Haverhill

Robert E. Ward, Interim DPW Director
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October 28, 2022

Ms. Elizabeth Kudarauskas
U.S. EPA - Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Subject: City of Haverhill, MA NPDES Permit #MA 0101621
Consent Decree Submittal (Civil Action No. 16-11698-IT)
Compliance Report Number 12 – January 1, 2022, through June 30, 2022

Dear Ms. Kudarauskas:

Enclosed is Compliance Report No. 12 as required by Section IX.67 of the Consent Decree. This report is for the January 1, 2022, through June 30, 2022 reporting period.

If you require additional information, please call me at (978) 374-2382.

Sincerely,

Robert E. Ward
Interim DPW Director

Enclosure

cc: Chief, Environmental Enforcement Section, U.S. DOJ
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CITY OF HAVERHILL, MASSACHUSETTS
NPDES PERMIT No. MA0101621
CONSENT DECREE
(Civil Action No. 16-11698-IT, 11/10/16)

COMPLIANCE REPORT No. 12
JANUARY – JUNE 2022

OCTOBER 2022

CITY OF HAVERHILL, MASSACHUSETTS
NPDES PERMIT No. MA0101621
CONSENT DECREE
(Civil Action No. 16-11698-IT, 11/10/16)
COMPLIANCE REPORT No. 12
JANUARY – JUNE 2022

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SECTION 1

INTRODUCTION

1.1 BACKGROUND

The United States Environmental Protection Agency (EPA), Massachusetts Department of Environmental Protection (MassDEP), and the City of Haverhill entered into a Consent Decree to require the City to take measures necessary to meet the requirements of the Clean Waters Act and the Massachusetts Clean Water Act, and to achieve and maintain compliance with the Small Municipal Separate Stormwater Sewer System (MS4) General Permit and the Publicly Owned Treatment Works (POTW) Permit, and all applicable federal and state regulations. The effective date of the Consent Decree is November 10, 2016.

As part of the Consent Decree, the City is required to submit a Compliance Report to EPA and MassDEP for the previous six-month period, referred to as a "Reporting Period." The bi-annual Reporting Periods run from January through June and July through December, with the Compliance Reports due on April 30th and October 31st for the previous period.

The goal of this Compliance Report is to provide the EPA and MassDEP an updated summary of the work performed by the City to achieve and maintain compliance over the course of the Reporting Period.

1.2 UNFORESEEN CHALLENGES

Since March 2020, the City continues to face both external and internal challenges that impacts their ability to perform required tasks as originally scheduled. During the reporting period, two Collection System employees were hit by a vehicle while on a service request call. The two individuals suffered injuries that kept one out until May and the other employee is still recovering.

In addition, the Coronavirus (COVID-19) pandemic continues to impede the collection systems operations activities due to shortages and supply chain disruptions.

1.2.1 Vacant Positions

As reported previously, the Collection System Supervisor position remains vacant. Every effort continues to be made to fill this critical role with a permanent hire. The Wastewater Facility Manager is working as the interim Collection System Supervisor to complete critical tasks with assistance from the Haverhill support staff. A new Water/Wastewater Engineer position is currently advertised for hire. This position will be responsible for engineering and project management tasks for the department. The City has conducted interviews and is evaluating candidates for the position.

1.3 REPORT ORGANIZATION

The Compliance Report is divided into several sections including:

- IDDE Program
- SSO and Building/Private Party Backup Events
- Construction Site Inspection and Enforcement Program
- General Status
- Secondary Treatment Bypass
- CMOM Corrective Action Plan (per MassDEP request)

Each section summarizes the City's actions, activities, and events that have occurred over the previous Reporting Period in accordance with the Consent Decree.

1.4 CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, 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.

Robert E. Ward

Interim DPW Director

City of Haverhill, Massachusetts

10/28/22
(date)

SECTION 2

IDDE PROGRAM

2.1 INTRODUCTION

The City identified and inspected 1,200 stormwater outfalls (13 of these outfalls are shared stormwater/combined sewer overflow (CSO) outfalls) as part of the 2014/2015 Stormwater Outfall Inspection Report. Based on the findings, the City established a draft schedule of prioritized inspections.

In 2017, the City prepared the "Illicit Discharge Detection and Elimination (IDDE) Manual." The manual identified the procedures that the City will follow to continue their comprehensive inspections of its stormwater outfalls, upstream system investigations, and enforcement procedures when an illicit connection is identified. Most recently, the IDDE Manual was updated in 2020 to be in compliance with the City's MS4 permit.

The IDDE Manual can be found on the City's Stormwater website at:
www.cityofhaverhill.com/departments/storm_water_program/index.php

2.2 CURRENT REVISED PRIORITY LISTING

The City continues to conduct IDDE sampling and update priorities based on field investigation and lab analysis testing results. The current IDDE investigation priorities as of June 2022 are shown in Table 2-1. The current priorities categories reflect the following inventory: 6 Problem Priority outfalls; 4 High Priority outfalls; and 35 Low Priority outfalls. Table 2-1 has been updated with the most recent sampling results for each outfall. The priority listing of outfalls, with sample results, is also available at the City's stormwater website. During this reporting period the City prioritized a review and resample of the priority outfall list. Multiple priority outfalls were not flowing and will be reviewed again to confirm no flow before removal from the priority list. Table 2-1 has been updated to reflect those found with no flow and updated the most recent sampling data.

2.3 IDDE INVESTIGATION PROGRESS REPORTING

Table 2-2 shows the City's progress to date on their IDDE investigations during the reporting period (January through June 2022). One catchment was investigated for potential illicit connections, no illicit connections were found, the outfall catchment areas have been updated on Table 2-2 and IDDE catchment investigation maps in the Appendix. Table 2-3 shows the City's current list of priority outfalls for maintenance.

Using GIS, the City identified a total of 26.12 miles of storm drain piping and 2,617 drainage manholes and catch basins in the tributary area upstream of the outfalls included in the Priorities List as Problem, High, Low priorities. The total length investigated is included and updated from previous reporting for a cumulative percentage investigated. Some outfalls are considered fully investigated if there is no flow in a upstream asset.

During this reporting period one catchment investigation was completed, 17 outfall inspections/investigations were completed the summary of the sampling can be found on Table 2-1.

Table 2-1

PRIORITIZED LIST OF OUTFALL SUB-AREA INVESTIGATIONS

(BASED ON OUTFALL INSPECTION PROGRAM)

2014-2022 Dry-Weather MS4/Stormwater Outfall Inspection Program

Summary of Water Quality Testing of Dry Weather Flow at MS4/CSO Outfalls

Outfall Information					Field Inspection Information		Dry-Weather Flow Characteristics					Field Parameter Test Results							Coliform Laboratory Sampling/Analysis					
GIS Identifier	Diameter	Material	Outfall Location	Owner-ship	Date	Previous Rainfall	Flow Description	Odor	Color	Floatables	Turbidity	Sample Time	Sample Temp (F)	pH	Conductivity	Ammonia (mg/l)	Surfactants (mg/l)	Chlorine (mg/l)	Sample Date for Bacteria	Previous Rainfall (inches)	Previous Rainfall (Date)	Previous Rainfall (End Time)	E.Coli (MPN/ 100 ml)	Entrococcus (MPN/ 100 ml)
Problem Priority																								
UNK0955	36"	RCP	South Main St(Dominator Plaza)	City	9/16/2020	.01" ON 9/13/2020	TRICKLE	NONE	CLEAR	NONE	NONE	725	62.2	7	1630	0.13	0.1	0	9/16/2020	0.1	9/13/2020		>2400	
PL0891	30"	RCP	Main St @ Marsh Ave	City	**5/2/2022**	.4" ON 4/27/2022	MODERATE	NONE	NONE	NONE	CLEAR	710	45	6.8	1470	0.2	0	0	5/2/2022	0.4	4/27/2022	225	15406	
MR1109	12"	RCP	350 Water Street	City	**11/9/2020**	.01" ON 11/3/2020	TRICKLE	NONE	NONE	NONE	NONE	930	59.3	7.31	3	0	0	0	12/10/2015	0.1	12/3/2015		1,414	> 2420
UNK1767	36"	CMP	Tudor Ct	City	**6/23/2020**	.02" ON 6/11/2020	TRICKLE	NONE	CLEAR	NONE	CLEAR	750	64	7	453	0.07	0	0	6/23/2020	0.2	6/11/2020		>2400	
UNK0951	48"	RCP	61 Brook St	City	**5/11/2022**	.2" ON 5/4/2022	SUBSTANTIAL	NONE	CLEAR	NONE	CLEAR	900	49	6.6	352	0.09	0	0	5/11/2022	0.2	5/4/2022	1325	1,890	
DPI0946	48"	RCP	High School	City	**11/5/2015**	0.02" ON 11/1/15	TRICKLE	NONE	NONE	NONE	NONE	815	56.4	7.22	849	0	0.25	0	12/10/2015	0.1	2/3/2015		>2420	
High Priority																								
LR1260	3'x4'	OTHER, Blocks	140 Hale Street	City	**5/2/2022**	.4" ON 4/27/2022	TRICKLE	NONE	NONE	NONE	NONE	745	42	7.4	608	0.14	0	0.02	5/2/2022	0.4	4/27/2022	225	195.99	
UNK1166	34"	RCP	8 Franzone Dr	City	**6/11/2020**	0.01 ON 6/11/2020	SUBSTANTIAL	NONE	CLEAR	NONE	CLEAR	831	62	6.5	1000	0.09	0	0.03	6/11/2020	0.01	6/11/2020		461	
LR0952	48"	RCP	Cashman Park	City	6/22/2022	.1" ON 6/3/2022	SUBSTANTIAL	NONE	CLEAR	NONE	CLEAR	905	52	6.9	1030	0.2	0.06	0	6/22/2022	0.1	6/3/2022	915	307	
UNK1177	48"	RCP	Franzone Dr	City	**6/11/2020**	0.01" ON 6/11/2020	SUBSTANTIAL	NONE	CLEAR	NONE	CLEAR	925	63	6.1	1000	0.1	0.15	0.01	6/11/2020	0.01	6/11/2020		770	
Low Priority																								
BZB0847	15"	RCP	Fermanagh St	City	**5/2/2022**	.4" ON 4/27/2022	TRICKLE	NONE	CLEAR	NONE	NONE	830	54	6.9	727	1.42	0	0	5/2/2022	0.4	4/27/2022	225	4874	
MR20718	10"	RCP	1 Water Street	City	**8/14/2015**	0.57" ON 8/11/15	NO INFORMATION	NONE	NONE	NONE	NONE	1000	78	7.99	2		0	0	8/31/2015	0.19	8/23/2015		556	631
MR1164	36	RCP	Water Street	City	**8/25/2015**	0.36" ON 8/21/15	SUBSTANTIAL	NONE	CLEAR	NONE	NONE		72.2	7.6	2	0	0	0	8/31/2015	0.19	8/23/2015		461	< 10
FBO0638	12"	RCP	Hilldale Ave.	City	**5/11/2022**	.2" ON 5/4/2022	NO FLOW																	
PL1222	36"	RCP	West Gile St.	City	**5/11/2022**	.2" ON 5/4/2022	SUBSTANTIAL	NONE	NONE	NONE	NONE	805	48	7.3	545	0.25	0.07	0	5/11/2022	0.2	5/4/2022	1325	2419.57	
UNK0661	24"	RCP	Parkridge Rd.	City	**5/2/2022**	.4" ON 4/27/2022	TRICKLE	NONE	CLEAR	NONE	NONE	910	48	6.4	1880	0	0	0	5/2/2022	0.4	4/27/2022	225	31.29	
MR0982	18"	CLAY	20 Back Lane	City	**5/11/2022**	.2" ON 5/4/2022	TRICKLE	NONE	NONE	NONE	NONE	730	49	8.6	374	0.17	0	0	5/11/2022	0.2	5/4/2022	1325	12.11	6.2
MR23912	8"	STEEL	120 Merrimack St	City	**5/10/2022**	.2" ON 5/4/2022	NO FLOW																	
MR1140	15"	RCP	River St	City	**11/4/2021**	1.9" on 10/31/2021	TRICKLE	NONE	NONE	OTHER	CLOUDY	1045	42.6	8.18	484	0	0	0.02	11/13/2014	0.06	11/7/2014		62	

