Haverhill

Robert E. Ward, DPW Director
Water/Wastewater Division
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April 28, 2023

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 13

Dear Ms. Kudarauskas:

Enclosed is Compliance Report No. 13 as required by Section IX.67 of the Consent Decree. This report is for the July 1, 2022 through December 31, 2022 reporting period.

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

Sincerely,

Robert E. Ward
DPW Director

Enclosure

cc: Chief, Environmental Enforcement Section, U.S. DOJ
Susan Poswistilo, U.S. Attorney, MA District
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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. 13
JULY – DECEMBER 2022

APRIL 2023

CITY OF HAVERHILL, MASSACHUSETTS
NPDES PERMIT No. MA0101621
CONSENT DECREE
(Civil Action No. 16-11698-IT, 11/10/16)
COMPLIANCE REPORT No. 13
JULY – DECEMBER 2022

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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 VACANT POSITIONS

As reported previously, the Collection System Supervisor position remains vacant and is currently being filled by the former and retired Collection System Supervisor in an acting capacity. Every effort continues to be made to fill this critical role with a permanent hire. The Wastewater Facility Manager is providing support to the Collection System Staff to complete critical tasks with assistance from the Haverhill support staff. A Water/Wastewater Engineer position is currently advertised for hire. This position will be responsible for engineering and project management tasks for the department. In addition, it should be noted that a collection system operator was involved in a vehicle accident and was out on workers' compensation during this reporting period. The collection system operator position will be advertised for hire in the next reporting period.

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, DPW Director
City of Haverhill, Massachusetts

4/28/23
(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 December 2022 are shown in Table 2-1. The current priorities categories reflect the following inventory: 4 Problem Priority outfalls; 4 High Priority outfalls; and 30 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 available at the City's stormwater website. Table 2-3 shows the City's current list of priority outfalls for maintenance.

2.3 IDDE INVESTIGATION PROGRESS REPORTING

Table 2-2 shows the City's progress to date on their IDDE investigations during the reporting period (July through December 2022). Two catchments were investigated for potential illicit connections, no illicit connections were found, these outfall catchment areas have been updated on Table 2-2 and IDDE catchment investigation maps in Appendix B.

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 2 catchment investigations were completed, 4 outfall inspections were completed, 11 Outfall Maintenance inspections were completed, 5 which were identified as high priority, and have now been closed, and 2 Low Priority Outfalls were inspected and sampled. The City is continuing to review all priority outfalls in an effort to have recent, up to date data for IDDE investigations. Additional stormwater projects completed during the reporting period include addition of City owned stormwater structure as assets in GIS mapping software and phosphorus source identification project. These projects are considered ongoing with updates being added during field investigations. No new illicit discharges were identified during the reporting period.

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																								
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		1413.6	> 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	
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		461.1	
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		770.1	
Low 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	
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		NONE	CLEAR	NONE	NONE		72.2	7.6	2	0	0	0	08/31/2015	0.19	08/23/2015		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																	
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		28.8	
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	

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)	Entrocuccus (MPN/ 100 ml)
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			
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	
UNK1189	NA	NA	Primrose St (Dpw)	City	**6/15/2022**	.01" ON 6/13/2022	NO FLOW																	
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	**8/17/2022**	.13 on 8/8/2022	NONE	NONE	NONE	NONE	NONE	955	64.7	7.6	574	0	0	0	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																	
UNK0888	NA	NA	West Lowell Street	City	**7/13/2022**	.01" on 7/12/2022	NO FLOW																	
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																	
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

Laborary 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)
2014-2022 Dry-Weather MS4/Stormwater Outfall Inspection Program
IDDE INVESTIGATION PRIORITIES

		Current Report Period						Completed to Date			
		July 2022 - December 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	422	100%	7	100%	422	100%	7	100%
	DPO0696	61	2					61	100%	2	100%
	DPO1079	37	0								
Detention Pond Outlet TOTAL		**520**	**9**	**422**	**81%**	**7**	**78%**	**483**	**93%**	**9**	**100%**
Detention Pond Inlet	DPI0946	7,421	172					7,421	100%	172	100%
	DPI0947	1,360	11								
	DPI0969	1,515	22								
	DPI1007	1,634	0	1634	100%	0	100%	1,634	100%	0	100%
	DPI1074	694	14								
	DPI1094	22	0					22	100%		
Detention Pond Inlet TOTAL		**12,646**	**219**	**1,634**	**13%**	**0**	**0%**	**9,077**	**72%**	**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%
	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%**

		Current Report Period						Completed to Date			
		July 2022 - December 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
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	570	100%	7	100%	570	100%	7	100%
	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	71	100%	2	100%	71	100%	2	100%
	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**	**641**	**1%**	**9**	**1%**	**43,648**	**80%**	**819**	**86%**
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**	**2,697**	**2%**	**16**	**1%**	**114,952**	**83%**	**2,330**	**89%**
		26.12mi.		**0.51mi.**				**21.77mi.**			

[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
July through December 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	November-22
KL1227	ST00001275	X								June-18	November-22
LR1101	ST00001276	X								June-18	November-22
UNK1015	ST00001278	X								June-18	November-22
UNK1016	ST00001279	X								June-18	November-22
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	November-22
DPI1081	ST00000615				X						
DPI1090	ST00000617				X					April-19	
FP7114	ST00000629				X					April-19	
KL30718	ST00000634				X					April-19	November-22
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						

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		
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	
UNK0885	ST00000701				X					April-19	
UNK0950	ST00000706				X					April-19	
UNK0962	ST00000709				X					November-22	
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	November-22
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					November-22	
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	

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		
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											
Inspection dates in blue indicate a item has been closed											

2.4 IDENTIFIED ILLICIT CONNECTIONS AND CURRENT PRIORITY LIST 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. Several Priority list outfalls have been sampled, investigated, and removed from the priority list and are detailed below.

Merrimack River Basin Outfalls –

- MR38718 has been removed from the Low Priority list as CCTV was conducted and was determined that flow is sourced from a upstream diverted stream flow.
- MR 1140 was sampled, and flow was determined to be groundwater infiltration, however sampling results were within acceptable limits and has been removed from the Low Priority list.
- MR0834 was removed from Low Priority list due to no dry weather flow on multiple visits.

Little River Basin Outfalls –

- LRO0995 was removed from Low Priority as all parameter results were within acceptable limits.
- LR0952 has been investigated and determined to be stream conveyance from upstream catchment area from UNK0951 and DPI0946, additional CCTV investigation is on going to ensure no illicit connections.

Unknown Basin Outfalls –

- UNK0951 has been investigated and dry weather flow sourced due to detention pond/stream conveyance additional catchment investigation is needed due to high bacteria results.

- UNK1040, and UNK0902 have been removed from the priority list as all parameter results were within acceptable limits.

- UNK0955 has been moved to Low Priority list as the source has been traced to private property, the property management company is securing funds for upgrades to their stormwater infrastructure (detention ponds, and additional infrastructure).

- UNK1020 was sampled and flow was determined to be groundwater infiltration, additionally, sampling results were within acceptable limits.

- UNK0848 was removed from Low Priority list due to no dry weather flow on multiple visits.

- UNK0883 was removed from infrastructure during state railway project, the City will conduct CCTV investigation to confirm catchment area is now flowing to detention pond, no dry weather flow during inspection.

- UNK0888 was removed from Low Priority list due to no dry weather flow and subsequent catchment investigation.

Detention Pond Outfalls –

- DPI0946 dry weather flow sourced to drainage from High School Athletic Field, CCTV was completed for the catchment area and no illicit connections found. Per MS4 permit athletic field drainage outfalls are to be considered excluded as such, DPI0946 has been removed from the priority list. This same athletic field drainage can be traced to UNK0951 and LR0952.

- DPO1007 has been removed from the Low Priority list due to no dry weather flow on multiple visits.

- DPO0657 has been removed from the Low Priority list due to no dry weather flow and subsequent catchment investigation.

