



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 1

**5 Post Office Square, Suite 100
BOSTON, MA 02109-3912**

CERTIFIED MAIL RETURN RECEIPT REQUESTED

JUN 26 2015

Michael Rygiel
Project Manager
The Dow Company
112 Broadway Road
Dracut, MA 01826

Re: Authorization to discharge under the Remediation General Permit (RGP) –
MAG910000. BWSC Storm Drain Replacement Project site located at Rena Park/140-
156 Western Avenue, Allston, MA 02134, Suffolk County; Authorization #
MAG910686

Dear Mr. Rygiel:

Based on the review of a Notice of Intent (NOI) submitted by Dana B. Himmel from CDM Smith Inc., on behalf of the President and Fellows of Harvard College, for the site referenced above, the U.S. Environmental Protection Agency (EPA) hereby authorizes you, as the named 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 which your consultant marked "Believed Present",

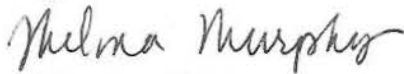
Also, please note that the metals included on the checklist are dilution dependent pollutants and subject to limitations based on selected dilution ranges and technology-based ceiling limitations. For each parameter the dilution factor 41.08 for the Charles River for this site is within a dilution range greater than ten to fifty (>10 to 50), established in the RGP. (See the RGP Appendix IV for Massachusetts facilities). Therefore, the limits for antimony of 60 ug/L, arsenic of 100 ug/L, trivalent chromium of

489 ug/L, hexavalent chromium of 114 ug/L, copper of 52 ug/L, lead of 13 ug/L, nickel of 290 ug/L, zinc of 666 ug/L and iron of 5,000 ug/L, are required to achieve permit compliance at your site.

This general permit and authorization to discharge will expire on September 9, 2015. You have reported that this project will terminate on October 7, 2015. 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, Chief
Storm Water and Construction
Permits Section

Enclosure

cc: Robert Kubit, MassDEP
Stephen Shea, Boston W&SC
Danna B. Himmel, CDM Smith Inc.

**2010 Remediation General Permit
Summary of Monitoring Parameters^[1]**

NPDES Authorization Number:	MAG910686
Authorization Issued:	June, 2015
Facility/Site Name:	BWSC Storm Drain Replacement Project
Facility/Site Address:	Rena Park /140-156 Western Avenue, Allston, MA 02134, Suffolk County.
	Email address of owner: Kelly_mcqueeney@harvard.edu
Legal Name of Operator:	The Dow Company
Operator contact name, title, and Address:	Michael Rygiel, Project Manager ;Ph: 978 682-1414 Email: mrygiel@thedowcompany.com
Estimated date of The Project Completion:	October 7, 2017
Category and Sub-Category:	Category III- Contaminated Construction Dewatering. Subcategory A. General Urban Fill Sites
RGP Termination Date:	September 2015
Receiving Water:	Charles River

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

	<u>Parameter</u>	<u>Effluent Limit/Method#/ML</u> (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
	9. Total Benzene, Toluene, Ethyl Benzene, and Xylenes (BTEX) ⁴	100 ug/L/ Me#8260C/ ML 2ug/L

	<u>Parameter</u>	<u>Effluent Limit/Method#/ML</u> (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
	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
	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

	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)
	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/ML 5ug/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/ML 5ug/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	
✓	39. Antimony	60	ML 10
✓	40. Arsenic **	100	ML 20

	<u>Metal parameter</u>	<u>Total Recoverable Metal Limit @ H¹⁰ = 50 mg/l CaCO₃ for discharges in Massachusetts (ug/l)^{11/12}</u>		<u>Minimum level=ML</u>	
		<u>Freshwater</u>			
	41. Cadmium **	0.2			10
✓	42. Chromium III (trivalent) **	489			15
✓	43. Chromium VI (hexavalent) **	114		ML	10
✓	44. Copper **	52		ML	15
✓	45. Lead **	13		ML	20
	46. Mercury **	0.9		ML	0.2
✓	47. Nickel **	290		ML	20
	48. Selenium **	5		ML	20
	49. Silver	1.2		ML	10
✓	50. Zinc **	666		ML	15
✓	51. Iron	5,000		ML	20

	<u>Other Parameters</u>	<u>Limit</u>
✓	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 "Aroclor 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 $DF \times 1,000 \text{ ug/L}$ (the iron base limit). Therefore DF is 1.5, the iron limit will be 1,500 ug/L; DF 2, then iron limit = $1,000 \times 2 = 2,000 \text{ ug/L}$, 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.



6800 Old Collamer Road, Suite 3
East Syracuse, New York 13057
tel: 315 434-3200
fax: 315 463-0508

June 16, 2015

U.S. Environmental Protection Agency
5 Post Office Square, Suite 100
Mail Code OEP06-4
Boston, MA 02109-3912
ATTN: Remediation General Permit NOI Processing

Subject: Notice of Intent for Remediation General Permit
Temporary Dewatering for Replacement Drain Project
Rena Park/140-156 Western Avenue
Allston, Massachusetts

To Whom It May Concern:

On behalf of the President and Fellows of Harvard College, CDM Smith Inc. (CDM Smith) is providing this Notice of Intent (NOI) for the Remediation General Permit (RGP) for the Replacement Drain Project in Allston, Massachusetts (Figure 1). An RGP is required to allow for temporary dewatering activities associated with the replacement of a Boston Water and Sewer Commission (BWSC) storm water drain.

The work to be conducted in conjunction with the RGP consists of the installation of a replacement drain pipe through Rena Park from Oxford Street to the Harvard Allston Science Complex (HASC) foundation (Figure 2). The replacement drain will connect to an existing 72-inch reinforced concrete pipe (RCP) stub in Oxford Street. From Oxford Street to the Charles River Valley Sewer in Seattle Street, the replacement drain is a 58-inch high by 91-inch wide elliptical pipe. Crossing the Charles River Valley Sewer, the drain pipe becomes a 7-foot wide by 4-foot high box culvert. After crossing the sewer, the drain pipe becomes a 72-inch diameter RCP and ties into an existing 72-inch diameter pipe at the HASC foundation. A new 24-inch drain through Rena Park will tie into the elliptical pipe. Onsite catch basins at Rena Park will also tie into the elliptical pipe. Tee manholes will be located along the alignment of the pipe.

A portion of the drain pipe being installed is within a disposal site regulated under the Massachusetts Contingency Plan and assigned Release Tracking Number (RTN) 3-26932. This disposal site is related to contaminated soil associated with historic urban fill. A portion of the project is outside of RTN 3-26932 and located within the newly developed Rena Park. The discharge for this project is not covered under the MCP, thus a State Application Form BRPWM 12



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for permit application and a payment of \$950 is being submitted to the Massachusetts Department of Environmental Protection (MassDEP) concurrently with this NOI. A copy of the submittal to MassDEP is included as Attachment A.

On March 19, 2015, CDM Smith personnel visited the site in order to collect a groundwater sample from an existing groundwater monitoring well located within the proposed trench area that is representative of the expected influent to the treatment system (Figure 2). Per the RGP Appendix III, the groundwater samples were analyzed for parameters applicable to Category III – Contaminated Construction Dewatering, Sub-category A – General Urban Fill Sites. Contaminants believed present in the dewatered groundwater from the site include total suspended solids, 1,2-dichlorobenzene, chloride, antimony, arsenic, trivalent chromium, hexavalent chromium, copper, lead, nickel, zinc, iron, and chlorobenzene. The laboratory analytical report for the groundwater sample collected is included in Attachment B.

There are no surface water bodies on or immediately adjacent to the site. The storm drain being replaced for this project is part of a network of BWSC storm drains. The existing 36-inch storm drain will be cut and capped at the end where it currently connects to the 72-inch drain line adjacent to the HASC foundation. Water removed from the trench excavated for this project will be discharged to a sump, pumped to a treatment system consisting of a settling basin and a bag filter, and subsequently discharged to a manhole located at the connection point between the replacement drain line and the existing 72-inch diameter pipe adjacent to the HASC foundation (Figures 2, 3, and 4). Water discharged at this manhole subsequently flows through the storm drain pipe and ultimately discharges to the Charles River, approximately 0.5 miles northeast of the site (Figure 5).

This section of the Charles River at the outfall is a Class B water body and is listed as a 303(d) impaired waterbody. Final Total Maximum Daily Loads for pathogens and nutrients (phosphorus) have been established for this section of the Charles River. The nearest United States Geological Survey (USGS) river gauging station, located approximately 7.5 miles upstream of the discharge location on the Charles River, indicates that the 7Q10 flow of the Charles River at that location is 14.3 cubic feet per second. Using this information and the estimated maximum flow rate from the treatment system of 160 gallons per minute yields a dilution factor of approximately 41 for the site. The StreamStats information from the USGS gauging station and the dilution factor calculation are included in Attachment C.

According to Massachusetts Geographical Information Systems and the tables and maps shown in Appendix I of the RGP, the site and the discharge area are not located within any Massachusetts Department of Environmental Protection Jurisdictional Wetlands, Areas of Critical Environmental Concern, or Natural Heritage and Endangered Species Program (NHESP) Estimated Habitats of Rare Wildlife. The Massachusetts NHESP coordinates endangered species reviews and inventories in the



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state of Massachusetts. This program is inclusive of all federally listed species within Massachusetts. Therefore, the endangered species review is considered complete after consultation of available NHESP mapping. A copy of the letter from U.S. FWS indicating that there are no species or habitats of concern is included in Attachment D.

The National Register of Historic Places and the Massachusetts Cultural Resource Information System (MACRIS) systems were researched in reference to the project area. According to these databases, there are no designated historic sites within or adjacent the project area (See Figure 5). The project is replacing an existing drain pipe and no impacts to historical or cultural resources are anticipated as a result of this project.

If you have any questions on this NOI or require any additional information, please contact me at himmeldb@cdmsmith.com or (315) 434-3224.

Sincerely,

A handwritten signature in blue ink that reads "Dana B. Himmel". The signature is fluid and cursive, with the first name "Dana" being more prominent.

Dana B. Himmel, P.G.
Project Manager
CDM Smith Inc.

cc: MassDEP Division of Watershed Management
Mayor Martin Walsh, City of Boston
Bree Carlson, Harvard Health and Safety
Kathleen Murphy, CDM Smith



Notice of Intent for the - Remediation General Permit -

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: BWSC Storm Drain Replacement Project		Facility/site mailing address:	
Location of facility/site:	Facility SIC code(s):	Street: Rena Park/140-156 Western Ave	
longitude: 71.125152	1629		
latitude: 42.363375			
b) Name of facility/site owner:		Town: Allston	
Email address of facility/site owner:		State:	Zip:
kelly_mcqueeney@harvard.edu		MA	02134
Telephone no. of facility/site owner: (617) 495-9391		County: Suffolk	
Fax no. of facility/site owner:		Owner is (check one): 1. Federal <input type="radio"/> 2. State/Tribal <input type="radio"/>	
Address of owner (if different from site):		3. Private <input checked="" type="radio"/> 4. Other <input type="radio"/> if so, describe:	
Street: 46 Blackstone Street			
Town: Cambridge	State: MA	Zip: 02139	County: Middlesex
c) Legal name of operator:		Operator telephone no: (978) 682-1414	
The Dow Company		Operator fax no.: (978) 654-5191	Operator email: mrygiel@thedowcompany.co
Operator contact name and title: Michael Rygiel, Project Manager			
Address of operator (if different from owner):		Street: 1112 Broadway Road	
Town: Dracut	State: MA	Zip: 01826	County: Middlesex

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.

