DEPARTMENT OF ECOLOGY
State of Washington

Application for a State Waste Discharge Permit to Discharge Industrial Wastewater to Ground Water by Land Treatment or Application

This application is for a state waste discharge permit as required by Chapter 90.48 RCW and Chapter 173-216 WAC. Permit applications provide Ecology with information on pollutants in the waste stream, materials that may enter the waste stream, the flow characteristics of the discharge, and the site characteristics at the point of discharge.

Ecology may request additional information to clarify the conditions of this discharge. The applicant should reference information previously submitted to Ecology that applies to this application in the appropriate section.

SECTION A. GENERAL INFORMATION

1. Applicant name: GWI Holdings, Inc.

2. Facility name: Gaco Western
(if different from applicant)

3. Applicant mail address: 1000 First Avenue #2201
Street

Seattle, WA — 98104
City/State — Zip

4. Facility location address: 18700 Southcenter Parkway
(if different from above)
Street

Tukwila, WA — 98188
City/State — Zip

5. UBI No. 178-061-590

Sometimes called a registration, tax, "C," or resale number, the Unified Business Identifier (UBI) number is a nine-digit number used to identify persons engaging in business activities. The number is assigned when a person completes a Master Business Application to register with or obtain a license from state agencies. The Departments of Revenue, Licensing, Employment Security, Labor and Industries, and the Corporations Division of the Secretary of State are among the state agencies participating in the UBI program.

6. Latitude/longitude of the processing facility as decimal degrees (NAD83/WGS84):
47 26 4.47 N / 122 15 47.40 W

RECEIVED
AUG 29 2018
Department of Ecology - Northwest Regional Office

FOR ECOLOGY USE ONLY	Check One	New/Renewal ☐	Modification ☐
Date application received		Application/Permit no.	
Date application accepted		Date fee paid	

7. Person to contact who is familiar with the information contained in this application:

Brad Helland	PE
Name	Title
206.372.6806	
Telephone number	Fax number

8. Check One:

☐ **Permit renewal** (including renewal of temporary permits authorized by RCW 90.48.200)

Does this application request a greater amount of wastewater discharge, a greater amount of pollutant discharge, or a discharge of different pollutants than specified in the last permit application for this facility? ☐ YES ☐ NO

For permit renewals, the current permit is an attachment, by reference, to this application.

☐ **Permit modification** ☐ **Existing unpermitted discharge** ☒ **Proposed discharge**

Anticipated date of discharge: 9/10/18

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and/or imprisonment for knowing violations.

[signature]	8/27/2019	VP BUSINESS MANAGEMENT
Signature*	Date	Title
E BRYANT HILL		
Printed name		

*Applications must be signed as follows: Corporations, by a principal executive officer of at least the level of vice-president; partnership, by a general partner; sole proprietorship, by the proprietor. If these titles do not apply to your organization, the person who makes budget decisions for this facility must sign the application.

The application signatory may delegate signature authority for submittals required by the permit, such as monthly reports, to a suitable employee. You can delegate this authority to a qualified individual or to a position, which you expect to fill with a qualified individual. If you wish to delegate signature authority, please complete the following:

Signature of delegated employee	Date	Title or function at the facility
Printed name		

SECTION B. PRODUCT INFORMATION

1. Briefly describe all manufacturing processes and products, and/or commercial activities at this facility. Provide the applicable Standard Industrial Category (SIC) and the North American Industry Classification System (NAICS) Code(s) for each activity (see *North American Industrial Classification System,* 2007 ed.). You can find the 1997 NAICS codes and the corresponding 1987 Standard Industry Category (SIC) codes at (http://www.census.gov/epcd/naics/frames3.htm).

Description: This is a cleanup site entering Ecology's Voluntary Cleanup Program. There are no manufacturing processes currently at the site. The site currently functions as general warehousing and storage (NAICS code 493110). The proposed discharge is for effluent that has been processed on-site through a remediation system pilot test. VOCs in the effluent have been reduced significantly through treatment by Phytoremediation Attached Growth Reactors (PhAGRs). Data supporting this observation are shown in Attachment E.4. The effluent from the PhAGRs is proposed to be drip irrigated onto trees that were planted for the purpose of treating groundwater (thereby providing additional treatment).

2. List raw materials and products:

Type	RAW MATERIALS	Quantity
Potatoes (Example)		*20 million tons per year*
None		

Type	PRODUCTS	Quantity
French fries (Example)		*10 million pounds per year*
None		

SECTION C. PLANT OPERATIONAL CHARACTERISTICS

1. For each process listed in B.1that generates wastewater, list the process, assign the waste stream a name and ID #, and describe whether it is a batch or continuous flow.

Process	Waste Stream Name	Waste Stream ID#	Batch (B) or Continuous (C) Process
Receiving raw potatoes (Example)	*Mud Water*	*1*	*C*
None	Pilot Test Effluent. Groundwater is treated in a remediation system pilot test. The pilot test effluent is collected, stored, and proposed for discharge as irrigation water for a grove of trees that is part of a remediation system (an EBuffer, a trademarked phytoremediation system).	1	Batch

2. On a separate sheet, produce a schematic drawing showing production processes and water flow through the facility and wastewater treatment devices *(label as attachment C2)*. The drawing should indicate the source of intake water and the operations contributing wastewater to the effluent and should label the treatment units. Construct the water balance by showing average flows between intakes, operations, treatment units, and points of discharge to land. If a water balance cannot be determined *(e.g., for certain mining activities)*, provide a description of the nature and amount of any sources of water and any collection or treatment measures.

3. What is the highest daily discharge flow from the processing facility:
(Specify the time period for the value given)

   125 gallons per day

   What is the highest daily discharge flow to the sprayfields/infiltration basin:
   (Specify the time period for the value given)

   inches/acre/month OR

   167 gallons per day

   What is the highest average monthly discharge flow (daily flows averaged over a month) from the processing facility:
   (Specify the time period for the value given)

   80 gallons/day?

What is the highest average monthly discharge flow to the sprayfields:
(Specify the time period for the value given)

inches/acre/month OR

80 gallons per day

4. Describe any planned wastewater treatment or sprayfield/infiltration improvements and the schedule for the improvements or changes. *(Use additional sheets, if necessary and label as attachment C4.)*

None currently planned

5. If production processes are subject to seasonal variations, provide the following information. List discharge for each wastestream in gallons or million gallons per month. The combined value for each month should equal the estimated total monthly flow. Please indicate the proper unit by checking one of the following boxes:

☒ gallons per day ☐ gallons per month ☐ million gallons per month

Waste Stream ID#	MONTHS											
	J	F	M	A	M	J	J	A	S	O	N	D
#1 (Example)	*1000*	*1000*	*1000*	*1000*	*6000*	*2000*	*2000*	*2000*	*1000*	*1000*	*5000*	*4000*
1	0	0	80	80	80	80	80	80	80	80	80	0
Estimated total gallons												

6. If this is a discharge from the processing facility to a storage or evaporative lagoon, what is the size of the lagoon (give square footage for the bottom of the lagoon and the total volume of the lagoon at full operating depth). *10,000 square feet; 10 million gallons (Example)*

   NA

7. Check the applicable box. Is this is a discharge to a sprayfield ☐ or an infiltration bed ☒? Provide the average gallons per acre per day proposed for each month in the following table.