Outfall Information					Field Inspection Information		Dry-Weather Flow Characteristics					Field Parameter Test Results							Coliform Laboratory Sampling/Analysis					
GIS Identifier	Diameter	Material	Outfall Location	Owner-ship	Date	Previous Rainfall	Flow Description	Odor	Color	Floatables	Turbidity	Sample Time	Sample Temp (F)	pH	Conductivity	Ammonia (mg/l)	Surfactants (mg/l)	Chlorine (mg/l)	Sample Date for Bacteria	Previous Rainfall (inches)	Previous Rainfall (Date)	Previous Rainfall (End Time)	E.Coli (MPN/ 100 ml)	Entrococcus (MPN/ 100 ml)
MR0834	48"	RCP	Merrimac River (Bradley Ave)	City	6/30/2021	.01" ON 6/25/2021	NO FLOW																	
UNK0883	12"	CMP	Ferry Rd	City	9/24/2014	0.36" ON 9/21/14	TRICKLE	NONE	CLEAR	NONE	NONE	925	64.7	7.41	224	0	0.25		10/20/2014	0.02	10/18/2014		29	
MR0662	18"	RCP	Parkridge Rd.	City	5/25/2022	.2" on 5/22/2022	TRICKLE	NONE	CLEAR	NONE	NONE	845	54	7.3	1061	0.12	0	0.02	5/25/2022	0.2	5/22/2022		0	
LR0963	15"	HDPE	Alvanos St	City	6/7/2022	.1" ON 6/3/2022	TRICKLE	NONE	CLEAR	NONE	NONE	725	49	7.2	1146	0.12	0.07	0	6/7/2022	0.1	6/3/2022	915	23	
CB1198	NA	RCP	Research Dr	City	11/4/2014	0.25" ON 11/2/14	MODERATE	NONE	CLEAR	NONE	CLEAR	1003	50.2	7.06	208	0	0.25		11/13/2014	0.06	11/7/2014		21.3	
MR0770	36"	RCP	Merrimac River (River St)	City	9/23/2014	0.36" ON 9/21/14	TRICKLE	NONE	CLEAR	NONE	CLEAR	930	60.6	7.86	713	0	0.25		9/30/2014	0.01	9/29/2014		19.9	
UNK1836	36"	RCP	Computer Dr	City	5/25/2022	.2" on 5/22/2022	TRICKLE	NONE	CLEAR	NONE	CLEAR	800	51	7.06	6	0.155	0.06	0.05	5/25/2022	0.2	5/22/2022	2110	0	
FP7115	12"	RCP	Brickett Ln	City	5/25/2022	.2" on 5/22/2022	NO INFORMATION	NONE	BROWN	OTHER	CLOUDY	720	45	6.8	620	0.85	0	0.03	5/25/202	0.2	5/22/2022		6.32	
DPI0969	15"	RCP	Diana Road	City	5/25/2022	.2" on 5/22/2022	MODERATE	NONE	CLEAR	NONE	CLEAR	930	52	7.2	1068			0	5/25/202	0.2	5/22/2022			
DPO0657	45"	RCP	44 Sarah J Circle	City	6/9/2015	0.1" ON 6/6/15	TRICKLE	NONE	NONE	NONE	SLIGHT CLOUDINESS	925	65.4	6.94	206	0	0	0	7/7/2015	0.02	7/4/15		4	
UNK1011	24"	RCP	Lake Street	City	6/15/2022	.01" ON 6/13/2022	TRICKLE	NONE	NONE	NONE	NONE	815	61	8.2	1795	0	0	0	6/15/2022	0.01	6/13/2022	0045	8.52	
UNK0627	15"	RCP	Haley Rd	City	5/21/2015	0.07" ON 5/19/15	NO INFORMATION	NONE	NONE	NONE	NONE	840	64.5	6.82	791	0	0	0.25	5/22/2015	0.07	5/19/15		2	
DPI0947	18"	RCP	177 Brook Street	City	6/15/2022	.01" ON 6/13/2022	TRICKLE	NONE	NONE	NONE	NONE	855	60	7.8	1144	0	0	0.02	6/15/2022	0.01	6/13/2022	0045	34.51	
TS0984	24"	RCP	Newton Rd	City	5/11/2015	0.03" ON 5/12/15	MODERATE	NONE	BROWN	NONE	SLIGHT CLOUDINESS	1111	62.2	6.81	76	0	0	0.25	5/22/2015	0.07	5/19/15		<1	
TS0989	24"	RCP	Newton Rd	City	5/18/2015	0.03" ON 5/12/15	SUBSTANTIAL	NONE	Clear	NONE	SLIGHT CLOUDINESS	1100	63.3	7.2	48	0	0	0.25	5/22/2015	0.07	5/19/15		<1	
UNK1020	24"	RCP	River St	Private	7/13/2022	.01" ON 7/13/2022	TRICKLE	NONE	CLEAR	NONE	NONE	940	64.6	7.2	518	0	0	0.02	7/13/2022	0.01	7/13/2022	1820	5.16	
UNK1750	24"	RCP	36 Magnavista	City	5/18/2015	0.03" ON 5/12/15	TRICKLE	NONE	NONE	NONE	NONE	955	64.7	7.6	574	0	0	0.25	5/22/2015	0.07	5/19/2015		<1	
UNK1680	15"	HDPE	Colonial Farm Road	Private	5/31/2022	.4" ON 5/28/2022	NO FLOW																	
DPO1007	54"	CMP	Kenilworth Ln	City	5/19/2021		NO FLOW																	
UNK0848	18"	RCP	Woodrow Ave	City	9/9/2020	.1" ON 9/3/2020	NO FLOW																	
FB0723	18"	RCP	Hanna Ridge Rd.	City	7/31/2019	1.2" ON 7/23/19	MODERATE	NONE	NONE	NONE	CLEAR	923	76.6	7.77	440	0	<0.05	0	7/31/2019	1.2	7/23/2019	1045	8.5	
UNK0888	NA	NA	West Lowell Street	City	6/12/2015	0.1" ON 6/6/15	MODERATE																	
UNK1188	32"	RCP	Primrose Street	City	7/16/2019	0.45" ON 7/12/19	TRICKLE	NONE	NONE	NONE	CLEAR	930	73.9	7.48	855	0.5	<0.05	0	7/16/2019	0.45	7/12/2019	2045	770.1	
MR38714	6"	PVC	Parkridge Rd. - STREAM CONVEY	City	6/14/2022	.01" ON 6/13/2022	NO FLOW																	
MR38718	18"	RCP	Merrimack River	City	9/26/2019	0.01" ON 9/23/19	TRICKLE	NONE	NONE	NONE	CLEAR	1013	68.1	8.01	509	0	<0.05	0	9/29/2019	0.01	9/23/2019	2240	>2400	
LR39512	48"	RCP	Little River	City	7/31/2019	1.2" ON 7/23/19	NO FLOW																	

NOTE: Data exceeds one of the parameter thresholds that suggest it should be added to the IDDE program

TABLE 2-2
SUMMARY OF IDDE INVESTIGATIONS OF SYSTEMS WITH POTENTIAL ILLICIT CONNECTIONS BY BASIN
(BASED ON OUTFALL INSPECTION PROGRAM)
2014-2022 Dry-Weather MS4/Stormwater Outfall Inspection Program
IDDE INVESTIGATION PRIORITIES

		Current Report Period						Completed to Date			
		January 2022 - June 2022						Including this Reporting Period			
Basin ID	Outfall ID	Existing Length of Pipe (ft)	Number of Manholes and Catch Basins	Upstream Length of Pipe (ft)	Percent Completed	Number of Manholes and Catch Basins	Percent Completed	Upstream Length of Pipe (ft)	Percent Completed	Number of Manholes and Catch Basins	Percent Completed
Buswell Brook	BZB0847	1,697	24					1,697	100%	24	100%
Buswell Brook TOTAL		**1,697**	**24**	**0**	**0%**	**0**	**0%**	**1,697**	**100%**	**24**	**100%**
Creek Brook	CB1193	70	0					70	100%		
	CB1198	144	5					144	100%	5	100
	CB1710	71	0					71	100%		
Creek Brook Outlet TOTAL		**285**	**5**	**0**	**0%**	**0**	**0%**	**285**	**100%**	**5**	**100%**
Detention Pond Outlet	DPO0657	422	7								
	DPO0696	61	2					61	100%	2	100%
	DPO1079	37	0								
Detention Pond Outlet TOTAL		**520**	**9**	**0**	**0%**	**0**	**0%**	**61**	**12%**	**2**	**22%**
Detention Pond Inlet	DPI0946	7,421	172					7,421	100%	172	100%
	DPI0947	1,360	11								
	DPI0969	1,515	22								
	DPI1007	1,634	0								
	DPI1074	694	14								
	DPI1094	22	0					22	100%		
Detention Pond Inlet TOTAL		**12,646**	**219**	**0**	**0%**	**0**	**0%**	**7,443**	**59%**	**172**	**79%**
Fishing Brook	FBO0638	852	15					852	100%	15	100%
Fishing Brook TOTAL		**852**	**15**	**0**	**0%**	**0**	**0%**	**852**	**100%**	**15**	**100%**
Frey's Pond	FP7115	72	3	72	100%	3	100%	72	100%	3	100%
Frey's Pond TOTAL		**72**	**3**	**72**	**100%**	**3**	**100%**	**72**	**100%**	**3**	**100%**
Johnston's Creek	JC1028	1,397	12					1,397	100%	12	100%
Johnston's Creek TOTAL		**1,397**	**12**	**0**	**0%**	**0**	**0%**	**1,397**	**100%**	**12**	**100%**
Little River	LR0952	7,268	88								
	LR0963	703	11								
	LR0993	539	4					539	100%	4	100%
	LR0995	822	0								
	LR1103	4,418	4					4,418	100%	4	100%
	LR1260[1]	26,134	614					26,134	100%	622	100%
Little River TOTAL		**39,884**	**721**	**0**	**0%**	**0**	**0%**	**31,091**	**78%**	**630**	**87%**
Merrimack River	MR0662	210	5								
	MR0770	2,980	47								
	MR0834	756	8					756	100%	8	100%
	MR0982	128	10					128	100%	10	100%
	MR1109	941	12					941	100%	12	100%
	MR1138	289	18					289	100%	18	100%
	MR1140	90	2								
	MR1141[2]	3,899	104					3,899	100%	104	100%
	MR1164	1,746	116					1,746	100%	116	100%
	MR20718	NA									
	MR23912	0	1								
	MR38718	1,713	30					1,713	100%	30	100%
	MR24314	541	24					541	100%	24	100%
Merrimack River TOTAL		**13,293**	**377**	**0**	**0%**	**0**	**0%**	**10,013**	**75%**	**322**	**85%**
Pentucket Lake	PL0891	5,463	128					5,463	100%	128	100%
	PL1222[1]	3,292	102					3,292	100%	102	100%
Pentucket Lake TOTAL		**8,755**	**230**	**0**	**0%**	**0**	**0%**	**8,755**	**100%**	**230**	**100%**
Tilton Swamp	TS0984	52	1					52	100%	1	100%
	TS0989	3,893	47								
Tilton Swamp		**3,945**	**48**	**0**	**0%**	**0**	**0%**	**52**	**1%**	**1**	**2%**
Unknown	UNK0627	254	8								
	UNK0661	410	11					410	100%	11	100%
	UNK0668	854	18								
	UNK0788	869	16					869	100%	16	100%
	UNK0836	842	12								
	UNK0883	570	7								
	UNK0898	91	0					91	100%		
	UNK0902	54	2								
	UNK0951	1,910	34					1,910	100%	34	100%
	UNK0953	225	0					225	100%		
	UNK0954	81	0					81	100%		
	UNK0955	6,058	146					6,058	100%	146	100%
	UNK1011	5306	44								
	UNK1020	71	2								
	UNK1040	1414	21								
	UNK1063	49	0								
	UNK1166	1,079	28					1,079	100%	28	100%
	UNK1177	156	3					156	100%	3	100%
	UNK1188	25,926	470					25,926	100%	470	100%
	UNK1189	2,043	17					2,043	100%	17	100%
	UNK1680	719	8								
	UNK1750	1,239	23					1,239	100%	23	100%
Unknown	UNK1767	2,077	52					2,077	100%	52	100%
	UNK1835	761	10					761	100%	10	100%
	UNK1836	1179	22								
	UNK1886	20	0					20	100%		
	UNK1887	20	0					20	100%		
	UNK1888	21	0					21	100%		
	UNK1889	21	0					21	100%		
Unknown TOTAL		**54,319**	**954**	**0**	**0%**	**0**	**0%**	**43,007**	**79%**	**810**	**85%**
West Meadow Brook	WMB0738	80	0					80	100%		
	WMB0739	80	0					80	100%		
	WMB0740	82	0					82	100%		
	WMB0759	20	0					20	100%		
West Meadow Brook TOTAL		**262**	**0**					**262**	**100%**		
GRAND TOTAL		**137,927**	**2,617**	**72**	**0%**	**3**	**0%**	**104,987**	**76%**	**2,226**	**85%**
		26.12mi.		**0.01mi.**				**19.88mi.**			

[1] **Estimate Base upon Percentage of Manholes Inspected**

[2] **Catchment includes State owned drainage and outfall. City inspected City owned drainage.**

