The borings will be advanced to first-encountered groundwater (expected at approximately 35 feet bgs) using a truck-mounted Geoprobe® rig equipped with 2-inch diameter push core drilling equipment. Upon completion of drilling and sampling activities, the borings will backfilled to surface grade with neat cement containing 5% bentonite. The proposed boring locations are shown on Figure 3 but will be subject to the ability to conduct borings given current commercial buildings at the Site.

Soil Classification and Sample Collection

At each boring location, a percussion hammer driven Geoprobe® soil-coring system will be used to collect continuous soil cores, at approximately four-foot intervals, for soil classification purposes. During drilling, soil from the borings will be described and classified using the Unified Soil Classification System (USCS) and will be field screened for petroleum constituents using a photo-ionization detector (PID). Soil samples will be collected for laboratory analysis from zones where visible staining, odor, or elevated PID readings are observed. Additionally, grab groundwater samples will be collected for laboratory analysis from the bottom of each boring. Drilling and sampling procedures are further described in Appendix A.

Laboratory Analysis

Groundwater and any soil samples collected during sampling activities will be submitted for chemical testing under chain-of-custody protocol to McCampbell Analytical, Inc., of Pittsburgh,

California, a State of California certified laboratory (ELAP #1644). All samples will be analyzed for TPH as hydraulic oil by EPA Method 8015M.

Waste Disposal

Soil cuttings and wastewater generated during drilling activities will be temporarily stored on-site in labeled, DOT-approved 55-gallon drums pending disposal under waste manifest at an appropriate disposal facility. Allterra will later dispose of such materials on behalf of the property owners.

Health and Safety

During drilling and injection field activities, field personnel will wear modified Level D personal protective equipment (PPE) consisting of hardhats, chemical resistant gloves, safety glasses or goggles, long sleeve clothing or Tyvek® suit, and steel-toed boots. Onsite health and safety issues will be the responsibility of the Project Manager and Site Health and Safety Officer and are summarized in Allterra's Site-Specific Health and Safety Plan. The Site Health and Safety Officer is responsible to inform all field personnel of current health and safety issues and will conduct daily health and safety tailgate meetings.

Reporting

Upon completion of the proposed scope of work, Allterra will prepare a technical report summarizing completed field activities, the results of soil and groundwater sampling, and current Site conditions.

Limitations

The data, information, interpretation, and recommendations contained in this work plan are presented solely as preliminary to the existing environmental conditions at 2512 107th Avenue in Oakland, California. Site conditions can change over time; therefore, data, information, interpretation, and recommendations presented in this work plan are only applicable to the timeframe of this study. The conclusions and professional opinions presented herein were developed by Allterra in accordance with environmental principles and practices generally accepted at this time and location, no warranties are expressed or implied.

If you have any questions, please call Allterra at (831) 425-2608.

Sincerely,
Allterra Environmental, Inc.