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept.	Oct	Nov	Dec
Estimated gallons per acre per day	0	0	533	533	533	533	533	533	533	533	533	0

8. How many hours a day does this facility typically operate? NA

   How many days a week does this facility typically operate? NA

   How many weeks per year does this facility typically operate? NA

9. List all incidental materials such as oil, paint, grease, solvents, and cleaners that are used or stored on site (list only those with quantities greater than 10 gallons for liquids and 50 pound quantities for solids). For solvents and solvent-based cleaners, include a copy of the material safety data sheet for each material and estimate the quantity used. *Use additional sheets, if necessary and label as attachment C.7.)*

Materials/Quantity Stored: None

			Yes	No
10.	Some types of facilities are required to have spill or waste control plans. Does this facility have:			
	a.	A spill prevention, control, and countermeasure plan (40 CFR 112)?	☐	☒
	b.	An Oil Spill Contingency Plan (chapter 173-182 WAC)?	☐	☒
	c.	An emergency response plan (per WAC 173-303-350)?	☐	☒
	d.	A runoff, spillage, or leak control plan (per WAC 173-216-110(f))?	☐	☒
	e.	Any spill or pollution prevention plan required by local, state or federal authorities? If yes specify: _____	☐	☒
	f.	A solid waste control plan?	☐	☒

SECTION D. WATER CONSUMPTION AND WATER LOSS

1. Potable water source(s):

☒ Public system (Specify name) City of Tukwila

☐ Private well ☐ Surface water (Specify name of water body) _____

a. Water right permit number: _____

b. Legal description of water source:

_____ ¼S, _____ ¼S, _____, Section, _____ TWN, _____ R

2. Potable water use

a. Indicate total water use: Gallons per day (average) 343

Gallons per day (maximum) 1200

b. Is water metered? ☒ YES ☐ NO

3. Supplemental Irrigation water source(s):

☐ Public system or Irrigation District (Specify name) _____

☐ Private well ☐ Surface water (Specify name of water body) _____

a. Water right permit number: _____

b. Legal description of water source:

_____ ¼S, _____ ¼S, _____, Section, _____ TWN, _____ R

SECTION E. WASTEWATER INFORMATION

1. How are the water intake and effluent flows measured?

   Intake: Periodic filling of 1000-gal Baker tank to supply water for PhAGRs - volume measured on side of tank

   Effluent mechanical flow totalizer Assured Automation model WM-PC-050

2. Describe the collection method for the samples analyzed below. (*i.e.*, grab, 24-hour composite). Applicants must collect grab samples (not composites) for analysis of pH, temperature, cyanide, total phenols, residual chlorine, oil and grease, fecal coliform (including E. coli), and Enterococci (previously known as fecal streptococcus at § 122.26 (d)(2)(iii)(A)(3)),or volatile organics.

   Grab samples collected from PhAGRs and PhAGRs effluent containment using standard methods. When PhAGRs are irrigated with VOC-contaminated groundwater, VOCs are removed mainly by adsorption, biological and abiotic degradation, and evapotranspiration. The remediation process is not known to introduce pathogens or pollutants into the PhAGR effluent.

3. Has the effluent been analyzed for any other parameters than those identified in question E.4.? ☒ YES ☐ NO
   If yes, attach results and label as attachment E.4. This data must clearly show the date, method and location of sampling. *(Note: Ecology may require additional testing.)*

4. Provide measurements or range of measurements for treated wastewater prior to discharge to the POTW for the parameters with an "X" in the left column. If you obtain the application from the internet, contact Ecology's regional office to see if testing for a subset of these parameters is permissible. All analyses (except pH) must be conducted by a laboratory registered or accredited by Ecology (WAC 173-216-125). If this is an application for permit renewal, provide data for the last year for those parameters that are routinely measured. For parameters measured only for this application, place the values under "Maximum." Report the values with units as specified in the parameter name or in the detection level.

   The Permittee must use the specified analytical methods, detection limits (DLs) and quantitation levels (QLs) in the following table unless Ecology approves an alternate method or the method used produces measurable results in the sample and EPA has listed it as an EPA approved method in 40 CFR Part 136. If the Permittee uses an alternative method as allowed above, it must report the test method, DL, and QL on the discharge monitoring report or in the required report.

X	Parameter	Measurement Values			Number of Analyses	Analytical Method Std. Methods 19th,20th edition or EPA	Detection Limit/Quantitation Level
		Minimum	Maximum	Average			
	BOD (5 day)				0	SM 5210 B	/2 mg/l
	COD				0	SM 5220 D	/10 mg/l
	Total suspended solids				0	SM 2540 D	/5 mg/l
	Fixed Dissolved Solids				0	SM 2540 E	
	Total dissolved solids				0	SM 2540 C	
	Conductivity (micromhos/cm)				0	SM 2510 B	
	Ammonia-N as N				0	SM 4500-NH_3 C	/0.3 mg/L
	pH				0	SM 4500-H	0.1 standard units
	Fecal coliform (organisms/100 mL)				0	SM 9221 E or 9222 D	
	Total coliform (organisms/100 mL)				0	SM 9221 B or 9222 B	
	Dissolved oxygen				0	SM 4500-O C/G	
	Nitrate + nitrite-N as N				0	SM 4500-NO_3 E	100 µg/L
	Total kjeldahl N as N				0	SM 4500-N_{org} C/E/FG	300 µg/l
	Ortho-phosphate-P as P				0	SM 4500-P E/F	10 µg/l
	Total-phosphorous-P as P				0	SM 4500-P E/P/F	10 µg/l
	Total Oil & grease				0	EPA 1664A	1.4/5 mg/l
	NWTPH - Dx				0	Ecology NWTPH Dx	250/250 µg/l
	NWTPH - Gx				0	Ecology NWTPH Gx	250/250 µg/l
	Calcium				0	EPA 200.7	10 µg/l
	Chloride				0	SM 4500-Cl C	0.15 µg/l
	Fluoride				0	SM 4500-F E	.025/0.1 mg/l
	Magnesium				0	EPA 200.7	10/50 µg/l

X	Parameter	Measurement Values			Number of Analyses	Analytical Method Std. Methods 19th,20th edition or EPA	Detection Limit/Quantitation Level
		Minimum	Maximum	Average			
	Potassium				0	EPA 200.7	700/ µg/l
	Sodium				0	EPA 200.7	29/ µg/l
	Sulfate				0	SM 4500-SO_4 C/D	/200 µg/l
	Alkalinity as $CaCO_3$				0	SM 2320 B	/5 mg/L as $CaCO_3$
	Arsenic(total)				0	EPA 200.8	0.1/0.5 µg/l
	Barium (total)				0	EPA 200.8	0.5/2 µg/l
	Cadmium (total)				0	EPA 200.8	.05/.25 µg/l
	Chromium (total)				0	EPA 200.8	0.2/1 µg/l
	Copper (total)				0	EPA 200.8	0.4/2 µg/l
	Iron (total)				0	EPA 200.7	12.5/50 µg/l
	Lead (total)				0	EPA 200.8	0.1/.5 µg/l
	Manganese (total)				0	EPA 200.8	0.1/0.5 µg/l
	Mercury (total) pg/L				0	EPA 1631E	0.2/0.5 pg/l
	Molybdenum(total)				0	EPA 200.8	0.1/0.5 µg/l
	Nickel(total)				0	EPA 200.8	0.1/0.5 µg/l
	Selenium (total)				0	EPA 200.8	1/1 µg/l
	Silver (total)				0	EPA 200.8	.04/.2 µg/l
	Zinc (total)				0	EPA 200.8	0.5/2.5 µg/l

Detection level (DL) or detection limit means the minimum concentration of an analyte (substance) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero as determined by the procedure given in 40 CFR part 136, Appendix B.

Quantitation Level (QL) also known as Minimum Level of Quantitation (ML) – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the result to the number nearest to (1, 2, or 5) x 10^n, where n is an integer. (64 FR 30417).
ALSO GIVEN AS:
The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs Submitted to the US Environmental Protection Agency December 2007).