<u>Activity Category</u>	<u>Activity Sub-Category</u>
I - Petroleum Related Site Remediation	A. Gasoline Only Sites <input type="checkbox"/> B. Fuel Oils and Other Oil Sites (including Residential Non-Business Remediation Discharges) <input type="checkbox"/> C. Petroleum Sites with Additional Contamination <input type="checkbox"/>
II - Non Petroleum Site Remediation	A. Volatile Organic Compound (VOC) Only Sites <input type="checkbox"/> B. VOC Sites with Additional Contamination <input type="checkbox"/> C. Primarily Heavy Metal Sites <input type="checkbox"/>
III - Contaminated Construction Dewatering	A. General Urban Fill Sites <input checked="" type="checkbox"/> B. Known Contaminated Sites <input type="checkbox"/>

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

Dewatering trenches excavated to support 72-inch storm water drain installation.

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	0.3568
		Is maximum flow a design value ?	Y <input type="radio"/> N <input checked="" type="radio"/>
		Average flow (include units)	50 gpm
		Is average flow a design value or estimate?	estimate

3) Latitude and longitude of each discharge within 100 feet:

pt.1: lat.	42.361904	long.	-71.125893	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 Jul 14, 2015 end Oct 7, 2015

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). See Figure 2.

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.

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
1. Total Suspended Solids (TSS)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	2450D	5 mg/L	18,000	15.72	18,000	4.91
2. Total Residual Chlorine (TRC)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	4500CL-D	200 ug/L	ND		ND	
3. Total Petroleum Hydrocarbons (TPH)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	1664A	5 mg/L	ND		ND	
4. Cyanide (CN)	57125	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	4500CN-CE	NA	ND		ND	
5. Benzene (B)	71432	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	2 ug/L	ND		ND	
6. Toluene (T)	108883	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	2 ug/L	ND		ND	
7. Ethylbenzene (E)	100414	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	2 ug/L	ND		ND	
8. (m,p,o) Xylenes (X)	108883; 106423; 95476; 1330207	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	4 ug/L	ND		ND	
9. Total BTEX ²	n/a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	2 ug/L	ND		ND	
10. Ethylene Dibromide (EDB) (1,2-Dibromoethane) ³	106934	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	504.1	0.01 ug/L	ND		ND	
11. Methyl-tert-Butyl Ether (MtBE)	1634044	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	10 ug/L	ND		ND	
12. tert-Butyl Alcohol (TBA) (Tertiary-Butanol)	75650	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	10 ug/L	ND		ND	

* 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.

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
13. tert-Amyl Methyl Ether (TAME)	9940508	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	10 ug/L	ND		ND	
14. Naphthalene	91203	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	2 ug/L	ND		ND	
15. Carbon Tetrachloride	56235	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	5 ug/L	ND		ND	
16. 1,2 Dichlorobenzene (o-DCB)	95501	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	8260C	5 ug/L	2.7	2.36E-03	2.7	7.37E-04
17. 1,3 Dichlorobenzene (m-DCB)	541731	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	5 ug/L	ND		ND	
18. 1,4 Dichlorobenzene (p-DCB)	106467	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	5 ug/L	ND		ND	
18a. Total dichlorobenzene		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	NA	ND		ND	
19. 1,1 Dichloroethane (DCA)	75343	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	5 ug/L	ND		ND	
20. 1,2 Dichloroethane (DCA)	107062	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	5 ug/L	ND		ND	
21. 1,1 Dichloroethene (DCE)	75354	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	5 ug/L	ND		ND	
22. cis-1,2 Dichloroethene (DCE)	156592	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	5 ug/L	ND		ND	
23. Methylene Chloride	75092	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	5 ug/L	ND		ND	
24. Tetrachloroethene (PCE)	127184	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	5 ug/L	ND		ND	
25. 1,1,1 Trichloro-ethane (TCA)	71556	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	5 ug/L	ND		ND	
26. 1,1,2 Trichloro-ethane (TCA)	79005	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	5 ug/L	ND		ND	
27. Trichloroethene (TCE)	79016	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	5 ug/L	ND		ND	

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
28. Vinyl Chloride (Chloroethene)	75014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	5 ug/L	ND		ND	
29. Acetone	67641	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C	50 ug/L	ND		ND	
30. 1,4 Dioxane	123911	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260C SIM	NA	ND		ND	
31. Total Phenols	108952	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	420.1	2 ug/L	ND		ND	
32. Pentachlorophenol (PCP)	87865	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	NA	ND		ND	
33. Total Phthalates (Phthalate esters) ⁴		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D	NA	ND		ND	
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	117817	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D	5 ug/L	ND		ND	
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	NA	ND		ND	
a. Benzo(a) Anthracene	56553	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	0.1 ug/L	ND		ND	
b. Benzo(a) Pyrene	50328	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	0.1 ug/L	ND		ND	
c. Benzo(b)Fluoranthene	205992	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	0.1 ug/L	ND		ND	
d. Benzo(k)Fluoranthene	207089	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	0.1 ug/L	ND		ND	
e. Chrysene	21801	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	0.1 ug/L	ND		ND	
f. Dibenzo(a,h)anthracene	53703	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	0.1 ug/L	ND		ND	
g. Indeno(1,2,3-cd) Pyrene	193395	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	0.1 ug/L	ND		ND	
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	NA	ND		ND	

⁴ The sum of individual phthalate compounds.

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
h. Acenaphthene	83329	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	0.1 ug/L	ND		ND	
i. Acenaphthylene	208968	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	0.1 ug/L	ND		ND	
j. Anthracene	120127	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	0.1 ug/L	ND		ND	
k. Benzo(ghi) Perylene	191242	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	0.1 ug/L	ND		ND	
l. Fluoranthene	206440	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	0.1 ug/L	ND		ND	
m. Fluorene	86737	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	0.1 ug/L	ND		ND	
n. Naphthalene	91203	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	0.1 ug/L	ND		ND	
o. Phenanthrene	85018	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	0.1 ug/L	ND		ND	
p. Pyrene	129000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270D SIM	0.1 ug/L	ND		ND	
37. Total Polychlorinated Biphenyls (PCBs)	85687; 84742; 117840; 84662; 131113; 117817.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	608	0.5 ug/L	ND		ND	
38. Chloride	16887006	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	300.0	0.1 mg/L	194,000	169.44	194,000	52.95
39. Antimony	7440360	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	6020A	0.5 ug/L	5.11	4.46E-03	5.11	1.39E-03
40. Arsenic	7440382	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	6020A	1.0 ug/L	4.12	3.60E-03	4.12	1.12E-03
41. Cadmium	7440439	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	6020A	0.2 ug/L	ND		ND	
42. Chromium III (trivalent)	16065831	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	Calculation	NA	4.55	3.97E-03	4.55	1.24E-03 ⁺
43. Chromium VI (hexavalent)	18540299	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	3500CR-B	NA	4.55	3.97E-03	4.55	1.24E-03 ⁺
44. Copper	7440508	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	6020A	0.5 ug/L	8.55	7.47E-03	8.55	2.33E-03
45. Lead	7439921	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	6020A	0.2 ug/L	2.11	1.84E-03	2.11	5.76E-04
46. Mercury	7439976	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	245.1	0.2 ug/L	ND		ND	
47. Nickel	7440020	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	6020A	0.2 ug/L	2.99	2.61E-03	2.99	8.16E-04
48. Selenium	7782492	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	6020A	2 ug/L	ND		ND	
49. Silver	7440224	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	6020A	0.2 ug/L	ND		ND	
50. Zinc	7440666	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	6020A	5 ug/L	12.8	1.12E-02	12.8	3.49E-03
51. Iron	7439896	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	200.7	50 ug/L	2,800	2.27	2,800	0.71
Other (describe):		<input type="checkbox"/>	<input type="checkbox"/>								

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
Chlorobenzene	108-90-7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	8260C	NA	22	1.92E-02	22	6.00E-03
		<input type="checkbox"/>	<input type="checkbox"/>								

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 <input checked="" type="radio"/> N <input type="radio"/>	If yes, which metals? copper, lead, 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: copper DF: 41.078 Metal: lead DF: 41.078 Metal: iron DF: 41.078 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 <input type="radio"/> N <input checked="" type="radio"/> 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: Treatment system to consist of a settling basin discharging to a bag filter and subsequently discharging to a manhole for a storm water drain line. See attached Figure 3 for a proposed schematic.						
b) Identify each applicable treatment unit (check all that apply):	Frac. tank <input type="checkbox"/>	Air stripper <input type="checkbox"/>	Oil/water separator <input type="checkbox"/>	Equalization tanks <input type="checkbox"/>	Bag filter <input checked="" type="checkbox"/>	GAC filter <input type="checkbox"/>
	Chlorination <input type="checkbox"/>	De-chlorination <input type="checkbox"/>	Other (please describe):	settling basin		

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 gpm Maximum flow rate of treatment system gpm

Design flow rate of treatment system 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 <input type="checkbox"/>	Within facility (sewer) <input type="checkbox"/>	Storm drain <input type="checkbox"/>	Wetlands <input type="checkbox"/>	Other (describe): <input type="text" value="manhole in storm water drain line"/>
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b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters:

Discharge by pipe to manhole in storm water drain line, travel along storm drain network (Figure 4), with outfall to the Charles River.

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

e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water 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)?

Chlorophyll-a, DDT, Escherichia coli, fishes bioassessments, nutrient/eutrophication biological indicators, oil and grease, other, dissolved oxygen, PCB in fish tissue, high pH, total phosphorus, secchi disk transparency, sediment bioassays - acute toxicity freshwater

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.

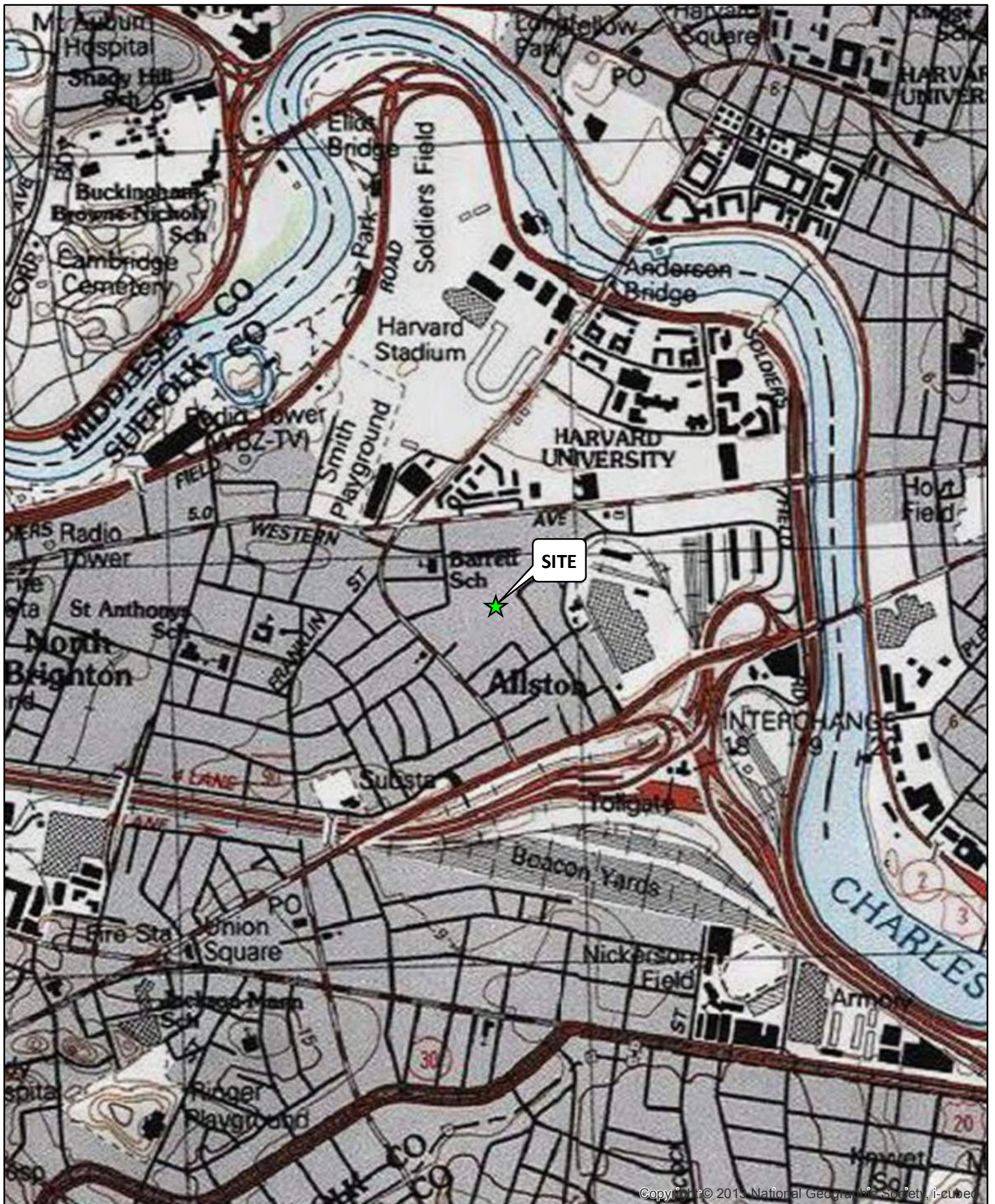
Copies of the State Application Form BRPWM 12 and the check are provided in Attachment A. Analytical data attached in Attachment B. StreamStats report used for 7Q10 flow and dilution factor calculation provided in Attachment C. A letter from the U.S. Fish and Wildlife indicating there are no species or habitats of concern present is included in Attachment D.