Joe Mangine, P.G. 8423
Project Geologist

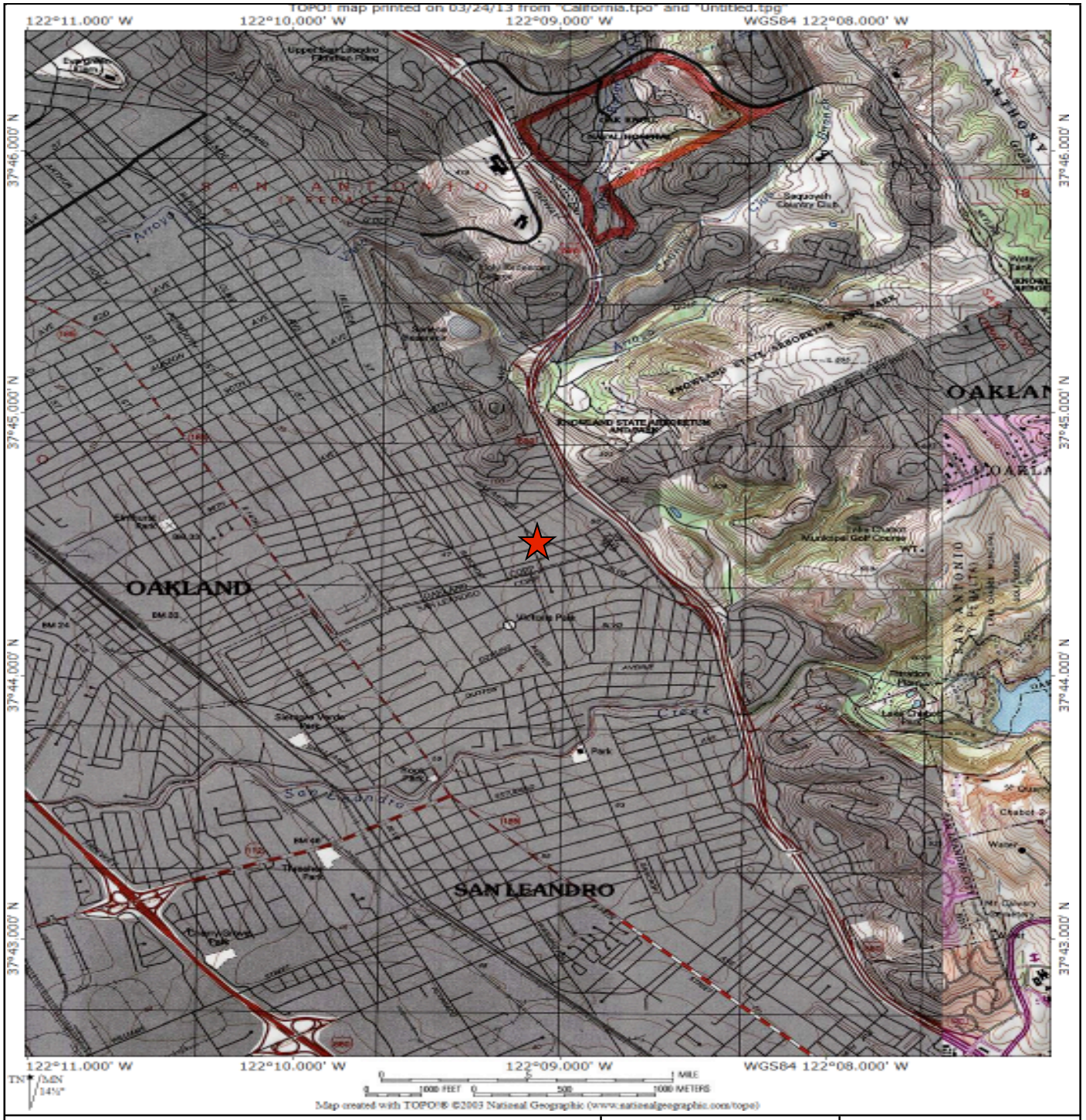
Attachments:
Figure 1: Vicinity Map
Figure 2: Site Plan
Figure 3: Proposed Boring Locations