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5. Does this facility use any of the following chemicals as raw materials in production, produce them as part of the manufacturing process, or are they present in the wastewater? (*The number following the chemical name is the Chemical Abstract Service (CAS) reference number to aid in identifying the compound.*) ☐ YES ☒ NO

If yes, specify how the chemical is used and the quantity used or produced *(Use additional sheets, if necessary and label as attachment E5.)*:

Acrylamide/79-06-1
Acrylonitrile/107-13-1
Aldrin/309-00-2
Aniline/62-53-3
Aramite/140-57-8
Arsenic/7440-38-2
Azobenzene/103-33-3
Benzene/71-43-2
Benzidine/92-87-5
Benzo(a)pyrene/50-32-8
Benzotrichloride/98-07-7
Benzyl chloride/100-44-7
Bis(chloroethyl)ether/111-44-4
Bis(chloromethyl)ether/542-88-1
Bis(2-ethylhexyl) phthalate/ 117-81-7
Bromodichloromethane/75-27-4
Bromoform/75-25-2
Carbazole/86-74-8
Carbon tetrachloride/56-23-5
Chlordane/57-74-9
Chlorodibromomethane/124-48-1
Chloroform/67-66-3
Chlorthalonil/1897-45-6
2,4-D/94-75-7
DDT/50-29-3
Diallate/2303-16-4
1,2 Dibromoethane/106-93-4
1,4 Dichlorobenzene/106-46-7
3,3' Dichlorobenzidine/91-94-1
1,1 Dichloroethane/75-34-3
1,2 Dichloroethane/107-06-2
Nitrofurazone/59-87-0
N-nitrosodiethanolamine/ 1116-54-7
N-nitrosodiethylamine/55-18-5
N-nitrosodimethylamine/62-75-9
N-nitrosodiphenylamine/86-30-6
N-nitroso-di-n-propylamine/ 621-64-7
N-nitrosopyrrolidine/930-55-2
N-nitroso-di-n-butylamine/ 924-16-3
N-nitroso-n-methylethylamine/ 10595-95-6
PAH/NA
PBBs/NA
PCBs/1336-36-3
1,2 Dichloropropane/78-87-5
1,3 Dichloropropene/542-75-6
Dichlorvos/62-73-7
Dieldrin/60-57-1
3,3' Dimethoxybenzidine/119-90-4
3,3 Dimethylbenzidine/119-93-7
1,2 Dimethylhydrazine/540-73-8
2,4 Dinitrotoluene/121-14-2
2,6 Dinitrotoluene/606-20-2
1,4 Dioxane/123-91-1
1,2 Diphenylhydrazine/122-66-7
Endrin/72-20-8
Epichlorohydrin/106-89-8
Ethyl acrylate/140-88-5
Ethylene dibromide/106-93-4
Ethylene thioureae/96-45-7
Folpet/133-07-3
Furmecyclox/60568-05-0
Heptachlor/76-44-8
Heptachlor epoxide/1024-57-3
Hexachlorobenzene/118-74-1
Hexachlorocyclohexane (alpha)/ 319-84-6
Hexachlorocyclohexane (tech.)/ 608-73-1
Hexachlorodibenzo-p-dioxin, mix/19408-74-3
Hydrazine/hydrazine sulfate/ 302-01-2
Lindane/58-89-9
2 Methylaniline/100-61-8
2 Methylaniline hydrochloride/ 636-21-5
4,4' Methylene bis(N,N- dimethyl)aniline/101-61-1
Methylene chloride (dichloromethane)/75-09-2
Mirex/2385-85-5
O-phenylenediamine/106-50-3
Propylene oxide/75-56-9
2,3,7,8-Tetrachlorodibenzo-p-dioxin/ 1746-01-6
Tetrachloroethylene/127-18-4
2,4 Toluenediamine/95-80-7
o-Toluidine/95-53-4
Toxaphene/8001-35-2
Trichloroethylene/79-01-6
2,4,6-Trichlorophenol/88-06-2
Trimethyl phosphate/512-56-1
Vinyl chloride/75-01-4

6. Are any other pesticides, herbicides, or fungicides used at this facility? ☐ YES ☒ NO

If yes, specify the material and quantity used.

7. Are there other pollutants that you know of or believe to be present? ☒ YES ☐ NO

If yes, specify the pollutants and their concentration if known (attach laboratory analyses if available). See attachment E.4 ☐ DON'T KNOW

SECTION F. GROUND WATER INFORMATION

Provide available data measurements or range of measurements from monitoring wells or supply wells in the area of discharge. Provide the analytical method and detection limit, if known. Provide the location of each well on the map required in G.3 below. Attach well logs when available. Copy this page as necessary for each well. Provide the latitude and longitude in decimal format.

Ecology Well Tag ID # BJU-253 *(exampleAAB123)*

Well ID # GW-9 *(example MW-1)*

Latitude: _____

Longitude: _____

Well Elevation (to the nearest 0.01 feet) 31.91 Check the appropriate box; the elevation measurement is relative to: the NAVD88 standard ☒ mean sea level ☐

Parameter	Units	Range of Measurements	Number of Analyses	Analytical Method	Detection Limit
BOD (5 day)	mg/L	NA			
COD	mg/L	NA			
Total organic carbon	mg/L	NA			
Total dissolved solids	mg/L	NA			
Dissolved Fixed Solids	mg/L				
pH	Standard units				
Conductivity	(micromhos/cm)	NA			
Alkalinity	mg/L as $CaCO_3$				
Total hardness	mg/L	NA			
Fecal coliform	organisms/100mL	NA			
Total coliform	organisms/100mL	NA			
Dissolved oxygen	mg/L	NA			
Ammonia-N	mg/L				
Nitrate + nitrite-N, nitrate as N	mg/L	NA			
Total kjeldahl N as N	mg/L	NA			
Ortho-phosphate-P as P	mg/L	NA			
Total-phosphate-P as P	mg/L	NA			
Total Oil and Grease	mg/L				
Total petroleum hydrocarbon	☒mg/L ☐ µg/l	1.62	1	BTEX: SW846 8260C	.0012
Calcium	☐mg/L ☐ µg/l	NA			
Chloride	☐mg/L ☐ µg/l	NA			
Fluoride	☐mg/L ☐ µg/l	NA			
Magnesium	☐mg/L ☐ µg/l	NA			
Potassium	☐mg/L ☐ µg/l	NA			
Sodium	☐mg/L ☐ µg/l	NA			
Sulfate	☐mg/L ☐ µg/l	NA			
Barium	☐mg/L ☐ µg/l	NA			
Cadmium	☐mg/L ☐ µg/l	NA			
Chromium	☐mg/L ☐ µg/l	NA			
Copper	☐mg/L ☐ µg/l	NA			
Iron	☐mg/L ☐ µg/l	NA			

Parameter	Units	Range of Measurements	Number of Analyses	Analytical Method	Detection Limit
Lead	☐mg/L ☐ µg/l	NA			
Manganese	☐mg/L ☐ µg/l	NA			
Mercury	☐mg/L ☐ µg/l	NA			
Selenium	☐mg/L ☐ µg/l	NA			
Silver	☐mg/L ☐ µg/l	NA			
Zinc	☐mg/L ☐ µg/l	NA			
Depth to water level (to the nearest .01 feet)		15.09-16.27	2	Direct measurement	.01

SECTION G. SITE ASSESSMENT

The local library and local city or county planning offices may be helpful in providing the information required in this section. You may consult the Department of Ecology Water Resources Program to help identify wells within one mile of your site.

1. Land Application Sites: Provide the information below for each land application site. Provide the latitude/longitude (approximate center of the site; NAD83/WGS84 reference datum.) Attach a copy of the contract(s) authorizing use of any private land(s) used for each treatment site. Add table rows as necessary.

