UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
5 Post Office Square, Suite 100
BOSTON, MA 02109-3912

CERTIFIED MAIL RETURN RECEIPT REQUESTED

FEB 08 2013

Chris Maher
Vice President Development
Delaware-North Companies
100 Legends Way
Boston, MA 02114

Re: Authorization to discharge under the Remediation General Permit (RGP) – MAG910000. TD Garden East Garage Ramp Construction at Accolon Way, Boston, MA 02114, Suffolk County; Authorization # MAG910567

Dear Mr. Maher:

Based on the review of a Notice of Intent (NOI) submitted on behalf of TD Garden by the firm GZA GeoEnvironmental, Inc., for the site referenced above, the U.S. Environmental Protection Agency (EPA) hereby authorizes you, as the named Owner and Operator, to discharge in accordance with the provisions of the RGP at that site. Your authorization number is listed above.

The checklist enclosed with this RGP authorization indicates the pollutants which you are required to monitor. Also indicated on the checklist are the effluent limits, test methods and minimum levels (MLs) for each pollutant. Please note that the checklist does not represent the complete requirements of the RGP. Operators must comply with all of the applicable requirements of this permit, including influent and effluent monitoring, narrative water quality standards, record keeping, and reporting requirements, found in Parts I and II, and Appendices I – VIII of the RGP. See EPA's website for the complete RGP and other information at: http://www.epa.gov/region1/npdes/mass.html#dgp.

Please note the enclosed checklist includes parameters that exceeded Appendix III limits. The checklist also includes other parameters for which your laboratory reports indicated there was insufficient sensitivity to detect these parameters at the minimum levels established in Appendix VI of the RGP.

Also, please note that the metals included on the checklist are dilution dependent pollutants and subject to limitations based on a dilution factor range (DFR), due to the reported dilution at the point of discharge (270) the DFR applicable for this pollutant is greater than one hundred (>100) DFR established in the RGP. (See the RGP Appendix IV

for Massachusetts facilities). Therefore, the limit for arsenic of 540 ug/L and iron of 5,000 ug/L shall not be exceeded in the discharge.

Finally, please note the checklist of pollutants attached to this authorization is subject to a recertification if the operations at the site result in a discharge lasting longer than six months. A recertification can be submitted to EPA within six (6) to twelve (12) months of operations in accordance with the 2010 RGP regulations.

This general permit and authorization to discharge will expire on September 9, 2015. You have reported that this project will terminate on August 1, 2013. If for any reason the discharge terminates sooner you are required to submit a Notice of Termination (NOT) to the attention of the contact person indicated below within 30 days of project completion.

Thank you in advance for your cooperation in this matter. Please contact Victor Alvarez at 617-918-1572 or Alvarez.Victor@epa.gov, if you have any questions.

Sincerely,

Thelma Murphy

Thelma Murphy, Manager
Storm Water and Construction
Permits Section

Enclosure

cc: Robert Kubit, MassDEP
Paul Canavan, Director BWSC
Russell B. Parkman, GZA

2010 Remediation General Permit
Summary of Monitoring Parameters[1]

NPDES Authorization Number:	**MAG910567**
Authorization Issued:	February 5, 2013
Facility/Site Name:	TD Garden East Garage Ramp Construction
Facility/Site Address:	Accolon Way, Boston, MA 02114, Suffolk County
	Email address of owner: cmaher@dncboston.com
Legal Name of Operator:	Delaware-North Corporation
Operator contact name, title, and Address:	Chis Maher-Vice President Development, Delaware-North Companies, 100 Legents Way, Boston MA 02114
	Email: Same as the Owner
Estimated date of Completion:	August 1, 2013
Category and Sub-Category:	Category III- Contaminated Construction Dewatering. Sub-category A. General Urban Fill Sites
RGP Termination Date:	September 10, 2015
Receiving Water:	Charles River

Monitoring & Limits are applicable if checked. All samples are to be collected as grab samples

	Parameter	**Effluent Limit/Method#/ML** (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
√	1. Total Suspended Solids (TSS)	30 milligrams/liter (mg/L) **, 50 mg/L for hydrostatic testing ** Me#160.2/ML5ug/L
	2. Total Residual Chlorine (TRC) [1]	Freshwater = 11 ug/L ** Saltwater = 7.5 ug/L **/ Me#330.5/ML 20ug/L
√	3. Total Petroleum Hydrocarbons (TPH)	5.0 mg/L/ Me# 1664A/ML 5.0mg/L
	4. Cyanide (CN) [2, 3]	Freshwater = 5.2 ug/l ** Saltwater = 1.0 ug/L **/ Me#335.4/ML 10ug/L
	5. Benzene (B)	5ug/L /50.0 ug/L for hydrostatic testing only/ Me#8260C/ML 2 ug/L
	6. Toluene (T)	(limited as ug/L total BTEX)/ Me#8260C/ ML 2ug/L
	7. Ethylbenzene (E)	(limited as ug/L total BTEX) Me#8260C/ ML 2ug/L
	8. (m,p,o) Xylenes (X)	(limited as ug/L total BTEX) Me#8260C/ ML 2ug/L

	Parameter	Effluent Limit/Method#/ML (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
	9. Total Benzene, Toluene, Ethyl Benzene, and Xylenes (BTEX) [4]	100 ug/L/ Me#8260C/ ML 2ug/L
	10. Ethylene Dibromide (EDB) (1,2- Dibromoethane)	0.05 ug/l/ Me#8260C/ ML 10ug/L
	11. Methyl-tert-Butyl Ether (MtBE)	70.0 ug/l/Me#8260C/ML 10ug/L
	12.tert-Butyl Alcohol (TBA) (TertiaryButanol)	Monitor Only(ug/L)/Me#8260C/ML 10ug/L
	13. tert-Amyl Methyl Ether (TAME)	Monitor Only(ug/L)/Me#8260C/ML 10ug/L
	14. Naphthalene [5]	20 ug/L /Me#8260C/ML 2ug/L
	15. Carbon Tetrachloride	4.4 ug/L /Me#8260C/ ML 5ug/L
	16. 1,2 Dichlorobenzene (o-DCB)	600 ug/L /Me#8260C/ ML 5ug/L
	17. 1,3 Dichlorobenzene (m-DCB)	320 ug/L /Me#8260C/ ML 5ug/L
	18. 1,4 Dichlorobenzene (p-DCB)	5.0 ug/L /Me#8260C/ ML 5ug/L
	18a. Total dichlorobenzene	763 ug/L - NH only /Me#8260C/ ML 5ug/L
	19. 1,1 Dichloroethane (DCA)	70 ug/L /Me#8260C/ ML 5ug/L
	20. 1,2 Dichloroethane (DCA)	5.0 ug/L /Me#8260C/ ML 5ug/L
	21. 1,1 Dichloroethene (DCE)	3.2 ug/L/Me#8260C/ ML 5ug/L
	22. cis-1,2 Dichloroethene (DCE)	70 ug/L/Me#8260C/ ML 5ug/L
	23. Methylene Chloride	4.6 ug/L/Me#8260C/ ML 5ug/L
	24. Tetrachloroethene (PCE)	5.0 ug/L/Me#8260C/ ML 5ug/L
	25. 1,1,1 Trichloro-ethane (TCA)	200 ug/L/Me#8260C/ ML 5ug/L
	26. 1,1,2 Trichloro-ethane (TCA)	5.0 ug/L /Me#8260C/ ML 5ug/L
	27. Trichloroethene (TCE)	5.0 ug/L /Me#8260C/ ML 5ug/L
	28. Vinyl Chloride (Chloroethene)	2.0 ug/L /Me#8260C/ ML 5ug/L
√	29. Acetone	Monitor Only(ug/L)/Me#8260C/ML 50ug/L
√	30. 1,4 Dioxane	Monitor Only /Me#1624C/ML 50ug/L
	31. Total Phenols	300 ug/L Me#420.1&420.2/ML 2 ug/L/ Me# 420.4 /ML 50ug/L
√	32. Pentachlorophenol (PCP)	1.0 ug/L /Me#8270D/ML 5ug/L,Me#604 &625/ML 10ug/L
	33. Total Phthalates (Phthalate esters) [6]	3.0 ug/L ** /Me#8270D/ML 5ug/L, Me#606/ML 10ug/L& Me#625/ML 5ug/L
	34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]	6.0 ug/L /Me#8270D/ML 5ug/L,Me#606/ML 10ug/L & Me#625/ML 5ug/L

	Parameter	Effluent Limit/Method#/ML (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
	35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)	10.0 ug/L
√	a. Benzo(a) Anthracene [7]	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
√	b. Benzo(a) Pyrene [7]	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
√	c. Benzo(b)Fluoranthene [7]	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
√	d. Benzo(k)Fluoranthene [7]	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
√	e. Chrysene [7]	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
√	f. Dibenzo(a,h)anthracene [7]	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
√	g. Indeno(1,2,3-cd) Pyrene [7]	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML5ug/L
	36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)	100 ug/L
√	h. Acenaphthene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	i. Acenaphthylene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	j. Anthracene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	k. Benzo(ghi) Perylene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	l. Fluoranthene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	m. Fluorene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	n. Naphthalene [5]	20 ug/l / Me#8270/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	o. Phenanthrene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	p. Pyrene	X/Me#8270D/ML5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
	37. Total Polychlorinated Biphenyls (PCBs) [8, 9]	0.000064 ug/L/Me# 608/ ML 0.5 ug/L
√	38. Chloride	Monitor only/Me# 300.0/ ML 100 ug/L

	Metal parameter	Total Recoverable Metal Limit @ H [10]= 50 mg/l CaCO3 for discharges in Massachusetts (ug/l) [11/12]	Minimum level=ML

		Freshwater	Saltwater		
	39. Antimony	5.6/ML 10			
√	40. Arsenic **	10/ML20	36/ML 20		
	41. Cadmium **	0.2/ML10	8.9/ML 10		
	42. Chromium III (trivalent) **	48.8/ML15	100/ML 15		
	43. Chromium VI (hexavalent) **	11.4/ML10	50.3/ML 10		
	44. Copper **	5.2/ML15	3.7/ML 15		
	45. Lead **	1.3/ML20	8.5/ML 20		
	46. Mercury **	0.9/ML0.2	1.1/ML 0.2		
	47. Nickel **	29/ML20	8.2/ML 20		
	48. Selenium **	5/ML20	71/ML 20		
	49. Silver	1.2/ML10	2.2/ML 10		
	50. Zinc **	66.6/ML15	85.6/ML 15		
√	51. Iron	1,000/ML 20			

	Other Parameters	Limit
√	52. Instantaneous Flow	Site specific in CFS
√	53. Total Flow	Site specific in CFS
√	54. pH Range for Class A & Class B Waters in MA	6.5-8.3; 1/Month/Grab[13]
	55. pH Range for Class SA & Class SB Waters in MA	6.5-8.3; 1/Month/Grab[13]
	56. pH Range for Class B Waters in NH	6.5-8; 1/Month/Grab[13]
	57. Daily maximum temperature - Warm water fisheries	83°F; 1/Month/Grab[14]
	58. Daily maximum temperature - Cold water fisheries	68°F; 1/Month/Grab[14]
	59. Maximum Change in Temperature in MA - Any Class A water body	1.5°F; 1/Month/Grab[14]
	60. Maximum Change in Temperature in MA - Any Class B water body- Warm Water	5°F; 1/Month/Grab[14]
	61. Maximum Change in Temperature in MA – Any Class B water body - Cold water and Lakes/Ponds	3°F; 1/Month/Grab[14]
	62. Maximum Change in Temperature in MA – Any Class SA water body - Coastal	1.5°F; 1/Month/Grab[14]
	63. Maximum Change in Temperature in MA – Any Class SB water body - July to September	1.5°F; 1/Month/Grab[14]
	64. Maximum Change in Temperature in MA –Any Class SB water body - October to June	4°F; 1/Month/Grab[14]

Footnotes:

[1] Although the maximum values for TRC are 11ug/l and 7.5 ug/l for freshwater, and saltwater respectively, the compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI (i.e., Method 330.5, 20 ug/l).

[2] Limits for cyanide are based on EPA's water quality criteria expressed as micrograms per liter. There is currently no EPA approved test method for free cyanide. Therefore, total cyanide must be reported.
[3] Although the maximum values for cyanide are 5.2 ug/l and 1.0 ug/l for freshwater and saltwater, respectively, the compliance limits are equal to the minimum level (ML) of the Method 335.4 as listed in Appendix VI (i.e., 10 ug/l).
[4] BTEX = sum of Benzene, Toluene, Ethylbenzene, and total Xylenes.
[5] Naphthalene can be reported as both a purgeable (VOC) and extractable (SVOC) organic compound. If both VOC and SVOC are analyzed, the highest value must be used unless the QC criteria for one of the analyses is not met. In such cases, the value from the analysis meeting the QC criteria must be used.
[6] The sum of individual phthalate compounds(not including the #34, Bis (2-Ethylhexyl) Phthalate . The compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI.
Total values calculated for reporting on NOIs and discharge monitoring reports shall be calculated by adding the measured concentration of each constituent. If the measurement of a constituent is less than the ML, the permittee shall use a value of zero for that constituent. For each test, the permittee shall also attach the raw data for each constituent to the discharge monitoring report, including the minimum level and minimum detection level for the analysis.
[7] Although the maximum value for the individual PAH compounds is 0.0038 ug/l, the compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI.
[8] In the November 2002 WQC, EPA has revised the definition of Total PCBs for aquatic life as total PCBs is the sum of all homologue, all isomer, all congener, or all "Oroclor analyses."Total values calculated for reporting on NOIs and discharge monitoring reports shall be calculated by adding the measured concentration of each constituent. If the measure of a constituent is less than the ML, the permittee shall use a value of zero for that constituent. For each test, the permittee shall also attach the raw data for each constituent to the discharge monitoring report, including the minimum level and minimum detection level for the analysis.
[9]Although the maximum value for total PCBs is 0.000064 ug/l, the compliance limit is equal to the minimum level (ML) of the test method used as listed in Appendix VI (i.e., 0.5 ug/l for Method 608 or 0.00005 ug/l when Method 1668a is approved).
[10] Hardness. Cadmium, Chromium III, Copper, Lead, Nickel, Silver, and Zinc are Hardness Dependent.
[11] For a Dilution Factor (DF) from 1 to 5, metals limits are calculated using DF times the base limit for the metal. See Appendix IV. For example, iron limits are calculated using DF x 1,000ug/L (the iron base limit). Therefore DF is 1.5, the iron limit will be 1,500 ug/L; DF 2, then iron limit =1,000 x 2 =2,000 ug/L., etc. not to exceed the DF=5.
[12] Minimum Level (ML) is the lowest level at which the analytical system gives a recognizable signal and acceptable calibration point for the analyte. The ML represents the lowest concentration at which an analyte can be measured with a known level of confidence. The ML is calculated by multiplying the laboratory-determined method detection limit by 3.18 (see 40 CFR Part 136, Appendix B).
[13] pH sampling for compliance with permit limits may be performed using field methods as provided for in EPA test Method 150.1.
[14] Temperature sampling per Method 170.1

GZA
GeoEnvironmental, Inc.

Engineers and
Scientists

January 24, 2013
File No. 171419.0

Electronically submitted to: NPDES.Generalpermits@epa.gov
United States Environmental Protection Agency – Region 1
5 Post Office Square, Suite 110
Mail Code OEP06-4
Boston, Massachusetts 02109-3912
ATTN: Remediation General Permit NOI Processing

One Edgewater Drive
Norwood
Massachusetts
02062
781-278-3700
FAX 781-278-5701
http://www.gza.com

Re: Submittal of Notice of Intent (NOI)
TD Garden – Proposed East Garage Ramp
Accolon Way
Boston, Massachusetts

Dear Sir or Madam:

GZA GeoEnvironmental, Inc. (GZA), on behalf of our client, Delaware North Companies - Boston (DNCB), is submitting the attached Notice of Intent (NOI) form (Attachment 1) for the Remedial General Permit (RGP) for the temporary construction of a groundwater dewatering extraction and treatment system located on Accolon Way, Boston, Massachusetts (the Site).

BACKGROUND

The Site is located on Accolon Way in Boston, Massachusetts. The TD Garden will be constructing a new access ramp to connect their below-grade parking structure to Causeway Street via Accolon Way. This project will require temporary dewatering of groundwater during construction activities.

NOTICE OF INTENT

This NOI has been prepared to request coverage under the NPDES RGP for discharge of stormwater and/or uncontaminated groundwater to the Boston Water and Sewer Commission stormwater drainage system with subsequent discharge to the Charles River. This NOI has included a review of relevant literature pertaining to Areas of Critical Environmental Concern (ACEC), Endangered Species Act (ESA), and the National Historic Preservation Act (NHPA), as documented below:

- Review of Appendix I "Areas of Critical Environmental Concern" (June 2009) found that there are no ACEC located within the proposed area of construction for the City of Boston, Massachusetts.
- Review of Appendix II "Federally Listed Endangered and Threatened Species in Massachusetts" (July 2008) found that there are no listed species in the City of Boston, Massachusetts.
- Review of the Interactive Priority and Estimated Habitats provided by the MassGIS online viewer (2008) shows that neither the Site nor the discharge point is located within a National Heritage & Endangered Species Program (NHESP) Priority Habitats of Rare Species area or Estimated Habitats of Rare Wildlife area.
- An electronic review of the Massachusetts Cultural Resource Information System database, made available through Massachusetts Historical Commission, found that no area, building, burial ground, object, or structure is located on the property located on

Accolon Way, Boston, MA. The documentation of this review can be found in Attachment 5. Since construction activities are not anticipated to encounter cultural resources, this permit is submitted under "Criterion 2."