Fishing Brook Outfalls

- FB0723 – has been removed from the Low Priority list due to no dry weather flow and subsequent catchment investigation

TABLE 2-4
SUMMARY OF ILLICIT DISCHARGES IDENTIFIED BY BASIN AND CURRENT STATUS
(July through December 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 but after review of CCTV, it was determined that more CCTV needs to be conducted and 1 defect in lining needs to be repaired.
	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	-	-	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	4/17/2018	$ 4,277	-	Yes, the City is in compliance
	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			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 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								
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 (July through December 2022), are listed in Table 3-1.

Over the Reporting Period, there was a total of one 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 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. Accordingly, Haverhill continues to have fewer SSOs than the national average.

TABLE 3-1
SANITARY SEWER OVERFLOW EVENTS
JULY THROUGH DECEMBER 2022

MAINTSTAR WORK ORDER	WO 1919
SSO ID Wrong yr first 6	SSO-22-03
SSO ADDRESS	South Prospect Street
START DATE/TIME	7/26/2022 13:00
END DATE/TIME	7/26/2022 14:00
DATE REPORTED EPA/DEP	7/27/2022 8:30
WHO NOTIFIED	Isaiah Lew is
REASON FOR OCCURRENCE	SEWER MAIN BLOCKED
DATE OF LAST SSO OCCURRENCE	FIRST OCCURANCE
SSO EST. VOL.	5000
RECEIVING WATERS IF SEWERAGE ENTERED	Merrimack River
METHOD USE TO ESTIMATE VOLUME	Visual
NEAREST CB LOCATION ID	CB-8224
DISTANCE TO NEAREST CB (FT.)	155
NAME OF RECEIVE WATER WHETHER OR NOT THERE WAS A RELEASE	Merrimack River
ENTERED CB YES OR NO	NO
MEASURED TAKEN STOP SSO	JETVAC
DECONTAMINATE	YES
MEASURED TAKEN TO PREVENT FUTURE OVERFLOWS	keep debris out of SMH
SEWERAGE LOCATION INTO STREAM	DIRECT TO RECEIVING WATER
SSO OWNERSHIP CITY OR PRIVATE	CITY

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 were filed in 2022. Of the three projects permitted in 2021, only two 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. A significant rain event in October of 2022 resulted in a failure of some erosion control measures at the Sylvan Hill Development. Much of the impacts were to off-site properties rather than resource areas. The site contractor took immediate and satisfactory action to clean up impacted areas and to fortify and expand erosion control measures.

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 thirteenth reporting period (July through December 2022) 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.

The City' consultant is finalizing design plans for the Locke Street Sewer Separation Phase I work. Construction of the Primrose Street portion of the Phase I Project and sewer replacement began during this reporting period. The project cost is $1.6 Million and includes:

- Installing 600 feet of HDPE drainpipe ranging in size from 12 to 60 inches.
- Replacing 330 feet of brick sewer on Washington Street with 24-inch PVC pipe.
- Replacing 575 feet of concrete sewer on Fourth A venue with I 0-inch PVC pipe
- Rep lacing 125 feet of concrete sewer on Pentucket Street with I 0-inch PVC pipe
- Replacing 225 feet of clay sewer on Primrose Sewer 10-inch PVC

A Request for Qualifications, (RFQ), for the preliminary design of the City's Water Pollution Abatement Facility's Rehabilitation and Upgrade Project was prepared and advertised with a November 11, 2021 submission deadline. The City selected Wright-Pierce for the evaluation and

preliminary design of this project. The evaluation began during this reporting period with an expected completion date of February 2023.

The City has almost fully implemented a new Computerized Maintenance Management System (CMMS), Cityworks. The system's CCTV module is the last piece to implement 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 2022 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. 12	10/31/2022	10/28/2022

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 2023, is shown in Table 5-2.

TABLE 5-2
FUTURE DELIVERABLES DURING THE PROCEEDING REPORTING PERIOD
(JANUARY THROUGH JUNE 2023)

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	12/31/22	90	3/31/23
IX	Compliance Reporting			
	Compliance Report No. 14	12/31/22	120	4/30/2023

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 2022.

6.2 BYPASS EVENTS

There was one secondary treatment bypass event that occurred during the reporting period, which is listed in Table 6-1. The table provides the following information as required under the Consent Decree:

- The date(s) of the Bypass
- The date(s) when the Bypass occurred, and the rainfall totals (inches)
- The presence, or absence of snowmelt
- The total plant influent flow (MGD)
- The total secondary treatment Bypass volume (MG)
- The start/stop time for each Bypass event, and plant flows at both the start and stop of the Bypass event
- The type and number of unit operations and processes that went offline, and the reason of each
- The total gallons of septage received on each Bypass event day
- During the time of Bypass, additional operations information
    - Influent and Effluent total suspended solids
    - The mean cell residence time for each aeration tank
    - The sludge blanket depth in the secondary clarifiers
    - The mixed liquor suspended solids in the aeration tanks

The Secondary bypass facilities have been activated on only two occasions since September 7, 2017.

TABLE 6-1
SECONDARY TREATMENT BYPASS EVENTS

Bypass Event	#	2022-01	
Date of Bypass		9/22/2022	
Date of Rainfall		9/22/2022	9/23/2022
Weather Rainfall	Inches	1.21	0.00
snow melt	(y/n)	No	No
Influent Flow	MGD	17.98	6.40
Bypass Flow Total	MG	1.65	0.00
Q, bypass start time		12:45 PM	
Plant Flows @ Start	MGD	36.73	
Q, bypass stop time		2:53 PM	
Plant Flows @ Stop	MGD	27.81	
Max Influent		61.04	11.89
Influent Septage Received	Gallons	20,000	0
Influent TSS	mg/L	200	248
Effluent TSS	mg/L	3.20	4.80
Aeration Basin #1 Sludge Volume Index	ml/g	211	229
MLSS Lab	mg/L	2,036	1,876
Mean Cell Residence Time	Days	2	2
Aeration Basin #2 Sludge Volume Index	ml/g	233	256
MLSS Lab	mg/L	2,142	2,230
Mean Cell Residence Time	Days	2	3
Aeration Basin #3 Sludge Volume Index	ml/g	263	239
MLSS Lab	mg/L	2,282	2,304
Mean Cell Residence Time	Days	2	3
Aeration Basins Online	#	3	3
Secondary Clarifier #1 Depth of Blanket	ft	15.0	1.0
Secondary Clarifier #2 Depth of Blanket	ft	15.0	0.5
Secondary Clarifier #3 Depth of Blanket	ft	15.0	0.5
Secondary Clarifiers Online	#	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 in bypass dates with no recorded rainfall until the proceeding day.

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. Item 10 was duplicated and was deleted in Compliance Report Number 10 thus now equaling 26-deficiencie.
Table 7-1 has been updated all items that have been completed are deleted from this table. To view the complete table deficiencies 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 performed from July through December 2022 (Reporting Period 13) are listed in Table 7-2 below.

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 CD12 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 prioritize preventative maintenance.			This action item has been completed and closed. Please see CD12 for final comments.
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.

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
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. At the time of this submission the Local Limits have been reviewed and approved by the EPA and has been posted as a Public Notice for comment and will be presented to City Council for approval.
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	Cityworks (CMMS) has been updated to reflect all food service establishments (FSE) and is updated as new Food Service Wastewater Discharge Permits are issued. The City hired Wright Pierce to conduct FSE annual FOG inspections and to update the Cityworks CMMS system with pass/fail designations. 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. These drafts are being reviewed before seeking City Council Approval
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.
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.

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
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. The Division lacks ERP for other collection system emergencies.			This action item has been completed and closed. Please see CD12 for final comments.
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.

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
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.
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 all thirty-six lift stations.
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.

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. Sewer lines are also cleaned prior to planned CCTV inspections.
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.			This action item has been completed and closed. Please see CD12 for final comments.
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 will be moving from MaintStar and UtilityCloud to a new CMMS. These PM's will be inputted into new CMMS and 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. A SOP is in development to address uncovering manholes that will reflect the "recommended action".

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 click here.
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.
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. 52 MACP level 1 inspections were done in 2022. 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 is in development that will address performing MACP inspections during CCTV inspections.

