Haverhill

Robert E. Ward, DPW Director
Phone: 978-374-2382 Fax: 978-521-4083
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April 29, 2024

Ms. Elizabeth Kudarauskas
U.S. EPA- New England, 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 15

Dear Ms. Kudarauskas:

Enclosed is Compliance Report No. 15 as required by Section IX.67 of the Consent Decree. This report is for the July 1, 2023, through December 31, 2023, reporting period.

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

Sincerely,

Robert E. Ward
DPW Director

Enclosure(s)

cc: Chief, Environmental Enforcement Section, U.S. DOJ
Joshua S. Levy, Acting U.S. Attorney, MA District
Michael Wagner, USEPA, wagner.michael@epa.gov
Belinda Stansbury, MassDEP, belinda.Stansbury@state.ma.us
Andrew Goldberg, MA Assistant Attorney General, andy.goldberg@state.ma.us
Mayor Melinda E. Barrett, City of Haverhill, mavor@eitvofhaverhill.com
Michael Leon, Nutter, McClennen & Fish LLP, MLeon@nutter.com
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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. 15
JULY - DECEMBER 2023

SUBMITTED

APRIL 2024

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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 Water 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.

1.1 VACANT POSITIONS

The Water/Wastewater Engineer position remains vacant. Every effort continues to be made to fill this critical role. At this time, the City is also working to hire two qualified collections system operators. The Collection System Supervisor position is advertised for hire as an anticipated opening. The City continues to look for a long-term solution for this critical role. This position is currently being filled by a former City Employee.

1.2 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 during the Reporting Period in accordance with the Consent Decree

1.3 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
DPW Director
City of Haverhill, Massachusetts

(date) 4/29/24

SECTION 2 IDDE PROGRAM

2.1 INTRODUCTION

The City identified and inspected 1,200 stormwater outfalls (thirteen 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 December 2023 are shown in Table 2-1. The current priorities categories reflect the following inventory: four Problem Priority outfalls; three High Priority outfalls; and thirty-four 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.

https://www.cityofhaverhill.com/departments/storm_water_program/index.php

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 2023). Updated results for outfall catchment areas have been updated on Table 2-2 and IDDE catchment investigation maps in 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 an upstream asset.

During this reporting period no outfalls were inspected for dry weather flow. Outfall investigations and catchment investigations were on pause during this reporting period due to an unexpected vacancy of the City's Compliance Coordinator Position. This position was filled in November of 2023 and every effort will continue to be made to investigate priority problems in 2024.

Table 2- 1- Prioritized List of Outfall Sub-Area Investigations
BASED ON OUTFALL INSPECTION PROGRAM
2014-2023 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)	Enterococcus (MPN/ 100 ml)
Problem Priority																								
UNK0955	36"	RCP	South Main Street (Dominator Plaza)	City	09/16/20	.01" on 9/13/20	Trickle	None	Clear	None	None	725	62.2	7	1630	0.13	0.1	0	09/16/20	0.1	09/13/20		>2400	
PL0891	30"	RCP	Main Street @ Marsh Avenue	City	05/02/22	.4" on 4/27/22	Moderate	None	None	None	Clear	710	45	6.8	1470	0.2	0	0	05/02/22	0.4	04/27/22	225	15406	
PL0891 wet weather	30"	RCP	Main Street @ Marsh Avenue	City	05/02/23	Current	Moderate	None	None	None	Clear	904	52	6.8	908	0.37	0.28	0	05/02/23	Current			687	
MR1109	12"	RCP	350 Water Street	City	11/09/20	.01" on 11/3/20	Trickle	None	None	None	None	930	59.3	7.31	3	0	0	0	12/10/15	0.1	12/03/15		1413.6	> 2420
UNK1767	36"	CMP	Tudor Court	City	06/23/20	.02" on 06/11/20	Trickle	None	Clear	None	Clear	750	64	7	453	0.07	0	0	06/23/20	0.2	06/11/20		>2400	
UNK1767 wet weather	36"	CMP	Tudor Court	City	05/02/23	Current	Moderate	None	None	None	Clear	955	39	6.9	620	0.083	0	0	05/02/23	Current			4727	
High Priority																								
LR1260	3'x4'	other, blocks	140 Hale Street	City	05/02/22	.4" on 04/27/22	Trickle	None	None	None	None	745	42	7.4	608	0.14	0	0.02	05/02/22	0.4	04/27/22	225	195.99	
UNK1166	34"	RCP	8 Franzone Drive	City	06/11/20	0.01 on 06/11/20	Substantial	None	Clear	None	Clear	831	62	6.5	1000	0.09	0	0.03	06/11/20	0.01	06/11/20		461.1	
UNK1177	48"	RCP	Franzone Drive	City	06/11/20	0.01" on 06/11/20	Substantial	None	Clear	None	Clear	925	63	6.1	1000	0.1	0.15	0.01	06/11/20	0.01	06/11/20		770.1	
Low Priority																								
BZB0847	15"	RCP	Fermanagh Street	City	05/02/22	.4" on 04/27/22	Trickle	None	Clear	None	None	830	54	6.9	727	1.42	0	0	05/02/22	0.4	04/27/22	225	4874	
MR20718	10"	RCP	1 Water Street	City	08/14/15	0.57" on 08/11/15	No Information	None	None	None	None	1000	78	7.99	2		0	0	08/31/15	0.19	08/23/15		556	631
FBO0638	12"	RCP	Hilldale Avenue	City	05/11/22	.2" on 05/04/22	No Flow																	
PL1222	36"	RCP	West Gile Street	City	05/11/22	.2" on 05/04/22	Substantial	None	None	None	None	805	48	7.3	545	0.25	0.07	0	05/11/22	0.2	05/04/22	1325	2419.57	
UNK0661	24"	RCP	Parkridge Road	City	05/02/22	.4" on 04/27/22	Trickle	None	Clear	None	None	910	48	6.4	1880	0	0	0	05/02/22	0.4	04/27/22	225	31.29	
MR0982	18"	CLAY	20 Back Lane	City	05/11/22	.2" on 05/04/22	Trickle	None	None	None	None	730	49	8.6	374	0.17	0	0	05/11/22	0.2	05/04/22	1325	12.11	6.2
MR23912	8"	STEEL	120 Merrimack Street	City	05/10/22	.2" on 05/04/22	No Flow																	
MR1140	15"	RCP	River Street	City	11/04/21	1.9" on 10/31/21	Trickle	None	None	Other	Cloudy	1045	42.6	8.18	484	0	0		11/13/14	0.06	11/07/14		62.4	
MR0834	48"	RCP	Merrimac River (Bradley Avenue)	City	06/30/21	.01" on 06/25/21	No Flow																	
MR0662	18"	RCP	Parkridge Road	City	05/25/22	2" on 05/22/22	Trickle	None	Clear	None	None	845	54	7.3	1061	0.12	0	0.02	05/25/22	0.2	05/22/22		0	
LR0963	15"	HDPE	Alvanos Street	City	06/07/22	.1" on 06/03/22	Trickle	None	Clear	None	None	725	49	7.2	1146	0.12	0.07	0	06/07/22	0.1	06/03/22	915	23	
CB1198	NA	RCP	Research Drive	City	11/04/14	0.25" on 11/02/14	Moderate	None	Clear	None	Clear	1003	50.2	7.06	208	0	0.25		11/13/14	0.06	11/07/14		21.3	
MR0770	36"	RCP	Merrimac River (River Street)	City	09/23/14	0.36" on 09/21/14	Trickle	None	Clear	None	Clear	930	60.6	7.86	713	0	0.25		09/30/14	0.01	09/29/14		19.9	

Table 2- 1- Prioritized List of Outfall Sub-Area Investigations
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2014-2023 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)	Enterococcus (MPN/ 100 ml)
UNK1836	36"	RCP	Computer Drive	City	05/25/22	.2" on 05/22/2022	Trickle	None	Clear	None	Clear	800	51	7.06	6	0.155	0.06	0.05	05/25/22	0.2	05/22/22	2110	0	
UNK1011	24"	RCP	Lake Street	City	06/15/22	.01" on 06/13/22	Trickle	None	None	None	None	815	61	8.2	1795	0	0	0	06/15/22	0.01	06/13/22	0045	8.52	
UNK0627	15"	RCP	Haley Road	City	05/21/15	0.07" on 05/19/15	No Information	None	None	None	None	840	64.5	6.82	791	0	0	0.25	05/22/15	0.07	05/19/15		2	
DPI0947	18"	RCP	177 Brook Street	City	06/15/22	.01" on 06/13/22	Trickle	None	None	None	None	855	60	7.8	1144	0	0	0.02	06/15/22	0.01	06/13/22	0045	34.51	
UNK1189	NA	NA	Primrose Street (DPW)	City	06/15/22	.01" on 06/13/22	No Flow																	
TS0984	24"	RCP	Newton Road	City	05/11/15	0.03" on 05/12/15	Moderate	None	Brown	None	Slight Cloudiness	1111	62.2	6.81	76	0	0	0.25	05/22/15	0.07	05/19/15		<1	
TS0989	24"	RCP	Newton Road	City	05/18/15	0.03" on 05/12/15	Substantial	None	Clear	None	Slight Cloudiness	1100	63.3	7.2	48	0	0	0.25	05/22/15	0.07	05/19/15		<1	
UNK1750	24"	RCP	36 Magnavista Drive	City	05/18/15	0.03" on 05/12/15	Trickle	None	None	None	None	955	64.7	7.6	574	0	0	0.25	05/22/15	0.07	05/19/15		<1	
UNK1040	24"	RCP	Gile Street	City	11/04/21	1.9" on 10/31/21	Trickle	None	None	None	None	930	63.1	7.3	877	0	0	0	05/22/15	0.07	05/22/15		<1	
UNK0902	40"	CMP	Shelley Road - Culvert	City	11/04/21	1.9" on 10/31/21	Moderate	None	Clear	None	Clear		62.6	7.02	1567	0	0	0						
DPO1007	54"	CMP	Kenilworth Lane	City	05/19/21	44697	No Flow																	
UNK0848	18"	RCP	Woodrow Avenue	City	09/09/20	.1" on 09/03/20	No Flow																	
FB0723	18"	RCP	Hanna Ridge Road	City	07/31/19	1.2" on 07/23/19	Moderate	None	None	None	Clear	923	76.6	7.77	440	0	<0.05	0	07/31/19	1.2	07/23/19	1045	8.5	
UNK0888	NA	NA	West Lowell Street	City	06/12/15	0.1" on 06/06/15	Moderate																	
UNK1188	32"	RCP	Primrose Street	City	07/16/19	0.45" on 07/12/19	Trickle	None	None	None	Clear	930	73.9	7.48	855	0.5	<0.05	0	07/16/29	0.45	07/12/19	2045	770.1	
MR38714	6"	PVC	Parkridge Road - Stream Convey	City	06/14/22	.01" on 06/13/22	No Flow																	
MR38718	18"	RCP	Merrimack River	City	09/26/19	0.01" on 09/23/19	Trickle	None	None	None	Clear	1013	68.1	8.01	509	0	<0.05	0	09/29/19	0.01	09/23/19	2240	>2400	
UNK1011	24"	RCP	Lake Street	City	06/15/22	.01" on 06/13/22	Trickle	None	None	None	None	815	61	8.2	1795	0	0	0	06/15/22	0.01	06/13/22	0045	8.52	
UNK0627	15"	RCP	Haley Road	City	05/21/15	0.07" on 05/19/15	No Information	None	None	None	None	840	64.5	6.82	791	0	0	0.25	05/22/15	0.07	05/19/15		2	
DPI0947	18"	RCP	177 Brook Street	City	06/15/22	.01" on 06/13/22	Trickle	None	None	None	None	855	60	7.8	1144	0	0	0.02	06/15/22	0.01	06/13/22	0045	34.51	
LR39512	48"	RCP	Little River	City	07/31/19	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

Laboratory Sampling Dates in Red are the samples taken with less than 48 hours of dry weather.