TREAMENT SYSTEM

Recovered groundwater will be extracted to an equalization tank and pass through a bag filter system prior to discharge to a storm drain structure in Causeway Street.

This NOI was prepared by GZA with input from project team members, including Delaware North Companies and Turner Construction, the general contractor for the planned construction work. GZA has signed the application form as an authorized agent to submit this information. Please do not hesitate to contact the undersigned at (781) 278-3700, if you have any questions or require further information.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Russell B. Parkman, P.E.
Senior Project Manager

Randy J. Meuse
Consultant/Reviewer

Terese M. Kwiatkowski, P.E.
Principal

cc: Chris Maher, Delaware North Companies
MassDEP – Northeastern Region
City of Boston

Attachments:
Attachment 1: NOI Form
Attachment 2: Figure 1 – Site Locus Map
Attachment 3: Figure 2 – Site Plan
Attachment 4: Figure 3 – Process Flow Diagram
Attachment 5: MHC Report
Attachment 6: NHESP Map
Attachment 7: Laboratory Analytical Results
Attachment 8: Supplemental Information – 7Q10 data for Watershed

ATTACHMENT 1

NOI FORM

B. Suggested Form for Notice of Intent (NOI) for the Remediation General Permit

1. General facility/site information. Please provide the following information about the site:

a) Name of **facility/site**: TD Garden		**Facility/site** mailing address:		
Location of **facility/site**: longitude: 71.0623 W latitude: 42.3663 N	Facility SIC code(s): 6512	Street: Delaware North Companies - Boston 100 Legends Way Boston, MA		
b) Name of **facility/site owner:**		Town: Boston		
Email address of facility/site owner: cmaher@dncboston.com		State: MA	Zip: 02114	County: Suffolk
Telephone no. of facility/site **owner**: 617-624-3051				
Fax no. of facility/site **owner**: 617-624-3061		**Owner** is (check one): 1. Federal ○ 2. State/Tribal ○ 3. Private ◉ 4. Other ○ if so, describe:		
Address of **owner** (if different from site):				
Street:				
Town:	State:	Zip:	County:	
c) Legal name of **operator**: Chris Maher		**Operator** telephone no: 617-624-3051		
	Operator fax no.: 617-624-3061	**Operator** email: cmaher@dncboston.com		
Operator contact name and title: Chris Maher - Vice President Development, Delaware-North Companies - Boston				
Address of **operator** (if different from owner):	Street:			
Town:	State:	Zip:	County:	

d) Check Y for "yes" or N for "no" for the following:
1. Has a prior NPDES permit exclusion been granted for the discharge? Y_○_ N_◉_, if Y, number:
2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge?
Y_○_ N_◉_, if Y, date and tracking #:
3. Is the discharge a "new discharge" as defined by 40 CFR 122.2? Y_◉_ N_○_
4. For sites in Massachusetts, is the discharge covered under the Massachusetts Contingency Plan (MCP) and exempt from state permitting? Y_○_ N_◉_

e) Is site/facility subject to any State permitting, license, or other action which is causing the generation of discharge? Y_○_ N_◉_
If Y, please list:
1. site identification # assigned by the state of NH or MA:
2. permit or license # assigned:
3. state agency contact information: name, location, and telephone number:

f) Is the site/facility covered by any other EPA permit, including:
1. Multi-Sector General Permit? Y_○_ N_◉_, if Y, number:
2. Final Dewatering General Permit? Y_○_ N_◉_, if Y, number:
3. EPA Construction General Permit? Y_○_ N_◉_, if Y, number:
4. Individual NPDES permit? Y_○_ N_◉_, if Y, number:
5. any other water quality related individual or general permit? Y_○_ N_◉_, if Y, number:

g) Is the site/facility located within or does it discharge to an Area of Critical Environmental Concern (ACEC)? Y_○_ N_◉_

h) Based on the facility/site information and any historical sampling data, identify the sub-category into which the potential discharge falls.

Activity Category	**Activity Sub-Category**
I - Petroleum Related Site Remediation	A. Gasoline Only Sites _☐_ B. Fuel Oils and Other Oil Sites (including Residential Non-Business Remediation Discharges) _☐_ C. Petroleum Sites with Additional Contamination _☐_
II - Non Petroleum Site Remediation	A. Volatile Organic Compound (VOC) Only Sites _☐_ B. VOC Sites with Additional Contamination _☐_ C. Primarily Heavy Metal Sites _☐_
III - Contaminated Construction Dewatering	A. General Urban Fill Sites _▪_ B. Known Contaminated Sites _☐_

IV - Miscellaneous Related Discharges	A. Aquifer Pump Testing to Evaluate Formerly Contaminated Sites ☐ B. Well Development/Rehabilitation at Contaminated/Formerly Contaminated Sites ☐ C. Hydrostatic Testing of Pipelines and Tanks ☐ D. Long-Term Remediation of Contaminated Sumps and Dikes ☐ E. Short-term Contaminated Dredging Drain Back Waters (if not covered by 401/404 permit) ☐

2. Discharge information. Please provide information about the discharge, (attaching additional sheets as necessary) including:

a) Describe the discharge activities for which the owner/applicant is seeking coverage:

Construction dewatering.

b) Provide the following information about each discharge:

1) Number of discharge points: 1

2) What is the **maximum** and **average flow rate** of discharge (in cubic feet per second, ft^3/s)?
Max. flow: 55 Is maximum flow a **design value**? Y ○ N ◉
Average flow (include units) 20 Is average flow a design value or estimate? Estimate

3) Latitude and longitude of each discharge within 100 feet:
pt.1: lat. 42.367 long. -71.067 pt.2: lat. ____ long. ____;
pt.3: lat. ____ long. ____ pt.4: lat. ____ long. ____;
pt.5: lat. ____ long. ____ pt.6: lat. ____ long. ____;
pt.7: lat. ____ long. ____ pt.8: lat. ____ long. ____; etc.

4) If hydrostatic testing, total volume of the discharge (gals):

5) Is the discharge intermittent ◉ or seasonal ○?
Is discharge ongoing? Y ○ N ○

c) Expected dates of discharge (mm/dd/yy): start March 1, 2013 end August 1, 2013

d) Please attach a line drawing or flow schematic showing water flow through the facility including:
1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).

3. Contaminant information.

a) Based on the sub-category selected (see Appendix III), indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
								concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
1. Total Suspended Solids (TSS)		☐	☒	1	Grab	160.2	5000	33000		33000	
2. Total Residual Chlorine (TRC)		☒	☐	1	Grab	4500Cl D	20				
3. Total Petroleum Hydrocarbons (TPH)		☐	☒	1	Grab	8100M	100	1990			
4. Cyanide (CN)	57125	☒	☐	1	Grab	9014	5				
5. Benzene (B)	71432	☒	☐	1	Grab	8260B	1				
6. Toluene (T)	108883	☒	☐	1	Grab	8260B	1				
7. Ethylbenzene (E)	100414	☒	☐	1	Grab	8260B	1				
8. (m,p,o) Xylenes (X)	108883; 106423; 95476; 1330207	☒	☐	1	Grab	8260B	3				
9. Total BTEX [2]	n/a	☒	☐	1	Grab	8260B					
10. Ethylene Dibromide (EDB) (1,2-Dibromoethane) [3]	106934	☒	☐	1	Grab	8260B	1				
11. Methyl-tert-Butyl Ether (MtBE)	1634044	☒	☐	1	Grab	8260B	1				
12. tert-Butyl Alcohol (TBA) (Tertiary-Butanol)	75650	☒	☐	1	Grab	8260B	25				

***** Numbering system is provided to allow cross-referencing to Effluent Limits and Monitoring Requirements by Sub-Category included in Appendix III, as well as the Test Methods and Minimum Levels associated with each parameter provided in Appendix VI.

[2] BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

[3] EDB is a groundwater contaminant at fuel spill and pesticide application sites in New England.

Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
								concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
13. tert-Amyl Methyl Ether (TAME)	9940508	☒	☐	1	Grab	8260B	1				
14. Naphthalene	91203	☒	☐	1	Grab	8260B	1				
15. Carbon Tetrachloride	56235	☒	☐	1	Grab	8260B	1				
16. 1,2 Dichlorobenzene (o-DCB)	95501	☒	☐	1	Grab	8260B	1				
17. 1,3 Dichlorobenzene (m-DCB)	541731	☒	☐	1	Grab	8260B	1				
18. 1,4 Dichlorobenzene (p-DCB)	106467	☒	☐	1	Grab	8260B	1				
18a. Total dichlorobenzene		☒	☐	1	Grab	8260B	1				
19. 1,1 Dichloroethane (DCA)	75343	☒	☐	1	Grab	8260B	1				
20. 1,2 Dichloroethane (DCA)	107062	☒	☐	1	Grab	8260B	1				
21. 1,1 Dichloroethene (DCE)	75354	☒	☐	1	Grab	8260B	1				
22. cis-1,2 Dichloroethene (DCE)	156592	☒	☐	1	Grab	8260B	1				
23. Methylene Chloride	75092	☒	☐	1	Grab	8260B	2				
24. Tetrachloroethene (PCE)	127184	☒	☐	1	Grab	8260B	1				
25. 1,1,1 Trichloro-ethane (TCA)	71556	☒	☐	1	Grab	8260B	1				
26. 1,1,2 Trichloro-ethane (TCA)	79005	☒	☐	1	Grab	8260B	1				
27. Trichloroethene (TCE)	79016	☒	☐	1	Grab	8260B	1				

Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
								concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
28. Vinyl Chloride (Chloroethene)	75014	☒	☐	1	Grab	8260B	1				
29. Acetone	67641	☐	☒	1	Grab	8260B	10	12.2		12.2	
30. 1,4 Dioxane	123911	☒	☐	1	Grab	8260B	500				
31. Total Phenols	108952	☒	☐	1	Grab	8270D	50				
32. Pentachlorophenol (PCP)	87865	☒	☐	1	Grab	8270D	50				
33. Total Phthalates (Phthalate esters) [4]		☒	☐	1	Grab	8270D	10				
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	117817	☒	☐	1	Grab	8270D	6				
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)		☒	☐	1	Grab	8270D	10				
a. Benzo(a) Anthracene	56553	☒	☐	1	Grab	8270D	10				
b. Benzo(a) Pyrene	50328	☒	☐	1	Grab	8270D	10				
c. Benzo(b)Fluoranthene	205992	☒	☐	1	Grab	8270D	10				
d. Benzo(k)Fluoranthene	207089	☒	☐	1	Grab	8270D	10				
e. Chrysene	21801	☒	☐	1	Grab	8270D	10				
f. Dibenzo(a,h)anthracene	53703	☒	☐	1	Grab	8270D	10				
g. Indeno(1,2,3-cd) Pyrene	193395	☒	☐	1	Grab	8270D	10				
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)		☒	☐	1	Grab	8270D	10				

[4] The sum of individual phthalate compounds.

Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
								concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
h. Acenaphthene	83329	☒	☐	1	Grab	8270D	10				
i. Acenaphthylene	208968	☒	☐	1	Grab	8270D	10				
j. Anthracene	120127	☒	☐	1	Grab	8270D	10				
k. Benzo(ghi) Perylene	191242	☒	☐	1	Grab	8270D	10				
l. Fluoranthene	206440	☒	☐	1	Grab	8270D	10				
m. Fluorene	86737	☒	☐	1	Grab	8270D	10				
n. Naphthalene	91203	☒	☐	1	Grab	8270D	10				
o. Phenanthrene	85018	☒	☐	1	Grab	8270D	10				
p. Pyrene	129000	☒	☐	1	Grab	8270D	10				
37. Total Polychlorinated Biphenyls (PCBs)	85687; 84742; 117840; 84662; 131113; 117817.	☒	☐	1	Grab	8082	0.1				
38. Chloride	16887006	☐	☒	1	Grab	300	50000	193000			
39. Antimony	7440360	☒	☐	1	Grab	7010	2.5				
40. Arsenic	7440382	☐	☒	1	Grab	7010	2.5`	4.4			
41. Cadmium	7440439	☒	☐	1	Grab	6010B	2.5`				
42. Chromium III (trivalent)	16065831	☒	☐	1	Grab	Calc.	10				
43. Chromium VI (hexavalent)	18540299	☒	☐	1	Grab	7196A	10				
44. Copper	7440508	☒	☐	1	Grab	6010B	10				
45. Lead	7439921	☒	☐	1	Grab	6010B	10				
46. Mercury	7439976	☒	☐	1	Grab	7470	.2				
47. Nickel	7440020	☒	☐	1	Grab	6010B	25				
48. Selenium	7782492	☒	☐	1	Grab	6010B	25				
49. Silver	7440224	☒	☐	1	Grab	6010B	5				
50. Zinc	7440666	☒	☐	1	Grab	6010B	25				
51. Iron	7439896	☐	☒	1	Grab	6010B	50	2900			
Other (describe):		☐	☐								

Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
								concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
		☐	☐								
		☐	☐								

b) For discharges where **metals** are believed present, please fill out the following (attach results of any calculations):

Step 1: Do any of the metals in the influent exceed the effluent limits in Appendix III (i.e., the limits set at zero dilution)? Y◉ N○	If yes, which metals? Iron
Step 2: For any metals which exceed the **Appendix III** limits, calculate the **dilution factor (DF)** using the formula in Part I.A.3.c (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metal: Iron DF: >100 Metal: DF: Metal: DF: Metal: DF: Etc.	Look up the limit calculated at the corresponding dilution factor in **Appendix IV.** Do any of the metals in the **influent** have the potential to exceed the corresponding **effluent** limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y○ N◉ If Y, list which metals:

4. Treatment system information. Please describe the treatment system using separate sheets as necessary, including:

a) A description of the treatment system, including a schematic of the proposed or existing treatment system:

Groundwater will be extracted, pumped into an equalization tank and pass through a bag filter system prior to discharge to a storm drain structure in Causeway Street.

b) Identify each applicable treatment unit (check all that apply):	Frac. tank ☐	Air stripper ☐	Oil/water separator ☐	Equalization tanks ☒	Bag filter ☒	GAC filter ☐
	Chlorination ☐	De-chlorination ☐	Other (please describe):			

c) Proposed **average** and **maximum flow rates** (gallons per minute) for the discharge and the **design flow rate**(s) (gallons per minute) of the treatment system:
Average flow rate of discharge 20 gpm Maximum flow rate of treatment system 55 gpm
Design flow rate of treatment system 55 gpm

d) A description of chemical additives being used or planned to be used (attach MSDS sheets):

None

5. Receiving surface water(s). Please provide information about the receiving water(s), using separate sheets as necessary:

a) Identify the discharge pathway:	Direct to receiving water ☐	Within facility (sewer) ☐	Storm drain ☒	Wetlands ☐	Other (describe):

b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters:

Discharge to drain structure in Causeway Street, continues through pipe network to CSO049, ultimately discharge to Charles River east of the dam.

c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water:
1. For multiple discharges, number the discharges sequentially.
2. For indirect dischargers, indicate the location of the discharge to the indirect conveyance and the discharge to surface water
The map should also include the location and distance to the nearest sanitary sewer as well as the locus of nearby sensitive receptors (based on USGS topographical mapping), such as surface waters, drinking water supplies, and wetland areas.

d) Provide the state water quality classification of the receiving water B

e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water 29.6 cfs
Please attach any calculation sheets used to support stream flow and dilution calculations.

f) Is the receiving water a listed 303(d) water quality impaired or limited water? Y ○ N ◉ If yes, for which pollutant(s)?

Is there a final TMDL? Y ○ N ◉ If yes, for which pollutant(s)?

6. ESA and NHPA Eligibility.

Please provide the following information according to requirements of Permit Parts I.A.4 and I.A.5 Appendices II and VII.

a) Using the instructions in Appendix VII and information on Appendix II, under which criterion listed in Part I.C are you eligible for coverage under this general permit?

A ◉ B ○ C ○ D ○ E ○ F ○

b) If you selected Criterion D or F, has consultation with the federal services been completed? Y ○ N ○ Underway ○

c) If consultation with U.S. Fish and Wildlife Service and/or NOAA Fisheries Service was completed, was a written concurrence finding that the discharge is "not likely to adversely affect" listed species or critical habitat received? Y ○ N ○

d) Attach documentation of ESA eligibility as described in the NOI instructions and required by Appendix VII, Part I.C, Step 4.

e) Using the instructions in Appendix VII, under which criterion listed in Part II.C are you eligible for coverage under this general permit?

1 ○ 2 ◉ 3 ○

f) If Criterion 3 was selected, attach all written correspondence with the State or Tribal historic preservation officers, including any terms and conditions that outline measures the applicant must follow to mitigate or prevent adverse effects due to activities regulated by the RGP.