TABLE 7-2

CMOM-RELATED EXPENSES THAT OCCURRED

DURING REPORTING PERIOD 13 (JULY THROUGH DECEMBER 2022)

Account	CD Report No. 13 Totals:	Account Description
Lift Station Operation and Maintenance	$38,480	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	$22,166	Used to fund cleaning, CCTV inspection, and assessment of sewer lines and grit removal
Service Contracts	$70,065	Used to fund the annual service contracts for various items in the wastewater department.
Wastewater Infrastructure	$12,401	This account is use for sewer repair miscellaneous items. This is an annual appropriation funded from current year revenues.
Wastewater Capital	$17,510	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	$0	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	$81,584	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	$242,208	

APPENDIX A

CMMS GENERATED WORK ORDERS

Inspection 111

IDDE Inspection - Outfall

Cityworks

Status: COMPLETE

Priority: **Location:** **Inspected By:** Conte, James A

Projected Start:	7/13/2022 8:34:49AM	**Projected Finish:**	
Initiated By:	Conte, James A	**Initiated Date:**	7/13/2022 8:34:49AM
Actual Finish:	7/13/2022 8:43:27AM		
Insp. Date:	7/13/2022 8:43:27AM		
Closed By:		**Date Closed:**	
Work Order Id:			
Observation:			
Repairs:			
Recommendation:			

Inspection 111

IDDE Inspection - Outfall

Status: COMPLETE

Priority: **Location:** **Inspected By:** Conte, James A

Observations:

Upstream Asset ID:	DMH-59
Outfall Pipe Material:	Reinforced Concrete
Outfall Pipe Description of Material:	
Outfall Pipe Shape:	Circle
Outfall Pipe Diameter Dimensions:	24
Is Outfall Pipe Submerged in Water:	No
Is Outfall Submerged with Sediment:	No
Description of Outfall Pipe Damage:	
Description of Outfall Pipe Deposits or Stains:	
Description of Outfall Pipe Pool Quality:	
Description of Pipe Algae Growth:	
Do Physical Indicators at Outfall Suggest an Illicit Discharge is Present:	No
Description of Physical Indicators:	
Is Outfall Flowing:	No
Outfall Dry Weather Flow Description:	No Flow
Outfall Estimated Flow Rate:	
Asset ID:	Free-form Response
Outside Temperature:	74

Inspection 111

IDDE Inspection - Outfall

Cityworks

Status: COMPLETE

Priority: **Location:** **Inspected By:** Conte, James A

Date and End Time of Last Rain Event:	7/12/2022 12:00:00 AM
Last Rainfall Amount:	0.01
Picture of Asset Outside:	Yes
Picture of Asset Inside:	Yes
Outfall Pipe Damage:	None
Outfall Pipe Deposits or Stains:	Flow Line
Outfall Pipe Pool Quality:	None
Outfall Pipe Algae Growth:	Green

Inspection 112

IDDE Inspection - Outfall

Cityworks

Status: COMPLETE

Priority: **Location:** **Inspected By:** Conte, James A

Projected Start:	7/13/2022 8:54:04AM	**Projected Finish:**	
Initiated By:	Conte, James A	**Initiated Date:**	7/13/2022 8:54:04AM
Actual Finish:	7/13/2022 9:02:10AM		
Insp. Date:	7/13/2022 9:02:10AM		
Closed By:		**Date Closed:**	
Work Order Id:			

Observation: Outfall inaccessible inspected upstream asset DMH-156 NO FLOW

Repairs:

Recommendation:

Inspection 112

IDDE Inspection - Outfall

Status: COMPLETE

Priority: **Location:** **Inspected By:** Conte, James A

Observations:

Upstream Asset ID:	DMH-156
Outfall Pipe Material:	Reinforced Concrete
Outfall Pipe Description of Material:	
Outfall Pipe Shape:	Circle
Outfall Pipe Diameter Dimensions:	12
Is Outfall Pipe Submerged in Water:	No
Is Outfall Submerged with Sediment:	No
Outfall Pipe Damage:	None
Description of Outfall Pipe Damage:	
Outfall Pipe Deposits or Stains:	None
Description of Outfall Pipe Deposits or Stains:	
Outfall Pipe Pool Quality:	None
Description of Outfall Pipe Pool Quality:	
Outfall Pipe Algae Growth:	None
Description of Pipe Algae Growth:	
Do Physical Indicators at Outfall Suggest an Illicit Discharge is Present:	No
Description of Physical Indicators:	
Is Outfall Flowing:	No

Inspection 112

IDDE Inspection - Outfall

Cityworks

Status: COMPLETE

Priority: **Location:** **Inspected By:** Conte, James A

Outfall Dry Weather Flow Description:	No Flow
Outfall Estimated Flow Rate:	
Asset ID:	Free-form Response
Outside Temperature:	74
Date and End Time of Last Rain Event:	7/12/2022 12:00:00 AM
Last Rainfall Amount:	0.01
Picture of Asset Outside:	Yes
Picture of Asset Inside:	Yes

Inspection 110
IDDE Investigation Outfall

Cityworks

Status: CLOSED

Priority: **Location:** **Inspected By:** Conte, James A

Projected Start: 7/13/2022 7:42:24AM
Projected Finish:
Initiated By: Conte, James A
Initiated Date: 7/13/2022 7:42:24AM
Actual Finish: 7/13/2022 10:04:00AM
Insp. Date: 7/13/2022 10:04:00AM
Closed By: Middleton, Jesse A
Date Closed: 8/16/2022 12:56:53PM
Work Order Id:
Observation:
Repairs:
Recommendation:

Inspection 110

IDDE Investigation Outfall

Status: CLOSED

Priority: **Location:** **Inspected By:** Conte, James A

Observations:

Upstream Asset ID:	DMH-7877
Outfall Pipe Material:	Reinforced Concrete
Outfall Pipe Description of Material:	
Outfall Pipe Shape:	Circle
Outfall Pipe Diameter Dimensions:	36
Is Outfall Pipe Submerged in Water:	No
Is Outfall Submerged with Sediment:	Partially
Outfall Pipe Damage:	None
Description of Outfall Pipe Damage:	
Outfall Pipe Deposits or Stains:	Flow Line
Description of Outfall Pipe Deposits or Stains:	
Outfall Pipe Pool Quality:	None
Description of Outfall Pipe Pool Quality:	
Outfall Pipe Algae Growth:	None
Description of Pipe Algae Growth:	
Do Physical Indicators at Outfall Suggest an Illicit Discharge is Present:	No
Description of Physical Indicators:	
Is Outfall Flowing:	Yes

Inspection 110

IDDE Investigation Outfall

Status: CLOSED

Priority: **Location:** **Inspected By:** Conte, James A

Outfall Dry Weather Flow Description:	Trickle
Outfall Estimated Flow Rate:	2
Does Flow Have an Odor:	No
Description of Odor:	
Severity of Odor:	No
Description of Other Odor:	
Does Flow Have an Abnormal Color:	No
Description of Color:	Clear
Severity of Color:	No
Description of Other Color:	
Description of Flow Turbidity:	Clear
Are There Any Floatables That Are Not Trash:	No
Amount of Floatables:	None
Description of Floatables:	
Description of Other Floatables:	
Outfall Sample Date and Time:	7/13/2022 12:00:00 AM
Outfall Sample Temperature:	64.6
Outfall Sample pH:	7.2
Outfall Sample Specific Conductivity:	518
Outfall Sample Salinity:	254
Outfall Sample Chlorine:	0.02
Outfall Sample Ammonia:	0
Outfall Sample Surfactants:	0
Outfall Sample E.coli:	5.16

Inspection 110
IDDE Investigation Outfall

Cityworks

Status: CLOSED

Priority: **Location:** **Inspected By:** Conte, James A

Outfall Sample Enterococcus:	NA
Outfall Sample Phosphorus:	NA
Asset ID:	UNK1020
Outside Temperature:	74
Date and End Time of Last Rain Event:	7-13-22 at 6:20 PM
Last Rainfall Amount:	0.01
Picture of Asset Outside:	Yes
Picture of Asset Inside:	Yes

Inspection 341
IDDE Inspection - Outfall

Cityworks

Status: CLOSED

Priority: **Location:** **Inspected By:** Middleton, Jesse A

Projected Start: 8/15/2022 10:34:00AM
Projected Finish:
Initiated By: Middleton, Jesse A
Initiated Date: 8/15/2022 10:34:00AM
Actual Finish: 8/17/2022 12:00:00PM
Insp. Date: 8/17/2022 12:00:00PM
Closed By: Middleton, Jesse A
Date Closed: 8/18/2022 10:38:47AM
Work Order Id:
Observation:
Repairs:
Recommendation:

Inspection 341

IDDE Inspection - Outfall

Status: CLOSED

Priority: **Location:** **Inspected By:** Middleton, Jesse A

Observations:

Upstream Asset ID:	
Outfall Pipe Material:	Reinforced Concrete
Outfall Pipe Description of Material:	
Outfall Pipe Shape:	Circle
Outfall Pipe Diameter Dimensions:	30
Is Outfall Pipe Submerged in Water:	No
Is Outfall Submerged with Sediment:	No
Description of Outfall Pipe Damage:	
Description of Outfall Pipe Deposits or Stains:	
Description of Outfall Pipe Pool Quality:	
Description of Pipe Algae Growth:	
Do Physical Indicators at Outfall Suggest an Illicit Discharge is Present:	No
Description of Physical Indicators:	
Is Outfall Flowing:	No
Outfall Dry Weather Flow Description:	No Flow
Outfall Estimated Flow Rate:	
Asset ID:	UNK1188
Outside Temperature:	72

Inspection 341
IDDE Inspection - Outfall

Cityworks

Status: CLOSED

Priority: **Location:** **Inspected By:** Middleton, Jesse A

Date and End Time of Last Rain Event:	8/8/2022 0350
Last Rainfall Amount:	0.13
Picture of Asset Outside:	Yes
Picture of Asset Inside:	Yes
Outfall Pipe Damage:	None
Outfall Pipe Deposits or Stains:	None
Outfall Pipe Pool Quality:	None
Outfall Pipe Algae Growth:	None

Inspection 340
IDDE Inspection - Outfall

Cityworks

Status: CLOSED

Priority: **Location:** **Inspected By:** Middleton, Jesse A

Projected Start: 8/15/2022 9:45:00AM
Projected Finish:
Initiated By: Middleton, Jesse A
Initiated Date: 8/15/2022 9:45:00AM
Actual Finish: 8/17/2022 12:00:00PM
Insp. Date: 8/17/2022 10:33:00AM
Closed By: Middleton, Jesse A
Date Closed: 11/15/2022 2:10:32PM
Work Order Id:
Observation: No flow upstream dmh7713
Repairs:
Recommendation:

Inspection 340

IDDE Inspection - Outfall

Status: CLOSED

Priority: **Location:** **Inspected By:** Middleton, Jesse A

Observations:

Upstream Asset ID:	DMH7713
Outfall Pipe Material:	Reinforced Concrete
Outfall Pipe Description of Material:	
Outfall Pipe Shape:	
Outfall Pipe Diameter Dimensions:	36
Is Outfall Pipe Submerged in Water:	No
Is Outfall Submerged with Sediment:	No
Description of Outfall Pipe Damage:	
Description of Outfall Pipe Deposits or Stains:	
Description of Outfall Pipe Pool Quality:	
Description of Pipe Algae Growth:	
Do Physical Indicators at Outfall Suggest an Illicit Discharge is Present:	No
Description of Physical Indicators:	
Is Outfall Flowing:	No
Outfall Dry Weather Flow Description:	No Flow
Outfall Estimated Flow Rate:	
Asset ID:	UNK1750
Outside Temperature:	74

Inspection 340
IDDE Inspection - Outfall

Cityworks

Status: CLOSED

Priority: **Location:** **Inspected By:** Middleton, Jesse A

Date and End Time of Last Rain Event:	8/8/2022 0350
Last Rainfall Amount:	0.13
Picture of Asset Outside:	Yes
Picture of Asset Inside:	Yes
Outfall Pipe Damage:	None
Outfall Pipe Deposits or Stains:	None
Outfall Pipe Pool Quality:	None
Outfall Pipe Algae Growth:	None

Inspection 391
Outfall Maintenance Inspection

Cityworks

Status: COMPLETE

Priority: **Location:** DPI0965 **Inspected By:** Middleton, Jesse A

Projected Start: 11/28/2022 12:50:00PM
Projected Finish:
Initiated By: Middleton, Jesse A
Initiated Date: 11/28/2022 12:50:00PM
Actual Finish: 11/28/2022 12:52:03PM
Insp. Date: 11/28/2022 12:52:03PM
Closed By:
Date Closed:
Work Order Id:
Observation:
Repairs:
Recommendation:

Inspection 391

Outfall Maintenance Inspection

Cityworks

Status: COMPLETE

Priority: **Location:** DPI0965 **Inspected By:** Middleton, Jesse A

Observations:

Start Date and Time of Inspection:	11/28/2022 12:00:00 AM
Inspector Helper:	None
Was Outfall Located:	Yes
Why Was Outfall Not Located:	
Did You Check Immediate Upstream Asset to Determine Direction of Outfall Pipe:	Yes
Why Didn't You Check Immediate Upstream Asset:	Na
Is Outfall Completely Buried and Need to be Excavated:	No
Picture of Outfall Before Maintenance:	Yes
Was Outfall Dug Out with Shovels:	No
Does Outfall Require Additional Maintenance:	No
What Additional Maintenance Needs to be Done:	Na
Picture of outfall after maintenance:	
End Date and Time of Inspection:	11/28/2022 12:00:00 AM

Inspection 377

Outfall Maintenance Inspection

Cityworks

Status: COMPLETE

Priority: **Location:** **Inspected By:** Middleton, Jesse A

Projected Start: 11/22/2022 8:43:00AM
Projected Finish:
Initiated By: Middleton, Jesse A
Initiated Date: 11/22/2022 8:43:00AM
Actual Finish: 11/22/2022 8:44:27AM
Insp. Date: 11/22/2022 8:44:27AM
Closed By:
Date Closed:
Work Order Id:
Observation: No maintenance
Repairs:
Recommendation:

Inspection 377

Outfall Maintenance Inspection

Cityworks

Status: COMPLETE

Priority: **Location:** **Inspected By:** Middleton, Jesse A

Observations:

Start Date and Time of Inspection:	11/22/2022 12:00:00 AM
Inspector Helper:	None
Was Outfall Located:	Yes
Why Was Outfall Not Located:	
Did You Check Immediate Upstream Asset to Determine Direction of Outfall Pipe:	Yes
Why Didn't You Check Immediate Upstream Asset:	Na
Is Outfall Completely Buried and Need to be Excavated:	No
Picture of Outfall Before Maintenance:	Yes
Was Outfall Dug Out with Shovels:	No
Does Outfall Require Additional Maintenance:	No
What Additional Maintenance Needs to be Done:	Na
Picture of outfall after maintenance:	No
End Date and Time of Inspection:	11/22/2022 12:00:00 AM

Inspection 385

Outfall Maintenance Inspection

Cityworks

Status: COMPLETE

Priority: **Location:** **Inspected By:** Middleton, Jesse A

Projected Start: 11/22/2022 9:24:00AM
Projected Finish:
Initiated By: Middleton, Jesse A
Initiated Date: 11/22/2022 9:24:00AM
Actual Finish: 11/22/2022 9:26:22AM
Insp. Date: 11/22/2022 9:26:22AM
Closed By:
Date Closed:
Work Order Id:
Observation: No maintenance
Repairs:
Recommendation:

Inspection 385

Outfall Maintenance Inspection

Cityworks

Status: COMPLETE

Priority: **Location:** **Inspected By:** Middleton, Jesse A

Observations:

Start Date and Time of Inspection:	11/22/2022 12:00:00 AM
Inspector Helper:	None
Was Outfall Located:	Yes
Why Was Outfall Not Located:	
Did You Check Immediate Upstream Asset to Determine Direction of Outfall Pipe:	Yes
Why Didn't You Check Immediate Upstream Asset:	Na
Is Outfall Completely Buried and Need to be Excavated:	No
Picture of Outfall Before Maintenance:	No
Was Outfall Dug Out with Shovels:	No
Does Outfall Require Additional Maintenance:	No
What Additional Maintenance Needs to be Done:	None
Picture of outfall after maintenance:	
End Date and Time of Inspection:	11/22/2022 12:00:00 AM

Inspection 374

Outfall Maintenance Inspection

Cityworks

Status: CLOSED

Priority: **Location:** UNK0962 **Inspected By:** Middleton, Jesse A

Projected Start: 11/15/2022 12:58:00PM
Projected Finish:
Initiated By: Middleton, Jesse A
Initiated Date: 11/15/2022 12:58:00PM
Actual Finish: 11/15/2022 1:02:11PM
Insp. Date: 11/15/2022 1:02:11PM
Closed By: Middleton, Jesse A
Date Closed: 11/15/2022 1:58:43PM
Work Order Id:
Observation:
Repairs:
Recommendation: No maintenance needed

Inspection 374

Outfall Maintenance Inspection

Cityworks

Status: CLOSED

Priority: **Location:** UNK0962 **Inspected By:** Middleton, Jesse A

Observations:

Start Date and Time of Inspection:	11/15/2022 12:00:00 AM
Inspector Helper:	None
Was Outfall Located:	Yes
Why Was Outfall Not Located:	Na
Did You Check Immediate Upstream Asset to Determine Direction of Outfall Pipe:	Yes
Why Didn't You Check Immediate Upstream Asset:	Na
Is Outfall Completely Buried and Need to be Excavated:	No
Picture of Outfall Before Maintenance:	
Was Outfall Dug Out with Shovels:	No
Does Outfall Require Additional Maintenance:	No
What Additional Maintenance Needs to be Done:	None
Picture of outfall after maintenance:	Yes
End Date and Time of Inspection:	11/15/2022 12:00:00 AM

Inspection 376
Outfall Maintenance Inspection

Cityworks

Status: CLOSED

Priority: **Location:** **Inspected By:** Middleton, Jesse A

Projected Start: 11/15/2022 1:30:00PM
Projected Finish:
Initiated By: Middleton, Jesse A
Initiated Date: 11/15/2022 1:30:00PM
Actual Finish: 11/15/2022 1:33:43PM
Insp. Date: 11/15/2022 1:33:43PM
Closed By: Middleton, Jesse A
Date Closed: 11/15/2022 2:09:10PM
Work Order Id:
Observation:
Repairs:
Recommendation:

Inspection 376

Outfall Maintenance Inspection

Cityworks

Status: CLOSED

Priority: **Location:** **Inspected By:** Middleton, Jesse A

Observations:

Start Date and Time of Inspection:	11/15/2022 12:00:00 AM
Inspector Helper:	None
Was Outfall Located:	Yes
Why Was Outfall Not Located:	
Did You Check Immediate Upstream Asset to Determine Direction of Outfall Pipe:	Yes
Why Didn't You Check Immediate Upstream Asset:	Na
Is Outfall Completely Buried and Need to be Excavated:	No
Picture of Outfall Before Maintenance:	Yes
Was Outfall Dug Out with Shovels:	Yes
Does Outfall Require Additional Maintenance:	No
What Additional Maintenance Needs to be Done:	Na
Picture of outfall after maintenance:	Yes
End Date and Time of Inspection:	11/15/2022 12:00:00 AM

Inspection 368
Outfall Maintenance Inspection

Cityworks

Status: CLOSED

Priority: **Location:** **Inspected By:** Middleton, Jesse A

Projected Start: 11/15/2022 10:03:51AM
Projected Finish:
Initiated By: Middleton, Jesse A
Initiated Date: 11/15/2022 10:03:51AM
Actual Finish: 11/15/2022 10:07:27AM
Insp. Date: 11/15/2022 10:07:27AM
Closed By: Middleton, Jesse A
Date Closed: 11/15/2022 10:12:09AM
Work Order Id:
Observation:
Repairs:
Recommendation: No Maintenance Needed, removing from Maintenance Priority List

Inspection 368
Outfall Maintenance Inspection

Cityworks

Status: CLOSED

Priority: **Location:** **Inspected By:** Middleton, Jesse A

Observations:

Start Date and Time of Inspection:	11/15/2022 5:00:00 AM
Inspector Helper:	None
Was Outfall Located:	Yes
Why Was Outfall Not Located:	
Did You Check Immediate Upstream Asset to Determine Direction of Outfall Pipe:	Yes
Why Didn't You Check Immediate Upstream Asset:	na
Is Outfall Completely Buried and Need to be Excavated:	No
Picture of Outfall Before Maintenance:	Yes
Was Outfall Dug Out with Shovels:	No
Does Outfall Require Additional Maintenance:	No
What Additional Maintenance Needs to be Done:	None
Picture of outfall after maintenance:	Yes
End Date and Time of Inspection:	11/15/2022 5:00:00 AM

Inspection 375
Outfall Maintenance Inspection

Cityworks

Status: CLOSED

Priority: **Location:** **Inspected By:** Middleton, Jesse A

Projected Start: 11/15/2022 1:11:00PM
Projected Finish:
Initiated By: Middleton, Jesse A
Initiated Date: 11/15/2022 1:11:00PM
Actual Finish: 11/15/2022 1:13:31PM
Insp. Date: 11/15/2022 1:13:31PM
Closed By: Middleton, Jesse A
Date Closed: 11/15/2022 2:06:53PM
Work Order Id:
Observation:
Repairs:
Recommendation:

Inspection 375

Outfall Maintenance Inspection

Cityworks

Status: CLOSED

Priority: **Location:** **Inspected By:** Middleton, Jesse A

Observations:

Start Date and Time of Inspection:	11/15/2022 12:00:00 AM
Inspector Helper:	None
Was Outfall Located:	Yes
Why Was Outfall Not Located:	
Did You Check Immediate Upstream Asset to Determine Direction of Outfall Pipe:	Yes
Why Didn't You Check Immediate Upstream Asset:	Na
Is Outfall Completely Buried and Need to be Excavated:	Yes
Picture of Outfall Before Maintenance:	Yes
Was Outfall Dug Out with Shovels:	No
Does Outfall Require Additional Maintenance:	Yes
What Additional Maintenance Needs to be Done:	Mini excavator
Picture of outfall after maintenance:	No
End Date and Time of Inspection:	11/15/2022 12:00:00 AM

APPENDIX B

IDDE Program Supporting Documents

DPO0657 Catchment Inspection 9/13/2022

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:
5 manholes
2 catch basins
390' of pipe within catchment
No dry weather flow

N

0 12.5 25 50 75 100 Feet

FB0723 Catchment Inspection 7/13/2022

Legend

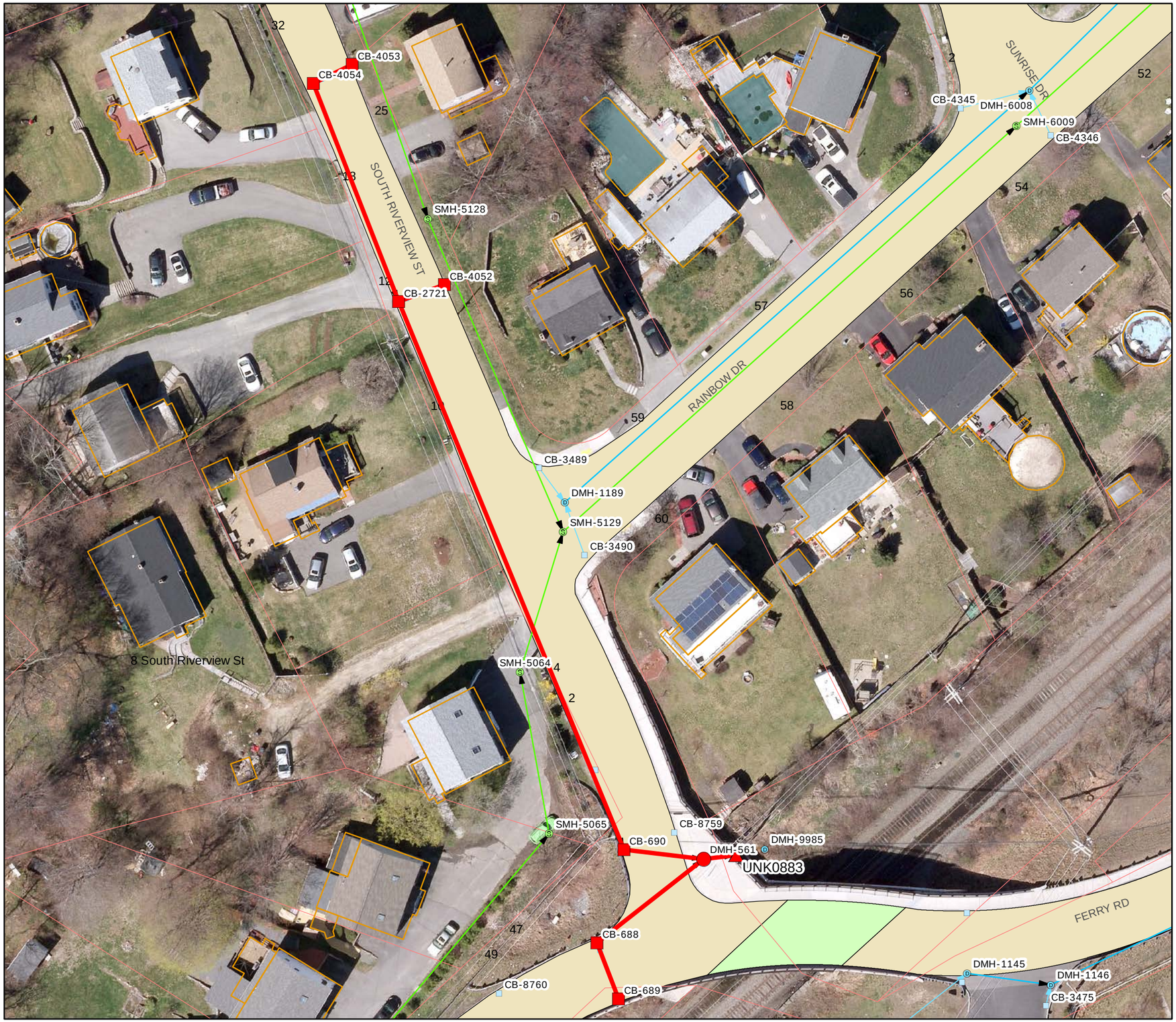
- Discharge point
- Manhole within catchment
- Catch basins within catchment
- Catch basin lateral within catchment
- Garvity main within catchment
- Catch basin
- Discharge point
- Sewer manhole
- Storm water manhole
- Culvert
- Sewer main
- Stormwater main
- Combined sewer/storm main

Catchment Details:
9 manholes
16 catch basins
2,209' of pipe within catchment
No dry weather flow

N

0 55 110 220 330 440 Feet

UNK0883 Catchment Inspection 9/13/2022



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
7 catch basins
545' of pipe within catchment
No dry weather flow

N

0 20 40 80 120 160 Feet

This map was produced from the City of Haverhill's Geographic Information System. The City expressly disclaims any liability that may result from the use of this map.

UNK0888 Catchment Inspection 7/13/2022

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

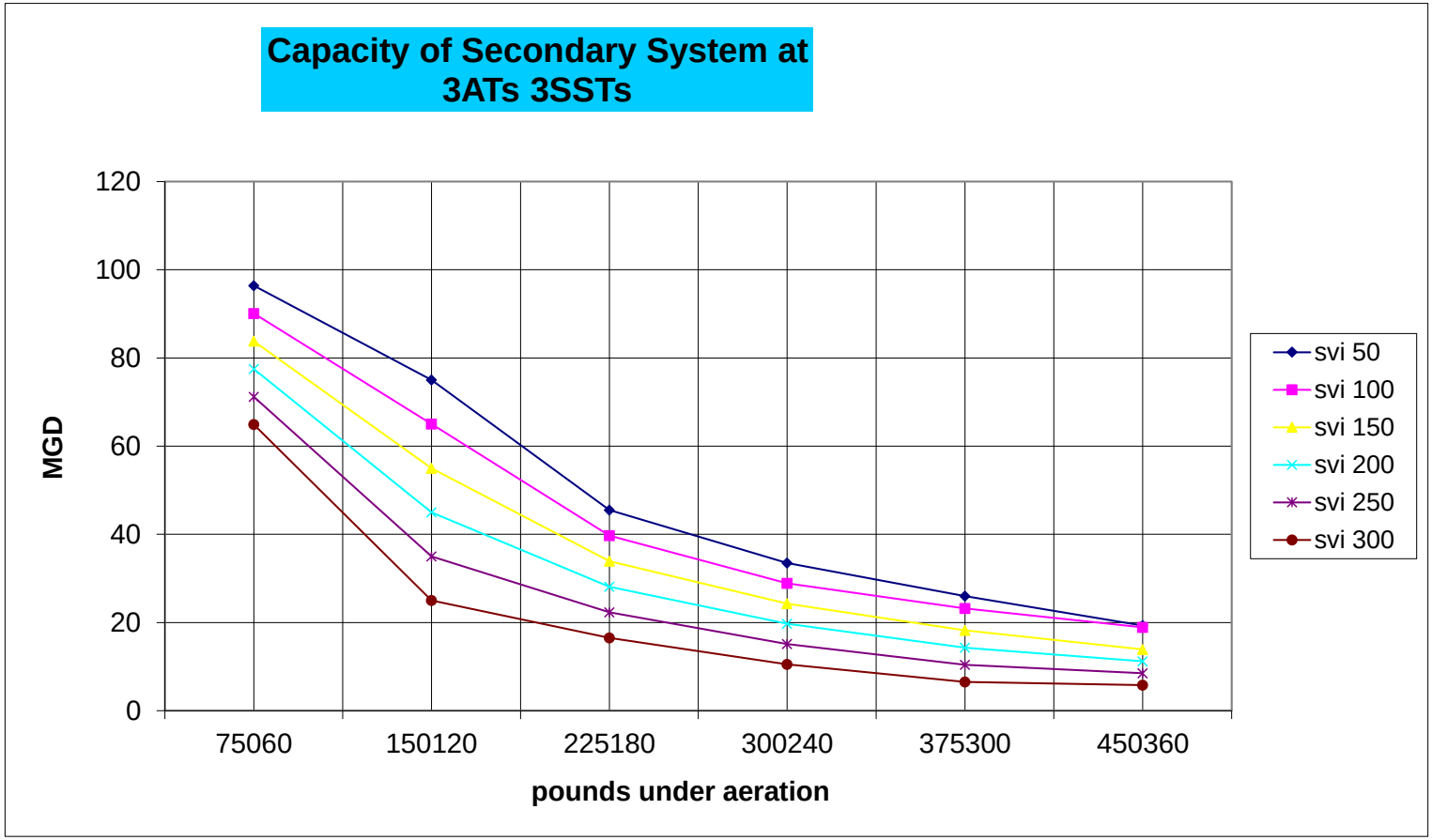
Catchment Details:
4 manholes
12 catch basins
2,225' of pipe within catchment
No dry weather flow

N

0 80 160 320 480 640 Feet

APPENDIX C

Bypass Supporting Documents



			7/5/2021	7/5/2021	7/5/2021		
date:	9/22/2022	Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	12:45 PM	37	236	2153	44,636	MB	35
bypass stop time:	2:53 PM	28					

LOGIN

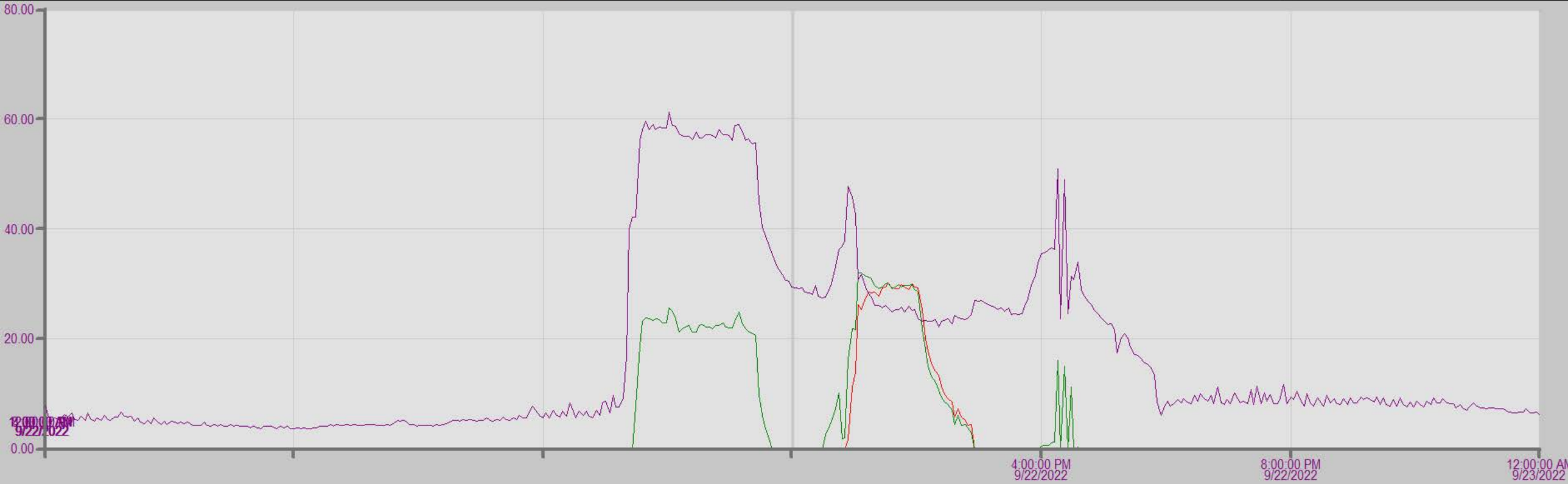
BYPASS MULTI TREND

CITY OF HAVERHILL, MA - WWTF

INF. FLOW
~~12.68 MGD~~

CSO OVERVIEW | ALARMS | 4/24/2023

HISTORY MENU | MAIN MENU | 10:44:39 AM



SECONDARY FLOW RATE (F_CV)	29.50	61.36	3.67	16.43	MGD	WWTP.WW_SCADA.SECONDARY_FLOW_RATE.F_CV
BYPASS FLOW (F_CV)	0.00	30.17	0.00	1.67	MGD	WWTP.WW_SCADA.BYPASS_FLOW.F_CV
BYPASS FLOW AUTO SP (F_CV)	0.00	32.01	-20.10	2.65	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

LOGIN

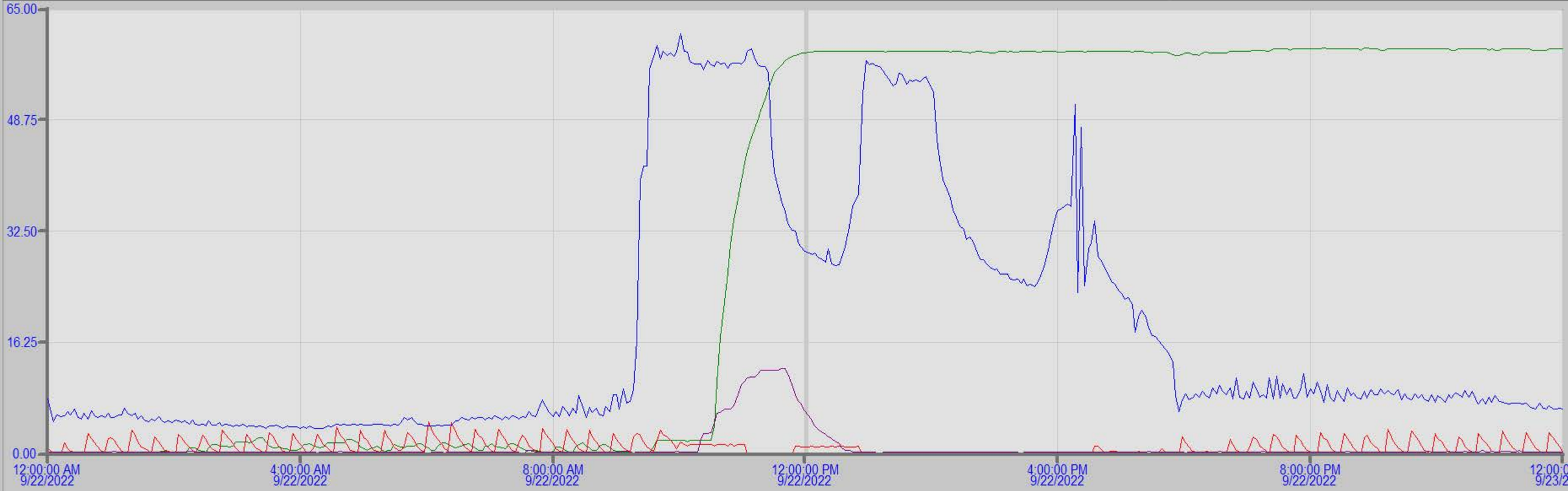
PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

INF. FLOW 12.50 MGD

CSO OVERVIEW | ALARMS | 4/24/2023

HISTORY MENU | MAIN MENU | 10:41:39 A



INFLUENT FLOW (F_CV)	29.46	61.40	3.72	18.08	MGD	WWTP.WW_SCADA.INFLUENT_FLOW.F_CV
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	14.43	14.60	0.00	7.99	FEET	WWTP.WW_SCADA.SEC_CLAR_1_SLUDGE_BLANKET.F_CV
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	0.25	1.13	0.00	0.24	FEET	WWTP.WW_SCADA.SEC_CLAR_2_SLUDGE_BLANKET.F_CV
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	1.49	3.04	0.00	0.22	FEET	WWTP.WW_SCADA.SEC_CLAR_3_SLUDGE_BLANKET.F_CV

All logbook for 9/22/2022 to 9/22/2022

	Occured At	Edited By	Logbook	Note	Type
1	9/22/2022 13:46	CONTROL_ROOM	comments control roo	Primary checks , Pumped primary scum , Maint working on Step Screen # 2 , Secondary checks , cleaned D O probes , X RA S , RAS Rates @ 3.50 MGD , Pump Station check , opened Influent Gate Influent channel # 2 , changed out Screenings cart @ Headworks , Bypass activated @ 37 M G D @ 12:45 pm , emptied 3 Screenings Carts , Rain Event Scheduled for 3 - 7 pm ,Brasier to cover.....Mb	
2	9/22/2022 22:43	CONTROL_ROOM	comments control roo	3rd shift: Plant checks. MB in OT until 7pm for rain event. Pump station check. GT weirs cleaned. Flushed WAS pump #1. Closed inlet gate to influent channel #2. DAF#1 operating through shift. Centrifuge #1 operating until 1 trailer is full. Plant taken out of rain mode. Hypo dosage lowered. Solids lab started. TRC recorded. NP called out sick for Friday 9/23 7-3 shift. Completed solids lab. Final readings. JS	
3	9/22/2022 06:08	CONTROL_ROOM	comments control roo	1st Chief, Primary and secondary plant checks, collected composite samples, conducted chemical inventory, emptied grit hopper, recorded chlorine residual, operated DAF through shift, adjusted hypo dosage, collected weather data, final readings...WA	
4	9/22/2022 15:14	CONTROL_ROOM	comments control roo	ByPass de activated @ 2:53 pm , 27.69 M G D.....Mb	

