HALEY & ALDRICH, INC.
465 Medford St.
Suite 2200
Boston, MA 02129
617.886.7400

10 March 2020
File No. 134061-009

US Environmental Protection Agency
Office of Ecosystem Protection
5 Post Office Square – Suite 100 (OEP06-01)
Boston, MA 02109-3912

Attention: Ms. Shelley Puleo; EPA/OEP RGP Applications Coordinator

Subject: Temporary Construction Dewatering
161 First Street
Cambridge, Massachusetts

Dear Ms. Puleo:

On behalf of our client, ARE-MA No. 21, LLC (ARE), Haley & Aldrich, Inc. (Haley & Aldrich) has prepared this submission to facilitate off-site discharge of temporary dewatering during foundation construction activities at the subject site located at the 161 First Street property (hereafter referred to as the "site") in Cambridge, Massachusetts (Figure 1). The information presented herein has been prepared to follow requirements of the 2017 US Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) General Remediation General Permit (RGP). A copy of the completed Notice of Intent (NOI) form is enclosed as Appendix A.

EXISTING SITE CONDITIONS

The parcel of land associated with 161 First Street was subdivided in March 2018 as part of the parcel consolidation for 50 Rogers Street, which is now an adjacent property west of the site. The site consists of approximately 14,921 square feet (sf) of land occupied by a four-story brick building owned by ARE-MA No. 62, LLC in Cambridge, Massachusetts. The first floor of the building is partially below-grade. The second floor of the building is currently being used as contractor offices, and the remainder of the building is currently vacant. Exterior site grades range from El. 20.5 to El. 21[1]. Areas not occupied by the four-story brick building consist primarily of asphalt and concrete walkways.

The site is bordered by Rogers Street to the north, First Street to the east, and Binney Street to the south. A six-story residential development building at 50 Rogers Street (under construction) borders the site to the west. The area surrounding the site is generally commercial (office, laboratory, retail) and multi-family residential.

SITE HISTORY

First development at 161 First Street included construction of the existing four-story brick building in 1907. The 1934 Sanborn map shows the site building was occupied by the Ashton Valve Company for

1. Elevations reported herein are in feet and reference the Cambridge City Base (CCB) Datum.

manufacturing. Former buildings, primarily located on the adjacent 50 Rogers Street property, were attached to the site building and included a foundry for manufacturing of valves, a boiler room, and coal storage area. The 1950 Sanborn map shows the same building layout, however the buildings, with the exception of the foundry still operated by the valve company, housed the Nicholson & Co. glue factory. The 1986 Sanborn map shows the property occupied by the glue factory. Records indicate that Lotus Development Corp (spreadsheet software developers) acquired the property in the 1990s and that the basement of the original building was used as a machine shop for design and assembly of active motion control systems. No significant changes to the buildings are noted on the Sanborn Maps in the 1990s and 2000s. The buildings were most recently used for office and laboratory space, until they were vacated in March 2018 for the new development.

ENVIRONMENTAL CONDITIONS AND REGULATORY BACKGROUND

The site is associated with Release Tracking Number (RTN) 3-25556), which was closed with a Class B-2 Response Action Outcome (RAO) in January 2007 with implementation of an Activity and Use Limitation (AUL). The AUL restricts use of the property as a "school or recreational area for children, or as a residence involving children". Release Abatement Measure (RAM) activities were undertaken in 2018 to 2019 within the limits of the new 50 Rogers development parcel and the AUL pursuant to 310 CMR 40.1067(5)(b) in connection with the development of 50 Rogers Street. Completion of these RAM activities permitted termination of the portion of the AUL within the limits of the new 50 Rogers development parcel. In accordance with 310 CMR 40.1067(5)(d), a revised Permanent Solution Statement was submitted for RTN 3-25556 in April 2019 to document the ability to terminate the portion of the AUL within the new 50 Rogers Street parcel area. The AUL is still in place for the current 161 First Street property.

Intrusive activities at the site, including those generating dewatering effluent, will be conducted under a new RAM Plan which will be filed with the Massachusetts Department of Environmental Protection (MassDEP) prior to start of intrusive sitework.

PROPOSED CONSTRUCTION

Proposed construction at the site that may require dewatering consists of replacing the existing building foundation with new drilled mini piles (DMPs). Exterior site improvements include limited excavation for new stairwells and an access ramp. Installation of DMPs may require dewatering to manage drill water (potable water) that will be comingled with site groundwater during pile installation.

CURRENT GROUNDWATER QUALITY INFORMATION

To evaluate groundwater quality at the site, three groundwater samples were collected from ENV-1(OW), TP-101(OW), and TP-103(OW) on 9 August 2019. The samples were analyzed for limited analytical suite for preliminary assessment and characterization purposes. On 8 October 2019, a groundwater sample was collected from an observation well installed at TP-102 to meet the requirements of the 2017 NPDES RGP NOI. The sampling locations are shown on Figure 2. Table I provides a summary of groundwater quality data collected at the site, and laboratory data reports are included in Appendix H.

Groundwater concentrations were below 2017 NPDES RGP effluent criteria except for Total Iron and Total Suspended Solids (TSS). Although the pH in one sample (TP-102; pH of 6.4) was slightly below the NPDES RGP criteria of 6.5, the average pH for groundwater at the site is 6.6 and within the limitations for discharge in Massachusetts. Results of the analysis indicated concentrations below applicable MassDEP RCGW-2 Reportable Concentrations.

Dewatering effluent may include drill water, which is potable water from the City of Cambridge that is anticipated to contain chlorine. Accordingly, total residual chlorine is marked "believed present" on the NOI form even though site groundwater data was non detect for that parameter.

ETHANOL SAMPLING

Ethanol sampling was not conducted on the groundwater sample as site history does not suggest that ethanol was stored at the property, nor that a petroleum product containing ethanol was released at the site. Ethanol has been increasingly used in fuels since 2006 (according to the 2016 NOI Fact Sheet), and according to site history, no known fuel-related storage or handling activities have been conducted on-site since that time.

RECEIVING WATERS SAMPLING AND DILUTION FACTOR

On 5 February 2020, one sample was collected from the CAM017 outfall location into the Charles River and submitted to Alpha Analytical for analysis of hardness, ammonia and metals. Results of this sampling program are provided in Table II.

The pH and temperature readings collected in the field were used to calculate the site Water Quality Based Effluent Limitations (WQBELs). It is our understanding that since the receiving water is a freshwater body, salinity does not need to be analyzed on either the effluent water or receiving water.

The seven-day-ten-year flow (7Q10) of the receiving water was established using the U.S. Geological Survey (USGS) StreamStats program and confirmed by MassDEP on 5 March 2020 along with our site-specific dilution factor of 88.5 The StreamStats Report, Dilution Factor calculations, and confirmation from MassDEP are included in Appendix B.

EFFLUENT CRITERIA DETERMINATION

Groundwater and receiving water data were input to the Effluent Limitation Calculations for Massachusetts excel file provided as an additional resource by EPA to calculate effluent criteria for the site. Copies of the "EnterData" and "FreshwaterResults" tabs from the excel file are included in Appendix B. The applicable effluent limitations for the site are included for reference in Table I.

DEWATERING SYSTEM AND OFF-SITE DISCHARGE

During foundation installation, it will be necessary to perform temporary dewatering to manage foundation installation-associated drill water and construction-generated water to enable construction in-the-dry. Dewatering activities are currently anticipated to be required for a period of approximately 6 months. On average, we estimate effluent discharge rates of about 25 to 50 gallons per minute (gpm)

or less, with occasional peak flows during significant precipitation events. Temporary dewatering will be conducted from sumps located in work area as needed.

Due to use of grout during DMP installation, it is anticipated that dewatering influent may have an elevated pH. A pH adjustment system consisting of sulfuric acid will be added to the treatment system to lower the pH as necessary to maintain pH within discharge requirements. Dosing will be automatically controlled using a meter pump, pH controller, and probe. The sulfuric acid will be stored in a drum within secondary containment.

The estimated maximum magnitude of application ("worst case/ceiling value") would be 48 gallons of sulfuric acid per day at a flow rate of 0.216 million gallons per day, which equates to a concentration of 222 ppm. The lethal concentration to kill 50% of the fish population (LC50) in a receiving water is 500 ppm per the SDS in Attachment D. So even at ceiling values, the sulfuric acid would not exceed LC50. Actual daily application of sulfuric acid is anticipated to be 0.5 gallons/day or less.

Part F of the RGP NOI requires that chemical additives be identified if applied to the effluent prior to discharge. To satisfy the confirmation requirements of RGP Part 2.5.3.d.ii:

1. The addition of a pH conditioner will not add any pollutants in concentrations which exceed permit effluent limitations;
2. The use of this chemical will not result in the exceedance of any applicable water quality standard;
3. This chemical will not add any pollutants that would justify the application of permit conditions that are different from or absent in the permit.

Construction dewatering will include piping and discharging to a storm drain located near the site that discharges into the Charles River through outfall CAM017. The proposed discharge route is shown on Figure 3. Prior to discharge, collected water will be routed through a sedimentation tank and bag filters and other necessary treatment components, to remove suspended solids and undissolved chemical constituents, as shown on Figure 4. The contractor's dewatering submittal documents are included in Appendix C. A Notice of Change (NOC) will be submitted to EPA if additional treatment components need to be mobilized at the site.

DOCUMENTATION OF NATIONAL HISTORIC PRESERVATION ACT ELIGIBILITY REQUIREMENTS

Based on a review of the resources provided by the U.S. National Register of Historic Places and a review of the Massachusetts Cultural Resource Information System (MACRIS), no historic properties have been established to be present at the project site, and discharges and discharge-related activities are not considered to have the potential to affect historic properties. The discharge is considered to meet Criterion A. Documentation is included in Appendix D.

DETERMINATION OF ENDANGERED SPECIES ACT ELIGIBILITY

According to the guidelines outlined in Appendix I of the 2017 NPDES RGP, a preliminary determination for the action area associated with this project was established using the U.S. Fish and Wildlife Service (FWS) Information, Planning, and Conservation (IPAC) online system; a copy of the determination is attached in Appendix E. Based on the results of the determination, the project and action area are

considered to meet FWS Criterion A as no listed species or critical habitat have been established to be present within the project action area.

SUPPLEMENTAL INFORMATION

An application for a temporary construction dewatering permit is being submitted to the City of Cambridge by the contractor concurrent with this NPDES RGP NOI; a copy of the application is provided in Appendix F. Approval will be received prior to the start of discharge. A Best Management Practices Plan (BMPP), which outlines the proposed discharge operations covered under the RGP, will be available at the site and is included in Appendix G.

Owner and Operator Information

Owner:
ARE-MA Region No. 21, LLC
400 Technology Square Suite 101
Cambridge, MA 02139
Attn: Bill DePippo

Operator:
Consigli Construction Co, Inc.
266 Summer Street
Boston, MA 02210
Attn: Justin Pollard

CLOSING

Thank you very much for your consideration. Please feel free to contact us should you wish to discuss the information contained herein or if you need additional information.

Sincerely yours,
HALEY & ALDRICH, INC.

Lee E. Penwell
Project Manager

Rebecca B. Higgins, P.E.
Senior Associate

Attachments:

Table I – Summary of Groundwater Quality Data
Table II – Summary of Receiving Water Quality Data
Figure 1 – Project Locus
Figure 2 – Site and Subsurface Exploration Location Plan
Figure 3 – Proposed Discharge Routes
Figure 4 – Proposed Treatment System Schematic
Appendix A – Notice of Intent (NOI)
Appendix B – Dilution Factor and Effluent Limit Calculations
Appendix C – Contractor's Dewatering System Schematic
Appendix D – National Register of Historic Places Documentation
Appendix E – Endangered Species Act Documentation
Appendix F – Copy of City of Cambridge Dewatering Permit Application
Appendix G – Best Management Practices Plan (BMPP)
Appendix H – Laboratory Data Reports

TABLE I
SUMMARY OF GROUNDWATER QUALITY DATA
161 FIRST STREET
CAMBRIDGE, MA
FILE NO. 134061

Location Name	MA RGP	MCP	ENV-1(OW)	TP-101(OW)	TP-102	TP-103(OW)
Sample Name	NPDES 2017	Reportable	ENV-1(OW)-080919	TP-101(OW)-080919	TP-102_2019-1008	TP-103(OW)-080919
Sample Date	Freshwater	Concentration	08/09/2019	08/09/2019	10/08/2019	08/09/2019
Lab Sample ID	Effluent Criteria	RCGW-2 2014	L1935997-01	L1935999-01	L1946992-01 L1949716-01	L1935999-02
Volatile Organic Compounds (ug/L)						
Total BTEX	*100*	*NA*	-	*ND*	*ND*	*ND*
Acetone	7970	50000	-	ND (5)	2000	ND (5)
Semi-Volatile Organic Compounds (ug/L)						
Total Phalates	190	NA			ND	
Total Group I PAHs	*1*	*NA*	-	-	*ND*	
Total Group II PAHs	*100*	*NA*	-	-	*16.55*	
Acenaphthene	100**	6000	-	-	9.2	-
Anthracene	100**	30	-	-	0.75	-
Fluoranthene	100**	200	-	-	0.35	-
Fluorene	100**	40	-	-	1.9	-
Naphthalene	20/100**	700	-	-	1.3	-
Phenanthrene	100**	10000	-	-	2.8	-
Pyrene	100**	20	-	-	0.25	-
Total Petroleum Hydrocarbons (mg/L)						
Petroleum hydrocarbons	5	5	-	-	ND (4)	-
EPH (ug/L)						
C11-C22 Aromatic Hydrocarbons, Adjusted	NA	5000	-	ND (100)	-	ND (100)
C19-C36 Aliphatic Hydrocarbons	NA	50000	-	ND (100)	-	ND (100)
C9-C18 Aliphatic Hydrocarbons	NA	5000	-	ND (100)	-	ND (100)
VPH (ug/L)						
C5-C8 Aliphatic Hydrocarbons, Adjusted	NA	3000	-	ND (100)	-	ND (100)
C9-C10 Aromatic Hydrocarbons	NA	4000	-	ND (100)	-	ND (100)
C9-C12 Aliphatic Hydrocarbons, Adjusted	NA	5000	-	ND (100)	-	ND (100)
Inorganic Compounds (mg/L)						
Iron, Dissolved	NA	NA	23.1	1.88	-	0.769
Manganese, Dissolved	NA	NA	1.18	1.31	-	1.07
Antimony, Total	0.206	8	-	-	ND (0.004)	-
Arsenic, Total	0.104	0.9	-	-	ND (0.001)	-
Cadmium, Total	0.0102	0.004	-	-	ND (0.0002)	-
Calcium, Total	NA	NA	289	-	-	-
Chromium, Total	0.323	0.3	-	-	0.00201	-
Chromium III (Trivalent), Total	0.323	0.6	-	-	ND (0.01)	-
Chromium VI (Hexavalent)	0.323	0.3	-	-	ND (0.01)	-
Copper, Total	0.242	100	-	-	0.00101	-
Iron, Total	5	NA	**21.7**	3.12	**26.6**	2.32
Lead, Total	0.16	0.01	-	-	ND (0.001)	-
Magnesium, Total	NA	NA	42.6	-	-	-
Manganese, Total	NA	NA	1.13	1.25	-	1.04
Mercury, Total	0.000739	0.02	-	-	ND (0.0002)	-
Nickel, Total	1.45	0.2	-	-	0.00324	-
Selenium, Total	0.2358	0.1	-	-	ND (0.005)	-
Silver, Total	0.0351	0.007	-	-	ND (0.0004)	-
Zinc, Total	0.42	0.9	-	-	ND (0.01)	-
PCBs (ug/L)						
Aroclor-1016 (PCB-1016)	6.40E-05	5	-	-	ND (0.25)	-
Aroclor-1221 (PCB-1221)	6.40E-05	5	-	-	ND (0.25)	-
Aroclor-1232 (PCB-1232)	6.40E-05	5	-	-	ND (0.25)	-
Aroclor-1242 (PCB-1242)	6.40E-05	5	-	-	ND (0.25)	-
Aroclor-1248 (PCB-1248)	6.40E-05	5	-	-	ND (0.25)	-
Aroclor-1254 (PCB-1254)	6.40E-05	5	-	-	ND (0.25)	-
Aroclor-1260 (PCB-1260)	6.40E-05	5	-	-	ND (0.2)	-

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161 FIRST STREET
CAMBRIDGE, MA
FILE NO. 134061

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Sample Name	NPDES 2017	Reportable	ENV-1(OW)-080919	TP-101(OW)-080919	TP-102_2019-1008	TP-103(OW)-080919
Sample Date	Freshwater	Concentration	08/09/2019	08/09/2019	10/08/2019	08/09/2019
Lab Sample ID	Effluent Criteria	RCGW-2 2014	L1935997-01	L1935999-01	L1946992-01 L1949716-01	L1935999-02
Other						
Total Dissolved Solids (TDS) (mg/L)	NA	NA	4200	-	-	-
Ammonia, Total (mg/L)	Report	NA	-	-	0.598	-
Bicarbonate (as CaCO3), Total (mg/L)	NA	NA	355	456	-	447
Calcium Carbonate, Total (mg/L)	NA	NA	355	456	-	447
Chloride, Total (mg/L)	Report	NA	-	-	655	-
Chlorine, residual, Total (mg/L)	0.2	NA	-	-	ND (0.02)	-
Cyanide, Total (mg/L)	178	NA	-	-	0.03	-
Cyanide, Physiologically Available (mg/L)	NA	0.03	-	-	NA (0.005)	-
Hardness, Total (mg/L)	NA	NA	-	-	817	-
Sulfate, Total (mg/L)	NA	NA	180	-	-	-
Total phenols (mg/L)	1.08	NA	-	-	0.04	-
Total Suspended Solids (TSS) (mg/L)	30	NA	-	-	**62**	-
Field Parameters						
Temperature (^{o}C)	NA	NA	17.7	20.0	18.6	20.5
Conductivity (Ms/cm)	NA	NA	6514	2838	3301	4287
Dissolved Oxygen (mg/L)	NA	NA	0.59	0.63	0.52	0.15
pH	6.5 to 8.3	NA	6.5	6.6	6.4	7.0
ORP (mV)	NA	NA	-79.8	-58.6	-134.6	-109.8
Turbidity (NTU)	NA	NA	37.7	27.3	9.2	47

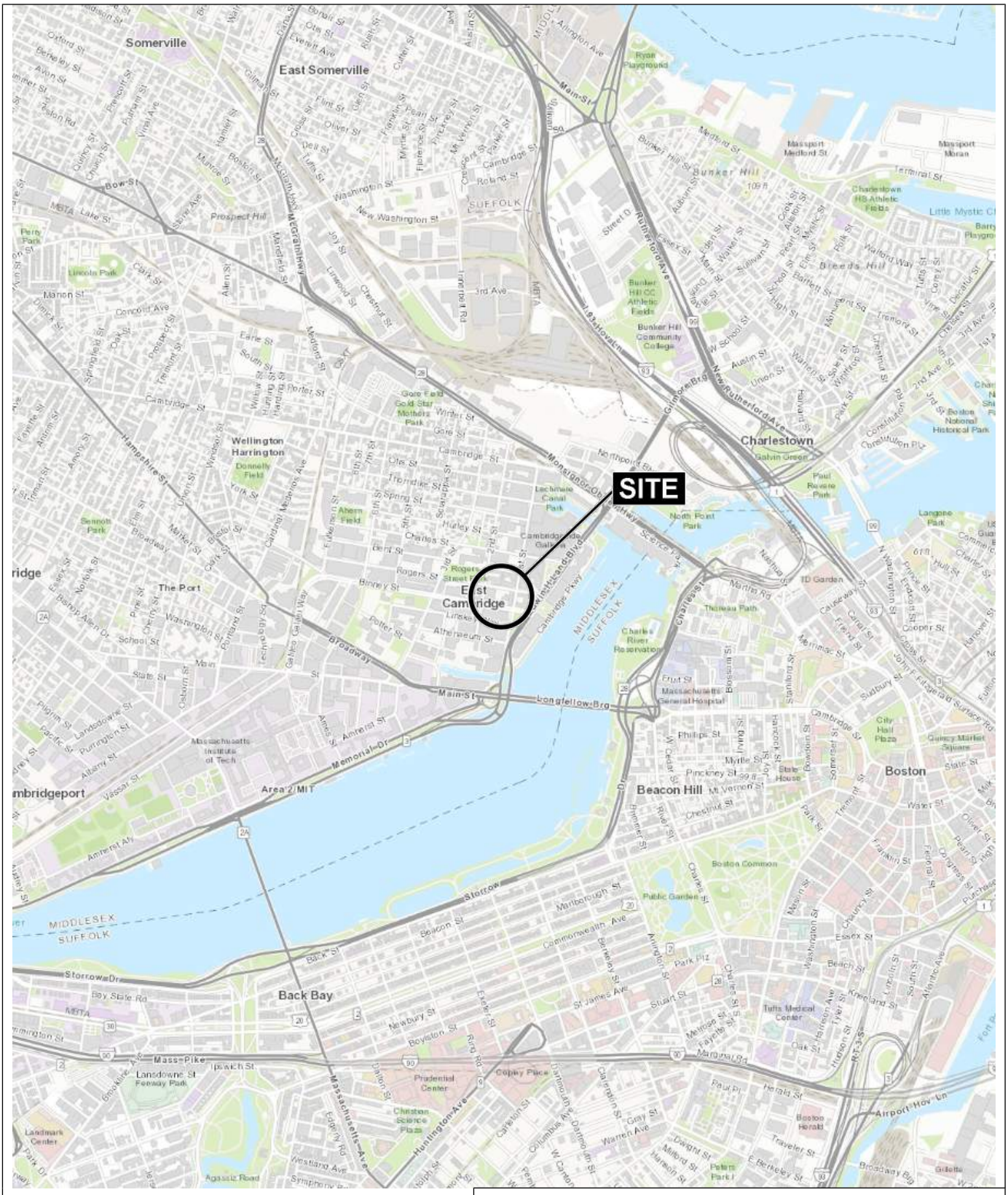
ABBREVIATIONS AND NOTES:
-: Not Analyzed
**: Total Group II PAHs limited to 100 ug/L
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory detection limit

- Analytes detected in at least one sample are reported herein. For a complete list of analytes see the laboratory data sheets.
- **Bold** values indicate an exceedance of the Massachusetts NPDES RGP Freshwater criteria.

TABLE II
SUMMARY OF RECEIVING WATER QUALITY DATA
161 FIRST STREET
CAMBRIDGE, MA
FILE NO. 134061

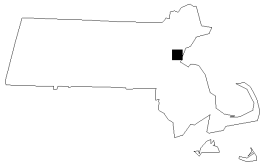
Location Name	CAM-017 (Charles River)
Sample Name	CAM-017-20200205
Sample Date	02/05/2020
Lab Sample ID	L2005300-01
Metals (mg/L)	
Antimony, Total	ND (0.004)
Arsenic, Total	ND (0.001)
Cadmium, Total	ND (0.0002)
Chromium, Total	ND (0.001)
Chromium III (Trivalent), Total	ND (0.01)
Chromium VI (Hexavalent), Dissolved	ND (0.01)
Copper, Total	0.00221
Iron, Total	0.394
Lead, Total	ND (0.001)
Mercury, Total	ND (0.0002)
Nickel, Total	ND (0.002)
Selenium, Total	ND (0.005)
Silver, Total	ND (0.0004)
Zinc, Total	0.01698
Other	
Ammonia, Total (mg/L)	0.112
Hardness, Total (mg/L)	82.2
Field Parameters	
pH	7.38
Temperature (C)	5.9

NOTES:
ND (2.5): Not detected, number in parentheses is the laboratory detection limit



MAP SOURCE: ESRI

SITE COORDINATES: 42°21'56"N, 71°4'43"W



HALEY ALDRICH

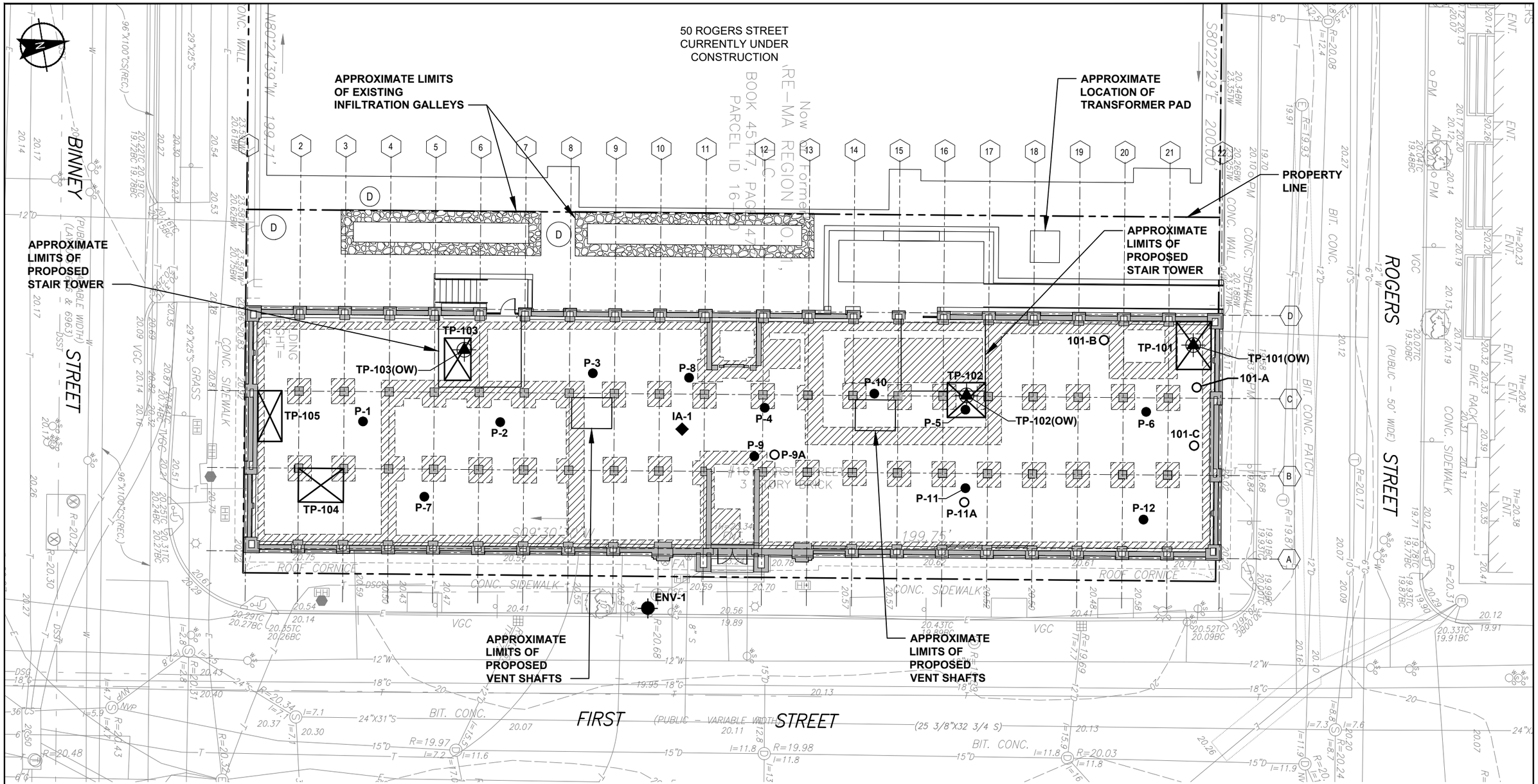
161 FIRST STREET
CAMBRIDGE, MASSACHUSETTS

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
MARCH 2020

FIGURE 1

34250-840_1_LOCUS.PDF



LEGEND

101-B ○	DESIGNATION AND APPROXIMATE LOCATION OF SOIL SAMPLE COLLECTED AT 5-IN. DIAMETER CORE ON 12 SEPTEMBER 2019
TP-101 ☒	DESIGNATION AND APPROXIMATE LOCATION OF TEST PIT CONDUCTED BY CONSIGLI CONSTRUCTION IN JULY TO SEPTEMBER 2019
P-1 ●	DESIGNATION AND APPROXIMATE LOCATION OF SOIL GAS SAMPLE COLLECTED ON 15 JULY AND 20 AUGUST 2019
TP-101(OW) ⊕	DESIGNATION AND APPROXIMATE LOCATION OF OBSERVATION WELL INSTALLED IN AUGUST TO SEPTEMBER 2019
IA-1 ◆	DESIGNATION AND APPROXIMATE LOCATION OF INDOOR AIR SAMPLE COLLECTED ON 15 JULY 2019
▨	APPROXIMATE LOCATION OF EXISTING PILE CAP, GRADE BEAM, AND/OR BELOW-GRADE WALL

NOTES

1. BASE PLAN TAKEN FROM DRAWING "C-2" BY KLEINFELDER ENGINEERING, INC. DATED 15 AUGUST 2019.
2. LOCATION OF PROPOSED STAIR TOWERS AND VENT SHAFTS FROM DRAWING "S11-01" BY McNAMARA SALVIA STRUCTURAL ENGINEERS DATED 15 AUGUST 2019.
3. PILE CAP, GRADE BEAM, AND/OR BELOW-GRADE WALL LOCATIONS FROM 1907 FOUNDATION PLAN BLUEPRINT.
4. ELEVATIONS ARE IN FEET AND REFERENCE THE CAMBRIDGE CITY BASE (CCB) DATUM.