Table 2-2 SUMMARY OF IDDE INVESTIGATIONS OF SYSTEMS WITH POTENTIAL ILLICIT CONNECTIONS BY BASIN

(BASED ON OUTFALL INSPECTION PROGRAM)

2014-2023 Dry-Weather MS4/Stormwater Outfall Inspection Program

IDDE INVESTIGATION PRIORITIES

		Current Report Period						Completed to Date			
		July 2023 - December 2023						Including this Reporting Period			
Basin ID	Outfall ID	Existing System Estimates		Investigated				Complete to Date			
		Length of Pipe (ft)	Number of Manholes and Catch Basins	Length of Pipe (ft)	Percent Completed	Number of Manholes and Catch Basins	Percent Completed	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%
Frey's Pond TOTAL		**72**	**3**	**0**	**0%**	**0**	**0%**	**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					7,268	100%	88	100%
	LR0963	703	11								
	LR0993	539	4					539	100%	4	100%
	LR0995	822	0								
	LR1103	4,418	4					4,418	100%	4	100%

Table 2-2 SUMMARY OF IDDE INVESTIGATIONS OF SYSTEMS WITH POTENTIAL ILLICIT CONNECTIONS BY BASIN

(BASED ON OUTFALL INSPECTION PROGRAM)

2014-2023 Dry-Weather MS4/Stormwater Outfall Inspection Program

IDDE INVESTIGATION PRIORITIES

		Current Report Period						Completed to Date			
		July 2023 - December 2023						Including this Reporting Period			
Basin ID	Outfall ID	Existing System Estimates		Investigated				Complete to Date			
		Length of Pipe (ft)	Number of Manholes and Catch Basins	Length of Pipe (ft)	Percent Completed	Number of Manholes and Catch Basins	Percent Completed	Length of Pipe (ft)	Percent Completed	Number of Manholes and Catch Basins	Percent Completed
	LR1260[1]	26,134	614					26,134	100%	622	100%
Little River TOTAL		**39,884**	**721**	**0**	**0%**	**0**	**0%**	**38,359**	**96%**	**718**	**100%**
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								

Table 2-2 SUMMARY OF IDDE INVESTIGATIONS OF SYSTEMS WITH POTENTIAL ILLICIT CONNECTIONS BY BASIN

(BASED ON OUTFALL INSPECTION PROGRAM)

2014-2023 Dry-Weather MS4/Stormwater Outfall Inspection Program

IDDE INVESTIGATION PRIORITIES

		Current Report Period						Completed to Date			
		July 2023 - December 2023						Including this Reporting Period			
Basin ID	Outfall ID	Existing System Estimates		Investigated				Complete to Date			
		Length of Pipe (ft)	Number of Manholes and Catch Basins	Length of Pipe (ft)	Percent Completed	Number of Manholes and Catch Basins	Percent Completed	Length of Pipe (ft)	Percent Completed	Number of Manholes and Catch Basins	Percent Completed
	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		**262**	**0**					**262**	**100%**		

Table 2-2 SUMMARY OF IDDE INVESTIGATIONS OF SYSTEMS WITH POTENTIAL ILLICIT CONNECTIONS BY BASIN

(BASED ON OUTFALL INSPECTION PROGRAM)

2014-2023 Dry-Weather MS4/Stormwater Outfall Inspection Program

IDDE INVESTIGATION PRIORITIES

		Current Report Period						Completed to Date			
		July 2023 - December 2023						Including this Reporting Period			
Basin ID	Outfall ID	Existing System Estimates		Investigated				Complete to Date			
		Length of Pipe (ft)	Number of Manholes and Catch Basins	Length of Pipe (ft)	Percent Completed	Number of Manholes and Catch Basins	Percent Completed	Length of Pipe (ft)	Percent Completed	Number of Manholes and Catch Basins	Percent Completed
TOTAL											
GRAND TOTAL		137,927	2,617	0	0%	0	0%	112,255	81%	2,314	88%
		26.12mi.		0.00mi.				21.26mi.			

[1] Estimate Base upon Percentage of Manholes Inspected

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

TABLE 2- 4 SUMMARY OF ILLICIT DISCHARGES IDENTIFIED BY BASIN AND CURRENT STATUS (JULY through DECEMBER 2023)

Description		Illicit Discharge/Connection Verified				Ongoing Illicit Discharge Removal Activities					Final Illicit Connection Removal Actions				
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. City currently conducting sewer separation project			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	2021	This connection is being	NOV	10/5/18-10/10/18: SMH-2190-point repair and manhole	Dec-21	$446,000	-	The Marsh Avenue sewer repair

TABLE 2- 4 SUMMARY OF ILLICIT DISCHARGES IDENTIFIED BY BASIN AND CURRENT STATUS (JULY through DECEMBER 2023)

Description		Illicit Discharge/Connection Verified				Ongoing Illicit Discharge Removal Activities					Final Illicit Connection Removal Actions				
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?
							are extensive; cost exceeds discretionary funds; new fund required in next fiscal year to complete project		removed as quickly as possible and dependent on the availability of funds within the fiscal year.		rehabilitation complete. 10/11/18-10/16/18: Installation of CIPP main line liner on Main Street 10/17/18-10/23/18: Installation of CIPP main line liner on Marsh Avenue 10/24/18: Began installing CIPP of sewer laterals. Groundwater is 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, follow-up testing to be completed next reporting period				project was bid on and awarded to National Water Main Cleaning Company and contract had to be extended to 6/30/19 due to high groundwater. Project was completed by the end of June 2019 but after review of CCTV, it was determined that more CCTV needs to be conducted and 1 defect in lining needs to be repaired.

TABLE 2- 4 SUMMARY OF ILLICIT DISCHARGES IDENTIFIED BY BASIN AND CURRENT STATUS (JULY through DECEMBER 2023)

Description		Illicit Discharge/Connection Verified				Ongoing Illicit Discharge Removal Activities					Final Illicit Connection Removal Actions				
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?
	UNK0951	11/1/2017	Brook Street	Leaking sewer running through drain	Not able to estimate	not removed	Not able to fix due to weather	As soon as weather permits	-	-	Catchment investigation shows flow originating from upstream athletic field drainage	4/17/2018	$4,277	-	Yes, the City is in compliance
	UNK0955	10/14/2016	South Main Street	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			Drain manholes will be exposed and CCTV'd when weather permits to identify source of illicit flow. CCTV conducted showing no infiltration from shopping plaza, additional CCTV will continue in upcoming reporting period.				
	UNK1166	6/11/2020	Franzone Drive	Upstream contamination needs additional IDDE	10gpm est	not removed	CCTV to be completed in next reporting period								

TABLE 2- 4 SUMMARY OF ILLICIT DISCHARGES IDENTIFIED BY BASIN AND CURRENT STATUS (JULY through DECEMBER 2023)

Description		Illicit Discharge/Connection Verified				Ongoing Illicit Discharge Removal Activities					Final Illicit Connection Removal Actions				
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?
	UNK1188	12/25/2012	34 Columbia Park., 66 Columbia Park., 74 Columbia Park., 80 Columbia Park., 90-92 Columbia Park.	5 Single family	N/A	N/A	N/A	N/A	N/A	N/A	5-house sewer services through a drainpipe that were dripping. Install a PVC sleeve through drain	6/8/2016	$13,000	26,481	The 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 waste goes to sewer.	N/A	not removed	CCTV to be completed in next reporting period								
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 inspections in 2020. City will continue to monitor for dry weather flow	N/A	N/A	N/A	Yes, the City is in compliance
											Grand Total =		$463,277	86,481	

Table 2- 3 OUTFALL MAINTENANCE PRIORITY TABLE

July through December 2023

Outfall ID	Work Order Number	High Priority		Medium Priority	Low Priority						
		Couldn't Locate	Buried	Fully Submerged Sediment	Partially Submerged Sediment	Fully Submerged Water	Partially Submerged Water	Abnormal Vegetation	Outfall Damage	Inspection Date	Re-Inspection Date
LR1150	ST00001282		X							19-Jun	23-Jun
CB1199	ST00000595				X					19-Aug	23-May
CB1200	ST00000596				X					19-Aug	23-May
CB1201	ST00000597				X					19-Aug	23-May
CL0681	ST00000600				X					19-Apr	23-May
DPI0841	ST00000608				X					19-Apr	23-May
DPI0965	ST00000609				X					19-Apr	23-May
MR23515	ST00000652				X					23-May	
MR23520	ST00000657				X					23-May	
MR23522	ST00000659				X					23-Jun	
UNK0626	ST00000674				X					19-Apr	23-May
UNK0756	ST00000691				X					19-Apr	23-May
UNK0962	ST00000709				X					23-May	
UNK1801	ST00000758				X					19-Jul	23-Jun
UNK1806	ST00000760				X					23-May	

Table 2- 3 OUTFALL MAINTENANCE PRIORITY TABLE

July through December 2023

Outfall ID	Work Order Number	High Priority		Medium Priority	Low Priority						
		Couldn't Locate	Buried	Fully Submerged Sediment	Partially Submerged Sediment	Fully Submerged Water	Partially Submerged Water	Abnormal Vegetation	Outfall Damage	Inspection Date	Re-Inspection Date
UNK32717	ST00000791				X					19-May	23-May
UNK34712	ST00000793				X					23-May	
UNK34713	ST00000794				X					19-May	23-May
UNK1902	ST00001296							X		19-May	23-May
DPI1131	ST00000619						X			19-May	23-May
DPI1162	ST00000621						X			19-May	23-May
UNK1177	ST00000729						X			19-Jun	23-Jun
UNK1823	ST00000761						X			21-Jul	23-May
LR0979	ST00001304								X	19-Apr	23-Jun
MR1224	ST00000540		X								
UNK0888	ST00000478		X							19-Mar	
UNK0889	ST00000554		X							18-Aug	
UNK0905	ST00000556		X							18-Aug	
UNK0997	ST00000560		X							18-Aug	
UNK1033	ST00000562		X							18-Jun	

Table 2- 3 OUTFALL MAINTENANCE PRIORITY TABLE

July through December 2023

Outfall ID	Work Order Number	High Priority		Medium Priority	Low Priority						
		Couldn't Locate	Buried	Fully Submerged Sediment	Partially Submerged Sediment	Fully Submerged Water	Partially Submerged Water	Abnormal Vegetation	Outfall Damage	Inspection Date	Re-Inspection Date
UNK1136	STI0001311		X							18-Aug	
UNK1207	STI0001312		X							19-Mar	
UNK1221	ST00000568		X							18-Aug	
UNK1907	STI0001313		X							18-Aug	
UNK35912	STI0001314		X							18-Aug	
UNK1773	ST00000575		X							19-Mar	
UNK1774	ST00000576		X							18-Aug	
CB1196	ST00000510			X						19-Mar	
DPI0655	ST00000514			X						19-Mar	
DPI1008	ST00000520			X						19-Apr	
DPO1154	ST00000524			X						19-Mar	
JP1179	ST00000530			X						19-Apr	
LR0844	ST00000083			X						19-Mar	
LR1118	ST00001283			X						19-Mar	
MR1278	ST00000541			X						19-Apr	