7. Supplemental information.

Please provide any supplemental information. Attach any analytical data used to support the application. Attach any certification(s) required by the general permit.

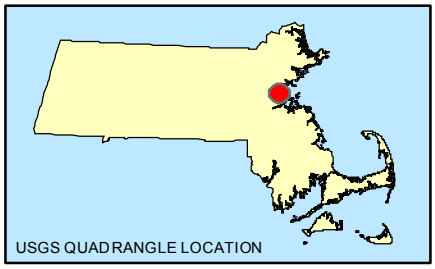
8. Signature Requirements: The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22, including the following certification:

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, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Facility/Site Name:	TD Garden - Proposed East Garage Ramp
Operator signature:	Chris Maher
Printed Name &Title:	Chris Maher - Vice President Development, Delaware-North Companies - Boston
Date:	1/24/13

ATTACHMENT 2

FIGURE 1 – SITE LOCUS MAP



SOURCE : SCANNED USGS TOPOGRAPHIC QUADRANGLES
SCANNED BY THE MASSACHUSETTS EXECUTIVE OFFICE OF
ENVIRONMENTAL AFFAIRS, MASSGIS. DISTRIBUTED JUNE, 2001.

Data Supplied by : MASSGIS

0 1,000 2,000 4,000 6,000 Feet

N W E S

PROJ. MGR.: RBP
DESIGNED BY: RH
REVIEWED BY: RJM
OPERATOR: EMD

DATE: 01-11-2013

LOCUS PLAN

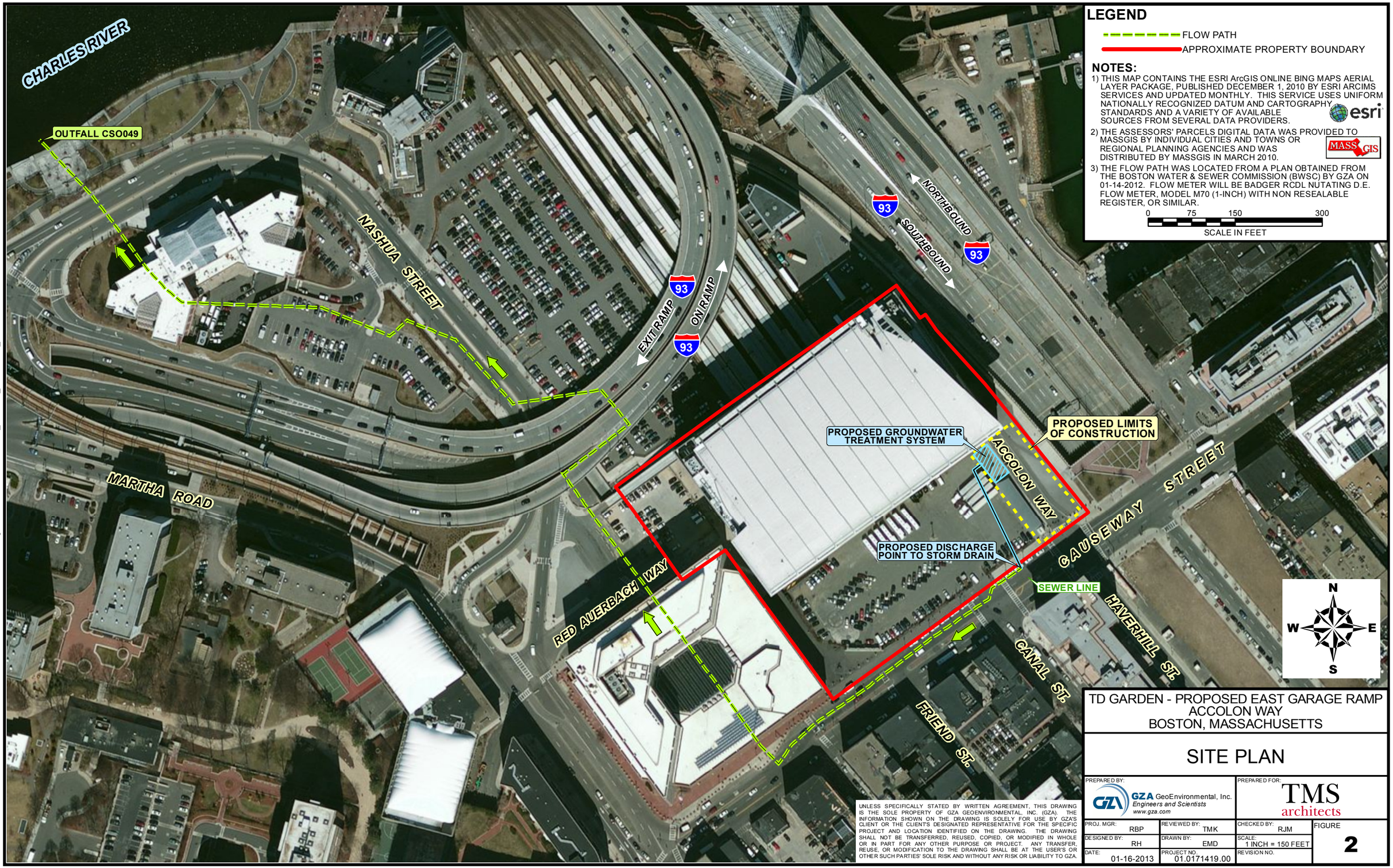
ACCOLON WAY
BOSTON, MASSACHUSETTS

JOB NO.
01.0171419.00

FIGURE NO.
1

ATTACHMENT 3

FIGURE 2 – SITE PLAN



LEGEND

- FLOW PATH
- APPROXIMATE PROPERTY BOUNDARY

NOTES:

1) THIS MAP CONTAINS THE ESRI ArcGIS ONLINE BING MAPS AERIAL LAYER PACKAGE, PUBLISHED DECEMBER 1, 2010 BY ESRI ARCIMS SERVICES AND UPDATED MONTHLY. THIS SERVICE USES UNIFORM NATIONALLY RECOGNIZED DATUM AND CARTOGRAPHY STANDARDS AND A VARIETY OF AVAILABLE SOURCES FROM SEVERAL DATA PROVIDERS.
2) THE ASSESSORS' PARCELS DIGITAL DATA WAS PROVIDED TO MASSGIS BY INDIVIDUAL CITIES AND TOWNS OR REGIONAL PLANNING AGENCIES AND WAS DISTRIBUTED BY MASSGIS IN MARCH 2010.
3) THE FLOW PATH WAS LOCATED FROM A PLAN OBTAINED FROM THE BOSTON WATER & SEWER COMMISSION (BWSC) BY GZA ON 01-14-2012. FLOW METER WILL BE BADGER RCDL NUTATING D.E. FLOW METER, MODEL M70 (1-INCH) WITH NON RESEALABLE REGISTER, OR SIMILAR.

0 75 150 300
SCALE IN FEET

 J:\170,000-179,999\171419\171419-00.TMK\Figures\GIS\MXDs\171419-00_SitePlan_TD-Garden_FIG-2.mxd, 1/16/2013, 5:07:30 PM, elaine.donohue

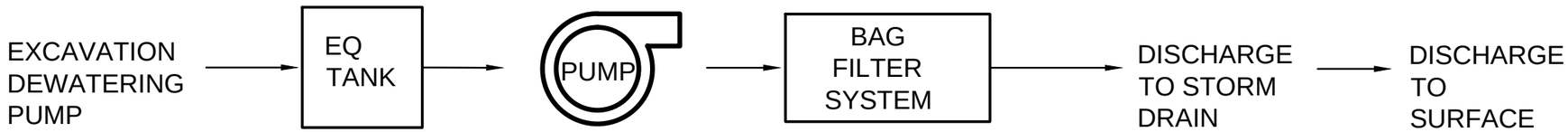
TD GARDEN - PROPOSED EAST GARAGE RAMP
ACCOLON WAY
BOSTON, MASSACHUSETTS

SITE PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: TMS architects	
PROJ. MGR: RBP	REVIEWED BY: TMK	CHECKED BY: RJM	FIGURE 2
DESIGNED BY: RH	DRAWN BY: EMD	SCALE: 1 INCH = 150 FEET	
DATE: 01-16-2013	PROJECT NO.: 01.0171419.00	REVISION NO.	

ATTACHMENT 4

FIGURE 3 – PROCESS FLOW DIAGRAM



APPROVED:

NO.	ISSUE/DESCRIPTION	BY	DATE
2			
1			

PROPOSED EAST GARAGE RAMP
BOSTON, MASSACHUSETTS

PROCESS FLOW DIAGRAM

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
TD GARDEN

PROJ MGR: RJM	REVIEWED BY: RJM	CHECKED BY:	FIGURE 3
DESIGNED BY: RBP	DRAWN BY: RDH	SCALE: NOT TO SCALE	
DATE: 1-15-13	PROJECT NO. 171419.0	REVISION NO.	

ATTACHMENT 5

MHC REPORT

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

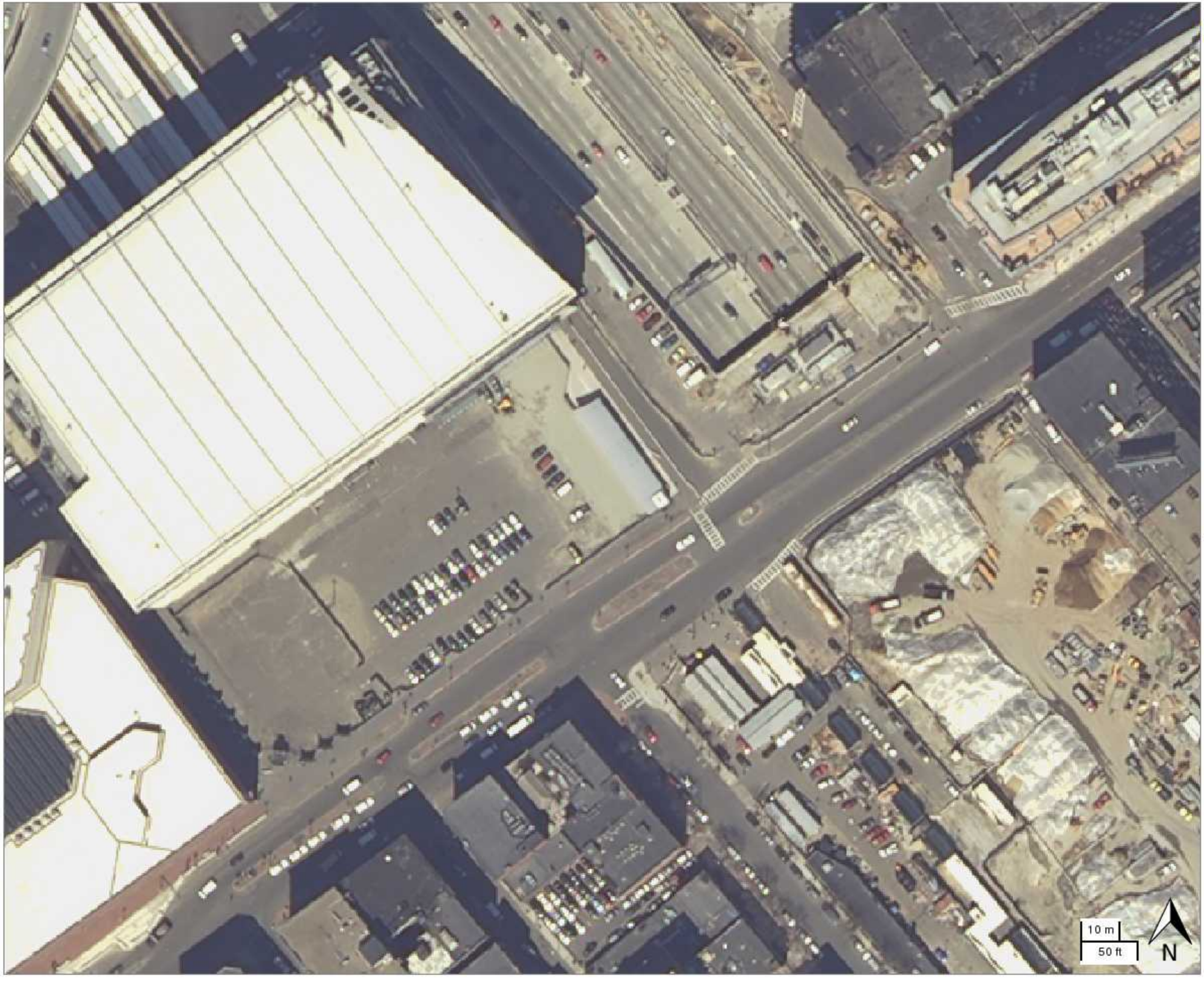
Search Criteria: Town(s): Boston; Street Name: accolon; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year

ATTACHMENT 6

NHESP MAP

TD Garden



2005 Color Orthos

NHESP Priority Habitats of Rare Species

NHESP Estimated Habitats of Rare Wildlife

Areas of Critical Environmental Concern ACECs

Massachusetts Towns Black Labels

Major MassDOT Routes
- Interstate
- US Highway
- State Route

Massachusetts Towns Survey Boundaries Muted Colors
- Interstate
- Coast
- Town

States Bordering MA plus ME

Ocean

ATTACHMENT 7

LABORATORY ANALYTICAL RESULTS

CERTIFICATE OF ANALYSIS

Randy Meuse
GZA GeoEnvironmental, Inc.
One Edgewater Drive
Norwood, MA 02062

RE: TD Garden Precharacterization (01.0171419.01)
ESS Laboratory Work Order Number: 1212439

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 3:48 pm, Jan 07, 2013

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibratins, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

SAMPLE RECEIPT

The following samples were received on December 27, 2012 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

For EPH soil samples, the aromatic range results have been corrected for identified cartridge contaminant in accordance with the CAM protocol.

Question I: All samples for Metals and EPH were analyzed for a subset of the required MCP list per the client's request.

Lab Number	SampleName	Matrix	Analysis
1212439-01	B2 S1	Ground Water	2540D, 300.0, 4500Cl D, 6010B, 7010, 7196A, 7470A, 8082A, 8100M, 8260B, 8270D, 9014, 9040, calc
1212439-02	Trip Blank	Aqueous	8260B

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization ESS Laboratory Work Order: 1212439

PROJECT NARRATIVE

8260B Volatile Organic Compounds

CL22826-BS1 **Blank Spike recovery is above upper control limit (B+).**
2-Butanone (138% @ 70-130%), 2-Hexanone (146% @ 70-130%), Acetone (220% @ 70-130%)

CL22826-BSD1 **Blank Spike recovery is above upper control limit (B+).**
Acetone (196% @ 70-130%)

CL22826-BSD1 **Blank Spike recovery is below lower control limit (B-).**
1,2-Dibromo-3-Chloropropane (4% @ 70-130%)

CL22826-BSD1 **Relative percent difference for duplicate is outside of criteria (D+).**
1,2-Dibromo-3-Chloropropane (186%)

8270D Semi-Volatile Organic Compounds

CWA0025-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (87% @ 80-120%), Pentachlorophenol (95% @ 80-120%)

Classical Chemistry

1212439-01 **Estimated value. Sample hold times were exceeded (H).**
Hexavalent Chromium

1212439-01 **The maximum holding time listed in 40 CFR Part 136 Table II for pH, Dissolved Oxygen, Sulfite and Residual Chlorine is fifteen minutes.**

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5035 - Solid Purge and Trap

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1212439-01 through 1212439-02**

Matrices: (X) Ground Water/Surface Water ( ) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other:_____

CAM Protocol (check all that apply below):

(X) 8260 VOC CAM II A	(X) 7470/7471 Hg CAM III B	( ) MassDEP VPH CAM IV A	( ) 8081 Pesticides CAM V B	(X) 7196 Hex Cr CAM VI B	( ) MassDEP APH CAM IX A
(X) 8270 SVOC CAM II B	(X) 7010 Metals CAM III C	(X) MassDEP EPH CAM IV B	( ) 8151 Herbicides CAM V C	( ) 8330 Explosives CAM VIII A	( ) TO-15 VOC CAM IX B
(X) 6010 Metals CAM III A	( ) 6020 Metals CAM III D	(X) 8082 PCB CAM V A	( ) 6860 Perchlorate CAM VIII B	(X) 9014 Total Cyanide/PAC CAM VI A	

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes ( ) No (X)
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes (X) No ( )
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	Yes (X) No ( )
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes (X) No ( )
E	a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	Yes (X) No ( )
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ( ) No ( )
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	Yes (X) No ( )

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?	Yes (X) No ( )*
	***Data User Note:* Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.**	
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes ( ) No (X)*
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes ( ) No (X)*

All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: _____ Date: January 07, 2013

Printed Name: Laurel Stoddard Position: Laboratory Director

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization
Client Sample ID: B2 S1
Date Sampled: 12/26/12 15:00
Percent Solids: N/A

ESS Laboratory Work Order: 1212439
ESS Laboratory Sample ID: 1212439-01
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 3005A