TABLE 2-3
OUTFALL MAINTENANCE PRIORITY TABLE
January thru June 2022

Outfall ID	Work Order Number	High Priority		Medium Priority	Low Priority					Inspection Date	Re-Inspection Date
		Could Not Locate	Buried	Fully Submerged in Sediment	Partially Submerged in Sediment	Fully Submerged in Water	Partially Submerged in Water	Abnormal Vegatation	Outfall Damage		
DPI1056	ST00000521	X								June-18	
KL1227	ST00001275	X								June-18	
LR1101	ST00001276	X								June-18	
UNK1015	ST00001278	X								June-18	
UNK1016	ST00001279	X								June-18	
UNK1035	ST00001280	X								June-18	
DPI0942	ST00000517		X							August-18	
LR1150	ST00001282		X							June-19	
MR1224	ST00000540		X								
UNK0888	ST00000478		X							March-19	
UNK0889	ST00000554		X							August-18	
UNK0905	ST00000556		X							August-18	
UNK0997	ST00000560		X							August-18	
UNK1033	ST00000562		X							June-18	
UNK1136	STI0001311		X							August-18	
UNK1207	STI0001312		X							March-19	
UNK1221	ST00000568		X							August-18	
UNK1907	STI0001313		X							August-18	
UNK35912	STI0001314		X							August-18	
UNK1773	ST00000575		X							March-19	
UNK1774	ST00000576		X							August-18	
CB1196	ST00000510			X						March-19	
DPI0655	ST00000514			X						March-19	
DPI1008	ST00000520			X						April-19	
DPO1154	ST00000524			X						March-19	
JP1179	ST00000530			X						April-19	
LR0844	ST00000083			X						March-19	
LR1118	ST00001283			X						March-19	
MR1278	ST00000541			X						April-19	
MR24329	ST00000544			X						April-19	
SB11512	ST00000545			X						August-18	
TS0987	ST00000548			X						March-19	
UNK0064	ST00000551			X						April-19	
UNK0782	ST00000553			X						March-19	
UNK0935	ST00000558			X						March-19	
UNK1017	ST00000561			X						March-19	
UNK1076	ST00000563			X						March-19	
UNK1137	ST00000564			X						March-19	
UNK1183	ST00000566			X						March-19	
UNK1748	ST00000573			X						March-19	
UNK1772	ST00000574			X						March-19	
UNK1906	ST00000580			X						March-19	
UNK25513	ST00000583			X						March-19	
UNK31513	ST00000584			X						March-19	
CB1199	ST00000595				X					August-19	
CB1200	ST00000596				X					August-19	
CB1201	ST00000597				X					August-19	
CL0681	ST00000600				X					April-19	
CL0701	ST00000603				X					April-19	
DPI0634	ST00000606				X					April-19	
DPI0841	ST00000608				X					April-19	
DPI0965	ST00000609				X					April-19	
DPI1081	ST00000615				X						
DPI1090	ST00000617				X					April-19	
FP7114	ST00000629				X					April-19	
KL30718	ST00000634				X					April-19	
LR0931	ST00000635				X					April-19	
LR1099	ST00000636				X					April-19	
LR1102	ST00000637				X					April-19	
MR23513	ST00000650				X					August-21	
MR23514	ST00000651				X						
MR23515	ST00000652				X						
MR23516	ST00000653				X						
MR23517	ST00000654				X						
MR23518	ST00000655				X						
MR23519	ST00000656				X						
MR23520	ST00000657				X						
MR23522	ST00000659				X						
MR23523	ST00000660				X						
MR23524	ST00000661				X						
MR23525	ST00000662				X						
MR24316	ST00000663				X					April-19	
MR24318	ST00000664				X						
MR24718	ST00000665				X					April-19	
SB1117	ST00000668				X					April-19	
UNK0626	ST00000674				X					April-19	
UNK0756	ST00000691				X					April-19	

Table 2-3 Continued

Outfall ID	Work Order Number	High Priority		Medium Priority	Low Priority					Inspection Date	Re-Inspection Date
		Could Not Locate	Buried	Fully Submerged in Sediment	Partially Submerged in Sediment	Fully Submerged in Water	Partially Submerged in Water	Abnormal Vegatation	Outfall Damage		
UNK0885	ST00000701				X					April-19	
UNK0950	ST00000706				X					April-19	
UNK0962	ST00000709				X						
UNK1000	ST00000710				X					April-19	
UNK1005	ST00000711				X					April-19	
UNK1006	ST00000712				X					April-19	
UNK1111	ST00000717				X					April-19	
UNK1123	ST00000718				X					April-19	
UNK1160	ST00000722				X					April-19	
UNK1174	ST00000726				X					April-19	
UNK1205	ST00000732				X					April-19	
UNK1213	ST00000734				X					April-19	
UNK1263	ST00000736				X					April-19	
UNK1265	ST00000737				X					April-19	
UNK13512	ST00000738				X					April-19	
UNK1684	ST00000742				X					April-19	
UNK1686	ST00000744				X					July-19	
UNK1738	ST00000751				X					May-21	
UNK1801	ST00000758				X					July-19	
UNK1802	ST00000759				X					July-19	
UNK1806	ST00000760				X						
UNK1864	ST00000767				X						
UNK1867	ST00000770				X						
UNK1891	ST00000773				X					April-19	
UNK1899	ST00000775				X					July-19	
UNK1900	ST00000776				X					July-19	
UNK24721	ST00000780				X					August-19	
UNK32717	ST00000791				X					May-19	
UNK34712	ST00000793				X						
UNK34713	ST00000794				X					May-19	
UNK26725	ST00001286				X					May-19	
UNK26726	ST00000784				X						
CB0977	ST00001288							X			
DPO0657	ST00001291							X		May-19	
FB0715	ST00001293							X			
UNK0906	ST00001294							X			
UNK1902	ST00001296							X		May-19	
DPI0945	ST00000519					X				May-19	
DPI1133	ST00000522					X				May-19	
MR20719	ST00000542					X					
TS0989	ST00000549					X				April-19	
KL26714	ST00000533					X					
DPI0970	ST00000610						X				
DPI1007	ST00000614						X				
DPI1084	ST00000616						X				
DPI1125	ST00000618						X				
DPI1131	ST00000619						X			May-19	
DPI1162	ST00000621						X			May-19	
DPI1197	ST00001299						X				
KL1178	ST00000633						X			April-19	
LR1260	ST00000642						X				
TS0984	ST00000670						X			April-19	
TS33514	ST00000673						X			April-19	
UNK0665	ST00000678						X			May-19	
UNK0666	ST00000679						X			May-19	
UNK0729	ST00000689						X				
UNK0955	ST00000708						X				
UNK1168	ST00000723						X				
UNK1176	ST00000728						X			July-19	
UNK1177	ST00000729						X			June-19	
UNK1188	ST00001301						X			April-19	
UNK1206	ST00000733						X			May-19	
UNK1220	ST00000735						X				
UNK1695	ST00000745						X			April-19	
UNK1749	ST00000752						X			April-19	
UNK1823	ST00000761						X			July-21	
UNK6316	ST00001303						X			May-19	
UNK8312	ST00000797						X				
LR0979	ST00001304								X	April-19	
MR0607	ST00001305								X	May-19	
TS0983	ST00001307								X	April-19	
UNK1173	ST00001308								X		
MR0927	ST00001309										
UNK1189	ST00001310										
Unknown Ownership Outfalls											

2.4 IDENTIFIED ILLICIT CONNECTIONS AND CURRENT RESOLUTION STATUS

The ongoing and cumulative status of the City's efforts to remove any identified illicit connections or discharges is summarized in Table 2-4. One identified illicit discharge has been resolved and removed from the summary list on Table 2-4.

Merrimack River Basin Outfalls – MR0662 – was sampled with all results below MS4 parameters, the catchment will be investigated to confirm no illicit connections and will be removed from the priority list.

Little River Basin Outfalls – LR0952 – flow has been traced to a detention pond that received flow from the high school athletic fields. Additional catchment investigation needed to confirm no illicit connections.

Pentucket Lake Basin Outfalls - PL0891 – was sampled post completion of a sewer lateral fix from a nearby laundromat and the City has confirmed surfactants have been removed from the outfall discharge; high levels of E.coli were reported and will require further upstream investigation for any illicit connections. PL1222 - was sampled and high levels of E.Coli will require further upstream investigation for any illicit connections

Unknown Basin Outfalls - UNK0951– flow has been traced to a stream conveyance of Pine Brook, the upstream catchment of City drainage has been confirmed to be dry, as this flow is stream conveyance UNK0951 will be removed from the priority list. UNK1040, UNK1189, and NK0902 were removed from the priority list due to no flow on multiple visits and/or passing all parameter testing.

Detention Pond Outfalls – DPI0946 – The flow from UNK0951 is from a detention pond that receives flow from athletic field drainage and per MS4 General Permit 2.3.4.a.ii outfalls receiving flow from athletic fields may be classified as excluded from the stormwater IDDE program, The City investigation the entirety of the catchment area and have confirmed no illicit

connections, as such this outfall will be removed from the priority list. this same flow has been traced to LR0952.

Frye Pond Basin Outfalls – FP7115 – Catchment was investigated, and no flow was found, on additional visits flow was found with high levels of ammonia, at this time there is no source for ammonia results; it is the City's opinion the presence of wildlife is the source of ammonia. Additional sampling will be completed.

TABLE 2-4
SUMMARY OF ILLICIT DISCHARGES IDENTIFIED BY BASIN AND CURRENT STATUS
(January through June 2022)

Description		Illicit Discharge/Connection Verified				Ongoing Illicit Discharge Removal Activities					Final Illicit Connection Removal Actions				
CD Requirement		67.a.iii.1			67.a.iii.2	67a.iii.7		67.a.iii.8		67.a.iii.9	67.a.iii.3	67.a.iii.4	67.a.iii.5	67.a.iii.6	
Basin ID	Outfall ID	Date Verified	Address Location	Type of Discharge[1]	Estimated Flow	Removed?	Reasons Why Not	Schedule for Removal	Reason why expedited	Legal Actions against Private Property Owners	Actions Taken (with Dates)	Date Connection Eliminated	Est. Cost of Removal	Estimated Volume Removed (gallons)	Assessment: Is the City in compliance with the schedule?
Little River	LR1260	10/26/2017	29 Union Street	Single family broken sewer	400 gpd	not removed	gave extension	Was removed on 2/24/18			Catchment investigation completed on 10/10/2020.			60,000	
Merrimack River	MR1164	11/19/2016	Market Basket Parking Lot	groundwater into drain	Seasonal Flow/ Not able to estimate	N/A	N/A	N/A	N/A	N/A	This dry weather flow appears to be from a groundwater discharge into the drainage system across a parking lot. Additional testing is required to confirm bacteria source is groundwater.	N/A	N/A	N/A	Yes, the City is in compliance with resolving this "illicit discharge".
	MR1109	12/21/2020	350 Water St	IDDE conducted and needs further investigation to determine the source.	500gpd	not removed	verifying bacteria counts				CCTV conducted on 12.21.2020 no defects found. Flow appears to be from top of catchment from depression/wetland flowing through drain. Additional CCTV required in nearby sewer lines to confirm no infiltration				Yes, the City is in compliance
Pentucket Lake	PL0891	10/5/2016	Marsh Avenue	leaking sewer/ exfiltration	Not able to estimate	X	Sewer replacement costs/lengths are extensive; cost exceeds discretionary funds; new fund required in next fiscal year to complete project	2021	This connection is being removed as quickly as possible and dependent on the availability of funds within the fiscal year.	NOV	10/5/18-10/10/18: SMH-2190 point repair and manhole rehabilitation complete. 10/11/18-10/16/18: Installation of CIPP main line liner on Main St 10/17/18-10/23/18: Installation of CIPP main line liner on Marsh Ave. 10/24/18: Began installing CIPP of sewer laterals. Groundwater too high causing flooding in homes. Project on hold until mid-end March. Project is complete. 6/9/2020: illicit connection located at lateral from laundromat, owner notified to repair, repaired as of December 2021, followup testing to be completed next reporting period	-	$ 446,000	-	Marsh Ave sewer repair project was bid and awarded to National Water Main Cleaning Co. and contract had to be extended to 6/30/19 due to high groundwater. Project was completed by the end of June 2019. In 2021 the illicit connection from a nearby Laundromat was corrected. Additional work needed for high bacteria count
	UNK0951	11/1/2017	Brook Street	Leaking sewer running through drain	Not able to estimate	Removed	Not able to fix due to weather	As soon as weather permits	-	-	Section of sewer was dug up and replaced. Further inspections in 2020 showed no dry weather flow. The City will continue to monitor for dry weather flow. Dry weather flow has been confirmed to be from stream diversion	4/17/2018	$ 4,277	-	Yes, the City is in compliance. The City has determined dry weather flow at this outfall is a stream conveyance of Pine Brook
	UNK0955	10/14/2016	South Main St	Contaminated private line discharges to City line.	Not able to estimate	not removed	unable to complete investigation due to weather	As soon as weather permits			High bacteria counts have been traced to private Detention Ponds in an apartment complex, the management company is securing funds for the improvement of complex's drainiage system.				
	UNK1166	6/11/2020	Franzone Dr	Upstream contamination needs additional IDDE	10gpm est	not removed	CCTV to be completed in next reporting period								
	UNK1188	12/25/2012	34 Columbia Pk., 66 Columbia Pk., 74 Columbia Pk., 80 Columbia Pk., 90-92 Columbia Pk.	5 Single family	N/A	N/A	N/A	N/A	N/A	N/A	5-house sewer services through a drain pipe that were dripping. Install a PVC sleeve through drain	6/8/2016	$ 13,000	26,481	City is in compliance. 60 day deadline was not applicable until November 2016.
	UNK1767	6/23/2020	Tudor Ct	IDDE conducted. CCTV needs to be completed. High ammonia from private pipe. Dye tested home and their wastes go to sewer.	N/A	not removed	CCTV to be completed in next reporting period								

Description		Illicit Discharge/Connection Verified				Ongoing Illicit Discharge Removal Activities					Final Illicit Connection Removal Actions				Assessment: Is the City in compliance with the schedule?
CD Requirement		67.a.iii.1			67.a.iii.2	67a.iii.7		67.a.iii.8		67.a.iii.9	67.a.iii.3	67.a.iii.4	67.a.iii.5	67.a.iii.6	
Basin ID	Outfall ID	Date Verified	Address Location	Type of Discharge[1]	Estimated Flow	Removed?	Reasons Why Not	Schedule for Removal	Reason why expedited	Legal Actions against Private Property Owners	Actions Taken (with Dates)	Date Connection Eliminated	Est. Cost of Removal	Estimated Volume Removed (gallons)	
Detention Pond Outlet	DPO0696	6/12/2015	Pamela Lane	Private drain and outfall DPI0697 that discharge to detention pond and not contaminated.	Not able to estimate	N/A	N/A	N/A	N/A	N/A	No Flow present on multiple inpsections in 2020. City will continue to monitor for dry weather flow	N/A	N/A	N/A	
											Grand Total =		$ 463,277	86,481	

SECTION 3

3.1 SSO AND BUILDING/PRIVATE PARTY BACKUP EVENTS

A chronological list of the sanitary sewer overflows (SSO) and building/private party backup events that occurred during this Reporting Period (January through June 2022), are listed in Table 3-1 and shown in Figure 3-1.