Table 2- 3 OUTFALL MAINTENANCE PRIORITY TABLE

July through December 2023

Outfall ID	Work Order Number	High Priority		Medium Priority	Low Priority						
		Couldn't Locate	Buried	Fully Submerged Sediment	Partially Submerged Sediment	Fully Submerged Water	Partially Submerged Water	Abnormal Vegetation	Outfall Damage	Inspection Date	Re-Inspection Date
MR24329	ST00000544			X						19-Apr	
SB11512	ST00000545			X						18-Aug	
TS0987	ST00000548			X						19-Mar	
UNK0064	ST00000551			X						19-Apr	
UNK0782	ST00000553			X						19-Mar	
UNK0935	ST00000558			X						19-Mar	
UNK1017	ST00000561			X						19-Mar	
UNK1076	ST00000563			X						19-Mar	
UNK1137	ST00000564			X						19-Mar	
UNK1183	ST00000566			X						19-Mar	
UNK1748	ST00000573			X						19-Mar	
UNK1772	ST00000574			X						19-Mar	
UNK1906	ST00000580			X						19-Mar	
UNK25513	ST00000583			X						19-Mar	
UNK31513	ST00000584			X						19-Mar	

Table 2- 3 OUTFALL MAINTENANCE PRIORITY TABLE

July through December 2023

Outfall ID	Work Order Number	High Priority		Medium Priority	Low Priority						
		Couldn't Locate	Buried	Fully Submerged Sediment	Partially Submerged Sediment	Fully Submerged Water	Partially Submerged Water	Abnormal Vegetation	Outfall Damage	Inspection Date	Re-Inspection Date
CL0701	ST00000603				X					19-Apr	
DPI0634	ST00000606				X					19-Apr	
DPI1081	ST00000615				X						
DPI1090	ST00000617				X					19-Apr	
FB7114	ST00000629				X					19-Apr	
LR0931	ST00000635				X					19-Apr	
LR1099	ST00000636				X					19-Apr	
LR1102	ST00000637				X					19-Apr	
MR23513	ST00000650				X					21-Aug	
MR23514	ST00000651				X						
MR23516	ST00000653				X						
MR23517	ST00000654				X						
MR23518	ST00000655				X						
MR23519	ST00000656				X						
MR23523	ST00000660				X						

Table 2- 3 OUTFALL MAINTENANCE PRIORITY TABLE

July through December 2023

Outfall ID	Work Order Number	High Priority		Medium Priority	Low Priority						
		Couldn't Locate	Buried	Fully Submerged Sediment	Partially Submerged Sediment	Fully Submerged Water	Partially Submerged Water	Abnormal Vegetation	Outfall Damage	Inspection Date	Re-Inspection Date
MR23524	ST00000661				X						
MR23525	ST00000662				X						
MR24316	ST00000663				X					19-Apr	
MR24318	ST00000664				X						
MR24718	ST00000665				X					19-Apr	
SB1117	ST00000668				X					19-Apr	
UNK0885	ST00000701				X					19-Apr	
UNK0950	ST00000706				X					19-Apr	
UNK1000	ST00000710				X					19-Apr	
UNK1005	ST00000711				X					19-Apr	
UNK1006	ST00000712				X					19-Apr	
UNK1111	ST00000717				X					19-Apr	
UNK1123	ST00000718				X					19-Apr	
UNK1160	ST00000722				X					19-Apr	
UNK1174	ST00000726				X					19-Apr	

Table 2- 3 OUTFALL MAINTENANCE PRIORITY TABLE

July through December 2023

Outfall ID	Work Order Number	High Priority		Medium Priority	Low Priority						
		Couldn't Locate	Buried	Fully Submerged Sediment	Partially Submerged Sediment	Fully Submerged Water	Partially Submerged Water	Abnormal Vegetation	Outfall Damage	Inspection Date	Re-Inspection Date
UNK1205	ST00000732				X					19-Apr	
UNK1213	ST00000734				X					19-Apr	
UNK1263	ST00000736				X					19-Apr	
UNK1265	ST00000737				X					19-Apr	
UNK1684	ST00000742				X					19-Apr	
UNK1686	ST00000744				X					19-Jul	
UNK1738	ST00000751				X					21-May	
UNK1802	ST00000759				X					19-Jul	
UNK1867	ST00000770				X						
UNK1891	ST00000773				X					19-Apr	
UNK1899	ST00000775				X					19-Jul	
UNK1900	ST00000776				X					19-Jul	
UNK24721	ST00000780				X					19-Aug	
UNK26725	ST00001286				X					19-May	
UNK26726	ST00000784				X						

Table 2- 3 OUTFALL MAINTENANCE PRIORITY TABLE

July through December 2023

Outfall ID	Work Order Number	High Priority		Medium Priority	Low Priority						
		Couldn't Locate	Buried	Fully Submerged Sediment	Partially Submerged Sediment	Fully Submerged Water	Partially Submerged Water	Abnormal Vegetation	Outfall Damage	Inspection Date	Re-Inspection Date
CB0977	ST00001288							X			
DPO0657	ST00001291							X		19-May	
FB0715	ST00001293							X			
UNK0906	ST00001294							X			
DPI0945	ST00000519					X				19-May	
DPI1133	ST00000522					X				19-May	
MR20719	ST00000542					X					
TS0989	ST00000549					X				19-Apr	
KL26714	ST00000533					X					
DPI0970	ST00000610						X				
DPI1007	ST00000614						X				
DPI1084	ST00000616						X				
DPI1125	ST00000618						X				
DPI1197	ST00001299						X				
KL1178	ST00000633						X			19-Apr	

Table 2- 3 OUTFALL MAINTENANCE PRIORITY TABLE

July through December 2023

Outfall ID	Work Order Number	High Priority		Medium Priority	Low Priority						
		Couldn't Locate	Buried	Fully Submerged Sediment	Partially Submerged Sediment	Fully Submerged Water	Partially Submerged Water	Abnormal Vegetation	Outfall Damage	Inspection Date	Re-Inspection Date
LR1260	ST00000642						X				
TS0984	ST00000670						X			19-Apr	
TS33514	ST00000673						X			19-Apr	
UNK0665	ST00000678						X			19-May	
UNK0666	ST00000679						X			19-May	
UNK0729	ST00000689						X				
UNK0955	ST00000708						X				
FB1168	ST00000723						X				
UNK1176	ST00000728						X			19-Jul	
UNK1188	ST00001301						X			19-Apr	
UNK1206	ST00000733						X			19-May	
UNK1220	ST00000735						X				
UNK1695	ST00000745						X			19-Apr	
UNK1749	ST00000752						X			19-Apr	
UNK6316	ST00001303						X			19-May	

Table 2- 3 OUTFALL MAINTENANCE PRIORITY TABLE

July through December 2023

Outfall ID	Work Order Number	High Priority		Medium Priority	Low Priority						
		Couldn't Locate	Buried	Fully Submerged Sediment	Partially Submerged Sediment	Fully Submerged Water	Partially Submerged Water	Abnormal Vegetation	Outfall Damage	Inspection Date	Re-Inspection Date
UNK8312	ST00000797						X				
MR0607	ST00001305								X	19-May	
TS0983	ST00001307								X	19-Apr	
UNK1173	ST00001308								X		
MR0927	ST00001309										
UNK1189	ST00001310										
Inspection dates in blue indicate an item has been closed											

2.4 IDENTIFIED ILLICIT CONNECTIONS AND CURRENT PRIORITY LIST STATUS RESOLUTION

The ongoing and cumulative status of the City's efforts to remove any identified illicit connections or discharges is summarized in Table 2-4.

Merrimack River Basin Outfalls – MR1164 has been removed from the priority list as it is seasonal groundwater flow from top of catchment.

Little River Basin Outfalls – LR0952 has been removed from the priority list as it is connected to athletic field drainage and is considered an excluded outfall. Upstream investigation showed no flow from catchment not originating from athletic field drainage.

Unknown Basin Outfalls - UNK0951– has been removed from the priority list as it is connected to athletic field drainage and is considered an excluded outfall. UNK1020 was removed from the priority list as sampling results were within acceptable permit limits. UNK1680 was removed from the priority list for no flow.

Pentucket Lake Basin Outfalls – PL0891 was sampled for wet weather flows and sample results are shown on table 2-1.

Detention Pond Inlets Outfalls – DPI0696 was removed from the priority list as it is connected to athletic field drainage and is considered an excluded outfall.

SECTION 3 SSO & BUILDING/PRIVATE PARTY BACKUP EVENTS

3.1 SSO ACTIVITY

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

Over the Reporting Period, there were a total of seven reportable SSO events associated with the City's sewer collection system. One SSO on August 8, 2023, met the criteria for public notification.

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 seven 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. The City currently has approximately 197 miles of sewer.

TABLE 3- 1 SANITARY SEWER OVERFLOW EVENTS JULY THROUGH DECEMBER 2023

CITYWORKS Work Orders	12267	12680	12834		15178	15581	16349
SSO ID	SSO-23-10	SSO-23-11	SSO-23-12	Multiple*	SSO-23-16	SSO-23-17	SSO-23-18
SSO Address	Carleton Street LS	6-20 Burnham Street	11 Rosedale Avenue	Multiple Calls	43 Linwood Street	326 Concord Street	35 People Place
Start Date/Time	7/3/2023 14:20	7/28/2023 5:30	7/31/2023 17:00	8/8/2023 NA	10/15/2023 11:00	11/2/2023 7:00	11/19/2023 11:30
End Date/Time	7/3/2023 14:50	7/28/2023 6:30	7/31/2023 18:00	8/8/2023 NA	10/15/2023 11:45	11/2/2023 8:00	11/19/2023 11:30
Date Reported EPA/DEP	7/3/2023 17:00	7/28/2023 20:15	8/1/2023 16:30	8/9/2023 13:00	10/15/2023 18:30	11/2/2023 11:30	11/19/2023 21:00
Who Notified	Paul Jessel	Isaiah Lewis	Isaiah Lewis	Isaiah Lewis	Isaiah Lewis	Isaiah Lewis	Isaiah Lewis
Reason For Occurrence	Sewer Main Blocked	Water Main Break	Sewer Line collapsed needs to repair	Washington Street Sewer Break/ City wide location	Sewer Main Blocked	Sewer Main Blocked	Lift Station Electrical issue
Date off Last SSO Occurrence	12/30/2016 12:00	First Occurrence	3/25/2008 0:00	First Occurrence	First Occurrence	6/1/2019 14:30	12/5/2021 16:00
SSO Est. Volume	500	NA	10	100,000	500	25	500
Receiving Waters If Sewerage Entered	Yes	NA	NA	Merrimack River	NO	NO	NO
Method Use to Estimate Volume	Visual	Visual	Visual	Visual	Visual	Visual	Visual
Nearest CB Location ID	CB-3938	CB-7664	CB-2708	Citywide damages	CB-8556	CB-3636	CB-7610
Distance To Nearest CB (FT.)	150	30	315	Citywide damages	365	47	55
Name o Receive Water Whether or Not There Was a Release	Unknown	NA	NA	Citywide damages	NA	NA	NA
Rntered CB Yes or NO	NO	NO	NO	Citywide damages	NO	NO	NO
Measured Taken Stop SSO	Flushed sewer main	Flushed sewer main	Made repair flushed line	Citywide damages	Flushed sewer main	Flushed sewer main	National Grid Called
Decontaminate	YES	NA	YES	Citywide damages	YES	YES	YES
Measured Taken To Prevent Future Overflows		Private		Citywide damages	CCTV Line	CCTV Line	Electrical Phase Issue
Sewerage Location Into Stream	YES	NO	NO	Citywide damages	NO	NO	NO
SSO Ownership City Or Private	CITY	Private	CITY	Citywide damages	CITY	CITY	CITY
			*8/8/2024 Total rainfall 4.62" Intensity 3.0 in./hr.				