Total Metals Aqueous

Analyte	Results (MRL)	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (2.5)	7010		1	JP	01/03/13 3:55	50	25	CL22701
Arsenic	**4.4** (2.5)	7010		1	JP	01/02/13 21:14	50	25	CL22701
Cadmium	ND (2.5)	6010B		1	JP	01/04/13 18:12	50	25	CL22701
Chromium	ND (10)	6010B		1	JP	01/04/13 18:12	50	25	CL22701
Chromium III	ND (10)	calc		1	EEM	01/04/13 18:12	1	1	[CALC]
Copper	ND (10)	6010B		1	JP	01/04/13 18:12	50	25	CL22701
Iron	**2900** (50)	6010B		1	JP	01/04/13 18:12	50	25	CL22701
Lead	ND (10)	6010B		1	JP	01/04/13 18:12	50	25	CL22701
Mercury	ND (0.20)	7470A		1	LLZ	12/28/12 14:28	20	40	CL22801
Nickel	ND (25)	6010B		1	JP	01/04/13 18:12	50	25	CL22701
Selenium	ND (25)	6010B		1	JP	01/04/13 18:12	50	25	CL22701
Silver	ND (5)	6010B		1	JP	01/04/13 18:12	50	25	CL22701
Zinc	ND (25)	6010B		1	JP	01/04/13 18:12	50	25	CL22701

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization
Client Sample ID: B2 S1
Date Sampled: 12/26/12 15:00
Percent Solids: N/A
Initial Volume: 1000
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1212439
ESS Laboratory Sample ID: 1212439-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: ML
Prepared: 12/29/12 13:15
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.10)	8082A		1	01/02/13 12:15		CA30321
Aroclor 1221	ND (0.10)	8082A		1	01/02/13 12:15		CA30321
Aroclor 1232	ND (0.10)	8082A		1	01/02/13 12:15		CA30321
Aroclor 1242	ND (0.10)	8082A		1	01/02/13 12:15		CA30321
Aroclor 1248	ND (0.10)	8082A		1	01/02/13 12:15		CA30321
Aroclor 1254	ND (0.10)	8082A		1	01/02/13 12:15		CA30321
Aroclor 1260	ND (0.10)	8082A		1	01/02/13 12:15		CA30321
Aroclor 1262	ND (0.10)	8082A		1	01/02/13 12:15		CA30321
Aroclor 1268	ND (0.10)	8082A		1	01/02/13 12:15		CA30321

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*69 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*65 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*74 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*86 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization
Client Sample ID: B2 S1
Date Sampled: 12/26/12 15:00
Percent Solids: N/A
Initial Volume: 1000
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1212439
ESS Laboratory Sample ID: 1212439-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: TAJ
Prepared: 12/28/12 9:35

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**1990** (100)	8100M		1	12/28/12 21:10	CVL0274	CL22707

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*105 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization
Client Sample ID: B2 S1
Date Sampled: 12/26/12 15:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1212439
ESS Laboratory Sample ID: 1212439-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,1,1-Trichloroethane	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,1,2,2-Tetrachloroethane	ND (0.5)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,1,2-Trichloroethane	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,1-Dichloroethane	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,1-Dichloroethene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,1-Dichloropropene	ND (2.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,2,3-Trichlorobenzene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,2,3-Trichloropropane	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,2,4-Trichlorobenzene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,2,4-Trimethylbenzene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,2-Dibromo-3-Chloropropane	ND (5.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,2-Dibromoethane	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,2-Dichlorobenzene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,2-Dichloroethane	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,2-Dichloropropane	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,3,5-Trimethylbenzene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,3-Dichlorobenzene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,3-Dichloropropane	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,4-Dichlorobenzene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
1,4-Dioxane - Screen	ND (500)	8260B		1	12/28/12 15:58	CVL0268	CL22826
2,2-Dichloropropane	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
2-Butanone	ND (10.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
2-Chlorotoluene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
2-Hexanone	ND (10.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
4-Chlorotoluene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
4-Isopropyltoluene	**86.0** (10.0)	8260B		10	01/02/13 16:11	CVL0268	CL22826
4-Methyl-2-Pentanone	ND (10.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Acetone	**12.2** (10.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Benzene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Bromobenzene	ND (2.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization
Client Sample ID: B2 S1
Date Sampled: 12/26/12 15:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1212439
ESS Laboratory Sample ID: 1212439-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Bromodichloromethane	ND (0.6)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Bromoform	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Bromomethane	ND (2.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Carbon Disulfide	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Carbon Tetrachloride	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Chlorobenzene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Chloroethane	ND (2.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Chloroform	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Chloromethane	ND (2.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
cis-1,2-Dichloroethene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
cis-1,3-Dichloropropene	ND (0.4)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Dibromochloromethane	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Dibromomethane	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Dichlorodifluoromethane	ND (2.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Diethyl Ether	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Di-isopropyl ether	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Ethyl tertiary-butyl ether	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Ethylbenzene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Hexachlorobutadiene	ND (0.6)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Hexachloroethane	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Isopropylbenzene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Methyl tert-Butyl Ether	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Methylene Chloride	ND (2.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Naphthalene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
n-Butylbenzene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
n-Propylbenzene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
sec-Butylbenzene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Styrene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
tert-Butylbenzene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Tertiary-amyl methyl ether	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization
Client Sample ID: B2 S1
Date Sampled: 12/26/12 15:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1212439
ESS Laboratory Sample ID: 1212439-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	Method	Limit	DF	Analyzed	Sequence	Batch
Tetrachloroethene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Tetrahydrofuran	ND (5.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Toluene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
trans-1,2-Dichloroethene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
trans-1,3-Dichloropropene	ND (0.4)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Trichloroethene	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Trichlorofluoromethane	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Vinyl Chloride	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Xylene O	ND (1.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Xylene P,M	ND (2.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826
Xylenes (Total)	ND (3.0)	8260B		1	12/28/12 15:58		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*90 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*95 %*		*70-130*
Surrogate: Dibromofluoromethane	*95 %*		*70-130*
Surrogate: Toluene-d8	*98 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization
Client Sample ID: B2 S1
Date Sampled: 12/26/12 15:00
Percent Solids: N/A
Initial Volume: 1000
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 1212439
ESS Laboratory Sample ID: 1212439-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: ML
Prepared: 12/28/12 10:20

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
1,2-Dichlorobenzene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
1,3-Dichlorobenzene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
1,4-Dichlorobenzene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
2,4,5-Trichlorophenol	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
2,4,6-Trichlorophenol	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
2,4-Dichlorophenol	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
2,4-Dimethylphenol	ND (50.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
2,4-Dinitrophenol	ND (50.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
2,4-Dinitrotoluene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
2,6-Dinitrotoluene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
2-Chloronaphthalene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
2-Chlorophenol	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
2-Methylnaphthalene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
2-Methylphenol	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
2-Nitrophenol	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
3,3´-Dichlorobenzidine	ND (20.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
3+4-Methylphenol	ND (20.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
4-Bromophenyl-phenylether	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
4-Chloroaniline	ND (20.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
4-Nitrophenol	ND (50.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Acenaphthene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Acenaphthylene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Acetophenone	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Aniline	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Anthracene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Azobenzene	ND (20.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Benzo(a)anthracene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Benzo(a)pyrene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Benzo(b)fluoranthene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Benzo(g,h,i)perylene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization
Client Sample ID: B2 S1
Date Sampled: 12/26/12 15:00
Percent Solids: N/A
Initial Volume: 1000
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 1212439
ESS Laboratory Sample ID: 1212439-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: ML
Prepared: 12/28/12 10:20

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	Method	Limit	DF	Analyzed	Sequence	Batch
Benzo(k)fluoranthene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
bis(2-Chloroethoxy)methane	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
bis(2-Chloroethyl)ether	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
bis(2-chloroisopropyl)Ether	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
bis(2-Ethylhexyl)phthalate	ND (6.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Butylbenzylphthalate	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Chrysene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Dibenzo(a,h)Anthracene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Dibenzofuran	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Diethylphthalate	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Dimethylphthalate	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Di-n-butylphthalate	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Di-n-octylphthalate	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Fluoranthene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Fluorene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Hexachlorobenzene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Hexachlorobutadiene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Hexachloroethane	ND (5.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Indeno(1,2,3-cd)Pyrene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Isophorone	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Naphthalene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Nitrobenzene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
N-Nitrosodimethylamine	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Pentachlorophenol	ND (50.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Phenanthrene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Phenol	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820
Pyrene	ND (10.0)	8270D		1	01/02/13 15:04	CWA0025	CL22820

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*76 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*98 %*		*15-110*
Surrogate: 2-Chlorophenol-d4	*72 %*		*15-110*
Surrogate: 2-Fluorobiphenyl	*81 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization
Client Sample ID: B2 S1
Date Sampled: 12/26/12 15:00
Percent Solids: N/A
Initial Volume: 1000
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 1212439
ESS Laboratory Sample ID: 1212439-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: ML
Prepared: 12/28/12 10:20

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)		Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: 2-Fluorophenol		*57 %*		*15-110*				
Surrogate: Nitrobenzene-d5		*78 %*		*30-130*				
Surrogate: Phenol-d6		*73 %*		*15-110*				
Surrogate: p-Terphenyl-d14		*65 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization
Client Sample ID: B2 S1
Date Sampled: 12/26/12 15:00
Percent Solids: N/A

ESS Laboratory Work Order: 1212439
ESS Laboratory Sample ID: 1212439-01
Sample Matrix: Ground Water

Classical Chemistry

Analyte	Results (MRL)	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Chloride	**193** (50.0)	300.0		100	JLM	01/02/13 17:03	mg/L	CA30209
Hexavalent Chromium	**H** ND (10)	7196A		1	EEM	12/28/12 10:50	ug/L	CL22812
pH	**6.96** (N/A)	9040		1	JLM	12/27/12 18:06	S.U.	CL22803
pH Sample Temp	**Aqueous pH measured in water at 16.6 ºC.** (N/A)							
Total Cyanide (LL)	ND (5.0)	9014		1	EEM	01/03/13 12:50	ug/L	CA30314
Total Residual Chlorine	ND (0.02)	4500Cl D		1	EEM	12/27/12 17:50	mg/L	CL22738
Total Suspended Solids	**33** (5)	2540D		1	GAB	12/27/12 17:30	mg/L	CL22609

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization
Client Sample ID: Trip Blank
Date Sampled: 12/26/12 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1212439
ESS Laboratory Sample ID: 1212439-02
Sample Matrix: Aqueous
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,1,1-Trichloroethane	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,1,2,2-Tetrachloroethane	ND (0.5)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,1,2-Trichloroethane	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,1-Dichloroethane	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,1-Dichloroethene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,1-Dichloropropene	ND (2.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,2,3-Trichlorobenzene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,2,3-Trichloropropane	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,2,4-Trichlorobenzene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,2,4-Trimethylbenzene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,2-Dibromo-3-Chloropropane	ND (5.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,2-Dibromoethane	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,2-Dichlorobenzene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,2-Dichloroethane	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,2-Dichloropropane	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,3,5-Trimethylbenzene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,3-Dichlorobenzene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,3-Dichloropropane	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,4-Dichlorobenzene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
1,4-Dioxane - Screen	ND (500)	8260B		1	12/28/12 15:25	CVL0268	CL22826
2,2-Dichloropropane	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
2-Butanone	ND (10.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
2-Chlorotoluene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
2-Hexanone	ND (10.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
4-Chlorotoluene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
4-Isopropyltoluene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
4-Methyl-2-Pentanone	ND (10.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Acetone	ND (10.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Benzene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Bromobenzene	ND (2.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization
Client Sample ID: Trip Blank
Date Sampled: 12/26/12 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1212439
ESS Laboratory Sample ID: 1212439-02
Sample Matrix: Aqueous
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Bromodichloromethane	ND (0.6)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Bromoform	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Bromomethane	ND (2.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Carbon Disulfide	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Carbon Tetrachloride	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Chlorobenzene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Chloroethane	ND (2.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Chloroform	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Chloromethane	ND (2.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
cis-1,2-Dichloroethene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
cis-1,3-Dichloropropene	ND (0.4)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Dibromochloromethane	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Dibromomethane	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Dichlorodifluoromethane	ND (2.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Diethyl Ether	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Di-isopropyl ether	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Ethyl tertiary-butyl ether	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Ethylbenzene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Hexachlorobutadiene	ND (0.6)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Hexachloroethane	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Isopropylbenzene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Methyl tert-Butyl Ether	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Methylene Chloride	ND (2.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Naphthalene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
n-Butylbenzene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
n-Propylbenzene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
sec-Butylbenzene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Styrene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
tert-Butylbenzene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Tertiary-amyl methyl ether	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization
Client Sample ID: Trip Blank
Date Sampled: 12/26/12 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1212439
ESS Laboratory Sample ID: 1212439-02
Sample Matrix: Aqueous
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	Method	Limit	DF	Analyzed	Sequence	Batch
Tetrachloroethene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Tetrahydrofuran	ND (5.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Toluene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
trans-1,2-Dichloroethene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
trans-1,3-Dichloropropene	ND (0.4)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Trichloroethene	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Trichlorofluoromethane	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Vinyl Chloride	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Xylene O	ND (1.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Xylene P,M	ND (2.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826
Xylenes (Total)	ND (3.0)	8260B		1	12/28/12 15:25		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*91 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*91 %*		*70-130*
Surrogate: Dibromofluoromethane	*96 %*		*70-130*
Surrogate: Toluene-d8	*98 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals Aqueous										
Batch CL22701 - 3005A										
Blank										
Antimony	ND	2.5	ug/L							
Arsenic	ND	2.5	ug/L							
Cadmium	ND	2.5	ug/L							
Chromium	ND	10	ug/L							
Copper	ND	10	ug/L							
Iron	ND	50	ug/L							
Lead	ND	10	ug/L							
Nickel	ND	25	ug/L							
Selenium	ND	25	ug/L							
Silver	ND	5	ug/L							
Zinc	ND	25	ug/L							
LCS										
Cadmium	130	2.5	ug/L	125.0		104	80-120			
Chromium	280	10	ug/L	250.0		112	80-120			
Copper	276	10	ug/L	250.0		110	80-120			
Iron	1360	50	ug/L	1250		109	80-120			
Lead	274	10	ug/L	250.0		109	80-120			
Nickel	286	25	ug/L	250.0		114	80-120			
Selenium	562	25	ug/L	500.0		112	80-120			
Silver	141	5	ug/L	125.0		113	80-120			
Zinc	269	25	ug/L	250.0		108	80-120			
LCS										
Antimony	10.0	2.5	ug/L	10.00		100	80-120			
Arsenic	9.7	2.5	ug/L	10.00		97	80-120			
LCS Dup										
Cadmium	128	2.5	ug/L	125.0		103	80-120	2	20	
Chromium	270	10	ug/L	250.0		108	80-120	4	20	
Copper	267	10	ug/L	250.0		107	80-120	3	20	
Iron	1360	50	ug/L	1250		109	80-120	0.5	20	
Lead	269	10	ug/L	250.0		108	80-120	2	20	
Nickel	277	25	ug/L	250.0		111	80-120	3	20	
Selenium	556	25	ug/L	500.0		111	80-120	1	20	
Silver	137	5	ug/L	125.0		110	80-120	3	20	
Zinc	262	25	ug/L	250.0		105	80-120	2	20	
LCS Dup										
Antimony	9.7	2.5	ug/L	10.00		97	80-120	3	20	
Arsenic	9.4	2.5	ug/L	10.00		94	80-120	2	20	
Batch CL22801 - 245.1/7470A										
Blank										
Mercury	ND	0.20	ug/L							
LCS										
Mercury	5.84	0.20	ug/L	6.000		97	80-120			

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals Aqueous										
Batch CL22801 - 245.1/7470A										
LCS Dup										
Mercury	6.06	0.20	ug/L	6.000		101	80-120	4	20	
8082A Polychlorinated Biphenyls (PCB)										
Batch CA30321 - 3510C										
Blank										
Aroclor 1016	ND	0.10	ug/L							
Aroclor 1016 (1)	ND	0.10	ug/L							
Aroclor 1016 (1) [2C]	ND	0.10	ug/L							
Aroclor 1016 (2)	ND	0.10	ug/L							
Aroclor 1016 (2) [2C]	ND	0.10	ug/L							
Aroclor 1016 (3)	ND	0.10	ug/L							
Aroclor 1016 (3) [2C]	ND	0.10	ug/L							
Aroclor 1016 (4)	ND	0.10	ug/L							
Aroclor 1016 (4) [2C]	ND	0.10	ug/L							
Aroclor 1016 (5)	ND	0.10	ug/L							
Aroclor 1016 (5) [2C]	ND	0.10	ug/L							
Aroclor 1221	ND	0.10	ug/L							
Aroclor 1221 (1)	ND	0.10	ug/L							
Aroclor 1221 (1) [2C]	ND	0.10	ug/L							
Aroclor 1221 (2)	ND	0.10	ug/L							
Aroclor 1221 (2) [2C]	ND	0.10	ug/L							
Aroclor 1221 (3)	ND	0.10	ug/L							
Aroclor 1221 (3) [2C]	ND	0.10	ug/L							
Aroclor 1221 (4)	ND	0.10	ug/L							
Aroclor 1221 (4) [2C]	ND	0.10	ug/L							
Aroclor 1221 (5)	ND	0.10	ug/L							
Aroclor 1221 (5) [2C]	ND	0.10	ug/L							
Aroclor 1232	ND	0.10	ug/L							
Aroclor 1232 (1)	ND	0.10	ug/L							
Aroclor 1232 (1) [2C]	ND	0.10	ug/L							
Aroclor 1232 (2)	ND	0.10	ug/L							
Aroclor 1232 (2) [2C]	ND	0.10	ug/L							
Aroclor 1232 (3)	ND	0.10	ug/L							
Aroclor 1232 (3) [2C]	ND	0.10	ug/L							
Aroclor 1232 (4)	ND	0.10	ug/L							
Aroclor 1232 (4) [2C]	ND	0.10	ug/L							
Aroclor 1232 (5)	ND	0.10	ug/L							
Aroclor 1232 (5) [2C]	ND	0.10	ug/L							
Aroclor 1242	ND	0.10	ug/L							
Aroclor 1242 (1)	ND	0.10	ug/L							
Aroclor 1242 (1) [2C]	ND	0.10	ug/L							
Aroclor 1242 (2)	ND	0.10	ug/L							
Aroclor 1242 (2) [2C]	ND	0.10	ug/L							
Aroclor 1242 (3)	ND	0.10	ug/L							

