89 Crawford Street
Leominster, Massachusetts 01453
Tel: 774.450.7177
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www.lrt-llc.net

November 21, 2018

U.S. Environmental Protection Agency
Office of Ecosystem Protection
EPA/OEP RGP Applications Coordinator
5 Post Office Square, Suite 100 (OEP06-1)
Boston, Massachusetts 02109-3912

Reference: **Notice of Intent (NOI) - Remediation General Permit (RGP)**
West Campus Outfall Project
Cambridge, MA
LRT Reference # 2-1758

Dear Sir/Madam:

On behalf of Bond Brothers (Bond), Lockwood Remediation Technologies, LLC (LRT) has prepared this Notice of Intent (NOI) for coverage under the United States Environmental Protection Agency's (EPA's) Remediation General Permit (RGP) under EPA's National Pollutant Discharge Elimination System (NPDES) program. This NOI was prepared in accordance with the general requirements of the NPDES and related guidance documentation provided by EPA. The completed NOI form is provided in Appendix A.

Site Information/Work Summary

The project consists of the installation of a 48-inch tall by 72-inch wide reinforced concrete stormwater box culvert and outlet. The project also includes relocation of existing utilities along the proposed alignment. The culvert ties into existing stormwater structures at the intersection of Talbot Street and Waverly Street and daylights at a new outfall structure in the Charles River. Approximately 150 feet of the proposed box culvert under Vassar Street was previously installed and the new culvert is proposed to tie-into the previously installed section under Vassar Street. The excavation has been divided into seven (7) excavation areas that will be completed simultaneously as indicated below.

- Area #1 – Charles River Outfall and Receiving Pit (Approximate 30' x 60' Area)
- Area #2 – Memorial Drive (Pipe Jacking Area)
- Area #3 – Tennis Courts (Approximately 220' of Trench and Includes Area #4)
- Area #4 – S-Curve CIP
- Area #5 – Amherst Alley & MIT Westgate Lot (Approximately 370' of Trench)
- Area #6 – MIT West Lot (Approximately 90' of Trench)
- Area #7 – Talbot Street (Approximately 185' of Trench)

This work is anticipated to be completed within twelve months, thereby precluding the need for Whole Effluent Toxicity (WET) testing unless specifically requested by EPA. Portions of the site are listed as disposal sites with the Massachusetts Department of Environmental Protection (MassDEP) under Release Tracking Numbers (RTNs) 3-34686, 3-19125 and 3-20017.

Please refer to Figure 1 for a Locus Map and an overview of the immediate area surrounding the site. The site is depicted in Figure 2 along with the proposed treatment system/outfall locations.

Discharge and Receiving Surface Water Information

A summary of the analytical results and a copy of the laboratory analytical report are provided in Appendix B. Concentrations of total suspended solids (TSS), naphthalene, metals and cyanide were detected in groundwater. To meet the applicable NPDES RGP standards, Source Water will undergo treatment that includes settling and bag filtration prior to discharge. If effluent results document contaminant concentrations above the NPDES RGP Standards, a contingency chemical aided settling system can be added to the system to help settle out solids within the influent tank and a carbon treatment system can be added to the system following the bag filters. Details of the water treatment system are provided below.

Dewatering and Water Treatment Systems

Construction dewatering will include wellpoint dewatering systems at Areas #1, #3, #4, #5, #6 and #7 and a deep well dewatering system at Area #2. Water generated during dewatering activities will be pumped into one (1) of four (4) water treatment systems (Outfalls 001 through 004) as detailed below. Effluent water from each treatment system will be directed to catch basins located within the vicinity of each excavation area. Refer to Figures 3A and 3B for catch basin locations.

- WTS #1 (001) – 200 gpm – Includes Areas #1 (Charles River Outfall and Receiving Pit) and #2 (Memorial Drive (Pipe Jacking Area))
- WTS #2 (002) – 300-400 gpm – Includes Areas #2 (Memorial Drive (Pipe Jacking Area)), #3 (Tennis Courts) and #4 (S-Curve CIP)
- WTS #3 (003) – 200 gpm – Includes Area #5 (Amherst Alley & MIT Westgate Lot)
- WTS #4 (004) – 200 gpm – Includes Areas #6 (MIT West Lot) and #7 (Talbot Street)

Source water will enter one (1) 18,000-gallon weir tank at the head of each system where water will be pumped to a multi-bag filter skid (with two multi bag filters) and will pass through a flow/totalizer meter prior to discharge into catch basins that will lead to the Charles River. Refer to Figures 4A and 4B for the water treatment system schematics. Effluent sampling will be conducted at each outfall location.

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

1. The addition of pH conditioners, flocculant and coagulant will not add any pollutants in concentrations which exceed permit effluent limitations;

2. The use of these chemicals will not result in the exceedance of any applicable water quality standard; and
3. These chemicals will not add any pollutants that would justify the application of permit conditions that are different from or absent in this permit.

Consultation with Federal Services

LRT reviewed online electronic data viewers and databases from the Massachusetts Geographical Information System (MassGIS), the Massachusetts Division of Fisheries and Wildlife (MassWildlife; Natural Heritage and Endangered Species Program), and the U.S. National Parks Service Natural Historic Places (NPS). Based on this review, the site and the point where the proposed discharge reaches the receiving surface water body are not located within an Area of Critical Environmental Concern (ACEC). The site and the proposed discharge point are not located within Habitats of Rare Wetland Wildlife, Habitats of Rare Species or Estimated Habitats of Rare Wildlife. A portion of the site is located within the Charles River Basin Historic District which is listed as a National Historic Place, but includes buildings and structures on the banks of the Charles River, not the river itself. Therefore, the effluent water that will be discharged within a catch basin within that portion of the site is not anticipated to affect this historical property. Refer to Appendix D for database maps and information.

Coverage under NPDES RGP

It is our opinion that the proposed discharge is eligible for coverage under the NPDES RGP. On behalf of Bond, we are requesting coverage under the NPDES RGP for the discharge of treated construction dewatering effluent during excavation activities to Charles River.

The enclosed NOI form provides required information on the general site conditions, discharge, treatment system, receiving water, and consultation with federal services. For this project, Bond is the operator that has operational control over the construction plans and specifications, including the ability to make modifications to those plans and specifications.

Please feel free to contact us at 774-450-7177 if you have any questions or if you require additional information.

Sincerely,
Lockwood Remediation Technologies, LLC

Tammie Hagie *Paul Lockwood*

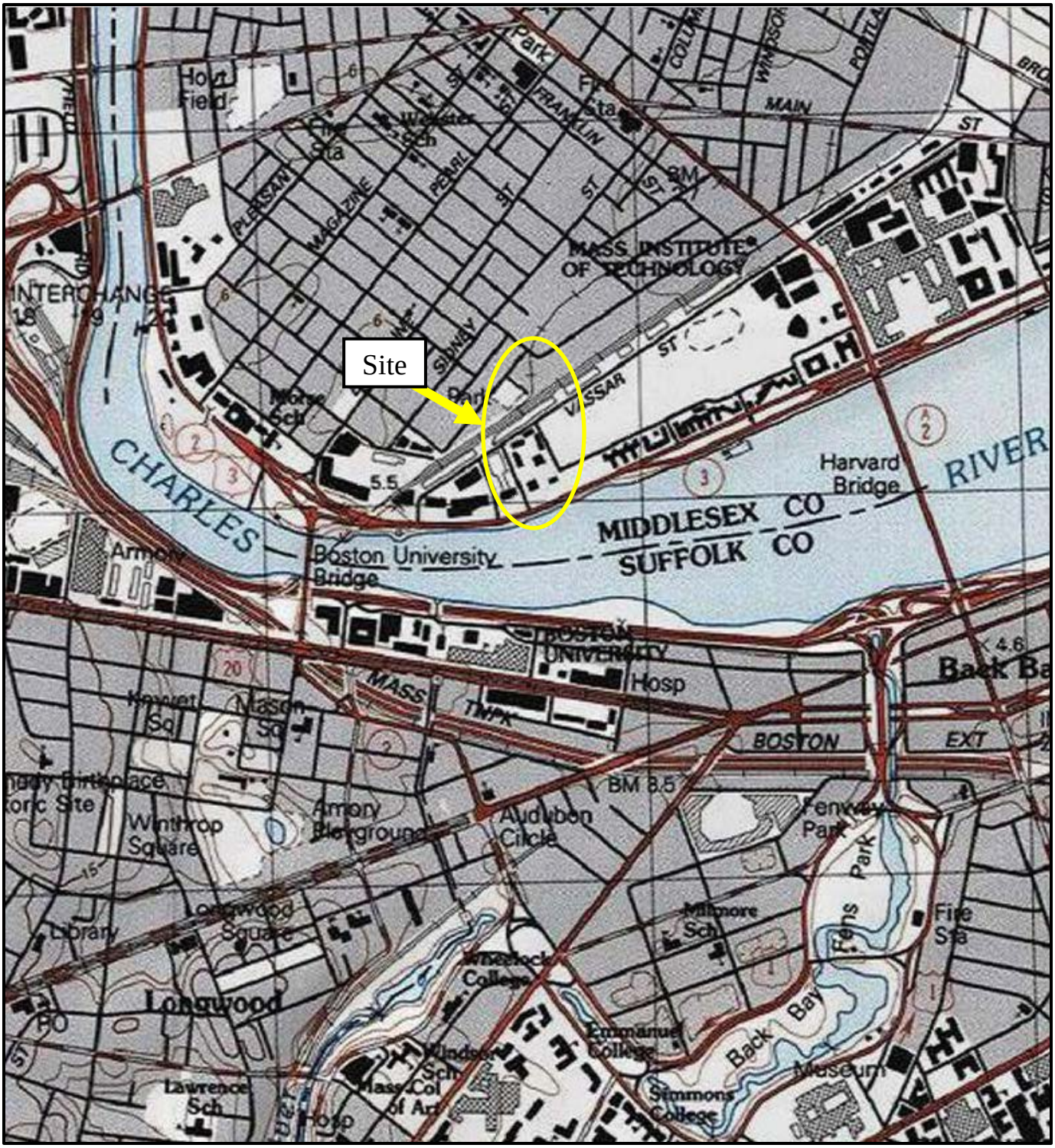
Tammie Hagie
Estimator

Paul Lockwood
President

Encl: Figure 1 – Locus Plan
Figure 2 – Site Layout
Figures 3A & 3B – Proposed Discharge Locations
Figures 4A & 4B – Water Treatment System Schematics
Appendix A – NOI Form
Appendix B – Laboratory Data
Appendix C – Cutsheets
Appendix D – Supplemental Information

cc: Mr. Tom Walsh – Bond Brothers

Figures



Source: Copyright:© 2013 National Geographic Society, i-cubed

Notes

1. Figure is not to scale.

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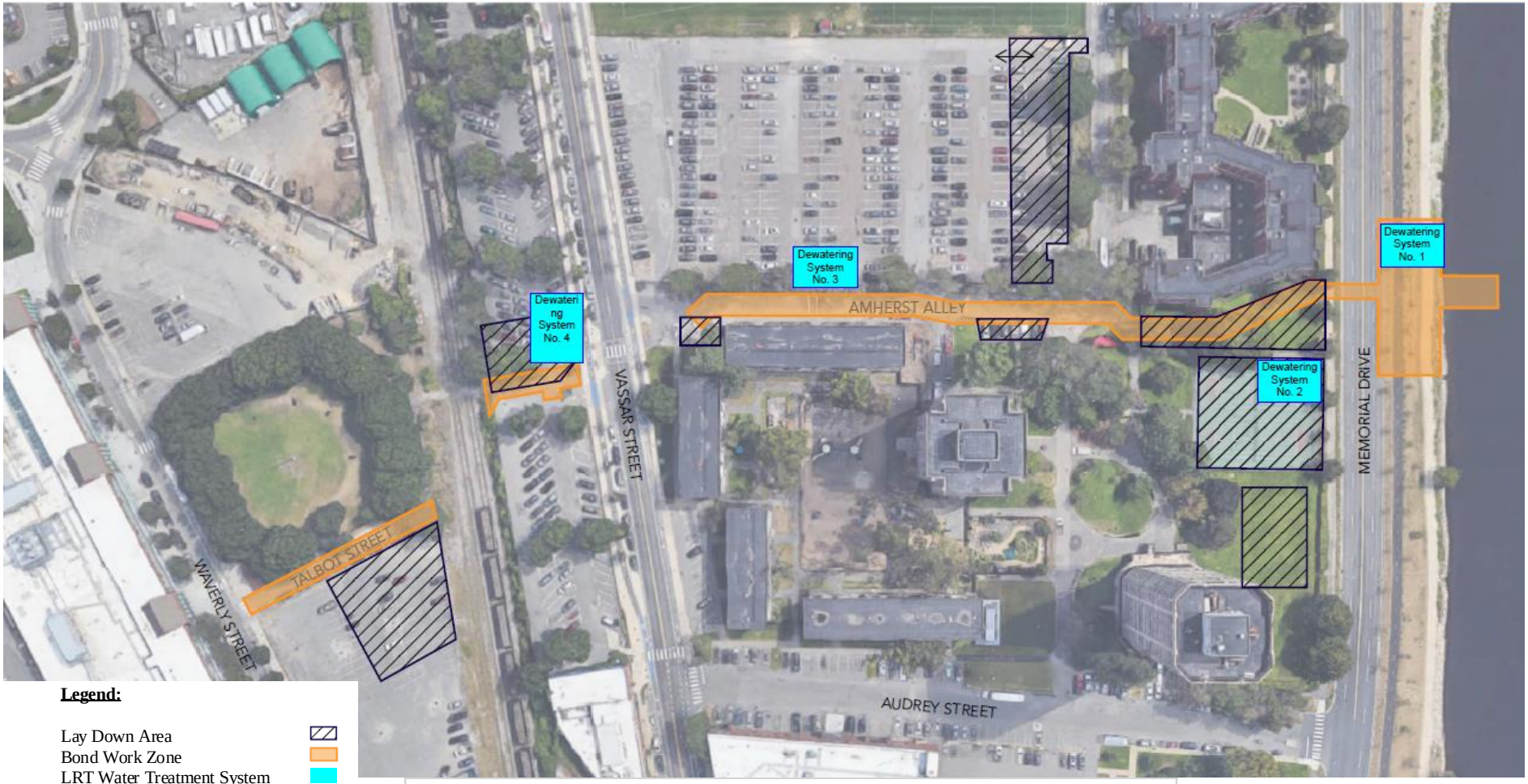
Figure 1 – Locus Plan
West Campus Outfall Project
Cambridge, Massachusetts

LOGISTICS PLAN
LAY DOWN AREAS

MITIMCO
WEST CAMPUS OUTFALL

BOND



Legend:

Lay Down Area
Bond Work Zone
LRT Water Treatment System

Dewatering Water Treatment System Locations

Area Covered	Description	Latitude	Longitude
Water Treatment System #1	Area # 1 & 2	42.354242	-71.102008
Water Treatment System #2	Area # 2, 3 & 4	42.354348	-71.102567
Water Treatment System #3	Area # 5	42.355541	-71.102894
Water Treatment System #4	Area # 6 & 7	42.356116	-71.103366

Notes:

1.) Figure is not to scale

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DESIGNED BY: LRT DRAWN BY: BAW
CHECKED BY: DATE:

Figure 2 – Site Layout

West Campus Outfall Project
Cambridge, Massachusetts

PROJECT No. 2-1758

FIGURE No. 2

West Campus Outfall Dewatering Discharge Points

No.	Area Covered	Description	Latitude	Longitude
	Talbot Street to Vasser Street			
1		Catch Basin in Vassar	42.3561	-71.1033
	Amherst Alley WZ 2			
2		Catch Basin In Amherst	42.3558	-71.1031
3		Catch Basin In Amherst	42.3554	-71.1029
	Amherst Alley WZ 1			
4		Catch Basin In Amherst	42.3551	-71.1027
5		Catch Basin In Amherst	42.3549	-71.1024
	Tennis Court / "S" curve / Jacking pit			
6		Catch Basin In Lawn	42.3547	-71.1028
7		Catch Basin In Lawn	42.3545	-71.1025
8		Catch Basin In Lawn	42.3544	-71.1024
9		Catch Basin In Memorial Drive WB	42.3544	-71.1018
10		Catch Basin In Memorial Drive WB	42.3542	-71.1024
	Receiving Pit / OCS / South of Memorial Drive			
11		Catch Basin in Memorial Drive EB	42.3543	-71.1018
12		Catch Basin in Memorial Drive EB	42.3541	-71.1024

N

KEY

Proposed Treatment Discharge Point ⊕

Notes:

1.) Figure is not to scale.

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Figure 3A – Proposed Dewatering Discharge Locations
West Campus Outfall Project
Cambridge, MA

Notes:

1.) Figure is not to scale.

West Campus Outfall Dewatering Discharge Points

No.	Area Covered	Description	Latitude	Longitude
	Talbot Street to Vasser Street			
1		Catch Basin in Vassar	42.3561	-71.1033
	Amherst Alley WZ 2			
2		Catch Basin In Amherst	42.3558	-71.1031
3		Catch Basin In Amherst	42.3554	-71.1029
	Amherst Alley WZ 1			
4		Catch Basin In Amherst	42.3551	-71.1027
5		Catch Basin In Amherst	42.3549	-71.1024
	Tennis Court / "S" curve / Jacking pit			
6		Catch Basin In Lawn	42.3547	-71.1028
7		Catch Basin In Lawn	42.3545	-71.1025
8		Catch Basin In Lawn	42.3544	-71.1024
9		Catch Basin In Memorial Drive WB	42.3544	-71.1018
10		Catch Basin In Memorial Drive WB	42.3542	-71.1024
	Receiving Pit / OCS / South of Memorial Drive			
11		Catch Basin in Memorial Drive EB	42.3543	-71.1018
12		Catch Basin in Memorial Drive EB	42.3541	-71.1024

N

KEY

Proposed Treatment Discharge Point

Receiving Water

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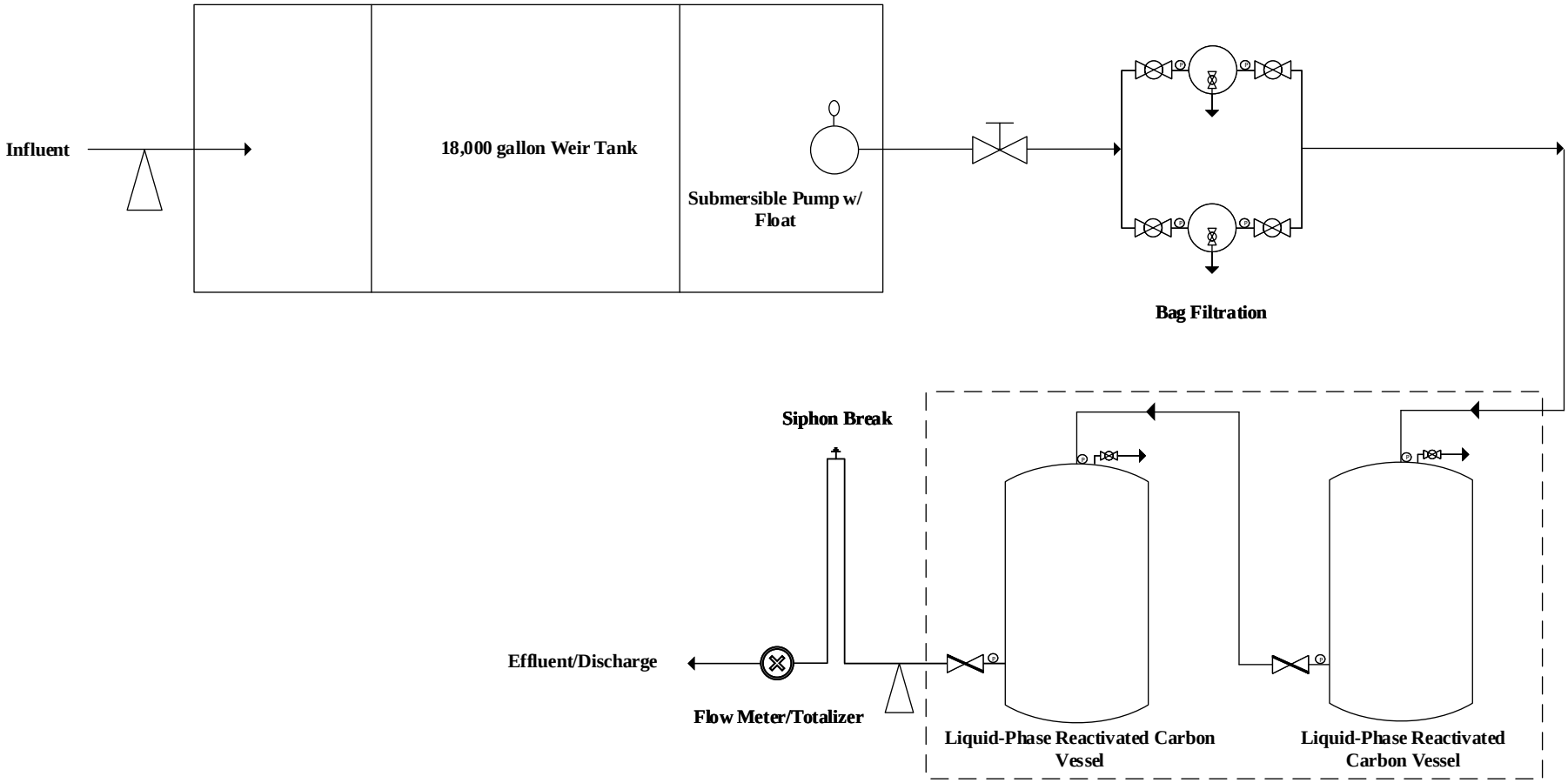
Figure 3B – Proposed Dewatering Discharge Locations
West Campus Outfall Project
Cambridge, MA



Notes:

1.) Figure is not to scale
2.) System rated for 200 GPM

Water Treatment System Locations

WTS #1 – Area # 1 & 2
WTS #3 – Area # 5
WTS #4 – Area # 6 & 7

Key:
Piping/Hose
Sample Port
Contingency

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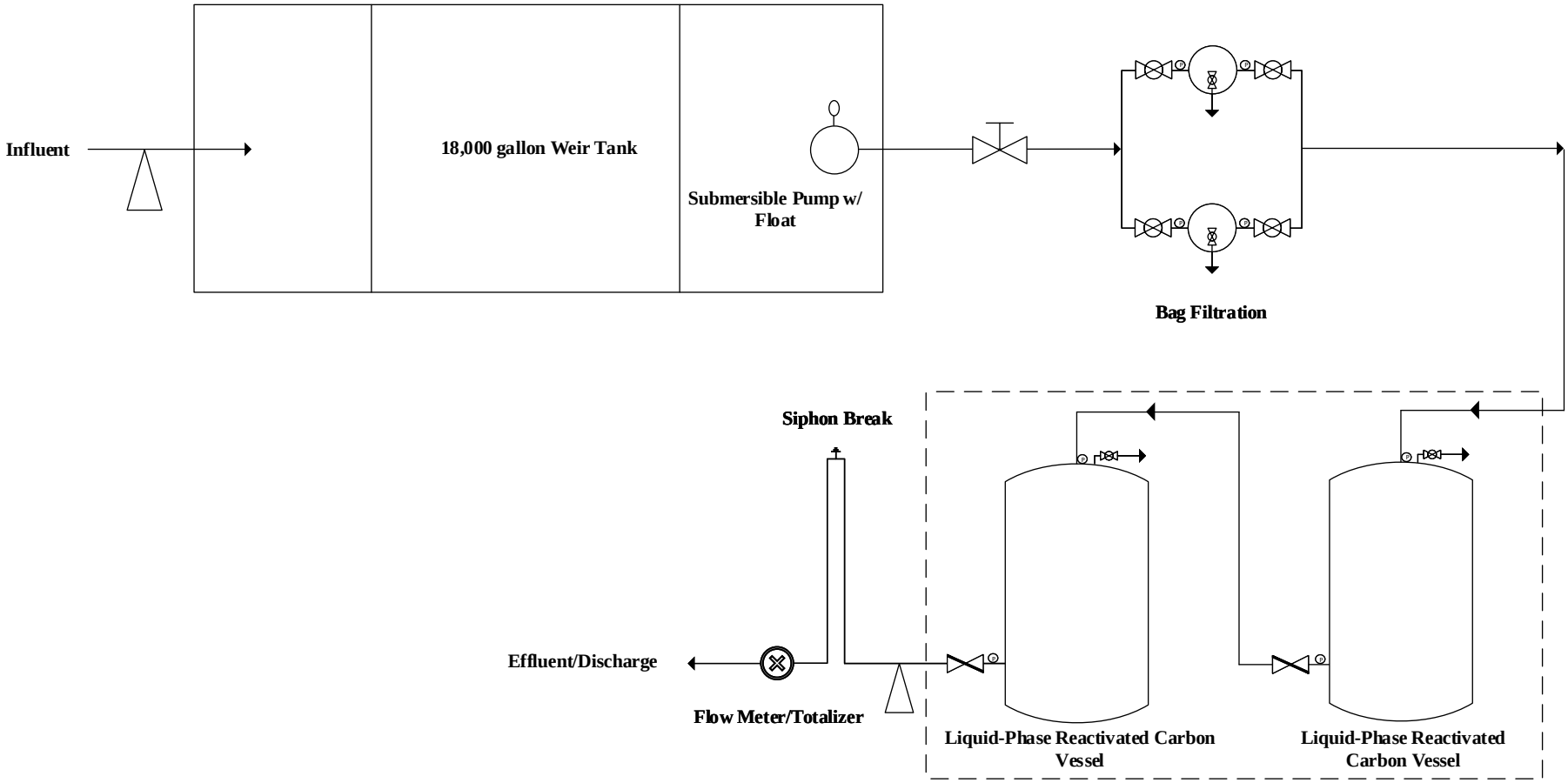
DESIGNED BY: LRT DRAWN BY: BAW
CHECKED BY: DATE:

Water Treatment System Detail

West Campus Outfall Project
Cambridge, Massachusetts

PROJECT No. 2-1758

FIGURE No. 4A



Notes:

1.) Figure is not to scale
2.) System rated for 300-400 GPM

Water Treatment System Locations

WTS #2 – Area # 2, 3 & 4

Key:
Piping/Hose
Sample Port
Contingency

Lockwood Remediation Technologies, LLC
89 Crawford Street
Leominster, MA 01453
Office: 774-450-7177

DESIGNED BY: LRT DRAWN BY: BAW
CHECKED BY: DATE:

Water Treatment System Detail

West Campus Outfall Project
Cambridge, Massachusetts

PROJECT No. 2-1758

FIGURE No. 4B

Appendix A

NOI Form

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:
West Campus Outfall Project</td><td colspan="3">Site address: Amherst Alley
Street:</td></tr>
<tr><td>City: Cambridge</td><td>State: MA</td><td>Zip: 02139</td></tr>
<tr><td rowspan="4">2. Site owner
Massachusetts Institute of Technology acting on behalf of the City of Cambridge

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Alison Crowley</td></tr>
<tr><td colspan="2">Telephone: 617-258-9432</td><td>Email: acrowley@mitimco.mit.edu</td></tr>
<tr><td colspan="3">Mailing address: One Broadway, 9th Floor, Suite 200
Street:</td></tr>
<tr><td>City: Cambridge</td><td>State: MA</td><td>Zip: 02142</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
Bond Brothers</td><td colspan="3">Contact Person: Tom Walsh</td></tr>
<tr><td colspan="2">Telephone: 617-394-6473</td><td>Email: twalsh@bondbrothers.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 10 Cabot Street, Suite 300</td></tr>
<tr><td>City: Medford</td><td>State: MA</td><td>Zip: 02155</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):
3-34686, 3-19125 and 3-20017
☐ 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	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, Combined Biota/Habitat Bioassessments, DDT, DO saturation, E. Coli, Excess Algal Growth, Nutrient/Eutrophication Biological

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.	24.7 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.	37.94

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: 11/4/18

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, naphthalene and metals	
a. For source waters that are contaminated groundwater or contaminated surface water, indicate are any contaminants present that are not included in the RGP? (check one): ☐ Yes ■ No If yes, indicate the contaminant(s) and the maximum concentration present in accordance with the instructions in Appendix VIII.	b. For a source water that is a surface water other than the receiving water, potable water or other, indicate any contaminants present at the maximum concentration in accordance with the instructions in Appendix VIII? (check one): ☐ Yes ☐ No
3. Has the source water been previously chlorinated or otherwise contains residual chlorine? (check one): ☐ Yes ■ No	

D. Discharge information

1.The discharge(s) is a(n) (check any that apply): ☐ Existing discharge ■ New discharge ☐ New source	
Outfall(s): 001 through 004	Outfall location(s): (Latitude, Longitude) 001: 42.354242 -71.102008 002: 42.354348 -71.102567 003: 42.355541 -71.102894 004: 42.356116 -71.103366
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ■ Indirect discharge, if so, specify: ☐ A private storm sewer system ■ A municipal storm sewer system If the discharge enters the receiving water via a private or municipal storm sewer system: Has notification been provided to the owner of this system? (check one): ■ Yes ☐ No Has the operator has received permission from the owner to use such system for discharges? (check one): ☐ Yes ■ No, if so, explain, with an estimated timeframe for obtaining permission: Upon approval of NPDES RGP 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): 11/2018 - 10/2018 Indicate if the discharge is expected to occur over a duration of: ■ less than 12 months ☐ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No	

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

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

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

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia		✔	2	4500	75	3,300	1,806.5	Report mg/L	---
Chloride		✔	3	300.0	12,500	1,990,000	981,667	Report µg/l	---
Total Residual Chlorine	✔		3	4500CL-D	80	<80	<80	0.2 mg/L	
Total Suspended Solids		✔	6	2540D	50	11,000	11,000	30 mg/L	---
Antimony	✔		3	200.8	4	<4.0	<4.0	206 µg/L	
Arsenic		✔	3	200.8	1	3.22	3.22	104 µg/L	
Cadmium	✔		3	200.8	0.2	<0.2	<0.2	10.2 µg/L	
Chromium III	✔		3	200.8	10	<10	<10	323 µg/L	
Chromium VI	✔		3	7196A	10	<10	<10	323 µg/L	
Copper		✔	3	200.8	1	2.68	1.88	242 µg/L	
Iron		✔	3	200.8	50	4,460	2,296	5,000 µg/L	
Lead		✔	3	200.8	1	4.39	4.39	160 µg/L	1.92
Mercury	✔		3	245.1	0.2	<0.2	<0.2	0.739 µg/L	
Nickel	✔		3	200.8	2	<2	<2	1,450 µg/L	
Selenium	✔		3	200.8	5	<5	<5	235.8 µg/L	
Silver	✔		3	200.8	0.4	<0.4	<0.4	35.1 µg/L	
Zinc		✔	3	200.8	10	18.11	15.56	420 µg/L	
Cyanide		✔	3	4500-CN	5	19	19	178 mg/L	
B. Non-Halogenated VOCs									
Total BTEX	✔		3	624	1	<1	<1	100 µg/L	---
Benzene	✔		3	624	1	<1	<1	5.0 µg/L	---
1,4 Dioxane	✔		3	624	50	<50	<50	200 µg/L	---
Acetone	✔		3	624	10	<10	<10	7.97 mg/L	---
Phenol	✔		3	420.1	30	<30	<30	1,080 µg/L	

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride	✔		3	624	1	<1	<1	4.4 µg/L	
1,2 Dichlorobenzene	✔		3	624	5	<5	<5	600 µg/L	---
1,3 Dichlorobenzene	✔		3	624	5	<5	<5	320 µg/L	---
1,4 Dichlorobenzene	✔		3	624	5	<5	<5	5.0 µg/L	---
Total dichlorobenzene	✔		3	624	5	<5	<5	763 µg/L in NH	---
1,1 Dichloroethane	✔		3	624	1.5	<1.5	<1.5	70 µg/L	---
1,2 Dichloroethane	✔		3	624	1.5	<1.5	<1.5	5.0 µg/L	---
1,1 Dichloroethylene	✔		3	624	1	<1	<1	3.2 µg/L	---
Ethylene Dibromide	✔		3	504.1	0.010	<0.010	<0.010	0.05 µg/L	---
Methylene Chloride	✔		3	624	1	<1	<1	4.6 µg/L	---
1,1,1 Trichloroethane	✔		3	624	2	<2	<2	200 µg/L	---
1,1,2 Trichloroethane	✔		3	624	1.5	<1.5	<1.5	5.0 µg/L	---
Trichloroethylene	✔		3	624	1	<1	<1	5.0 µg/L	---
Tetrachloroethylene	✔		3	624	1.5	<1.5	<1.5	5.0 µg/L	
cis-1,2 Dichloroethylene	✔		3	624	1	<1	<1	70 µg/L	---
Vinyl Chloride	✔		3	624	1	<1	<1	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✔		3	625	5	<5	<5	190 µg/L	
Diethylhexyl phthalate	✔		3	625	5	<5	<5	101 µg/L	
Total Group I PAHs	✔		3	625	0.1	<0.1	<0.1	1.0 µg/L	---
Benzo(a)anthracene	✔		3	625	0.1	<0.1	<0.1	As Total PAHs	
Benzo(a)pyrene	✔		3	625	0.1	<0.1	<0.1		
Benzo(b)fluoranthene	✔		3	625	0.1	<0.1	<0.1		
Benzo(k)fluoranthene	✔		3	625	0.1	<0.1	<0.1		
Chrysene	✔		3	625	0.1	<0.1	<0.1		
Dibenzo(a,h)anthracene	✔		3	625	0.1	<0.1	<0.1		
Indeno(1,2,3-cd)pyrene	✔		3	625	0.1	<0.1	<0.1		

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		✔	3	625	0.1	0.18	0.18	100 µg/L	---
Naphthalene		✔	3	625	0.1	0.18	0.18	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔		3	608	0.25	<0.25	<0.25	0.000064 µg/L	---
Pentachlorophenol	✔		3	625	1	<1	<1	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons	✔		3	1664A	4,000	<4,000	<4,000	5.0 mg/L	---
Ethanol	✔		3	1671A	2,000	<2,000	<2,000	Report mg/L	---
Methyl-tert-Butyl Ether	✔		3	624	10	<10	<10	70 µg/L	
tert-Butyl Alcohol	✔		3	624	100	<100	<100	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		3	624	20	<20	<20	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:									
Receiving Water									
Hardness		✔	1	3005A	660	69,800	69,800		
pH		✔	1	4500H		8.2	8.2		
B-2									
pH		✔	1	4500H		6.8	8.2		

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.

There will be four (4) treatment systems. Three (3) systems at a flow rate of 200 gpm and one (1) system with a flow rate of 300-400 gpm. Each system will consist of one (1) weir tank to settle out solids followed by bag filtration prior to discharge. A contingency chemical aided settling system and a contingency carbon treatment system will be added if effluent concentrations are above the RGP Standards.

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: Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	See attached
Provide the proposed maximum effluent flow in gpm.	See attached
Provide the average effluent flow in gpm.	See attached
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:
Contingency Items - LRT E50 Coagulant and LRT 823 Flocculant
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.

See attached

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

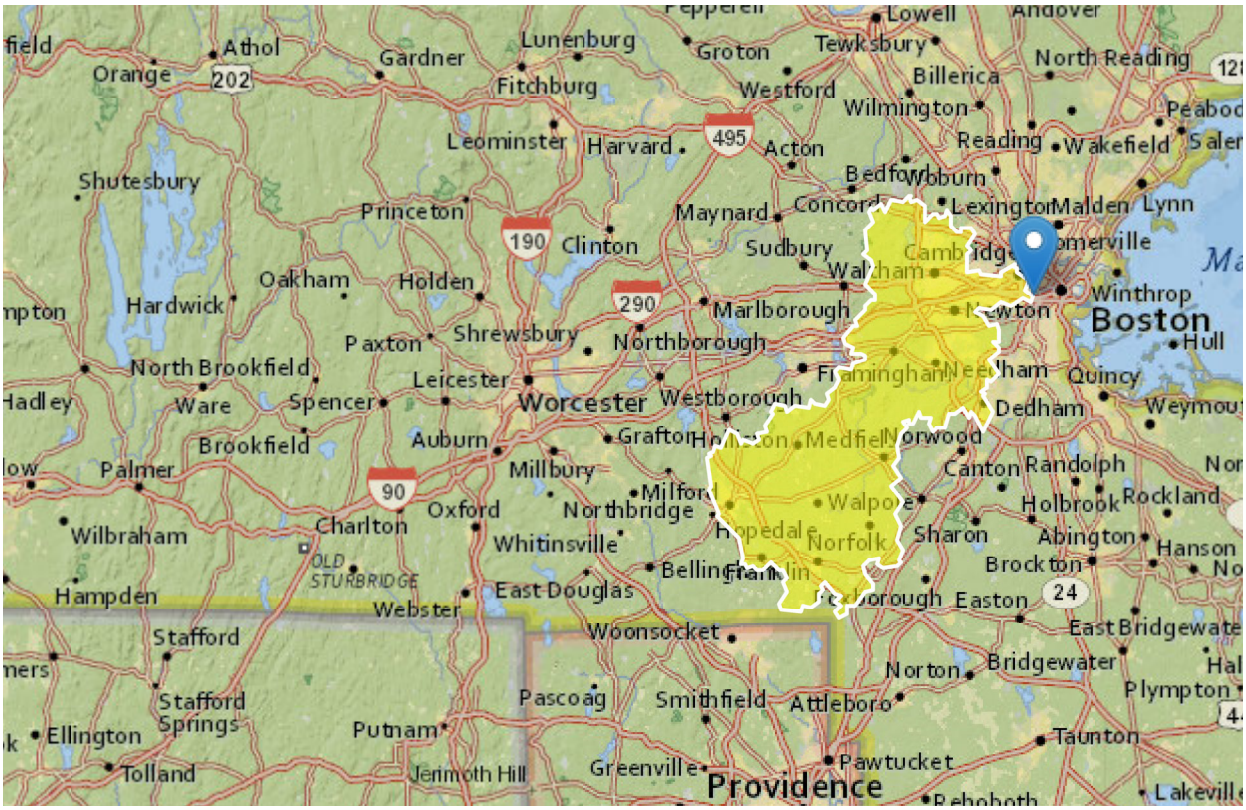
J. Certification requirement

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 will be developed and maintained that meets the requirements of this permit. The BMPP will be implemented on-site prior to 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. **Notification will be provided upon EPA approval of NOI**	Check one: Yes ☐ No ■ NA ☐
Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission.	Check one: Yes ☐ No ☐ NA ■
Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:	Check one: Yes ☐ No ☐ NA ■
Signature: Thomas Walsh	Date: 10·22·18
Print Name and Title: THOMAS WALSH SR P.M. BOND BROTHERS, INC	

West Campus Outfall Project

Region ID: MA
Workspace ID: MA20181024130830079000
Clicked Point (Latitude, Longitude): 42.35274, -71.10081
Time: 2018-10-24 09:08:48 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	283	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	2.328	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.23	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	283	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	2.328	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.23	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	49.6	ft^3/s
7 Day 10 Year Low Flow	24.7	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/)

Application Version: 4.2.1

DILUTION CALCULATIONS
WEST CAMPUS OUTFALL PROJECT
CAMBRIDGE, MA

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

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

ASSUMPTIONS FOR 200 GPM SYSTEM

7Q10 is 24.7 cubic feet per second (cfs) - from StreamStats 4.0
A conversion of 7.48 is used to convert cubic feet to gallons
A design flow rate of 200 gallons per minute (gpm) is assumed

CALCULATIONS

7q10 Low Flow Value (Q_S)

$$Q_S = \frac{24.7\ ft^3}{sec} \times \frac{7.48\ gallons}{ft^3} \times \frac{86{,}400\ sec}{day} \times \frac{1\ MG}{1{,}000{,}000\ gallons} = 15.96\ MGD$$

Discharge Flow Rate (Q_D)

$$Q_D = \frac{200\ gallons}{min} \times \frac{1{,}440\ min}{day} \times \frac{1MG}{1{,}000{,}000\ gallons} = 0.288\ MGD$$

Dilution Factor (DF)

$$DF = \frac{Q_S + Q_D}{Q_D} = \frac{15.96\ MGD + 0.288\ MDG}{0.288\ MGD} = 56.42$$

DILUTION CALCULATIONS
WEST CAMPUS OUTFALL PROJECT
CAMBRIDGE, MA

ASSUMPTIONS FOR 300 GPM SYSTEM

7Q10 is 24.7 cubic feet per second (cfs) - from StreamStats 4.0
A conversion of 7.48 is used to convert cubic feet to gallons
A design flow rate of 300 gallons per minute (gpm) is assumed

CALCULATIONS

7q10 Low Flow Value (Q_S)

$$Q_S = \frac{24.7\ ft^3}{sec} \times \frac{7.48\ gallons}{ft^3} \times \frac{86{,}400\ sec}{day} \times \frac{1\ MG}{1{,}000{,}000\ gallons} = 15.96\ MGD$$

Discharge Flow Rate (Q_D)

$$Q_D = \frac{300\ gallons}{min} \times \frac{1{,}440\ min}{day} \times \frac{1MG}{1{,}000{,}000\ gallons} = 0.432\ MGD$$

Dilution Factor (DF)

$$DF = \frac{Q_S + Q_D}{Q_D} = \frac{15.96\ MGD + 0.432\ MDG}{0.432\ MGD} = 37.94$$

Tamara Hagie

From: Vakalopoulos, Catherine (DEP) <catherine.vakalopoulos@state.ma.us>
Sent: Sunday, November 04, 2018 5:57 PM
To: Tamara Hagie
Cc: Little, Shauna
Subject: Re: NPDES RGP Application - 7Q10 and Dilution Factor Confirmation - West Campus Outfall Project, Cambridge, MA

Hi Tammie,
Your two DF calculations, 56.42 with a discharge of 200 gpm and 37.94 with a discharge of 300 gpm are correct for the discharge located off of the Esplanade on the Charles River at (42.35274, -71.10081). Please let me know if you have any additional questions.
Cathy

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

From: Tamara Hagie <thagie@lrt-llc.net>
Sent: Tuesday, October 30, 2018 3:13 PM
To: Vakalopoulos, Catherine (DEP)
Cc: Little, Shauna
Subject: RE: NPDES RGP Application - 7Q10 and Dilution Factor Confirmation - West Campus Outfall Project, Cambridge, MA

Hi Cathy –

I spoke with Shauna this morning and explained the scope of the project to her. With there being 2 different sized treatment systems, she requested that I complete 2 sets of dilution calcs, 1 set of dilution calcs for a design flow of 200 gpm (since 3 of the 4 treatment systems will be 200 gpm) and 1 set of dilution calcs for a design flow of 300 gpm.

I have attached the revised dilution calcs. The calculated dilution factor for the design flow rate of 200 gpm is 56.42 and the calculated dilution factor for the design flow rate of 300 gpm is 37.94.

Can you confirm that these values are appropriate.

Tammie Hagie
Estimator

Lockwood Remediation Technologies, LLC
89 Crawford Street
Leominster, MA 01453
O: 774-450-7177
C: 774-502-8597
F: 888-835-0617
thagie@lrt-llc.net

From: Vakalopoulos, Catherine (DEP) <catherine.vakalopoulos@state.ma.us>
Sent: Friday, October 26, 2018 11:57 AM
To: Tamara Hagie <thagie@lrt-llc.net>
Cc: Little, Shauna <Little.Shauna@epa.gov>
Subject: RE: NPDES RGP Application - 7Q10 and Dilution Factor Confirmation - West Campus Outfall Project, Cambridge, MA

Hi Tammie,
For the MIT West Campus Outfall Project with a discharge to the Charles River at MIT (42.35274, -71.10081), your dilution factor calculation is correct. However, as we discussed on the phone, the 700 gpm is not the actual design flow of the system, but rather an estimated flow since this is a phased project. I spoke to Shauna and we would like you to send us the details of the flow control measures in the treatment system as well as a schematic of the treatment system.

Here is some additional information to help you with the NOI: this segment of the Charles is identified as MA72-38, is classified as Class B(CSO), and is not an Outstanding Resource Water. The causes of impairment can be found at: https://www.mass.gov/files/documents/2016/08/sa/14list2_0.pdf (search by segment ID) and there is one TMDL for nutrients.

If this site is not *currently* an MCP site, then in addition to sending the NOI to EPA, you must also apply to MassDEP and submit a $500 fee (unless fee exempt). Instructions are located here: https://www.mass.gov/how-to/wm-15-npdes-general-permit-notice-of-intent

Please let me know if you have any additional questions.

Cathy

Cathy Vakalopoulos, Massachusetts Department of Environmental Protection
1 Winter St., Boston, MA 02108, 617-348-4026
Please consider the environment before printing this e-mail

From: Tamara Hagie [mailto:thagie@lrt-llc.net]
Sent: Wednesday, October 24, 2018 5:21 PM
To: Vakalopoulos, Catherine (DEP)
Subject: NPDES RGP Application - 7Q10 and Dilution Factor Confirmation - West Campus Outfall Project, Cambridge, MA

Hi Cathy –

As required in Appendix V, I have attached the StreamStats Report along with our dilution calcs for your review/confirmation.

The project location –

West Campus Outfall Project
MIT
Cambridge, MA

The 7 Day 10 Year Low Flow value from the StreatStats report is 24.7 cfs and the calculated dilution factor is 16.96.

Can you confirm that these values are appropriate.

Thanks
Tammie

Tammie Hagie
Estimator

Lockwood Remediation Technologies, LLC
89 Crawford Street
Leominster, MA 01453
O: 774-450-7177
C: 774-502-8597
F: 888-835-0617
thagie@lrt-llc.net

Water Treatment System Flow Rates
West Campus Outfall Project
Cambridge, MA

Water Treatment System	Design Flow Rate (gpm)	Maximum Flow Rate (gpm)	Average Flow Rate (gpm)
Water Treatment System #1 (Outfall 001)	**200**	**200**	**75**
Covers Area #1 - Charles River Outfall and Receiving Pit			
Covers Area #2 - Memorial Drive			
Water Treatment System #2 (Outfall 002)	**400**	**400**	**300**
Covers Area #2 - Memorial Drive			
Covers Area #3 - Tennis Courts			
Covers Area #4 - S-Curve CIP			
Water Treatment System #3 (Outfall 003)	**200**	**200**	**150**
Covers Area #5 - Amherst Alley & MIT Westgate Lot			
Water Treatment System #4 (Outfall 004)	**200**	**200**	**150**
Covers Area #6 - MIT West Lot			
Covers Area #7 - Talbot Street			

Enter number values in green boxes below

Enter values in the units specified

↓		
15.96	Q_R = Enter upstream flow in **MGD**	Freshwater: Q_R equal to the 7Q10; enter alternate Q_R if approved by the State; enter 0 if no dilution factor approved
0.432	Q_P = Enter discharge flow in **MGD**	Saltwater (estuarine and marine): enter Q_R if approved by the State; enter 0 if no entry
0	Downstream 7Q10	Discharge flow is equal to the design flow or 1 MGD, whichever is less
		Only if approved by State as the entry for Q_R; leave 0 if no entry

Enter a dilution factor, if other than zero

Saltwater (estuarine and marine): only if approved by the State

Leave 0 if no entry

↓	
37.94	

Enter values in the units specified

↓		
0	C_d = Enter influent hardness in **mg/L** $CaCO_3$	Freshwater only
69.8	C_s = Enter receiving water hardness in **mg/L** $CaCO_3$	

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

pH, temperature, and ammonia required for all discharges

Hardness required for freshwater

Salinity required for saltwater (estuarine and marine)

Metals required for all discharges if present and if dilution factor is > 1

Enter 0 if non-detect or testing not required

↓	
8.2	pH in **Standard Units**
25	Temperature in **°C**
0	Ammonia in **mg/L**
69.8	Hardness in **mg/L** $CaCO_3$
0	Salinity in **ppt**
0	Antimony in **µg/L**
1.09	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
4.43	Copper in **µg/L**
648	Iron in **µg/L**
4.46	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
0	Zinc in **µg/L**

Enter **influent** concentrations in the units specified

if >1 sample, enter maximum

if >10 samples, may enter 95th percentile

Enter 0 if non-detect or testing not required

↓	
0	TRC in **µg/L**
3.3	Ammonia in **mg/L**
0	Antimony in **µg/L**
3.22	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
2.68	Copper in **µg/L**
4460	Iron in **µg/L**
4.39	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
18.11	Zinc in **µg/L**
19	Cyanide in **µg/L**
0	Phenol in **µg/L**
0	Carbon Tetrachloride in **µg/L**
0	Tetrachloroethylene in **µg/L**
0	Total Phthalates in **µg/L**
0	Diethylhexylphthalate in **µg/L**
0	Benzo(a)anthracene in **µg/L**
0	Benzo(a)pyrene in **µg/L**
0	Benzo(b)fluoranthene in **µg/L**
0	Benzo(k)fluoranthene in **µg/L**
0	Chrysene in **µg/L**
0	Dibenzo(a,h)anthracene in **µg/L**
0	Indeno(1,2,3-cd)pyrene in **µg/L**
0	Methyl-tert butyl ether in **µg/L**

Dilution Factor	37.9					
A. Inorganics	TBEL applies if bolded		WQBEL applies if bolded		Compliance Level applies if shown	
Ammonia	**Report**	mg/L	---			
Chloride	**Report**	µg/L	---			
Total Residual Chlorine	**0.2**	mg/L	417	µg/L	---	µg/L
Total Suspended Solids	**30**	mg/L	---			
Antimony	**206**	µg/L	24284	µg/L		
Arsenic	**104**	µg/L	339	µg/L		
Cadmium	**10.2**	µg/L	0.2033	µg/L		
Chromium III	**323**	µg/L	2383.3	µg/L		
Chromium VI	**323**	µg/L	433.9	µg/L		
Copper	**242**	µg/L	90.8	µg/L		
Iron	**5000**	µg/L	14004	µg/L		
Lead	160	µg/L	**1.95**	µg/L		
Mercury	**0.739**	µg/L	34.37	µg/L		
Nickel	**1450**	µg/L	1427.6	µg/L		
Selenium	**235.8**	µg/L	189.7	µg/L		
Silver	**35.1**	µg/L	73.9	µg/L		
Zinc	**420**	µg/L	3277.4	µg/L		
Cyanide	**178**	mg/L	197.3	µg/L	---	µg/L
B. Non-Halogenated VOCs						
Total BTEX	**100**	µg/L	---			
Benzene	**5.0**	µg/L	---			
1,4 Dioxane	**200**	µg/L	---			
Acetone	**7970**	µg/L	---			
Phenol	**1,080**	µg/L	11383	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	**4.4**	µg/L	60.7	µg/L		
1,2 Dichlorobenzene	**600**	µg/L	---			
1,3 Dichlorobenzene	**320**	µg/L	---			
1,4 Dichlorobenzene	**5.0**	µg/L	---			
Total dichlorobenzene	**---**	µg/L	---			
1,1 Dichloroethane	**70**	µg/L	---			
1,2 Dichloroethane	**5.0**	µg/L	---			
1,1 Dichloroethylene	**3.2**	µg/L	---			
Ethylene Dibromide	**0.05**	µg/L	---			
Methylene Chloride	**4.6**	µg/L	---			
1,1,1 Trichloroethane	**200**	µg/L	---			
1,1,2 Trichloroethane	**5.0**	µg/L	---			
Trichloroethylene	**5.0**	µg/L	---			
Tetrachloroethylene	**5.0**	µg/L	125.2	µg/L		
cis-1,2 Dichloroethylene	**70**	µg/L	---			
Vinyl Chloride	**2.0**	µg/L	---			
D. Non-Halogenated SVOCs						
Total Phthalates	**190**	µg/L	---	µg/L		
Diethylhexyl phthalate	**101**	µg/L	83.5	µg/L		

Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---			
Benzo(a)anthracene	**1.0**	µg/L	0.1442	µg/L	---	µg/L
Benzo(a)pyrene	**1.0**	µg/L	0.1442	µg/L	---	µg/L
Benzo(b)fluoranthene	**1.0**	µg/L	0.1442	µg/L	---	µg/L
Benzo(k)fluoranthene	**1.0**	µg/L	0.1442	µg/L	---	µg/L
Chrysene	**1.0**	µg/L	0.1442	µg/L	---	µg/L
Dibenzo(a,h)anthracene	**1.0**	µg/L	0.1442	µg/L	---	µg/L
Indeno(1,2,3-cd)pyrene	**1.0**	µg/L	0.1442	µg/L	---	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	**100**	µg/L	---			
Naphthalene	**20**	µg/L	---			
E. Halogenated SVOCs						
Total Polychlorinated Biphenyls	**0.000064**	µg/L	---		0.5	µg/L
Pentachlorophenol	**1.0**	µg/L	---			
F. Fuels Parameters						
Total Petroleum Hydrocarbons	**5.0**	mg/L	---			
Ethanol	**Report**	mg/L	---			
Methyl-tert-Butyl Ether	**70**	µg/L	759	µg/L		
tert-Butyl Alcohol	**120**	µg/L	---			
tert-Amyl Methyl Ether	**90**	µg/L	---			

Appendix B

Laboratory Data

Table 5
Summary of Groundwater Pre-Characterization Results (Dewatering)
Tablot Street Outfall Project
Cambridge, Massachusetts

LOCATION	MWRA Dewatering Limits	NPDES RGP Effluent Limits	RCGW-1	RCGW-2	Units	B-2		B-2		B-19		B-19		B-8		B-8		RECEIVING WATER	
SAMPLING DATE						7/20/2018		7/25/2018		7/20/2018		7/25/2018		7/20/2018		7/25/2018		7/20/2018	
LAB SAMPLE ID						L1827956-01		L1828640-01		L1827956-03		L1828640-03		L1827956-02		L1828640-02		L1827956-04	
DEPTH TO GROUNDWATER (Ft.)						12.09		12.09		10.28		10.12		10.24		10.26		SURFACE	
Anions by Ion Chromatography																			
Chloride	NE	NE	NE	NE	mg/l	714		-	-	241		-	-	1990		-	-	-	-
Dissolved Metals																			
Antimony, Dissolved	NE	NE	0.006	8	mg/l	0.004	U	-	-	0.004	U	-	-	0.004	U	-	-	-	-
Arsenic, Dissolved	NE	NE	0.01	0.9	mg/l	0.001	U	-	-	0.0035		-	-	0.001	U	-	-	-	-
Cadmium, Dissolved	NE	NE	0.004	0.004	mg/l	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	-	-
Chromium, Dissolved	NE	NE	0.1	0.3	mg/l	0.001	U	-	-	0.001	U	-	-	0.0013		-	-	-	-
Copper, Dissolved	NE	NE	10	100	mg/l	0.0036		-	-	0.001	U	-	-	0.001	U	-	-	-	-
Iron, Dissolved	NE	NE	NE	NE	mg/l	0.05	U	-	-	0.05	U	-	-	4.37		-	-	-	-
Lead, Dissolved	NE	NE	0.01	0.01	mg/l	0.001	U	-	-	0.001	U	-	-	0.001	U	-	-	-	-
Mercury, Dissolved	0.001	NE	0.002	0.02	mg/l	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	-	-
Nickel, Dissolved	NE	NE	0.1	0.2	mg/l	0.002	U	-	-	0.002	U	-	-	0.002	U	-	-	-	-
Selenium, Dissolved	NE	NE	0.05	0.1	mg/l	0.005	U	-	-	0.005	U	-	-	0.005	U	-	-	-	-
Silver, Dissolved	NE	NE	0.007	0.007	mg/l	0.0004	U	-	-	0.0004	U	-	-	0.0004	U	-	-	-	-
Zinc, Dissolved	NE	NE	0.9	0.9	mg/l	0.01	U	-	-	0.012		-	-	0.0162		-	-	-	-
Extractable Petroleum Hydrocarbons																			
C11-C22 Aromatics	NE	NE	NE	NE	mg/l	0.1	U	-	-	-	-	-	-	-	-	-	-	-	-
C11-C22 Aromatics, Adjusted	NE	NE	0.2	5	mg/l	0.1	U	-	-	-	-	-	-	-	-	-	-	-	-
C19-C36 Aliphatics	NE	NE	14	50	mg/l	0.1	U	-	-	-	-	-	-	-	-	-	-	-	-
C9-C18 Aliphatics	NE	NE	0.7	5	mg/l	0.1	U	-	-	-	-	-	-	-	-	-	-	-	-
General Chemistry																			
Chlorine, Total Residual	NE	0.2	NE	NE	mg/l	0.08	U	-	-	0.08	U	-	-	0.08	U	-	-	-	-
Chromium, Hexavalent	0.5	0.323	0.1	0.3	mg/l	0.01	U	-	-	0.01	U	-	-	0.01	U	-	-	0.01	U
Chromium, Trivalent	NE	0.323	0.1	0.6	mg/l	0.01	U	-	-	0.01	U	-	-	0.01	U	-	-	0.01	U
Nitrogen, Ammonia	NE	NE	NE	NE	mg/l	0.075	U	-	-	0.313		-	-	3.3		-	-	0.075	U
Oil & Grease, Hem-Grav	300	NE	NE	NE	mg/l	4	U	-	-	-	-	-	-	-	-	-	-	-	-
pH (H)	NE	NE	NE	NE	SU	6.8		-	-	-	-	-	-	-	-	-	-	8.2	
Solids, Total Suspended	NE	30	NE	NE	mg/l	50	U	5	U	100	U	11		50	U	11		-	-
TPH, SGT-HEM	NE	5	0.2	5	mg/l	**4**	U	-		**4**	U	-	-	**4**	U	-	-	-	-
Ethanol	NE	NE	NE	NE	mg/l	2	U	-	-	2	U	-	-	2	U	-	-	-	-
Cyanide, Total	0.5	178	0.03	0.03	mg/l			0.005	U			0.019				0.005	U	-	-
Microextractables by GC																			
1,2-Dibromo-3-chloropropane	NE	NE	0.1	1	mg/l	-	-	-	-	0.00001	U	-	-	-	-	-	-	-	-
1,2-Dibromoethane	1	0.00005	0.00002	0.002	mg/l	-	-	0.00001	U	0.00001	U	-	-	-	-	0.00001	U	-	-
Organochlorine Pesticides by GC																			
4,4'-DDD	0.0001	NE	0.0002	0.05	mg/l	0.00004	U	-	-	-	-	-	-	-	-	-	-	-	-
4,4'-DDE	0.0001	NE	0.00005	0.4	mg/l	0.00004	U	-	-	-	-	-	-	-	-	-	-	-	-
4,4'-DDT	0.0001	NE	0.0003	0.001	mg/l	0.00004	U	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin	0.0001	NE	0.0005	0.002	mg/l	0.00002	U	-	-	-	-	-	-	-	-	-	-	-	-
Alpha-BHC	0.0001	NE	0.5	5	mg/l	0.00002	U	-	-	-	-	-	-	-	-	-	-	-	-
Beta-BHC	0.0001	NE	0.1	1	mg/l	0.00002	U	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane	0.0005	NE	0.002	0.002	mg/l	0.0002	U	-	-	-	-	-	-	-	-	-	-	-	-
cis-Chlordane	NE	NE	0.002	0.002	mg/l	0.00002	U	-	-	-	-	-	-	-	-	-	-	-	-
Delta-BHC	0.0001	NE	0.1	1	mg/l	0.00002	U	-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	0.0001	NE	0.0001	0.0005	mg/l	0.00004	U	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	0.0001	NE	0.002	0.002	mg/l	0.00002	U	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan II	0.0001	NE	0.002	0.002	mg/l	0.00004	U	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.0001	NE	NE	NE	mg/l	0.00004	U	-	-	-	-	-	-	-	-	-	-	-	-
Endrin	0.0001	NE	0.002	0.005	mg/l	0.00004	U	-	-	-	-	-	-	-	-	-	-	-	-
Endrin aldehyde	0.0001	NE	0.1	1	mg/l	0.00004	U	-	-	-	-	-	-	-	-	-	-	-	-
Endrin ketone	NE	NE	NE	NE	mg/l	0.00004	U	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	0.0001	NE	0.0004	0.001	mg/l	0.00002	U	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.0001	NE	0.0002	0.002	mg/l	0.00002	U	-	-	-	-	-	-	-	-	-	-	-	-
Lindane	0.0001	NE	0.0002	0.004	mg/l	0.00002	U	-	-	-	-	-	-	-	-	-	-	-	-
Methoxychlor	0.0001	NE	0.01	0.01	mg/l	**0.0001**	U	-	-	-	-	-	-	-	-	-	-	-	-
Toxaphene	0.001	NE	NE	NE	mg/l	0.0004	U	-	-	-	-	-	-	-	-	-	-	-	-
trans-Chlordane	NE	NE	0.002	0.002	mg/l	0.00002	U	-	-	-	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls by GC																			
Aroclor 1016	0.0005	NE	0.0005	0.005	mg/l	0.00025	U	-	-	0.00025	U	-	-	0.00025	U	-	-	-	-
Aroclor 1221	0.001	NE	0.0005	0.005	mg/l	0.00025	U	-	-	0.00025	U	-	-	0.00025	U	-	-	-	-
Aroclor 1232	0.0005	NE	0.0005	0.005	mg/l	0.00025	U	-	-	0.00025	U	-	-	0.00025	U	-	-	-	-
Aroclor 1242	0.0005	NE	0.0005	0.005	mg/l	0.00025	U	-	-	0.00025	U	-	-	0.00025	U	-	-	-	-
Aroclor 1248	0.0005	NE	0.0005	0.005	mg/l	0.00025	U	-	-	0.00025	U	-	-	0.00025	U	-	-	-	-
Aroclor 1254	0.0005	NE	0.0005	0.005	mg/l	0.00025	U	-	-	0.00025	U	-	-	0.00025	U	-	-	-	-
Aroclor 1260	0.0005	NE	0.0005	0.005	mg/l	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	-	-
Total PCBs	NE	6.4E-08	NE	NE	mg/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Semivolatile Organics by GC/MS																			
Bis(2-ethylhexyl)phthalate	1	0.101	0.006	50	mg/l	0.0022	U	-	-	0.0022	U	-	-	0.0022	U	-	-	-	-
Butyl benzyl phthalate	1	NE	1	10	mg/l	0.005	U	-	-	0.005	U	-	-	0.005	U	-	-	-	-
Di-n-butylphthalate	1	NE	0.5	5	mg/l	0.005	U	-	-	0.005	U	-	-	0.005	U	-	-	-	-
Di-n-octylphthalate	1	NE	10	100	mg/l	0.005	U	-	-	0.005	U	-	-	0.005	U	-	-	-	-
Diethyl phthalate	1	NE	2	9	mg/l	0.005	U	-	-	0.005	U	-	-	0.005	U	-	-	-	-
Dimethyl phthalate	1	NE	0.3	50	mg/l	0.005	U	-	-	0.005	U	-	-	0.005	U	-	-	-	-
Total Phthalates	NE	0.19	NE	NE	mg/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Semivolatile Organics by GC/MS-SIM																			
Acenaphthene	1	NE	0.02	10	mg/l	0.0001	U	-	-	0.0001	U	-	-	0.0001	U	-	-	-	-
Acenaphthylene	1	NE	0.03	0.04	mg/l	0.0001	U	-	-	0.0001	U	-	-	0.0001	U	-	-	-	-
Anthracene	1	NE	0.03	0.03	mg/l	0.0001	U	-	-	0.0001	U	-	-	0.0001	U	-	-	-	-
Benzo(a)anthracene	1	NE	0.001	1	mg/l	0.0001	U	-	-	0.0001	U	-	-	0.0001	U	-	-	-	-
Benzo(a)pyrene	1	NE	0.0002	0.5	mg/l	0.0001	U	-	-	0.0001	U	-	-	0.0001	U	-	-	-	-
Benzo(b)fluoranthene	1	NE	0.001	0.4	mg/l	0.0001	U	-	-	0.0001	U	-	-	0.0001	U	-	-	-	-
Benzo(ghi)perylene	1	NE	0.02	0.02	mg/l	0.0001	U	-	-	0.0001	U	-	-	0.0001	U	-	-	-	-
Benzo(k)fluoranthene	1	NE	0.001	0.1	mg/l	0.0001	U	-	-	0.0001	U	-	-	0.0001	U	-	-	-	-
Chrysene	1	NE	0.002	0.07	mg/l	0.0001	U	-	-	0.0001	U	-	-	0.0001	U	-	-	-	-
Dibenzo(a,h)anthracene	NE	1	0.0005	0.04	mg/l	0.0001	U	-	-	0.0001	U	-	-	0.0001	U	-	-	-	-
Fluoranthene	1	NE	0.09	0.2	mg/l	0.0001	U	-	-	0.0001	U	-	-	0.0001	U	-	-	-	-
Fluorene	1	NE	0.03	0.04	mg/l	0.0001	U	-	-	0.0001	U	-	-	0.0001	U	-	-	-	-
Indeno(1,2,3-cd)pyrene	1	1	0.0005	0.1	mg/l	0.0001	U	-	-	0.0001	U	-	-	0.0001	U	-	-	-	-
Naphthalene	1	0.02	0.14	0.7	mg/l	0.00018		-	-	0.0001	U	-	-	0.0001	U	-	-	-	-
Pentachlorophenol	1	0.001	0.001	0.2	mg/l	**0.001**	U	-	-	**0.001**	U	-	-	**0.001**	U	-	-	-	-
Phenanthrene	1	NE	0.04	10	mg/l	0.0001	U	-	-	0.0001	U	-	-	0.0001	U	-	-	-	-
Pyrene	1	100	0.02	0.02	mg/l	0.0001	U	-	-	0.0001	U	-	-	0.0001	U	-	-	-	-
Phenol	NE	1.08	NE	NE	mg/l	-	-	0.03	U	-	-	0.03	U	-	-	0.03	U	-	-
Total Group I PAHs	NE	0.001	NE	NE	mg/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Group II PAHs	NE	0.1	NE	NE	mg/l	0.00018		-	-	-	-	-	-	-	-	-	-	-	-
Total Hardness by SM 2340B																			
Hardness	NE	NE	NE	NE	mg/l	-	-	-	-	-	-	-	-	-	-	-	-	69.8	
Total Metals																			
Antimony, Total	10	0.206	0.006	8	mg/l	0.004	U	-	-	0.004	U	-	-	0.004	U	-	-	0.004	U
Arsenic, Total	0.5	0.104	0.01	0.9	mg/l	0.001	U	-	-	0.00322		-	-	0.001	U	-	-	0.00109	
Cadmium, Total	0.1	0.0102	0.004	0.004	mg/l	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	0.0002	U
Chromium, Total	1	0.323	0.1	0.3	mg/l	0.001	U	-	-	0.001		-	-	0.00148		-	-	0.00131	
Copper, Total	1	0.242	10	100	mg/l	0.00268		-	-	0.00108		-	-	0.001	U	-	-	0.00443	
Iron, Total	NE	5	NE	NE	mg/l	0.05	U	-	-	0.132		-	-	4.46		-	-	0.648	
Lead, Total	0.2	0.16	0.01	0.01	mg/l	0.001	U	-	-	0.00439		-	-	0.001	U	-	-	0.00446	
Mercury, Total	0.001	0.000739	0.002	0.02	mg/l	0.0002	U	-	-	0.0002	U	-	-	0.0002	U	-	-	0.0002	U
Nickel, Total	1	1.45	0.1	0.2	mg/l	0.002	U	-	-	0.002	U	-	-	0.002	U	-	-	0.002	U
Selenium, Total	5	0.2358	0.05	0.1	mg/l	0.005	U	-	-	0.005	U	-	-	0.005	U	-	-	0.005	U
Silver, Total	2	0.0351	0.007	0.007	mg/l	0.0004	U	-	-	0.0004	U	-	-	0.0004	U	-	-	0.0004	U
Zinc, Total	1	0.42	0.9	0.9	mg/l	0.01	U	-	-	0.013		-	-	0.01811		-	-	0.01	U
Volatile Organics by GC/MS																			
1,1,1-Trichloroethane	1	0.2	0.2	4	mg/l	0.002	U	-	-	0.002	U	-	-	0.002	U	-	-	-	-
1,1,2,2-Tetrachloroethane	1	NE	0.002	0.009	mg/l	0.001	U	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	1	0.005	0.005	0.9	mg/l	0.0015	U	-	-	0.0015	U	-	-	0.0015	U	-	-	-	-
1,1-Dichloroethane	1	0.07	0.07	2	mg/l	0.0015	U	-	-	0.0015	U	-	-	0.0015	U	-	-	-	-
1,1-Dichloroethene	0.3	3.2	0.007	0.08	mg/l	0.001	U	-	-	0.001	U	-	-	0.001	U	-	-	-	-
1,2-Dichlorobenzene	1	0.6	0.6	2	mg/l	0.005	U	-	-	0.005	U	-	-	0.005	U	-	-	-	-
1,2-Dichloroethane	1	0.005	0.005	0.005	mg/l	0.0015	U	-	-	0.0015	U	-	-	0.0015	U	-	-	-	-
1,2-Dichloropropane	1	NE	0.003	0.003	mg/l	**0.0035**	U	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	1	0.32	0.1	6	mg/l	0.005	U	-	-	0.005	U	-	-	0.005	U	-	-	-	-
1,3-Dichloropropene, Total	1	NE	0.0004	0.01	mg/l	**0.0015**	U	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	1	0.005	0.005	0.06	mg/l	**0.005**	U	-	-	**0.005**	U	-	-	**0.005**	U	-	-	-	-

Table 5
Summary of Groundwater Pre-Characterization Results (Dewatering)
Tablot Street Outfall Project
Cambridge, Massachusetts

LOCATION	MWRA Dewatering Limits	NPDES RGP Effluent Limits	RCGW-1	RCGW-2	Units	B-2		B-2		B-19		B-19		B-8		B-8		RECEIVING WATER	
SAMPLING DATE						7/20/2018		7/25/2018		7/20/2018		7/25/2018		7/20/2018		7/25/2018		7/20/2018	
LAB SAMPLE ID						L1827956-01		L1828640-01		L1827956-03		L1828640-03		L1827956-02		L1828640-02		L1827956-04	
DEPTH TO GROUNDWATER (Ft.)						12.09		12.09		10.28		10.12		10.24		10.26		SURFACE	
2-Butanone	NE	NE	4	50	mg/l	0.01	U	-	-	-	-	-	-	-	-	-	-	-	-
2-Chloroethylvinyl ether	1	NE	NE	NE	mg/l	0.01	U	-	-	-	-	-	-	-	-	-	-	-	-
2-Hexanone	NE	NE	1	10	mg/l	0.01	U	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone	NE	NE	0.35	50	mg/l	0.01	U	-	-	-	-	-	-	-	-	-	-	-	-
Acetone	NE	7.97	6.3	50	mg/l	0.01	U	-	-	0.01	U	-	-	0.01	U	-	-	-	-
Acrolein	0.15	NE	NE	NE	mg/l	0.008	U	-	-	-	-	-	-	-	-	-	-	-	-
Acrylonitrile	1	NE	NE	NE	mg/l	0.01	U	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	0.3	0.005	0.005	1	mg/l	0.001	U	-	-	0.001	U	-	-	0.001	U	-	-	-	-
Bromodichloromethane	1	NE	0.003	0.006	mg/l	0.001	U	-	-	-	-	-	-	-	-	-	-	-	-
Bromoform	1	NE	0.004	0.7	mg/l	0.001	U	-	-	-	-	-	-	-	-	-	-	-	-
Bromomethane	1	NE	0.007	0.007	mg/l	0.005	U	-	-	-	-	-	-	-	-	-	-	-	-
Carbon disulfide	1	NE	1	10	mg/l	0.005	U	-	-	-	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	1	0.0044	0.002	0.002	mg/l	0.001	U	-	-	0.001	U	-	-	0.001	U	-	-	-	-
Chlorobenzene	1	NE	0.1	0.2	mg/l	0.0035	U	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	1	NE	1	10	mg/l	0.002	U	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	1	NE	0.05	0.05	mg/l	0.001	U	-	-	-	-	-	-	-	-	-	-	-	-
Chloromethane	1	NE	1	10	mg/l	0.005	U	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	NE	0.07	0.02	0.02	mg/l	0.001	U	-	-	0.001	U	-	-	0.001	U	-	-	-	-
cis-1,3-Dichloropropene	1	NE	0.0004	0.01	mg/l	**0.0015**	U	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	1	NE	0.002	0.02	mg/l	0.001	U	-	-	-	-	-	-	-	-	-	-	-	-
Dibromomethane	NE	NE	5	50	mg/l	0.001	U	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	1	NE	0.7	5	mg/l	0.001	U	-	-	0.001	U	-	-	0.001	U	-	-	-	-
Methyl tert butyl ether	NE	0.07	0.07	5	mg/l	0.01	U	-	-	0.01	U	-	-	0.01	U	-	-	-	-
Methylene chloride	1	0.0046	0.005	2	mg/l	0.001	U	-	-	0.001	U	-	-	0.001	U	-	-	-	-
o-xylene	NE	NE	3	3	mg/l	0.001	U	-	-	0.001	U	-	-	0.001	U	-	-	-	-
p/m-Xylene	NE	NE	3	3	mg/l	0.002	U	-	-	0.002	U	-	-	0.002	U	-	-	-	-
Styrene	1	NE	0.1	0.1	mg/l	0.001	U	-	-	-	-	-	-	-	-	-	-	-	-
Tert-Butyl Alcohol	NE	0.12	NE	NE	mg/l	0.1	U	-	-	0.1	U	-	-	0.1	U	-	-	-	-
Tertiary-Amyl Methyl Ether	NE	0.09	NE	NE	mg/l	0.02	U	-	-	0.02	U	-	-	0.02	U	-	-	-	-
Tetrachloroethene	1	0.005	0.005	0.05	mg/l	0.0015	U	-	-	0.0015	U	-	-	0.0015	U	-	-	-	-
Toluene	1	NE	1	40	mg/l	0.001	U	-	-	0.001	U	-	-	0.001	U	-	-	-	-
trans-1,2-Dichloroethene	1	NE	0.08	0.08	mg/l	0.0015	U	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	1	NE	0.0004	0.01	mg/l	**0.0015**	U	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	1	0.005	0.005	0.005	mg/l	0.001	U	-	-	0.001	U	-	-	0.001	U	-	-	-	-
Trichlorofluoromethane	1	NE	10	100	mg/l	0.005	U	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl acetate	1	NE	10	100	mg/l	0.01	U	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	0.02	0.002	0.002	0.002	mg/l	0.001	U	-	-	0.001	U	-	-	0.001	U	-	-	-	-
Xylenes, Total	1	NE	3	3	mg/l	0.001	U	-	-	0.001	U	-	-	0.001	U	-	-	-	-
Total BTEX	NE	0.1	NE	NE	mg/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Volatile Organics by GC/MS-SIM																			
1,4-Dioxane	NE	0.2	0.0003	6	mg/l	**0.05**	U	-	-	**0.05**	U	-	-	**0.05**	U	-	-	-	-

Notes:
Bolded and shaded results exceed one or more MassDEP criteria.
Bolded results are a laboratory detection limit that exceeds one or more regulatory criteria.
U = Not detected above the laboratory reporting limit which is given to the left of the "U"
NE = Standard has not been established for particular analyte
NPDES RGP = National Pollutant Discharge Elimination System Remediation General Permit
mg/l = Milligrams per liter, also known as parts per million (ppm)
MWRA-DSCH: MWRA Discharge Limitations Criteria per MWRA 360 CMR 10.000 dated 10/31/2012.
RCGW-1: MCP 2014 RCGW-1 Reportable Concentrations Criteria effective April 25, 2014.
RCGW-2: MCP 2014 RCGW-2 Reportable Concentrations Criteria effective April 25, 2014.

ANALYTICAL REPORT

Lab Number:	L1827956
Client:	VHB Environmental Engineering 101 Walnut Street PO Box 9151 Watertown, MA 02471
ATTN:	Katherine Kudzma
Phone:	(617) 924-1770
Project Name:	TALBOT STREET OUTFALL
Project Number:	13820.00
Report Date:	07/30/18

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: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1827956-01	B-2	WATER	TALBOT STREET	07/20/18 07:55	07/20/18
L1827956-02	B-8	WATER	TALBOT STREET	07/20/18 09:30	07/20/18
L1827956-03	B-19	WATER	TALBOT STREET	07/20/18 11:32	07/20/18
L1827956-04	RECEIVING WATER	WATER	TALBOT STREET	07/20/18 12:35	07/20/18

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956
Project Number: 13820.00 **Report Date:** 07/30/18

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. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

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

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

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

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

Project Name:	TALBOT STREET OUTFALL	**Lab Number:**	L1827956
Project Number:	13820.00	**Report Date:**	07/30/18

Case Narrative (continued)

Report Submission

July 30, 2018: This final report includes the results of all requested analyses.

July 27, 2018: This is a preliminary report.

Sample Receipt

The analyses performed were specified by the client.

Semivolatile Organics

L1827956-01: The surrogate recovery was outside the acceptance criteria for 2-fluorobiphenyl (54%); however, the criteria were achieved upon re-extraction outside of holding time. The results of both extractions are reported; however, all associated compounds are considered to have a potential bias.

WG1139006 and WG1139919: A Matrix Spike and Matrix Spike Duplicate were prepared with the sample batch, however, the native sample was not available for reporting; therefore, the Matrix Spike and Matrix Spike Duplicate results could not be reported.

Semivolatile Organics by SIM

WG1139922: A Matrix Spike and Matrix Spike Duplicate were prepared with the sample batch, however, the native sample was not available for reporting; therefore, the Matrix Spike and Matrix Spike Duplicate results could not be reported.

Chlorine, Total Residual

L1827956-01, -02 and -03: The samples have an elevated detection limit due to limited sample volume available for analysis.

Solids, Total Suspended

L1827956-01, -02 and -03: The samples have an elevated detection limit due to limited sample volume available for analysis.

Project Name:	TALBOT STREET OUTFALL	**Lab Number:**	L1827956
Project Number:	13820.00	**Report Date:**	07/30/18

Case Narrative (continued)

Chlorine, Total Residual

WG1138022: A Matrix Spike and Laboratory Duplicate could not be performed due to insufficient sample volume available for analysis.

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

Authorized Signature: Melissa Cripps

Title: Technical Director/Representative Date: 07/30/18

ORGANICS

VOLATILES

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956

Project Number: 13820.00 **Report Date:** 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-01 Date Collected: 07/20/18 07:55
Client ID: B-2 Date Received: 07/20/18
Sample Location: TALBOT STREET Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 07/22/18 23:39
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethane	ND		ug/l	1.5	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	3.5	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.5	--	1
2-Chloroethylvinyl ether	ND		ug/l	10	--	1
Tetrachloroethene	ND		ug/l	1.5	--	1
Chlorobenzene	ND		ug/l	3.5	--	1
Trichlorofluoromethane	ND		ug/l	5.0	--	1
1,2-Dichloroethane	ND		ug/l	1.5	--	1
1,1,1-Trichloroethane	ND		ug/l	2.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	1.5	--	1
cis-1,3-Dichloropropene	ND		ug/l	1.5	--	1
1,3-Dichloropropene, Total	ND		ug/l	1.5	--	1
Bromoform	ND		ug/l	1.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	1.0	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	5.0	--	1
Bromomethane	ND		ug/l	5.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.5	--	1

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956

Project Number: 13820.00 **Report Date:** 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-01 Date Collected: 07/20/18 07:55

Client ID: B-2 Date Received: 07/20/18

Sample Location: TALBOT STREET Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	5.0	--	1
1,3-Dichlorobenzene	ND		ug/l	5.0	--	1
1,4-Dichlorobenzene	ND		ug/l	5.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-xylene	ND		ug/l	1.0	--	1
Xylenes, Total	ND		ug/l	1.0	--	1
Styrene[1]	ND		ug/l	1.0	--	1
Acetone[1]	ND		ug/l	10	--	1
Carbon disulfide[1]	ND		ug/l	5.0	--	1
2-Butanone[1]	ND		ug/l	10	--	1
Vinyl acetate[1]	ND		ug/l	10	--	1
4-Methyl-2-pentanone[1]	ND		ug/l	10	--	1
2-Hexanone[1]	ND		ug/l	10	--	1
Acrolein[1]	ND		ug/l	8.0	--	1
Acrylonitrile[1]	ND		ug/l	10	--	1
Methyl tert butyl Ether	ND		ug/l	10	--	1
Dibromomethane[1]	ND		ug/l	1.0	--	1
Tert-Butyl Alcohol	ND		ug/l	100	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	112		60-140
Fluorobenzene	114		60-140
4-Bromofluorobenzene	98		60-140

Project Name: TALBOT STREET OUTFALL
Lab Number: L1827956
Project Number: 13820.00
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-01
Client ID: B-2
Sample Location: TALBOT STREET
Date Collected: 07/20/18 07:55
Date Received: 07/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 07/22/18 23:39
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	50	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	125		60-140
4-Bromofluorobenzene	101		60-140

Project Name: TALBOT STREET OUTFALL
Lab Number: L1827956
Project Number: 13820.00
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-02
Client ID: B-8
Sample Location: TALBOT STREET
Date Collected: 07/20/18 09:30
Date Received: 07/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 07/23/18 00:16
Analyst: GT

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

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956

Project Number: 13820.00 **Report Date:** 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-02 Date Collected: 07/20/18 09:30

Client ID: B-8 Date Received: 07/20/18

Sample Location: TALBOT STREET Field Prep: Refer to COC

Sample Depth:

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	114		60-140
Fluorobenzene	115		60-140
4-Bromofluorobenzene	99		60-140

Project Name: TALBOT STREET OUTFALL
Lab Number: L1827956
Project Number: 13820.00
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-02
Client ID: B-8
Sample Location: TALBOT STREET
Date Collected: 07/20/18 09:30
Date Received: 07/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 07/23/18 00:16
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	50	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	123		60-140
4-Bromofluorobenzene	102		60-140

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956

Project Number: 13820.00 **Report Date:** 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-03 Date Collected: 07/20/18 11:32
Client ID: B-19 Date Received: 07/20/18
Sample Location: TALBOT STREET Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 07/23/18 00:52
Analyst: GT

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

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956

Project Number: 13820.00 **Report Date:** 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-03 Date Collected: 07/20/18 11:32

Client ID: B-19 Date Received: 07/20/18

Sample Location: TALBOT STREET Field Prep: Not Specified

Sample Depth:

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	113		60-140
Fluorobenzene	115		60-140
4-Bromofluorobenzene	100		60-140

Project Name: TALBOT STREET OUTFALL
Lab Number: L1827956
Project Number: 13820.00
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-03
Client ID: B-19
Sample Location: TALBOT STREET
Date Collected: 07/20/18 11:32
Date Received: 07/20/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 07/23/18 00:52
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	50	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	124		60-140
4-Bromofluorobenzene	102		60-140

Project Name: TALBOT STREET OUTFALL
Lab Number: L1827956
Project Number: 13820.00
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-03
Client ID: B-19
Sample Location: TALBOT STREET

Date Collected: 07/20/18 11:32
Date Received: 07/20/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 07/25/18 15:37
Analyst: AWS

Extraction Method: EPA 504.1
Extraction Date: 07/25/18 10:45

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

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
Analytical Date: 07/22/18 18:47
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-03 Batch: WG1138564-4					
1,4-Dioxane	ND		ug/l	50	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	121		60-140
4-Bromofluorobenzene	98		60-140

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956

Project Number: 13820.00 **Report Date:** 07/30/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 07/22/18 18:47
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1138584-4					
Methylene chloride	ND		ug/l	1.0	--
1,1-Dichloroethane	ND		ug/l	1.5	--
Chloroform	ND		ug/l	1.0	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,2-Dichloropropane	ND		ug/l	3.5	--
Dibromochloromethane	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.5	--
2-Chloroethylvinyl ether	ND		ug/l	10	--
Tetrachloroethene	ND		ug/l	1.5	--
Chlorobenzene	ND		ug/l	3.5	--
Trichlorofluoromethane	ND		ug/l	5.0	--
1,2-Dichloroethane	ND		ug/l	1.5	--
1,1,1-Trichloroethane	ND		ug/l	2.0	--
Bromodichloromethane	ND		ug/l	1.0	--
trans-1,3-Dichloropropene	ND		ug/l	1.5	--
cis-1,3-Dichloropropene	ND		ug/l	1.5	--
1,3-Dichloropropene, Total	ND		ug/l	1.5	--
Bromoform	ND		ug/l	1.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--
Benzene	ND		ug/l	1.0	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Chloromethane	ND		ug/l	5.0	--
Bromomethane	ND		ug/l	5.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	2.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
trans-1,2-Dichloroethene	ND		ug/l	1.5	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 07/22/18 18:47
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1138584-4					
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	5.0	--
1,3-Dichlorobenzene	ND		ug/l	5.0	--
1,4-Dichlorobenzene	ND		ug/l	5.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
Styrene[1]	ND		ug/l	1.0	--
Acetone[1]	ND		ug/l	10	--
Carbon disulfide[1]	ND		ug/l	5.0	--
2-Butanone[1]	ND		ug/l	10	--
Vinyl acetate[1]	ND		ug/l	10	--
4-Methyl-2-pentanone[1]	ND		ug/l	10	--
2-Hexanone[1]	ND		ug/l	10	--
Acrolein[1]	ND		ug/l	8.0	--
Acrylonitrile[1]	ND		ug/l	10	--
Methyl tert butyl ether	ND		ug/l	10	--
Dibromomethane[1]	ND		ug/l	1.0	--
Tert-Butyl Alcohol	ND		ug/l	100	--
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	110		60-140
Fluorobenzene	111		60-140
4-Bromofluorobenzene	97		60-140

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 07/25/18 14:14
Analyst: AWS

Extraction Method: EPA 504.1
Extraction Date: 07/25/18 10:45

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 03 Batch: WG1139322-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	--	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-03 Batch: WG1138564-3								
1,4-Dioxane	120		-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	115				60-140
4-Bromofluorobenzene	96				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1827956

Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1138584-3								
Methylene chloride	100		-		60-140	-		28
1,1-Dichloroethane	90		-		50-150	-		49
Chloroform	105		-		70-135	-		54
Carbon tetrachloride	100		-		70-130	-		41
1,2-Dichloropropane	105		-		35-165	-		55
Dibromochloromethane	95		-		70-135	-		50
1,1,2-Trichloroethane	90		-		70-130	-		45
2-Chloroethylvinyl ether	80		-		1-225	-		71
Tetrachloroethene	95		-		70-130	-		39
Chlorobenzene	95		-		65-135	-		53
Trichlorofluoromethane	100		-		50-150	-		84
1,2-Dichloroethane	100		-		70-130	-		49
1,1,1-Trichloroethane	105		-		70-130	-		36
Bromodichloromethane	100		-		65-135	-		56
trans-1,3-Dichloropropene	90		-		50-150	-		86
cis-1,3-Dichloropropene	105		-		25-175	-		58
Bromoform	85		-		70-130	-		42
1,1,2,2-Tetrachloroethane	80		-		60-140	-		61
Benzene	105		-		65-135	-		61
Toluene	100		-		70-130	-		41
Ethylbenzene	100		-		60-140	-		63
Chloromethane	90		-		1-205	-		60
Bromomethane	43		-		15-185	-		61

Lab Control Sample Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1827956

Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1138584-3								
Vinyl chloride	100		-		5-195	-		66
Chloroethane	95		-		40-160	-		78
1,1-Dichloroethene	95		-		50-150	-		32
trans-1,2-Dichloroethene	100		-		70-130	-		45
cis-1,2-Dichloroethene	100		-		60-140	-		30
Trichloroethene	95		-		65-135	-		48
1,2-Dichlorobenzene	90		-		65-135	-		57
1,3-Dichlorobenzene	90		-		70-130	-		43
1,4-Dichlorobenzene	95		-		65-135	-		57
p/m-Xylene	100		-		60-140	-		30
o-xylene	95		-		60-140	-		30
Styrene[1]	85		-		60-140	-		30
Acetone[1]	90		-		40-160	-		30
Carbon disulfide[1]	105		-		60-140	-		30
2-Butanone[1]	108		-		60-140	-		30
Vinyl acetate[1]	122		-		60-140	-		30
4-Methyl-2-pentanone[1]	96		-		60-140	-		30
2-Hexanone[1]	98		-		60-140	-		30
Acrolein[1]	85		-		60-140	-		30
Acrylonitrile[1]	92		-		60-140	-		60
Methyl tert butyl ether	90		-		60-140	-		30
Dibromomethane[1]	90		-		70-130	-		30
Tert-Butyl Alcohol	78		-		60-140	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1827956

Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1138584-3								
Tertiary-Amyl Methyl Ether	95		-		60-140	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	103				60-140
Fluorobenzene	106				60-140
4-Bromofluorobenzene	97				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1827956

Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab	Associated sample(s): 03		Batch: WG1139322-2						
1,2-Dibromoethane	109		-		80-120	-			A
1,2-Dibromo-3-chloropropane	109		-		80-120	-			A

Matrix Spike Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1827956

Report Date: 07/30/18

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*	*Column*
Microextractables by GC - Westborough Lab	Associated sample(s): 03	QC Batch ID: WG1139322-3		QC Sample: L1800007-170		Client ID: MS Sample							
1,2-Dibromoethane	ND	0.252	0.333	**132**	Q	-	-		80-120	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.252	0.306	**122**	Q	-	-		80-120	-		20	A

SEMIVOLATILES

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-01
Client ID: B-2
Sample Location: TALBOT STREET

Date Collected: 07/20/18 07:55
Date Received: 07/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 07/26/18 04:16
Analyst: ALS

Extraction Method: EPA 625.1
Extraction Date: 07/24/18 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	50		15-314
2-Fluorobiphenyl	**54**	Q	55-108
4-Terphenyl-d14	62		52-109

Project Name: TALBOT STREET OUTFALL
Lab Number: L1827956
Project Number: 13820.00
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-01
Client ID: B-2
Sample Location: TALBOT STREET

Date Collected: 07/20/18 07:55
Date Received: 07/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 07/25/18 16:28
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 07/24/18 17:03

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.10	--	1
Fluoranthene	ND		ug/l	0.10	--	1
Naphthalene	0.18		ug/l	0.10	--	1
Benzo(a)anthracene	ND		ug/l	0.10	--	1
Benzo(a)pyrene	ND		ug/l	0.10	--	1
Benzo(b)fluoranthene	ND		ug/l	0.10	--	1
Benzo(k)fluoranthene	ND		ug/l	0.10	--	1
Chrysene	ND		ug/l	0.10	--	1
Acenaphthylene	ND		ug/l	0.10	--	1
Anthracene	ND		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	ND		ug/l	0.10	--	1
Phenanthrene	ND		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--	1
Pyrene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	1.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	35		35-77
Phenol-d6	27		24-61
Nitrobenzene-d5	71		15-314
2-Fluorobiphenyl	57		55-108
2,4,6-Tribromophenol	78		52-123
4-Terphenyl-d14	65		52-109

Project Name: TALBOT STREET OUTFALL
Lab Number: L1827956
Project Number: 13820.00
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-01 RE
Client ID: B-2
Sample Location: TALBOT STREET

Date Collected: 07/20/18 07:55
Date Received: 07/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 07/30/18 11:44
Analyst: EK

Extraction Method: EPA 625.1
Extraction Date: 07/29/18 09:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		42-122
2-Fluorobiphenyl	84		46-121
4-Terphenyl-d14	103		47-138

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-02
Client ID: B-8
Sample Location: TALBOT STREET

Date Collected: 07/20/18 09:30
Date Received: 07/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 07/26/18 04:41
Analyst: ALS

Extraction Method: EPA 625.1
Extraction Date: 07/24/18 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		15-314
2-Fluorobiphenyl	70		55-108
4-Terphenyl-d14	82		52-109

Project Name: TALBOT STREET OUTFALL
Lab Number: L1827956
Project Number: 13820.00
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-02
Client ID: B-8
Sample Location: TALBOT STREET

Date Collected: 07/20/18 09:30
Date Received: 07/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 07/25/18 16:54
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 07/24/18 17:03

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.10	--	1
Fluoranthene	ND		ug/l	0.10	--	1
Naphthalene	ND		ug/l	0.10	--	1
Benzo(a)anthracene	ND		ug/l	0.10	--	1
Benzo(a)pyrene	ND		ug/l	0.10	--	1
Benzo(b)fluoranthene	ND		ug/l	0.10	--	1
Benzo(k)fluoranthene	ND		ug/l	0.10	--	1
Chrysene	ND		ug/l	0.10	--	1
Acenaphthylene	ND		ug/l	0.10	--	1
Anthracene	ND		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	ND		ug/l	0.10	--	1
Phenanthrene	ND		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--	1
Pyrene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	1.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	47		35-77
Phenol-d6	36		24-61
Nitrobenzene-d5	88		15-314
2-Fluorobiphenyl	71		55-108
2,4,6-Tribromophenol	104		52-123
4-Terphenyl-d14	82		52-109

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-03
Client ID: B-19
Sample Location: TALBOT STREET

Date Collected: 07/20/18 11:32
Date Received: 07/20/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 07/29/18 17:11
Analyst: ALS

Extraction Method: EPA 625.1
Extraction Date: 07/26/18 15:49

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		42-122
2-Fluorobiphenyl	89		46-121
4-Terphenyl-d14	123		47-138

Project Name: TALBOT STREET OUTFALL
Lab Number: L1827956
Project Number: 13820.00
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-03
Client ID: B-19
Sample Location: TALBOT STREET

Date Collected: 07/20/18 11:32
Date Received: 07/20/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 07/29/18 23:08
Analyst: ALS

Extraction Method: EPA 625.1
Extraction Date: 07/26/18 15:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.10	--	1
Fluoranthene	ND		ug/l	0.10	--	1
Naphthalene	ND		ug/l	0.10	--	1
Benzo(a)anthracene	ND		ug/l	0.10	--	1
Benzo(a)pyrene	ND		ug/l	0.10	--	1
Benzo(b)fluoranthene	ND		ug/l	0.10	--	1
Benzo(k)fluoranthene	ND		ug/l	0.10	--	1
Chrysene	ND		ug/l	0.10	--	1
Acenaphthylene	ND		ug/l	0.10	--	1
Anthracene	ND		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	ND		ug/l	0.10	--	1
Phenanthrene	ND		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--	1
Pyrene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	1.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	43		35-77
Phenol-d6	33		24-61
Nitrobenzene-d5	90		15-314
2-Fluorobiphenyl	70		55-108
2,4,6-Tribromophenol	100		52-123
4-Terphenyl-d14	84		52-109

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 07/26/18 03:01
Analyst: ALS

Extraction Method: EPA 625.1
Extraction Date: 07/24/18 17:00

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1139006-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	83		15-314
2-Fluorobiphenyl	84		55-108
4-Terphenyl-d14	101		52-109

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 07/25/18 10:24
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 07/24/18 17:03

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-02 Batch: WG1139008-1					
Acenaphthene	ND		ug/l	0.10	--
Fluoranthene	ND		ug/l	0.10	--
Naphthalene	ND		ug/l	0.10	--
Benzo(a)anthracene	ND		ug/l	0.10	--
Benzo(a)pyrene	ND		ug/l	0.10	--
Benzo(b)fluoranthene	ND		ug/l	0.10	--
Benzo(k)fluoranthene	ND		ug/l	0.10	--
Chrysene	ND		ug/l	0.10	--
Acenaphthylene	ND		ug/l	0.10	--
Anthracene	ND		ug/l	0.10	--
Benzo(ghi)perylene	ND		ug/l	0.10	--
Fluorene	ND		ug/l	0.10	--
Phenanthrene	ND		ug/l	0.10	--
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--
Pyrene	ND		ug/l	0.10	--
Pentachlorophenol	ND		ug/l	1.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	60		35-77
Phenol-d6	47		24-61
Nitrobenzene-d5	108		15-314
2-Fluorobiphenyl	87		55-108
2,4,6-Tribromophenol	119		52-123
4-Terphenyl-d14	105		52-109

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 07/29/18 14:59
Analyst: ALS

Extraction Method: EPA 625.1
Extraction Date: 07/26/18 15:49

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1139919-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		42-122
2-Fluorobiphenyl	88		46-121
4-Terphenyl-d14	126		47-138

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 07/29/18 16:14
Analyst: ALS

Extraction Method: EPA 625.1
Extraction Date: 07/26/18 15:55

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 03 Batch: WG1139922-1					
Acenaphthene	ND		ug/l	0.10	--
Fluoranthene	ND		ug/l	0.10	--
Naphthalene	ND		ug/l	0.10	--
Benzo(a)anthracene	ND		ug/l	0.10	--
Benzo(a)pyrene	ND		ug/l	0.10	--
Benzo(b)fluoranthene	ND		ug/l	0.10	--
Benzo(k)fluoranthene	ND		ug/l	0.10	--
Chrysene	ND		ug/l	0.10	--
Acenaphthylene	ND		ug/l	0.10	--
Anthracene	ND		ug/l	0.10	--
Benzo(ghi)perylene	ND		ug/l	0.10	--
Fluorene	ND		ug/l	0.10	--
Phenanthrene	ND		ug/l	0.10	--
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--
Pyrene	ND		ug/l	0.10	--
Pentachlorophenol	ND		ug/l	1.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		35-77
Phenol-d6	35		24-61
Nitrobenzene-d5	88		15-314
2-Fluorobiphenyl	68		55-108
2,4,6-Tribromophenol	96		52-123
4-Terphenyl-d14	96		52-109

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 07/30/18 10:55
Analyst: EK

Extraction Method: EPA 625.1
Extraction Date: 07/29/18 09:51

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1140656-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--
Tentatively Identified Compounds					
No Tentatively Identified Compounds	ND		ug/l		

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	83		42-122
2-Fluorobiphenyl	85		46-121
4-Terphenyl-d14	103		47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1139006-2								
Bis(2-ethylhexyl)phthalate	80		-		29-137	-		30
Butyl benzyl phthalate	83		-		1-140	-		30
Di-n-butylphthalate	89		-		8-120	-		30
Di-n-octylphthalate	81		-		19-132	-		30
Diethyl phthalate	80		-		1-120	-		30
Dimethyl phthalate	74		-		1-120	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	79				15-314
2-Fluorobiphenyl	78				55-108
4-Terphenyl-d14	95				52-109

Lab Control Sample Analysis
Batch Quality Control

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-02 Batch: WG1139008-2								
Acenaphthene	75		-		60-132	-		30
Fluoranthene	87		-		43-121	-		30
Naphthalene	74		-		36-120	-		30
Benzo(a)anthracene	78		-		42-133	-		30
Benzo(a)pyrene	84		-		32-148	-		30
Benzo(b)fluoranthene	83		-		42-140	-		30
Benzo(k)fluoranthene	82		-		25-146	-		30
Chrysene	82		-		44-140	-		30
Acenaphthylene	81		-		54-126	-		30
Anthracene	84		-		43-120	-		30
Benzo(ghi)perylene	88		-		1-195	-		30
Fluorene	80		-		70-120	-		30
Phenanthrene	80		-		65-120	-		30
Dibenzo(a,h)anthracene	83		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	89		-		1-151	-		30
Pyrene	86		-		70-120	-		30
Pentachlorophenol	53		-		38-152	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-02 Batch: WG1139008-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	50				35-77
Phenol-d6	38				24-61
Nitrobenzene-d5	87				15-314
2-Fluorobiphenyl	73				55-108
2,4,6-Tribromophenol	92				52-123
4-Terphenyl-d14	85				52-109

Lab Control Sample Analysis
Batch Quality Control

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1139919-2								
Bis(2-ethylhexyl)phthalate	99		-		29-137	-		30
Butyl benzyl phthalate	111		-		1-140	-		30
Di-n-butylphthalate	107		-		8-120	-		30
Di-n-octylphthalate	110		-		19-132	-		30
Diethyl phthalate	102		-		1-120	-		30
Dimethyl phthalate	105		-		1-120	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	96				42-122
2-Fluorobiphenyl	93				46-121
4-Terphenyl-d14	112				47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 03 Batch: WG1139922-2								
Acenaphthene	84		-		60-132	-		30
Fluoranthene	92		-		43-121	-		30
Naphthalene	79		-		36-120	-		30
Benzo(a)anthracene	85		-		42-133	-		30
Benzo(a)pyrene	89		-		32-148	-		30
Benzo(b)fluoranthene	90		-		42-140	-		30
Benzo(k)fluoranthene	91		-		25-146	-		30
Chrysene	88		-		44-140	-		30
Acenaphthylene	82		-		54-126	-		30
Anthracene	88		-		43-120	-		30
Benzo(ghi)perylene	90		-		1-195	-		30
Fluorene	87		-		70-120	-		30
Phenanthrene	85		-		65-120	-		30
Dibenzo(a,h)anthracene	87		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	105		-		1-151	-		30
Pyrene	90		-		70-120	-		30
Pentachlorophenol	56		-		38-152	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1827956

Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 03 Batch: WG1139922-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	51				35-77
Phenol-d6	38				24-61
Nitrobenzene-d5	91				15-314
2-Fluorobiphenyl	71				55-108
2,4,6-Tribromophenol	96				52-123
4-Terphenyl-d14	84				52-109

Lab Control Sample Analysis
Batch Quality Control

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1140656-2								
Bis(2-ethylhexyl)phthalate	90		-		29-137	-		30
Butyl benzyl phthalate	96		-		1-140	-		30
Di-n-butylphthalate	101		-		8-120	-		30
Di-n-octylphthalate	93		-		19-132	-		30
Diethyl phthalate	89		-		1-120	-		30
Dimethyl phthalate	81		-		1-120	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	83				42-122
2-Fluorobiphenyl	81				46-121
4-Terphenyl-d14	102				47-138

PETROLEUM HYDROCARBONS

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956

Project Number: 13820.00 **Report Date:** 07/30/18

SAMPLE RESULTS

Lab ID:	L1827956-01	Date Collected:	07/20/18 07:55
Client ID:	B-2	Date Received:	07/20/18
Sample Location:	TALBOT STREET	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/25/18 15:24
Analytical Date:	07/27/18 05:40	Cleanup Method1:	EPH-04-1
Analyst:	MEO	Cleanup Date1:	07/26/18

Quality Control Information

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

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	68		40-140
o-Terphenyl	72		40-140
2-Fluorobiphenyl	80		40-140
2-Bromonaphthalene	78		40-140

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 07/26/18 22:06
Analyst: MEO

Extraction Method: EPA 3510C
Extraction Date: 07/25/18 15:24
Cleanup Method: EPH-04-1
Cleanup Date: 07/26/18

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01 Batch: WG1139448-1					
C9-C18 Aliphatics	ND		ug/l	100	--
C19-C36 Aliphatics	ND		ug/l	100	--
C11-C22 Aromatics	ND		ug/l	100	--
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	77		40-140
o-Terphenyl	74		40-140
2-Fluorobiphenyl	78		40-140
2-Bromonaphthalene	76		40-140

Lab Control Sample Analysis
Batch Quality Control

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1139448-2 WG1139448-3								
C9-C18 Aliphatics	78		76		40-140	3		25
C19-C36 Aliphatics	100		92		40-140	8		25
C11-C22 Aromatics	92		99		40-140	7		25
Naphthalene	72		82		40-140	13		25
2-Methylnaphthalene	78		86		40-140	10		25
Acenaphthylene	85		92		40-140	8		25
Acenaphthene	86		95		40-140	10		25
Fluorene	90		97		40-140	7		25
Phenanthrene	94		102		40-140	8		25
Anthracene	94		101		40-140	7		25
Fluoranthene	95		103		40-140	8		25
Pyrene	98		107		40-140	9		25
Benzo(a)anthracene	92		99		40-140	7		25
Chrysene	91		94		40-140	3		25
Benzo(b)fluoranthene	94		102		40-140	8		25
Benzo(k)fluoranthene	89		92		40-140	3		25
Benzo(a)pyrene	88		93		40-140	6		25
Indeno(1,2,3-cd)Pyrene	82		88		40-140	7		25
Dibenzo(a,h)anthracene	84		88		40-140	5		25
Benzo(ghi)perylene	79		81		40-140	3		25
Nonane (C9)	53		54		30-140	2		25
Decane (C10)	63		62		40-140	2		25
Dodecane (C12)	72		69		40-140	4		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1827956

Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1139448-2 WG1139448-3								
Tetradecane (C14)	78		76		40-140	3		25
Hexadecane (C16)	83		83		40-140	0		25
Octadecane (C18)	87		86		40-140	1		25
Nonadecane (C19)	88		86		40-140	2		25
Eicosane (C20)	89		87		40-140	2		25
Docosane (C22)	89		87		40-140	2		25
Tetracosane (C24)	88		86		40-140	2		25
Hexacosane (C26)	88		86		40-140	2		25
Octacosane (C28)	87		85		40-140	2		25
Triacontane (C30)	87		85		40-140	2		25
Hexatriacontane (C36)	86		84		40-140	2		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	78		79		40-140
o-Terphenyl	82		88		40-140
2-Fluorobiphenyl	81		90		40-140
2-Bromonaphthalene	75		89		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

PCBS

Project Name: TALBOT STREET OUTFALL
Lab Number: L1827956
Project Number: 13820.00
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-01
Client ID: B-2
Sample Location: TALBOT STREET

Date Collected: 07/20/18 07:55
Date Received: 07/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 07/27/18 08:39
Analyst: HT

Extraction Method: EPA 608.3
Extraction Date: 07/26/18 01:24
Cleanup Method: EPA 3665A
Cleanup Date: 07/26/18
Cleanup Method: EPA 3660B
Cleanup Date: 07/26/18

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**132**	Q	37-123	A
Decachlorobiphenyl	**121**	Q	38-114	A
2,4,5,6-Tetrachloro-m-xylene	121		37-123	B
Decachlorobiphenyl	**118**	Q	38-114	B

Project Name: TALBOT STREET OUTFALL
Lab Number: L1827956
Project Number: 13820.00
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-02
Client ID: B-8
Sample Location: TALBOT STREET

Date Collected: 07/20/18 09:30
Date Received: 07/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 07/27/18 08:52
Analyst: HT

Extraction Method: EPA 608.3
Extraction Date: 07/26/18 01:24
Cleanup Method: EPA 3665A
Cleanup Date: 07/26/18
Cleanup Method: EPA 3660B
Cleanup Date: 07/26/18

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**129**	Q	37-123	A
Decachlorobiphenyl	**115**	Q	38-114	A
2,4,5,6-Tetrachloro-m-xylene	115		37-123	B
Decachlorobiphenyl	113		38-114	B

Project Name: TALBOT STREET OUTFALL
Lab Number: L1827956
Project Number: 13820.00
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-03
Client ID: B-19
Sample Location: TALBOT STREET

Date Collected: 07/20/18 11:32
Date Received: 07/20/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 07/27/18 09:05
Analyst: HT

Extraction Method: EPA 608.3
Extraction Date: 07/26/18 01:24
Cleanup Method: EPA 3665A
Cleanup Date: 07/26/18
Cleanup Method: EPA 3660B
Cleanup Date: 07/26/18

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**129**	Q	37-123	A
Decachlorobiphenyl	**126**	Q	38-114	A
2,4,5,6-Tetrachloro-m-xylene	115		37-123	B
Decachlorobiphenyl	**119**	Q	38-114	B

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 07/26/18 12:18
Analyst: WR

Extraction Method: EPA 608.3
Extraction Date: 07/26/18 01:24
Cleanup Method: EPA 3665A
Cleanup Date: 07/26/18
Cleanup Method: EPA 3660B
Cleanup Date: 07/26/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01-03 Batch: WG1139592-1						
Aroclor 1016	ND		ug/l	0.250	--	A
Aroclor 1221	ND		ug/l	0.250	--	A
Aroclor 1232	ND		ug/l	0.250	--	A
Aroclor 1242	ND		ug/l	0.250	--	A
Aroclor 1248	ND		ug/l	0.250	--	A
Aroclor 1254	ND		ug/l	0.250	--	A
Aroclor 1260	ND		ug/l	0.200	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	107		37-123	A
Decachlorobiphenyl	86		38-114	A
2,4,5,6-Tetrachloro-m-xylene	108		37-123	B
Decachlorobiphenyl	82		38-114	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1827956

Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01-03 Batch: WG1139592-2									
Aroclor 1016	83		-		50-140	-		36	A
Aroclor 1260	80		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	108				37-123	A
Decachlorobiphenyl	97				38-114	A
2,4,5,6-Tetrachloro-m-xylene	106				37-123	B
Decachlorobiphenyl	101				38-114	B

PESTICIDES

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-01
Client ID: B-2
Sample Location: TALBOT STREET

Date Collected: 07/20/18 07:55
Date Received: 07/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 07/26/18 18:29
Analyst: KEG

Extraction Method: EPA 608.3
Extraction Date: 07/26/18 01:12
Cleanup Method: EPA 3620B
Cleanup Date: 07/26/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/l	0.020	--	1	A
Lindane	ND		ug/l	0.020	--	1	A
Alpha-BHC	ND		ug/l	0.020	--	1	A
Beta-BHC	ND		ug/l	0.020	--	1	A
Heptachlor	ND		ug/l	0.020	--	1	A
Aldrin	ND		ug/l	0.020	--	1	A
Heptachlor epoxide	ND		ug/l	0.020	--	1	A
Endrin	ND		ug/l	0.040	--	1	A
Endrin aldehyde	ND		ug/l	0.040	--	1	A
Endrin ketone[1]	ND		ug/l	0.040	--	1	A
Dieldrin	ND		ug/l	0.040	--	1	A
4,4'-DDE	ND		ug/l	0.040	--	1	A
4,4'-DDD	ND		ug/l	0.040	--	1	A
4,4'-DDT	ND		ug/l	0.040	--	1	A
Endosulfan I	ND		ug/l	0.020	--	1	A
Endosulfan II	ND		ug/l	0.040	--	1	A
Endosulfan sulfate	ND		ug/l	0.040	--	1	A
Methoxychlor[1]	ND		ug/l	0.100	--	1	A
Toxaphene	ND		ug/l	0.400	--	1	A
Chlordane	ND		ug/l	0.200	--	1	A
cis-Chlordane[1]	ND		ug/l	0.020	--	1	A
trans-Chlordane[1]	ND		ug/l	0.020	--	1	A

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956

Project Number: 13820.00 **Report Date:** 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-01 Date Collected: 07/20/18 07:55

Client ID: B-2 Date Received: 07/20/18

Sample Location: TALBOT STREET Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	98		47-124	A
Decachlorobiphenyl	90		32-167	A
2,4,5,6-Tetrachloro-m-xylene	98		47-124	B
Decachlorobiphenyl	131		32-167	B

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 07/26/18 19:31
Analyst: KEG

Extraction Method: EPA 608.3
Extraction Date: 07/25/18 11:42
Cleanup Method: EPA 3620B
Cleanup Date: 07/26/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Westborough Lab for sample(s): 01 Batch: WG1139356-1						
Delta-BHC	ND		ug/l	0.020	--	A
Lindane	ND		ug/l	0.020	--	A
Alpha-BHC	ND		ug/l	0.020	--	A
Beta-BHC	ND		ug/l	0.020	--	A
Heptachlor	ND		ug/l	0.020	--	A
Aldrin	ND		ug/l	0.020	--	A
Heptachlor epoxide	ND		ug/l	0.020	--	A
Endrin	ND		ug/l	0.040	--	A
Endrin aldehyde	ND		ug/l	0.040	--	A
Endrin ketone[1]	ND		ug/l	0.040	--	A
Dieldrin	ND		ug/l	0.040	--	A
4,4'-DDE	ND		ug/l	0.040	--	A
4,4'-DDD	ND		ug/l	0.040	--	A
4,4'-DDT	ND		ug/l	0.040	--	A
Endosulfan I	ND		ug/l	0.020	--	A
Endosulfan II	ND		ug/l	0.040	--	A
Endosulfan sulfate	ND		ug/l	0.040	--	A
Methoxychlor[1]	ND		ug/l	0.100	--	A
Toxaphene	ND		ug/l	0.400	--	A
Chlordane	ND		ug/l	0.200	--	A
cis-Chlordane[1]	ND		ug/l	0.020	--	A
trans-Chlordane[1]	ND		ug/l	0.020	--	A

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 07/26/18 19:31
Analyst: KEG

Extraction Method: EPA 608.3
Extraction Date: 07/25/18 11:42
Cleanup Method: EPA 3620B
Cleanup Date: 07/26/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Westborough Lab for sample(s): 01 Batch: WG1139356-1						

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	84		47-124	A
Decachlorobiphenyl	78		32-167	A
2,4,5,6-Tetrachloro-m-xylene	86		47-124	B
Decachlorobiphenyl	104		32-167	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1827956

Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Organochlorine Pesticides by GC - Westborough Lab Associated sample(s): 01 Batch: WG1139356-2									
Delta-BHC	119		-		19-140	-		52	A
Lindane	113		-		32-140	-		39	A
Alpha-BHC	115		-		37-140	-		36	A
Beta-BHC	103		-		17-147	-		44	A
Heptachlor	75		-		34-140	-		43	A
Aldrin	93		-		42-140	-		35	A
Heptachlor epoxide	103		-		37-142	-		26	A
Endrin	112		-		30-147	-		48	A
Endrin aldehyde	99		-		30-150	-		30	A
Endrin ketone[1]	114		-		30-150	-		30	A
Dieldrin	113		-		36-146	-		49	A
4,4'-DDE	103		-		30-145	-		35	A
4,4'-DDD	107		-		31-141	-		39	A
4,4'-DDT	107		-		25-160	-		42	A
Endosulfan I	104		-		45-153	-		28	A
Endosulfan II	109		-		1-202	-		53	A
Endosulfan sulfate	128		-		26-144	-		38	A
Methoxychlor[1]	100		-		30-150	-		30	A
cis-Chlordane[1]	95		-		45-140	-		35	A
trans-Chlordane[1]	107		-		45-140	-		35	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Organochlorine Pesticides by GC - Westborough Lab Associated sample(s): 01 Batch: WG1139356-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	87				47-124	A
Decachlorobiphenyl	82				32-167	A
2,4,5,6-Tetrachloro-m-xylene	89				47-124	B
Decachlorobiphenyl	110				32-167	B

METALS

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956

Project Number: 13820.00 **Report Date:** 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-01 Date Collected: 07/20/18 07:55

Client ID: B-2 Date Received: 07/20/18

Sample Location: TALBOT STREET Field Prep: Refer to COC

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	07/24/18 14:00	07/25/18 13:39	EPA 3005A	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 13:39	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	07/24/18 14:00	07/25/18 13:39	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 13:39	EPA 3005A	3,200.8	AM
Copper, Total	0.00268		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 13:39	EPA 3005A	3,200.8	AM
Iron, Total	ND		mg/l	0.050	--	1	07/24/18 14:00	07/25/18 02:31	EPA 3005A	19,200.7	AB
Lead, Total	ND		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 13:39	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	07/23/18 14:51	07/24/18 09:24	EPA 245.1	3,245.1	MG
Nickel, Total	ND		mg/l	0.00200	--	1	07/24/18 14:00	07/25/18 13:39	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	07/24/18 14:00	07/25/18 13:39	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	07/24/18 14:00	07/25/18 13:39	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	07/24/18 14:00	07/25/18 13:39	EPA 3005A	3,200.8	AM
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		07/25/18 13:39	NA	107,-	
Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	07/24/18 15:00	07/25/18 10:16	EPA 3005A	3,200.8	AM
Arsenic, Dissolved	ND		mg/l	0.0010	--	1	07/24/18 15:00	07/25/18 10:16	EPA 3005A	3,200.8	AM
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	07/24/18 15:00	07/25/18 10:16	EPA 3005A	3,200.8	AM
Chromium, Dissolved	ND		mg/l	0.0010	--	1	07/24/18 15:00	07/25/18 10:16	EPA 3005A	3,200.8	AM
Copper, Dissolved	0.0036		mg/l	0.0010	--	1	07/24/18 15:00	07/25/18 10:16	EPA 3005A	3,200.8	AM
Iron, Dissolved	ND		mg/l	0.050	--	1	07/24/18 15:00	07/25/18 00:05	EPA 3005A	19,200.7	AB
Lead, Dissolved	ND		mg/l	0.0010	--	1	07/24/18 15:00	07/25/18 10:16	EPA 3005A	3,200.8	AM
Mercury, Dissolved	ND		mg/l	0.00020	--	1	07/23/18 15:39	07/24/18 21:35	EPA 245.1	3,245.1	MG
Nickel, Dissolved	ND		mg/l	0.0020	--	1	07/24/18 15:00	07/25/18 10:16	EPA 3005A	3,200.8	AM
Selenium, Dissolved	ND		mg/l	0.0050	--	1	07/24/18 15:00	07/25/18 10:16	EPA 3005A	3,200.8	AM
Silver, Dissolved	ND		mg/l	0.0004	--	1	07/24/18 15:00	07/25/18 10:16	EPA 3005A	3,200.8	AM
Zinc, Dissolved	ND		mg/l	0.0100	--	1	07/24/18 15:00	07/25/18 10:16	EPA 3005A	3,200.8	AM

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956

Project Number: 13820.00 **Report Date:** 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-02 Date Collected: 07/20/18 09:30

Client ID: B-8 Date Received: 07/20/18

Sample Location: TALBOT STREET Field Prep: Refer to COC

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	07/24/18 14:00	07/25/18 13:44	EPA 3005A	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 13:44	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	07/24/18 14:00	07/25/18 13:44	EPA 3005A	3,200.8	AM
Chromium, Total	0.00148		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 13:44	EPA 3005A	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 13:44	EPA 3005A	3,200.8	AM
Iron, Total	4.46		mg/l	0.050	--	1	07/24/18 14:00	07/25/18 02:35	EPA 3005A	19,200.7	AB
Lead, Total	ND		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 13:44	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	07/23/18 14:51	07/24/18 09:30	EPA 245.1	3,245.1	MG
Nickel, Total	ND		mg/l	0.00200	--	1	07/24/18 14:00	07/25/18 13:44	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	07/24/18 14:00	07/25/18 13:44	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	07/24/18 14:00	07/25/18 13:44	EPA 3005A	3,200.8	AM
Zinc, Total	0.01811		mg/l	0.01000	--	1	07/24/18 14:00	07/25/18 13:44	EPA 3005A	3,200.8	AM
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		07/25/18 13:44	NA	107,-	
Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	07/24/18 15:00	07/25/18 10:20	EPA 3005A	3,200.8	AM
Arsenic, Dissolved	ND		mg/l	0.0010	--	1	07/24/18 15:00	07/25/18 10:20	EPA 3005A	3,200.8	AM
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	07/24/18 15:00	07/25/18 10:20	EPA 3005A	3,200.8	AM
Chromium, Dissolved	0.0013		mg/l	0.0010	--	1	07/24/18 15:00	07/25/18 10:20	EPA 3005A	3,200.8	AM
Copper, Dissolved	ND		mg/l	0.0010	--	1	07/24/18 15:00	07/25/18 10:20	EPA 3005A	3,200.8	AM
Iron, Dissolved	4.37		mg/l	0.050	--	1	07/24/18 15:00	07/25/18 00:10	EPA 3005A	19,200.7	AB
Lead, Dissolved	ND		mg/l	0.0010	--	1	07/24/18 15:00	07/25/18 10:20	EPA 3005A	3,200.8	AM
Mercury, Dissolved	ND		mg/l	0.00020	--	1	07/23/18 15:39	07/24/18 21:41	EPA 245.1	3,245.1	MG
Nickel, Dissolved	ND		mg/l	0.0020	--	1	07/24/18 15:00	07/25/18 10:20	EPA 3005A	3,200.8	AM
Selenium, Dissolved	ND		mg/l	0.0050	--	1	07/24/18 15:00	07/25/18 10:20	EPA 3005A	3,200.8	AM
Silver, Dissolved	ND		mg/l	0.0004	--	1	07/24/18 15:00	07/25/18 10:20	EPA 3005A	3,200.8	AM
Zinc, Dissolved	0.0162		mg/l	0.0100	--	1	07/24/18 15:00	07/25/18 10:20	EPA 3005A	3,200.8	AM

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956

Project Number: 13820.00 **Report Date:** 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-03 Date Collected: 07/20/18 11:32

Client ID: B-19 Date Received: 07/20/18

Sample Location: TALBOT STREET 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	07/24/18 14:00	07/25/18 13:48	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00322		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 13:48	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	07/24/18 14:00	07/25/18 13:48	EPA 3005A	3,200.8	AM
Chromium, Total	0.00100		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 13:48	EPA 3005A	3,200.8	AM
Copper, Total	0.00108		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 13:48	EPA 3005A	3,200.8	AM
Iron, Total	0.132		mg/l	0.050	--	1	07/24/18 14:00	07/25/18 02:40	EPA 3005A	19,200.7	AB
Lead, Total	0.00439		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 13:48	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	07/23/18 14:51	07/24/18 09:31	EPA 245.1	3,245.1	MG
Nickel, Total	ND		mg/l	0.00200	--	1	07/24/18 14:00	07/25/18 13:48	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	07/24/18 14:00	07/25/18 13:48	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	07/24/18 14:00	07/25/18 13:48	EPA 3005A	3,200.8	AM
Zinc, Total	0.01300		mg/l	0.01000	--	1	07/24/18 14:00	07/25/18 13:48	EPA 3005A	3,200.8	AM
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		07/25/18 13:48	NA	107,-	
Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	07/24/18 09:15	07/24/18 15:47	EPA 3005A	3,200.8	AM
Arsenic, Dissolved	0.0035		mg/l	0.0010	--	1	07/24/18 09:15	07/24/18 15:47	EPA 3005A	3,200.8	AM
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	07/24/18 09:15	07/24/18 15:47	EPA 3005A	3,200.8	AM
Chromium, Dissolved	ND		mg/l	0.0010	--	1	07/24/18 09:15	07/24/18 15:47	EPA 3005A	3,200.8	AM
Copper, Dissolved	ND		mg/l	0.0010	--	1	07/24/18 09:15	07/24/18 15:47	EPA 3005A	3,200.8	AM
Iron, Dissolved	ND		mg/l	0.050	--	1	07/24/18 09:15	07/24/18 16:26	EPA 3005A	19,200.7	AB
Lead, Dissolved	ND		mg/l	0.0010	--	1	07/24/18 09:15	07/24/18 15:47	EPA 3005A	3,200.8	AM
Mercury, Dissolved	ND		mg/l	0.00020	--	1	07/24/18 15:09	07/25/18 14:53	EPA 245.1	3,245.1	MG
Nickel, Dissolved	ND		mg/l	0.0020	--	1	07/24/18 09:15	07/24/18 15:47	EPA 3005A	3,200.8	AM
Selenium, Dissolved	ND		mg/l	0.0050	--	1	07/24/18 09:15	07/24/18 15:47	EPA 3005A	3,200.8	AM
Silver, Dissolved	ND		mg/l	0.0004	--	1	07/24/18 09:15	07/24/18 15:47	EPA 3005A	3,200.8	AM
Zinc, Dissolved	0.0120		mg/l	0.0100	--	1	07/24/18 09:15	07/24/18 15:47	EPA 3005A	3,200.8	AM

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956

Project Number: 13820.00 **Report Date:** 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-04 Date Collected: 07/20/18 12:35

Client ID: RECEIVING WATER Date Received: 07/20/18

Sample Location: TALBOT STREET 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	07/24/18 14:00	07/25/18 13:52	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00109		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 13:52	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	07/24/18 14:00	07/25/18 13:52	EPA 3005A	3,200.8	AM
Chromium, Total	0.00131		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 13:52	EPA 3005A	3,200.8	AM
Copper, Total	0.00443		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 13:52	EPA 3005A	3,200.8	AM
Iron, Total	0.648		mg/l	0.050	--	1	07/24/18 14:00	07/25/18 02:44	EPA 3005A	19,200.7	AB
Lead, Total	0.00446		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 13:52	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	07/23/18 14:51	07/24/18 09:33	EPA 245.1	3,245.1	MG
Nickel, Total	ND		mg/l	0.00200	--	1	07/24/18 14:00	07/25/18 13:52	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	07/24/18 14:00	07/25/18 13:52	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	07/24/18 14:00	07/25/18 13:52	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	07/24/18 14:00	07/25/18 13:52	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	69.8		mg/l	0.660	NA	1	07/24/18 14:00	07/25/18 02:44	EPA 3005A	19,200.7	AB
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		07/25/18 13:52	NA	107,-	

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956

Project Number: 13820.00 **Report Date:** 07/30/18

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): 01-04 Batch: WG1138526-1										
Mercury, Total	ND		mg/l	0.00020	--	1	07/23/18 14:51	07/24/18 08:48	3,245.1	MG

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1138541-1										
Mercury, Dissolved	ND		mg/l	0.00020	--	1	07/23/18 15:39	07/24/18 21:32	3,245.1	MG

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 03 Batch: WG1138556-1										
Iron, Dissolved	ND		mg/l	0.050	--	1	07/24/18 09:15	07/24/18 15:47	19,200.7	LC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 03 Batch: WG1138557-1										
Antimony, Dissolved	ND		mg/l	0.0040	--	1	07/24/18 09:15	07/24/18 14:37	3,200.8	AM
Arsenic, Dissolved	ND		mg/l	0.0010	--	1	07/24/18 09:15	07/24/18 14:37	3,200.8	AM
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	07/24/18 09:15	07/24/18 14:37	3,200.8	AM
Chromium, Dissolved	ND		mg/l	0.0010	--	1	07/24/18 09:15	07/24/18 14:37	3,200.8	AM
Copper, Dissolved	ND		mg/l	0.0010	--	1	07/24/18 09:15	07/24/18 14:37	3,200.8	AM
Lead, Dissolved	ND		mg/l	0.0010	--	1	07/24/18 09:15	07/24/18 14:37	3,200.8	AM

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956

Project Number: 13820.00 **Report Date:** 07/30/18

Method Blank Analysis
Batch Quality Control

Nickel, Dissolved	ND	mg/l	0.0020	--	1	07/24/18 09:15	07/24/18 14:37	3,200.8	AM
Selenium, Dissolved	ND	mg/l	0.0050	--	1	07/24/18 09:15	07/24/18 14:37	3,200.8	AM
Silver, Dissolved	ND	mg/l	0.0004	--	1	07/24/18 09:15	07/24/18 14:37	3,200.8	AM
Zinc, Dissolved	ND	mg/l	0.0100	--	1	07/24/18 09:15	07/24/18 14:37	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): 01-04 Batch: WG1138916-1										
Iron, Total	ND		mg/l	0.050	--	1	07/24/18 14:00	07/25/18 01:36	19,200.7	AB

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): 01-04 Batch: WG1138916-1										
Hardness	ND		mg/l	0.660	NA	1	07/24/18 14:00	07/25/18 01:36	19,200.7	AB

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): 01-04 Batch: WG1138917-1										
Antimony, Total	ND		mg/l	0.00400	--	1	07/24/18 14:00	07/25/18 12:30	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 12:30	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	07/24/18 14:00	07/25/18 12:30	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 12:30	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 12:30	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	07/24/18 14:00	07/25/18 12:30	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	07/24/18 14:00	07/25/18 12:30	3,200.8	AM

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956

Project Number: 13820.00 **Report Date:** 07/30/18

Method Blank Analysis
Batch Quality Control

Selenium, Total	ND	mg/l	0.00500	--	1	07/24/18 14:00	07/25/18 12:30	3,200.8	AM
Silver, Total	ND	mg/l	0.00040	--	1	07/24/18 14:00	07/25/18 12:30	3,200.8	AM
Zinc, Total	ND	mg/l	0.01000	--	1	07/24/18 14:00	07/25/18 12:30	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
Dissolved Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1138946-1										
Iron, Dissolved	ND		mg/l	0.050	--	1	07/24/18 15:00	07/24/18 23:30	19,200.7	AB

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 03 Batch: WG1138947-1										
Mercury, Dissolved	ND		mg/l	0.00020	--	1	07/24/18 15:09	07/25/18 14:49	3,245.1	MG

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1138949-1										
Antimony, Dissolved	ND		mg/l	0.0040	--	1	07/24/18 15:00	07/25/18 09:46	3,200.8	AM
Arsenic, Dissolved	ND		mg/l	0.0010	--	1	07/24/18 15:00	07/25/18 09:46	3,200.8	AM
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	07/24/18 15:00	07/25/18 09:46	3,200.8	AM
Chromium, Dissolved	ND		mg/l	0.0010	--	1	07/24/18 15:00	07/25/18 09:46	3,200.8	AM
Copper, Dissolved	ND		mg/l	0.0010	--	1	07/24/18 15:00	07/25/18 09:46	3,200.8	AM
Lead, Dissolved	ND		mg/l	0.0010	--	1	07/24/18 15:00	07/25/18 09:46	3,200.8	AM
Nickel, Dissolved	ND		mg/l	0.0020	--	1	07/24/18 15:00	07/25/18 09:46	3,200.8	AM
Selenium, Dissolved	ND		mg/l	0.0050	--	1	07/24/18 15:00	07/25/18 09:46	3,200.8	AM

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956

Project Number: 13820.00 **Report Date:** 07/30/18

Method Blank Analysis
Batch Quality Control

Silver, Dissolved	ND	mg/l	0.0004	--	1	07/24/18 15:00	07/25/18 09:46	3,200.8	AM
Zinc, Dissolved	ND	mg/l	0.0100	--	1	07/24/18 15:00	07/25/18 09:46	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1827956

Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04 Batch: WG1138526-2								
Mercury, Total	94		-		85-115	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1138541-2								
Mercury, Dissolved	101		-		85-115	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 03 Batch: WG1138556-2								
Iron, Dissolved	101		-		85-115	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 03 Batch: WG1138557-2								
Antimony, Dissolved	102		-		85-115	-		
Arsenic, Dissolved	104		-		85-115	-		
Cadmium, Dissolved	113		-		85-115	-		
Chromium, Dissolved	104		-		85-115	-		
Copper, Dissolved	105		-		85-115	-		
Lead, Dissolved	106		-		85-115	-		
Nickel, Dissolved	102		-		85-115	-		
Selenium, Dissolved	107		-		85-115	-		
Silver, Dissolved	112		-		85-115	-		
Zinc, Dissolved	108		-		85-115	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1827956

Report Date: 07/30/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04 Batch: WG1138916-2					
Iron, Total	98	-	85-115	-	
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-04 Batch: WG1138916-2					
Hardness	103	-	85-115	-	
Total Metals - Mansfield Lab Associated sample(s): 01-04 Batch: WG1138917-2					
Antimony, Total	94	-	85-115	-	
Arsenic, Total	106	-	85-115	-	
Cadmium, Total	110	-	85-115	-	
Chromium, Total	101	-	85-115	-	
Copper, Total	104	-	85-115	-	
Lead, Total	106	-	85-115	-	
Nickel, Total	101	-	85-115	-	
Selenium, Total	108	-	85-115	-	
Silver, Total	105	-	85-115	-	
Zinc, Total	107	-	85-115	-	
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1138946-2					
Iron, Dissolved	101	-	85-115	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1827956

Report Date: 07/30/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 03 Batch: WG1138947-2					
Mercury, Dissolved	104	-	85-115	-	
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1138949-2					
Antimony, Dissolved	104	-	85-115	-	
Arsenic, Dissolved	106	-	85-115	-	
Cadmium, Dissolved	109	-	85-115	-	
Chromium, Dissolved	105	-	85-115	-	
Copper, Dissolved	105	-	85-115	-	
Lead, Dissolved	105	-	85-115	-	
Nickel, Dissolved	103	-	85-115	-	
Selenium, Dissolved	112	-	85-115	-	
Silver, Dissolved	108	-	85-115	-	
Zinc, Dissolved	109	-	85-115	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

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): 01-04 QC Batch ID: WG1138526-3 QC Sample: L1828059-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00466	93		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1138526-5 QC Sample: L1828059-02 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00468	94		-	-		70-130	-		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1138541-3 QC Sample: L1827956-01 Client ID: B-2												
Mercury, Dissolved	ND	0.005	0.00446	89		-	-		75-125	-		20
Dissolved Metals - Mansfield Lab Associated sample(s): 03 QC Batch ID: WG1138556-3 QC Sample: L1827942-01 Client ID: MS Sample												
Iron, Dissolved	ND	1	1.02	102		-	-		75-125	-		20
Dissolved Metals - Mansfield Lab Associated sample(s): 03 QC Batch ID: WG1138557-3 QC Sample: L1827459-02 Client ID: MS Sample												
Antimony, Dissolved	0.0750	0.5	0.3700	**59**	Q	-	-		70-130	-		20
Arsenic, Dissolved	0.9152	0.12	1.028	94		-	-		70-130	-		20
Cadmium, Dissolved	ND	0.051	0.0576	113		-	-		70-130	-		20
Chromium, Dissolved	0.1511	0.2	0.3198	84		-	-		70-130	-		20
Copper, Dissolved	ND	0.25	0.2499	100		-	-		70-130	-		20
Lead, Dissolved	ND	0.51	0.5550	109		-	-		70-130	-		20
Nickel, Dissolved	0.1188	0.5	0.5798	92		-	-		70-130	-		20
Selenium, Dissolved	ND	0.12	0.1180	98		-	-		70-130	-		20
Silver, Dissolved	ND	0.05	0.0247	**49**	Q	-	-		70-130	-		20
Zinc, Dissolved	ND	0.5	0.6222	124		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1138916-3 QC Sample: L1828074-01 Client ID: MS Sample												
Iron, Total	ND	1	1.01	101		-	-		75-125	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1138916-3 QC Sample: L1828074-01 Client ID: MS Sample										
Hardness	73.6	66.2	141	102		-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1138916-7 QC Sample: L1828074-02 Client ID: MS Sample										
Iron, Total	33.0	1	25.5	**0**	Q	-	-	75-125	-	20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1138916-7 QC Sample: L1828074-02 Client ID: MS Sample										
Hardness	16.6	66.2	82.2	99		-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1138917-3 QC Sample: L1828074-01 Client ID: MS Sample										
Antimony, Total	ND	0.5	0.4810	96		-	-	70-130	-	20
Arsenic, Total	ND	0.12	0.1277	106		-	-	70-130	-	20
Cadmium, Total	ND	0.051	0.05521	108		-	-	70-130	-	20
Chromium, Total	ND	0.2	0.2036	102		-	-	70-130	-	20
Copper, Total	ND	0.25	0.2592	104		-	-	70-130	-	20
Lead, Total	ND	0.51	0.5349	105		-	-	70-130	-	20
Nickel, Total	ND	0.5	0.5072	101		-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1270	106		-	-	70-130	-	20
Silver, Total	ND	0.05	0.05420	108		-	-	70-130	-	20
Zinc, Total	ND	0.5	0.5368	107		-	-	70-130	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

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): 01-04 QC Batch ID: WG1138917-5 QC Sample: L1828074-02 Client ID: MS Sample									
Antimony, Total	ND	0.5	0.5426	108	-	-	70-130	-	20
Arsenic, Total	ND	0.12	0.1168	97	-	-	70-130	-	20
Cadmium, Total	0.0004	0.051	0.05678	110	-	-	70-130	-	20
Chromium, Total	0.0021	0.2	0.2033	101	-	-	70-130	-	20
Copper, Total	0.0038	0.25	0.2606	103	-	-	70-130	-	20
Lead, Total	0.0066	0.51	0.5519	107	-	-	70-130	-	20
Nickel, Total	0.0038	0.5	0.5141	102	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.09372	78	-	-	70-130	-	20
Silver, Total	ND	0.05	0.05279	106	-	-	70-130	-	20
Zinc, Total	2.124	0.5	2.486	72	-	-	70-130	-	20
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1138946-3 QC Sample: L1827677-02 Client ID: MS Sample									
Iron, Dissolved	0.238	1	1.21	97	-	-	75-125	-	20
Dissolved Metals - Mansfield Lab Associated sample(s): 03 QC Batch ID: WG1138947-3 QC Sample: L1827956-03 Client ID: B-19									
Mercury, Dissolved	ND	0.025	0.02380	95	-	-	75-125	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1138949-3 QC Sample: L1827677-02 Client ID: MS Sample									
Antimony, Dissolved	ND	0.5	0.4175	84	-	-	70-130	-	20
Arsenic, Dissolved	ND	0.12	0.1247	104	-	-	70-130	-	20
Cadmium, Dissolved	ND	0.051	0.0555	109	-	-	70-130	-	20
Chromium, Dissolved	ND	0.2	0.2098	105	-	-	70-130	-	20
Copper, Dissolved	0.0049	0.25	0.2696	106	-	-	70-130	-	20
Lead, Dissolved	ND	0.51	0.5409	106	-	-	70-130	-	20
Nickel, Dissolved	0.0083	0.5	0.5230	103	-	-	70-130	-	20
Selenium, Dissolved	ND	0.12	0.1314	110	-	-	70-130	-	20
Silver, Dissolved	ND	0.05	0.0535	107	-	-	70-130	-	20
Zinc, Dissolved	ND	0.5	0.5409	108	-	-	70-130	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1138526-4 QC Sample: L1828059-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1138526-6 QC Sample: L1828059-02 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1138541-4 QC Sample: L1827956-01 Client ID: B-2						
Mercury, Dissolved	ND	ND	mg/l	NC		20
Dissolved Metals - Mansfield Lab Associated sample(s): 03 QC Batch ID: WG1138556-4 QC Sample: L1827942-01 Client ID: DUP Sample						
Iron, Dissolved	ND	ND	mg/l	NC		20
Dissolved Metals - Mansfield Lab Associated sample(s): 03 QC Batch ID: WG1138557-4 QC Sample: L1827459-03 Client ID: DUP Sample						
Arsenic, Dissolved	0.8615	0.8826	mg/l	2		20
Zinc, Dissolved	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1138916-4 QC Sample: L1828074-01 Client ID: DUP Sample						
Iron, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1138916-8 QC Sample: L1828074-02 Client ID: DUP Sample						
Iron, Total	33.0	33.0	mg/l	0		20
Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1138917-6 QC Sample: L1828074-02 Client ID: DUP Sample						
Arsenic, Total	ND	ND	mg/l	NC		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1827956

Report Date: 07/30/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1138946-4 QC Sample: L1827677-02 Client ID: DUP Sample					
Iron, Dissolved	0.238	0.248	mg/l	4	20
Dissolved Metals - Mansfield Lab Associated sample(s): 03 QC Batch ID: WG1138947-4 QC Sample: L1827956-03 Client ID: B-19					
Mercury, Dissolved	ND	ND	mg/l	NC	20

INORGANICS
&
MISCELLANEOUS

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-01
Client ID: B-2
Sample Location: TALBOT STREET
Sample Depth:
Matrix: Water

Date Collected: 07/20/18 07:55
Date Received: 07/20/18
Field Prep: Refer to COC

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	50	NA	10	-	07/21/18 17:50	121,2540D	CW
Chlorine, Total Residual	ND		mg/l	0.08	--	4	-	07/21/18 01:23	121,4500CL-D	UN
pH (H)	6.8		SU	-	NA	1	-	07/20/18 23:37	121,4500H+-B	AS
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	07/22/18 14:00	07/23/18 22:05	121,4500NH3-BH	AT
Oil & Grease, Hem-Grav	ND		mg/l	4.0	--	1	07/24/18 18:00	07/24/18 18:30	74,1664A	ML
TPH, SGT-HEM	ND		mg/l	4.00	--	1	07/24/18 18:00	07/24/18 23:00	74,1664A	ML
Chromium, Hexavalent	ND		mg/l	0.010	--	1	07/21/18 00:48	07/21/18 01:24	1,7196A	UN
Anions by Ion Chromatography - Westborough Lab										
Chloride	714.		mg/l	12.5	--	25	-	07/23/18 00:21	44,300.0	JR

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-02
Client ID: B-8
Sample Location: TALBOT STREET
Sample Depth:
Matrix: Water

Date Collected: 07/20/18 09:30
Date Received: 07/20/18
Field Prep: Refer to COC

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	50	NA	10	-	07/21/18 17:50	121,2540D	CW
Chlorine, Total Residual	ND		mg/l	0.08	--	4	-	07/21/18 01:23	121,4500CL-D	UN
Nitrogen, Ammonia	3.30		mg/l	0.075	--	1	07/22/18 14:00	07/23/18 22:09	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	07/24/18 18:00	07/24/18 23:00	74,1664A	ML
Chromium, Hexavalent	ND		mg/l	0.010	--	1	07/21/18 00:48	07/21/18 01:24	1,7196A	UN
Anions by Ion Chromatography - Westborough Lab										
Chloride	1990		mg/l	50.0	--	100	-	07/23/18 00:33	44,300.0	JR

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-03
Client ID: B-19
Sample Location: TALBOT STREET
Sample Depth:
Matrix: Water

Date Collected: 07/20/18 11:32
Date Received: 07/20/18
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	100	NA	20	-	07/21/18 17:50	121,2540D	CW
Chlorine, Total Residual	ND		mg/l	0.08	--	4	-	07/21/18 01:23	121,4500CL-D	UN
Nitrogen, Ammonia	0.313		mg/l	0.075	--	1	07/22/18 14:00	07/23/18 22:10	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	07/24/18 18:00	07/24/18 23:00	74,1664A	ML
Chromium, Hexavalent	ND		mg/l	0.010	--	1	07/21/18 00:48	07/21/18 01:24	1,7196A	UN
Anions by Ion Chromatography - Westborough Lab										
Chloride	241.		mg/l	5.00	--	10	-	07/23/18 01:09	44,300.0	JR

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1827956
Report Date: 07/30/18

SAMPLE RESULTS

Lab ID: L1827956-04
Client ID: RECEIVING WATER
Sample Location: TALBOT STREET
Sample Depth:
Matrix: Water
Date Collected: 07/20/18 12:35
Date Received: 07/20/18
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	8.2		SU	-	NA	1	-	07/20/18 23:37	121,4500H+-B	AS
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	07/22/18 14:00	07/23/18 22:11	121,4500NH3-BH	AT
Chromium, Hexavalent	ND		mg/l	0.010	--	1	07/21/18 00:48	07/21/18 01:25	1,7196A	UN

Project Name: TALBOT STREET OUTFALL **Lab Number:** L1827956

Project Number: 13820.00 **Report Date:** 07/30/18

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): 01-04 Batch: WG1138005-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	07/21/18 00:48	07/21/18 01:21	1,7196A	UN
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1138022-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	07/21/18 01:23	121,4500CL-D	UN
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1138169-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	07/21/18 17:50	121,2540D	CW
General Chemistry - Westborough Lab for sample(s): 01-04 Batch: WG1138214-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	07/22/18 14:00	07/23/18 21:44	121,4500NH3-BH	AT
Anions by Ion Chromatography - Westborough Lab for sample(s): 01-03 Batch: WG1138628-1										
Chloride	ND		mg/l	0.500	--	1	-	07/22/18 18:09	44,300.0	JR
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1139021-1										
Oil & Grease, Hem-Grav	ND		mg/l	4.0	--	1	07/24/18 18:00	07/24/18 18:30	74,1664A	ML
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1139025-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	07/24/18 18:00	07/24/18 23:00	74,1664A	ML

Lab Control Sample Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1827956

Report Date: 07/30/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,04 Batch: WG1137986-1								
pH	101		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01-04 Batch: WG1138005-2								
Chromium, Hexavalent	98		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1138022-2								
Chlorine, Total Residual	101		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-04 Batch: WG1138214-2								
Nitrogen, Ammonia	95		-		80-120	-		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-03 Batch: WG1138628-2								
Chloride	104		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1139021-2								
Oil & Grease, Hem-Grav	93		-		78-114	-		18
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1139025-2								
TPH	89		-		64-132	-		34

Matrix Spike Analysis
Batch Quality Control

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

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): 01-04 QC Batch ID: WG1138005-4 QC Sample: L1827956-04 Client ID: RECEIVING WATER												
Chromium, Hexavalent	ND	0.1	0.096	96		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-04 QC Batch ID: WG1138214-4 QC Sample: L1827679-02 Client ID: MS Sample												
Nitrogen, Ammonia	0.984	4	5.03	101		-	-		80-120	-		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1138628-3 QC Sample: L1827637-01 Client ID: MS Sample												
Chloride	9.86	4	13.8	99		-	-		90-110	-		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1139021-4 QC Sample: L1827956-01 Client ID: B-2												
Oil & Grease, Hem-Grav	ND	40	36	91		-	-		78-114	-		18
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1139025-4 QC Sample: L1827956-01 Client ID: B-2												
TPH	ND	20	18.1	90		-	-		64-132	-		34

Lab Duplicate Analysis
Batch Quality Control

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,04 QC Batch ID: WG1137986-2 QC Sample: L1828059-01 Client ID: DUP Sample						
pH	6.8	6.8	SU	0		5
General Chemistry - Westborough Lab Associated sample(s): 01-04 QC Batch ID: WG1138005-3 QC Sample: L1827956-04 Client ID: RECEIVING WATER						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1138169-2 QC Sample: L1800007-139 Client ID: DUP Sample						
Solids, Total Suspended	5700	5800	mg/l	2		29
General Chemistry - Westborough Lab Associated sample(s): 01-04 QC Batch ID: WG1138214-3 QC Sample: L1827679-02 Client ID: DUP Sample						
Nitrogen, Ammonia	0.984	1.02	mg/l	4		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1138628-4 QC Sample: L1827637-01 Client ID: DUP Sample						
Chloride	9.86	9.86	mg/l	0		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1139021-3 QC Sample: L1827941-01 Client ID: DUP Sample						
Oil & Grease, Hem-Grav	ND	ND	mg/l	NC		18
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1139025-3 QC Sample: L1827941-01 Client ID: DUP Sample						
TPH	ND	ND	mg/l	NC		34

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1827956-01A	Vial Na2S2O3 preserved	A	NA		2.5	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(3)
L1827956-01B	Vial Na2S2O3 preserved	A	NA		2.5	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(3)
L1827956-01C	Vial Na2S2O3 preserved	A	NA		2.5	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(3)
L1827956-01D	Plastic 250ml HNO3 preserved	A	<2	<2	2.5	Y	Absent		AG-2008S(180),CR-2008S(180),FE-RI(180),AS-2008S(180),PB-2008S(180),ZN-2008S(180),NI-2008S(180),SE-2008S(180),CD-2008S(180),CU-2008S(180),SB-2008S(180),HG-R(28)
L1827956-01E	Plastic 250ml HNO3 preserved	A	<2	<2	2.5	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1827956-01F	Plastic 250ml unpreserved	A	7	7	2.5	Y	Absent		CL-300(28),HEXCR-7196(1),TRC-4500(1),PH-4500(.01),TSS-2540(7)
L1827956-01G	Plastic 500ml H2SO4 preserved	A	<2	<2	2.5	Y	Absent		NH3-4500(28)
L1827956-01H	Amber 1000ml Na2S2O3	A	7	7	2.5	Y	Absent		PESTICIDE-608.3(7),PCB-608.3(7)
L1827956-01J	Amber 1000ml Na2S2O3	A	7	7	2.5	Y	Absent		PESTICIDE-608.3(7),PCB-608.3(7)
L1827956-01K	Amber 1000ml Na2S2O3	A	7	7	2.5	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1827956-01L	Amber 1000ml Na2S2O3	A	7	7	2.5	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1827956-01M	Amber 1000ml HCl preserved	A	<2	<2	2.5	Y	Absent		EPH-10(14)
L1827956-01N	Amber 1000ml HCl preserved	A	<2	<2	2.5	Y	Absent		EPH-10(14)
L1827956-01P	Amber 1000ml HCl preserved	A	NA		2.5	Y	Absent		OG-1664(28),TPH-1664(28)
L1827956-01Q	Amber 1000ml HCl preserved	A	NA		2.5	Y	Absent		OG-1664(28),TPH-1664(28)
L1827956-02A	Vial Na2S2O3 preserved	B	NA		2.0	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1827956-02B	Vial Na2S2O3 preserved	B	NA		2.0	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1827956-02C	Vial Na2S2O3 preserved	B	NA		2.0	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1827956-02D	Plastic 250ml HNO3 preserved	B	<2	<2	2.0	Y	Absent		AG-2008S(180),CR-2008S(180),FE-RI(180),AS-2008S(180),PB-2008S(180),ZN-2008S(180),NI-2008S(180),SE-2008S(180),CD-2008S(180),CU-2008S(180),SB-2008S(180),HG-R(28)
L1827956-02E	Plastic 250ml HNO3 preserved	B	<2	<2	2.0	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1827956-02F	Plastic 250ml unpreserved	B	7	7	2.0	Y	Absent		CL-300(28),HEXCR-7196(1),TRC-4500(1),TSS-2540(7)
L1827956-02G	Plastic 500ml H2SO4 preserved	B	<2	<2	2.0	Y	Absent		NH3-4500(28)
L1827956-02H	Amber 1000ml Na2S2O3	B	7	7	2.0	Y	Absent		PCB-608.3(7)
L1827956-02J	Amber 1000ml Na2S2O3	B	7	7	2.0	Y	Absent		PCB-608.3(7)
L1827956-02K	Amber 1000ml Na2S2O3	B	7	7	2.0	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1827956-02L	Amber 1000ml Na2S2O3	B	7	7	2.0	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1827956-02M	Amber 1000ml HCl preserved	B	<2	<2	2.0	Y	Absent		HOLD-EPH(14)
L1827956-02N	Amber 1000ml HCl preserved	B	<2	<2	2.0	Y	Absent		HOLD-EPH(14)
L1827956-02P	Amber 1000ml HCl preserved	B	NA		2.0	Y	Absent		TPH-1664(28)
L1827956-02Q	Amber 1000ml HCl preserved	B	NA		2.0	Y	Absent		TPH-1664(28)
L1827956-03A	Vial Na2S2O3 preserved	C	NA		2.3	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7),504(14)
L1827956-03B	Vial Na2S2O3 preserved	C	NA		2.3	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7),504(14)
L1827956-03C	Vial Na2S2O3 preserved	C	NA		2.3	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7),504(14)
L1827956-03D	Plastic 120ml unpreserved split	C	<2	<2	2.3	Y	Absent		-
L1827956-03E	Plastic 250ml HNO3 preserved	C	<2	<2	2.3	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1827956-03F	Plastic 250ml unpreserved	C	7	7	2.3	Y	Absent		CL-300(28),HEXCR-7196(1),TRC-4500(1),TSS-2540(7)
L1827956-03G	Plastic 500ml H2SO4 preserved	C	<2	<2	2.3	Y	Absent		NH3-4500(28)
L1827956-03H	Amber 1000ml Na2S2O3	C	7	7	2.3	Y	Absent		PCB-608.3(7)
L1827956-03J	Amber 1000ml Na2S2O3	C	7	7	2.3	Y	Absent		PCB-608.3(7)

*Values in parentheses indicate holding time in days

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1827956
Report Date: 07/30/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1827956-03K	Amber 1000ml Na2S2O3	C	7	7	2.3	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1827956-03L	Amber 1000ml Na2S2O3	C	7	7	2.3	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1827956-03M	Amber 1000ml HCl preserved	C	<2	<2	2.3	Y	Absent		HOLD-EPH(14)
L1827956-03N	Amber 1000ml HCl preserved	C	<2	<2	2.3	Y	Absent		HOLD-EPH(14)
L1827956-03P	Amber 1000ml HCl preserved	C	NA		2.3	Y	Absent		TPH-1664(28)
L1827956-03Q	Amber 1000ml HCl preserved	C	NA		2.3	Y	Absent		TPH-1664(28)
L1827956-03X	Plastic 120ml HNO3 preserved Filtrates	C	NA		2.3	Y	Absent		AG-2008S(180),CR-2008S(180),FE-RI(180),AS-2008S(180),PB-2008S(180),ZN-2008S(180),NI-2008S(180),SE-2008S(180),CD-2008S(180),CU-2008S(180),SB-2008S(180),HG-R(28)
L1827956-04A	Plastic 250ml unpreserved	C	7	7	2.3	Y	Absent		HEXCR-7196(1),PH-4500(.01)
L1827956-04B	Plastic 250ml HNO3 preserved	C	<2	<2	2.3	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1827956-04C	Plastic 500ml H2SO4 preserved	C	<2	<2	2.3	Y	Absent		NH3-4500(28)

*Values in parentheses indicate holding time in days

Project Name:	TALBOT STREET OUTFALL	**Lab Number:**	L1827956
Project Number:	13820.00	**Report Date:**	07/30/18

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
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.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

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.

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.

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.

Report Format: Data Usability Report

Project Name:	TALBOT STREET OUTFALL	**Lab Number:**	L1827956
Project Number:	13820.00	**Report Date:**	07/30/18

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

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

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

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

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

Report Format: Data Usability Report

Project Name:	TALBOT STREET OUTFALL	**Lab Number:**	L1827956
Project Number:	13820.00	**Report Date:**	07/30/18

REFERENCES

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

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

14 Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

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

74 Method 1664,Revision A: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-98-002, February 1999.

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

107 Alpha Analytical - In-house calculation method.

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

127 Method 608.3: Organochlorine Pesticides and PCBs by GC/HSD, EPA 821-R-16-009, December 2016.

128 Method 624.1: Purgeables by GC/MS, EPA 821-R-16-008, December 2016.

129 Method 625.1: Base/Neutrals and Acids by GC/MS, EPA 821-R-16-007, December 2016.

LIMITATION OF LIABILITIES

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

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

Certification Information

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

Westborough Facility
EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; 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, SM4500CI-D, SM2320B, SM2540C, SM4500H-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**, EPA 351.1, 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 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Be, Cd, Cr, Cu, 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, Pb, Mn, Ni, Se, Ag, 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

Date Rec'd in Lab: 07/20/18

ALPHA Job #: L1827956

ALPHA
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: VHB
Address: 101 Walnut Street
Watertown, MA
Phone: 617-607-1885
Fax:
Email: pbrennan@VHB.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Talbot Street OutFall
Project Location: Talbot Street
Project #: 13820.00
Project Manager: kkudzma@vhb.com
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: 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

Other Project Specific Requirements/Comments/Detection Limits:
In "Site Name:" field on bottles, it should read "Talbot", but it still applies to this project.

SAMPLE HANDLING
Filtration Field
☒ 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	RGP Parameters	MWRA Parameters	Dissolved Metals	PRB	RGP Receiving Water	Sample Specific Comments	TOTAL # BOTTLES
27956-01	B-2	7/20/18	0755	Water	PRB	X	X	X				15
02	B-8	7/20/18	0930			X		X				15
03	B-19	7/20/18	1132			X		X				15
04	Receiving Water	7/20/18	1235					PRB	X			3

Container Type	
Preservative	

Relinquished By:	Date/Time	Received By:	Date/Time
Peter Brennan	7/20/18 1420	KML	7/20/18 1420
	7/20/18 1800		7/20/18 1800

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 Terms and Conditions. See reverse side

FORM NO: 01-01 (rev. 14-OCT-07)

ANALYTICAL REPORT

Lab Number:	L1828640
Client:	VHB Environmental Engineering 101 Walnut Street PO Box 9151 Watertown, MA 02471
ATTN:	Katherine Kudzma
Phone:	(617) 924-1770
Project Name:	TALBOT STREET OUTFALL
Project Number:	13820.00
Report Date:	08/01/18

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: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1828640
Report Date: 08/01/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1828640-01	B-2	WATER	TALBOT STREET	07/25/18 08:00	07/25/18
L1828640-02	B-8	WATER	TALBOT STREET	07/25/18 09:15	07/25/18
L1828640-03	B-19	WATER	TALBOT STREET	07/25/18 10:10	07/25/18

Project Name:	TALBOT STREET OUTFALL	**Lab Number:**	L1828640
Project Number:	13820.00	**Report Date:**	08/01/18

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. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

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

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

HOLD POLICY

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

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

Project Name:	TALBOT STREET OUTFALL	**Lab Number:**	L1828640
Project Number:	13820.00	**Report Date:**	08/01/18

Case Narrative (continued)

Report Submission

The analysis of Ethanol was subcontracted. A copy of the laboratory report is included as an addendum.

Please note: This data is only available in PDF format and is not available on Data Merger.

Sample Receipt

The analyses performed were specified by the client.

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: Cristin Walker

Title: Technical Director/Representative Date: 08/01/18

ORGANICS

VOLATILES

Project Name: TALBOT STREET OUTFALL
Lab Number: L1828640
Project Number: 13820.00
Report Date: 08/01/18

SAMPLE RESULTS

Lab ID: L1828640-01
Client ID: B-2
Sample Location: TALBOT STREET

Date Collected: 07/25/18 08:00
Date Received: 07/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 07/27/18 16:20
Analyst: AWS

Extraction Method: EPA 504.1
Extraction Date: 07/27/18 10:45

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

Project Name: TALBOT STREET OUTFALL
Lab Number: L1828640
Project Number: 13820.00
Report Date: 08/01/18

SAMPLE RESULTS

Lab ID: L1828640-02
Client ID: B-8
Sample Location: TALBOT STREET

Date Collected: 07/25/18 09:15
Date Received: 07/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 07/27/18 16:37
Analyst: AWS

Extraction Method: EPA 504.1
Extraction Date: 07/27/18 10:45

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

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1828640
Report Date: 08/01/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 07/27/18 15:46
Analyst: AWS

Extraction Method: EPA 504.1
Extraction Date: 07/27/18 10:45

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01-02 Batch: WG1140239-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1828640

Report Date: 08/01/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab	Associated sample(s): 01-02 Batch: WG1140239-2								
1,2-Dibromoethane	111		-		80-120	-			A

Matrix Spike Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1828640

Report Date: 08/01/18

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*	*Column*
Microextractables by GC - Westborough Lab	Associated sample(s): 01-02	QC Batch ID: WG1140239-3	QC Sample: L1800007-185	Client ID: MS Sample									
1,2-Dibromoethane	ND	0.252	0.286	113		-	-		80-120	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.252	0.272	108		-	-		80-120	-		20	A

INORGANICS
&
MISCELLANEOUS

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1828640
Report Date: 08/01/18

SAMPLE RESULTS

Lab ID: L1828640-01
Client ID: B-2
Sample Location: TALBOT STREET
Sample Depth:
Matrix: Water

Date Collected: 07/25/18 08:00
Date Received: 07/25/18
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	-	07/27/18 01:45	121,2540D	CW
Cyanide, Total	ND		mg/l	0.005	--	1	07/27/18 11:30	07/27/18 15:25	121,4500CN-CE	LH
Phenolics, Total	ND		mg/l	0.030	--	1	07/27/18 06:17	07/28/18 04:53	4,420.1	GD

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1828640
Report Date: 08/01/18

SAMPLE RESULTS

Lab ID: L1828640-02
Client ID: B-8
Sample Location: TALBOT STREET
Sample Depth:
Matrix: Water

Date Collected: 07/25/18 09:15
Date Received: 07/25/18
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	11.		mg/l	5.0	NA	1	-	07/27/18 01:45	121,2540D	CW
Cyanide, Total	ND		mg/l	0.005	--	1	07/27/18 11:30	07/27/18 15:27	121,4500CN-CE	LH
Phenolics, Total	ND		mg/l	0.030	--	1	07/27/18 06:17	07/28/18 04:55	4,420.1	GD

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1828640
Report Date: 08/01/18

SAMPLE RESULTS

Lab ID: L1828640-03
Client ID: B-19
Sample Location: TALBOT STREET
Sample Depth:
Matrix: Water

Date Collected: 07/25/18 10:10
Date Received: 07/25/18
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	11.		mg/l	5.0	NA	1	-	07/27/18 01:45	121,2540D	CW
Cyanide, Total	0.019		mg/l	0.005	--	1	07/27/18 11:30	07/27/18 15:29	121,4500CN-CE	LH
Phenolics, Total	ND		mg/l	0.030	--	1	07/27/18 06:17	07/28/18 04:56	4,420.1	GD

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00
Lab Number: L1828640
Report Date: 08/01/18

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): 01-03 Batch: WG1140035-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	07/27/18 01:45	121,2540D	CW
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1140101-1										
Phenolics, Total	ND		mg/l	0.030	--	1	07/27/18 06:17	07/28/18 04:50	4,420.1	GD
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1140232-1										
Cyanide, Total	ND		mg/l	0.005	--	1	07/27/18 11:30	07/27/18 15:19	121,4500CN-CE	LH

Lab Control Sample Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1828640

Report Date: 08/01/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1140101-2								
Phenolics, Total	80		-		70-130	-		
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1140232-2								
Cyanide, Total	99		-		90-110	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1828640
Report Date: 08/01/18

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): 01-03 QC Batch ID: WG1140101-4 QC Sample: L1828640-01 Client ID: B-2												
Phenolics, Total	ND	0.4	0.41	102		-	-		70-130	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1140232-4 QC Sample: L1828640-02 Client ID: B-8												
Cyanide, Total	ND	0.2	0.193	96		-	-		90-110	-		30

Lab Duplicate Analysis

Batch Quality Control

Project Name: TALBOT STREET OUTFALL

Project Number: 13820.00

Lab Number: L1828640

Report Date: 08/01/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1140035-2 QC Sample: L1828745-01 Client ID: DUP Sample						
Solids, Total Suspended	63	120	mg/l	**62**	Q	29
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1140101-3 QC Sample: L1828640-01 Client ID: B-2						
Phenolics, Total	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1140232-3 QC Sample: L1828640-01 Client ID: B-2						
Cyanide, Total	ND	ND	mg/l	NC		30

Project Name: TALBOT STREET OUTFALL
Project Number: 13820.00

Lab Number: L1828640
Report Date: 08/01/18

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(*)
L1828640-01A	Vial HCl preserved	A	NA		2.9	Y	Absent		SUB-ETHANOL(14)
L1828640-01B	Vial HCl preserved	A	NA		2.9	Y	Absent		SUB-ETHANOL(14)
L1828640-01C	Vial HCl preserved	A	NA		2.9	Y	Absent		504(14)
L1828640-01D	Plastic 250ml NaOH preserved	A	>12	>12	2.9	Y	Absent		TCN-4500(14)
L1828640-01E	Plastic 950ml unpreserved	A	7	7	2.9	Y	Absent		TSS-2540(7)
L1828640-01F	Amber 950ml H2SO4 preserved	A	<2	<2	2.9	Y	Absent		TPHENOL-420(28)
L1828640-02A	Vial HCl preserved	A	NA		2.9	Y	Absent		SUB-ETHANOL(14)
L1828640-02B	Vial HCl preserved	A	NA		2.9	Y	Absent		SUB-ETHANOL(14)
L1828640-02C	Vial HCl preserved	A	NA		2.9	Y	Absent		504(14)
L1828640-02D	Plastic 250ml NaOH preserved	A	>12	>12	2.9	Y	Absent		TCN-4500(14)
L1828640-02E	Plastic 950ml unpreserved	A	7	7	2.9	Y	Absent		TSS-2540(7)
L1828640-02F	Amber 950ml H2SO4 preserved	A	<2	<2	2.9	Y	Absent		TPHENOL-420(28)
L1828640-03A	Vial HCl preserved	A	NA		2.9	Y	Absent		SUB-ETHANOL(14)
L1828640-03B	Vial HCl preserved	A	NA		2.9	Y	Absent		SUB-ETHANOL(14)
L1828640-03C	Vial HCl preserved	A	NA		2.9	Y	Absent		ARCHIVE()
L1828640-03D	Plastic 250ml NaOH preserved	A	>12	>12	2.9	Y	Absent		TCN-4500(14)
L1828640-03E	Plastic 950ml unpreserved	A	7	7	2.9	Y	Absent		TSS-2540(7)
L1828640-03F	Amber 950ml H2SO4 preserved	A	<2	<2	2.9	Y	Absent		TPHENOL-420(28)

*Values in parentheses indicate holding time in days

Project Name:	TALBOT STREET OUTFALL	**Lab Number:**	L1828640
Project Number:	13820.00	**Report Date:**	08/01/18

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
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.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

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.

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.

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.

Report Format: Data Usability Report

Project Name:	TALBOT STREET OUTFALL	**Lab Number:**	L1828640
Project Number:	13820.00	**Report Date:**	08/01/18

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

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

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

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

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

Report Format: Data Usability Report

Project Name:	TALBOT STREET OUTFALL	**Lab Number:**	L1828640
Project Number:	13820.00	**Report Date:**	08/01/18

REFERENCES

4 Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.

14 Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.

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: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; 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, SM4500CI-D, SM2320B, SM2540C, SM4500H-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**, EPA 351.1, 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 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Be, Cd, Cr, Cu, 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, Pb, Mn, Ni, Se, Ag, 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

Date Rec'd in Lab: 7/25/18

ALPHA Job #: L1828640

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

Client Information

Client: VHB
Address: 101 Walnut St.
Watertown, MA
Phone: 617-607-1885
Email: pbrennan@vhb.com

Additional Project Information:

Project Information

Project Name: Talbot Street Outfall
Project Location: Talbot Street
Project #: 13820.00
Project Manager: kkudzma@vhb.com
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due:

Report Information - Data Deliverables

☒ ADEx ☒ EMAIL

Billing Information

☒ Same as Client info PO #:

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 _____

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	ANALYSIS: Total Phenol	Total Cyanide	Total Suspended Solids	Sub-Ethanol	SAMPLE INFO (Filtration / Preservation)	Sample Comments	TOTAL # BOTTLES
28640-01	B-2	7/25/2018	0800	Water	PRB	X	X	X	X			6
02	B-8		0915									6
03	B-19		1010									6

Container Type: A P P V
Preservative: D E A B

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

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= Ascorbic Acid
J = NH_4Cl
K= Zn Acetate
O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
PRB	7/25/18 1330	AAL	7/25/18 1330
	7/25/18 1710		7/26/18 1100

All samples submitted are subject to Alpha's Terms and Conditions
See reverse side
FORM NO: 01-01 (rev. 12-Mar-2012)

ALPHA ANALYTICAL

Subcontract Chain of Custody

Test America (Nashville)
2960 Foster Creighton Drive
Nashville, TN 37204

Alpha Job Number
L1828640

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 508.439.5137
Email: nhunt@alphalab.com

Project Information

Project Location: MA
Project Manager: Nichole Hunt

Turnaround & Deliverables Information

Due Date:
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L1828640

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	B-2	07-25-18 08:00	WATER	Ethanol by EPA 1671 Revision A	
	B-8	07-25-18 09:15	WATER	Ethanol by EPA 1671 Revision A	
	B-19	07-25-18 10:10	WATER	Ethanol by EPA 1671 Revision A	

Relinquished By:	Date/Time:	Received By:	Date/Time:
Chris Tolman	7/26/18 16:27		

Form No: AL_subcoc

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-156380-1
Client Project/Site: L1828640

For:
Alpha Analytical Inc
Attn: Accounts Payable
145 Flanders Road
Westborough, Massachusetts 01581

Attn: Nichole Hunt

Authorized for release by:
7/30/2018 5:40:20 PM

Ken Hayes, Project Manager II
(615)301-5035
ken.hayes@testamericainc.com

Table of Contents

Sample Summary

Client: Alpha Analytical Inc
Project/Site: L1828640

TestAmerica Job ID: 490-156380-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-156380-1	B-2	Water	07/25/18 08:00	07/27/18 09:00
490-156380-2	B-8	Water	07/25/18 09:15	07/27/18 09:00
490-156380-3	B-19	Water	07/25/18 10:10	07/27/18 09:00

Case Narrative

Client: Alpha Analytical Inc
Project/Site: L1828640

TestAmerica Job ID: 490-156380-1

Job ID: 490-156380-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-156380-1

Comments
No additional comments.

Receipt
The samples were received on 7/27/2018 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.0º C.

GC Semi VOA
Method 1671A: Surrogate recovery for the following sample was outside the upper control limit: B-19 (490-156380-3). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: Alpha Analytical Inc
Project/Site: L1828640

TestAmerica Job ID: 490-156380-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Alpha Analytical Inc
Project/Site: L1828640

TestAmerica Job ID: 490-156380-1

Client Sample ID: B-2
Date Collected: 07/25/18 08:00
Date Received: 07/27/18 09:00

Lab Sample ID: 490-156380-1
Matrix: Water

Method: 1671A - Ethanol (GC/FID)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	ND		2000	500	ug/L			07/30/18 11:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Isopropyl acetate (Surr)	*105*		*70 - 130*		*07/30/18 11:20*	*1*

Client Sample Results

Client: Alpha Analytical Inc
Project/Site: L1828640

TestAmerica Job ID: 490-156380-1

Client Sample ID: B-8
Date Collected: 07/25/18 09:15
Date Received: 07/27/18 09:00

Lab Sample ID: 490-156380-2
Matrix: Water

Method: 1671A - Ethanol (GC/FID)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	ND		2000	500	ug/L			07/30/18 11:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Isopropyl acetate (Surr)	*126*		*70 - 130*		*07/30/18 11:38*	*1*

Client Sample Results

Client: Alpha Analytical Inc
Project/Site: L1828640

TestAmerica Job ID: 490-156380-1

Client Sample ID: B-19
Date Collected: 07/25/18 10:10
Date Received: 07/27/18 09:00

Lab Sample ID: 490-156380-3
Matrix: Water

Method: 1671A - Ethanol (GC/FID)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	ND		2000	500	ug/L			07/30/18 11:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Isopropyl acetate (Surr)	*134*	*X*	*70 - 130*		*07/30/18 11:44*	*1*

QC Sample Results

Client: Alpha Analytical Inc
Project/Site: L1828640

TestAmerica Job ID: 490-156380-1

Method: 1671A - Ethanol (GC/FID)

Lab Sample ID: MB 490-532448/13
Matrix: Water
Analysis Batch: 532448

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	ND		2000	500	ug/L			07/30/18 10:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Isopropyl acetate (Surr)	*107*		*70 - 130*		*07/30/18 10:37*	*1*

Lab Sample ID: LCS 490-532448/14
Matrix: Water
Analysis Batch: 532448

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethanol			50200	56380		ug/L		112	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Isopropyl acetate (Surr)	*113*		*70 - 130*

Lab Sample ID: 490-156380-1 MS
Matrix: Water
Analysis Batch: 532448

Client Sample ID: B-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethanol	ND		50200	54970		ug/L		109	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Isopropyl acetate (Surr)	*121*		*70 - 130*

Lab Sample ID: 490-156380-1 MSD
Matrix: Water
Analysis Batch: 532448

Client Sample ID: B-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethanol	ND		50200	60120		ug/L		120	70 - 130	9	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Isopropyl acetate (Surr)	*128*		*70 - 130*

QC Association Summary

Client: Alpha Analytical Inc
Project/Site: L1828640

TestAmerica Job ID: 490-156380-1

GC VOA

Analysis Batch: 532448

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156380-1	B-2	Total/NA	Water	1671A	
490-156380-2	B-8	Total/NA	Water	1671A	
490-156380-3	B-19	Total/NA	Water	1671A	
MB 490-532448/13	Method Blank	Total/NA	Water	1671A	
LCS 490-532448/14	Lab Control Sample	Total/NA	Water	1671A	
490-156380-1 MS	B-2	Total/NA	Water	1671A	
490-156380-1 MSD	B-2	Total/NA	Water	1671A	

Lab Chronicle

Client: Alpha Analytical Inc
Project/Site: L1828640

TestAmerica Job ID: 490-156380-1

Client Sample ID: B-2
Date Collected: 07/25/18 08:00
Date Received: 07/27/18 09:00

Lab Sample ID: 490-156380-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1671A		1			532448	07/30/18 11:20	NMB	TAL NSH

Client Sample ID: B-8
Date Collected: 07/25/18 09:15
Date Received: 07/27/18 09:00

Lab Sample ID: 490-156380-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1671A		1			532448	07/30/18 11:38	NMB	TAL NSH

Client Sample ID: B-19
Date Collected: 07/25/18 10:10
Date Received: 07/27/18 09:00

Lab Sample ID: 490-156380-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1671A		1			532448	07/30/18 11:44	NMB	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Method Summary

Client: Alpha Analytical Inc
Project/Site: L1828640

TestAmerica Job ID: 490-156380-1

Method	Method Description	Protocol	Laboratory
1671A	Ethanol (GC/FID)	EPA	TAL NSH

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Accreditation/Certification Summary

Client: Alpha Analytical Inc
Project/Site: L1828640

TestAmerica Job ID: 490-156380-1

Laboratory: TestAmerica Nashville

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2938	10-31-18

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
1671A		Water	Ethanol

Maine	State Program	1	TN00032	11-03-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
1671A		Water	Ethanol

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-156380 Chain of Custody

Cooler Received/Opened On 07-27-2018 @ 09:00

Time Samples Removed From Cooler 09:53 Time Samples Placed In Storage 10:08 (2 Hour Window)

1. Tracking # 1ZE306540192749979 (last 4 digits, FedEx) Courier: UPS NDA

IR Gun ID 31470368 pH Strip Lot N/A Chlorine Strip Lot N/A

2. Temperature of rep. sample or temp blank when opened: 3.0 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO NA

If yes, how many and where: _____

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) KD

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # _____

I certify that I unloaded the cooler and answered questions 7-14 (intial) KD

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) KD

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) KD

I certify that I attached a label with the unique LIMS number to each container (intial) KD

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Subcontract Chain of Custody

Test America (Nashville)
2960 Foster Creighton Drive
Nashville, TN 37204

Alpha Job Number
L1828640

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 508.439.5137 Email: nhunt@alphalab.com	Project Location: MA Project Manager: Nichole Hunt **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L1828640

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	B-2	07-25-18 08:00	WATER	Ethanol by EPA 1671 Revision A	
	B-8	07-25-18 09:15	WATER	Ethanol by EPA 1671 Revision A	
	B-19	07-25-18 10:10	WATER	Ethanol by EPA 1671 Revision A	

Loc: 490
156380

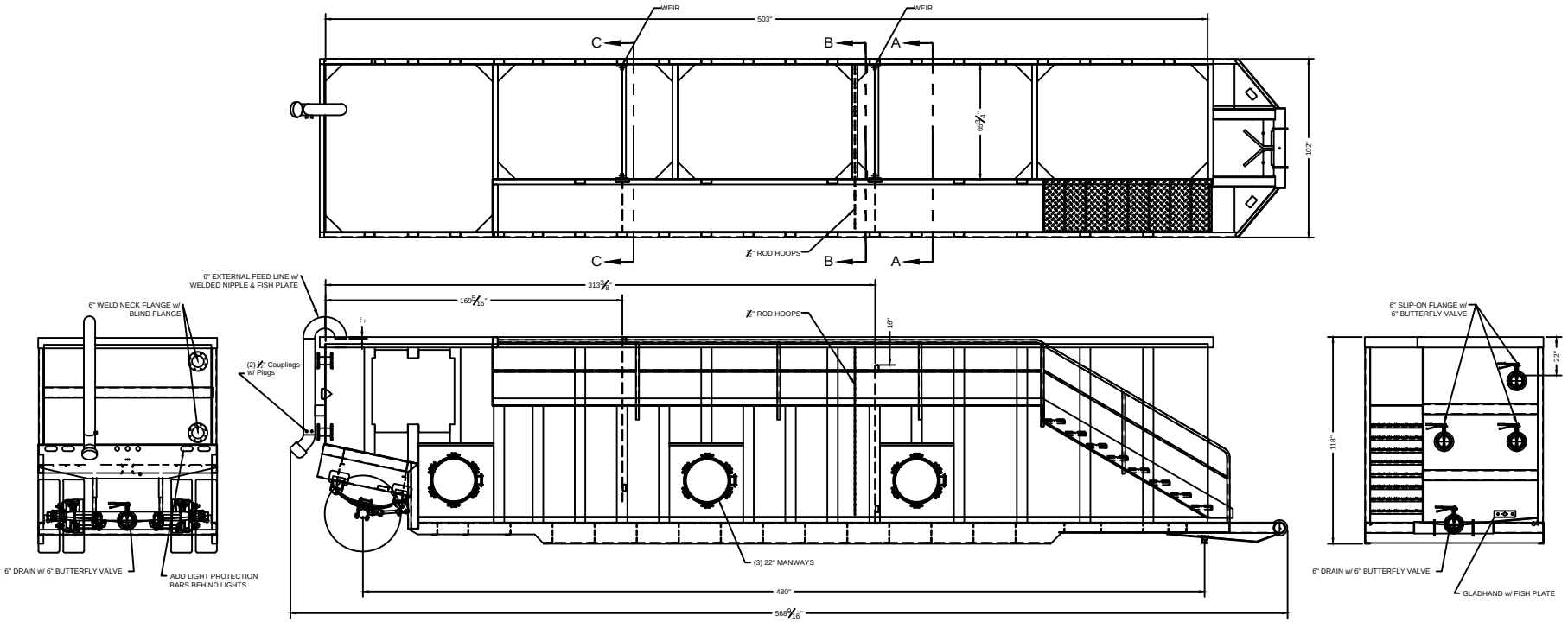
Relinquished By:	Date/Time:	Received By:	Date/Time:
Chris Tolman	7/26/18 16:27	Keith Jewett TA-NAS	07/27-2018 09:00

Form No: AL_subcoc

3.0

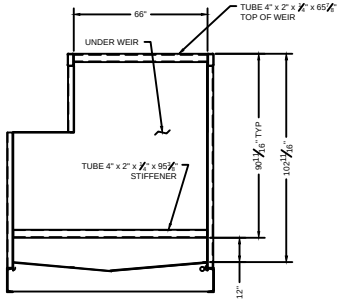
Appendix C

Cutsheets

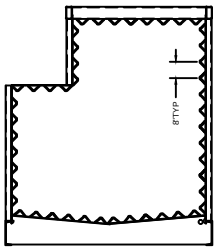


STANDARD SPECIFICATION

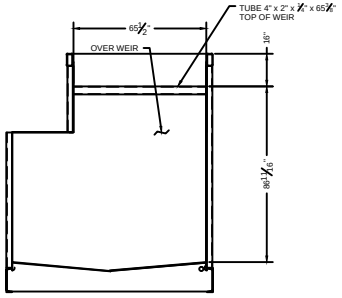
CAPACITY: .... 18,480 GALLONS (440 BBL)
SIDE SHEETS: .... 1/4" A36 PLATE
FRONT SHEET: .... 1/4" A36 PLATE
REAR SHEET: .... 1/4" A36 PLATE
FLOOR: .... 1/4" A36 PLATE
MAIN FLOOR RAILS: .... 12" x 20.7# STRUCTURAL CHANNEL
FLOOR CROSSMEMBERS: .... 1/4" A36 PLATE
SIDE STAKES: .... ONE PIECE 3/16" A36 PLATE
SUSPENSION: .... 3 LEAF SPRING, 22,500 LBS. CACPACITY
AXLE: .... 77.5" TRACK, 22,500 LBS. CAPACITY
TIRES: .... 11R22.5 RADIAL
WHEELS: .... 8.25 x 22.5 STEEL
MANWAYS: .... 3 - 22" DIA. CURB SIDE
VALVES: .... 3 - 6" BUTTERFLY VALVE (FRONT)
1 - 6" DRAIN BUTTERFLY VALVE (FRONT)
1 - 6" DRAIN BUTTERFLY VALVE (REAR)
2 - 6" BLIND FLANGE CONNECTION (REAR)
INLET PIPING: .... 1 - 6" PIPE SYSTEM (REAR)
BLAST: .... (INTERIOR) SSPC-SP-10 (NEAR WHITE)
(EXTERIOR) SSPC-SP-6 (COMMERCIAL BLAST)
PAINT: .... (INTERIOR) EPOXYPHENOLIC 100% SOLID 20.0 MILS D.F.T.
(EXTERIOR) FINISH COAT POLURETHANE 4.0 TO 5.0 D.F.T.



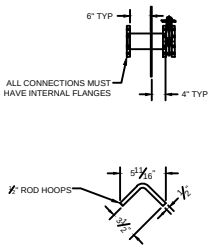
SECTION VIEW "C-C"



SECTION VIEW "B-B"



SECTION VIEW "A-A"



18,000 Gal. Weir Tank

Lockwood Remediation Technologies, LLC

89 Crawford Street
Leominster, Massachusetts 01453
O: 774-450-7177
F: 888-835-0617

The Pulsatron Series HV designed for high viscosity applications for precise and accurate metering control. The Series HV offers manual control over stroke length and stroke rate as standard with the option to choose between 4-20mA and external pace inputs for automatic control.

Five distinct models are available, having pressure capabilities to 150 PSIG (10 BAR) @ 12 GPD (1.9 lph), and flow capacities to 240 GPD (37.9 lph) @ 80 PSIG (5.6 BAR), with a turndown ratio of 100:1. Metering performance is reproducible to within ± 2% of maximum capacity.

Features

- Automatic Control, available with 4-20mADC direct or external pacing, with stop function.
- Manual Control by on-line adjustable stroke rate and stroke length.
- Auto-Off-Manual switch.
- Highly Reliable timing circuit.
- Circuit Protection against voltage and current upsets.
- Panel Mounted Fuse.
- Solenoid Protection by thermal overload with auto-reset.
- Water Resistant, for outdoor and indoor applications.
- Indicator Lights, panel mounted.
- Guided Ball Check Valve Systems, to reduce back flow and enhance outstanding priming characteristics.
- Viscosities to 20,000 CPS.

Controls

Manual Stroke Rate

- Turn-Down Ratio 10:1

Manual Stroke Length

- Turn-Down Ratio 10:1

4-20mA or 20-4mA Input

- Automatic Control

Operating Benefits

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

Aftermarket

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

Series HV

Specifications and Model Selection

MODEL		LVB3	LVF4	LVG4	LVG5	LVH7
Capacity	GPH	0.50	1.00	2.00	4.00	10.00
nominal	GPD	12	24	48	96	240
(max.)	LPH	1.9	3.8	7.6	15.1	37.9
Pressure	PSIG	150	150	110	110	80
(max.)	BAR	10	10	7	7	5.6
Connections:	Tubing	(S) .50" I.D. X .75" O.D. .38" I.D. X .50" OD (LVB3 & F4 only) (S & D) .50" I.D. X .75" O.D. (LVG4,G5 & H7 only)				

Engineering Data

Pump Head Materials Available: GFPPL, PVC, PVDF, 316 SS

Diaphragm: PTFE-faced CSPE-backed

Check Valves Materials Available:

Seats/O-Rings: PTFE, CSPE, Viton

Balls: Ceramic, PTFE, 316 SS, Alloy C

Fittings Materials Available: GFPPL, PVC, PVDF

Bleed Valve: Same as fitting and check valve selected, except 316SS

Injection Valve & Foot Valve Assy: Same as fitting and check valve selected

Tubing: Clear PVC, White PE

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

Engineering Data

Reproducibility: +/- 2% at maximum capacity

Viscosity Max CPS: 20,000 CPS

Stroke Frequency Max SPM: 125

Stroke Frequency Turn-Down Ratio: 10:1

Stroke Length Turn-Down Ratio: 10:1

Power Input: 115 VAC/50-60 HZ/1 ph, 230 VAC/50-60 HZ/1 ph

Average Current Draw:

@ 115 VAC; Amps: 1.0 Amps

@ 230 VAC; Amps: 0.5 Amps @ 230 VAC

Peak Input Power: 300 Watts

Average Input Power @ Max SPM: 130 Watts

Custom Engineered Designs – Pre-Engineered Systems

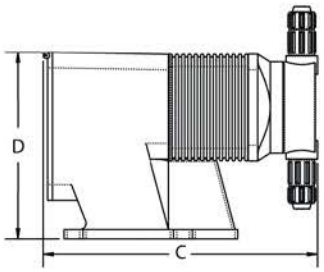
Pre-Engineered Systems

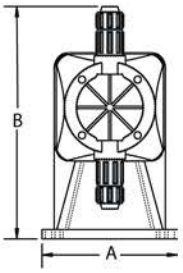
Pulsafeeder's Pre-Engineered Systems are designed to provide complete chemical feed solutions for all electronic metering applications. From stand alone simplex pH control applications to full-featured, redundant sodium hypochlorite disinfection metering, these rugged fabricated assemblies offer turn-key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

Dimensions

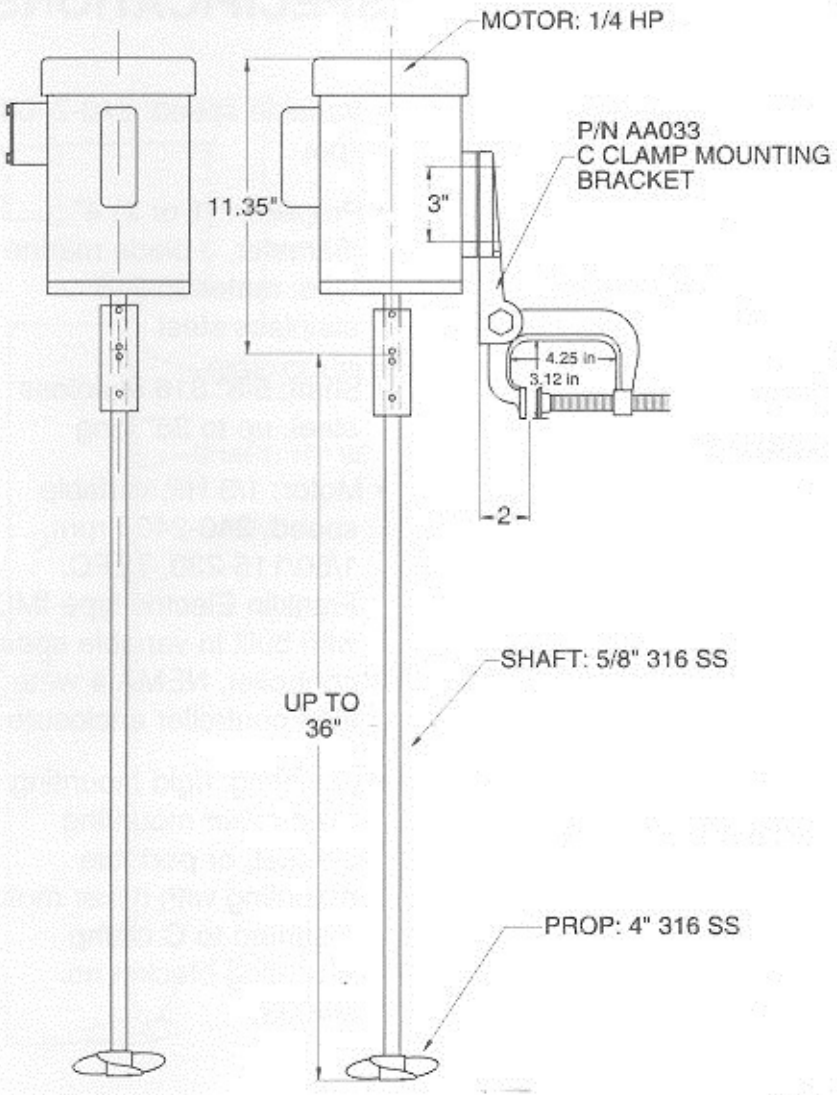
Series HV Dimensions (inches)					
Model No.	A	B	C	D	Shipping Weight
LVB3	5.4	9.3	9.5	7.5	13
LVF4	5.4	10.8	10.8	7.5	18
LVG4	5.4	9.5	10.6	7.5	18
LVG5	5.4	10.8	10.8	7.5	18
LVH7	6.1	11.5	11	8.2	25

NOTE: Inches X 2.54 = cm





MIXER MODEL NO. AA102A



AA102A

SPECIFICATIONS

- Speed: 1,725 rpm
- Propeller: (1 or 2) 4" diameter, 3 blade marine type, material: 316 stainless steel
- Shaft: 5/8" 316 stainless steel, up to 36" long
- Motor: 1/4 HP, 1,725 rpm, 1/60/115-230, capacitor start, or 3/60/230-460, TEFC
- Mounting: rigid mounting to fixed mixer mounting bracket, or portable mounting with mixer motor mounted to C clamp mounting bracket no. AA033.

SAFETY DATA SHEET

Revision date 2015-03-12 **Revision number** 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product name Redux E50

Other means of identification

Product code
Synonyms Water And Wastewater Treatment Coagulant/Flocculant

Recommended use of the chemical and restrictions on use

Recommended use [RU] No information available
Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier

Lockwood Remediation Technologies, LLC
89 Crawford Street
Leominster, Massachusetts 01453
Tel: (774) 450-7177
Hours: Monday-Friday 9:00-5:00 EST

Emergency telephone number

24 Hour Emergency Phone Number CHEMTREC: (800) 424-9300
Outside USA - +1 (703) 527-3887 collect calls accepted

Contact Point info@reduxtech.com

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Corrosive to metals	Category 1

GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

Physical state	Color	Appearance	Odor
liquid	colorless to yellow	clear	no appreciable odor

WARNING

Hazard statements
Causes skin irritation
Causes serious eye irritation
May be corrosive to metals

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Keep only in original container

Precautionary Statements - Response
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Absorb spillage to prevent material damage

Precautionary Statements - Storage
Store in corrosive resistant container with a resistant inner liner

Other information
• May be harmful in contact with skin

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	weight-%	TRADE SECRET
Trade Secret Ingredient	PROPRIETARY	45 - 55%	*

*The exact percentage (concentration) of composition has been withheld as a trade secret

4. FIRST AID MEASURES

First Aid Measures

Eye contact
Immediately flush with plenty of water for at least 20 minutes, holding eyelids apart to ensure flushing of the entire surface. Washing within one minute is essential to achieve maximum effectiveness. Seek immediate medical attention.

Skin contact
Immediately wash thoroughly with soap and water, remove contaminated clothing and footwear. Wash clothing before reuse. Get medical attention if irritation should develop.

Ingestion
Seek medical attention immediately. Give large amounts of water to drink. If vomiting should occur spontaneously, keep airway clear. Never give anything by mouth to an unconscious person.

Inhalation
Remove to fresh air.

Most important symptoms and effects, both acute and delayed

Acute effects
Possible eye, skin and respiratory tract irritation.

Chronic effects
May aggravate existing skin, eye, and lung conditions. Persons with kidney disorders have an increased risk from exposure based on general information found on aluminum salts.

Indication of any immediate medical attention and special treatment needed

Note to physicians
Aluminum soluble salts may cause gastroenteritis if ingested. Treatment includes the use of demulcents. Note: Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media
Water Spray, Carbon Dioxide, Foam, Dry Chemical.

Extinguishing media which must not be used for safety reasons
No information available

Special hazards arising from the substance or mixture

Special Hazard
May produce hazardous fumes or hazardous decomposition products.

Advice for firefighters

Firefighting measures
Product is a water solution and nonflammable. In a fire, this product may build up pressure and rupture a sealed container; cool exposed containers with water spray. Use self-contained breathing apparatus in confined areas; avoid breathing mist or spray.

Special protective equipment for firefighters
Not determined

Explosion data

Sensitivity to Mechanical Impact
None.

Sensitivity to Static Discharge
None.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Wear suitable protective clothing and gloves.

Environmental precautions

Environmental precautions
Do not permit run-off to get into sewers or surface waterways.

Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike to collect large liquid spills.

Methods for cleaning up
Clear spills immediately. Contain large spill and remove using a vacuum truck. Soak up small spills with inert absorbent material and place in a labeled waste container for disposal. Ventilate area of leak or spill. Spills of solution are extremely slippery so all residue must be removed promptly.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling
Keep container closed when not in use
Keep away from heat and open flame.
Avoid contact with eyes, skin and clothing
Wash thoroughly after handling
Wear chemical splash goggles, gloves, and protective clothing when handling.
Avoid breathing vapor or mist
Use with adequate ventilation and employ respiratory protection where mist or spray may be generated.
FOR INDUSTRIAL USE ONLY.

Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions
Do not store in unlined metal containers.
Product may slowly corrode iron, brass, copper, aluminum, mild steel, and stainless steel.
Store in a cool, dry place away from direct heat.
Keep in tightly closed container.

Incompatible products
Oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines
This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering controls
Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details. If there are no applicable or established exposure limit requirements or guidelines, general ventilation should be sufficient.

Individual protection measures, such as personal protective equipment

Eye/face Protection
Wear chemical splash goggles and face shield (when eye and face contact is possible due to splashing or spraying of material).

Hand Protection
Appropriate chemical resistant gloves should be worn.

Skin and body protection
Standard work clothing and work shoes.

Respiratory protection
If exposures exceed the PEL or TLV, use NIOSH/MSHA approved respirator in accordance with OSHA Respiratory Protection Requirements under 29 CFR 1910.134.

Other personal protection data
Eyewash fountains and safety showers must be easily accessible.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	liquid
Color	colorless to yellow
Appearance	clear
Odor	no appreciable odor
Odor threshold	No information available

Property	Values	Remarks / Method
pH	3.5	as is
Melting / freezing point	-7 °C / 19 °F	No information available
Boiling point / boiling range	No information available	No information available
Flash point	Not applicable	No information available
Evaporation rate	No information available	No information available

Flammability (solid, gas)	Not applicable	No information available
Flammability Limit in Air		
Upper flammability limit	Not applicable	No information available
Lower flammability limit	Not applicable	No information available
Vapor pressure	No information available	No information available
Vapor density	No information available	No information available
Specific gravity	1.33 - 1.35	No information available
Solubility (water)	Soluble	No information available
Solubility in other solvents	No information available	No information available
Partition coefficient: n-octanol/water	No information available	No information available
Autoignition temperature	Not applicable	No information available
Decomposition temperature	No information available	No information available
Kinematic viscosity	No information available	No information available
Dynamic viscosity	< 100 cps @ 20 °C	No information available

Other information

Density	11.0 - 11.3 lb/gal
Bulk Density	No information available
Explosive properties	No information available.
Oxidizing properties	No information available
Softening point	No information available
Molecular weight	No information available
Volatile organic compounds (VOCs) content	No information available
Percent Volatile, wt.%	40 - 50%

10. STABILITY AND REACTIVITY

Reactivity

Reactivity
No data available.

Chemical stability

Chemical stability
Stable.

Possibility of hazardous reactions

Possibility of hazardous reactions
None under normal processing.

Hazardous polymerization
No.

Conditions to avoid

Conditions to avoid
None

Incompatible materials

Materials to avoid
Oxidizing agents.

Hazardous decomposition products

Hazardous decomposition products
Thermal decomposition may release toxic and/or hazardous gases such as Cl_2 and HCl.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Eye contact
May cause moderate eye irritation that can become severe with prolonged contact. Prolonged exposure to Aluminum salts may cause conjunctivitis.

Skin contact
May be harmful in contact with skin. Prolonged and/or repeated contact may cause skin irritation.

Ingestion
May cause irritation of the mouth, throat and stomach. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Inhalation
Inhalation of mist or vapor may cause respiratory tract irritation.

Acute toxicity - Product Information

Oral LD50	No information available
Dermal LD50	No information available
Inhalation LC50	No information available

Acute toxicity - Component Information

Component	weight-%	Oral LD50	Dermal LD50	Inhalation LC50
Trade Secret Ingredient	45 - 55%	= 9187 mg/kg (Rat)	> 2000 mg/kg (Rat)	--

Information on toxicological effects

Symptoms
No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation
Irritating to skin

Serious eye damage/eye irritation
Causes serious eye irritation

Sensitization
No information available

Germ cell mutagenicity
No information available

Carcinogenicity
This product does not contain any components in concentrations greater than or equal to 0.1% that are listed as known or suspected carcinogens by NTP, IARC, ACGIH, or OSHA.

Reproductive toxicity
No information available

Specific target organ toxicity - Single exposure
No information available.

Specific target organ toxicity - Repeated exposure
No information available

Aspiration hazard
No information available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	18374 mg/kg
ATEmix (dermal)	4004 mg/kg

Other information
Conclusions are drawn from sources other than direct testing.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Acute aquatic toxicity - Product Information

Fish	LC 50 (96 hour, static) 776.4 mg/L *Pimephales promelas* (Fathead Minnow) [1] EC 50 (96 hour, static) 265.5 mg/L *Pimephales promelas* (Fathead Minnow) [1]
Crustacea	LC 50 (48 hour, static) 803.8 mg/L *Ceriodaphnia dubia* (Water Flea) [1] EC 50 (48 hour, static) 33.2 mg/L *Ceriodaphnia dubia* (Water Flea) [1]
Algae/aquatic plants	No information available

Acute aquatic toxicity - Component Information

Component	weight-%	Algae/aquatic plants	Fish	Toxicity to daphnia and other aquatic invertebrates
Trade Secret Ingredient	45 - 55%	--	LC50 (96 h static) 100 - 500 mg/L (Brachydanio rerio)	--

Persistence and degradability

Persistence and degradability
No information available

Bioaccumulative potential

Bioaccumulative potential
No information available.

Mobility

Mobility
No information available

Results of PBT and vPvB assessment

PBT and vPvB assessment
No information available

Other adverse effects

Other information
[1] Generated from tests conducted by ECT-Superior Laboratories May 2010

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes
Do NOT mix with other chemical wastes. Do not put solutions containing this product into sewer systems. Dispose of product in an approved chemical waste landfill or incinerate in accordance with applicable Federal, state and local regulations. Do not re-use empty containers.

Contaminated packaging
Since empty containers retain product residue, follow label warnings even after container is emptied.

14. TRANSPORT INFORMATION

DOT

NOT REGULATED FOR TRANSPORTATION
This product is excepted from DOT regulations under 49 CFR 173.154(d) when shipped by road or railway. The product exception is referenced in 49 CFR 172.101 Table. Packaging material must not be aluminum, steel or be degraded by this product

ICAO/IATA

Regulated

UN number	UN3264
Proper shipping name	Corrosive Liquid, Acidic, Inorganic, N.O.S. (Polyaluminum Chloride Solution)
Hazard class	8
Packing group	III
ERG Code	8L

IMDG

Regulated

UN number	UN3264
Proper shipping name	Corrosive Liquid, Acidic, Inorganic, N.O.S. (Polyaluminum Chloride Solution)
Hazard class	8
Packing group	III
EmS	F-A, S-B

Harmonized Tariff Number 2827.32

15. REGULATORY INFORMATION

International Inventories

TSCA (United States)
All ingredients are on the inventory or exempt from listing

Australia (AICS)
All ingredients are on the inventory or exempt from listing

Canada (DSL)
All ingredients are on the inventory or exempt from listing

Canada (NDSL)
None of the ingredients are on the inventory.

China (IECSC)
All ingredients are on the inventory or exempt from listing

EINECS (European Inventory of Existing Chemical Substances)
All ingredients are on the inventory or exempt from listing

ELINCS (European List of Notified Chemical Substances)
None of the ingredients are on the inventory.

ENCS (Japan)
All ingredients are on the inventory or exempt from listing

South Korea (KECL)
All ingredients are on the inventory or exempt from listing

Philippines (PICCS)
All ingredients are on the inventory or exempt from listing

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
AICS - Australian Inventory of Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
IECSC - China Inventory of Existing Chemical Substances
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

U.S. Federal Regulations

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic health hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive hazard	No

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated under applicable state right-to-know regulations

16. OTHER INFORMATION

NFPA Rating	Health - 1	Flammability - 0	Instability - 0	Special Hazard -
HMIS Rating	Health - 1	Flammability - 0	Physical hazard - 0	Personal protection - B

Product code

Revision date 2015-03-12

Revision number 1

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

1 PRODUCT AND COMPANY IDENTIFICATION

Manufacturer

Lockwood Remediation Technologies, LLC
89 Crawford Street
Leominster, MA 01453

Contact: Paul Lockwood
Phone: 774-450-7177
Fax: 885-835-0617
Email: plockwood@lrt-llc.net

Product Name: LRT-820 Series Polymer
Revision Date: 3-2-16
SDS Number: lrt820series
Common Name: Blended Product
CAS Number: N/A
Product Code: N/A
EPA Number: N/A
RCRA Number: N/A
Chemical Family: Blended Product
Chemical Formula: Proprietary
Synonyms: Blended Product
Internal ID: N/A
Product Use: Water Treatment Compound

2 HAZARDS IDENTIFICATION

Route of Entry: Inhalation; Skin; Ingestion.

Target Organs: Esophagus; Eyes; Lungs; Mucous membranes; Respiratory system; Skin; Upper respiratory tract;

Inhalation: Can cause irritation and inflammation of the respiratory tract.

Skin Contact: May cause irritation. May cause burning.

Eye Contact: May cause irritation. May cause loss of vision. May cause permanent eye damage.

Ingestion: Aspiration hazard: Harmful or fatal if swallowed. Cuases burns of the mouth, throat and stomach. Toxic if orally ingested.

HMIS III: H0/F0/PH0

GHS Signal Word:
NONE

GHS Classifications:
None, None, None

GHS Phrases:
H000 - None

GHS Precautionary Statements:
P103 - Read label before use.
P235+410 - Keep cool. Protect from sunlight.
P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
P262 - Do not get in eyes, on skin, or on clothing.
P304+340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+351+338 - IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P306+360 - IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
P314 - Get Medical advice/attention if you feel unwell.
P403+233 - Store in a well ventilated place. Keep container tightly closed.

This product is not classified as hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

This product is not classified as Hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

All of the product's ingredients are either listed or exempt from the TSCA Inventory.

Specific chemical identity is being withheld as a trade secret

4 FIRST AID MEASURES

Inhalation: Move victim to fresh air. No hazards which require special first aid measures.

Skin Contact: Promptly flush skin with soap and water until all chemical is removed.
Remove contaminated clothing and wash before reuse.
Get medical attention if irritation develops and persists.

Eye Contact: Flush with large amounts of water for at least 15 minutes, holding lids apart to ensure flushing of the entire surface. Washing eyes within 1 minute is essential to achieve maximum effectiveness. Get medical attention if eye irritation persists..

Ingestion: Do NOT induce vomiting or attempt chemical neutralization. For spontaneous vomiting, keep head below hips. Rinse mouth with water. No hazards which require special first aid measures.

5 FIRE FIGHTING MEASURES

Flammability:	N/A
Flash Point:	N/A
Flash Point Method:	N/A
Burning Rate:	N/A
Autoignition Temp:	N/A.
LEL:	N/A
UEL:	N/A

Wear self contained breathing apparatus and other protective clothing. Approach the fire from upwind to avoid vapors. Use a water spray to keep fire exposed containers cool. Extinguish fire using water, carbon dioxide, alcohol-resistant foam, or dry powder. Recover with vacuum equipment such as a septic tank truck. Evacuate the area and fight the fire from a safe distance or a protected location.

Aqueous solutions or powders that become wet render surfaces extremely slippery.

Firefighters should wear proper protective equipment and In the event of a fire, wear self-contained breathing spparatus.

6 ACCIDENTAL RELEASE MEASURES

Pick up excess with inert absorbant material and place into separate waste container.
Vacuum or sweep the material into a bag or other sealed container and dispose in accordance with local requirements.
Restrict access to the area until completion of the clean-up process. Ensure that this clean-up is only conducted by trained personnel. Wear required protective clothing and equipment. Properly ventilate the area of the spill. If safely possible, contain the spill or leak. As with all chemical products, do not flush into surface water.

Aqueous solutions or powders that become wet render surfaces extremely slippery.

All Spills: DO NOT FLUSH WITH WATER. Clean up promptly by sweeping or vacuum. Keep in suitable, closed containers for disposal. After cleaning, flush away traces with water.

7 HANDLING AND STORAGE

Handling Precautions: Wear recommended protective equipment when handling.
Keep material out of reach of children. Use approved containers only.
Launder contaminated clothing. Wash thoroughly after handling.
Store in a cool, dry and well ventilated area.
Keep container closed when not in use.

Storage Requirements: Store in cool/dry and well ventilated area.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use mechanical (general) ventilation for storage areas.

Personal Protective Equip: HMIS PP, B | Safety Glasses, Gloves
HMIS PP, C | Safety Glasses with side shields, Gloves, Apron
HMIS PP, C | Goggles, Gloves, Apron
Chemical goggles; Apron; Chemical resistant gloves.
Work clothes protecting arms, legs and body.
No personal respiratory protective equipment normally required. Dust safety masks recommended where working powder concentration is more than 10 mg/m3.

Follow good work and hygiene practices. Provide a safety shower and wash basin in immediate work area. Workers should wash before eating or leaving the work area.

Do not allow uncontrolled discharge of product into the environment. Do not flush into surface water.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Granular white solid		
Physical State:	Solid	**Odor:**	None
Odor Threshold:	N/A	**Molecular Formula:**	N/A
Particle Size:	N/A	**Solubility:**	Soluble in water
Spec Grav./Density:	1.04 - 1.08	**Softening Point:**	N/A
Viscosity:	NDA	**Percent Volatile:**	NDA
Sat. Vap. Conc.:	N/A	**Heat Value:**	NDA
Boiling Point:	N/A	**Freezing/Melting Pt.:**	Less than 32 degrees F.
Flammability:	NDA	**Flash Point:**	N/A
Partition Coefficient:	-2	**Octanol:**	N/A
Vapor Pressure:	N/A	**Vapor Density:**	N/A
pH:	5 - 9 @ 5 g/L	**VOC:**	NDA
Evap. Rate:	N/A	**Bulk Density:**	0.6 - 0.9
Molecular weight:	N/A	**Auto-Ignition Temp:**	Does not self-ignite (based on th

10 STABILITY AND REACTIVITY

Stability:	Product is stable under normal conditions.
Conditions to Avoid:	None known
Materials to Avoid:	Incompatible with oxidizing agents.
Hazardous Decomposition:	Thermal decomposition may produce: nitrogen oxides (NOx), carbon oxides (COx), hydrogen cyanide (hydrocyanic acid).
Hazardous Polymerization:	Will not occur.

11 TOXICOLOGICAL INFORMATION

Information on toxicological effects (product as supplied):

Acute oral toxicity:	LD50/oral/rat >5000 mg/kg
Acute dermal toxicity:	LD50/oral/rat >5000 mg/kg
Acute inhalation toxicity:	The product is not expected to be toxic by inhalation.
Skin corrosion/irritation:	Not irritating
Serious eye damage/eye irritation:	Not irritating
Respiratory/skin sensitisation:	Not sensitizing
Mutagenicity:	Not mutagenic
Carcinogenicity:	Not carcinogenic
Reproductive toxicity:	Not toxic for reproduction
STOT - single exposure:	No known effects
STOT = repeated exposure	No known effects
Aspiration hazard:	No hazards resulting from the material as supplied

12 ECOLOGICAL INFORMATION

Information on the product as supplied:

Acute toxicity to fish:	LC50/Danio rerio/96 hours > 100 mg/L (OECD 203)
Acute toxicity to invertebrates:	EC50/Daphnia magna/48 hours > 100 mg/L (OECD 202)
Acute toxicity to algae:	IC50/Scenedesmus subspicatus/72 hours > 100 mg/L (OECD 201)
Chronic toxicity to fish:	No data available
Chronic toxicity to invertibrates:	No data available
Toxicity to microorganisms:	No data available
Effects on terestrial organisms:	No known effects
Sediment toxicity:	No data available
Degradation:	Not readily biodegradable.
Hydrolysis:	Does not hydrolyse.
Photolysis:	No data available

Not bioaccumulating

Partition co-efficient (Log Pow):	-2
Bioconcentration factor (BCF):	~0

13 DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulations. Can be landfilled or incinerated, when in compliance with local regulations.

Rinse empty containers with water and use the rinse-water to prepare the working solution.

The product and it's packaging are not suitable for recycling.

14 TRANSPORT INFORMATION

For all transportation accidents, call CHEMTREC at 800/424-9300. All spills and leaks of this material must be handled in accordance with local, state, and federal regulations.

DOT Shipping Designation:

Non-hazardous under 29-CFR 1910.1200. Water treatment compound.

15 REGULATORY INFORMATION

All components of this product are either listed on the inventory or are exempt from listing.

According to our information this product is not a dangerous material and is not classified as hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

REGULATORY KEY DESCRIPTIONS

CERCLA = Superfund clean up substance
CSWHS = Clean Water Act Hazardous substances
MASS = MA Massachusetts Hazardous Substances List
OSHAWAC = OSHA Workplace Air Contaminants
PA = PA Right-To-Know List of Hazardous Substances
TXAIR = TX Air Contaminants with Health Effects Screening Level
APP9 = Appendix 9
EPCRAWPC = EPCRA Water Priority Chemicals
HAP = Hazardous Air Pollutants
HWRCRA = RCRA Hazardous Wastes
NJHS = NJ Right-to-Know Hazardous Substances
NRC = Nationally Recognized Carcinogens
OSHAHTS = OSHA Hazardous and Toxic Substances
PRIPOL = Clean Water Act Priority Pollutants
PROP65 = CA Prop 65
SARA313 = SARA 313 Title III Toxic Chemicals
TOXICPOL = Clean Water Act Toxic Pollutants
TOXICRCRA = RCRA Toxic Hazardous Wastes (U-List)
TXHWL = TX Hazardous Waste List
TSCA = Toxic Substances Control Act

16 OTHER INFORMATION

DISCLAIMER:
All information, recommendations and suggestion appearing herein concerning our product are based upon tests and data believed to be reliable. However, it is the user's responsibility to determine the safety, toxicity, and suitability for his own use of the product described herein. Since the acutal use by others is beyond our control, no guarantee, expressed or implied, is made by Lockwood Remediation Technologies, LLC as to the effects of such use, the results to be obtained, or the safety and toxicity of the product; nor does Lockwood Remediation Technologies, LLC assume any liability arising out of use, by others, of the product referred to herein. The information herein is not to be construed as absolutely complete since additional information may be necessary or desirable when particular or exceptional conditions or circumstances exist or because of applicable laws or government regulations.

For manufacturing use only. Not for food or drug use.

Electric Motor Driven

Submersible Pump

Models S3B1-E6 *and* S3B1

Size 3”

PUMP SPECIFICATIONS

Suction Head: Aluminum Alloy 356-T6 With Bonded Nitrile Lining; Maximum Operating Pressure 50 psi (345 kPa).*
Impeller: Ductile Iron 65-45-12.
Seal Plate: Aluminum Alloy 356-T6 With Bonded Nitrile Lining.
Intermediate: Aluminum Alloy 356-T6.
Motor Housing: Aluminum Alloy 356-T6.
Motor Shaft: Stainless Steel 416.
Bearings: Upper, Open Single Row Ball Bearing.
Lower, Two Shield, Double Row Ball Bearing.
Shaft Sleeve: Stainless Steel 304.
Discharge Flange: Aluminum Alloy 356-T6.
Gaskets: Cork with Nitrile Binder (NC710).
O-Rings: Buna-N.
Wetted Hardware: Standard Plated Steel and Stainless Steel.
Strainer: Urethane Coated Steel. 51% Open Area, 0.375” (9,5 mm) Diameter Openings.
Hoisting Bail: Urethane Coated Steel.

Standard Equipment

NEMA Type 3R Rainproof Control Box. *(See Section130, Pages 80 and 85.)*
Provides On-Off, Circuit Breaker and Motor Overload Protection.

Optional Equipment

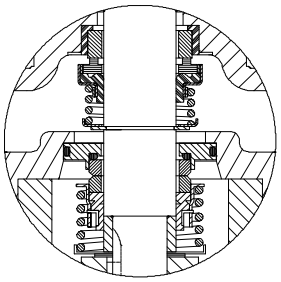
Liquid Level Control: *(See Sec. 130, Page 150.)*
a. Turtle Type Pressure Activated Level Switch.
b. .Float Activated Level Switch.
Staging Adapter Kit.

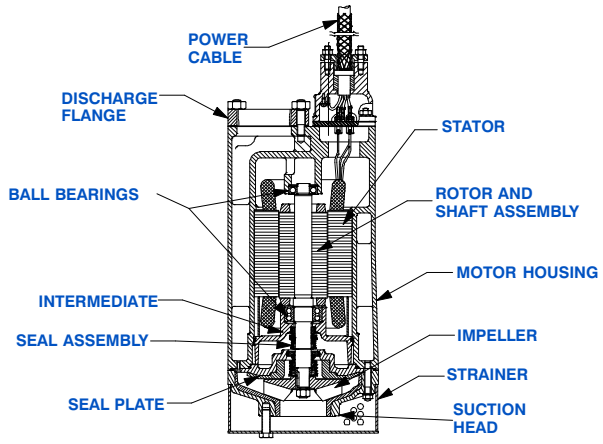
MOTOR/CABLE SPECIFICATIONS

Motor: Oil Filled Enclosure; 6.0 H.P.; 3450 R.P.M.
Single Phase: 230 Volt, 60 Hz, 34 Full Load AMPS, 7.2 kW (Max.)
Three Phase: 200/230/460/575 Volt, 60 Hz, 26.5/23/11.5/9.2 Full Load AMPS, 6.8 kW (Max.)
Power Cable: 4 Wire; Type SO/SOW/SOOW; 10 AWG; 3 Power Conductors, Plus 1 Ground. Nominal Length 50 Feet (15 m). Standard. (*Specify Alternate Length at Time of Order.*)
Recommended Generator Size: 15 kW Across the Line Start.

**Consult Factory for Applications Exceeding Maximum Pressure and/or Temperature Indicated.*

WARNING!
Do not use in explosive atmosphere or for pumping volatile flammable liquids.





SEAL SPECIFICATIONS
Tandem, Oil Lubricated.

Upper Seal: Type 21, Mechanical. Carbon Rotating Face. Ni-Resist Stationary Face. Buna-N Elastomers. Stainless Steel 18-8 Cage and Spring.

Lower Seal: Type 2, Mechanical. Tungsten Titanium Carbide Rotating and Stationary Faces. Stainless Steel 316 Stationary Seat. Fluorocarbon Elastomers (DuPont Viton® or Equivalent). Stainless Steel 303/304 Cage and Spring.

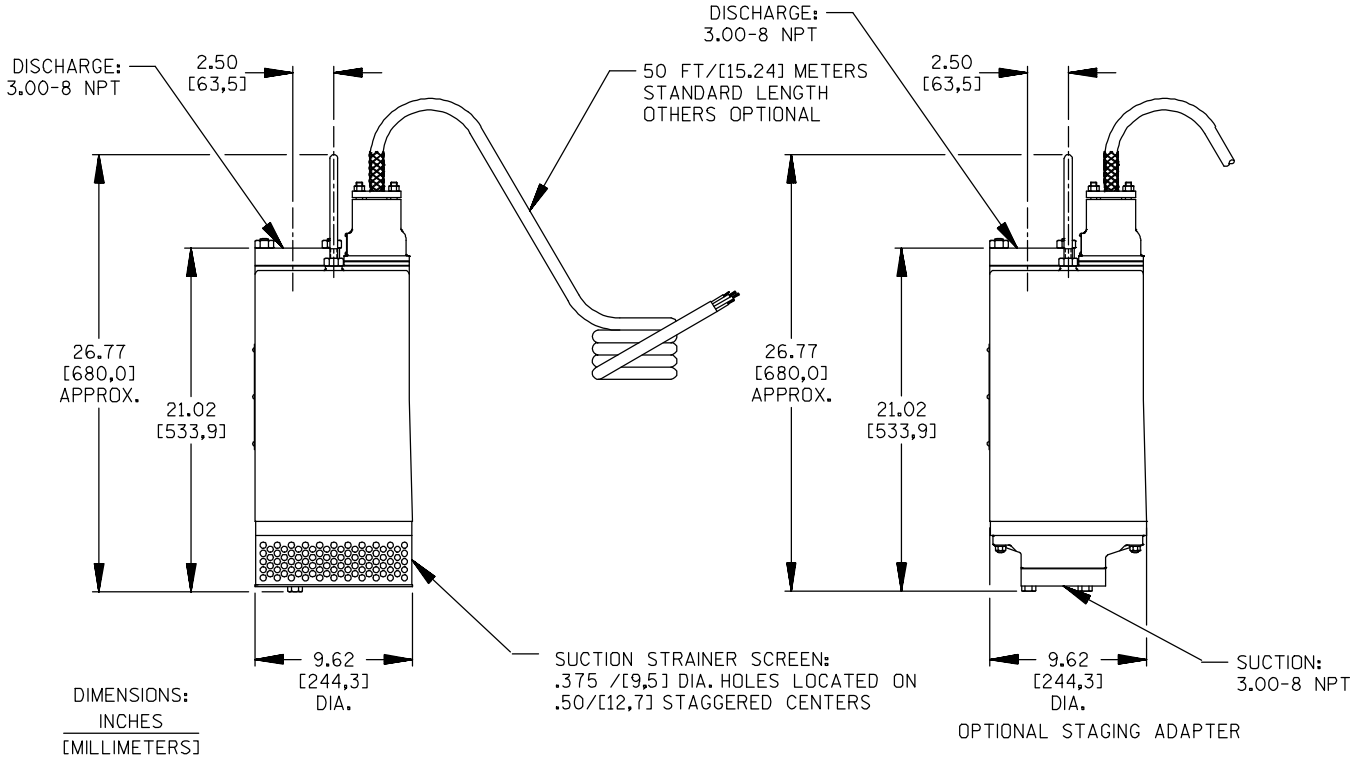
Maximum Temperature of Liquid Pumped, 122°F (50°C).*

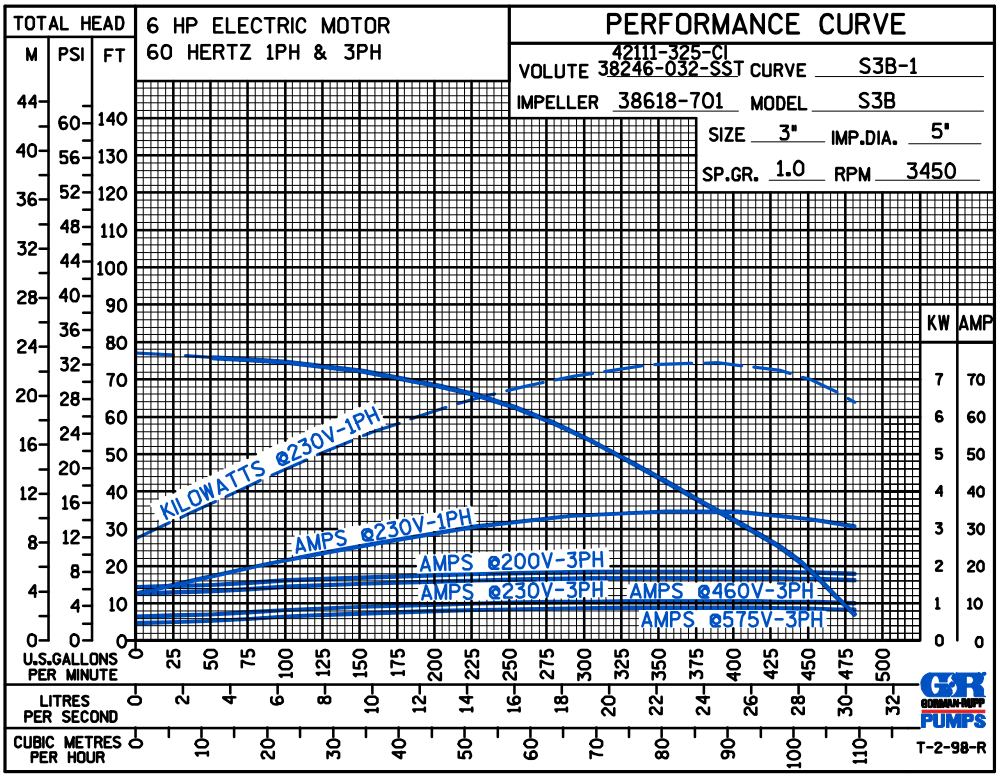
Specification Data

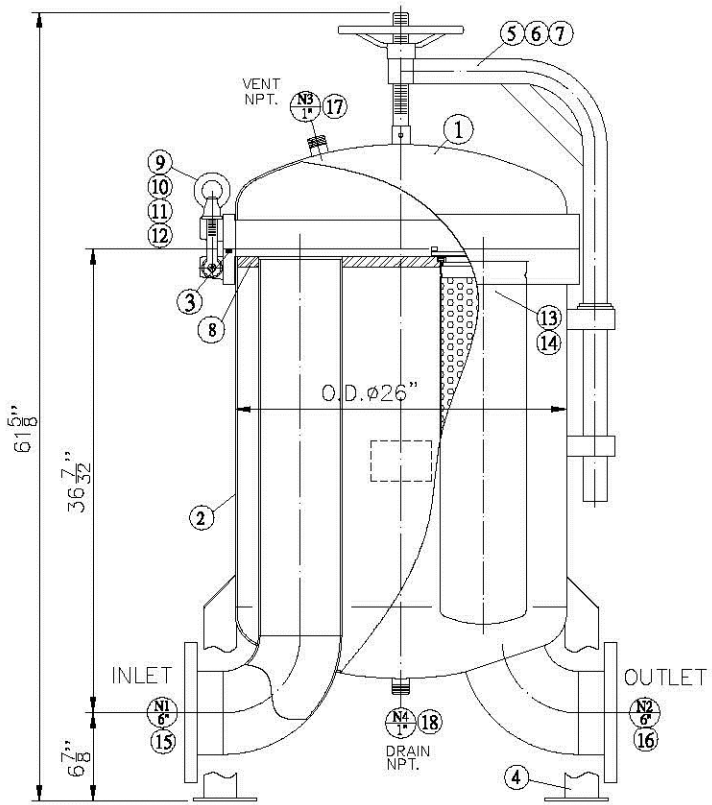
SECTION 130, PAGE 660

APPROXIMATE
DIMENSIONS and WEIGHTS

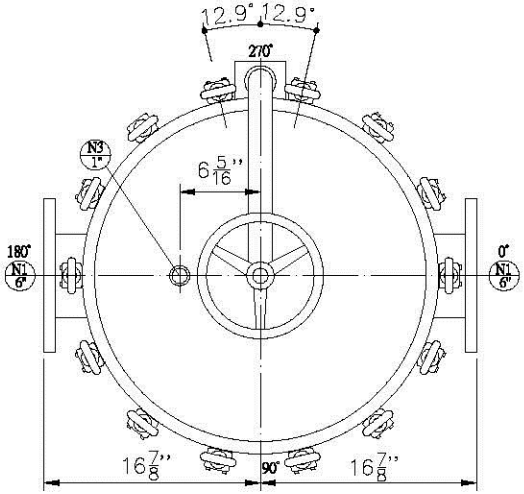
NET WEIGHT:	**145 LBS. (65,8 KG.)**
SHIPPING WEIGHT:	**155 LBS. (70,3 KG.)**
EXPORT CRATE SIZE:	**7.8 CU. FT. (0,22 CU. M.)**



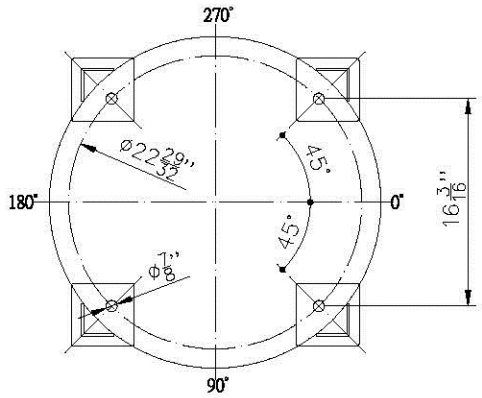




SIDE VIEW



TOP VIEW



ANCHOR

BILL OF MATERIALS
(QUANTITY PER UNIT)

PROD ORDER_____S.O_____ MFG. SERIAL NO._____

CUSTOMER_____ DESIGN __150__ PSIG __90__ °C

DESTINATION_____ MAX. A.W.P._150__ PSIG __90__ °C

CUST. P.O._____ HYDROSTATIC TESTED _225_ PSIG

CUST.EQUIP_____ CODE _____

CODE STAMP_____ N.B._____

NO OF UNITS _____ SCH SHIP DATE _____

WEIGHT EMPTY _____ KG. FULL _____ KG

NO.	DESCRIPTION	MATERIAL	UNIT	QUAN.	PART NO.
1	FILTER COVER	304		1	
2	FILTER SHELL	304		1	
3	GASKET	EPDM		1	
4	LEG WELDMENT	304		4	
5	DAVIT HANDWHEEL	304		1	
6	DAVIT SCREW	304		1	
7	DAVIT ARM	304		1	
8	SEPARATE PLATE	304		1	
9	EYENUT	304		14	
10	WASHER	304		14	
11	EYEBOLT	304		14	
12	BOLT SUPPORT	304		14	
13	BASKET	304		6	
14	BAG-LOCK DEVICE	304		6	
15	INLET 6" ANSI 150B RF	304		1	
16	OUTLET 6" ANSI 150B RF	304		1	
17	VENT NPT 1"	304		1	
18	DRAIN NPT 1"	304		1	

Lockwood Remediation Technologies, LLC
89 Crawford Street
Leominster, MA

NAME	REV: A
Multi-Bag Filter Vessel	SCALE: NONE

PROJECT NO.	ORDER NO.	ITEM NO.

DATE: UNIT: INCH

Polyester Liquid Filter Bag

Features

* Polyester liquid bag filter are available with a carbon steel ring, stainless steel ring or plastic flanges.
* Heavy-duty handle eases installation and removal
* Metal ring sewn into bag top for increased durability and positive sealing
* Wide array of media fibers to meet needed temperature and micron specifications

Applications

Polyester liquid filter bags can be used in the filtering of a wide array of industrial and commercial process fluids

Sizes

Our liquid filter bags are available for all common liquid bag housings. Dimensions range from 4.12" diameter X 8" length thru 9" diameter X 32" length.

Micron Ratings

Available fibers range from 1 to 1500 microns

Options

* Bag finish or covers for strict migration requirements.
* Plastic top O.E.M. replacements
* Multi-layered filtering capabilities for higher dirt holding capacities

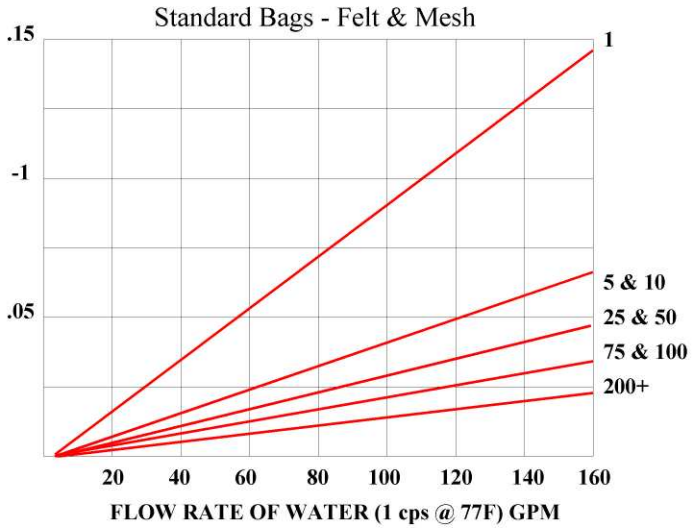
Optional Filter Media

Felt: Nomex, Polyester, Polypropylene

Monofilament: Nylon, Polyester, Polypropylene

Multifilament: Nylon, Polyester

Polypropylene: Oil Removal



89 Crawford Street
Leominster, Massachusetts 01453
Tel: 774.450.7177
Fax: 888.835.0617
www.lrt-llc.net

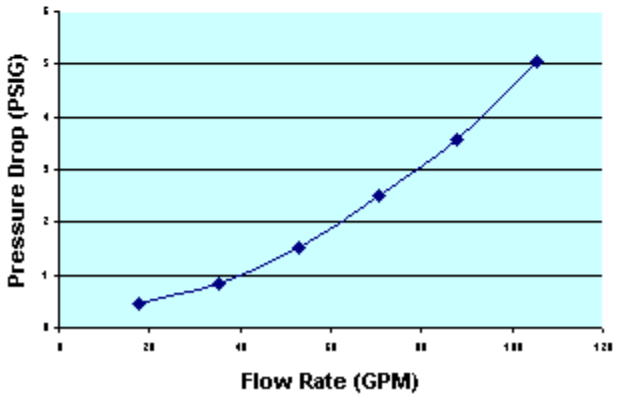
HPAF SERIES FILTERS
MODEL HPAF-2000

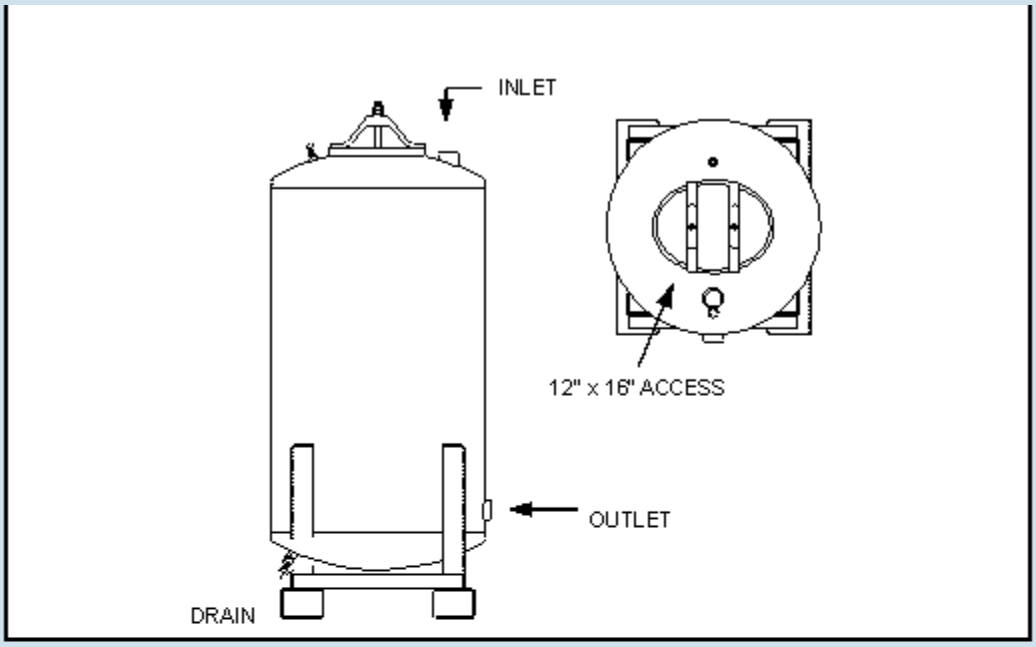
The HPAF-2000 filter is a media filter vessel designed to treat liquid streams. While the typical design application is a activated carbon adsorbtion unit, the filter can easily accommodate many medias. Some applications include:

- Dissolved Organic Removal (Activated Carbon)
- Suspended Solids Removal (Sand Filter)
- Dissolved Minerals (Softener Resin)
- Oil and Grease Removal (Organo-Clays)
- Dissolved and Precipitated Metals Removal
- Special Organics (Resin/Carbon Blend)
- Catalytic Reactor (Chlorine and Peroxide Removal)
- Bio-Remediation Contactor Unit

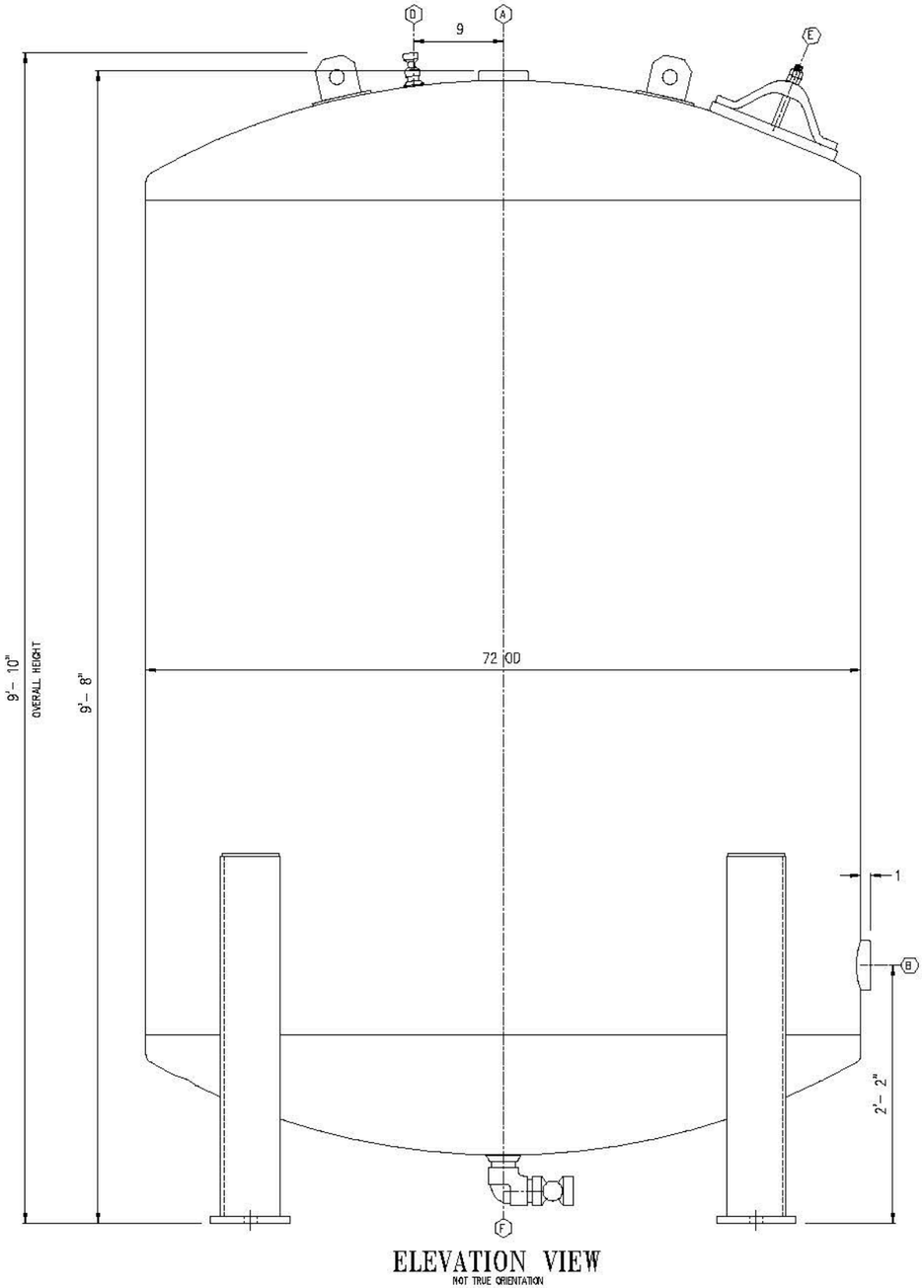
PRESSURE DROP GRAPH

*(As Filled - 8*30 GAC)*

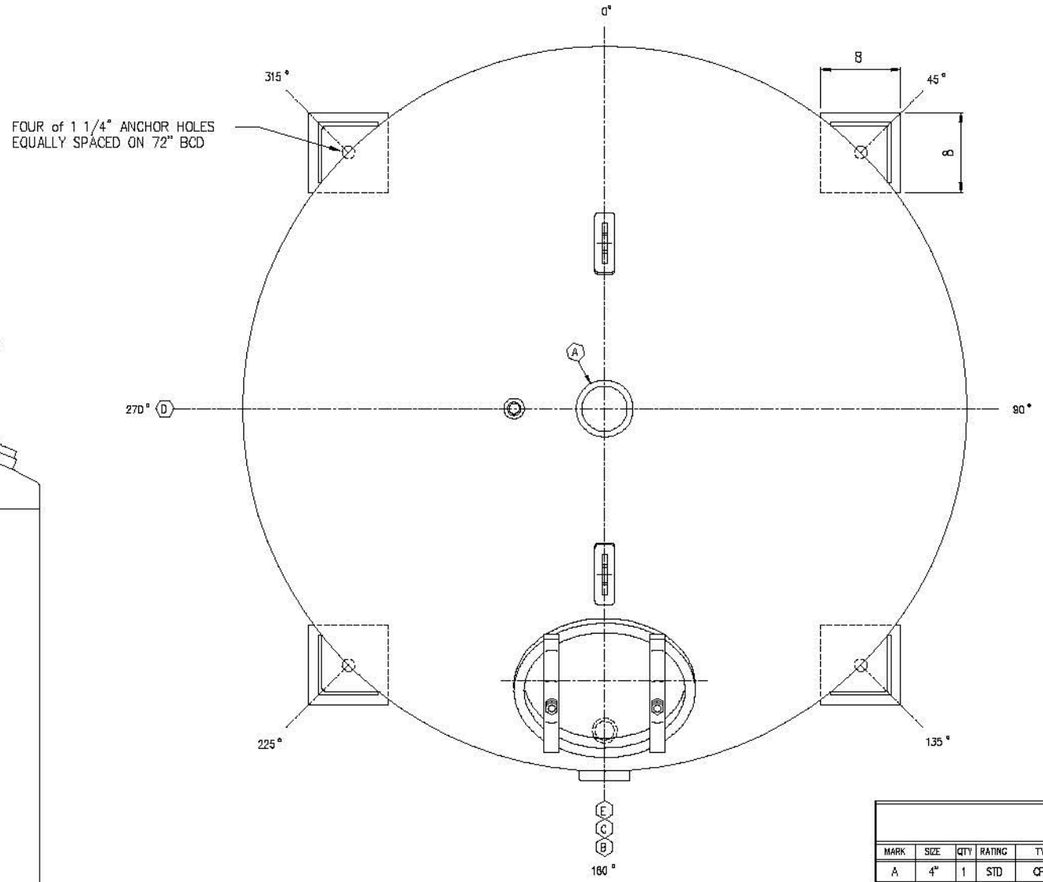




HPAF-2000 SPECIFICATIONS			
Overall Height	8'6"	Vessel/Internal Piping Materials	CS (SA-36) / SCH 40 PVC
Diameter	48"	Internal Coating	Polyamide Epoxy Resin
Inlet / Outlet (FNPT)	3"	External Coating	Epoxy Mastic
Drain / Vent (FNPT)	3/4" / 1/2"	Maximum Pressure / Temp	75 PSIG / 140° F
GAC Fill (lbs)	2,000	Cross Sectional Bed Area	12.5 FT^2
Shipping / Operational Weight (lbs)	1,295 / 3,295	Bed Depth/Volume	5.5 FT / 68.7 FT^3



ELEVATION VIEW
NOT TRUE ORIENTATION



PLAN VIEW
TRUE ORIENTATION

SCHEDULE OF OPENINGS

MARK	SIZE	QTY	RATING	TYPE	DESCRIPTION
A	4"	1	STD	CPLG	INLET
B	4"	1	STD	CPLG	OUTLET
C					
D	3/4"	1	FNPT	WLD FLG	VENT
E	12x16	1	N/A	ELLIP	MANWAY
F	2"	1	FNPT	WLD FLG	GAC DISCHARGE
G					
H					

DESIGN DATA

Registration	NOT APPLICABLE	Year Built	2000
Construction	NOT APPLICABLE	Serial No.	00-____
Design Pressure	75 PSIG	Capacity (Vol.)	230.6 cu. ft.
Design Temperature	140 Deg F (LIMITED BY INTERNALS)	Shipping Wt. (Empty)	2945 POUNDS
External Pressure	NOT APPLICABLE	Wt. full of water	_____ POUNDS
Min. Des. Metal Temp	-20 Deg F AT 75 PSIG	Gaskets	TREATED FIBER
MAWP (New & Cold)	75 PSIG (LIMITED BY HEAD)	Studs & Nuts	MILD STEEL (ZINC PLATED)
MAWP (Hot & Corr'd)	75 PSIG (LIMITED BY HEAD)	Internal Surface Prep	SANDBLAST TO SSPC-SP6
Hydro Test Pressure	5 PSIG SOAP TEST /Medium: AIR	External Surface Prep	EXTERNAL POWER CLEAN
Corrosion Allowance	NONE	Internal Coating	SERIES 120 POTAPOX PLUS 10-16 mils DFT
Radiography	NONE	External Coating	MAB PLYMASTIC (Lt GRAY) 5-7 mils DFT

REV	DESCRIPTION OF REVISIONS	BY	DATE

REV	DRAWING ISSUE RECORD	BY	DATE

Lockwood Remediation Technologies, LLC
89 Crawford Street
Leominster, MA 01453

CUSTOMER: UNKNOWN

PROJECT: UNKNOWN

GENERAL ASSEMBLY LAYOUT – ELEVATION AND ORIENTATION
FOR
MODEL HPAF-5000 FILTER 72" OD

DWN BY	CHK'D BY	APP'D BY	DATE	SCALE	JOB No.	DRAWING No.	REV
DB (TF)	TB (TF)	EP (TF)	MAR 23/00	1 1/2" = 1'-0"	UNKNOWN	HPAF5000-CD	0

89 Crawford Street
Leominster, Massachusetts 01453
Tel: 774.450.7177
Fax: 888.835.0617
www.lrt-llc.net

FILTRATION MEDIA :
8x30 RE-ACTIVATED CARBON
4x10 RE-ACTIVATED CARBON

GENERAL DESCRIPTION

Select Re-Activated carbon from domestic sources is quality screened during our purchasing process for activity, density and fines. The use of re-activated carbon is recommended as a lower cost alternative for most sites where drinking water quality is not necessary. In many cases our re-activated carbon meets and exceeds imported virgin carbon. In addition all carbon either sold by itself or installed in our filtration units traced by lot number to the installation or sale.

8x30 (Liquid Phase) Standard Specifications:	Standard	Value
Iodine Number	ASTM D-4607	800 Minimum
Moisture Content	ASTM D-2867	5% Maximum (as packed)
Particle Size	ASTM D-2862	8x30 US Mesh
Ash		10% Maximum
Total Surface Area (N2BET)		1050 Minimum
Pore Volume (cc/g)		0.75

4*10 (Vapor Phase) Standard Specifications:	Standard	Value
Carbon Tetrachloride Activity Level	ASTM D-3467	40 Minimum
Moisture Content	ASTM D-2867	5% Maximum (as packed)
Particle Size	ASTM D-2862	4x10 US Mesh
Ash		10% Maximum
Total Surface Area (N2BET)		1050 Minimum
Pore Volume (cc/g)		0.75

89 Crawford Street
Leominster, MA 01453
Tel: 774.450.7177
Fax: 888.835.0617
www.lrt-llc.net

SAFETY DATA SHEET

Revision Date: 11/11

1.1 IDENTIFICATION OF PRODUCT.

Designation: - Activated carbon

1.2 COMPANY.

Lockwood Remediation Technologies, LLC
89 Crawford Street
Leominster, MA 01453

Phone: 774-450-7177
Fax: 888-835-0617

2 HAZARDOUS AND OTHER INGREDIENTS.

Exposure limits may vary. It is recommended that information about locally applicable exposure limits be obtained.

%w/w	Compound	CAS No	MAK mg/m^3 (Germany)	TLV mg/m^3 (ACGIH)	PEL mg/m^3 (OSHA)
100	Bituminous Carbon	7440-44-0	T Dust	T dust	15 mg/m3

3 PHYSICAL DATA.

State:	Solid
Appearance:	Black granule, extradite, or powder
pH:	Not applicable
Boiling point or range:	Sublimes
Melting point or range:	3550 C (6422 F)
Vapor pressure:	1 @3586 C (6487 F)
Vapor density:	0.4
Density relative to water:	1.5 – 1.8 Specific gravity
Solubility in water:	Insoluble in water
Partition coefficient: (n-octanol/water):	
Other data:	odorless

4 FIRE AND EXPLOSION HAZARD DATA.

Fire, explosion and reactivity hazards:	Flammable.
Flammability and flammability limits:	Flammable.
Autoflammability:	Not applicable.
Explosive properties:	Non explosive.
Oxidizing properties:	Non oxidizing.

Fire fighting measures:
As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.

Explosion:
Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Minimum explosible concentration 0.140 g/l.

Fire Extinguishing Media:
Water or water spray.

Unusual Fire and Explosion Hazards:
Contact with strong oxidize such as ozone, liquid oxygen, chlorine, permanganate, etc., may result in fire.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

5 STABILITY AND REACTIVITY DATA.

The product is stable under normal handling and storage conditions.

Conditions to avoid:	Incompatibilities.
Materials to avoid:	Liquid air and oxidizing materials. Strong oxidizers such as ozone, liquid oxygen, chlorine, permanganate, etc
Hazardous decomposition products:	Involvement in a fire causes formation of carbon dioxide and carbon monoxide.

Emergency Overview

WARNING! FLAMMABLE SOLID. ACTIVATED CARBON AFFECTS THE RESPIRATORY AND CARDIOVASCULAR SYSTEMS.

CAUTION!!! Wet activated carbon removes oxygen from air causing a severe hazard to workers inside carbon vessels and enclosed or confined spaces. Before entering such an area, sampling and work procedures for low oxygen levels should be taken to ensure ample oxygen availability, observing all local, state, and federal regulations.

J.T. Baker SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 1 - Slight
Flammability Rating: 3 - Severe (Flammable)
Reactivity Rating: 1 - Slight
Contact Rating: 1 - Slight
Lab Protective Equip: GOGGLES; LAB COAT; CLASS B EXTINGUISHER
Storage Color Code: Orange (General Storage)

Potential Health Effects

Inhalation:
May cause mild irritation to the respiratory tract. The acute inhalation LC50 (Rat) is >64.4 mg/l (nominal concentration) for activated carbon.

Ingestion:
No adverse effects expected. May cause mild irritation to the gastrointestinal tract. The acute oral LD50 (Rat) is >10g/kg.

Skin Contact:
Not expected to be a health hazard from skin exposure. May cause mild irritation and redness. The primary skin irritation index (Rabbit) is 0.

Eye Contact:
No adverse effects expected. May cause mild irritation, possible reddening.

Chronic Exposure:
Prolonged inhalation of excessive dust may produce pulmonary disorders. The effects of long-term, low-level exposures to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the avoidance of all effects from repetitive acute exposures.

Aggravation of Pre-existing Conditions:
No information found.

6. First Aid Measures

Inhalation:
Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:
Give several glasses of water to drink to dilute. If large amounts were swallowed, seek medical attention.

Skin Contact:
Not expected to require first aid measures. Wash exposed area with soap and water. Seek medical attention if irritation develops.

Eye Contact:
Wash thoroughly with running water for at least 15 minutes. Seek medical attention if irritation develops.

7. Accidental Release Measures

Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container. Warning! Spent product may have absorbed hazardous materials.

8. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

CAUTION!! Wet activated carbon removes oxygen from air causing a severe hazard to workers inside carbon vessels and enclosed or confined spaces. Before entering such an area, sampling and work procedures for low oxygen levels should be taken to ensure ample oxygen availability, observing all local, state, and federal or national regulations.

9. Exposure Controls/Personal Protection

Exposure Guidelines:
OSHA PEL*:
5mg/M3 (Respirable)
ACGIH TLV*:
10 mg/M3 (Total)
*PELs and TLVs are 8-hour TWAs unless otherwise noted.

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):
For conditions of use where exposure to the dust or mist is apparent, a half-face dust/mist respirator may be worn. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:
Wear protective gloves and clean body-covering clothing.

Eye Protection:
Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

10. Toxicological Information

Investigated as a reproductive effector.

--------\Cancer Lists\----------

Ingredient	---NTP Carcinogen--- Known	Anticipated	IARC Category
Activated Carbon (7440-44-0)	No	No	None

11. Ecological Information

Environmental Fate:
No information found.

Environmental Toxicity:
No information found.

12. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

13. Transport Information

Proper Shipping Name:
NOT REGULATED
Hazard Class:
N/A
Identification Number:
N/A
Packing Group:
N/A
This product has been tested according to the United Nations *Transport of Dangerous Goods* test protocol for spontaneously combustible materials. It has been specifically determined that this product does not meet the definition of a self heating substance or any hazard class, and therefore is not a hazardous material and not regulated.

14. Regulatory Information

SARA TITLE III:
N/A
TSCA:
The ingredients of this product are on the TSCA Inventory List.
OSHA:
Nonhazardous according to definitions of health hazard and physical hazard provided in the Hazard Communication Standard (29 CFR 1910.1200)
CANADA

WHMIS CLASSIFICATION:
Not Classified
DSL#:
6798
EEC
Council Directives relating to the classification, packaging, and labeling of dangerous substances and preparations.
Risk (R) and Safety (S) phrases:
May be irritating to eyes (R36).

15. Other Information

NFPA Ratings: Health: 0 **Flammability:** 1 **Reactivity:** 0

Label Hazard Warning:
WARNING! FLAMMABLE SOLID. ACTIVATED CARBON AFFECTS THE RESPIRATORY AND CARDIOVASCULAR SYSTEMS.

Label Precautions:
Keep away from heat, sparks and flame. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

Label First Aid:
If inhaled, remove to fresh air. Get medical attention for any breathing difficulty.

ZENNER PERFORMANCE
Cast Iron Turbine Meters
Sizes 2” through 12”

INTRODUCTION: ZENNER PERFORMANCE Turbine Meters are designed for applications where flows are usually moderate to high and occasionally low. They are used in measurement of potable cold water in commercial and industrial services where flows are in one direction.

OPERATION: Water flows through the turbine section which causes the rotor to turn proportionately to the quantity of water flowing through the meter. A drive magnet transmits the motion of the rotor to a driven magnet located within the hermetically sealed register. The magnet is connected to a gear train which translates the rotations into volume totalization displayed on the register dial face. The only moving parts in the meter are the rotor assembly and vertical shaft .

CONSTRUCTION: ZENNER PERFORMANCE Turbine Meters consist of three basic components: Cast Iron Epoxy Coated main case, measuring element, and sealed register. The measuring element assembly includes the rotor assembly, vertical shaft and a calibration vane which eliminates the need for calibration change gears.

MAINTENANCE: ZENNER PERFORMANCE Turbine Meters are engineered and manufactured to provide long-term service and operate virtually maintenance free. If necessary the universal measuring element (UME) can be removed from the main case for maintenance. Interchangeability of certain parts between like sized meters minimizes spare parts inventory.

CONFORMANCE: ZENNER PERFORMANCE Turbine Meters are tested and comply with AWWA C701 Class II performance standards.

STRAINERS: ZENNER PERFORMANCE recommends the use of a separate strainer upstream from the turbine meter. Strainers reduce the chance of damage to the rotor as well as the frequency in which it must be removed for inspection. The lack of a strainer may void the warranty of the turbine meter.

CONNECTIONS: Companion flanges for installation of meters on various pipe types and sizes are available in bronze or cast iron.

PMT04

PMT06

ZENNER PERFORMANCE
15280 Addison Rd #340, Addison, TX 75001, (972) 386-6611, Fax (972) 386-1814
www.zennerusa.com

MODEL		PMT02	PMT03	PMT04	PMT06	PMT08	PMT10	PMT12
SIZE		2"	3"	4"	6"	8"	10"	12"
Flow rate maximum intermittent	USGPM	400	550	1250	2500	4500	7000	8800
Maximum continuous	USGPM	200	450	1000	2000	3500	5500	6200
Optimum operating flow range	USGPM	3 - 200	5 - 550	10 - 1250	20 - 2500	30 - 4500	50 - 7000	90 - 8800
Low flow rate	USGPM	2	2-1/2	5	12	20	45	65
Start-up flow rate	USGPM	7/8	1-1/8	1-3/8	7-1/2	8	15	15
Maximum Working Pressure	P.S.I.	160	160	160	160	160	160	160
Maximum Temperature	Deg. F	140	140	140	140	140	140	140
Length	Inches	7-7/8	8-7/8	9-7/8	11-7/8	13-3/4	17-3/4	19-5/8
Height	Inches	9-1/2	10-1/4	11	12-7/8	14-1/4	19	20-1/4
Width	Inches	7	7-1/2	9	11	13-1/2	16	19
Weight	Pounds	24	32	38	84	126	225	255
Number of holes per flange		4	4	8	8	8	12	12

ZENNER PERFORMANCE
15280 Addison Rd #340, Addison, TX 75001, (972) 386-6611, Fax (972) 386-1814
www.zennerusa.com

Appendix D

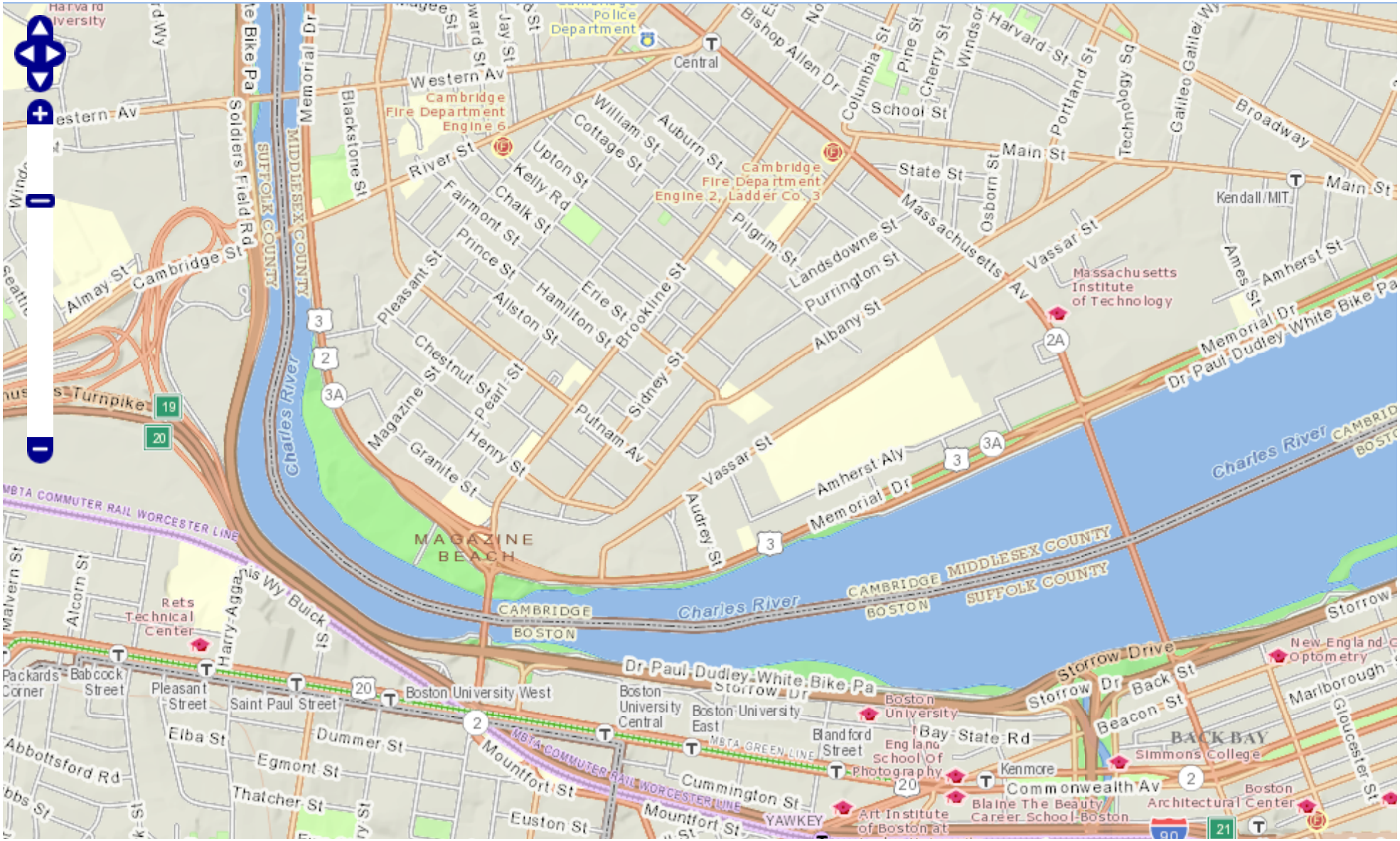
Supplemental Information

dcr Massachusetts

DCR Areas of Critical Environmental Concern (ACEC) Viewer

ACEC Web Site What's New i

Vassar Street, Cambridge, | Zoom to a town | Pick an ACEC



United States Department of the Interior

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

In Reply Refer To:
Consultation Code: 05E1NE00-2019-SLI-0188
Event Code: 05E1NE00-2019-E-00413
Project Name: West Campus Outfall Project

October 25, 2018

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

To Whom It May Concern:

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

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

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

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

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

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

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

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

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

Project Summary

Consultation Code: 05E1NE00-2019-SLI-0188

Event Code: 05E1NE00-2019-E-00413

Project Name: West Campus Outfall Project

Project Type: ** OTHER **

Project Description: The project includes the installation of approximately 900 feet of a box culvert from Talbot Street to the southern side of Memorial Drive. The work will be conducted from November 2018 to September/October 2019.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.35534685646125N71.10295918805993W

Counties: Middlesex, MA

Endangered Species Act Species

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

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

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

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

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

Critical habitats

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

Documentation of the Results of the ESA Eligibility Determination:

Using information in Appendix IV of the NPDES DGP, this project is eligible for coverage under this general permit under FWS Criterion A. This project is located in Middlesex County. No designated critical habitats were listed in the project area.

An Endangered Species Consultation was conducted on the U.S. Fish & Wildlife Service New England Field Office ECOS IPaC webpage for the Site and it was determined that no endangered, threatened, or candidate species were identified on the list.

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Cambridge; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
CAM.A	Cambridge Common Historic District		Cambridge	
CAM.B	Lockhart, William L. and Company Coffin Factory		Cambridge	
CAM.C	Blake and Knowles Steam Pump Company		Cambridge	
CAM.D	Fort Washington Historic District		Cambridge	
CAM.E	East Cambridge Historic District		Cambridge	
CAM.F	Winter Street Historic District		Cambridge	
CAM.G	Cambridge Multiple Resource Area		Cambridge	
CAM.H	Lechmere Point Corporation Houses		Cambridge	
CAM.I	Sacred Heart Church, Rectory, School and Convent		Cambridge	
CAM.J	Upper Magazine Street Historic District		Cambridge	
CAM.K	Hastings Square Historic District		Cambridge	
CAM.L	Salem - Auburn Streets Historic District		Cambridge	
CAM.M	Inman Square Historic District		Cambridge	
CAM.N	Old Cambridgeport Historic District		Cambridge	
CAM.O	Norfolk Street Historic District		Cambridge	
CAM.P	Massachusetts Institute of Technology		Cambridge	
CAM.Q	Central Square Historic District		Cambridge	
CAM.R	Bigelow Street Historic District		Cambridge	
CAM.S	Garfield Street Historic District		Cambridge	
CAM.T	Harvard Street Historic District		Cambridge	
CAM.U	Kirkland Place Historic District		Cambridge	
CAM.V	Maple Avenue Historic District		Cambridge	
CAM.W	City Hall Historic District		Cambridge	
CAM.X	Shady Hill Historic District		Cambridge	
CAM.Y	Ash Street Historic District		Cambridge	
CAM.Z	Avon Hill Historic District		Cambridge	

Inv. No.	Property Name	Street	Town	Year
CAM.AA	Berkeley Street Historic District		Cambridge	
CAM.AB	Harvard Square Historic District		Cambridge	
CAM.AC	Harvard Houses Historic District		Cambridge	
CAM.AD	Harvard Yard Historic District		Cambridge	
CAM.AE	Old Cambridge Historic District		Cambridge	
CAM.AF	Gray Gardens East and West Historic District		Cambridge	
CAM.AG	Memorial Drive Apartments Historic District		Cambridge	
CAM.AH	Follen Street Historic District		Cambridge	
CAM.AI	Bennink - Douglas Cottages		Cambridge	
CAM.AJ	Charles River Basin Historic District		Cambridge	
CAM.AK	Boston Woven Hose and Rubber Complex		Cambridge	
CAM.AL	Fresh Pond		Cambridge	
CAM.AM	Old Cambridge Historic District		Cambridge	
CAM.AN	Harvard Riverfront		Cambridge	
CAM.AO	East Cambridge		Cambridge	
CAM.AP	Hubbard Park Historic District		Cambridge	
CAM.AQ	Davenport - Allen and Endicott Factory		Cambridge	
CAM.AR	Mount Auburn Cemetery		Cambridge	
CAM.AS	Metropolitan Park System of Greater Boston		Cambridge	
CAM.AT	Elmwood (James Russell Lowell House)		Cambridge	
CAM.AU	Christ Church		Cambridge	
CAM.AV	Blake and Knowles Steam Pump Company		Cambridge	
CAM.AW	Alewife Brook Parkway		Cambridge	
CAM.AX	Fresh Pond Parkway		Cambridge	
CAM.AY	Church of the Blessed Sacrament Catholic Church		Cambridge	
CAM.AZ	Immaculate Conception Roman Catholic Church		Cambridge	
CAM.BA	Immaculate Conception (Lithuanian) Catholic Church		Cambridge	
CAM.BB	Orchard Street Area		Cambridge	
CAM.BC	Central Square Historic District		Cambridge	
CAM.BD	Cambridge Common Historic District		Cambridge	
CAM.BE	Old Harvard Yard		Cambridge	
CAM.BF	Berkeley Street Historic District		Cambridge	
CAM.BG	Harvard Square Historic District		Cambridge	
CAM.BH	Volpe Center		Cambridge	
CAM.1	Wyeth, John House	56 Aberdeen Ave	Cambridge	1841
CAM.1009		24 Agassiz St	Cambridge	1889

Inv. No.	Property Name	Street	Town	Year
CAM.1010	Shaw, Edward L. House	30 Agassiz St	Cambridge	1890
CAM.1011	Sands, M. Winslow House	32 Agassiz St	Cambridge	1891
CAM.1012	Blackman, Horace House	33 Agassiz St	Cambridge	1890
CAM.1353	Standard Plate Glass Company Building	270 Albany St	Cambridge	1920
CAM.902	Alewife Brook Parkway Bridge over B & M Railroad	Alewife Brook Pkwy	Cambridge	1929
CAM.903	Alewife Brook Parkway Bridge over B & M Railroad	Alewife Brook Pkwy	Cambridge	1929
CAM.9012	Alewife Brook Parkway - Northern Segment	Alewife Brook Pkwy	Cambridge	1908
CAM.9013	Alewife Brook Parkway Tree Border	Alewife Brook Pkwy	Cambridge	r 1920
CAM.1372	Immaculate Conception Roman Catholic Church	45 Alewife Brook Pkwy	Cambridge	1929
CAM.1373	Immaculate Conception Catholic Church Rectory	45 Alewife Brook Pkwy	Cambridge	1935
CAM.359		6-24 Allston St	Cambridge	1946
CAM.2	Fay, Isaac House	125 Antrim St	Cambridge	1843
CAM.3	Withey, S. B. House	10 Appian Way	Cambridge	1855
CAM.4	Howe, Lois Lilly House	6 Appleton St	Cambridge	1887
CAM.5	Cook, William House	71 Appleton St	Cambridge	1876
CAM.1016		8-10 Arlington St	Cambridge	1864
CAM.1027	Aldrich, Frank A. House	11 Arlington St	Cambridge	1899
CAM.1017		12-14 Arlington St	Cambridge	1864
CAM.1028	Graustein, Adolph H. House	19 Arlington St	Cambridge	1902
CAM.1018		22 Arlington St	Cambridge	1862
CAM.1019	Fillmore, Wellington House	24 Arlington St	Cambridge	1869
CAM.1347		25 Arlington St	Cambridge	
CAM.1020	Moor, Rev. Clark House	26 Arlington St	Cambridge	1869
CAM.1021	Blackman, Horace P. House	28 Arlington St	Cambridge	1876
CAM.1022		30 Arlington St	Cambridge	1876
CAM.1023	Jameson, Edwin A. L. House	32 Arlington St	Cambridge	1872
CAM.1029	Davis, John House	33 Arlington St	Cambridge	1869
CAM.1024		36 Arlington St	Cambridge	1872
CAM.1030	Kelsey, Albert House	37 Arlington St	Cambridge	1875
CAM.1025	Moor, Rev. Clark Double House	38-40 Arlington St	Cambridge	1874
CAM.1026	Boardman, Charles House	42 Arlington St	Cambridge	1871
CAM.1061	Harvard Catholic Student Center	20 Arrow St	Cambridge	c 1890
CAM.1062	Saint Paul's Church	24 Arrow St	Cambridge	r 1920
CAM.784	Brooks, John House	5 Ash St	Cambridge	1887
CAM.6	Johnson, Philip House	9 Ash St	Cambridge	1942
CAM.785	Ela, Lucia House	13 Ash St	Cambridge	1869

Inv. No.	Property Name	Street	Town	Year
CAM.787	Eliot, T. S. House	16 Ash St	Cambridge	1855
CAM.786	Nowell, Henry House	19 Ash St	Cambridge	1825
CAM.788	Hunnewell, James A. House	6 Ash Street Pl	Cambridge	1848
CAM.522		107 Auburn St	Cambridge	1803
CAM.523		108-110 Auburn St	Cambridge	1803
CAM.524		114 Auburn St	Cambridge	c 1844
CAM.525		119 Auburn St	Cambridge	c 1829
CAM.526		122 Auburn St	Cambridge	c 1840
CAM.527		131 Auburn St	Cambridge	c 1830
CAM.528		134 Auburn St	Cambridge	c 1845
CAM.7	Ellis, Asa House	158 Auburn St	Cambridge	1805
CAM.564	Hotel Eliot	66 Austin St	Cambridge	c 1885
CAM.565	Hotel Austin	70 Austin St	Cambridge	c 1885
CAM.8	Brabrook, Ezra H. House	42-44 Avon St	Cambridge	1849
CAM.352	Blake and Knowles Main Foundry	180 Bent St	Cambridge	c 1895
CAM.1035		1 Berkeley Pl	Cambridge	1892
CAM.1036		2 Berkeley Pl	Cambridge	1892
CAM.1037		3 Berkeley Pl	Cambridge	1892
CAM.1038		4 Berkeley Pl	Cambridge	1910
CAM.1039		5 Berkeley Pl	Cambridge	1900
CAM.1040		6 Berkeley Pl	Cambridge	1914
CAM.1041		7 Berkeley Pl	Cambridge	1913
CAM.1042		8 Berkeley Pl	Cambridge	1931
CAM.1043	Pryor - Brown House	1 Berkeley St	Cambridge	1852
CAM.10	Thayer, Prof. Studio	2 1/2 Berkeley St	Cambridge	1894
CAM.1044	Pryor - Howells House	3 Berkeley St	Cambridge	1856
CAM.1045	Dana, Richard H. House	4 Berkeley St	Cambridge	1851
CAM.1046	Wyeth - Allen House	5-7R Berkeley St	Cambridge	1852
CAM.1047		6 Berkeley St	Cambridge	1853
CAM.1048	Ware, Henry House	8 Berkeley St	Cambridge	1859
CAM.1049	Allyn, John House	11 Berkeley St	Cambridge	1886
CAM.1050		12 Berkeley St	Cambridge	1881
CAM.1051		13 Berkeley St	Cambridge	1898
CAM.1052	Williston, Lyman House	15 Berkeley St	Cambridge	1863
CAM.1053		16 Berkeley St	Cambridge	1905
CAM.1054		17 Berkeley St	Cambridge	1863
CAM.1055		19 Berkeley St	Cambridge	1854
CAM.1056	Newell, William House	20 Berkeley St	Cambridge	1856

Inv. No.	Property Name	Street	Town	Year
CAM.1057		21 Berkeley St	Cambridge	1854
CAM.1058	Fiske, John House	22 Berkeley St	Cambridge	1877
CAM.1059		23 Berkeley St	Cambridge	1854
CAM.1060		24 Berkeley St	Cambridge	1936
CAM.1355	Craft, William House	5 Bigelow St	Cambridge	1869
CAM.1356	Sharry, William J. House	5A Bigelow St	Cambridge	1940
CAM.663	Montague, Charles House	6 Bigelow St	Cambridge	1873
CAM.655	Snow, Simeon House	7 Bigelow St	Cambridge	1869
CAM.1360	Rhodes, Silas Jr. House	8 Bigelow St	Cambridge	1871
CAM.656	Pollard, John Double House	9-11 Bigelow St	Cambridge	1874
CAM.664	Hurd, Theodore House	10-12 Bigelow St	Cambridge	1884
CAM.657	Bird, Henry House	13 Bigelow St	Cambridge	1874
CAM.1361	Pike, Walter House	14 Bigelow St	Cambridge	1888
CAM.658	Davis, Curtis House	15 Bigelow St	Cambridge	1873
CAM.1362	Brazier, Abbie House	16 Bigelow St	Cambridge	1874
CAM.659	Whitely, Hiram House	17 Bigelow St	Cambridge	1873
CAM.1363	Sawyer - Dole House	18 Bigelow St	Cambridge	1876
CAM.1357	Oxford, Charles House	19 Bigelow St	Cambridge	1871
CAM.660	Snow - Twitchell Double House	21-23 Bigelow St	Cambridge	1873
CAM.665	Hyde, Edward House	22 Bigelow St	Cambridge	1870
CAM.1348	Robbins Block	24-46 Bigelow St	Cambridge	1871
CAM.661	Jessop, Joseph House	25 Bigelow St	Cambridge	1872
CAM.1358	Jessop Tenement House	29 Bigelow St	Cambridge	1891
CAM.1359	Whitcomb, Peter Double House	31-33 Bigelow St	Cambridge	1872
CAM.662	Davis, John W. House	35 Bigelow St	Cambridge	1870
CAM.1406	Volpe Center - Shipping and Receiving	182 Binney St	Cambridge	1965
CAM.357	Blake and Knowles Machine Shop #2	195 Binney St	Cambridge	1917
CAM.358	Blake and Knowles Machine Shop #3	199 Binney St	Cambridge	1918
CAM.356	Blake and Knowles Erecting and Assembling Building	201 Binney St	Cambridge	1903
CAM.1388		39 Bishop Allen Dr	Cambridge	
CAM.1397	Hotel Greyburn	77 Bishop Allen Dr	Cambridge	1891
CAM.577	Young Women's Christian Association Building	146 Bishop Allen Dr	Cambridge	c 1954
CAM.1386	Squirrel Brand Company Building	8 Boardman St	Cambridge	1915
CAM.11	Slowey, Patrick House	73 Bolton St	Cambridge	1852
CAM.1063	Bicycle Exchange Building	3-7 Bow St	Cambridge	1901
CAM.1064		9 Bow St	Cambridge	1884
CAM.1065	Farwell - Russell, Thomas Store	12 Bow St	Cambridge	c 1830

Inv. No.	Property Name	Street	Town	Year
CAM.1066	Westmorly Court - Harvard University	15-29 Bow St	Cambridge	c 1898
CAM.12	Harvard Lampoon Building	44 Bow St	Cambridge	1909
CAM.1067	Randolph Hall - Harvard University	47-57 Bow St	Cambridge	1897
CAM.13	Frost, Elizabeth Tenant House	35 Bowdoin St	Cambridge	1812
CAM.926	Anderson, Larz Bridge	Boylston St	Cambridge	1915
CAM.14	Hicks, John House	64 Boylston St	Cambridge	c 1761
CAM.294	Radcliffe College Graduate Center	Brattle St	Cambridge	1955
CAM.918	Longfellow Park	Brattle St	Cambridge	1887
CAM.987	Lowell Park	Brattle St	Cambridge	
CAM.1068	Brattle Building	4 Brattle St	Cambridge	1913
CAM.1069	Atrium Building	9-11 Brattle St	Cambridge	1979
CAM.1071		12-16 Brattle St	Cambridge	1887
CAM.1070	Estes Block	13-15 Brattle St	Cambridge	1875
CAM.1072	Dow Block	17-35 Brattle St	Cambridge	c 1936
CAM.1073		18 Brattle St	Cambridge	1922
CAM.1074		26 Brattle St	Cambridge	1909
CAM.1075	Hadley Building	28-36 Brattle St	Cambridge	1974
CAM.1076	Cambridge Federal Savings Bank	38A Brattle St	Cambridge	1937
CAM.1077		39-41 Brattle St	Cambridge	1925
CAM.15	Brattle Hall	40 Brattle St	Cambridge	1889
CAM.1078		40A Brattle St	Cambridge	c 1925
CAM.16	Brattle, William House	42 Brattle St	Cambridge	c 1727
CAM.1079	Sage Building	43-45 Brattle St	Cambridge	1926
CAM.1080		44 Brattle St	Cambridge	1970
CAM.1081		46R Brattle St	Cambridge	1966
CAM.1082		47-49 Brattle St	Cambridge	c 1926
CAM.1083	Design Research Building	48 Brattle St	Cambridge	1969
CAM.1084	Washington Court	51 Brattle St	Cambridge	1905
CAM.17	Pratt, Dexter House	54 Brattle St	Cambridge	1808
CAM.1229	Warland, John House	69 Brattle St	Cambridge	1838
CAM.1230	Greenleaf, James House	76 Brattle St	Cambridge	1859
CAM.1228	Chamberlin, John House	77 Brattle St	Cambridge	1821
CAM.18	Radcliffe College Alumnae House	79 Brattle St	Cambridge	1836
CAM.19	Wadsworth Chambers	81-83 Brattle St	Cambridge	1908
CAM.20	Burleigh House	85 Brattle St	Cambridge	1847
CAM.21	Stoughton, Mary Fisk House	90 Brattle St	Cambridge	1882
CAM.22		92 Brattle St	Cambridge	1882
CAM.23	Vassall, Henry House	94 Brattle St	Cambridge	1635

Inv. No.	Property Name	Street	Town	Year
CAM.24	Episcopal Divinity School - Washburn Hall	99 Brattle St	Cambridge	1960
CAM.25	Saint John's Chapel	99 Brattle St	Cambridge	1868
CAM.26	Episcopal Divinity School Library - Sherrill Hall	99 Brattle St	Cambridge	1965
CAM.27	Episcopal Divinity School - Wright Hall	99 Brattle St	Cambridge	1911
CAM.28	Episcopal Divinity School - Reed Hall	99 Brattle St	Cambridge	1873
CAM.29	Episcopal Divinity School - Lawrence Hall	99 Brattle St	Cambridge	1873
CAM.30	Episcopal Divinity School - Burnham Hall	99 Brattle St	Cambridge	1879
CAM.31	Hastings, Oliver House	101 Brattle St	Cambridge	1844
CAM.32	Longfellow National Historic Site	105 Brattle St	Cambridge	c 1759
CAM.33	Dana, Edith Longfellow House	113 Brattle St	Cambridge	1887
CAM.34		114 Brattle St	Cambridge	1903
CAM.35	Thorp, Annie Longfellow House	115 Brattle St	Cambridge	1887
CAM.36	Worcester, Joseph House	121 Brattle St	Cambridge	1843
CAM.37		121A Brattle St	Cambridge	1941
CAM.38		123 Brattle St	Cambridge	
CAM.39		124 Brattle St	Cambridge	1915
CAM.40		125 Brattle St	Cambridge	1939
CAM.41		126 Brattle St	Cambridge	1890
CAM.1235		127 Brattle St	Cambridge	1970
CAM.42		128 Brattle St	Cambridge	1892
CAM.43		130-130R Brattle St	Cambridge	1886
CAM.44		132 Brattle St	Cambridge	1886
CAM.45	Falxa, Dr. Martin House	133 Brattle St	Cambridge	1970
CAM.46		134-136 Brattle St	Cambridge	1857
CAM.47		138 Brattle St	Cambridge	1930
CAM.48		140 Brattle St	Cambridge	1930
CAM.49		142 Brattle St	Cambridge	1915
CAM.50	Cambridge Armenian Church	143 Brattle St	Cambridge	1959
CAM.51		144 Brattle St	Cambridge	1915
CAM.52	Brewster, William House	145 Brattle St	Cambridge	1887
CAM.53		146 Brattle St	Cambridge	1939
CAM.54		147 Brattle St	Cambridge	1887
CAM.55		148 Brattle St	Cambridge	1914
CAM.56	Lechmere, Richard House	149 Brattle St	Cambridge	c 1762
CAM.57		150 Brattle St	Cambridge	1908
CAM.58		152 Brattle St	Cambridge	1887
CAM.59	Lee, Thomas House	153 Brattle St	Cambridge	1803
CAM.60		154 Brattle St	Cambridge	r 1865

Inv. No.	Property Name	Street	Town	Year
CAM.1236		155 Brattle St	Cambridge	1889
CAM.61		156 Brattle St	Cambridge	1867
CAM.62		158 Brattle St	Cambridge	1884
CAM.63	Hooper - Lee - Nichols House	159 Brattle St	Cambridge	c 1685
CAM.64		160 Brattle St	Cambridge	1884
CAM.65		164 Brattle St	Cambridge	1868
CAM.1237	Bartlett, John House	165 Brattle St	Cambridge	1873
CAM.66	Van Brunt, Henry House	167 Brattle St	Cambridge	1883
CAM.67		168 Brattle St	Cambridge	1888
CAM.68	Wells, Judge Daniel House	170 Brattle St	Cambridge	1852
CAM.69		174 Brattle St	Cambridge	1885
CAM.70	Marrett - Ruggles - Fayerweather House	175 Brattle St	Cambridge	r 1765
CAM.1238	Fayerweather House Squash Court and Garage	177 Brattle St	Cambridge	1915
CAM.71		180 Brattle St	Cambridge	1888
CAM.72	Richards, R. A. House	182 Brattle St	Cambridge	1895
CAM.73		190 Brattle St	Cambridge	1898
CAM.74	Frankfurter, Justice Felix House	192 Brattle St	Cambridge	1907
CAM.75		193 Brattle St	Cambridge	1893
CAM.76		194 Brattle St	Cambridge	1917
CAM.77		195 Brattle St	Cambridge	1896
CAM.78		198 Brattle St	Cambridge	1912
CAM.79	Stubbins, Hugh House	199 Brattle St	Cambridge	1966
CAM.80		200 Brattle St	Cambridge	1901
CAM.81		202 Brattle St	Cambridge	1903
CAM.82		205 Brattle St	Cambridge	r 1925
CAM.83		209 Brattle St	Cambridge	r 1925
CAM.84		213-215 Brattle St	Cambridge	1896
CAM.85	Frost, Robert House	29-35 Brewster St	Cambridge	1884
CAM.1402	Volpe Center - Auditorium	33 Broadway	Cambridge	c 1965
CAM.1409	Close, George Candy Manufacturing Company Building	243 Broadway	Cambridge	1910
CAM.86	Cambridge Public Library	449 Broadway	Cambridge	1888
CAM.515		301 Brookline Ave	Cambridge	1869
CAM.516		302 Brookline Ave	Cambridge	1887
CAM.517		308 Brookline Ave	Cambridge	1870
CAM.623	Southwick Block	11-19 Brookline St	Cambridge	1911
CAM.88	Brown, Daniel House	7 Brown St	Cambridge	1845
CAM.89	Hill, Aaron House	17 Brown St	Cambridge	c 1754

Inv. No.	Property Name	Street	Town	Year
CAM.708		1 Bryant St	Cambridge	1911
CAM.709		5 Bryant St	Cambridge	1916
CAM.710		7 Bryant St	Cambridge	1915
CAM.711		20-24 Bryant St	Cambridge	1916
CAM.712		21 Bryant St	Cambridge	1932
CAM.90	Bridgman, Percy House	10 Buckingham Pl	Cambridge	c 1920
CAM.91	Koch, Carl House	4 Buckingham St	Cambridge	1939
CAM.92	Higginson, Col. Thomas Wentworth House	29 Buckingham St	Cambridge	1880
CAM.941	Bridge, John Statue	Cambridge Common	Cambridge	1882
CAM.942	Memorial Gateway	Cambridge Common	Cambridge	1906
CAM.943	Revolutionary War Cannons	Cambridge Common	Cambridge	c 1770
CAM.944	Soldiers Monument	Cambridge Common	Cambridge	1869
CAM.906	Cambridge Parkway Bridge over Broad Canal	Cambridge Pkwy	Cambridge	1957
CAM.931	Cambridge Parkway	Cambridge Pkwy	Cambridge	1900
CAM.97	Memorial Hall	Cambridge St	Cambridge	r 1875
CAM.379	Middlesex County Registry of Deeds Building	Cambridge St	Cambridge	1896
CAM.380	Middlesex County Clerk of Courts Building	Cambridge St	Cambridge	1889
CAM.912	Longfellow Bridge - West Boston Bridge	Cambridge St	Cambridge	c 1907
CAM.914	Lechmere Square Streetcar Station	Cambridge St	Cambridge	1922
CAM.372		82-84 Cambridge St	Cambridge	1937
CAM.373	Davenport, A. H. - Irving and Casson Company	88-134 Cambridge St	Cambridge	1866
CAM.378		160 Cambridge St	Cambridge	1965
CAM.93	East Cambridge Savings Bank	292 Cambridge St	Cambridge	1931
CAM.94	Union Railway Car Barn	613-621 Cambridge St	Cambridge	1869
CAM.535		1353-1369 Cambridge St	Cambridge	1894
CAM.532	Waite Building	1368 Cambridge St	Cambridge	1855
CAM.533	Middlesex Bank Building	1374-1385 Cambridge St	Cambridge	1874
CAM.95		1707-1709 Cambridge St	Cambridge	1845
CAM.96		1715-1717 Cambridge St	Cambridge	1845
CAM.635	Holmes Block II - Green Block	2-14 Central Sq	Cambridge	1798
CAM.636	Home Realty Building	14 Central Sq	Cambridge	1970
CAM.639	Southwick Building I	15-16 Central Sq	Cambridge	1896
CAM.640	Southwick Building II	17-24 Central Sq	Cambridge	c 1860
CAM.641	White Tower Restaurant	25 Central Sq	Cambridge	1932
CAM.98	Melvin, Isaac House	19 Centre St	Cambridge	1842
CAM.99	Boston and Maine Railroad Signal Tower A	Charles River	Cambridge	1931
CAM.911	Charles River Railroad Draw Bridge #1	Charles River	Cambridge	1931
CAM.920	Charles River Dam	Charles River	Cambridge	r 1905

Inv. No.	Property Name	Street	Town	Year
CAM.925	Weeks, John Wingate Foot Bridge	Charles River	Cambridge	1927
CAM.928	Lechmere Canal	Charles River	Cambridge	1909
CAM.929	Broad Canal	Charles River	Cambridge	1805
CAM.932	Charles River Basin Granite Seawall and Iron Fence	Charles River	Cambridge	
CAM.935	Metropolitan District Commission Swimming Pool	Charles River	Cambridge	
CAM.1320	Metropolitan District Commission Clorination Plant	Charles River	Cambridge	
CAM.1325	M. I. T. - Pierce, Harold Whitworth Boat House	Charles River	Cambridge	1965
CAM.1326	M. I. T. - Wood, Walter C. Sailing Pavilion	Charles River	Cambridge	1976
CAM.1328	Riverside Boat Club	Charles River	Cambridge	r 1910
CAM.543	Boardman, James Double House	Cherry St	Cambridge	1843
CAM.100	Fuller, Margaret House	71 Cherry St	Cambridge	1806
CAM.546		87 Cherry St	Cambridge	c 1845
CAM.545		116-120 Cherry St	Cambridge	c 1845
CAM.544	Eaton, Jacob House	128 Cherry St	Cambridge	c 1844
CAM.542		137-139 Cherry St	Cambridge	c 1840
CAM.537		149-151 Cherry St	Cambridge	c 1830
CAM.538		159-161 Cherry St	Cambridge	c 1830
CAM.547		167 Cherry St	Cambridge	1850
CAM.548		169 Cherry St	Cambridge	1850
CAM.101	Kingsley, Chester House	10 Chester St	Cambridge	1866
CAM.518		105 Chestnut St	Cambridge	1875
CAM.519		111 Chestnut St	Cambridge	1875
CAM.102	First Parish Church, Unitarian	1-3 Church St	Cambridge	1833
CAM.103		23-25 Church St	Cambridge	1936
CAM.1085		26-28 Church St	Cambridge	1857
CAM.104		27-29 Church St	Cambridge	1922
CAM.105	Cambridge Police Station	31-33 Church St	Cambridge	1864
CAM.1086	Oxford Grill	32-42 Church St	Cambridge	1931
CAM.1087	Hancock - Torrey House	53 Church St	Cambridge	1827
CAM.1088		54-56 Church St	Cambridge	1925
CAM.1089		59-63 Church St	Cambridge	1949
CAM.1377	Cambridge Almshouse Caretaker's House	36 Churchill Ave	Cambridge	c 1886
CAM.106	Gale, George House	14-16 Clinton St	Cambridge	c 1853
CAM.1387		41-43 Columbia St	Cambridge	
CAM.107	Beth Israel Synagogue	238 Columbia St	Cambridge	1901
CAM.908	Commercial Avenue Bridge over Lechmere Canal	Commercial Ave	Cambridge	1907

Inv. No.	Property Name	Street	Town	Year
CAM.1318	Metropolitan District Commission Stables	Commercial Ave	Cambridge	
CAM.336		3 Concord Ave	Cambridge	1915
CAM.337		5 Concord Ave	Cambridge	c 1917
CAM.108	Howells, William Dean House	37 Concord Ave	Cambridge	1873
CAM.1365	Cambridge Home for the Aged and Infirm	650 Concord Ave	Cambridge	1928
CAM.111	Holmes, Joseph House	144 Coolidge Hill	Cambridge	1801
CAM.109	Orne, Sarah House	10 Coolidge Hill Rd	Cambridge	1807
CAM.110	Coolidge, Josiah House	24 Coolidge Hill Rd	Cambridge	c 1822
CAM.600	Coolidge, Flavel House	2 Coolidge Pl	Cambridge	1834
CAM.1369	Blessed Sacrament Roman Catholic Parish School	12 Corporal McTernan St	Cambridge	1924
CAM.112	Valentine Soap Workers' Cottage	5-7 Cottage St	Cambridge	1835
CAM.1212	Mather House - Harvard University	Cowperthwaite St	Cambridge	1967
CAM.113	Birkhoff, George D. House	22 Craigie St	Cambridge	r 1870
CAM.114	Ross, Denman House	24-26 Craigie St	Cambridge	1869
CAM.115		25 Craigie St	Cambridge	1856
CAM.116	Horsford, Eben House	27 Craigie St	Cambridge	1854
CAM.333	Day, Anna House	139 Cushing St	Cambridge	1856
CAM.117	Colburn, Sara Foster House	7 Dana St	Cambridge	1841
CAM.118	University Museum	11-25 Divinity Ave	Cambridge	1859
CAM.119	Divinity Hall	12 Divinity Ave	Cambridge	1825
CAM.120	Biological Laboratory	16 Divinity Ave	Cambridge	1930
CAM.121	Second Cambridge Savings Bank Building	11-21 Dunster St	Cambridge	1897
CAM.1090	Union Railway Carbarn	25-33 Dunster St	Cambridge	1860
CAM.1091	Second D. U. Club	45 Dunster St	Cambridge	1930
CAM.1092	Metcalf, Eliab Wight House	46 Dunster St	Cambridge	1820
CAM.1093	Edwards, Abraham - Moore, Mary House	53 Dunster St	Cambridge	1841
CAM.1094	Alpha Sigma Phi Club	54 Dunster St	Cambridge	1900
CAM.122	Wyeth, Augustus House	69 Dunster St	Cambridge	1829
CAM.1095		71-77 Dunster St	Cambridge	1894
CAM.123		42 Edward J. Lopez Ave	Cambridge	c 1830
CAM.1096	Hotel Packard	10-14 Eliot St	Cambridge	1869
CAM.1097		14A Eliot St	Cambridge	1900
CAM.1098		16-18 Eliot St	Cambridge	1898
CAM.124	Sands, Ivory House	145 Elm St	Cambridge	1839
CAM.125	Foster, Dr. House	8 Elmwood Ave	Cambridge	1893
CAM.126	Greenough, J. J. House	9 Elmwood Ave	Cambridge	1903
CAM.127	Smyth, Herbert House	11-15 Elmwood Ave	Cambridge	1903

Inv. No.	Property Name	Street	Town	Year
CAM.128	Kempton, John House	14 Elmwood Ave	Cambridge	1895
CAM.129		20 Elmwood Ave	Cambridge	1892
CAM.130	Benson, Ruth House	26 Elmwood Ave	Cambridge	1899
CAM.131	Watson House	30 Elmwood Ave	Cambridge	c 1750
CAM.132	Elmwood - Lowell, James Russell House	33 Elmwood Ave	Cambridge	c 1767
CAM.133	Reardon, Edmund House	195 Erie St	Cambridge	1884
CAM.1371	Blessed Sacrament Roman Catholic Church Convent	203 Erie St	Cambridge	1954
CAM.134	Harvard Graduate Center	10-26 Everett St	Cambridge	1949
CAM.135	Jarvis, The	27 Everett St	Cambridge	1890
CAM.136	Newman, Andrew House	23 Fairmont St	Cambridge	1823
CAM.713		2-4 Farrar St	Cambridge	1927
CAM.714		9 Farrar St	Cambridge	1890
CAM.715		15 Farrar St	Cambridge	1898
CAM.716		16 Farrar St	Cambridge	1931
CAM.717		17 Farrar St	Cambridge	1897
CAM.718		18-20 Farrar St	Cambridge	1923
CAM.719		22 Farrar St	Cambridge	1928
CAM.720		26 Farrar St	Cambridge	1928
CAM.137		10-12 Farwell Pl	Cambridge	r 1870
CAM.138	Nichols House	11 Farwell Pl	Cambridge	1827
CAM.139		14-16 Farwell Pl	Cambridge	c 1855
CAM.140	Read, James House	15 Farwell Pl	Cambridge	c 1772
CAM.141	Child, N. K. House	17 Farwell Pl	Cambridge	1835
CAM.142		18-20 Farwell Pl	Cambridge	c 1855
CAM.143	Christ Church Parish House	19 Farwell Pl	Cambridge	1948
CAM.144	Toppan House	22-24 Farwell Pl	Cambridge	c 1900
CAM.1408	Carey, Agnes Whiteside House	50 Fayerweather St	Cambridge	
CAM.145	Deane, Ezra - Williams, George House	21-23 Fayette St	Cambridge	1848
CAM.146		26-28 Fayette St	Cambridge	1857
CAM.430	Cambridge Public Library - O'Connell Branch	Fifth St	Cambridge	1938
CAM.441		69-71 Fifth St	Cambridge	
CAM.452	Hall, Jesse House	75 Fifth St	Cambridge	1837
CAM.428		82 Fifth St	Cambridge	
CAM.429		83 Fifth St	Cambridge	
CAM.1405	Volpe Center - Center Service Building	259 Fifth St	Cambridge	c 1965
CAM.907	First Street Bridge over Broad Canal	First St	Cambridge	1924
CAM.147	Athenaeum Press Building	215 First St	Cambridge	1895

Inv. No.	Property Name	Street	Town	Year
CAM.910	Fitchburg Railroad Signal Bridge	Fitchburg Railroad	Cambridge	c 1930
CAM.148	Abbot, Edwin House	1 Follen St	Cambridge	1889
CAM.1271		5 Follen St	Cambridge	1853
CAM.1273		6 Follen St	Cambridge	1868
CAM.1338		8 Follen St	Cambridge	1871
CAM.149	Second Waterhouse House	9 Follen St	Cambridge	1844
CAM.150		10 Follen St	Cambridge	1875
CAM.1274		13 Follen St	Cambridge	1900
CAM.151	Richards, Theodore W. House	15 Follen St	Cambridge	1900
CAM.1275		19 Follen St	Cambridge	1844
CAM.1276		20 Follen St	Cambridge	1949
CAM.1277		21 Follen St	Cambridge	1841
CAM.1278		22 Follen St	Cambridge	1951
CAM.1279		25 Follen St	Cambridge	1889
CAM.152	Clover Den - Mann, Mary House	29 Follen St	Cambridge	1837
CAM.1280		34 Follen St	Cambridge	1946
CAM.1281		36 Follen St	Cambridge	1847
CAM.1282		44 Follen St	Cambridge	1862
CAM.338	Puritan Arms	46-50 Follen St	Cambridge	1940
CAM.1331	Homer - Lovell House	11 Forest St	Cambridge	1867
CAM.153	Francis, Ebenezer Houuse	1 Francis Ave	Cambridge	1836
CAM.721		6 Francis Ave	Cambridge	1940
CAM.722		7 Francis Ave	Cambridge	1894
CAM.723		8 Francis Ave	Cambridge	1940
CAM.724		9 Francis Ave	Cambridge	c 1875
CAM.725		10 Francis Ave	Cambridge	1894
CAM.726		11 Francis Ave	Cambridge	1894
CAM.1337		12-14 Francis Ave	Cambridge	1895
CAM.727		16 Francis Ave	Cambridge	1906
CAM.154	Davis, William Morris House	17 Francis Ave	Cambridge	r 1895
CAM.728		18 Francis Ave	Cambridge	1911
CAM.155	Hyatt, Prof. Alpheus - Durant, Prof. Will B. House	19 Francis Ave	Cambridge	1889
CAM.729		21 Francis Ave	Cambridge	1925
CAM.730		22 Francis Ave	Cambridge	1912
CAM.731		23 Francis Ave	Cambridge	1902
CAM.732		24 Francis Ave	Cambridge	1906
CAM.733		30 Francis Ave	Cambridge	1905
CAM.734		32 Francis Ave	Cambridge	1903

Inv. No.	Property Name	Street	Town	Year
CAM.735	Center for the Study of World Religions	42 Francis Ave	Cambridge	1959
CAM.736		44 Francis Ave	Cambridge	1913
CAM.737		53 Francis Ave	Cambridge	1913
CAM.738		56 Francis Ave	Cambridge	1914
CAM.739		57 Francis Ave	Cambridge	1913
CAM.740		59 Francis Ave	Cambridge	1916
CAM.741		60 Francis Ave	Cambridge	1961
CAM.742		63 Francis Ave	Cambridge	1913
CAM.743	Sert, Jose Luis House	64 Francis Ave	Cambridge	1957
CAM.744		65 Francis Ave	Cambridge	1916
CAM.745		67 Francis Ave	Cambridge	1926
CAM.746		68 Francis Ave	Cambridge	1921
CAM.747		70 Francis Ave	Cambridge	1879
CAM.748		73 Francis Ave	Cambridge	1926
CAM.749		75-77 Francis Ave	Cambridge	1925
CAM.1329	Kennedy, F. A. Steam Bakery	129 Franklin St	Cambridge	1875
CAM.919	Fresh Pond Lane over B & M Railroad	Fresh Pond Ln	Cambridge	1926
CAM.9014	Fresh Pond Parkway	Fresh Pond Pkwy	Cambridge	1899
CAM.9015	Fresh Pond Parkway - Concord Avenue Rotary Islands	Fresh Pond Pkwy	Cambridge	1928
CAM.9016	Fresh Pond Parkway - New Street Rotary	Fresh Pond Pkwy	Cambridge	1928
CAM.9017	Fresh Pond Parkway Tree Canopy	Fresh Pond Pkwy	Cambridge	r 1920
CAM.9018	Fresh Pond Parkway Median System	Fresh Pond Pkwy	Cambridge	c 1958
CAM.156	Wyeth - Eliot, Charles House	17 Fresh Pond Pkwy	Cambridge	1838
CAM.157	Frost, Walter House	10 Frost St	Cambridge	1807
CAM.800	Old Burying Ground	Garden St	Cambridge	r 1750
CAM.940	Milestone, 1767	Garden St	Cambridge	1734
CAM.158	Christ Church	0 Garden St	Cambridge	1760
CAM.159	Saunders, William House	1 Garden St	Cambridge	1821
CAM.339		2 Garden St	Cambridge	1835
CAM.340	Howe, Sarah House	3 Garden St	Cambridge	1851
CAM.160	First Church in Cambridge Congregational	11 Garden St	Cambridge	1870
CAM.341		17-19 Garden St	Cambridge	1926
CAM.161	Sears Tower - Harvard Observatory	60 Garden St	Cambridge	1843
CAM.162	Warner House	63 Garden St	Cambridge	1855
CAM.163	Gray, Asa House	88 Garden St	Cambridge	1810
CAM.1240		91 Garden St	Cambridge	1922
CAM.164	Taylor Square Firehouse	113 Garden St	Cambridge	1904

Inv. No.	Property Name	Street	Town	Year
CAM.165	Warren, H. Langford House	6 Garden Terr	Cambridge	1904
CAM.671	Rollins, John House	16 Garfield St	Cambridge	1891
CAM.672	Wood, Edward House	18 Garfield St	Cambridge	1886
CAM.1336	Shepherd, Herbert House	31-33 Garfield St	Cambridge	1886
CAM.673	Farquhar, Robert House	34 Garfield St	Cambridge	1890
CAM.674	Coon, Sarah House	36 Garfield St	Cambridge	1887
CAM.666	Shepherd, Edward House	39 Garfield St	Cambridge	1885
CAM.675	Thayer, Bertha House	44 Garfield St	Cambridge	1888
CAM.667	Estabrook, J. W. House	45 Garfield St	Cambridge	1886
CAM.668	Bartlett, A. S. House	49 Garfield St	Cambridge	1888
CAM.676	Green, Roscoe House	54 Garfield St	Cambridge	1890
CAM.669	Dewey House	55 Garfield St	Cambridge	1889
CAM.677	Worcester, George House	58 Garfield St	Cambridge	1890
CAM.678	Allen, Frank House	64 Garfield St	Cambridge	1891
CAM.670	Sullivan, Cornelius House	67 Garfield St	Cambridge	1889
CAM.679	Farnsworth, Charles House	74 Garfield St	Cambridge	1897
CAM.680	Ball, Elijah House	80 Garfield St	Cambridge	1887
CAM.502	Lechmere Point Corporation Row House	47 Gore St	Cambridge	c 1821
CAM.503	Lechmere Point Corporation Row House	49 Gore St	Cambridge	c 1821
CAM.504	Lechmere Point Corporation Row House	51 Gore St	Cambridge	c 1821
CAM.1407	Carr, M. W. and Company Factory - Building #4	63 Gorham St	Cambridge	r 1920
CAM.1241		1 Gray Gardens East	Cambridge	1925
CAM.1242		2 Gray Gardens East	Cambridge	1930
CAM.1243		3 Gray Gardens East	Cambridge	1923
CAM.1244		8 Gray Gardens East	Cambridge	1923
CAM.1245		9 Gray Gardens East	Cambridge	1922
CAM.1246		11 Gray Gardens East	Cambridge	1924
CAM.1247		12 Gray Gardens East	Cambridge	1922
CAM.1248		13 Gray Gardens East	Cambridge	1925
CAM.1249		16 Gray Gardens East	Cambridge	1922
CAM.1250		17 Gray Gardens East	Cambridge	1958
CAM.1251		19 Gray Gardens East	Cambridge	1927
CAM.1252		22 Gray Gardens East	Cambridge	1962
CAM.1253		25 Gray Gardens East	Cambridge	1926
CAM.1254		26 Gray Gardens East	Cambridge	1922
CAM.1255		27 Gray Gardens East	Cambridge	1923
CAM.1256		30 Gray Gardens East	Cambridge	1928
CAM.1257		31 Gray Gardens East	Cambridge	1924

Inv. No.	Property Name	Street	Town	Year
CAM.1258		37 Gray Gardens East	Cambridge	1923
CAM.1259		3 Gray Gardens West	Cambridge	1923
CAM.1260		4 Gray Gardens West	Cambridge	1922
CAM.1261		11 Gray Gardens West	Cambridge	1923
CAM.1262		14 Gray Gardens West	Cambridge	1924
CAM.1263		15 Gray Gardens West	Cambridge	1929
CAM.1264		16 Gray Gardens West	Cambridge	1925
CAM.167	Hall Tavern	20 Gray Gardens West	Cambridge	r 1800
CAM.1265		24 Gray Gardens West	Cambridge	1928
CAM.166	Frost, David House	26 Gray St	Cambridge	1815
CAM.618		133 Green St	Cambridge	c 1894
CAM.624	Raymond, T. H. Warehouse	175 Green St	Cambridge	1908
CAM.1389		205-207 Green St	Cambridge	
CAM.534	Inman Square Fire Station	Hampshire St	Cambridge	1912
CAM.168	Lamson, Rufus House	72-74 Hampshire St	Cambridge	1854
CAM.1367	Massachusetts Avenue Baptist Church	146 Hampshire St	Cambridge	1902
CAM.169	Opposition House	2-4 Hancock Pl	Cambridge	1807
CAM.170		104-106 Hancock St	Cambridge	1839
CAM.171	Atwood, Ephraim House	110 Hancock St	Cambridge	1839
CAM.536	Fay, Samuel P. P. House	172 Harvard St	Cambridge	1805
CAM.549	Allen Block	177-183 Harvard St	Cambridge	r 1875
CAM.1354	Courtney, Benjamin House	273 Harvard St	Cambridge	1867
CAM.172	Jones, William R. House	307 Harvard St	Cambridge	1865
CAM.173	Vinal, Albert House	325 Harvard St	Cambridge	1853
CAM.681	Melledge, James P. House	335 Harvard St	Cambridge	1850
CAM.684	Warner, Caleb House	336 Harvard St	Cambridge	1858
CAM.682		337 Harvard St	Cambridge	1887
CAM.685	Frothingham, Amos House	338 Harvard St	Cambridge	1859
CAM.686	Goepper, William House	340 Harvard St	Cambridge	1897
CAM.683		341-343 Harvard St	Cambridge	1855
CAM.687	Rindge, Samuel Baker House	342-344 Harvard St	Cambridge	1857
CAM.174	Bradbury, William F. House	369 Harvard St	Cambridge	1877
CAM.175	Hapgood, Richard House	382-392 Harvard St	Cambridge	1889
CAM.176	Ware Hall	383 Harvard St	Cambridge	1893
CAM.1099	Delta Upsilon Club	396 Harvard St	Cambridge	1914
CAM.177	Old Cambridge Baptist Church	398 Harvard St	Cambridge	1867
CAM.193	Austin Hall	Harvard University	Cambridge	1881
CAM.178	Holden Chapel - Harvard University	Harvard Yard	Cambridge	1764

Inv. No.	Property Name	Street	Town	Year
CAM.179	Sever Hall	Harvard Yard	Cambridge	1880
CAM.180	University Hall	Harvard Yard	Cambridge	1812
CAM.181	Harvard Hall - Harvard University	Harvard Yard	Cambridge	1764
CAM.182	Hollis Hall - Harvard University	Harvard Yard	Cambridge	1762
CAM.183	Massachusetts Hall	Harvard Yard	Cambridge	1718
CAM.184	Weld Hall - Harvard University	Harvard Yard	Cambridge	1870
CAM.185	Boylston Hall - Harvard University	Harvard Yard	Cambridge	1857
CAM.186	Holworthy Hall - Harvard University	Harvard Yard	Cambridge	1811
CAM.187	Grays Hall - Harvard University	Harvard Yard	Cambridge	1862
CAM.188	Lehman Hall - Harvard University	Harvard Yard	Cambridge	1924
CAM.189	Matthews House - Harvard University	Harvard Yard	Cambridge	1871
CAM.190	Straus Hall - Harvard University	Harvard Yard	Cambridge	1926
CAM.191	Thayer Hall - Harvard University	Harvard Yard	Cambridge	1869
CAM.192	Wigglesworth Hall - Harvard University	Harvard Yard	Cambridge	1930
CAM.953	Harvard University - 1857 Gate	Harvard Yard	Cambridge	1901
CAM.954	Harvard University - 1870 Gate	Harvard Yard	Cambridge	1901
CAM.955	Harvard University - 1873 Tablet	Harvard Yard	Cambridge	1901
CAM.956	Harvard University - 1874 Gate	Harvard Yard	Cambridge	1901
CAM.957	Harvard University - 1875 Gate	Harvard Yard	Cambridge	1901
CAM.958	Harvard University - 1881 Gate	Harvard Yard	Cambridge	1906
CAM.959	Harvard University - 1885 Gate	Harvard Yard	Cambridge	1904
CAM.960	Harvard University - 1886 Gate	Harvard Yard	Cambridge	1901
CAM.961	Harvard University - 1887 Gate	Harvard Yard	Cambridge	1906
CAM.962	Harvard University - 1888 Gate	Harvard Yard	Cambridge	1906
CAM.963	Harvard University - 1889 Gate	Harvard Yard	Cambridge	1901
CAM.964	Harvard University - 1890 Gate	Harvard Yard	Cambridge	1901
CAM.965	Harvard University - 1880 Gate	Harvard Yard	Cambridge	1902
CAM.966	Harvard University - Bradley Fountain	Harvard Yard	Cambridge	1910
CAM.967	Harvard University - Chinese Steel	Harvard Yard	Cambridge	r 1810
CAM.968	Harvard University - Delivery Gate	Harvard Yard	Cambridge	1948
CAM.969	Harvard University - Driveway Gate	Harvard Yard	Cambridge	1948
CAM.970	Harvard University - 1908 Gate	Harvard Yard	Cambridge	1936
CAM.971	Harvard University - Emerson Gate	Harvard Yard	Cambridge	1936
CAM.972	Harvard University - Fire Station Gate	Harvard Yard	Cambridge	1970
CAM.973	Harvard University - Hollis Pump	Harvard Yard	Cambridge	1936
CAM.974	Harvard University - 1876 Gate	Harvard Yard	Cambridge	1901
CAM.975	Harvard University - Harvard, John Statue	Harvard Yard	Cambridge	1884
CAM.976	Harvard University - Johnston Gate	Harvard Yard	Cambridge	1889

Inv. No.	Property Name	Street	Town	Year
CAM.977	Harvard University - Lamont Gate	Harvard Yard	Cambridge	1948
CAM.978	Harvard University - Gatehouse	Harvard Yard	Cambridge	1983
CAM.979	Harvard University - 1879 Gate	Harvard Yard	Cambridge	1891
CAM.980	Harvard University - Onion	Harvard Yard	Cambridge	1965
CAM.981	Harvard University - Porcellian Gate	Harvard Yard	Cambridge	1901
CAM.982	Harvard University - Reclining Figure	Harvard Yard	Cambridge	1972
CAM.983	Harvard University - Robinson Gate	Harvard Yard	Cambridge	1936
CAM.984	Harvard University - 1870 Sundial	Harvard Yard	Cambridge	1901
CAM.985	Harvard University - 1877 Gate	Harvard Yard	Cambridge	1901
CAM.1214	Harvard University - Canaday Hall	Harvard Yard	Cambridge	1973
CAM.1215	Harvard University - Emerson Hall	Harvard Yard	Cambridge	1904
CAM.1216	Harvard University - Houghton Library	Harvard Yard	Cambridge	1941
CAM.1217	Harvard University - Lamont Library	Harvard Yard	Cambridge	1947
CAM.1218	Harvard University - Lionel Hall	Harvard Yard	Cambridge	1924
CAM.1219	Harvard University - Memorial Church	Harvard Yard	Cambridge	1931
CAM.1220	Harvard University - Mower Hall	Harvard Yard	Cambridge	1924
CAM.1221	Brooks, Phillips House - Harvard Univsersity	Harvard Yard	Cambridge	1898
CAM.1222	Harvard University - Pusey Library	Harvard Yard	Cambridge	1973
CAM.1223	Harvard University - Robinson Hall	Harvard Yard	Cambridge	1900
CAM.1224	Harvard University - Stoughton Hall	Harvard Yard	Cambridge	1804
CAM.1227	Harvard University - Widener Library	Harvard Yard	Cambridge	1913
CAM.520		6 Hastings Sq	Cambridge	1884
CAM.1231	Bates, Jacob H. House	11 Hawthorn St	Cambridge	1813
CAM.194	Daly, Reginald A. House	23 Hawthorn St	Cambridge	c 1885
CAM.195	Wadsworth House	31 Hawthorn St	Cambridge	r 1935
CAM.196		35 Hawthorn St	Cambridge	r 1935
CAM.197	Glaser, Dorothy Merriless House	37 Hawthorn St	Cambridge	1937
CAM.198		41 Hawthorn St	Cambridge	1911
CAM.199	Maynardier, G. B. House	43 Hawthorn St	Cambridge	1900
CAM.1232		49 Hawthorn St	Cambridge	1900
CAM.521		75 Henry St	Cambridge	1892
CAM.1343		82-84 Henry St	Cambridge	
CAM.200	Noyes, J. A. House	1 Highland St	Cambridge	1894
CAM.796	Usher, Samuel House	11 Hillside Ave	Cambridge	1887
CAM.750		11 Holden St	Cambridge	1928
CAM.751		41 Holden St	Cambridge	1840
CAM.752		45 Holden St	Cambridge	1928
CAM.1383	Chadwick, Samuel E. House	10 Hollis St	Cambridge	1853

Inv. No.	Property Name	Street	Town	Year
CAM.1100	Alpha Delta Phi Club - Fly Club	2 Holyoke Pl	Cambridge	1896
CAM.1101		9 Holyoke Pl	Cambridge	c 1930
CAM.1197	Lowell House - Harvard University	10 Holyoke Pl	Cambridge	1929
CAM.1198	Indoor Athletic Building - Harvard University	35-41 Holyoke Pl	Cambridge	1929
CAM.1102		8-10 Holyoke St	Cambridge	1927
CAM.201	Hasty Pudding Club	12 Holyoke St	Cambridge	1887
CAM.1103	Apley Court	16 Holyoke St	Cambridge	1897
CAM.1104	Sawyer, Samuel F. House	20 Holyoke St	Cambridge	1818
CAM.1105		22 Holyoke St	Cambridge	1956
CAM.1106		24 Holyoke St	Cambridge	1963
CAM.1107	Owl Club	30 Holyoke St	Cambridge	1905
CAM.1302		2 Hubbard Pk	Cambridge	1909
CAM.1293		3 Hubbard Pk	Cambridge	1887
CAM.1306	Warren, John L. House	5 Hubbard Pk	Cambridge	1922
CAM.1305	Paine, George House	6 Hubbard Pk	Cambridge	c 1918
CAM.1295		8 Hubbard Pk	Cambridge	1888
CAM.1301	Nutting, Lillian House	12 Hubbard Pk	Cambridge	1908
CAM.1297		14 Hubbard Pk	Cambridge	1892
CAM.1304		15 Hubbard Pk	Cambridge	1914
CAM.1303	Beach, Revel W. House	19 Hubbard Pk	Cambridge	1913
CAM.1298		20 Hubbard Pk	Cambridge	1892
CAM.1299		26 Hubbard Pk	Cambridge	1894
CAM.1296		32 Hubbard Pk	Cambridge	1890
CAM.1346		15 Humboldt St	Cambridge	
CAM.904	Huron Avenue Bridge over B & M Railroad	Huron Ave	Cambridge	1892
CAM.202	Syrian Orthodox Catholic Church of Saint Mary	8 Inman St	Cambridge	1822
CAM.576	Matthews Apartments	12 Inman St	Cambridge	1966
CAM.1364	Bennett, James House	17 Inman St	Cambridge	1871
CAM.1349	Luke Rowhouse	19 Inman St	Cambridge	1877
CAM.1350	Luke Rowhouse	21 Inman St	Cambridge	1877
CAM.1351	Luke Rowhouse	21 1/2 Inman St	Cambridge	1877
CAM.203		102-104 Inman St	Cambridge	1845
CAM.204		106-108 Inman St	Cambridge	1845
CAM.205		110-112 Inman St	Cambridge	1845
CAM.753		80-82 Irving St	Cambridge	1927
CAM.754		81 Irving St	Cambridge	1916
CAM.755		84-86 Irving St	Cambridge	1927
CAM.756		89 Irving St	Cambridge	1916

Inv. No.	Property Name	Street	Town	Year
CAM.206	James, William House	95 Irving St	Cambridge	1889
CAM.757		99 Irving St	Cambridge	1889
CAM.758		103-103A Irving St	Cambridge	1889
CAM.207	cummings, e. e. House	104 Irving St	Cambridge	1893
CAM.759	Van Dael - DeSola Pool House	105 Irving St	Cambridge	1890
CAM.760		107 Irving St	Cambridge	1891
CAM.761		109 Irving St	Cambridge	1893
CAM.762	Davis, Robert House	110 Irving St	Cambridge	1889
CAM.763		114 Irving St	Cambridge	1911
CAM.764		133 Irving St	Cambridge	1963
CAM.765	American Academy of Arts and Sciences	136 Irving St	Cambridge	1980
CAM.766		138 Irving St	Cambridge	1912
CAM.297	Radcliffe College - Schlesinger Library	James St	Cambridge	1907
CAM.950	Winthrop Square Park	Kennedy St	Cambridge	1631
CAM.1108	Abbott Building	5 Kennedy St	Cambridge	1908
CAM.1109		9-25 Kennedy St	Cambridge	1887
CAM.1110	Farwell, Levi Tenant House	10-14 Kennedy St	Cambridge	c 1820
CAM.1111	Read Block	18-28 Kennedy St	Cambridge	1885
CAM.1112		29-41 Kennedy St	Cambridge	1971
CAM.1113		30 Kennedy St	Cambridge	1936
CAM.1114	Garage, The	34-42 Kennedy St	Cambridge	1924
CAM.1115	Fox Club	44 Kennedy St	Cambridge	1906
CAM.1116	Drayton Hall	48 Kennedy St	Cambridge	1901
CAM.1117		50 Kennedy St	Cambridge	1892
CAM.1118		52-54 Kennedy St	Cambridge	1884
CAM.1119	Galeria	55-57 Kennedy St	Cambridge	1974
CAM.1120		56 Kennedy St	Cambridge	1903
CAM.1121	S. A. E. Club	60 Kennedy St	Cambridge	1929
CAM.1122		63-65 Kennedy St	Cambridge	1984
CAM.1200	Hicks, John House - Harvard University	64 Kennedy St	Cambridge	1762
CAM.1199	Smith Hall - Harvard University	70-78 Kennedy St	Cambridge	1913
CAM.208	Loring, Judge Edward - Peirce, Benjamin House	4 Kirkland Pl	Cambridge	1856
CAM.688	Merrill, John House	9 Kirkland Pl	Cambridge	1855
CAM.689	Shaw, Southworth House	10 Kirkland Pl	Cambridge	1856
CAM.690	Green, Louise House	11 Kirkland Pl	Cambridge	1921
CAM.691	Cutler, Isaac House	12 Kirkland Pl	Cambridge	1857
CAM.692	Cutler, George House	13 Kirkland Pl	Cambridge	1857
CAM.693	Ware House	14 Kirkland Pl	Cambridge	1839

Inv. No.	Property Name	Street	Town	Year
CAM.209	Treadwell - Sparks House	21 Kirkland St	Cambridge	1838
CAM.210	Brooks, Luther House	34 Kirkland St	Cambridge	1840
CAM.211	Lovering, Joseph House	38 Kirkland St	Cambridge	1839
CAM.767		49 Kirkland St	Cambridge	1886
CAM.768		55 Kirkland St	Cambridge	1927
CAM.769		57-59 Kirkland St	Cambridge	1927
CAM.212	Eliot, Charles W. House	61 Kirkland St	Cambridge	1858
CAM.213	Child, Francis J. House	67 Kirkland St	Cambridge	1861
CAM.9019	Brown-Rhone, Jill Park	Lafayette Sq	Cambridge	2007
CAM.214	Fresh Pond Hotel	234 Lakeview Ave	Cambridge	1796
CAM.1013		13 Lancaster St	Cambridge	c 1880
CAM.1005		16 Lancaster St	Cambridge	1892
CAM.1006		18 Lancaster St	Cambridge	1885
CAM.1007		24 Lancaster St	Cambridge	1883
CAM.1014	Sawyer, Chester House	27 Lancaster St	Cambridge	1886
CAM.1015	Hovey, William B. House	29 Lancaster St	Cambridge	1887
CAM.1008		36 Lancaster St	Cambridge	1886
CAM.215	Yerxa House and Carriage House	37 Lancaster St	Cambridge	1887
CAM.216	Larches, The	22 Larch Rd	Cambridge	c 1808
CAM.1317	Metropolitan District Commission Boat House	Lechmere Canal	Cambridge	1910
CAM.217		15-17 Lee St	Cambridge	1856
CAM.218	Lowell, The	33 Lexington Ave	Cambridge	1900
CAM.1123		5-7 Linden St	Cambridge	c 1867
CAM.1124	Harvard Square Squash Court	8-10 Linden St	Cambridge	1908
CAM.1125	Delphic Club	9 Linden St	Cambridge	1902
CAM.219	Apthorp, Rev. East House	10 Linden St	Cambridge	c 1760
CAM.220	Cooper - Frost - Austin House	21 Linnaean St	Cambridge	1681
CAM.221	Peabody Court Apartments	41-43 Linnaean St	Cambridge	1922
CAM.1234	Cambridge Friends Meetinghouse and Center	5 Longfellow Pk	Cambridge	1914
CAM.1233		6 Longfellow Pk	Cambridge	1901
CAM.222	Lowell School	25 Lowell St	Cambridge	1883
CAM.1319	Magazine Beach Bath House	Magazine Beach	Cambridge	1899
CAM.223	First Baptist Church, Cambridge	5 Magazine St	Cambridge	1881
CAM.637	Church Corners Apartments	8-12 Magazine St	Cambridge	1985
CAM.510	Pilgrim Congregational Church	35 Magazine St	Cambridge	1871
CAM.511	Hinman, Joseph House	48 Magazine St	Cambridge	1875
CAM.512	Brewer, Isaac D. - Pulsifer, William Double House	50-52 Magazine St	Cambridge	1852

Inv. No.	Property Name	Street	Town	Year
CAM.513	Grace Methodist Church	56 Magazine St	Cambridge	1886
CAM.224	Flentje, Ernst House	129 Magazine St	Cambridge	1866
CAM.991	Shell Sign	187 Magazine St	Cambridge	1933
CAM.87	Kendall Square Subway Station	Main St	Cambridge	1912
CAM.225	Kendall Square Substation	Main St	Cambridge	1911
CAM.1308	Davenport - Allen and Endicott Factory Headhouse	Main St	Cambridge	1882
CAM.1309	Davenport - Allen and Endicott Factory East Wing	Main St	Cambridge	1848
CAM.1335	Luke Building	135-145 Main St	Cambridge	1874
CAM.1384	Engine House No. 7	350 Main St	Cambridge	c 1895
CAM.328	Union #2 Engine House	787-789 Main St	Cambridge	1852
CAM.609	Bright Building	853 Main St	Cambridge	1898
CAM.608	Wentworth Building	859-863 Main St	Cambridge	1897
CAM.610	Union Baptist Church	872 Main St	Cambridge	1882
CAM.607	Mellen Building	875 Main St	Cambridge	1897
CAM.606	Andelman, Ezra Building	877-881 Main St	Cambridge	1941
CAM.611	Sawyer, Charles Tenement	882-884 Main St	Cambridge	c 1873
CAM.605	Whitney, Lucretia and Henry Building	893-907 Main St	Cambridge	1870
CAM.703		6 Maple Ave	Cambridge	
CAM.694	Stevens, Charles B. House	8 Maple Ave	Cambridge	1873
CAM.704		12 Maple Ave	Cambridge	
CAM.705		14-16 Maple Ave	Cambridge	
CAM.702		15 Maple Ave	Cambridge	
CAM.701		19 Maple Ave	Cambridge	
CAM.697	Webster, Francis B. House	20 Maple Ave	Cambridge	1861
CAM.695	Hall, Lewis House	23 Maple Ave	Cambridge	1867
CAM.706		24 Maple Ave	Cambridge	
CAM.700		25 Maple Ave	Cambridge	r 1920
CAM.707		26 Maple Ave	Cambridge	
CAM.699		27 Maple Ave	Cambridge	
CAM.698		29 Maple Ave	Cambridge	
CAM.696	Munroe, Philip House	31 Maple Ave	Cambridge	1887
CAM.226	Mason, Josiah Jr. House	11 Market St	Cambridge	1831
CAM.295	Radcliffe College Gymnasium	Mason St	Cambridge	1898
CAM.296	Radcliffe College - Agassiz House	Mason St	Cambridge	1904
CAM.227	Norton House Ell	4 Mason St	Cambridge	1847
CAM.228		6-12 Mason St	Cambridge	

Inv. No.	Property Name	Street	Town	Year
CAM.260	M. I. T. Alumni Swimming Pool Building	Massachusetts Ave	Cambridge	1940
CAM.261	Kresge Auditorium	Massachusetts Ave	Cambridge	1953
CAM.262	M. I. T. Chapel	Massachusetts Ave	Cambridge	1954
CAM.901	Harvard Square Subway Kiosk	Massachusetts Ave	Cambridge	1928
CAM.905	Massachusetts Avenue Bridge over Conrail	Massachusetts Ave	Cambridge	1900
CAM.916	Central Square Subway Station	Massachusetts Ave	Cambridge	1912
CAM.921	Harvard Bridge	Massachusetts Ave	Cambridge	r 1890
CAM.938	Cambridge Common	Massachusetts Ave	Cambridge	1631
CAM.939	Cambridge Common South Traffic Island	Massachusetts Ave	Cambridge	1976
CAM.945	Burying Ground Fence	Massachusetts Ave	Cambridge	1891
CAM.946	Flagstaff Park	Massachusetts Ave	Cambridge	1913
CAM.947	North Little Common	Massachusetts Ave	Cambridge	c 1858
CAM.949	Central Square Street Pattern	Massachusetts Ave	Cambridge	c 1630
CAM.334	Cambridge Armory	120 Massachusetts Ave	Cambridge	1902
CAM.332	Metropolitan Storage Warehouse	134 Massachusetts Ave	Cambridge	1895
CAM.1366	New England Confectionery Company Factory	250 Massachusetts Ave	Cambridge	1927
CAM.612	Lamson, The	351-355 Massachusetts Ave	Cambridge	1907
CAM.614	Lafayette Square Fire Station	378 Massachusetts Ave	Cambridge	1893
CAM.613	Shell Gas Station	385 Massachusetts Ave	Cambridge	1948
CAM.615	Salvation Army - Cambridge Citadel	400-402 Massachusetts Ave	Cambridge	1968
CAM.604		401-409 Massachusetts Ave	Cambridge	1966
CAM.603	Taylor, William A. House and Shop	411-413 Massachusetts Ave	Cambridge	1887
CAM.602	Barkin and Gorfinkle Building	415-429 Massachusetts Ave	Cambridge	1925
CAM.616	Kennedy, Frank A. Store	424 Massachusetts Ave	Cambridge	1896
CAM.617	Kutz, Issac Store	428 Massachusetts Ave	Cambridge	c 1910
CAM.229	Kennedy, The	430-442 Massachusetts Ave	Cambridge	1890
CAM.601	Robbins Building	433-447 Massachusetts Ave	Cambridge	1923
CAM.619	Blanchard Building	448-450 Massachusetts Ave	Cambridge	c 1886
CAM.324	South Row	452-458 Massachusetts Ave	Cambridge	1807
CAM.1393	Dana Row - South Row	452-458 Massachusetts Ave	Cambridge	2003
CAM.599	Rogers, F. W. and G. M. Building	453-457 Massachusetts Ave	Cambridge	1885
CAM.620	Freedman Building	460-464 Massachusetts Ave	Cambridge	1933
CAM.598	McDonald's Restaurant	463-467 Massachusetts Ave	Cambridge	1974
CAM.621	Central Square Realty Trust Building	468-480 Massachusetts Ave	Cambridge	1929
CAM.597	Moller's Furniture Store	485 Massachusetts Ave	Cambridge	1926
CAM.622	Longfellow, The	492-498 Massachusetts Ave	Cambridge	1893
CAM.596	Kane's Furniture Store	493-507 Massachusetts Ave	Cambridge	1916
CAM.625	Burger King Restaraunt	506 Massachusetts Ave	Cambridge	1970

Inv. No.	Property Name	Street	Town	Year
CAM.1394	Hovey, Phineas Building	512-514 Massachusetts Ave	Cambridge	1842
CAM.595	Central Trust Building	515-527 Massachusetts Ave	Cambridge	1927
CAM.627	Miller Store	520 Massachusetts Ave	Cambridge	1924
CAM.628	Rosenwald Realty Corporation Building	522-526 Massachusetts Ave	Cambridge	1928
CAM.230	Odd Fellows Hall	536 Massachusetts Ave	Cambridge	1884
CAM.629	Clark - Lamb Building	546-550 Massachusetts Ave	Cambridge	c 1873
CAM.630	Albani Building	552-566 Massachusetts Ave	Cambridge	1925
CAM.592	Bullock, Charles Building	567-569 Massachusetts Ave	Cambridge	1859
CAM.591	Central Square Theater	571-577 Massachusetts Ave	Cambridge	1917
CAM.631	Ginsberg Building - Harvard Bazar	572-590 Massachusetts Ave	Cambridge	1913
CAM.590	Morse, Asa P. Building	579-587 Massachusetts Ave	Cambridge	1893
CAM.589	Cambridgeport National Bank Building	593-597 Massachusetts Ave	Cambridge	1869
CAM.632	Manhattan Market - Purity Supreme Super Market	596-610 Massachusetts Ave	Cambridge	1899
CAM.588	Morse, Asa Second Building	599-601 Massachusetts Ave	Cambridge	1905
CAM.587	Fisk and Coleman Building	603-605 Massachusetts Ave	Cambridge	1892
CAM.633	Prospect House	614-620 Massachusetts Ave	Cambridge	1869
CAM.586	Corcoran, John H. Building	615-627 Massachusetts Ave	Cambridge	1927
CAM.634	Holmes Block I	624-638 Massachusetts Ave	Cambridge	1915
CAM.1395	New Holmes Block	624-638 Massachusetts Ave	Cambridge	1998
CAM.585	Woolworth, F. W. Building	633-641 Massachusetts Ave	Cambridge	1950
CAM.584	Watriss Building	643-649 Massachusetts Ave	Cambridge	1880
CAM.583	Dowse, Thomas House	653-655 Massachusetts Ave	Cambridge	1814
CAM.581	New England Gas and Electric Association II Bldg	671-675 Massachusetts Ave	Cambridge	1966
CAM.642	Central Square Building	674 Massachusetts Ave	Cambridge	1926
CAM.643	Chamberlain - Hyde Building	684-688 Massachusetts Ave	Cambridge	1869
CAM.580	Cambridgeport Savings Bank	689 Massachusetts Ave	Cambridge	1904
CAM.644	Dana Building	692-698 Massachusetts Ave	Cambridge	1872
CAM.645	Southwick Building	700-706 Massachusetts Ave	Cambridge	1908
CAM.646	Norris Building	710-720 Massachusetts Ave	Cambridge	1916
CAM.579	Cambridge Electric Light Building	719 Massachusetts Ave	Cambridge	1912
CAM.647	Thayer Building I	722-724 Massachusetts Ave	Cambridge	1863
CAM.648	Thayer Building II	728-730 Massachusetts Ave	Cambridge	1868
CAM.578	Southwick Building	731-751 Massachusetts Ave	Cambridge	1896
CAM.649	Dobbins and Draper Store	736-750 Massachusetts Ave	Cambridge	1922
CAM.650	Dobbins and Draper Store	736-750 Massachusetts Ave	Cambridge	1922
CAM.231	Cambridge Mutual Fire Insurance Company Building	763 Massachusetts Ave	Cambridge	1888

Inv. No.	Property Name	Street	Town	Year
CAM.232	Central Square Post Office	770 Massachusetts Ave	Cambridge	1933
CAM.233	Cambridge City Hall	795 Massachusetts Ave	Cambridge	1889
CAM.651	Cambridge Senior Center	800-806 Massachusetts Ave	Cambridge	1925
CAM.652	Young Men's Christian Association Building	820-830 Massachusetts Ave	Cambridge	1896
CAM.1396	Brusch Medical Center	825-831 Massachusetts Ave	Cambridge	1951
CAM.653	Saint Peter's Episcopal Church	834 Massachusetts Ave	Cambridge	1867
CAM.654	Modern Manor Apartments	842-864 Massachusetts Ave	Cambridge	1925
CAM.900	Houghton Beech Tree	1000 Massachusetts Ave	Cambridge	
CAM.1127	Brentford Hall	1137 Massachusetts Ave	Cambridge	1899
CAM.1128	Dunham, Israel Houses	1156-1166 Massachusetts Ave	Cambridge	1858
CAM.1129		1168 Massachusetts Ave	Cambridge	c 1892
CAM.1130		1170-1174 Massachusetts Ave	Cambridge	c 1849
CAM.1131	Longfellow Court	1200 Massachusetts Ave	Cambridge	1916
CAM.1132	Gulf Gas Station	1201 Massachusetts Ave	Cambridge	1940
CAM.1133		1206 Massachusetts Ave	Cambridge	1965
CAM.1134		1208-1210 Massachusetts Ave	Cambridge	1842
CAM.1135	Quincy Hall	1218 Massachusetts Ave	Cambridge	1891
CAM.1136		1230 Massachusetts Ave	Cambridge	1907
CAM.1137		1234-1238 Massachusetts Ave	Cambridge	c 1894
CAM.1138	Hamden Hall	1246-1260 Massachusetts Ave	Cambridge	1902
CAM.1139	A. D. Club	1268-1270 Massachusetts Ave	Cambridge	1899
CAM.1140	Niles Building	1280 Massachusetts Ave	Cambridge	1984
CAM.234	Fairfax, The	1300-1306 Massachusetts Ave	Cambridge	1869
CAM.1141	Fairfax - Hilton Block	1310-1312 Massachusetts Ave	Cambridge	1883
CAM.1142	Fairfax - Hilton Block	1316 Massachusetts Ave	Cambridge	1885
CAM.235	Porcellian Club	1320-1324 Massachusetts Ave	Cambridge	1890
CAM.1143	Manter Hall	1325 Massachusetts Ave	Cambridge	1885
CAM.236	Wadsworth House	1341 Massachusetts Ave	Cambridge	1726
CAM.237	Holyoke Center	1350 Massachusetts Ave	Cambridge	1961
CAM.1144	Cambridge Savings Bank	1372-1376 Massachusetts Ave	Cambridge	1923
CAM.1145	Read, Joseph Stacey House	1380-1382 Massachusetts Ave	Cambridge	c 1783
CAM.1146	Bartlett, Joseph House	1384-1392 Massachusetts Ave	Cambridge	c 1800
CAM.1147	Harvard Coop Society	1400 Massachusetts Ave	Cambridge	1924
CAM.1148	Harvard Coop Society	1408-1410 Massachusetts Ave	Cambridge	1956
CAM.1149	Harvard Trust Company	1414 Massachusetts Ave	Cambridge	1923
CAM.1150	College House	1420-1442 Massachusetts Ave	Cambridge	1832
CAM.342	Gannett House	1511 Massachusetts Ave	Cambridge	1838
CAM.343	Hemenway Gymnasium	1517 Massachusetts Ave	Cambridge	1938

Inv. No.	Property Name	Street	Town	Year
CAM.344	Hastings Hall	1519 Massachusetts Ave	Cambridge	1888
CAM.345	Harvard Epworth Methodist Church	1555 Massachusetts Ave	Cambridge	1891
CAM.1334	Francis - Allyn House	1564 Massachusetts Ave	Cambridge	1831
CAM.1333	Sawin - Cobb - Wilson House	1626 Massachusetts Ave	Cambridge	1868
CAM.238	Saunders, Charles Hicks House	1627 Massachusetts Ave	Cambridge	1862
CAM.239	Montrose, The	1648 Massachusetts Ave	Cambridge	1898
CAM.240	Dunvegan, The	1654 Massachusetts Ave	Cambridge	1898
CAM.241	Worcester, Frederick House	1734 Massachusetts Ave	Cambridge	1886
CAM.242	North Avenue Congregational Church	1803 Massachusetts Ave	Cambridge	1845
CAM.243	Lovell Block	1853 Massachusetts Ave	Cambridge	1882
CAM.1385	Cambridge Masonic Temple	1950 Massachusetts Ave	Cambridge	1910
CAM.244	Saint James Episcopal Church	1991 Massachusetts Ave	Cambridge	1888
CAM.245	Henderson Carriage Repository	2067-2089 Massachusetts Ave	Cambridge	1892
CAM.246	Cornerstone Baptist Church	2114 Massachusetts Ave	Cambridge	1854
CAM.247	Mead, Alpheus House	2200 Massachusetts Ave	Cambridge	1867
CAM.248	Snow, Daniel House	2210 Massachusetts Ave	Cambridge	1868
CAM.249	McLean, Isaac House	2218 Massachusetts Ave	Cambridge	1894
CAM.250	Farwell, R. H. Double House	2222-2224 Massachusetts Ave	Cambridge	1891
CAM.251	Saint John's Roman Catholic Church	2270 Massachusetts Ave	Cambridge	1904
CAM.1390		2557 Massachusetts Ave	Cambridge	
CAM.1376	Matignon Central Catholic High School	1 Matignon Rd	Cambridge	1946
CAM.1375	Immaculate Conception Catholic Church Convent	33 Matignon Rd	Cambridge	1954
CAM.252	Cambridge Almshouse	45 Matignon Rd	Cambridge	1850
CAM.1374	Cambridge Almshouse Dormitory	45 Matignon Rd	Cambridge	c 1887
CAM.566	M. I. T. - Pierce, Henry L. Engineering Laboratory	Memorial Dr	Cambridge	1913
CAM.567	M. I. T. - Buildings #2 and #8	Memorial Dr	Cambridge	1913
CAM.568	M. I. T. - Pratt School of Naval Architecture	Memorial Dr	Cambridge	1919
CAM.569	M. I. T. - Homburg Infirmary	Memorial Dr	Cambridge	1927
CAM.570	M. I. T. - Eastman, George Research Laboratories	Memorial Dr	Cambridge	1931
CAM.571	M. I. T. - Rogers, William Barton Building	Memorial Dr	Cambridge	1937
CAM.572	M. I. T. - Walker Memorial	Memorial Dr	Cambridge	1913
CAM.573	M. I. T. - President's House	Memorial Dr	Cambridge	1913
CAM.574	M. I. T. - Senior House	Memorial Dr	Cambridge	1913
CAM.575	M. I. T. - Hayden Library	Memorial Dr	Cambridge	1949
CAM.930	Memorial Drive	Memorial Dr	Cambridge	1896
CAM.933	M. I. T. Memorial Underpass	Memorial Dr	Cambridge	1931

Inv. No.	Property Name	Street	Town	Year
CAM.934	Reid, William J. Overpass	Memorial Dr	Cambridge	1939
CAM.1332	Little, Arthur D. Inc. Building	Memorial Dr	Cambridge	1917
CAM.1398	Lever Brothers Company Administration Building	50 Memorial Dr	Cambridge	1938
CAM.253		100 Memorial Dr	Cambridge	1950
CAM.254	M. I. T. Main Courtyard	182-226 Memorial Dr	Cambridge	1913
CAM.255	Riverbank Court Hotel	305 Memorial Dr	Cambridge	1900
CAM.256	Baker House	362 Memorial Dr	Cambridge	1947
CAM.1327	Boston University Boat House	619 Memorial Dr	Cambridge	1913
CAM.257	B & B Chemical Company	780 Memorial Dr	Cambridge	1937
CAM.258	Peabody Terrace	900 Memorial Dr	Cambridge	1958
CAM.1201	Dunster House - Harvard University	945 Memorial Dr	Cambridge	1929
CAM.1202	Gore Hall - Harvard University	960 Memorial Dr	Cambridge	1913
CAM.1203	Standish Hall - Harvard University	966 Memorial Dr	Cambridge	1913
CAM.1204	Eliot House - Harvard University	967 Memorial Dr	Cambridge	1930
CAM.1324	Harvard University - Weld Boat House	971 Memorial Dr	Cambridge	1906
CAM.259	Conventual Church of Saint Mary and Saint John	980 Memorial Dr	Cambridge	1936
CAM.1267	Radnor Hall	983-984 Memorial Dr	Cambridge	1916
CAM.1268	Hampstead Hall	985-986 Memorial Dr	Cambridge	1916
CAM.1269	Barrington Court	987-989 Memorial Dr	Cambridge	1924
CAM.1270	Strathcona-on-the-Charles	992-993 Memorial Dr	Cambridge	1914
CAM.1300		2 Mercer Cir	Cambridge	1894
CAM.1287		3 Mercer Cir	Cambridge	1885
CAM.1288		4 Mercer Cir	Cambridge	1885
CAM.1294		5 Mercer Cir	Cambridge	1887
CAM.1291		6 Mercer Cir	Cambridge	1886
CAM.1307	Harris, William F. House	7 Mercer Cir	Cambridge	1922
CAM.1289		8 Mercer Cir	Cambridge	1885
CAM.1292		9 Mercer Cir	Cambridge	1886
CAM.1151		11-15 Mifflin Pl	Cambridge	1901
CAM.1152		12-14 Mifflin Pl	Cambridge	1913
CAM.1153		17-19 Mifflin Pl	Cambridge	1972
CAM.1205	McKinlock Hall - Harvard University	8 Mill St	Cambridge	1926
CAM.1206	Leverett House Library and Towers - Harvard Univ.	14-18 Mill St	Cambridge	1958
CAM.263	Cambridge Neighborhood House	79 Moore St	Cambridge	c 1821
CAM.264	Reversible Collar Company Building	25-27 Mount Auburn St	Cambridge	1860
CAM.1154	Saint Paul's Rectory	32-36 Mount Auburn St	Cambridge	1924
CAM.1155	Speakers Club	43-45 Mount Auburn St	Cambridge	1845

Inv. No.	Property Name	Street	Town	Year
CAM.1156		45 1/2 Mount Auburn St	Cambridge	1971
CAM.1157		47-49 Mount Auburn St	Cambridge	1926
CAM.1158	Claverly Hall	63 Mount Auburn St	Cambridge	1892
CAM.1159		65R Mount Auburn St	Cambridge	1957
CAM.1160	Ridgely Hall	65 Mount Auburn St	Cambridge	1904
CAM.1161	Manter Hall School	71-77 Mount Auburn St	Cambridge	1927
CAM.1162	Phoenix - S. K. Club	72 Mount Auburn St	Cambridge	1915
CAM.1163	Iroquois Club	74 Mount Auburn St	Cambridge	1916
CAM.1164	Spee Club	76 Mount Auburn St	Cambridge	1931
CAM.1165	Willard, Lucy House	78 Mount Auburn St	Cambridge	1839
CAM.1166		90 Mount Auburn St	Cambridge	1971
CAM.1167		92-96 Mount Auburn St	Cambridge	1895
CAM.1168		95-97 Mount Auburn St	Cambridge	1920
CAM.1169		99 Mount Auburn St	Cambridge	c 1919
CAM.1170	Cantabrigia Club	100 Mount Auburn St	Cambridge	c 1919
CAM.1171		102 Mount Auburn St	Cambridge	1869
CAM.1172		104 Mount Auburn St	Cambridge	1983
CAM.1173		110 Mount Auburn St	Cambridge	1959
CAM.9	Boston Elevated Railway Division 7 Headquarters	112 Mount Auburn St	Cambridge	c 1911
CAM.1175	Trinity Hall	114-120 Mount Auburn St	Cambridge	1892
CAM.1177	Waverly Hall	115 Mount Auburn St	Cambridge	1902
CAM.1178		119-123 Mount Auburn St	Cambridge	1988
CAM.1176		120R Mount Auburn St	Cambridge	1982
CAM.1126	U. S. Post Office - Cambridge Branch	125 Mount Auburn St	Cambridge	1953
CAM.791		151 Mount Auburn St	Cambridge	1853
CAM.792		153 Mount Auburn St	Cambridge	1874
CAM.789		154 Mount Auburn St	Cambridge	1852
CAM.790		156-158 Mount Auburn St	Cambridge	1856
CAM.265		173 Mount Auburn St	Cambridge	r 1905
CAM.266		175 Mount Auburn St	Cambridge	r 1895
CAM.267		259 Mount Auburn St	Cambridge	c 1850
CAM.268	Mount Auburn Hospital - Surgical Building	330 Mount Auburn St	Cambridge	1897
CAM.269	Mount Auburn Hospital - Main Building	330 Mount Auburn St	Cambridge	1886
CAM.801	Mount Auburn Cemetery	580 Mount Auburn St	Cambridge	1831
CAM.936	Mount Auburn Cemetery Fence and Gates	580 Mount Auburn St	Cambridge	1843
CAM.992	Mount Auburn Cemetery - Copenhagen, Maria Angel	580 Mount Auburn St	Cambridge	1872

Inv. No.	Property Name	Street	Town	Year
CAM.270	Mount Auburn Cemetery Reception House	583 Mount Auburn St	Cambridge	1870
CAM.1330	DeRosay - McNamee House	50 Mount Vernon St	Cambridge	1896
CAM.557		1-2 Norfolk Pl	Cambridge	1844
CAM.558		3 Norfolk Pl	Cambridge	1846
CAM.593	Powers, Hannah - Ginsberg, Harris Building	7-15 Norfolk St	Cambridge	c 1894
CAM.562	Hotel Norfolk	30 Norfolk St	Cambridge	1886
CAM.560		51 Norfolk St	Cambridge	c 1885
CAM.561		59 Norfolk St	Cambridge	1886
CAM.554		65-67 Norfolk St	Cambridge	1844
CAM.559	Pollard, John House	68-72 Norfolk St	Cambridge	1859
CAM.552		69 Norfolk St	Cambridge	1843
CAM.555		71-73 Norfolk St	Cambridge	1844
CAM.556		75-77 Norfolk St	Cambridge	1844
CAM.551	Fuller, Robert House	79 Norfolk St	Cambridge	1843
CAM.553		87 Norfolk St	Cambridge	1843
CAM.563	Hotel Franklin	90 Norfolk St	Cambridge	1886
CAM.1392	Saint Mary of the Annunciation Catholic Church	134 Norfolk St	Cambridge	r 1865
CAM.550		1-2 Norfolk Terr	Cambridge	1839
CAM.913	East Cambridge Viaduct - Lechmere Viaduct	O'Brien Hwy	Cambridge	1910
CAM.9020	Boston and Lowell Railroad Retaining Wall	O'Brien Hwy	Cambridge	c 1857
CAM.349	Lockhart, William L. Coffin Factory Warehouse	195-199 O'Brien Hwy	Cambridge	1873
CAM.271	Barnes, James B. House	200 O'Brien Hwy	Cambridge	1824
CAM.348	Lockhart, William L. Coffin Factory Main Building	201 O'Brien Hwy	Cambridge	r 1870
CAM.272	Lockart, William L. Company Building	209 O'Brien Hwy	Cambridge	c 1859
CAM.1400	Morrell, John and Company Branch House	221 O'Brien Hwy	Cambridge	1929
CAM.1399	Whitehead Metal Products Company	225 O'Brien Hwy	Cambridge	1929
CAM.273	Aborn, John House	41 Orchard St	Cambridge	1846
CAM.274	Billings, Frederick House	45 Orchard St	Cambridge	1846
CAM.1310	Davenport - Allen and Endicott Factory West Wing	Osborn St	Cambridge	1848
CAM.1311	Davenport - Allen Factory West Wing Extension	Osborn St	Cambridge	1848
CAM.1312	Allen and Endicott Factory Extension	Osborn St	Cambridge	1896
CAM.1313	Allen and Endicott Factory Extension	Osborn St	Cambridge	1896
CAM.461	Putnam School	Otis St	Cambridge	1889
CAM.465	Saint Hedwig's Parish Church	Otis St	Cambridge	1939
CAM.468	Otis Hospital	Otis St	Cambridge	
CAM.371	Woodbury, James A. - Geldowsky, Ferdinand Building	2-28 Otis St	Cambridge	1869

Inv. No.	Property Name	Street	Town	Year
CAM.374		31 Otis St	Cambridge	1900
CAM.473	Hall, Lewis and William A. Rowhouse	55 Otis St	Cambridge	1851
CAM.474	Hall, Lewis and William A. Rowhouse	57 Otis St	Cambridge	1851
CAM.475	Hall, Lewis and William A. Rowhouse	59 Otis St	Cambridge	1851
CAM.485	Hazard, Samuel L. House	60 Otis St	Cambridge	1871
CAM.476	Hall, Lewis and William A. Rowhouse	61 Otis St	Cambridge	1851
CAM.484		62 Otis St	Cambridge	
CAM.472	Sortwell, Daniel R. Double House	63-65 Otis St	Cambridge	1871
CAM.483		64 Otis St	Cambridge	
CAM.471		65 1/2 Otis St	Cambridge	
CAM.482	Jones, Andrew - Hall, William A. Double House	66-68 Otis St	Cambridge	1846
CAM.470	Goss, Abiel Double House	67-69 Otis St	Cambridge	1839
CAM.481		70 Otis St	Cambridge	
CAM.469		73-75 Otis St	Cambridge	
CAM.480		74 Otis St	Cambridge	
CAM.479		78 Otis St	Cambridge	
CAM.477	Clark, Josias - Cummings, Daniel P. Rowhouse	80 Otis St	Cambridge	1861
CAM.478	Clark, Josias - Cummings, Daniel P. Rowhouse	82 Otis St	Cambridge	1861
CAM.467	Deshon, Royal P. House	93 Otis St	Cambridge	1842
CAM.460		94 Otis St	Cambridge	
CAM.466		95-97 Otis St	Cambridge	
CAM.459		96 Otis St	Cambridge	
CAM.458		98 Otis St	Cambridge	
CAM.457	Taylor, Oliver House	100 Otis St	Cambridge	1848
CAM.455	Adams, Jabez F. - Atwood, Samuel S. Rowhouse	102 Otis St	Cambridge	1848
CAM.464	Bridgeman, John L. Double House	103-105 Otis St	Cambridge	1843
CAM.456	Adams, Jabez F. - Atwood, Samuel S. Rowhouse	104 Otis St	Cambridge	1848
CAM.454		106-108 Otis St	Cambridge	
CAM.463		107-109 Otis St	Cambridge	
CAM.453		110 Otis St	Cambridge	
CAM.462		113 Otis St	Cambridge	
CAM.439		117 1/2 Otis St	Cambridge	
CAM.440		117-119 Otis St	Cambridge	
CAM.451		118 Otis St	Cambridge	
CAM.450		120 Otis St	Cambridge	
CAM.448	Dennison, James Double House	122-124 Otis St	Cambridge	1870
CAM.449		122 1/2-124 1/2 Otis St	Cambridge	
CAM.438		123 Otis St	Cambridge	

Inv. No.	Property Name	Street	Town	Year
CAM.437		125-127 Otis St	Cambridge	
CAM.447		126-128 Otis St	Cambridge	
CAM.436		129-131 Otis St	Cambridge	
CAM.446		130 Otis St	Cambridge	
CAM.445		132 Otis St	Cambridge	
CAM.435		133-135 Otis St	Cambridge	
CAM.275	Hoyt, Benjamin House	134 Otis St	Cambridge	1868
CAM.443		136-138 Otis St	Cambridge	
CAM.434	Warren, Moses - Smith, Benjamin G. Rowhouse	137 Otis St	Cambridge	1852
CAM.1339	Warren, Moses - Smith, Benjamin G. Rowhouse	139 Otis St	Cambridge	1852
CAM.442		140 Otis St	Cambridge	1895
CAM.1340	Warren, Moses - Smith, Benjamin G. Rowhouse	141 Otis St	Cambridge	1852
CAM.1341	Warren, Moses - Smith, Benjamin G. Rowhouse	143 Otis St	Cambridge	1852
CAM.1342	Warren, Moses - Smith, Benjamin G. Rowhouse	145 Otis St	Cambridge	1852
CAM.433	Fraser, John B. Double House	147-149 Otis St	Cambridge	1846
CAM.432		151 Otis St	Cambridge	
CAM.1179	Coop Annex	18 Palmer St	Cambridge	1964
CAM.276	Urban Rowhouse	30-38 Pearl St	Cambridge	1874
CAM.277	Urban Rowhouse	40-50 Pearl St	Cambridge	1875
CAM.278	Valentine Soap Workers' Cottage	101 Pearl St	Cambridge	1835
CAM.1368	Blessed Sacrament Roman Catholic Church	175 Pearl St	Cambridge	1907
CAM.1370	Blessed Sacrament Roman Catholic Church Rectory	189 Pearl St	Cambridge	1868
CAM.279		3 Phillips Pl	Cambridge	
CAM.280		5 Phillips Pl	Cambridge	c 1845
CAM.281		7 Phillips Pl	Cambridge	1898
CAM.282		9 Phillips Pl	Cambridge	r 1870
CAM.1180	Harvard Crimson Newspaper Office	14-18 Plympton St	Cambridge	1915
CAM.1181	Crimson Building Annex	22 Plympton St	Cambridge	1961
CAM.1182	Adams House Dining Hall	28 Plympton St	Cambridge	1930
CAM.1183	Russell Hall	28 Plympton St	Cambridge	1931
CAM.1184	Russell Hall	30-30A Plympton St	Cambridge	1887
CAM.1207	Quincy House - Harvard University	58 Plympton St	Cambridge	1958
CAM.1208	Mather Hall - Harvard University	68-88 Plympton St	Cambridge	1930
CAM.1209		101-103 Plympton St	Cambridge	1870
CAM.1382	Brooks Apartments - Winthrop, John Chambers	78-80 Porter Rd	Cambridge	1915
CAM.283	Willis, Stillman House	1 Potter Pk	Cambridge	1839
CAM.1401	Volpe Center - High Rise Laboratory	2 Potter St	Cambridge	c 1965

Inv. No.	Property Name	Street	Town	Year
CAM.1403	Volpe Center - Space Guidance Building	2 Potter St	Cambridge	c 1965
CAM.1404	Volpe Center - Space Optics Building	2 Potter St	Cambridge	c 1965
CAM.284	Saunders, William House	6 Prentiss St	Cambridge	1843
CAM.1352	Beck - Warren House	1 Prescott St	Cambridge	1833
CAM.285		16 Prescott St	Cambridge	1873
CAM.291	Carpenter Center for the Visual Arts	19 Prescott St	Cambridge	1963
CAM.582	New England Gas and Electric Association I Bldg	45 Prospect St	Cambridge	1960
CAM.286	Prospect Congregational Church	99 Prospect St	Cambridge	1851
CAM.287	Baldwin, Maria House	196 Prospect St	Cambridge	r 1845
CAM.288	Sands, Hiram House	22 Putnam Ave	Cambridge	1848
CAM.293	Harvard Union	Quincy St	Cambridge	1900
CAM.986	Harvard University - Hallowell Gate	10 Quincy St	Cambridge	1928
CAM.289	Dana, Richard Henry - Palmer, George Herbert House	12-16 Quincy St	Cambridge	1822
CAM.952	Harvard University - Quincy Street Gate	17 Quincy St	Cambridge	1936
CAM.1213	Harvard University - President's House	17 Quincy St	Cambridge	1911
CAM.290	Fogg Art Museum	26-32 Quincy St	Cambridge	1925
CAM.292	Church of the New Jerusalem	50 Quincy St	Cambridge	1903
CAM.1266		60 Raymond St	Cambridge	1927
CAM.298	Mason, W. A. House	87 Raymond St	Cambridge	1846
CAM.299	Stickney, N. U. - Shepard, S. P. Double House	11-13 Remington St	Cambridge	1846
CAM.300	Hooper, Edward W. - Eliot, Rev. Samuel A. House	25-27 Reservoir Rd	Cambridge	1872
CAM.301		59 Rice St	Cambridge	1847
CAM.327	Hews Pottery Company Carriage House	202 Richdale Ave	Cambridge	1897
CAM.302	Kidder - Sargent - McCrehan House	146 Rindge Ave	Cambridge	1792
CAM.303	Wyeth Brickyard Superintendent's House	336 Rindge Ave	Cambridge	c 1848
CAM.923	River Street Bridge	River St	Cambridge	1926
CAM.304	Urban Rowhouse	26-32 River St	Cambridge	1860
CAM.330	Ricker, George and Jerediah House	109-113 River St	Cambridge	1844
CAM.305	River Street Firehouse	176 River St	Cambridge	1890
CAM.1211		11 Riverview Ave	Cambridge	1899
CAM.922	Boston University Bridge	Rt 2	Cambridge	1928
CAM.306	Soule, Lawrence Porter House	11 Russell St	Cambridge	1879
CAM.307	Wood, James A. House	3 Sacramento St	Cambridge	1888
CAM.1239	Winthrop Hall - Episcopal Theological School	Saint John's Rd	Cambridge	1892
CAM.529		6-8 Salem St	Cambridge	c 1829
CAM.530		10 Salem St	Cambridge	c 1840

Inv. No.	Property Name	Street	Town	Year
CAM.531		15 Salem St	Cambridge	c 1841
CAM.415	Hastings, Deborah House	72 Sciarappa St	Cambridge	1823
CAM.416		74 Sciarappa St	Cambridge	
CAM.401	Pendexter, Charles House	80-82 Sciarappa St	Cambridge	1847
CAM.1321	Boston Museum of Science	Science Park	Cambridge	1951
CAM.1322	Hayden Planetarium	Science Park	Cambridge	1958
CAM.770		2 Scott St	Cambridge	1889
CAM.771	Thaxter, Roland House	7 Scott St	Cambridge	1891
CAM.772		8 Scott St	Cambridge	1889
CAM.773		11 Scott St	Cambridge	1893
CAM.774		12 Scott St	Cambridge	1894
CAM.775		14 Scott St	Cambridge	1927
CAM.776		18 Scott St	Cambridge	1928
CAM.375	Roby, Ebenezer Rowhouse	30 Second St	Cambridge	1836
CAM.376	Roby, Ebenezer Rowhouse	32 Second St	Cambridge	1836
CAM.377	Roby, Ebenezer Rowhouse	34 Second St	Cambridge	1836
CAM.364	Hall, Jesse Rowhouse	36 Second St	Cambridge	1842
CAM.365	Hall, Jesse Rowhouse	38 Second St	Cambridge	1842
CAM.366	Hall, Jesse Rowhouse	40 Second St	Cambridge	1842
CAM.367	Hall, Jesse Rowhouse	42 Second St	Cambridge	1842
CAM.368	Hall, Jesse Rowhouse	44 Second St	Cambridge	1842
CAM.369	Hall, Jesse Rowhouse	46 Second St	Cambridge	1842
CAM.370		50 Second St	Cambridge	
CAM.308	American Net and Twine Company Factory	155R Second St	Cambridge	1875
CAM.777		1 Shady Hill Sq	Cambridge	1915
CAM.778		2-3 Shady Hill Sq	Cambridge	1915
CAM.779		4-5 Shady Hill Sq	Cambridge	1915
CAM.780		6-7 Shady Hill Sq	Cambridge	1915
CAM.781		8-9 Shady Hill Sq	Cambridge	1915
CAM.782		10-11 Shady Hill Sq	Cambridge	1915
CAM.783		12 Shady Hill Sq	Cambridge	1915
CAM.309	Eliot Hall	51 Shepard St	Cambridge	1907
CAM.310	Bertram Hall	53 Shepard St	Cambridge	1901
CAM.311	Watson, Abraham Jr. House	181-183 Sherman St	Cambridge	c 1750
CAM.506	Sacred Heart Roman Catholic Church	39 Sixth St	Cambridge	1874
CAM.431		40 Sixth St	Cambridge	
CAM.508	Sacred Heart Roman Catholic Church Rectory	49 Sixth St	Cambridge	1885
CAM.927	Eliot Bridge	Soldier's Field Rd	Cambridge	1950

Inv. No.	Property Name	Street	Town	Year
CAM.1210	Bryan Hall - Harvard University	14-24 South St	Cambridge	1930
CAM.312	Stedman, Samuel House	17 South St	Cambridge	1826
CAM.1185	Harvard Advocate Building	21 South St	Cambridge	1956
CAM.313	Dodge, Edward House	70 Sparks St	Cambridge	1878
CAM.325	Harugari Hall	154 Spring St	Cambridge	1873
CAM.1186		4-6 Story St	Cambridge	1966
CAM.1187		8-12 Story St	Cambridge	1969
CAM.1188		14-16 Story St	Cambridge	1970
CAM.353	Blake and Knowles Core Shop #1	Third St	Cambridge	c 1889
CAM.354	Blake and Knowles Core Shop #2	Third St	Cambridge	c 1890
CAM.505	Lechmere Point Corporation Row House	25 Third St	Cambridge	c 1821
CAM.381	Rollins, John W. Rowhouse	83 Third St	Cambridge	1860
CAM.382	Rollins, John W. Rowhouse	85 Third St	Cambridge	1860
CAM.383	Rollins, John W. Rowhouse	87 Third St	Cambridge	1860
CAM.384	Rollins, John W. Rowhouse	89 Third St	Cambridge	1860
CAM.331	Old Middlesex County Superior Courthouse	90 Third St	Cambridge	1814
CAM.385	Rollins, John W. Rowhouse	91 Third St	Cambridge	1860
CAM.386	Rollins, John W. Rowhouse	93 Third St	Cambridge	1860
CAM.387	Rollins, John W. Rowhouse	95 Third St	Cambridge	1860
CAM.314	Holy Cross Polish National Catholic Church	99 Third St	Cambridge	1827
CAM.315	Bottle House Block	204-214 Third St	Cambridge	1826
CAM.350	Blake and Knowles Machine Shop #1	265 Third St	Cambridge	1889
CAM.351	Blake and Knowles Office Headhouse	265 Third St	Cambridge	1892
CAM.355	Blake and Knowles Smith Shop and Brass Foundry	275 Third St	Cambridge	c 1890
CAM.326	Cambridge Gas Light Company Purifying Plant	354 Third St	Cambridge	1908
CAM.388	Stevens, Atherton H. Rowhouse	59 Thorndike St	Cambridge	1827
CAM.395	Smallidge, Samuel House	66 Thorndike St	Cambridge	1827
CAM.389	Bates, Moses Jr. House	69 Thorndike St	Cambridge	1844
CAM.396	Buck, Silas B. House	70 Thorndike St	Cambridge	1845
CAM.390	Tufts, Sophia Kimball Double House	71-73 Thorndike St	Cambridge	1857
CAM.397	Wellington, Peter House	74 Thorndike St	Cambridge	1843
CAM.391		75 Thorndike St	Cambridge	
CAM.398		76 Thorndike St	Cambridge	
CAM.392		77 Thorndike St	Cambridge	
CAM.399		78 Thorndike St	Cambridge	
CAM.393		79-81 Thorndike St	Cambridge	
CAM.400		80 Thorndike St	Cambridge	

Inv. No.	Property Name	Street	Town	Year
CAM.394		83 Thorndike St	Cambridge	
CAM.402	Stickney, Francis H. - Davies, Benjamin Rowhouse	84 Thorndike St	Cambridge	1867
CAM.417	Clark, Cornelius - Kneeland, W. W. House	85 Thorndike St	Cambridge	1822
CAM.403	Stickney, Francis H. - Davies, Benjamin Rowhouse	86 Thorndike St	Cambridge	1867
CAM.404	Stickney, Francis H. - Davies, Benjamin Rowhouse	88 Thorndike St	Cambridge	1867
CAM.418		89-91 Thorndike St	Cambridge	
CAM.405	Stickney, Francis H. - Davies, Benjamin Rowhouse	90 Thorndike St	Cambridge	1867
CAM.406	Stickney, Francis H. - Davies, Benjamin Rowhouse	92 Thorndike St	Cambridge	1867
CAM.419	Whitacre, Celeste I. Rowhouse	93 Thorndike St	Cambridge	1885
CAM.407	Stickney, Francis H. - Davies, Benjamin Rowhouse	94 Thorndike St	Cambridge	1867
CAM.420	Whitacre, Celeste I. Rowhouse	95 Thorndike St	Cambridge	1885
CAM.408	Train, Isaac House	96 Thorndike St	Cambridge	1826
CAM.421	Whitacre, Celeste I. Rowhouse	97 Thorndike St	Cambridge	1885
CAM.422	Davies, Daniel House	97 1/2 Thorndike St	Cambridge	1843
CAM.409		98 Thorndike St	Cambridge	
CAM.423		99 Thorndike St	Cambridge	
CAM.424	Daniels, Granville W. House	101 Thorndike St	Cambridge	1868
CAM.410		102 Thorndike St	Cambridge	
CAM.411	Spare, Elijah Jr. Double House	104-106 Thorndike St	Cambridge	1846
CAM.425	Eaton, Charles House	109 Thorndike St	Cambridge	1857
CAM.412	Quimby, Amos House	110 Thorndike St	Cambridge	1857
CAM.426		111-113 Thorndike St	Cambridge	
CAM.413	Stickney, Francis H. Double House	112-114 Thorndike St	Cambridge	1863
CAM.427		113 1/2 Thorndike St	Cambridge	
CAM.414	Bacon, Henry A. House	116 Thorndike St	Cambridge	1865
CAM.507	Sacred Heart Roman Catholic School and Convent	163 Thorndike St	Cambridge	1902
CAM.316	Craigie Arms	2-6 University Rd	Cambridge	1897
CAM.317	Wyeth, Jacob - Smith, Ebenezer House	152 Vassal Ln	Cambridge	1820
CAM.360	Metropolitan Supply Company Warehouse	269 Vassar St	Cambridge	1948
CAM.361	Hovey, F. A. and Company Warehouse	271-275 Vassar St	Cambridge	c 1940
CAM.362	Metropolitan Supply Company Warehouse	277-287 Vassar St	Cambridge	1939
CAM.363	Metropolitan Supply Company Warehouse	289-293 Vassar St	Cambridge	1939
CAM.989	Walden Street Cattle Pass	Walden St	Cambridge	1857

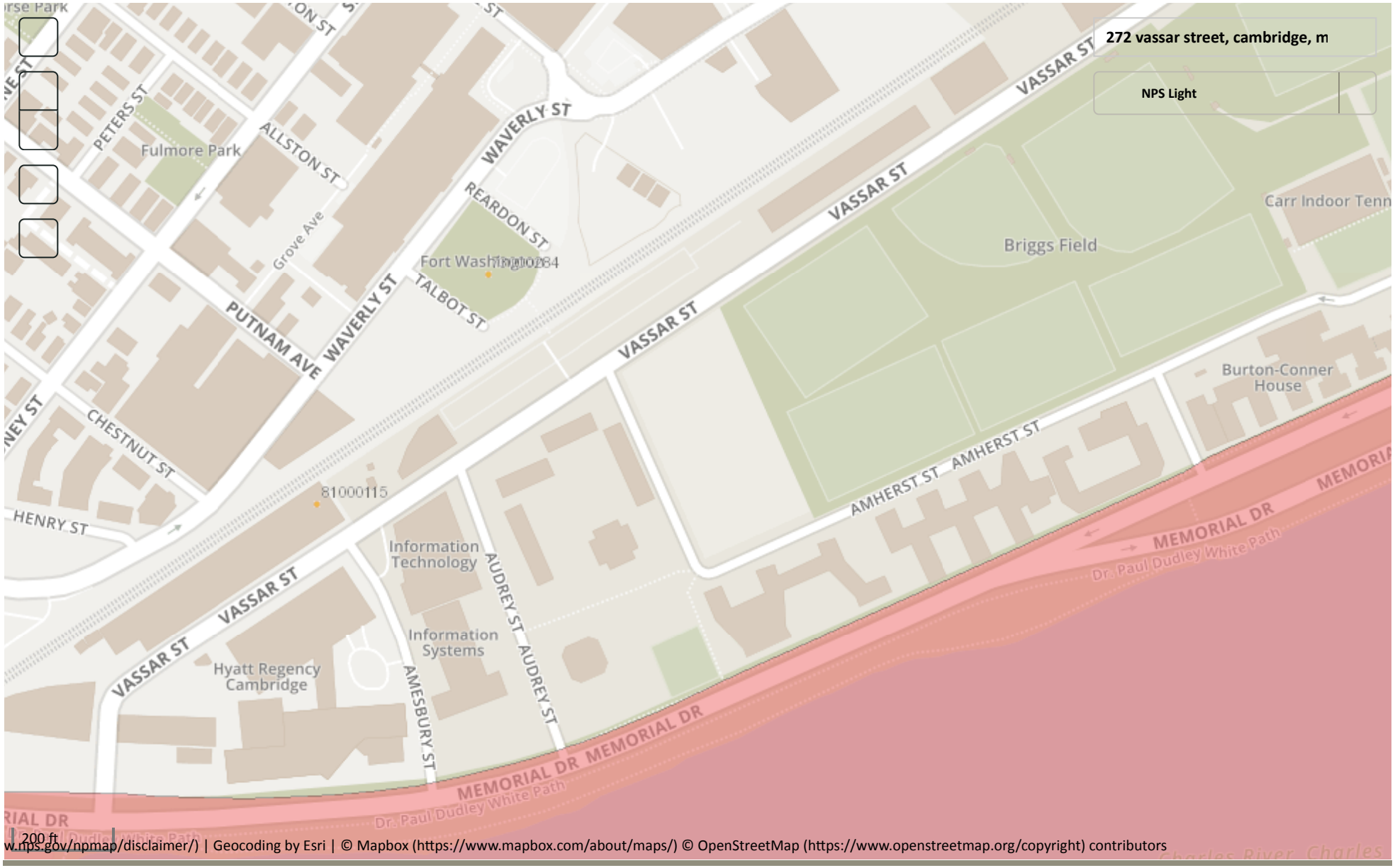
Inv. No.	Property Name	Street	Town	Year
CAM.1283	Bennink - Douglas Double Cottage	35-37 Walker St	Cambridge	1874
CAM.1284	Bennink - Douglas Double Cottage	39-41 Walker St	Cambridge	1874
CAM.1285	Bennink - Douglas Double Cottage	43-45 Walker St	Cambridge	1874
CAM.1286	Bennink - Douglas Double Cottage	49-51 Walker St	Cambridge	1874
CAM.1034	Sands, Orrin E. House	2 Walnut Ave	Cambridge	1911
CAM.1032		4 Walnut Ave	Cambridge	1878
CAM.1033	Niles, Jacob Harris House	6 Walnut Ave	Cambridge	1884
CAM.1031	Niles, Eugene M. House	9 Walnut Ave	Cambridge	1887
CAM.318	Stanstead, The	19 Ware St	Cambridge	1887
CAM.799	Ritchie, David House	26 Washington Ave	Cambridge	1889
CAM.793	Brown, Laura House	27 Washington Ave	Cambridge	1908
CAM.794	Mellen, James House	33 Washington Ave	Cambridge	1887
CAM.795	Kelley, Stillman F. House	49 Washington Ave	Cambridge	1887
CAM.1000	Boardman, Charles House	58 Washington Ave	Cambridge	1880
CAM.797	Mansfield, Gardiner House	63 Washington Ave	Cambridge	1873
CAM.798	Green, Charles G. House	71 Washington Ave	Cambridge	1877
CAM.1001	Boynton, Morris House	78 Washington Ave	Cambridge	c 1874
CAM.319	Melendy, Henry J. House	81 Washington Ave	Cambridge	1871
CAM.1002		86-88 Washington Ave	Cambridge	1870
CAM.1003		92 Washington Ave	Cambridge	1876
CAM.1004	Hutchins, Elizabeth House	108 Washington Ave	Cambridge	1924
CAM.541	Whittemore, Rev. Thomas Double House	271-273 Washington St	Cambridge	1837
CAM.540	Whittemore, Rev. Thomas Double House	288 Washington St	Cambridge	1837
CAM.539	Paige, Rev. Lucius R. House	296 Washington St	Cambridge	1837
CAM.346		1 Waterhouse St	Cambridge	1916
CAM.320	Vassall - Waterhouse - Ware House	7 Waterhouse St	Cambridge	c 1753
CAM.347		9 Waterhouse St	Cambridge	1887
CAM.335	Christian Science Church	13 Waterhouse St	Cambridge	1923
CAM.988	Fort Washington	95 Waverly St	Cambridge	
CAM.924	Western Avenue Bridge	Western Ave	Cambridge	1924
CAM.638	Cambridge Police Headquarters	5 Western Ave	Cambridge	1933
CAM.948	Central Square Park	22 Western Ave	Cambridge	1987
CAM.321	Read, Cheney House	135 Western Ave	Cambridge	1846
CAM.323	Hasey, Abraham - Wheat, Dr. Samuel House	8 Willard St	Cambridge	c 1730
CAM.514	Hixon, Edward House	3 William St	Cambridge	1857
CAM.1378	Immaculate Conception (Lithuanian) Catholic Church	432 Windsor St	Cambridge	1910
CAM.1379	Immaculate Conception (Lithuanian) Church	432 Windsor St	Cambridge	1972

Inv. No.	Property Name	Street	Town	Year
	Rectory			
CAM.1380	Immaculate Conception Church Rectory Metal Garage	432 Windsor St	Cambridge	1941
CAM.1381	Immaculate Conception Church Rectory Wood Garage	432 Windsor St	Cambridge	1948
CAM.500		19 Winter St	Cambridge	r 1855
CAM.492		21 Winter St	Cambridge	c 1854
CAM.486	Leighton, Thomas H. House	22 Winter St	Cambridge	1833
CAM.491		24 Winter St	Cambridge	c 1854
CAM.493		25 Winter St	Cambridge	c 1854
CAM.494		27 Winter St	Cambridge	c 1854
CAM.496		28-30 Winter St	Cambridge	c 1854
CAM.495		29 Winter St	Cambridge	c 1854
CAM.497		31-33 Winter St	Cambridge	c 1854
CAM.501		34-42 Winter St	Cambridge	r 1875
CAM.498		61 Winter St	Cambridge	c 1854
CAM.499		65 Winter St	Cambridge	c 1854
CAM.489	Stevens, Atherton Haugh House	67 Winter St	Cambridge	1843
CAM.490	Stevens, Atherton Haugh House	71 Winter St	Cambridge	1843
CAM.487	Stevens, Atherton Haugh House	74 Winter St	Cambridge	1838
CAM.1344		75 Winter St	Cambridge	
CAM.1345	Stevens, Atherton Haugh House	77 Winter St	Cambridge	1838
CAM.488	Stevens, Atherton Haugh House	79 Winter St	Cambridge	1838
CAM.1189	Metcalf, Lydia House	41 Winthrop St	Cambridge	1845
CAM.1190		65-67 Winthrop St	Cambridge	1887
CAM.1191	University Lutheran Church	66 Winthrop St	Cambridge	1950
CAM.1192		69 Winthrop St	Cambridge	r 1835
CAM.1193	Pi Eta Club	89 Winthrop St	Cambridge	r 1908
CAM.1194	Pi Eta Hall	95 Winthrop St	Cambridge	r 1896
CAM.1195	Hyde, Isaac - Taylor House	96 Winthrop St	Cambridge	1845
CAM.329	Cox - Hicks House	98 Winthrop St	Cambridge	c 1806
CAM.951	Winthrop Street Retaining Wall	98 Winthrop St	Cambridge	c 1725
CAM.1196	Dame School	106 Winthrop St	Cambridge	c 1800
CAM.909	Yerxa Street Pedestrian Subway	Yerxa St	Cambridge	1904
CAM.1391	Saint Patrick's Roman Catholic Church	40-50 York St	Cambridge	

National Register of Historic Places

National Park Service
U.S. Department of the Interior

Public, non-restricted data depicting National Register spatial data processed by the Cultural Resources GIS facility. ...



Form No. 10-300 (Rev. 10-74)

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SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC
Charles River Basin Historic District

AND/OR COMMON
same

2 LOCATION

STREET & NUMBER
multiple

__NOT FOR PUBLICATION

CITY, TOWN
Boston & Cambridge

__ VICINITY OF

CONGRESSIONAL DISTRICT
8th

STATE	CODE	COUNTY	CODE
Massachusetts	025	Suffolk, Middlesex	025, 017

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE	
X DISTRICT	__PUBLIC	X OCCUPIED	__AGRICULTURE	__MUSEUM
__BUILDING(S)	__PRIVATE	__UNOCCUPIED	__COMMERCIAL	X PARK
__STRUCTURE	X BOTH	__WORK IN PROGRESS	__EDUCATIONAL	__PRIVATE RESIDENCE
__SITE	**PUBLIC ACQUISITION**	**ACCESSIBLE**	__ENTERTAINMENT	__RELIGIOUS
__OBJECT	__IN PROCESS	__YES: RESTRICTED	__GOVERNMENT	__SCIENTIFIC
	__BEING CONSIDERED	X YES: UNRESTRICTED	__INDUSTRIAL	X TRANSPORTATION
		__NO	__MILITARY	__OTHER

4 OWNER OF PROPERTY

NAME multiple (see continuation sheet)

STREET & NUMBER

CITY, TOWN

__ VICINITY OF

STATE

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.
Suffolk County Registry of Deeds
Middlesex County Registry of Deeds

STREET & NUMBER
~~Pemberton Square~~
40 Thorndike Street

CITY, TOWN
~~Boston~~
Cambridge

STATE
Massachusetts

6 REPRESENTATION IN EXISTING SURVEYS

TITLE Historic American Engineering Record
Inventory of Historic Assets of the Commonwealth

DATE 1973
1978

X FEDERAL X STATE __COUNTY __LOCAL

DEPOSITORY FOR SURVEY RECORDS Library of Congress, Massachusetts Historical Commission

CITY, TOWN
Washington, D.C., Boston, Massachusetts

STATE

Form No. 10-300a
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The Metropolitan District Commission is the owner of all the land included in this nomination. Several non-profit institutions own buildings on land leased from the M.D.C.

1. Boston University 725 Commonwealth Avenue Boston, MA 02115	B.U. Boathouse 619 Memorial Drive, Cambridge
2. President & Fellows of Harvard University Cambridge, MA 02138	Newell Boathouse Soldiers Field Road, Boston
3. Massachusetts Institute of Technology 77 Massachusetts Avenue Cambridge, MA 02142	Weld Boathouse 971 Memorial Drive, Cambridge
4. Museum of Science Science Park Boston, MA 02114	Museum buildings and parking garage, Cambridge & Boston
5. Massachusetts Bay Transportation Authority 50 High Street Boston, MA 02110	Viaduct, Charles River

Metropolitan District Commission
20 Somerset Street
Boston, MA 02114

DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
__EXCELLENT	__DETERIORATED	__UNALTERED	X_ORIGINAL SITE
X GOOD	__RUINS	X_ALTERED	__MOVED DATE_____
__FAIR	__UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

The Charles River Basin is the keystone of the metropolitan park system in Boston. The park reservations along the edge of the Basin, established in the nineteenth century, still provide the well-utilized recreational space that was envisioned when they were planned. The Charles River Basin National Register District incorporates the Charles River Basin and the parkways and landscaped areas on both banks for approximately six miles upstream from the Charles River Dam to the Eliot Bridge. This area is coterminous with that administered in Boston and Cambridge by the Metropolitan District Commission, a state agency, and incorporates the entire territory between the limits of private property on both sides of the River. It includes Memorial Drive and the Cambridge Parkway in Cambridge; Embankment Road, the James J. Storrow Memorial Drive and Soldiers' Field Road in Boston; the Charles River Dam; seven bridges; two canals; the fresh water basin itself; the parkland surrounding the Basin; and numerous miscellaneous structures. The District lies on the boundary between Boston and Cambridge, and is approximately 820 acres in extent.

The Dam, the canals, the seven bridges that cross the Charles, and the numerous structures in this District display a range of architectural style and civil engineering accomplishment that reflect the evolving technology of the past one hundred years. A brief description of each, beginning at the eastern edge of the district, follows.

I. Charles River Dam

The Charles River Dam was constructed between 1903 and 1910 by the Metropolitan Park Commission under the direction of George A. Kimball, chief engineer. The dam controls the water level of the Charles River Basin by excluding harbor tides from the body of water west (upstream) of the structure. The water level is maintained at Grade 8 above low tide to cover the mud flats and below high tide so as to avoid flooding the former marshes. Adjacent to the dam, on its eastern (downstream) side, is a monumental viaduct, also completed in 1910, that was built to carry the street cars of the Boston Elevated Railway. This is a reinforced concrete structure, 1,738 feet long and 31 feet wide, with granite piers backed by concrete, designed by Robert S. Peabody of the Boston architectural firm of Peabody and Stearns.

The Metropolitan District Commission operates the dam, and maintains the police headquarters, boathouse, and attendant dam and lock buildings on the site (see Continuation Sheets 8 and 9). In 1951, the first unit of the Museum of Science was built on the grounds of the dam, and in 1972, the adjoining parking garage was completed.

II. Bridges

A. Longfellow Bridge

Originally known as the Cambridge Bridge, the present structure was completed in 1906 on the site of the West Boston Bridge of 1793. William Jackson was the chief engineer and Edmund M. Wheelwright the architect. A combination railway and highway bridge 105 feet wide and 1,768 feet long, with eleven steel arch spans supported on masonry piers and two massive abutments flanking the center arch, the Longfellow Bridge is distinguished architecturally by the two pairs of towers, stylistically reminiscent of the Columbian Exposition of 1893, marking the entrance to the Harbor. Henry

Wadsworth Longfellow wrote of an earlier bridge on this site, "I stood on the bridge at midnight as the clocks were striking the hour...."

B. Harvard Bridge

Linking Boston and Cambridge at Massachusetts Avenue, the Harvard Bridge was constructed between 1887 and 1891 under the direction of William Jackson of Boston, chief engineer. A steel structure with alternating cantilevered and suspended 75 foot spans, the bridge has a total length of 2,165 feet, and a 70 foot width including two 9 foot sidewalks. The piers of the bridge, made of granite laid up as ashlar masonry in a Flemish bond pattern, support the highway deck of the structure, which originally had a 48 foot turn-table draw at its center. The cast iron lamp posts and railings that originally ornamented the bridge were replaced with steel fixtures painted green in a reconstruction of 1924-1925.

C. Boston University Bridge

The original bridge on this site was the Cottage Farm Bridge of 1851, while the Grand Junction R.R. crossed at the same location in 1853. The present bridge consists of two structures, a highway bridge above and a railroad bridge on the lower level. It was completed in August, 1928, to a design by Desmond and Lord, architects, and Col. Lewis E. Moore, consulting engineer. John R. Rablin, chief engineer of the Metropolitan District Commission, supervised the construction of this and several other bridges in the Basin.

The railroad bridge is of standard steel plate girder construction. The highway bridge has one main steel arch, painted green, flanked by two reinforced concrete arches, each spanning 100 feet. The main arch, spanning 176 feet, has a two-hinged, non-parallel curved top and bottom chord, with the reinforced concrete roadway suspended through its center. The approaches consist of a combination of reinforced concrete columns and beams, with masonry walls of rough picked concrete trimmed with granite moldings of neoclassical detail.

D. River Street Bridge

Designed by Robert P. Bellows,architect, and constructed in 1926 under the direction of M.D.C. Chief Engineer Rablin, this bridge is a three arch reinforced concrete structure. The original 1811 pile trestle bridge on this site, rebuilt in 1884 and 1920, had a leaf draw. The present structure, approximately 330 feet long, supports a 40 foot roadway with two 8' 6" sidewalks, and has a 20 degree skew with the axis of its center line. Cutwaters, neoclassically ornamented and placed between the arches at the piers, are pointed on the upstream (western) elevation and rounded on the downstream (eastern) elevation. A round nosing at the parapet is carried the length of the bridge, which retains its original lamp posts. Stylistically, the bridge is reminiscent of the Pont Neuf in Paris.

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E. Western Avenue Bridge

A three-arched, cast-in-place reinforced concrete structure, the Western Avenue Bridge was built in 1924. The original 1824 pile trestle bridge on this site, rebuilt in 1879-80 and 1910, had a leaf draw. The present structure is 328 feet long, carrying a 40 foot roadway and two 10 foot sidewalks. The horizontally beveled concrete joints, with bush hammered concrete belt course, ring stone, and parapet cap, contribute to the modest neoclassical style of the structure.

F. John Wingate Weeks Bridge

Completed in 1927 according to the architectural designs of the firm of McKim, Mead and White, and the engineering specifications of M.D.C. Chief Engineer Rablin, this reinforced concrete three-arched foot bridge is faced with brick and limestone. The Georgian Revival style of the structure intentionally complements the Howard Houses and Business School along the riverfront. The nosing, parapet and seals are of limestone, the pylons of granite, and the brackets and lamps of bronze. It was designed to carry steam pipes as well as to provide access to the McKim, Mead and White-designed Business School.

G. Larz Anderson Bridge

Completed in 1915 under the direction of John R. Rablin, Chief Engineer, according to the design of Wheelright, Haven and Hoyt, architects, this bridge is a three-arch reinforced concrete structure with spandrel walls and panels of roughly picked concrete clad with belt courses of red brick. The neoclassical ornament of the bridge is intended to conform with the brick Georgian Revival Architecture of the Harvard riverfront buildings. The gift of Larz Anderson as a memorial to his father, Nicolas Longworth Anderson, a Major General in the Civil War, the structure stands on the site of the Great Bridge of 1662, the first bridge across the Charles.

H. Eliot Bridge

Completed in 1950, the Eliot Bridge is a three span-granite and reinforced concrete structure, faced in brick and masonry. The bridge has a conventional reinforced concrete slab roadbed that is braced by steel beams. Maurice E. Witner was the architect, and Burns and Kennerson were the construction engineers. The Eliot Bridge was named for Charles W. Eliot, President of Harvard from 1869 to 1909,

and for his son Charles Eliot, landscape architect and partner in the firm of Olmsted, Olmsted and Eliot, who proposed a bridge at this site in his plans for the Basin in 1892-1897.

III. Canals

A. Lechmere Canal, Cambridge

In the northwestern corner of the Charles River Basin district is the Lechmere Canal. The Canal is basically rectangular in plan, but has an L-shaped terminus. In 1909, the Canal was three-tenths of a mile long. Today the Canal measures 90 feet in width, 700 feet in length, and has a turning basin 225 feet wide at its terminus. A steel grate highway bridge crosses the Canal at Commercial Avenue.

B. The Broad Canal, Cambridge

The Broad Canal, as it exists today, was dug in 1805 as part of a complex of canals and wharves developed to make Cambridgeport an ocean port. Most of the system was soon abandoned and filled in, but the Broad Canal is still in use. It was most recently filled in 1965, when it was reduced from 3,700 feet to its present 1,000 feet length and 100 feet in width. Two reinforced concrete and steel counterweighted lift bridges carry First Street and the Cambridge Parkway across the Canal.

IV. Description of Parkways

A. Memorial Drive and Cambridge Parkway, Cambridge

Memorial Drive and the Cambridge Parkway today follow the original conception of Charles Eliot and others for a continuous parkway along the Cambridge side of the Charles River Basin. Although the entire river bank was purchased for park land by 1900 and many sections of the parkway were completed at various dates early in the twentieth century, continuous passage by automobile has been possible only since 1949, when Memorial Drive was extended beyond Bath Street to an extension of Fresh Pond Parkway near the Eliot Bridge. The Drive originally had been laid out beginning in 1896 from Bath Street, near Harvard Square, to the Longfellow Bridge, while the Cambridge Parkway had been completed from the Longfellow Bridge to the Charles River Dam in the 1930's.

From the Dam to a point half way between the Harvard and Boston University Bridges and between the River Street and Western Avenue Bridges, the river bank is faced with a granite seawall; in other areas, the bank gradually slopes to the water. Landscaping along the Cambridge Parkway, which has four lanes of pavement, is comparatively meager, consisting of an iron railing, a concrete sidewalk, and a grassy strip planted with widely spaced immature trees. The inland side of the parkway is bounded only by a sidewalk and a narrow planting strip. Memorial Drive, however, presents its most formal aspect from the Longfellow Bridge to the end of the seawall. In this area, the dual carriageways are separated by a broad planting strip with many mature trees, which also line the sidewalks along both the river and inland sides of the Drive. A continuous iron fence runs along the seawall, and covered benches are placed at intervals. From the end of the seawall to the Eliot Bridge, Memorial Drive has four undivided lanes, and is bordered by sidewalks and a landscaped verge planted in mature shade trees. The famous sycamores, actually London Plane trees, are planted from Western Avenue to the Eliot Bridge.

1. The M.I.T. Memorial Underpass, Cambridge

The construction of this underpass in Memorial Drive under Massachusetts Avenue at the northern end of the Harvard Bridge was completed in 1931. Each roadway is 21 feet wide, and paved with granite blocks grouted with cement, following a procedure adopted for the Holland Vehicular Tunnel in New York City. The portion of the underpass above ground has neoclassical ornament similar in massing and detail to the boat landings, of the same period, on the Storrow Embankment.

2. The William J. Feid Overpass, Cambridge

Completed in January, 1939, this overpass at the Boston University Bridge was designed by William M. Drummey, architect. The construction engineers were Moore and Haller. The steel-framed overpass is faced with brick, ornamented with granite, and supports a reinforced concrete deck. Unusual in style for highway architecture, the detailing of the overpass is art moderne in concept, but it is paradoxically laid up in brick, ornamented with simple W.P.A.-era detailing. The original sodium vapor lamps, now rare examples of an early era of parkway light fixtures, still stand on the structure.

B. Embankment Road, Storrow Drive, and Soldiers' Field Road, Boston

Although the Gourley Plan of 1851 envisioned a parkway along the Boston side, the first serious proposal was the recommendation of the Report on a Thoroughfare Plan for Boston of 1893 for construction of a road connecting Embankment Road at Arlington and Beacon Streets with Bay State Road near Kenmore Square. Organized protests kept this proposal from implementation in 1929, but Chapter 262 of the Acts of 1949 authorized construction of the James J. Storrow Memorial Drive and Embankment. This limited access highway consists of two lanes in each direction separated by a narrow barrier, under- and over-passes at Charles Circle, Arlington Street, Massachusetts Avenue, and Charlesgate, and six footbridges providing access to the Embankment. The three roads today form a continuous parkway on the Boston side from the Charles River Dam past the Eliot Bridge to Watertown.

Much of the Storrow Memorial Embankment is located in the Back Bay National Register District, but details of its construction are not discussed in that nomination. With a gift of Mrs. Helen Osborne Storrow of one million dollars for the beautification of the Boston Embankment, the Metropolitan District Commission in 1931-34 doubled the area of the original Esplanade. Charlesbank Park was widened to a maximum of three hundred feet, and a boat haven and breakwater, consisting of two narrow, curved islands, was built. The Embankment between Otter Street and Charlesgate West was extended into the River one hundred and fifteen feet, and from Charlesgate West to the Cottage Farm Bridge one hundred and fifty-five feet. Between Exeter and Fairfield Streets a lagoon one thousand feet long was constructed, and a breakwater was built opposite Pinckney Street. Four miles of footpath were laid, monumental boat landings, neoclassical in detail, were built, and stone-arched bridges were erected over the ends of the lagoon. Arthur A. Shurcliff, the landscape architect in charge, also oversaw the five acre widening of the Charlesbank in 1951 that resulted from the construction of the James J. Storrow Memorial Parkway.

West of the Boston University Bridge the parkway is know as Soldiers' Field Road. This incorporates the Speedway, which had been built about 1895 for carriages and sleighs which had previously raced on the Milldam, or Beacon Street. By 1955, a continuous parkway extended along the south bank from Watertown Square to the Charles River Dam.

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V. Structures on the Basin

A. Metropolitan District Commission

1. Police Headquarters and Lock Houses, Boston

One of several service buildings built on the Dam in 1910 by the Metropolitan District Commission, the Police Headquarters is located in Boston between the lock and Embankment Road. It is a two-story structure dominated by an asymetrically placed square tower which houses the lock operator. The walls are laid up in yellow Roman brick with a granite belt course at the level of the first floor window sills, while the complex green shingled hipped roofs with broad overhanging eaves emphasize the informal nature of the composition. The lock houses are simplified expressions of the same style. Guy Lowell of Boston was Consulting Architect for all structures on the Dam.

2. Boat House, Cambridge

The M.D.C. Boat House, also constructed in 1910, repeats the style of the Police Headquarters. It is a one-story buil[illegible]quare in plan, with a green tile hip roof and water-level doors to accommoda[illegible] boats. The boat house is located opposite the entrance to the Lechmere Canal.

3. Garages, Cambridge

The M.D.C. garages at the corner of Commercial Avenue and Bridge Street share the style and building materials of the Police Headquarters and Boat House. The three connected garages, originally built as stables, are grouped around a courtyard entered from Commercial Avenue and screened by low brick walls.

4. Magazine Beach Bath House, Cambridge

This one-story, hipped-roofed structure, laid up in roughly hewn granite blocks, was originally constructed on Captain's Island in Cambridge in 1818 by the Commonwealth of Massachusetts for use as a powder magazine. In 1899, the firm of Olmsted, Olmsted and Eliot had the magazine demolished and replaced it with a bathhouse built of the same blocks. The bathhouse retains the mass and outline of the original structure.

5. Sailing Pavillion, Boston

The M.D.C. Sailing Pavillion is a one-story structure of buff brick with decorative plaques forming a frieze designed in 1940 by an unknown architect. It is located on Embankment Road at the Longfellow Bridge.

6. Hatch Memorial Shell, Boston

This structure, constructed in 1940 on the Esplanade at the end of Arlington Street, is a granite-faced concrete music shell used for seasonal concerts by the Boston Pops and other orchestras. The architect was Richard Shaw of Boston.

7. Miscellaneous Structures

Miscellaneous structures of the M.D.C. include maintenance structures in Cambridge and Boston; several bridges in the Lagoon area of the Esplanade; statues, plaques and monuments in the Esplanade; and a clorination plant and public swimming pool and bathouse at Magazine Beach, Cambridge.

B. Museum of Science and Hayden Planetarium, Boston and Cambridge

The Museum of Science has been constructed in several stages since 1951 on the formerly open esplanade atop the Dam. The bold modern architecture of these buildings is achieved with a limited use of ornament and emphasis on strongly rectilinear proportions, broken only by the white dome of the Hayden Planetarium. The architects of the East Wing (1951) were Ames, Child and Graves, the firm also responsible for the Planetarium (1958). The Central wing was designed in 1961 by Perry Shaw Hepburn & Dean, the Garage in 1968 by E. Vernor Johnson, Robert N. Hotvedt & Assoc., and the West Wing in 1972 by the same firm.