Table 1: Historic Soil and Groundwater Analytical Results

Appendix A: Site Investigation Field Protocol

cc: Jerry Wickham, ACEH

FIGURES 1 - 3



Vicinity Map 2512 107th Avenue Oakland, California	Figure 1 | 3/25/13

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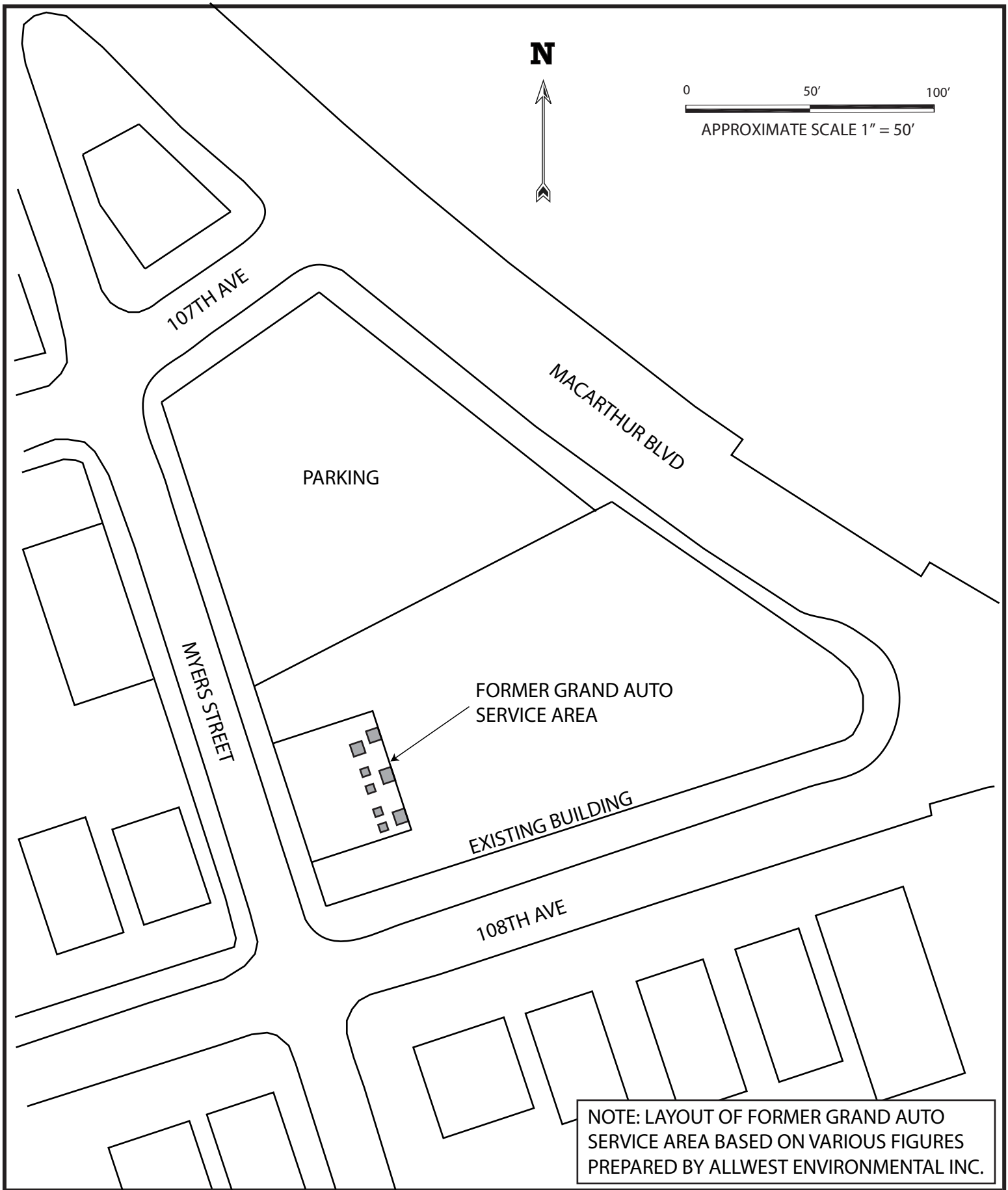