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:	BWSC Storm Drain Replacement Project
Operator signature:	
Printed Name & Title:	Michael Ryglie, Project Manager
Date:	6/10/2015

Figures -



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Harvard University
Allston Campus
Science Complex

Figure 1
Site Locus Map

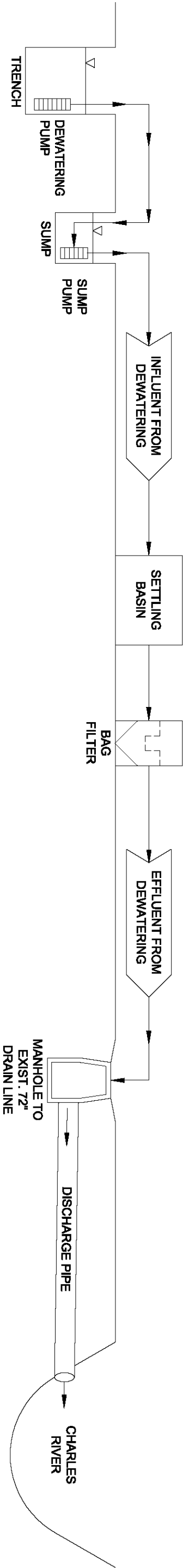
CDM
Smith



0 500 1,000
Feet

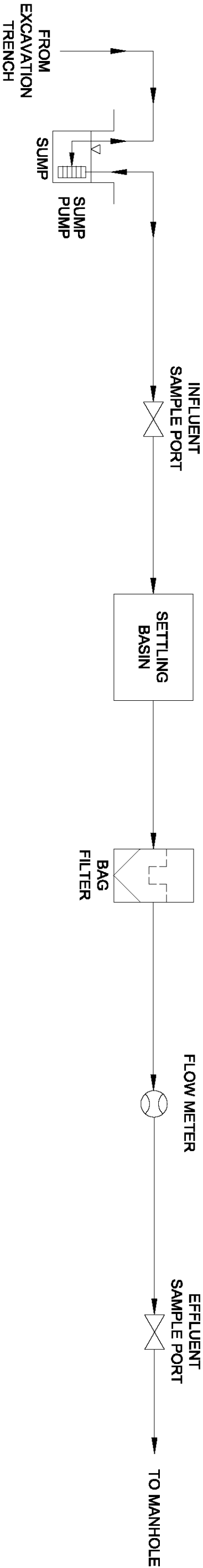
1 inch = 1,000 feet

\\img002\2\planand_allston\DATA\MXD\SiteLocus.mxd 6/2/2013



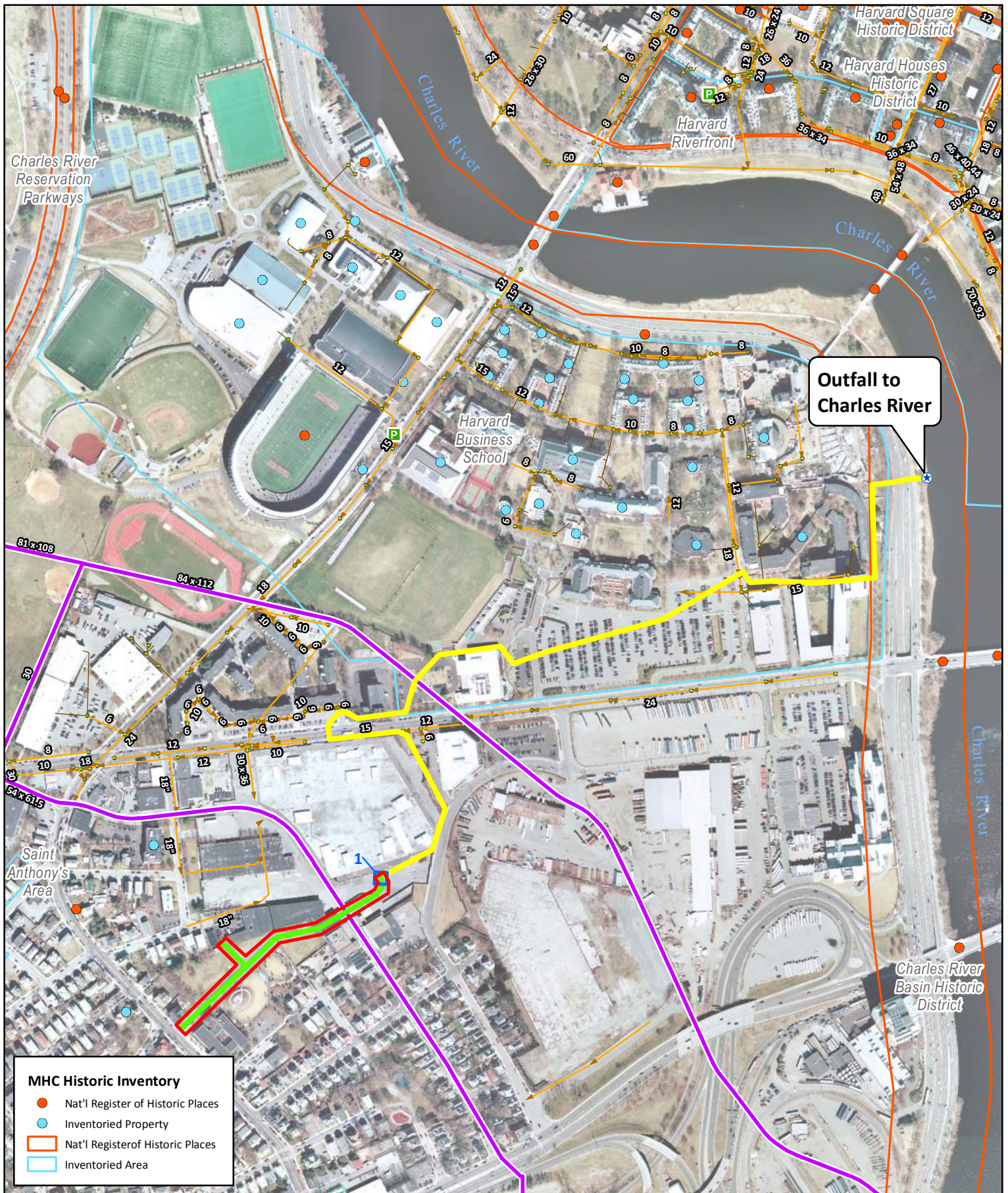
NOTE: NOT TO SCALE

CDM Smith		HARVARD UNIVERSITY ALLSTON CAMPUS SCIENCE COMPLEX		NOTICE OF INTENT FOR REMEDIATION GENERAL PERMIT FLOW SCHEMATIC		DATE	FIGURE NO.
						JUNE 2015	3



NOTE: NOT TO SCALE

<div>CDM Smith</div>	HARVARD UNIVERSITY ALLSTON CAMPUS SCIENCE COMPLEX		NOTICE OF INTENT FOR REMEDIATION GENERAL PERMIT PROPOSED TREATMENT SYSTEM SCHEMATIC	
	DATE	JUNE 2015	FIGURE NO.	4



Attachment A -

State Application Form BRPWM 12 and Copy of
Check



Enter your transmittal number

X266296

Transmittal Number

Your unique Transmittal Number can be accessed online: <http://mass.gov/dep/service/online/trasmfrm.shtml>

Massachusetts Department of Environmental Protection

Transmittal Form for Permit Application and Payment

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: DEP, P.O. Box 4062, Boston, MA 02211.

3. Three copies of this form will be needed.

Copy 1 - the original must accompany your permit application. **Copy 2** must accompany your fee payment. **Copy 3** should be retained for your records

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

MassDEP
P.O. Box 4062
Boston, MA
02211

*** Note:**
For BWSC Permits, enter the LSP.

A. Permit Information

BRPWM12

NPDES Permits

1. Permit Code: 7 or 8 character code from permit instructions

2. Name of Permit Category

Request for Remediation General Permit Coverage

3. Type of Project or Activity

B. Applicant Information – Firm or Individual

President and Fellows of Harvard College

1. Name of Firm - Or, if party needing this approval is an individual enter name below:

2. Last Name of Individual

3. First Name of Individual

4. MI

46 Blackstone Street

5. Street Address

Cambridge

MA

02139

(617) 495-9391

6. City/Town

7. State

8. Zip Code

9. Telephone #

10. Ext. #

Kelly McQueeney

kelly_mcqueeney@harvard.edu

11. Contact Person

12. e-mail address (optional)

C. Facility, Site or Individual Requiring Approval

Replacement Drain Project

1. Name of Facility, Site Or Individual

Rena Park/140-156 Western Avenue

2. Street Address

Allston

MA

02134

NA

3. City/Town

4. State

5. Zip Code

6. Telephone #

7. Ext. #

8. DEP Facility Number (if Known)

9. Federal I.D. Number (if Known)

10. BWSC Tracking # (if Known)

D. Application Prepared by (if different from Section B)*

CDM Smith

1. Name of Firm Or Individual

6800 Old Collamer Road, Suite 3

2. Address

East Syracuse

NY

13057

(315) 434-3224

3. City/Town

4. State

5. Zip Code

6. Telephone #

7. Ext. #

Dana Himmel

8. Contact Person

9. LSP Number (BWSC Permits only)

E. Permit - Project Coordination

1. Is this project subject to MEPA review? ☐ yes ☒ no
If yes, enter the project's EOEPA file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:

EOEPA File Number

F. Amount Due

Special Provisions:

1. ☐ Fee Exempt (city, town or municipal housing authority)(state agency if fee is \$100 or less).
There are no fee exemptions for BWSC permits, regardless of applicant status.
2. ☐ Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
3. ☐ Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
4. ☐ Homeowner (according to 310 CMR 4.02).