8/8/2024 Total rainfall 4.62" Intensity 3.0 in./hr.

SECTION 4 CONSTRUCTION SITE INSPECTION AND ENFORCEMENT PROGRAM

4.1 ENFORCEMENT ACTIVITY

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 2023.

Thus far, most 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 fifteenth reporting period (July through December 2023) there was one deliverable and/or activities due within that timeframe to achieve compliance. The 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 lines in various locations, installing a cured in place lining in a 54-inch sewer main, and rehabbing sewer lines in other various locations. In October of 2022, the City submitted the Locke Street Preliminary Design Report as well as updated Final Long Term Control Plan schedules for the Locke Street and Wastewater Treatment Plant projects.

Wright-Pierce is scheduled to begin design for Phase 2 CSO separation and we will report on the progress in our next Compliance report.

Wright-Pierce Completed the City's Water Pollution Abatement Facility's Rehabilitation and Upgrade Project Evaluation in February of 2023. The City has drafted a new RFQ that meets the requirements of the American Rescue Plan Act (ARPA). The new RFQ includes preliminary design, final design, bidding, and construction. Wright-Pierce was selected for the project, and it is anticipated the preliminary design will begin in the next reporting period.

The City has implemented a new Computerized Maintenance Management System (CMMS), Cityworks. The system's CCTV module was the last piece to be implemented and will be utilized to develop consequence of failure, likelihood of failure, and overall "risk" values through CCTV and will be integrated into the City's long-term CIP. Cityworks also has reporting capabilities for outfall inspection and investigation, catch basin cleaning and inspection, and any corrective or preventative maintenance associated with sewer and stormwater

(lift station checks, cleaning of sewer lines, etc.) Cityworks is also being 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 2023 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**		
	Semi Annual CD Report	10/31/23	10/31/23

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 2023, is shown in Table 5-2.

TABLE 5-2 DELIVERABLES DURING THE NEXT REPORTING PERIOD (JANUARY to JUNE 2024)

Part	**Activity**	**Trigger Event**	**# Days Due** *Post Trigger Event*	**Due Dates**
Effective Date of Consent Decree		**11/10/16**		
M	CSO Monitoring			
	Annual CSO Activation Report	12/31/23	90	03/31/24
IX	Compliance Reporting			
	Compliance Report No. 15	12/31/23	120	04/30/24

SECTION 6 SECONDARY TREATMENT BYPASS

6.1 INTRODUCTION

The intent of this section is to summarize the secondary treatment bypass events that occurred at the City of Haverhill's Water Pollution Abatement Facility during the reporting period, July through December 2023.

6.2 BYPASS EVENTS

There were two secondary treatment bypass events that occurred during the reporting period, which are listed in Table 6-1. The table provides all information required under the Consent Decree.

TABLE 6- 1 SECONDARY TREATMENT BYPASS EVENTS

Bypass Event	#	2023-02		2023-03	
Date of Bypass		12/11/2023		12/18/2023	
Date of Rainfall		12/11/2023	12/12/2023	12/18/2023	12/19/2023
Weather Rainfall	Inches	2.08	0.46	2.05	0.00
snow melt	(y/n)	No	No	No	No
Influent Flow	MGD	40.39	17.91	51.84	32.78
Bypass Flow Total	MG	4.24	0.00	8.31	0.00
Q, bypass start time		4:40 AM		9:45 AM	
Plant Flows @ Start	MGD	60		65	
Q, bypass stop time		8:45 AM		5:35 PM	
Plant Flows @ Stop	MGD	51		62	
Max Influent		64.89	24.2	65.00	46.18
Influent Septage Received	Gallons	55,500	46,000	30,000	47,000
Influent TSS	mg/L	144	152	144	96
Effluent TSS	mg/L	12.80	13.00	10.80	13.20
Aeration Basin #1 Sludge Volume Index	ml/g	234	207	163	219
MLSS Lab	mg/L	1,326	2,078	1,470	1,596
Mean Cell Residence Time	Days	2.85	2.20	3.65	2.45
Aeration Basin #2 Sludge Volume Index	ml/g	272	220	272	220
MLSS Lab	mg/L	782	1,322	846	956
Mean Cell Residence Time	Days	2.31	1.67	3.09	1.95
Aeration Basin #3 Sludge Volume Index	ml/g	252	261	303	251
MLSS Lab	mg/L	874	1,416	858	1,036
Mean Cell Residence Time	Days	2.40	1.73	3.10	2.01
Aeration Basins Online	#	3	3	3	3
Secondary Clarifier #1 Depth of Blanket	ft	10.0	3.5	7.0	5.0
Secondary Clarifier #2 Depth of Blanket	ft	11.0	2.0	9.0	5.0
Secondary Clarifier #3 Depth of Blanket	ft	11.0	3.0	8.0	2.5
Secondary Clarifiers Online	#	3	3	3	3

Note:
Gaps for requested data are due to secondary treatment bypass events occuring on a non-sampling days.

6.3 RAINFALL DATA

The Facility's operating data is captured and recorded by the SCADA/WIMS Systems each day from 12:00 AM until 11:59 PM. The National Oceanic and Atmospheric Administration (NOAA) weather station recording procedures require that precipitation is recorded from 7:00 AM to 6:59 AM, with the data observed on the second day. The date inconsistencies between WPAF and NOAA data result

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 Reports.

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7.2 CMOM CORRECTIVE ACTIONS

The CMOM identified twenty-six deficiencies, their recommended corrective actions, and an implementation schedule, which are listed in Table 7-1. Table 7-1 was simplified for readability purposes. Item 10 was duplicated and was deleted in Compliance Report Number 10, thus now equaling twenty-five deficiencies.

Table 7-1 has been updated to show all remaining deficiencies and the City's progress. To view the complete table see the previous year submission located here.

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 for this reporting period are listed in Table 7-2.

TABLE 7- 1 CMOM DEFICIENCIES COMPLETED

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
1	The City does not have a formal long-term plan to mitigate SSO.			This action item has been completed and closed. Please see Compliance Report 12 for final comments.
2	The City does not have a comprehensive system to prioritize investigations, repairs, and rehabilitation.			This action item has been completed and closed. Please see CD12 for final comments.
3	The City does not have updated job descriptions that match technical requirements for a modern collection system utility.			This action item has been completed and closed. Please see CD12 for final comments.
4	Although the City training program includes some key safety training, staff would benefit from a formalized safety and technical training program.			This action item has been completed and closed. Please see CD12 for final comments.
5	Although the City uses MaintStar to track customer complaints, they do not use the database to			This action item has been completed and closed. Please see CD12 for final comments.

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
	prioritize preventative maintenance.			
6	The City lacks a comprehensive, risk-based approach to maintenance planning.			This action item has been completed and closed. Please see CD12 for final comments.
9	The City should update recordkeeping pertaining to private systems			This action item has been completed and closed. Please see CD12 for final comments.
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			This action item has been completed and closed. Please see CD12 for final comments.
12	The City does not have a standard procedure for maintaining safety training records.			This action item has been completed and closed. Please see CD12 for final comments.
13	The City has a general emergency response plan (ERP). The Division recently completed an ERP for responding to SSOs.			This action item has been completed and closed. Please see CD12 for final comments.

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
	The Division lacks ERP for other collection system emergencies.			
18	Not all pump stations have communication ability. Lack of communication at pump stations has contributed to SSOs.			This action item has been completed and closed. Please see CD12 for final comments.
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.			This action item has been completed and closed. Please see CD12 for final comments.
21	The City does not have a dedicated location for offloading and dewatering sewer cleaning. The City does not have an enclosed location for storage of their sewer maintenance vehicles.			This action item has been completed and closed. Please see CD12 for final comments.
25	The City lacks public education materials associated with roof leaders and sump pumps.			This action item has been completed and closed. Please see CD12 for final comments.

7.4 REMAINIG DEFICIENCIES

Action Number 7

Deficiency: Local limits need to be updated.

Recommended Corrective Action:

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).

Implementation Schedule:

Within **one year** after EPA approves the CMOM Action Plan

Status:

Local limits evaluation was finalized and submitted to EPA for review on June 23, 2021, and subsequently approved. The City is planning to present an updated SUO to the Council for approval.

Action Number 8

Deficiency:

The City needs to improve implementation and enforcement of their Sewer Use Ordinance (SUO).

Recommended Corrective Action:

Improve implementation and enforcement of the SUO. Begin mapping Food Service Establishments in GIS and building database of grease trap inspectional data.

Implementation Schedule:
Within **one year** after EPA approves the CMOM Action Plan

Status:
Cityworks (CMMS) has been updated to reflect all food service establishments (FSE) and is updated as new Food Service Wastewater Discharge Permits are issued. All FSE's are inspected annually.

In December of 2020 the City completed draft updates to the SUO for FOG inspection implementation and enforcement, as well as an update to the Enforcement Response Plan. The City is planning to present an updated SUO to the Council for approval.

Action Number 11

Deficiency:

The City has not verified that other air relief valves do not exist. Maintenance of air relief valves has not been performed historically.

Recommended Corrective Action:

Review record drawings and inspect force main routes to confirm location of air relief valves. If located, enter into GIS and schedule routine maintenance in CMMS.

Implementation Schedule:

Within **one year** after EPA approves the CMOM Action Plan

Status:

Ongoing. The City has identified three air release valves for four lift stations including Elliot Street, Lake Street and Fondi Road/Hilldale Lift Station common force main. The City will develop a CityWorks PM schedule following the manufacturer's recommendations.

Action Number 14

Deficiency:

The City does not have formal emergency response training.

Recommended Corrective Action:

Implement a program for training and practicing emergency response.

Implementation Schedule:

Within **one year** after EPA approves the CMOM Action Plan

Status:

The Wastewater Staff have been trained and additional training will be documented in 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.

Action Number 15

Deficiency:

The City has a hydraulic model for interceptors and CSOs, but there is no city-wide hydraulic model.

Recommended Corrective Action:

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.

Implementation Schedule:
As Needed

Status:
The City's GIS system is updated by City staff on an ongoing basis which will provide a good foundation for a future model.

Action Number 16

Deficiency:

The City does not have adequate staff to perform sufficient preventative maintenance on all 36 pump stations.

Recommended Corrective Action:

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.