C. Boathouses

1. Newell Boat House (Harvard University), Boston

Designed by Peabody & Stearns in 1900, this two-story red brick, slate-roofed structure is one of two Harvard University boathouses on the Charles. Symmetrical in plan, the building has two-story square-hipped roof towers at each corner. The facade of the structure is dominated by a steeply roofed porch, supported by pairs of wooden columns. A prominent center cross gable projects from the roof of the porch, marking the entrance. Three dormers, which also have steep gable roofs, project from the second story, and further contribute to the French Chateauesque characteristics of the building.

2. Weld Boat House (Harvard University), Cambridge

Completed in 1906, the Weld Boat House is a two-story French Renaissance revival building, architect unknown. Rectangular in plan, the stuccoed structure is trimmed with brick quoins and molded brick window surrounds. An elaborate, carved limestone frontispiece dominates the entrance. The door surround carries a correct entablature, with engaged Corinthian columns. The upper portion of the frontispiece has a segmental arch pediment which is set amidst rococco decoration.

3. The Harold Whitworth Pierce Boat House (Massachusetts Institute of Technology), Cambridge

This one-story, timber-framed, flat-roofed structure was designed as a Massachusetts Institutue of Technology boathouse in 1965-66 by the firm of Anderson, Beckwith & Haible. Simple wooden panels dominate the facade, giving the building its unadorned modern style. The structure appears to float on the water but is supported on piles.

4. Walter C. Wood Sailing Pavillion (M.I.T.), Cambridge

Originally constructed as the first Massachusetts Institute of Technology boat house in 1936 by the firm of Coolidge and Carlson, this building was reconstructed in 1976.

5. Boston University Boat House, Cambridge

The Boston University Boat House is a two story shingled structure with a hip roof built in 1913 for the Boston Athletic Association.

6. Riverside Boat Club, Cambridge

Constructed between 1904 and 1916, this frame Colonial Revival structure is presently used by Northeastern University.

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VI. Street Railway Viaduct

The viaduct carrying the street car tracks of the Massachusetts Bay Transportation Authority from Boston to Cambridge was erected in 1910-1911 by the Boston Elevated Railway. Designed by the Boston architect Robert S. Peabody, of the firm Peabody & Stearns, the viaduct was intended to provide a suitable visual termination to the eastern end of the Basin and to mask the unsightly railroad yards and wharves downstream. This function is now carried out by the buildings of the Museum of Science, but the viaduct still provides a strong visual experience to motorists on the Dam.

The viaduct is constructed of poured concrete with a steel frame. The ten arches rest on granite piers in the bed of the Charles adjacent to the downstream face of the dam. The span opposite the lock incorporates a single-leaf steel draw, controls for which are located in a concrete tower atop the viaduct. The piers at each end of the viaduct rise above the parapets and incorporate the date of construction, 1910, in relief.

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
__PREHISTORIC	__ARCHEOLOGY-PREHISTORIC	X__COMMUNITY PLANNING	X__LANDSCAPE ARCHITECTURE	__RELIGION
__1400-1499	__ARCHEOLOGY-HISTORIC	X__CONSERVATION	__LAW	__SCIENCE
__1500-1599	__AGRICULTURE	X__ECONOMICS	__LITERATURE	__SCULPTURE
__1600-1699	__ARCHITECTURE	X__EDUCATION	X__MILITARY	X__SOCIAL/HUMANITARIAN
__1700-1799	__ART	X__ENGINEERING	__MUSIC	__THEATER
X__1800-1899	X__COMMERCE	__EXPLORATION/SETTLEMENT	__PHILOSOPHY	X__TRANSPORTATION
X__1900-	X__COMMUNICATIONS	__INDUSTRY	X__POLITICS/GOVERNMENT	__OTHER (SPECIFY)
		__INVENTION		

SPECIFIC DATES 1893-1910 BUILDER/ARCHITECT

STATEMENT OF SIGNIFICANCE

SUMMARY

The Charles River Basin is the most important element of Boston's metropolitan park system, the first such system realized in the United States. The embankment and park land adjoining the water provides Boston and Cambridge with an amenity that makes them two of the country's most attractive cities. Originally an estuary edged with tidal mud flats, the Charles River was transformed into a recreational reserve by the construction of the Charles River Dam in 1910, finally fulfilling a series of plans developed for the Basin through the Victorian era. The person chiefly responsible for establishing the Basin as a focal point of the park system, Charles Eliot, of the firm of Olmsted, Olmsted and Eliot, is a major figure in the early history of the profession of landscape architecture, which developed principally in the Boston area.

1. History

The history of both the Cambridge and Boston shorelines from 1793 until the construction of the Charles River Dam in 1910 is primarily that of continuous efforts to reclaim the mud flats and marshes for dry land. On the Cambridge side, every bridge was connected to solid land by long causeways over the marshes, while on the opposite Boston shore high ground came close to the water's edge except in the Back Bay. The earliest filling operations along the Charles took place in Cambridgeport after the construction of the West Boston Bridge; filling continued there and in East Cambridge as demand grew for industrial land and wharves. Filling of Boston's Back Bay began in 1857, and continued until the 1880's.

The Charles River has been a focus for the development of Cambridge since 1630, when John Winthrop founded Newtowne on its northern bank, near the present Larz Anderson Bridge. Boston, on the other hand, faced the ocean; Back Bay, on the Charles, was aptly named. In 1635, the Cambridge settlers established a ferry that connected Newtowne with a road on the southern side of the River. This served until 1662, when "the Great Bridge" was completed on the site of the Anderson Bridge. However, Cambridge remained relatively isolated from Boston until 1793, when the construction of the West Boston Bridge, on the site of the present Longfellow Bridge, reduced the travel distance between the centers of the two towns from eight to three and one-half miles.

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The completion of the West Boston Bridge was followed, in 1809, by the construction of the Canal (or Craigie) Bridge, from Lechmere Point in East Cambridge to Barton's Point in Boston. (This structure was removed in 1910 when the Charles River Dam was built.) During the first decade of the nineteenth century, the waterfront adjacent to these two bridges was the object of considerable speculation by Cambridge developers who believed the economic future of the city rested in its potential as a shipping center. Cambridgeport, at the Cambridge end of the West Boston Bridge, was named with the expectation that the waterfront could be developed into a ocean port, and an intricate system of canals was constructed. In 1806, Congress designated Cambridge as an official United States port of delivery, but the Embargo of 1807-09 ended these mercantile plans. The Broad Canal, still a feature on the Cambridge waterfront, is the sole reminder of that era of waterfront development.

Although the Embargo ended the flow of capital into port facilities, real estate speculation continued. Cambridge subsequently began to develop into three separate regions: Old Cambridge, the original settlement, Cambridgeport, near the West Boston Bridge, and East Cambridge. In all three sections transportation was a major activity, as competing turnpikes were laid out to connect Boston with the north and west. Both the River Street and Western Avenue Bridges (1810 and 1824, respectively) were constructed to carry turnpikes connecting Watertown, Brighton, and Newton with Boston via the West Boston Bridge. The importance of these routes was reinforced with the construction of the first street railway in New England across the West Boston Bridge in 1856. Other lines followed, stimulating intense suburban development that lasted until World War I.

In 1853, the Grand Junction Railroad, later a branch of the Boston and Albany Railroad, built a lengthy causeway across the tidal flats between Cambridgeport and the West Boston Bridge. The reclaimed lands along the railway became the center for manufacturing in Cambridge during the second half of the nineteenth century. The railroad crossed the Charles at the Brookline Street Bridge (originally known as the Cottage Farm Bridge), completed in 1851 on the site of the present Boston University Bridge.

While the Back Bay was reclaimed by the Commonwealth of Massachusetts, riverfront development in Cambridge was carried out by enterprising merchants and speculators. In 1881, the Charles River Embankment Company proposed the construction of a sea wall extending from the Brookline (Boston University) Bridge

to the West Boston (Longfellow) Bridge and the reclamation of land behind the wall for the construction of an elegant residential area, planned around an ornamental, spacious esplanade. Although plans for this residential area, similar in conception to the Back Bay, never came to fruition (the Massachusetts Institute of Technology stands on its proposed site), the visions of Charles Davenport, founder of the Cambridge Embankment Company, had a far-reaching effect on the ultimate appearance of the waterfront.

Davenport aroused public interest in the embankment project and pointed out the need for a new bridge, connecting his proposed esplanade with West Chester Park, in the Back Bay directly across the Charles. This led the Massachusetts Legislature to authorize, in 1882, the construction of the Harvard Bridge, which opened in 1891. The City of Cambridge supported the Embankment Company by relieving increased taxes in exchange for the construction of a wide approach to the Harvard Bridge. In 1883, the Embankment Company built 1,000 feet of retaining wall along the River, where M.I.T. now stands. In 1889, Davenport commissioned Frederick Viaux, who drew a design, complete with strict specifications for set backs and materials, for the never-realized residential district. Although the Embankment Company was dissolved in the depression of 1893, Davenport's proposal for an esplanade along the Charles was completed by the Cambridge Park Commission in 1896-1905.

The idea of damming the Charles, providing a landscaped embankment, and establishing a method of flood control, was not new when Frederick Law Olmsted, the nation's first landscape architect, was consulted by the Boston Park Commission in 1882. In 1844, Robert Gourlay, a Scot concerned with what he called "the science of city building", publicized his plan for Boston, proposing the construction of an embankment in a scheme that reclaimed 2,000 acres of land with the filling of Back Bay. Gourlay predicted streetcar suburbs in his design by proposing an extensive railroad system on both sides of the Charles. Following the River along the railroad, a great boulevard 260 feet wide included carriageways, planting strips and footpaths. Although Gourlay's conception apparently was forgotten during the second half of the nineteenth century, it was a forerunner of the later concept of the Basin.

The Back Bay area of Boston was originally a tidal backwash separating the Boston peninsula, along its western border, from the Town of Brookline. Through the first half of the nineteenth century, the Back Bay was dammed and the power used intermittently for milling operations. In 1857, the process of filling in the

tidal flats began at Arlington Street; by the late 1880's, the marsh that once separated Boston and Brookline had been reclaimed, creating over four hundred fifty acres of dry land behind a seawall paralleling Beacon Street. By 1895, the margin of the Basin on the Boston side had been filled and developed as a park, the precursor of the present Storrow Memorial Embankment. Much of this area is within the Back Bay and South End National Register Districts.

Boston's early concern for parks was evident in the construction of the Public Gardens, adjacent to the Common, in 1856. In the same year, Arthur Gilman laid out the orthogonal plan for Back Bay, extending Commonwealth Avenue--connecting the Public Gardens with what later became the Fenway--to the western edge of the new area.

Following the Civil War, a renewed interest in parks led to the formation of the Boston Park Commission in 1875. The Commission's first report, published in 1876, put forward a series of farsighted proposals, including a proposal for the creation of a park on the Boston side from the Craigie Bridge (now the site of the Charles River Dam) to the Cottage Farm Bridge (now the Boston University Bridge) laid out with walks, drives, saddle paths and boat landings, ornamented by shrubbery and turf. This location, which ultimately became the right-of-way of Storrow Drive, was selected to meet the Park Commissioner's guidelines: accessibility to all classes of citizens, economical to purchase, adaptable to Park purposes, and carrying sanitary advantages for the City of Boston. In 1877, the Park Commission appropriated $500,000 for 100 acres of land in Back Bay Park.

The Park Commission requested Olmsted, who had been designing Central and Prospect Parks in New York City, to review the competition drawings submitted for the development of Back Bay Park. In 1881, the Park Commission began construction. Olmsted, reflecting the popular taste in his original report on these Boston projects, envisioned a "Charles River Embankment--broad bay and River views with a rus-urban background seen from a stately promenade."[2] He understood the role of the Basin as the principal feature in his "Emerald Necklace" scheme for parks connected by parkways throughout the Boston area. Between 1885 and 1896, the number of parks and parkways was increased from six to nineteen, at a cost of $13,000,000 dollars, resulting in 2,162 acres of public park land. Olmsted's firm, with intermittent attention from the landscape architect himself, continued to act as consultants to the Boston Park Commission during these years.

The key figure responsible for marshalling the interest and energy that ultimately resulted in the Dam was Charles Eliot. A landscape architect and partner in the firm of Olmsted, Olmsted and Eliot from 1893 to 1897, Eliot lobbied for the creation of a regional park commission as early as 1890. His efforts led to the creation of the Metropolitan Park Commission in 1893; it was, in his words, "a separate and impartial body capable of disregarding municipal boundaries and all local considerations, empowered to create a system of public reservations for the benefit of the metropolitan district as a whole."[5] In the years of his partnership in the Olmsted firm, Eliot had primary responsibility for their Boston Commissions; he wrote their consultants' reports for the Metropolitan Park Commission, the Cambridge Park Commission, the Massachusetts Department of Public Health, always advocating the completion of the Basin. Olmsted retired in 1895, but Eliot, until his sudden death in 1897, continued as the authority on the Basin design and implementation. The 1903 study that finally brought the construction of the Dam substantially reflects Eliot's thinking. In 1920, the Metropolitan Park Commission was merged with other municipal organizations to become the Metropolitan District Commission, which administers the Basin for public benefit today.

During the first two decades of the twentieth century, the bridges over the Charles underwent a period of improvement, typical of the concern with public works engineering in the economic boom of that period. In 1906, the Cambridge (Longfellow) Bridge was built, on the site of the 1793 structure. The Charles River Dam replaced the Craigie (or Canal) Bridge in 1910, and, in the Harvard region of the Basin, the Larz Anderson Bridge was built, on the site of the 1662 Great Bridge, in 1915. Reinforced concrete was used in what was regarded as progressive bridge design in both the Western (1924) and the River Street (1926) Bridges, built on the original 1824 and 1810 sites, respectively. In 1927, Harvard hired the firm of McKim, Mead and White for the John Weeks footbridge, leading from the main campus to the Business School. The Boston University Bridge was built in 1928 near the site of the original 1852 Cottage Farm Bridge, where the Grand Junction branch of the Boston and Albany railroad crossed the Charles. The only post World War II bridge over the Basin is the Eliot Bridge, completed in 1950.

The twentieth century has brought to the daily experience of the Charles River Basin something Eliot, Olmsted and their colleagues never completely imagined -- the automobile. When the 1894 Massachusetts Legislature passed the "Boulevard Act," the Metropolitan Park Commission was charged with responsibility for over-

seeing the construction of parkways for pleasure driving of carriages to and between the parks along Olmsted's "Emerald Necklace." To make them accessible to the public, Eliot "planned for electric cars on these parkways, that by them the populace might reach the forest reservations cheaply but in a pleasureable manner."[4] Transit lines were never built, however, and from about 1920 to the late 1960's, the parking system was continually upgraded to accommodate rapidly increasing numbers of automobiles.

Memorial Drive was regarded widely as a model modern parkway and influenced the designs of the 1912 downtown St. Louis parkway and the 1923 Bronx River Parkway. In 1931 the underpass was built in front of M.I.T., using granite block pavements grouted with cement in a progressive highway safety design. In 1939, the brick-faced Memorial Drive overpass, a rare example of highway architecture of that period, was built on the Cambridge side of the Boston University Bridge. Memorial Drive in the District remains essentially as it was in the years between the World Wars.

The Charles River Basin provides the contemporary metropolitan district populace with the relief of urban open space that its original advocates predicted. Between 1931 and 1933, in response to Storrow Drive plans, the Esplanade on the Boston side was nearly doubled in size, creating two islands and the lagoon. Several footbridges and the Hatch Shell were built during these years, and their present use attests to the enduring popularity of the Basin as a recreation area. Although those who conceived the Basin might not recognize the area today, their conception continues to answer the needs of the metropolitan area's population.

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FOOTNOTES TO SIGNIFICANCE ESSAY

[1]The history of the Back Bay is more fully treated in the nomination for that District.

[2]S. B. Sutton, editor, Civilizing American Cities: A Selection of F. L. Olmsted's Writing on City Landscapes (Cambridge, MA, 1971), p. 224.

[3]Charles William Eliot, Charles Eliot, Landscape Architect (Boston, 1902), p. 357.

[4]Ibid., p. 457.

9 MAJOR BIBLIOGRAPHICAL REFERENCES

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Eliot II; Charles W., "The Boston Park System," Fifty Years of Boston, A Memorial Volume, Boston, 1932.
Eliot II; Charles W., "The Charles River Basin," Proceedings of the Cambridge Historical Society, Vol.39, 1961-63.

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY 820

UTM REFERENCES

	ZONE	EASTING	NORTHING
A	19	324510	4693560
B	19	325660	4692760
C	19	326200	4691000
D	19	328470	4691790

VERBAL BOUNDARY DESCRIPTION

Commencing at the intersection of the downstream face of the Charles River Dam and the Boston shoreline; then running southwesterly on the property line of the Metropolitan District Commission (MDC) to the Longfellow Bridge approach rotary; then running westerly along the property line of the MDC to the point nearest the upstream abutment of the Eliot Bridge; then crossing the Charles River along the upstream face of the Eliot Bridge, and continuing westerly to the western edge of the Memorial Drive Extension right of way in Cambridge; then running northeasterly along the western edge of the Memorial Drive

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
Massachusetts	025	Suffolk	025
STATE	CODE	COUNTY	CODE
		Middlesex	017

11 FORM PREPARED BY

NAME / TITLE

Candace Jenkins, National Register Editor & Carol Ann Clark, Intern Charles Sullivan, Director, Cambridge Historical Commission

ORGANIZATION

Massachusetts Historical Commission

DATE

September 1, 1978

STREET & NUMBER

294 Washington Street

TELEPHONE

617-727-8470

CITY OR TOWN

Boston

STATE

Massachusetts 02108

12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL ___ STATE X LOCAL ___

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

STATE HISTORIC PRESERVATION OFFICER SIGNATURE Valerie K. Weslowski 9/14/78

TITLE Executive Director, Mass. Historical Commission DATE

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DATE

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION

ATTEST: DATE

KEEPER OF THE NATIONAL REGISTER

GPO 892-453

Form No 10-300a
(Rev. 10-74)

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CONTINUATION SHEET 1 ITEM NUMBER 9,10 PAGE 1

Fink; Benjamin W.,"Bridges Over the Charles River Basin," Concrete Highways and Improvements November, 1928.
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Nolen; J. & Hubbard; H.V., Parkways and Land Values, Cambridge, 1937.
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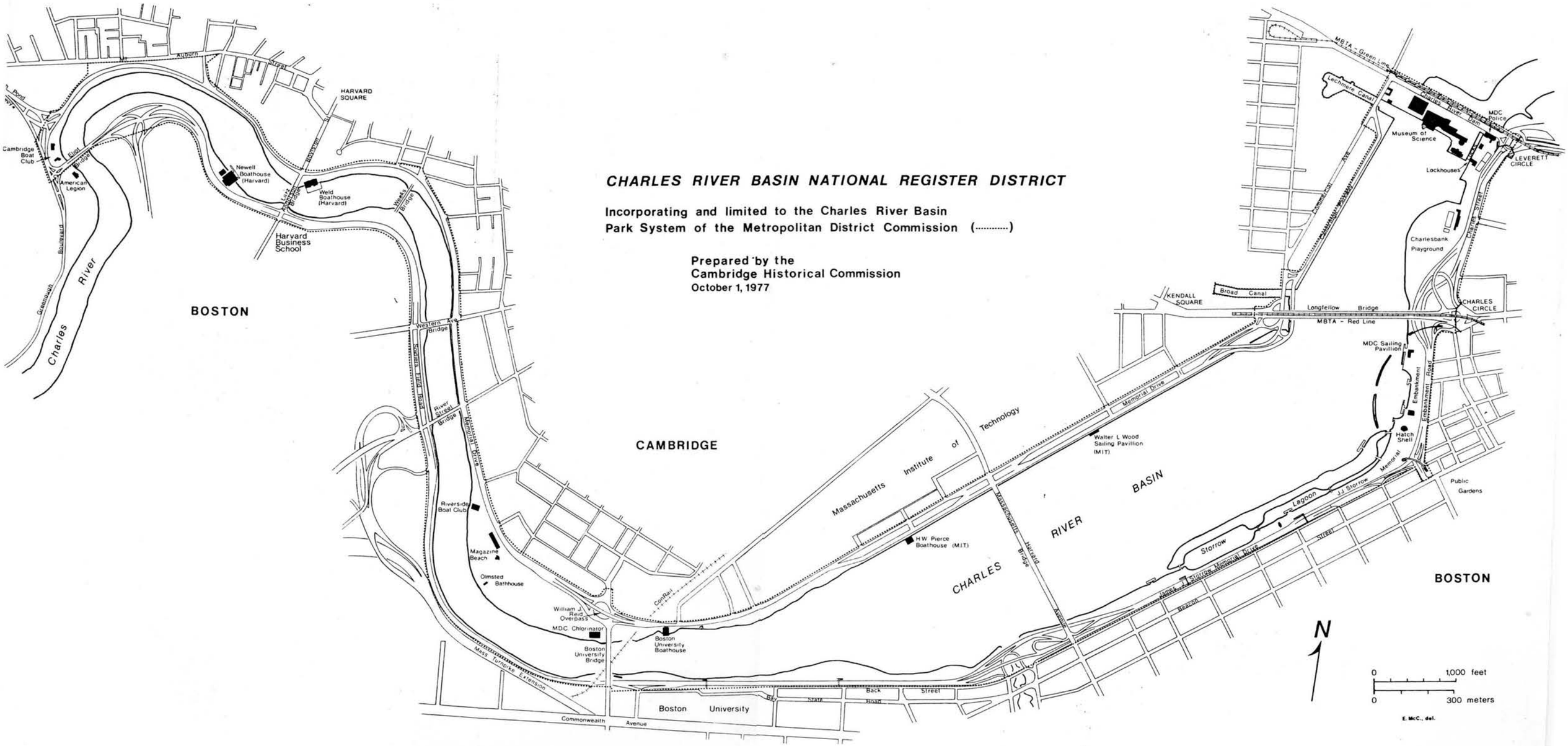
UTM References

E	19/329080/4692780	J	19/325440/4690840
F	19/329740/4692340	K	19/325500/4692380
G	19/329270/4691060	L	19/324110/4693000
H	19/327460/4690560		

Verbal Boundary Description, Continued:

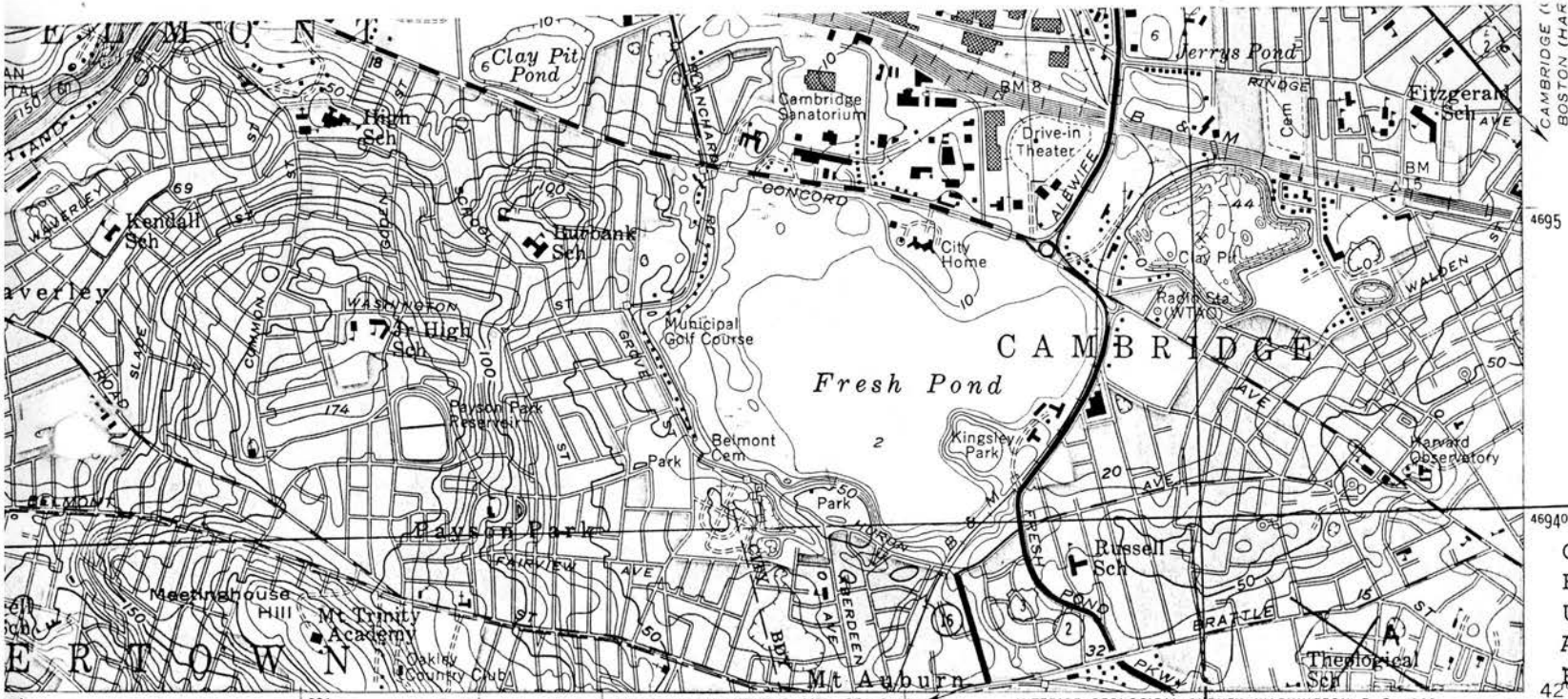
Extension right of way to the Southwest corner of the laboratory building property of Mount Auburn Hospital; then running easterly along the MDC property line to the intersection of Memorial Drive and the southern edge of the Broad Canal; then running along the perimeter of the Broad Canal and returning to the MDC property line and running easterly along the Cambridge Parkway; then running northerly along the MDC property line to the Commercial Ave crossing of the Lechemere Canal; then running along the perimeter of the Lechemere Canal; then running northerly along the eastern edge of the Commercial Avenue right of way to the northwest corner of the intersection of Monsignor O'Brien Highway and Charlestown Avenue; then running southeasterly along the eastern edge of the O'Brien Highway right of way to the downstream face of the Charles River Dam and returning to the starting point.



CHARLES RIVER BASIN NATIONAL REGISTER DISTRICT

Incorporating and limited to the Charles River Basin Park System of the Metropolitan District Commission (.....)

Prepared by the Cambridge Historical Commission
October 1, 1977



Charles River Basin H.D.
Boston/Cambridge, MA.
UTM References, MAP 1
A 19/324510/4693560
B through K see Map 2
L see Map 3

68

LEXINGTON, MASS.
N4222.5—W7107.5/7.5

1956

AMS 6768 I NW—SERIES V814

MAP ACCURACY STANDARDS
VEY, WASHINGTON, D. C. 20242
D SYMBOLS IS AVAILABLE ON REQUEST

Charles River Basin H.D.
Boston/Cambridge, MA.
UTM References, Map 2

A	See Map 1
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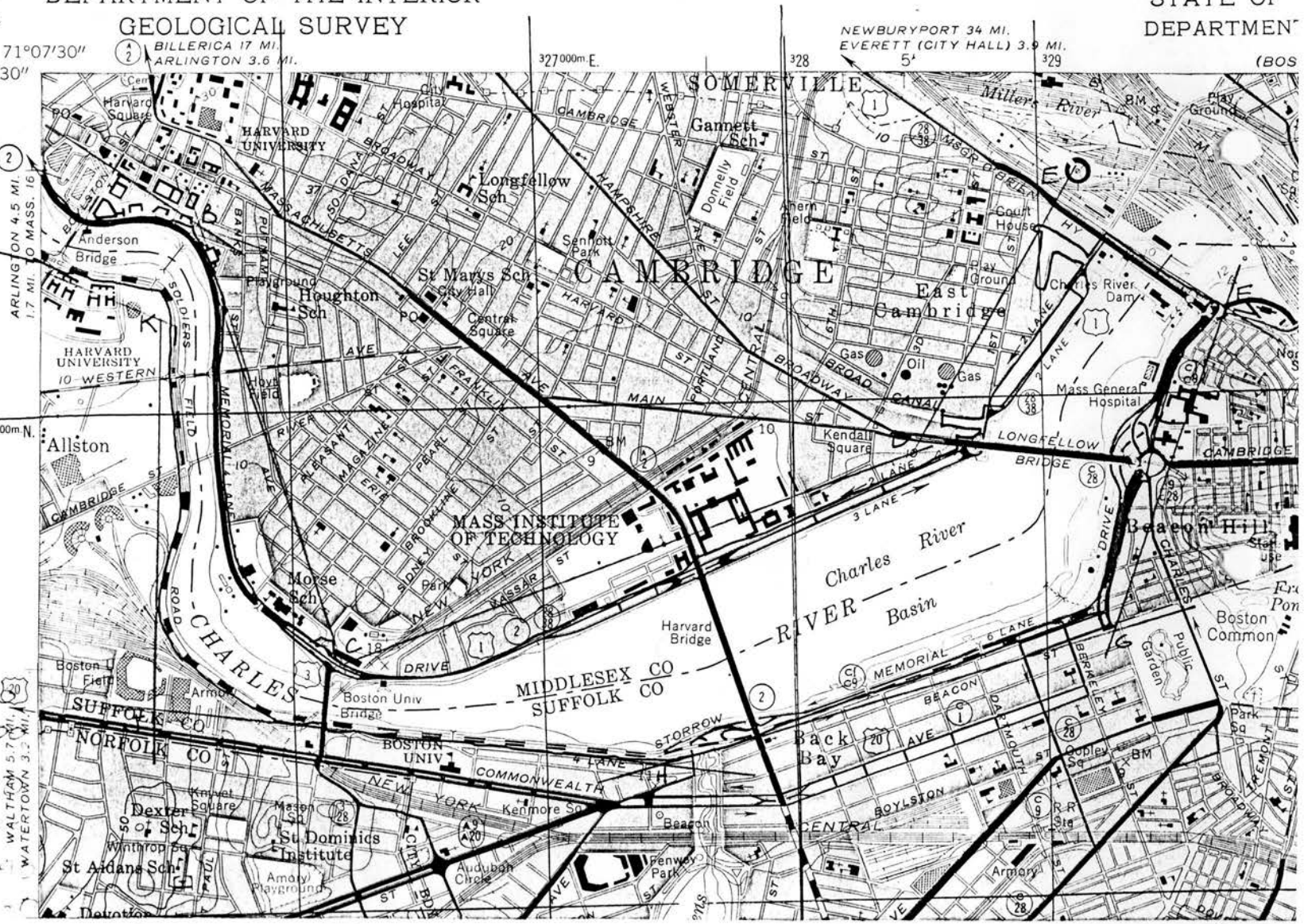
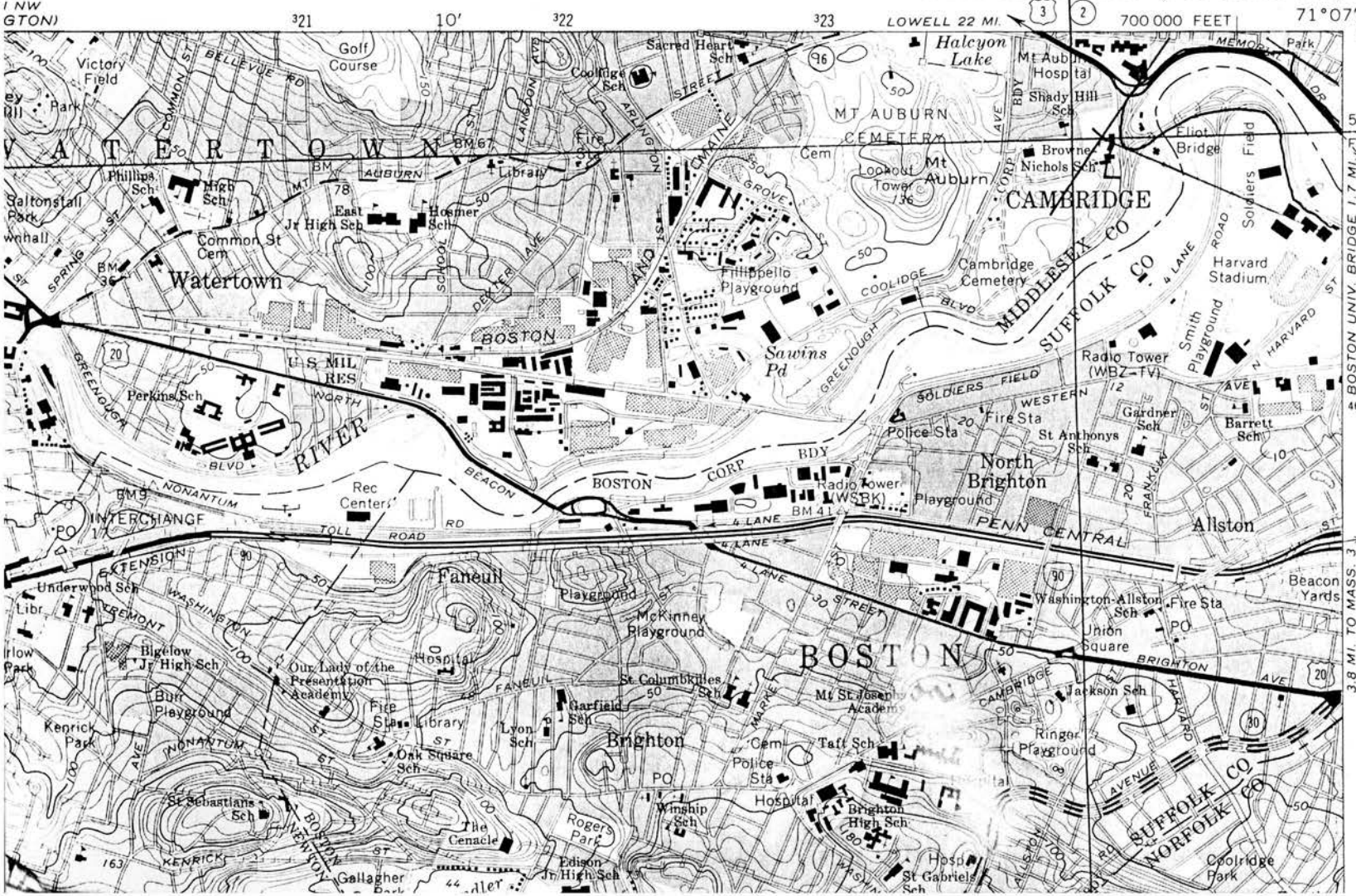
L	See Map 3



F MASSACHUSETTS
PUBLIC WORKS

NEWTON QUADRANGLE
MASSACHUSETTS
7.5 MINUTE SERIES (TOPOGRAPHIC)

6768 I NE
(BOSTON NORTH)



Charles River Basin H.D.
Boston/Cambridge, MA.
UTM References, Map 3

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A See Map 1
B through K, see Map 2
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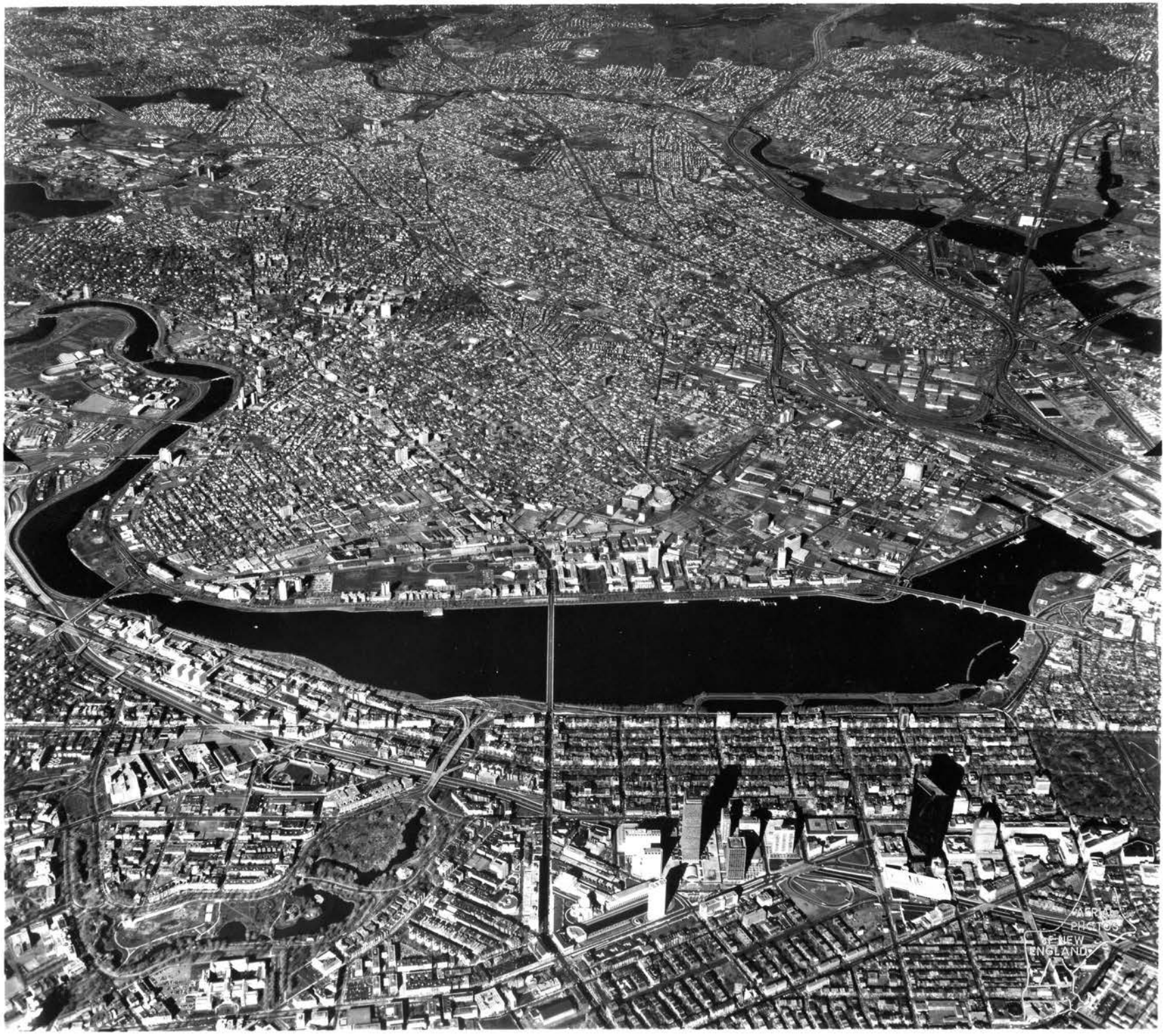
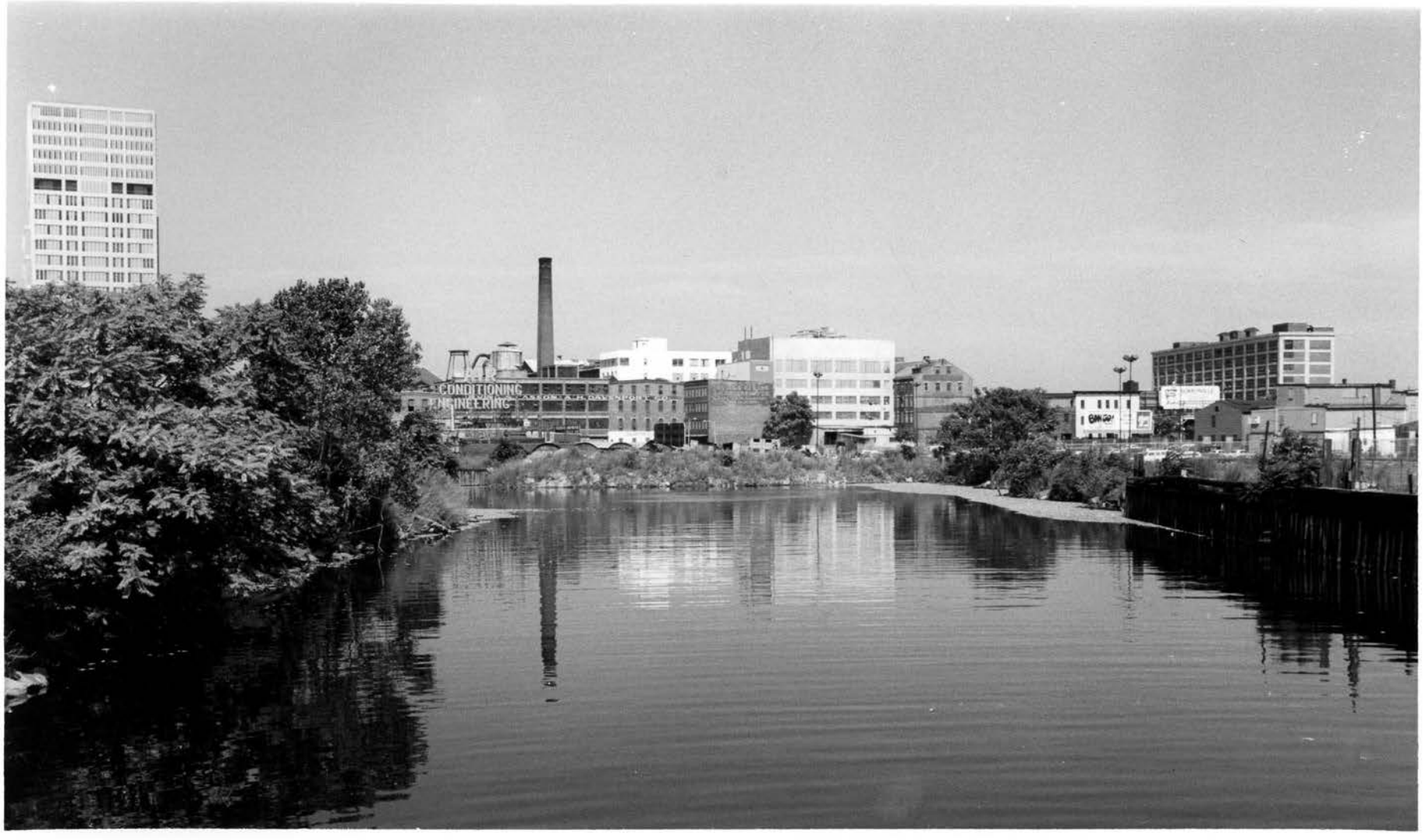


1. [Aerial photograph] Looking north at the river basin. (Photograph: Aerial Photos of New England, Inc., November 1977)

2. Museum of Science and MBTA Viaduct at Charles River Dam, Cambridge & Boston. (Photograph: Charles Sullivan, December 1977)

3. Memorial Drive and embankment, with Weeks Bridge in background. (Photograph: Charles Sullivan, December 1977)

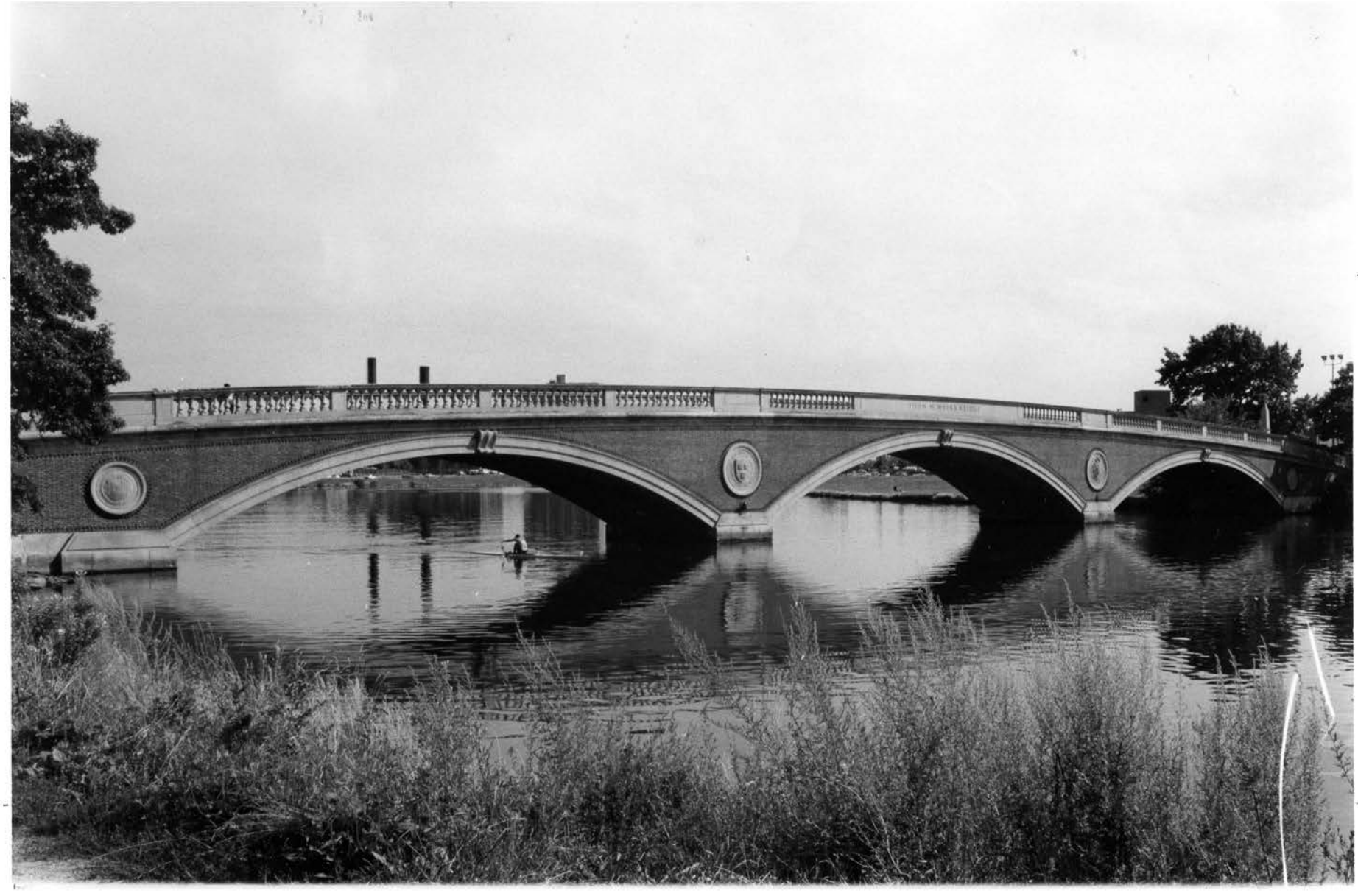


4. Looking north from Commercial Ave. toward Lechmere Canal. (Photograph: Carol Anne Clark, August 1977)

5. Looking east across the River towards Boston. Harvard Bridge crossing in background. (Photograph: Charles Sullivan, December 1977)

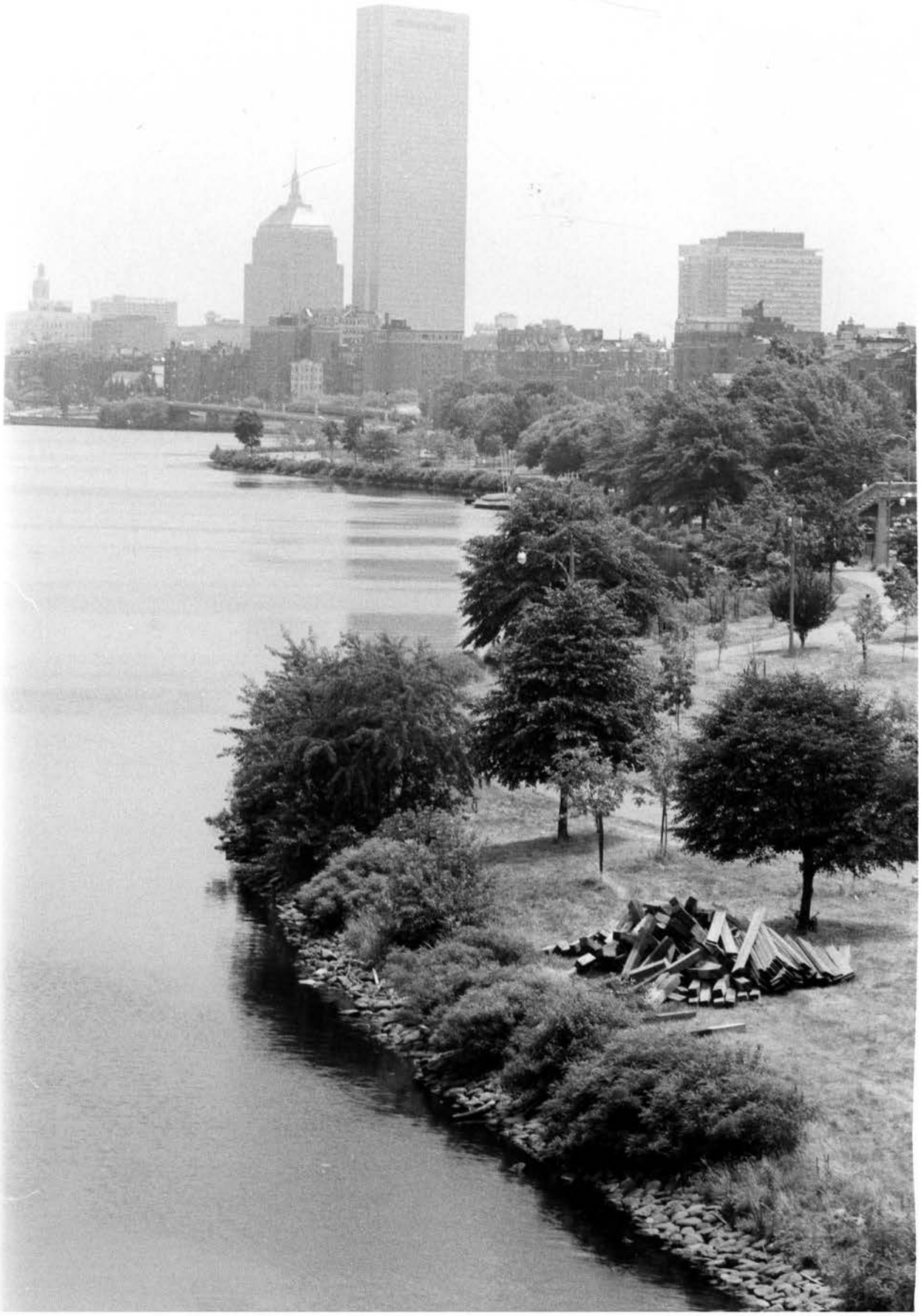
6. Memorial Drive, Cambridge. View east, downstream from vicinity of Ash Street. (Photograph: Carol Anne Clark, 1977)

7. Looking west towards the Olmstead Bathhouse at Magazine Beach, Cambridge. (Photograph: Carol Anne Clark, August 1977)



8. Looking southeast towards upstream elevation of the John W. Weeks Bridge. (Photograph: Carol Anne Clark, August 1977)

9. Weld Boat House, Harvard University, looking north from Soldiers Field Road. (Photograph: Carol Anne Clark, August 1977)

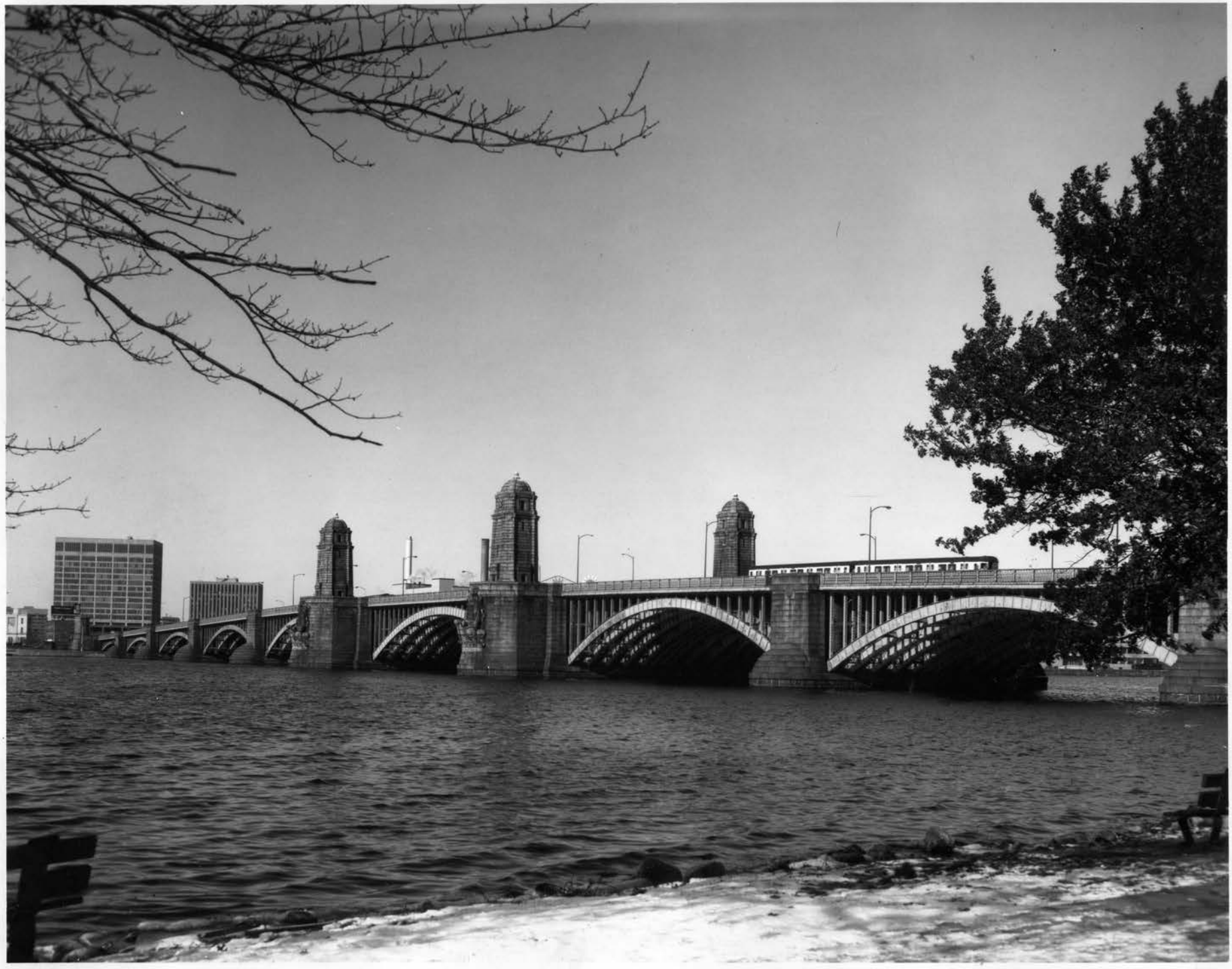


10. Looking east towards the Storrow Embankment from the Boston University Bridge. (Photograph: Carol Anne Clark, August 1977)

11. Looking east from the Harvard Bridge, toward the Storrow Embankment and Lagoon. (Photograph: Carol Anne Clark, August 1977)

12. Hatch Shell, looking northwest towards the southern elevation. (Photograph: Charles Sullivan, December 1977)

13. Looking northeast from Science Park towards the MDC Lockhouse and Police Station. (Photograph: Charles Sullivan, December 1977)



14. Longfellow Bridge, Cambridge & Boston. View west from Boston shore. (Photograph: Charles Sullivan, December 1977)

15. Looking east toward the Science Museum and the Charles River Dam. (Photograph: Charles Sullivan, December 1977)

Documentation of the National Historic Preservation Act Eligibility Determination:

As part of this permit, a determination was made as to whether there were any historic properties or places listed on the national register in the path of the discharge or in the vicinity of the construction of treatment systems or BMPs related to the discharge. A portion of the site is located within the Charles River Basin Historic District which is listed as a National Historic Place, but includes buildings and structures on the banks of the Charles River, not the river itself. Therefore, the effluent water that will be discharged into a catch basin within that portion of the site is not anticipated to affect this historical property.