Legal Description (section/township/range) King Co. parcel 352304-9014			
Latitude	Longitude	Acreage	Owner
47°26' 5.9"N	122° 15' 48.1" W	0.15	GWI HOLDINGS
Legal Description (section/township/range)			
Latitude	Longitude	Acreage	Owner
Legal Description (section/township/range)			
Latitude	Longitude	Acreage	Owner
Legal Description (section/township/range)			
Latitude	Longitude	Acreage	Owner

2. If this is a new discharge, list all environmental control permits or approvals needed for this project; for example, SEPA review, engineering reports, hydrogeologic reports, , , or air emissions permits.

   None known

3. Attach an original United States Geological Survey (USGS) 7.5 minute topographic map and aerial photograph(s) from an internet mapping site that shows the processing facility and sprayfield site(s). **USGS topographical maps are available from the Department of Natural Resources (360 902-1234), Metsker Maps (206 588-5222), some local bookstores, and internet sites.** Show the following on this map:

   a. Location and name of internal and adjacent streets.
   b. Surface water drainage systems within ¼ mile of the site.
   c. All wells within 1 mile of the site.
   d. Wastewater discharge points.
   e. Land uses and zoning adjacent to the wastewater application site.
   f. Groundwater gradient.

4. Describe the soils on the site using information from local soil survey reports. **Soils information is available from your local County Conservation District or from information contained in the sites hydrogeologic report**. *(Submit on separate sheet and label as attachment G.4.)*

5. Describe the local geology and hydrogeology within one mile of the site. Include any groundwater quality data. **The local library or local Soil Conservation Service may have this information.** *(Submit on separate sheet and label as attachment G.5.)*

6. List the names and addresses of contractors or consultants who provided information and cite sources of information by title and author.

   GACO Western Final Installation Report. 2018. Ecolotree, Inc. 3017 Valley View Ln., North Liberty, IA 52317.

   Remedial Investigation and Feasibility Study Report, GWI Tukwila Property. 2017. Aspect Consulting, LLC. 401 2nd Ave. S. Ste. 201, Seattle, WA 98104.

SECTION H. STORMWATER

1. Do you have coverage under the Washington State Industrial Stormwater NPDES General permit? ☐ YES ☒ NO
   If yes, please list the permit number here. _____

   If no, have you applied for coverage under the Washington State Industrial Stormwater NPDES general permit? ☐ YES ☒ NO

Note: If you answered "no" to both questions above, complete the following questions 2 through 8.

2. Describe the size of the stormwater collection area.
   a. Unpaved area 7000 sq.ft.
   b. Paved area 20000 sq.ft.
   c. Other collection areas (roofs) 30000 sq.ft.

3. Does your facility's stormwater discharge to: *(Check all that apply)*
   ☒ Storm sewer system; name of storm sewer system *(operator)*: CITY OF TUKWILA
   ☐ Sanitary sewer
   ☐ Directly to surface waters of Washington State *(e.g., river, lake, creek, estuary, ocean).*
   Specify waterbody name _____
   ☐ Indirectly to surface waters of Washington State *(i.e., flows over adjacent properties first).*
   ☐ Directly to ground waters of Washington State via:
   ☐ Dry well
   ☐ Drainfield
   ☐ Other

4. Areas with industrial activities at facility: *(check all that apply)*
   ☐ Manufacturing building
   ☐ Material handling
   ☒ Material storage
   ☐ Hazardous waste treatment, storage, or disposal *(refers to RCRA, Subtitle C facilities only)*
   ☐ Waste treatment, storage, or disposal
   ☐ Application or disposal of wastewaters
   ☐ Storage and maintenance of material handling equipment
   ☐ Vehicle maintenance
   ☐ Areas where significant materials remain
   ☐ Access roads and rail lines for shipping and receiving
   ☐ Other _____

5. Material handling/management practices

a. Types of materials handled and/or stored outdoors: *(check all that apply)*

- ☐ Solvents
- ☐ Scrap metal
- ☐ Petroleum or petrochemical products
- ☐ Plating products
- ☐ Pesticides
- ☐ Hazardous wastes
- ☐ Acids or alkalies
- ☐ Paints/coatings
- ☐ Woodtreating products
- ☒ Other *(please list)*: Leased warehouse space for cement products, wheel barrow parts, and consumer goods.

b. Identify existing management practices employed to reduce pollutants in industrial storm water discharges: *(check all that apply)*

- ☐ Oil/water separator
- ☐ Containment
- ☐ Spill prevention
- ☐ Surface leachate collection
- ☐ Overhead coverage
- ☐ Detention facilities
- ☐ Infiltration basins
- ☒ Operational BMPs
- ☐ Vegetation management
- ☐ Other *(please list)*: _____

6. Attach a map showing stormwater drainage/collection areas, disposal areas and discharge points. This may be a hand drawn map if no other site map is available. Label this as attachment H.8.

SECTION I. OTHER INFORMATION

1. Describe liquid or solid wastes generated that are not disposed of in the waste stream(s) and describe the method of disposal. For each type of waste, provide type of waste, name, address, and phone number of hauler.

   NA

2. Describe any storage areas used for raw materials, products, and wastes.

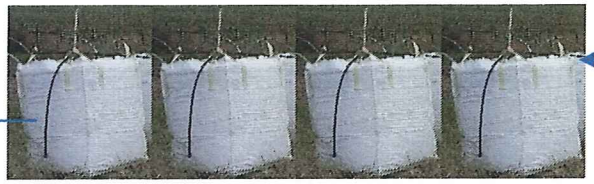
   None

Summary of attachments that may be required for this application:
(Please check those attachments that are included)

- ☒ C.2. Production schematic flow diagram and water balance
- ☐ C.4. Wastewater treatment improvements
- ☐ C.7. Additional incidental materials
- ☒ E.4. Additional results of effluent testing
- ☐ G.1. Copies of land use contracts
- ☒ G.3. USGS topographical map
- ☒ G.4. Soils description
- ☒ G.5. Local geology and hydrology
- ☐ H.8. Stormwater drainage map

If you need this document in a format for the visually impaired, call the Water Quality Program at 360-407-6600. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