Implementation Schedule:

Within **one year** after EPA approves the CMOM Action Plan

Status:

The City developed a job description for a new Collection System MEO/laborer and hired a qualified candidate. The City outsources many tasks. 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 Number 17

Deficiency:

Although there is generally sufficient redundancy of pumps and level controls, some stations require specific upgrades related to redundancy.

Recommended Corrective Action:

The City will utilize the recommendations of the Pump Station Evaluation (Wright Pierce, 2016) to evaluate future rehabilitation.

Implementation Schedule:

Ongoing

Status:

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 considered for rehabilitation/upgrades as outlined in the Pump Station CIP The City will utilize remaining life of each station, consequence of failure, and station functions. The City has ranked each station based upon its' function. Ejector Station rank 1; Vacuum Prime rank 2; Flooded Suction rank 3; Submersible rank 4. Mission alarms are currently installed in all thirty-six lift stations. Three more stations are in design with another one being evaluated. Contract award June 30, 2024, then construction early fall.

Action Number 20

Deficiency:

There is currently no schedule for cleaning sewer lines on a system-wide basis.

Recommended Corrective Action:

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.

Implementation Schedule:

Will begin to implement program within six **months** after EPA approves the CMOM Action Plan

Status:

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. Sewer lines are also cleaned prior to planned CCTV inspections. The City, with its consultant Weston and Sampson developed a five-year CCTV program focusing on high-risk areas.

Action Number 22

Deficiency:

The City does not have a list of assets located on rights-of-way. The City has also not developed an SOP for maintenance of rights-of-way and easements.

Recommended Corrective Action:

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.

Implementation Schedule:

Within **two years** after EPA approves the CMOM Action Plan

Status:

The City has input easements into GIS as assets. These assets will be populated, and SOPs will be made, as well as the development of a preventative maintenance plan. These easements will be added to our CMMS program and a PM schedule will be created for easement inspections.

Action Number 23

Deficiency:

There is no systematic program for uncovering manholes that have been paved over.

Recommended Corrective Action:

- Identification of paved over manholes as part of routine.
- Add paved-over manholes to GIS.
- Adding work orders to CMMS for raising paved-over manholes.

Implementation Schedule:

Within **two years** after EPA approves the CMOM Action Plan

Status:

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". A SOP has been developed for identifying, locating, and exposing covered manholes.

Action Number 24

Deficiency:

Although the City has identified areas with high measured inflow, building inspections have not been performed.

Recommended Corrective Action:

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.

Implementation Schedule:

Within **two years** after EPA approves the CMOM Action Plan

Status:

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 click here.

Action Number 26

Deficiency:

The City does not have a system-wide manhole inspection program

Recommended Corrective Action:

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.

Implementation Schedule:

Will begin to implement program within **six months a**fter EPA approves the CMOM Action Plan

Status:

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.

The City will ask CCTV venders to perform a MACP level 1 when they CCTV a sewer segment. 123 MACP level 1 inspections were done in the first half of 2023. 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". A SOP has been developed for performing NAASCO MACP level 1 inspections.

TABLE 7- 2 CMOM RELATED EXPENDITURES

DURING REPORTING PERIOD 15 (JULY THROUGH DECEMBER 2023)

Account	CD Report No. 15 Totals:	Account Description
Lift Station Operation and Maintenance	$71,151	Used to fund costs for maintenance and repair of the wastewater collection system.
Sewer Assessment & Inspection	$92,227	Used to fund cleaning, CCTV inspection, and assessment of sewer lines and the disposal of sewer cleaning debris.
Service Contracts	$95,555	Used to fund the annual service contracts for various items including CSO metering, CMMS, etc.
Wastewater Infrastructure	$47,741	This account is used for urgent sewer repairs.
Wastewater Capital	$0	Funds are used for expenditures greater than $10,000 with a life greater than 3-years.
Storm Water - Capital	$0	Funds stormwater improvement projects.
Stormwater Expense	$70,717	Funds various expenses related to stormwater system operation and maintenance, street sweeping, federal and state permit requirements, and the downtown flood system.
Primrose Street Phase I Locke Street Sewer Separation Project and sewer replacement	$390,259	Phase I includes sewer mains that have reached the end of their useful life.
August Rainstorm	$1,228,008	Funds allocated in the replacement of the Washington sewer major break
Total Spent During Reporting Period	$1,995,658	

APPENDIX A

CMMS GENERATED WORK ORDERS

APPENDIX B

IDDE Program Supporting Documents

APPENDIX C

Bypass Supporting Documents

HAVERHILL, MA - WWTP - DAILY LOG

Date: 12/11/23

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	Walter Alce	Silas Roberts	Brett Robart	
2nd	Kevin Rutledge	kevin Rutledge	BR	Silas Roberts
3rd	Joe Schena		Justin Mazzotta	
LAB	Ken Jones			

WEATHER: Snowmelt
Hi: 62 Lo: 41 Ob:
Rain: 2.08 Snow:
Conditions: Rain
snowco

PRIMARY SCUM LEVEL: SCREENINGS CARTS:

INFLUE	Q,Daily Total	MAX	MIN
	40.39	64.89	18.40
Q,byp	start/stop times am or pm & Q	4:40 AM	
Q,byp Status		activated	
Q,bypa	4.24	Q to 2nd	36.15

	Old	New	Plant	Pump Station	Grit qty
1st	2.52	10.22	4	0	0
2nd	4.09	10.22	4/5	2	
3rd	4.34	3.48	5		

PLANT (*1600) POWER

End 1st_____KVA (06)_____KW (06)
End 2rd_____KVA (06)_____KW (06)
End 3rd_____KVA (06)_____KW (06)

Centrifuge:	1597
Primary:	7094
Secondary:	5395
Aeration:	6219
Total:	17563

12 Mid PUMP STATION (*450) POWER

12 Mid Start 1st _____KW(06) _____KVA(0
12 Mid Start 2nd_____KW(06) _____KVA(0
12 Mid Start 3rd_____KW(06) _____KVA(0

COLLECTOR SPEED

	#1	#2	#3
1st___	slow	slow	slow
2nd___	slow	slow	slow
3rd___	slow	slow	slow
PSTs on-line		3	

AERATION: Dissolved Oxygen

ATs on-line 3

#1_____	AT#1 infl do avg	2.5
#3_____	AT#1 effl do avg	4.3
#4_____	AT#2 infl do avg	4.9
#6_____	AT#2 effl do avg	4.4

Gravity Thickeners DOB:

	#1	#2
1st	5.0	3.0
2nd	3	4
3rd	3.0	0.5

Torque:

	#1	#2
1st	n/a	n/a
2nd	n/a	n/a
3rd	n/a	n/a

Weekly Septage Pumped 267239 Gals

SEPTAGE LEVEL

1st____ 5.06 ft
2nd_____ft
3rd_____ft

Cl2 vol

	Tank #1	Tank #2
1st		1664
2nd		1503
3rd		
Total	462	Gallons

TWAS LEVELS:

	#1	#2	#3
1st	12	12	12
2nd	12	12	12
3rd	9	10	11

	Cl2	Time	Q(MGD)
TRC 1	0.13	11:45 PM	13.60
TRC 2	0.53	2:00 pm	30.94
TRC 3	0.31	6:53 pm	21.38

Dosage Setpoint
Effluent Cl2, mg/l 1.90

Inplant _____/_____/_____
_____/_____/_____

CHLORINE RESIDUAL: 0.32 mg/l

CHEMICALS:
Sodium Hypo_____8
Polymer dry ___162
Polymer liq._____2098
Hydroxide_____drums
Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
5.7	5.5	7	3.6	5.3	6.5

RAS# _____ SC# _____	RAS# _____ SC# _____	RAS# _____ SC# _____	_____
3.15	3.30	3.15	0.00

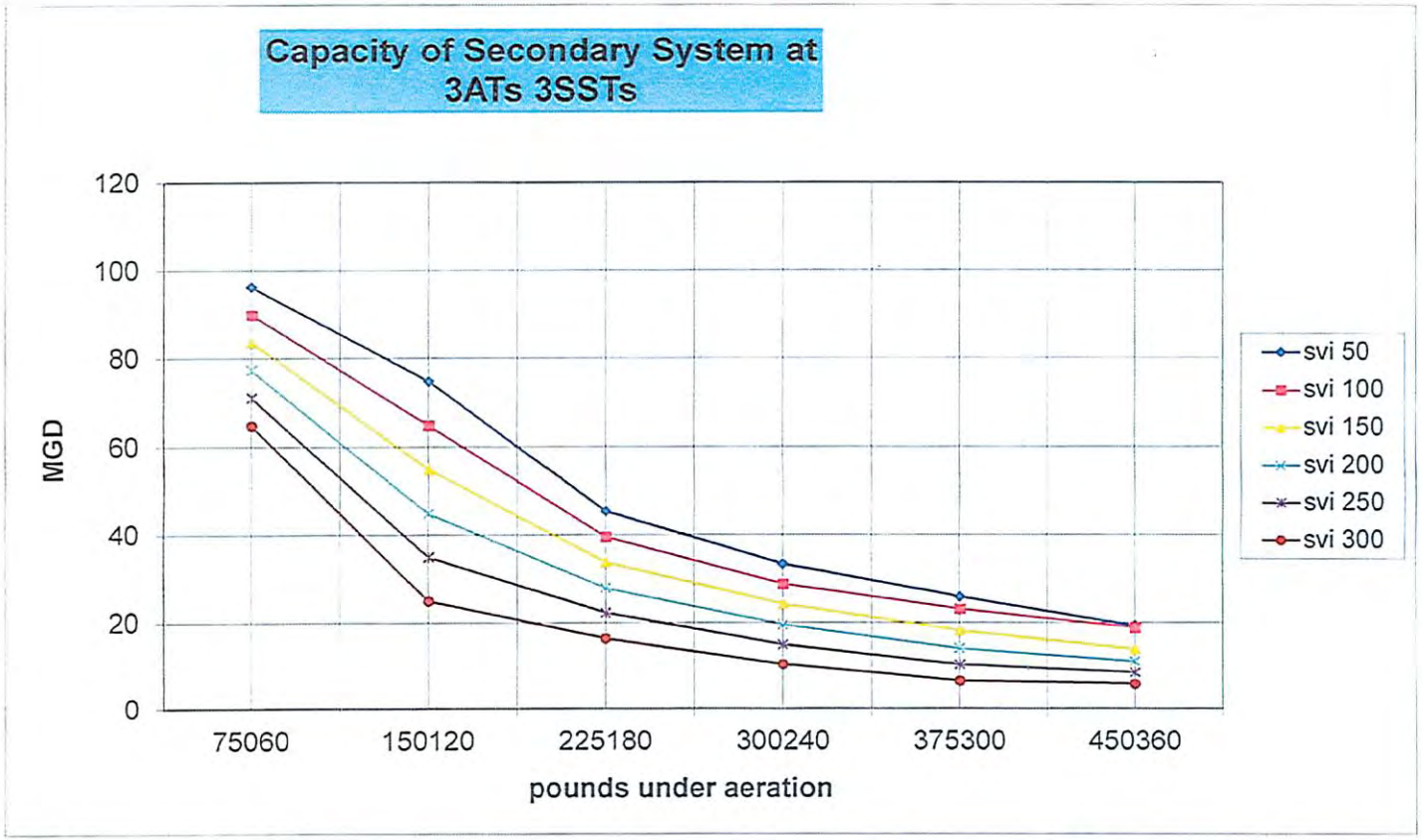
SECONDARY CLARIFIERS
SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
5.67	0.0	3.8