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CA30321 - 3510C										
Aroclor 1242 (3) [2C]	ND	0.10	ug/L							
Aroclor 1242 (4)	ND	0.10	ug/L							
Aroclor 1242 (4) [2C]	ND	0.10	ug/L							
Aroclor 1242 (5)	ND	0.10	ug/L							
Aroclor 1242 (5) [2C]	ND	0.10	ug/L							
Aroclor 1248	ND	0.10	ug/L							
Aroclor 1248 (1)	ND	0.10	ug/L							
Aroclor 1248 (1) [2C]	ND	0.10	ug/L							
Aroclor 1248 (2)	ND	0.10	ug/L							
Aroclor 1248 (2) [2C]	ND	0.10	ug/L							
Aroclor 1248 (3)	ND	0.10	ug/L							
Aroclor 1248 (3) [2C]	ND	0.10	ug/L							
Aroclor 1248 (4)	ND	0.10	ug/L							
Aroclor 1248 (4) [2C]	ND	0.10	ug/L							
Aroclor 1248 (5)	ND	0.10	ug/L							
Aroclor 1248 (5) [2C]	ND	0.10	ug/L							
Aroclor 1254	ND	0.10	ug/L							
Aroclor 1254 (1)	ND	0.10	ug/L							
Aroclor 1254 (1) [2C]	ND	0.10	ug/L							
Aroclor 1254 (2)	ND	0.10	ug/L							
Aroclor 1254 (2) [2C]	ND	0.10	ug/L							
Aroclor 1254 (3)	ND	0.10	ug/L							
Aroclor 1254 (3) [2C]	ND	0.10	ug/L							
Aroclor 1254 (4)	ND	0.10	ug/L							
Aroclor 1254 (4) [2C]	ND	0.10	ug/L							
Aroclor 1254 (5)	ND	0.10	ug/L							
Aroclor 1254 (5) [2C]	ND	0.10	ug/L							
Aroclor 1260	ND	0.10	ug/L							
Aroclor 1260 (1)	ND	0.10	ug/L							
Aroclor 1260 (1) [2C]	ND	0.10	ug/L							
Aroclor 1260 (2)	ND	0.10	ug/L							
Aroclor 1260 (2) [2C]	ND	0.10	ug/L							
Aroclor 1260 (3)	ND	0.10	ug/L							
Aroclor 1260 (3) [2C]	ND	0.10	ug/L							
Aroclor 1260 (4)	ND	0.10	ug/L							
Aroclor 1260 (4) [2C]	ND	0.10	ug/L							
Aroclor 1260 (5)	ND	0.10	ug/L							
Aroclor 1260 (5) [2C]	ND	0.10	ug/L							
Aroclor 1262	ND	0.10	ug/L							
Aroclor 1262 (1)	ND	0.10	ug/L							
Aroclor 1262 (1) [2C]	ND	0.10	ug/L							
Aroclor 1262 (2)	ND	0.10	ug/L							
Aroclor 1262 (2) [2C]	ND	0.10	ug/L							
Aroclor 1262 (3)	ND	0.10	ug/L							
Aroclor 1262 (3) [2C]	ND	0.10	ug/L							

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CA30321 - 3510C										
Aroclor 1262 (4)	ND	0.10	ug/L							
Aroclor 1262 (4) [2C]	ND	0.10	ug/L							
Aroclor 1262 (5)	ND	0.10	ug/L							
Aroclor 1262 (5) [2C]	ND	0.10	ug/L							
Aroclor 1268	ND	0.10	ug/L							
Aroclor 1268 (1)	ND	0.10	ug/L							
Aroclor 1268 (1) [2C]	ND	0.10	ug/L							
Aroclor 1268 (2)	ND	0.10	ug/L							
Aroclor 1268 (2) [2C]	ND	0.10	ug/L							
Aroclor 1268 (3)	ND	0.10	ug/L							
Aroclor 1268 (3) [2C]	ND	0.10	ug/L							
Aroclor 1268 (4)	ND	0.10	ug/L							
Aroclor 1268 (4) [2C]	ND	0.10	ug/L							
Aroclor 1268 (5)	ND	0.10	ug/L							
Aroclor 1268 (5) [2C]	ND	0.10	ug/L							
Surrogate: Decachlorobiphenyl	*0.0459*		ug/L	*0.05000*		*92*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0426*		ug/L	*0.05000*		*85*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0367*		ug/L	*0.05000*		*73*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0466*		ug/L	*0.05000*		*93*	*30-150*			
LCS										
Aroclor 1016	1.10	0.10	ug/L	1.000		110	40-140			
Aroclor 1260	0.89	0.10	ug/L	1.000		89	40-140			
Surrogate: Decachlorobiphenyl	*0.0519*		ug/L	*0.05000*		*104*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0491*		ug/L	*0.05000*		*98*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0457*		ug/L	*0.05000*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0524*		ug/L	*0.05000*		*105*	*30-150*			
LCS Dup										
Aroclor 1016	1.10	0.10	ug/L	1.000		110	40-140	0.09	20	
Aroclor 1260	0.88	0.10	ug/L	1.000		88	40-140	0.1	20	
Surrogate: Decachlorobiphenyl	*0.0515*		ug/L	*0.05000*		*103*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0485*		ug/L	*0.05000*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0453*		ug/L	*0.05000*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0529*		ug/L	*0.05000*		*106*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CL22707 - 3510C										
Blank										
Decane (C10)	ND	5.00	ug/L							
Docosane (C22)	ND	5.00	ug/L							
Dodecane (C12)	ND	5.00	ug/L							
Eicosane (C20)	ND	5.00	ug/L							
Hexacosane (C26)	ND	5.00	ug/L							

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CL22707 - 3510C										
Hexadecane (C16)	ND	5.00	ug/L							
Nonadecane (C19)	ND	5.00	ug/L							
Nonane (C9)	ND	5.00	ug/L							
Octacosane (C28)	ND	5.00	ug/L							
Octadecane (C18)	ND	5.00	ug/L							
Tetracosane (C24)	ND	5.00	ug/L							
Tetradecane (C14)	ND	5.00	ug/L							
Total Petroleum Hydrocarbons	ND	100	ug/L							
Triacontane (C30)	ND	5.00	ug/L							
Surrogate: O-Terphenyl	*105*		ug/L	*100.0*		*105*	*40-140*			
LCS										
Decane (C10)	44.7	5.00	ug/L	50.00		89	40-140			
Docosane (C22)	54.5	5.00	ug/L	50.00		109	40-140			
Dodecane (C12)	53.1	5.00	ug/L	50.00		106	40-140			
Eicosane (C20)	53.6	5.00	ug/L	50.00		107	40-140			
Hexacosane (C26)	53.6	5.00	ug/L	50.00		107	40-140			
Hexadecane (C16)	53.8	5.00	ug/L	50.00		108	40-140			
Nonadecane (C19)	57.8	5.00	ug/L	50.00		116	40-140			
Nonane (C9)	37.1	5.00	ug/L	50.00		74	30-140			
Octacosane (C28)	53.3	5.00	ug/L	50.00		107	40-140			
Octadecane (C18)	54.3	5.00	ug/L	50.00		109	40-140			
Tetracosane (C24)	54.3	5.00	ug/L	50.00		109	40-140			
Tetradecane (C14)	53.4	5.00	ug/L	50.00		107	40-140			
Triacontane (C30)	52.6	5.00	ug/L	50.00		105	40-140			
Surrogate: O-Terphenyl	*108*		ug/L	*100.0*		*108*	*40-140*			
LCS Dup										
Decane (C10)	45.7	5.00	ug/L	50.00		91	40-140	2	25	
Docosane (C22)	56.4	5.00	ug/L	50.00		113	40-140	4	25	
Dodecane (C12)	54.2	5.00	ug/L	50.00		108	40-140	2	25	
Eicosane (C20)	55.5	5.00	ug/L	50.00		111	40-140	3	25	
Hexacosane (C26)	55.7	5.00	ug/L	50.00		111	40-140	4	25	
Hexadecane (C16)	55.3	5.00	ug/L	50.00		111	40-140	3	25	
Nonadecane (C19)	56.7	5.00	ug/L	50.00		113	40-140	2	25	
Nonane (C9)	37.2	5.00	ug/L	50.00		74	30-140	0.3	25	
Octacosane (C28)	55.3	5.00	ug/L	50.00		111	40-140	4	25	
Octadecane (C18)	56.0	5.00	ug/L	50.00		112	40-140	3	25	
Tetracosane (C24)	56.3	5.00	ug/L	50.00		113	40-140	4	25	
Tetradecane (C14)	54.6	5.00	ug/L	50.00		109	40-140	2	25	
Triacontane (C30)	54.8	5.00	ug/L	50.00		110	40-140	4	25	
Surrogate: O-Terphenyl	*109*		ug/L	*100.0*		*109*	*40-140*			
8260B Volatile Organic Compounds										

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8260B Volatile Organic Compounds										
Batch CL22826 - 5030B										
Blank										
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L							
1,1,1-Trichloroethane	ND	1.0	ug/L							
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L							
1,1,2-Trichloroethane	ND	1.0	ug/L							
1,1-Dichloroethane	ND	1.0	ug/L							
1,1-Dichloroethene	ND	1.0	ug/L							
1,1-Dichloropropene	ND	2.0	ug/L							
1,2,3-Trichlorobenzene	ND	1.0	ug/L							
1,2,3-Trichloropropane	ND	1.0	ug/L							
1,2,4-Trichlorobenzene	ND	1.0	ug/L							
1,2,4-Trimethylbenzene	ND	1.0	ug/L							
1,2-Dibromo-3-Chloropropane	ND	5.0	ug/L							
1,2-Dibromoethane	ND	1.0	ug/L							
1,2-Dichlorobenzene	ND	1.0	ug/L							
1,2-Dichloroethane	ND	1.0	ug/L							
1,2-Dichloropropane	ND	1.0	ug/L							
1,3,5-Trimethylbenzene	ND	1.0	ug/L							
1,3-Dichlorobenzene	ND	1.0	ug/L							
1,3-Dichloropropane	ND	1.0	ug/L							
1,4-Dichlorobenzene	ND	1.0	ug/L							
1,4-Dioxane - Screen	ND	500	ug/L							
2,2-Dichloropropane	ND	1.0	ug/L							
2-Butanone	ND	10.0	ug/L							
2-Chlorotoluene	ND	1.0	ug/L							
2-Hexanone	ND	10.0	ug/L							
4-Chlorotoluene	ND	1.0	ug/L							
4-Isopropyltoluene	ND	1.0	ug/L							
4-Methyl-2-Pentanone	ND	10.0	ug/L							
Acetone	ND	10.0	ug/L							
Benzene	ND	1.0	ug/L							
Bromobenzene	ND	2.0	ug/L							
Bromochloromethane	ND	1.0	ug/L							
Bromodichloromethane	ND	0.6	ug/L							
Bromoform	ND	1.0	ug/L							
Bromomethane	ND	2.0	ug/L							
Carbon Disulfide	ND	1.0	ug/L							
Carbon Tetrachloride	ND	1.0	ug/L							
Chlorobenzene	ND	1.0	ug/L							
Chloroethane	ND	2.0	ug/L							
Chloroform	ND	1.0	ug/L							
Chloromethane	ND	2.0	ug/L							
cis-1,2-Dichloroethene	ND	1.0	ug/L							
cis-1,3-Dichloropropene	ND	0.4	ug/L							
Dibromochloromethane	ND	1.0	ug/L							

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8260B Volatile Organic Compounds										
Batch CL22826 - 5030B										
Dibromomethane	ND	1.0	ug/L							
Dichlorodifluoromethane	ND	2.0	ug/L							
Diethyl Ether	ND	1.0	ug/L							
Di-isopropyl ether	ND	1.0	ug/L							
Ethyl tertiary-butyl ether	ND	1.0	ug/L							
Ethylbenzene	ND	1.0	ug/L							
Hexachlorobutadiene	ND	0.6	ug/L							
Hexachloroethane	ND	1.0	ug/L							
Isopropylbenzene	ND	1.0	ug/L							
Methyl tert-Butyl Ether	ND	1.0	ug/L							
Methylene Chloride	ND	2.0	ug/L							
Naphthalene	ND	1.0	ug/L							
n-Butylbenzene	ND	1.0	ug/L							
n-Propylbenzene	ND	1.0	ug/L							
sec-Butylbenzene	ND	1.0	ug/L							
Styrene	ND	1.0	ug/L							
tert-Butylbenzene	ND	1.0	ug/L							
Tertiary-amyl methyl ether	ND	1.0	ug/L							
Tetrachloroethene	ND	1.0	ug/L							
Tetrahydrofuran	ND	5.0	ug/L							
Toluene	ND	1.0	ug/L							
trans-1,2-Dichloroethene	ND	1.0	ug/L							
trans-1,3-Dichloropropene	ND	0.4	ug/L							
Trichloroethene	ND	1.0	ug/L							
Trichlorofluoromethane	ND	1.0	ug/L							
Vinyl Chloride	ND	1.0	ug/L							
Xylene O	ND	1.0	ug/L							
Xylene P,M	ND	2.0	ug/L							
Surrogate: 1,2-Dichloroethane-d4	*23.2*		ug/L	*25.00*		*93*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*23.2*		ug/L	*25.00*		*93*	*70-130*			
Surrogate: Dibromofluoromethane	*25.3*		ug/L	*25.00*		*101*	*70-130*			
Surrogate: Toluene-d8	*25.7*		ug/L	*25.00*		*103*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	9.9		ug/L	10.00		99	70-130			
1,1,1-Trichloroethane	8.9		ug/L	10.00		89	70-130			
1,1,2,2-Tetrachloroethane	10.3		ug/L	10.00		103	70-130			
1,1,2-Trichloroethane	8.7		ug/L	10.00		87	70-130			
1,1-Dichloroethane	9.4		ug/L	10.00		94	70-130			
1,1-Dichloroethene	9.8		ug/L	10.00		98	70-130			
1,1-Dichloropropene	9.4		ug/L	10.00		94	70-130			
1,2,3-Trichlorobenzene	9.9		ug/L	10.00		99	70-130			
1,2,3-Trichloropropane	8.4		ug/L	10.00		84	70-130			
1,2,4-Trichlorobenzene	10.0		ug/L	10.00		100	70-130			
1,2,4-Trimethylbenzene	10.4		ug/L	10.00		104	70-130			
1,2-Dibromo-3-Chloropropane	10.2		ug/L	10.00		102	70-130			

