NOTICE OF INTENT FOR DISCHARGE PURSUANT TO MASSACHUSETTS REMEDIATION GENERAL PERMIT MAG9100000

SOMA SOUTH OF SITE 3 STEAM PIPE CAMBRIDGE, MASSACHUSETTS

MAY 17, 2021

Prepared For:

United States Environmental Protection Agency
Office of Ecosystem Protection
5 Post Office Square, Suite 100
Mail Code OEP06-01
Boston, MA 02109-3912

On Behalf Of:

Walsh Brothers Construction
210 Commercial Street
Boston, MA 02109

PROJECT NO. 5210

2269 Massachusetts Avenue
Cambridge, MA 02140
www.mcphailgeo.com
(617) 868-1420

May 17, 2021

United States Environmental Protection Agency
Office of Ecosystem Protection
5 Post Office Square, Suite 100
Mail Code OEP06-01
Boston, MA 02109-3912

Attention: EPA RGP Applications Coordinator

Reference: SOMA South of Site 3 Steam Pipe; 18 Hayward Street, Cambridge, MA; Notice of Intent for Temporary Construction Dewatering Discharge; Massachusetts Remediation General Permit MAG910000

Ladies and Gentlemen:

On behalf of Walsh Brothers Construction, McPhail Associates, LLC (McPhail) has prepared the attached Notice of Intent (NOI) for coverage under the Remediation General Permit (RGP) MAG910000 for the discharge of construction dewatering effluent into the Charles River. The temporary construction dewatering discharge will occur during construction of a Steam Pipe to be located between SOMA Site 3 and the Muckley Building at 18 Hayward Street in Cambridge, Massachusetts (project site). Refer to **Figure 1** for the general site locus.

These services were performed, and this permit application was prepared in accordance with the authorization of Massachusetts Institute of Technology Department of Facilities. These services are subject to the limitations contained in **Appendix A**.

This project is considered Activity Category III-G as defined in the RGP. Category III-G is defined as Contaminated Site Dewatering from Sites with Known Contamination. Based on current groundwater analysis completed at the subject site, the constituents of concern (COCs) are those identified under subcategory A (inorganics). The Notice of Intent (NOI) Form contained in the RGP permit is included in **Appendix B**.

Applicant/Operator

The applicant for the Notice of Intent-Remediation General Permit is:

Walsh Brothers Construction
210 Commercial Street
Boston, MA 02109

Attention: Mr. Will Schuster; Senior Project Manager
Phone: 617-592-2940

Existing Conditions

Fronting onto Hayward Street to the west, the approximately 10,245 square foot site of the proposed Steam Pipe construction site is bounded by the Site 3 parking garage to the north, the Muckley Building to the south and Wadsworth Street to the east. The area of the project site is located within a larger active construction site situated in the Kendall Square section of Cambridge on the campus of the Massachusetts Institute of Technology (MIT), identified as South of Main Street (SOMA). The boundaries of the subject site, which define the limits of our work, are shown on the enclosed **Figure 2**.

Proposed Scope of Site Development

The proposed scope of work includes the installation of a steam pipe that will connect an existing on-site steam vault with the Muckley building. As shown on **Figure 2**, the steam pipe is proposed to run adjacent to the Muckley building, the invert of which will extend to depths ranging from 7 to 10 feet below ground surface.

Site Environmental Setting and Surrounding Historical Places

Based on an on-line edition of the Massachusetts Geographic Information Systems MassDEP MCP Numerical Ranking System Map, the project site is not located within the boundaries of a Sole Source Aquifer, Potentially Productive Aquifer or within a Zone II, Interim Wellhead Protection Area as defined by the Massachusetts Department of Environmental Protection. Further, there are no public drinking water supply wells, no Areas of Critical Environmental Concern, no fish habitats, no habitats of Species of Special Concern or Threatened or Endangered Species within specified distances of the project site. No areas designated as solid waste facilities (landfills) are located within 0.5 miles of the subject site. The closest surfacewater body to the project site is the Charles River located approximately 650 feet to the south. The Charles River is classified by the DEP as a Class B surface water body and flows in a northeasterly direction into Boston Harbor. A copy of the Massachusetts DEP Phase I Site Assessment Map is included in **Appendix C**.

A review of information provided by the U.S. Fish and Wildlife Service in an Information for Planning and Conservation (IPaC) Trust Resource Report for the project site did not identify the presence of threatened or endangered species at or in the vicinity of the discharge location and/or discharge outfall. Further, the Trust Resource Report did not identify the presence of a critical habitat in the vicinity of the discharge outfall and/or discharge location. Based upon the above, the site is considered a criterion A pursuant to Appendix IV of the RGP. A copy of the IPaC Trust Resource Report and U.S. Fish and Wildlife Service's Nationwide Standard Conservation Measures are included in **Appendix C**.

As further discussed below, treated construction dewatering effluent will be discharged into the Charles River that flows into Boston Harbor. The dewatering of groundwater at the site will be temporary and intermittent. Groundwater discharged as part of the proposed project will be controlled and monitored. Treatment systems will consist of temporary structures. According to the Cambridge Historical Commission the project site is not located within a

Conservation district, Historical District or National Register. Therefore, based on the anticipated duration of construction dewatering and the location of its discharge into the Charles River, construction dewatering activities are not anticipated to affect historical listings. Hence, the site meets Permit Eligibility Criterion A in accordance with Appendix III of the RGP. A map of the City of Cambridge historic neighborhood conservation districts is included in **Appendix C**.

Site & Release History

The area of the project site was reclaimed from the tidal flats of the Charles River during the early 1890s. From its initial development in the early 1900s, the project site was generally occupied by commercial establishments as well as parking garages. The surrounding properties were occupied by a lumber yard, stores, restaurants, a parking garage and parking lot, and a printing company (The Murray Printing Company) from at least 1934 to 1950. Additionally, historically the FS Webster Co, Inc., Carbon Paper & Typewriter Ribbon was previously located to the south and east of the project site from 1930-2006.

In summary, the former industrial and commercial use of surrounding properties has contaminated soil at the parcels of land located adjacent to the project site. The project site itself is not located within the boundaries of Massachusetts Department of Environmental Protection (MassDEP) disposal site. The releases of contamination at the adjacent parcels of land have been documented with the MassDEP under Release Tracking Numbers (RTNs) 3-2178, 3-16756 and 3-33233.

Construction Site Dewatering

Portions of the excavation for the proposed steam line may extend to depths ranging from approximately 9 to 11 feet below ground surface which is at and/or below the surface of groundwater. As a result, it is anticipated that localized sumping will be necessary to control groundwater flow into the steam line excavation. Given the relatively small footprint of the project site and that the excavation of the steam line will occupy most of the project site, temporary on-site collection and recharge of groundwater is not feasible as part of the proposed construction activities. As a result, construction dewatering will require the discharge of collected groundwater into the municipal storm drain system under the requested Remediation General Permit.

It is anticipated that the rate of construction dewatering to facilitate excavation will be on the order of 50 to 70 gallons per minute (gpm). This estimate does not include surface run-off which will be removed from the excavation during periods of precipitation.

The location of the relevant stormwater catch basin in relation to the subject site and the flow path of the discharge is shown in plans provided by the City of Cambridge drainage system which is included in **Figure 3**. A review of available subgrade utility plans provided by the City of Cambridge indicates that stormwater is collected within catch basins along Hayward Street and connects to the stormwater drain system. The stormwater drains beneath this portion of Hayward Street runs south to Amherst Street, northeast toward

Wadsworth Street then south beneath Memorial Drive to Outfall No. D05 into the Charles River.

Summary of Groundwater Analysis

On March 19, 2021, McPhail Associates, LLC obtained a sample of groundwater from monitoring well BST-1 (OW) located within the project site in the location of the steam line excavation. The groundwater sample was submitted to a certified laboratory for analysis for the presence of compounds required under the EPA's Remediation General Permit (RGP) application, including total suspended solids (TSS), total residual chlorine, total cyanide, pH, nitrogen and total recoverable metals. The results of the laboratory analysis are summarized in **Table 1**, and laboratory data reports are included in **Appendix D**.

Pursuant to Section 4.2.2 of the EPA 2017 RGP, a receiving water sample was obtained from the Charles River (42° 21' 20" N, 71° 05' 45" W), which is located approximately 3,800 feet upstream of the discharge location on October 2, 2020. The receiving water sample was analyzed for the presence of total recoverable metals, pH, and hardness. The results of the surface water testing are summarized on **Table 2** and the laboratory data report is included in the enclosed **Appendix E**.

A Dilution Factor (DF) was calculated for the detected levels of metals pursuant to the procedure contained in RGP MAG910000, Appendix V. The purpose of the DF calculation is to establish Total Recoverable Limits for metals, taking into consideration the anticipated dilution of the detected analyte upon discharge into the Charles River. The calculated DF was then used to find the appropriate Dilution Range Concentrations (DRCs) contained in MAG910000, Appendix IV. The Minimum Flow Rate calculated by the USGS Streamstats GIS database at the location of discharge into the Charles River for 7 consecutive days with a recurrence interval of 10 years (7Q10 flow) is 18.87 MGD thus resulting in a DF of 188.2 assuming a design flow rate of 70 GPM.

The analyzed constituents did not detect concentrations of the tested compounds in excess of the Water Quality-Based Effluent Limitations (WQBELs). Documentation of NOI support calculations is included in **Appendix B**. It is anticipated that the construction dewatering treatment system that is discussed below will reduce concentrations of the analyzed constituents the effluent.

In accordance with the RGP, the proposed dewatering associated with this permit application is considered Contaminated/Formerly Contaminated Site Dewatering (Category III). Given that the site contamination is considered "Known," this project is considered Activity Category III-G as defined in the RGP. Based on the activity category, and in accordance with the RGP, contamination Type A: Inorganics, as defined in Table 2 of the RGP apply to the discharge.

Groundwater Treatment

Based upon the anticipated rates of construction dewatering in conjunction with the results of the above referenced groundwater analyses, it is our opinion that one 5,000-gallon

capacity settling tank and bag filters for the effluent to meet the limits established by the US EPA prior to off-site discharge. A schematic of the treatment system is shown on **Figure 4**.

A Best Management Practices Plan (BMPP) has been prepared as **Appendix F** to the RGP and will be posted at the site during the time period that temporary construction dewatering is occurring at the site.

Summary and Conclusions

The purpose of this report is to summarize site environmental conditions and groundwater data to support a Notice of Intent to discharge under the Remediation General Permit for the off-site discharge of dewatered groundwater which will be encountered during construction of a Steam Pipe to be located between SOMA Site 3 garage and the Muckley Building at 18 Hayward Street in Cambridge, Massachusetts. The groundwater testing results reported in this application have been provided to the site owner.