0 20 40
SCALE IN FEET

HALEY ALDRICH
161 FIRST STREET
CAMBRIDGE, MASSACHUSETTS

SITE AND SUBSURFACE EXPLORATION LOCATION PLAN

SCALE: AS SHOWN
MARCH 2020

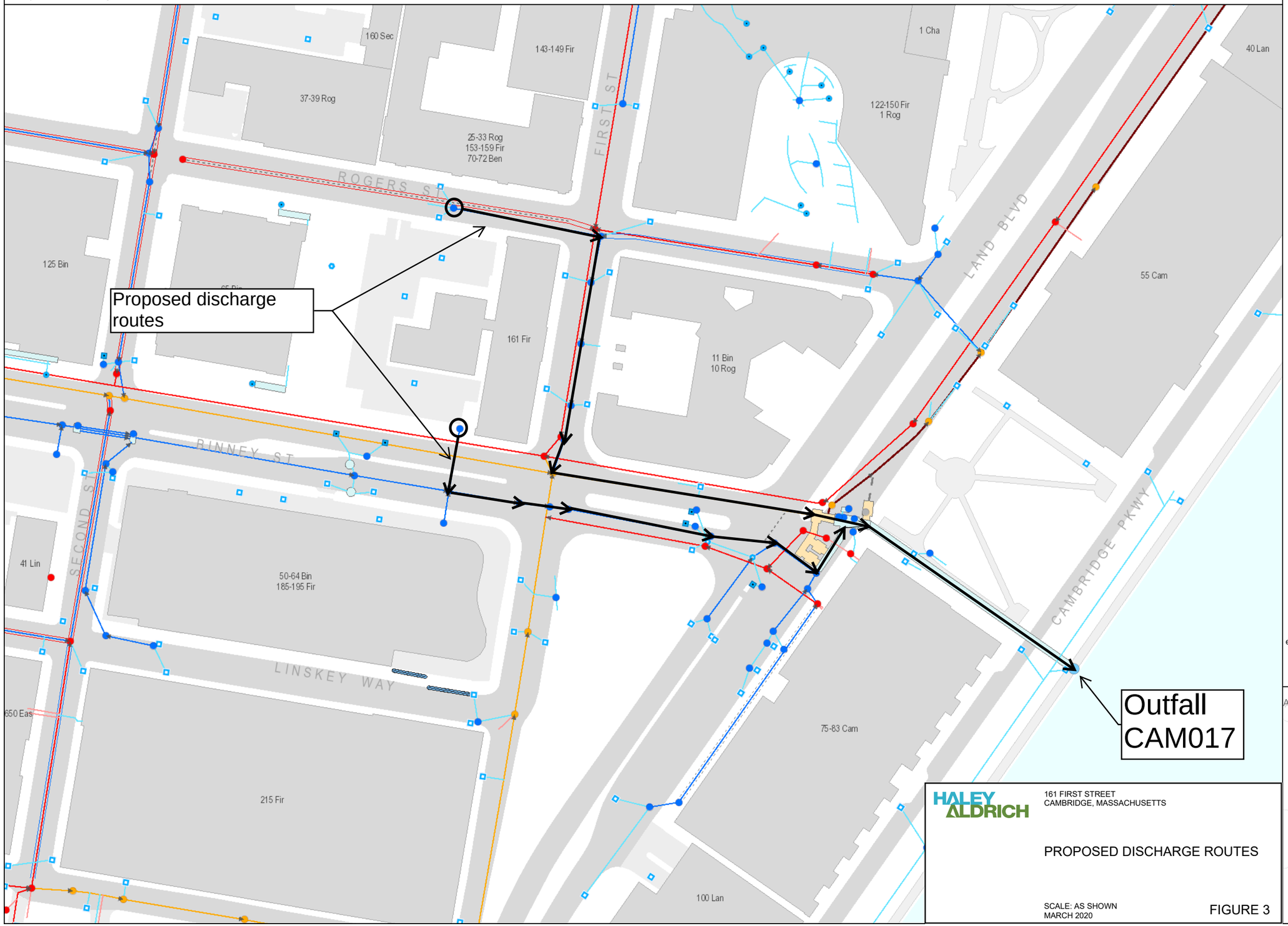
FIGURE 2

Saved by: DTE Printed: 9/29/2019 11:16 AM Sheet: B004
J:\GRAPHICS\134061\134061-004-B004.DWG

City of Cambridge

161 First Street

February 6, 2020



LEGEND

Outfalls
- Stormwater
- Combined Sewer Overflo
- Abandoned

Pumping Structures
- Pump Station
- Lift Station

Manholes
- Stormwater
- Sewage
- Combined Sewage
- Abandoned

Lampholes
- LampHole, Sewage
- LampHole, Storm Runoff

Catchbasins
- Standard Sump
- Drop Inlet
- Area Drain
- Drywell
- Oil/Water Separator
- Abandoned

Trench Drains

Service Laterals
- Combined Wastewater, In
- Stormwater
- Sewage
- Abandoned

Force Mains
- Combined Wastewater
- Sewage
- Storm Runoff

MWRA Mains
- Abandoned
- In Service

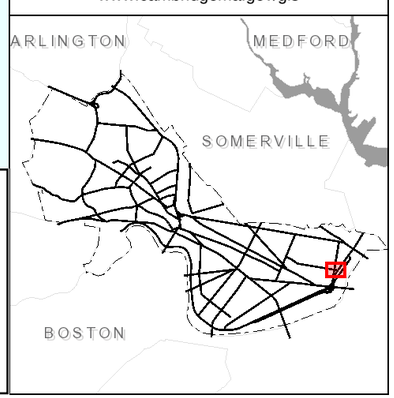
Underground Structures
- Stormwater
- Sewage
- Combined Sewage

Zoom Three Paved Surfaces
- Paved Roads
- Other Paved Surface
- Bridges
- Public Footpath

City of Cambridge
Massachusetts

1" = 96 ft

www.cambridgema.gov/gis



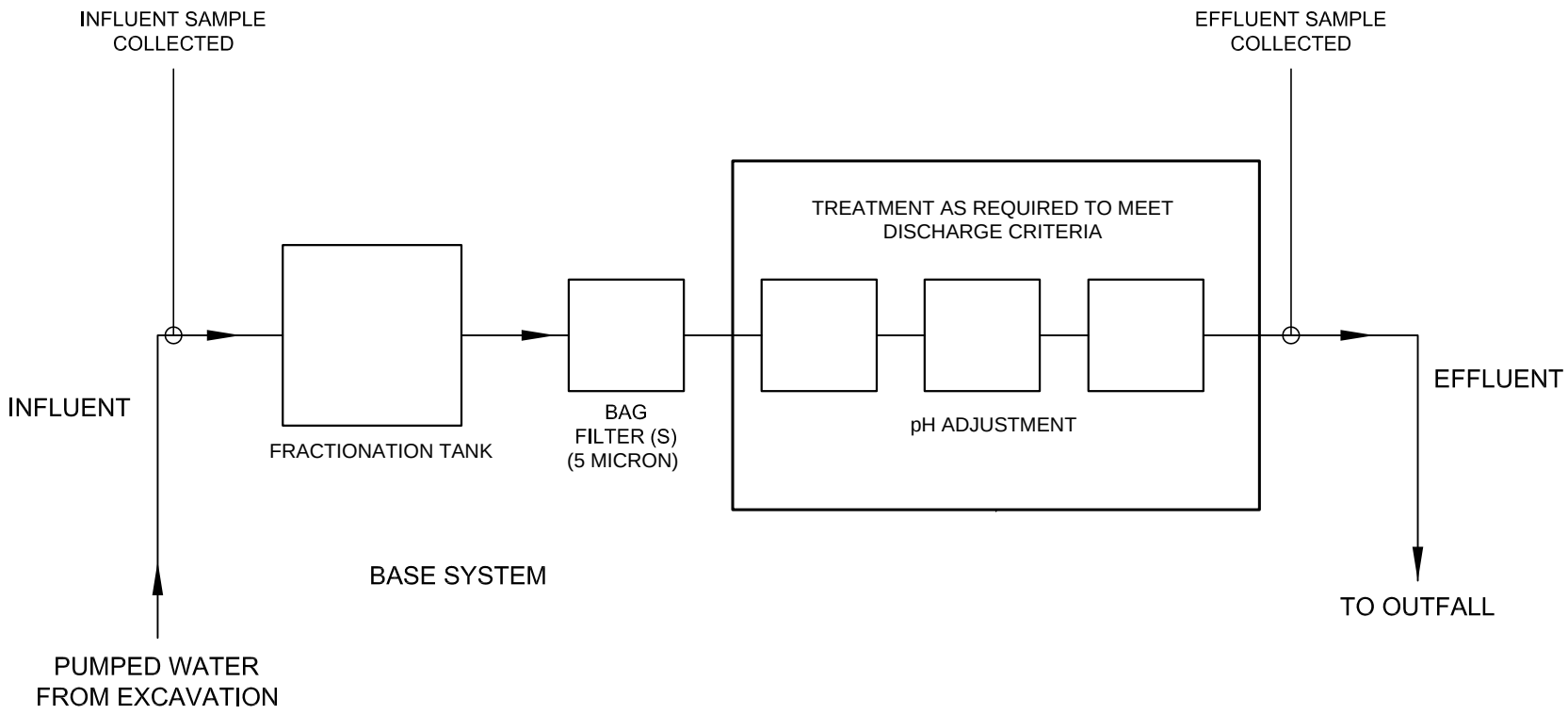
HALEY ALDRICH

161 FIRST STREET
CAMBRIDGE, MASSACHUSETTS

PROPOSED DISCHARGE ROUTES

SCALE: AS SHOWN
MARCH 2020

FIGURE 3



LEGEND:

DIRECTION OF FLOW

NOTE:

1. DETAILS OF TREATMENT SYSTEM MAY VARY FROM SYSTEM INDICATED ABOVE. SPECIFIC MEANS AND METHODS OF TREATMENT TO BE SELECTED BY CONTRACTOR. WATER WILL BE TREATED TO MEET REQUIRED EFFLUENT STANDARDS.

HALEY ALDRICH

161 FIRST STREET
CAMBIRDGE, MASSACHUSETTS

PROPOSED TREATMENT SYSTEM SCHEMATIC

SCALE: NONE
MARCH 2020

FIGURE 4

APPENDIX A

Notice of Intent (NOI)

II. Suggested Format for the Remediation General Permit Notice of Intent (NOI)

A. General site information:

<table>
<tr><td rowspan="2">1. Name of site:
161 First Street</td><td colspan="3">Site address: 161 First Street
Street:</td></tr>
<tr><td>City: Cambridge</td><td>State: MA</td><td>Zip: 02142</td></tr>
<tr><td rowspan="4">2. Site owner
ARE-MA REGION NO. 21, LLC

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: William DePippo</td></tr>
<tr><td colspan="2">Telephone: 6172524904</td><td>Email: wdepippo@are.com</td></tr>
<tr><td colspan="3">Mailing address: 400 Technology Square, Suite 101
Street:</td></tr>
<tr><td>City: Cambridge</td><td>State: MA</td><td>Zip: 02139</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
Consigli Construction Co, Inc.</td><td colspan="3">Contact Person: Justin Pollard</td></tr>
<tr><td colspan="2">Telephone: 7745735693</td><td>Email: JPollard@consigli.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 266 Summer Street</td></tr>
<tr><td>City: Boston</td><td>State: MA</td><td>Zip: 02210</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:
Not applicable

NPDES permit is (check all that apply: ■ RGP ☐ DGP ☐ CGP
☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:</td><td colspan="3">5. Other regulatory program(s) that apply to the site (check all that apply):
■ MA Chapter 21e; list RTN(s): 3-25556
☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:
☐ CERCLA
☐ UIC Program
☐ POTW Pretreatment
☐ CWA Section 404</td></tr>
</table>

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Charles River	MA72-38	Class B(CSO)

Receiving water is (check any that apply): ☐ Outstanding Resource Water ☐ Ocean Sanctuary ☐ territorial sea ☐ Wild and Scenic River

2. Has the operator attached a location map in accordance with the instructions in B, above? (check one): ■ Yes ☐ No

Are sensitive receptors present near the site? (check one): ☐ Yes ■ No
If yes, specify:

3. Indicate if the receiving water(s) is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP. TMDL phosphorus and pathogens

4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.	18.9 MGD
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.	88.5

6. Has the operator received confirmation from the appropriate State for the 7Q10and dilution factor indicated? (check one): ■ Yes ☐ No
If yes, indicate date confirmation received: 3/5/2020

7. Has the operator attached a summary of receiving water sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No

C. Source water information:

1. Source water(s) is (check any that apply):

■ Contaminated groundwater Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No	☐ Contaminated surface water Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ☐ Yes ☐ No	☐ The receiving water ☐ A surface water other than the receiving water; if so, indicate waterbody:	■ Potable water; if so, indicate municipality or origin: City of Cambridge ☐ Other; if so, specify:

2. Source water contaminants: Acetone, Acenaphthene, Anthracene, Fluoranthene, Fluorene, Naphthalene, Phenanthrene, Pyrene, Chromium, Copper, Iron, Manganese, Nickel, Ammonia, Chloride, Cyanide, Total Phenols, TSS	
a. For source waters that are contaminated groundwater or contaminated surface water, indicate are any contaminants present that are not included in the RGP? (check one): ■ Yes ☐ No If yes, indicate the contaminant(s) and the maximum concentration present in accordance with the instructions in Appendix VIII.	b. For a source water that is a surface water other than the receiving water, potable water or other, indicate any contaminants present at the maximum concentration in accordance with the instructions in Appendix VIII? (check one): ☐ Yes ☐ No
3. Has the source water been previously chlorinated or otherwise contains residual chlorine? (check one): ■ Yes ☐ No (City of Cambridge potable water will be a portion of source water)	

D. Discharge information

1.The discharge(s) is a(n) (check any that apply): ☐ Existing discharge ■ New discharge ☐ New source	
Outfall(s): CAM-017	Outfall location(s): (Latitude, Longitude) 42.3646, -71.0762

Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ☐ Indirect discharge, if so, specify:

☐ A private storm sewer system ■ A municipal storm sewer system

If the discharge enters the receiving water via a private or municipal storm sewer system:

Has notification been provided to the owner of this system? (check one): ■ Yes ☐ No

Has the operator has received permission from the owner to use such system for discharges? (check one): ☐ Yes ■ No, if so, explain, with an estimated timeframe for obtaining permission: City of Cambridge permit being submitted concurrently. Approval will be received prior to start of discharge.

Has the operator attached a summary of any additional requirements the owner of this system has specified? (check one): ☐ Yes ■ No

Provide the expected start and end dates of discharge(s) (month/year): May 2020 - Nov 2020

Indicate if the discharge is expected to occur over a duration of: ■ less than 12 months ☐ 12 months or more ☐ is an emergency discharge

Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No

<table>
<tr><td>2. Activity Category: (check all that apply)</td><td colspan="2">3. Contamination Type Category: (check all that apply)</td></tr>
<tr><td rowspan="4">☐ I – Petroleum-Related Site Remediation
☐ II – Non-Petroleum-Related Site Remediation
■ III – Contaminated Site Dewatering
☐ IV – Dewatering of Pipelines and Tanks
☐ V – Aquifer Pump Testing
☐ VI – Well Development/Rehabilitation
☐ VII – Collection Structure Dewatering/Remediation
☐ VIII – Dredge-Related Dewatering</td><td colspan="2">a. If Activity Category I or II: (check all that apply)

☐ A. Inorganics
☐ B. Non-Halogenated Volatile Organic Compounds
☐ C. Halogenated Volatile Organic Compounds
☐ D. Non-Halogenated Semi-Volatile Organic Compounds
☐ E. Halogenated Semi-Volatile Organic Compounds
☐ F. Fuels Parameters</td></tr>
<tr><td colspan="2">b. If Activity Category III, IV, V, VI, VII or VIII: (check either G or H)</td></tr>
<tr><td>■ G. Sites with Known Contamination</td><td>☐ H. Sites with Unknown Contamination</td></tr>
<tr><td>c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply)

■ A. Inorganics
■ B. Non-Halogenated Volatile Organic Compounds
☐ C. Halogenated Volatile Organic Compounds
■ D. Non-Halogenated Semi-Volatile Organic Compounds
☐ E. Halogenated Semi-Volatile Organic Compounds
☐ F. Fuels Parameters</td><td>d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply</td></tr>
</table>

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia		✓	1	4500NH3	75	598	598	Report mg/L	---
Chloride		✓	1	300.0	12500	655000	655000	Report µg/l	---
Total Residual Chlorine		✓	1	4500CL-I	20	0	0	0.2 mg/L	
Total Suspended Solids		✓	1	2540D	5000	62000	62000	30 mg/L	---
Antimony		✓	1	200.8	4	0	0	206 µg/L	
Arsenic		✓	1	200.8	1	0	0	104 µg/L	
Cadmium		✓	1	200.8	0.2	0	0	10.2 µg/L	
Chromium III		✓	1	107	10	0	0	323 µg/L	
Chromium VI	✓		1	7196A	10	0	0	323 µg/L	
Copper		✓	1	200.8	1	1.01	1.01	242 µg/L	
Iron		✓	4	200.7	50	26600	13435	5,000 µg/L	
Lead		✓	1	200.8	1	0	0	160 µg/L	
Mercury		✓	1	245.1	0.2	0	0	0.739 µg/L	
Nickel		✓	1	200.8	2	3.24	3.24	1,450 µg/L	
Selenium	✓		1	200.8	5	0	0	235.8 µg/L	
Silver		✓	1	200.8	0.4	0	0	35.1 µg/L	
Zinc		✓	1	200.8	10	0	0	420 µg/L	
Cyanide		✓	1	4500CN-	5	30	30	178 mg/L	
B. Non-Halogenated VOCs									
Total BTEX		✓	3	624.1	2.5	0	0	100 µg/L	---
Benzene	✓		3	624.1	2.5	0	0	5.0 µg/L	---
1,4 Dioxane	✓		3	624.1-SIM	120	0	0	200 µg/L	---
Acetone		✓	3	624.1	25	2000	667	7.97 mg/L	---
Phenol		✓	1	420.1	30	40	40	1,080 µg/L	

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride	✓		3	624.1	2.5	0	0	4.4 µg/L	
1,2 Dichlorobenzene	✓		3	624.1	12	0	0	600 µg/L	---
1,3 Dichlorobenzene	✓		3	624.1	12	0	0	320 µg/L	---
1,4 Dichlorobenzene	✓		3	624.1	12	0	0	5.0 µg/L	---
Total dichlorobenzene	✓		3	624.1	12	0	0	763 µg/L in NH	---
1,1 Dichloroethane		✓	3	624.1	3.8	0	0	70 µg/L	---
1,2 Dichloroethane	✓		3	624.1	3.8	0	0	5.0 µg/L	---
1,1 Dichloroethylene	✓		3	624.1	2.5	0	0	3.2 µg/L	---
Ethylene Dibromide	✓		3	504.1	0.01	0	0	0.05 µg/L	---
Methylene Chloride	✓		3	624.1	2.5	0	0	4.6 µg/L	---
1,1,1 Trichloroethane		✓	3	624.1	5	0	0	200 µg/L	---
1,1,2 Trichloroethane	✓		3	624.1	3.8	0	0	5.0 µg/L	---
Trichloroethylene		✓	3	624.1	2.5	0	0	5.0 µg/L	---
Tetrachloroethylene		✓	3	624.1	2.5	0	0	5.0 µg/L	
cis-1,2 Dichloroethylene		✓	3	624.1	2.5	0	0	70 µg/L	---
Vinyl Chloride	✓		3	624.1	2.5	0	0	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates		✓	1	625.1	5	0	0	190 µg/L	
Diethylhexyl phthalate		✓	1	625.1	2.2	0	0	101 µg/L	
Total Group I PAHs		✓	1	625.1-SIM	0.1	0	0	1.0 µg/L	---
Benzo(a)anthracene		✓	1	625.1-SIM	0.1	0	0	As Total PAHs	
Benzo(a)pyrene		✓	1	625.1SIM	0.1	0	0		
Benzo(b)fluoranthene		✓	1	625.1SIM	0.1	0	0		
Benzo(k)fluoranthene		✓	1	625.1-SIM	0.1	0	0		
Chrysene		✓	1	625.1-SIM	0.1	0	0		
Dibenzo(a,h)anthracene		✓	1	625.1-SIM	0.1	0	0		
Indeno(1,2,3-cd)pyrene		✓	1	625.1-SIM	0.1	0	0		

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
Total Group II PAHs		✔	1	625.1-SIM	0.10	16.55	16.55	100 µg/L	---
Naphthalene		✔	1	625.1-SIM	0.10	1.3	1.3	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔		1	608.3	0.25	0	0	0.000064 µg/L	---
Pentachlorophenol	✔		1	625.1-SIM	1	0	0	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons		✔	1	1664A	4	0	0	5.0 mg/L	---
Ethanol	✔		0	NA	NA	NA	NA	Report mg/L	---
Methyl-tert-Butyl Ether	✔		3	624.1	25	0	0	70 µg/L	
tert-Butyl Alcohol	✔		1	624.1	250	0	0	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		3	624.1	50	0	0	90 µg/L in MA 140 µg/L in NH	---
Other (i.e., pH, temperature, hardness, salinity, LC_{50}, additional pollutants present); if so, specify:									
Hardness		✔	1	200.7	660	817000	817000		
Calcium, Total		✔	1	6010D	100	289000	289000		
Magnesium, Total		✔	1	6010D	100	42600	42600		
Manganese, Total		✔	3	6010D	10	1250	1140		
Sulfate		✔	1	9038	120000	180000	180000		
Chromium, Total		✔	1	200.8	1	2.01	2.01		
Temperature (C)		✔	4	Field	NA	20	19.2		
pH		✔	4	Field	NA	7	6.6		
2,6-Dinitrotoluene		✔	0	NA	NA	0	0		
2-Methylnaphthalene		✔	0	NA	NA	0	0		
Dibenzofuran		✔	0	NA	NA	0	0		
Barium		✔	0	NA	NA	0	0		
Beryllium		✔	0	NA	NA	0	0		
Vanadium		✔	0	NA	NA	0	0		

E. Treatment system information

1. Indicate the type(s) of treatment that will be applied to effluent prior to discharge: (check all that apply)

☐ Adsorption/Absorption ☐ Advanced Oxidation Processes ☐ Air Stripping ☐ Granulated Activated Carbon ("GAC")/Liquid Phase Carbon Adsorption
☐ Ion Exchange ☐ Precipitation/Coagulation/Flocculation ■ Separation/Filtration ■ Other; if so, specify:
pH Adjustment with sulfuric acid (due to presence of grout during dewatering activities)

2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge.
Refer to "Temporary Construction Dewatering, 161 First Street, Cambridge, Massachusetts" letter by Haley & Aldrich, Inc; Figure 4

Identify each major treatment component (check any that apply):
■ Fractionation tanks☐ Equalization tank ☐ Oil/water separator ☐ Mechanical filter ☐ Media filter
☐ Chemical feed tank ☐ Air stripping unit ■ Bag filter ■ Other; if so, specify: pH Adjustment with sulfuric acid (due to presence of grout during dewatering activities)

Indicate if either of the following will occur (check any that apply):
☐ Chlorination ☐ De-chlorination

3. Provide the **design flow capacity** in gallons per minute (gpm) of the most limiting component. Indicate the most limiting component: Bag filters Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	150
Provide the proposed maximum effluent flow in gpm.	150
Provide the average effluent flow in gpm.	50
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	

4. Has the operator attached a schematic of flow in accordance with the instructions in E, above? (check one): ■ Yes ☐ No

F. Chemical and additive information

1. Indicate the type(s) of chemical or additive that will be applied to effluent prior to discharge or that may otherwise be present in the discharge(s): (check all that apply)

☐ Algaecides/biocides ☐ Antifoams ☐ Coagulants ☐ Corrosion/scale inhibitors ☐ Disinfectants ☐ Flocculants ☐ Neutralizing agents ☐ Oxidants ☐ Oxygen ☐ scavengers ■ pH conditioners ☐ Bioremedial agents, including microbes ☐ Chlorine or chemicals containing chlorine ☐ Other; if so, specify:

2. Provide the following information for each chemical/additive, using attachments, if necessary:

Refer to "Temporary Construction Dewatering, 161 First Street, Cambridge, Massachusetts" letter by Haley & Aldrich, Inc; Appendix D

a. Product name, chemical formula, and manufacturer of the chemical/additive;
b. Purpose or use of the chemical/additive or remedial agent;
c. Material Safety Data Sheet (MSDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive;
d. The frequency (hourly, daily, etc.), duration (hours, days), quantity (maximum and average), and method of application for the chemical/additive;
e. Any material compatibility risks for storage and/or use including the control measures used to minimize such risks; and
f. If available, the vendor's reported aquatic toxicity (NOAEL and/or LC50 in percent for aquatic organism(s)).

3. Has the operator attached an explanation which demonstrates that the addition of such chemicals/additives may be authorized under this general permit in accordance with the instructions in F, above? (check one): ■ Yes ☐ No; if no, has the operator attached data that demonstrates each of the 126 priority pollutants in CWA Section 307(a) and 40 CFR Part 423.15(j)(1) are non-detect in discharges with the addition of the proposed chemical/additive?
(check one): ☐ Yes ☐ No

G. Endangered Species Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

■ **FWS Criterion A**: No endangered or threatened species or critical habitat are in proximity to the discharges or related activities or come in contact with the "action area".

☐ **FWS Criterion B**: Formal or informal consultation with the FWS under section 7 of the ESA resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by FWS on a finding that the discharges and related activities are "not likely to adversely affect" listed species or critical habitat (informal consultation). Has the operator completed consultation with FWS? (check one): ☐ Yes ☐ No; if no, is consultation underway? (check one): ☐ Yes ☐ No

☐ **FWS Criterion C**: Using the best scientific and commercial data available, the effect of the discharges and related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the operator and affirmed by EPA, that the discharges and related activities will have "no effect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the FWS. This determination was made by: (check one) ☐ the operator ☐ EPA ☐ Other; if so, specify:

☐ **NMFS Criterion**: A determination made by EPA is affirmed by the operator that the discharges and related activities will have "no effect" or are "not likely to adversely affect" any federally threatened or endangered listed species or critical habitat under the jurisdiction of NMFS and will not result in any take of listed species. Has the operator previously completed consultation with NMFS? (check one): ☐ Yes ■ No

2. Has the operator attached supporting documentation of ESA eligibility in accordance with the instructions in Appendix I, and G, above? (check one): ■ Yes ☐ No

Refer to Appendix E of "Temporary Construction Dewatering, 161 First Street, Cambridge, Massachusetts" letter by Haley & Aldrich, Inc.

Does the supporting documentation include any written concurrence or finding provided by the Services? (check one): ☐ Yes ■ No; if yes, attach.

H. National Historic Preservation Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

■ **Criterion A**: No historic properties are present. The discharges and discharge-related activities (e.g., BMPs) do not have the potential to cause effects on historic properties.

☐ **Criterion B**: Historic properties are present. Discharges and discharge related activities do not have the potential to cause effects on historic properties.

☐ **Criterion C**: Historic properties are present. The discharges and discharge-related activities have the potential to have an effect or will have an adverse effect on historic properties.

2. Has the operator attached supporting documentation of NHPA eligibility in accordance with the instructions in H, above? (check one): ■ Yes ☐ No

Refer to Appendix D of "Temporary Construction Dewatering, 161 First Street, Cambridge, Massachusetts" by Haley & Aldrich, Inc.

Does the supporting documentation include any written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (TPHO), or other tribal representative that outlines measures the operator will carry out to mitigate or prevent any adverse effects on historic properties? (check one): ☐ Yes ■ No

I. Supplemental information

Describe any supplemental information being provided with the NOI. Include attachments if required or otherwise necessary.

Refer to "Temporary Construction Dewatering, 161 First Street, Cambridge, Massachusetts" letter by Haley & Aldrich, Inc;

Has the operator attached data, including any laboratory case narrative and chain of custody used to support the application? (check one): ■ Yes ☐ No

Has the operator attached the certification requirement for the Best Management Practices Plan (BMPP)? (check one): ■ Yes ☐ No

J. Certification requirement

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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

BMPP certification statement: A BMPP meeting the requirements of this general permit will be implemented upon initiation of discharge

Notification provided to the appropriate State, including a copy of this NOI, if required.	Check one: Yes ■ No ☐
Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐
Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐ NA ☐
Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission.	Check one: Yes ■ No ☐ NA ☐
Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:	Check one: Yes ☐ No ☐ NA ■

Signature: Justin Pollard Date: 03/10/20

Print Name and Title: Justin Pollard, Project Manager-Consigli Construction Company

J. Certification requirement

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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

BMPP certification statement: A BMPP meeting the requirements of this general permit will be implemented upon initiation of discharge	
Notification provided to the appropriate State, including a copy of this NOI, if required.	Check one: Yes ■ No ☐
Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐
Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐ NA ☐
Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission.	Check one: Yes ■ No ☐ NA ☐
Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:	Check one: Yes ☐ No ☐ NA ■
Signature: William DePippo	Date: 3/10/2020
Print Name and Title: William DePippo, Vice President-ARE-MA Region No. 21, LLC	

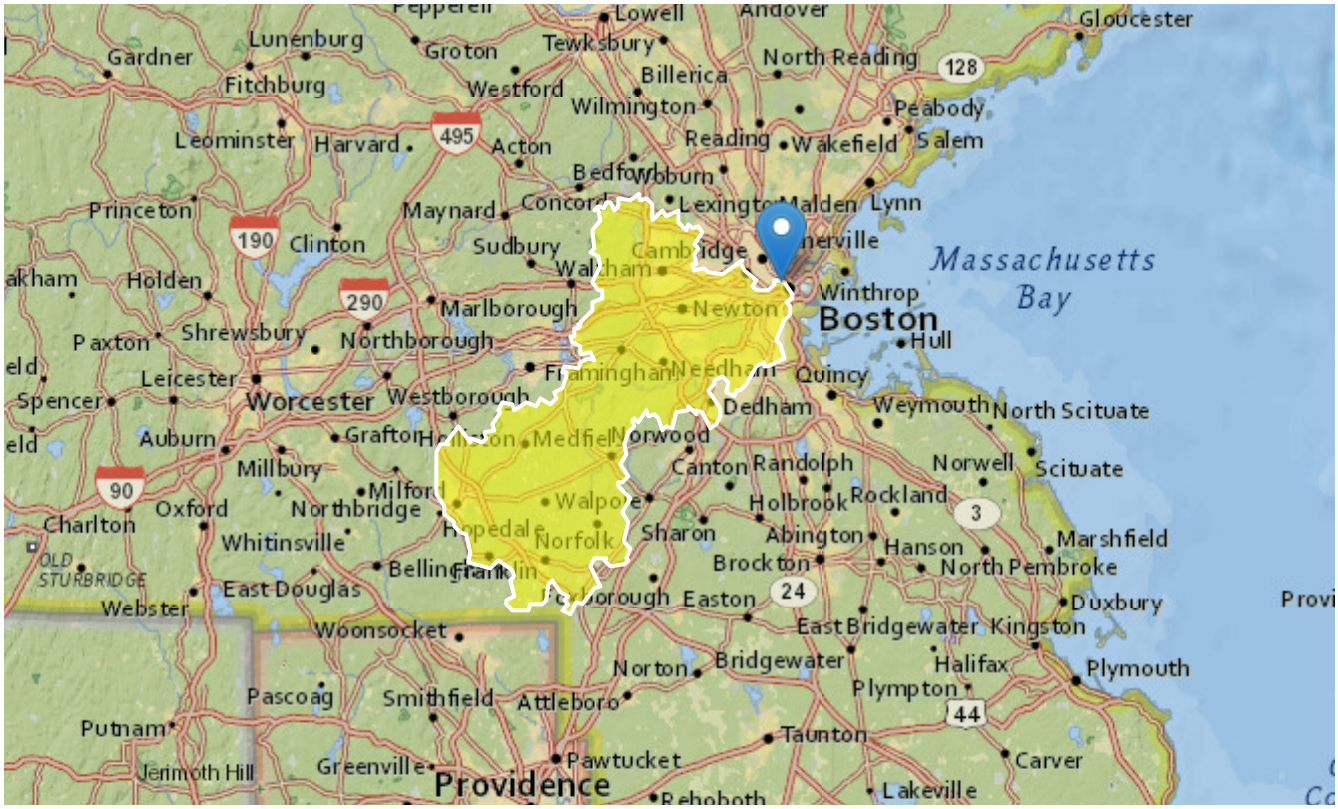
APPENDIX B

Dilution Factor and Effluent Limit Calculations

HALEY ALDRICH

StreamStats Report - 161 First Street

Region ID: MA
Workspace ID: MA20200304181917999000
Clicked Point (Latitude, Longitude): 42.36466, -71.07395
Time: 2020-03-04 13:20:15 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	308	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	2.334	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.25	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Low-Flow Statistics Parameters[Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	308	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	2.334	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.25	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Disclaimers[Statewide Low Flow WRIR00 4135]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit
7 Day 2 Year Low Flow	57.4	ft^3/s
7 Day 10 Year Low Flow	29.2	ft^3/s

Low-Flow Statistics Citations

Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (http://pubs.usgs.gov/wri/wri004135/)

HALEY & ALDRICH, INC.		**CALCULATIONS**	FILE NO.	134061-005	
			SHEET	1 of 1	
CLIENT	ARE-MA Region No. 21, LLC		DATE	4-Mar-20	
PROJECT	161 First Street, Cambridge, MA		COMPUTED BY	MP	
SUBJECT	Dilution Factor Calculations				

PURPOSE: Calculate Dilution Factor (DF) for project based on 7 Day 10 Year (7Q10) Low Flow values.