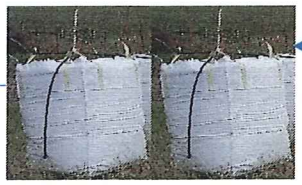
SCHEMATIC OF PhAGR IRRIGATION AND EFFLUENT PROPOSED DISCHARGE



4 PhAGRs with established trees

5 PhAGRs with new trees in perlite

3 PhAGRs with new trees and soil



2 containers with soil only

1 container with perlite only

Drip Irrigation Lines

Irrigation Water Storage Tank

up to 275 gpd - average = 170 gpd

Pump and Controller

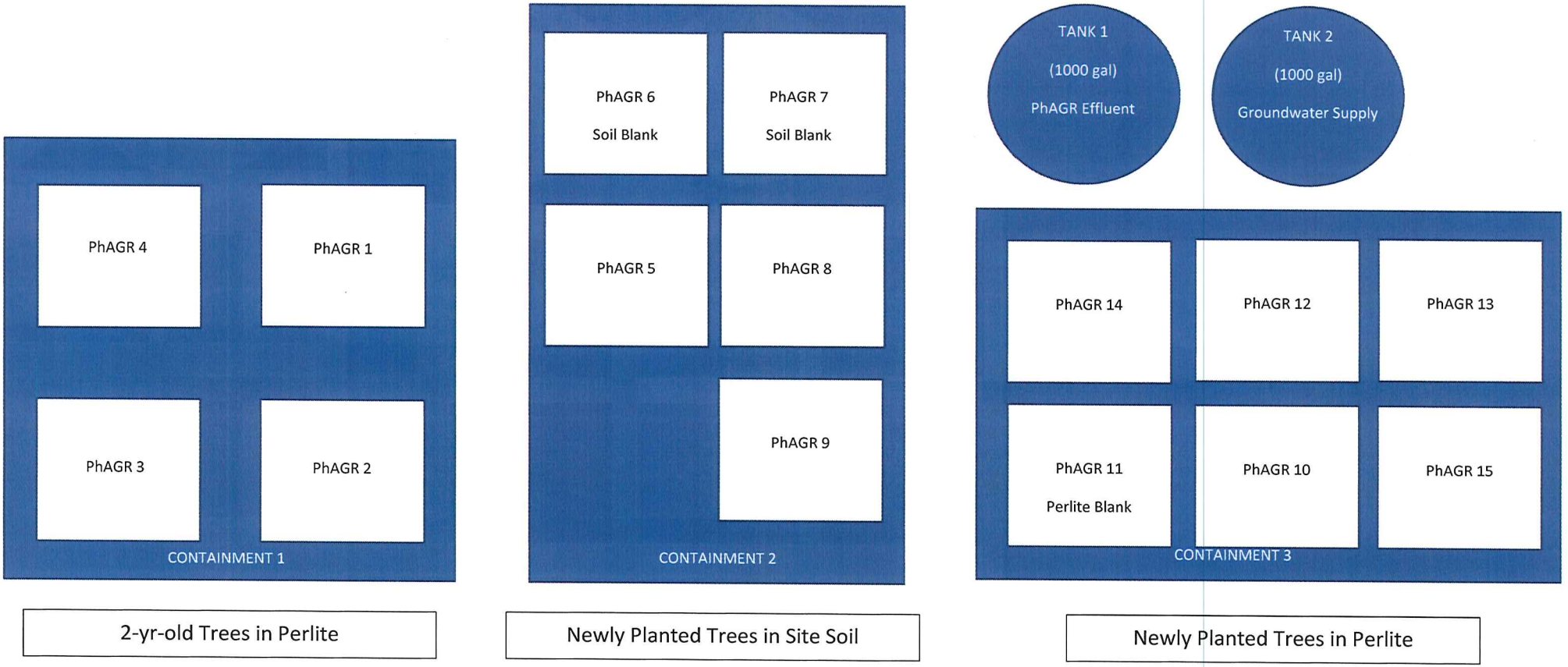
Groundwater Monitoring Well #9

PhAGR Effluent Storage Tank

Drip Irrigation Lines

On-site Tree Treatment (EBuffer)

(0.15 acre receiving up to 170 gpd)



