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## PROPOSED ENVIRONMENTAL ACTIVITIES FOR SITE CLOSURE

### Task 1 – Additional Soil-Gas Investigation

Prior to commencement of fieldwork, *GeoSolve, Inc.* will locate three (3) proposed borings (SG-7 through SG-9) along the western and northern edges of 1750 Webster Street where elevated concentrations of gasoline in groundwater from up-gradient sources have come on to the property, and one (1) boring at the proposed elevator shaft (SG-10) at 301 19<sup>th</sup> Street and mark each boring with white paint. Once the proposed borings are marked, *GeoSolve, Inc.* will obtain a drilling permit through the Alameda County Public Works Department and contact underground service alert (USA) at least 48-hours before drilling activities. In addition, a Site-Specific Health and Safety Plan will be prepared for the project, and will be kept on-site during fieldwork activities.

Once USA is contacted and a drilling permit is obtained, a *GeoSolve, Inc.* field geologist will observe a State-licensed drilling contractor advance 3 borings to approximately five (5) feet below ground surface (bgs) on 1750 Webster Street and one boring at 301 19<sup>th</sup> Street using a direct-push drilling rig and temporary soil-gas probes will be installed at 6- to 5.5-feet bgs, with Monterey #3 sand to approximately 5.5-feet, followed by dry bentonite to 4.5-feet and hydrated bentonite to grade. The location of the proposed soil-gas probes SG-7 through SG-10 are shown on Figure 1.

### Soil-Gas Sampling

Soil-gas samples will be collected in accordance with the guidelines in Cal EPA Advisory – Active Soil Gas Investigations, April 2012. Samples will be collected a minimum of 2 hours after installation of the temporary soil-gas sampling probes using a direct-push drilling techniques.

The above ground sampling apparatus (including the Summa canister and all valves, gauges, lines, and fittings) will be assembled. The sampling apparatus will be evacuated to at least 100 inches of water using a purge pump, and a gauge on the apparatus will be observed for at least 1 minute. If there is no change in the negative pressure, then the sampling will be collected without disassembling the apparatus.

Prior to sampling of each soil-gas location, a laboratory supplied 4-liter Summa canister pre-pressurized to negative 30 inches of mercury will be used to purge the Teflon tubing by extracting up to three tubing volumes, which is calculated as 10 inches of mercury pressure relief under low-flow conditions.

A pre-evacuated 1 liter (L) Summa canister equipped with a regulator to control flow into the container to a rate of less than 200 milliliters per minute (mL/min) will be used to collect the samples. The Summa canisters will be provided from McCampbell Analytical with flow controller and will be certified clean and vacuum rates will be measured during each sampling event. During purging and sampling, a leak test will be performed as each sample is collected. The leak detection compound will be isopropanol alcohol (IPA), which will be cotton towels containing 70% IPA. The cotton cloth wipe will be placed on the ground next to the sampling apparatus during purging and sampling.





A shut-in test shall be conducted prior to purging and collecting soil-gas samples to evaluate the sampling system and fittings for leaks in the above-ground sampling system.

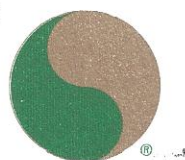
The soil-gas samples collected from SG-7 through SG-9 will be analyzed for methane, oxygen and carbon dioxide and the soil-gas collected from SG-10 will be analyzed for volatile organic compounds (VOCs) and isopropanol using EPA Method TO-15. The table below lists the reporting limits for the parameters included in the TO-15 analysis.

### Compound Reporting Limits for Fixed Lab Soil-Gas TO-15 Analyses

Parameter	Reporting Limit ( $\mu\text{g}/\text{m}^3$ )	Parameter	Reporting Limit ( $\mu\text{g}/\text{m}^3$ )
Acetone	4.8	Ethanol	9.4
Benzene	1.6	Ethyl-t-Butyl	8.4
Benzyl Chloride	7.8	Ethylbenzene	2.2
Bromodichloromethane	3.4	4-Ethyltoluene	2.5
Bromoform	5.2	Hexachloro-1,3-Butadiene	16
Bromomethane	1.9	2-Hexanone	6.1
2-Butanone	4.4	Methyl-t-Butyl Ether	7.2
Carbon Disulfide	6.2	Methylene Chloride	17
Carbon Tetrachloride	3.1	4-Methyl-2-Pentanone	6.1
Chlorobenzene	2.3	Napthalene	26
Chloroethane	1.3	o-Xylene	2.2
Chloroform	2.4	p/m-Xylene	8.7
Chloromethane	1	Styrene	6.4
Dibromochloromethane	4.3	Tert-Amyl-Methyl Ether	8.4
Dichlorodifluoromethane	2.5	Tert-Butyl Alcohol	6.1
Diisopropyl Ether	8.4	Tetrachloroethene	3.4
1,1-Dichloroethane	2	Toluene	1.9
1,1-Dibromoethane	2	Trichloroethene	2.7
1,2-Dibromoethane	3.8	Trichlorofluoromethane	5.6
Dichlorotetrafluoroethane	14	1,1,2-Trichloro-1,2,2-Trifluoroethane	11
1,2-Dichlorobenzene	3	1,1,1-Trichloroethane	2.7
1,2-Dichloroethane	2	1,1,1-Trichloroethene	2.7
1,2-Dichloropropane	2.3	1,3,5-Trimethylbenzene	2.5
1,3-Dichlorobenzene	3	1,1,2,2-Tetrachloroethane	6.9
1,4-Dichlorobenzene	3	1,2,4-Trimethylbenzene	7.4
c-1,3-Dichloropropane	2.3	1,2,4-Trichlorobenzene	15
c-1,2-Dichloroethene	2	Vinyl Acetate	7
t-1,2-Dichloroethene	2	Vinyl Chloride	1.3
t-1,3-Dichloropropane	4.5	1,1-Difluoroethane	5.4

Isopropanol will have detection limits ranging from  $1 \mu\text{g}/\text{m}^3$  to  $10 \mu\text{g}/\text{m}^3$ .