APPROACH: Calculate DF based on EPA formula $(Q_S + Q_D)/Q_D$, where Q_S is 7Q10 in million gallons per day (MGD) and Q_D is discharge flow in MGD.

ASSUMPTIONS:
1. 7Q10 is 29.2 cfs (from StreamStats 4.0)
2. A conversion of 7.48 is used to convert cubic feet to gallons
3. A discharge flowrate of 150 gpm is assumed

CALCULATIONS:

7Q10 Low Flow Value (Q_S)

$$Q_S = \frac{29.2\ ft^3}{sec} \times \frac{7.48\ gallons}{ft^3} \times \frac{86{,}400\ sec}{day} \times \frac{1\ MG}{1{,}000{,}000\ gallons}$$

$Q_S =$ 18.9 MGD

Discharge Flowrate (Q_D)

$$Q_D = \frac{150\ gallons}{min} \times \frac{1{,}440\ min}{day} \times \frac{1\ MG}{1{,}000{,}000\ gallons}$$

$Q_D =$ 0.216 MGD

Dilution Factor (DF)

$$DF = \frac{Q_S + Q_D}{QD} = \frac{18.9\ MGD + 0.216\ MGD}{0.216\ MGD} = 88.5$$

CONCLUSION: The dilution factor for this project is calculated to be 88.5 based on the provided 7Q10 low flow value and discharge flowrate.

Penwell, Lee

From: Vakalopoulos, Catherine (DEP) <catherine.vakalopoulos@state.ma.us>
Sent: Thursday, March 05, 2020 11:52 AM
To: Penwell, Lee
Subject: RE: NPDES RGP Application - 7Q10 and Dilution Factor Confirmation

CAUTION: External Email

Hi Lee,
Thanks for confirming that 150 gpm is the design flow of the treatment system for this proposed discharge from 161 First St. in Cambridge to the Charles River near Binney St. Your dilution factor calculation of 88.5 is correct.

To assist you with the NOI, this segment of the Charles River is identified as MA72-38, is classified as Class B(CSO), is not an Outstanding Resource Water, and there are two approved TMDLs for pathogens and phosphorus. To see the causes of impairments, go to: https://www.mass.gov/files/documents/2020/01/07/16ilwplist.pdf and search for "MA72-38".

If this is not a *current* MCP site then in addition to submitting the NOI to EPA (and cc-ing me electronically), please submit a transmittal form to MassDEP and submit a $500 fee (unless fee exempt, e.g. municipality). The instructions are located here: https://www.mass.gov/how-to/wm-15-npdes-general-permit-notice-of-intent. Please also submit a copy of the transmittal form to me, or include it in the NOI.

Let me know if you have any questions.

Cathy

Cathy Vakalopoulos, Massachusetts Department of Environmental Protection
1 Winter St., Boston, MA 02108, 617-348-4026

From: Penwell, Lee [mailto:LPenwell@haleyaldrich.com]
Sent: Thursday, March 05, 2020 11:34 AM
To: Vakalopoulos, Catherine (DEP)
Subject: RE: NPDES RGP Application - 7Q10 and Dilution Factor Confirmation

Confirmed: 150gpm is the design flow

Thank you,

Lee E. Penwell
Haley & Aldrich, Inc.
T: (617) 886.7359
C: (617) 686.6641

From: Vakalopoulos, Catherine (DEP) <catherine.vakalopoulos@state.ma.us>
Sent: Thursday, March 05, 2020 10:56 AM
To: Penwell, Lee <LPenwell@haleyaldrich.com>
Subject: RE: NPDES RGP Application - 7Q10 and Dilution Factor Confirmation

CAUTION: External Email

Hi Lee,
Before I look at this, please confirm that 150 gpm is the design flow of the proposed treatment system, i.e. maximum flow through the treatment system.
Thanks,
Cathy

Cathy Vakalopoulos, Massachusetts Department of Environmental Protection
1 Winter St., Boston, MA 02108, 617-348-4026

From: Penwell, Lee [mailto:LPenwell@haleyaldrich.com]
Sent: Wednesday, March 04, 2020 2:14 PM
To: Vakalopoulos, Catherine (DEP)
Subject: NPDES RGP Application - 7Q10 and Dilution Factor Confirmation

Hi Cathy,
As required in Appendix V of the 2017 NPDES RGP, I have attached to this email our StreamStats report detailing the 7 Day 10 Year (7Q10) low flow value for our project (listed below) along with the dilution factor calculations for your review and confirmation.

Project:
161 First Street
Cambridge, MA

Discharge:
Charles River – outfall CAM017 (near Binney Street in Cambridge, MA)

7 Day 10 Year Low Flow value (from attached StreamStats Report) = **29.2 cfs or 18.9 MGD**

Dilution Factor (from attached calculations) **= 88.5**

Can you please confirm if these values are appropriate for use for our project?

Thank you,

Lee E. Penwell
Project Manager

Haley & Aldrich, Inc.
465 Medford Street | Suite 2200
Boston, MA 02129

T: (617) 886.7359
C: (617) 686.6641

lpenwell@haleyaldrich.com
www.haleyaldrich.com

Enter number values in green boxes below

Enter values in the units specified

↓

18.9	Q_R = Enter upstream flow in **MGD**
0.216	Q_P = Enter discharge flow in **MGD**
0	Downstream 7Q10

Enter a dilution factor, if other than zero

↓

88.5

Enter values in the units specified

↓

817	C_d = Enter influent hardness in **mg/L** $CaCO_3$
82.2	C_s = Enter receiving water hardness in **mg/L** $CaCO_3$

Enter **receiving water** concentrations in the units specified

↓

7.38	pH in **Standard Units**
5.9	Temperature in **°C**
0.112	Ammonia in **mg/L**
82.2	Hardness in **mg/L** $CaCO_3$
0	Salinity in **ppt**
0	Antimony in **µg/L**
0	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
2.21	Copper in **µg/L**
394	Iron in **µg/L**
0	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
16.98	Zinc in **µg/L**

Enter **influent** concentrations in the units specified

↓

0	TRC in **µg/L**
0.598	Ammonia in **mg/L**
0	Antimony in **µg/L**
0	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
2.01	Chromium VI in **µg/L**
1.01	Copper in **µg/L**
26600	Iron in **µg/L**
0	Lead in **µg/L**
0	Mercury in **µg/L**
3.24	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
0	Zinc in **µg/L**
30	Cyanide in **µg/L**
40	Phenol in **µg/L**
0	Carbon Tetrachloride in **µg/L**
0	Tetrachloroethylene in **µg/L**
0	Total Phthalates in **µg/L**
0	Diethylhexylphthalate in **µg/L**
0	Benzo(a)anthracene in **µg/L**
0	Benzo(a)pyrene in **µg/L**
0	Benzo(b)fluoranthene in **µg/L**
0	Benzo(k)fluoranthene in **µg/L**
0	Chrysene in **µg/L**
0	Dibenzo(a,h)anthracene in **µg/L**
0	Indeno(1,2,3-cd)pyrene in **µg/L**
0	Methyl-tert butyl ether in **µg/L**

Notes:

Freshwater: Q_R equal to the 7Q10; enter alternate Q_R if approved by the State; enter 0 if no dilution factor approved
Saltwater (estuarine and marine): enter Q_R if approved by the State; enter 0 if no entry
Discharge flow is equal to the design flow or 1 MGD, whichever is less
Only if approved by State as the entry for Q_R; leave 0 if no entry

Saltwater (estuarine and marine): only if approved by the State
Leave 0 if no entry

Freshwater only

pH, temperature, and ammonia required for all discharges
Hardness required for freshwater
Salinity required for saltwater (estuarine and marine)
Metals required for all discharges if present and if dilution factor is > 1
Enter 0 if non-detect or testing not required

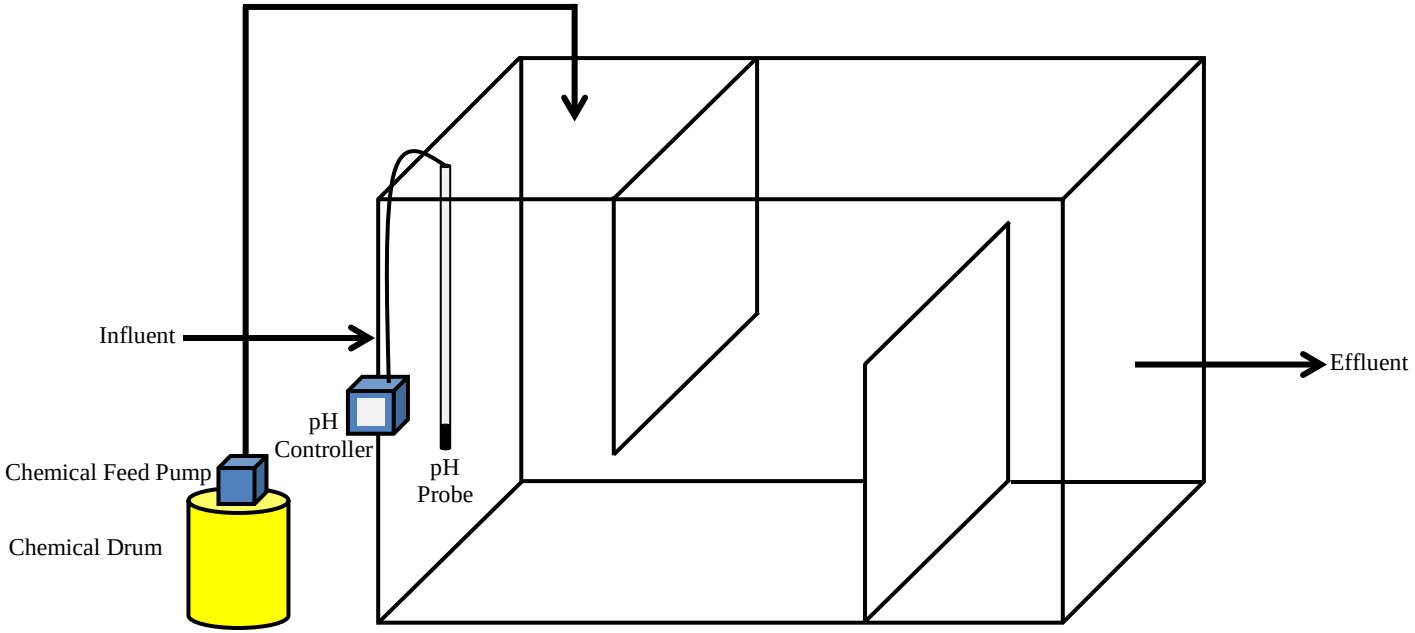
if >1 sample, enter maximum
if >10 samples, may enter 95th percentile
Enter 0 if non-detect or testing not required

Dilution Factor	88.5					
A. Inorganics	TBEL applies if bolded		WQBEL applies if bolded		Compliance Level applies if shown	
Ammonia	**Report**	mg/L	---			
Chloride	**Report**	µg/L	---			
Total Residual Chlorine	**0.2**	mg/L	974	µg/L	---	µg/L
Total Suspended Solids	**30**	mg/L	---			
Antimony	**206**	µg/L	56640	µg/L		
Arsenic	**104**	µg/L	885	µg/L		
Cadmium	**10.2**	µg/L	22.2433	µg/L		
Chromium III	**323**	µg/L	7028.4	µg/L		
Chromium VI	**323**	µg/L	1012.0	µg/L		
Copper	**242**	µg/L	564.8	µg/L		
Iron	**5000**	µg/L	54025	µg/L		
Lead	**160**	µg/L	247.98	µg/L		
Mercury	**0.739**	µg/L	80.17	µg/L		
Nickel	**1450**	µg/L	4242.7	µg/L		
Selenium	**235.8**	µg/L	442.5	µg/L		
Silver	**35.1**	µg/L	282.1	µg/L		
Zinc	**420**	µg/L	8258.3	µg/L		
Cyanide	**178**	mg/L	460.2	µg/L	---	µg/L
B. Non-Halogenated VOCs						
Total BTEX	**100**	µg/L	---			
Benzene	**5.0**	µg/L	---			
1,4 Dioxane	**200**	µg/L	---			
Acetone	**7970**	µg/L	---			
Phenol	**1,080**	µg/L	26550	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	**4.4**	µg/L	141.6	µg/L		
1,2 Dichlorobenzene	**600**	µg/L	---			
1,3 Dichlorobenzene	**320**	µg/L	---			
1,4 Dichlorobenzene	**5.0**	µg/L	---			
Total dichlorobenzene	**---**	µg/L	---			
1,1 Dichloroethane	**70**	µg/L	---			
1,2 Dichloroethane	**5.0**	µg/L	---			
1,1 Dichloroethylene	**3.2**	µg/L	---			
Ethylene Dibromide	**0.05**	µg/L	---			
Methylene Chloride	**4.6**	µg/L	---			
1,1,1 Trichloroethane	**200**	µg/L	---			
1,1,2 Trichloroethane	**5.0**	µg/L	---			
Trichloroethylene	**5.0**	µg/L	---			
Tetrachloroethylene	**5.0**	µg/L	292.1	µg/L		
cis-1,2 Dichloroethylene	**70**	µg/L	---			
Vinyl Chloride	**2.0**	µg/L	---			
D. Non-Halogenated SVOCs						
Total Phthalates	**190**	µg/L	---	µg/L		
Diethylhexyl phthalate	**101**	µg/L	194.7	µg/L		
Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---			
Benzo(a)anthracene	**1.0**	µg/L	0.3363	µg/L	---	µg/L
Benzo(a)pyrene	**1.0**	µg/L	0.3363	µg/L	---	µg/L
Benzo(b)fluoranthene	**1.0**	µg/L	0.3363	µg/L	---	µg/L
Benzo(k)fluoranthene	**1.0**	µg/L	0.3363	µg/L	---	µg/L
Chrysene	**1.0**	µg/L	0.3363	µg/L	---	µg/L
Dibenzo(a,h)anthracene	**1.0**	µg/L	0.3363	µg/L	---	µg/L
Indeno(1,2,3-cd)pyrene	**1.0**	µg/L	0.3363	µg/L	---	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	**100**	µg/L	---			
Naphthalene	**20**	µg/L	---			
E. Halogenated SVOCs						
Total Polychlorinated Biphenyls	**0.000064**	µg/L	---		0.5	µg/L
Pentachlorophenol	**1.0**	µg/L	---			
F. Fuels Parameters						
Total Petroleum Hydrocarbons	**5.0**	mg/L	---			
Ethanol	**Report**	mg/L	---			
Methyl-tert-Butyl Ether	**70**	µg/L	1770	µg/L		
tert-Butyl Alcohol	**120**	µg/L	---			
tert-Amyl Methyl Ether	**90**	µg/L	---			

APPENDIX C

Contractor's Dewatering System Schematic

HALEY ALDRICH



Notes:

1.) Figure is not to scale.
2.) System layout can vary with site conditions.

Configuration of pH Adjustment System

One Controller for the Broadest Range of Sensors.

Choose from 30 digital and analog sensor families for up to 17 di:erent parameters.

Maximum Versatility

The sc200 controller allows the use of digital and analog sensors, either alone or in combination, to provide compatibility with Hach's broad range of sensors, eliminating the need for dedicated, parameter-specific controllers.

Ease of Use and Confidence in Results

Large, high-resolution, transreflective display provides optimal viewing resolution in any lighting condition. Guided calibration procedures in 19 languages minimize complexity and reduce operator error. Password-protected SD card reader o:ers a simple solution for data download and transfer. Visual warning system provides critical alerts.

Wide Variety of Communication Options

Utilize two to five analog outputs to transmit primary and secondary values for each sensor, or integrate Hach sensors and analyzers into MODBUS RS232/RS485, Profibus® DP, and HART networks.

Password protected SD card reader offers a simple solution for data download and transfer, and sc200 and digital sensor configuration file duplication and backup.

Controller Comparison

Features	Previous Models sc100™ Controller	Previous Models GLI53 Controller	sc200™ Controller	Benefits
Display	64 x 128 pixels 33 x 66 mm (1.3 x 2.6 in.)	64 x 128 pixels 33 x 66 mm (1.3 x 2.6 in.)	160 x 240 pixels 48 x 68 mm (1.89 x 2.67 in.) Transreflective	• Improved user interface—50% bigger • Easier to read in daylight and sunlight
Data Management	irDA Port/PDA Service Cable	N/A	SD Card Service Cable	• Simplifies data transfer • Standardized accessories/max compatibility
Sensor Inputs	2 Max Direct Digital Analog via External Gateway	2 Max Analog Depending on Parameter	2 Max Digital and/or Analog with Sensor Card	• Simplifies analog sensor connections • Works with analog and digital sensors
Analog Inputs	N/A	N/A	1 Analog Input Signal Analog 4-20mA Card	• Enables non-sc analyzer monitoring • Accepts mA signals from other analyzers for local display • Consolidates analog mA signals to a digital output
4-20 mA Outputs	2 Standard	2 Standard	2 Standard Optional 3 Additional	• Total of five (5) 4-20 mA outputs allows multiple mA outputs per sensor input
Digital Communication	MODBUS RS232/RS485 Profibus DP V1.0	HART	MODBUS RS232/RS485 Profibus DP V1.0 HART 7.2	• Unprecedented combination of sensor breadth and digital communication options

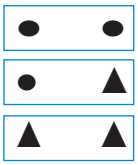
Choose from Hach's Broad Range of Digital and Analog Sensors

Parameter	Sensor	Digital or Analog
Ammonia	AMTAX™ sc, NH4D sc, AISE sc, AN-ISE sc	●
Chlorine	CLF10 sc, CLT10 sc, 9184 sc	●
Chlorine Dioxide	9185 sc	●
Conductivity	GLI 3400 Contacting, GLI 3700 Inductive	▲
Dissolved Oxygen	LDO® Model 2, 5740 sc	●
Dissolved Oxygen	5500	▲
Flow	U53, F53 Sensors	▲
Nitrate	NITRATAX™ sc, NO3D sc, NISE sc, AN-ISE sc	●
Oil in Water	FP360 sc	●
Organics	UVAS sc	●
Ozone	9187 sc	●
pH/ORP	pHD	●
pH/ORP	pHD, pH Combination, LCP	▲
Phosphate	PHOSPHAX™ sc	●
Sludge Level	SONATAX™ sc	●
Suspended Solids	SOLITAX™ sc, TSS sc	●
Turbidity	1720E, FT660 sc, SS7 sc, ULTRATURB sc, SOLITAX sc, TSS sc	●
Ultra Pure Conductivity	8310, 8311, 8312, 8315, 8316, 8317 Contacting	▲
Ultra Pure pH/ORP	8362	▲

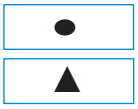
● = Digital ▲ = Analog

Connect up to two of any of the sensors listed above, in any combination, to meet your application needs. The diagrams below demonstrate the potential configurations. Operation of analog sensors requires the controller to be equipped with the appropriate sensor module. Contact Hach Technical Support for help with selecting the appropriate module.

2 Channel Configurations



1 Channel Configurations



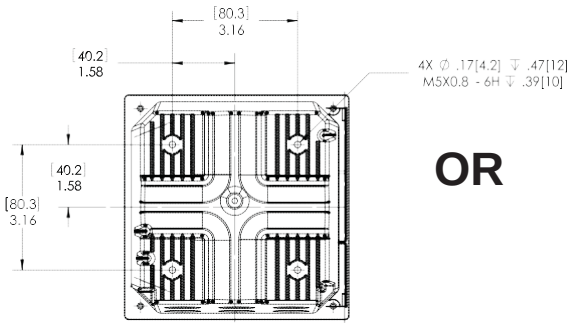
Specifications*

Dimensions (H x W x D)	5.7 in x 5.7 in x 7.1 in (144 mm x 144 mm x 181 mm)
Display	Graphic dot matrix LCD with LED backlighting, transreflective
Display Size	1.9 x 2.7 in. (48 mm x 68 mm)
Display Resolution	240 x 160 pixels
Weight	3.75 lbs. (1.70 kg)
Power Requirements (Voltage)	100 - 240 V AC, 24 V DC
Power Requirements (Hz)	50/60 Hz
Operating Temperature Range	-20 to 60 °C , 0 to 95% RH non-condensing
Analog Outputs	Two (Five with optional expansion module) to isolated current outputs, max 550 Ω , Accuracy: ± 0.1% of FS (20mA) at 25 °C, ± 0.5% of FS over -20 °C to 60 °C range Operational Mode: measurement or calculated value
Analog Output Functional Mode	Linear, Logarithmic, Bi-linear, PID
Security Levels	2 password-protected levels
Mounting Configurations	Wall, pole, and panel mounting
Enclosure Rating	NEMA 4X/IP66
Conduit Openings	1/2 in NPT Conduit
Relay: Operational Mode	Primary or secondary measurement, calculated value (dual channel only) or timer
Relay Functions	Scheduler (Timer), Alarm, Feeder Control, Event Control, Pulse Width Modulation, Frequency Control, and Warning
Relays	Four electromechanical SPDT (Form C) contacts, 1200 W, 5 A
Communication	MODBUS RS232/RS485, PROFIBUS DPV1, or HART 7.2 optional
Memory Backup	Flash memory
Electrical Certifications	EMC CE compliant for conducted and radiated emissions: - CISPR 11 (Class A limits) - EMC Immunity EN 61326-1 (Industrial limits) Safety cETLus safety mark for: - General Locations per ANSI/UL 61010-1 & CAN/CSA C22.2. No. 61010-1 - Hazardous Location Class I, Division 2, Groups A,B,C & D (Zone 2, Group IIC) per FM 3600 / FM 3611 & CSA C22.2 No. 213 M1987 with approved options and appropriately rated Class I, Division 2 or Zone 2 sensors cULus safety mark - General Locations per UL 61010-1 & CAN/CSA C22.2. No. 61010-1

**Subject to change without notice.*

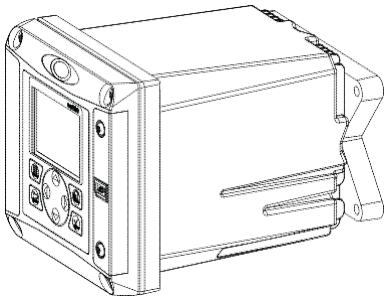
Dimensions

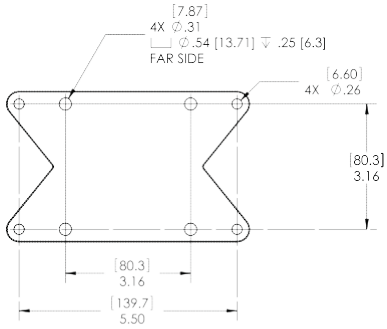
Surface Mounting Dimensions



Mounting Dimensions
(Rear View)

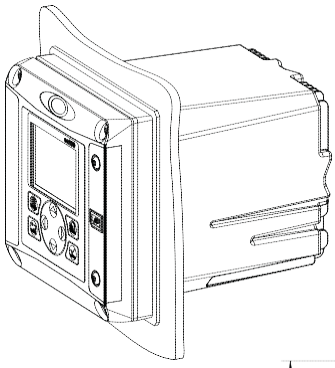
OR

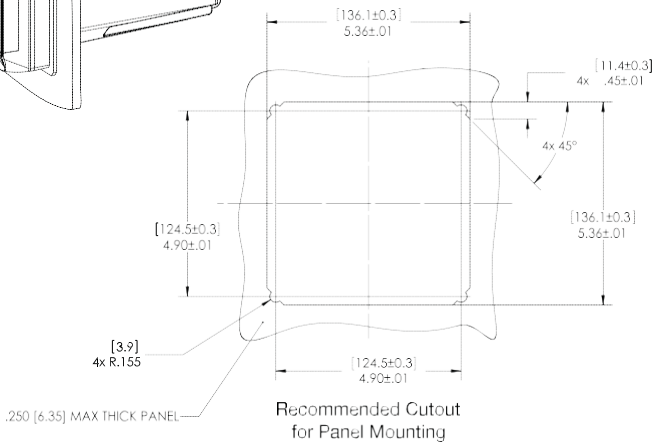




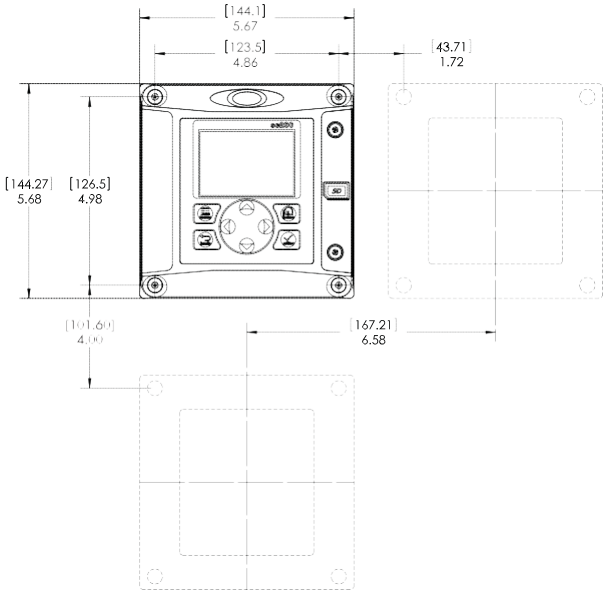
Bracket (supplied) for Surface Mounting
(Not compatible with Weather and Sun Shield p/n 9220600 when surface mounting.)

Panel Mounting Dimensions



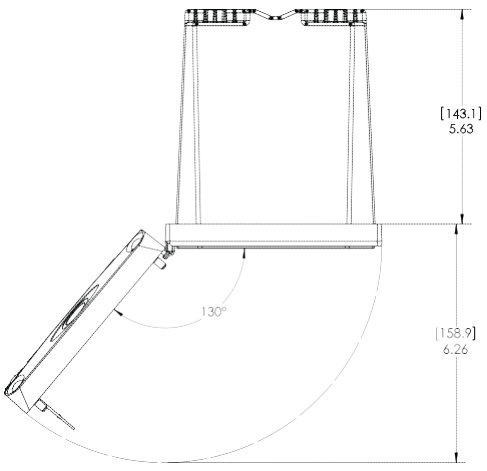


Recommended Cutout
for Panel Mounting

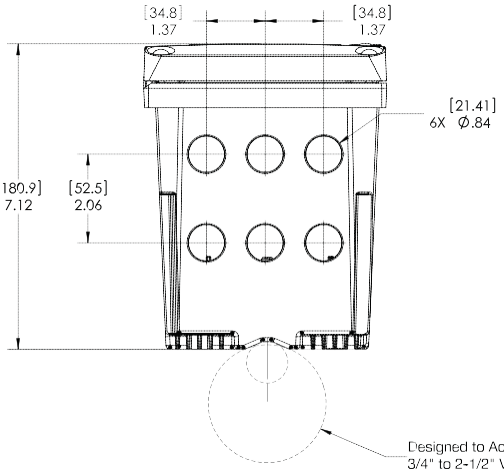


Minimum Spacing Dimensions
for Group Mounting

Top and Bottom Views



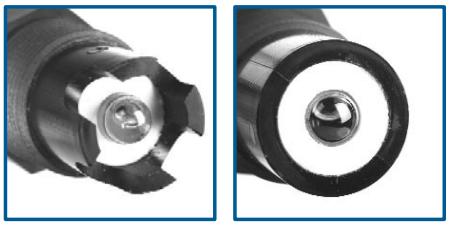
Door Opening Details



Designed to Accommodate
3/4" to 2-1/2" Vertical / Horizontal Pipe

3/4-inch Combination pH and ORP Sensor Kits

Use the Digital Gateway to make any Hach analog combination pH or ORP sensor compatible with the Hach sc1000 Controller.



Digital combination pH and ORP sensors are available in convertible, insertion, and sanitary mounting styles. Choose from rugged dome electrodes or "easy-to-clean" flat glass electrodes.

