

**COLLECTION SYSTEM
CAPACITY, MANAGEMENT, OPERATIONS &
MAINTENANCE PROGRAM
2019 ANNUAL REPORT**



NPDES PERMIT No: NH0101303

MARCH 2020

**THE TOWN OF SEABROOK, NH
WASTEWATER DEPARTMENT
274 RTE 286 – WRIGHT'S ISLAND
SEABROOK NH 03874**

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SECTION 1: Seabrook CMOM Program

A. CMOM Program and Collection System Overview

This annual report provides a summary of completed and planned activities for implementation of the Seabrook Collection System Capacity, Management, Operation, and Maintenance (CMOM) Plan. The Town's CMOM program is an on-going continuous effort to properly maintain the Seabrook NH collection system.

The Town of Seabrook owns and maintains approximately 50-miles of sanitary sewer collection system serving most of the Town's population. Within the collection system network are 75 simplex pumping stations (maintained by the Sewer Department on private property), 2 custom pump stations (Route 286 & Centennial Street), 3 major wastewater pumping stations (Route 107, Rocks Road, Route 1A), 18 minor (duplex) pumping stations, and 2 storm water drain stations. There are no combined sewers in Seabrook.

B. Goals of the CMOM Program

The primary goals of Seabrook's CMOM program are as follows:

1) Identification of Potential Overflow Sites

- a) Using the annual sewer inspection and flushing program we will continue to search for suspected or potential overflow sites within the sewer system including gravity sewers, manholes, pump stations and force mains

2) Inflow/Infiltration (I/I) Prevention

- a) Working with the Town's Planning Board, Building Department and through participation on the Technical Review Committee we will continue to monitor and inspect sewer construction activities in Town as new sewer extensions and building service connections are constructed
- b) Disconnect and/or redirect illegal sump pumps and roof down spouts that are found to be connected to the collection system.
- c) Monitor pump station flow trends to identify acute or chronic (extended) periods of extraneous flows in excess of average daily/monthly/yearly flows for each pump station and
- d) Continue with program of sending written notices to resident's whose services are found to be contributing extraneous flow to the sewer system as a result of sewer video inspections and routine maintenance of pump stations

3) Public Outreach/Public Education

- a) Provide town residents with information on the importance of wastewater treatment through our website and by increasing our social media presence. In 2020 we will increase efforts to educate the public on the importance of capital improvements and funding through our asset management program
- b) Continue the practice of responding to all homeowner requests for assistance with sewer system problems even if problems are suspected to rest solely with the homeowner.
- c) Use all of our outreach methods to educate on the importance of restricting private sources of extraneous inflow as well as providing guidance documentation on household flushing. In 2020 we will be working with the Water Dept. to distribute guidance documentation with the quarterly billing.

SECTION 1: Seabrook CMOM Program

4) Emergency Management

- a) Maintain accurate records and expand on the current database of vendors, suppliers and contractors who provide parts, supplies and manpower to assist the Seabrook Sewer Department with responding to sanitary sewer system emergencies.

In the event of an emergency our on-call operator is notified automatically by our SCADA alarm system or by phone. All Public Safety departments are provided with an updated on call rotation schedule and contact list. There are several fail-safe notifications in place to ensure a timely response to all emergencies. Our operators have access to the GIS database and SCADA system remotely by handheld device.

SECTION 2: Management Plan and Budget

A. Staffing

Staffing at the Seabrook Sewer Department includes: the Superintendent, Chief Operator, Collection System Foreman, Chief Mechanic, Lab Technician, IPP Coordinator, three (3) Operators, one (1) Mechanic, a Secretary and a Seasonal Laborer.

Each member of the WWTF and collection systems staff performs multiple duties related to the operation and maintenance of both facilities. The collection system Foreman oversees the maintenance and repairs of collection system components. The Foreman has at his disposal laborers, and operators to carry out the operation, maintenance, repair, and testing functions required to ensure reliable operation of the collection system. Independent contractors are used as needed.

The following positions were vacant and/or filled in 2019:

- **Superintendent:** Upon retirement of the Superintendent in March of 2019, the current Water Superintendent was appointed interim Superintendent of the Water & Sewer Dept. This appointment is still current to-date.
- **Chief Operator:** This position has been vacant since June 2019. The Town has been working to fill this position.
- **Operator(s):** There were several operator vacancies throughout 2019 with resignations, medical leaves and transfers; leaving the department at minimum staff levels at various points of the year. As of March 2020 all but one (1) operator position have been filled.
- **Lab Technician:** The lab technician was on medical leave for approximately 2 months (March-April) transferred to a DPW secretary position in August. This position was filled in September.

2019 was a remarkable year with the staffing changes and the Town is and has worked to fill vacancies as they occur. At this time, the department has been able to meet fundamental requirements and overall performance of the system. However, the vacancies and leaves of absence do impact the functioning of the department and efforts to complete all activities at a given time.

Training: All new staff members were provided with comprehensive in-house collection system training prior to being placed onto after hours emergency response duty. Additionally, a total of 4 existing and recently hires operators have attended formal Collection System training classes, have all recently passed the examination and have received Grade II NEWEA voluntary certifications.

B. Information Management

Information management at the facility includes a full Supervisory Control and Data Acquisition (SCADA) system that captures, and retains historic data on the collection system operation such as raw wastewater flow into the WWTF; pump station operations, alarms, loss of power; emergency generator run time (weekly exercise and emergency operation) and pump run time. Preventive maintenance activities pertaining to the collections system have been recorded using the GIS system. Including but not limited to: PS maintenance and repairs, manhole inspections, and flushing logs. All of this information is stored in a web-based system and is easily accessible through the PeopleGISQuickAsset (QA) tool. This tool provides staff the ability to create issue & complete asset work orders in the field. Staff can also add missing or incomplete asset information in real-time.

SECTION 2: Management Plan and Budget

Improvements in Information Management completed in 2019 and planned for 2020 include:

- Continued use of Ipads for work order management and remote operation of the SCADA system
- Continue working with Hoyle Tanner Associates and NHDES with Phase I & II SRF funding, to develop workflows to help increase the efficiency of our current GIS system in addition to our current JobCal software. This program will help track life expectancy and maintenance requirements; the goal of our department is to shift towards becoming proactive in our infrastructure repairs/replacements instead of reactive.
- Replacement of outdated PC's (Windows 7 devices)
- Work with Wilson Controls to update Wonderware SCADA software & WIN-911 alarm management software.
- Automate SCADA reporting data to XL Reporter (PS runtime data, flow data etc) to supplement our asset management program
- Comprehensive plant evaluation was completed by Weston & Sampson in 2019 reviewed by the superintendent. Recommendations were submitted to the Town Manager to be considered for the Town's Capital Improvement Program
- The Sewer Dept will work with a contracted company to participate in a town wide energy audit to be completed in 2020 and will include recommendations for the WWTF as well as all pump stations.
- Received approval from NHDES Coastal Hazard Program for 2019 NH Coastal Resilience Municipal Planning Grant. We will move forward with plans under this program in 2020.

C. Annual Budget and Expenditures

The Sewer Department maintains an annual budget for operations and maintenance that is subject to approval at Town Meeting; with a default budget if the main budget is not approved. The annual budget is derived from a combination of sewer user fees and the overall tax base. Capital improvement projects (typically projects in excess of \$25,000) are subject to special approval at annual Town Meeting through warrant article. The current funding levels are adequate to operate and maintain the current WWTF and sanitary sewer system.

The Town has begun to track expenditures for maintenance separately between the collection system and treatment plant facilities. A general breakdown of the collection system maintenance spending is presented in the table below

Table I

Maintenance Activity	2019 Direct Cost
Preventive Maint Program	\$20455
General Maint & Repairs Major PS	\$13088
Sewer Jetting	\$11000
Simplex Pump Station Upgrades/Repairs	\$7329
Annual Generator Service & Repairs	\$3275

SECTION 2: Management Plan and Budget

Facility Repairs	\$22231
UPS Battery Replacements – Major PS	\$4365
Muffin Monster Replacement	\$16305
Pump Replacements (Several PS)	\$63411
Major Repairs to Pump Truck	\$12598
TOTAL	\$174,057.00

Specific line items within the 2019 annual budget related to maintenance include the following. As indicated in Table 2, these budgets are for the department and may include costs for both the collection system and the treatment plant.

Table II

Budget Line Item	2019 Budget
New Equipment	70,000
Equipment Maintenance	95,000
Engineering	20,000
Equipment Rental	5,000
Total Sewer Department Budget	\$2,002,343.00

D. Warrant Articles Presented in 2019

The following warrant articles were on the ballot for 2019 that are relevant to collection system maintenance activities:

Article #7: \$60,000 for the Asset Management Phase II - Vertical Assets- *Passed*

Article # 27: \$15,000 to replace the the Air Handling Unit in the dewatering building - *Passed*

SECTION 3: Annual Maintenance Program

A. Preventive Maintenance & Monitoring Program

Seabrook maintains an ongoing preventive maintenance program to reduce potential overflows and bypasses caused by malfunctions or failures of the sanitary sewer system. The Town has its own basic video inspection equipment with limited capabilities and jetting equipment. The current annual preventive maintenance program includes the following:

- Annual inspection and sewer main jetting with a goal of inspection and/or jetting an average of 5 miles per year of sanitary sewers;
- Use annual inspections to eliminate extraneous flows from sump pumps, pipe leaks, manhole leaks, etc;
- Manhole maintenance including reset rims and covers, repair brick work and repair leaking or damaged service connections;
- Major pump station maintenance including weekly inspections, complete and thorough cleaning (annually), and comprehensive alarm testing (annually).
- Weekly exercising of pump station generators.
- Repair or replace sewer pipe found to be leaking or damaged.
- Once every two years inspect the outfall diffuser (requires a certified underwater diver) this inspection was completed in 2019. **(Report Attached)**

B. Collection System Activities

- Approximately 3.5 miles of gravity sewer cleaned and inspected.
- Annual wet well cleaning and inspection to all town owned pumping stations was completed.
- UPS Battery Replacements at all major pump stations and WWTF
- Replaced Muffin Monster at 286 PS
- Replaced Pump #1 at Ocean Blvd PS
- Replaced Pump #1 at River St Drain PS
- Replaced Pump #1 & Pump #2 at Walton Rd (School) PS
- Replaced Pump #1 at Mill Ln PS
- Replaced Pump #1 at Pineo Farms MPS
- Annual alarm testing to SCADA monitored stations was conducted and documented ensuring proper communication/notification of such alarms.
- Annual Testing of Generators was completed and documented by Scherbon Electric.
- All water backflow prevention devices were inspected and serviced, if required.
- Approximately 856 PM work orders = 697 Hours Labor
- Approximately 82 Corrective work orders = 633 Hours Labor

SECTION 3: Annual Maintenance Program

Table III

STREET NAME	PIPE LENGTH
FOGGS LN	490
WWTF	245
ALISON DR	1035
RANDALL DR	669
BORDER WINDS AVE	2334
LEDGE RD	4145
FOLLY MILL RD	988
BATCHELDER RD	2309
AMY DR	400
WEARE RD	4046
MILL LN	1623
TOTAL FT	18284 ft

3.46 MILES

C. Industrial Pretreatment Activities

Our Industrial Pre-Treatment Department conducted a total of 109 physical inspections of the 50 hydro mechanical and gravity grease interceptors that discharge directly to the Seabrook sanitary sewer system, issuing 1 violation notice for failure to properly maintain a grease interceptor to owners of food establishments.

Table IV

Permitting

Permit Class	Jan 2018	Gain/Loss	Violation	Jan 2019
1	5	0/0	0	5
2	7	0/0	0	7
3	85	5/3	2	87
Total	97	5/3	2	99

D. New Connections

The Seabrook Sewer Department approved 48 permit applications in 2019 including 16 new connections to the system. These new connections were all residential and were reviewed and inspected by the collections foreman.

E. 2020 Planned Collection System Maintenance Activities

For 2020 the Sewer Department has planned the following collection system maintenance and monitoring activities:

- Regular preventive maintenance activities at main pump stations with corrective maintenance as needed.
- Continued cross training of new staff members to become proficient in all aspects of the various department operations.

SECTION 3: Annual Maintenance Program

- Continue to transfer paper-based collection system information to a digital GIS mapping system.
- Continue with the annual program of sewer main jetting.
- Continue to review current maintenance protocols and ordinance requirements for privately owned sewer collection systems
- Update pump station O&M Manuals and add to our GIS system
- Upgrade/replace the odor control system at the Centennial St pump station
- Routine sewer main CCTV camera inspection (planned) to be scheduled in 2020 pending relief of COVID-19 staffing restrictions

SECTION 4: Overflow Response

The Town of Seabrook experienced 4 reportable events in 2019.

- 01/11/2019: Bio solid cake spill by sludge hauling company during pick-up
- 05/10/2019: Bio solid cake spill by sludge hauling company during pick-up
- 05/15/2019: Bio solid cake spill by sludge hauling company during pick-up

All of the above listed occurred on-site at the WWTF and were reported immediately and cleaned up without incident.

- 07/16/2019: The Sewer Dept. was notified that a 8" sewer line was broken by a contractor while making a connection to a new home at 85 Foggs Lane. The Sewer Dept. responded immediately with personnel, a pump truck and jet rodder to help with repair activities. The main was repaired on 07/16/2019 and the Sewer Dept staff returned the following day and a follow-up cleaning was performed. It is estimated that 100 gallons discharged into a 6' deep ditch. At no point during the repair did any wastewater migrate to any surface water or stormwater structure.

SECTION 5: System Capacity Evaluation

A. System Capacity

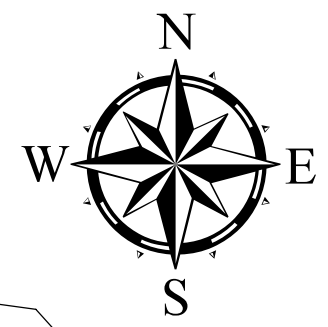
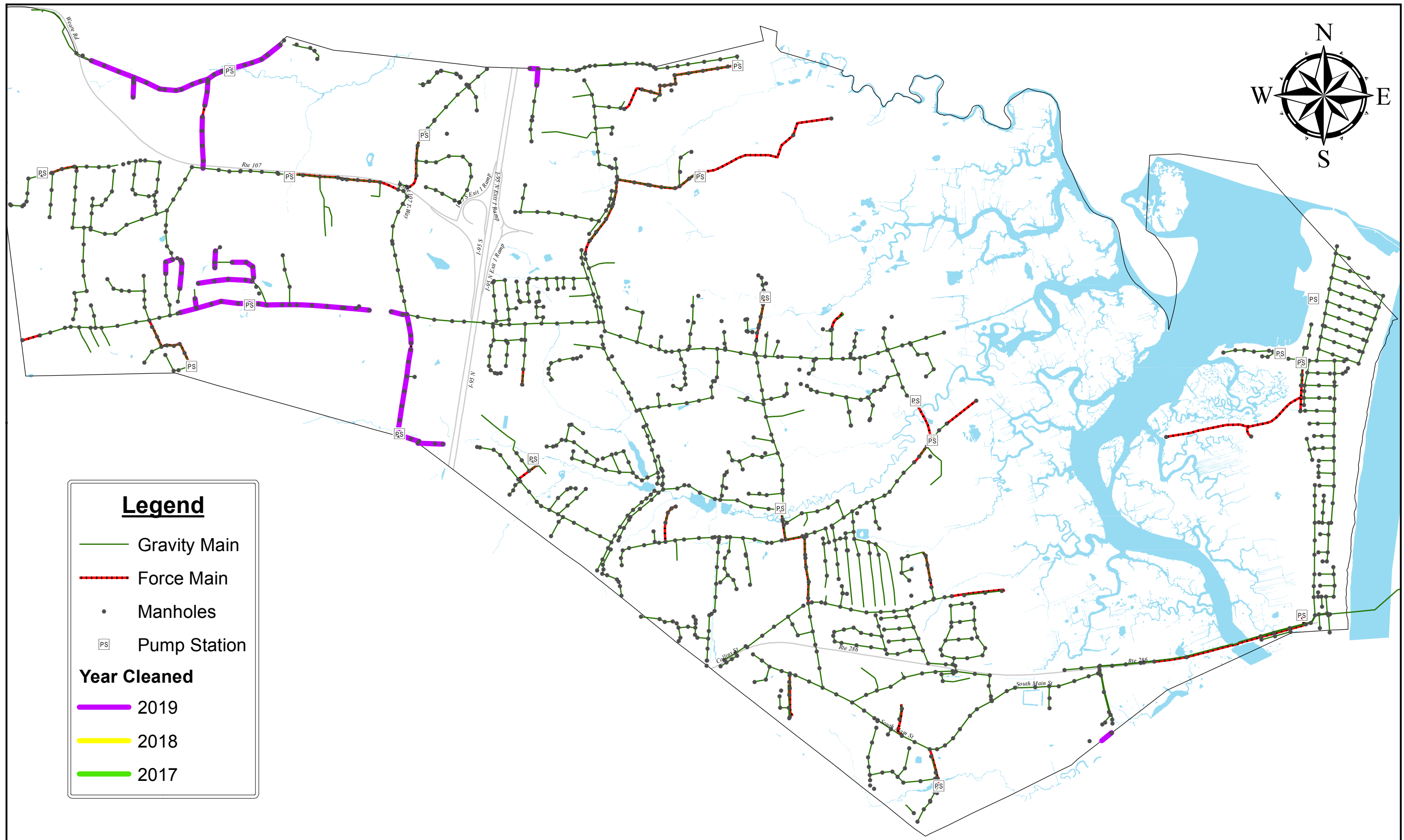
Sewage is conveyed through the sanitary sewer system to the wastewater treatment facility (WWTF). The WWTF was built in 1995 with a design average daily flow (ADF) of 1.8 MGD. Most of the collection system was built around the same time as the WWTF. There are no combined storm water sewers and no combined storm water sewer overflow (CSO) discharge locations in the collection system. There are no known areas within the collection system that having limitations on collection capacity. In 2019 the WWTF operated at an ADF of approximately 0.644 MGD, which is approximately 36% of design flow capacity. The plant was able to handle all peak flows in 2019. See Attachment 4 for a summary of flows for the past six years. Flows in 2019 have shown no significant increase or decrease from the previous years. There were no reported backups in the collection system due to capacity limits in 2019.

Attachment I
Flow History & Solids Table

Seabrook Wastewater Effluent Ocean Discharge totals

	2015		2016		2017		2018		2019	
	Monthly Total MG	Daily Avg MGD	Monthly Total MG	Daily Avg MGD	Monthly Total MG	Daily Avg MGD	Monthly Total MG	Daily Avg MGD	Monthly Total MG	Daily Avg MGD
January	19.16	0.62	19.85	0.64	20.65	0.67	21.69	0.70	19.57	0.63
February	17.63	0.63	18.95	0.68	19.63	0.70	19.03	0.68	18.41	0.66
March	21.33	0.69	20.39	0.66	21.66	0.70	22.61	0.73	21.07	0.68
April	22.99	0.77	18.46	0.62	24.97	0.83	21.30	0.71	20.08	0.67
May	19.33	0.62	18.96	0.61	24.82	0.80	21.58	0.70	20.08	0.65
June	20.58	0.69	19.74	0.66	23.30	0.78	20.55	0.69	18.46	0.62
July	23.42	0.76	22.37	0.72	23.73	0.77	22.52	0.73	22.03	0.71
August	23.09	0.74	21.98	0.71	23.02	0.74	22.86	0.74	21.32	0.69
September	19.47	0.65	18.02	0.60	18.02	0.60	20.35	0.68	17.65	0.59
October	18.57	0.60	18.51	0.60	19.02	0.61	19.98	0.64	17.80	0.57
November	16.85	0.56	17.84	0.59	17.13	0.57	22.40	0.75	16.64	0.55
December	18.48	0.60	19.37	0.62	18.66	0.60	21.48	0.69	21.83	0.70
Totals	240.90 MG		234.44 MG		254.61 MG		256.35 MG		234.93 MG	
Average per day	0.660 MG		0.642 MG		0.698 MG		0.702 MG		0.644 M	
MG = million gallons										
% of design flow	37%		36%		39%		39%		36%	
Biosolids wet tons										
Totals	1676 Tons		1497 Tons		1796 Tons		1827 Tons		1750 Tons	
dry tons	218		199		247		256		226	

Attachment II
Collection System Maintenance Map

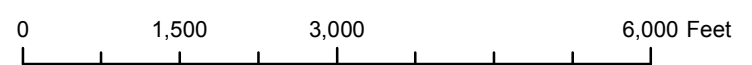


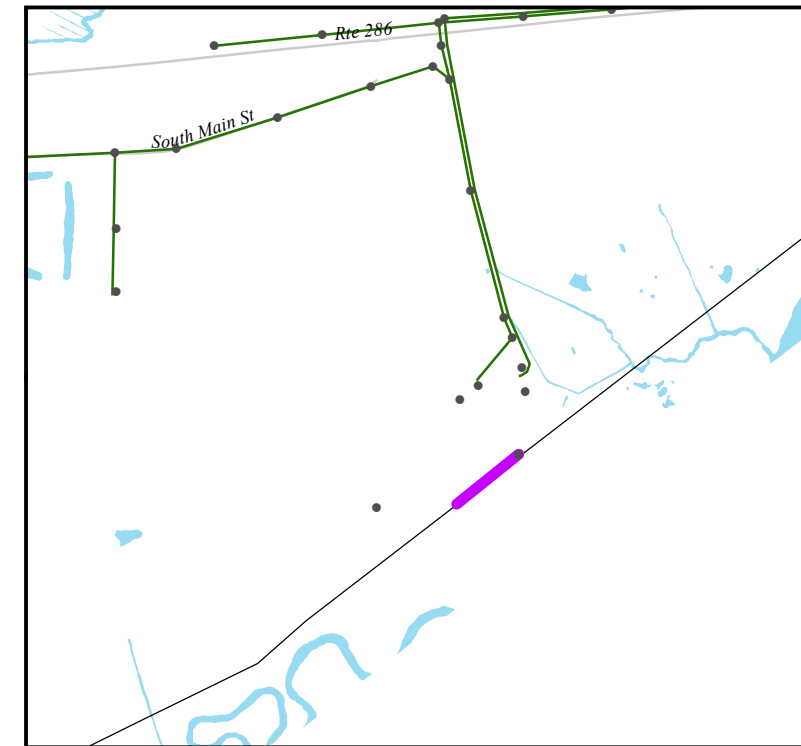
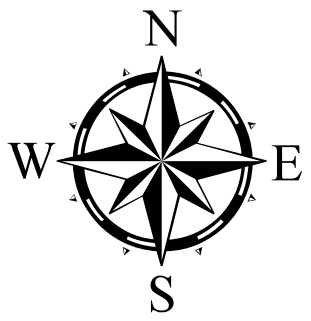
Legend

- Gravity Main
- Force Main
- Manholes
- PS Pump Station

Year Cleaned

- 2019
- 2018
- 2017



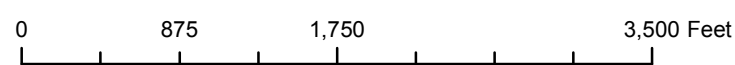


Legend

- Gravity Main
- - - Force Main
- Manholes
- PS Pump Station

Year Cleaned

- 2019
- 2018
- 2017



Attachment III
2019 Outfall Inspection Report



Pepperrell Cove Marine

105 Bartlett St-Rear-Portsmouth, NH 03801

Ph: 603.373.6812 Fax: 603.373.6832

Info@pepcove.com

July 26, 2019

RE: Inspection of Seabrook outfall diffusers located at 42°52.485 070°48.483

Started at South end of outfall first diffuser at South end being #1

All diffusers were inspected before and after cleaning all notes written are after cleaning.

1. The first diffuser was repaired in 2017. Cleaned, not covered in rip rap. Duckbill was replaced. Pipe and duckbill in good condition.
2. Cleaned, covered in rip rap at base and all in good condition.
3. Cleaned, base covered in rip rap, pipe and duckbill in good condition.
4. Cleaned, base covered in rip rap, pipe and duckbill in good condition.
5. Cleaned, base covered in rip rap, pipe and duckbill in good condition.
6. Cleaned, base covered in rip rap, pipe and duckbill in good condition.
7. Cleaned, base covered in rip rap, pipe and duckbill in good condition.
8. Cleaned base, covered in rip rap at base, pipe and duckbill in good condition.
9. Cleaned, base covered in rip rap, pipe and duckbill in good condition.
10. Cleaned, base covered in rip rap, pipe and duckbill in good condition.
11. Cleaned, base covered in rip rap, pipe and duckbill in good condition.
12. Cleaned, base covered in rip rap, pipe and duckbill in good condition.
13. Cleaned, base covered in rip rap, duckbill is missing, pipe in good condition.
14. Cleaned, base covered in rip rap, pipe and duckbill in good condition.
15. Cleaned, base covered in rip rap, pipe and duckbill in good condition.
16. Cleaned, base covered in rip rap, pipe and duckbill in good condition.
17. Cleaned, base covered in rip rap, pipe and duckbill in good condition.
18. Cleaned, base covered in rip rap, pipe and duckbill in good condition.
19. Cleaned, base covered in rip rap, pipe and duckbill in good condition.
20. Final diffuser at south end flange bolts and nut badly deteriorated and need to be replaced.

This inspection was done off our dive vessel.

Jeffery Campbell, Dive Supervisor

Robson Portes, Diver who did all the underwater cleaning and inspections.

David Foster, Dive Tender

The cleaning was done with a pressure washer and wire brush, all pipes and duckbills were checked to see if they were intact and tight.

All information written was told by diver and seen on underwater video, just could not get machine to record.



Pepperrell Cove Marine

105 Bartlett St-Rear-Portsmouth, NH 03801

Ph: 603.373.6812 Fax: 603.373.6832

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Please find attached a drawing of the #1 and #19 diffuser and where nuts and bolts for flange have failed.

Thank you,

Jeffery Campbell,
Dive Supervisor