Based on the results of the above referenced groundwater analyses, treatment of construction dewatering will be necessary to meet the effluent limits established by the US EPA prior to off-site discharge. The proposed construction dewatering effluent treatment system will consist of one 5,000-gallon capacity settling tank and bag filters. However, should the effluent monitoring results identify concentrations of contaminants that are in excess of the limits established by the RGP, additional mitigative measures will be implemented to meet the allowable discharge limits.

We trust that the above satisfies your present requirements. Should you have any questions or comments concerning the above, please do not hesitate to contact us.

Sincerely,

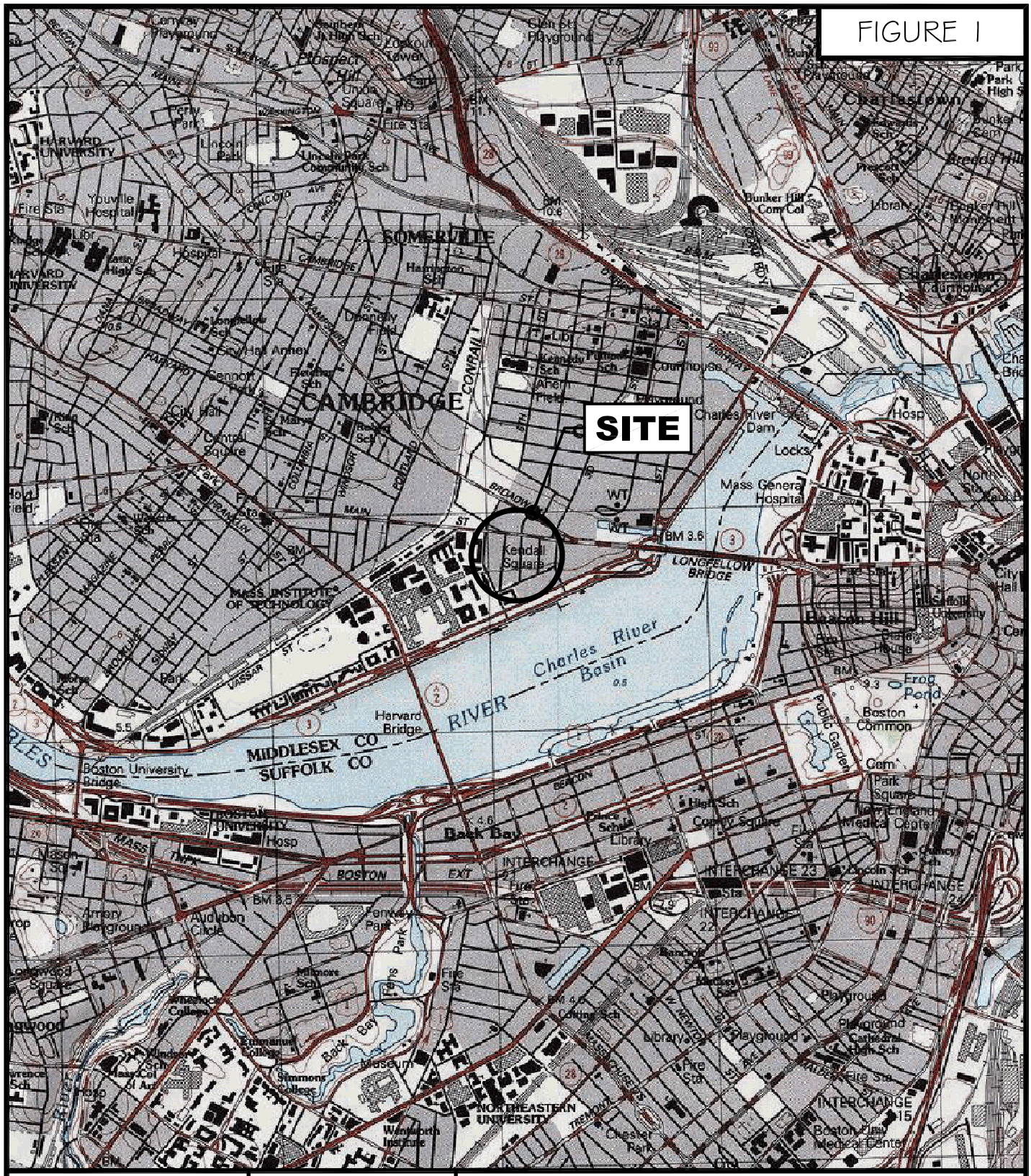
McPHAIL ASSOCIATES, LLC

Michael G. Sachs

William J, Burns L.S.P., L.E.P.

N:\Working Documents\Reports\5210_SOMASteamline_RGP_051721.docx
MGS/wjb

FIGURE 1



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N

SCALE 1:25,000

PROJECT LOCATION PLAN

SOMA SOUTH OF SITE 3 STEAM PIPE

CAMBRIDGE MASSACHUSETTS

MAIN STREET (PUBLIC – VARIABLE WIDTH)

HAYWARD STREET (DISCONTINUED) (PLAN NO. 403 OF 1993) (PRIVATE – 40' WIDE)

WADSWORTH STREET (PUBLIC – 40' WIDE)

AMHERST STREET (PUBLIC – 60' WIDE) LAYOUT PLAN NO. 578–16–10

MA-201

HAY-1

HAY-2

HAY-3

HAY-4

HAY-5

HAY-6

HAY-7

HAY-8

HAY-9

HAY-10

RG

R9

TBM–JF7

TBM–JF5

TBM–JF6

SITE 3

SITE 4

SOUTH OF SITE 3

APPROXIMATE LOCATION OF EXISTING STEAM VAULT

PROPOSED NEW STEAM LINE

APPROXIMATE LOCATION OF SUBJECT SITE

BST-1 (OW)

BST-2

L1

L2

L3

#290 MIT–E39 4 STORY BRICK

#226–250 MIT–E48 5 STORY BRICK

#1 MUCKLEY BUILDING MIT–E40 4 STORY BRICK

MUCKLEY BUILDING

NORTH

LEGEND

- ● — APPROXIMATE LOCATION OF GEOPROBE PERFORMED BY CARR-DEE CORP. ON APRIL 27, 2019 FOR McPHAIL ASSOCIATES, LLC
- ⊕ — APPROXIMATE LOCATION OF BOREHOLE PERFORMED BY CARR-DEE CORP. ON JANUARY 2, 2019 FOR McPHAIL ASSOCIATES, LLC
- ⊕ — APPROXIMATE LOCATION OF BORING
- ⊛ — APPROXIMATE LOCATION OF BOREHOLE PERFORMED BY CARR-DEE CORP. ON MARCH 15, 2021 FOR McPHAIL ASSOCIATES, LLC

(OW) — INDICATES OBSERVATION WELL INSTALLED WITHIN COMPLETED BOREHOLE

REFERENCE: THIS PLAN WAS PREPARED FROM A 20-SCALE DRAWING ENTITLED, "EXISTING CONDITIONS PLAN" DATED APRIL 14, 2015 PREPARED BY FELDMAN LAND SURVEYORS AND THE GARAGE / SLURRY WALL LAYOUT WAS PREPARED FROM A 30-SCALE DRAWING ENTITLED, "A10-00 LEVEL P1 OVERALL FLOOR PLAN" 50% DESIGN DEVELOPMENT DATED AUGUST 17, 2015 PREPARED BY PERKINS + WILL

GRAPHIC SCALE

20 0 20 40 80

FILE NAME: N:\Acad\085152 IOSOMA Steam Line\RGP152 10-F02.dwg

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SOUTH OF SITE 3 STEAM LINE

CAMBRIDGE MASSACHUSETTS

SUBSURFACE EXPLORATION PLAN

FOR

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

BY

McPHAIL ASSOCIATES, LLC

Date: MARCH 2021	Dwn: F.G.P.	Chkd: M.G.S.	Scale: 1" = 20'
Project No: 5210			FIGURE 2

FIGURE 3

NORTH

DOCK ST

DEACON ST

CARLETON ST

HAYWARD ST

WADSWORTH ST

BROAD CAN

AMHERST ST

AMES ST

APPROXIMATE LOCATION OF SUBJECT SITE

APPROXIMATE LOCATION OF PROPOSED CATCH BASINS

APPROXIMATE LOCATION OF CITY OF CAMBRIDGE STORM WATER SYSTEM

APPROXIMATE LOCATION OF OUTFALL D05 (36")

MEMORIAL DR

CHARLES RIVER

GRAPHIC SCALE

120 0 120 240

REFERENCE: THIS PLAN WAS PREPARED FROM A 100-SCALE DRAWING ENTITLED "CAMBRIDGE CITY VIEWER" PRINTED FROM THE CITY OF CAMBRIDGE GIS WEBSITE ON MARCH 26, 2021