Features and Benefits

Low Price—High Performance

These combination sensors are designed for specialty applications for immersion or in-line mounting. The reference cell features a double-junction design for extended service life, and a built-in solution ground. The body is molded from chemically-resistant Ryton® or PVDF, and the reference junction is coaxial porous Teflon®. All sensors are rated 0 to 105ºC up to 100 psig, and have integral 4.5 m (15 ft.) cables with tinned leads. The PC-series (for pH) and RC-series (for ORP) combination sensors are ideal for measuring mild and aggressive media.

Special Electrode Configurations

Sensors with rugged dome electrodes, "easy-to-clean" flat glass electrodes, and even HF (hydrofluoric acid) resistant glass electrodes are available for a wide variety of process solutions.

Temperature Compensation Element Option

The PC-series combination pH sensors are available with or without a Pt 1000 ohm RTD temperature element. The RC-series combination ORP sensors are supplied without a temperature element.

Versatile Mounting Styles

Sensors are available in three mounting styles—convertible, insertion, and sanitary. Please turn to page 3 for more information.

Full-Featured "Plug and Play" Hach sc Digital Controllers

There are no complicated wiring or set up procedures with any Hach sc controller. Just plug in any combination of Hach digital sensors and it's ready to use—it's "plug and play."

One or multiple sensors—The sc controller family allows you to receive data from up to eight Hach digital sensors in any combination using a single controller.

Communications—Multiple alarm/control schemes are available using the relays and PID control outputs. Available communications include analog 4-20 mA, digital MODBUS® (RS485 and RS232) or Profibus DP protocols. (Other digital protocols are available. Contact your Hach representative for details.)

Data logger—A built-in data logger collects measurement data, calibration, verification points, and alarm history.

Specifications*

Most pH applications fall in the 2.5-12.5 pH range. General purpose pH glass electrodes perform well in this range. Some industrial applications require accurate measurements and control at pH values below 2 or above 12. Consult Hach Technical Support for details on these applications.

Combination pH Sensors

Measuring Range
0 to 14 pH

Accuracy
Less than 0.1 pH under reference conditions

Temperature Range
0 to 105ºC (32 to 221ºF)

Flow Rate
0 to 2 m/s (0 to 6.6 ft./s); non-abrasive

Pressure Range
0 to 6.9 bar at 100ºC (0 to 100 psig at 212ºF)

Signal Transmission Distance
100 m (328 ft.) when used with the Hach Digital Gateway and a Hach sc Digital Controller.

1000 m (3280 ft.) when used with the Hach Digital Gateway, Termination Box, and a Hach sc Digital Controller.

Sensor Cable
Integral coaxial cable (plus two conductors for temperature compensator option); 4.5 m (15 ft.) long

Wetted Materials

Convertible style: Ryton® body (glass filled)

Insertion style: PVDF body (Kynar®)

Sanitary style: 316 stainless steel sleeved PVDF body

Common materials for all sensor styles include PTFE Teflon double junction, glass process electrode, and Viton® O-rings

Warranty
90 days

Combination ORP Sensors

Measuring Range
-2000 to +2000 millivolts

Accuracy
Limited to calibration solution accuracy (± 20 mV)

Temperature Range
0 to 105ºC (32 to 221ºF)

Flow Rate
0 to 2 m/s (0 to 6.6 ft./s); non-abrasive

Pressure Range
0 to 6.9 bar at 100ºC (0 to 100 psig at 212ºF)

Signal Transmission Distance
100 m (328 ft.) when used with the Hach Digital Gateway and a Hach sc Digital Controller.

1000 m (3280 ft.) when used with the Hach Digital Gateway, Termination Box, and a Hach sc Digital Controller.

Sensor Cable
Integral coaxial cable; 4.5 m (15 ft.) long; terminated with stripped and tinned wires

Wetted Materials

Convertible style: Ryton® body (glass filled)

Insertion style: PVDF body (Kynar®)

Common materials for all sensor styles include PTFE Teflon double junction, glass with platinum process electrode, and Viton® O-rings

Warranty
90 days

**Specifications subject to change without notice.*

Engineering Specifications

1. The pH sensor shall be available in convertible, insertion or sanitary styles. The ORP sensor shall be available in only convertible or insertion styles.
2. The convertible style sensor shall have a Ryton® body. The insertion style sensor shall have a PVDF body. The sanitary style sensor shall have a 316 stainless steel sleeved PVDF body. Common materials for all sensor styles shall include a PTFE Teflon® double junction, and Viton® O-rings. The pH sensor shall have a glass pH electrode. The ORP sensor shall have a platinum ORP electrode.
3. The convertible style pH sensor shall be available with or without a built-in Pt 1000 ohm RTD temperature element. Insertion and sanitary style pH sensors shall have a built-in Pt 1000 ohm RTD temperature element. Convertible and insertion style ORP sensors shall not have a built-in temperature element.
4. The sensor shall communicate via MODBUS® RS-485 to a Hach sc Digital Controller.
5. The sensor shall be Hach Company Model PC sc or PC-series for pH measurement or Model PC sc or RC-series for ORP measurement.

Dimensions

Convertible Style Sensor

The convertible style sensor has a Ryton® body that features 3/4-inch NPT threads on both ends. The sensor can be directly mounted into a standard 3/4-inch pipe tee for flow-through mounting or fastened onto the end of a pipe for immersion mounting. The convertible style sensor enables inventory consolidation, thereby reducing associated costs. Mounting tees and immersion mounting hardware are offered in a variety of materials to suit application requirements.

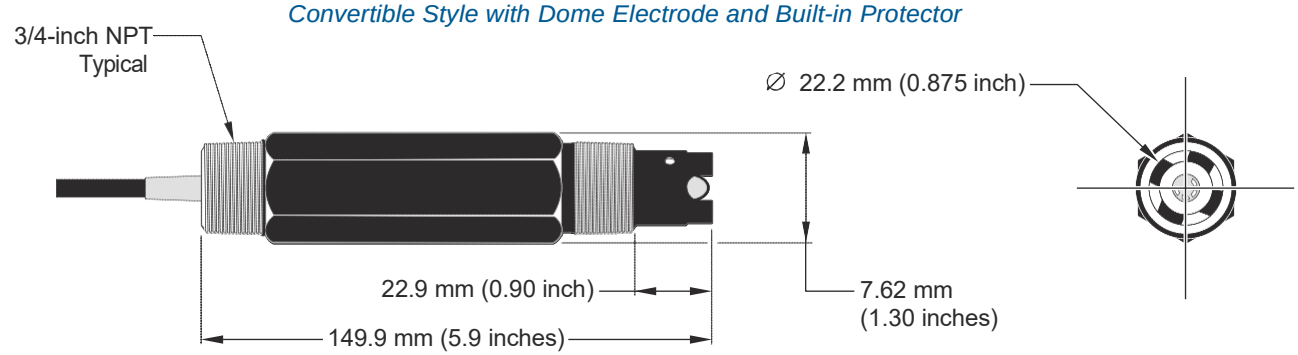
Insertion Style Sensor

Insertion style sensors feature a longer, non-threaded PVDF body with two Viton® O-rings, providing a seal when used with the optional Hach insertion mount hardware assembly. This ball valve hardware enables sensor insertion and retraction from a pipe or vessel without having to stop the process flow.

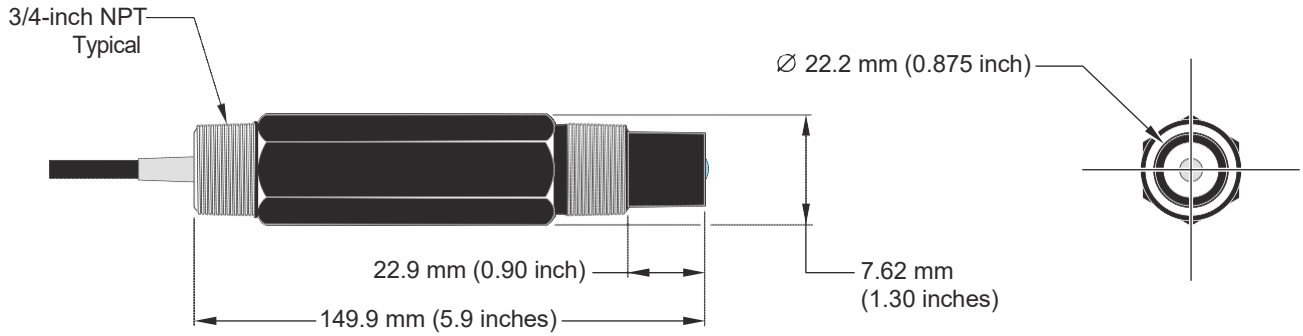
Sanitary Style Sensor

The sanitary style sensor, offered for pH measurement, has a 316 stainless steel-sleeved PVDF body with a 2-inch flange. The sensor mates to a standard 2-inch Tri-Clover fitting. The optional Hach sanitary mounting hardware includes a standard 2-inch sanitary tee, sanitary clamp, and Viton® sanitary gasket.

Convertible Style with Dome Electrode and Built-in Protector



Convertible Style with Flat Electrode



The Pulsatron Series A Plus offers manual function controls over stroke length and stroke rate as standard with the option to select external pace for automatic control.

Ten distinct models are available, having pressure capabilities to 250 PSIG (17 BAR) @ 12 GPO (1.9 lph), and flow capacities to 58 GPO (9.1 lph) @ 100 PSIG (7.0 BAR), with a standard turndown ratio of 100:1, and optional ratio of 1000:1. Metering performance is reproducible to within ± 3% of maximum capacity.

Features

- Manual Control by on-line adjustable stroke rate and stroke length.
- Highly Reliable timing circuit.
- Circuit Protection against voltage and current upsets.
- Solenoid Protection by thermal overload with auto-reset.
- Water Resistant, for outdoor and indoor applications.
- Internally Dampened To Reduce Noise.
- Guided Ball Check Valve Systems, to reduce back flow and enhance outstanding priming characteristics.
- Few Moving Parts and Wall Mountable.
- Safe & Easy Priming with durable leak-free bleed valve assembly (standard).
- Optional Control: External pace with auto/manual selection.

Controls

Manual Stroke Rate

Manual Stroke Length

External Pacing - Optional

External Pace With Stop - Optional (125 SPM only)

Controls Options		
Feature	Standard Configuration	Optional Configuration [1]
External Pacing	--	Auto / Manual Selection
External Pace w/ Stop (125 SPM only)	--	Auto / Manual Selection [2]
Manual Stroke Rate	10:1 Ratio	100:1 Raio
Manual Stroke Length	10:1 Ratio	10:1 Ratio
Total Turndown Ratio	1001 Ratio	1000:1 Ratio

Note 1: On S2, S3 & S4 sizes only.

Note 2: Not available on 1000:1 turndown pumps.

Operating Benefits

- Reliable metering performance.
- Rated "hot" for continuous duty.
- High viscosity capability.
- Leak-free, sealless, liquid end.

Aftermarket

- KOPkits
- Gauges
- Dampeners
- Pressure Relief Valves
- Tanks
- Pre-Engineered Systems
- Process Controllers (PULSAblue, MicroVision)

Series A Plus
Electronic Metering Pumps

Series A Plus

Specifications and Model Selection

MODEL			LBC2	LB02	LBC3	LB03	LB04	LB64	LBC4	LBS2	LBS3	LBS4
Capacity nominal (max.)		GPH	0.25	0.25	0.42	0.50	1.00	1.25	2.00	0.50	1.38	2.42
		GPO	6	6	10	12	24	30	48	12	33	58
		LPH	0.9	0.9	1.6	1.9	3.8	4.7	7.6	1.9	5.2	9.14
Pressure[3] (max.)	GFPP, PVDF, 316SS or PVC <; N code) wITFE Seats)	PSIG (Bar)	250 (17)	150 (10)	250 (17)	150 (10)	100 (7)	100 (7)	50 (3.3)	250 (17)	150 (10)	100 (7)
	PVC (V code) Viton or CSPE Seats IDegas Liquid End		150 (10)							150 (10)		
Connections:		Tubina	1 14' ID X 3 8' OD						3 8' D X 1 2' OD	1 4' D X 3 8' OD		
		Pioina	1 4' FNPT									
Strokes/Minute		SPM	125							250		

Note 3: Pumps with rated pressure above 150 PSI will be de-rated to 150 PSI Max. when selecting certain valve options, see Price Book for details.

Engineering Data

Pump Head Materials Available:	GFPPL
	PVC
	PVDF
	316 SS
Diaphragm:	PTFE-faced CSPE-backed
Check Valves Materials Available:	
Seats/0-Rings:	PTFE
	CSPE
	Viton
Balls:	Ceramic
	PTFE
	316 SS
	Alloy C
Fittings Materials Available:	GFPPL
	PVC
	PVDF
Bleed Valve:	Same as fitting and check valve selected, except 316SS
Injection Valve & Foot Valve Assy:	Same as fitting and check valve selected
Tubing:	Clear PVC
	White PE

Important: Material Code - GFPPL=Glass-filled Polypropylene, PVC=Polyvinyl Chloride, PE=Polyethylene, PVDF=Polyvinylidene Fluoride, CSPE=Generic formulation of Hypalon, a registered trademark of E.I. DuPont Company. Viton is a registered trademark of E.I. DuPont Company. PVC wetted end recommended for sodium hypochlorite.

Engineering Data

Reproducibility:	+/- 3% at maximum capacity
Viscosity Max CPS:	1000 CPS
Stroke Frequency Max SPM:	125 / 250 by Model
Stroke Frequency Turn-Down Ratio:	10:1 / 100:1 by Model
Stroke Length Turn-Down Ratio:	10:1
Power Input:	115 VAC/50-60 HZ/1 ph
	230 VAC/50-60 HZ/1 ph
Average Current Draw:	
@ 115 VAC; Amps:	0.6 Amps
@ 230 VAC; Amps:	0.3 Amps
Peak hput Power:	130 Watts
Average Input Power @ Max SPM:	50 Watts

Custom Engineered Designs - Pre-Engineered Systems

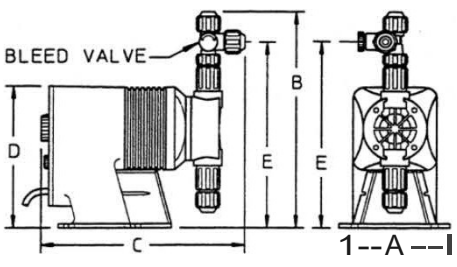
Pre-Engineered Systems

Pulsafeeder's Pre-Engineered Systems are designed to provide complete chemical feed solutions for all electronic metering applications. From stand alone simplex pH control applications to full-featured, redundant sodium hypochlorite disinfection metering, these rugged fabricated assemblies offer turn-key simplicity and industrial-grade durability. The UV-stabilized, high-grade HOPE frame offers maximum chemical compatibility and structural rigidity. Each system is factory assembled and hydrostatically tested prior to shipment.

Dimensions

Series A PLUS Dimensions (inches)						
Model No.	A	B	C	D	E	Shipping Weight
LB02 IS2	5.0	9.6	9.5	6.5	8.2	10
LBC2	5.0	9.9	9.5	6.5	8.5	10
LBC3	5.0	9.9	9.5	6.5	8.5	10
LB03 IS3	5.0	9.9	9.5	6.5	8.5	10
LB0[illegible]4	5.0	9.9	9.5	6.5	8.5	10
LB64	5.0	9.9	9.5	6.5	8.5	10
LBC4	5.0	9.9	9.5	6.5	8.5	10

NOTE: Inches X 2.54 cm



95-Gallon OverPack - 32" dia x 41.5", 1 each/package

Stock a SpillTech® OverPack with sorbents for emergency spill response, or use it as a salvage drum to ship damaged containers or hazardous waste.

- DOT-Approved for Salvage: All SpillTech® OverPacks are DOT-approved and X-rated for use as salvage drums. Helps companies conform to federal regulations when shipping damaged or leaking containers of hazardous materials, or absorbents contaminated with hazardous substances.
- Perfect for Spill Kits: Stores sorbent products (not included) for easy access as needed for spill control. Saves time when quick response is necessary.
- Sturdy Construction: 100% polyethylene OverPack resists chemicals, rust and corrosion for years of use. Integrated handles make them easy to lift, move or carry with standard material handling equipment. Twist-on, double-wall lid with closed-cell gasket provides sealed, secure closure to prevent leaks and protect contents from moisture, dirt and damage. Durable to withstand rough handling.
- Customized for You: We can customize a Spill Kit to your exact specifications, including the container, its contents and accessories, with no upcharge! Contact your local Distributor for details.

A95OVER Specifications

Dimensions:	ext. dia. 32" x 41.5" H
Shipping Dimensions:	31.75" W x 41.5" L x 31.75" H
Sold as:	1 per package
Color:	Yellow
Composition:	Polyethylene
# per Pallet:	3
Incinerable:	No
Ship Class:	250

Metric Equivalent Specifications

Dimensions:	ext. dia. 81.3cm x 105.4cm H
Shipping Dimensions:	80.6cm W x 105.4cm L x 80.6cm H

A95OVER Technical Information

Warnings & Restrictions:
There are no known warnings and restrictions for this product.

Regulations and Compliance:
49 CFR 173.3(c)(1) - If a container of hazardous waste is damaged or leaking, it can be placed in a compatible salvage drum that meets UN criteria for shipping

49 CFR 173.12(b)(2)(iv) - When labpacking, "Inner packagings…must be surrounded by a chemically compatible absorbent material in sufficient quantity to absorb the total liquid contents."

49 CFR 173.12(b) - A container used for labpacking must be "a UN 1A2 or UN 1B2 metal drum, a UN 1D plywood drum, a UN 1G fiber drum or a UN 1H2 plastic drum tested and marked at least for the Packing Group III performance level for liquids or solids."

Sulfuric Acid, 70-100%

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and

Regulations Revision Date: 05/15/15 Version: 1.0

SECTION 1: IDENTIFICATION

Product Identifier

Product Name: Sulfuric Acid, 70-100%

Formula: H_2-O_4-S

Intended Use of the Product

Use of the Substance/Mixture: Industrial use.

Name, Address, and Telephone of the Responsible Party

Manufacturer

Emergency Telephone Number

Emergency number : CHEMTREC 1-800-424-9300

For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC – Day or Night

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

Classification (GHS-US)

Acute Tox. 2 (Inhalation:dust,mist)	H330
Skin Corr. 1A	H314
Eye Dam. 1	H318
Carc. 1A	H350

Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US) :

GHS05 GHS06 GHS08

Signal Word (GHS-US) : Danger

Hazard Statements (GHS-US) : H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H330 - Fatal if inhaled
H350 - May cause cancer

Precautionary Statements (GHS-US) : P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe fume, mist, vapors, spray
P264 - Wash hands and forearms thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear eye protection, face protection, protective gloves, protective clothing
P284 - Wear respiratory protection
P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P308+P313 - If exposed or concerned: Get medical advice/attention
P310 - Immediately call a POISON CENTER or doctor/physician
P320 - Specific treatment is urgent (see Section 4)
P363 - Wash contaminated clothing before reuse
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container according to local, regional, national, and international regulations

Other Hazards

Other Hazards Not Contributing to the Classification: Not available

Unknown Acute Toxicity (GHS-US) Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Name	Product identifier	% (w/w)	Classification (GHS-US)
Sulfuric acid	(CAS No) 7664-93-9	70 - 100	Met. Corr. 1, H290 Skin Corr. 1A, H314 Eye Dam. 1, H318 Carc. 1A, H350

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

Description of First Aid Measures

General: IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: Using proper respiratory protection, immediately move the exposed person to fresh air. Keep at rest and in a position comfortable for breathing. Give oxygen or artificial respiration if necessary. Seek immediate medical advice. Symptoms may be delayed.

Skin Contact: Remove/Take off immediately all contaminated clothing. Rinse immediately with plenty of water (for at least 15 minutes). Seek medical attention immediately if exposure is severe. Obtain medical attention if irritation develops or persists. Wash contaminated clothing before reuse.

Eye Contact: Immediately rinse with water for a prolonged period (at least 15 minutes) while holding the eyelids wide open. Seek medical attention immediately if exposure is severe. Obtain medical attention if irritation develops or persists.

Ingestion: If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

Most Important Symptoms and Effects Both Acute and Delayed

General: Corrosive. Causes burns.

Inhalation: Causes severe respiratory irritation if inhaled. Symptoms may include burning of nose and throat, constriction of airway, difficulty breathing, shortness of breath, bronchial spasms, chest pain, and pink frothy sputum. Contact may cause immediate severe irritation progressing quickly to chemical burns. May cause pulmonary edema. Symptoms may be delayed.

Skin Contact: Contact may cause immediate severe irritation progressing quickly to chemical burns.

Eye Contact: Contact may cause immediate severe irritation progressing quickly to chemical burns. Can cause blindness.

Ingestion: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. Swallowing a small quantity of this material will result in serious health hazard.

Chronic Symptoms: Repeated or prolonged inhalation may damage lungs. Prolonged and repeated contact will eventually cause permanent tissue damage.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Do not get water inside containers. Do not apply water stream directly at source of leak. Do not use a heavy water stream. A direct water stream will cause violent splattering and generation of heat.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not flammable. Under conditions of fire this material may produce: Sulphur oxides.

Explosion Hazard: Product is not explosive.

Reactivity: Reacts with water.

Advice for Firefighters

Precautionary Measures Fire: Not available

Firefighting Instructions: Keep upwind. Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Firefighters must use full bunker gear including NIOSH-approved positive-pressure self-contained breathing apparatus to protect against potential hazardous combustion and decomposition products.

Hazardous Combustion Products: Sulphur oxides.

Other information: Do not allow run-off from fire fighting to enter drains or water courses.

Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not breathe vapour or mist.

For Non-Emergency Personnel

Protective Equipment: Use recommended respiratory protection. Wear suitable protective clothing, gloves and eye/face protection.

Emergency Procedures: Stop leak if safe to do so. Eliminate ignition sources. Evacuate unnecessary personnel. Ventilate area. Keep upwind.

For Emergency Personnel

Protective Equipment: Use recommended respiratory protection. Wear suitable protective clothing, gloves and eye/face protection.

Emergency Procedures: Stop leak if safe to do so. Eliminate ignition sources. Evacuate unnecessary personnel. Ventilate area.

Environmental Precautions

If spill could potentially enter any waterway, including intermittent dry creeks, contact the U.S. COAST GUARD NATIONAL RESPONSE CENTER at 800-424-8802. In case of accident or road spill notify CHEMTREC at 800-424-9300

Methods and Material for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Ventilate area. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal. Collect absorbed material and place into a sealed, labeled container for proper disposal. Practice good housekeeping - spillage can be slippery on smooth surface either wet or dry. Liquid spill: neutralize with powdered limestone or sodium bicarbonate.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Wash contaminated clothing before reuse.

Conditions for Safe Storage, Including Any Incompatibilities

Storage Conditions: Detached outside storage is preferable.

Incompatible Materials: Reducing agents. Organic materials. Alkalis. Moisture.

Storage Area: Store in dry, cool area. Store in a well-ventilated place. Keep away from combustible materials.

Specific End Use(s) Not available

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Sulfuric acid (7664-93-9)		
Mexico	OEL TWA (mg/m³)	1 mg/m³
USA ACGIH	ACGIH TWA (mg/m³)	0.2 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	1 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	1 mg/m³
USA IDLH	US IDLH (mg/m³)	15 mg/m³

Alberta	OEL STEL (mg/m³)	3 mg/m³
Alberta	OEL TWA (mg/m³)	1 mg/m³
British Columbia	OEL TWA (mg/m³)	0.2 mg/m³ (Thoracic, contained in strong inorganic acid mists)
Manitoba	OEL TWA (mg/m³)	0.2 mg/m³
New Brunswick	OEL STEL (mg/m³)	3 mg/m³
New Brunswick	OEL TWA (mg/m³)	1 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	0.2 mg/m³
Nova Scotia	OEL TWA (mg/m³)	0.2 mg/m³
Nunavut	OEL STEL (mg/m³)	3 mg/m³
Nunavut	OEL TWA (mg/m³)	1 mg/m³
Northwest Territories	OEL STEL (mg/m³)	3 mg/m³
Northwest Territories	OEL TWA (mg/m³)	1 mg/m³
Ontario	OEL TWA (mg/m³)	0.2 mg/m³
Prince Edward Island	OEL TWA (mg/m³)	0.2 mg/m³
Québec	VECD (mg/m³)	3 mg/m³
Québec	VEMP (mg/m³)	1 mg/m³
Saskatchewan	OEL STEL (mg/m³)	0.6 mg/m³
Saskatchewan	OEL TWA (mg/m³)	0.2 mg/m³
Yukon	OEL STEL (mg/m³)	1 mg/m³
Yukon	OEL TWA (mg/m³)	1 mg/m³

Exposure Controls

Appropriate Engineering Controls: Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment: Face shield. Gas mask at concentration in the air > > TLV. Corrosionproof clothing.

Materials for Protective Clothing: Acid-resistant clothing.

Hand Protection: Impermeable protective gloves.

Eye Protection: Face shield.

Skin and Body Protection: Wear suitable protective clothing. Chemical resistant suit. Rubber apron, boots.

Respiratory Protection: Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

Environmental Exposure Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	:	Liquid
Appearance	:	Clear,Colorless to Amber,Oily
Odor	:	Pungent.
Odor Threshold	:	Not available
pH	:	0.3
Relative Evaporation Rate (butylacetate=1)	:	Not available
Melting Point	:	10.56 °C (51.08 °F)
Freezing Point	:	Not available
Boiling Point	:	290 °C (554 °F)
Flash Point	:	Not available
Auto-ignition Temperature	:	Not available
Decomposition Temperature	:	Not available
Flammability (solid, gas)	:	Not available
Lower Flammable Limit	:	Not available
Upper Flammable Limit	:	Not available
Vapor Pressure	:	0.00027 - 0.16 kPa at 25 °C (77 °F)

Relative Vapor Density at 20 °C	:	3.4
Relative Density	:	Not available
Specific Gravity	:	1.84 g/l
Solubility	:	Water: Miscible
Partition coefficient: n-octanol/water	:	Not available
Viscosity	:	Not available
Explosion Data – Sensitivity to Mechanical Impact	:	Not expected to present an explosion hazard due to mechanical impact.
Explosion Data – Sensitivity to Static Discharge	:	Not expected to present an explosion hazard due to static discharge.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Reacts with water.

Chemical Stability: Stable at standard temperature and pressure.

Possibility of Hazardous Reactions: Hazardous polymerization can occur in contact with certain incompatible materials.

Conditions to Avoid: Protect from moisture.

Incompatible Materials: Avoid contact with most metals, carbides, hydrogen sulfide, turpentine, organic acids, combustibles (wood, paper, cotton) and other organic and readily oxidized materials.

Hazardous Decomposition Products: Under conditions of fire this material may produce: Sulphur oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity: Fatal if inhaled.

LD50 and LC50 Data:

Sulfuric Acid, 70-100%	
ATE US (dust, mist)	0.05000000 mg/l/4h

Skin Corrosion/Irritation: Causes severe skin burns and eye damage.

pH: 0.3

Serious Eye Damage/Irritation: Causes serious eye damage.

pH: 0.3

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not available

Carcinogenicity: May cause cancer.

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Causes severe respiratory irritation if inhaled. Symptoms may include burning of nose and throat, constriction of airway, difficulty breathing, shortness of breath, bronchial spasms, chest pain, and pink frothy sputum. Contact may cause immediate severe irritation progressing quickly to chemical burns. May cause pulmonary edema. Symptoms may be delayed.

Symptoms/Injuries After Skin Contact: Contact may cause immediate severe irritation progressing quickly to chemical burns.

Symptoms/Injuries After Eye Contact: Contact may cause immediate severe irritation progressing quickly to chemical burns. Can cause blindness.

Symptoms/Injuries After Ingestion: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. Swallowing a small quantity of this material will result in serious health hazard.

Chronic Symptoms: Repeated or prolonged inhalation may damage lungs. Prolonged and repeated contact will eventually cause permanent tissue damage.

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Sulfuric acid (7664-93-9)	
LD50 Oral Rat	2140 mg/kg
LC50 Inhalation Rat (mg/l)	510 mg/m³ (Exposure time: 2 h)

Sulfuric acid (7664-93-9)	
IARC Group	1

SECTION 12: ECOLOGICAL INFORMATION

Toxicity Not classified

Sulfuric acid (7664-93-9)	
LC50 Fish 1	500 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])

Persistence and Degradability

Sulfuric Acid, 70-100%	
Persistence and Degradability	Product is biodegradable.

Bioaccumulative Potential

Sulfuric Acid, 70-100%	
Bioaccumulative Potential	Not expected to bioaccumulate.

Sulfuric acid (7664-93-9)	
BCF fish 1	(no bioaccumulation)

Mobility in Soil Not available

Other Adverse Effects Not available

SECTION 13: DISPOSAL CONSIDERATIONS

Sewage Disposal Recommendations: This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, and international regulations.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name : SULFURIC ACIDwith more than 51 percent acid

Hazard Class : 8

Identification Number : UN1830

Label Codes : 8

Packing Group : II

ERG Number : 157

14.2 In Accordance with IMDG

Proper Shipping Name : SULPHURIC ACID

Hazard Class : 8

Identification Number : UN1830

Packing Group : II

Label Codes : 8

EmS-No. (Fire) : F-A

EmS-No. (Spillage) : S-B

14.3 In Accordance with IATA

Proper Shipping Name : SULPHURIC ACID

Packing Group : II

Identification Number : UN1830

Hazard Class : 8

Label Codes : 8

ERG Code (IATA) : 8L

14.4 In Accordance with TDG

Proper Shipping Name : SULPHURIC ACIDwith more than 51 per cent acid

Packing Group : II

Hazard Class : 8

Identification Number : UN1830

Label Codes : 8

SECTION 15: REGULATORY INFORMATION

US Federal Regulations

Sulfuric Acid, 70-100%	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard Reactive hazard

Sulfuric acid (7664-93-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on SARA Section 302 (Specific toxic chemical listings) Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 302 Threshold Planning Quantity (TPQ)	1000
SARA Section 313 - Emission Reporting	1.0 % (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)

US State Regulations

Sulfuric Acid, 70-100%()

Sulfuric acid (7664-93-9)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.