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8260B Volatile Organic Compounds										
Batch CL22826 - 5030B										
1,2-Dibromoethane	9.1		ug/L	10.00		91	70-130			
1,2-Dichlorobenzene	9.7		ug/L	10.00		97	70-130			
1,2-Dichloroethane	8.8		ug/L	10.00		88	70-130			
1,2-Dichloropropane	9.5		ug/L	10.00		95	70-130			
1,3,5-Trimethylbenzene	10.4		ug/L	10.00		104	70-130			
1,3-Dichlorobenzene	10.3		ug/L	10.00		103	70-130			
1,3-Dichloropropane	9.3		ug/L	10.00		93	70-130			
1,4-Dichlorobenzene	9.9		ug/L	10.00		99	70-130			
1,4-Dioxane - Screen	353		ug/L	200.0		177	0-332			
2,2-Dichloropropane	8.4		ug/L	10.00		84	70-130			
2-Butanone	68.9		ug/L	50.00		138	70-130			B+
2-Chlorotoluene	10.5		ug/L	10.00		105	70-130			
2-Hexanone	73.0		ug/L	50.00		146	70-130			B+
4-Chlorotoluene	9.9		ug/L	10.00		99	70-130			
4-Isopropyltoluene	9.4		ug/L	10.00		94	70-130			
4-Methyl-2-Pentanone	45.3		ug/L	50.00		91	70-130			
Acetone	110		ug/L	50.00		220	70-130			B+
Benzene	9.7		ug/L	10.00		97	70-130			
Bromobenzene	9.6		ug/L	10.00		96	70-130			
Bromochloromethane	10.5		ug/L	10.00		105	70-130			
Bromodichloromethane	9.5		ug/L	10.00		95	70-130			
Bromoform	11.0		ug/L	10.00		110	70-130			
Bromomethane	7.6		ug/L	10.00		76	70-130			
Carbon Disulfide	10.1		ug/L	10.00		101	70-130			
Carbon Tetrachloride	10.6		ug/L	10.00		106	70-130			
Chlorobenzene	10.1		ug/L	10.00		101	70-130			
Chloroethane	9.6		ug/L	10.00		96	70-130			
Chloroform	8.8		ug/L	10.00		88	70-130			
Chloromethane	7.9		ug/L	10.00		79	70-130			
cis-1,2-Dichloroethene	9.3		ug/L	10.00		93	70-130			
cis-1,3-Dichloropropene	9.6		ug/L	10.00		96	70-130			
Dibromochloromethane	10.2		ug/L	10.00		102	70-130			
Dibromomethane	9.2		ug/L	10.00		92	70-130			
Dichlorodifluoromethane	7.4		ug/L	10.00		74	70-130			
Diethyl Ether	9.0		ug/L	10.00		90	70-130			
Di-isopropyl ether	9.6		ug/L	10.00		96	70-130			
Ethyl tertiary-butyl ether	8.8		ug/L	10.00		88	70-130			
Ethylbenzene	9.2		ug/L	10.00		92	70-130			
Hexachlorobutadiene	12.4		ug/L	10.00		124	70-130			
Hexachloroethane	11.2		ug/L	10.00		112	70-130			
Isopropylbenzene	9.8		ug/L	10.00		98	70-130			
Methyl tert-Butyl Ether	8.2		ug/L	10.00		82	70-130			
Methylene Chloride	9.6		ug/L	10.00		96	70-130			
Naphthalene	8.5		ug/L	10.00		85	70-130			
n-Butylbenzene	9.4		ug/L	10.00		94	70-130			

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8260B Volatile Organic Compounds										
Batch CL22826 - 5030B										
n-Propylbenzene	9.4		ug/L	10.00		94	70-130			
sec-Butylbenzene	10.5		ug/L	10.00		105	70-130			
Styrene	9.2		ug/L	10.00		92	70-130			
tert-Butylbenzene	9.9		ug/L	10.00		99	70-130			
Tertiary-amyl methyl ether	8.3		ug/L	10.00		83	70-130			
Tetrachloroethene	8.6		ug/L	10.00		86	70-130			
Tetrahydrofuran	10.0		ug/L	10.00		100	70-130			
Toluene	10.0		ug/L	10.00		100	70-130			
trans-1,2-Dichloroethene	10.2		ug/L	10.00		102	70-130			
trans-1,3-Dichloropropene	8.2		ug/L	10.00		82	70-130			
Trichloroethene	9.1		ug/L	10.00		91	70-130			
Trichlorofluoromethane	9.3		ug/L	10.00		93	70-130			
Vinyl Chloride	9.3		ug/L	10.00		93	70-130			
Xylene O	10.2		ug/L	10.00		102	70-130			
Xylene P,M	20.4		ug/L	20.00		102	70-130			
Surrogate: 1,2-Dichloroethane-d4	*22.2*		ug/L	*25.00*		*89*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*24.6*		ug/L	*25.00*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*24.1*		ug/L	*25.00*		*96*	*70-130*			
Surrogate: Toluene-d8	*24.4*		ug/L	*25.00*		*98*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	9.9		ug/L	10.00		99	70-130	0.7	25	
1,1,1-Trichloroethane	9.0		ug/L	10.00		90	70-130	2	25	
1,1,2,2-Tetrachloroethane	9.4		ug/L	10.00		94	70-130	10	25	
1,1,2-Trichloroethane	8.5		ug/L	10.00		85	70-130	2	25	
1,1-Dichloroethane	9.2		ug/L	10.00		92	70-130	3	25	
1,1-Dichloroethene	9.7		ug/L	10.00		97	70-130	1	25	
1,1-Dichloropropene	9.5		ug/L	10.00		95	70-130	0.6	25	
1,2,3-Trichlorobenzene	9.2		ug/L	10.00		92	70-130	6	25	
1,2,3-Trichloropropane	8.6		ug/L	10.00		86	70-130	3	25	
1,2,4-Trichlorobenzene	9.4		ug/L	10.00		94	70-130	5	25	
1,2,4-Trimethylbenzene	9.7		ug/L	10.00		97	70-130	7	25	
1,2-Dibromo-3-Chloropropane	0.4		ug/L	10.00		4	70-130	186	25	B-, D+
1,2-Dibromoethane	8.9		ug/L	10.00		89	70-130	2	25	
1,2-Dichlorobenzene	9.0		ug/L	10.00		90	70-130	8	25	
1,2-Dichloroethane	9.6		ug/L	10.00		96	70-130	9	25	
1,2-Dichloropropane	9.7		ug/L	10.00		97	70-130	2	25	
1,3,5-Trimethylbenzene	9.6		ug/L	10.00		96	70-130	7	25	
1,3-Dichlorobenzene	9.6		ug/L	10.00		96	70-130	6	25	
1,3-Dichloropropane	8.6		ug/L	10.00		86	70-130	7	25	
1,4-Dichlorobenzene	9.7		ug/L	10.00		97	70-130	2	25	
1,4-Dioxane - Screen	238		ug/L	200.0		119	0-332	39	200	
2,2-Dichloropropane	8.6		ug/L	10.00		86	70-130	3	25	
2-Butanone	63.2		ug/L	50.00		126	70-130	9	25	
2-Chlorotoluene	10.2		ug/L	10.00		102	70-130	3	25	
2-Hexanone	60.6		ug/L	50.00		121	70-130	19	25	

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8260B Volatile Organic Compounds										
Batch CL22826 - 5030B										
4-Chlorotoluene	9.6		ug/L	10.00		96	70-130	3	25	
4-Isopropyltoluene	8.5		ug/L	10.00		85	70-130	9	25	
4-Methyl-2-Pentanone	43.6		ug/L	50.00		87	70-130	4	25	
Acetone	98.0		ug/L	50.00		196	70-130	11	25	B+
Benzene	9.9		ug/L	10.00		99	70-130	2	25	
Bromobenzene	8.9		ug/L	10.00		89	70-130	7	25	
Bromochloromethane	9.7		ug/L	10.00		97	70-130	8	25	
Bromodichloromethane	9.7		ug/L	10.00		97	70-130	2	25	
Bromoform	9.9		ug/L	10.00		99	70-130	11	25	
Bromomethane	8.5		ug/L	10.00		85	70-130	11	25	
Carbon Disulfide	9.9		ug/L	10.00		99	70-130	2	25	
Carbon Tetrachloride	10.8		ug/L	10.00		108	70-130	2	25	
Chlorobenzene	9.6		ug/L	10.00		96	70-130	5	25	
Chloroethane	9.4		ug/L	10.00		94	70-130	1	25	
Chloroform	9.2		ug/L	10.00		92	70-130	4	25	
Chloromethane	7.3		ug/L	10.00		73	70-130	8	25	
cis-1,2-Dichloroethene	9.9		ug/L	10.00		99	70-130	6	25	
cis-1,3-Dichloropropene	9.4		ug/L	10.00		94	70-130	3	25	
Dibromochloromethane	10.0		ug/L	10.00		100	70-130	2	25	
Dibromomethane	9.8		ug/L	10.00		98	70-130	6	25	
Dichlorodifluoromethane	7.7		ug/L	10.00		77	70-130	4	25	
Diethyl Ether	9.8		ug/L	10.00		98	70-130	8	25	
Di-isopropyl ether	9.6		ug/L	10.00		96	70-130	0.3	25	
Ethyl tertiary-butyl ether	8.5		ug/L	10.00		85	70-130	3	25	
Ethylbenzene	8.7		ug/L	10.00		87	70-130	5	25	
Hexachlorobutadiene	12.0		ug/L	10.00		120	70-130	3	25	
Hexachloroethane	11.0		ug/L	10.00		110	70-130	2	25	
Isopropylbenzene	9.3		ug/L	10.00		93	70-130	5	25	
Methyl tert-Butyl Ether	8.5		ug/L	10.00		85	70-130	4	25	
Methylene Chloride	10.0		ug/L	10.00		100	70-130	4	25	
Naphthalene	7.6		ug/L	10.00		76	70-130	11	25	
n-Butylbenzene	8.5		ug/L	10.00		85	70-130	11	25	
n-Propylbenzene	8.9		ug/L	10.00		89	70-130	6	25	
sec-Butylbenzene	9.6		ug/L	10.00		96	70-130	9	25	
Styrene	9.0		ug/L	10.00		90	70-130	3	25	
tert-Butylbenzene	9.5		ug/L	10.00		95	70-130	4	25	
Tertiary-amyl methyl ether	8.1		ug/L	10.00		81	70-130	2	25	
Tetrachloroethene	10.2		ug/L	10.00		102	70-130	16	25	
Tetrahydrofuran	8.4		ug/L	10.00		84	70-130	17	25	
Toluene	10.1		ug/L	10.00		101	70-130	1	25	
trans-1,2-Dichloroethene	10.3		ug/L	10.00		103	70-130	0.9	25	
trans-1,3-Dichloropropene	8.1		ug/L	10.00		81	70-130	0.4	25	
Trichloroethene	8.8		ug/L	10.00		88	70-130	4	25	
Trichlorofluoromethane	9.6		ug/L	10.00		96	70-130	4	25	
Vinyl Chloride	9.6		ug/L	10.00		96	70-130	2	25	

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8260B Volatile Organic Compounds										
Batch CL22826 - 5030B										
Xylene O	9.9		ug/L	10.00		99	70-130	4	25	
Xylene P,M	19.0		ug/L	20.00		95	70-130	7	25	
Surrogate: 1,2-Dichloroethane-d4	*23.1*		ug/L	*25.00*		*92*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*24.3*		ug/L	*25.00*		*97*	*70-130*			
Surrogate: Dibromofluoromethane	*24.4*		ug/L	*25.00*		*98*	*70-130*			
Surrogate: Toluene-d8	*24.0*		ug/L	*25.00*		*96*	*70-130*			
8270D Semi-Volatile Organic Compounds										
Batch CL22820 - 3520C										
Blank										
1,2,4-Trichlorobenzene	ND	10.0	ug/L							
1,2-Dichlorobenzene	ND	10.0	ug/L							
1,3-Dichlorobenzene	ND	10.0	ug/L							
1,4-Dichlorobenzene	ND	10.0	ug/L							
2,4,5-Trichlorophenol	ND	10.0	ug/L							
2,4,6-Trichlorophenol	ND	10.0	ug/L							
2,4-Dichlorophenol	ND	10.0	ug/L							
2,4-Dimethylphenol	ND	50.0	ug/L							
2,4-Dinitrophenol	ND	50.0	ug/L							
2,4-Dinitrotoluene	ND	10.0	ug/L							
2,6-Dinitrotoluene	ND	10.0	ug/L							
2-Chloronaphthalene	ND	10.0	ug/L							
2-Chlorophenol	ND	10.0	ug/L							
2-Methylnaphthalene	ND	10.0	ug/L							
2-Methylphenol	ND	10.0	ug/L							
2-Nitrophenol	ND	10.0	ug/L							
3,3´-Dichlorobenzidine	ND	20.0	ug/L							
3+4-Methylphenol	ND	20.0	ug/L							
4-Bromophenyl-phenylether	ND	10.0	ug/L							
4-Chloroaniline	ND	20.0	ug/L							
4-Nitrophenol	ND	50.0	ug/L							
Acenaphthene	ND	10.0	ug/L							
Acenaphthylene	ND	10.0	ug/L							
Acetophenone	ND	10.0	ug/L							
Aniline	ND	10.0	ug/L							
Anthracene	ND	10.0	ug/L							
Azobenzene	ND	20.0	ug/L							
Benzo(a)anthracene	ND	10.0	ug/L							
Benzo(a)pyrene	ND	10.0	ug/L							
Benzo(b)fluoranthene	ND	10.0	ug/L							
Benzo(g,h,i)perylene	ND	10.0	ug/L							
Benzo(k)fluoranthene	ND	10.0	ug/L							
bis(2-Chloroethoxy)methane	ND	10.0	ug/L							
bis(2-Chloroethyl)ether	ND	10.0	ug/L							
bis(2-chloroisopropyl)Ether	ND	10.0	ug/L							

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL22820 - 3520C										
bis(2-Ethylhexyl)phthalate	ND	6.0	ug/L							
Butylbenzylphthalate	ND	10.0	ug/L							
Chrysene	ND	10.0	ug/L							
Dibenzo(a,h)Anthracene	ND	10.0	ug/L							
Dibenzofuran	ND	10.0	ug/L							
Diethylphthalate	ND	10.0	ug/L							
Dimethylphthalate	ND	10.0	ug/L							
Di-n-butylphthalate	ND	10.0	ug/L							
Di-n-octylphthalate	ND	10.0	ug/L							
Fluoranthene	ND	10.0	ug/L							
Fluorene	ND	10.0	ug/L							
Hexachlorobenzene	ND	10.0	ug/L							
Hexachlorobutadiene	ND	10.0	ug/L							
Hexachloroethane	ND	5.0	ug/L							
Indeno(1,2,3-cd)Pyrene	ND	10.0	ug/L							
Isophorone	ND	10.0	ug/L							
Naphthalene	ND	10.0	ug/L							
Nitrobenzene	ND	10.0	ug/L							
N-Nitrosodimethylamine	ND	10.0	ug/L							
Pentachlorophenol	ND	50.0	ug/L							
Phenanthrene	ND	10.0	ug/L							
Phenol	ND	10.0	ug/L							
Pyrene	ND	10.0	ug/L							
Surrogate: 1,2-Dichlorobenzene-d4	*79.8*		ug/L	*100.0*		*80*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*144*		ug/L	*150.0*		*96*	*15-110*			
Surrogate: 2-Chlorophenol-d4	*108*		ug/L	*150.0*		*72*	*15-110*			
Surrogate: 2-Fluorobiphenyl	*82.7*		ug/L	*100.0*		*83*	*30-130*			
Surrogate: 2-Fluorophenol	*78.6*		ug/L	*150.0*		*52*	*15-110*			
Surrogate: Nitrobenzene-d5	*80.4*		ug/L	*100.0*		*80*	*30-130*			
Surrogate: Phenol-d6	*112*		ug/L	*150.0*		*74*	*15-110*			
Surrogate: p-Terphenyl-d14	*92.4*		ug/L	*100.0*		*92*	*30-130*			
LCS										
1,2,4-Trichlorobenzene	78.9	10.0	ug/L	100.0		79	40-140			
1,2-Dichlorobenzene	78.2	10.0	ug/L	100.0		78	40-140			
1,3-Dichlorobenzene	76.6	10.0	ug/L	100.0		77	40-140			
1,4-Dichlorobenzene	77.2	10.0	ug/L	100.0		77	40-140			
2,4,5-Trichlorophenol	95.1	10.0	ug/L	100.0		95	30-130			
2,4,6-Trichlorophenol	91.4	10.0	ug/L	100.0		91	30-130			
2,4-Dichlorophenol	86.2	10.0	ug/L	100.0		86	30-130			
2,4-Dimethylphenol	90.6	50.0	ug/L	100.0		91	30-130			
2,4-Dinitrophenol	39.6	50.0	ug/L	100.0		40	30-130			
2,4-Dinitrotoluene	90.7	10.0	ug/L	100.0		91	40-140			
2,6-Dinitrotoluene	91.4	10.0	ug/L	100.0		91	40-140			
2-Chloronaphthalene	77.1	10.0	ug/L	100.0		77	40-140			
2-Chlorophenol	72.9	10.0	ug/L	100.0		73	30-130			