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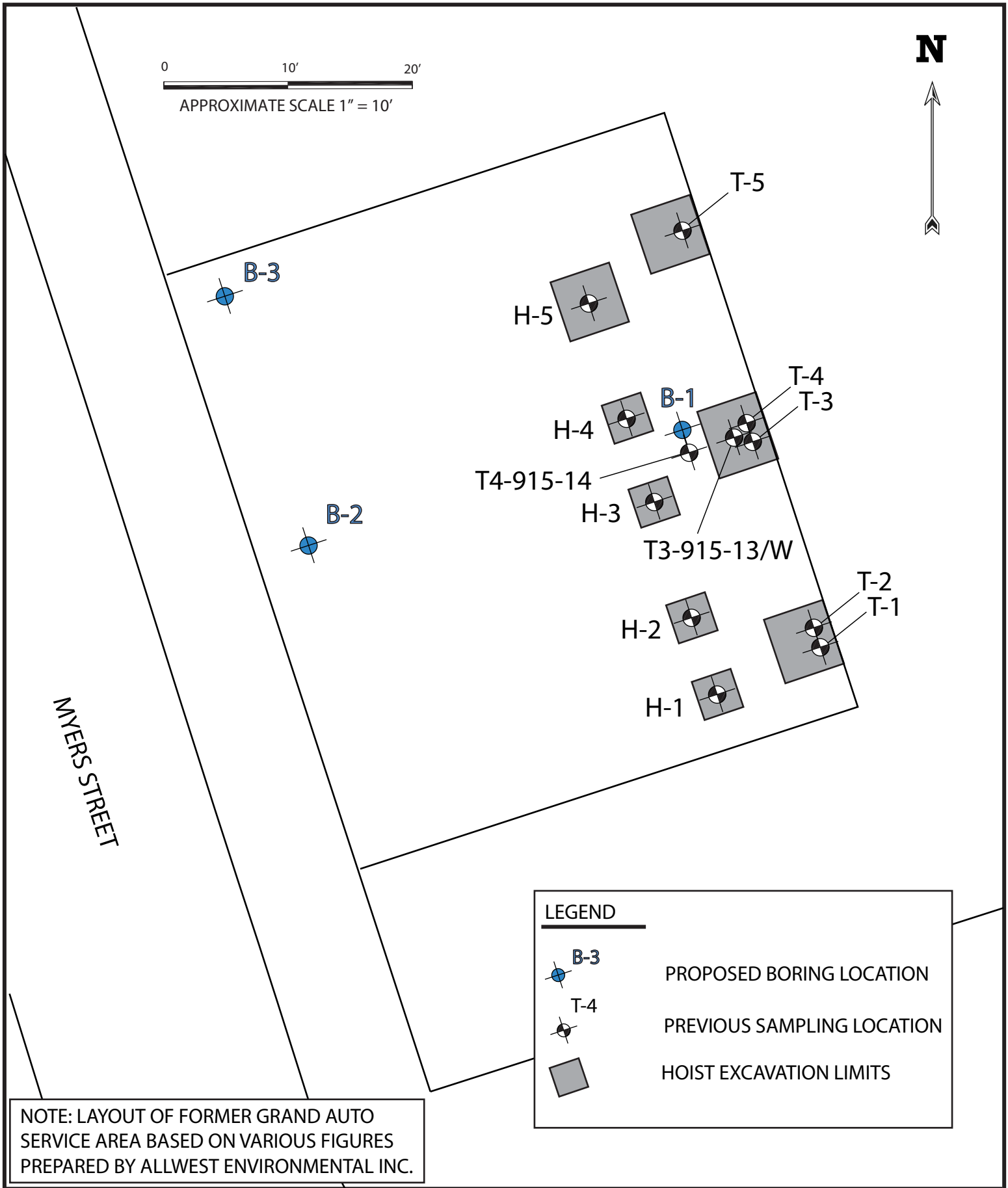
SITE PLAN
2512 107th Ave
Oakland, California

FIGURE
2



NOTE: LAYOUT OF FORMER GRAND AUTO SERVICE AREA BASED ON VARIOUS FIGURES PREPARED BY ALLWEST ENVIRONMENTAL INC.

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PROPOSED BORING LOCATIONS

2512 107th Ave
Oakland, California

FIGURE

3

TABLE 1

Table 1
Historical Soil and Groundwater Analytical Results
2512 107th Avenue, Oakland, California

Sample ID	Sample Depth (feet, bgs)	Date	Total Petroleum Hydrocarbons as		Polychlorinated Biphenyls (PCBs)
			Diesel	Motor Oil	
		Analytical Method:	8015B	8015B	8080
		Soil Units:	mg/kg	mg/kg	mg/kg
		Groundwater Units:	µg/L	µg/L	µg/L
Historic Soil Sampling[1]:					
H-1	9.0	12/24/92	<10	<20	--
H-2	9.0	12/24/92	<10	<20	--
H-3	9.0	12/24/92	<10	<20	--
H-4	9.0	12/24/92	<10	<20	--
H-5	9.0	12/24/92	<10	100	--
T-1	4.0 - 7.0	12/24/92	<500	3,500	--
T-2	4.0 - 7.0	12/24/92	<1,000	6,800	--
T-3	4.0 - 7.0	12/24/92	<1,000	10,000	--
T-4	4.0 - 7.0	12/24/92	<1,000	6,400	--
T-5	4.0 - 7.0	12/24/92	<500	2,300	--
H-5-B	10	3/18/93	<10	<20	<1.0
H-5-S	9.0	3/18/93	<10	<20	<1.0
T-1-B	6.5	3/18/93	<10	<20	<1.0
T-1-S	6.0	3/18/93	<10	<20	<1.0
T-2-B	6.5	3/18/93	<10	<20	<1.0
T-2-S	5.5	3/18/93	<10	<20	<1.0
T-5-B	6.5	3/18/93	<10	<20	<1.0
T-5-S	6.0	3/18/93	<10	<20	<1.0
T-3/4-12	12	4/9/93	<2,000	19,000	--
T-3/4-13	13	4/9/93	<2,000	22,000	--
T3-915-13'	13	9/15/93	<0.05[2]	0.61[2]	--
T4-915-14'	14	9/15/93	<10	<20	--
Historic Groundwater Sampling[1]:					
T3-915-W	34	9/15/93	<200	4,800	--