Over the Reporting Period, there were a total of two reportable SSO events associated with the City's sewer collection system and are listed in Table 3-1.

It is important to note that the SSO's associated with the City collection system operations continue to not be a result of pipe capacity deficiencies and the City continues to make significant progress in reducing the number of SSOs that occur in the system, which are attributed to City operations. For this six-month reporting period, the City had two SSOs that were directly attributable to unanticipated City collection system conditions. The EPA reported annual average SSOs in a typical nationwide system is about four SSOs per 100 miles. Accordingly, Haverhill continues to have fewer SSOs than the national average.

TABLE 3-1
SANITARY SEWER OVERFLOW EVENTS
JANUARY THROUGH JUNE 2022

MAINTSTAR WORK ORDER	WW00002088	WW00002097
SSO ID	SSO-22-01	SSO-22-02
SSO ADDRESS	9 Leblanc Street	95 Plaistow Road
START DATE/TIME	1/22/2022 10:30	3/27/2022 7:30
END DATE/TIME	1/22/2022 11:30	3/27/2022 8:00
DATE REPORTED EPA/DEP	1/22/2022 13:30	3/27/2022 13:00
WHO NOTIFIED	Isaiah Lewis	Isaiah Lewis
REASON FOR OCCURRENCE	SEWER MAIN BLOCKED	SEWER MAIN BLOCKED
DATE OF LAST SSO OCCURRENCE	FIRST OCCURANCE	FIRST OCCURANCE
SSO EST. VOL.	25	5
RECEIVING WATERS IF SEWERAGE ENTERED	Little River	NA
METHOD USE TO ESTIMATE VOLUME	Visual	Visual
NEAREST CB LOCATION ID	NONE	CB-9796
DISTANCE TO NEAREST CB (FT.)	NONE	142
NAME OF RECEIVE WATER WHETHER OR NOT THERE WAS A RELEASE	Little River	NA
ENTERED CB YES OR NO	NO	NO
MEASURED TAKEN STOP SSO	Flushed Sewer Main	Flushed Sewer Main
DECONTAMINATE	YES	
MEASURED TAKEN TO PREVENT FUTURE OVERFLOWS	CCTV Line	business owner call plumber
SEWERAGE LOCATION INTO STREAM	DIRECT TO RECEIVING WATER	NO
SSO OWNERSHIP CITY OR PRIVATE	CITY	Private

SECTION 4

4.1 CONSTRUCTION SITE INSPECTION AND ENFORCEMENT PROGRAM

At their June 26, 2018 Haverhill City Council meeting, the Council passed and adopted a Pre and Post Construction Stormwater Management Ordinance (Ch. 219) as required by the Consent Decree and MS4 Stormwater permit.

The City permitted three projects under this ordinance in 2021. No new projects have been filed in 2022. Of the three projects permitted in 2021, only two have commenced. Regular inspections are conducted by the Engineering Office's Clerk-of-the-Works for both the Sylvan Hill Crossing residential subdivision and the Approval-Not-Required lots on Tenadel Avenue. With these projects still under construction, no as-built plans have been received.

Thus far, projects meeting the one acre and MS4 connection requirements have been exempt under the Ordinance due to their being permitted by the Conservation Commission per Massachusetts Stormwater regulations and Wetlands Protection Act. In addition, the Ordinance has served as a deterrent, as there have been instances where projects have been redesigned to reduce proposed disturbances to less than one acre.

SECTION 5

GENERAL STATUS

5.1 INTRODUCTION

This section summarizes the actions taken by the City of Haverhill to achieve Consent Decree compliance within the Reporting Period.

For the twelfth reporting period (January through June 2022) there was one deliverable and/or activity due within that timeframe to achieve compliance. The one deliverable/activity is shown in Table 5-1 below.

In June 2021, The City Council passed a Loan Authorization for $7,037,000, for sewer improvements. This project includes replacing sewer line in various locations, installing a cured in place lining in a 54-inch sewer main, and rehabbing sewer lines in other various locations. The City began construction for sewer rehab/repair and part of the Locke Street Phase 1 sewer separation project.

The City has selected Wright-Pierce for the preliminary design of the City's Water Pollution Abatement Facility's Rehabilitation and Upgrade Project. Planning and study phases of this project will be in the next reporting period.

The City has entered into a contract with a new Computerized Maintenance Management System (CMMS), Cityworks. The CMMS is implemented and being used be wastewater collections and treatment staff. The system is being utilized to develop consequence of failure and likelihood of failure values through CCTV and will integrate into the City's long-term CIP. Cityworks is also being usedfor reporting on outfall inspections and investigations, catch basin cleaning and inspections, and any corrective or preventative maintenance associated with sewer and stormwater (lift station checks, cleaning of sewer lines, etc.) Cityworks is also be utilized within the wastewater treatment plant for corrective and preventative maintenance.

Outfall Inspection Program work orders generated from the City's CMMS from July through December 2021 are attached to this Compliance Report in Appendix A.

TABLE 5-1

SUBMISSIONS WITHIN CURRENT REPORTING PERIOD

Part	*Activity*	Due Date	Submittal Date
Effective Date of Consent Decree (11/10/2016)			
IX	**Compliance Reporting**		
	Compliance Report No. 11	4/29/2022	4/27/2022

5.2 ISSUES OF NONCOMPLIANCE

The City is in compliance with the requirements of this Consent Decree.

5.3 LOOKING AHEAD - SIX MONTH FORECAST

The anticipated future deliverable required under the Consent Decree for the next Reporting Period, January through June 2022, is shown in Table 5-2.

TABLE 5-2
FUTURE DELIVERABLES DURING THE PROCEEDING REPORTING PERIOD
(JANUARY THROUGH JUNE 2022)

Part	*Activity*	*Trigger Event*	*# Days Due Post Trigger Event*	Due Dates
Effective Date of Consent Decree		**11/10/2016**		
M	CSO Monitoring			
	Annual CSO Activation Report	12/31/21	90	3/31/22
N	Locke Street CSO Separation Preliminary Design Report			10/7/2022
IX	Compliance Reporting			
	Compliance Report No. 12	10/31/2022	180	4/31/2023

SECTION 6

SECONDARY TREATMENT BYPASS

6.1 INTRODUCTION

This section summarizes the secondary treatment bypass events that occurred at the City of Haverhill's Water Pollution Abatement Facility during the reporting period, January through June 2022.

6.2 BYPASS EVENTS

There were no secondary treatment bypass events that occurred during the reporting period. The Secondary bypass facilities have been activated on only one occasion since September 2017.

SECTION 7

CMOM CORRECTIVE ACTION PLAN

7.1 INTRODUCTION

Pursuant to the Consent Decree, the City of Haverhill submitted the Capacity, Management, Operation, and Maintenance Program Assessment Corrective Action Plan (CMOM), dated February 22, 2017, to MassDEP and EPA. In their review letter dated August 3, 2017, MassDEP requested that a summary of the status of CMOM-Related corrective actions that occurred during the reporting period be included in the Compliance Report.

7.2 CMOM CORRECTIVE ACTIONS

The CMOM identified 26 deficiencies, their recommended corrective actions, and an implementation schedule, which are listed below in Table 7-1. Deficiency number 10 was a duplicate and was removed in Compliance Report Number 10 bringing the total to 26 deficiencies.

7.3 ADDITIONAL CMOM-RELATED ACTIVITIES

In conjunction with the corrective activities, the City has also performed additional activities as outlined and recommended in the CMOM Program, which includes collection system maintenance and construction activities. The expenses related to collection system maintenance activities performed from January through June 2022 (Reporting Period 12) are listed in Table 7-2 below.

Table 7-1

CMOM Corrective Action Plans & Statue

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
1	The City does not have a formal long-term plan to mitigate SSO.	The recommendations in the Wastewater Treatment Plant & Collection System Staffing Analysis (Woodard & Curran, 2017), Collection System CIP and Sewer Inspection SOP (Appendices B and F), and the Pump Station Evaluation (Wright Pierce, 2016) will serve as a long-term plan to reduce the causes of SSOs.	Ongoing/ Completed	The City has a capital improvement plan which includes recommendations from the Wastewater Treatment Plant & Collection System Staffing Analysis, Collection System CIP and Sewer Inspection SOP, and the Pump Station Evaluation. These include long-term plans to reduce the causes of SSOs. A majority of SSO's are caused by unanticipated sewer blockages. Every effort is taken to minimize the overflow and to take corrective action to prevent reoccurrences. The City has made great strides in order to reduce the number of SSOs over the years, which has seen a downward trend in the annual occurrences. The City's Standard Operating Procedure (SOP) for a recurring SSO calls for CCTV of the sewer segment to verify previous corrective actions are sufficient. If there are three occurrences within a year, the sewer segment or street is placed on a bi-annual preventative maintenance schedule (PM). This is one of the reasons that SSOs have been reduced from year to year.

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
2	The City does not have a comprehensive system to prioritize investigations, repairs, and rehabilitation.	Use the risk-based methods described in Appendices B and F from Capacity, Management, Operations and Maintenance (CMOM), Program Assessment and Corrective Action Plan prepared by Woodard & Curran (February 2017) to prioritize investigations, repairs, and rehabilitation.	Ongoing/Complete	A PEF was submitted to complete planning and implementation of various CMOM corrective action plans including pipe inspections. The City has Purchased and implemented anew CMMS called Cityworks. The CMMS will be GIS centric with the ability to indicate CoF and LoF values as an attribute to the sewer segment. This will be done Citywide and will be used for capital planning. The City will continue utilizing Engineering services for risk-base methods whenever there is a water, sewer, or other infrastructure project as their standard operating procedure. The City has hired an Asset Manager who will update, revise, and develop further CoF and LoF values that will be used to develop the City's long-range CIP. The City will use this data and incorporate into a capital asset planning tool. The city received an Asset Management Grant, which was completed in June of 2022. This plan provides the city with a foundation for rehab and repair based on CoF, LoF , and overall risk. This plan will also be improved upon as more assets get inspected and ratings are given.
3	The City does not have updated job descriptions that match technical requirements for a modern collection system utility.	Update job descriptions for the revised organizational structure proposed in the Wastewater Treatment Plant & Collection System Staffing Analysis (Woodard & Curran, 2017)	Within one year after EPA approves the CMOM Action Plan	Complete.

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
4	Although the City training program includes some key safety training, staff would benefit from a formalized safety and technical training program.	Implement a staff training program using the guidelines outlined in Appendix C.	Within **one year** after EPA approves the CMOM Action Plan	The City is in contact with Innovative Safety Services, NEWWTA, and others, to schedule yearly training, focusing on safety and operations and maintenance. All Wastewater employees are encouraged to seek any additional training, including management and leadership training, at the City's cost. The City has contracted with United Alliance Safety Services to oversee their Health and Safety programs. The contract includes critical training, safety audits, and the development of an updated Health and Safety Plan.
5	Although the City uses MaintStar to track customer complaints, they do not use the database to prioritize preventative maintenance.	Annually review customer complaint data using GIS to identify areas that may require further investigation.	Within **one year** after EPA approves the CMOM Action Plan Complete	Ongoing See response to Action #2 above
6	The City lacks a comprehensive, risk-based approach to maintenance planning.	Use the risk-based methods described in Appendices B and F from CMOM Program Assessment and Corrective Action Plan prepared by Woodard & Curran, February 2017 to prioritize investigations, repairs, and rehabilitation.	Ongoing/Complete	The City's Asset Manager will use the risk base approach from Appendix B and F from the CMOM Program Assessment and Corrective Action Plan prepared by Woodard & Curran, February 2017, along with developing a CIP. See response to item 1 above. An asset management plan was completed in June of 2022 which provides insights on rehab and repair through a risk based approach.
7	Local limits need to be updated.	Perform a local limits study and update the limits table in the ordinance (per Appendix E, Sewer Ordinance Review from CMOM Program Assessment and Corrective Action Plan prepared by Woodard & Curran, February 2017).	Within **one year** after EPA approves the CMOM Action Plan	Final NPDES Permit went into effect on January 1, 2020. Local limits evaluation was finalized and submitted it to EPA for review on June 23, 2021. The City is awaiting EPA review and comments. Comments will be reviewed prior to seeking City Council approval.