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL22820 - 3520C										
2-Methylnaphthalene	83.6	10.0	ug/L	100.0		84	40-140			
2-Methylphenol	82.3	10.0	ug/L	100.0		82	30-130			
2-Nitrophenol	83.0	10.0	ug/L	100.0		83	30-130			
3,3´-Dichlorobenzidine	87.6	20.0	ug/L	100.0		88	40-140			
3+4-Methylphenol	199	20.0	ug/L	200.0		99	30-130			
4-Bromophenyl-phenylether	88.8	10.0	ug/L	100.0		89	40-140			
4-Chloroaniline	67.5	20.0	ug/L	100.0		67	40-140			
4-Nitrophenol	85.9	50.0	ug/L	100.0		86	30-130			
Acenaphthene	84.9	10.0	ug/L	100.0		85	40-140			
Acenaphthylene	86.4	10.0	ug/L	100.0		86	40-140			
Acetophenone	82.2	10.0	ug/L	100.0		82	40-140			
Aniline	63.5	10.0	ug/L	100.0		64	40-140			
Anthracene	89.8	10.0	ug/L	100.0		90	40-140			
Azobenzene	81.4	20.0	ug/L	100.0		81	40-140			
Benzo(a)anthracene	89.4	10.0	ug/L	100.0		89	40-140			
Benzo(a)pyrene	82.7	10.0	ug/L	100.0		83	40-140			
Benzo(b)fluoranthene	88.8	10.0	ug/L	100.0		89	40-140			
Benzo(g,h,i)perylene	106	10.0	ug/L	100.0		106	40-140			
Benzo(k)fluoranthene	82.8	10.0	ug/L	100.0		83	40-140			
bis(2-Chloroethoxy)methane	83.4	10.0	ug/L	100.0		83	40-140			
bis(2-Chloroethyl)ether	76.5	10.0	ug/L	100.0		77	40-140			
bis(2-chloroisopropyl)Ether	76.4	10.0	ug/L	100.0		76	40-140			
bis(2-Ethylhexyl)phthalate	93.4	6.0	ug/L	100.0		93	40-140			
Butylbenzylphthalate	87.9	10.0	ug/L	100.0		88	40-140			
Chrysene	86.7	10.0	ug/L	100.0		87	40-140			
Dibenzo(a,h)Anthracene	89.7	10.0	ug/L	100.0		90	40-140			
Dibenzofuran	85.8	10.0	ug/L	100.0		86	40-140			
Diethylphthalate	89.4	10.0	ug/L	100.0		89	40-140			
Dimethylphthalate	87.8	10.0	ug/L	100.0		88	40-140			
Di-n-butylphthalate	92.9	10.0	ug/L	100.0		93	40-140			
Di-n-octylphthalate	87.0	10.0	ug/L	100.0		87	40-140			
Fluoranthene	91.1	10.0	ug/L	100.0		91	40-140			
Fluorene	88.6	10.0	ug/L	100.0		89	40-140			
Hexachlorobenzene	88.2	10.0	ug/L	100.0		88	40-140			
Hexachlorobutadiene	81.2	10.0	ug/L	100.0		81	40-140			
Hexachloroethane	77.5	5.0	ug/L	100.0		78	40-140			
Indeno(1,2,3-cd)Pyrene	105	10.0	ug/L	100.0		105	40-140			
Isophorone	85.0	10.0	ug/L	100.0		85	40-140			
Naphthalene	81.8	10.0	ug/L	100.0		82	40-140			
Nitrobenzene	80.7	10.0	ug/L	100.0		81	40-140			
N-Nitrosodimethylamine	77.9	10.0	ug/L	100.0		78	40-140			
Pentachlorophenol	87.1	50.0	ug/L	100.0		87	30-130			
Phenanthrene	88.4	10.0	ug/L	100.0		88	40-140			
Phenol	69.2	10.0	ug/L	100.0		69	30-130			
Pyrene	88.9	10.0	ug/L	100.0		89	40-140			

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL22820 - 3520C										
Surrogate: 1,2-Dichlorobenzene-d4	*76.2*		ug/L	*100.0*		*76*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*152*		ug/L	*150.0*		*101*	*15-110*			
Surrogate: 2-Chlorophenol-d4	*109*		ug/L	*150.0*		*73*	*15-110*			
Surrogate: 2-Fluorobiphenyl	*80.3*		ug/L	*100.0*		*80*	*30-130*			
Surrogate: 2-Fluorophenol	*86.4*		ug/L	*150.0*		*58*	*15-110*			
Surrogate: Nitrobenzene-d5	*80.3*		ug/L	*100.0*		*80*	*30-130*			
Surrogate: Phenol-d6	*112*		ug/L	*150.0*		*75*	*15-110*			
Surrogate: p-Terphenyl-d14	*91.6*		ug/L	*100.0*		*92*	*30-130*			
LCS Dup										
1,2,4-Trichlorobenzene	84.0	10.0	ug/L	100.0		84	40-140	6	20	
1,2-Dichlorobenzene	83.4	10.0	ug/L	100.0		83	40-140	6	20	
1,3-Dichlorobenzene	82.0	10.0	ug/L	100.0		82	40-140	7	20	
1,4-Dichlorobenzene	82.6	10.0	ug/L	100.0		83	40-140	7	20	
2,4,5-Trichlorophenol	103	10.0	ug/L	100.0		103	30-130	8	20	
2,4,6-Trichlorophenol	95.8	10.0	ug/L	100.0		96	30-130	5	20	
2,4-Dichlorophenol	92.4	10.0	ug/L	100.0		92	30-130	7	20	
2,4-Dimethylphenol	95.4	50.0	ug/L	100.0		95	30-130	5	20	
2,4-Dinitrophenol	39.6	50.0	ug/L	100.0		40	30-130	0.05	20	
2,4-Dinitrotoluene	97.4	10.0	ug/L	100.0		97	40-140	7	20	
2,6-Dinitrotoluene	97.2	10.0	ug/L	100.0		97	40-140	6	20	
2-Chloronaphthalene	82.7	10.0	ug/L	100.0		83	40-140	7	20	
2-Chlorophenol	78.2	10.0	ug/L	100.0		78	30-130	7	20	
2-Methylnaphthalene	88.9	10.0	ug/L	100.0		89	40-140	6	20	
2-Methylphenol	87.8	10.0	ug/L	100.0		88	30-130	6	20	
2-Nitrophenol	88.0	10.0	ug/L	100.0		88	30-130	6	20	
3,3´-Dichlorobenzidine	93.2	20.0	ug/L	100.0		93	40-140	6	20	
3+4-Methylphenol	212	20.0	ug/L	200.0		106	30-130	6	20	
4-Bromophenyl-phenylether	94.2	10.0	ug/L	100.0		94	40-140	6	20	
4-Chloroaniline	74.9	20.0	ug/L	100.0		75	40-140	10	20	
4-Nitrophenol	88.8	50.0	ug/L	100.0		89	30-130	3	20	
Acenaphthene	90.6	10.0	ug/L	100.0		91	40-140	6	20	
Acenaphthylene	92.5	10.0	ug/L	100.0		92	40-140	7	20	
Acetophenone	88.6	10.0	ug/L	100.0		89	40-140	7	20	
Aniline	67.2	10.0	ug/L	100.0		67	40-140	6	20	
Anthracene	95.2	10.0	ug/L	100.0		95	40-140	6	20	
Azobenzene	85.4	20.0	ug/L	100.0		85	40-140	5	20	
Benzo(a)anthracene	93.0	10.0	ug/L	100.0		93	40-140	4	20	
Benzo(a)pyrene	86.3	10.0	ug/L	100.0		86	40-140	4	20	
Benzo(b)fluoranthene	90.2	10.0	ug/L	100.0		90	40-140	2	20	
Benzo(g,h,i)perylene	108	10.0	ug/L	100.0		108	40-140	2	20	
Benzo(k)fluoranthene	90.6	10.0	ug/L	100.0		91	40-140	9	20	
bis(2-Chloroethoxy)methane	88.3	10.0	ug/L	100.0		88	40-140	6	20	
bis(2-Chloroethyl)ether	80.8	10.0	ug/L	100.0		81	40-140	5	20	
bis(2-chloroisopropyl)Ether	82.5	10.0	ug/L	100.0		82	40-140	8	20	
bis(2-Ethylhexyl)phthalate	95.8	6.0	ug/L	100.0		96	40-140	3	20	

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
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ESS Laboratory Work Order: 1212439

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL22820 - 3520C										
Butylbenzylphthalate	90.2	10.0	ug/L	100.0		90	40-140	3	20	
Chrysene	91.5	10.0	ug/L	100.0		91	40-140	5	20	
Dibenzo(a,h)Anthracene	91.3	10.0	ug/L	100.0		91	40-140	2	20	
Dibenzofuran	91.9	10.0	ug/L	100.0		92	40-140	7	20	
Diethylphthalate	94.0	10.0	ug/L	100.0		94	40-140	5	20	
Dimethylphthalate	92.8	10.0	ug/L	100.0		93	40-140	5	20	
Di-n-butylphthalate	98.2	10.0	ug/L	100.0		98	40-140	6	20	
Di-n-octylphthalate	90.1	10.0	ug/L	100.0		90	40-140	3	20	
Fluoranthene	97.8	10.0	ug/L	100.0		98	40-140	7	20	
Fluorene	93.6	10.0	ug/L	100.0		94	40-140	5	20	
Hexachlorobenzene	94.8	10.0	ug/L	100.0		95	40-140	7	20	
Hexachlorobutadiene	87.2	10.0	ug/L	100.0		87	40-140	7	20	
Hexachloroethane	82.2	5.0	ug/L	100.0		82	40-140	6	20	
Indeno(1,2,3-cd)Pyrene	107	10.0	ug/L	100.0		107	40-140	2	20	
Isophorone	89.9	10.0	ug/L	100.0		90	40-140	6	20	
Naphthalene	87.0	10.0	ug/L	100.0		87	40-140	6	20	
Nitrobenzene	85.4	10.0	ug/L	100.0		85	40-140	6	20	
N-Nitrosodimethylamine	80.4	10.0	ug/L	100.0		80	40-140	3	20	
Pentachlorophenol	91.6	50.0	ug/L	100.0		92	30-130	5	20	
Phenanthrene	93.0	10.0	ug/L	100.0		93	40-140	5	20	
Phenol	73.3	10.0	ug/L	100.0		73	30-130	6	20	
Pyrene	92.2	10.0	ug/L	100.0		92	40-140	4	20	
Surrogate: 1,2-Dichlorobenzene-d4	*82.4*		ug/L	*100.0*		*82*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*161*		ug/L	*150.0*		*107*	*15-110*			
Surrogate: 2-Chlorophenol-d4	*118*		ug/L	*150.0*		*79*	*15-110*			
Surrogate: 2-Fluorobiphenyl	*87.9*		ug/L	*100.0*		*88*	*30-130*			
Surrogate: 2-Fluorophenol	*98.8*		ug/L	*150.0*		*66*	*15-110*			
Surrogate: Nitrobenzene-d5	*85.3*		ug/L	*100.0*		*85*	*30-130*			
Surrogate: Phenol-d6	*121*		ug/L	*150.0*		*80*	*15-110*			
Surrogate: p-Terphenyl-d14	*95.9*		ug/L	*100.0*		*96*	*30-130*			
Classical Chemistry										
Batch CA30209 - General Preparation										
Blank										
Chloride	ND	0.5	mg/L							
LCS										
Chloride	2.3		mg/L	2.500		92	90-110			
Batch CA30314 - TCN Prep										
Blank										
Total Cyanide (LL)	ND	5.0	ug/L							
LCS										
Total Cyanide (LL)	20.5	5.0	ug/L	20.06		102	90-110			
LCS										
Total Cyanide (LL)	144	5.0	ug/L	150.4		95	90-110			

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Classical Chemistry										
Batch CA30314 - TCN Prep										
LCS Dup										
Total Cyanide (LL)	145	5.0	ug/L	150.4		96	90-110	0.8	20	
Batch CL22609 - General Preparation										
Blank										
Total Suspended Solids	ND	5	mg/L							
LCS										
Total Suspended Solids	58		mg/L	58.60		99	80-120			
Batch CL22738 - General Preparation										
Blank										
Total Residual Chlorine	ND	0.02	mg/L							
LCS										
Total Residual Chlorine	1.12		mg/L	1.140		98	85-115			
Batch CL22812 - General Preparation										
Blank										
Hexavalent Chromium	ND	10	ug/L							
LCS										
Hexavalent Chromium	0.5		mg/L	0.4998		100	90-110			
LCS Dup										
Hexavalent Chromium	0.5		mg/L	0.4998		100	90-110	0.4	20	

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization ESS Laboratory Work Order: 1212439

Notes and Definitions

Z16	Aqueous pH measured in water at 16.6 ºC.
U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
HT	The maximum holding time listed in 40 CFR Part 136 Table II for pH, Dissolved Oxygen, Sulfite and Residual Chlorine is fifteen minutes.
H	Estimated value. Sample hold times were exceeded (H).
D+	Relative percent difference for duplicate is outside of criteria (D+).
D	Diluted.
B+	Blank Spike recovery is above upper control limit (B+).
B-	Blank Spike recovery is below lower control limit (B-).
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1212439

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP)
A2LA Accredited: Testing Cert# 2864.01
http://www.a2la.org/scopepdf/2864-01.pdf

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/labs/waterlabs-instate.php

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water: RI0002
http://www.maine.gov/dep/blwq/topic/vessel/lab_list.pdf

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/labcert/labcert.aspx

New Hampshire (NELAP accredited) Potable and Non PotableWater, Solid and Hazardous Waste: 2424
http://www4.egov.nh.gov/des/nhelap/namesearch.asp

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

United States Department of Agriculture Soil Permit: S-54210

Maryland Potable Water: 301
http://www.mde.state.md.us/assets/document/WSP_labs-2009apr20.pdf

CHEMISTRY

A2LA Accredited: Testing Cert # 2864.01
Lead in Paint, Phthalates, Lead in Children's Metals Products (Including Jewelry)
http://www.A2LA.org/dirsearchnew/newsearch.cfm

CPSC ID# 1141
Lead Paint, Lead in Children's Metals Jewelry
http://www.cpsc.gov/cgi-bin/labapplist.aspx

Sample and Cooler Receipt Checklist

Client: GZA GeoEnvironmental, Inc.
Client Project ID: _____
Shipped/Delivered Via: ESS Courier

ESS Project ID: 12120439
Date Project Due: 1/3/13
Days For Project: 5 Day

Items to be checked upon receipt:

1. Air Bill Manifest Present?	* No	10. Are the samples properly preserved?	Yes
Air No.:		11. Proper sample containers used?	Yes
2. Were Custody Seals Present?	No	12. Any air bubbles in the VOA vials?	No
3. Were Custody Seals Intact?	N/A	13. Holding times exceeded?	No
4. Is Radiation count < 100 CPM?	Yes	14. Sufficient sample volumes?	Yes
5. Is a cooler present?	Yes	15. Any Subcontracting needed?	No
Cooler Temp: **4.6**		16. Are ESS labels on correct containers?	Yes No
Iced With: **Ice**		17. Were samples received intact?	Yes No
6. Was COC included with samples?	Yes	ESS Sample IDs: _____	
7. Was COC signed and dated by client?	Yes	Sub Lab: _____	
8. Does the COC match the sample	Yes	Analysis: _____	
9. Is COC complete and correct?	Yes	TAT: _____	

18. Was there need to call project manager to discuss status? If yes, please explain.

_____

_____

_____

Who was called?: _____ By whom? _____

Sample Number	Properly Preserved	Container Type	# of Containers	Preservative
1	Yes	1 L Glass	2	HCL
1	Yes	1 L Glass	4	NP
1	Yes	1 L Plastic	2	NP
1	Yes	250 ml Plastic	1	HNO3
1	Yes	250 ml Plastic	1	NaOH
1	Yes	250 ml Plastic	1	NP
1	Yes	40 ml - VOA	3	HCL
1	Yes	500 ml Plastic	1	HNO3
2	Yes	40 ml - VOA	1	HCL

Completed By: _____ Date/Time: 12/27/12

Reviewed By: _____ Date/Time: 12/27/12

1212439

W.O. # _____
(for lab use only)

CHAIN-OF-CUSTODY RECORD

Sample I.D.	Date/Time Sampled	Matrix (A=Air, S=Soil, GW=Ground W., SW=Surface W., WW=Waste W., DW=Drinking W., P=Product, Other (specify))	ANALYSIS REQUIRED: pH ☐ Cond.	GC Methane, Ethane, Ethene	EPA 8260	EPA 8260- 8010 List	EPA 8021- Full List	EPA 8021- 8010 List (Chlor.)	EPA 8021- 8020 List (BTEX)	EPA 524.2 DW VOCs	EPA 624 WW VOCs	☐ 601 ☐ 602 WW VOCs	EPA 8270 SVOCs	EPA 8270 ☐ PAH ☐ A ☐ BN	EPA 625 WW SVOCs	EPA 8082-PCBs	EPA 8081-Pest	TPH-GC (Mod. 8100)	TPH-GC w/FING.	EPH (MA DEP)	VPH (MA DEP)	Metals ☐ PPM-13 ☐ R-8	MCP 14 Metals (MA)	Metals (List Below) **	TCLP - Specify Below	SPLP - Specify Below	EPA 300 ☐ Cl ☐ NO3 ☐ SO4	TSS - EPA 160.2	Total Res. Chlorine - EPA 330.1	Cyanide - EPA 335.4			Total No. of Cont.	Note #
01 B2 S1	12/26/12 1500	GW	X		X								X			X		X						X			X	X	X	X			15	1
02 TB																																		
12/27/12																																		
PRESERVATIVE (Cl-HCl, M-Methanol, N-HNO3, S-H2SO4, Na-NaOH, O-Other) *					Cl													Cl						N						Na				
CONTAINER TYPE (P-Plastic, G-Glass, V-Vial, T-Teflon, O-Other)*			P		V								6			6		6						P			P	P	P	P				

RELINQUISHED BY: DATE/TIME RECEIVED BY:
(GZA) 12/26/12 1715 Bill Beacon
RELINQUISHED BY: DATE/TIME RECEIVED BY:
Bill Beacon 12/27/12 1500
RELINQUISHED BY: DATE/TIME RECEIVED BY:

[redacted]

1. Metals: Antimony, Arsenic, Cadmium, Chromium III, Chromium VI, Lead, Iron, Copper, Nickel, Selenium, Silver, Zinc, Mercury

12/27/12 1515

Project Manager: R. Meuse X3842/T. Kwiatkowski X3817

GZA GEOENVIRONMENTAL, INC.