Notes:
bgs = below ground surface
mg/kg = millograms per kilogram
µg/L = micrograms per liter
-- = not applicable/ not analyzed
The symbol "<" (less than) indicates that the analyte was not detected at a concentration above the laboratory detection limit specified.
1) Analytical results associated with historic sampling are taken from various reports prepared by AllWest in 1993.
2) Results reported are representative of TCLP analysis with units of µg/L.
TCLP = Toxic characteristic leaching procedure

APPENDIX A
Site Investigation Field Protocol

APPENDIX A
Allterra's Site Investigation Field Protocol

Geoprobe Boring Installations and Sampling: A truck-mounted Geoprobe rig hydraulically pushes a 4-foot steel core barrel (usually 2.5-inch diameter) equipped with an acetate liner into undisturbed soil. Four-foot core soil samples are collected in the acetate liner. The core barrel is extracted from the boring and the liner is removed. Soil samples from the necessary depth is cut from the acetate liner and capped with Teflon® sheets and plastic caps. The sample is labeled and stored on ice in an ice chest. The remainder of the acetate liner is then cut open and examined for lithology according to the Unified Soil Classification System. Job location, boring location, boring name, date, soil types, observations and activities are recorded on the boring logs. A portion of each sample is field screened using portable photo-ionization detector (PID). The core barrel is decontaminated between each boring. If groundwater samples are not necessary, the hole is filled with a cement grout and bentonite mixture from the bottom of the boring to surface grade.

Once the borings are advanced to the necessary depth, water samples are collected using a clean stainless steel bailer. If the boring does not stay open, a temporary well casing and screen is lowered into the boring to aid in water sample collection. Recovered water is transferred into labeled sample containers placed on ice. After the water samples are collected, the temporary well casing and screen are removed from the boring and is filled with a cement grout and bentonite mixture from the bottom of the boring to surface grade.

Soil Gas Probe Installation/Construction: Using a Geoprobe rig or hand auger equipment, approximately 3-inch diameter boreholes are advanced to depths of approximately 5- and 10-feet bgs, depending on site-specific conditions. The soil gas probes are constructed with ¼-inch diameter Teflon® tubing and a screened probe tip emplaced midway within a one (1) foot sand filter pack at the bottom of each borehole. At least one foot of dry granular bentonite will be placed on top of the sand pack to avoid infiltration of hydrated bentonite grout. The probes will be properly marked at the surface to identify their location and depth and will be completed and secured within locked well boxes. The soil gas probes are left for at least 48 hours following installation to facilitate re-equilibration prior to the initial sampling event. Following re-equilibration, leak and purge volume tests will also be performed prior to the initial sampling event. The soil gas probes are constructed in accordance with the DTSC and Cal-EPA Interim Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air revised February 7, 2005 and the updated Draft Advisory for Active Soil Gas Investigations dated March 3, 2010.

Soil Gas Sampling: Using permanent soil vapor probes, soil gas samples will be collected by attaching the ¼-inch diameter Teflon® tubing to a flow regulator, vacuum gauge, and then a 1L-Suma® canister. The tubing is initially purged using a designated purge canister; subsequently, the purge canister is closed and the vapors are collected in the sample canister. The internal surfaces of the stainless steel canisters will be passivated using the "Summa" process and are therefore referred to as Summa Canisters. A vacuum gage will be used to measure the initial vacuum of the canister before sampling and the final vacuum upon completion. The gages typically have ranges from 0 to 30 inches of mercury (in. Hg). The canisters vacuums are used to draw the sample, which is referred to as passive sampling (instead of using pumps). After confirming an initial pressure of -30 in. Hg, the canister is left open until the pressure increases to approximately -5 in. Hg. One replicate soil gas sample is also collected during field activities. The filled canister is sealed with a brass cap, placed into the original shipping container, and shipped to a state-certified analytical laboratory, using Chain-of-Custody procedures. Soil gas samples are collected in accordance with the DTSC and Cal-EPA Interim Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air revised February 7, 2005 and the updated Draft Advisory for Active Soil Gas Investigations dated March 3, 2010.