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
8	The City needs to improve implementation and enforcement of their Sewer Use Ordinance (SUO).	Improve implementation and enforcement of the SUO. Begin mapping Food Service Establishments in GIS and building database of grease trap inspectional data.	Within **one year** after EPA approves the CMOM Action Plan	City Works (CMMS) has been updated to reflect all food service establishments (FSE) and is updated as new permits are submitted. The City hired Wright Pierce to conduct FSE annual FOG inspections and to update the City Works system with pass/fail designations.
9	The City should update recordkeeping pertaining to private systems.	Input private lift stations into CMMS to track issues & contact information.	Within **three months** after EPA approves the CMOM Action Plan	Complete.
10	The City does not have a finalized version of their capital improvement plan – which will include pump station upgrades, collection system rehabilitation, and WWTP upgrades.	The City should finalize their CIP and appropriate funds as necessary.	Within **three months** after EPA approves the CMOM Action Plan	Complete, and as part of the annual budget process, the city updates the CIP each year. The CIP is used to develop the wastewater 5-year financial plan. The CIP includes pump station upgrades, collection system rehabilitation, and WWTP upgrades.
11	The City has not verified that other air relief valves do not exist. Maintenance of air relief valves has not been performed historically.	Review record drawings and inspect force main routes to confirm location of air relief valves. If located, enter in GIS and schedule routine maintenance in CMMS.	Within **one year** after EPA approves the CMOM Action Plan	Ongoing.
12	The City does not have a standard procedure for maintaining safety training records.	The City will utilize their CMMS program to organize safety training records.	Within **one year** after EPA approves the CMOM Action Plan	Complete. Training is currently tracked by administration staff in a Microsoft Access File
13	The City has a general emergency response plan (ERP). The Division recently completed an ERP for responding to SSOs. The Division lacks ERP for other collection system emergencies.	Develop ERP for collections-specific emergencies, in particular those affecting critical assets. For example, there should be an SOP for providing backup power to pump stations during a system-wide power outage.	Within **one year** after EPA approves the CMOM Action Plan	Complete. The City has purchased a vac-truck, which is scheduled for delivery in Spring 2021. The ERP has been updated to incorporate the utilization of the vac-truck. The City has combined Power Outage, Sanitary Sewer Overflows, and Marginal Pump Station High Flow Management, into one document.

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
14	The City does not have formal emergency response training.	Implement a program for training and practicing emergency response.	Within **one year** after EPA approves the CMOM Action Plan	The Wastewater Staff have been trained and additional training will be documented into the City's Access File. For minor emergencies, the staff prepares in advance of a weather event (e.g., setting up bypass pumps at the Marginal Pump Station, verifying that equipment has fuel (gasoline, diesel, or propane), along with procuring rental generators. The need for training is incorporated into these routine preparations. The City has contracted with United Alliance to assist with training needs
15	The City has a hydraulic model for interceptors and CSOs, but there is no city-wide hydraulic model.	Although developing a comprehensive hydraulic model is not a high priority, Woodard & Curran recommends building out the model as required to address capacity issues and plan for new development as the need arises.	As Needed	The City's GIS system is updated on an ongoing basis which will provide a good foundation for a future model.
16	The City does not have adequate staff to perform sufficient preventative maintenance on all 36 pump stations part of the collection system.	Follow the recommendations of the Wastewater Treatment Plant & Collection System Staffing Analysis (Woodard & Curran, 2017) to assign sufficient resources to keep up with required maintenance.	Within **one year** after EPA approves the CMOM Action Plan	The City developed a job description for a new Collection System MEO/laborer and hired a qualified candidate. The City outsources many tasks. See response to Item #19. The Mission Systems improve the monitoring of pump stations resulting in reduced staff time for routine inspections (weekly vs. daily) and more time on preventative maintenance.

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
17	Although there is generally sufficient redundancy of pumps and level controls, some stations require specific upgrades related to redundancy.	The City will utilize the recommendations of the Pump Station Evaluation (Wright Pierce, 2016) to evaluate future rehabilitation.	Ongoing	The replacement/upgrades to the Carleton Street and North Avenue Pump Stations are complete and online. The City will be standardizing all their pump stations during upgrades and additional pump stations will be recommended for rehabilitation/upgrades as outlined in the Pump Station CIP. Mission alarms are currently installed in twenty-three (30 out of 36) lift stations. The remaining six will be completed in FY23. Lift stations with bubblers will be changed to Vega Radar level control with backup floats. Six stations have been in the upgrade process during this reporting period
18	Not all pump stations have communication ability. Lack of communication at pump stations has contributed to SSOs.	The City will utilize the recommendations of the SCADA Study (Woodard & Curran, 2011) and Pump Station Evaluation (Wright Pierce, 2016) to evaluate communication improvements.	Ongoing	All pump stations have the ability to communicate alarms. City has selected the use of Mission Alarm and Monitoring Systems for communication. Currently, 30 out of the City's 36 pump stations have Mission Systems. The City received bids and selected a contractor to install Mission Systems in the final six stations during this reporting period. The final six stations will be completed before the end of FY23.
19	11 pump stations do not have working backup power, though most of these have connections for a portable generator or are small enough to pump out.	The City will utilize the recommendations of the SCADA Study (Woodard & Curran, 2011) and Pump Station Evaluation (Wright Pierce, 2016) to evaluate emergency power improvements. Develop an ERP to address a system-wide power outage including monitoring fuel supplies, mobilizing portable generators, and pumping out with trucks.	Ongoing ERP for system wide power outage will be developed within **three month**s after EPA approves the CMOM Action Plan	Completed. There are currently **nine** stations without backup generators. The ERP will be updated to include new generator at the North Avenue Station and the use of the City's new vac-truck. See response to item #14 ERP.

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
20	There is currently no schedule for cleaning sewer lines on a system-wide basis.	The City will utilize a 20-year plan to inspect all sewer pipes calculated to have a consequence of failure value ≥ 3 (approximately 57% of system). See the Collection System CIP (Appendix B) for additional information.	Will begin to implement program within **six months** after EPA approves the CMOM Action Plan	The City has purchased their own vac truck. Sewers are designed to achieve self-cleaning velocities. The City has used the Vac-Truck to clean the City's sewers as necessary. The City has added flushing PM's with more flushing being conducted with 246 sewer mains cleaned. We are also incorporating cleaning in our 5-year CCTV inspection program. Lines will be cleaned prior to inspections and, if necessary, will be cleaned after inspection as well.
21	The City does not have a dedicated location for offloading and dewatering sewer cleanings. The City does not have an enclosed location for storage of their sewer maintenance vehicles.	The City will purchase a dewatering dumpster for sewer cleanings. The City will construct a facility for storage of sewer maintenance vehicles.	Within **three years** after EPA approves the CMOM Action Plan	Dewatering dumpsters – Complete. Maintenance Vehicle Facility is included the WWTP secondary upgrade project.
22	The City does not have a list of assets located on right-of-ways. The City has also not developed an SOP for maintenance of right-of-ways and easements.	Identify off-street assets using GIS. Schedule preventative maintenance for maintaining accessibility in CMMS. Develop SOPs for specific easements as necessary, including contacting property owners to obtain keys, etc.	Within **two years** after EPA approves the CMOM Action Plan	The City has inputted easements into GIS and assets. These assets will be populated, and SOPs will be made, as well as the development of a preventative maintenance plan. The City has developed sewer segments that are contained within the easements along with a PM schedule. The City has implemented a new CMMS called Cityworks. These PM's will be inputted into Cityworks and will begin soon
23	There is no systematic program for uncovering manholes that have been paved over.	Develop an SOP which includes: • Identification of paved over manholes as part of routine inspections • Add paved-over manholes to GIS. • Adding work orders to CMMS for raising paved-over manholes.	Within **two years** after EPA approves the CMOM Action Plan	The City's highway department distributes a street paving list to each department. The engineering department investigates those streets and puts a list together of buried manholes. This list is then given to the Highway Department and they raise the manholes. Paved over manholes are added to GIS on an ongoing basis as they are discovered.

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
24	Although the City has identified areas with high measured inflow, building inspections have not been performed.	The City will perform trial building inspections to a sample of 10% of buildings located in Areas 14 & 23 Infiltration and Inflow Report (CDM Smith, 2011). Sample brochures will be sent out to buildings where inspections are not successfully completed.	Within **two years** after EPA approves the CMOM Action Plan	The City is considering this as part of their Phase 3 CSO work however recommended corrective action is only practical in separated sewer areas. I/I Brochures are available on the City's Website and posted at City owned buildings.
25	The City lacks public education materials associated with roof leaders and sump pumps.	The City will consider using a public education campaign to inform residents of proper plumbing in areas of separated sewer.	Within **one year** after EPA approves the CMOM Action Plan	Complete. I/I Brochures are available on the City's Website and posted at City owned buildings.
26	The City does not have a system-wide manhole inspection program.	Perform manhole inspections using NASSCO Level 1 MACP. Prioritize and schedule using the risk-based approach described in Appendices B and F rehabilitation. The City plans to complete manhole inspections while performing pipe inspections.	Will begin to implement program within **six months a**fter EPA approves the CMOM Action Plan	Manhole inspections are ongoing as part of pipe inspections. As the City contracts with engineering firms for CCTV work, their scope will also include manhole inspections. The City has implemented NAASCO MACP sewer inspection standards and requires contractors to be NAASCO certified when performing inspections. In addition, MACP Level 1 form has been created in the City's CMMS Utility Cloud. The City will ask CCTV venders to perform a MACP level 1 when they CCTV a sewer segment. 50 MACP level 1 inspections were done in 2021. Level 1 inspections consist of a basic visual inspection of various sections of a manhole and a condition of that section ranging from "poor" to "good" or "sound".

TABLE 7-2

CMOM-RELATED EXPENSES THAT OCCURRED

DURING REPORTING PERIOD 12

(JANUARY THROUGH JUNE 2022)

Account	CD Report No. 12 Totals:	Account Description
Lift Station Operation and Maintenance	$70,424	Used to fund costs for all maintenance and repair of the wastewater collection system. Haverhill's system includes approximately 200 miles of gravity sewer which includes 8-inch up to 72-inch pipe, 36 pumping stations and 3 siphons under the Merrimack River.
Sewer Assessment & Inspection	$24,770	Used to fund cleaning, CCTV inspection, and assessment of sewer lines and grit removal
Service Contracts	$39,605	Used to fund the annual service contracts for various items in the wastewater department.
Wastewater Infrastructure	$70,193	This account is used for sewer repair miscellaneous items. This is an annual appropriation funded from current year revenues.
Wastewater Capital	$0	Funds are used for expenditures greater than $10,000 with a life greater than 3-years. This is an annual appropriation funded from current year revenues.
Storm Water - Capital	$54,900	Funds capital expenditures greater than $10,000 with a life greater than 3-years. Funds are annual appropriations from user rates and fees.
Stormwater Expense	$73,398	Funds various expenses related to stormwater system operation and maintenance, street sweeping, federal and state permit requirements, and the downtown flood system. There is currently no revenue source for stormwater expenditures.
Total Spent During Reporting Period	$333,290	

*Does not include salaries

APPENDIX A

CMMS GENERATED WORK ORDERS

Haverhill IDDE Investigation Form
Outfall

SECTION 1: BACKGROUND DATA

ASSET ID:	BZB0847	**OUTFALL ID:**	BZB0847
Date/Time:	2022-05-02 8:27:00		
Temperature: °F	46	**Inspector(s):**	Jesse Middleton
Street Name/Structure Location:	Cross Country		
Previous Precipitation Date/End Time:	2022-04-27 2:25:00	**Amount (inches):**	0.4

Pictures

SECTION 2: OUTFALL PIPE ASSET DESCRIPTION

Location	Upstream Asset ID	Material	Shape	Diameter/Dimension (in.)	Submerged	
Outfall Pipe		Reinforced Concrete	Circle	15	In Water:	No
					With Sediment:	No

SECTION 3: OUTFALL PIPE PHYSICAL INDICATORS

Indicator	Indicator Present?	Indicator Description		
Asset Damage	None			
Deposits/Stains	None			
Pool Quality	None			
Pipe Algae/Growth	None			
*Do physical indicators suggest an illicit discharge is present (Y/N):	Yes	Sheen		
Is Inlet Pipe No.1 Flowing?	Yes	Trickle	Estimated GPM:	0.5

SECTION 4: OUTFALL PIPE PHYSICAL INDICATORS (ALL FLOWING ASSETS)

Indicator	Indicator Present (Yes/No)	Description	Severity
Odor	No		
Color	No		
Turbidity	-	-	Clear
Floatables (Does Not Include Trash)	No		-

SECTION 5: OUTFALL PIPE SAMPLING/TESTING RESULTS (ALL FLOWING ASSETS)

Sample Date/Time:	2022-05-02 8:30:00		
Parameter	**Result**	**Typical EPA Benchmarks**	**Equipment**
Temperature (degrees F)	54		Hanna portable PH and Temp meter
pH	6.9		Hanna portable PH and Temp meter
Specific Conductivity (uS)	727		To be sent to lab or EXTECH EC500
Salinity (ppm S)	350		EXTECH EC500
Chlorine (ppm)	0	≥ Reporting Limit	Hach pocket Colorimeter
Ammonia (mg/L)	1.42	≥ 0.5 mg/L	To be sent to lab
Surfactants (mg/L)	0	≥ 0.25 mg/L	To be sent to Lab or Hanna Instruments HI96769C
E.coli (cfu/100mL)	4874	> 235 cfu/100mL	To be sent to lab
Enterococcus (cfu/100mL)	NA	> 61 cfu/100mL	To be sent to lab
Phosphorus (mg/L)	NA		To be sent to lab

Comments :

Signature of Inspector :

Haverhill IDDE Inspection Form
Outfall

SECTION 1: BACKGROUND DATA			
ASSET ID:	FBO0638	**OUTFALL ID:**	FBO0638
Date/Time:	2022-05-11 9:28		
Temperature: °F	57	**Inspector(s):**	Jesse Middleton
Street Name/Structure Location:	Cross Country		
Previous Precipitation Date/End Time:	2022-05-04 13:25:00	**Amount (inches):**	0.2

Pictures

SECTION 2: OUTFALL PIPE ASSET DESCRIPTION

Location	Upstream Asset ID	Material	Shape	Diameter/Dimension (in.)	Submerged	
Outfall Pipe		Reinforced Concrete	Circle	12	In Water:	No
					With Sediment:	No

SECTION 3: OUTFALL PIPE PHYSICAL INDICATORS

Indicator	Indicator Present?	Indicator Description		
Asset Damage	None			
Deposits/Stains	None			
Pool Quality	None			
Pipe Algae/Growth	None			
***Do physical indicators suggest an illicit discharge is present (Y/N):**	No			
Is Inlet Pipe No.1 Flowing?	No		**Estimated GPM:**	

Comments :

Signature of Inspector :

Haverhill IDDE Investigation Form
Outfall

SECTION 1: BACKGROUND DATA

ASSET ID:	FP7115	**OUTFALL ID:**	FP7115
Date/Time:	2022-05-25 7:28:00		
Temperature: °F	52	**Inspector(s):**	Jesse Middleton
Street Name/Structure Location:	Cross Country		
Previous Precipitation Date/End Time:	2022-05-22 21:10:00	**Amount (inches):**	0.2

Pictures

SECTION 2: OUTFALL PIPE ASSET DESCRIPTION

Location	Upstream Asset ID	Material	Shape	Diameter/Dimension (in.)	Submerged	
Outfall Pipe		Reinforced Concrete	Circle	12	In Water:	No
					With Sediment:	No

SECTION 3: OUTFALL PIPE PHYSICAL INDICATORS

Indicator	Indicator Present?	Indicator Description		
Asset Damage	None			
Deposits/Stains	None			
Pool Quality	None			
Pipe Algae/Growth	None			
***Do physical indicators suggest an illicit discharge is present (Y/N):**	No			
Is Inlet Pipe No.1 Flowing?	Yes	Trickle	**Estimated GPM:**	0.2

SECTION 4: OUTFALL PIPE PHYSICAL INDICATORS (ALL FLOWING ASSETS)

Indicator	Indicator Present (Yes/No)	Description	Severity
Odor	No		
Color	No		
Turbidity	-	-	Clear
Floatables (Does Not Include Trash)	No		-

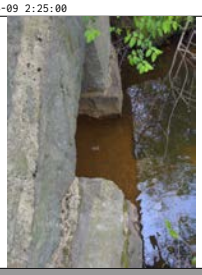
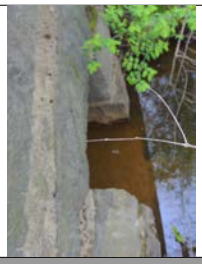
SECTION 5: OUTFALL PIPE SAMPLING/TESTING RESULTS (ALL FLOWING ASSETS)

Sample Date/Time:	2022-05-25 7:20:00		
Parameter	**Result**	**Typical EPA Benchmarks**	**Equipment**
Temperature (degrees F)	45		Hanna portable PH and Temp meter
pH	6.8		Hanna portable PH and Temp meter
Specific Conductivity (uS)	620		To be sent to lab or EXTECH EC500
Salinity (ppm S)	201		EXTECH EC500
Chlorine (ppm)	0.03	≥ Reporting Limit	Hach pocket Colorimeter
Ammonia (mg/L)	0.85	≥ 0.5 mg/L	To be sent to lab
Surfactants (mg/L)	0	≥ 0.25 mg/L	To be sent to Lab or Hanna Instruments HI96769C
E.coli (cfu/100mL)	6.32	> 235 cfu/100mL	To be sent to lab
Enterococcus (cfu/100mL)		> 61 cfu/100mL	To be sent to lab
Phosphorus (mg/L)			To be sent to lab

Comments : Inspect under drier conditions

Signature of Inspector : JM

Haverhill IDDE Investigation Form
Outfall

SECTION 1: BACKGROUND DATA			
ASSET ID:	LR1260	**OUTFALL ID:**	LR1260
Date/Time:	2022-05-02 7:39:00		
Temperature: °F	45	**Inspector(s):**	Jesse Middleton
Street Name/Structure Location:	Cross Country		
Previous Precipitation Date/End Time:	2022-04-09 2:25:00	**Amount (inches):**	0.4
Pictures			

SECTION 2: OUTFALL PIPE ASSET DESCRIPTION

Location	Upstream Asset ID	Material	Shape	Diameter/Dimension (in.)	Submerged	
Outfall Pipe		Cement Concrete	Square	40	In Water:	Partially
					With Sediment:	No

SECTION 3: OUTFALL PIPE PHYSICAL INDICATORS

Indicator	Indicator Present?	Indicator Description		
Asset Damage	None			
Deposits/Stains	None			
Pool Quality	None			
Pipe Algae/Growth	None			
*Do physical indicators suggest an illicit discharge is present (Y/N):	No			
Is Inlet Pipe No.1 Flowing?	Yes	Trickle	Estimated GPM:	0.02

SECTION 4: OUTFALL PIPE PHYSICAL INDICATORS (ALL FLOWING ASSETS)

Indicator	Indicator Present (Yes/No)	Description	Severity
Odor	No		
Color	No		
Turbidity	-	-	Clear
Floatables (Does Not Include Trash)	No		-

SECTION 5: OUTFALL PIPE SAMPLING/TESTING RESULTS (ALL FLOWING ASSETS)

Sample Date/Time:	2022-05-02 7:45:00		
Parameter	**Result**	**Typical EPA Benchmarks**	**Equipment**
Temperature (degrees F)	42		Hanna portable PH and Temp meter
pH	7.4		Hanna portable PH and Temp meter
Specific Conductivity (uS)	608		To be sent to lab or EXTECH EC500
Salinity (ppm S)	304		EXTECH EC500
Chlorine (ppm)	0.02	≥ Reporting Limit	Hach pocket Colorimeter
Ammonia (mg/L)	0.14	≥ 0.5 mg/L	To be sent to lab
Surfactants (mg/L)	0	≥ 0.25 mg/L	To be sent to Lab or Hanna Instruments HI96769C
E.coli (cfu/100mL)	195.59	> 235 cfu/100mL	To be sent to lab
Enterococcus (cfu/100mL)	NA	> 61 cfu/100mL	To be sent to lab
Phosphorus (mg/L)	NA		To be sent to lab

Comments :	
Signature of Inspector :	JM

Haverhill IDDE Investigation Form
Outfall

SECTION 1: BACKGROUND DATA

ASSET ID:	MR0662	**OUTFALL ID:**	MR0662
Date/Time:	2022-05-25 8:50:00		
Temperature: °F	55	**Inspector(s):**	Jesse Middleton
Street Name/Structure Location:	PARKRIDGE RD		
Previous Precipitation Date/End Time:	2022-05-22 21:10:00	**Amount (inches):**	0.2

Pictures

SECTION 2: OUTFALL PIPE ASSET DESCRIPTION

Location	Upstream Asset ID	Material	Shape	Diameter/Dimension (in.)	Submerged	
Outfall Pipe		Reinforced Concrete	Circle	18	In Water:	No
					With Sediment:	No

SECTION 3: OUTFALL PIPE PHYSICAL INDICATORS

Indicator	Indicator Present?	Indicator Description		
Asset Damage	None			
Deposits/Stains	None			
Pool Quality	None			
Pipe Algae/Growth	None			
*Do physical indicators suggest an illicit discharge is present (Y/N):	No			
Is Inlet Pipe No.1 Flowing?	Yes	Trickle	Estimated GPM:	0.5

SECTION 4: OUTFALL PIPE PHYSICAL INDICATORS (ALL FLOWING ASSETS)

Indicator	Indicator Present (Yes/No)	Description	Severity
Odor	No		
Color	No		
Turbidity	-	-	Clear
Floatables (Does Not Include Trash)	No		-

SECTION 5: OUTFALL PIPE SAMPLING/TESTING RESULTS (ALL FLOWING ASSETS)

Sample Date/Time:	2022-05-25 8:45:00		
Parameter	**Result**	**Typical EPA Benchmarks**	**Equipment**
Temperature (degrees F)	54		Hanna portable PH and Temp meter
pH	7.3		Hanna portable PH and Temp meter
Specific Conductivity (uS)	1061		To be sent to lab or EXTECH EC500
Salinity (ppm S)	548		EXTECH EC500
Chlorine (ppm)	0.02	≥ Reporting Limit	Hach pocket Colorimeter
Ammonia (mg/L)	0.12	≥ 0.5 mg/L	To be sent to lab
Surfactants (mg/L)	0	≥ 0.25 mg/L	To be sent to Lab or Hanna Instruments HI96769C
E.coli (cfu/100mL)	0	> 235 cfu/100mL	To be sent to lab
Enterococcus (cfu/100mL)	NA	> 61 cfu/100mL	To be sent to lab
Phosphorus (mg/L)	NA		To be sent to lab

Comments :

Signature of Inspector :

Haverhill IDDE Inspection Form
Outfall

SECTION 1: BACKGROUND DATA			
ASSET ID:	MR0926	**OUTFALL ID:**	MR0926
Date/Time:	2022-05-10 11:15		
Temperature: °F	60	**Inspector(s):**	Jesse Middleton
Street Name/Structure Location:	Cross Country		
Previous Precipitation Date/End Time:	2022-05-04 13:25:00	**Amount (inches):**	0.2
Pictures			

SECTION 2: OUTFALL PIPE ASSET DESCRIPTION						
Location	**Upstream Asset ID**	**Material**	**Shape**	**Diameter/Dimension (in.)**	**Submerged**	
Outfall Pipe	CB-996	Reinforced Concrete	Circle	12	In Water:	No
					With Sediment:	No

SECTION 3: OUTFALL PIPE PHYSICAL INDICATORS				
Indicator	**Indicator Present?**	**Indicator Description**		
Asset Damage	None			
Deposits/Stains	None			
Pool Quality	None			
Pipe Algae/Growth	None			
***Do physical indicators suggest an illicit discharge is present (Y/N):**	No			
Is Inlet Pipe No.1 Flowing?	No		**Estimated GPM:**	

Comments :	Inspected upstream assets, outfall unaccessible
Signature of Inspector :	

Haverhill IDDE Investigation Form
Outfall

SECTION 1: BACKGROUND DATA			
ASSET ID:	MR0982	**OUTFALL ID:**	MR0982
Date/Time:	2022-05-11 7:26:00		
Temperature: °F	46	**Inspector(s):**	Jesse Middleton
Street Name/Structure Location:	Cross Country		
Previous Precipitation Date/End Time:	2022-05-11 13:25:00	**Amount (inches):**	0.2

Pictures

SECTION 2: OUTFALL PIPE ASSET DESCRIPTION

Location	Upstream Asset ID	Material	Shape	Diameter/Dimension (in.)	Submerged	
Outfall Pipe		Reinforced Concrete	Circle	24	In Water:	No
					With Sediment:	No

SECTION 3: OUTFALL PIPE PHYSICAL INDICATORS

Indicator	Indicator Present?	Indicator Description		
Asset Damage	None			
Deposits/Stains	None			
Pool Quality	None			
Pipe Algae/Growth	None			
*Do physical indicators suggest an illicit discharge is present (Y/N):	No			
Is Inlet Pipe No.1 Flowing?	Yes	Trickle	Estimated GPM:	2

SECTION 4: OUTFALL PIPE PHYSICAL INDICATORS (ALL FLOWING ASSETS)

Indicator	Indicator Present (Yes/No)	Description	Severity
Odor	No		
Color	No		
Turbidity	-	-	Clear
Floatables (Does Not Include Trash)	No		-

SECTION 5: OUTFALL PIPE SAMPLING/TESTING RESULTS (ALL FLOWING ASSETS)

Sample Date/Time:	2022-05-11 7:30:00		
Parameter	**Result**	**Typical EPA Benchmarks**	**Equipment**
Temperature (degrees F)	49		Hanna portable PH and Temp meter
pH	8.6		Hanna portable PH and Temp meter
Specific Conductivity (uS)	374		To be sent to lab or EXTECH EC500
Salinity (ppm S)	172		EXTECH EC500
Chlorine (ppm)	0	≥ Reporting Limit	Hach pocket Colorimeter
Ammonia (mg/L)	0.17	≥ 0.5 mg/L	To be sent to lab
Surfactants (mg/L)	0	≥ 0.25 mg/L	To be sent to Lab or Hanna Instruments HI96769C
E.coli (cfu/100mL)	12.11	> 235 cfu/100mL	To be sent to lab
Enterococcus (cfu/100mL)	6.2	> 61 cfu/100mL	To be sent to lab
Phosphorus (mg/L)	NA		To be sent to lab

Comments :

Signature of Inspector :

Haverhill IDDE Inspection Form
Outfall

SECTION 1: BACKGROUND DATA			
ASSET ID:	MR23912	**OUTFALL ID:**	MR23912
Date/Time:	2022-05-10 10:51		
Temperature: °F	59	**Inspector(s):**	Jesse Middleton
Street Name/Structure Location:	WALL ST		
Previous Precipitation Date/End Time:	2022-05-04 13:25:00	**Amount (inches):**	0.2

Pictures

SECTION 2: OUTFALL PIPE ASSET DESCRIPTION

Location	Upstream Asset ID	Material	Shape	Diameter/Dimension (in.)	Submerged	
Outfall Pipe	DMH-7375	Reinforced Concrete	Circle	8	In Water:	No
					With Sediment:	No

SECTION 3: OUTFALL PIPE PHYSICAL INDICATORS

Indicator	Indicator Present?	Indicator Description		
Asset Damage	None			
Deposits/Stains	None			
Pool Quality	None			
Pipe Algae/Growth	None			
***Do physical indicators suggest an illicit discharge is present (Y/N):**	No			
Is Inlet Pipe No.1 Flowing?	No		**Estimated GPM:**	

Comments :	Inspected upstream assets, outfall not accessible
Signature of Inspector :	

Haverhill IDDE Investigation Form
Outfall

SECTION 1: BACKGROUND DATA			
ASSET ID:	PL0891	**OUTFALL ID:**	PL0891
Date/Time:	2022-05-02 7:07:00		
Temperature: °F	45	**Inspector(s):**	Jesse Middleton
Street Name/Structure Location:	Cross Country		
Previous Precipitation Date/End Time:	2022-04-27 2:25:00	**Amount (inches):**	0.4

Pictures

SECTION 2: OUTFALL PIPE ASSET DESCRIPTION						
Location	**Upstream Asset ID**	**Material**	**Shape**	**Diameter/Dimension (in.)**	**Submerged**	
Outfall Pipe		Reinforced Concrete	Circle	30	In Water:	No
					With Sediment:	No

SECTION 3: OUTFALL PIPE PHYSICAL INDICATORS				
Indicator	**Indicator Present?**	**Indicator Description**		
Asset Damage	None			
Deposits/Stains	None			
Pool Quality	None			
Pipe Algae/Growth	None			
***Do physical indicators suggest an illicit discharge is present (Y/N):**	No			
Is Inlet Pipe No.1 Flowing?	Yes	Moderate	**Estimated GPM:**	2

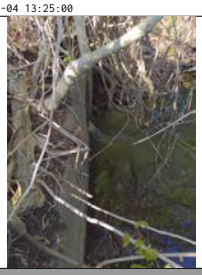
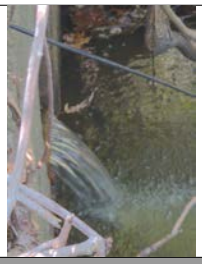
SECTION 4: OUTFALL PIPE PHYSICAL INDICATORS (ALL FLOWING ASSETS)			
Indicator	**Indicator Present (Yes/No)**	**Description**	**Severity**
Odor	No		
Color	No		
Turbidity	-	-	Clear
Floatables (Does Not Include Trash)	No		-

SECTION 5: OUTFALL PIPE SAMPLING/TESTING RESULTS (ALL FLOWING ASSETS)			
Sample Date/Time:	2022-05-02 7:10:00		
Parameter	**Result**	**Typical EPA Benchmarks**	**Equipment**
Temperature (degrees F)	45		Hanna portable PH and Temp meter
pH	6.8		Hanna portable PH and Temp meter
Specific Conductivity (uS)	1470		To be sent to lab or EXTECH EC500
Salinity (ppm S)	992		EXTECH EC500
Chlorine (ppm)	0	≥ Reporting Limit	Hach pocket Colorimeter
Ammonia (mg/L)	0.2	≥ 0.5 mg/L	To be sent to lab
Surfactants (mg/L)	0	≥ 0.25 mg/L	To be sent to Lab or Hanna Instruments HI96769C
E.coli (cfu/100mL)	15406	> 235 cfu/100mL	To be sent to lab
Enterococcus (cfu/100mL)	NA	> 61 cfu/100mL	To be sent to lab
Phosphorus (mg/L)	NA		To be sent to lab

Comments :

Signature of Inspector :

Haverhill IDDE Investigation Form
Outfall

SECTION 1: BACKGROUND DATA					
ASSET ID:	PL1222			**OUTFALL ID:**	PL1222
Date/Time:	2022-05-11 8:18:00				
Temperature: °F	49			**Inspector(s):**	Jesse Middleton
Street Name/Structure Location:	Cross Country				
Previous Precipitation Date/End Time:	2022-05-04 13:25:00		**Amount (inches):**	0.2	
Pictures					

SECTION 2: OUTFALL PIPE ASSET DESCRIPTION						
Location	**Upstream Asset ID**	**Material**	**Shape**	**Diameter/Dimension (in.)**	**Submerged**	
Outfall Pipe		Reinforced Concrete	Circle	36	In Water:	No
					With Sediment:	No

SECTION 3: OUTFALL PIPE PHYSICAL INDICATORS				
Indicator	**Indicator Present?**	**Indicator Description**		
Asset Damage	None			
Deposits/Stains	None			
Pool Quality	None			
Pipe Algae/Growth	None			
***Do physical indicators suggest an illicit discharge is present (Y/N):**	No			
Is Inlet Pipe No.1 Flowing?	Yes	Substantial	**Estimated GPM:**	10

SECTION 4: OUTFALL PIPE PHYSICAL INDICATORS (ALL FLOWING ASSETS)			
Indicator	**Indicator Present (Yes/No)**	**Description**	**Severity**
Odor	No		
Color	No		
Turbidity	-	-	Clear
Floatables (Does Not Include Trash)	No		-

SECTION 5: OUTFALL PIPE SAMPLING/TESTING RESULTS (ALL FLOWING ASSETS)			
Sample Date/Time:	2022-05-11 8:05:00		
Parameter	**Result**	**Typical EPA Benchmarks**	**Equipment**
Temperature (degrees F)	48		Hanna portable PH and Temp meter
pH	7.3		Hanna portable PH and Temp meter
Specific Conductivity (uS)	545		To be sent to lab or EXTECH EC500
Salinity (ppm S)	232		EXTECH EC500
Chlorine (ppm)	0	≥ Reporting Limit	Hach pocket Colorimeter
Ammonia (mg/L)	0.25	≥ 0.5 mg/L	To be sent to lab
Surfactants (mg/L)	.07	≥ 0.25 mg/L	To be sent to Lab or Hanna Instruments HI96769C
E.coli (cfu/100mL)	2419.57	> 235 cfu/100mL	To be sent to lab
Enterococcus (cfu/100mL)	NA	> 61 cfu/100mL	To be sent to lab
Phosphorus (mg/L)	NA		To be sent to lab

Comments :	
Signature of Inspector :	JM

Haverhill IDDE Investigation Form
Outfall

SECTION 1: BACKGROUND DATA			
ASSET ID:	UNK0661	**OUTFALL ID:**	UNK0661
Date/Time:	2022-05-02 9:06:00		
Temperature: °F	52	**Inspector(s):**	Jesse Middleton
Street Name/Structure Location:	Cross Country		
Previous Precipitation Date/End Time:	2022-04-27 2:25:00	**Amount (inches):**	0.4

Pictures

SECTION 2: OUTFALL PIPE ASSET DESCRIPTION						
Location	**Upstream Asset ID**	**Material**	**Shape**	**Diameter/Dimension (in.)**	**Submerged**	
Outfall Pipe		Reinforced Concrete	Circle	18	In Water:	No
					With Sediment:	No

SECTION 3: OUTFALL PIPE PHYSICAL INDICATORS				
Indicator	**Indicator Present?**	**Indicator Description**		
Asset Damage	None			
Deposits/Stains	None			
Pool Quality	None			
Pipe Algae/Growth	None			
***Do physical indicators suggest an illicit discharge is present (Y/N):**	No			
Is Inlet Pipe No.1 Flowing?	Yes	Trickle	**Estimated GPM:**	1

SECTION 4: OUTFALL PIPE PHYSICAL INDICATORS (ALL FLOWING ASSETS)			
Indicator	**Indicator Present (Yes/No)**	**Description**	**Severity**
Odor	No		
Color	No		
Turbidity	-	-	Clear
Floatables (Does Not Include Trash)	No		-

SECTION 5: OUTFALL PIPE SAMPLING/TESTING RESULTS (ALL FLOWING ASSETS)			
Sample Date/Time:	2022-05-02 9:10:00		
Parameter	**Result**	**Typical EPA Benchmarks**	**Equipment**
Temperature (degrees F)	48		Hanna portable PH and Temp meter
pH	6.4		Hanna portable PH and Temp meter
Specific Conductivity (uS)	1880		To be sent to lab or EXTECH EC500
Salinity (ppm S)	927		EXTECH EC500
Chlorine (ppm)	0	≥ Reporting Limit	Hach pocket Colorimeter
Ammonia (mg/L)	0	≥ 0.5 mg/L	To be sent to lab
Surfactants (mg/L)	0	≥ 0.25 mg/L	To be sent to Lab or Hanna Instruments HI96769C
E.coli (cfu/100mL)	31.29	> 235 cfu/100mL	To be sent to lab
Enterococcus (cfu/100mL)	NA	> 61 cfu/100mL	To be sent to lab
Phosphorus (mg/L)	NA		To be sent to lab

Comments :

Signature of Inspector :

Haverhill IDDE Investigation Form
Outfall

SECTION 1: BACKGROUND DATA

ASSET ID:	UNK0951	**OUTFALL ID:**	UNK0951
Date/Time:	2022-05-11 8:55:00		
Temperature: °F	52	**Inspector(s):**	Jesse Middleton
Street Name/Structure Location:	Cross Country		
Previous Precipitation Date/End Time:	2022-05-04 13:25:00	**Amount (inches):**	0.2

Pictures

SECTION 2: OUTFALL PIPE ASSET DESCRIPTION

Location	Upstream Asset ID	Material	Shape	Diameter/Dimension (in.)	Submerged	
Outfall Pipe		Reinforced Concrete	Circle	48	In Water:	No
					With Sediment:	No

SECTION 3: OUTFALL PIPE PHYSICAL INDICATORS

Indicator	Indicator Present?	Indicator Description		
Asset Damage	None			
Deposits/Stains	None			
Pool Quality	None			
Pipe Algae/Growth	None			
***Do physical indicators suggest an illicit discharge is present (Y/N):**	No			
Is Inlet Pipe No.1 Flowing?	Yes	Substantial	**Estimated GPM:**	2

SECTION 4: OUTFALL PIPE PHYSICAL INDICATORS (ALL FLOWING ASSETS)

Indicator	Indicator Present (Yes/No)	Description	Severity
Odor	No		
Color	No		
Turbidity	-	-	Clear
Floatables (Does Not Include Trash)	No		-

SECTION 5: OUTFALL PIPE SAMPLING/TESTING RESULTS (ALL FLOWING ASSETS)

Sample Date/Time: 2022-05-11 9:00:00

Parameter	Result	Typical EPA Benchmarks	Equipment
Temperature (degrees F)	49		Hanna portable PH and Temp meter
pH	6.6		Hanna portable PH and Temp meter
Specific Conductivity (uS)	352		To be sent to lab or EXTECH EC500
Salinity (ppm S)	124		EXTECH EC500
Chlorine (ppm)	0	≥ Reporting Limit	Hach pocket Colorimeter
Ammonia (mg/L)	0.09	≥ 0.5 mg/L	To be sent to lab
Surfactants (mg/L)	0	≥ 0.25 mg/L	To be sent to Lab or Hanna Instruments HI96769C
E.coli (cfu/100mL)	1890	> 235 cfu/100mL	To be sent to lab
Enterococcus (cfu/100mL)	NA	> 61 cfu/100mL	To be sent to lab
Phosphorus (mg/L)	NA		To be sent to lab