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SOUTH OF SITE 3 STEAM LINE

CAMBRIDGE MASSACHUSETTS

STORM DRAIN DISCHARGE FLOW PATH PLAN

FOR

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

BY

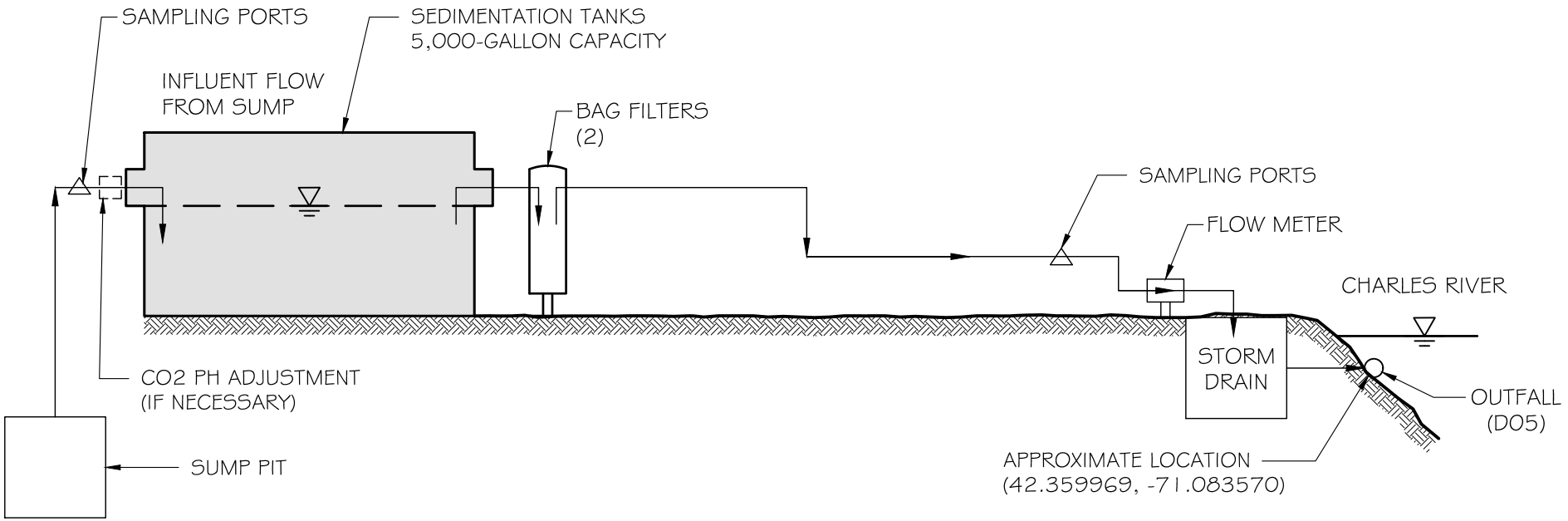
McPHAIL ASSOCIATES, LLC

Date: MARCH 2021	Dwn: F.G.P.	Chkd: M.G.S.	Scale: 1" = 120'
Project No: 5210			

FILE NAME: N:\Acad\JOBS\5210\OSOMA Steam Line\RGPS210-F03.dwg

FILE NAME: N:\Acad\JOBS\5210\SOMA Steam Line\RGP\5210-F04.dwg

FIGURE 4



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SOUTH OF SITE 3 STEAM LINE

CAMBRIDGE MASSACHUSETTS

SCHEMATIC OF TREATMENT SYSTEM

FOR

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

BY

McPHAIL ASSOCIATES, LLC

CONSULTING GEOTECHNICAL ENGINEERS

Date: MARCH 2021	Dwn: F.G.P.	Chkd: M.G.S.	Scale: N.T.S.
Project No: 5210			

TABLE 1
Laboratory Analytical Results - Groundwater

MIT Steam Pipe
18 Hayward Street, Cambridge MA
McPhail Project No. 5210

LOCATION	Water Quality Based Effluent Limitation	RCGW-2 2014 Thresholds	BST-1(OW)
SAMPLING DATE			3/19/2021
LAB SAMPLE ID			L2114025-01
SAMPLE TYPE			WATER
SAMPLE DEPTH (ft.)			
Anions by Ion Chromatography (mg/l)			
Chloride			875
General Chemistry			
Solids, Total Suspended (mg/l)	30		ND(5)
Cyanide, Total (mg/l)	178	0.03	0.009
Chlorine, Total Residual (mg/l)	0.2		ND(0.02)
pH (H) (SU)	6.5-8.3		7.8
Nitrogen, Ammonia (mg/l)			4.82
Total Metals (mg/l)			
Antimony, Total	0.206	8	ND(0.004)
Arsenic, Total	0.104	0.9	0.00224
Cadmium, Total	0.0102	0.004	ND(0.0002)
Chromium, Total		0.3	0.00125
Chromium, Trivalent	0.323	0.5	ND(0.01)
Chromium, Hexavalent	0.323	0.3	ND(0.01)
Copper, Total	0.242	100	ND(0.001)
Iron, Total	5		0.099
Lead, Total	0.160	0.01	ND(0.001)
Mercury, Total	0.000739	0.02	ND(0.0002)
Nickel, Total	1.45	0.2	ND(0.002)
Selenium, Total	0.2358	0.1	ND(0.005)
Silver, Total	0.0351	0.007	ND(0.0004)
Zinc, Total	0.420	0.8	ND(0.01)

ND - Not detected in excess of
the laboratory detection limit
(#) - Detection Limit
BOLD - Exceed WQBEL Criteria

TABLE 2
Laboratory Analytical Results - Receiving Water

MIT Steam Pipe
18 Hayward Street, Cambridge MA
McPhail Project No. 5210

LOCATION	EPA	RGP-RECEIVING
SAMPLING DATE	Freshwater	10/2/2020
LAB SAMPLE ID	Aquatic Life	L2042092-01
SAMPLE TYPE	Chronic	WATER
A. Inorganics		
Ammonia (mg/L)		0.102
Antimony (µg/L)		ND(4)
Arsenic (µg/L)	150	3.68
Cadmium (µg/L)	0.25	ND(0.2)
Total Chromium (µg/L)		ND(1)
Copper (µg/L)		3.05
Iron (µg/L)	1000	134
Lead (µg/L)	2.5	4.72
Mercury (µg/L)	0.77	ND(0.2)
Nickel (µg/L)	52	2
Selenium (µg/L)	5	11.34
Silver (µg/L)		ND(0.4)
Zinc (µg/L)	120	ND(10)
Cyanide (mg/L)		ND(5000)
Hardness (mg/L)		456
pH (H)		7.8

ND - Not detected in excess of
the laboratory detection limit
(#) - Detection Limit
Bold - Exceeds WQBEL Criteria

APPENDIX A:

LIMITATIONS

LIMITATIONS

The purpose of this report is to present the results of testing of a groundwater sample obtained from a monitoring well located at the parcel listed with the address of 18 Hayward Street in Cambridge, Massachusetts, in support of an application for approval of construction site dewatering discharge into surface waters of the Commonwealth of Massachusetts under EPA's Massachusetts Remediation General Permit MAG910000.

The observations were made under the conditions stated in this report. The conclusions presented above were based on these observations. If variations in the nature and extent of subsurface conditions between the spaced subsurface explorations become evident in the future, it will be necessary to re-evaluate the conclusions presented herein after performing on-site observations and noting the characteristics of any variations.

The conclusions submitted in this report are based in part upon laboratory test data obtained from analysis of groundwater samples, and are contingent upon their validity. The data have been reviewed, and interpretations have been made in the text. It should also be noted that fluctuations in the types and levels of contaminants and variations in their flow paths may occur due to changes in the seasonal water table, past practices used at the site, and other factors.

Laboratory analyses have been performed for specific constituents during this assessment, as described in the text.

This report and application have been prepared on behalf of and for the exclusive use of Walsh Brothers Construction Inc. and Massachusetts Institute of Technology. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, other than submission to relevant governmental agencies, nor used in whole or in part by any other party without the prior written consent of McPhail Associates, LLC.

APPENDIX B:

NOTICE OF INTENT TRANSMITTAL FORM
CAMBRIDGE DEWATERING DISCHARGE PERMIT

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:
SOMA South of Site 3 Steam Pipe</td><td colspan="3">Site address: 18 Hayward 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
Massachusetts Institute of Technology, Department of Facilities

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Seth Kinderman</td></tr>
<tr><td colspan="2">Telephone: 617-258-6221</td><td>Email: skinderm@mit.edu</td></tr>
<tr><td colspan="3">Mailing address: 77 Massachusetts Avenue, NW23-100
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
Walsh Brothers Construction</td><td colspan="3">Contact Person: William Schuster</td></tr>
<tr><td colspan="2">Telephone: 617-592-2940</td><td>Email: wschuster@walshbrothers.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 210 Commercial Street</td></tr>
<tr><td>City: Boston, MA</td><td>State: MA</td><td>Zip: 02109</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:

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):
☐ 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

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. Chlorophyll-a, dissolved oxygen supersaturation, e-coli, harmful algal blooms, nutrient/eutrophication biological indicators, odor, phosphorus,

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.	29.2 CFS
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.	188.2

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:

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: ☐ Other; if so, specify:

2. Source water contaminants: 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 N/A
3. Has the source water been previously chlorinated or otherwise contains residual chlorine? (check one): ☐ Yes ■ No	

D. Discharge information

1.The discharge(s) is a(n) (check any that apply): ☐ Existing discharge ■ New discharge ☐ New source	
Outfall(s): City of Cambridge D05	Outfall location(s): (Latitude, Longitude) 42.359969, -71.083570
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ■ Indirect discharge, if so, specify: Discharge into City of Cambridge stormdrain system beneath Hayward Street which ultimately discharges into the Charles River ☐ 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 to Dewater Application submitted concurrently with NOI 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): April 2021 - November 2021 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="5">☐ 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	✔							Report mg/L	---
Chloride	✔		1	44,300.00	125.000	875.000	875.000	Report µg/l	---
Total Residual Chlorine	✔		1	30,4500CL	20	<DL	<DL	0.2 mg/L	N/A
Total Suspended Solids	✔		1	30,2540D	5.000	<DL	<DL	30 mg/L	
Antimony	✔		1	6020A	4	<DL	<DL	206 µg/L	N/A ---
Arsenic	✔		1	6020A	0.5	2.24	2.24	104 µg/L	N/A
Cadmium	✔		1	6020A	0.2	<DL	<DL	10.2 µg/L	N/A
Chromium III	✔		1	107	10	<DL	<DL	323 µg/L	N/A
Chromium VI	✔		1	119.3500C	10	<DL	<DL	323 µg/L	N/A
Copper	✔		1	6020A	1	<DL	<DL	242 µg/L	N/A
Iron	✔		1	19,200.70	50	99	99	5,000 µg/L	N/A
Lead	✔		1	6020A	0.5	<DL	<DL	160 µg/L	N/A
Mercury	✔		1	3.245.10	0.2	<DL	<DL	0.739 µg/L	N/A
Nickel	✔		1	6020A	2	<DL	<DL	1,450 µg/L	N/A
Selenium	✔		1	6020A	5	<DL	<DL	235.8 µg/L	N/A
Silver	✔		1	6020A	0.4	<DL	<DL	35.1 µg/L	N/A
Zinc	✔		1	6020A	10	<DL	<DL	420 µg/L	N/A
Cyanide	✔		1	30.4500C	5	9	9	178 mg/L	N/A
B. Non-Halogenated VOCs									
Total BTEX	✔		0					100 µg/L	---
Benzene	✔		0					5.0 µg/L	---
1,4 Dioxane	✔		0					200 µg/L	---
Acetone	✔		0					7.97 mg/L	---
Phenol	✔		0					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	✔		0					4.4 µg/L	
1,2 Dichlorobenzene	✔		0					600 µg/L	---
1,3 Dichlorobenzene	✔		0					320 µg/L	---
1,4 Dichlorobenzene	✔		0					5.0 µg/L	---
Total dichlorobenzene	✔		0					763 µg/L in NH	---
1,1 Dichloroethane	✔		0					70 µg/L	---
1,2 Dichloroethane	✔		0					5.0 µg/L	---
1,1 Dichloroethylene	✔		0					3.2 µg/L	---
Ethylene Dibromide	✔		0					0.05 µg/L	---
Methylene Chloride	✔		0					4.6 µg/L	---
1,1,1 Trichloroethane	✔		0					200 µg/L	---
1,1,2 Trichloroethane	✔		0					5.0 µg/L	---
Trichloroethylene	✔		0					5.0 µg/L	---
Tetrachloroethylene	✔		0					5.0 µg/L	
cis-1,2 Dichloroethylene	✔		0					70 µg/L	---
Vinyl Chloride	✔		0					2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✔		0					190 µg/L	
Diethylhexyl phthalate	✔		0					101 µg/L	
Total Group I PAHs	✔		0					1.0 µg/L	---
Benzo(a)anthracene	✔		0					As Total PAHs	
Benzo(a)pyrene	✔		0						
Benzo(b)fluoranthene	✔		0						
Benzo(k)fluoranthene	✔		0						
Chrysene	✔		0						
Dibenzo(a,h)anthracene	✔		0						
Indeno(1,2,3-cd)pyrene	✔		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	✔		0					100 µg/L	---
Naphthalene	✔		0					20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔		0					0.000064 µg/L	---
Pentachlorophenol	✔		0					1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons	✔		0					5.0 mg/L	---
Ethanol	✔		0					Report mg/L	---
Methyl-tert-Butyl Ether	✔		0					70 µg/L	
tert-Butyl Alcohol	✔		0					120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		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:									
pH - Influent		✔	1	121,4500		7.8			
pH - Recieving water		✔		121,4500		7.8			
Hardness (ug/L) - Recieving		✔		3005A		456000			

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:

2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge.
Fractionation tank and bag filters in series, if necessary pH adjustment added.