DEP Use Only

Permit No:

Rec'd Date:

Reviewer:

Check Number

\$950.00
Dollar Amount

Date



75 State Street, Suite 701
Boston, Massachusetts 02109

No. 1109020

Check Date: 06/15/2015

COMMONWEALTH OF MASSACHUSETTS, DEPARTMENT OF, ENVIRONMENTAL PROTECTION, P.O.BOX 4062, BOSTON, MA 02211-4062 Vendor No. 15562

Invoice	Description	Date	Gross Amount	Discount	Net Amount Paid
X266296	NSG8778/COMM OF MASS/06-09-2015	06/09/2015	\$950.00	\$0.00	\$950.00
Grand Totals			\$950.00	\$0.00	\$950.00

Detach at Perforation Before Depositing Check

Page 1 of 1

THE FACE OF THIS DOCUMENT HAS A COLORED BACKGROUND ON WHITE PAPER, A VOID PANTOGRAPH AND MICROPRINTING.



75 State Street, Suite 701
Boston, Massachusetts 02109

Bank of America
51-44/119

Check No. 1109020

Check Date
06/15/2015

Check Amount
\$ *****950.00

PAY *Nine Hundred Fifty AND 00/100*

TO THE
ORDER
OF

15562

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF
ENVIRONMENTAL PROTECTION
P.O.BOX 4062
BOSTON, MA 02211-4062

Erin A. [Signature]

⑈01109020⑈ ⑈011900445⑈

19466⑈

Attachment B - Laboratory Analytical Report -



ANALYTICAL REPORT

Lab Number:	L1505308
Client:	CDM Smith, Inc. 75 State Street Suite 701 Boston, MA 02109
ATTN:	Jay McMullen
Phone:	(617) 452-6303
Project Name:	HARVARD - RENA DRAIN
Project Number:	101829
Report Date:	03/27/15

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), VA (460195), MD (348), IL (200077), NC (666), TX (T104704476), DOD (L2217), USDA (Permit #P-330-11-00240).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1505308-01	DL-SB/MW-07	WATER	ALLSTON, MA	03/19/15 12:40	03/19/15

Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

Case Narrative (continued)

Semivolatile Organics

The WG770968-2/-3 LCS/LCSD recoveries, associated with L1505308-01, are below the acceptance criteria for benzoic acid (3%/3%); however, it has been identified as a "difficult" analyte. The results of the associated sample are reported.

Metals

The WG769655-2 LCS recovery, associated with L1505308-01, is above the acceptance criteria for cadmium (135%); however, the associated sample is non-detect for this target compound. The results of the original analysis are reported.


The WG769642-4 MS recovery, performed on L1505308-01, is outside the acceptance criteria for iron (70%). A post digestion spike was performed and was within acceptance criteria.

Chromium, Hexavalent

L1505308-01 has an elevated detection limit due to the dilution required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 03/27/15

ORGANICS

VOLATILES

Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

SAMPLE RESULTS

Lab ID: L1505308-01
Client ID: DL-SB/MW-07
Sample Location: ALLSTON, MA
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 03/24/15 10:31
Analyst: MM

Date Collected: 03/19/15 12:40
Date Received: 03/19/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	3.0	--	1
1,1-Dichloroethane	ND		ug/l	0.75	--	1
Chloroform	ND		ug/l	0.75	--	1
Carbon tetrachloride	ND		ug/l	0.50	--	1
1,2-Dichloropropane	ND		ug/l	1.8	--	1
Dibromochloromethane	ND		ug/l	0.50	--	1
1,1,2-Trichloroethane	ND		ug/l	0.75	--	1
Tetrachloroethene	ND		ug/l	0.50	--	1
Chlorobenzene	22		ug/l	0.50	--	1
Trichlorofluoromethane	ND		ug/l	2.5	--	1
1,2-Dichloroethane	ND		ug/l	0.50	--	1
1,1,1-Trichloroethane	ND		ug/l	0.50	--	1
Bromodichloromethane	ND		ug/l	0.50	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.5	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	0.75	--	1
Ethylbenzene	ND		ug/l	0.50	--	1
Chloromethane	ND		ug/l	2.5	--	1
Bromomethane	ND		ug/l	1.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	1.0	--	1
1,1-Dichloroethene	ND		ug/l	0.50	--	1
trans-1,2-Dichloroethene	ND		ug/l	0.75	--	1
1,2-Dichloroethene, Total	ND		ug/l	0.50	--	1
Trichloroethene	ND		ug/l	0.50	--	1



Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

SAMPLE RESULTS

Lab ID: L1505308-01
Client ID: DL-SB/MW-07
Sample Location: ALLSTON, MA

Date Collected: 03/19/15 12:40
Date Received: 03/19/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2-Dichlorobenzene	2.7		ug/l	2.5	--	1
1,3-Dichlorobenzene	ND		ug/l	2.5	--	1
1,4-Dichlorobenzene	ND		ug/l	2.5	--	1
Methyl tert butyl ether	ND		ug/l	1.0	--	1
p/m-Xylene	ND		ug/l	1.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylenes, Total	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	0.50	--	1
Dibromomethane	ND		ug/l	5.0	--	1
1,4-Dichlorobutane	ND		ug/l	5.0	--	1
1,2,3-Trichloropropane	ND		ug/l	5.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	5.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	5.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
Vinyl acetate	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Ethyl methacrylate	ND		ug/l	5.0	--	1
Acrylonitrile	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.5	--	1
Tetrahydrofuran	ND		ug/l	5.0	--	1
2,2-Dichloropropane	ND		ug/l	2.5	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.5	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	--	1
Bromobenzene	ND		ug/l	2.5	--	1
n-Butylbenzene	ND		ug/l	0.50	--	1
sec-Butylbenzene	ND		ug/l	0.50	--	1
tert-Butylbenzene	ND		ug/l	2.5	--	1
o-Chlorotoluene	ND		ug/l	2.5	--	1
p-Chlorotoluene	ND		ug/l	2.5	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Isopropylbenzene	ND		ug/l	0.50	--	1
p-Isopropyltoluene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	2.5	--	1
n-Propylbenzene	ND		ug/l	0.50	--	1



Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

SAMPLE RESULTS

Lab ID: L1505308-01
Client ID: DL-SB/MW-07
Sample Location: ALLSTON, MA

Date Collected: 03/19/15 12:40
Date Received: 03/19/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	--	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	--	1
Ethyl ether	ND		ug/l	2.5	--	1
Tert-Butyl Alcohol	ND		ug/l	10	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	109		70-130

Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

SAMPLE RESULTS

Lab ID: L1505308-01
Client ID: DL-SB/MW-07
Sample Location: ALLSTON, MA
Matrix: Water
Analytical Method: 1,8260C-SIM(M)
Analytical Date: 03/24/15 10:31
Analyst: MM

Date Collected: 03/19/15 12:40
Date Received: 03/19/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS-SIM - Westborough Lab

1,4-Dioxane	ND		ug/l	3.0	--	1
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Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

SAMPLE RESULTS

Lab ID: L1505308-01
Client ID: DL-SB/MW-07
Sample Location: ALLSTON, MA
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 03/24/15 11:54
Analyst: NS

Date Collected: 03/19/15 12:40
Date Received: 03/19/15
Field Prep: Not Specified
Extraction Date: 03/24/15 10:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	--	1	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	--	1	A

Project Name: HARVARD - RENA DRAIN**Lab Number:** L1505308**Project Number:** 101829**Report Date:** 03/27/15**Method Blank Analysis**
Batch Quality Control

Analytical Method: 1,8260C-SIM(M)

Analytical Date: 03/24/15 08:52

Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG770373-3					
1,4-Dioxane	ND		ug/l	3.0	--

Project Name: HARVARD - RENA DRAIN**Lab Number:** L1505308**Project Number:** 101829**Report Date:** 03/27/15**Method Blank Analysis**
Batch Quality Control

Analytical Method: 14,504.1

Analytical Date: 03/24/15 11:01

Analyst: NS

Extraction Date: 03/24/15 10:00

Parameter	Result	Qualifier	Units	RL	MDL
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG770383-1					
1,2-Dibromoethane	ND		ug/l	0.010	-- A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	-- A

Project Name: HARVARD - RENA DRAIN

Lab Number: L1505308

Project Number: 101829

Report Date: 03/27/15

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 03/24/15 08:52
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG770395-3					
Methylene chloride	ND		ug/l	3.0	--
1,1-Dichloroethane	ND		ug/l	0.75	--
Chloroform	ND		ug/l	0.75	--
Carbon tetrachloride	ND		ug/l	0.50	--
1,2-Dichloropropane	ND		ug/l	1.8	--
Dibromochloromethane	ND		ug/l	0.50	--
1,1,2-Trichloroethane	ND		ug/l	0.75	--
2-Chloroethylvinyl ether	ND		ug/l	10	--
Tetrachloroethene	ND		ug/l	0.50	--
Chlorobenzene	ND		ug/l	0.50	--
Trichlorofluoromethane	ND		ug/l	2.5	--
1,2-Dichloroethane	ND		ug/l	0.50	--
1,1,1-Trichloroethane	ND		ug/l	0.50	--
Bromodichloromethane	ND		ug/l	0.50	--
trans-1,3-Dichloropropene	ND		ug/l	0.50	--
cis-1,3-Dichloropropene	ND		ug/l	0.50	--
1,3-Dichloropropene, Total	ND		ug/l	0.50	--
1,1-Dichloropropene	ND		ug/l	2.5	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	0.75	--
Ethylbenzene	ND		ug/l	0.50	--
Chloromethane	ND		ug/l	2.5	--
Bromomethane	ND		ug/l	1.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	0.50	--
trans-1,2-Dichloroethene	ND		ug/l	0.75	--

Project Name: HARVARD - RENA DRAIN

Lab Number: L1505308

Project Number: 101829

Report Date: 03/27/15

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 03/24/15 08:52
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG770395-3					
1,2-Dichloroethene, Total	ND		ug/l	0.50	--
Trichloroethene	ND		ug/l	0.50	--
1,2-Dichlorobenzene	ND		ug/l	2.5	--
1,3-Dichlorobenzene	ND		ug/l	2.5	--
1,4-Dichlorobenzene	ND		ug/l	2.5	--
Methyl tert butyl ether	ND		ug/l	1.0	--
p/m-Xylene	ND		ug/l	1.0	--
o-Xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	0.50	--
Dibromomethane	ND		ug/l	5.0	--
1,4-Dichlorobutane	ND		ug/l	5.0	--
Iodomethane	ND		ug/l	5.0	--
1,2,3-Trichloropropane	ND		ug/l	5.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	5.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	5.0	--
2-Butanone	ND		ug/l	5.0	--
Vinyl acetate	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Ethyl methacrylate	ND		ug/l	5.0	--
Acrolein	ND		ug/l	5.0	--
Acrylonitrile	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.5	--
Tetrahydrofuran	ND		ug/l	5.0	--
2,2-Dichloropropane	ND		ug/l	2.5	--
1,2-Dibromoethane	ND		ug/l	2.0	--

Project Name: HARVARD - RENA DRAIN

Lab Number: L1505308

Project Number: 101829

Report Date: 03/27/15

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 03/24/15 08:52
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG770395-3					
1,3-Dichloropropane	ND		ug/l	2.5	--
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	--
Bromobenzene	ND		ug/l	2.5	--
n-Butylbenzene	ND		ug/l	0.50	--
sec-Butylbenzene	ND		ug/l	0.50	--
tert-Butylbenzene	ND		ug/l	2.5	--
o-Chlorotoluene	ND		ug/l	2.5	--
p-Chlorotoluene	ND		ug/l	2.5	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	--
Hexachlorobutadiene	ND		ug/l	0.50	--
Isopropylbenzene	ND		ug/l	0.50	--
p-Isopropyltoluene	ND		ug/l	0.50	--
Naphthalene	ND		ug/l	2.5	--
n-Propylbenzene	ND		ug/l	0.50	--
1,2,3-Trichlorobenzene	ND		ug/l	2.5	--
1,2,4-Trichlorobenzene	ND		ug/l	2.5	--
1,3,5-Trimethylbenzene	ND		ug/l	2.5	--
1,3,5-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.5	--
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	--
Halothane	ND		ug/l	2.5	--
Ethyl ether	ND		ug/l	2.5	--
Methyl Acetate	ND		ug/l	10	--
Ethyl Acetate	ND		ug/l	10	--
Isopropyl Ether	ND		ug/l	2.0	--
Cyclohexane	ND		ug/l	10	--
Tert-Butyl Alcohol	ND		ug/l	10	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--