Comments :

Signature of Inspector :

Haverhill IDDE Inspection Form
Outfall

SECTION 1: BACKGROUND DATA			
ASSET ID:	UNK1868	**OUTFALL ID:**	UNK1868
Date/Time:	2022-05-10 9:30		
Temperature: °F	55	**Inspector(s):**	Jesse Middleton
Street Name/Structure Location:	NORTH BROADWAY		
Previous Precipitation Date/End Time:	2022-05-04 13:25:00	**Amount (inches):**	0.2
Pictures			

SECTION 2: OUTFALL PIPE ASSET DESCRIPTION						
Location	**Upstream Asset ID**	**Material**	**Shape**	**Diameter/Dimension (in.)**	**Submerged**	
Outfall Pipe		Reinforced Concrete	Circle	12	In Water:	No
					With Sediment:	No

SECTION 3: OUTFALL PIPE PHYSICAL INDICATORS				
Indicator	**Indicator Present?**	**Indicator Description**		
Asset Damage	None			
Deposits/Stains	None			
Pool Quality	None			
Pipe Algae/Growth	None			
***Do physical indicators suggest an illicit discharge is present (Y/N):**	No			
Is Inlet Pipe No.1 Flowing?	No		**Estimated GPM:**	

Comments :	
Signature of Inspector :	

Haverhill IDDE Investigation Form
Outfall

SECTION 1: BACKGROUND DATA

ASSET ID:	MR0662	**OUTFALL ID:**	MR0662
Date/Time:	2022-05-25 8:50:00		
Temperature: °F	55	**Inspector(s):**	Jesse Middleton
Street Name/Structure Location:	PARKRIDGE RD		
Previous Precipitation Date/End Time:	2022-05-22 21:10:00	**Amount (inches):**	0.2

Pictures

SECTION 2: OUTFALL PIPE ASSET DESCRIPTION

Location	Upstream Asset ID	Material	Shape	Diameter/Dimension (in.)	Submerged	
Outfall Pipe		Reinforced Concrete	Circle	18	In Water:	No
					With Sediment:	No

SECTION 3: OUTFALL PIPE PHYSICAL INDICATORS

Indicator	Indicator Present?	Indicator Description		
Asset Damage	None			
Deposits/Stains	None			
Pool Quality	None			
Pipe Algae/Growth	None			
*Do physical indicators suggest an illicit discharge is present (Y/N):	No			
Is Inlet Pipe No.1 Flowing?	Yes	Trickle	Estimated GPM:	0.5

SECTION 4: OUTFALL PIPE PHYSICAL INDICATORS (ALL FLOWING ASSETS)

Indicator	Indicator Present (Yes/No)	Description	Severity
Odor	No		
Color	No		
Turbidity	-	-	Clear
Floatables (Does Not Include Trash)	No		-

SECTION 5: OUTFALL PIPE SAMPLING/TESTING RESULTS (ALL FLOWING ASSETS)

Sample Date/Time:	2022-05-25 8:45:00		
Parameter	**Result**	**Typical EPA Benchmarks**	**Equipment**
Temperature (degrees F)	54		Hanna portable PH and Temp meter
pH	7.3		Hanna portable PH and Temp meter
Specific Conductivity (uS)	1061		To be sent to lab or EXTECH EC500
Salinity (ppm S)	548		EXTECH EC500
Chlorine (ppm)	0.02	≥ Reporting Limit	Hach pocket Colorimeter
Ammonia (mg/L)	0.12	≥ 0.5 mg/L	To be sent to lab
Surfactants (mg/L)	0	≥ 0.25 mg/L	To be sent to Lab or Hanna Instruments HI96769C
E.coli (cfu/100mL)	0	> 235 cfu/100mL	To be sent to lab
Enterococcus (cfu/100mL)	NA	> 61 cfu/100mL	To be sent to lab
Phosphorus (mg/L)	NA		To be sent to lab

Comments :

Signature of Inspector :

Haverhill IDDE Investigation Form
Outfall

SECTION 1: BACKGROUND DATA			
ASSET ID:	DPI0947	**OUTFALL ID:**	DPI0947
Date/Time:	2022-06-15 8:48:00		
Temperature: °F	64	**Inspector(s):**	Jesse Middleton
Street Name/Structure Location:	Cross Country		
Previous Precipitation Date/End Time:	2022-06-13 0:45:00	**Amount (inches):**	0.01
Pictures			

SECTION 2: OUTFALL PIPE ASSET DESCRIPTION						
Location	**Upstream Asset ID**	**Material**	**Shape**	**Diameter/Dimension (in.)**	**Submerged**	
Outfall Pipe		Reinforced Concrete	Circle	24	In Water:	No
					With Sediment:	No

SECTION 3: OUTFALL PIPE PHYSICAL INDICATORS				
Indicator	**Indicator Present?**	**Indicator Description**		
Asset Damage	None			
Deposits/Stains	None			
Pool Quality	None			
Pipe Algae/Growth	None			
***Do physical indicators suggest an illicit discharge is present (Y/N):**	No			
Is Inlet Pipe No.1 Flowing?	Yes	Trickle	**Estimated GPM:**	0.2

SECTION 4: OUTFALL PIPE PHYSICAL INDICATORS (ALL FLOWING ASSETS)			
Indicator	**Indicator Present (Yes/No)**	**Description**	**Severity**
Odor	No		
Color	No		
Turbidity	-	-	Clear
Floatables (Does Not Include Trash)	No		-

SECTION 5: OUTFALL PIPE SAMPLING/TESTING RESULTS (ALL FLOWING ASSETS)			
Sample Date/Time:	2022-06-15 8:55:00		
Parameter	**Result**	**Typical EPA Benchmarks**	**Equipment**
Temperature (degrees F)	60		Hanna portable PH and Temp meter
pH	7.8		Hanna portable PH and Temp meter
Specific Conductivity (uS)	1144		To be sent to lab or EXTECH EC500
Salinity (ppm S)	574		EXTECH EC500
Chlorine (ppm)	0.02	≥ Reporting Limit	Hach pocket Colorimeter
Ammonia (mg/L)	0	≥ 0.5 mg/L	To be sent to lab
Surfactants (mg/L)	0	≥ 0.25 mg/L	To be sent to Lab or Hanna Instruments HI96769C
E.coli (cfu/100mL)	34.51	> 235 cfu/100mL	To be sent to lab
Enterococcus (cfu/100mL)	Na	> 61 cfu/100mL	To be sent to lab
Phosphorus (mg/L)	Na		To be sent to lab

Comments :	
Signature of Inspector :	JM

Haverhill IDDE Investigation Form
Outfall

SECTION 1: BACKGROUND DATA					
ASSET ID:	LR0963			**OUTFALL ID:**	LR0963
Date/Time:	2022-06-07 8:28:00				
Temperature: °F	62			**Inspector(s):**	Jesse Middleton
Street Name/Structure Location:	Cross Country				
Previous Precipitation Date/End Time:	2022-06-03 9:15:00		**Amount (inches):**	0.1	
Pictures					

SECTION 2: OUTFALL PIPE ASSET DESCRIPTION						
Location	**Upstream Asset ID**	**Material**	**Shape**	**Diameter/Dimension (in.)**	**Submerged**	
Outfall Pipe		Reinforced Concrete	Circle	15	In Water:	No
					With Sediment:	No

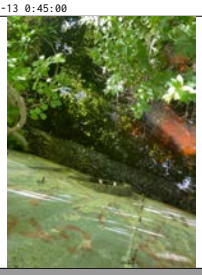
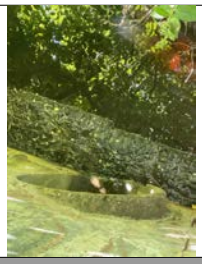
SECTION 3: OUTFALL PIPE PHYSICAL INDICATORS				
Indicator	**Indicator Present?**	**Indicator Description**		
Asset Damage	None			
Deposits/Stains	None			
Pool Quality	None			
Pipe Algae/Growth	None			
***Do physical indicators suggest an illicit discharge is present (Y/N):**	No			
Is Inlet Pipe No.1 Flowing?	Yes	Trickle	**Estimated GPM:**	0.2

SECTION 4: OUTFALL PIPE PHYSICAL INDICATORS (ALL FLOWING ASSETS)			
Indicator	**Indicator Present (Yes/No)**	**Description**	**Severity**
Odor	No		
Color	No		
Turbidity	-	-	Clear
Floatables (Does Not Include Trash)	No		-

SECTION 5: OUTFALL PIPE SAMPLING/TESTING RESULTS (ALL FLOWING ASSETS)			
Sample Date/Time:	2022-06-07 7:25:00		
Parameter	**Result**	**Typical EPA Benchmarks**	**Equipment**
Temperature (degrees F)	49		Hanna portable PH and Temp meter
pH	7.2		Hanna portable PH and Temp meter
Specific Conductivity (uS)	1146		To be sent to lab or EXTECH EC500
Salinity (ppm S)	322		EXTECH EC500
Chlorine (ppm)	0	≥ Reporting Limit	Hach pocket Colorimeter
Ammonia (mg/L)	0.12	≥ 0.5 mg/L	To be sent to lab
Surfactants (mg/L)	.07	≥ 0.25 mg/L	To be sent to Lab or Hanna Instruments HI96769C
E.coli (cfu/100mL)	22.81	> 235 cfu/100mL	To be sent to lab
Enterococcus (cfu/100mL)	na	> 61 cfu/100mL	To be sent to lab
Phosphorus (mg/L)	na		To be sent to lab

Comments :	
Signature of Inspector :	

Haverhill IDDE Investigation Form
Outfall

SECTION 1: BACKGROUND DATA					
ASSET ID:	UNK1011			**OUTFALL ID:**	UNK1011
Date/Time:	2022-06-15 8:25:00				
Temperature: °F	64			**Inspector(s):**	Jesse Middleton
Street Name/Structure Location:	Cross Country				
Previous Precipitation Date/End Time:	2022-06-13 0:45:00		**Amount (inches):**	0.01	
Pictures					

SECTION 2: OUTFALL PIPE ASSET DESCRIPTION						
Location	**Upstream Asset ID**	**Material**	**Shape**	**Diameter/Dimension (in.)**	**Submerged**	
Outfall Pipe		Reinforced Concrete	Circle	24	In Water:	No
					With Sediment:	No

SECTION 3: OUTFALL PIPE PHYSICAL INDICATORS				
Indicator	**Indicator Present?**	**Indicator Description**		
Asset Damage	None			
Deposits/Stains	None			
Pool Quality	None			
Pipe Algae/Growth	None			
***Do physical indicators suggest an illicit discharge is present (Y/N):**	No			
Is Inlet Pipe No.1 Flowing?	Yes	Trickle	**Estimated GPM:**	0.2

SECTION 4: OUTFALL PIPE PHYSICAL INDICATORS (ALL FLOWING ASSETS)			
Indicator	**Indicator Present (Yes/No)**	**Description**	**Severity**
Odor	No		
Color	No		
Turbidity	-	-	Clear
Floatables (Does Not Include Trash)	No		-

SECTION 5: OUTFALL PIPE SAMPLING/TESTING RESULTS (ALL FLOWING ASSETS)			
Sample Date/Time:	2022-06-15 8:15:00		
Parameter	**Result**	**Typical EPA Benchmarks**	**Equipment**
Temperature (degrees F)	61		Hanna portable PH and Temp meter
pH	8.2		Hanna portable PH and Temp meter
Specific Conductivity (uS)	1795		To be sent to lab or EXTECH EC500
Salinity (ppm S)	912		EXTECH EC500
Chlorine (ppm)	0	≥ Reporting Limit	Hach pocket Colorimeter
Ammonia (mg/L)	0	≥ 0.5 mg/L	To be sent to lab
Surfactants (mg/L)	0	≥ 0.25 mg/L	To be sent to Lab or Hanna Instruments HI96769C
E.coli (cfu/100mL)	8.52	> 235 cfu/100mL	To be sent to lab
Enterococcus (cfu/100mL)	Na	> 61 cfu/100mL	To be sent to lab
Phosphorus (mg/L)	Na		To be sent to lab

Comments :	
Signature of Inspector :	

APPENDIX B

IDDE Program Supporting Documents

FP7115 Catchment Inspection 5/25/2022

Legend

- Discharge point
- Manhole within catchment
- Catch basins within catchment
- Catch basin lateral within catchment
- Garvity main within catchment
- Catch basin
- Discharge point
- Sewer manhole
- Storm water manhole
- Culvert
- Sewer main
- Stormwater main
- Combined sewer/storm main

Catchment Details:
1 manhole
2 catch basins
73' of pipe within catchment
No dry weather flow

N

0 10 20 40 60 80 Feet


HAVERHILL
PENTUCKET
SETTLED 1640. INSTITUTED A CITY. 1870.