	Q, tot	Septage Recd	Rainfall	Snow Melt	Q, byp	Q, sec	Actual Setpt	Graph Setpt	TRC	ecal C	MLSS	MLSS	MLSS	Sec Effl	Sec Effl	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 meth	bs formul	on line	on line
09/01/22	5.55	24,750	0.10		0.00	5.55	35.0		0.17	20	1,628	2,042	1,770	18.70	9.60	258	284	395	78,007	68,054	3	3
09/02/22	5.44	24,500			0.00	5.44	35.0		0.22	19	1,646	1,918	1,750			443	391	474	77,217	66,478	3	3
09/03/22	5.05	7,000			0.00	5.05	35.0		0.21												3	3
09/04/22	4.89	0			0.00	4.89	35.0		0.21					23.09	10.40						3	3
09/05/22	14.80	0	0.53		0.00	14.80	35.0		0.27	2,420	928	1,096	1,174	50.18	25.60	399	502	681	60,263	40,007	3	3
09/06/22	12.91	24,800	1.23		0.00	12.91	35.0		0.38	123	1,014	1,242	1,258	51.72	25.20	789	499	541	85,166	43,960	3	3
09/07/22	6.08	21,500	0.53		0.00	6.08	35.0		0.43	4	1,424	1,638	1,512	12.79	12.00	597	519	595	83,070	57,221	3	3
09/08/22	5.90	44,300			0.00	5.90	35.0		0.39	26	1,350	1,544	1,408	17.86	10.80	600	583	469	80,568	53,818	3	3
09/09/22	5.85	12,000			0.00	5.85	35.0		0.38	72	1,382	1,638	1,354			593	568	679	75,385	54,719	3	3
09/10/22	5.79	18,000			0.00	5.79	35.0		0.32												3	3
09/11/22	5.69	0			0.00	5.69	35.0		0.29					22.63	7.20						3	3
09/12/22	5.93	34,000	0.01		0.00	5.93	35.0		0.17	3	1,340	1,582	1,276	17.60	10.00	694	594	752	68,723	52,517	3	3
09/13/22	7.51	34,200			0.00	7.51	35.0		0.38	1,300	1,308	1,596	1,270	23.14	10.40	688	564	709	60,278	52,217	3	3
09/14/22	6.10	36,950	0.19		0.00	6.10	35.0		0.39	8	1,184	1,390	1,076	51.80	14.20	769	676	836	56,600	45,662	3	3
09/15/22	5.76	24,750			0.00	5.76	35.0		0.34	10	1,220	1,418	1,170	26.72	6.60	738	677	795	56,979	47,638	3	3
09/16/22	5.80	46,500			0.00	5.80	35.0		0.41	4	1,170	1,408	1,418			795	653	606	67,726	49,990	3	3
09/17/22	5.52	9,000			0.00	5.52	35.0		0.20												3	3
09/18/22	6.16	0			0.00	6.16	35.0		0.18					10.40	6.80						3	3
09/19/22	10.76	31,450	0.10		0.00	10.76	35.0		0.26	30	1,250	1,528	1,270	11.90	8.40	704	576	717	71,805	50,640	3	3
09/20/22	6.86	39,000	0.58		0.00	6.86	35.0		0.34	2	852	958	896	21.20	13.60	1,009	908	926	50,981	33,852	3	3
09/21/22	6.08	54,500	0.04		0.00	6.08	35.0		0.20	1	1,086	1,250	1,108	11.90	10.40	773	752	866	60,468	43,084	3	3
09/22/22	17.98	20,000	0.04		1.65	16.33	35.0	activated	0.25	2	1,154	1,266	1,148	19.30	16.20	745	711	793	55,936	44,636	3	3
09/23/22	6.40	0	1.21		0.00	6.40	35.0		0.19	1	962	1,050	888			904	810	1,002	45,636	36,279	3	3
09/24/22	5.99	29,500			0.00	5.99	35.0		0.24												3	3
09/25/22	5.87	0			0.00	5.87	35.0		0.11					16.25	13.40						3	3
09/26/22	6.24	43,200	0.03		0.00	6.24	30.0		0.16	3	1,222	1,356	1,126	15.95	20.67	663	656	773	55,489	46,337	3	3
09/27/22	6.18	33,000	0.05		0.00	6.18	30.0		0.15	5	1,190	1,360	1,166	11.38	11.60	714	662	780	57,062	46,487	3	3
09/28/22	6.24	38,000			0.00	6.24	30.0		0.19	1	1,102	1,342	1,242	12.77	7.60	708	700	773	57,865	46,112	3	3
09/29/22	6.15	20,750			0.00	6.15	30.0		0.16	15	1,080	1,312	1,300	15.91	6.60	778	640	715	57,216	46,187	3	3
09/30/22	6.13	38,000			0.00	6.13	30.0		0.18	20	1,122	1,310	1,202			749	634	807	61,794	45,461	3	3
Average	7.05								0.26	12	1,210	1,420	1,263	22.06	12.25	687	616	713	64,738	48,698		
Minimum	4.89								0.11													
Maximum	17.98								0.43													
Total	211.61	709,650	4.64		1.65	209.96													100,000	for 2ats 2ssts		
Operating Range									0.4-	88/10	2200	2200		30	30	50-150	150		125,000	for 2ats 3ssts		
									0.7	260/1	1500	1500		45	45	257	265		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

HAVERHILL, MA - WWTP - DAILY LOG

Date: 04/23/23

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	Joe Schena			
2nd	Mark Brasier			
3rd	Brasier/Rutledge			
	Richie Huff			

WEATHER: Snowmelt

Hi: 52 Lo: 45 Ob: 46

Rain: 0.24 Snow:

Conditions: Rain

snowcover

LAB

PRIMARY SCUM LEVEL:

SCREENINGS CARTS:

INFLUE	Q,Daily Total	MAX	MIN
	24.14	54.41	6.92

	Old	New	Plant	Pump Station	Grit qty
1st	1.47	10.21	1 / 2		0 yd3
2nd	1.69	10.69	2	2/3	
3rd	1.69	10.69	2/3		

Q,byp start/stop times am or pm & Q

Q,byp Status

Q,bypa 0.00 Q to 2nd 24.14

PLANT (*1600) POWER

End 1st_____KVA (06)_____KW (06)

End 2rd_____KVA (06)_____KW (06

End 3rd_____KVA (06)_____KW (06

Centrifuge:	65
Primary:	5247
Secondary:	3158
Aeration:	6674
Total:	13959

12 Mid **PUMP STATION (*450) POWER**

12 Mid Start 1st _____KW(06) _____KVA(07)

12 Mid Start 2nd_____KW(06) _____KVA(07)

12 Mid Start 3rd_____KW(06) _____KVA(07)

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	3.0
#3 AT#1 effl do avg	3.2
#4 AT#2 infl do avg	5.1
#6 AT#2 effl do avg	3.8

Gravity Thickeners DOB:

Torque:

	#1	#2	#1	#2
1st	2.0	1.0	n/a	n/a
2nd	5	3	/	/
3rd	4	3	/	/

Weekly Septage Pumped Gals

SEPTAGE LEVEL

1st_____ 7.57 ft

2nd_____ft

3rd_____ft

Cl2 vol

	Tank #1	Tank #2
1st		2118
2nd		2056
3rd		1932
Total	207	Gallons

TWAS LEVELS:

	#1	#2	#3
1st	13	14	14
2nd	f	F	14
3rd	10	11	10

	Cl2	Time	Q(MGD)	Hold(min)
TRC 1	0.17	10:10 pm	8.73	80
TRC 2	0.17	6:58 am	8.44	83
TRC 3	0.40	1:26 pm	38.22	18

Dosage Setpoint

Effluent Cl2, mg/l 3.50

Inplant _____/_____/_____

_____/_____/_____

CHLORINE RESIDUAL: 0.25 mg/l

CHEMICALS:

Sodium Hypo_____8

Polymer dry ___ 136

Polymer liq._____ 2668

Hydroxide_____drums

Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
4.3	4.0	4.5	5.1	6.9	6

RAS# _____ SC# _____ RAS# _____ SC# _____ RAS# _____ SC# _____ _____

3.31 3.05 3.31 0.00

SECONDARY CLARIFIERS

SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
1.7	6.3	

DOB by Operators

	#1		#2		#3		
1st	2.0	3.5	1.5	3.0	1.5	4.0	3am:
2nd	2.0	6.0	2.0	9.0	2.5	8.5	
3rd	6.5	6.5	11.0	15.5	7.0	10.5	


HAVERHILL
PENTUCKET
SETTLED 1640. INSTITUTED A CITY. 1870.