VAPOR INTRUSION ASSESSMENT WORK PLAN

PREPARED BY:

THE RILEY GROUP, INC.
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BOTHELL, WASHINGTON 98011

PREPARED FOR:

MR. BRANDON MORGAN
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RGI PROJECT NO. 2012-171A
ECOLOGY VCP NO. NW3026

AUGUSTA APARTMENTS
4041 ROOSEVELT WAY NORTHEAST
SEATTLE, WASHINGTON 98105

FEBRUARY 16, 2017

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1 INTRODUCTION

The Riley Group, Inc. (RGI) is pleased to present this Vapor Intrusion Assessment Work Plan (VIA Work Plan) intended to outline the scope of work for assessing the potential for vapor intrusion at the Property located at 4041 Roosevelt Way Northeast in Seattle, Washington (herein referred to as the Property). Figures 1 and 2 depict the locations of the Property, which constitutes all areas within the property boundaries, and the Site, which is the estimated location were concentrations of contaminants of potential concern (COPCs) exceed applicable MTCA soil and/or groundwater cleanup levels, regardless of the property boundaries.

The Property is currently owned by Genesis Properties, LLC (hereafter referred to as the Client) and was recently developed as the Augusta Apartments building which will be used for residential and retail purposes. The Property is enrolled in the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP) and is identified by Ecology as the Augusta Apartments project with VCP Project No. NW3026.

Petroleum related COPCs that have the potential to pose a vapor intrusion concern have been identified on the Site. Therefore, a vapor intrusion assessment is warranted. In recent communications with Ecology, RGI agreed to submit a work plan to Ecology outlining the scope of work for the vapor intrusion assessment.

The purpose of this Work Plan is to describe the scope of work and methodologies that will be use to assess the potential for vapor intrusion inside the Augusta Apartments building as a result of petroleum contaminated groundwater situated beneath the building and petroleum contaminated soil situated adjacent to the east of the building. This scope of work was developed in part based on discussions with Mr. Blayne Hartman, who is adept in the field of vapor intrusion and provides vapor intrusion training courses nationwide. The locations of petroleum contaminated soil and groundwater are displayed on Figure 2.

Construction of the Augusta Apartments building is almost complete and RGI understands that the building will first be occupied on March 1, 2017. The first phase of work presented in this Work Plan is tentatively scheduled to be performed on February 27, 2017, which will be after the general contractor has removed all equipment and related materials from the building and before tenants begin occupying the building on March 1, 2017.

The Client has retained RGI to prepare this Work Plan, which will be submitted to Ecology for review and discussed with Ecology prior to commencing with the work. The scope of work presented herein is intended to supplement the work documented in previous investigation and remedial action reports with the ultimate objective of obtaining a Property Specific No Further Action determination with an Environmental Covenant (NFA/EC) from Ecology for the Property.

2 PROJECT BACKGROUND

Several previous investigations have been performed on the Property, including a completed Remedial Action in 2015. The following reports/correspondences pertain to environmental investigations previously conducted for the Property:

- *Draft Well Installation and Groundwater Sampling Report* prepared for Genesis Properties, LLC; prepared by RGI; dated January 30, 2017.

- *Focused Feasibility Study and Disproportionate Cost Analysis* prepared for Genesis Properties, LLC; prepared by RGI; dated June 30, 2016
- *Remedial Action Report;* prepared for Genesis Properties, LLC; prepared by RGI; dated April 20, 2016
- *Draft Summary of Recent Groundwater Investigations and Summary of Groundwater Data to Date Technical Memorandum;* prepared for Genesis Properties, LLC; prepared by RGI; dated January 6, 2016
- *Cleanup Action Work Plan;* prepared for Genesis Properties, LLC; prepared by RGI; dated June 18, 2015.
- *Remedial Investigation Report;* prepared for Genesis Properties, LLC; prepared by RGI; dated May 25, 2015.
- *Phase II Subsurface Investigation Letter Report, Proposed Roosevelt Building*; prepared for Genesis Properties, LLC; prepared by RGI; dated June 22, 2012.
- *Phase I Environmental Site Assessment, Proposed Roosevelt Building;* prepared for Genesis Properties, LLC; prepared by RGI; dated May 25, 2012.
- *Limited Soil and Groundwater Assessment, 4041 and 4043 Roosevelt Way Northeast*; prepared for Craig Kinzer and Company; by Hart Crowser, Inc. (HC); dated September 5, 2001.
- *Preliminary Environmental Assessment and Limited Asbestos Survey, 4041 and 4043 Roosevelt Way Northeast;* prepared for Craig Kinzer and Company; prepared by HC; dated July 3, 2001.
- *Phase I Environmental Site Assessment Report, 4057 to 4101 Roosevelt Way Northeast;* prepared for Cargill Construction Company, Inc.; prepared by Geotech Consultants, Inc.; dated December 7, 1998.
- *Preliminary Subsurface Assessment, 4041 Roosevelt Way Northeast;* prepared for Goodway Investment Company; prepared by Environmental Associates, Inc.; dated July 2, 1998.

The history of the Property and environmental investigations conducted on the Property are described in these documents and the reader should refer to these documents in their entirety for details pertaining to these investigations. Additionally, all of the aforementioned reports have been submitted to Ecology for review.

Select soil and groundwater sample locations and analytical data pertaining to previous investigations and considered pertinent to the VIA are displayed on Figures 3 and 4, respectively. All groundwater data obtained from groundwater monitoring wells associated with the Property are summarized in Table 1. All soil analytical data pertaining to the property was previously summarized in the Remedial Action Report.

3 VAPOR INTRUSION REGULATIONS IN WASHINGTON STATE

WAC 173-340-740(3)(C) stipulates that the soil to vapor pathway must be evaluated for volatile organic compounds and gasoline range organics whenever the concentration of volatile organic

compounds, including petroleum components, is significantly higher than a concentration derived for protection of groundwater for drinking water beneficial use. This section also states that diesel-range organics must be evaluated whenever the total petroleum hydrocarbon (TPH) concentration in soil is greater than 10,000 mg/kg. Both of these conditions exist at the Property.

In 2009, Ecology published the *Draft Guidance For Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial* (Draft Ecology VI Guidance). The Ecology VI Guidance provides guidelines for evaluating the vapor intrusion pathway in Washington State and is consistent with MTCA rule requirements.

Significant changes to the vapor intrusion regulations occurred in 2015 and the following documents have been released by Ecology and the EPA:

- *Table B-1 Indoor Air Cleanup Levels, Groundwater Screening Levels, and Soil Gas Screening Levels* (Table B-1) of the Draft Ecology VI Guidance was revised April 6, 2015 by Ecology.
- *Updated Process for Initially Assessing the Potential for Petroleum Vapor Intrusion Implementation Memorandum No. 14* (2016 Ecology PVI Guidance Memorandum) dated March 31, 2016 by Ecology.
- *OSWER Technical Guide For Assessing and Mitigating the Vapor Intrusion Pathway From Subsurface Vapor Sources to Indoor Air* (2015 EPA VI Guidance) dated June 2015 by the U.S. Environmental Protection Agency (EPA).
- *Technical Guide For Assessing Petroleum Vapor Intrusion at Leaking Underground Storage Tank Sites* (2015 EPA PVI Guidance) dated June 2015 by the EPA.

RGI will utilize the guidance provided in the Draft Ecology VI Guidance and above-mentioned documents along with the MTCA regulation to perform the VIA scope of work in accordance with applicable guidance and regulations. Groundwater screening levels that Ecology considers protective of MTCA Method B Indoor Air Cleanup Levels are summarized in Table 1.

4 VAPOR INTRUSION ASSESSMENT

RGI evaluated all previous soil and groundwater data pertaining to the Property and determined that the following COPCs exist for indoor air and soil vapor at the Property:

- Gasoline- and diesel-range petroleum hydrocarbon fractions C5-8 (aliphatics), C9-12 (aliphatics), and C9-10 (aromatics).
- Naphthalene and xylenes.