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:

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: Fractionation tank Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	100 gpm
Provide the proposed maximum effluent flow in gpm.	70 gpm
Provide the average effluent flow in gpm.	50 gpm
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	N/A

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:

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

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

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.

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 Statement has been implemented in accordance with good engineering practices following Part 2.5 of the RGP and shall 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. Submission of this documentation to and approval from City of Cambridge DPW in tandem with this NOI 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 Schuster, Walsh Brothers, Inc. Date: 5/14/21

Print Name and Title: Will Schuster, Senior Project Manager Walsh Brothers Construction

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 Statement has been implemented in accordance with good engineering practices following Part 2.5 of the RGP and shall 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.	Submission of this documentation to and approval from City of Cambridge DPW in tandem with this NOI 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: Louis DiBerardinis	Date: 05/12/2021
Print Name and Title: Louis DiBerardinis, MIT, Director EHS Office	

PERMIT TO DEWATER

Location: 18 Hayward Street

Owner: Massachusetts Institute of Technology

Contractor: Walsh Brothers

Temporary ☑

Permanent ☐

The property owner, Massachusetts Institute of Technology 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:

Remediation General Permit (RGP) in Massachusetts (MAG9100000)

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

N/A

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 _____ (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.

N/A

	Louis DiBerardinis
City Manager	Property Manager: Corporate Entity President, General Partner or Trustee Trustee with Instrument of Authority
	5/12/2021
Date	Date
	Walsh Brothers Inc, William Johnston
City Solicitor	Contractor
	4/20/21
Date	Date
Commissioner of Public	Contractor
Date	Date

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

Michael G. Sachs

From: Vakalopoulos, Catherine (DEP) <catherine.vakalopoulos@state.ma.us>
Sent: Friday, April 16, 2021 2:33 PM
To: Michael G. Sachs
Cc: William Burns
Subject: Re: 18 Hayward Street, Cambridge, MA - RGP Dilution Factor [Filed 16 Apr 2021 15:28]

Hi Mike,

As discussed in my previous email, the dilution factor needs to take the "worst case" conditions into account, i.e. low flow in the river and maximum discharge flow possible to the river (which is the design flow of the treatment system). I have recalculated the dilution factor based on what you gave me for the high end of the design flow, 70 gpm.

River 7Q10 = 29.2 cfs = 18.87 MGD
Discharge 70 gpm = 0.1008 MGD
Dilution factor = (0.1008 + 18.87)/0.1008 = 188.2

Here is water quality information to assist you with filling out the NOI:

Waterbody and ID: Charles River (MA72-38) within Charles River Watershed
Classification: B(CSO)
Outstanding Resource Water?: no
State's most recent Integrated List is located here: https://www.epa.gov/sites/production/files/2020-01/documents/2016-ma-303d-list-report.pdf, search for "MA72-38" to see the causes of impairments.
TMDLs: there are two approved TMDLs (pathogens and phosphorus) for this segment.

If this is not a *current* MCP site, then in addition to submitting the NOI to EPA, you need to apply with MassDEP and submit a $500 fee (unless fee exempt, e.g., municipality) using ePLACE. Instructions on how to apply are located here: https://www.mass.gov/how-to/wm-15-npdes-general-permit-notice-of-intent and information on how to get ePLACE technical assistance is available on the ePLACE Portal webpage: https://eplace.eea.mass.gov/citizenaccess/.

Please let me know if you have any questions.

Cathy

From: "Michael G. Sachs" <msachs@mcphailgeo.com>
Date: Thursday, April 1, 2021 at 4:26 PM
To: "Vakalopoulos, Catherine (DEP)" <catherine.vakalopoulos@mass.gov>
Cc: William Burns <wburns@mcphailgeo.com>
Subject: 18 Hayward Street, Cambridge, MA - RGP Dilution Factor

Hi Cathy,

I am currently preparing a NOI to discharge under the RGP for the proposed steam line project at 18 Hayward Street in Cambridge, Massachusetts. The Contractor would like to discharge treated water off-site into the City of Cambridge storm drain system which discharges into the Charles River beneath Memorial Drive at the intersection of Wadsworth Street. Based upon the StreamStats 7Q10 calculation for the Charles of 29.2 ft^3/sec (18.87 MGD), I have derived a DF of 220.42 with a 0.086 MGD (60 gpm) discharge flow. Attached is a copy of the StreamStats sheet.

Can you please confirm if this DF is correct?

Thank you,

Mike

Michael G. Sachs

McPhail Associates, LLC
2269 Massachusetts Avenue
Cambridge, MA 02140
Tel: 617-868-1420 Ext. 324
Direct: 617-349-7324
Cell: 978-886-2199
www.mcphailgeo.com

APPENDIX C:

DEP PRIORITY RESOURCES MAP

USGS STREAMFLOW STATISTICS REPORT

DILUTION FACTOR AND WQBEL CALCULATIONS

ADDITIONAL NOI SUPPORT INFORMATION

MassDEP - Bureau of Waste Site Cleanup

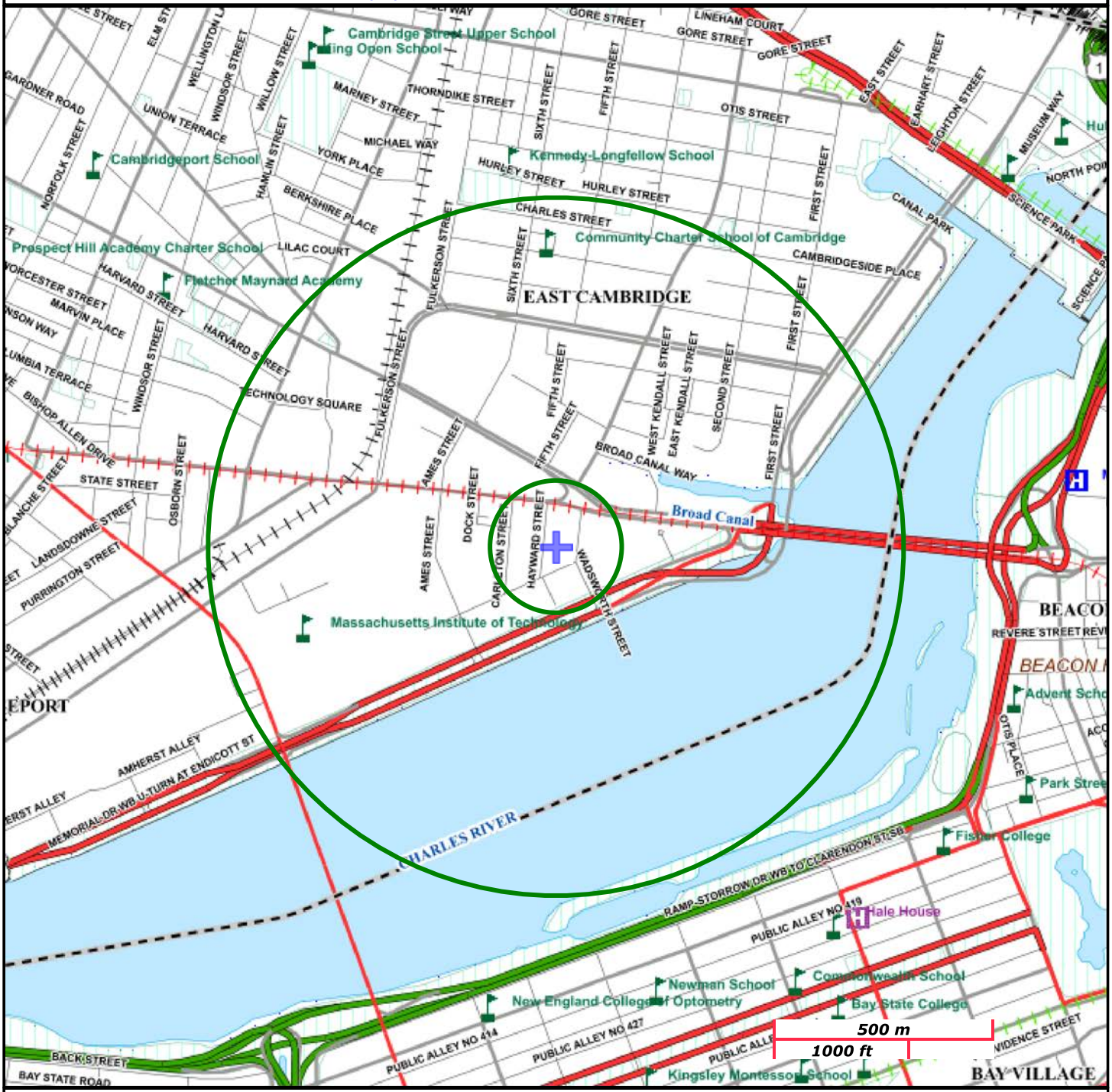
Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

Site Information:
SOMA STEAM LINE
18 HAYWARD STREET CAMBRIDGE, MA

NAD83 UTM Meters:
4692009mN , 328307mE (Zone: 19)
March 24, 2021

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at: https://www.mass.gov/orgs/massgis-bureau-of-geographic-information.

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail
Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct
Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam
Aquifers: Medium Yield, High Yield, EPA Sole Source
Non Potential Drinking Water Source Area: Medium, High (Yield)
PWS Protection Areas: Zone II, IWPA, Zone A
Hydrography: Open Water, PWS Reservoir, Tidal Flat
Wetlands: Freshwater, Saltwater, Cranberry Bog
FEMA 100yr Floodplain; Protected Open Space; ACEC
Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential
Solid Waste Landfill; PWS: Com.GW,SW, Emerg., Non-Com.