PhAGR Pilot Test Configuration

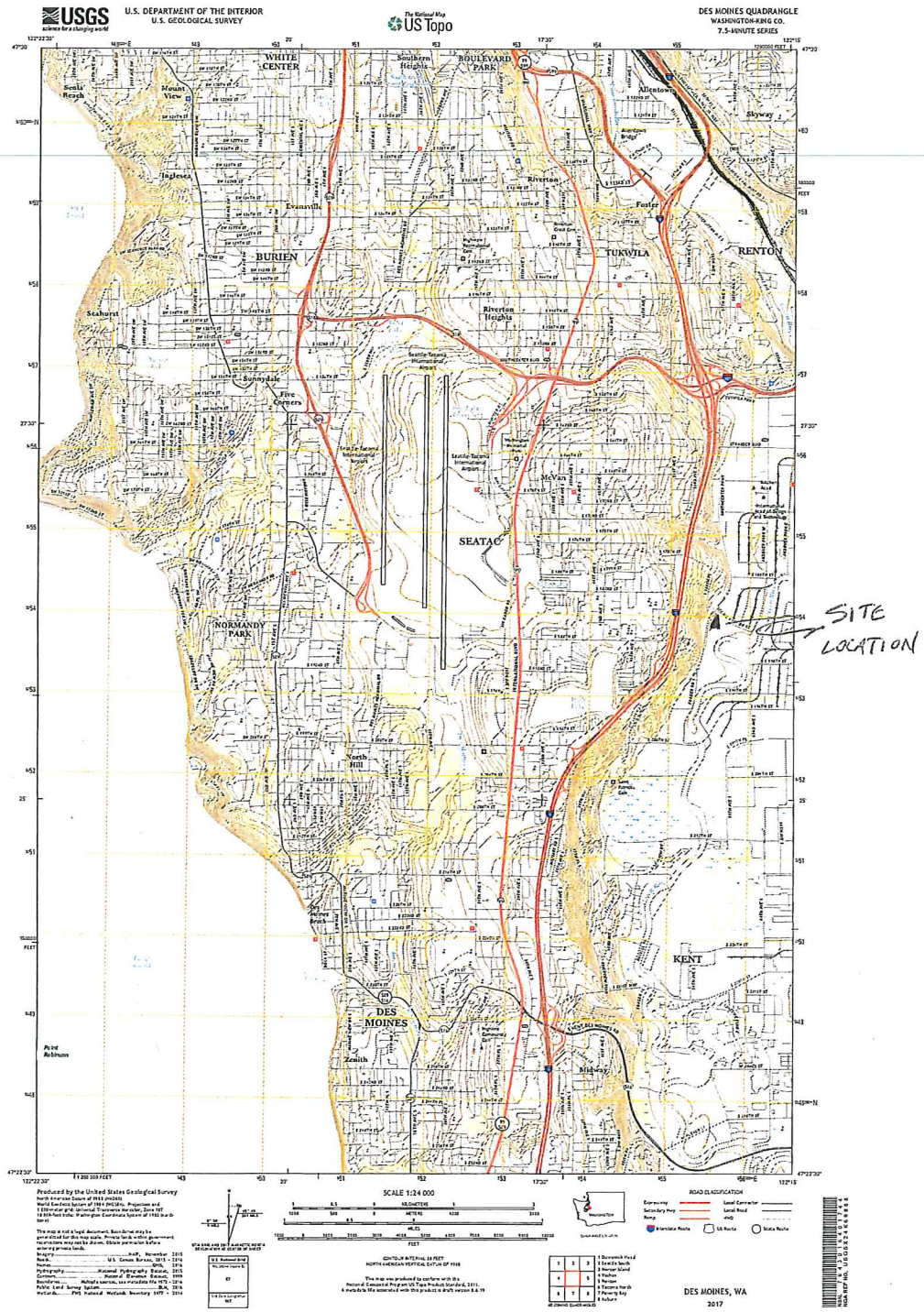
Attachment E.4

Sample ID	Date	Parameter Name	Concentration	Units	Method
PhAGR#1-Sample 1	07/27/2018	Vinyl Chloride	15.9	ng/L	SW8260CSIM
PhAGR#1-Sample 1	07/27/2018	1,2-Dichloroethane	13.7	ng/L	SW8260CSIM
PhAGR#1-Sample 1	07/27/2018	Benzene	105	ng/L	SW8260CSIM
PhAGR#1-Sample 1	07/27/2018	m, p-Xylene	124	ng/L	SW8260CSIM
PhAGR#1-Sample 2	07/27/2018	Vinyl Chloride	14.1	ng/L	SW8260CSIM
PhAGR#1-Sample 2	07/27/2018	1,2-Dichloroethane	13.4	ng/L	SW8260CSIM
PhAGR#1-Sample 2	07/27/2018	Benzene	222	ng/L	SW8260CSIM
PhAGR#1-Sample 2	07/27/2018	m, p-Xylene	121	ng/L	SW8260CSIM
PhAGR#2-Sample 1	07/27/2018	Benzene	32.8	ug/L	SW8260C
PhAGR#2-Sample 1	07/27/2018	m, p-Xylene	25.4	ug/L	SW8260C
PhAGR#2-Sample 1	07/27/2018	Acrylonitrile	270	ng/L	SW8260CSIM
PhAGR#2-Sample 1	07/27/2018	Vinyl Chloride	869	ng/L	SW8260CSIM
PhAGR#2-Sample 1	07/27/2018	1,1-Dichloroethene	459	ng/L	SW8260CSIM
PhAGR#2-Sample 1	07/27/2018	Cis-1,2-Dichloroethene	165	ng/L	SW8260CSIM
PhAGR#2-Sample 1	07/27/2018	Trans-1,2-Dichloroethene	14.4	ng/L	SW8260CSIM
PhAGR#2-Sample 1	07/27/2018	1,2-Dichloroethane	16.9	ng/L	SW8260CSIM
PhAGR#2-Sample 1	07/27/2018	Toluene	809	ng/L	SW8260CSIM
PhAGR#2-Sample 1	07/27/2018	Ethylbenzene	4490	ng/L	SW8260CSIM
PhAGR#2-Sample 1	07/27/2018	o-Xylene	1210	ng/L	SW8260CSIM
PhAGR#2-Sample 2	07/27/2018	Vinyl Chloride	37.8	ng/L	SW8260CSIM
PhAGR#2-Sample 2	07/27/2018	1,2-Dichloroethane	13.2	ng/L	SW8260CSIM
PhAGR#2-Sample 2	07/27/2018	Benzene	507	ng/L	SW8260CSIM
PhAGR#2-Sample 2	07/27/2018	Ethylbenzene	96.1	ng/L	SW8260CSIM
PhAGR#2-Sample 2	07/27/2018	m, p-Xylene	700	ng/L	SW8260CSIM
PhAGR#2-Sample 3	07/27/2018	Vinyl Chloride	34.4	ng/L	SW8260CSIM
PhAGR#2-Sample 3	07/27/2018	1,2-Dichloroethane	13.5	ng/L	SW8260CSIM
PhAGR#2-Sample 3	07/27/2018	Benzene	415	ng/L	SW8260CSIM
PhAGR#2-Sample 3	07/27/2018	Ethylbenzene	76.1	ng/L	SW8260CSIM
PhAGR#2-Sample 3	07/27/2018	m, p-Xylene	559	ng/L	SW8260CSIM
PhAGR#3-Sample 1	07/27/2018	1,2-Dichloroethane	13.6	ng/L	SW8260CSIM
PhAGR#3-Sample 1	07/27/2018	Benzene	174	ng/L	SW8260CSIM
PhAGR#3-Sample 1	07/27/2018	m, p-Xylene	67.5	ng/L	SW8260CSIM
PhAGR#3-Sample 2	07/27/2018	1,2-Dichloroethane	13.3	ng/L	SW8260CSIM
PhAGR#3-Sample 2	07/27/2018	Benzene	164	ng/L	SW8260CSIM
PhAGR#3-Sample 2	07/27/2018	m, p-Xylene	59.3	ng/L	SW8260CSIM
PhAGR#4-Sample 1	07/27/2018	Vinyl Chloride	42.7	ng/L	SW8260CSIM
PhAGR#4-Sample 1	07/27/2018	1,2-Dichloroethane	13.9	ng/L	SW8260CSIM
PhAGR#4-Sample 1	07/27/2018	Benzene	322	ng/L	SW8260CSIM
PhAGR#4-Sample 1	07/27/2018	Ethylbenzene	47.4	ng/L	SW8260CSIM
PhAGR#4-Sample 1	07/27/2018	m, p-Xylene	338	ng/L	SW8260CSIM
PhAGR#4-Sample 2	07/27/2018	Vinyl Chloride	42.5	ng/L	SW8260CSIM
PhAGR#4-Sample 2	07/27/2018	1,2-Dichloroethane	14	ng/L	SW8260CSIM
PhAGR#4-Sample 2	07/27/2018	Benzene	302	ng/L	SW8260CSIM
PhAGR#4-Sample 2	07/27/2018	Ethylbenzene	51.7	ng/L	SW8260CSIM
PhAGR#4-Sample 2	07/27/2018	m, p-Xylene	358	ng/L	SW8260CSIM
PhAGR#5-Sample 1	07/27/2018	Vinyl Chloride	111	ng/L	SW8260CSIM
PhAGR#5-Sample 1	07/27/2018	1,1-Dichloroethene	65.4	ng/L	SW8260CSIM
PhAGR#5-Sample 1	07/27/2018	Cis-1,2-Dichloroethene	18.3	ng/L	SW8260CSIM
PhAGR#5-Sample 1	07/27/2018	1,2-Dichloroethane	13.9	ng/L	SW8260CSIM
PhAGR#5-Sample 1	07/27/2018	Benzene	3530	ng/L	SW8260CSIM
PhAGR#5-Sample 1	07/27/2018	Toluene	85.7	ng/L	SW8260CSIM
PhAGR#5-Sample 1	07/27/2018	Ethylbenzene	422	ng/L	SW8260CSIM
PhAGR#5-Sample 1	07/27/2018	m, p-Xylene	2410	ng/L	SW8260CSIM
PhAGR#5-Sample 1	07/27/2018	o-Xylene	125	ng/L	SW8260CSIM