Sulfuric acid (7664-93-9)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List

Canadian Regulations

Sulfuric Acid, 70-100%	
WHMIS Classification	Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects Class E - Corrosive Material

Sulfuric acid (7664-93-9)	
Listed on the Canadian DSL (Domestic Substances List) inventory. Listed on the Canadian Ingredient Disclosure List	
WHMIS Classification	Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class E - Corrosive Material

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Carc. 1A	Carcinogenicity Category 1A
Eye Dam. 1	Serious eye damage/eye irritation Category 1

Met. Corr. 1	Corrosive to metals Category 1
Skin Corr. 1A	Skin corrosion/irritation Category 1A
H290	May be corrosive to metals
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H330	Fatal if inhaled
H350	May cause cancer

Handle product with due care and avoid unnecessary contact. This information is supplied under U.S. OSHA'S "Right to Know" (29 CFR 1910.1200) and Canada's WHMIS regulations. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist. The information contained herein is based on data available to us and is believed to be true and accurate but it is not offered as a product specification. No warranty, expressed or implied, regarding the accuracy of this data, the hazards connected with the use of the product, or the results to be obtained from the use thereof, is made and Mann Distribution assume no responsibility.

APPENDIX D

National Register of Historic Places Documentation

HALEY ALDRICH

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

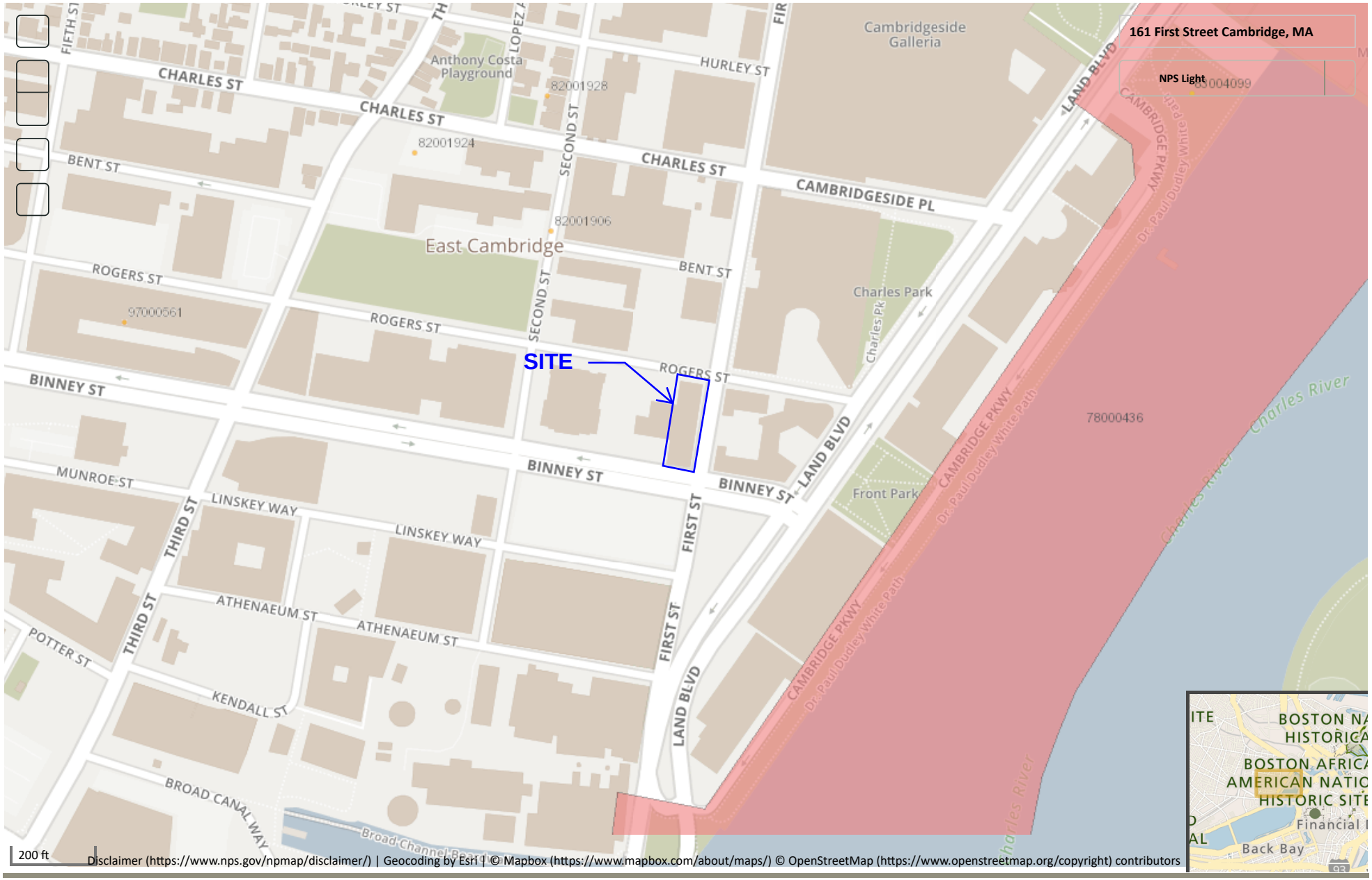
Search Criteria: Town(s): Cambridge; Street No: 161; Street Name: First; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year

National Register of Historic Places

National Park Service
U.S. Department of the Interior

Public, non-restricted data depicting National Register spatial data processed by the Cultural Resources GIS facility. Data last updated in April, 2014.



APPENDIX E

Endangered Species Act Documentation

HALEY ALDRICH

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: March 05, 2020
Consultation Code: 05E1NE00-2020-SLI-1626
Event Code: 05E1NE00-2020-E-04708
Project Name: 161 First Street Cambridge, MA

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2020-SLI-1626

Event Code: 05E1NE00-2020-E-04708

Project Name: 161 First Street Cambridge, MA

Project Type: ** OTHER **

Project Description: NPDES RGP NOI for Construction Dewatering

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.36553899500714N71.07830540574969W

Counties: Middlesex, MA

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be *directly or indirectly affected* by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Middlesex County, Massachusetts

Local office

New England Ecological Services Field Office

(603) 223-2541
(603) 223-0104

70 Commercial Street, Suite 300
Concord, NH 03301-5094

http://www.fws.gov/newengland

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species

[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

THERE ARE NO ENDANGERED SPECIES EXPECTED TO OCCUR AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act

[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservati

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have

sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10

Bobolink Dolichonyx oryzivorus — Breeds May 20 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Canada Warbler Cardellina canadensis — Breeds May 20 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Cerulean Warbler Dendroica cerulea — Breeds Apr 29 to Jul 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/2974

Dunlin Calidris alpina arcticola — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Evening Grosbeak Coccothraustes vespertinus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Kentucky Warbler Oporornis formosus — Breeds Apr 20 to Aug 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Lesser Yellowlegs Tringa flavipes — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9679

Nelson's Sparrow Ammodramus nelsoni — Breeds May 15 to Sep 5
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Prairie Warbler Dendroica discolor — Breeds May 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Prothonotary Warbler Protonotaria citrea This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Red-throated Loon Gavia stellata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Rusty Blackbird Euphagus carolinus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Semipalmated Sandpiper Calidris pusilla This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Snowy Owl Bubo scandiacus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

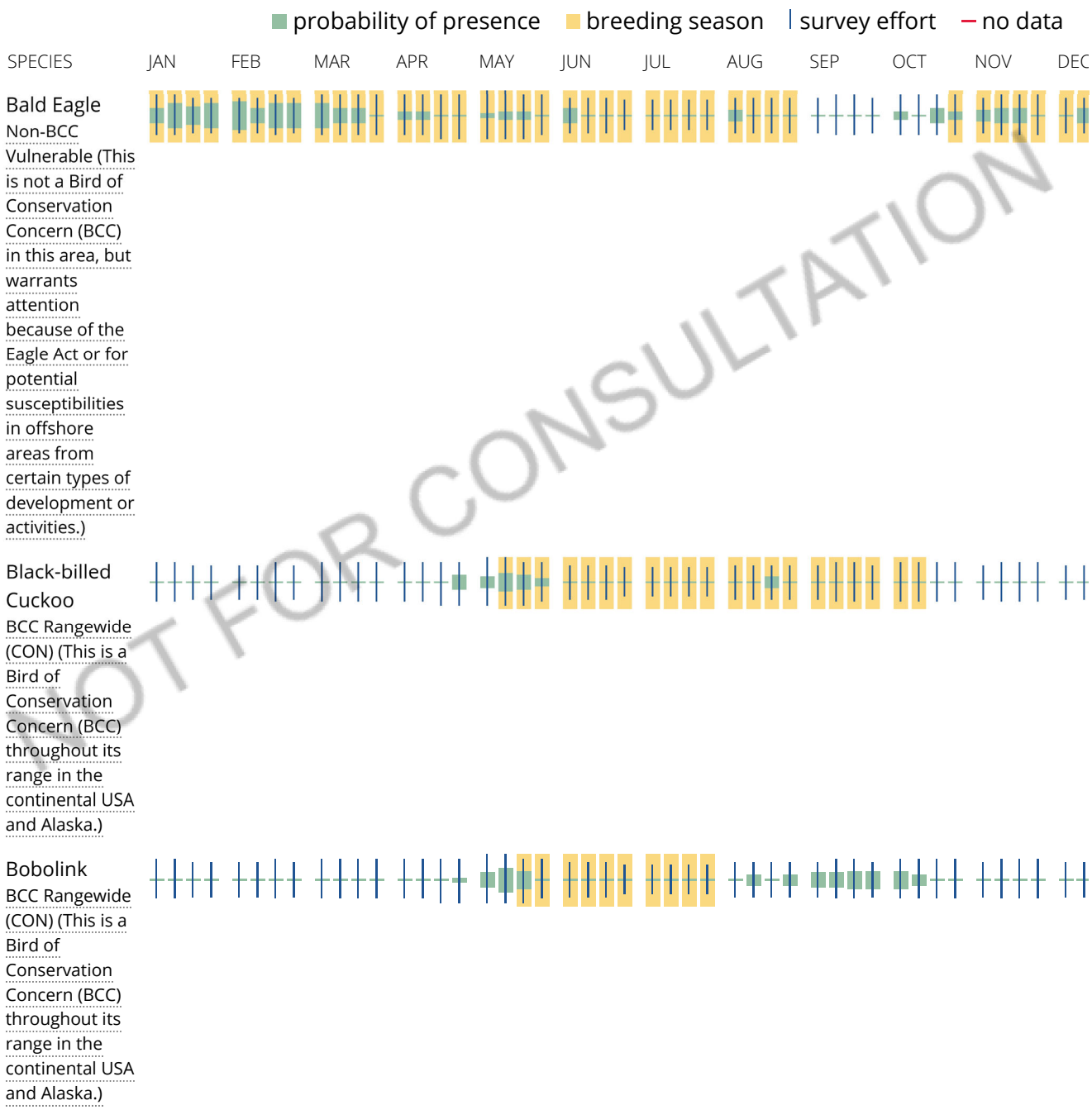
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

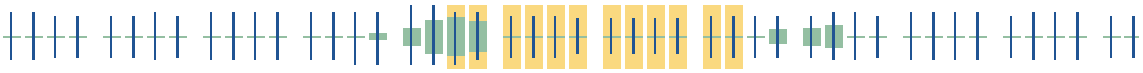
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Canada Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

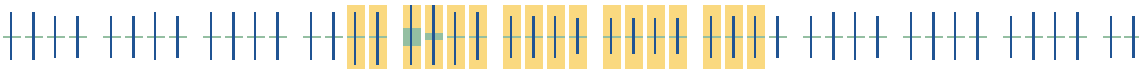


Cerulean Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Dunlin
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Evening Grosbeak
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

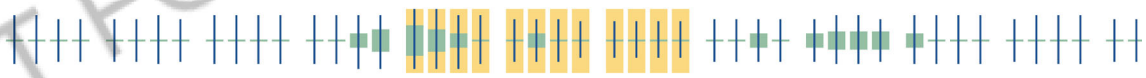
Kentucky Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



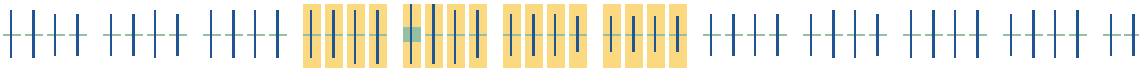
Lesser Yellowlegs
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

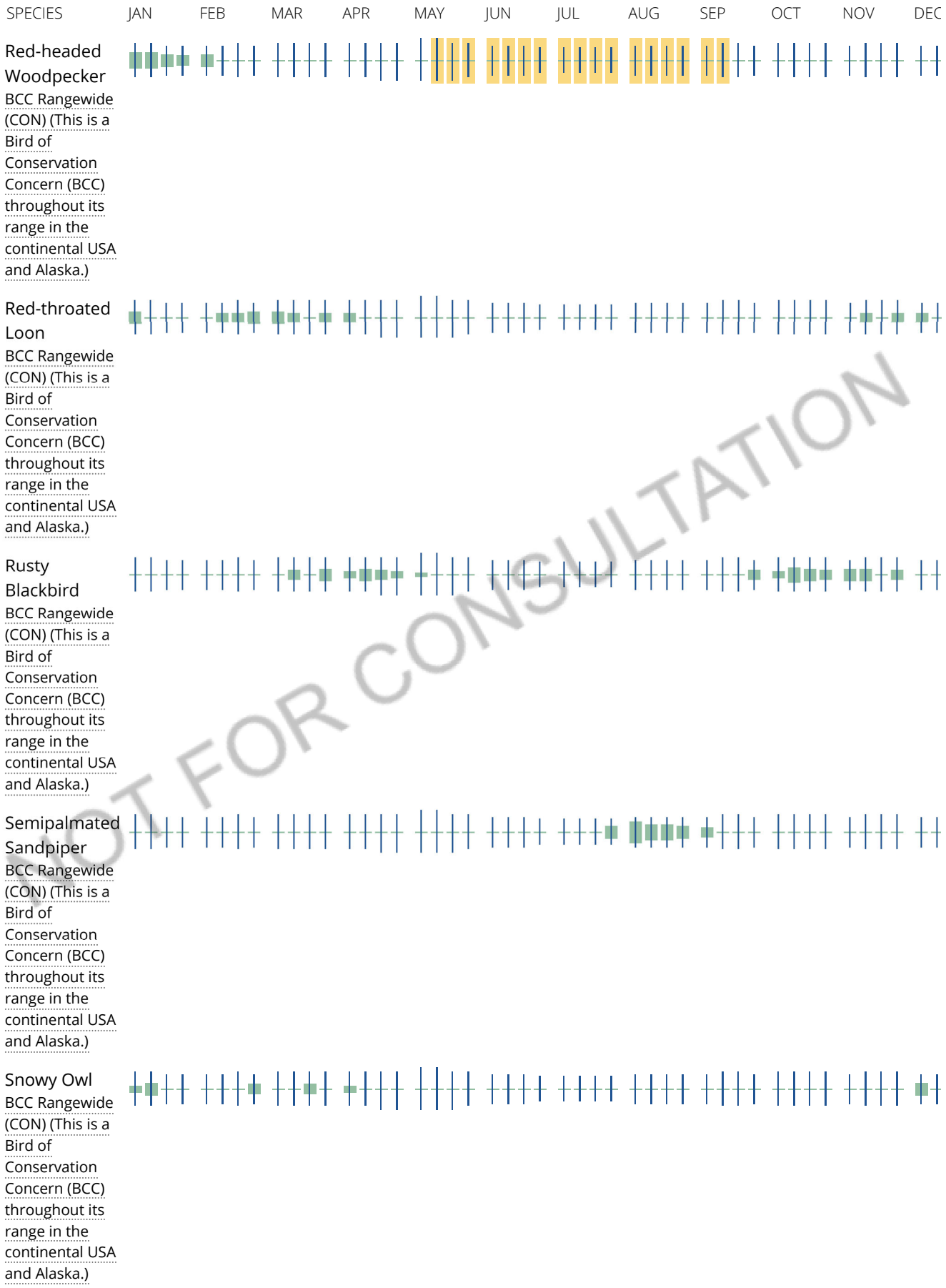
Nelson's Sparrow
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Prairie Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

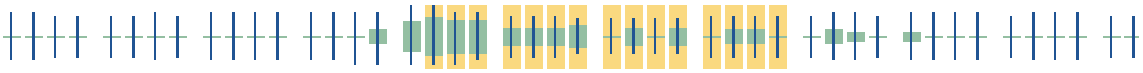


Prothonotary Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)





Wood Thrush
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands

Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in

either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

APPENDIX F

Copy of City of Cambridge Dewatering Permit Application

PERMIT TO DEWATER

Location: 161 First Street

Owner: ARE-MA Region No. 21, LLC

Contractor: Consigli Construction, Co., Inc.

Temporary ☑

Permanent ☐

The property owner, ARE-MA Region No. 21, LLC agrees to hold harmless and indemnify the City of Cambridge for any liability on the part of the City directly or indirectly arising out of the dewatering operation.

The issuance of this permit is based in part in the submission packet of the applicant with documentation as follows:

Haley & Aldrich, Inc. letter "Temporary Construction Dewatering, 161 First Street, Cambridge, Massachusetts"

In addition, the application has been reviewed by the City under third party agreement as documented in the following reports:

All activities conducted in conjunction with the issuance of this permit must be in accordance with the provisions of the aforementioned reports. Any deviations in conditions must be reported to and approved by the Commissioner of Public Works.

This permit is in addition to any other street permit issued by the Department in connection with any street excavation or obstruction; and all conditions as specified in the Discharge Permit for Dewatering.

For the entire period of time the groundwater is being discharged to a storm drain, the property owner shall provide copies of each Discharge Monitoring Report Form submitted to the EPA, pursuant to the owner's discharge permit.

If in the future the EPA requires the City of Cambridge to bring existing stormwater drainage into compliance with EPA quality standards, as a condition to the continuation of discharge of that stormwater (also including groundwater) into an EPA regulated system into which the ARE-MA Region No. 21, LLC (property owner) drains, the owner will agree to maintain its water discharge with such EPA water quality standards.

The property owner and contractor shall at all times meet the conditions specified in the requisite legal agreement/affidavits.

All groundwater pumped from the work shall be disposed of without damage to pavements, other surfaces or property.

Where material or debris has washed or flowed into or has been placed in existing gutters, drains, pipes or structures, such material or debris shall be entirely removed and satisfactorily disposed of by the

Contractor during the progress of work as directed by the Public Works Department.

Any flooding or damage of property and possessions caused by siltation of existing gutters, pipes or structures shall be the responsibility of the Contractor.

Provisions shall be made to insure that no material, water or solid, will freeze on any pavement or in any location which will cause inconvenience or hazard to the general public.

Upon completion of the work, existing gutters, drains, pipes and structures shall be (bucket) cleaned and material disposed of satisfactorily prior to release by the Public Works Department.

Any permit issued by the City of Cambridge shall be revoked upon transfer of any ownership interest unless and until subsequent owner(s) or parties of interest agree to the foregoing terms.

This permit shall remain in effect for one year and shall be renewable thereafter at the agreement of the parties.

The following special conditions as set forth below are part of the permit.

not applicable

City Manager	Property Manager: Corporate Entity President, General Partner or Trustee Trustee with Instrument of Authority
Date	Date
City Solicitor	Contractor
Date	Date
Commissioner of Public	Contractor
Date	Date

CC: Engineering
Supervisor of Sewer Maintenance and Engineering
Superintendent of Streets
Commissioner of Inspectional Services

APPENDIX G

Best Management Practices Plan (BMPP)

HALEY ALDRICH

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
REMEDIATION GENERAL PERMIT
161 FIRST STREET
CAMBRIDGE, MASSACHUSETTS

BEST MANAGEMENT PRACTICES PLAN

A Notice of Intent for a Remediation General Permit (RGP) under the National Pollutant Discharge Elimination System (NPDES) has been submitted to the US Environmental Protection Agency (EPA) in anticipation of temporary construction dewatering planned to occur during the construction activities at 161 First Street in Cambridge, Massachusetts. This Best Management Practices Plan (BMPP) has been prepared as an Appendix to the RGP and will be posted at the site during the time that temporary construction dewatering is occurring at the site.

Water Treatment and Management

Construction dewatering will be conducted using a combination of drainage ditches and sumps located inside the excavation. The treatment system will be designed by the Contractor. Prior to discharge, collected water will likely be routed through a sedimentation tank and bag filters, as required, to remove suspended solids and undissolved chemical constituents. Proposed Treatment System Schematic is shown on Figure 4. Construction dewatering under this RGP NOI will include piping and discharging to storm drains located in Rogers Street and Binney Street, adjacent to the site. The storm drains travel short distance south and east before discharging to the Charles River through outfall CAM017, as shown on Figure 3.

Discharge Monitoring and Compliance

Regular sampling and testing will be conducted by the Contractor of the treated effluent as required by the RGP. This includes chemical testing required within the first month of discharging and the monthly testing to be conducted through the end of the scheduled discharge.

Monitoring will include checking the condition of the treatment system, assessing the need for treatment system adjustments based on monitoring data, observing and recording daily flow rates and discharge quantities, and verifying the flow path of the discharged effluent.

The total monthly flow will be monitored by checking and documenting the flow through the flow meter to be installed on the system. Flow will be maintained below the “system design flow” by regularly monitoring flow and adjusting the amount of construction dewatering as needed.

Monthly monitoring reports will be compiled and maintained at the site.

System Maintenance

A number of methods will be used to minimize the potential for violations for the term of this permit. Scheduled regular maintenance of the treatment system will be conducted to verify proper operation. Regular maintenance will include checking the condition of the treatment system equipment such as the fractionization tanks, filters, hoses, pumps, and flow meters. Equipment will be monitored daily for potential issues or unscheduled maintenance requirements.

Employees who have direct or indirect responsibility for ensuring compliance with the RGP will be trained by the Operator.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
REMEDIATION GENERAL PERMIT
161 FIRST STREET
CAMBRIDGE, MASSACHUSETTS

Miscellaneous Items

It is anticipated that the excavation support system, erosion control measures, and the nature of the site and surrounding infrastructure will minimize potential runoff to or from the site. The project specifications also include requirements for erosion control.

Site security for the treatment system will be covered within the overall site security plan.

No adverse affects of designated water use of surrounding surface water bodies is anticipated. The Charles River is the nearest surface water body to the site located adjacent to the construction activities on site. Dewatering effluent will be pumped to a sedimentation tank, bag filters, and any other treatment components (as required), prior to discharge to the storm drains.

Management of Treatment System Materials

Groundwater analytical data for the site is below the applicable MCP RCGW-2 criteria. Dewatering effluent will be pumped directly to the treatment system from the excavation with use of hoses and sumps to minimize handling. The Contractor will establish staging areas on the site for any equipment or materials storage which may be possible sources of pollution away from any dewatering activities.

Sediment from the fractionalization tank used in the treatment system will be characterized and disposed of as soil at an appropriate receiving facility in accordance with applicable laws and regulations. Bag filters will be placed in drums and manifested for off-site disposal.

APPENDIX H

Laboratory Data Reports

HALEY ALDRICH

ANALYTICAL REPORT

Lab Number:	L1935997
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Lee Penwell
Phone:	(617) 886-7359
Project Name:	161 FIRST STREET
Project Number:	134061-005
Report Date:	08/15/19

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L1935997
Report Date: 08/15/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1935997-01	ENV-1(OW)-080919	WATER	CAMBRIDGE, MA	08/09/19 13:35	08/09/19

Project Name: 161 FIRST STREET **Lab Number:** L1935997

Project Number: 134061-005 **Report Date:** 08/15/19

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

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

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	YES
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name:	161 FIRST STREET	**Lab Number:**	L1935997
Project Number:	134061-005	**Report Date:**	08/15/19

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 NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. 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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. 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. 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 Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data 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.

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 Alpha Project Manager 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 Project Management at 800-624-9220 with any questions.

Project Name:	161 FIRST STREET	**Lab Number:**	L1935997
Project Number:	134061-005	**Report Date:**	08/15/19

Case Narrative (continued)

MCP Related Narratives

Metals

In reference to question I:

All samples were analyzed for a subset of MCP analytes per client request.

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: Kelly Stenstrom

Title: Technical Director/Representative Date: 08/15/19

QC OUTLIER SUMMARY REPORT

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L1935997
Report Date: 08/15/19

Method	Client ID (Native ID)	Lab ID	Parameter	QC Type	Recovery/RPD (%)	QC Limits (%)	Associated Samples	Data Quality Assessment

There are no QC Outliers associated with this report.

METALS

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L1935997
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935997-01
Client ID: ENV-1(OW)-080919
Sample Location: CAMBRIDGE, MA
Sample Depth:
Matrix: Water

Date Collected: 08/09/19 13:35
Date Received: 08/09/19
Field Prep: Refer to COC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Calcium, Total	289		mg/l	0.100	--	1	08/12/19 10:27	08/14/19 21:28	EPA 3005A	97,6010D	AB
Iron, Total	21.7		mg/l	0.050	--	1	08/12/19 10:27	08/14/19 21:28	EPA 3005A	97,6010D	AB
Magnesium, Total	42.6		mg/l	0.100	--	1	08/12/19 10:27	08/14/19 21:28	EPA 3005A	97,6010D	AB
Manganese, Total	1.13		mg/l	0.010	--	1	08/12/19 10:27	08/14/19 21:28	EPA 3005A	97,6010D	AB
MCP Dissolved Metals - Mansfield Lab											
Iron, Dissolved	23.1		mg/l	0.050	--	1	08/12/19 10:27	08/13/19 15:49	EPA 3005A	97,6010D	LC
Manganese, Dissolved	1.18		mg/l	0.010	--	1	08/12/19 10:27	08/13/19 15:49	EPA 3005A	97,6010D	LC

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L1935997
Report Date: 08/15/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG1271275-1										
Iron, Dissolved	ND		mg/l	0.050	--	1	08/12/19 10:27	08/13/19 14:49	97,6010D	LC
Manganese, Dissolved	ND		mg/l	0.010	--	1	08/12/19 10:27	08/13/19 14:49	97,6010D	LC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1271277-1										
Calcium, Total	ND		mg/l	0.100	--	1	08/12/19 10:27	08/14/19 21:01	97,6010D	AB
Iron, Total	ND		mg/l	0.050	--	1	08/12/19 10:27	08/14/19 21:01	97,6010D	AB
Magnesium, Total	ND		mg/l	0.100	--	1	08/12/19 10:27	08/14/19 21:01	97,6010D	AB
Manganese, Total	ND		mg/l	0.010	--	1	08/12/19 10:27	08/14/19 21:01	97,6010D	AB

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST STREET

Project Number: 134061-005

Lab Number: L1935997

Report Date: 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1271275-2 WG1271275-3								
Iron, Dissolved	114		110		80-120	4		20
Manganese, Dissolved	104		102		80-120	2		20
MCP Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1271277-2 WG1271277-3								
Calcium, Total	96		96		80-120	0		20
Iron, Total	101		104		80-120	3		20
Magnesium, Total	104		103		80-120	1		20
Manganese, Total	94		94		80-120	0		20

INORGANICS
&
MISCELLANEOUS

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L1935997
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935997-01
Client ID: ENV-1(OW)-080919
Sample Location: CAMBRIDGE, MA

Date Collected: 08/09/19 13:35
Date Received: 08/09/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	355.		mg CaCO3/L	2.00	NA	1	-	08/13/19 10:12	121,2320B	BR
Alkalinity, Bicarbonate	355.		mg CaCO3/L	2.00	NA	1	-	08/13/19 10:12	121,2320B	BR
Solids, Total Dissolved	4200		mg/l	10	--	1	-	08/12/19 11:00	121,2540C	DW
Sulfate	180		mg/l	120	--	12.5	08/15/19 09:01	08/15/19 09:01	1,9038	BR

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L1935997
Report Date: 08/15/19

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: WG1271228-1										
Solids, Total Dissolved	ND		mg/l	10	--	1	-	08/12/19 11:00	121,2540C	DW
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1271690-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	08/13/19 10:12	121,2320B	BR
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1271694-1										
Alkalinity, Bicarbonate	ND		mg CaCO3/L	2.00	NA	1	-	08/13/19 10:12	121,2320B	BR
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1272601-1										
Sulfate	ND		mg/l	10	--	1	08/15/19 09:01	08/15/19 09:01	1,9038	BR

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L1935997
Report Date: 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1271228-2								
Solids, Total Dissolved	103		-		80-120	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1271690-2								
Alkalinity, Total	101		-		90-110	-		10
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1272601-2								
Sulfate	95		-		90-110	-		

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L1935997
Report Date: 08/15/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1935997-01A	Plastic 250ml unpreserved/No Headspace	A	NA		4.1	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)
L1935997-01B	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		MCP-FE-6010S-10(180),MCP-MN-6010S-10(180)
L1935997-01C	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		MCP-FE-6010T-10(180),MCP-MN-6010T-10(180),MCP-CA-6010T-10(180),MCP-MG-6010T-10(180)
L1935997-01D	Plastic 500ml unpreserved	A	7	7	4.1	Y	Absent		SO4-9038(28),TDS-2540(7)

*Values in parentheses indicate holding time in days

Project Name:	161 FIRST STREET	**Lab Number:**	L1935997
Project Number:	134061-005	**Report Date:**	08/15/19

GLOSSARY

Acronyms

DL - 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 limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

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).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

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.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

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. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

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.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

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.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report

Project Name:	161 FIRST STREET	**Lab Number:**	L1935997
Project Number:	134061-005	**Report Date:**	08/15/19

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

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.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

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.

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.

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.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

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.

Report Format: Data Usability Report

Project Name:	161 FIRST STREET	**Lab Number:**	L1935997
Project Number:	134061-005	**Report Date:**	08/15/19

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

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

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
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.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, 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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: 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 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Brewer, ME 04412 Portsmouth, NH 03801 Mahwah, NJ 07430
Albany, NY 12205
Tonawanda, NY 14150 Holmes, PA 19043

Page of

Date Rec'd in Lab: 8/9/19

ALPHA Job #: L1935991

H&A Information
H&A Client: ARE-MA Region No. 21, LLC
H&A Address: 465 Medford Street
Boston, MA 02129
H&A Phone: 617-886-7400
H&A Fax: echristmas@haleyaldrich.com
H&A Email: kchatterton@haleyaldrich.com

Project Information
Project Name: 161 First Street
Project Location: Cambridge, MA
Project #: 134061-005
(Use Project name as Project #) ☐
Project Manager: Lee Penwell
ALPHAQuote #: Binney

Turn-Around Time
Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days: 5 Day

Deliverables
☑ Email ☐ Fax
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other:

Regulatory Requirements (Program/Criteria)
MA MCP, RCGW-2
Note: Select State from menu & identify criteria.