Project Name: HARVARD - RENA DRAIN

Lab Number: L1505308

Project Number: 101829

Report Date: 03/27/15

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 03/24/15 08:52
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG770395-3					
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		ug/l	10	--
Methyl cyclohexane	ND		ug/l	10	--
p-Diethylbenzene	ND		ug/l	2.0	--
4-Ethyltoluene	ND		ug/l	2.0	--
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	109		70-130

Lab Control Sample Analysis**Batch Quality Control****Project Name:** HARVARD - RENA DRAIN**Project Number:** 101829**Lab Number:** L1505308**Report Date:** 03/27/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG770373-1 WG770373-2								
1,4-Dioxane	119		124		70-130	4		25

Lab Control Sample Analysis **Batch Quality Control**

Project Name: HARVARD - RENA DRAIN

Project Number: 101829

Lab Number: L1505308

Report Date: 03/27/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01 Batch: WG770383-2									
1,2-Dibromoethane	100		-		70-130	-		20	A
1,2-Dibromo-3-chloropropane	97		-		70-130	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: HARVARD - RENA DRAIN

Project Number: 101829

Lab Number: L1505308

Report Date: 03/27/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG770395-1 WG770395-2								
Methylene chloride	113		106		70-130	6		20
1,1-Dichloroethane	106		108		70-130	2		20
Chloroform	110		111		70-130	1		20
Carbon tetrachloride	99		102		63-132	3		20
1,2-Dichloropropane	89		92		70-130	3		20
Dibromochloromethane	84		85		63-130	1		20
1,1,2-Trichloroethane	87		88		70-130	1		20
2-Chloroethylvinyl ether	61	Q	65	Q	70-130	6		20
Tetrachloroethene	92		93		70-130	1		20
Chlorobenzene	94		93		75-130	1		25
Trichlorofluoromethane	96		99		62-150	3		20
1,2-Dichloroethane	106		108		70-130	2		20
1,1,1-Trichloroethane	107		108		67-130	1		20
Bromodichloromethane	101		103		67-130	2		20
trans-1,3-Dichloropropene	82		83		70-130	1		20
cis-1,3-Dichloropropene	94		96		70-130	2		20
1,1-Dichloropropene	101		102		70-130	1		20
Bromoform	72		73		54-136	1		20
1,1,2,2-Tetrachloroethane	84		82		67-130	2		20
Benzene	104		106		70-130	2		25
Toluene	93		94		70-130	1		25

Lab Control Sample Analysis Batch Quality Control

Project Name: HARVARD - RENA DRAIN

Project Number: 101829

Lab Number: L1505308

Report Date: 03/27/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG770395-1 WG770395-2								
Ethylbenzene	94		95		70-130	1		20
Chloromethane	78		84		64-130	7		20
Bromomethane	75		81		39-139	8		20
Vinyl chloride	98		97		55-140	1		20
Chloroethane	108		110		55-138	2		20
1,1-Dichloroethene	105		112		61-145	6		25
trans-1,2-Dichloroethene	104		110		70-130	6		20
Trichloroethene	106		107		70-130	1		25
1,2-Dichlorobenzene	84		84		70-130	0		20
1,3-Dichlorobenzene	84		85		70-130	1		20
1,4-Dichlorobenzene	82		82		70-130	0		20
Methyl tert butyl ether	93		94		63-130	1		20
p/m-Xylene	94		95		70-130	1		20
o-Xylene	93		94		70-130	1		20
cis-1,2-Dichloroethene	113		113		70-130	0		20
Dibromomethane	100		104		70-130	4		20
1,4-Dichlorobutane	80		77		70-130	4		20
Iodomethane	41	Q	47	Q	70-130	14		20
1,2,3-Trichloropropane	82		81		64-130	1		20
Styrene	93		95		70-130	2		20
Dichlorodifluoromethane	87		89		36-147	2		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: HARVARD - RENA DRAIN

Project Number: 101829

Lab Number: L1505308

Report Date: 03/27/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG770395-1 WG770395-2								
Acetone	78		74		58-148	5		20
Carbon disulfide	95		99		51-130	4		20
2-Butanone	82		80		63-138	2		20
Vinyl acetate	90		91		70-130	1		20
4-Methyl-2-pentanone	112		109		59-130	3		20
2-Hexanone	85		80		57-130	6		20
Ethyl methacrylate	91		92		70-130	1		20
Acrolein	99		100		70-130	1		20
Acrylonitrile	103		102		70-130	1		20
Bromochloromethane	110		114		70-130	4		20
Tetrahydrofuran	103		106		58-130	3		20
2,2-Dichloropropane	102		106		63-133	4		20
1,2-Dibromoethane	86		86		70-130	0		20
1,3-Dichloropropane	87		88		70-130	1		20
1,1,1,2-Tetrachloroethane	86		89		64-130	3		20
Bromobenzene	82		82		70-130	0		20
n-Butylbenzene	80		80		53-136	0		20
sec-Butylbenzene	81		82		70-130	1		20
tert-Butylbenzene	81		83		70-130	2		20
o-Chlorotoluene	82		84		70-130	2		20
p-Chlorotoluene	83		83		70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: HARVARD - RENA DRAIN

Project Number: 101829

Lab Number: L1505308

Report Date: 03/27/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG770395-1 WG770395-2								
1,2-Dibromo-3-chloropropane	67		71		41-144	6		20
Hexachlorobutadiene	80		87		63-130	8		20
Isopropylbenzene	85		85		70-130	0		20
p-Isopropyltoluene	83		83		70-130	0		20
Naphthalene	63	Q	70		70-130	11		20
n-Propylbenzene	83		83		69-130	0		20
1,2,3-Trichlorobenzene	71		77		70-130	8		20
1,2,4-Trichlorobenzene	75		79		70-130	5		20
1,3,5-Trimethylbenzene	83		82		64-130	1		20
1,3,5-Trichlorobenzene	83		85		70-130	2		20
1,2,4-Trimethylbenzene	82		82		70-130	0		20
trans-1,4-Dichloro-2-butene	79		76		70-130	4		20
Halothane	107		108		70-130	1		20
Ethyl ether	101		103		59-134	2		20
Methyl Acetate	100		100		70-130	0		20
Ethyl Acetate	93		94		70-130	1		20
Isopropyl Ether	91		92		70-130	1		20
Cyclohexane	100		103		70-130	3		20
Tert-Butyl Alcohol	91		94		70-130	3		20
Ethyl-Tert-Butyl-Ether	90		92		70-130	2		20
Tertiary-Amyl Methyl Ether	94		95		66-130	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: HARVARD - RENA DRAIN

Project Number: 101829

Lab Number: L1505308

Report Date: 03/27/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG770395-1 WG770395-2								
1,1,2-Trichloro-1,2,2-Trifluoroethane	102		104		70-130	2		20
Methyl cyclohexane	100		103		70-130	3		20
p-Diethylbenzene	81		81		70-130	0		20
4-Ethyltoluene	84		85		70-130	1		20
1,2,4,5-Tetramethylbenzene	78		79		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		94		70-130
Toluene-d8	92		92		70-130
4-Bromofluorobenzene	93		97		70-130
Dibromofluoromethane	106		110		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: HARVARD - RENA DRAIN

Project Number: 101829

Lab Number: L1505308

Report Date: 03/27/15

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>	<i>Column</i>
Microextractables by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG770383-3 QC Sample: L1505308-01 Client ID: DL-SB/MW-07													
1,2-Dibromoethane	ND	0.251	0.267	106		-	-		70-130	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.251	0.248	98		-	-		70-130	-		20	A

SEMIVOLATILES

Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

SAMPLE RESULTS

Lab ID: L1505308-01
Client ID: DL-SB/MW-07
Sample Location: ALLSTON, MA
Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 03/26/15 14:25
Analyst: RC

Date Collected: 03/19/15 12:40
Date Received: 03/19/15
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 03/26/15 02:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Benzidine	ND		ug/l	20	--	1
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Hexachlorocyclopentadiene	ND		ug/l	20	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
NDPA/DPA	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
2-Nitroaniline	ND		ug/l	5.0	--	1
3-Nitroaniline	ND		ug/l	5.0	--	1
4-Nitroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1

Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

SAMPLE RESULTS

Lab ID: L1505308-01
Client ID: DL-SB/MW-07
Sample Location: ALLSTON, MA

Date Collected: 03/19/15 12:40
Date Received: 03/19/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
n-Nitrosodimethylamine	ND		ug/l	2.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
p-Chloro-m-cresol	ND		ug/l	2.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1
4,6-Dinitro-o-cresol	ND		ug/l	10	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Benzoic Acid	ND		ug/l	50	--	1
Benzyl Alcohol	ND		ug/l	2.0	--	1
Carbazole	ND		ug/l	2.0	--	1
Pyridine	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		21-120
Phenol-d6	27		10-120
Nitrobenzene-d5	100		23-120
2-Fluorobiphenyl	113		15-120
2,4,6-Tribromophenol	123	Q	10-120
4-Terphenyl-d14	129		41-149

Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

SAMPLE RESULTS

Lab ID: L1505308-01
Client ID: DL-SB/MW-07
Sample Location: ALLSTON, MA
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 03/27/15 06:22
Analyst: MW

Date Collected: 03/19/15 12:40
Date Received: 03/19/15
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 03/26/15 02:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.20	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	ND		ug/l	0.20	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	0.20	--	1
Benzo(a)anthracene	ND		ug/l	0.20	--	1
Benzo(a)pyrene	ND		ug/l	0.20	--	1
Benzo(b)fluoranthene	ND		ug/l	0.20	--	1
Benzo(k)fluoranthene	ND		ug/l	0.20	--	1
Chrysene	ND		ug/l	0.20	--	1
Acenaphthylene	ND		ug/l	0.20	--	1
Anthracene	ND		ug/l	0.20	--	1
Benzo(ghi)perylene	ND		ug/l	0.20	--	1
Fluorene	ND		ug/l	0.20	--	1
Phenanthrene	ND		ug/l	0.20	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.20	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	--	1
Pyrene	ND		ug/l	0.20	--	1
1-Methylnaphthalene	ND		ug/l	0.20	--	1
2-Methylnaphthalene	ND		ug/l	0.20	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

SAMPLE RESULTS

Lab ID: L1505308-01
Client ID: DL-SB/MW-07
Sample Location: ALLSTON, MA

Date Collected: 03/19/15 12:40
Date Received: 03/19/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS-SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	43		21-120
Phenol-d6	27		10-120
Nitrobenzene-d5	105		23-120
2-Fluorobiphenyl	109		15-120
2,4,6-Tribromophenol	127	Q	10-120
4-Terphenyl-d14	115		41-149

Project Name: HARVARD - RENA DRAIN

Lab Number: L1505308

Project Number: 101829

Report Date: 03/27/15

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D
 Analytical Date: 03/26/15 13:01
 Analyst: RC