Monitoring Well Installation/Construction and Soil Sampling: A truck-mounted, hollow-stem auger drill rig is used to drill boreholes for monitoring wells. The borehole diameter is a minimum of 4-inches larger than the outside diameter of the casing when installing well screen. The hollow-stem auger provides minimal interruption of drilling while permitting soil sampling at desired intervals. An Allterra geologist or engineer will continuously log each borehole during drilling and will constantly check drill cuttings for indications of both the first recognizable

occurrence of groundwater and volatile organic compounds using a portable photoionization detector (PID).

During drilling, soil samples are collected in 2-inch by 6-inch brass sleeves. Three brass tubes are placed in an 18-inch long split-barrel (spoon) sampler of the appropriate inside-diameter. The split-barrel sampler is driven its entire length using a 140-pound hammer, or until refusal. The sampler is extracted from the borehole and the bottom brass sleeve is capped with Teflon® sheets and plastic caps, labeled, and stored on ice. The two other brass sleeves are used for soil lithology classification (according to the Unified Soil Classification System) and field screening using a PID.

All soil borings not converted into monitoring wells are backfilled with a mixture of neat cement with 5% bentonite powder to surface grade.

Monitoring wells are constructed with blank and factory-perforated Schedule 40 polyvinyl chloride (PVC). The perforated interval consists of slotted casing, generally with 0.02-inch wide by 1.5-inch long slots, with 42 slots per foot. A threaded PVC cap is secured to the bottom of the casing. After setting the casing inside the hollow-stem auger, sand or gravel filter material is poured into the annular space to fill from boring bottom to generally 1 to 2 feet above the screened interval. A 1- to 2-foot thick bentonite seal is set above this sand/gravel pack. Neat cement containing approximately 5% bentonite is then tremmied into the annular space from the top of the bentonite plug to approximately 0.5 feet below ground surface. A traffic-rated well box is installed around each wellhead.

Monitoring Well Development: After installation, the wells are thoroughly developed to remove residual drilling materials from the wellbore and fine material from the filter pack. Typically, 10 well volumes are removed from the well and field parameters, such as pH, temperature, and conductivity, are recorded between each well volume. Well development techniques used may include surging, swabbing, bailing, and/or pumping All development water is collected either in drums or tanks for temporary storage, and properly disposed of pending laboratory analytical results. Following development, the well is typically allowed to stand undisturbed for a minimum of 48 hours before its first sampling.

Well Monitoring and Sample Collection: A Teflon bailer or submersible pump was used to purge a minimum of three well volumes of groundwater from each well. After each well volume is purged, field parameters such as pH, temperature, and conductivity are recorded. Wells are purged until field parameters have stabilized or a maximum of 10 well volumes of groundwater have been removed. If the well yield is low and the well was dewatered, the well is allowed to recharge to 80% of its original volume prior to sample collection. Field parameter measurements and pertinent qualitative observations, such as groundwater color and odor, are recorded in Groundwater Sampling Field Logs. Groundwater samples are collected in appropriate bottles and stored on ice for delivery, under chain-of-custody documentation, to a state-certified laboratory for analysis.

Sample Identification and Chain-Of-Custody Procedures: Each sample container submitted for analysis is labeled to identify the job number, date, time of sample collection, a sample number unique to the sample, any in-field measurements made, sampling methodology, name(s) of on-site personnel, and any other pertinent field observations also recorded on the field excavation or boring log. During shipment, the person with custody or the samples will relinquish them to the next person by signing the chain-of-custody form(s) and noting the date and time.

Equipment Decontamination: All drilling, sampling, well construction, and well development equipment is cleaned in a solution of laboratory grade detergent and distilled water or steam cleaned before use at each sampling point.

Field Personnel: During groundwater sampling activities, sampling personnel will wear pertinent attire to minimize risks to health and safety. Field personnel will also use a pair of clean, powderless, surgical gloves for each successive sampling point. Used surgical gloves will be placed into waste drums for future disposal.

Waste Disposal: Soil generated during drilling will be stored in DOT-approved 55-gallon waste drums pending proper disposal. Water generated during well development, purging, and sampling activities will be placed into DOT-approved 55-gallon waste drums pending disposal and/or permitted discharge to the sanitary sewer.