Billing Information
☑ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☑ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	1. TDS	2. Total Fe, Mn, Ca, Mg	3. Dissolved Fe + Mn	4. Sulfate	5. Bicarbonate Alk.	6. Total Alk			Sample Specific Comments	Total # Bottles
35997-01	ENV-1(OW)-080919	8/9/19	1335	AQ	AF	X	X	X	X	X	X				4
Container Type						P	P	P	P	P	P				
Preservative						A	C	C	A	A	A				

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	8/9/19	[signature]	8/9/19 1605
[signature]	8/9/19 1605	[signature] AAC	8/9/19 1655
[signature]	8/9/19 1840	[signature]	8/9/19 1840

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. Alpha Analytical's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement# 2015-18-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical.

Document ID: 20455 Rev 1 (1/28/2016)

ANALYTICAL REPORT

Lab Number:	L1935999
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Lee Penwell
Phone:	(617) 886-7359
Project Name:	161 FIRST STREET
Project Number:	134061-005
Report Date:	08/15/19

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L1935999
Report Date: 08/15/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1935999-01	TP-101(OW)-080919	WATER	CAMBRIDGE, MA	08/09/19 10:30	08/09/19
L1935999-02	TP-103(OW)-080919	WATER	CAMBRIDGE, MA	08/09/19 12:00	08/09/19

Project Name: 161 FIRST STREET **Lab Number:** L1935999

Project Number: 134061-005 **Report Date:** 08/15/19

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

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

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name:	161 FIRST STREET	**Lab Number:**	L1935999
Project Number:	134061-005	**Report Date:**	08/15/19

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 NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. 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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. 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. 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 Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data 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.

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 Alpha Project Manager 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 Project Management at 800-624-9220 with any questions.

Project Name:	161 FIRST STREET	**Lab Number:**	L1935999
Project Number:	134061-005	**Report Date:**	08/15/19

Case Narrative (continued)

MCP Related Narratives

Sample Receipt

In reference to question H:

A Matrix Spike was not submitted for the analysis of Total Metals.

Volatile Organics

In reference to question H:

The initial calibration, associated with L1935999-01 (TP-101(OW)-080919) and -02 (TP-103(OW)-080919), did not meet the method required minimum response factor on the lowest calibration standard for 2-butanone (0.0761), 4-methyl-2-pentanone (0.0608), and 1,4-dioxane (0.0012), as well as the average response factor for 2-butanone, 4-methyl-2-pentanone, and 1,4-dioxane.

The continuing calibration standard, associated with L1935999-01 (TP-101(OW)-080919) and -02 (TP-103(OW)-080919), is outside the acceptance criteria for several compounds; however, it is within overall method allowances. A copy of the continuing calibration standard is included as an addendum to this report.

VPH

In reference to question I:

All samples were analyzed for a subset of MCP analytes per client request.

EPH

In reference to question I:

All samples were analyzed for a subset of MCP analytes per client request.

Total Metals

In reference to question I:

All samples were analyzed for a subset of MCP analytes per client request.

Project Name:	161 FIRST STREET	**Lab Number:**	L1935999
Project Number:	134061-005	**Report Date:**	08/15/19

Case Narrative (continued)

Dissolved Metals

In reference to question I:

All samples were analyzed for a subset of MCP analytes per client request.

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: Amita Naik

Title: Technical Director/Representative Date: 08/15/19

QC OUTLIER SUMMARY REPORT

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L1935999
Report Date: 08/15/19

Method	Client ID (Native ID)	Lab ID	Parameter	QC Type	Recovery/RPD (%)	QC Limits (%)	Associated Samples	Data Quality Assessment
MCP Volatile Organics - Westborough Lab								
8260C	Batch QC	WG1271666-3	Bromomethane	LCS	61	70-130	01-02	potential low bias
8260C	Batch QC	WG1271666-4	Bromomethane	LCSD	61	70-130	01-02	potential low bias

ORGANICS

VOLATILES

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L1935999
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935999-01
Client ID: TP-101(OW)-080919
Sample Location: CAMBRIDGE, MA

Date Collected: 08/09/19 10:30
Date Received: 08/09/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 08/13/19 07:54
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.40	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.40	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.40	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1

Project Name: 161 FIRST STREET **Lab Number:** L1935999

Project Number: 134061-005 **Report Date:** 08/15/19

SAMPLE RESULTS

Lab ID: L1935999-01 Date Collected: 08/09/19 10:30

Client ID: TP-101(OW)-080919 Date Received: 08/09/19

Sample Location: CAMBRIDGE, MA Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylenes, Total	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene, Total	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
Methyl ethyl ketone	ND		ug/l	5.0	--	1
Methyl isobutyl ketone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1

Project Name: 161 FIRST STREET **Lab Number:** L1935999

Project Number: 134061-005 **Report Date:** 08/15/19

SAMPLE RESULTS

Lab ID: L1935999-01 Date Collected: 08/09/19 10:30

Client ID: TP-101(OW)-080919 Date Received: 08/09/19

Sample Location: CAMBRIDGE, MA Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Diethyl ether	ND		ug/l	2.0	--	1
Diisopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	113		70-130

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L1935999
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935999-02
Client ID: TP-103(OW)-080919
Sample Location: CAMBRIDGE, MA

Date Collected: 08/09/19 12:00
Date Received: 08/09/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 08/13/19 08:18
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.40	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.40	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.40	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1

Project Name: 161 FIRST STREET **Lab Number:** L1935999

Project Number: 134061-005 **Report Date:** 08/15/19

SAMPLE RESULTS

Lab ID: L1935999-02 Date Collected: 08/09/19 12:00

Client ID: TP-103(OW)-080919 Date Received: 08/09/19

Sample Location: CAMBRIDGE, MA Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylenes, Total	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene, Total	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
Methyl ethyl ketone	ND		ug/l	5.0	--	1
Methyl isobutyl ketone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L1935999
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935999-02
Client ID: TP-103(OW)-080919
Sample Location: CAMBRIDGE, MA
Date Collected: 08/09/19 12:00
Date Received: 08/09/19
Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Diethyl ether	ND		ug/l	2.0	--	1
Diisopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	112		70-130

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L1935999
Report Date: 08/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 08/13/19 06:17
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-02 Batch: WG1271666-5					
Methylene chloride	ND		ug/l	2.0	--
1,1-Dichloroethane	ND		ug/l	1.0	--
Chloroform	ND		ug/l	1.0	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,2-Dichloropropane	ND		ug/l	1.0	--
Dibromochloromethane	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.0	--
Tetrachloroethene	ND		ug/l	1.0	--
Chlorobenzene	ND		ug/l	1.0	--
Trichlorofluoromethane	ND		ug/l	2.0	--
1,2-Dichloroethane	ND		ug/l	1.0	--
1,1,1-Trichloroethane	ND		ug/l	1.0	--
Bromodichloromethane	ND		ug/l	1.0	--
trans-1,3-Dichloropropene	ND		ug/l	0.40	--
cis-1,3-Dichloropropene	ND		ug/l	0.40	--
1,3-Dichloropropene, Total	ND		ug/l	0.40	--
1,1-Dichloropropene	ND		ug/l	2.0	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Chloromethane	ND		ug/l	2.0	--
Bromomethane	ND		ug/l	2.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	2.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
trans-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L1935999
Report Date: 08/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 08/13/19 06:17
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-02 Batch: WG1271666-5					
1,2-Dichlorobenzene	ND		ug/l	1.0	--
1,3-Dichlorobenzene	ND		ug/l	1.0	--
1,4-Dichlorobenzene	ND		ug/l	1.0	--
Methyl tert butyl ether	ND		ug/l	2.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-Xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
1,2-Dichloroethene, Total	ND		ug/l	1.0	--
Dibromomethane	ND		ug/l	2.0	--
1,2,3-Trichloropropane	ND		ug/l	2.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	2.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	2.0	--
Methyl ethyl ketone	ND		ug/l	5.0	--
Methyl isobutyl ketone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.0	--
Tetrahydrofuran	ND		ug/l	2.0	--
2,2-Dichloropropane	ND		ug/l	2.0	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--
Bromobenzene	ND		ug/l	2.0	--
n-Butylbenzene	ND		ug/l	2.0	--
sec-Butylbenzene	ND		ug/l	2.0	--
tert-Butylbenzene	ND		ug/l	2.0	--
o-Chlorotoluene	ND		ug/l	2.0	--

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L1935999
Report Date: 08/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 08/13/19 06:17
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-02 Batch: WG1271666-5					
p-Chlorotoluene	ND		ug/l	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--
Hexachlorobutadiene	ND		ug/l	0.60	--
Isopropylbenzene	ND		ug/l	2.0	--
p-Isopropyltoluene	ND		ug/l	2.0	--
Naphthalene	ND		ug/l	2.0	--
n-Propylbenzene	ND		ug/l	2.0	--
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--
Diethyl ether	ND		ug/l	2.0	--
Diisopropyl Ether	ND		ug/l	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--
1,4-Dioxane	ND		ug/l	250	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	109		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST STREET

Project Number: 134061-005

Lab Number: L1935999

Report Date: 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-02 Batch: WG1271666-3 WG1271666-4								
Methylene chloride	100		96		70-130	4		20
1,1-Dichloroethane	100		95		70-130	5		20
Chloroform	92		92		70-130	0		20
Carbon tetrachloride	91		89		70-130	2		20
1,2-Dichloropropane	96		93		70-130	3		20
Dibromochloromethane	93		88		70-130	6		20
1,1,2-Trichloroethane	100		97		70-130	3		20
Tetrachloroethene	93		88		70-130	6		20
Chlorobenzene	93		89		70-130	4		20
Trichlorofluoromethane	90		86		70-130	5		20
1,2-Dichloroethane	85		82		70-130	4		20
1,1,1-Trichloroethane	88		86		70-130	2		20
Bromodichloromethane	90		88		70-130	2		20
trans-1,3-Dichloropropene	90		88		70-130	2		20
cis-1,3-Dichloropropene	94		94		70-130	0		20
1,1-Dichloropropene	88		86		70-130	2		20
Bromoform	81		79		70-130	3		20
1,1,2,2-Tetrachloroethane	94		93		70-130	1		20
Benzene	94		93		70-130	1		20
Toluene	92		90		70-130	2		20
Ethylbenzene	90		87		70-130	3		20
Chloromethane	89		86		70-130	3		20
Bromomethane	**61**	Q	**61**	Q	70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST STREET

Project Number: 134061-005

Lab Number: L1935999

Report Date: 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-02 Batch: WG1271666-3 WG1271666-4								
Vinyl chloride	86		85		70-130	1		20
Chloroethane	72		71		70-130	1		20
1,1-Dichloroethene	97		96		70-130	1		20
trans-1,2-Dichloroethene	97		94		70-130	3		20
Trichloroethene	96		91		70-130	5		20
1,2-Dichlorobenzene	87		86		70-130	1		20
1,3-Dichlorobenzene	90		89		70-130	1		20
1,4-Dichlorobenzene	88		87		70-130	1		20
Methyl tert butyl ether	83		84		70-130	1		20
p/m-Xylene	90		90		70-130	0		20
o-Xylene	90		85		70-130	6		20
cis-1,2-Dichloroethene	94		96		70-130	2		20
Dibromomethane	98		99		70-130	1		20
1,2,3-Trichloropropane	87		89		70-130	2		20
Styrene	90		90		70-130	0		20
Dichlorodifluoromethane	95		92		70-130	3		20
Acetone	110		110		70-130	0		20
Carbon disulfide	100		97		70-130	3		20
Methyl ethyl ketone	110		100		70-130	10		20
Methyl isobutyl ketone	85		88		70-130	3		20
2-Hexanone	86		86		70-130	0		20
Bromochloromethane	110		110		70-130	0		20
Tetrahydrofuran	110		110		70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST STREET

Project Number: 134061-005

Lab Number: L1935999

Report Date: 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-02 Batch: WG1271666-3 WG1271666-4								
2,2-Dichloropropane	93		89		70-130	4		20
1,2-Dibromoethane	94		89		70-130	5		20
1,3-Dichloropropane	93		89		70-130	4		20
1,1,1,2-Tetrachloroethane	91		89		70-130	2		20
Bromobenzene	86		83		70-130	4		20
n-Butylbenzene	85		84		70-130	1		20
sec-Butylbenzene	81		80		70-130	1		20
tert-Butylbenzene	79		79		70-130	0		20
o-Chlorotoluene	85		84		70-130	1		20
p-Chlorotoluene	84		84		70-130	0		20
1,2-Dibromo-3-chloropropane	79		87		70-130	10		20
Hexachlorobutadiene	84		84		70-130	0		20
Isopropylbenzene	80		79		70-130	1		20
p-Isopropyltoluene	83		83		70-130	0		20
Naphthalene	75		76		70-130	1		20
n-Propylbenzene	84		83		70-130	1		20
1,2,3-Trichlorobenzene	83		82		70-130	1		20
1,2,4-Trichlorobenzene	82		80		70-130	2		20
1,3,5-Trimethylbenzene	84		83		70-130	1		20
1,2,4-Trimethylbenzene	83		81		70-130	2		20
Diethyl ether	80		80		70-130	0		20
Diisopropyl Ether	100		100		70-130	0		20
Ethyl-Tert-Butyl-Ether	85		85		70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST STREET

Project Number: 134061-005

Lab Number: L1935999

Report Date: 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-02 Batch: WG1271666-3 WG1271666-4								
Tertiary-Amyl Methyl Ether	81		80		70-130	1		20
1,4-Dioxane	86		84		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		94		70-130
Toluene-d8	107		106		70-130
4-Bromofluorobenzene	89		92		70-130
Dibromofluoromethane	106		108		70-130

PETROLEUM HYDROCARBONS

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L1935999
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID:	L1935999-01	Date Collected:	08/09/19 10:30
Client ID:	TP-101(OW)-080919	Date Received:	08/09/19
Sample Location:	CAMBRIDGE, MA	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	08/13/19 10:13		
Analyst:	BAD		

Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	100	--	1
C9-C12 Aliphatics	ND		ug/l	100	--	1
C9-C10 Aromatics	ND		ug/l	100	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	100	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	100		70-130
2,5-Dibromotoluene-FID	95		70-130

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L1935999
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID:	L1935999-01	Date Collected:	08/09/19 10:30
Client ID:	TP-101(OW)-080919	Date Received:	08/09/19
Sample Location:	CAMBRIDGE, MA	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	08/14/19 18:38
Analytical Date:	08/15/19 10:33	Cleanup Method1:	EPH-04-1
Analyst:	MEO	Cleanup Date1:	08/15/19

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Extractable Petroleum Hydrocarbons - Westborough Lab

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	54		40-140
o-Terphenyl	78		40-140
2-Fluorobiphenyl	90		40-140
2-Bromonaphthalene	91		40-140

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L1935999
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID:	L1935999-02	Date Collected:	08/09/19 12:00
Client ID:	TP-103(OW)-080919	Date Received:	08/09/19
Sample Location:	CAMBRIDGE, MA	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	08/13/19 10:43		
Analyst:	BAD		

Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	100	--	1
C9-C12 Aliphatics	ND		ug/l	100	--	1
C9-C10 Aromatics	ND		ug/l	100	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	100	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	110		70-130
2,5-Dibromotoluene-FID	105		70-130

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L1935999
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID:	L1935999-02	Date Collected:	08/09/19 12:00
Client ID:	TP-103(OW)-080919	Date Received:	08/09/19
Sample Location:	CAMBRIDGE, MA	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	08/14/19 18:38
Analytical Date:	08/15/19 11:05	Cleanup Method1:	EPH-04-1
Analyst:	MEO	Cleanup Date1:	08/15/19

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	55		40-140
o-Terphenyl	81		40-140
2-Fluorobiphenyl	94		40-140
2-Bromonaphthalene	95		40-140

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L1935999
Report Date: 08/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 08/15/19 09:29
Analyst: MEO

Extraction Method: EPA 3510C
Extraction Date: 08/14/19 15:19
Cleanup Method: EPH-04-1
Cleanup Date: 08/15/19

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-02 Batch: WG1272371-1					
C9-C18 Aliphatics	ND		ug/l	100	--
C19-C36 Aliphatics	ND		ug/l	100	--
C11-C22 Aromatics	ND		ug/l	100	--
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	67		40-140
o-Terphenyl	86		40-140
2-Fluorobiphenyl	92		40-140
2-Bromonaphthalene	93		40-140

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L1935999
Report Date: 08/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 131,VPH-18-2.1
Analytical Date: 08/13/19 09:12
Analyst: BAD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-02 Batch: WG1272836-4					
C5-C8 Aliphatics	ND		ug/l	100	--
C9-C12 Aliphatics	ND		ug/l	100	--
C9-C10 Aromatics	ND		ug/l	100	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	100	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	100	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	92		70-130
2,5-Dibromotoluene-FID	88		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L1935999
Report Date: 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-02 Batch: WG1272371-2 WG1272371-3								
C9-C18 Aliphatics	77		76		40-140	1		25
C19-C36 Aliphatics	78		84		40-140	7		25
C11-C22 Aromatics	82		90		40-140	9		25
Naphthalene	72		73		40-140	1		25
2-Methylnaphthalene	71		73		40-140	3		25
Acenaphthylene	76		80		40-140	5		25
Acenaphthene	77		82		40-140	6		25
Fluorene	78		84		40-140	7		25
Phenanthrene	79		88		40-140	11		25
Anthracene	82		91		40-140	10		25
Fluoranthene	81		91		40-140	12		25
Pyrene	84		96		40-140	13		25
Benzo(a)anthracene	81		92		40-140	13		25
Chrysene	81		92		40-140	13		25
Benzo(b)fluoranthene	82		92		40-140	11		25
Benzo(k)fluoranthene	82		92		40-140	11		25
Benzo(a)pyrene	79		90		40-140	13		25
Indeno(1,2,3-cd)Pyrene	79		89		40-140	12		25
Dibenzo(a,h)anthracene	80		90		40-140	12		25
Benzo(ghi)perylene	72		81		40-140	12		25
Nonane (C9)	63		58		30-140	8		25
Decane (C10)	71		66		40-140	7		25
Dodecane (C12)	73		70		40-140	4		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST STREET

Project Number: 134061-005

Lab Number: L1935999

Report Date: 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-02 Batch: WG1272371-2 WG1272371-3								
Tetradecane (C14)	72		71		40-140	1		25
Hexadecane (C16)	71		74		40-140	4		25
Octadecane (C18)	74		79		40-140	7		25
Nonadecane (C19)	72		78		40-140	8		25
Eicosane (C20)	73		80		40-140	9		25
Docosane (C22)	74		81		40-140	9		25
Tetracosane (C24)	74		81		40-140	9		25
Hexacosane (C26)	75		82		40-140	9		25
Octacosane (C28)	75		83		40-140	10		25
Triacontane (C30)	76		83		40-140	9		25
Hexatriacontane (C36)	76		82		40-140	8		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	66		70		40-140
o-Terphenyl	78		84		40-140
2-Fluorobiphenyl	83		88		40-140
2-Bromonaphthalene	84		89		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

Lab Control Sample Analysis
Batch Quality Control

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L1935999
Report Date: 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-02 Batch: WG1272836-2 WG1272836-3								
C5-C8 Aliphatics	105		122		70-130	15		25
C9-C12 Aliphatics	103		120		70-130	15		25
C9-C10 Aromatics	93		108		70-130	15		25
Benzene	99		116		70-130	15		25
Toluene	99		116		70-130	16		25
Ethylbenzene	98		115		70-130	16		25
p/m-Xylene	99		116		70-130	15		25
o-Xylene	99		116		70-130	16		25
Methyl tert butyl ether	101		120		70-130	17		25
Naphthalene	92		107		70-130	16		25
1,2,4-Trimethylbenzene	91		106		70-130	15		25
Pentane	105		122		70-130	15		25
2-Methylpentane	107		124		70-130	15		25
2,2,4-Trimethylpentane	104		122		70-130	16		25
n-Nonane	108		126		30-130	15		25
n-Decane	95		110		70-130	14		25
n-Butylcyclohexane	108		126		70-130	15		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	96		112		70-130
2,5-Dibromotoluene-FID	97		106		70-130

METALS

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L1935999
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935999-01
Client ID: TP-101(OW)-080919
Sample Location: CAMBRIDGE, MA
Date Collected: 08/09/19 10:30
Date Received: 08/09/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Iron, Total	3.12		mg/l	0.050	--	1	08/12/19 10:27	08/14/19 21:32	EPA 3005A	97,6010D	AB
Manganese, Total	1.25		mg/l	0.010	--	1	08/12/19 10:27	08/14/19 21:32	EPA 3005A	97,6010D	AB
MCP Dissolved Metals - Mansfield Lab											
Iron, Dissolved	1.88		mg/l	0.050	--	1	08/12/19 10:27	08/13/19 15:53	EPA 3005A	97,6010D	LC
Manganese, Dissolved	1.31		mg/l	0.010	--	1	08/12/19 10:27	08/13/19 15:53	EPA 3005A	97,6010D	LC

Project Name: 161 FIRST STREET
Lab Number: L1935999
Project Number: 134061-005
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935999-02
Client ID: TP-103(OW)-080919
Sample Location: CAMBRIDGE, MA
Date Collected: 08/09/19 12:00
Date Received: 08/09/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Iron, Total	2.32		mg/l	0.050	--	1	08/12/19 10:27	08/14/19 21:37	EPA 3005A	97,6010D	AB
Manganese, Total	1.04		mg/l	0.010	--	1	08/12/19 10:27	08/14/19 21:37	EPA 3005A	97,6010D	AB
MCP Dissolved Metals - Mansfield Lab											
Iron, Dissolved	0.769		mg/l	0.050	--	1	08/12/19 10:27	08/13/19 15:58	EPA 3005A	97,6010D	LC
Manganese, Dissolved	1.07		mg/l	0.010	--	1	08/12/19 10:27	08/13/19 15:58	EPA 3005A	97,6010D	LC

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L1935999
Report Date: 08/15/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1271275-1										
Iron, Dissolved	ND		mg/l	0.050	--	1	08/12/19 10:27	08/13/19 14:49	97,6010D	LC
Manganese, Dissolved	ND		mg/l	0.010	--	1	08/12/19 10:27	08/13/19 14:49	97,6010D	LC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1271277-1										
Iron, Total	ND		mg/l	0.050	--	1	08/12/19 10:27	08/14/19 21:01	97,6010D	AB
Manganese, Total	ND		mg/l	0.010	--	1	08/12/19 10:27	08/14/19 21:01	97,6010D	AB

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST STREET

Project Number: 134061-005

Lab Number: L1935999

Report Date: 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1271275-2 WG1271275-3								
Iron, Dissolved	114		110		80-120	4		20
Manganese, Dissolved	104		102		80-120	2		20
MCP Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1271277-2 WG1271277-3								
Iron, Total	101		104		80-120	3		20
Manganese, Total	94		94		80-120	0		20

INORGANICS
&
MISCELLANEOUS

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L1935999
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935999-01
Client ID: TP-101(OW)-080919
Sample Location: CAMBRIDGE, MA

Date Collected: 08/09/19 10:30
Date Received: 08/09/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	456.		mg CaCO3/L	2.00	NA	1	-	08/13/19 10:12	121,2320B	BR
Alkalinity, Bicarbonate	456.		mg CaCO3/L	2.00	NA	1	-	08/13/19 10:12	121,2320B	BR

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L1935999
Report Date: 08/15/19

SAMPLE RESULTS

Lab ID: L1935999-02
Client ID: TP-103(OW)-080919
Sample Location: CAMBRIDGE, MA

Date Collected: 08/09/19 12:00
Date Received: 08/09/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	447.		mg CaCO3/L	2.00	NA	1	-	08/13/19 10:12	121,2320B	BR
Alkalinity, Bicarbonate	447.		mg CaCO3/L	2.00	NA	1	-	08/13/19 10:12	121,2320B	BR

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L1935999
Report Date: 08/15/19

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): 01-02 Batch: WG1271690-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	08/13/19 10:12	121,2320B	BR
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1271694-1										
Alkalinity, Bicarbonate	ND		mg CaCO3/L	2.00	NA	1	-	08/13/19 10:12	121,2320B	BR

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST STREET

Project Number: 134061-005

Lab Number: L1935999

Report Date: 08/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1271690-2								
Alkalinity, Total	101		-		90-110	-		10

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L1935999
Report Date: 08/15/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1935999-01A	Vial HCl preserved	A	NA		4.1	Y	Absent		MCP-8260-10(14)
L1935999-01B	Vial HCl preserved	A	NA		4.1	Y	Absent		MCP-8260-10(14)
L1935999-01C	Vial HCl preserved	A	NA		4.1	Y	Absent		MCP-8260-10(14)
L1935999-01D	Vial HCl preserved	A	NA		4.1	Y	Absent		VPH-18(14)
L1935999-01E	Vial HCl preserved	A	NA		4.1	Y	Absent		VPH-18(14)
L1935999-01F	Vial HCl preserved	A	NA		4.1	Y	Absent		VPH-18(14)
L1935999-01G	Plastic 250ml unpreserved/No Headspace	A	NA		4.1	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)
L1935999-01H	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		MCP-FE-6010S-10(180),MCP-MN-6010S-10(180)
L1935999-01I	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		MCP-FE-6010T-10(180),MCP-MN-6010T-10(180)
L1935999-01J	Plastic 500ml unpreserved	A	7	7	4.1	Y	Absent		ARCHIVE()
L1935999-01K	Amber 1000ml HCl preserved	A	<2	<2	4.1	Y	Absent		EPH-10(14)
L1935999-01L	Amber 1000ml HCl preserved	A	<2	<2	4.1	Y	Absent		EPH-10(14)
L1935999-02A	Vial HCl preserved	A	NA		4.1	Y	Absent		MCP-8260-10(14)
L1935999-02B	Vial HCl preserved	A	NA		4.1	Y	Absent		MCP-8260-10(14)
L1935999-02C	Vial HCl preserved	A	NA		4.1	Y	Absent		MCP-8260-10(14)
L1935999-02D	Vial HCl preserved	A	NA		4.1	Y	Absent		VPH-18(14)
L1935999-02E	Vial HCl preserved	A	NA		4.1	Y	Absent		VPH-18(14)
L1935999-02F	Vial HCl preserved	A	NA		4.1	Y	Absent		VPH-18(14)
L1935999-02G	Plastic 250ml unpreserved/No Headspace	A	NA		4.1	Y	Absent		ALK-T-2320(14),ALK-HCO3-2320(14)
L1935999-02H	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		MCP-FE-6010S-10(180),MCP-MN-6010S-10(180)
L1935999-02I	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		MCP-FE-6010T-10(180),MCP-MN-6010T-10(180)
L1935999-02J	Plastic 500ml unpreserved	A	7	7	4.1	Y	Absent		ARCHIVE()

*Values in parentheses indicate holding time in days

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L1935999
Report Date: 08/15/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1935999-02K	Amber 1000ml HCl preserved	A	<2	<2	4.1	Y	Absent		EPH-10(14)
L1935999-02L	Amber 1000ml HCl preserved	A	<2	<2	4.1	Y	Absent		EPH-10(14)

*Values in parentheses indicate holding time in days

Project Name:	161 FIRST STREET	**Lab Number:**	L1935999
Project Number:	134061-005	**Report Date:**	08/15/19

GLOSSARY

Acronyms

DL - 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 limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

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).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

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.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

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. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

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.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

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.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report

Project Name:	161 FIRST STREET	**Lab Number:**	L1935999
Project Number:	134061-005	**Report Date:**	08/15/19

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

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.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

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.

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.

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.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

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.

Report Format: Data Usability Report

Project Name:	161 FIRST STREET	**Lab Number:**	L1935999
Project Number:	134061-005	**Report Date:**	08/15/19

REFERENCES

97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

131 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, February 2018, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, June 1, 2018.

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

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
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.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, 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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: 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 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
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Service Centers
Brewer, ME 04412 Portsmouth, NH 03801 Mahwah, NJ 07430
Albany, NY 12205
Tonawanda, NY 14150 Holmes, PA 19043

Page of

Date Rec'd in Lab: 8/9/19

ALPHA Job #: L1935999

H&A Information

H&A Client: ARE-MA Region No. 21, LLC
H&A Address: 465 Medford Street
Boston, MA 02129
H&A Phone: 617-886-7400
H&A Fax: echristmas@haleyaldrich.com
H&A Email: kchatterton@haleyaldrich.com

Project Information

Project Name: 161 First Street
Project Location: Cambridge, MA
Project #: 134061-005
(Use Project name as Project #) ☐
Project Manager: Lee Penwell
ALPHAQuote #: Binney

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days: 5 Day

Deliverables

☑ Email ☐ Fax
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other:

Billing Information

☑ Same as Client Info
PO #

Regulatory Requirements (Program/Criteria)

MA MCP, RCGW-2

Note: Select State from menu & identify criteria.

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☑ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	1. VOCs	2. EPH C-ranges	3. VPH C-ranges	4. Total Fe + Mn	5. Dissolved Fe + Mn	6. Total Alk.	7. Bicarbonate Alk.		Sample Specific Comments	Total Bottles
35999-01	TP-101(OW)-080919	8/9/19	1030	AQ	AF	X	X	X	X	X	X	X			12
-02	TP-103(OW)-080919	8/9/19	1200	AQ	AF	X	X	X	X	X	X	X			12
Container Type						V	A	V	P	P	P	P			
Preservative						B	B	B	C	C	A	A			

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
	8/9/19		8/9/19 1630
	8/9/19 1654		8/9/19 1655
	8/9/19 1840		8/9/19 1840

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. Alpha Analytical's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement# 2015-18-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical.