Extraction Method: EPA 3510C
 Extraction Date: 03/26/15 02:43

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG770968-1					
Benzidine	ND		ug/l	20	--
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--
1,2-Dichlorobenzene	ND		ug/l	2.0	--
1,3-Dichlorobenzene	ND		ug/l	2.0	--
1,4-Dichlorobenzene	ND		ug/l	2.0	--
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--
2,4-Dinitrotoluene	ND		ug/l	5.0	--
2,6-Dinitrotoluene	ND		ug/l	5.0	--
Azobenzene	ND		ug/l	2.0	--
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	--
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--
Hexachlorocyclopentadiene	ND		ug/l	20	--
Isophorone	ND		ug/l	5.0	--
Nitrobenzene	ND		ug/l	2.0	--
NDPA/DPA	ND		ug/l	2.0	--
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--
Aniline	ND		ug/l	2.0	--
4-Chloroaniline	ND		ug/l	5.0	--
2-Nitroaniline	ND		ug/l	5.0	--
3-Nitroaniline	ND		ug/l	5.0	--
4-Nitroaniline	ND		ug/l	5.0	--

Project Name: HARVARD - RENA DRAIN

Lab Number: L1505308

Project Number: 101829

Report Date: 03/27/15

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D
 Analytical Date: 03/26/15 13:01
 Analyst: RC

Extraction Method: EPA 3510C
 Extraction Date: 03/26/15 02:43

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG770968-1					
Dibenzofuran	ND		ug/l	2.0	--
n-Nitrosodimethylamine	ND		ug/l	2.0	--
2,4,6-Trichlorophenol	ND		ug/l	5.0	--
p-Chloro-m-cresol	ND		ug/l	2.0	--
2-Chlorophenol	ND		ug/l	2.0	--
2,4-Dichlorophenol	ND		ug/l	5.0	--
2,4-Dimethylphenol	ND		ug/l	5.0	--
2-Nitrophenol	ND		ug/l	10	--
4-Nitrophenol	ND		ug/l	10	--
2,4-Dinitrophenol	ND		ug/l	20	--
4,6-Dinitro-o-cresol	ND		ug/l	10	--
Phenol	ND		ug/l	5.0	--
2-Methylphenol	ND		ug/l	5.0	--
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--
2,4,5-Trichlorophenol	ND		ug/l	5.0	--
Benzoic Acid	ND		ug/l	50	--
Benzyl Alcohol	ND		ug/l	2.0	--
Carbazole	ND		ug/l	2.0	--
Pyridine	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	33		21-120
Phenol-d6	19		10-120
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	90		15-120
2,4,6-Tribromophenol	95		10-120
4-Terphenyl-d14	106		41-149



Project Name: HARVARD - RENA DRAIN

Lab Number: L1505308

Project Number: 101829

Report Date: 03/27/15

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D-SIM
 Analytical Date: 03/27/15 05:57
 Analyst: MW

Extraction Method: EPA 3510C
 Extraction Date: 03/26/15 02:41

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG770969-1					
Acenaphthene	ND		ug/l	0.20	--
2-Chloronaphthalene	ND		ug/l	0.20	--
Fluoranthene	ND		ug/l	0.20	--
Hexachlorobutadiene	ND		ug/l	0.50	--
Naphthalene	ND		ug/l	0.20	--
Benzo(a)anthracene	ND		ug/l	0.20	--
Benzo(a)pyrene	ND		ug/l	0.20	--
Benzo(b)fluoranthene	ND		ug/l	0.20	--
Benzo(k)fluoranthene	ND		ug/l	0.20	--
Chrysene	ND		ug/l	0.20	--
Acenaphthylene	ND		ug/l	0.20	--
Anthracene	ND		ug/l	0.20	--
Benzo(ghi)perylene	ND		ug/l	0.20	--
Fluorene	ND		ug/l	0.20	--
Phenanthrene	ND		ug/l	0.20	--
Dibenzo(a,h)anthracene	ND		ug/l	0.20	--
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	--
Pyrene	ND		ug/l	0.20	--
1-Methylnaphthalene	ND		ug/l	0.20	--
2-Methylnaphthalene	ND		ug/l	0.20	--
Pentachlorophenol	ND		ug/l	0.80	--
Hexachlorobenzene	ND		ug/l	0.80	--
Hexachloroethane	ND		ug/l	0.80	--

Project Name: HARVARD - RENA DRAIN**Lab Number:** L1505308**Project Number:** 101829**Report Date:** 03/27/15

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D-SIM
 Analytical Date: 03/27/15 05:57
 Analyst: MW

Extraction Method: EPA 3510C
 Extraction Date: 03/26/15 02:41

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG770969-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	32		21-120
Phenol-d6	20		10-120
Nitrobenzene-d5	86		23-120
2-Fluorobiphenyl	87		15-120
2,4,6-Tribromophenol	93		10-120
4-Terphenyl-d14	101		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: HARVARD - RENA DRAIN

Project Number: 101829

Lab Number: L1505308

Report Date: 03/27/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG770968-2 WG770968-3								
Benzidine	43		35		10-75	21		30
1,2,4-Trichlorobenzene	86		68		39-98	23		30
Bis(2-chloroethyl)ether	94		73		40-140	25		30
1,2-Dichlorobenzene	79		62		40-140	24		30
1,3-Dichlorobenzene	72		58		40-140	22		30
1,4-Dichlorobenzene	74		59		36-97	23		30
3,3'-Dichlorobenzidine	108		88		40-140	20		30
2,4-Dinitrotoluene	138	Q	107	Q	24-96	25		30
2,6-Dinitrotoluene	128		99		40-140	26		30
Azobenzene	102		80		40-140	24		30
4-Chlorophenyl phenyl ether	117		91		40-140	25		30
4-Bromophenyl phenyl ether	125		98		40-140	24		30
Bis(2-chloroisopropyl)ether	83		64		40-140	26		30
Bis(2-chloroethoxy)methane	99		75		40-140	28		30
Hexachlorocyclopentadiene	84		74		40-140	13		30
Isophorone	107		81		40-140	28		30
Nitrobenzene	82		64		40-140	25		30
NDPA/DPA	117		92		40-140	24		30
Bis(2-ethylhexyl)phthalate	136		105		40-140	26		30
Butyl benzyl phthalate	127		100		40-140	24		30
Di-n-butylphthalate	127		102		40-140	22		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: HARVARD - RENA DRAIN

Project Number: 101829

Lab Number: L1505308

Report Date: 03/27/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG770968-2 WG770968-3								
Di-n-octylphthalate	142	Q	111		40-140	25		30
Diethyl phthalate	122		95		40-140	25		30
Dimethyl phthalate	121		95		40-140	24		30
Aniline	57		40		40-140	35	Q	30
4-Chloroaniline	90		68		40-140	28		30
2-Nitroaniline	124		97		52-143	24		30
3-Nitroaniline	80		67		25-145	18		30
4-Nitroaniline	110		88		51-143	22		30
Dibenzofuran	114		90		40-140	24		30
n-Nitrosodimethylamine	41		33		22-74	22		30
2,4,6-Trichlorophenol	119		91		30-130	27		30
p-Chloro-m-cresol	105	Q	81		23-97	26		30
2-Chlorophenol	86		66		27-123	26		30
2,4-Dichlorophenol	109		83		30-130	27		30
2,4-Dimethylphenol	97		72		30-130	30		30
2-Nitrophenol	113		85		30-130	28		30
4-Nitrophenol	46		33		10-80	33	Q	30
2,4-Dinitrophenol	99		76		20-130	26		30
4,6-Dinitro-o-cresol	128		99		20-164	26		30
Phenol	34		25		12-110	31	Q	30
2-Methylphenol	73		55		30-130	28		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: HARVARD - RENA DRAIN

Project Number: 101829

Lab Number: L1505308

Report Date: 03/27/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG770968-2 WG770968-3								
3-Methylphenol/4-Methylphenol	72		52		30-130	32	Q	30
2,4,5-Trichlorophenol	122		94		30-130	26		30
Benzoic Acid	3	Q	3	Q	10-164	3		30
Benzyl Alcohol	68		52		26-116	27		30
Carbazole	121		96		55-144	23		30
Pyridine	31		24		10-66	25		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	48		36		21-120
Phenol-d6	31		23		10-120
Nitrobenzene-d5	107		80		23-120
2-Fluorobiphenyl	123	Q	93		15-120
2,4,6-Tribromophenol	134	Q	106		10-120
4-Terphenyl-d14	134		107		41-149

Lab Control Sample Analysis **Batch Quality Control**

Project Name: HARVARD - RENA DRAIN

Project Number: 101829

Lab Number: L1505308

Report Date: 03/27/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG770969-2 WG770969-3								
Acenaphthene	89		87		37-111	2		40
2-Chloronaphthalene	88		86		40-140	2		40
Fluoranthene	105		102		40-140	3		40
Hexachlorobutadiene	67		64		40-140	5		40
Naphthalene	81		75		40-140	8		40
Benzo(a)anthracene	105		102		40-140	3		40
Benzo(a)pyrene	104		102		40-140	2		40
Benzo(b)fluoranthene	104		105		40-140	1		40
Benzo(k)fluoranthene	102		95		40-140	7		40
Chrysene	95		91		40-140	4		40
Acenaphthylene	94		92		40-140	2		40
Anthracene	99		95		40-140	4		40
Benzo(ghi)perylene	101		98		40-140	3		40
Fluorene	95		96		40-140	1		40
Phenanthrene	98		94		40-140	4		40
Dibenzo(a,h)anthracene	106		102		40-140	4		40
Indeno(1,2,3-cd)Pyrene	105		102		40-140	3		40
Pyrene	105		101		26-127	4		40
1-Methylnaphthalene	88		84		40-140	5		40
2-Methylnaphthalene	89		85		40-140	5		40
Pentachlorophenol	60		65		9-103	8		40

Lab Control Sample Analysis

Batch Quality Control

Project Name: HARVARD - RENA DRAIN

Project Number: 101829

Lab Number: L1505308

Report Date: 03/27/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG770969-2 WG770969-3								
Hexachlorobenzene	91		92		40-140	1		40
Hexachloroethane	68		60		40-140	13		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	36		32		21-120
Phenol-d6	24		21		10-120
Nitrobenzene-d5	83		76		23-120
2-Fluorobiphenyl	88		85		15-120
2,4,6-Tribromophenol	105		104		10-120
4-Terphenyl-d14	98		96		41-149

PCBS

Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

SAMPLE RESULTS

Lab ID: L1505308-01
Client ID: DL-SB/MW-07
Sample Location: ALLSTON, MA
Matrix: Water
Analytical Method: 5,608
Analytical Date: 03/26/15 11:30
Analyst: JT

Date Collected: 03/19/15 12:40
Date Received: 03/19/15
Field Prep: Not Specified
Extraction Method: EPA 608
Extraction Date: 03/26/15 00:21
Cleanup Method: EPA 3665A
Cleanup Date: 03/26/15
Cleanup Method: EPA 3660B
Cleanup Date: 03/26/15

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.200	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	77		30-150	A
Decachlorobiphenyl	91		30-150	A

Project Name: HARVARD - RENA DRAIN**Lab Number:** L1505308**Project Number:** 101829**Report Date:** 03/27/15

Method Blank Analysis Batch Quality Control

Analytical Method: 5,608
 Analytical Date: 03/26/15 12:32
 Analyst: JT

Extraction Method: EPA 608
 Extraction Date: 03/26/15 00:21
 Cleanup Method: EPA 3665A
 Cleanup Date: 03/26/15
 Cleanup Method: EPA 3660B
 Cleanup Date: 03/26/15

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG770950-1						
Aroclor 1016	ND		ug/l	0.250	--	A
Aroclor 1221	ND		ug/l	0.250	--	A
Aroclor 1232	ND		ug/l	0.250	--	A
Aroclor 1242	ND		ug/l	0.250	--	A
Aroclor 1248	ND		ug/l	0.250	--	A
Aroclor 1254	ND		ug/l	0.250	--	A
Aroclor 1260	ND		ug/l	0.200	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	75		30-150	A
Decachlorobiphenyl	105		30-150	A

Matrix Spike Analysis

Batch Quality Control

Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>	<i>Column</i>
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG770950-3 QC Sample: L1505487-01 Client ID: MS Sample													
Aroclor 1016	ND	1	2.76	88		-	-		40-140	-		50	A
Aroclor 1260	ND	1	2.61	84		-	-		40-140	-		50	A

<i>Surrogate</i>	<i>MS % Recovery</i>	<i>Qualifier</i>	<i>MSD % Recovery</i>	<i>Qualifier</i>	<i>Acceptance Criteria</i>	<i>Column</i>
2,4,5,6-Tetrachloro-m-xylene	82				30-150	A
Decachlorobiphenyl	71				30-150	A

Lab Control Sample Analysis**Batch Quality Control****Project Name:** HARVARD - RENA DRAIN**Project Number:** 101829**Lab Number:** L1505308**Report Date:** 03/27/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 Batch: WG770950-2									
Aroclor 1016	73		-		40-140	-		50	A
Aroclor 1260	74		-		40-140	-		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	72				30-150	A
Decachlorobiphenyl	101				30-150	A

Lab Duplicate Analysis

Batch Quality Control

Project Name: HARVARD - RENA DRAIN

Project Number: 101829

Lab Number: L1505308

Report Date: 03/27/15

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG770950-4 QC Sample: L1505487-01 Client ID: DUP Sample						
Aroclor 1016	ND	ND	ug/l	NC		50 A
Aroclor 1221	ND	ND	ug/l	NC		50 A
Aroclor 1232	ND	ND	ug/l	NC		50 A
Aroclor 1242	ND	ND	ug/l	NC		50 A
Aroclor 1248	ND	ND	ug/l	NC		50 A
Aroclor 1254	ND	ND	ug/l	NC		50 A
Aroclor 1260	ND	ND	ug/l	NC		50 A

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	71		69		30-150	A
Decachlorobiphenyl	64		63		30-150	A

METALS

Project Name: HARVARD - RENA DRAIN

Lab Number: L1505308

Project Number: 101829

Report Date: 03/27/15

SAMPLE RESULTS

Lab ID: L1505308-01

Date Collected: 03/19/15 12:40

Client ID: DL-SB/MW-07

Date Received: 03/19/15

Sample Location: ALLSTON, MA

Field Prep: Not Specified

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Antimony, Total	0.00511		mg/l	0.00500	--	1	03/20/15 11:22	03/24/15 18:47	EPA 3005A	1,6020A	BM
Arsenic, Total	0.00412		mg/l	0.00050	--	1	03/20/15 11:22	03/24/15 18:47	EPA 3005A	1,6020A	BM
Cadmium, Total	ND		mg/l	0.00020	--	1	03/20/15 11:22	03/24/15 18:47	EPA 3005A	1,6020A	BM
Chromium, Total	0.00455		mg/l	0.00100	--	1	03/20/15 11:22	03/24/15 18:47	EPA 3005A	1,6020A	BM
Copper, Total	0.00855		mg/l	0.00100	--	1	03/20/15 11:22	03/24/15 18:47	EPA 3005A	1,6020A	BM
Iron, Total	2.6		mg/l	0.05	--	1	03/20/15 11:20	03/21/15 12:57	EPA 3005A	19,200.7	BC
Lead, Total	0.00211		mg/l	0.00050	--	1	03/20/15 11:22	03/24/15 18:47	EPA 3005A	1,6020A	BM
Mercury, Total	ND		mg/l	0.00020	--	1	03/20/15 14:11	03/20/15 19:17	EPA 245.1	3,245.1	AB
Nickel, Total	0.00299		mg/l	0.00050	--	1	03/20/15 11:22	03/24/15 18:47	EPA 3005A	1,6020A	BM
Selenium, Total	ND		mg/l	0.00500	--	1	03/20/15 11:22	03/24/15 18:47	EPA 3005A	1,6020A	BM
Silver, Total	ND		mg/l	0.00050	--	1	03/20/15 11:22	03/24/15 18:47	EPA 3005A	1,6020A	BM
Zinc, Total	0.01280		mg/l	0.01000	--	1	03/20/15 11:22	03/24/15 18:47	EPA 3005A	1,6020A	BM



Project Name: HARVARD - RENA DRAIN

Lab Number: L1505308

Project Number: 101829

Report Date: 03/27/15

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01 Batch: WG769642-1										
Iron, Total	ND		mg/l	0.05	--	1	03/20/15 11:20	03/21/15 12:01	19,200.7	BC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01 Batch: WG769655-1										
Antimony, Total	ND		mg/l	0.00500	--	1	03/20/15 11:22	03/24/15 18:33	1,6020A	BM
Arsenic, Total	ND		mg/l	0.00050	--	1	03/20/15 11:22	03/24/15 18:33	1,6020A	BM
Cadmium, Total	ND		mg/l	0.00020	--	1	03/20/15 11:22	03/24/15 18:33	1,6020A	BM
Chromium, Total	ND		mg/l	0.00100	--	1	03/20/15 11:22	03/24/15 18:33	1,6020A	BM
Copper, Total	ND		mg/l	0.00100	--	1	03/20/15 11:22	03/24/15 18:33	1,6020A	BM
Lead, Total	ND		mg/l	0.00050	--	1	03/20/15 11:22	03/24/15 18:33	1,6020A	BM
Nickel, Total	ND		mg/l	0.00050	--	1	03/20/15 11:22	03/24/15 18:33	1,6020A	BM
Selenium, Total	ND		mg/l	0.00500	--	1	03/20/15 11:22	03/24/15 18:33	1,6020A	BM
Silver, Total	ND		mg/l	0.00040	--	1	03/20/15 11:22	03/24/15 18:33	1,6020A	BM
Zinc, Total	ND		mg/l	0.01000	--	1	03/20/15 11:22	03/24/15 18:33	1,6020A	BM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01 Batch: WG769705-1										
Mercury, Total	ND		mg/l	0.0002	--	1	03/20/15 14:11	03/20/15 18:53	3,245.1	AB

Prep Information

Digestion Method: EPA 245.1



Lab Control Sample Analysis

Batch Quality Control

Project Name: HARVARD - RENA DRAIN

Project Number: 101829

Lab Number: L1505308

Report Date: 03/27/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01 Batch: WG769642-2								
Iron, Total	98		-		85-115	-		
Total Metals - Westborough Lab Associated sample(s): 01 Batch: WG769655-2								
Antimony, Total	88		-		80-120	-		
Arsenic, Total	100		-		80-120	-		
Cadmium, Total	135	Q	-		80-120	-		
Chromium, Total	100		-		80-120	-		
Copper, Total	102		-		80-120	-		
Lead, Total	106		-		80-120	-		
Nickel, Total	102		-		80-120	-		
Selenium, Total	91		-		80-120	-		
Silver, Total	99		-		80-120	-		
Zinc, Total	109		-		80-120	-		
Total Metals - Westborough Lab Associated sample(s): 01 Batch: WG769705-2								
Mercury, Total	112		-		85-115	-		

Matrix Spike Analysis **Batch Quality Control**

Project Name: HARVARD - RENA DRAIN

Project Number: 101829

Lab Number: L1505308

Report Date: 03/27/15

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG769642-4 QC Sample: L1505308-01 Client ID: DL-SB/MW-07												
Iron, Total	2.6	1	3.3	70	Q	-	-		75-125	-		20
Total Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG769655-4 QC Sample: L1505308-01 Client ID: DL-SB/MW-07												
Antimony, Total	0.00511	0.5	0.5184	103		-	-		75-125	-		20
Arsenic, Total	0.00412	0.12	0.1421	115		-	-		75-125	-		20
Cadmium, Total	ND	0.051	0.05539	109		-	-		75-125	-		20
Chromium, Total	0.00455	0.2	0.2040	100		-	-		75-125	-		20
Copper, Total	0.00855	0.25	0.2882	112		-	-		75-125	-		20
Lead, Total	0.00211	0.51	0.5315	104		-	-		75-125	-		20
Nickel, Total	0.00299	0.5	0.5244	104		-	-		75-125	-		20
Selenium, Total	ND	0.12	0.138	115		-	-		75-125	-		20
Silver, Total	ND	0.05	0.04867	97		-	-		75-125	-		20
Zinc, Total	0.01280	0.5	0.5907	116		-	-		75-125	-		20
Total Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG769705-4 QC Sample: L1505269-01 Client ID: MS Sample												
Mercury, Total	0.00039	0.005	0.0037	67	Q	-	-		70-130	-		20

Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Duplicate Analysis

Batch Quality Control

Lab Number: L1505308
Report Date: 03/27/15

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG769642-3 QC Sample: L1505308-01 Client ID: DL-SB/MW-07						
Iron, Total	2.6	2.7	mg/l	4		20
Total Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG769655-3 QC Sample: L1505308-01 Client ID: DL-SB/MW-07						
Antimony, Total	0.00511	ND	mg/l	NC		20
Arsenic, Total	0.00412	0.00399	mg/l	3		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	0.00455	0.00475	mg/l	4		20
Copper, Total	0.00855	0.00743	mg/l	14		20
Lead, Total	0.00211	0.00203	mg/l	4		20
Nickel, Total	0.00299	0.00315	mg/l	5		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.01280	0.01169	mg/l	9		20
Total Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG769705-3 QC Sample: L1505269-01 Client ID: DUP Sample						
Mercury, Total	0.00039	0.0003	mg/l	32	Q	20

INORGANICS & MISCELLANEOUS

Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

SAMPLE RESULTS

Lab ID: L1505308-01
Client ID: DL-SB/MW-07
Sample Location: ALLSTON, MA
Matrix: Water

Date Collected: 03/19/15 12:40
Date Received: 03/19/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	18.		mg/l	5.0	NA	1	-	03/20/15 11:55	30,2540D	DW
Cyanide, Total	ND		mg/l	0.005	--	1	03/20/15 12:05	03/23/15 12:13	30,4500CN-CE	ML
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	03/19/15 18:45	30,4500CL-D	AS
TPH	ND		mg/l	4.40	--	1.1	03/20/15 17:30	03/21/15 17:00	74,1664A	KE
Phenolics, Total	ND		mg/l	0.030	--	1	03/23/15 10:30	03/23/15 13:41	4,420.1	MP
Chromium, Hexavalent	ND		mg/l	0.050	--	5	03/19/15 21:45	03/19/15 23:17	30,3500CR-B	AS
Anions by Ion Chromatography - Westborough Lab										
Chloride	194.		mg/l	12.5	--	25	-	03/19/15 23:08	44,300.0	AU



Project Name: HARVARD - RENA DRAIN

Lab Number: L1505308

Project Number: 101829

Report Date: 03/27/15

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG769499-3										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	03/19/15 18:45	30,4500CL-D	AS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG769516-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	03/19/15 21:45	03/19/15 22:02	30,3500CR-B	AS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG769596-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	03/20/15 11:55	30,2540D	DW
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG769629-1										
Cyanide, Total	ND		mg/l	0.005	--	1	03/20/15 12:05	03/23/15 11:59	30,4500CN-CE	ML
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG769767-1										
TPH	ND		mg/l	4.00	--	1	03/20/15 17:30	03/21/15 17:00	74,1664A	KE
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG769812-1										
Chloride	ND		mg/l	0.500	--	1	-	03/19/15 18:20	44,300.0	AU
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG770129-1										
Phenolics, Total	ND		mg/l	0.030	--	1	03/23/15 10:30	03/23/15 13:38	4,420.1	MP

Lab Control Sample Analysis

Batch Quality Control

Project Name: HARVARD - RENA DRAIN

Project Number: 101829

Lab Number: L1505308

Report Date: 03/27/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG769499-1								
Chlorine, Total Residual	90		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG769516-2								
Chromium, Hexavalent	98		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG769629-2								
Cyanide, Total	107		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG769767-2								
TPH	75		-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG769812-2								
Chloride	107		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG770129-2								
Phenolics, Total	94		-		70-130	-		

Matrix Spike Analysis

Batch Quality Control

Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG769516-4 QC Sample: L1505308-01 Client ID: DL-SB/MW-07												
Chromium, Hexavalent	ND	0.1	0.113	113		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG769629-4 QC Sample: L1505308-01 Client ID: DL-SB/MW-07												
Cyanide, Total	ND	0.2	0.209	104		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG769767-4 QC Sample: L1505147-03 Client ID: MS Sample												
TPH	6.40	20.4	17.1	52	Q	-	-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG769812-3 QC Sample: L1505223-06 Client ID: MS Sample												
Chloride	258	100	358	100		-	-		40-151	-		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG770129-4 QC Sample: L1505308-01 Client ID: DL-SB/MW-07												
Phenolics, Total	ND	0.4	0.38	94		-	-		70-130	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: HARVARD - RENA DRAIN

Project Number: 101829

Lab Number: L1505308

Report Date: 03/27/15

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG769499-2 QC Sample: L1505298-01 Client ID: DUP Sample						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG769516-3 QC Sample: L1505308-01 Client ID: DL-SB/MW-07						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG769596-2 QC Sample: L1505255-02 Client ID: DUP Sample						
Solids, Total Suspended	290	280	mg/l	4		29
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG769629-3 QC Sample: L1505318-02 Client ID: DUP Sample						
Cyanide, Total	0.056	0.058	mg/l	3		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG769767-3 QC Sample: L1505308-01 Client ID: DL-SB/MW-07						
TPH	ND	ND	mg/l	NC		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG769812-4 QC Sample: L1505223-06 Client ID: DUP Sample						
Chloride	258	259	mg/l	0		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG770129-3 QC Sample: L1505308-01 Client ID: DL-SB/MW-07						
Phenolics, Total	ND	ND	mg/l	NC		20

Project Name: HARVARD - RENA DRAIN**Project Number:** 101829**Lab Number:** L1505308**Report Date:** 03/27/15**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA**Cooler Information Custody Seal****Cooler**

A Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1505308-01A	Vial HCl preserved	A	N/A	2.6	Y	Absent	8260-SIM(14),8260(14)
L1505308-01B	Vial HCl preserved	A	N/A	2.6	Y	Absent	8260-SIM(14),8260(14)
L1505308-01C	Vial HCl preserved	A	N/A	2.6	Y	Absent	8260-SIM(14),8260(14)
L1505308-01D	Amber 1000ml unpreserved	A	7	2.6	Y	Absent	8270TCL(7),8270TCL-SIM(7)
L1505308-01E	Amber 1000ml unpreserved	A	7	2.6	Y	Absent	8270TCL(7),8270TCL-SIM(7)
L1505308-01F	Vial Na2S2O3 preserved	A	N/A	2.6	Y	Absent	504(14)
L1505308-01G	Vial Na2S2O3 preserved	A	N/A	2.6	Y	Absent	504(14)
L1505308-01H	Amber 1000ml Na2S2O3	A	7	2.6	Y	Absent	PCB-608(7)
L1505308-01I	Amber 1000ml Na2S2O3	A	7	2.6	Y	Absent	PCB-608(7)
L1505308-01J	Plastic 250ml HNO3 preserved	A	<2	2.6	Y	Absent	SE-6020T(180),CR-6020T(180),NI-6020T(180),CU-6020T(180),ZN-6020T(180),FE-UI(180),PB-6020T(180),HG-U(28),AS-6020T(180),SB-6020T(180),AG-6020T(180),CD-6020T(180)
L1505308-01K	Plastic 950ml unpreserved	A	7	2.6	Y	Absent	CL-300(28),HEXCR-3500(1),TRC-4500(1)
L1505308-01L	Plastic 250ml NaOH preserved	A	>12	2.6	Y	Absent	TCN-4500(14)
L1505308-01M	Amber 1000ml HCl preserved	A	N/A	2.6	Y	Absent	TPH-1664(28)
L1505308-01N	Amber 1000ml HCl preserved	A	N/A	2.6	Y	Absent	TPH-1664(28)
L1505308-01O	Amber 950ml H2SO4 preserved	A	<2	2.6	Y	Absent	TPHENOL-420(28)
L1505308-01P	Plastic 950ml unpreserved	A	7	2.6	Y	Absent	TSS-2540(7)
L1505308-01Q	Vial HCl preserved	A	N/A	2.6	Y	Absent	8260-SIM(14),8260(14)
L1505308-01R	Vial HCl preserved	A	N/A	2.6	Y	Absent	8260-SIM(14),8260(14)
L1505308-01S	Vial HCl preserved	A	N/A	2.6	Y	Absent	8260-SIM(14),8260(14)

*Values in parentheses indicate holding time in days



Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	- Not Ignitable.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

Report Format: Data Usability Report



Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

Data Qualifiers

- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Project Name: HARVARD - RENA DRAIN
Project Number: 101829

Lab Number: L1505308
Report Date: 03/27/15

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.
- 4 Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.
- 5 Methods for the Organic Chemical Analysis of Municipal and Industrial Wastewater. Appendix A, Part 136, 40 CFR (Code of Federal Regulations).
- 14 Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.
- 19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.
- 30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.
- 44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.
- 74 Method 1664, Revision A: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-98-002, February 1999.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

Last revised December 16, 2014

The following analytes are not included in our NELAP Scope of Accreditation:

Westborough Facility

EPA 524.2: Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.

EPA 8260C: 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.

EPA 8270D: 1-Methylnaphthalene, Dimethylnaphthalene, 1,4-Diphenylhydrazine.

EPA 625: 4-Chloroaniline, 4-Methylphenol.

SM4500: Soil: Total Phosphorus, TKN, NO₂, NO₃.

EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility

EPA 8270D: Biphenyl.

EPA 2540D: TSS

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:

Drinking Water

EPA 200.8: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl; **EPA 200.7:** Ba,Be,Ca,Cd,Cr,Cu,Na; **EPA 245.1:** Mercury;

EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**

EPA 332: Perchlorate.

Microbiology: SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.

Non-Potable Water

EPA 200.8: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn;

EPA 200.7: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn;

EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, EPA 350.1: Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF.

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Attachment C

StreamStats Report and Dilution Factor Calculation



StreamStats Data-Collection Station Report

USGS Station Number **01104500**
Station Name **CHARLES RIVER AT WALTHAM, MA**

[Click here to link to available data on NWIS-Web for this site.](#)

Descriptive Information

Station Type	Streamgage, continuous record
Location	
Gage	
Regulation and Diversions	
Regulated?	True
Period of Record	1931-present
Remarks	Flow affected by Mother Brook diversion, diversions to and from basin for municipal supplies, and reservoir regulations.
Latitude (degrees NAD83)	42.3723186
Longitude (degrees NAD83)	-71.2336667
Hydrologic unit code	01090001
County	017-Middlesex
HCDN2009	No

Physical Characteristics

Characteristic Name	Value	Units	Citation Number
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Descriptive Information

State_Code	25	dimensionless	30
Datum_of_Latitude_Longitude	NAD83	dimensionless	30
District_Code	25	dimensionless	30
Begin_date_of_record	8/4/1931	days	41
End_date_of_record	9/30/2003	days	41
Number_of_days_of_record	26356	days	41
Number_of_days_GT_0	26356	days	41

Basin Dimensional Characteristics

Drainage_Area	227	square miles	30
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Streamflow Statistics

Statistic Name	Value	Units	Citation Number Preferred?	Years of Record	Standard Error, percent	Variance log-10	Lower 95% Confidence Interval	Upper 95% Confidence Interval	Start Date	End Date	Remarks
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Low-Flow Statistics

7_Day_2_Year_Low_Flow	34	cubic feet per second	19	Y							
7_Day_10_Year_Low_Flow	14.3	cubic feet per second	19	Y							

Flow-Duration Statistics

1_Percent_Duration	1380	cubic feet per second	41	Y	73						
5_Percent_Duration	880	cubic feet per second	41	Y	73						
10_Percent_Duration	680	cubic feet per second	41	Y	73						
20_Percent_Duration	495	cubic feet per second	41	Y	73						
25_Percent_Duration	430	cubic feet per second	41	Y	73						
30_Percent_Duration	377	cubic feet per	41	Y	73						

		second			
40_Percent_Duration	292	cubic feet per second	41	Y	73
50_Percent_Duration	222	cubic feet per second	41	Y	73
60_Percent_Duration	167	cubic feet per second	41	Y	73
70_Percent_Duration	118	cubic feet per second	41	Y	73
75_Percent_Duration	97	cubic feet per second	41	Y	73
80_Percent_Duration	77	cubic feet per second	41	Y	73
90_Percent_Duration	44	cubic feet per second	41	Y	73
95_Percent_Duration	30	cubic feet per second	41	Y	73
99_Percent_Duration	7.9	cubic feet per second	41	Y	73
General Flow Statistics					
Minimum_daily_flow	0.2	cubic feet per second	41	Y	73
Maximum_daily_flow	2940	cubic feet per second	41	Y	73
Std_Dev_of_daily_flows	296.365	cubic feet per second	41	Y	73
Average_daily_streamflow	309.739	cubic feet per second	41	Y	73
Base Flow Statistics					
Number_of_years_to_compute_BFI	72	years	42	Y	73
Average_BFI_value	0.632	dimensionless	42	Y	73
Std_dev_of_annual_BFI_values	0.087	dimensionless	42	Y	73

Citations

**Citation
Number****Citation Name and URL**

19	<u>Wandle, S.W., Jr., 1984, Gazetteer of Hydrologic Characteristics of Streams in Massachusetts--Coastal River Basins of the North Shore and Massachusetts Bay: U.S. Geological Survey Water-Resources Investigations Report 84-4281</u>
30	<u>Imported from NWIS file</u>
41	<u>Wolock, D.M., 2003, Flow characteristics at U.S. Geological Survey streamgages in the conterminous United States: U.S. Geological Survey Open-File Report 03-146, digital data set</u>
42	<u>Wolock, D.M., 2003, Base-flow index grid for the conterminous United States: U.S. Geological Survey Open-File Report 03-263, digital data set</u>

**Dilution Factor Calculation
Replacement Drain Project
Rena Park/140-156 Western Avenue
Allston, Massachusetts**

$$DF = (Q_d + Q_s)/Q_d$$

Where: **DF = Dilution Factor**
 Q_d = Maximum flow rate of the discharge in cubic feet per second (cfs)
 (1.0 gpm = .00223 cfs)
 Q_s = Receiving water 7Q10 flow (cfs) where,
 7Q10 = The minimum flow (cfs) for 7 consecutive days with a recurrence
 interval of 10 years

$$Q_d = 0.3568 \text{ cfs}$$

$$Q_s = 14.3 \text{ cfs}$$

$$DF = (0.3568 + 14.3)/0.3568$$

$$DF = 41.078$$

Attachment D

U.S. Fish and Wildlife Letter



United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
<http://www.fws.gov/newengland>



January 7, 2015

To Whom It May Concern:

This project was reviewed for the presence of federally listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

<http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm> (accessed January 2015)

Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact Maria Tur of this office at 603-223-2541 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office