MassDEP Online Map Viewer

2014 Integrated List of Waters Map

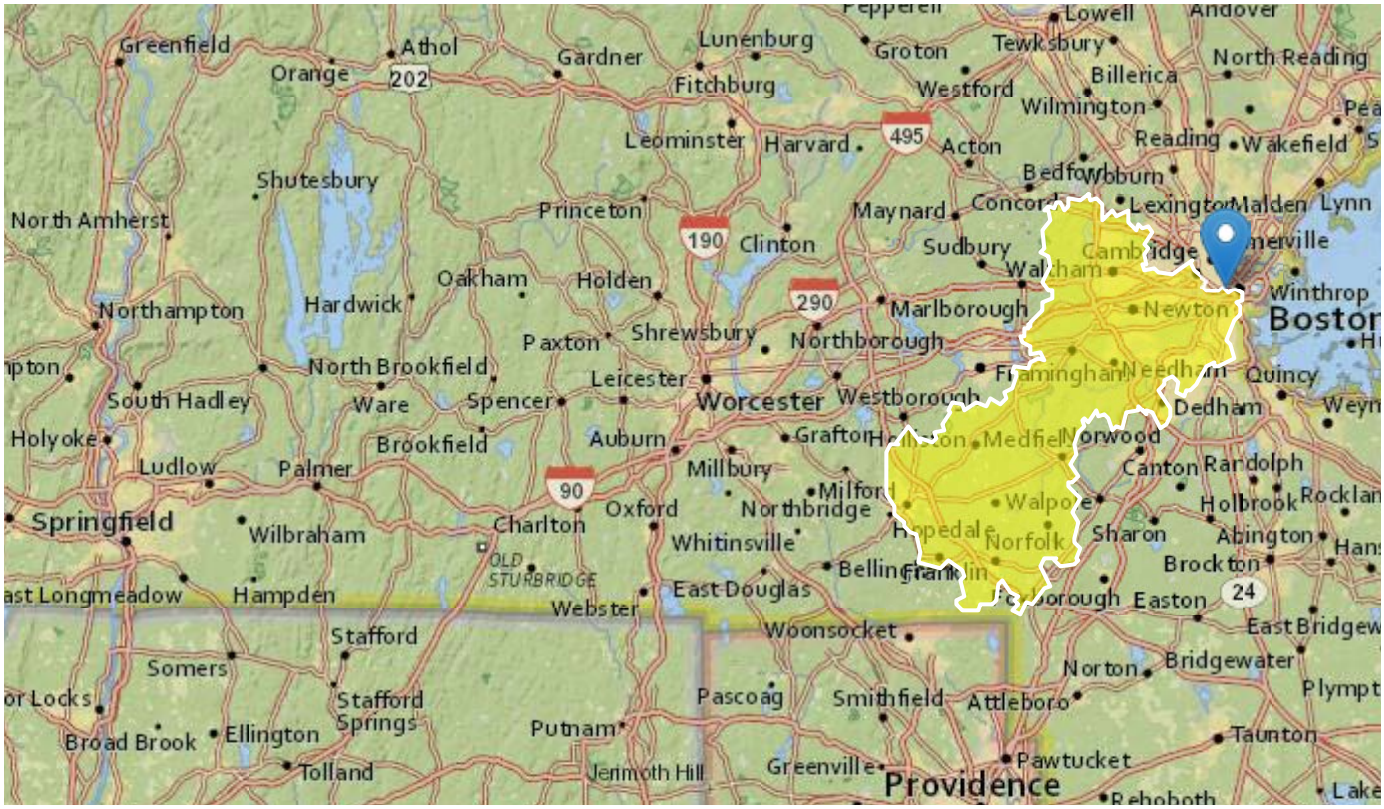
Helpful Links:

- The Clean Water Act
- MassDEP Total Maximum Daily Loads

Mass.gov

StreamStats Report

Region ID: MA
Workspace ID: MA20210325135734574000
Clicked Point (Latitude, Longitude): 42.35786, -71.08148
Time: 2021-03-25 09:57:53 -0400



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	2.336	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	2.336	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/)

USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.4.0

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. IPaC only shows species that are regulated by USFWS (see FAQ).
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/nationwidestandardconservationmeasures.pdf

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* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler *Cardellina canadensis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
Cerulean Warbler *Dendroica cerulea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 29 to Jul 20
Dunlin *Calidris alpina arcticola* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Kentucky Warbler *Oporornis formosus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere

Nelson's Sparrow Ammodramus nelsoni This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Sep 5
Prairie Warbler Dendroica discolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
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.

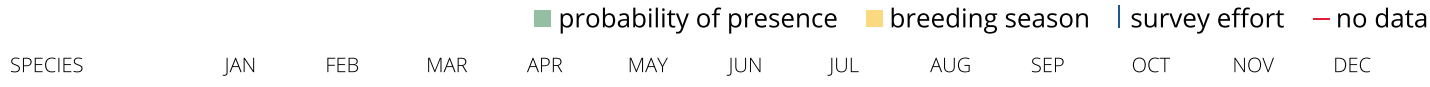
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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.

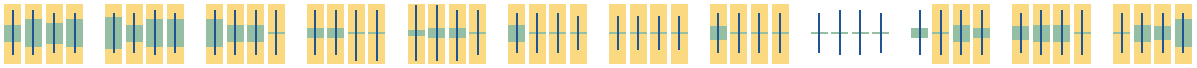
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

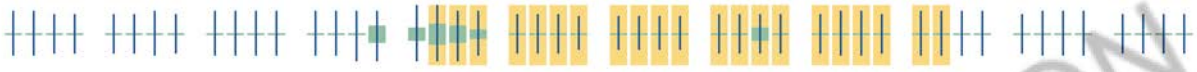
Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Bald Eagle Non-BCC Vulnerable (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.)



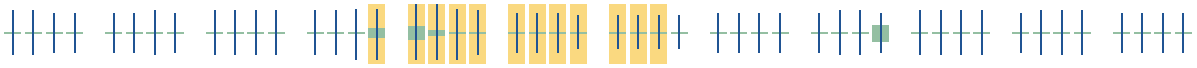
Black-billed Cuckoo BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



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

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

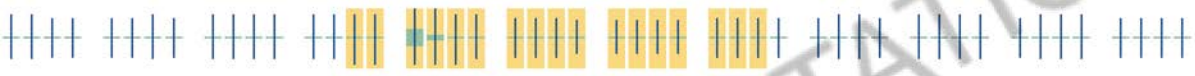
Cerulean Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



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

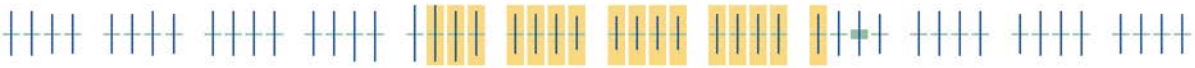
Evening Grosbeak BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

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.)

SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Red-headed Woodpecker BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

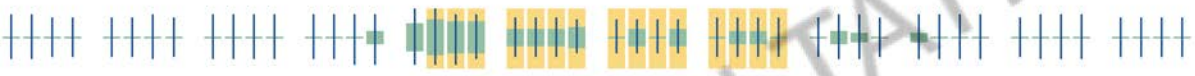
Red-throated Loon BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

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

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

Snowy Owl 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 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

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

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 D:

LABORATORY ANALYTICAL DATA – GROUNDWATER

ANALYTICAL REPORT

Lab Number:	L2114025
Client:	McPhail Associates 2269 Massachusetts Avenue Cambridge, MA 02140
ATTN:	Ambrose Donovan
Phone:	(617) 868-1420
Project Name:	SOMA-STEAM PIPELINE INSTALL.
Project Number:	5210.9.ST
Report Date:	03/26/21

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: SOMA-STEAM PIPELINE INSTALL.
Project Number: 5210.9.ST

Lab Number: L2114025
Report Date: 03/26/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2114025-01	BST-1(OW)	WATER	CAMBRIDGE, MA	03/19/21 09:20	03/19/21

Project Name:	SOMA-STEAM PIPELINE INSTALL.	**Lab Number:**	L2114025
Project Number:	5210.9.ST	**Report Date:**	03/26/21

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:	SOMA-STEAM PIPELINE INSTALL.	**Lab Number:**	L2114025
Project Number:	5210.9.ST	**Report Date:**	03/26/21

Case Narrative (continued)

Chlorine, Total Residual

The WG1476641-4 MS recovery, performed on L2114025-01, is outside the acceptance criteria for chlorine, total residual (0%); however, the associated LCS recovery is within criteria. No further action was taken.

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

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 03/26/21

METALS

Project Name: SOMA-STEAM PIPELINE INSTALL. **Lab Number:** L2114025

Project Number: 5210.9.ST **Report Date:** 03/26/21

SAMPLE RESULTS

Lab ID: L2114025-01 Date Collected: 03/19/21 09:20

Client ID: BST-1(OW) Date Received: 03/19/21

Sample Location: CAMBRIDGE, MA 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	03/24/21 20:52	03/25/21 11:17	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00224		mg/l	0.00100	--	1	03/24/21 20:52	03/25/21 11:17	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	03/24/21 20:52	03/25/21 11:17	EPA 3005A	3,200.8	AM
Chromium, Total	0.00125		mg/l	0.00100	--	1	03/24/21 20:52	03/25/21 11:17	EPA 3005A	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	03/24/21 20:52	03/25/21 11:17	EPA 3005A	3,200.8	AM
Iron, Total	0.099		mg/l	0.050	--	1	03/24/21 20:52	03/25/21 13:38	EPA 3005A	19,200.7	SV
Lead, Total	ND		mg/l	0.00100	--	1	03/24/21 20:52	03/25/21 11:17	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	03/24/21 22:39	03/25/21 23:57	EPA 245.1	3,245.1	EW
Nickel, Total	ND		mg/l	0.00200	--	1	03/24/21 20:52	03/25/21 11:17	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	03/24/21 20:52	03/25/21 11:17	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	03/24/21 20:52	03/25/21 11:17	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	03/24/21 20:52	03/25/21 11:17	EPA 3005A	3,200.8	AM
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		03/25/21 11:17	NA	107,-	

Project Name: SOMA-STEAM PIPELINE INSTALL. **Lab Number:** L2114025

Project Number: 5210.9.ST **Report Date:** 03/26/21

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: WG1477664-1										
Iron, Total	ND		mg/l	0.050	--	1	03/24/21 20:52	03/25/21 10:01	19,200.7	GD

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: WG1477665-1										
Antimony, Total	ND		mg/l	0.00400	--	1	03/24/21 20:52	03/25/21 08:56	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	03/24/21 20:52	03/25/21 08:56	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	03/24/21 20:52	03/25/21 08:56	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	03/24/21 20:52	03/25/21 08:56	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	03/24/21 20:52	03/25/21 08:56	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	03/24/21 20:52	03/25/21 08:56	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	03/24/21 20:52	03/25/21 08:56	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	03/24/21 20:52	03/25/21 08:56	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	03/24/21 20:52	03/25/21 08:56	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	03/24/21 20:52	03/25/21 08:56	3,200.8	AM

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: WG1477666-1										
Mercury, Total	ND		mg/l	0.00020	--	1	03/24/21 22:39	03/25/21 19:51	3,245.1	NB

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOMA-STEAM PIPELINE INSTALL.