Document ID: 20455 Rev 1 (1/28/2016)

Method Blank Summary
Form 4
Volatiles

Client	: Haley & Aldrich, Inc.	**Lab Number**	: L1935999
Project Name	: 161 FIRST STREET	**Project Number**	: 134061-005
Lab Sample ID	: WG1271666-5	**Lab File ID**	: V16190813A06
Instrument ID	: VOA116		
Matrix	: DW	**Analysis Date**	: 08/13/19 06:17

Client Sample No.	Lab Sample ID	Analysis Date
WG1271666-3LCS	WG1271666-3	08/13/19 04:41
WG1271666-4LCSD	WG1271666-4	08/13/19 05:05
TP-101(OW)-080919	L1935999-01	08/13/19 07:54
TP-103(OW)-080919	L1935999-02	08/13/19 08:18

Calibration Verification Summary
Form 7
Volatiles

Client	: Haley & Aldrich, Inc.	**Lab Number**	: L1935999
Project Name	: 161 FIRST STREET	**Project Number**	: 134061-005
Instrument ID	: VOA116	**Calibration Date**	: 08/13/19 04:41
Lab File ID	: V16190813A02	**Init. Calib. Date(s)**	: 06/13/19 06/13/19
Sample No	: WG1271666-2	**Init. Calib. Times**	: 17:37 20:37
Channel	:		

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	71	0
Dichlorodifluoromethane	0.236	0.224	-	5.1	20	63	0
Chloromethane	0.281	0.25	-	11	20	60	0
Vinyl chloride	0.296	0.254	-	14.2	20	58	0
Bromomethane	0.172	0.104	-	39.5*	20	49	0
Chloroethane	0.197	0.143	-	27.4*	20	50	0
Trichlorofluoromethane	0.37	0.332	-	10.3	20	57	0
Ethyl ether	0.107	0.086	-	19.6	20	60	0
1,1-Dichloroethene	0.19	0.185	-	2.6	20	64	0
Carbon disulfide	0.574	0.579	-	-0.9	20	68	0
Freon-113	0.193	0.207	-	-7.3	20	66	0
Methylene chloride	0.209	0.211	-	-1	20	70	0
Acetone	10	10.87	-	-8.7	20	65	0
trans-1,2-Dichloroethene	0.214	0.208	-	2.8	20	65	0
Methyl acetate	0.105	0.125	-	-19	20	80	0
Methyl tert-butyl ether	0.493	0.411	-	16.6	20	57	0
tert-Butyl alcohol	0.016	0.013*	-	18.8	20	56	-.01
Diisopropyl ether	0.666	0.703	-	-5.6	20	73	0
1,1-Dichloroethane	0.414	0.412	-	0.5	20	67	0
Halothane	0.168	0.172	-	-2.4	20	69	0
Ethyl tert-butyl ether	0.663	0.564	-	14.9	20	59	0
Vinyl acetate	0.448	0.483	-	-7.8	20	77	-.01
cis-1,2-Dichloroethene	0.235	0.221	-	6	20	64	0
2,2-Dichloropropane	0.335	0.311	-	7.2	20	66	0
Bromochloromethane	0.1	0.111	-	-11	20	72	0
Cyclohexane	0.373	0.395	-	-5.9	20	67	0
Chloroform	0.395	0.363	-	8.1	20	62	0
Ethyl acetate	0.15	0.167	-	-11.3	20	78	0
Carbon tetrachloride	0.32	0.293	-	8.4	20	60	0
Tetrahydrofuran	10	10.747	-	-7.5	20	74	-.01
Dibromofluoromethane	0.276	0.293	-	-6.2	20	76	0
1,1,1-Trichloroethane	0.365	0.321	-	12.1	20	59	0
2-Butanone	0.066	0.074*	-	-12.1	20	79	-.01
1,1-Dichloropropene	0.306	0.269	-	12.1	20	60	0
Benzene	0.86	0.813	-	5.5	20	65	0
tert-Amyl methyl ether	0.55	0.446	-	18.9	20	58	-.01
1,2-Dichloroethane-d4	0.32	0.298	-	6.9	20	67	-.01
1,2-Dichloroethane	0.313	0.268	-	14.4	20	60	0
Methyl cyclohexane	0.374	0.352	-	5.9	20	63	0
Trichloroethene	0.228	0.218	-	4.4	20	64	0
Dibromomethane	0.119	0.116	-	2.5	20	67	0
1,2-Dichloropropane	0.221	0.211	-	4.5	20	67	0
2-Chloroethyl vinyl ether	0.09	0.085	-	5.6	20	72	0

* Value outside of QC limits.

Calibration Verification Summary
Form 7
Volatiles

Client	: Haley & Aldrich, Inc.	**Lab Number**	: L1935999
Project Name	: 161 FIRST STREET	**Project Number**	: 134061-005
Instrument ID	: VOA116	**Calibration Date**	: 08/13/19 04:41
Lab File ID	: V16190813A02	**Init. Calib. Date(s)**	: 06/13/19 06/13/19
Sample No	: WG1271666-2	**Init. Calib. Times**	: 17:37 20:37
Channel	:		

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Bromodichloromethane	0.301	0.271	-	10	20	63	0
1,4-Dioxane	0.00126	0.00108*	-	14.3	20	58	0
cis-1,3-Dichloropropene	0.349	0.33	-	5.4	20	67	0
Chlorobenzene-d5	1	1	-	0	20	72	-.01
Toluene-d8	1.224	1.31	-	-7	20	77	0
Toluene	0.687	0.632	-	8	20	65	-.01
4-Methyl-2-pentanone	0.074	0.063*	-	14.9	20	59	0
Tetrachloroethene	0.324	0.3	-	7.4	20	64	0
trans-1,3-Dichloropropene	0.379	0.343	-	9.5	20	61	-.01
Ethyl methacrylate	0.268	0.201	-	25*	20	51	0
1,1,2-Trichloroethane	0.18	0.179	-	0.6	20	66	0
Chlorodibromomethane	0.272	0.252	-	7.4	20	64	0
1,3-Dichloropropane	0.381	0.354	-	7.1	20	65	0
1,2-Dibromoethane	0.223	0.209	-	6.3	20	65	0
2-Hexanone	0.131	0.113	-	13.7	20	61	0
Chlorobenzene	0.761	0.706	-	7.2	20	65	0
Ethylbenzene	1.35	1.209	-	10.4	20	62	0
1,1,1,2-Tetrachloroethane	0.28	0.255	-	8.9	20	63	0
p/m Xylene	0.542	0.502	-	7.4	20	65	0
o Xylene	0.526	0.464	-	11.8	20	63	-.01
Styrene	0.847	0.763	-	9.9	20	64	0
1,4-Dichlorobenzene-d4	1	1	-	0	20	78	0
Bromoform	0.349	0.283	-	18.9	20	64	0
Isopropylbenzene	2.883	2.297	-	20.3*	20	60	0
4-Bromofluorobenzene	1.005	0.892	-	11.2	20	69	0
Bromobenzene	0.645	0.552	-	14.4	20	64	0
n-Propylbenzene	3.281	2.772	-	15.5	20	62	0
1,4-Dichlorobutane	0.757	0.666	-	12	20	68	0
1,1,2,2-Tetrachloroethane	0.477	0.448	-	6.1	20	68	0
4-Ethyltoluene	2.556	2.175	-	14.9	20	63	-.01
2-Chlorotoluene	2.139	1.815	-	15.1	20	62	0
1,3,5-Trimethylbenzene	2.262	1.906	-	15.7	20	63	0
1,2,3-Trichloropropane	0.41	0.355	-	13.4	20	65	-.01
trans-1,4-Dichloro-2-buten	0.152	0.125	-	17.8	20	61	-.01
4-Chlorotoluene	1.943	1.641	-	15.5	20	62	-.01
tert-Butylbenzene	2.007	1.584	-	21.1*	20	59	0
1,2,4-Trimethylbenzene	2.265	1.884	-	16.8	20	63	-.01
sec-Butylbenzene	2.854	2.312	-	19	20	59	0
p-Isopropyltoluene	2.395	1.984	-	17.2	20	61	0
1,3-Dichlorobenzene	1.225	1.102	-	10	20	66	-.01
1,4-Dichlorobenzene	1.18	1.036	-	12.2	20	66	-.01
p-Diethylbenzene	1.348	1.088	-	19.3	20	61	0
n-Butylbenzene	2.087	1.781	-	14.7	20	63	0

* Value outside of QC limits.

Calibration Verification Summary
Form 7
Volatiles

Client	: Haley & Aldrich, Inc.	**Lab Number**	: L1935999
Project Name	: 161 FIRST STREET	**Project Number**	: 134061-005
Instrument ID	: VOA116	**Calibration Date**	: 08/13/19 04:41
Lab File ID	: V16190813A02	**Init. Calib. Date(s)**	: 06/13/19 06/13/19
Sample No	: WG1271666-2	**Init. Calib. Times**	: 17:37 20:37
Channel	:		

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,2-Dichlorobenzene	1.106	0.963	-	12.9	20	65	-.01
1,2,4,5-Tetramethylbenzene	1.954	1.428	-	26.9*	20	55	0
1,2-Dibromo-3-chloropropan	0.079	0.063	-	20.3*	20	60	0
1,3,5-Trichlorobenzene	0.747	0.659	-	11.8	20	66	-.01
Hexachlorobutadiene	0.24	0.202	-	15.8	20	63	0
1,2,4-Trichlorobenzene	0.67	0.55	-	17.9	20	62	0
Naphthalene	1.592	1.194	-	25*	20	57	0
1,2,3-Trichlorobenzene	0.606	0.501	-	17.3	20	63	0

* Value outside of QC limits.

ANALYTICAL REPORT

Lab Number:	L1946992
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Rebecca Higgins
Phone:	(617) 886-7326
Project Name:	161 FIRST ST.
Project Number:	134061-005
Report Date:	10/15/19

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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

Project Name: 161 FIRST ST.
Project Number: 134061-005

Lab Number: L1946992
Report Date: 10/15/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1946992-01	TP-102_2019-1008	WATER	CAMBRIDGE, MA	10/08/19 10:20	10/08/19

Project Name:	161 FIRST ST.	**Lab Number:**	L1946992
Project Number:	134061-005	**Report Date:**	10/15/19

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 NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. 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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. 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. 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 Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data 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.

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 Alpha Project Manager 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 Project Management at 800-624-9220 with any questions.

Project Name: 161 FIRST ST. **Lab Number:** L1946992
Project Number: 134061-005 **Report Date:** 10/15/19

Case Narrative (continued)

Volatile Organics by SIM

L1946992-01 (TP-102_2019-1008): The sample has an elevated detection limit due to the dilution required by the elevated concentrations of non-target compounds in the sample.

Chlorine, Total Residual

The WG1293990-4 MS recovery (188%), performed on L1946992-01 (TP-102_2019-1008), is outside the acceptance criteria; however, the associated LCS recovery is within criteria. No further action was taken.

Phenolics, Total

The WG1294947-4 MS recovery (26%), performed on L1946992-01 (TP-102_2019-1008), is outside the acceptance criteria; however, the associated LCS recovery is within criteria. No further action was taken.

The WG1294947-3 Laboratory Duplicate RPD (22%), performed on L1946992-01 (TP-102_2019-1008), is above the acceptance criteria; however, the sample and duplicate results are less than five times the reporting limit. Therefore, the RPD is valid.

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: Kelly Stenstrom

Title: Technical Director/Representative Date: 10/15/19

ORGANICS

VOLATILES

Project Name: 161 FIRST ST.
Lab Number: L1946992
Project Number: 134061-005
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1946992-01
Client ID: TP-102_2019-1008
Sample Location: CAMBRIDGE, MA

Date Collected: 10/08/19 10:20
Date Received: 10/08/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 10/14/19 22:31
Analyst: AJK

Extraction Method: EPA 504.1
Extraction Date: 10/14/19 14:42

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

Project Name: 161 FIRST ST. **Lab Number:** L1946992

Project Number: 134061-005 **Report Date:** 10/15/19

SAMPLE RESULTS

Lab ID: L1946992-01 D
Client ID: TP-102_2019-1008
Sample Location: CAMBRIDGE, MA

Date Collected: 10/08/19 10:20
Date Received: 10/08/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 10/10/19 18:24
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	--	2.5
1,1-Dichloroethane	ND		ug/l	3.8	--	2.5
Carbon tetrachloride	ND		ug/l	2.5	--	2.5
1,1,2-Trichloroethane	ND		ug/l	3.8	--	2.5
Tetrachloroethene	ND		ug/l	2.5	--	2.5
1,2-Dichloroethane	ND		ug/l	3.8	--	2.5
1,1,1-Trichloroethane	ND		ug/l	5.0	--	2.5
Benzene	ND		ug/l	2.5	--	2.5
Toluene	ND		ug/l	2.5	--	2.5
Ethylbenzene	ND		ug/l	2.5	--	2.5
Vinyl chloride	ND		ug/l	2.5	--	2.5
1,1-Dichloroethene	ND		ug/l	2.5	--	2.5
cis-1,2-Dichloroethene	ND		ug/l	2.5	--	2.5
Trichloroethene	ND		ug/l	2.5	--	2.5
1,2-Dichlorobenzene	ND		ug/l	12	--	2.5
1,3-Dichlorobenzene	ND		ug/l	12	--	2.5
1,4-Dichlorobenzene	ND		ug/l	12	--	2.5
p/m-Xylene	ND		ug/l	5.0	--	2.5
o-xylene	ND		ug/l	2.5	--	2.5
Xylenes, Total	ND		ug/l	2.5	--	2.5
Acetone	2000		ug/l	25	--	2.5
Methyl tert butyl ether	ND		ug/l	25	--	2.5
Tert-Butyl Alcohol	ND		ug/l	250	--	2.5
Tertiary-Amyl Methyl Ether	ND		ug/l	50	--	2.5

Project Name: 161 FIRST ST. **Lab Number:** L1946992

Project Number: 134061-005 **Report Date:** 10/15/19

SAMPLE RESULTS

Lab ID: L1946992-01 D
Client ID: TP-102_2019-1008
Sample Location: CAMBRIDGE, MA

Date Collected: 10/08/19 10:20
Date Received: 10/08/19
Field Prep: Not Specified

Sample Depth:

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	101		60-140
Fluorobenzene	99		60-140
4-Bromofluorobenzene	98		60-140

Project Name: 161 FIRST ST.
Lab Number: L1946992
Project Number: 134061-005
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1946992-01 D
Client ID: TP-102_2019-1008
Sample Location: CAMBRIDGE, MA

Date Collected: 10/08/19 10:20
Date Received: 10/08/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 10/10/19 18:24
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	120	--	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	109		60-140
4-Bromofluorobenzene	91		60-140

Project Name: 161 FIRST ST. **Lab Number:** L1946992

Project Number: 134061-005 **Report Date:** 10/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 10/10/19 12:24
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1295197-4					
Methylene chloride	ND		ug/l	1.0	--
1,1-Dichloroethane	ND		ug/l	1.5	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.5	--
Tetrachloroethene	ND		ug/l	1.0	--
1,2-Dichloroethane	ND		ug/l	1.5	--
1,1,1-Trichloroethane	ND		ug/l	2.0	--
Benzene	ND		ug/l	1.0	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Vinyl chloride	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	5.0	--
1,3-Dichlorobenzene	ND		ug/l	5.0	--
1,4-Dichlorobenzene	ND		ug/l	5.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
Acetone	ND		ug/l	10	--
Methyl tert butyl ether	ND		ug/l	10	--
Tert-Butyl Alcohol	ND		ug/l	100	--
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--

Project Name: 161 FIRST ST.
Project Number: 134061-005
Lab Number: L1946992
Report Date: 10/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 10/10/19 12:24
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1295197-4					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	100		60-140
Fluorobenzene	99		60-140
4-Bromofluorobenzene	96		60-140

Project Name: 161 FIRST ST.
Project Number: 134061-005
Lab Number: L1946992
Report Date: 10/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
Analytical Date: 10/10/19 12:24
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1295200-4					
1,4-Dioxane	ND		ug/l	50	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	109		60-140
4-Bromofluorobenzene	93		60-140

Project Name: 161 FIRST ST.
Project Number: 134061-005

Lab Number: L1946992
Report Date: 10/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 10/14/19 19:46
Analyst: AJK

Extraction Method: EPA 504.1
Extraction Date: 10/14/19 14:42

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG1295952-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: 161 FIRST ST.
Project Number: 134061-005

Lab Number: L1946992
Report Date: 10/15/19

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: WG1295197-3								
Methylene chloride	100		-		60-140	-		28
1,1-Dichloroethane	100		-		50-150	-		49
Carbon tetrachloride	100		-		70-130	-		41
1,1,2-Trichloroethane	95		-		70-130	-		45
Tetrachloroethene	100		-		70-130	-		39
1,2-Dichloroethane	105		-		70-130	-		49
1,1,1-Trichloroethane	105		-		70-130	-		36
Benzene	100		-		65-135	-		61
Toluene	100		-		70-130	-		41
Ethylbenzene	100		-		60-140	-		63
Vinyl chloride	115		-		5-195	-		66
1,1-Dichloroethene	105		-		50-150	-		32
cis-1,2-Dichloroethene	105		-		60-140	-		30
Trichloroethene	100		-		65-135	-		48
1,2-Dichlorobenzene	95		-		65-135	-		57
1,3-Dichlorobenzene	90		-		70-130	-		43
1,4-Dichlorobenzene	95		-		65-135	-		57
p/m-Xylene	95		-		60-140	-		30
o-xylene	95		-		60-140	-		30
Acetone	96		-		40-160	-		30
Methyl tert butyl ether	100		-		60-140	-		30
Tert-Butyl Alcohol	100		-		60-140	-		30
Tertiary-Amyl Methyl Ether	100		-		60-140	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST ST.

Project Number: 134061-005

Lab Number: L1946992

Report Date: 10/15/19

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: WG1295197-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	102				60-140
Fluorobenzene	103				60-140
4-Bromofluorobenzene	96				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST ST.

Project Number: 134061-005

Lab Number: L1946992

Report Date: 10/15/19

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: WG1295200-3								
1,4-Dioxane	100		-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	109				60-140
4-Bromofluorobenzene	91				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST ST.

Project Number: 134061-005

Lab Number: L1946992

Report Date: 10/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab	Associated sample(s): 01		Batch: WG1295952-2						
1,2-Dibromoethane	98		-		80-120	-			A

Matrix Spike Analysis

Batch Quality Control

Project Name: 161 FIRST ST.

Project Number: 134061-005

Lab Number: L1946992

Report Date: 10/15/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1295952-3 QC Sample: L1946649-01 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.248	0.235	95		-	-		80-120	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.248	0.252	102		-	-		80-120	-		20	A
1,2,3-Trichloropropane	ND	0.248	0.214	86		-	-		80-120	-		20	A

SEMIVOLATILES

Project Name: 161 FIRST ST.
Lab Number: L1946992
Project Number: 134061-005
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1946992-01
Client ID: TP-102_2019-1008
Sample Location: CAMBRIDGE, MA

Date Collected: 10/08/19 10:20
Date Received: 10/08/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 10/14/19 15:10
Analyst: EK

Extraction Method: EPA 625.1
Extraction Date: 10/11/19 13:03

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--	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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	80		42-122
2-Fluorobiphenyl	80		46-121
4-Terphenyl-d14	88		47-138

Project Name: 161 FIRST ST.
Project Number: 134061-005
Lab Number: L1946992
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1946992-01
Client ID: TP-102_2019-1008
Sample Location: CAMBRIDGE, MA

Date Collected: 10/08/19 10:20
Date Received: 10/08/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 10/12/19 19:46
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 10/11/19 13:06

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	9.2		ug/l	0.10	--	1
Fluoranthene	0.35		ug/l	0.10	--	1
Naphthalene	1.3		ug/l	0.10	--	1
Benzo(a)anthracene	ND		ug/l	0.10	--	1
Benzo(a)pyrene	ND		ug/l	0.10	--	1
Benzo(b)fluoranthene	ND		ug/l	0.10	--	1
Benzo(k)fluoranthene	ND		ug/l	0.10	--	1
Chrysene	ND		ug/l	0.10	--	1
Acenaphthylene	ND		ug/l	0.10	--	1
Anthracene	0.75		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	1.9		ug/l	0.10	--	1
Phenanthrene	2.8		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--	1
Pyrene	0.25		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	1.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	52		25-87
Phenol-d6	41		16-65
Nitrobenzene-d5	88		42-122
2-Fluorobiphenyl	72		46-121
2,4,6-Tribromophenol	90		45-128
4-Terphenyl-d14	92		47-138

Project Name: 161 FIRST ST.
Project Number: 134061-005

Lab Number: L1946992
Report Date: 10/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 10/14/19 14:17
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 10/11/19 13:03

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1295188-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--
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	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	63		42-122
2-Fluorobiphenyl	74		46-121
4-Terphenyl-d14	76		47-138

Project Name: 161 FIRST ST. **Lab Number:** L1946992

Project Number: 134061-005 **Report Date:** 10/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 10/12/19 18:39
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 10/11/19 13:06

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1295189-1					
Acenaphthene	ND		ug/l	0.10	--
Fluoranthene	ND		ug/l	0.10	--
Naphthalene	ND		ug/l	0.10	--
Benzo(a)anthracene	ND		ug/l	0.10	--
Benzo(a)pyrene	ND		ug/l	0.10	--
Benzo(b)fluoranthene	ND		ug/l	0.10	--
Benzo(k)fluoranthene	ND		ug/l	0.10	--
Chrysene	ND		ug/l	0.10	--
Acenaphthylene	ND		ug/l	0.10	--
Anthracene	ND		ug/l	0.10	--
Benzo(ghi)perylene	ND		ug/l	0.10	--
Fluorene	ND		ug/l	0.10	--
Phenanthrene	ND		ug/l	0.10	--
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--
Pyrene	ND		ug/l	0.10	--
Pentachlorophenol	ND		ug/l	1.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	53		25-87
Phenol-d6	39		16-65
Nitrobenzene-d5	83		42-122
2-Fluorobiphenyl	69		46-121
2,4,6-Tribromophenol	87		45-128
4-Terphenyl-d14	86		47-138

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST ST.

Project Number: 134061-005

Lab Number: L1946992

Report Date: 10/15/19

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: WG1295188-3								
Bis(2-ethylhexyl)phthalate	103		-		29-137	-		82
Butyl benzyl phthalate	120		-		1-140	-		60
Di-n-butylphthalate	107		-		8-120	-		47
Di-n-octylphthalate	117		-		19-132	-		69
Diethyl phthalate	112		-		1-120	-		100
Dimethyl phthalate	104		-		1-120	-		183

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	72				42-122
2-Fluorobiphenyl	80				46-121
4-Terphenyl-d14	89				47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: 161 FIRST ST.
Project Number: 134061-005
Lab Number: L1946992
Report Date: 10/15/19

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: WG1295189-2								
Acenaphthene	77		-		60-132	-		30
Fluoranthene	66		-		43-121	-		30
Naphthalene	74		-		36-120	-		30
Benzo(a)anthracene	74		-		42-133	-		30
Benzo(a)pyrene	72		-		32-148	-		30
Benzo(b)fluoranthene	73		-		42-140	-		30
Benzo(k)fluoranthene	72		-		25-146	-		30
Chrysene	69		-		44-140	-		30
Acenaphthylene	76		-		54-126	-		30
Anthracene	77		-		43-120	-		30
Benzo(ghi)perylene	78		-		1-195	-		30
Fluorene	78		-		70-120	-		30
Phenanthrene	74		-		65-120	-		30
Dibenzo(a,h)anthracene	80		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	84		-		1-151	-		30
Pyrene	71		-		70-120	-		30
Pentachlorophenol	52		-		38-152	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST ST.

Project Number: 134061-005

Lab Number: L1946992

Report Date: 10/15/19

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: WG1295189-2

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	51				25-87
Phenol-d6	38				16-65
Nitrobenzene-d5	76				42-122
2-Fluorobiphenyl	71				46-121
2,4,6-Tribromophenol	80				45-128
4-Terphenyl-d14	73				47-138

PCBS

Project Name: 161 FIRST ST.
Project Number: 134061-005
Lab Number: L1946992
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1946992-01
Client ID: TP-102_2019-1008
Sample Location: CAMBRIDGE, MA

Date Collected: 10/08/19 10:20
Date Received: 10/08/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 10/13/19 13:37
Analyst: WR

Extraction Method: EPA 608.3
Extraction Date: 10/12/19 18:50
Cleanup Method: EPA 3665A
Cleanup Date: 10/13/19
Cleanup Method: EPA 3660B
Cleanup Date: 10/13/19

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	93		37-123	B
Decachlorobiphenyl	104		38-114	B
2,4,5,6-Tetrachloro-m-xylene	93		37-123	A
Decachlorobiphenyl	**120**	Q	38-114	A

Project Name: 161 FIRST ST.
Project Number: 134061-005

Lab Number: L1946992
Report Date: 10/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 10/13/19 13:13
Analyst: WR

Extraction Method: EPA 608.3
Extraction Date: 10/12/19 18:50
Cleanup Method: EPA 3665A
Cleanup Date: 10/13/19
Cleanup Method: EPA 3660B
Cleanup Date: 10/13/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG1295615-1						
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	104		37-123	B
Decachlorobiphenyl	106		38-114	B
2,4,5,6-Tetrachloro-m-xylene	104		37-123	A
Decachlorobiphenyl	**133**	Q	38-114	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST ST.

Project Number: 134061-005

Lab Number: L1946992

Report Date: 10/15/19

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: WG1295615-2									
Aroclor 1016	65		-		50-140	-		36	A
Aroclor 1260	68		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	80				37-123	B
Decachlorobiphenyl	72				38-114	B
2,4,5,6-Tetrachloro-m-xylene	80				37-123	A
Decachlorobiphenyl	84				38-114	A

METALS

Project Name: 161 FIRST ST.
Lab Number: L1946992
Project Number: 134061-005
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1946992-01
Client ID: TP-102_2019-1008
Sample Location: CAMBRIDGE, MA
Date Collected: 10/08/19 10:20
Date Received: 10/08/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	10/11/19 14:55	10/15/19 12:39	EPA 3005A	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	10/11/19 14:55	10/15/19 12:39	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	10/11/19 14:55	10/15/19 12:39	EPA 3005A	3,200.8	AM
Chromium, Total	0.00201		mg/l	0.00100	--	1	10/11/19 14:55	10/15/19 12:39	EPA 3005A	3,200.8	AM
Copper, Total	0.00101		mg/l	0.00100	--	1	10/11/19 14:55	10/15/19 12:39	EPA 3005A	3,200.8	AM
Iron, Total	26.6		mg/l	0.050	--	1	10/11/19 14:55	10/14/19 18:40	EPA 3005A	19,200.7	LC
Lead, Total	ND		mg/l	0.00100	--	1	10/11/19 14:55	10/15/19 12:39	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	10/12/19 13:40	10/12/19 17:40	EPA 7470A	3,245.1	AL
Nickel, Total	0.00324		mg/l	0.00200	--	1	10/11/19 14:55	10/15/19 12:39	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	10/11/19 14:55	10/15/19 12:39	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	10/11/19 14:55	10/15/19 12:39	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	10/11/19 14:55	10/15/19 12:39	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	817		mg/l	0.660	NA	1	10/11/19 14:55	10/15/19 12:14	EPA 3005A	19,200.7	LC
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		10/15/19 12:39	NA	107,-	

Project Name: 161 FIRST ST. **Lab Number:** L1946992

Project Number: 134061-005 **Report Date:** 10/15/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1295222-1										
Iron, Total	ND		mg/l	0.050	--	1	10/11/19 14:55	10/14/19 16:18	19,200.7	LC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1295489-1										
Mercury, Total	ND		mg/l	0.00020	--	1	10/12/19 13:40	10/12/19 17:28	3,245.1	AL

Prep Information

Digestion Method: EPA 7470A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1296005-1										
Antimony, Total	ND		mg/l	0.00400	--	1	10/11/19 14:55	10/15/19 12:18	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	10/11/19 14:55	10/15/19 12:18	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	10/11/19 14:55	10/15/19 12:18	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	10/11/19 14:55	10/15/19 12:18	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	10/11/19 14:55	10/15/19 12:18	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	10/11/19 14:55	10/15/19 12:18	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	10/11/19 14:55	10/15/19 12:18	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	10/11/19 14:55	10/15/19 12:18	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	10/11/19 14:55	10/15/19 12:18	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	10/11/19 14:55	10/15/19 12:18	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST ST.

Project Number: 134061-005

Lab Number: L1946992

Report Date: 10/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1295222-2								
Iron, Total	97		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1295489-2								
Mercury, Total	107		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1296005-2								
Antimony, Total	86		-		85-115	-		
Arsenic, Total	104		-		85-115	-		
Cadmium, Total	110		-		85-115	-		
Chromium, Total	100		-		85-115	-		
Copper, Total	97		-		85-115	-		
Lead, Total	109		-		85-115	-		
Nickel, Total	103		-		85-115	-		
Selenium, Total	93		-		85-115	-		
Silver, Total	102		-		85-115	-		
Zinc, Total	108		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: 161 FIRST ST.
Project Number: 134061-005

Lab Number: L1946992
Report Date: 10/15/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1295222-3 QC Sample: L1946311-01 Client ID: MS Sample												
Iron, Total	28.4	1	29.8	**140**	Q	-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1295222-3 QC Sample: L1946311-01 Client ID: MS Sample												
Hardness	359	66.2	420	92		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1295222-7 QC Sample: L1946312-01 Client ID: MS Sample												
Iron, Total	44.3	2	43.5	**0**	Q	-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1295222-7 QC Sample: L1946312-01 Client ID: MS Sample												
Hardness	1440	132	1430	**0**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1295489-3 QC Sample: L1946812-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00460	92		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1296005-3 QC Sample: L1900010-117 Client ID: MS Sample												
Antimony, Total	ND	1	1.235	124		-	-		70-130	-		20
Arsenic, Total	ND	0.24	0.2833	118		-	-		70-130	-		20
Cadmium, Total	ND	0.102	0.1054	103		-	-		70-130	-		20
Chromium, Total	0.3172	0.4	0.6634	86		-	-		70-130	-		20
Copper, Total	ND	0.5	0.4817	96		-	-		70-130	-		20
Lead, Total	ND	1.02	1.011	99		-	-		70-130	-		20
Nickel, Total	0.4221	1	1.361	94		-	-		70-130	-		20
Selenium, Total	ND	0.24	0.1808	75		-	-		70-130	-		20
Silver, Total	ND	0.1	0.09317	93		-	-		70-130	-		20
Zinc, Total	1.582	1	2.286	70		-	-		70-130	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: 161 FIRST ST.
Project Number: 134061-005

Lab Number: L1946992
Report Date: 10/15/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1295489-4 QC Sample: L1946812-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1296005-4 QC Sample: L1900010-117 Client ID: DUP Sample						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	ND	ND	mg/l	NC		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	0.3172	0.3259	mg/l	3		20
Copper, Total	ND	ND	mg/l	NC		20
Lead, Total	ND	ND	mg/l	NC		20
Nickel, Total	0.4221	0.4313	mg/l	2		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	1.582	1.620	mg/l	2		20

INORGANICS
&
MISCELLANEOUS

Project Name: 161 FIRST ST.
Project Number: 134061-005

Lab Number: L1946992
Report Date: 10/15/19

SAMPLE RESULTS

Lab ID: L1946992-01
Client ID: TP-102_2019-1008
Sample Location: CAMBRIDGE, MA

Date Collected: 10/08/19 10:20
Date Received: 10/08/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	62.		mg/l	10	NA	2	-	10/11/19 08:40	121,2540D	DR
Cyanide, Total	0.030		mg/l	0.005	--	1	10/10/19 12:25	10/10/19 14:44	121,4500CN-CE	LH
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	10/09/19 08:39	121,4500CL-D	JA
Nitrogen, Ammonia	0.598		mg/l	0.075	--	1	10/10/19 03:58	10/10/19 22:30	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	10/09/19 16:30	10/09/19 22:00	74,1664A	ML
Phenolics, Total	0.040		mg/l	0.030	--	1	10/11/19 05:20	10/14/19 11:53	4,420.1	MV
Chromium, Hexavalent	ND		mg/l	0.010	--	1	10/09/19 06:00	10/09/19 07:54	1,7196A	JA
Anions by Ion Chromatography - Westborough Lab										
Chloride	655.		mg/l	25.0	--	50	-	10/09/19 22:23	44,300.0	AT

Project Name: 161 FIRST ST.
Project Number: 134061-005
Lab Number: L1946992
Report Date: 10/15/19

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: WG1293939-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	10/09/19 06:00	10/09/19 07:43	1,7196A	JA
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1293990-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	10/09/19 08:39	121,4500CL-D	JA
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1294288-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	10/09/19 16:30	10/09/19 22:00	74,1664A	ML
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1294359-1										
Chloride	ND		mg/l	0.500	--	1	-	10/09/19 17:21	44,300.0	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1294366-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	10/10/19 03:58	10/10/19 22:27	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1294518-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	10/11/19 08:40	121,2540D	DR
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1294634-1										
Cyanide, Total	ND		mg/l	0.005	--	1	10/10/19 12:25	10/10/19 14:40	121,4500CN-CE	LH
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1294947-1										
Phenolics, Total	ND		mg/l	0.030	--	1	10/11/19 05:20	10/14/19 10:38	4,420.1	MV

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST ST.