Attachment E.4

Sample ID	Date	Parameter Name	Concentration	Units	Method
PhAGR#5-Sample 2	07/27/2018	Vinyl Chloride	101	ng/L	SW8260CSIM
PhAGR#5-Sample 2	07/27/2018	1,1-Dichloroethene	61.5	ng/L	SW8260CSIM
PhAGR#5-Sample 2	07/27/2018	Cis-1,2-Dichloroethene	17.9	ng/L	SW8260CSIM
PhAGR#5-Sample 2	07/27/2018	1,2-Dichloroethane	13	ng/L	SW8260CSIM
PhAGR#5-Sample 2	07/27/2018	Benzene	3600	ng/L	SW8260CSIM
PhAGR#5-Sample 2	07/27/2018	Toluene	88.8	ng/L	SW8260CSIM
PhAGR#5-Sample 2	07/27/2018	Ethylbenzene	435	ng/L	SW8260CSIM
PhAGR#5-Sample 2	07/27/2018	m, p-Xylene	2480	ng/L	SW8260CSIM
PhAGR#5-Sample 2	07/27/2018	o-Xylene	130	ng/L	SW8260CSIM
PhAGR#7-Sample 1	07/27/2018	1,2-Dichloroethane	12.3	ng/L	SW8260CSIM
PhAGR#7-Sample 1	07/27/2018	Benzene	137	ng/L	SW8260CSIM
PhAGR#7-Sample 2	07/27/2018	1,2-Dichloroethane	12.9	ng/L	SW8260CSIM
PhAGR#7-Sample 2	07/27/2018	Benzene	142	ng/L	SW8260CSIM
PhAGR#12-Sample 1	07/27/2018	Vinyl Chloride	109	ng/L	SW8260CSIM
PhAGR#12-Sample 1	07/27/2018	1,1-Dichloroethene	45.8	ng/L	SW8260CSIM
PhAGR#12-Sample 1	07/27/2018	Cis-1,2-Dichloroethene	14.3	ng/L	SW8260CSIM
PhAGR#12-Sample 1	07/27/2018	1,2-Dichloroethane	15.2	ng/L	SW8260CSIM
PhAGR#12-Sample 1	07/27/2018	Benzene	934	ng/L	SW8260CSIM
PhAGR#12-Sample 1	07/27/2018	Ethylbenzene	223	ng/L	SW8260CSIM
PhAGR#12-Sample 1	07/27/2018	m, p-Xylene	1630	ng/L	SW8260CSIM
PhAGR#12-Sample 1	07/27/2018	o-Xylene	46.9	ng/L	SW8260CSIM
PhAGR#13-Sample 1	07/27/2018	Vinyl Chloride	53.1	ng/L	SW8260CSIM
PhAGR#13-Sample 1	07/27/2018	1,2-Dichloroethane	13.4	ng/L	SW8260CSIM
PhAGR#13-Sample 1	07/27/2018	Benzene	515	ng/L	SW8260CSIM
PhAGR#13-Sample 1	07/27/2018	Ethylbenzene	133	ng/L	SW8260CSIM
PhAGR#13-Sample 1	07/27/2018	m, p-Xylene	1010	ng/L	SW8260CSIM
PhAGR#14-Sample 1	07/27/2018	Vinyl Chloride	37.5	ng/L	SW8260CSIM
PhAGR#14-Sample 1	07/27/2018	1,2-Dichloroethane	13.3	ng/L	SW8260CSIM
PhAGR#14-Sample 1	07/27/2018	Benzene	308	ng/L	SW8260CSIM
PhAGR#14-Sample 1	07/27/2018	m, p-Xylene	276	ng/L	SW8260CSIM
PhAGR#14-Sample 2	07/27/2018	Vinyl Chloride	30	ng/L	SW8260CSIM
PhAGR#14-Sample 2	07/27/2018	1,2-Dichloroethane	13.4	ng/L	SW8260CSIM
PhAGR#14-Sample 2	07/27/2018	Benzene	180	ng/L	SW8260CSIM
PhAGR#14-Sample 2	07/27/2018	m, p-Xylene	108	ng/L	SW8260CSIM
PhAGR#15-Sample 1	07/27/2018	Vinyl Chloride	75.6	ng/L	SW8260CSIM
PhAGR#15-Sample 1	07/27/2018	1,2-Dichloroethane	14.1	ng/L	SW8260CSIM
PhAGR#15-Sample 1	07/27/2018	Benzene	862	ng/L	SW8260CSIM
PhAGR#15-Sample 1	07/27/2018	Ethylbenzene	152	ng/L	SW8260CSIM
PhAGR#15-Sample 1	07/27/2018	m, p-Xylene	1040	ng/L	SW8260CSIM
PhAGR#15-Sample 2	07/27/2018	Vinyl Chloride	52.7	ng/L	SW8260CSIM
PhAGR#15-Sample 2	07/27/2018	1,2-Dichloroethane	14.2	ng/L	SW8260CSIM
PhAGR#15-Sample 2	07/27/2018	Benzene	527	ng/L	SW8260CSIM
PhAGR#15-Sample 2	07/27/2018	Ethylbenzene	82.6	ng/L	SW8260CSIM
PhAGR#15-Sample 2	07/27/2018	m, p-Xylene	591	ng/L	SW8260CSIM
PhAGR#15-Sample 3	07/27/2018	Vinyl Chloride	72.7	ng/L	SW8260CSIM
PhAGR#15-Sample 3	07/27/2018	1,2-Dichloroethane	14.1	ng/L	SW8260CSIM
PhAGR#15-Sample 3	07/27/2018	Benzene	746	ng/L	SW8260CSIM
PhAGR#15-Sample 3	07/27/2018	Ethylbenzene	173	ng/L	SW8260CSIM
PhAGR#15-Sample 3	07/27/2018	m, p-Xylene	1320	ng/L	SW8260CSIM