Once the soil-gas purge of each sampling probe is complete, the pressure gauges will be attached the laboratory-supplied 1-liter Summa canisters to containerize each soil-gas sample. The 1-liter Summa canisters will be pre-set by the laboratory to a vacuum pressure of -30" Hg. A 70% isopropyl alcohol (IPA)-soaked clean cotton towel will be placed near the Summa canisters during soil-gas sampling to evaluate any potential leaking from the Nylon-tube and Summa canister connections during sampling using a hood. The hood will cover the Summa canister and sampling



manifold with the IPA cotton-towel placed beneath the sampling manifold and Summa canister connections.

Once the pressure within each Summa canister reaches a pressure of at least -5" Hg, the canister will be closed, labeled, and submitted to the laboratory under chain-of-custody documentation for analysis by Environmental Protection Agency (EPA) Method TO-15 for gases methane, oxygen and carbon dioxide in soil-gas collected from SG-7 through SG-9 and VOCs in the soil-gas sample collected from SG-10.

Once soil-gas sampling activities are completed, the Nylon tubing will be removed and the remainder of the boring will be backfilled using neat cement to grade.

### IPA Detection Limits

Based on the California Department of Toxic Substances and Control (DTSC) IPA leak guidance, any concentration greater than 5% of the total IPA in the cotton-towel would be considered a compromised sample. Therefore, 5% of a 70% IPA cotton-towel would be an IPA concentration of 35,000 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). If the soil-gas samples indicate an IPA concentration greater than 35,000  $\mu\text{g}/\text{m}^3$ , then the sample will be considered invalid.

*GeoSolve, Inc.* will prepare a technical letter report summarizing the findings of the Additional Soil-Gas Sampling, which will report on the methane, oxygen and carbon dioxide concentrations at 5-foot bgs and discuss vacuum pressures of the Summa canisters before and after sampling activities. The report will include figures, tables and laboratory analytical results of the soil samples and provide recommendations. The Soil-Gas Survey will be finalized and sealed by a California licensed Certified Engineering Geologist (C.E.G.).

### Task 2 – Preparation of SMP and Well Destruction Activities

*GeoSolve, Inc.* will prepare a SMP, which will include contingency plans for uncovering debris, pipes, stained soil, underground storage tanks (USTs) and management of excavated soil during mass grading and drilling processes (if any). The SMP will also include a dust and air-monitoring plan and a site-specific health and safety plan (SSH&SP) in the appendices. The SMP will also address the lead-impacted soil beneath the site in the two locations and will rely on the SSH&SP for construction worker protection and future lead-impacted soil handling measures.

*GeoSolve, Inc.* will also obtain a well-destruction permit through the Alameda County Public Works Department and contract with a State-licensed drilling contractor to pressure-grout wells A-1 through A-3 to grade. This work will be conducted under the supervision of the Alameda County Public Works Department.





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**Task 4 – Updating Summary of Environmental Activities Report (Reference 1)**

*GeoSolve, Inc.* will update Reference 1 to include a brief introduction regarding the past use of the site and the proposed development with a floor development plan. Reference 1 will also include analytical and groundwater data from the offsite property at 1700 Webster Street and create groundwater iso-concentration maps for the entire block from 1700 Webster Street to 1810 Webster Street and include site data from soil-gas and groundwater to establish a source for the petroleum-hydrocarbons. The site plan will be updated to reflect the additional soil-gas analytical data conducting in this scope of work (Task 1) and the cross-sections will be updated to indicate the correct depth of the proposed elevator shafts of 6-feet and well destruction activities. The Updated Summary of Environmental Activities Report will be submitted draft for your review and once finalized, the report will be signed and sealed by the California C.E.G. and submitted to the ACHCSA for approval.

**Task 5 – Uploading Documents and Data to RWQCB’s Geotracker Online Database**

*GeoSolve, Inc.* will obtain permission from the ACHCSA to access the RWQCB’s Geotracker website to upload all the laboratory analytical data, laboratory analytical reports, technical reports and boring logs to obtain site closure.

**PRELIMINARY TIME SCHEDULE**

*GeoSolve, Inc.* can conduct the additional soil-gas sampling and preparation of the SMP by May 15, 2017. The wells will be destroyed within one month of ACHCSA approval and the Updated Summary of Environmental Activities will be completed within one month after well destruction activities. Uploading the documents to Geotracker will require one week after submittal of the Updated Summary of Environmental Activities.



If you have any questions or need further information regarding this Letter Workplan, please contact us at your convenience.

Sincerely,  
**GeoSolve, Inc.**



Robert D. Campbell, M.S., P.G., C.E.G., Q.S.D.  
Principal Engineering Geologist

Attachments: Figure 1, Proposed Soil-Gas Boring Locations





Source: LPAS Site Plan Ground Level A1.001, 10/06/16

<b>PROPOSED DEVELOPMENT FOOTPRINT</b>		Figure No.	<b>1</b>
LENNAR MULTIFAMILY COMMUNITIES LETTER WORKPLAN 1750 and 1810 WEBSTER STREET and 301 19th STREET OAKLAND, CALIFORNIA		Project No.	2015-29
		Scale:	AS SHOWN
		Drawn by:	GC
		Date:	04/2017



**GeoSolve, Inc.**  
*Geoscience solutions rather than Status-Quo*  
 Address: 1807 Santa Rita Rd, Suite D-165  
 Pleasanton, California 94566

Visit us at [www.geosolve-inc.com](http://www.geosolve-inc.com)