One Edgewater Drive
Norwood, MA 02062
(781) 278-3700
FAX (781)278-5701

PRESUMPTIVE CERTAINTY REQUIRED

LAB USE: 4.6 ice

TURNAROUND TIME: (Standard) Rush ____ Days, Approved by: ____ TEMP. OF COOLER ____ °C Temp Blank ____ Cooler Air ____

GZA FILE NO 171419.1 TASK NO: ____ P.O. NO. ____

PROJECT TD Garden

LOCATION TD Garden - Boston, MA

COLLECTOR(S) R. House X5876 SHEET 1 OF 1

CERTIFICATE OF ANALYSIS

Randy Meuse
GZA GeoEnvironmental, Inc.
249 Vanderbilt Avenue
Norwood, MA 02062

RE: TD Garden Precharacterization (01.0171419.01)
ESS Laboratory Work Order Number: 1301205

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 1:00 pm, Jan 22, 2013

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibratins, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1301205

SAMPLE RECEIPT

The following samples were received on January 15, 2013 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

For EPH soil samples, the aromatic range results have been corrected for identified cartridge contaminant in accordance with the CAM protocol.

These samples were originally received on December 26, 2012 as ESS Laboratory Work Order Number 1212439.

Question I: All samples for VOA were analyzed for a subset of the required MCP list per the client's request.

Lab Number	SampleName	Matrix	Analysis
1301205-01	B2 S1	Ground Water	8260B
1301205-02	Trip Blank	Aqueous	8260B

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1301205

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1301205

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5035 - Solid Purge and Trap

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1301205

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1301205-01 through 1301205-02**

Matrices: (X) Ground Water/Surface Water ( ) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other:_____

CAM Protocol (check all that apply below):

(X) 8260 VOC CAM II A	( ) 7470/7471 Hg CAM III B	( ) MassDEP VPH CAM IV A	( ) 8081 Pesticides CAM V B	( ) 7196 Hex Cr CAM VI B	( ) MassDEP APH CAM IX A
( ) 8270 SVOC CAM II B	( ) 7010 Metals CAM III C	( ) MassDEP EPH CAM IV B	( ) 8151 Herbicides CAM V C	( ) 8330 Explosives CAM VIII A	( ) TO-15 VOC CAM IX B
( ) 6010 Metals CAM III A	( ) 6020 Metals CAM III D	( ) 8082 PCB CAM V A	( ) 6860 Perchlorate CAM VIII B	( ) 9014 Total Cyanide/PAC CAM VI A	

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes (X) No ( )
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes (X) No ( )
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	Yes (X) No ( )
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes (X) No ( )
E	a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	Yes ( ) No ( )
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ( ) No ( )
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	Yes (X) No ( )

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?	Yes (X) No ( )*
	***Data User Note:* Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.**	
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes (X) No ( )*
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes ( ) No (X)*

All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: _____ Date: January 22, 2013

Printed Name: Laurel Stoddard Position: Laboratory Director

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization
Client Sample ID: B2 S1
Date Sampled: 12/26/12 15:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1301205
ESS Laboratory Sample ID: 1301205-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	Method	Limit	DF	Analyzed	Sequence	Batch
Tertiary-butyl Alcohol	ND (25.0)	8260B		1	12/28/12 15:58	CVL0268	CL22826

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*90 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*95 %*		*70-130*
Surrogate: Dibromofluoromethane	*95 %*		*70-130*
Surrogate: Toluene-d8	*98 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization
Client Sample ID: Trip Blank
Date Sampled: 12/26/12 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1301205
ESS Laboratory Sample ID: 1301205-02
Sample Matrix: Aqueous
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	Method	Limit	DF	Analyzed	Sequence	Batch
Tertiary-butyl Alcohol	ND (25.0)	8260B		1	12/28/12 15:25	CVL0268	CL22826

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*91 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*91 %*		*70-130*
Surrogate: Dibromofluoromethane	*96 %*		*70-130*
Surrogate: Toluene-d8	*98 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1301205

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8260B Volatile Organic Compounds										
Batch CL22826 - 5030B										
Blank										
Tertiary-butyl Alcohol	ND	25.0	ug/L							
Surrogate: 1,2-Dichloroethane-d4	*23.2*		ug/L	*25.00*		*93*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*23.2*		ug/L	*25.00*		*93*	*70-130*			
Surrogate: Dibromofluoromethane	*25.3*		ug/L	*25.00*		*101*	*70-130*			
Surrogate: Toluene-d8	*25.7*		ug/L	*25.00*		*103*	*70-130*			
LCS										
Tertiary-butyl Alcohol	57.4		ug/L	50.00		115	70-130			
Surrogate: 1,2-Dichloroethane-d4	*22.2*		ug/L	*25.00*		*89*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*24.6*		ug/L	*25.00*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*24.1*		ug/L	*25.00*		*96*	*70-130*			
Surrogate: Toluene-d8	*24.4*		ug/L	*25.00*		*98*	*70-130*			
LCS Dup										
Tertiary-butyl Alcohol	55.5		ug/L	50.00		111	70-130	3	25	
Surrogate: 1,2-Dichloroethane-d4	*23.1*		ug/L	*25.00*		*92*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*24.3*		ug/L	*25.00*		*97*	*70-130*			
Surrogate: Dibromofluoromethane	*24.4*		ug/L	*25.00*		*98*	*70-130*			
Surrogate: Toluene-d8	*24.0*		ug/L	*25.00*		*96*	*70-130*			

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization ESS Laboratory Work Order: 1301205

Notes and Definitions

U	Analyte included in the analysis, but not detected
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: TD Garden Precharacterization

ESS Laboratory Work Order: 1301205

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP)
A2LA Accredited: Testing Cert# 2864.01
http://www.a2la.org/scopepdf/2864-01.pdf

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/labs/waterlabs-instate.php

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI0002
http://www.maine.gov/dep/blwq/topic/vessel/lab_list.pdf

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/labcert/labcert.aspx

New Hampshire (NELAP accredited) Potable and Non PotableWater, Solid and Hazardous Waste: 2424
http://www4.egov.nh.gov/des/nhelap/namesearch.asp

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

United States Department of Agriculture Soil Permit: S-54210

Maryland Potable Water: 301
http://www.mde.state.md.us/assets/document/WSP_labs-2009apr20.pdf

CHEMISTRY

A2LA Accredited: Testing Cert # 2864.01
Lead in Paint, Phthalates, Lead in Children's Metals Products (Including Jewelry)
http://www.A2LA.org/dirsearchnew/newsearch.cfm

CPSC ID# 1141
Lead Paint, Lead in Children's Metals Jewelry
http://www.cpsc.gov/cgi-bin/labapplist.aspx

Sample and Cooler Receipt Checklist

Client: GZA GeoEnvironmental, Inc.
Client Project ID: _____
Shipped/Delivered Via: ESS Courier

ESS Project ID: 13010205
Date Project Due: 1/22/13
Days For Project: 5 Day

Items to be checked upon receipt:

1. Air Bill Manifest Present?	* No	10. Are the samples properly preserved?	Yes
Air No.:		11. Proper sample containers used?	Yes
2. Were Custody Seals Present?	No	12. Any air bubbles in the VOA vials?	N/A
3. Were Custody Seals Intact?	N/A	13. Holding times exceeded?	No
4. Is Radiation count < 100 CPM?	Yes	14. Sufficient sample volumes?	Yes
5. Is a cooler present?	Yes	15. Any Subcontracting needed?	No
Cooler Temp: **4.6**		16. Are ESS labels on correct containers?	Yes | No
Iced With: **Ice**		17. Were samples received intact?	Yes | No
6. Was COC included with samples?	Yes	ESS Sample IDs:	
7. Was COC signed and dated by client?	Yes	Sub Lab:	
8. Does the COC match the sample	Yes	Analysis:	
9. Is COC complete and correct?	Yes	TAT:	

18. Was there need to call project manager to discuss status? If yes, please explain.

Relog of 1212439 1/15/13 (2d) Reporting purposes.

Who was called?:_____ By whom? _____

Sample Number	Properly Preserved	Container Type	# of Containers	Preservative
1	Yes	40 ml - VOA	3	HCL
2	Yes	40 ml - VOA	3	HCL

Completed By: JOG Date/Time: 1/15/13
Reviewed By:_____ Date/Time:_____

Relay 1/15/13 (W)
Reporting Purposes

~~1212439~~

W.O. # 1301205 (for lab use only)

CHAIN-OF-CUSTODY RECORD

Sample I.D.	Date/Time Sampled	Matrix (A=Air, S=Soil, GW=Ground W., SW=Surface W., WW=Waste W., DW=Drinking W., P=Product, Other (specify))	ANALYSIS REQUIRED: pH ☐ Cond.	GC Methane, Ethane, Ethene	EPA 8260	EPA 8260- 8010 List	EPA 8021- Full List	EPA 8021- 8010 List (Chlor.)	EPA 8021- 8020 List (BTEX)	EPA 524.2 DW VOCs	EPA 624 WW VOCs	☐ 601 ☐ 602 WW VOCs	EPA 8270 SVOCs	EPA 8270 ☐ PAH ☐ A ☐ BN	EPA 625 WW SVOCs	EPA 8082-PCBs	EPA 8081-Pest	TPH-GC (Mod. 8100)	TPH-GC w/FING.	EPH (MA DEP)	VPH (MA DEP)	Metals ☐ PPM-13 ☐ R-8	MCP 14 Metals (MA)	Metals (List Below) **	TCLP - Specify Below	SPLP - Specify Below	EPA 300 ☐ Cl ☐ NO3 ☐ SO4	TSS - EPA 160.2	Total Res. Chlorine - EPA 330.1	Cyanide - EPA 335.4			Total No. of Cont.	Note #
01 B2 S1	12/26/12 1500	GW	X		X								X			X		X						X			X	X	X	X			15	1
02 TB																																		
12/27/12																																		
PRESERVATIVE (Cl-HCl, M-Methanol, N-HNO3, S-H2SO4, Na-NaOH, O-Other) *					Cl													Cl						N						Na				
CONTAINER TYPE (P-Plastic, G-Glass, V-Vial, T-Teflon, O-Other)*			P		V								6			6		6						P			P	P	P	P				

RELINQUISHED BY: DATE/TIME RECEIVED BY:
~~12/27/12 1130~~
(GZA) 12/26/12 1715 Brian Bocam

RELINQUISHED BY: DATE/TIME RECEIVED BY:
Brian Bocam 12/27/12 1500 JKurwin

RELINQUISHED BY: DATE/TIME RECEIVED BY:

[redacted]. Metals: Antimony, Arsenic, Cadmium, Chromium III, Chromium VI, Lead, Iron, Copper, Nickel, Selenium, Silver, Zinc, Mercury

12/27/12 1515

Project Manager: R. Mense X3842/T. Kwiatkowski X3817

GZA GEOENVIRONMENTAL, INC.

One Edgewater Drive
Norwood, MA 02062
(781) 278-3700
FAX (781)278-5701

PRESUMPTIVE CERTAINTY REQUIRED

LAB USE: 4° C ice

TURNAROUND TIME: (Standard) Rush ____ Days, Approved by: ____ TEMP. OF COOLER ____ °C Temp Blank ____ Cooler Air ____

GZA FILE NO 171419.1 TASK NO: ____ P.O. NO. ____

PROJECT TD Garden

LOCATION TD Garden - Boston, MA

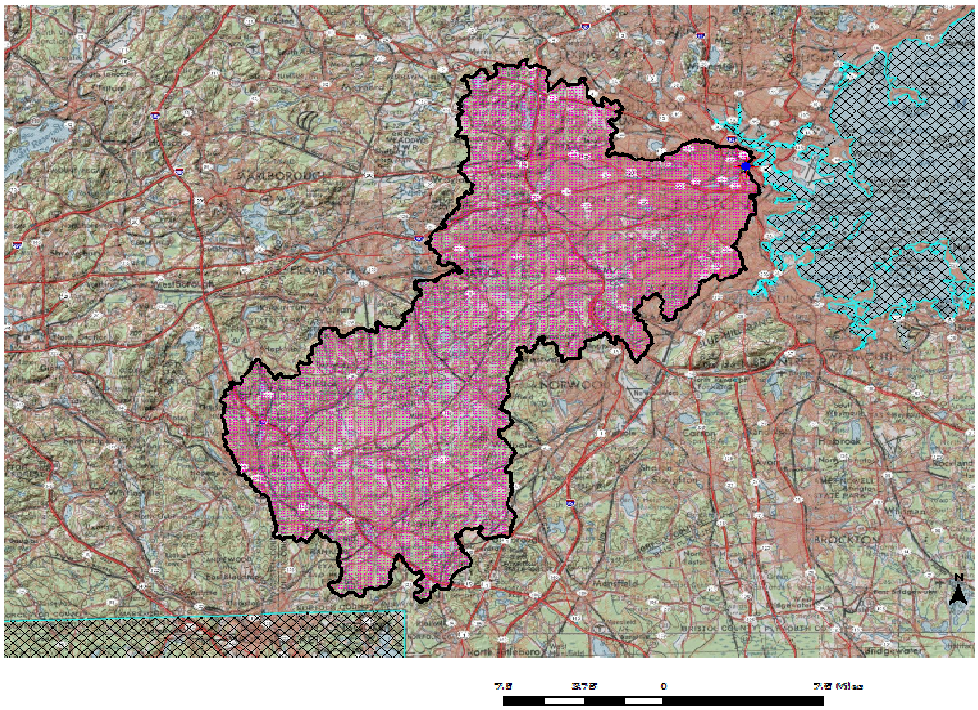
COLLECTOR(S) R. House X5876 SHEET 1 OF 1

ATTACHMENT 8

SUPPLEMENTAL INFORMATION – 7Q10 DATA FOR WATERSHED

USGS Massachusetts StreamStats

StreamStats Print Page



1/14/2013 9:52:11 AM

Streamstats Ungaged Site Report

Date: Mon Jan 14 2013 09:53:40 Mountain Standard Time
Site Location: Massachusetts
NAD27 Latitude: 42.3679 (42 22 04)
NAD27 Longitude: -71.0686 (-71 04 07)
NAD83 Latitude: 42.3680 (42 22 05)
NAD83 Longitude: -71.0681 (-71 04 05)
ReachCode: 01090001000111
Measure: 3.58
Drainage Area: 313 mi2

Low Flows Basin Characteristics

100% Statewide Low Flow (313 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	313 (above max value 149)	1.61	149
Mean Basin Slope from 250K DEM (percent)	2.31	0.32	24.6
Stratified Drift per Stream Length (square mile per mile)	0.25	0	1.29
Massachusetts Region (dimensionless)	0	0	1

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Probability of Perennial Flow Basin Characteristics

100% Perennial Flow Probability (313 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	313 (above max value 1.99)	0.01	1.99
Percent Underlain By Sand And Gravel (percent)	47.18	0	100
Percent Forest (percent)	38.76	0	100
Massachusetts Region (dimensionless)	0	0	1

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Low Flows Streamflow Statistics

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
D50	335				
D60	280				
D70	195				
D75	160				
D80	127				
D85	102				
D90	80.8				
D95	54.8				
D98	36.7				
D99	30.6				
M7D2Y	58.3				
AUGD50	110				
M7D10Y	29.6				

The equation for estimating the probability of perennial flow is applicable for most areas of Massachusetts except eastern Buzzards Bay, Cape Cod, and the Island regions. The estimate obtained from the equation assumes natural flow conditions at the site. The equation also is best used for sites with drainage areas between 0.01 to 1.99 mi2, as errors beyond for basins beyond these bounds are unknown.

Probability of Perennial Flow Statistics

Statistic	Value	Standard Error (percent)
PROBPEREN	1	

File No. 171419.0
January 22, 2013

DILUTION FACTOR CALCULATIONS
NOTICE OF INTENT FOR THE REMEDIATION GENERAL PERMIT
Accolon Way, Boston, Massachusetts

$$DF = \frac{Q_d + Q_s}{Q_d}$$

Where,

DF = Dilution Factor

Q_d = Maximum Flow Rate of the Discharge in cubic feet per second (cfs) (1.0 gpm = 0.00223 cfs)

Q_s = Receiving Water 7Q10 Flow (cfs) where,

7Q10 = Minimum Flow (cfs) for 7 Consecutive Days with a Recurrence Interval of 10 Years.

Q_d = 50 gpm = 0.11 cfs

Q_s = 29.6 cfs (M7D10Y on attached USGS Streamstats Site Report)

$$\therefore DF = \frac{Q_d + Q_s}{Q_d} = \frac{0.11 + 29.6}{0.11} = 270$$

USE DF=100 (Max value per RGP Appendix IV)

J:\170,000-179,999\171419\171419-00.TMK\RGP\171419 DF Calculations.docx