Project Number: 134061-005

Lab Number: L1946992

Report Date: 10/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1293939-2								
Chromium, Hexavalent	100		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1293990-2								
Chlorine, Total Residual	92		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1294288-2								
TPH	88		-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1294359-2								
Chloride	102		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1294366-2								
Nitrogen, Ammonia	82		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1294634-2								
Cyanide, Total	94		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1294947-2								
Phenolics, Total	88		-		70-130	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: 161 FIRST ST.
Project Number: 134061-005

Lab Number: L1946992
Report Date: 10/15/19

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: WG1293939-4 QC Sample: L1946992-01 Client ID: TP-102_2019-1008												
Chromium, Hexavalent	ND	0.1	0.101	101		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1293990-4 QC Sample: L1946992-01 Client ID: TP-102_2019-1008												
Chlorine, Total Residual	ND	0.25	0.47	**188**	Q	-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1294288-4 QC Sample: L1946878-01 Client ID: MS Sample												
TPH	ND	20.8	19.1	92		-	-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1294359-3 QC Sample: L1946875-01 Client ID: MS Sample												
Chloride	68.6	40	104	**89**	Q	-	-		90-110	-		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1294366-4 QC Sample: L1947219-06 Client ID: MS Sample												
Nitrogen, Ammonia	1.94	4	5.44	88		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1294634-4 QC Sample: L1947318-02 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.190	95		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1294947-4 QC Sample: L1946992-01 Client ID: TP-102_2019-1008												
Phenolics, Total	0.040	0.4	0.14	**26**	Q	-	-		70-130	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: 161 FIRST ST.
Project Number: 134061-005

Lab Number: L1946992
Report Date: 10/15/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1293939-3 QC Sample: L1946992-01 Client ID: TP-102_2019-1008						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1293990-3 QC Sample: L1946992-01 Client ID: TP-102_2019-1008						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1294288-3 QC Sample: L1946878-01 Client ID: DUP Sample						
TPH	ND	ND	mg/l	NC		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1294359-4 QC Sample: L1946875-01 Client ID: DUP Sample						
Chloride	68.6	67.0	mg/l	2		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1294366-3 QC Sample: L1947219-06 Client ID: DUP Sample						
Nitrogen, Ammonia	1.94	1.77	mg/l	9		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1294518-2 QC Sample: L1947060-01 Client ID: DUP Sample						
Solids, Total Suspended	ND	56	mg/l	NC		29
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1294634-3 QC Sample: L1947318-01 Client ID: DUP Sample						
Cyanide, Total	ND	ND	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1294947-3 QC Sample: L1946992-01 Client ID: TP-102_2019-1008						
Phenolics, Total	0.040	0.050	mg/l	**22**	Q	20

Project Name: 161 FIRST ST.
Project Number: 134061-005

Lab Number: L1946992
Report Date: 10/15/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1946992-01A	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1946992-01B	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1946992-01C	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1946992-01D	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1946992-01E	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		504(14)
L1946992-01F	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		504(14)
L1946992-01G	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		504(14)
L1946992-01H	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		504(14)
L1946992-01I	Plastic 250ml unpreserved	A	7	7	2.9	Y	Absent		HEXCR-7196(1)
L1946992-01J	Plastic 250ml NaOH preserved	A	>12	>12	2.9	Y	Absent		TCN-4500(14)
L1946992-01K	Plastic 250ml NaOH preserved	A	>12	>12	2.9	Y	Absent		HOLD-WETCHEM()
L1946992-01L	Plastic 250ml HNO3 preserved	A	<2	<2	2.9	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),HG-U(28),SE-2008T(180),AG-2008T(180),AS-2008T(180),SB-2008T(180),PB-2008T(180),CR-2008T(180)
L1946992-01M	Plastic 250ml HNO3 preserved	A	<2	<2	2.9	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),HG-U(28),SE-2008T(180),AG-2008T(180),AS-2008T(180),SB-2008T(180),PB-2008T(180),CR-2008T(180)
L1946992-01N	Plastic 500ml H2SO4 preserved	A	<2	<2	2.9	Y	Absent		NH3-4500(28)
L1946992-01O	Plastic 500ml H2SO4 preserved	A	<2	<2	2.9	Y	Absent		NH3-4500(28)
L1946992-01P	Plastic 950ml unpreserved	A	7	7	2.9	Y	Absent		TRC-4500(1),TSS-2540(7)
L1946992-01Q	Plastic 950ml unpreserved	A	7	7	2.9	Y	Absent		CL-300(28)
L1946992-01R	Amber 1000ml Na2S2O3	A	7	7	2.9	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1946992-01S	Amber 1000ml Na2S2O3	A	7	7	2.9	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)

*Values in parentheses indicate holding time in days

Project Name: 161 FIRST ST.
Project Number: 134061-005

Lab Number: L1946992
Report Date: 10/15/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1946992-01T	Amber 1000ml Na2S2O3	A	7	7	2.9	Y	Absent		PCB-608.3(7)
L1946992-01U	Amber 1000ml Na2S2O3	A	7	7	2.9	Y	Absent		PCB-608.3(7)
L1946992-01V	Amber 1000ml Na2S2O3	A	7	7	2.9	Y	Absent		PCB-608.3(7)
L1946992-01W	Amber 1000ml Na2S2O3	A	7	7	2.9	Y	Absent		PCB-608.3(7)
L1946992-01X	Amber 1000ml HCl preserved	A	N/A	N/A	2.9	Y	Absent		TPH-1664(28)
L1946992-01Y	Amber 1000ml HCl preserved	A	N/A	N/A	2.9	Y	Absent		TPH-1664(28)
L1946992-01Z	Amber 1000ml H2SO4 preserved	A	<2	<2	2.9	Y	Absent		TPHENOL-420(28)

Container Comments

L1946992-01T	No Cl present.
L1946992-01U	No Cl present.
L1946992-01V	No Cl present.
L1946992-01W	No Cl present.

*Values in parentheses indicate holding time in days

Project Name:	161 FIRST ST.	**Lab Number:**	L1946992
Project Number:	134061-005	**Report Date:**	10/15/19

GLOSSARY

Acronyms

DL - 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 limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

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).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

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.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

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. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

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.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

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.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report

Project Name:	161 FIRST ST.	**Lab Number:**	L1946992
Project Number:	134061-005	**Report Date:**	10/15/19

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

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.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

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.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

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.

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.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

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.

Report Format: Data Usability Report

Project Name:	161 FIRST ST.	**Lab Number:**	L1946992
Project Number:	134061-005	**Report Date:**	10/15/19

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.

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.

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.

107 Alpha Analytical - In-house calculation method.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

127 Method 608.3: Organochlorine Pesticides and PCBs by GC/HSD, EPA 821-R-16-009, December 2016.

128 Method 624.1: Purgeables by GC/MS, EPA 821-R-16-008, December 2016.

129 Method 625.1: Base/Neutrals and Acids by GC/MS, EPA 821-R-16-007, December 2016.

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

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
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.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, 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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: 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 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193
Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers: Brewer, ME 04412 — Portsmouth, NH 03801 — Mahwah, NJ 07430 — Albany, NY 12205 — Tonawanda, NY 14150 — Holmes, PA 19043

Page: of

Date Rec'd in Lab: 10/8/19

ALPHA Job #: L1940992

H&A Information

H&A Client: ARE-MA Region No. 21 LLC
H&A Address: 465 Medford St, Suite 2200
Boston, MA 02129
H&A Phone: 617-886-7359
H&A Fax: echristmas@haleyaldrich.com
H&A Email: lpenwell@haleyaldrich.com

Project Information

Project Name: 50 Rogers Street
Project Location: Cambridge, MA
Project #: 134061-005
(Use Project name as Project #) ☐
Project Manager: Rebecca Higgins/Lee Penwell
ALPHAQuote #: BINNEY

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☑ Email ☐ Fax
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other:

Billing Information

☐ Same as Client Info
PO #

Regulatory Requirements (Program/Criteria)

MA

Note: Select State from menu & identify criteria.

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please sample per EPA Approved 2017 RGP Permit methods

NOTE 1: Hold all analysis except for VOCs.

Please specify Metals or TAL.

ANALYSIS

1. TSS-2540
2. TRC-4500
3. TCN-4500 HOLD PACN & CAN
4. 504
5. 8260 & 8260 SIM for Dioxane
6. HAXCR-7196 & Trivalent Chromium
7. TPHENOL-420
8. 8270TCL (including Diethylhexylphthalate)
9. 8270TCL-SIM
10. CL-300
11. Total Metals-Ag, As, Cd, Cr, Cu, Ni, Pb, Sb, Se, Zn, Fe, Hg
12. Ammonia
13. Total Hardness
14. TPH-1664
15. PCB-608

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Total Bottles

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Sample Specific Comments	Total Bottles
46992 - 01	TP-102_2019-1008	8-Oct 8/19	1020	AQ	AF	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	TP-102_2019-1008 See NOTE #1	26

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
	10/8/19		10/8/19 1630
	10/8/19 1630		10.8.19 1630
	10-8-19 1815		10-8-19 1815

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. Alpha Analytical's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement# 2015-18-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical.

Document ID: 20455 Rev 1 (1/28/2016)

ANALYTICAL REPORT

Lab Number:	L1949716
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Rebecca Higgins
Phone:	(617) 886-7326
Project Name:	161 FIRST ST.
Project Number:	134061-005
Report Date:	10/24/19

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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

Project Name: 161 FIRST ST.
Project Number: 134061-005

Lab Number: L1949716
Report Date: 10/24/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1949716-01	TP-102_2019-1008	WATER	CAMBRIDGE, MA	10/08/19 10:20	10/08/19

Project Name:	161 FIRST ST.	**Lab Number:**	L1949716
Project Number:	134061-005	**Report Date:**	10/24/19

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 NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. 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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. 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. 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 Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data 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.

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 Alpha Project Manager 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 Project Management at 800-624-9220 with any questions.

Project Name: 161 FIRST ST.
Project Number: 134061-005
Lab Number: L1949716
Report Date: 10/24/19

Case Narrative (continued)

Cyanide, Physiologically Available

L1949716-01 (TP-102_2019-1008) was analyzed with the method required holding time exceeded.

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: Amita Naik

Title: Technical Director/Representative Date: 10/24/19

INORGANICS
&
MISCELLANEOUS

Project Name: 161 FIRST ST.
Project Number: 134061-005

Lab Number: L1949716
Report Date: 10/24/19

SAMPLE RESULTS

Lab ID: L1949716-01
Client ID: TP-102_2019-1008
Sample Location: CAMBRIDGE, MA

Date Collected: 10/08/19 10:20
Date Received: 10/08/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Physiologically Available	ND		mg/l	0.005	--	1	10/24/19 10:25	10/24/19 12:18	64,9014(M)	LH

Project Name: 161 FIRST ST.
Project Number: 134061-005
Lab Number: L1949716
Report Date: 10/24/19

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: WG1300090-1										
Cyanide, Physiologically Available	ND		mg/l	0.005	--	1	10/24/19 10:25	10/24/19 12:06	64,9014(M)	LH

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST ST.

Project Number: 134061-005

Lab Number: L1949716

Report Date: 10/24/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1300090-2								
Cyanide, Physiologically Available	97		-		80-120	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1300090-3								
Cyanide, Physiologically Available	**1**		-		0-10	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: 161 FIRST ST.
Project Number: 134061-005

Lab Number: L1949716
Report Date: 10/24/19

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: WG1300090-5 QC Sample: L1949716-01 Client ID: TP-102_2019-1008												
Cyanide, Physiologically Available	ND	0.2	0.172	86		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 161 FIRST ST.

Project Number: 134061-005

Lab Number: L1949716

Report Date: 10/24/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1300090-4 QC Sample: L1949716-01 Client ID: TP-102_2019-1008						
Cyanide, Physiologically Available	ND	0.007	mg/l	NC		20

Project Name: 161 FIRST ST.
Project Number: 134061-005

Lab Number: L1949716
Report Date: 10/24/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	*Custody Seal*
A	Absent

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L1949716-01A	Plastic 250ml NaOH preserved	A	>12	>12	2.9	Y	Absent		PACN(14)

*Values in parentheses indicate holding time in days

Project Name:	161 FIRST ST.	**Lab Number:**	L1949716
Project Number:	134061-005	**Report Date:**	10/24/19

GLOSSARY

Acronyms

DL - 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 limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

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).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

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.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

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. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

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.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

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.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report

Project Name:	161 FIRST ST.	**Lab Number:**	L1949716
Project Number:	134061-005	**Report Date:**	10/24/19

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

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.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

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.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

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.

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.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

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.

Report Format: Data Usability Report

Project Name: 161 FIRST ST.
Project Number: 134061-005
Lab Number: L1949716
Report Date: 10/24/19

REFERENCES

64 Quality Assurance and Quality Control Requirements and Performance Standards for SW-846 Methods. MADEP BWSC. WSC-CAM-IIA (Revision 4), WSC-CAM-V C (Revision 2), WSC-CAM-IIIA (Revision 5). August 2004.

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

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
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.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, 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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: 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 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

HN 10/22/19

L1949716

CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193

Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers: Brewer, ME 04412 — Portsmouth, NH 03801 Mahwah, NJ 07430 — Albany, NY 12205 — Tonawanda, NY 14150 — Holmes, PA 19043

Page: of

Date Rec'd in Lab: 10/8/19

ALPHA Job #: L1946992

Project Information

Project Name: 50 Rogers Street

Project Location: Cambridge, MA

Project #: 134061-005

(Use Project name as Project #)

Project Manager: Rebecca Higgins/Lee Penwell

ALPHAQuote #: BINNEY

Turn-Around Time

Standard ☑ Due Date:

Rush (only if pre approved) ☐ # of Days:

Deliverables

☑ Email ☐ Fax

☐ EQuIS (1 File) ☑ EQuIS (4 File)

☐ Other:

Billing Information

☐ Same as Client Info

PO #

H&A Information

H&A Client: ARE-MA Region No. 21 LLC

H&A Address: 465 Medford St, Suite 2200

Boston, MA 02129

H&A Phone: 617-886-7359

H&A Fax: echristmas@haleyaldrich.com

H&A Email: lpenwell@haleyaldrich.com

Regulatory Requirements (Program/Criteria)

MA

Note: Select State from menu & identify criteria.

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:

☐ NJ ☐ NY

☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please sample per EPA Approved 2017 RGP Permit methods

NOTE 1: Hold all analysis except for VOCs. *= PACN

Please specify Metals or TAL.

ANALYSIS *

1. TSS-2540
2. TRC-4500
3. TCN-4500 HOLD PACN & CAN
4. 504
5. 8260 & 8260 SIM for Dioxane
6. HAXCR-7196 & Trivalent Chromium
7. TPHENOL-420
8. 8270TCL (including Diethylhexylphthalate)
9. 8270TCL-SIM
10. CL-300
11. Total Metals-Ag, As, Cd, Cr, Cu, Hg, Pb, Sb, Se, Zn, Fe, Mn
12. Ammonia
13. Total Hardness
14. TPH-1664
15. PCB-608

Sample Filtration

☐ Done ☐ Lab to do

Preservation ☐ Lab to do

(Please Specify below)

Sample Specific Comments

Total # Bottles

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Sample Specific Comments	Total # Bottles
46992 - 01	TP-102_2019-1008	8-Oct 8/19	1020	AQ	AF	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	TP-102_2019-1008 See NOTE #1	26

Container Type

Preservative

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; K/E = Zn Ac/NaOH; O = Other

Container Code: P = Plastic; A = Amber Glass; V = Vial; G = Glass; B = Bacteria Cup; C = Cube; O = Other; E = Encore; D = BOD Bottle

Westboro: Certification No: MA935

Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	10/8/19	[illegible]	10/8/19 1630
[illegible]	10/8/19 1630	[illegible]	10.8.19 1630
[illegible]	10-8-19 1815	[illegible]	10-8-19 1815

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. Alpha Analytical's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement# 2015-18-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical.

Document ID: 20455 Rev 1 (1/26/2016)

ANALYTICAL REPORT

Lab Number:	L2005300
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Lee Penwell
Phone:	(617) 886-7359
Project Name:	161 FIRST STREET
Project Number:	134061-005
Report Date:	02/11/20

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L2005300
Report Date: 02/11/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2005300-01	CAM-017	WATER	CAMBRIDGE, MA	02/05/20 13:05	02/05/20

Project Name:	161 FIRST STREET	**Lab Number:**	L2005300
Project Number:	134061-005	**Report Date:**	02/11/20

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 NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. 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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. 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.

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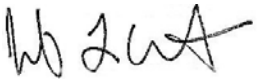
Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

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 Alpha Project Manager 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 Project Management at 800-624-9220 with any questions.

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:  Jennifer L Clements

Title: Technical Director/Representative Date: 02/11/20

METALS

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L2005300
Report Date: 02/11/20

SAMPLE RESULTS

Lab ID: L2005300-01
Client ID: CAM-017
Sample Location: CAMBRIDGE, MA
Date Collected: 02/05/20 13:05
Date Received: 02/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	02/06/20 22:27	02/07/20 10:39	EPA 3005A	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	02/06/20 22:27	02/07/20 10:39	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	02/06/20 22:27	02/07/20 10:39	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	02/06/20 22:27	02/07/20 10:39	EPA 3005A	3,200.8	AM
Copper, Total	0.00221		mg/l	0.00100	--	1	02/06/20 22:27	02/07/20 10:39	EPA 3005A	3,200.8	AM
Iron, Total	0.394		mg/l	0.050	--	1	02/06/20 22:27	02/07/20 11:50	EPA 3005A	19,200.7	LC
Lead, Total	ND		mg/l	0.00100	--	1	02/06/20 22:27	02/07/20 10:39	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	02/06/20 14:40	02/06/20 18:59	EPA 245.1	3,245.1	AL
Nickel, Total	ND		mg/l	0.00200	--	1	02/06/20 22:27	02/07/20 10:39	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	02/06/20 22:27	02/07/20 10:39	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	02/06/20 22:27	02/07/20 10:39	EPA 3005A	3,200.8	AM
Zinc, Total	0.01698		mg/l	0.01000	--	1	02/06/20 22:27	02/07/20 10:39	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	82.2		mg/l	0.660	NA	1	02/06/20 22:27	02/07/20 11:50	EPA 3005A	19,200.7	LC
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		02/07/20 10:39	NA	107,-	

Project Name: 161 FIRST STREET **Lab Number:** L2005300

Project Number: 134061-005 **Report Date:** 02/11/20

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1337948-1										
Mercury, Total	ND		mg/l	0.00020	--	1	02/06/20 14:40	02/06/20 18:03	3,245.1	AL

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1338072-1										
Iron, Total	ND		mg/l	0.050	--	1	02/06/20 22:27	02/07/20 11:06	19,200.7	LC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01 Batch: WG1338072-1										
Hardness	ND		mg/l	0.660	NA	1	02/06/20 22:27	02/07/20 11:06	19,200.7	LC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1338073-1										
Antimony, Total	ND		mg/l	0.00400	--	1	02/06/20 22:27	02/07/20 09:02	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	02/06/20 22:27	02/07/20 09:02	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	02/06/20 22:27	02/07/20 09:02	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	02/06/20 22:27	02/07/20 09:02	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	02/06/20 22:27	02/07/20 09:02	3,200.8	AM

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L2005300
Report Date: 02/11/20

Method Blank Analysis
Batch Quality Control

Lead, Total	ND	mg/l	0.00100	--	1	02/06/20 22:27	02/07/20 09:02	3,200.8	AM
Nickel, Total	ND	mg/l	0.00200	--	1	02/06/20 22:27	02/07/20 09:02	3,200.8	AM
Selenium, Total	ND	mg/l	0.00500	--	1	02/06/20 22:27	02/07/20 09:02	3,200.8	AM
Silver, Total	ND	mg/l	0.00040	--	1	02/06/20 22:27	02/07/20 09:02	3,200.8	AM
Zinc, Total	ND	mg/l	0.01000	--	1	02/06/20 22:27	02/07/20 09:02	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L2005300
Report Date: 02/11/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1337948-2								
Mercury, Total	93		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1338072-2								
Iron, Total	110		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1338072-2								
Hardness	102		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1338073-2								
Antimony, Total	87		-		85-115	-		
Arsenic, Total	100		-		85-115	-		
Cadmium, Total	106		-		85-115	-		
Chromium, Total	100		-		85-115	-		
Copper, Total	98		-		85-115	-		
Lead, Total	106		-		85-115	-		
Nickel, Total	102		-		85-115	-		
Selenium, Total	100		-		85-115	-		
Silver, Total	100		-		85-115	-		
Zinc, Total	106		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L2005300
Report Date: 02/11/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1337948-3 WG1337948-4 QC Sample: L2005070-08 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00498	100		0.00482	96		70-130	3		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1337948-5 QC Sample: L2005070-09 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00504	101		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1338072-3 QC Sample: L2005300-01 Client ID: CAM-017												
Iron, Total	0.394	1	1.50	111		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1338072-3 QC Sample: L2005300-01 Client ID: CAM-017												
Hardness	82.2	66.2	150	102		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1338072-7 QC Sample: L2004803-01 Client ID: MS Sample												
Iron, Total	ND	1	1.17	117		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1338072-7 QC Sample: L2004803-01 Client ID: MS Sample												
Hardness	14.1	66.2	82.4	103		-	-		75-125	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L2005300
Report Date: 02/11/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1338073-3 QC Sample: L2005300-01 Client ID: CAM-017									
Antimony, Total	ND	0.5	0.4355	87	-	-	70-130	-	20
Arsenic, Total	ND	0.12	0.1149	96	-	-	70-130	-	20
Cadmium, Total	ND	0.051	0.05249	103	-	-	70-130	-	20
Chromium, Total	ND	0.2	0.2028	101	-	-	70-130	-	20
Copper, Total	0.00221	0.25	0.2490	99	-	-	70-130	-	20
Lead, Total	ND	0.51	0.5442	107	-	-	70-130	-	20
Nickel, Total	ND	0.5	0.5009	100	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1143	95	-	-	70-130	-	20
Silver, Total	ND	0.05	0.05051	101	-	-	70-130	-	20
Zinc, Total	0.01698	0.5	0.5365	104	-	-	70-130	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L2005300
Report Date: 02/11/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1337948-6 QC Sample: L2005070-09 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1338072-4 QC Sample: L2005300-01 Client ID: CAM-017						
Iron, Total	0.394	0.389	mg/l	1		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1338072-4 QC Sample: L2005300-01 Client ID: CAM-017						
Hardness	82.2	80.4	mg/l	2		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1338073-4 QC Sample: L2005300-01 Client ID: CAM-017						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	ND	ND	mg/l	NC		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	ND	ND	mg/l	NC		20
Copper, Total	0.00221	0.00205	mg/l	8		20
Lead, Total	ND	ND	mg/l	NC		20
Nickel, Total	ND	ND	mg/l	NC		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.01698	0.01591	mg/l	7		20

INORGANICS
&
MISCELLANEOUS

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L2005300
Report Date: 02/11/20

SAMPLE RESULTS

Lab ID: L2005300-01
Client ID: CAM-017
Sample Location: CAMBRIDGE, MA

Date Collected: 02/05/20 13:05
Date Received: 02/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Nitrogen, Ammonia	0.112		mg/l	0.075	--	1	02/06/20 06:24	02/06/20 20:37	121,4500NH3-BH	AT
Chromium, Hexavalent	ND		mg/l	0.010	--	1	02/06/20 05:00	02/06/20 05:50	1,7196A	CB

Project Name: 161 FIRST STREET
Project Number: 134061-005
Lab Number: L2005300
Report Date: 02/11/20

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: WG1337650-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	02/06/20 05:00	02/06/20 05:43	1,7196A	CB
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1337666-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	02/06/20 06:24	02/06/20 20:30	121,4500NH3-BH	AT

Lab Control Sample Analysis

Batch Quality Control

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L2005300
Report Date: 02/11/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1337650-2								
Chromium, Hexavalent	99		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1337666-2								
Nitrogen, Ammonia	100		-		80-120	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L2005300
Report Date: 02/11/20

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: WG1337650-4 QC Sample: L2005300-01 Client ID: CAM-017												
Chromium, Hexavalent	ND	0.1	0.107	107		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1337666-4 QC Sample: L2005306-02 Client ID: MS Sample												
Nitrogen, Ammonia	0.103	4	3.48	84		-	-		80-120	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 161 FIRST STREET

Project Number: 134061-005

Lab Number: L2005300

Report Date: 02/11/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1337650-3 QC Sample: L2005300-01 Client ID: CAM-017						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1337666-3 QC Sample: L2005306-02 Client ID: DUP Sample						
Nitrogen, Ammonia	0.103	0.090	mg/l	13		20

Project Name: 161 FIRST STREET
Project Number: 134061-005

Lab Number: L2005300
Report Date: 02/11/20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2005300-01A	Plastic 250ml unpreserved	A	7	7	4.5	Y	Absent		HEXCR-7196(1)
L2005300-01B	Plastic 250ml HNO3 preserved	A	<2	<2	4.5	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),FE-UI(180),HARDU(180),CU-2008T(180),SE-2008T(180),AS-2008T(180),AG-2008T(180),HG-U(28),PB-2008T(180),SB-2008T(180),CR-2008T(180)
L2005300-01C	Plastic 500ml H2SO4 preserved	A	<2	<2	4.5	Y	Absent		NH3-4500(28)

*Values in parentheses indicate holding time in days

Project Name:	161 FIRST STREET	**Lab Number:**	L2005300
Project Number:	134061-005	**Report Date:**	02/11/20

GLOSSARY

Acronyms

DL - 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 limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

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).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

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.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

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. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

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.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

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.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report

Project Name:	161 FIRST STREET	**Lab Number:**	L2005300
Project Number:	134061-005	**Report Date:**	02/11/20

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

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.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

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.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

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.

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.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

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

Report Format: Data Usability Report

Project Name:	161 FIRST STREET	**Lab Number:**	L2005300
Project Number:	134061-005	**Report Date:**	02/11/20

Data Qualifiers

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.

Report Format: Data Usability Report

Project Name:	161 FIRST STREET	**Lab Number:**	L2005300
Project Number:	134061-005	**Report Date:**	02/11/20

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.

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.

107 Alpha Analytical - In-house calculation method.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

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

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
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.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, 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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: 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 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Brewer, ME 04412 Portsmouth, NH 03801 Mahwah, NJ 07430
Albany, NY 12205
Tonawanda, NY 14150 Holmes, PA 19043

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Date Rec'd in Lab: 2/6/20

ALPHA Job #: L2005300

H&A Information

H&A Client: ARE-MA Region No. 21 LLC
H&A Address: 465 Medford St, Suite 2200
Boston, MA 02129
H&A Phone: 617-886-7359
H&A Fax: gdaylor@haleyaldrich.com
H&A Email: lpenwell@haleyaldrich.com

Project Information

Project Name: 50 Rogers Street
Project Location: Cambridge, MA
Project #: 34250-844
(Use Project name as Project #) ☐
Project Manager: Rebecca Higgins/Lee Penwell
ALPHAQuote #: BINNEY

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☑ Email ☐ Fax
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other:

Billing Information

☐ Same as Client Info
PO #

Regulatory Requirements (Program/Criteria)

MA

Note: Select State from menu & identify criteria.

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please sample per EPA Approved 2017 RGP Permit methods

Please specify Metals or TAL.

Sb, As, Cd, Cr, Cu, Fe, Pb, Hg, Ni, Se, Ag, Zn

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	1. Total metals	2. Ammonia nitrogen	3. Hardness	4. Hex Cr, Trivalent Cr	Total Bottles	Sample Specific Comments
05600-01	CAM-017	2/5/20	13:05	AQ	RD	X	X	X	X		
											pH = 7.38
											Temperature = 42.6

Container Type	P	P	P
Preservative	C	D	C

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Ryan Doody	2/5/20 13:55	M. Mattis	2/5/20 16:3
M. Mattis	2/5/20 16:30	ARC	2/5/20 1630
	2/5/20 1804		2/5/20 1805

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. Alpha Analytical's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement# 2015-18-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical.

Document ID: 20455 Rev 1 (1/28/2016)