Project Number: 5210.9.ST

Lab Number: L2114025

Report Date: 03/26/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1477664-2								
Iron, Total	95		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1477665-2								
Antimony, Total	93		-		85-115	-		
Arsenic, Total	104		-		85-115	-		
Cadmium, Total	107		-		85-115	-		
Chromium, Total	100		-		85-115	-		
Copper, Total	104		-		85-115	-		
Lead, Total	104		-		85-115	-		
Nickel, Total	99		-		85-115	-		
Selenium, Total	110		-		85-115	-		
Silver, Total	101		-		85-115	-		
Zinc, Total	109		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1477666-2								
Mercury, Total	103		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: SOMA-STEAM PIPELINE INSTALL.
Project Number: 5210.9.ST

Lab Number: L2114025
Report Date: 03/26/21

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: WG1477664-3 QC Sample: L2113661-01 Client ID: MS Sample												
Iron, Total	4.38	1	5.52	114		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1477664-7 QC Sample: L2113661-02 Client ID: MS Sample												
Iron, Total	5.48	1	8.06	**258**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1477665-3 QC Sample: L2113661-01 Client ID: MS Sample												
Antimony, Total	ND	0.5	0.4913	98		-	-		70-130	-		20
Arsenic, Total	0.0031	0.12	0.1216	99		-	-		70-130	-		20
Cadmium, Total	0.00068	0.051	0.05727	111		-	-		70-130	-		20
Chromium, Total	0.0086	0.2	0.2003	96		-	-		70-130	-		20
Copper, Total	0.1056	0.25	0.3663	104		-	-		70-130	-		20
Lead, Total	0.1398	0.51	0.6756	105		-	-		70-130	-		20
Nickel, Total	0.0129	0.5	0.4824	94		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1287	107		-	-		70-130	-		20
Silver, Total	ND	0.05	0.05195	104		-	-		70-130	-		20
Zinc, Total	0.4932	0.5	1.059	113		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: SOMA-STEAM PIPELINE INSTALL.
Project Number: 5210.9.ST

Lab Number: L2114025
Report Date: 03/26/21

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: WG1477665-5 QC Sample: L2113661-02 Client ID: MS Sample									
Antimony, Total	0.0086	0.5	0.4953	97	-	-	70-130	-	20
Arsenic, Total	0.0054	0.12	0.1181	94	-	-	70-130	-	20
Cadmium, Total	0.00270	0.051	0.05868	110	-	-	70-130	-	20
Chromium, Total	0.0120	0.2	0.2132	101	-	-	70-130	-	20
Copper, Total	0.2903	0.25	0.5525	105	-	-	70-130	-	20
Lead, Total	0.3407	0.51	0.8762	105	-	-	70-130	-	20
Nickel, Total	0.0360	0.5	0.5146	96	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1205	100	-	-	70-130	-	20
Silver, Total	ND	0.05	0.05252	105	-	-	70-130	-	20
Zinc, Total	1.226	0.5	1.865	128	-	-	70-130	-	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1477666-3 QC Sample: L2113673-01 Client ID: MS Sample									
Mercury, Total	ND	0.005	0.00516	103	-	-	70-130	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: SOMA-STEAM PIPELINE INSTALL.
Project Number: 5210.9.ST

Lab Number: L2114025
Report Date: 03/26/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1477664-4 QC Sample: L2113661-01 Client ID: DUP Sample						
Iron, Total	4.38	4.97	mg/l	13		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1477664-8 QC Sample: L2113661-02 Client ID: DUP Sample						
Iron, Total	5.48	6.92	mg/l	**23**	Q	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1477665-4 QC Sample: L2113661-01 Client ID: DUP Sample						
Cadmium, Total	0.00068	0.00067	mg/l	1		20
Copper, Total	0.1056	0.1168	mg/l	10		20
Lead, Total	0.1398	0.1428	mg/l	2		20
Zinc, Total	0.4932	0.5171	mg/l	5		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1477665-6 QC Sample: L2113661-02 Client ID: DUP Sample						
Cadmium, Total	0.00270	0.00265	mg/l	2		20
Copper, Total	0.2903	0.2921	mg/l	1		20
Lead, Total	0.3407	0.3561	mg/l	4		20
Zinc, Total	1.226	1.193	mg/l	3		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1477666-4 QC Sample: L2113673-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20

Project Name: SOMA-STEAM PIPELINE INSTALL.
Project Number: 5210.9.ST

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2114025
Report Date: 03/26/21

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1477664-10 QC Sample: L2113661-02 Client ID: DUP Sample						
Iron, Total	5.48	5.73	mg/l	5		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1477664-6 QC Sample: L2113661-01 Client ID: DUP Sample						
Iron, Total	4.38	4.32	mg/l	1		20

INORGANICS
&
MISCELLANEOUS

Project Name: SOMA-STEAM PIPELINE INSTALL.
Project Number: 5210.9.ST
Lab Number: L2114025
Report Date: 03/26/21

SAMPLE RESULTS

Lab ID: L2114025-01
Client ID: BST-1(OW)
Sample Location: CAMBRIDGE, MA
Sample Depth:
Matrix: Water
Date Collected: 03/19/21 09:20
Date Received: 03/19/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	03/24/21 13:15	121,2540D	AC
Cyanide, Total	0.009		mg/l	0.005	--	1	03/23/21 11:30	03/24/21 10:57	121,4500CN-CE	CR
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	03/19/21 22:32	121,4500CL-D	AS
pH (H)	7.8		SU	-	NA	1	-	03/22/21 11:23	121,4500H+-B	KP
Nitrogen, Ammonia	4.82		mg/l	0.075	--	1	03/24/21 02:28	03/24/21 18:53	121,4500NH3-BH	AT
Chromium, Hexavalent	ND		mg/l	0.010	--	1	03/19/21 20:45	03/19/21 21:24	1,7196A	AS
Anions by Ion Chromatography - Westborough Lab										
Chloride	875.		mg/l	25.0	--	50	-	03/21/21 18:43	44,300.0	SH

Project Name: SOMA-STEAM PIPELINE INSTALL. **Lab Number:** L2114025

Project Number: 5210.9.ST **Report Date:** 03/26/21

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: WG1476627-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	03/19/21 20:45	03/19/21 21:23	1,7196A	AS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1476641-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	03/19/21 22:32	121,4500CL-D	AS
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1476950-1										
Chloride	ND		mg/l	0.500	--	1	-	03/21/21 13:25	44,300.0	SH
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1477627-1										
Cyanide, Total	ND		mg/l	0.005	--	1	03/23/21 11:30	03/24/21 10:33	121,4500CN-CE	CR
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1477946-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	03/24/21 02:28	03/24/21 18:46	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1478255-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	03/24/21 13:15	121,2540D	AC

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOMA-STEAM PIPELINE INSTALL.
Project Number: 5210.9.ST

Lab Number: L2114025
Report Date: 03/26/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1476627-2								
Chromium, Hexavalent	100		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1476641-2								
Chlorine, Total Residual	104		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1476675-1								
pH	100		-		99-101	-		5
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1476950-2								
Chloride	98		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1477627-2								
Cyanide, Total	96		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1477946-2								
Nitrogen, Ammonia	97		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1478255-2								
Solids, Total Suspended	99		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: SOMA-STEAM PIPELINE INSTALL.
Project Number: 5210.9.ST

Lab Number: L2114025
Report Date: 03/26/21

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: WG1476627-4 QC Sample: L2114025-01 Client ID: BST-1(OW)												
Chromium, Hexavalent	ND	0.1	0.090	90		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1476641-4 QC Sample: L2114025-01 Client ID: BST-1(OW)												
Chlorine, Total Residual	ND	0.25	ND	**0**	Q	-	-		80-120	-		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1476950-3 QC Sample: L2113008-05 Client ID: MS Sample												
Chloride	58.2	40	95.8	94		-	-		90-110	-		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1477627-4 QC Sample: L2113708-02 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.205	102		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1477946-4 QC Sample: L2113919-02 Client ID: MS Sample												
Nitrogen, Ammonia	2.77	4	6.28	88		-	-		80-120	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: SOMA-STEAM PIPELINE INSTALL.

Project Number: 5210.9.ST

Lab Number: L2114025

Report Date: 03/26/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1476627-3 QC Sample: L2114025-01 Client ID: BST-1(OW)						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1476641-3 QC Sample: L2114025-01 Client ID: BST-1(OW)						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1476675-2 QC Sample: L2113802-01 Client ID: DUP Sample						
pH	7.1	7.0	SU	1		5
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1476950-4 QC Sample: L2113008-05 Client ID: DUP Sample						
Chloride	58.2	58.3	mg/l	0		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1477627-3 QC Sample: L2113708-01 Client ID: DUP Sample						
Cyanide, Total	ND	ND	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1477946-3 QC Sample: L2113919-02 Client ID: DUP Sample						
Nitrogen, Ammonia	2.77	2.90	mg/l	5		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1478255-3 QC Sample: L2113661-01 Client ID: DUP Sample						
Solids, Total Suspended	170	170	mg/l	0		29

Project Name: SOMA-STEAM PIPELINE INSTALL.
Project Number: 5210.9.ST

Lab Number: L2114025
Report Date: 03/26/21

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(*)
L2114025-01A	Plastic 250ml HNO3 preserved	A	<2	<2	3.4	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),FE-UI(180),CU-2008T(180),SE-2008T(180),AS-2008T(180),AG-2008T(180),HG-U(28),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L2114025-01B	Plastic 950ml unpreserved	A	7	7	3.4	Y	Absent		HEXCR-7196(1),CL-300(28),TRC-4500(1),PH-4500(.01)
L2114025-01C	Plastic 500ml H2SO4 preserved	A	<2	<2	3.4	Y	Absent		NH3-4500(28)
L2114025-01D	Plastic 250ml NaOH preserved	A	>12	>12	3.4	Y	Absent		TCN-4500(14)
L2114025-01E	Plastic 950ml unpreserved	A	7	7	3.4	Y	Absent		TSS-2540(7)

*Values in parentheses indicate holding time in days

Project Name:	SOMA-STEAM PIPELINE INSTALL.	**Lab Number:**	L2114025
Project Number:	5210.9.ST	**Report Date:**	03/26/21

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.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

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.

Report Format: Data Usability Report

Project Name:	SOMA-STEAM PIPELINE INSTALL.	**Lab Number:**	L2114025
Project Number:	5210.9.ST	**Report Date:**	03/26/21

Footnotes

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

Terms

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. In addition, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. (Note: 'PFAS, Total (6)' is applicable to MassDEP DW compliance analysis only.). 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.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

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

Report Format: Data Usability Report

Project Name:	SOMA-STEAM PIPELINE INSTALL.	**Lab Number:**	L2114025
Project Number:	5210.9.ST	**Report Date:**	03/26/21

Data Qualifiers

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.