DOB by Operators

	#1		#2		#3	
1st	5.0	10.0	4.0	11.0	4.0	11.0
2nd	4.0	5.0	5.0	3.0	4.0	3.0
3rd	2.0	2.0	6.0	7.0	2.5	2.5



date:	12/11/2023	Flow, MG	SVI	MLSS	lbs	SRO	setting selected, MG
bypass start time:	4:40 AM	60	282	1,781	110,000 est	WA/KR	35
bypass stop time:	8:45 AM	51					

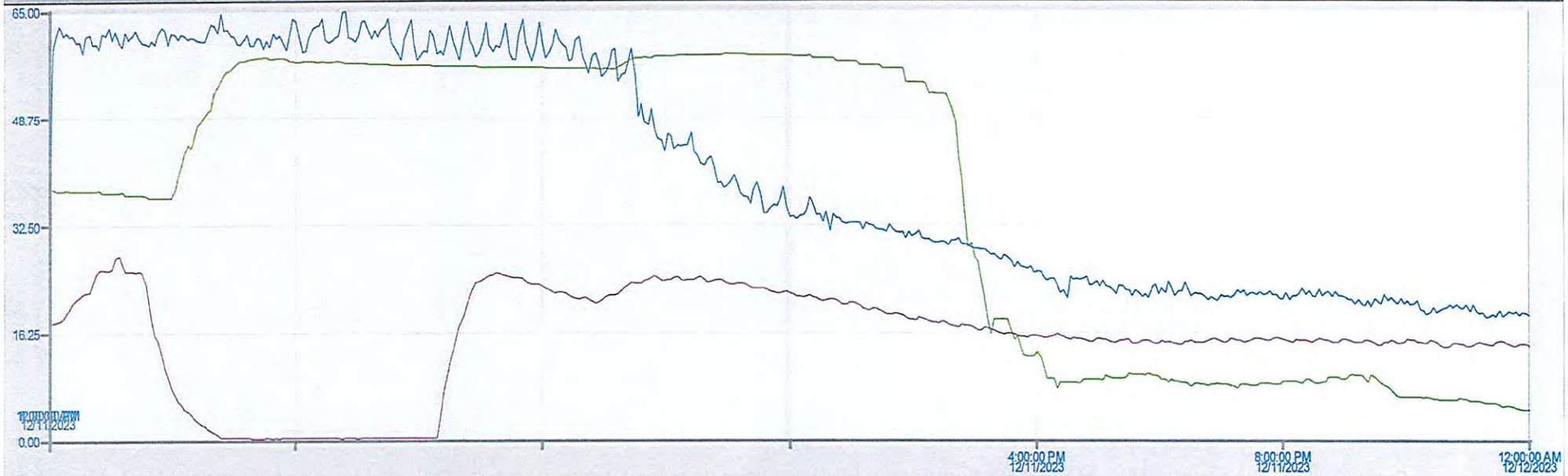
LOGIN

PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

INF. FLOW 14.19 MGD | CSO OVERVIEW | ALARMS | 3/18/2024

HISTORY MENU | MAIN MENU | 11:21:56 AM



DESCRIPTION	VALUE	MAX	MIN	AVG	UNITS	TAG
INFLUENT FLOW (F_CV)	35.48	65.00	18.50	40.62	MGD	WWTP.WW_SCADA.INFLUENT_FLOW.F_CV
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	14.37	14.40	1.11	9.06	FEET	WWTP.WW_SCADA.SEC_CLAR_1_SLUDGE_BLANKET.F_CV
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	0.00	0.00	0.00	0.00	FEET	WWTP.WW_SCADA.SEC_CLAR_2_SLUDGE_BLANKET.F_CV
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	5.55	6.87	0.07	3.79	FEET	WWTP.WW_SCADA.SEC_CLAR_3_SLUDGE_BLANKET.F_CV

Set to Current Time

Set Starting Time

◀◀ ◀ ▶ ▶▶

15 MIN | 1 HR | 4 HR | 8 HR | 1 DAY | 1 WEEK | 1 MONTH | 3 MONTHS | 1 YEAR

Ack.	Time In	Date In	Description	Value	Status
	10:31:07.478	3/18/2024	AERATION TRAIN 2 INFLUENT DO HIGH	NORMAL	CFN
	10:30:55.603	3/18/2024	MIDDLE SIPHON INLET LEVEL BAD SIGNAL	BAD SIGNAL	CFN
	22:39:03.217	3/16/2024	REMOTE I/O PANEL UPS ON BATTERY POWER	NORMAL	CFN
✓	12:01:29.801	3/15/2024	AERATION TRAIN 1 INFLUENT DO LOW	LOW DO	CFN
✓	14:20:39.643	3/11/2024	AERATION BLOWER 1 ESTOP	E-STOP	CFN
✓	07:13:02.283	3/10/2024	LOWER SIPHON RIVER LEVEL HIGH	PROHIBIT CSO	CFN

Total Alarms: 18 | Filter: Off | Sort: Time In, Descending | Shelved: False | Run

LOGIN

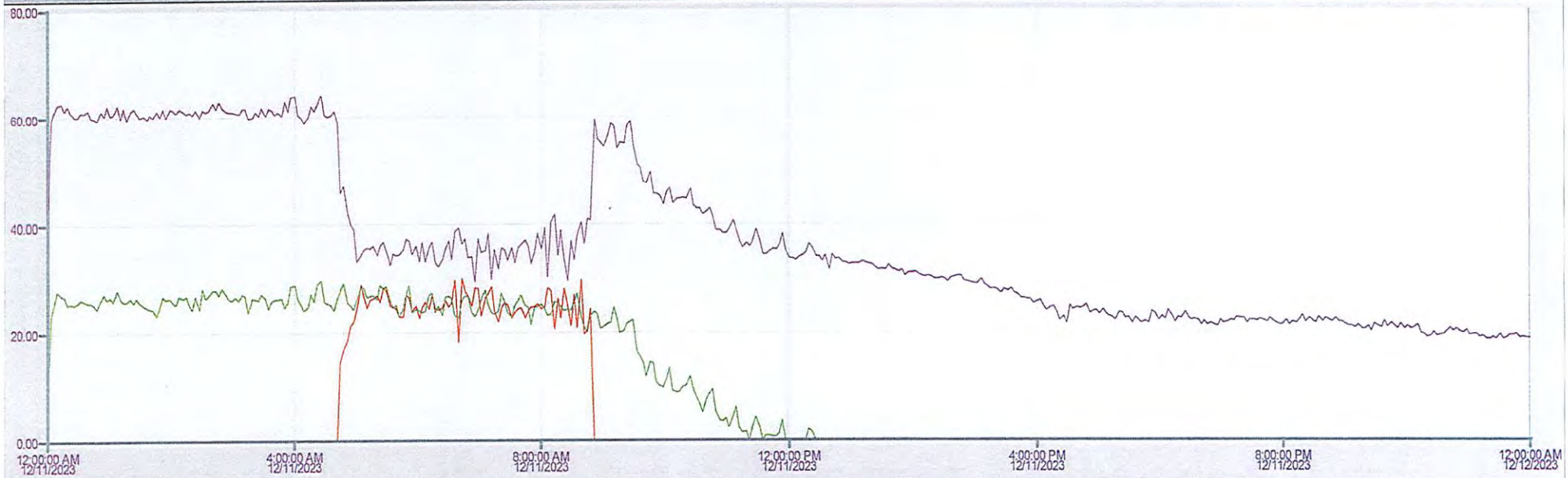
BYPASS MULTI TREND

CITY OF HAVERHILL, MA - WWTF

INF. FLOW 14.10 MGD

CSO OVERVIEW | ALARMS | 3/18/2024

HISTORY MENU | MAIN MENU | 11:21:09 AM



DESCRIPTION	VALUE	MAX	MIN	AVG	UNITS	TAG
SECONDARY FLOW RATE (F_CV)	34.88	64.05	18.56	36.53	MGD	WWTP.WW_SCADA.SECONDARY_FLOW_RATE.F_CV
BYPASS FLOW (F_CV)	0.00	30.25	0.00	4.24	MGD	WWTP.WW_SCADA.BYPASS_FLOW.F_CV
BYPASS FLOW AUTO SP (F_CV)	-0.27	29.74	-10.14	10.01	MGD	WWTP.WW_SCADA.BYPASS_FLOW_AUTO_SP.F_CV
BYPASS CHLORINE (F_CV)	0.00	0.00	0.00	0.00	PPM	WWTP.WW_SCADA.BYPASS_CHLORINE.F_CV

Set to Current Time

Set Starting Time

◀◀ ◀ ▶ ▶▶

15 MIN | 1 HR | 4 HR | 8 HR | 1 DAY | 1 WEEK | 1 MONTH | 3 MONTHS | 1 YEAR

Ack	Time In	Date In	Description	Value	Status
	10:31:07.478	3/18/2024	AERATION TRAIN 2 INFLUENT DO HIGH	NORMAL	CFN
	10:30:55.603	3/18/2024	MIDDLE SIPHON INLET LEVEL BAD SIGNAL	BAD SIGNAL	CFN
	22:39:03.217	3/16/2024	REMOTE I/O PANEL UPS ON BATTERY POWER	NORMAL	CFN
✓	12:01:29.801	3/15/2024	AERATION TRAIN 1 INFLUENT DO LOW	LOW DO	CFN
✓	14:20:39.643	3/11/2024	AERATION BLOWER 1 ESTOP	E-STOP	CFN
✓	07:13:02.283	3/10/2024	LOWER SIPHON RIVER LEVEL HIGH	PROHIBIT CSO	CFN

Total Alarms: 18 | Filter: Off | Sort: Time In, Descending | Shelved: False | Run

HAVERHILL, MA - WWTP - DAILY LOG

Date: 12/18/23

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	Mark Brasier		Silas Roberts	
2nd	Joe Schena	Justin Mazzotta	BR	Joe Schena
3rd	Walter Alce	Walter Alce	Silas Roberts	JS
	Ken Jones			

WEATHER: Snowmelt

Hi: 56 Lo: 31 Ob:

Rain: 0.86 Snow:

Conditions: Rain

snowco

LAB

PRIMARY SCUM LEVEL: SCREENINGS CARTS:

INFLUE	Q,Daily Total	MAX	MIN
	51.84	65.00	16.85
Q,byp	start/stop times am or pm & Q	9:45 AM	5:35 PM
Q,byp Status		activated	
Q,bypa	8.31 Q to 2nd		43.53

	Old	New	Plant	Pump Station	Grit qty
1st	4.69	10.69	1		0
2nd	4.42	10.22	1	2	
3rd	2.14	7.27	1/3	2	

PLANT (*1600) POWER

End 1st_____KVA (06)_____KW (06)

End 2rd_____KVA (06)_____KW (06)

End 3rd_____KVA (06)_____KW (06)

Centrifuge:	1669
Primary:	5506
Secondary:	5478
Aeration:	6000
Total:	16846

12 Mid PUMP STATION (*450) POWER

12 Mid Start 1st _____KW(06) _____KVA(0

12 Mid Start 2nd_____KW(06) _____KVA(0

12 Mid Start 3rd_____KW(06) _____KVA(0

COLLECTOR SPEED

	#1	#2	#3
1st___	slow	slow	slow
2nd___	slow	slow	slow
3rd___	slow	slow	slow
PSTs on-line		3	