Gasoline and diesel-range total petroleum hydrocarbons (TPH) and naphthalene are present in groundwater beneath the parking garage of the building at concentrations that exceed screening levels Ecology considers protective of indoor air.

Gasoline and diesel-range TPH and naphthalene are also present in soil situated adjacent to the east of the parking garage at depths ranging from approximately 5 to 17 feet below ground surface (bgs), which corresponds to approximately elevations 104’ to 92’. This soil contamination is situated adjacent to the eastern wall of the parking garage and the contamination begins at approximately 3 feet below and adjacent to the east of a planned retail space, which is present at approximately elevation 107’. Ecology has not established soil screening levels protective of

indoor air. However, these compounds do have the potential pose a vapor intrusion concern and therefore the soil to vapor pathway must be evaluated under MTCA.

The proposed scope of work for assessing vapor intrusion on the Property utilizes a combination of soil vapor and indoor air sampling techniques and will be an iterative process consisting of the following general steps:

1) Prior to any sampling, RGI will perform a site visit to assess the proposed sample locations and determine if any indoor air sources of contaminants are present in the proposed sample locations.
2) Collect soil vapor sample SV1 from a location approximately 3 feet above the existing soil contamination and submit the sample to the laboratory for analyses of COPCs.
3) Collect one indoor air sample in the parking garage (IA1) and one background air sample (IA1B) from a location outside the building and upwind of the sampling location. This sample will be submitted for analyses of any compounds in soil vapor sample SV1 that exceed the soil vapor screening levels Ecology considers protective of indoor air.
4) Evaluate soil vapor and indoor air sample data to determine if a vapor intrusion concern exists for the Property.
5) If a vapor intrusion concern exists and further risk evaluation is not feasible, collect and analyze indoor air sample IA2 from inside the proposed retail space and evaluate that data. The retail space is currently occupied by temporary offices with walls, which will be removed prior to occupying that space with retail tenants. Therefore, if sample collection in this location is necessary, it would be collected after the space is modified to its final form in order to obtain a representative sample.

The purpose of assessing soil vapor along with indoor air is to determine which contaminants are partitioning into the vapor phase as a result of the soil contamination situated adjacent to the east of the site. Materials (sealants, paints, finishes, used in the recent construct of the building may be potential sources of indoor air contaminants. Therefore, soil vapor analytical data would allow RGI to determine which contaminants pose an actual vapor intrusion threat to the Property.

The methodologies that will be used to conduct the vapor intrusion assessment are discussed in the following sections.

4.1 SITE VISIT AND BUILDING INVENTORY

At least 72 hours before performing any sampling, RGI will visit the Property to inspect proposed soil vapor and air sample locations in order to assess access in these areas and determine if anything is present that would interfere with the proposed sampling plan. At this time, RGI will also determine if any materials are present inside the building that may serve as sources of indoor air contaminants. If such materials are identified RGI will ask the owner to remove these materials from the sample locations and allow the area to ventilate for at least 48 hours before collecting any samples.

During this visit, RGI will also mark the location of SV1 with white paint for the utility locate discussed in the next section.

4.2 UTILITY LOCATING AND CONCRETE CORING

Prior to installing soil vapor probe SV1, efforts to locate publicly and privately owned underground utilities will include the following:

- At least 72 hours prior to drilling, RGI will contact the One-Call public utility notification center to locate public underground utilities (for example, electric, natural gas, and telecommunications). RGI personnel will visit the Property at least one day prior to contacting One-Call and mark the test probe/boring locations with white paint.
- RGI will subcontract a private utility locating service to locate other privately-owned utilities situated in the drilling location.

Once utility locating is completed, RGI will subcontract a concrete corer to core an approximately 4-inch diameter hole in the concrete sidewalk in the location of SV1.

4.3 SOIL VAPOR PROBE INSTALLATION AND SAMPLING

RGI will advance one soil vapor probe (SV1) to approximately 2 feet below the grade of the sidewalk using limited access direct push techniques. This location is situated directly above the area of known soil contamination displayed on Figures 3.

4.3.1 SOIL VAPOR PROBE INSTALLATION

The sampling methodology will consist of placing soil vapor probe SV1, which will be attached to approximately 7 feet of Nylaflow tubing, in the middle of a 6-inch thick layer of dry medium-grain sand (10/20 silica sand). The sand layer will be covered by 6-inches of dry granular bentonite above which a 12-inch-thick layer of hydrated bentonite (3/8" chips) will be placed to the surface to seal the soil vapor probe. This vapor probe will then be allowed to equilibrate for at least two hours prior to sampling. The general proposed construction of the soil vapor probe is displayed in Appendix A.

4.3.2 LEAK DETECTION & SOIL VAPOR SAMPLING

The soil vapor probe tubing extending above the surface will then be attached to a manifold system supplied by H&P Mobile Geochemistry (H&P). Three way valves will be used throughout the system to direct soil vapor flow through either the sorbent tube used for the EPA Method TO-17 analysis or into the 1 L Summa canister used for the EPA Method TO-15/Air Phase Hydrocarbons (APH) analyses. The manifold will also include a vacuum gauge, a flow controller and 60 mL syringes. H&P will supply the nuts and swage lock barb fittings required to make connections and keep the system air tight.

A shut-in test will be performed to verify that there are no leaks present in the above-ground portion of the sampling assembly. The shut in test will be conducted by attaching an in-line vacuum gauge to the three way valve at the end of the manifold then using an additional three way valve to attach a 60 mL syringe used to draw air through the system. Valves will then be set to the appropriate positions to allow a vacuum to be created while drawing air through the syringe until the vacuum gauge reads 10-inches of mercury (Hg). The valve will then be closed and the system will be allowed to sit for five minutes to observe if the vacuum level within the manifold system drops. If vacuum pressure does not drop the system will be considered air tight. If vacuum pressure drops the system will be inspected and adjusted until the shut in test is passed.

After completion of the shut-in test, three volumes of air will be purged from the soil vapor probe formation, which will consist of the sandpack, the dry bentonite zone, and the tubing. Purging will be conducted at a flow rate that does not exceed 200 milliliter/minute (mL/min).

After purging, a helium leak detection test will performed to verify the integrity of the surface seal of the soil vapor probe. A shroud will be placed over the soil vapor probe, which will consist of a 4-inch PVC cap with a brass barb fitting screwed through the top and two approximately ¼ inch holes in the sides. The tubing extended from the soil vapor probe will be run through the side of the shroud. Non-VOC putty will be used to seal areas where the shroud meets the ground and where tubing is run through the shroud to prevent ambient air from entering into the shroud from outside. The leak detection test will be performed by inserting the probe of the helium meter into tubing extending from the top of the shroud. The shroud will be filled with helium at a known concentration until the concentration of helium in the shroud stabilized after which, the helium meter will be removed and hole in the shroud will be sealed with non-VOC putty. Several syringe volumes of soil vapor will then purged from the sampling tubing assembly exiting through the helium filled shroud and collected in a tedlar bag. The helium meter will be used to measure helium concentrations in the tedlar bag and determine if there are any leaks in the soil vapor probe and bentonite seal. If the concentration of helium in the tedlar bag is less than 10% of the concentration in the shroud, the soil vapor sampling system we be considered ready for sampling. If the helium concentration is greater than 10% in the tedlar bag, a leak will be considered to be present in the soil vapor probe will be inspected and repaired until the leak detection test is passed.

The soil vapor sample for TO17 analysis will be collected by setting valves to direct soil vapor flow through the sorbent tube and slowly pulling air through the sorbent tube with the syringe at a flow rate between 10-200 cc/min. The amount of air passed through the sorbent tube will be recorded and used to calculate the diesel-range TPH reporting limit.

After sample collection, sorbent tubes will be wrapped in aluminum foil and placed in a laboratory supplied plastic bag containing desiccant and activated charcoal. Soil vapor samples will be placed in a cooler and transported to the analytical laboratory in accordance with standard chain-of-custody protocols.

The soil vapor sample for EPA Method TO-15 analysis will be collected by setting valves to direct soil vapor flow through the tubing leading to the pressurized 1 L laboratory supplied *individually* certified Summa canister, which indicates that each canister will be tested by the laboratory to ensure that there are no contaminants present in the canister down to the required detection limits. The starting mercury level will be recorded and the Summa canister valve will then be opened. The flow regulator in the sampling assembly will restrict the flow rate to not exceed 150 mL/min until the mercury level drops to zero indicating that the canister is full. The amount of time it takes to fill the Summa canister will be recorded.

The soil vapor sample will be stored in an iced cooler and transported to the laboratory in accordance with standard chain of custody protocols.

4.4 INDOOR AND BACKGROUND AIR SAMPLING

Upon receipt of the canisters from the lab, each canister will be inspected to verify that the valves are closed. The initial vacuum of each canister will then be measured by attaching the vacuum

gauge to the canister and attaching a brass cap to the side of the vacuum gauge to ensure the system is air tight. The valve will then be opened for a few seconds and closed and the initial vacuum will be recorded along with the temperature inside and outside the building.

RGI will obtain air samples from inside the parking garage adjacent to where soil contamination is present and from outside the building to assess ambient air upwind of the sample location. All samples will be collected from the breathing space (approximately 5 feet above the floor of the parking garage or 5 feet above the grade of the sidewalk). The sample placed outdoors (IA-1B) will be placed on the Property near the entrance to building in the most secure acceptable location. The sample will be checked periodically throughout the day but will be unattended for a large portion of the time.

One 6 liter Summa canister and one 1 liter Summa canister will be placed in each sample location at approximately 5 feet off the ground to allow for sample collection in the breathing space. The 1 liter canister will be used to draw air through the sorbent tube which will be analyzed by EPA Method TO17 and the 6 liter canister will be used to collect the sample analyzed by EPA Method TO15/APH.

Each Summa canister will be equipped with a vacuum gauge and a flow controller equipped with an integrated particulate filter, which will be calibrated by the laboratory and will allow for sample collection in a 6 liter canister over an 8 hour period for the TO15 sample. The TO17 sample will be collected using a 1 liter canister with a flow controller and a sorbent tube attached to the flow controller. The flow controller will be calibrated by H&P to draw 1 liter of air through the sorbent tube over an 8 hour period. The 1 liter canister will serve as a vacuum pump for the TO17 sample.

Each canister will be fully opened and the time will be recorded. At the end of the 8 hour sample interval, the canisters will be closed and the time of completion and vacuum will be recorded. The canisters will be checked at least once during the 8 hour sampling period. After sampling is completed, a safety cap will be placed over the canister inlet for the TO15 6 liter canister and for the TO17 sample, the sorbent tube will be removed from the flow controller and wrapped in aluminum foil and placed in a laboratory supplied plastic bag containing desiccant and activated charcoal.

All air samples will be stored in a cooler and transported to the analytical laboratory in accordance with standard chain-of-custody protocols and samples will be stored in an iced cooler pending submittal to the analytical laboratory.

5 ANALYTICAL LABORATORY ANALYSIS

One soil vapor sample (SV1) will be submitted to H&P Mobile Geochemistry Laboratory (H&P in Carlsbad, California for the following analysis:

- Petroleum hydrocarbons fractions (C5-C8 aliphatics, C9-C12 aliphatics, and C9-C10 aromatics) using Massachusetts Department of Environmental Protection Air Phase Hydrocarbon (APH) Method/EPA Method TO15.
- Gasoline-range TPH, naphthalene, and xylenes using EPA Method TO15.
- Diesel-range TPH using EPA Method TO17

Two air samples (IA1-IAB) will be submitted to H&P for one or more of the following analysis:

- Petroleum hydrocarbons (C5-C8 aliphatics, C9-C12 aliphatics, and C9-C10 aromatics) using MDEP Method Air Phase (APH) Method EPA/EPA Method TO15.
- Gasoline-range TPH, naphthalene, and xylenes using EPA Method TO15.
- Diesel-range TPH using EPA Method TO17

Air sample analyses will be determined based on the analytical results obtained from soil vapor sample SVI.

5.1 DATA EVALUATION

Upon completion of field activities and acquisition of final laboratory reports, RGI will assess soil vapor, indoor air, and/or previous groundwater analytical data to determine if a vapor intrusion concern exists for the Property. Data evaluation will consist of one or more of the following:

- Comparing soil vapor concentrations to screening levels Ecology considered protective of MTCA Method B Indoor Air Cleanup Levels obtained from the Table B-1 of the Draft Ecology VI Guidance (revised April 6, 2015).
- RGI has previously identified concentrations of gasoline- and diesel-range petroleum hydrocarbons and naphthalene in groundwater on the Site that exceed screening levels Ecology considers protective of indoor air. Therefore, RGI will perform a risk assessment to determine if these groundwater concentrations represent an actual vapor intrusion threat for the Property. The risk assessment may utilize site-specific features such as the air changes per hour (ACH) value for the parking garage to calculate site-specific screening levels appropriate for the Site.
- Any COPCs identified in soil vapor and/or groundwater that are still considered to represent a vapor intrusion concern for the Property after undergoing adequate risk assessment will be further assessed based on indoor air analytical data.
- Indoor air and outdoor analytical data will initially be compared to MTCA Method B Indoor Air Cleanup Levels. If concentrations of COPCs exceed these cleanup levels in air samples, evaluation of background concentrations of COPCs in ambient air and/or potential interferences from construction materials associated with the newly constructed building may be necessary and subsequently require adjustments to the cleanup levels. This process may involve evaluating chromatograms from soil vapor and/or air samples to identify potential petroleum hydrocarbon patterns present in air and/or soil vapor and whether or not they match each other. Data evaluation will be performed in accordance with the most recent Ecology and/or EPA vapor intrusion regulations and guidance.

The results of the data evaluation will be documented in the VIA Report discussed in the following section.

6 VAPOR INTRUSION ASSESSMENT REPORT PREPARATION

RGI will prepare a VIA Report summarizing the findings, soil vapor and air analytical data, results of data evaluation/risk assessment, and conclusions and recommendations pertaining to the VIA.

This report will present tables, figures, and a cross section displaying locations of soil and groundwater contamination along with locations of soil vapor and indoor and outdoor air samples and associated analytical data. The report will also include final analytical laboratory reports, a borelog providing construction details pertaining soil vapor sample SV1, and any other information considered pertinent to the VIA.

The VIA Report will be submitted to the Client and Ecology for review.

7 SCHEDULE

The Augusta Apartment buildings will begin occupation March 1, 2017. Therefore, RGI has tentatively scheduled collection of soil vapor and indoor air samples on February 27, 2017. A site visit will be performed on February 24, 2017 prior to sampling. The timing of this work gives us the best opportunity to obtain soil vapor and indoor air samples without interference from other sources that may complicate the data evaluation such as exhaust in the parking garage.

If the first round of soil vapor and indoor air sampling is completed at the end of February, RGI estimates it will take between 5-9 weeks to complete the VIA report depending on the results of interim data evaluation. Once the initial round of soil vapor and indoor air sampling is complete, RGI estimates it will take approximately 2 weeks to receive analytical results. This data will be evaluated and a determination will be made as to whether or not additional indoor air sampling in the proposed retail space is necessary. If additional sampling is not necessary, the report will be completed approximately 3 weeks after receipt of analytical results. If additional indoor air sampling and data evaluation is required, an additional 4 weeks will be necessary for sampling and data evaluation.

RGI recommends a copy of this Work Plan be submitted to Ecology, under the VCP, for review and comment.

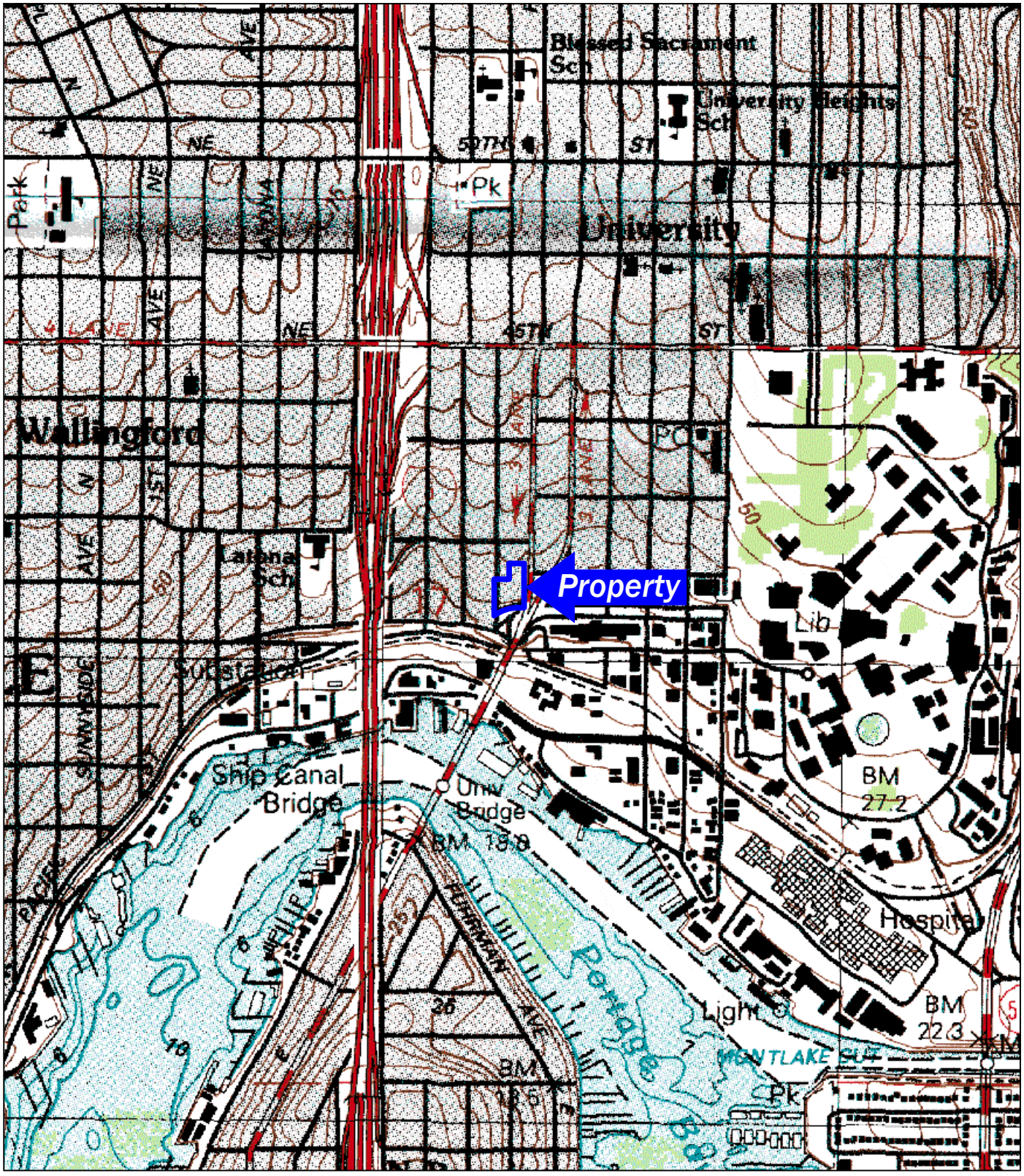
Sincerely,

THE RILEY GROUP, INC.

Jerry Sawetz
Senior Environmental Scientist

Paul D. Riley, LG, LHG
Principal

RILEYGROUP



USGS, 1983, Seattle North, Washington
7.5-Minute Quadrangle

Approximate Scale: 1"=1000'

0 500 1000 2000

N

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Augusta Apartments		Figure 1
RGI Project Number 2012-171A	Property Vicinity Map	Date Drawn: 02/2017
Address: 4041 Roosevelt Way Northeast, Seattle, Washington 98105		

PCS Removed by Others in 1997

Allegro I Apartments

Allegro II Apartments

Campus Fine Dry Cleaning

A

Shoring Wall

MW-1

MW1A

MW-6

MW-2

9th Avenue Northeast

Roosevelt Way Northeast

Augusta Apartments

MW-5

See Figure 4

Gravel Parking Lot

See Figure 3

Estimated Extent of Area 1 Groundwater Impacts and Site Boundary

MW-3

MW3A

MW-8

MW-7

MW-4

Estimated extent of Area 1 off-property soil contamination

Estimated extent of on property soil contamination

MW-9

A'

Electrical duct bank (approximately 3.5 feet bgs)

HC-1

Augusta Apartments

Eastern exterior wall of Augusta Apartments

Current Building Outline

HC-2

HC-3

MW-10

Roosevelt Way Northeast

Eastlake Avenue Northeast

Asphalt-Paved Parking Lot

Northeast 40th Street

= Groundwater Flow Direction

UST = Underground Storage Tank

= (in gray) Former monitoring well location

= (in blue) Existing monitoring well location by RGI

= (in gray) Construction grid per plans (Gridline)

= (in cyan) Duct bank Location

= Property boundary

Approximate Scale: 1"=30'

0 15 30 60

N

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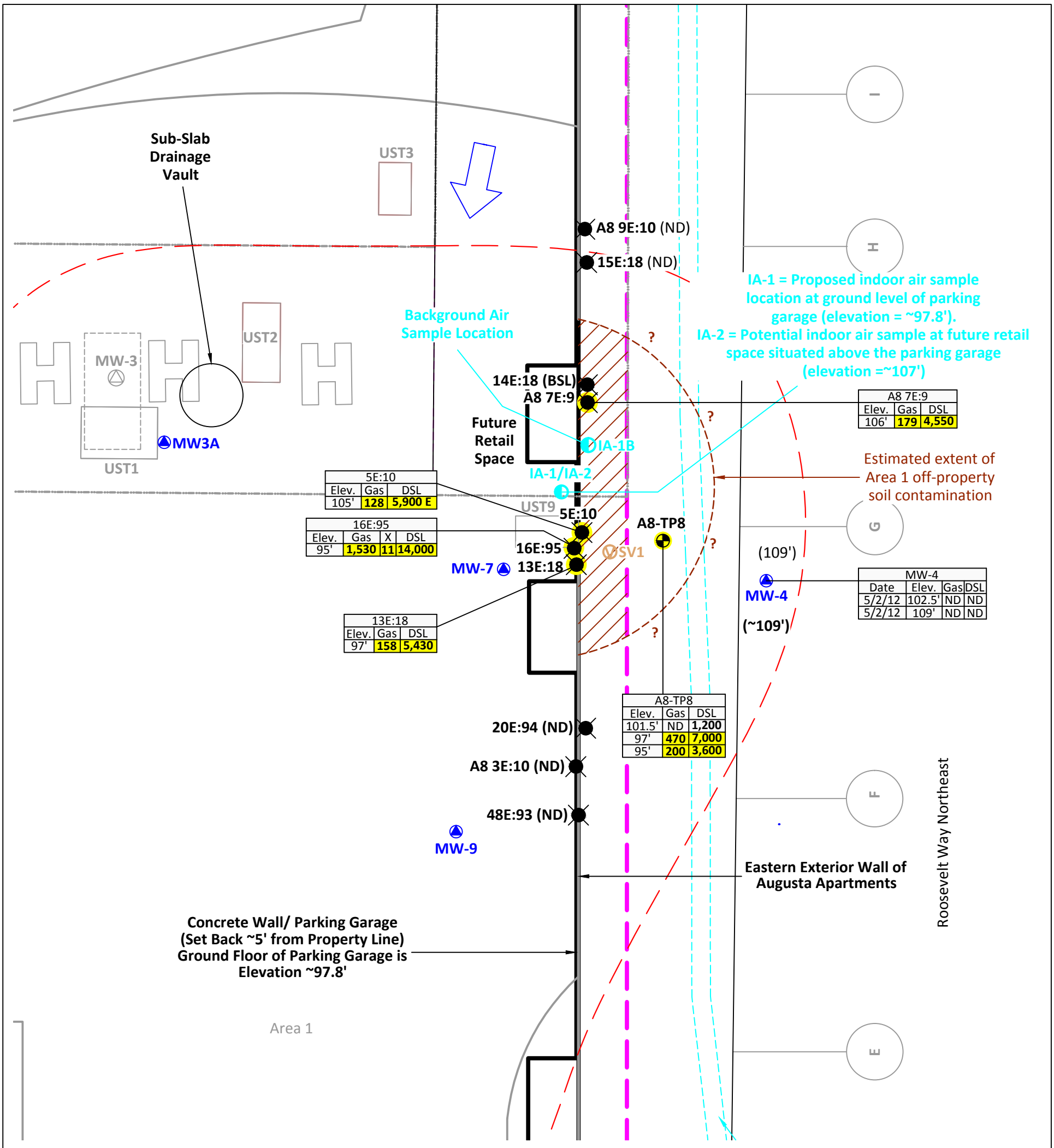
Augusta Apartments		Figure 2
RGI Project Number 2012-171A	Property Representation with Estimated Extent of Soil and Groundwater Contamination	Date Drawn: 02/2017
Address: 4041 Roosevelt Way Northeast, Seattle, Washington 98105		



= Soil concentrations in mg/kg;

Elev = Total elevation
Gas/DSL/Oil = Gasoline/diesel/oil total petroleum hydrocarbons (TPH)
X = Total xylenes
ND = Not detected at concentrations exceeding laboratory detection limits
Highlight indicates concentrations exceeded the applicable MTCA Cleanup Level.

(109') = Approximate elevation in feet
= Post-construction groundwater flow direction
UST = Underground storage tank
= Proposed soil vapor sample location
= Indoor air sample location
= Test probe groundwater grab sample by RGI in August of 2015
= Soil sample location
= (in gray) Former monitoring well location
= (in blue) Existing monitoring well location by RGI
= Former hoist
BSL = Below soil cleanup levels
= Property boundary

Approximate Scale: 1"=10'
0 5 10 20
N

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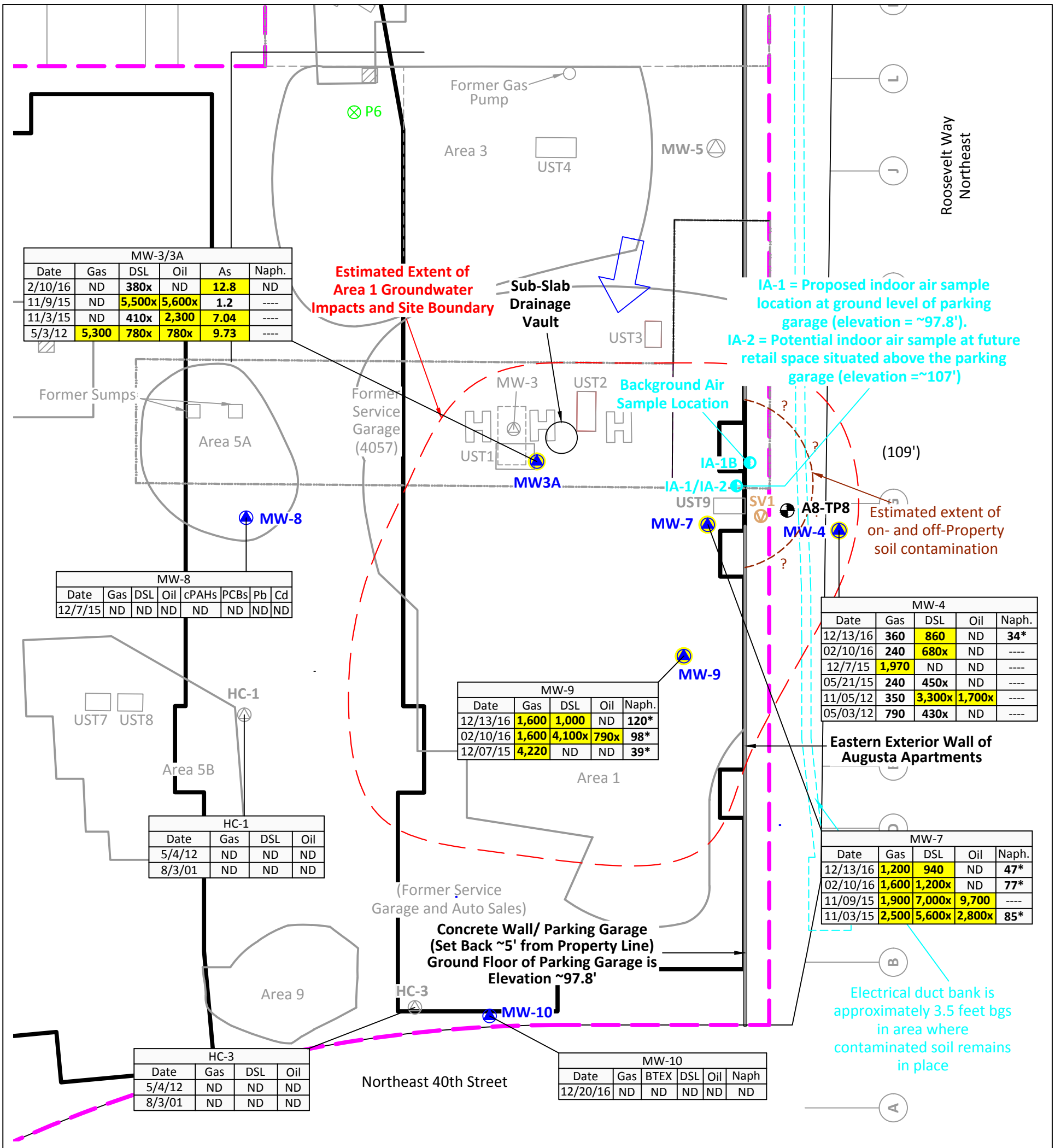
Augusta Apartments		Figure 3
RGI Project Number 2012-171A	Estimated Extent of Soil Impacts with Proposed Soil Vapor and Indoor Air Sample Locations	Date Drawn: 02/2017
Address: 4041 Roosevelt Way Northeast, Seattle, Washington 98105		



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Augusta Apartments		Figure 4
RGI Project Number 2012-171A	Estimated Extent of Groundwater Impacts with Proposed Soil Vapor and Indoor Air Sample Locations	Date Drawn: 02/2017
Address: 4041 Roosevelt Way Northeast, Seattle, Washington 98105		

Table 1, Page 1 of 3. Summary of Groundwater Analytical Laboratory Results (Pre- and Post-Site Redevelopment)
Augusta Apartments
4041 Roosevelt Way Northeast, Seattle, Washington 98105
The Riley Group, Inc. Project No. 2012-171A

Sample Number	Sample Date	Top of Casing (TOC) Elevation	Depth to Water (bgs)	Groundwater Elevation	Gasoline TPH	BTEX				Diesel TPH	Oil TPH	Diesel TPH	Oil TPH	C5-C8[5] Aliphatics	C8-C12[6] Aliphatics	C8-C12[7] Aromatics	Naph.	cPAHs	PCBs	VOCs Not Included in TPH Screening Level Calculations	Total Metals					Dissolved Metals				
						B	T	E	X	w/o Silica Gel		w/ Silica Gel									As	Cd	Cr	Pb	Hg	As	Cd	Cr	Pb	Hg
Existing Groundwater Monitoring Wells																														
MW-1A Screened Interval from elevation 96' to 91', bottom of boring at elevation 91' - MW1 (Properly Decomissioned) Screened Interval from elevation 97' to 87', bottom of boring at elevation 76'																														
MW-1/ MW-1A	12/20/16	97.85	1.31	96.54	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	02/10/16	97.85	1.26	96.59	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	**cis-1,2-DCE = 1.4**	---	---	---	---	---	---	---	---	---	---
	12/07/15	97.85	1.40	96.45	ND<100	ND<1	ND<2	ND<1	ND<3	ND<200	ND<400	---	---	---	---	---	---	---	---	**cis-1,2-DCE = 1.3**	---	---	---	---	---	---	---	---	---	---
	05/21/15	116.67	15.99	100.68	----	----	----	----	----	----	----	----	----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	04/27/15	116.67	----	----	----	----	----	----	----	----	----	----	----	---	---	---	----	----	----	**cis-1,2-DCE = 1.9**	----	----	----	----	----	----	----	----	----	----
														---	---	---				**Vinyl Chloride = 0.34**										
	11/09/12	116.67	16.5	100.17	----	----	----	----	----	----	----	----	----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	11/05/12	116.67	15.95	100.72	**130**	ND<0.35	ND<1	ND<1	ND<2	**120 x**	ND<250	----	----	---	---	---	----	----	----	**cis-1,2-DCE = 2**	----	----	----	----	----	----	----	----	----	----
														---	---	---				**Vinyl Chloride = 0.26**										
	05/03/12	116.67	15.01	101.66	**150**	ND<0.35	ND<1	ND<1	ND<2	ND<50	ND<250	----	----	---	---	---	----	----	----	**Vinyl Chloride = 0.24**	----	----	----	----	----	----	----	----	----	----
MW-3A Screened Interval from elevation 93.5' to 83.5', bottom of boring at elevation 83.5' - MW3 (Properly Decomissioned) Screened Interval from elevation 95.5' to 85.5', bottom of boring at elevation 74.5'																														
MW-3/ MW-3A	12/20/16	97.86	3.42	94.44	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	02/10/16	97.86	4.38	93.48	ND<100	ND<1	ND<2	ND<1	ND<3	**380x**	ND<250	ND<50	ND<250	ND	ND	ND	ND<5	---	---	Hexane = ND	---	---	---	---	---	**12.8**	---	---	---	---
	11/09/15	97.86	11.10	86.76	ND<100	---	---	---	---	**5,500 x**	**5,600 x**	**2,800 x**	**4,400**	---	---	---	----	---	---	---	---	---	---	---	---	**1.2**	---	---	---	---
	11/03/15	97.86	11.15	86.71	ND<100	ND<0.35	ND<1	ND<1	ND<2	**410 x**	**2,300**	**270 x**	**1,800**	---	---	---	----	---	---	ND	**53.2**	---	---	---	---	**7.04**	---	---	---	---
	05/21/15	115.64	21.16	94.48	----	----	----	----	----	----	----	----	----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	11/05/12	115.64	24.05	91.59	----	----	----	----	----	----	----	----	----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	05/03/12	115.64	20.67	94.97	**5,300**	**0.96**	**2.4**	**80**	**230**	**780 x**	ND<250	----	----	---	---	---	----	ND<0.1	----	ND	**11.1**	ND<1	16.5	2.87	ND<0.1	**9.73**	ND<1	ND<1	ND<1	ND<0.1
MW4 Screened Interval from elevation 99' to 89', bottom of boring at elevation at 89'																														
MW-4	12/20/16	108.87	15.38	93.49	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/13/16	108.87	15.41	93.46	**360**	ND<2.0	**2.0**	**3.4**	**8.0**	**860**	ND<250	----	----	---	---	---	**34***	----	----	----	---	---	---	---	---	---	---	---	---	---
	02/10/16	108.87	15.26	93.61	**240**	**1**	**2.5**	**1.8**	**8.1**	**680x**	ND<250	**120x**	ND<250	---	---	---	----	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/07/15	108.87	15.77	93.10	**1,970**	**1.4**	**2.8**	**11.0**	**42.0**	ND<200	ND<400	---	---	---	---	---	----	---	---	---	---	---	---	---	---	---	---	---	---	---
	05/21/15	108.87	15.72	93.15	**240**	**0.42**	ND<1	ND<1	ND<2	450 x	ND<250	**73x**	ND<250	---	---	---	----	----	----	----	---	---	---	---	---	---	---	---	---	---
	11/09/12	108.87	17.41	91.46	----	----	----	----	----	----	----	----	----	---	---	---	----	----	----	----	---	---	---	---	---	---	---	---	---	---
	11/05/12	108.87	17.44	91.43	**350**	**1.0**	ND<1	ND<1	**1.5**	**3,300 x**	**1,700 x**	----	----	---	---	---	----	----	----	ND	---	---	---	---	---	---	---	---	---	---
	05/03/12	108.87	15.44	93.43	**790**	**2.8***	**8.4**	**3.9**	**48**	430 x	ND<250	----	----	---	---	---	----	----	----	ND	---	---	---	---	---	---	---	---	---	---
MW-7 Screened Interval from elevation 94' to 89', bottom of boring at elevation 89'																														
MW-7	12/20/16	97.80	4.09	93.71	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/13/16	97.80	4.10	93.70	**1,200**	ND<2.0	ND<2.0	**3.9**	**4.2**	**940**	ND<250	---	---	**70**	ND	**443**	**47***	---	---	Hexane = ND	---	---	---	---	---	---	---	---	---	---
	02/10/16	97.80	4.00	93.80	**1,600**	ND<1	**3**	**23**	**27**	**1,200x**	ND<250	**950x**	ND<250	**532**	**473**	**1,403**	**77***	---	---	Hexane = ND	---	---	---	---	---	---	---	---	---	---
	11/09/15	97.80	----	----	**1,900**	---	---	---	---	**7,000 x**	**9,700**	**1,000 x**	ND<250	---	---	---	----	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/03/15	97.80	----	----	**2,500**	**1.7**	**4.6**	**74**	**71**	**5,600 x**	**2,800 x**	---	---	---	---	---	**85***	---	---	**Acetone = 110** **Hexane = 27**	---	---	---	---	---	---	---	---	---	---
MTCA Method A Cleanup Levels for Ground Water					**800/1,000[1]**	**5**	**1,000**	**700**	**1,000**	**500**	**500**	**500**	**500**	----	----	----	**160**	**0.1[3]**	**0.1**	**Vinyl Chloride = 0.2**	**5**	**5**	**50**	**15**	**2**	**5**	**5**	**50**	**15**	**2**
ARAR State and Federal Primary Maximum Contaminant Level (MCL)					----	**5**	**1,000**	**700**	**10,000**	----	----	----	----	----	----	----	----	----	**0.5**	**cis-1,2-DCE = 70**	**10**	**5**	**100**	**15**	**2**	**10**	**5**	**100**	**15**	**2**
MTCA Method B Cleanup Levels for Ground Water[2]					----	----	----	----	----	----	----	----	----	----	----	----	----	---	---	**Acetone = 7,200** **cis-1,2-DCE = 16** **Hexane = 480**	----	----	----	----	----	----	----	----	----	----
Ecology Groundwater Screening Level Protective of Indoor Air					----	**2.4**	**15,600[4]**	**2,780[4]**	**310[4]**	----	----	----	----	**140**	**2.9**	**1,300**	**8.93**	----	----	**Vinyl Chloride = 0.347** **Hexane = 7.84**	----	----	----	----	----	----	----	----	----	----

Table 1, Page 2 of 3. Summary of Groundwater Analytical Laboratory Results (Pre- and Post-Site Redevelopment)
Augusta Apartments
4041 Roosevelt Way Northeast, Seattle, Washington 98105
The Riley Group, Inc. Project No. 2012-171A

Sample Number	Sample Date	Top of Casing (TOC) Elevation	Depth to Water (bgs)	Groundwater Elevation	Gasoline TPH	BTEX				Diesel TPH w/o Silica Gel	Oil TPH w/o Silica Gel	Diesel TPH w/ Silica Gel	Oil TPH w/ Silica Gel	C5-C8[5] Aliphatics	C8-C12[6] Aliphatics	C8-C12[7] Aromatics	Naph.	cPAHs	PCBs	VOCs Not Included in TPH Screening Level Calculations	Total Metals					Dissolved Metals				
						B	T	E	X												As	Cd	Cr	Pb	Hg	As	Cd	Cr	Pb	Hg
MW-8 Screened Interval from elevation 92' to 87', bottom of boring at elevation 87'																													
MW-8	12/20/16	97.85	6.05	91.80	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	02/10/16	97.85	4.57	93.28	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/07/15	97.85	3.75	94.10	ND<100	ND<1	ND<2	ND<1	ND<3	ND<200	ND<400	---	---	---	---	---	----	ND<0.06	ND<0.1	---	---	---	---	---	---	---	ND<1	---	ND<1	---
MW-9 Screened Interval from elevation 94' to 89', bottom of boring at elevation 89'																													
MW-9	12/20/16	97.80	5.99	91.81	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/13/16	97.80	6.13	91.67	**1,600**	**2.1**	ND<2.0	**44**	**41.2**	**1,000**	ND<250	---	---	**346**	ND	**420**	**120***	---	---	Hexane = ND	---	---	---	---	---	---	---	---	---
	02/10/16	97.80	6.06	91.74	**1,600**	**1.8**	**3.9**	**35**	**39**	**4,100x**	**790x**	**1,700**	ND<250	**1,053**	**400.1**	**812**	**98***	---	---	Hexane = ND	---	---	---	---	---	---	---	---	---
	12/07/15	97.80	5.36	92.44	**4,220**	**0.79**	ND<1	**10**	**41.8**	ND<200	ND<400	---	---	---	---	---	**39***	---	---	ND	---	---	---	---	---	---	---	---	---
MW-10 Screened Interval from elevation 87.5' to 72.5', bottom of boring at elevation 72.5'																													
MW-10	12/20/16	107.50	24.39	83.11	ND<50	ND<2	ND<2	ND<2	ND<6	ND<130	ND<250	---	---	---	---	---	ND<2.0	---	---	---	---	---	---	---	---	---	---	---	---
Former Groundwater Monitoring Wells (Properly Decommissioned)																													
MW2 Screened Interval from elevation 88' to 78', bottom of boring at elevation 73.5'																													
MW-2	05/21/15	115.13	21.38	93.75	----	----	----	----	----	----	----	----	----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----
	11/09/12	115.13	21.68	93.45	----	----	----	----	----	----	----	----	----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----
	05/03/12	115.13	20.97	94.16	ND<100	ND<0.35	ND<1	ND<1	ND<2	ND<50	ND<250	----	----	---	---	---	----	----	----	ND	----	----	----	----	----	----	----	----	----
MW5 Screened Interval from elevation 96' to 86', bottom of boring at elevation 86'																													
MW-5	05/21/15	113.13	14.76	98.37	----	----	----	----	----	----	----	----	----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----
	11/09/12	113.13	15.42	97.71	----	----	----	----	----	----	----	----	----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----
	11/05/12	113.13	15.75	97.38	----	ND<0.35	ND<1	ND<1	ND<2	----	----	----	----	---	---	---	----	----	----	ND	----	----	----	----	----	----	----	----	----
	05/03/12	113.13	13.7	99.43	ND<100	ND<0.35	ND<1	ND<1	ND<2	ND<50	ND<250	----	----	---	---	---	----	ND<0.1	----	ND	1.03	ND<1	ND<1	ND<1	ND<0.1	1.00	ND<1	ND<1	ND<1	ND<0.1
MW6 Screened Interval from elevation 100' to 85', bottom of boring at elevation 85'																													
MW-6	05/21/15	115.19	15.3	99.89	----	----	----	----	----	----	----	----	----				----	----	----	----	----	----	----	----	----	----	----	----	----
MW-6	11/09/12	115.19	15.34	99.85	----	----	----	----	----	----	----	----	----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----
	11/05/12	115.19	15.75	99.44	ND<100	ND<0.35	ND<1	ND<1	ND<2	ND<55	ND<280	----	----	---	---	---	----	----	----	ND	----	----	----	----	----	----	----	----	----
HC-1 Screened Interval from elevation 90' to 80', bottom of boring at elevation 80'																													
HC-1	05/21/15	109.76	18.76	91.00	----	----	----	----	----	----	----	----	----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----
	11/09/12	109.76	20.81	88.95	----	----	----	----	----	----	----	----	----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----
	05/04/12	109.76	18.82	90.94	ND<100	ND<0.35	ND<1	ND<1	ND<2	ND<50	ND<250	----	----	---	---	---	----	ND<0.1	----	ND	ND<0.2		----	----	----	ND<1	ND<1	----	ND<1	
	08/03/01	109.76	----	----	ND<100	ND	ND	ND	ND<1	ND<200	ND<500	----	----	---	---	---	----	----	----	ND	ND<1	ND<1	2.94	ND<1	ND<0.1	ND<1	ND<1	1.39	ND<1	ND<0.1
HC-2 Screened Interval from elevation 87.5' to 77.5', bottom of boring at elevation 77.5'																													
HC-2	05/21/15	107.40	16.62	90.78	----	----	----	----	----	----	----	----	----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----
	11/09/12	107.40	18.04	89.36	----	----	----	----	----	----	----	----	----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----
	05/03/12	107.40	16.37	91.03	ND<100	ND<0.35	ND<1	ND<1	ND<2	ND<50	ND<250	----	----	---	---	---	----	----	----	ND	----	----	----	----	----	----	----	----	----
	08/03/01	107.40	----	----	ND<100	ND	ND	ND	ND<1	ND<200	ND<500	----	----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----
MTCA Method A Cleanup Levels for Ground Water					**800/1,000[1]**	**5**	**1,000**	**700**	**1,000**	**500**	**500**	**500**	**500**	**----**	**----**	**----**	**160**	**0.1[3]**	**0.1**	**Vinyl Chloride = 0.2**	**5**	**5**	**50**	**15**	**2**	**5**	**5**	**50**	**15**	**2**
ARAR State and Federal Primary Maximum Contaminant Level (MCL)					**----**	**5**	**1,000**	**700**	**10,000**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**0.5**	**cis-1,2-DCE = 70**	**10**	**5**	**100**	**15**	**2**	**10**	**5**	**100**	**15**	**2**
MTCA Method B Cleanup Levels for Ground Water[2]					**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**---**	**---**	**Acetone = 7,200 cis-1,2-DCE = 16 Hexane = 480**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**
Ecology Groundwater Screening Level Protective of Indoor Air					**----**	**2.4**	**15,600[4]**	**2,780[4]**	**310[4]**	**----**	**----**	**----**	**----**	**140**	**2.9**	**1,300**	**8.93**	**----**	**----**	**Vinyl Chloride = 0.347 Hexane = 7.84**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**

Table 1, Page 3 of 3. Summary of Groundwater Analytical Laboratory Results (Pre- and Post-Site Redevelopment)
Augusta Apartments
4041 Roosevelt Way Northeast, Seattle, Washington 98105
The Riley Group, Inc. Project No. 2012-171A

Sample Number	Sample Date	Top of Casing (TOC) Elevation	Depth to Water (bgs)	Groundwater Elevation	Gasoline TPH	BTEX				Diesel TPH	Oil TPH	Diesel TPH	Oil TPH	C5-C8[5] Aliphatics	C8-C12[6] Aliphatics	C8-C12[7] Aromatics	Naph.	cPAHs	PCBs	VOCs Not Included in TPH Screening Level Calculations	Total Metals					Dissolved Metals				
						B	T	E	X	w/o Silica Gel		w/ Silica Gel									As	Cd	Cr	Pb	Hg	As	Cd	Cr	Pb	Hg
HC-3 Screened Interval from elevation 88.5' to 78.5', bottom of boring at elevation 78.5'																														
HC-3	05/21/15	108.34	22.21	86.13	----	----	----	----	----	----	----	----	----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	11/09/12	108.34	23.12	85.22	----	----	----	----	----	----	----	----	----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	05/04/12	108.34	22.13	86.21	ND<100	ND<0.35	ND<1	ND<1	ND<2	ND<50	ND<250	----	----	---	---	---	----	----	----	ND	----	----	----	----	----	----	----	----	----	----
	08/03/01	108.34	----	----	ND<100	ND	ND	ND	ND<1	ND<200	ND<500	----	----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----
MTCA Method A Cleanup Levels for Ground Water					**800/1,000[1]**	**5**	**1,000**	**700**	**1,000**	**500**	**500**	**500**	**500**	**----**	**----**	**----**	**160**	**0.1[3]**	**0.1**	**Vinyl Chloride = 0.2**	**5**	**5**	**50**	**15**	**2**	**5**	**5**	**50**	**15**	**2**
ARAR State and Federal Primary Maximum Contaminant Level (MCL)					**----**	**5**	**1,000**	**700**	**10,000**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**0.5**	**cis-1,2-DCE = 70**	**10**	**5**	**100**	**15**	**2**	**10**	**5**	**100**	**15**	**2**
MTCA Method B Cleanup Levels for Ground Water[2]					**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**---**	**---**	**Acetone = 7,200 cis-1,2-DCE = 16 Hexane = 480**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**
Ecology Groundwater Screening Level Protective of Indoor Air					**----**	**2.4**	**15,600[4]**	**2,780[4]**	**310[4]**	**----**	**----**	**----**	**----**	**140**	**2.9**	**1,300**	**8.93**	**----**	**----**	**Vinyl Chloride = 0.347 Hexane = 7.84**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**	**----**

Notes:

Samples collected by RGI field staff using a peristaltic pump under low-flow conditions.

Unless otherwise noted, all analytical results are given in micrograms per liter (ug/L), equivalent to parts per billion (ppb).

Gasoline TPH (total petroleum hydrocarbons) determined using Northwest Test Method NWTPH-Gx

BTEX (benzene, toluene, ethylbenzene, and xylenes) determined using EPA Test Method 8021B or 8260C.

Diesel and Oil TPH (total petroleum hydrocarbons) determined using Northwest Test Method NWTPH-Dx with and without silica gel cleanup.

Other VOCs (volatile organic compounds) determined using EPA Test Method 8260C.

cPAHs (carcinogenic Polynuclear Aromatic Hydrocarbons) determined using EPA Test Method 8270D SIM.

PCBs (polychlorinated biphenyls) determined using EPA Test Method 8082A.

PCE (tetrachloroethene), TCE (trichloroethene), cis-1,2-DCE (cis-1,2-dichloroethene), trans-1,2-DCE (trans-1,2-dichloroethene), VC (vinyl chloride), 1,1-DCE (1,1-dichloroethene), and other HVOCs (halogenated volatile organic compounds) determined using EPA Test Method 8260C.

Metals (As = arsenic, Cd = cadmium, Pb = lead) determined using EPA Method 200.8.

ND = Not detected above the noted analytical detection limit.

---- = Not analyzed or not applicable.

x = The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A Cleanup Levels for Ground Water (WAC 173-340-900, Table 720-1). MTCA Method B Standard Formula Values for Ground Water from Ecology's Cleanup Level and Risk Calculation (CLARC) database obtained on January 23, 2017.

[1] The higher screening level is applicable if no benzene is detected in groundwater.

[2] No MTCA Method A Cleanup Level has been established. Therefore, the MTCA Method B Standard Formula Value is listed for reference.

[3] The toxicity of the cPAH mixture is compared to the MTCA Method A Cleanup Level for Groundwater for benzo(a)pyrene using the toxicity equivalency methodology described in WAC 173-340-708(8).

[4] The non-carcinogenic MTCA Method B value was referenced due to the fact that a carcinogenic Method B value does not exist.

[5] Concentration obtained by adding the C5-6 and C6-8 aliphatic concentrations from the NWVPH analysis.

[6] Concentration obtained by adding the C8-C10 and C10-12 aliphatic concentrations from the NWVPH analysis.

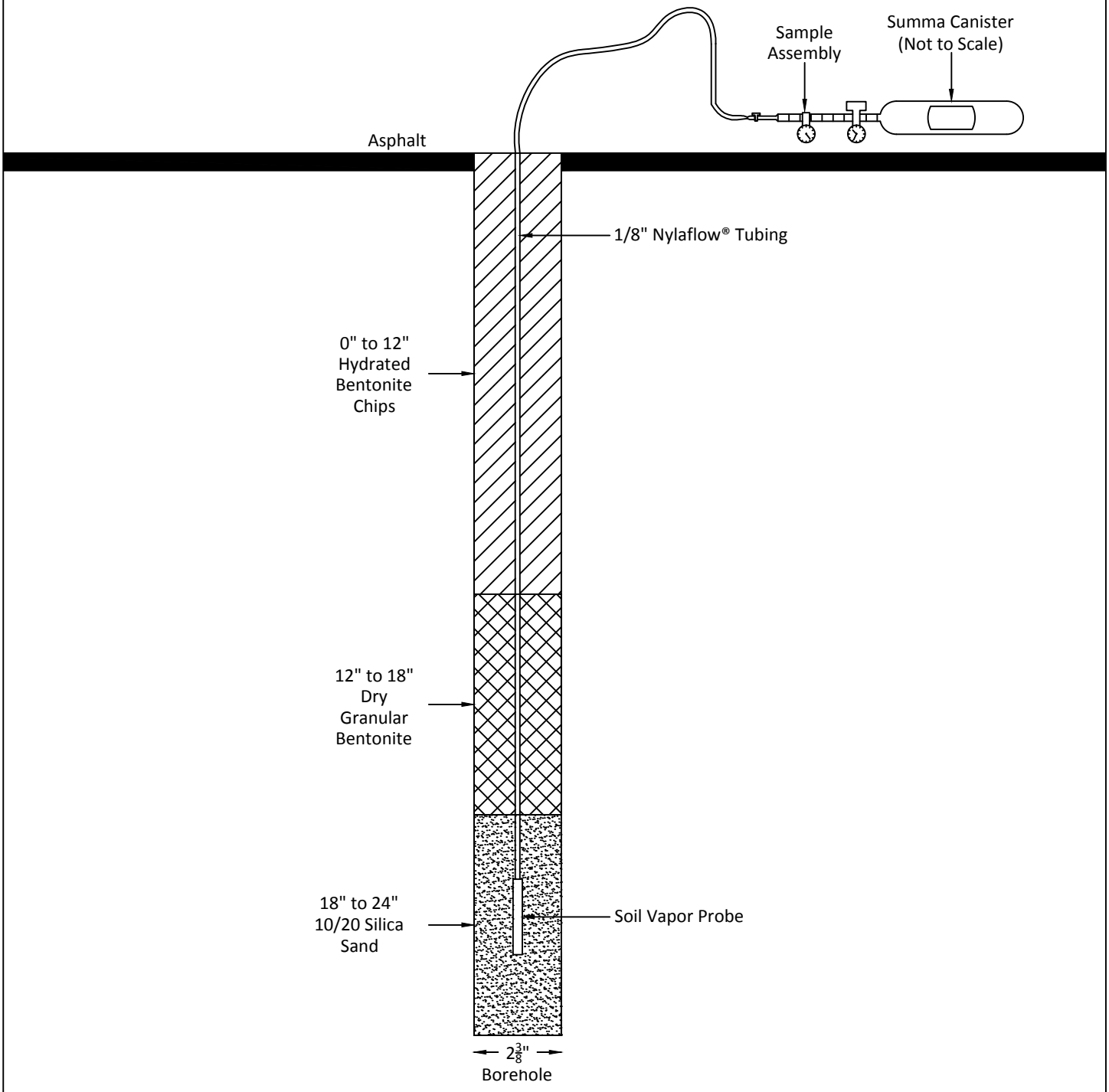
[7] Concentration obtained by adding the C8-10 and C10-12 aromatic concentrations from the NWVPH analysis and subtracting the naphthalene concentration.

Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method B groundwater screening level considered protective of indoor air. Obtained from Ecology's *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action* dated October 2009 (Table B-1, amended April 6, 2015)

* Indicates concentration that exceeds the Ecology Groundwater Screening Level considered Protective of Indoor Air.

Bold results indicated concentrations above laboratory detection limits.

Bold and yellow highlighted results indicate concentrations (if any) that exceed MTCA Method A or B Cleanup Levels for Ground Water.



Not to Scale

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Augusta Apartments		Appendix A
RGI Project Number 2012-171A	Sample Vapor Probe Schematic	Date Drawn: 02/2017
Address: 4041 Roosevelt Way Northeast, Seattle, Washington 98105		