Project Name:	SOMA-STEAM PIPELINE INSTALL.	**Lab Number:**	L2114025
Project Number:	5210.9.ST	**Report Date:**	03/26/21

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

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.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

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, Naphthalene
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: 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, SM9222D.**

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, EPA 537.1.

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

PAGE 1 OF 1

ALPHA ANALYTICAL — World Class Chemistry

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 3/19/21

ALPHA Job #: L2114025

Project Information

Project Name: SOMA - Steam Pipe Installation

Project Location: Cambridge, MA

Project #: 5210.9.ST

Project Manager: Gina Garten

ALPHA Quote #:

Client Information

Client: McPhail Assoicates, LLC

Address: 2269 Massachusetts Avenue

Cambridge, MA 02140

Phone: 617-868-1420

Fax:

Email: ggarten@mcphailgeo.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☐ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
NPDES RGP	

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☒ No Are MCP Analytical Methods Required?

☐ Yes ☒ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS

SAMPLE HANDLING: *Filtration* ☐ Done ☐ Not Needed ☐ 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	pH	Ammonia Nitrogen - SM 4500	Total Residual Chlorine - SM 4500	Chloride by IC - EPA 300.0	Total Suspended Solids - SM 2540	Trivalent Chromium - EPA 7196/6010	Hexavalent Chromium - EPA 7196	Total Cyanide - SM 4500	Total NPDES Metals EPA200.8/245.1				Sample Specific Comments	TOTAL # BOTTLES
14025-01	BST-1(OW)	3/19/21	930	GW	TM	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☐		5
Container Type						-	-	-	-	-	-	-	-	-	-	-	-		
Preservative						-	-	-	-	-	-	-	-	-	-	-	-		

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

FORM NO: 01-01(I) (rev. 5-JAN-12)

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	3/19/21	[signature] AAL	3-19-21 1610
[signature] AAL	3-19-21 1700	[signature]	3/19/21 1700

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

APPENDIX E:

LABORATORY ANALYTICAL DATA – SURFACE WATER

ANALYTICAL REPORT

Lab Number:	L2042092
Client:	McPhail Associates 2269 Massachusetts Avenue Cambridge, MA 02140
ATTN:	Ambrose Donovan
Phone:	(617) 868-1420
Project Name:	600 MASS AVE
Project Number:	6691
Report Date:	10/09/20

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: 600 MASS AVE
Project Number: 6691

Lab Number: L2042092
Report Date: 10/09/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2042092-01	RGP-RECEIVING	WATER	CAMBRIDGE, MA	10/02/20 15:00	10/02/20

Project Name:	600 MASS AVE	**Lab Number:**	L2042092
Project Number:	6691	**Report Date:**	10/09/20

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.

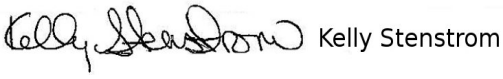
When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded 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.

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: 10/09/20

METALS

Project Name: 600 MASS AVE
Project Number: 6691
Lab Number: L2042092
Report Date: 10/09/20

SAMPLE RESULTS

Lab ID: L2042092-01
Client ID: RGP-RECEIVING
Sample Location: CAMBRIDGE, MA
Date Collected: 10/02/20 15:00
Date Received: 10/02/20
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	10/07/20 06:25	10/07/20 11:34	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00368		mg/l	0.00100	--	1	10/07/20 06:25	10/07/20 11:34	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	10/07/20 06:25	10/07/20 11:34	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	10/07/20 06:25	10/07/20 11:34	EPA 3005A	3,200.8	AM
Copper, Total	0.00305		mg/l	0.00100	--	1	10/07/20 06:25	10/07/20 11:34	EPA 3005A	3,200.8	AM
Iron, Total	0.134		mg/l	0.050	--	1	10/07/20 06:25	10/09/20 17:51	EPA 3005A	19,200.7	GD
Lead, Total	0.00472		mg/l	0.00100	--	1	10/07/20 06:25	10/07/20 11:34	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	10/07/20 09:18	10/07/20 12:03	EPA 245.1	3,245.1	EW
Nickel, Total	0.00200		mg/l	0.00200	--	1	10/07/20 06:25	10/07/20 11:34	EPA 3005A	3,200.8	AM
Selenium, Total	0.01134		mg/l	0.00500	--	1	10/07/20 06:25	10/07/20 11:34	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	10/07/20 06:25	10/07/20 11:34	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	10/07/20 06:25	10/07/20 11:34	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	456		mg/l	0.660	NA	1	10/07/20 06:25	10/09/20 17:51	EPA 3005A	19,200.7	GD

Project Name: 600 MASS AVE
Project Number: 6691
Lab Number: L2042092
Report Date: 10/09/20

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: WG1418627-1										
Iron, Total	ND		mg/l	0.050	--	1	10/07/20 06:25	10/07/20 15:16	19,200.7	GD

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: WG1418627-1										
Hardness	ND		mg/l	0.660	NA	1	10/07/20 06:25	10/07/20 15:16	19,200.7	GD

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: WG1418628-1										
Antimony, Total	ND		mg/l	0.00400	--	1	10/07/20 06:25	10/07/20 10:27	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	10/07/20 06:25	10/07/20 10:27	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	10/07/20 06:25	10/07/20 10:27	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	10/07/20 06:25	10/07/20 10:27	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	10/07/20 06:25	10/07/20 10:27	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	10/07/20 06:25	10/07/20 10:27	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	10/07/20 06:25	10/07/20 10:27	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	10/07/20 06:25	10/07/20 10:27	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	10/07/20 06:25	10/07/20 10:27	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	10/07/20 06:25	10/07/20 10:27	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Project Name: 600 MASS AVE
Project Number: 6691
Lab Number: L2042092
Report Date: 10/09/20

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: WG1418630-1										
Mercury, Total	ND		mg/l	0.00020	--	1	10/07/20 09:18	10/07/20 11:59	3,245.1	EW

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: 600 MASS AVE

Project Number: 6691

Lab Number: L2042092

Report Date: 10/09/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1418627-2								
Iron, Total	102		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1418627-2								
Hardness	104		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1418628-2								
Antimony, Total	97		-		85-115	-		
Arsenic, Total	102		-		85-115	-		
Cadmium, Total	104		-		85-115	-		
Chromium, Total	104		-		85-115	-		
Copper, Total	99		-		85-115	-		
Lead, Total	103		-		85-115	-		
Nickel, Total	95		-		85-115	-		
Selenium, Total	103		-		85-115	-		
Silver, Total	103		-		85-115	-		
Zinc, Total	106		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1418630-2								
Mercury, Total	99		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: 600 MASS AVE
Project Number: 6691

Lab Number: L2042092
Report Date: 10/09/20

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: WG1418627-3 QC Sample: L2041996-01 Client ID: MS Sample												
Iron, Total	5.95	1	6.49	**54**	Q	-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1418627-3 QC Sample: L2041996-01 Client ID: MS Sample												
Hardness	637	66.2	669	**48**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1418627-7 QC Sample: L2041996-02 Client ID: MS Sample												
Iron, Total	0.051	1	6.24	**619**	Q	-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1418627-7 QC Sample: L2041996-02 Client ID: MS Sample												
Hardness	381	66.2	660	**422**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1418628-3 QC Sample: L2041996-01 Client ID: MS Sample												
Antimony, Total	ND	0.5	0.5149	103		-	-		70-130	-		20
Arsenic, Total	0.01061	0.12	0.1398	108		-	-		70-130	-		20
Cadmium, Total	ND	0.051	0.05436	106		-	-		70-130	-		20
Chromium, Total	0.00719	0.2	0.2251	109		-	-		70-130	-		20
Copper, Total	0.02108	0.25	0.2743	101		-	-		70-130	-		20
Lead, Total	0.01089	0.51	0.5893	113		-	-		70-130	-		20
Nickel, Total	ND	0.5	0.4927	98		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1503	125		-	-		70-130	-		20
Silver, Total	ND	0.05	0.05031	101		-	-		70-130	-		20
Zinc, Total	ND	0.5	0.5342	107		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: 600 MASS AVE
Project Number: 6691

Lab Number: L2042092
Report Date: 10/09/20

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: WG1418628-5 QC Sample: L2041996-02 Client ID: MS Sample									
Antimony, Total	ND	0.5	0.5389	108	-	-	70-130	-	20
Arsenic, Total	0.00970	0.12	0.1381	107	-	-	70-130	-	20
Cadmium, Total	ND	0.051	0.05516	108	-	-	70-130	-	20
Chromium, Total	ND	0.2	0.2119	106	-	-	70-130	-	20
Copper, Total	ND	0.25	0.2586	103	-	-	70-130	-	20
Lead, Total	ND	0.51	0.5764	113	-	-	70-130	-	20
Nickel, Total	0.03296	0.5	0.5164	97	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1264	105	-	-	70-130	-	20
Silver, Total	ND	0.05	0.05016	100	-	-	70-130	-	20
Zinc, Total	ND	0.5	0.5102	102	-	-	70-130	-	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1418630-3 QC Sample: L2042092-01 Client ID: RGP-RECEIVING									
Mercury, Total	ND	0.005	0.00513	103	-	-	70-130	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 600 MASS AVE

Project Number: 6691

Lab Number: L2042092

Report Date: 10/09/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1418627-4 QC Sample: L2041996-01 Client ID: DUP Sample						
Iron, Total	5.95	5.62	mg/l	6		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1418627-8 QC Sample: L2041996-02 Client ID: DUP Sample						
Iron, Total	0.051	5.45	mg/l	**196**	Q	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1418628-4 QC Sample: L2041996-01 Client ID: DUP Sample						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	0.01061	0.00841	mg/l	**23**	Q	20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	0.00719	0.00728	mg/l	1		20
Copper, Total	0.02108	0.02056	mg/l	2		20
Lead, Total	0.01089	0.01060	mg/l	3		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	ND	ND	mg/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: 600 MASS AVE
Project Number: 6691

Lab Number: L2042092
Report Date: 10/09/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1418628-6 QC Sample: L2041996-02 Client ID: DUP Sample					
Antimony, Total	ND	ND	mg/l	NC	20
Arsenic, Total	0.00970	0.00862	mg/l	12	20
Cadmium, Total	ND	ND	mg/l	NC	20
Chromium, Total	ND	ND	mg/l	NC	20
Copper, Total	ND	ND	mg/l	NC	20
Lead, Total	ND	ND	mg/l	NC	20
Nickel, Total	0.03296	0.03381	mg/l	3	20
Selenium, Total	ND	ND	mg/l	NC	20
Silver, Total	ND	ND	mg/l	NC	20
Zinc, Total	ND	ND	mg/l	NC	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1418630-4 QC Sample: L2042092-01 Client ID: RGP-RECEIVING					
Mercury, Total	ND	ND	mg/l	NC	20

INORGANICS
&
MISCELLANEOUS

Project Name: 600 MASS AVE
Project Number: 6691

Lab Number: L2042092
Report Date: 10/09/20

SAMPLE RESULTS

Lab ID: L2042092-01
Client ID: RGP-RECEIVING
Sample Location: CAMBRIDGE, MA

Date Collected: 10/02/20 15:00
Date Received: 10/02/20
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										
Cyanide, Total	ND		mg/l	0.005	--	1	10/03/20 16:20	10/05/20 11:37	121,4500CN-CE	AG
pH (H)	7.8		SU	-	NA	1	-	10/03/20 07:00	121,4500H+-B	JA
Nitrogen, Ammonia	0.102		mg/l	0.075	--	1	10/05/20 12:09	10/06/20 19:29	121,4500NH3-BH	AT

Project Name: 600 MASS AVE
Project Number: 6691
Lab Number: L2042092
Report Date: 10/09/20

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: WG1417784-1										
Cyanide, Total	ND		mg/l	0.005	--	1	10/03/20 16:20	10/05/20 11:13	121,4500CN-CE	AG
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1418056-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	10/05/20 12:09	10/06/20 19:04	121,4500NH3-BH	AT

Lab Control Sample Analysis

Batch Quality Control

Project Name: 600 MASS AVE

Project Number: 6691

Lab Number: L2042092

Report Date: 10/09/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1417650-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1417784-2								
Cyanide, Total	98		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1418056-2								
Nitrogen, Ammonia	94		-		80-120	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: 600 MASS AVE
Project Number: 6691

Lab Number: L2042092
Report Date: 10/09/20

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: WG1417784-4 QC Sample: L2042150-04 Client ID: MS Sample												
Cyanide, Total	0.005	0.2	0.192	93		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1418056-4 QC Sample: L2041751-01 Client ID: MS Sample												
Nitrogen, Ammonia	ND	4	3.41	85		-	-		80-120	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 600 MASS AVE

Project Number: 6691

Lab Number: L2042092

Report Date: 10/09/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1417650-2 QC Sample: L2041974-01 Client ID: DUP Sample						
pH	5.8	6.0	SU	3		5
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1417784-3 QC Sample: L2042150-02 Client ID: DUP Sample						
Cyanide, Total	ND	ND	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1418056-3 QC Sample: L2041751-01 Client ID: DUP Sample						
Nitrogen, Ammonia	ND	ND	mg/l	NC		20

Project Name: 600 MASS AVE
Project Number: 6691

Lab Number: L2042092
Report Date: 10/09/20

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(*)
L2042092-01A	Plastic 250ml NaOH preserved	A	>12	>12	2.5	Y	Absent		TCN-4500(14)
L2042092-01B	Plastic 250ml H2SO4 preserved	A	<2	<2	2.5	Y	Absent		NH3-4500(28)
L2042092-01C	Plastic 500ml HNO3 preserved	A	<2	<2	2.5	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),HARDU(180),FE-UI(180),SE-2008T(180),AG-2008T(180),AS-2008T(180),HG-U(28),PB-2008T(180),CR-2008T(180),SB-2008T(180)
L2042092-01D	Plastic 500ml unpreserved	A	7	7	2.5	Y	Absent		PH-4500(.01)

*Values in parentheses indicate holding time in days

Project Name:	600 MASS AVE	**Lab Number:**	L2042092
Project Number:	6691	**Report Date:**	10/09/20

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.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
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.

Report Format: Data Usability Report

Project Name:	600 MASS AVE	**Lab Number:**	L2042092
Project Number:	6691	**Report Date:**	10/09/20

Footnotes

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

Terms

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.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

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.

Report Format: Data Usability Report

Project Name:	600 MASS AVE	**Lab Number:**	L2042092
Project Number:	6691	**Report Date:**	10/09/20

Data Qualifiers

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:	600 MASS AVE	**Lab Number:**	L2042092
Project Number:	6691	**Report Date:**	10/09/20

REFERENCES

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.

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, Naphthalene
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.
EPA TO-12 Non-methane organics
EPA 3C Fixed gases
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

PAGE ____ OF ____

ALPHA ANALYTICAL
8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220
320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Date Rec'd in Lab: 10/2/20

ALPHA Job #: L2042092

Project Information

Project Name: 600 Mass Ave
Project Location: Cambridge, MA
Project #: 6691
Project Manager: D. Trussell
ALPHA Quote #:

Report Information - Data Deliverables

☒ ADEx ☒ EMAIL

Billing Information

☐ Same as Client info PO #:

Client Information

Client: McPhail Associates, LLC
Address: 2269 Massachusetts Avenue
Cambridge, MA 02140
Phone: (617) 868-1420
Email: dtrussell@McPhailgeo.com

Regulatory Requirements & Project Information Requirements

☒ Yes ☐ No MA MCP Analytical Methods ☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☒ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☒ No GW1 Standards (Info Required for Metals & EPH with Targets)
☒ Yes ☐ No NPDES RGP
☐ Other State /Fed Program ____________ Criteria ____________

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 10/9/20

Additional Project Information:
☐ Run TCLP (if triggered)

Sample "Sample ID" Nomenclature: B-100, S-1

ALPHA Lab ID (Lab Use Only)	Sample ID	Sample Depth	Sample Material	Collection Date	Collection Time	Sampler Initials	Soil Assessment Package IV (less VOC)	VOC: ☐ 8260	~~[struck]~~	SVOC: ☐ PAH	EPH: ☐ Ranges & Targets ☐ Ranges Only	VPH: ☐ Ranges & Targets ☐ Ranges Only	TOTAL METALS: ☐ RCRA8 ☐ PP13 ☐ MCP 14	DISSOLVED METALS: ☐ RCRA8 ☐ PP13 ☐ MCP 14	METALS: Total Sb,Be,Ni,Tl,V,Zn	☐ PCBs ☐ Pesticides	RGP Metals	TCN	pH, Hardness	NH_3	SAMPLE INFO / Sample Comments	TOTAL # BOTTLES
42092-01	RGP - Receiving	N/A	GW	10/2/20	15:00	DAT											X	X	X	X		4
Container Type																	P	P	P	P		
Preservative																	C	E	A	D		

SAMPLE INFO: Filtration ☐ Field ☐ Lab to do; Preservation ☐ Lab to do

RGP Section A Inorganics: Ammonia, Chloride, TRC, TSS, CrVI, CrIII, Total Cyanide, Total RGP Metals

Container Type
A=Amber glass
B=Bacteria cup
C=Cube
D=BOD bottle
E=Encore
G=Glass
O=Other
P=Plastic
V=Vial

Preservative
A=None
B=HCl
C=HNO_3
D=H_2SO_4
E=NaOH
F=MeOH
G=$NaHSO_4$
H=$Na_2S_2O_3$
I=Ascorbix Acid
J=NH_4Cl
K=Zn Acetate
O=Other

Sample Material
F=Fill S=Sand
O=Organics C=Clay
N=Natural T=Till
GM=Glaciomarine
GW=Groundwater

Relinquished By:	Date/Time	Received By:	Date/Time
DAT [signature]	10/2/20 16:00	McPhail Associates secure sample storage for laboratory pick-up	
McPhail Associates secure sample storage for laboratory pick-up		[signature] AAL	10/2/20 1630
[signature] AAC	10/2/20 1730	[signature]	10/2/20 1730

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

DOC ID: 25188 Rev 0 (11/28/2017)

APPENDIX F:

BEST MANAGEMENT PRACTICE PLAN

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 that will occur during construction of the steam line at the project site listed with the address of 18 Hayward 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 period that temporary construction dewatering is occurring at the site.

Water Treatment and Management

During construction of the proposed building foundation, dewatering effluent is anticipated to be pumped from localized sumps and trenches within the excavation directly into a settling tank. Dewatering effluent treatment will consist of a settling tank and bag filters to remove suspended soil particulates. The effluent will then flow through the necessary treatment systems and discharge through hoses or piping connected into the storm water drains located beneath Hayward Street. Based upon a review of the Department of Public Works stormwater drainage plan, the above referenced stormwater drain system ultimately discharges into the Charles River at outfall D05.

Discharge Monitoring and Compliance

Regular sampling and testing will be conducted at the influent to the system and the treated effluent as required by the RGP. During the first week of discharge, the operator must sample the untreated influent and treated effluent two times: one (1) sample of untreated influent and one (1) sample of treated effluent be collected on the first day of discharge, and one (1) sample of untreated influent and one (1) sample of treated effluent must be collected on one additional non-consecutive day within the first week of discharge. Samples must be analyzed in accordance with 40 CFR §136 unless otherwise specified by the RGP, with a maximum 5-day turnaround time and results must be reviewed no more than 48 hours from receipt of the results of each sampling event. After the first week, samples may be analyzed with up to a ten (10)-day turnaround time and results must be reviewed no more than 72 hours from receipt of the results. If the treatment system is operating as designed and achieving the effluent limitations outlined in the RGP, on-going sampling shall be conducted weekly for three (3) additional weeks beginning no earlier than 24 hours following initial sampling, and monthly as described below. Any adjustments/reductions in monitoring frequency must be approved by EPA in writing.

In accordance with Part 4.1 of the RGP, the operator must perform routine monthly monitoring for both influent and effluent beginning no more than 30 days following the completion of the sampling requirements for new discharges or discharges that have been interrupted. The routine monthly monitoring is to be conducted through the end of the scheduled discharge. The routine monthly monitoring must continue for five (5)

consecutive months prior to submission of any request for modification of monitoring frequency.

Dewatering activity for the Site is classified as Category III-G: Sites with Known Contamination. Monitoring shall include analysis of influent and effluent samples for the presence of: pH and inorganics as listed in the RGP including: ammonia, chloride, total residual chlorine, total suspended solids, antimony, arsenic, cadmium, chromium III, chromium VI, copper, lead, mercury, nickel, selenium, silver, zinc and cyanide.

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 during the term of this permit discharge. Scheduled regular maintenance and periodic cleaning of the treatment system will be conducted to verify proper operation and shall be conducted in accordance with Section 1.11 of the project earthwork specifications. Regular maintenance will include checking the condition of the treatment system equipment such as the settling tanks, bag filters, hoses, pumps, and flow meters. Equipment will be monitored daily for potential matters and unscheduled maintenance requirements.

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

Miscellaneous Items

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

Management of Treatment System Materials

Dewatering effluent will be pumped directly into the treatment system from the excavation with use of hoses and localized sumps to minimize handling. The Contractor will establish staging areas for equipment or materials storage that may be possible sources of pollution away from any dewatering activities, to the extent practicable.

Sediment from the tank used in the treatment system will be characterized and removed from the site to an appropriate receiving facility, in accordance with applicable laws and regulations. Bag and ion filters will be replaced/disposed of as necessary.