AERATION: Dissolved Oxygen

ATs on-line 3

#1	AT#1 infl do avg	2.6
#3	AT#1 effl do avg	5.4
#4	AT#2 infl do avg	7.4
#6	AT#2 effl do avg	6.3

Gravity Thickeners DOB:

Torque:

	#1	#2	#1	#2
1st	1.0	1	\	-
2nd	2.0	3.0	n/a	high torque / n/a
3rd	1.0	2.0	n/a	n/a

Weekly Septage Pumped Gals

SEPTAGE LEVEL

1st____ 8.63 ft

2nd_____ft

3rd_____ft

Cl2 vol	Tank #1	Tank #2
1st		3453
2nd		3230
3rd		3061
Total	519 Gallons	

TWAS LEVELS:

	#1	#2	#3
1st	11	12	12
2nd	11	12	12
3rd	9	12	13

	Cl2	Time	Q(MGD)
TRC 1	0.35	6:05 pm	14.43
TRC 2	0.47	1:47 PM	64.98
TRC 3	0.31	6:00 PM	65.00

Dosage Setpoint

Effluent Cl2, mg/l 1.60

Inplant _____/_____/_____

_____/_____/_____

CHLORINE RESIDUAL: 0.38 mg/l

CHEMICALS:

Sodium Hypo____ 8

Polymer dry ___ 145

Hydroxide_____drums

Polymer 1855

Alpha Lox 15____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
5.5	6.9	5.5	7.6	6.6	6.2

RAS# _____ SC# _____	RAS# _____ SC# _____	RAS# _____ SC# _____	_____
3.40	3.25	3.40	0.00

SECONDARY CLARIFIERS

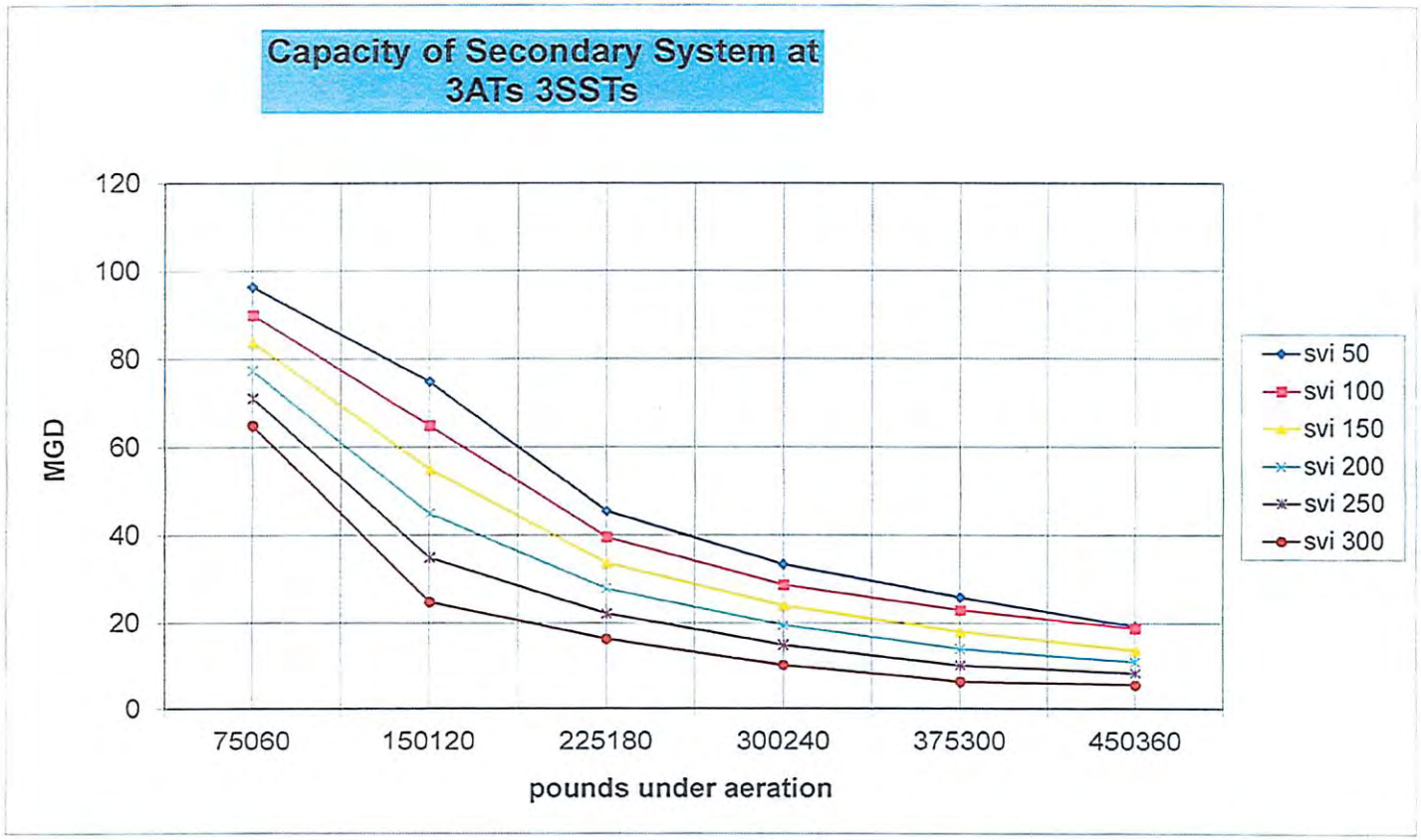
SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
4.20	0.0	6.8

DOB by Operators

	#1		#2		#3	
1st	4.5	5.5	5.5	6.5	6.0	6.5
2nd	7.0	7.5	9.0	8.5	8.0	6.0
3rd	6.5	7.0	7.5	7.5	5.0	6.0



date:	12/18/2023	Flow, MG	SVI	MLSS	lbs	SRO	setting selected, MG
bypass start time:	9:45 AM	65	>300	1,731	130,000 est	JS/WA	35
bypass stop time:	5:35 PM	62					

LOGIN

PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

INF. FLOW 14.29 MGD | CSO OVERVIEW | ALARMS | 3/18/2024

HISTORY MENU | MAIN MENU | 11:22:11 AM

INFLUENT FLOW (F_CV)	58.04	65.00	17.25	52.43	MGD	WWTP.WW_SCADA.INFLUENT_FLOW.F_CV
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	0.97	1.58	0.94	0.98	FEET	WWTP.WW_SCADA.SEC_CLAR_1_SLUDGE_BLANKET.F_CV
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	0.00	0.00	0.00	0.00	FEET	WWTP.WW_SCADA.SEC_CLAR_2_SLUDGE_BLANKET.F_CV
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	8.04	8.67	4.36	6.76	FEET	WWTP.WW_SCADA.SEC_CLAR_3_SLUDGE_BLANKET.F_CV

DESCRIPTION	VALUE	MAX	MIN	AVG	UNITS	TAG

Set to Current Time

Set Starting Time

◀◀ ◀ ▶ ▶▶

15 MIN | 1 HR | 4 HR | 8 HR | 1 DAY | 1 WEEK | 1 MONTH | 3 MONTHS | 1 YEAR

Ack	Time In	Date In	Description	Value	Status
	10:31:07.478	3/18/2024	AERATION TRAIN 2 INFLUENT DO HIGH	NORMAL	CFN
	10:30:55.603	3/18/2024	MIDDLE SIPHON INLET LEVEL BAD SIGNAL	BAD SIGNAL	CFN
	22:39:03.217	3/16/2024	REMOTE I/O PANEL UPS ON BATTERY POWER	NORMAL	CFN
✓	12:01:29.801	3/15/2024	AERATION TRAIN 1 INFLUENT DO LOW	LOW DO	CFN
✓	14:20:39.643	3/11/2024	AERATION BLOWER 1 ESTOP	E-STOP	CFN
✓	07:13:02.263	3/10/2024	LOWER SIPHON RIVER LEVEL HIGH	PROHIBIT CSO	CFN

Total Alarms: 18 | Filter: Off | Sort: Time In, Descending | Shelved: False | Run

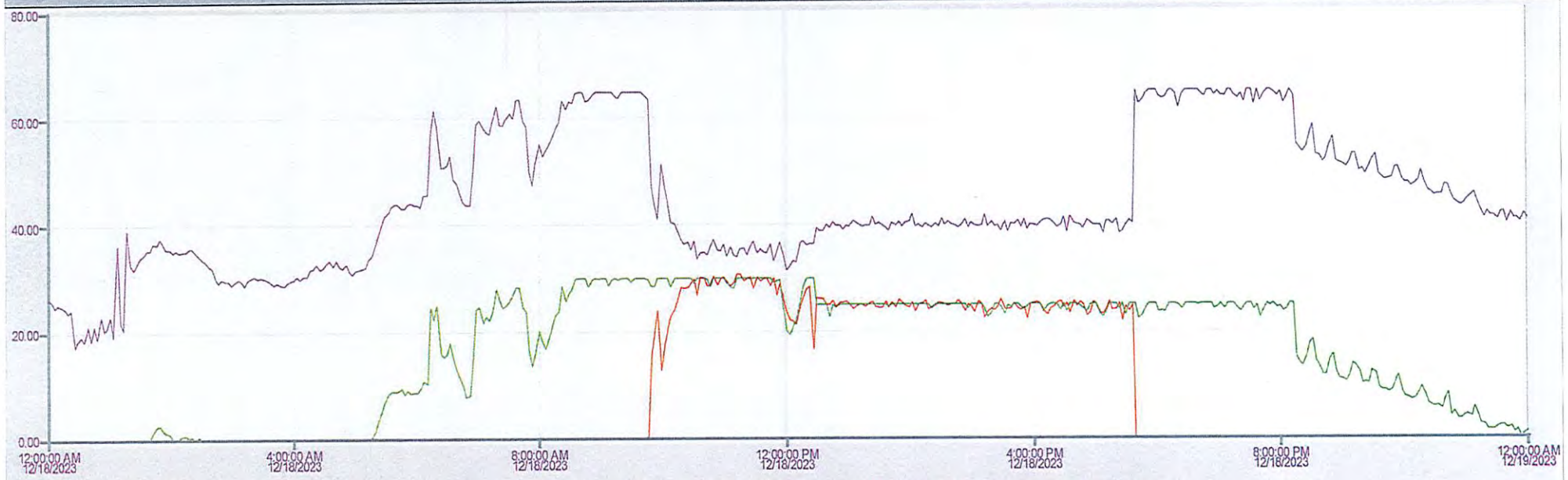
LOGIN

BYPASS MULTI TREND

CITY OF HAVERHILL, MA - WWTF

INF. FLOW 14.13 MGD | CSO OVERVIEW | ALARMS | 3/18/2024

HISTORY MENU | MAIN MENU | 11:21:22 AM



DESCRIPTION	VALUE	MAX	MIN	AVG	UNITS	TAG
SECONDARY FLOW RATE (F_CV)	33.64	65.00	17.19	44.13	MGD	WWTP.WW_SCADA.SECONDARY_FLOW_RATE.F_CV
BYPASS FLOW (F_CV)	25.45	30.91	0.00	8.27	MGD	WWTP.WW_SCADA.BYPASS_FLOW.F_CV
BYPASS FLOW AUTO SP (F_CV)	23.47	30.00	-9.96	15.75	MGD	WWTP.WW_SCADA.BYPASS_FLOW_AUTO_SP.F_CV
BYPASS CHLORINE (F_CV)	0.00	0.00	0.00	0.00	PPM	WWTP.WW_SCADA.BYPASS_CHLORINE.F_CV