ATTACHMENT G.3 - p.1

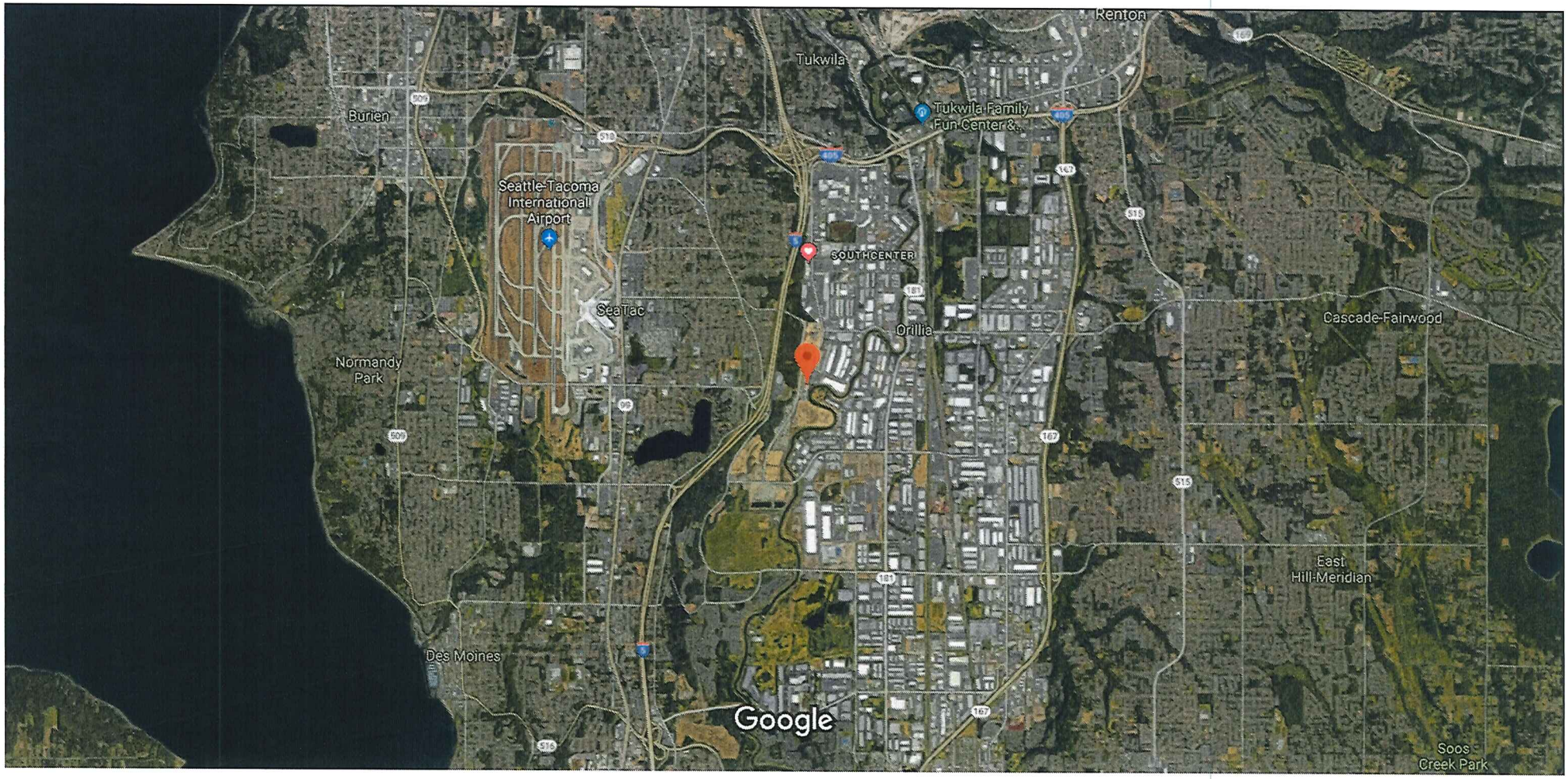


Google Maps

18700 Southcenter Pkwy

GWI Holdings

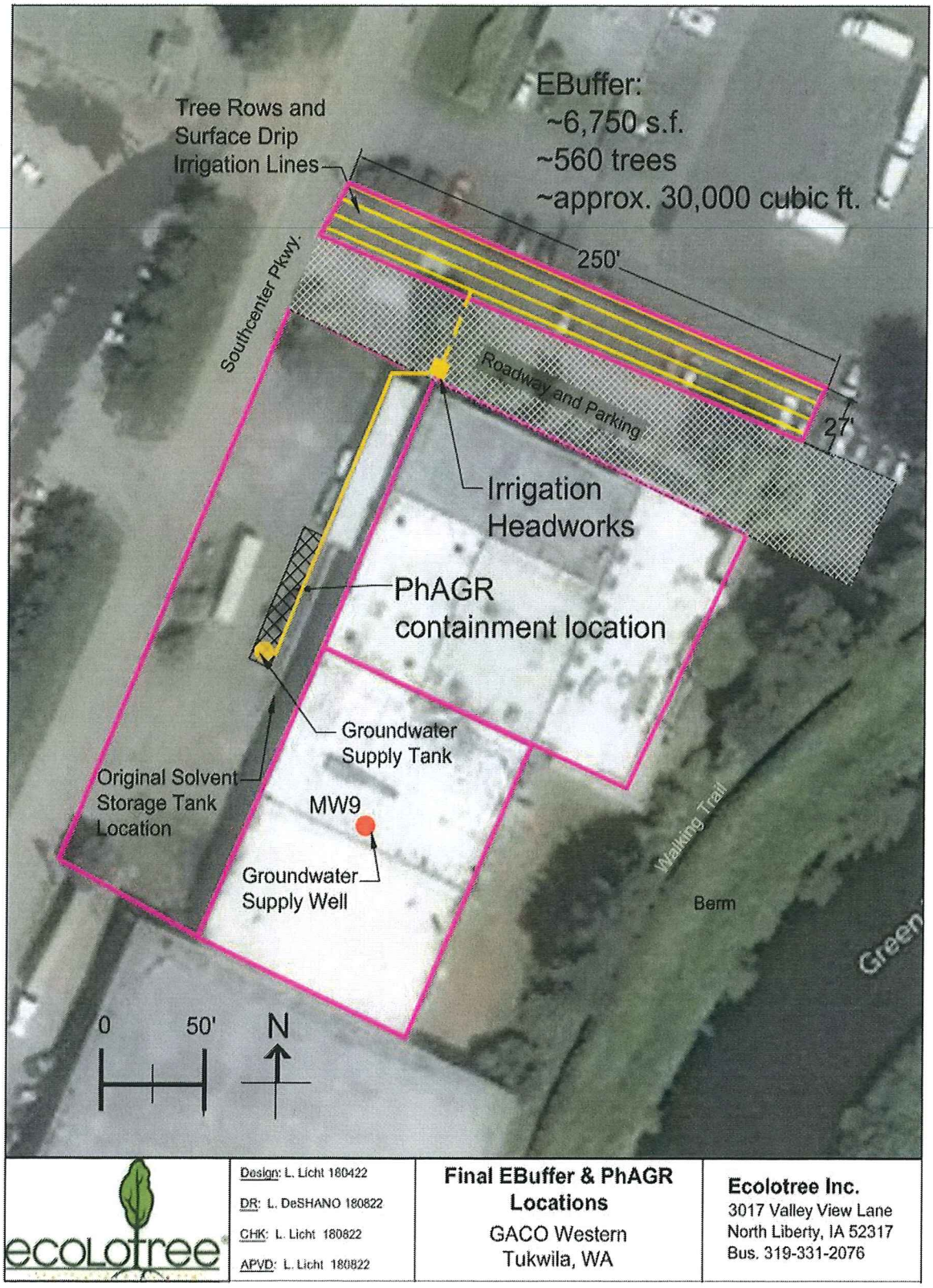
ATTACHMENT G.3 - p. 2



Imagery ©2018 Google, Map data ©2018 Google 5000 ft

ATTACHMENT G.3 - p.3

~~Figure 2.~~ Site map shows EBuffer irrigation tube and extraction well placement



ATTACHMENT G.4/G.5

Aspect CONSULTING	GWI Tukwila - 150201		Monitoring Well Log	
	Project Address & Site Specific Location: 18700 Southcenter Parkway, Tukwila, WA, South end of Bay 4		Coordinates: NA	Exploration Number: GW-9
Contractor: Holocene Drilling	Equipment: Direct push rig	Sampling Method: Percussion hammer	Ground Surface (GS) Elev. (NAVD88): 32.15'(est)	Ecology Well Tag No. BJU-253
Operator: Mitch	Exploration Method(s): Direct push	Work Start/Completion Dates: 2/13/2017	Top of Casing Elev. (NAVD88): 31.91'	Depth to Water (Below GS): 15.09' (Static)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		8-inch diameter flush mount monument in concrete surface seal					7-inch thick Concreteslab.	
					PID= 1.3		Moist, brown, gravelly, slightly silty SAND (SP-SM); fine to medium sand, fine subrounded gravel, with no odor.	
	30		S1		PID= 1.8			
		3/8-inch bentonite chips 2-20 ft bgs						
5					PID= 129.1			5
					PID= >15,000		Moist, gray brown SAND (SP); trace silt, fine sand, with strong odor.	
	25		S2		PID= >15,000			
10		2-inch diameter SCH 40 PVC casing 0-22 ft bgs		Soil: GW-9-10 8260 C			Becomes wet.	10
					PID= >15,000			
					PID= >15,000			
	20		S3				Moist, gray brown SILT (ML); trace fine sand, low to medium plasticity, with strong odor.	
					PID= >15,000			
				Soil: GW-9-13.5 8260 C			Wet, gray brown, silty SAND (SM); fine sand, with strong odor.	
15		▼ 2/21/2017						15
		▽ 2/10/2017			PID= >15,000			
	15		S4		PID= >15,000		Moist, gray brown SILT (ML); trace fine sand, low to medium plasticity, with strong odor.	
					PID= >15,000			
					PID= >15,000			
					PID= >15,000			
20		Colorado silica filterpack 20-32 ft bgs	S5		PID= >15,000			20

Legend

Sample Method: ○ No Soil Sample Recovery; ◧ Continuous core 1.85" ID

Water Level: ▼ Static Water Level; ▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MML
Approved by: CEB

Exploration Log GW-9

Sheet 1 of 2

ASPECT STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\GACO WEST-150201.GPJ April 12, 2017

Aspect CONSULTING	GWI Tukwila - 150201		Monitoring Well Log	
	Project Address & Site Specific Location		*Coordinates*	*Exploration Number*
	18700 Southcenter Parkway, Tukwila, WA, South end of Bay 4		NA	**GW-9**
Contractor	*Equipment*	*Sampling Method*	*Ground Surface (GS) Elev. (NAVD88)*	Ecology Well Tag No. BJU-253
Holocene Drilling	Direct push rig	Percussion hammer	32.15'(est)	
Operator	*Exploration Method(s)*	*Work Start/Completion Dates*	*Top of Casing Elev. (NAVD88)*	*Depth to Water (Below GS)*
Mitch	Direct push	2/13/2017	31.91'	15.09' (Static)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
25	10	2-inch diameter SCH 40 slotted PVC pre-packed screen 22-32 ft bgs	S5		PID= >15,000		Wet, dark gray brown, very silty SAND (SM); fine sand, with strong odor.	25
					PID= >15,000			
					PID= >15,000			
					PID= >15,000			
					PID= >15,000			
	5		S6	Water: GW-9-022117 8260 C	PID= >15,000			
					PID= >15,000			
30					PID= 62		Wet, gray brown SAND (SP); trace silt, fine to medium sand, with frequent very thinly bedded silty sand, slight odor.	30
					PID= 302			
			S7		PID= 132			
	0	Threaded endcap			PID= 65.1			
							Bottom of exploration at 32 ft. bgs.	
35	-5							35
40								40

Legend

Sample Method
- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level
- Static Water Level
- Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MML
Approved by: CEB

Exploration Log GW-9

Sheet 2 of 2

ASPECT STANDARD EXPLORATION LOG TEMPLATE P:\GINT\WPROJECTS\GACO WEST-150201.GPJ April 12, 2017