Set to Current Time

Set Starting Time

◀◀ ◀ ▶ ▶▶

15 MIN | 1 HR | 4 HR | 8 HR | 1 DAY | 1 WEEK | 1 MONTH | 3 MONTHS | 1 YEAR

Ack	Time In	Date In	Description	Value	Status
	10:31:07.478	3/18/2024	AERATION TRAIN 2 INFLUENT DO HIGH	NORMAL	CFN
	10:30:55.603	3/18/2024	MIDDLE SIPHON INLET LEVEL BAD SIGNAL	BAD SIGNAL	CFN
	22:39:03.217	3/16/2024	REMOTE I/O PANEL UPS ON BATTERY POWER	NORMAL	CFN
✓	12:01:29.801	3/15/2024	AERATION TRAIN 1 INFLUENT DO LOW	LOW DO	CFN
✓	14:20:39.643	3/11/2024	AERATION BLOWER 1 ESTOP	E-STOP	CFN
✓	07:13:02.283	3/10/2024	LOWER SIPHON RIVER LEVEL HIGH	PROHIBIT CSO	CFN

Total Alarms: 18 | Filter: Off | Sort: Time In, Descending | Shelved: False | Run

	Q, tot	Septage Recd	Rainfall	Snow Melt	Q, byp	Q, sec	Actual Setpt	Graph Setpt	TRC	ecal C	MLSS	MLSS	MLSS	Sec Eff	Sec Eff	SVI	SVI	SVI	ec lbs ae	ec lbs ae	#of AT	# of SST
	MGD	GPD	ins.	yes/no	MGD	MGD	Byp set, MG	Byp set, MG	mg/l	'100m	AT #1	AT #2	AT #3	OD, mg	SS, mg	AT #1	AT #2	AT #3	OB methos	formul	on line	on line
12/01/23	10.52	40,000			0.00	10.52	32.0		0.25	3	2,442	1,708	1,800			229	240	294	88,686	74,435	3	3
12/02/23	9.96	15,500	0.13		0.00	9.96	32.0		0.18												3	3
12/03/23	17.76	0			0.00	17.76	32.0		0.30					16.02	9.00						3	3
12/04/23	16.18	49,500	1.11	No	0.00	16.18	35.0		0.38	3	2,348	1,476	1,648	14.66	11.20	243	244	273	108,313	68,455	3	3
12/05/23	12.10	44,500			0.00	12.10	35.0		0.35	2	2,528	1,726	1,832	11.46	10.40	237	243	284	98,420	76,136	3	3
12/06/23	11.66	37,000			0.00	11.66	35.0		0.26	2	2,580	1,738	1,908	12.20	10.00	291	236	262	96,926	77,887	3	3
12/07/23	11.32	37,500			0.00	11.32	35.0		0.36	1	2,554	1,694	1,646	11.49	9.60	305	354	322	99,163	73,734	3	3
12/08/23	10.99	52,750			0.00	10.99	35.0		0.31	2	2,274	1,508	1,560			286	232	327	86,991	66,828	3	3
12/09/23	10.63	4,000			0.00	10.63	35.0		0.25												3	3
12/10/23	17.86	0	0.05		0.00	17.86	35.0		0.26					13.57	10.40						3	3
12/11/23	40.39	55,500	2.08		4.20	36.15	35.0	activated	0.32	9	1,326	782	874	33.58	12.80	234	243	252	95,445	37,305	3	3
12/12/23	17.91	46,000	0.46		0.00	17.91	35.0		0.26	4	2,078	1,322	1,416	12.71	13.00	207	212	261	99,453	60,248	3	3
12/13/23	16.25	44,500			0.00	16.25	35.0		0.26	10	2,122	1,378	1,486	12.74	12.40	221	218	296	90,526	62,375	3	3
12/14/23	14.81	26,500			0.00	14.81	35.0		0.34	2	2,252	1,514	1,520	10.54	9.70	280	277	329	97,008	66,128	3	3
12/15/23	14.21	40,000			0.00	14.21	35.0		0.38	1	2,200	1,444	1,548			314	298	342	98,198	64,952	3	3
12/16/23	13.10	19,000			0.00	13.10	35.0		0.34												3	3
12/17/23	15.59	0			0.00	15.59	35.0		0.25					11.03	7.40						3	3
12/18/23	51.84	30,000	0.86		8.30	43.53	35.0	activated	0.38	6	1,470	846	858	16.78	10.80	163	272	303	138,332	39,707	3	3
12/19/23	32.78	47,000	2.05		0.00	32.78	40.0		0.31	7	1,596	956	1,036	17.53	13.20	219	220	251	103,633	44,886	3	3
12/20/23	26.66	63,250			0.00	26.66	40.0		0.30	3	1,830	1,184	1,298	10.33	8.60	235	253	293	106,162	53,943	3	3
12/21/23	21.89	26,000			0.00	21.89	40.0		0.30	42	2,114	1,348	1,464	10.84	7.60	274	267	280	103,328	61,624	3	3
12/22/23	19.70	50,750			0.00	19.70	40.0		0.35	3	2,140	1,364	1,534			285	315	326	109,067	63,025	3	3
12/23/23	17.69	7,500			0.00	17.69	40.0		0.30												3	3
12/24/23	16.06	0			0.00	16.06	40.0		0.28					7.11	6.40						3	3
12/25/23	14.41	0	0.01		0.00	14.41	40.0		0.36	<1	2,360	1,534	1,672	7.85	4.20	301	326	359	110,934	69,631	3	3
12/26/23	14.26	27,500	0.02		0.00	14.26	40.0		0.37	1	2,386	1,708	1,658	12.01	6.20	327	293	302	121,282	71,958	3	3
12/27/23	13.97	51,000	0.01		0.00	13.97	40.0		0.27	2	2,350	1,550	1,692	13.53	6.30	323	277	325	123,634	69,956	3	3
12/28/23	22.12	28,000	0.08		0.00	22.12	40.0		0.37	1	2,188	1,448	1,622	18.47	8.60	320	290	370	109,362	65,778	3	3
12/29/23	16.80	27,000	0.82		0.00	16.80	40.0		0.35	2	2,274	1,422	1,568			312	316	344	121,050	65,853	3	3
12/30/23	15.40	5,000	0.03		0.00	15.40	40.0		0.23												3	3
12/31/23	14.20	0			0.00	14.20	40.0		0.33					9.57	6.40						3	3
Average	18.03								0.31	3	2,162	1,412	1,507	13.52	9.25	267	268	305	105,043	63,564		
Minimum	9.96								0.18													
Maximum	51.84								0.38													
Total	559.02	875,250	7.71		12.50	546.47													100,000	for 2ats 2ssts		
Operating Range									0.4-	88/10	2200	2200		30	30	50-150			125,000	for 2ats 3ssts		
									0.7	260/1	1500	1500		45	45				150,000	for 3ats 3ssts		

rainfall amounts are for a 24 hour period ending at 7am of the day that the amount is recorded comment added on 5-13-14 by fgh

APPENDIX D

UNCOVERING BURIED SEWER MANHOLES STANDARD OPERATING PROCEDURE

SOP

SOP for Identifying and Uncovering Buried Structures

Identifying buried structures is done mainly through two ways. One being through CCTV inspections and the other through taking inventory of utilities on "proposed paving streets" for the year. Structures that are covered or do not exist are represented by a yellow starburst around the asset with a SIC Status (sampled, Inspected, Cleaned) of "Not Visible".

When coming across a paved over structure through a CCTV inspection. Use the camera to locate the buried structure in the street and do the following things:

1. Label it as "Not Visible" in Field Maps (GIS app for mobile devices)
2. Mark in the road where the structure is located
3. Create a work order for a manhole or catch basin repair with a comment stating "raise structure to grade"
4. When the structure has been raised, confirm it has been done and complete/close the work order
5. Remove "Not Visible" from the SIC Status in GIS

Taking an inventory of utilities on proposed paving streets is another way to identify buried structures. Prior to paving, the street is walked, and structures are checked for their spatial accuracy and corrected with GPS equipment if needed. If a structure is shown visible but not seen in the street, mark the SIC Status as "Not Visible". If CCTV is available, camera the line to confirm the existence of the

buried structure. If CCTV is unavailable, use a metal detector to locate the cover the structure. Repeat steps 2 through 5 above.

Post paving, the street is walked again to check if any structures were paved over. If so, repeat steps 1 through 5 above.

APPENDIX E

UNCOVERING BURIED SEWER MANHOLES STANDARD OPERATING PROCEDURE
SOP

SOP for Manhole Inspections

Manhole inspections are to be performed whenever a sewer or drain main inspection is done. Whether it is done in house or outsourced, the appropriate pictures will be taken and the structures evaluated to meet NASSCO Level 1 MACP standards. See below for an example of a Level 1 inspection.

BMC corp.

NASSCO MACP LEVEL 1 MANHOLE INSPECTION LOG

Location: Haverhill, Mass

Sheet Number: 16

CP.Date: 3/28/23

Inspector: Daniel Rynkowski

Certificate Number:

Street No. / Street: ROSEDALE AVE.

Locality: Haverhill

Manhole ID: SMH-1728

Location Code: C- Local Rural Streets= Light

Surface Type: Asphalt

Inspection Status: RI- Remot

Runoff Potential: N- None= Manhole does not have a pote

Inspection Level: Level 1

Access Type: AMH- Manhole

Inspection Purpose: I-SSSES

Manhole Use: SS- Sanitary= Gravity

Evidence of Surcharge: No

Cover Shape: C- Circular	Adjustment Ring Type: N- None= Adju	Cone Type: CO- Conical Off C
Cover Size: 26"	Adjustment Ring Material: ZZZ- Other	Cone Material: CR- Concrete (pi
Cover Width:	Adjustment Ring Condition: Sound- No s	Cone Condition: S- Sound = The
Cover Material: CAS- Cast Iron	Frame Material: CAS- Cast Iron	Wall Material: CR- Concrete (prec
Cover Type: Solid	Frame Condition: Sound- The frame	Wall Condition: S- Sound = The
Holes Number:	Frame Seal Condition: Sound- Th	Wall Inflow/Infiltration: N- None =
Cover/Frame Fit: G- Good	Frame Offset Distance:	Bench Present: Y- Yes
Cover Condition: Sound- The cov	Frame Seal Inflow: N- None = No evi	Bench Material: CN- Concrete (c
Cover Insert Type: N- None	Chimney Material: BR- Brick	Bench Condition: S- Sound = The
Cover Insert Condition: Sound- No si	Chimney Condition: S- Sound = The	Channel Installed: Y- Yes
Depth Rim to Invert: 82"	Chimney Inflow/Infiltration: N- None = No	Channel Condition: S- Sound = The b

Pipe Number	Clock Position	Direction	Pipe Type	Pipe Depth
1	6	OUT	8" PVC	83"
2	12	IN	8" AC	82"

Comments: