



**Town of Portland, Connecticut**

**2021 Annual Report**

**General Permit for the Discharge of Stormwater  
from Small Municipal Separate Storm Sewer Systems**

**Permit Number 000005**

MS4 General Permit  
Town of Portland 2021 Annual Report  
Permit Number GSM 000005  
January 01, 2021 – December 31, 2021

Primary MS4 Contact: Wade M. Thomas, Nathan L. Jacobson & Associates, Inc., Stormwater Consultant, 860.526.9591, wthomas@nlja.com

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This report documents Portland’s efforts to comply with the conditions of the MS4 General Permit to the maximum extent practicable (MEP) from January 01, 2021 to December 31, 2021.

Robert Shea replaced Richard D. Kelsey as the Director of Public Works on May 30, 2018.

Ryan McCammon replaced Don Mitchell, MPH, R.S., as Chief Sanitarian of the Chatham Health District in December 2019.

Mary Dickerson, Development Director replaced Ashley Majorowski, Land Use Administrator in May 2020.

Ryan J. Curley was elected First Selectman replacing Susan S. Bransfield, First Selectwoman in November 2021.

## Part I: Summary of Minimum Control Measure Activities

### 1. Public Education and Outreach (Section 6 (a)(1) / page 19)

#### 1.1 BMP Summary

BMP	Activities in current reporting period	Sources Used (if applicable)	Method of Distribution	Audience (and number of people reached)	Measurable Goal	Department / Person Responsible	Additional details
1-1 Implement public education and outreach	<p>The following was posted on the Department of Public Works webpage at:</p> <p><a href="http://www.portlandct.org/Departments/PublicWorks.aspx">http://www.portlandct.org/Departments/PublicWorks.aspx</a></p> <p><b>Public Notification - Public Works</b></p> <p>Winter Road Treatment: Sand vs. Salt</p>	CT DEEP and EPA	Electronic viewing		Improving	Robert Shea, Director, Department of Public Works	Updated as often as needed

<p>Portland Recycles</p> <p><i>Don't Get Caught Holding the Bag, Please Pick Up After Your Dog</i> pamphlet.</p> <p>CT NEMO Program</p> <p><b>Stormwater Information</b></p> <p>2017 MS4 Stormwater Management Plan  2017 MS4 Annual Report  2018 MS4 Annual Report  2019 MS4 Annual Report  2020 MS4 Annual Report</p> <p>Preventing Stormwater Runoff</p> <p>ReduceRunoff.org</p> <p><b>Stormwater Fact Sheets</b></p> <p>The following Clean Waters Starting in Your Home and Yard Fact Sheets prepared as a collaborative effort between the Connecticut Sea Grant Extension Program and the University of Connecticut Cooperative Extension System NEMO Program are available to the public:</p> <p>Fact Sheet 1 - What's the Big Deal About Water Quality</p> <p>Fact Sheet 2 - Managing Your Household Chemicals</p> <p>Fact Sheet 3 - Caring for Your Septic System</p> <p>Fact Sheet 4 - Integrated Pest Management and Biological Controls for the Homeowner</p> <p>Fact Sheet 5 - Conservation Landscaping for Water Quality</p> <p>Fact Sheet 6 - Animal Waste and Water Quality</p>						
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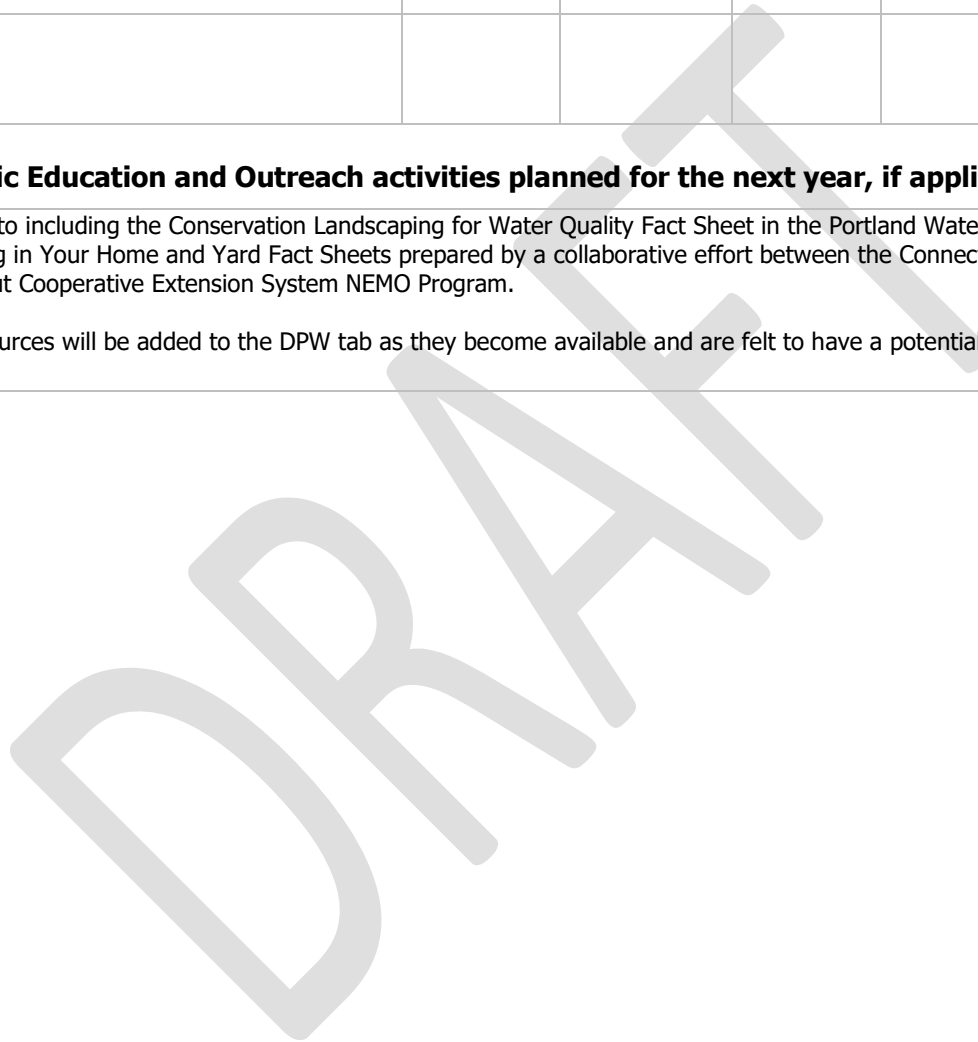
	<p>Fact Sheet 7 - Going Native - Rethinking Plant Selection for the Home Landscape</p> <p>Fact Sheet 8 - Lawn Care the Environmentally-Friendly Way</p> <p>Fact Sheet 9 - The Four Seasons of Water Quality Protection</p> <p>Fact Sheet 10 - Conserving Water Quality at Home</p> <p>Fact Sheet 11 - Environmentally Responsible Boating</p>					
1-2 Address education/ outreach for pollutants of concern	<p>The following was posted on the Department of Public Works webpage at:</p> <p><a href="http://www.portlandct.org/Departments/PublicWorks.aspx">http://www.portlandct.org/Departments/PublicWorks.aspx</a></p> <p><b>Public Notification - Public Works</b></p> <p><i>Don't Get Caught Holding the Bag, Please Pick Up After Your Dog</i> pamphlet.</p> <p><b>Stormwater Fact Sheets</b></p> <p>The following Clean Waters Starting in Your Home and Yard Fact Sheets prepared as a collaborative effort between the Connecticut Sea Grant Extension Program and the University of Connecticut Cooperative Extension System NEMO Program are available to the public:</p> <p>Fact Sheet 3 - Caring for Your Septic System</p> <p>Fact Sheet 6 - Animal Waste and Water Quality</p> <p>Fact Sheet 11 - Environmentally Responsible Boating</p>			Improving	Robert Shea, Director, Department of Public Works	
1-3 Implement Additional	<p>Before July 01, 2020 NEMO Technical Papers may be made available to land use commission members.</p>			Improving	Robert Shea, Director, Department	

Public Education and Outreach Resources						of Public Works	

**1.2 Describe any Public Education and Outreach activities planned for the next year, if applicable.**

Consideration will be given to including the Conservation Landscaping for Water Quality Fact Sheet in the Portland Water Department bills. The fact sheet is part of the Clean Waters Starting in Your Home and Yard Fact Sheets prepared by a collaborative effort between the Connecticut Sea Grant Extension Program and the University of Connecticut Cooperative Extension System NEMO Program.

Other public education resources will be added to the DPW tab as they become available and are felt to have a potential significant impact on the general public.



## 2. Public Involvement/Participation (Section 6(a)(2) / page 21)

### 2.1 BMP Summary

BMP	Status (Complete, Ongoing, In Progress, or Not started)	Activities in current reporting period	Measurable Goal	Department / Person Responsible	Date completed or projected completion date (include the start date for anything that is 'in progress')	Location Posted	Additional details
2-1 Final Stormwater Management Plan publicly available	Completed	A copy of the 2017 Stormwater Management Plan (SMP) was made available to the public for review and comment on the town website.	Compliance	Susan S. Bransfield, First Selectwoman, Board of Selectmen	The 2017 SMP was available to the public on April 20, 2017.	<a href="http://www.portlandct.org/">http://www.portlandct.org/</a>	No public comments were received by the Office of the First Selectwoman.
2-2 Comply with public notice requirements for Annual Reports (annually by 2/15)	Completed	The Draft 2017 MS4 Annual Report was made available for public review and comment on the town website.	Substantial Compliance	Susan S. Bransfield, First Selectwoman, Board of Selectmen	February 28, 2018	<a href="http://www.portlandct.org/">http://www.portlandct.org/</a>	No public comments were received by the Office of the First Selectwoman.
	Completed	The Draft 2018 MS4 Annual Report was made available for public review and comment on the town website.	Substantial Compliance	Robert Shea, Director, Department of Public Works	February 28, 2019	<a href="http://www.portlandct.org/">http://www.portlandct.org/</a>	No public comments were received by the Office of the First Selectwoman.
	Completed	The Draft 2019 MS4 Annual Report was made available for public review and comment on the town website.	Substantial Compliance	Robert Shea, Director, Department of Public Works	March 06, 2020	<a href="http://www.portlandct.org/">http://www.portlandct.org/</a>	No public comments were received by the Office of the First Selectwoman.
	Completed	The Draft 2020 MS4 Annual Report was made available for public review and	Substantial Compliance	Robert Shea, Director, Department of Public Works	February 16, 2021	<a href="http://www.portlandct.org/">http://www.portlandct.org/</a>	

		comment on the town website.					
	In Progress	The Draft 2021 MS4 Annual Report was made available for public review and comment on the town website.	Substantial Compliance	Robert Shea, Director, Department of Public Works	February 16, 2022	<a href="http://www.por.tlandct.org/">http://www.por.tlandct.org/</a>	Public comments are to be sent to Wade Thomas at wthomas@nlja.com
2-3 Consider establishment of a MS4 stormwater committee.	In progress	In process of identifying committee members	Provide forum to coordinate SWMP implementation across depts. and commissions	Robert Shea, Director, Department of Public Works	Summer 2022		Reason for addition: Committee will represent town departments & commissions with stake in stormwater management.

**2.2 Describe any Public Involvement/Participation activities planned for the next year, if applicable.**

Continue to post the MS4 Annual Reports on the town website for public review and comment.
Consider holding semi-annual stormwater committee meetings to review SMP implementation progress.

### 3. Illicit Discharge Detection and Elimination (Section 6(a)(3) and Appendix B / page 22)

#### 3.1 BMP Summary

BMP	Status (Complete, Ongoing, In Progress, or Not started)	Activities in current reporting period	Measurable Goal	Department / Person Responsible	Date completed or projected completion date (include the start date for anything that is 'in progress')	Additional details
3-1 Develop written IDDE program (Due 07/01/19)	In Progress	A written IDDE program using the IDDE program template available from the CT DEEP is being developed.	Develop written plan of IDDE program	Robert Shea, Director, Department of Public Works and Nathan L. Jacobson & Associates, Inc., Town Engineer	Anticipate completing by July 01, 2022	The Department of Public Works will be the listed contact.
3-2 Develop list and maps of all MS4 stormwater outfalls in priority areas (Due 07/01/20)	In Progress	MS4 stormwater outfall mapping was conducted during the first permit term.  The MS4 stormwater outfall mapping will be updated to include impaired waters as contained in the State of Connecticut, Department of Energy and Environmental Protection 2018 Integrated Water Quality Report, if applicable. The stormwater outfalls in the impaired waters will be identified.	Development of an ESRI GIS map layer with MS4 stormwater outfalls.	Robert Shea, Director, Department of Public Works and Nathan L. Jacobson & Associates, Inc., Town Engineer	ESRI GIS map layer will be completed in 2022.	
3-3 Implement citizen reporting program (Ongoing)	In Progress	A program to allow the general public to report suspected illicit discharges is in the process of being developed	Under Development	Robert Shea, Director, Department of Public Works and Nathan L. Jacobson & Associates,	Anticipate completing by July 01, 2022.	The Department of Public Works will be the primary contact with the Chatham Health District being the secondary contact.



				Inc., Town Engineer		
3-4 Establish legal authority to prohibit illicit discharges (Due 07/01/19)	In Progress	An Illicit Discharge Detection and Elimination Ordinance and Citation Hearing Procedure was enacted at a Board of Selectmen Meeting on December 20, 2017.	Completed	Susan S. Bransfield, First Selectwoman, Board of Selectmen	December 20, 2017.	
3-5 Develop record keeping system for IDDE tracking (Due 07/01/17)	To Be Developed	2017 - None 2018 - None 2019 - None  A reported Illicit Discharge Record Keeping System will be developed using a Microsoft Excel spreadsheet.	To Be Completed	Robert Shea, Director, Department of Public Works	Anticipate completing by July 01, 2022.	
3-6 Address IDDE in areas with pollutants of concern	To Be Developed	The Connecticut River is listed as impaired due to E coli.	To Be Completed	Robert Shea, Director, Department of Public Works and Nathan L. Jacobson & Associates, Inc., Town Engineer	Anticipate completing by July 01, 2022.	
3-7 Consolidate IDDE tracking spreadsheets	To Be Developed	Compile all the IDDE tracking requirements into one spreadsheet	2017 - None 2018 - None 2019 - None 2020 - None 2021 - None	Robert Shea, Director, Department of Public Works and Nathan L. Jacobson & Associates, Inc., Town Engineer	December 31, 2022	Reason for addition: Make it easier to track all IDDE activities

### 3.2 Describe any IDDE activities planned for the next year, if applicable.

The written program will be posted to the Dept of Public Works webpage and a link listed in next year's Annual Report; will update the written IDDE program as needed throughout the permit term.

Maintain master IDDE tracking spreadsheet and ensure all employees involved in IDDE program understand the logging process

The written IDDE Program will be posted on the town website and a link listed in each Annual Report. The town will update the written IDDE program as needed throughout the permit term.

The Department of Public Works will maintain the master IDDE tracking spreadsheet and ensure all employees involved in IDDE program understand the logging process.

**3.3 Provide a record of all citizen reports of suspected illicit discharges and other illicit discharges occurring during the reporting period and SSOs occurring July 2017 through end of reporting period using the following table.** Illicit discharges are any unpermitted discharge to waters of the state that do not consist entirely of stormwater or uncontaminated groundwater except those discharges identified in Section 3(a)(2) of the MS4 general permit when such non-stormwater discharges are not significant contributors of pollution to a discharge from an identified MS4.

2017 through 2021 - No illicit discharges which resulted in sewage flowing to the town storm drainage system were reported.

Location (Lat long/ street crossing /address and receiving water)	Date and duration of occurrence	Discharge to MS4 or surface water	Estimated volume discharged	Known or suspected cause / Responsible party	Corrective measures planned and completed (include dates)	Sampling data (if applicable)

**3.4 Provide a summary of actions taken to address septic failures using the table below.**

Method used to track illicit discharge reports	Location and nature of structure with failing septic systems	Actions taken to respond to and address the failures	Impacted waterbody or watershed, if known	Dept. / Person responsible
2017 Don Mitchell, MPH, R.S., Chief Sanitarian of the Chatham Health District reported no subsurface sewage disposal hydraulic failures were a source of illicit discharges to town stormwater management facilities.				Chatham Health District Don Mitchell, MPH, R.S., Chief Sanitarian
2018 The Chatham Health District reported no subsurface sewage				Chatham Health District

disposal hydraulic failures were a source of illicit discharges to town stormwater management facilities.				Don Mitchell, MPH, R.S., Chief Sanitarian
2019 The Chatham Health District reported no subsurface sewage disposal hydraulic failures were a source of illicit discharges to town stormwater management facilities.				Chatham Health District Liz Davidson, Sanitarian III
2020 The Chatham Health District reported no subsurface sewage disposal hydraulic failures were a source of illicit discharges to town stormwater management facilities.				Chatham Health District Liz Davidson, Sanitarian III
2021 The Chatham Health District reported no subsurface sewage disposal hydraulic failures were a source of illicit discharges to town stormwater management facilities.	15 Freedom Way Residential Structure	Septic Tank and Leaching Field Repair	4011-03-1	Chatham Health District Zac Jezek, RS/REHS, Sanitarian II

**3.5 Briefly describe the method and effectiveness of said method used to track illicit discharge reports.**

### 3.6 IDDE reporting metrics

Metrics	
Estimated or actual number of MS4 outfalls	250
Estimated or actual number of interconnections	To Be Determined
Outfall mapping complete	95%
Interconnection mapping complete	0%
System-wide mapping complete (detailed MS4 infrastructure)	50%
Outfall assessment and priority ranking	25%
Dry weather screening of all High and Low Priority outfalls complete	114 (46%) 84 in 2020 30 in 2021
Catchment investigations complete	50
Estimated percentage of MS4 catchment area investigated	20%

### 3.7 Briefly describe the IDDE training for employees involved in carrying out IDDE tasks including what type of training is provided and how often it is given (minimum once per year).

The Department of Public Works will be provided with a copy of the publication entitled *Illicit Discharge Detection and Elimination Manual, A Handbook for Municipalities*, Published January 2003, by the New England Interstate Water Pollution Control Commission.

#### 4. Construction Site Runoff Control (Section 6(a)(4) / page 25)

##### 4.1 BMP Summary

<b>BMP</b>	<b>Status</b> (Complete, Ongoing, In Progress, or Not started)	<b>Activities in current reporting period</b>	<b>Measurable Goal</b>	<b>Department / Person Responsible</b>	<b>Date completed or projected completion date</b> (include the start date for anything that is 'in progress')	<b>Additional details</b>
4-1 Implement, upgrade, and enforce land use regulations or other legal authority to meet requirements of MS4 general permit (Due 07/01/20)	Ongoing	The required elements contained in Minimum Control Measure No. 4 - Construction Site Runoff Control have been incorporated into the land use regulations, or are added as a standard condition of approval.	Compliance	Ashley Majorowski, Land Use Administrator, Department of Land Use	July 01, 2017	
4-2 Develop/Implement plan for interdepartmental coordination in site plan review and approval (Ongoing)	Ongoing	Nathan L. Jacobson & Associates, Inc., Town Engineer, prepares land use review letters for most applications for the Inland Wetlands Commission, Planning Commission and Zoning Commission.	Interdepartmental Coordination	Mary Dickerson, Economic Development, Department of Land Use	Ongoing	
4-3 Review site plans for stormwater quality concerns (Ongoing)	Ongoing	Nathan L. Jacobson & Associates, Inc., Town Engineer, encourages the use of LID BMPs as contained in the 2004 Connecticut Stormwater Quality Manual.	Compliance	Nathan L. Jacobson & Associates, Inc., Town Engineer	Ongoing	
4-4 Conduct site inspections (Ongoing)	Ongoing	The town conducts construction site inspections for proper implementation and maintenance of soil erosion and sediment control measures.	Compliance with Approved Plans	Nathan L. Jacobson & Associates, Inc., Town Engineer	Ongoing	
4-5 Implement procedure to allow public comment on site development (Ongoing)	Ongoing	The land use application process allows for public comment on land use applications which are submitted to the Inland Wetlands Agency and the	Compliance	Mary Dickerson, Economic Development, Department of Land Use	Ongoing	2017 through 2021  No significant land use applications were received.

		Planning & Zoning Commission during the Public Hearing Process when applicable.				
4-6 Implement procedure to notify developers about DEEP construction stormwater permit (Ongoing)	Ongoing	Since the inception of the MS4 program Nathan L. Jacobson & Associates, Inc., Town Engineer, has made developer's engineers aware of the need to register for the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities in engineering review letters which are typically prepared as part of the land use application process.	Compliance Awareness of the need to register for the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities	Nathan L. Jacobson & Associates, Inc., Town Engineer	Ongoing	

**4.2 Describe any Construction Site Runoff Control activities planned for the next year, if applicable.**

Integrate stormwater compliance checklist into review process once completed.

## 5. Post-construction Stormwater Management (Section 6(a)(5) / page 27)

### 5.1 BMP Summary

BMP	Status (Complete, Ongoing, In Progress, or Not started)	Activities in current reporting period	Measurable Goal	Department / Person Responsible	Date completed or projected completion date (include the start date for anything that is 'in progress')	Additional details
5-1 Establish and/or update legal authority and guidelines regarding LID and runoff reduction in site development planning (Due 07/01/22)	Under Development	None  The land use regulations will be revised to incorporate the requirements contained in Minimum Control Measure No. 5 - Post-Construction Runoff Control.	Working to Compliance	Mary Dickerson, Economic Development, Department of Land Use	Anticipate completion by July 01, 2022.	It is anticipated that UConn CLEAR or a Regional Planning Agency will develop template guidelines for use by all MS4 municipalities.
5-2 Enforce LID/runoff reduction requirements for development and redevelopment projects (Due 07/01/22)	Continuing	Continued to require LID Practices and stormwater quality measures to be incorporated into the site design during the engineering land use application process.	Compliance	Nathan L. Jacobson & Associates, Inc., Town Engineer	Ongoing	2017 through 2019 No significant land use applications were received.
5-3 Identify retention and detention ponds in priority areas (Due 07/01/20)	Completed	A Post-Construction Stormwater Management Facility Operation & Maintenance Plan Manual was prepared.	Compliance	Robert Shea, Director, Department of Public Works and Nathan L. Jacobson & Associates, Inc., Town Engineer	Anticipate completion by July 01, 2022.	
5-4 Implement long-term maintenance plan for stormwater basins and treatment structures (Ongoing)	Continuing	2017 - None 2018 - None  The majority of the detention ponds are owned by HOA and have Long-Term Operation and Maintenance Plans in place. The O&M Plans have	Implementation of the Post-Construction Stormwater Management Facility Operation &	Robert Shea, Director, Department of Public Works	Ongoing	

		provisions for the town to provide maintenance if required.	Maintenance Plan Manual.			
5-5 DCIA mapping (Due 07/01/20)	Completed	Completed the process of DCIA Mapping from base mapping prepared by UConn CLEAR in 2018 and 2019.	The DCIA for all CT DEEP Basins was completed in 2019.	Nathan L. Jacobson & Associates, Inc., Town Engineer	February 2019	
5-6 Address post-construction issues in areas with pollutants of concern	To Be Developed	2017 - None 2018 - None 2019 - None 2020 - None 2021 - None	Stormwater outfalls discharging to waters identified as impaired in the 2020 Integrated Water Quality Report and in watersheds with a DCIA of greater than 11 percent will be subject to enhanced water quality treatment.	Robert Shea, Director, Department of Public Works and Nathan L. Jacobson & Associates, Inc., Town Engineer		

**5.2 Describe any Post-Construction Stormwater Management activities planned for the next year, if applicable.**



### 5.3 Post-Construction Stormwater Management reporting metrics

For details on this requirement, visit <https://nemo.uconn.edu/ms4/tasks/post-construction.htm>. Scroll down to the DCIA section.

Metrics	
Baseline (2012) Directly Connected Impervious Area (DCIA)	65.55 Acres
DCIA disconnected (redevelopment plus retrofits)	2012 to 2016 - To Be Determined 2017 - 0 Acres 2018 - 0 Acres 2019 - 0 Acres 2020 - 0 Acres 2021 - 0 Acres 2012 to 2021 - To Be Determined
Retrofit projects completed	2012 to 2016 - To Be Determined 2017 - 0 Acres 2018 - 0 Acres 2019 - 0 Acres 2020 - 0 Acres 2021 - 0 Acres 2012 to 2021 - To Be Determined
DCIA disconnected	2012 to July 01, 2017 - To Be Determined July 01, 2017 to 2021 - To Be Determined
Estimated cost of retrofits	\$0
Detention or retention ponds identified	0 this year/0 total

### 5.4 Briefly describe the method to be used to determine baseline DCIA.

Based on information contained in the Factsheet: *Town of Portland Water Quality and Stormwater Summary*, prepared by the CT DEEP, 1,689.56 acres of the town has an impervious area exceeding 12% which is approximately 10.66% of the town. 534.82 acres have an impervious cover of ranging from 12% to 25%, 681.42 acres have an impervious cover ranging from 26% to 50%, 347.38 acres have an impervious cover ranging from 51% to 75% and 125.94 acres have an impervious cover ranging from 76% to 100%.

The DCIA Mapping was conducted in substantial accordance with the methodologies presented in the October 25, 2017 UConn CLEAR Webinar entitled *CT MS4 Mapping Details, Clarifications and Tools*, and the October 19, 2018 UConn CLEAR Workshop entitled *CT MS4 Mapping Workshop* as well as information contained in the EPA reference entitled *Estimating Change in Impervious Area (IA) and Directly Connected Impervious Area (DCIA) for Massachusetts Small MS4 Permit utilizing Sutherland equations*.

The DCIA computations were prepared utilizing Connecticut Environmental Conditions Online (CT ECO) MS4 base mapping prepared by UConn CLEAR.

Impaired waters were determined from the report entitled *2016 Integrated Water Quality Report*, dated April, 2017 and the *2018 Integrated Water Quality Report*, dated August 01, 2019, prepared by the State of Connecticut Department of Energy and Environmental Protection (CT DEEP).

The method to determine the 2012 baseline DCIA was to first compile the CT DEEP drainage basin characteristics in a Microsoft Excel spreadsheet. Information on the Connecticut Environmental Conditions Online MS4 Mapping was used to determine the impervious area breakdown as Buildings, Roads and Other. For CT

DEEP drainage basins that fell in two or more municipalities the advanced mapping tab of Connecticut Environmental Conditions Online was used to delineate and determine the applicable town CT DEEP basin area. It was assumed that the entire drainage basin characteristics were directly proportional to the applicable town CT DEEP drainage basin area.

In that ConnDOT has a MS4 Stormwater Program which applies to state owned roads and facilities which the town has no control over, it was decided that the impervious state road area would be determined and deducted from the total impervious road area for each CT DEEP drainage basin as the impervious road areas associated with state highways and facilities constitutes a considerable portion of the total town impervious road area.

The ConnDOT state highway, parking lot and facility impervious road areas were then determined for each CT DEEP drainage basin.

The ConnDOT state highway, parking lot and facility impervious road areas were then deducted from the total town impervious road area to determine a town owned impervious road area for each CT DEEP drainage basin.

Subsequent to the above deduction, the total impervious area in acres and percentage was then recomputed for each CT DEEP drainage basin.

The DCIA formula for each of four development types was then utilized to compute the DCIA. The impervious area in acres was assigned to each of the four Sutherland equations which were modified for the northeastern United State. The Sutherland equation to be utilized was determined using the following methodology:

For impervious percentage less than 6%:

100% of the impervious area was assigned to the slight connectivity Sutherland Equation where  $DCIA\% = 0.01*(IA\%)^{2.0}$

For an impervious area between 6% and 12 %:

50% of the area was assigned to the partial connectivity Sutherland Equation where  $DCIA\% = 0.04*(IA\%)^{1.7}$   
and  
50% was assigned to the average connectivity Sutherland Equation where  $DCIA\% = 0.10*(IA\%)^{1.5}$

For an impervious area between 12% and 18 %:

50% of the area was assigned to the average connectivity Sutherland Equation where  $DCIA\% = 0.10*(IA\%)^{1.5}$   
and  
50% was assigned to the high connectivity Sutherland Equation where  $DCIA\% = 0.40*(IA\%)^{1.2}$

For an impervious area of greater than 18 %:

100% of the area was assigned to the high connectivity Sutherland Equation where  $DCIA\% = 0.40*(IA\%)^{1.2}$

The DCIA for each CT DEEP drainage basin was then summed to determine the entire town DCIA.

The 2012 Baseline DCIA was computed to be 65.55 acres.

Subsequent to completion of 2012 Baseline DCIA computations, UConn CLEAR Mapping available on Connecticut Environmental Conditions Online (CT ECO) was revised to separate road impervious area into State Road Impervious Area (Acres) and Town Road Impervious Area (Acres).

The original 2012 Baseline DCIA computations were revised utilizing the UConn CLEAR State Road Impervious Area (Acres) and Town Road Impervious Area (Acres). No major 2012 Baseline DCIA computation discrepancies were noted.

Land use files will be reviewed to determine disconnection of DCIA since July 01, 2012 for utilization in reaching the CT DEEP goal of 2% disconnection of DCIA by June 30, 2022.

The CT DEEP goal of 2% disconnection of DCIA by June 30, 2022 will require a reduction of 0.656 acre in 2020-2021 and 0.656 acre in 2021-2022 for a total DCIA reduction of 1.312 acres.

DRAFT

## 6. Pollution Prevention/Good Housekeeping (Section 6(a)(6) / page 31)

### 6.1 BMP Summary

<b>BMP</b>	<b>Status</b> (Complete, Ongoing, In Progress, or Not started)	<b>Activities in current reporting period</b>	<b>Measurable Goal</b>	<b>Department / Person Responsible</b>	<b>Date completed or projected completion date</b> (include the start date for anything that is 'in progress')	<b>Additional details</b>
6-1 Develop/implement formal employee training program (Ongoing)	Ongoing	2017 - None 2018 - None 2019 - A 1-1/2 hour in-house lunch and learn training for all DPW staff was conducted on January 11, 2019 and consisted of several website resources. 2020 - Review current applicable CT DEEP regulations, stormwater pollution prevention, stormwater pollution prevention BMPs, walking review of areas of concern, spill prevention and how to conduct site inspections 2020 - None	Continuing	Robert Shea, Director, Department of Public Works and Nathan L. Jacobson & Associates, Inc., Town Engineer	As noted	It is anticipated that DPW Staff training will be conducted annually moving forward after the 2020-2021 pandemic.
6-2 Implement MS4 property and operations maintenance (Ongoing)	Ongoing	Continue to Maintain MS4 operations.	Continuing	Robert Shea, Director, Department of Public Works	July 01, 2017	
6-3 Implement coordination with interconnected MS4s	Ongoing	The Town of Portland continued to coordinate MS4 responsibilities with the Towns of Glastonbury, and East Hampton as well as the Conn DOT.	Continuing	Robert Shea, Director, Department of Public Works	July 01, 2017	

6-4 Develop/implement program to control other sources of pollutants to the MS4	To Be Developed	None	Developing	Robert Shea, Director, Department of Public Works and Nathan L. Jacobson & Associates, Inc., Town Engineer		
6-5 Evaluate additional measures for discharges to impaired waters*	Not Applicable	None	Developing	Nathan L. Jacobson & Associates, Inc., Town Engineer		
6-6 Track projects that disconnect DCIA (Ongoing)	To Be Developed	None	Developing	Robert Shea, Director, Department of Public Works and Nathan L. Jacobson & Associates, Inc., Town Engineer	To be initiated by July 01, 2022.	
6-7 Implement infrastructure repair/rehab program (Due 07/01/21)	To Be Developed	None	Developing	Robert Shea, Director, Department of Public Works and Nathan L. Jacobson & Associates, Inc., Town Engineer	To be initiated by July 01, 2022.	
6-8 Develop/implement plan to identify/prioritize retrofit projects (Due 07/01/20)	To Be Developed	None	Developing	Robert Shea, Director, Department of Public Works and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2021	

6-9 Implement retrofit projects to disconnect 2% of DCIA (Due 07/01/22)	To Be Developed	None	Developing	Robert Shea, Director, Department of Public Works and Nathan L. Jacobson & Associates, Inc., Town Engineer		
6-10 Develop/implement street sweeping program (Ongoing)	Ongoing	The Town of Portland currently implements a road sweeping program whereby all town roads are swept at one time per year.	Compliance	Robert Shea, Director, Department of Public Works	July 01, 2017	
6-11 Develop/implement catch basin cleaning program (Ongoing)	Ongoing	The Town of Portland will implement a catch basin cleaning program in 2018.	Compliance	Robert Shea, Director, Department of Public Works	July 01, 2017	
6-12 Develop/implement snow management practices (Due 07/01/18)	Developed	2017 - None  2018 - A change from a sand/salt road deicing mix to a treated salt road deicing mix was implemented.  This road deicing mix change has resulted in a drastic reduction of road sweeping volume and catch basin cleaning volume.	Compliance	Robert Shea, Director, Department of Public Works	Winter 2018-2019	
6-13 Map & Inventory highly erosive areas in town ROW	Not started	Collect information on eroding areas in ROW from highway maintenance personnel over course of normal operations	ID areas contributing large volume of sediment to town waterbodies	Robert Shea, Director, Department of Public Works	December 31, 2022	Reason for addition: Reduce sedimentation of waterways near town ROWs

## 6.2 Describe any Pollution Prevention/Good Housekeeping activities planned for the next year, if applicable.

Continue the utilization of pretreated salt for a deicing mixture in lieu of a sand/salt deicing mixture. The change has resulted in significant reduction of sand on the roads and collected in catch basins.

## 6.3 Pollution Prevention/ Good Housekeeping reporting metrics

Metrics	
Employee training provided for key staff	<p>Transfer Center training programs.</p> <p>2009 - Stephen Mather was a Road Master Program graduate</p> <p>2017 - Dave Etheridge was a Road Master Program graduate</p> <p>The program included a workshop for <i>Planning and Managing Local Road Snow and Ice Control Activities</i>.</p>
Street sweeping	
Curb miles swept	128.22 - 2017 through 2021 - All town roads were swept over a 3-1/2± month sweeping period
Volume (or mass) of material collected	<p>2017 - 1,000±C.Y.</p> <p>2018 - Not Determined</p> <p>2019 - 200±C.Y.</p> <p>The town has changed over to treated NaCl salt as a deicing material as discussed below. It is anticipated that the change will significantly reduce the road sweeping time and sweeping volume.</p> <p>2020 - 50 C.Y.</p> <p>2021 - 40 C.Y.</p>
Catch basin cleaning	
Total catch basins in priority areas (value will be less than or equal to total catch basins town or institution-wide)	To Be Determined
Total catch basins town- (or institution-) wide	1,600±
Catch basins inspected	<p>2017 - 1,564</p> <p>2018 - 1,564</p> <p>2019 - 1,564</p> <p>2020 - 1,564</p> <p>2021 - 927 (59%)</p>
Catch basins cleaned	<p>2017 - 1,564</p> <p>2018 - 1,564</p> <p>2019 - 1,564</p> <p>2020 - 1,564</p> <p>2021 - 927 (59%)</p>

	<p>The town has changed over to treated NaCl salt as a deicing material. This change has significantly reduced the catch basin cleaning volume. This in conjunction with catch basin inspections has led to a program whereby 800± catch basins will be cleaned in alternate years. Known areas of significant sediment delivery to catch basins will continue to be cleaned every year.</p>
Volume (or mass) of material removed from all catch basins	<p>2017 - 200± C.Y.  2018 - Not Determined  2019 - 40± C.Y.  The town has changed over to treated NaCl salt as a deicing material as discussed below. It is anticipated that the change will significantly reduce the catch basin cleaning volume.  2020 - 40± C.Y.  2021 - 65± C.Y. to 75± C.Y.</p>
Volume removed from catch basins to impaired waters (if known)	<p>2017 - 7± C.Y.  2018 - Not Determined  2019 - Not Determined  2020 - Not Determined  2021 - Not Determined</p>
<b>Snow management</b>	
Type(s) of deicing material used	<p>Historically - 4 Parts Sand : 1 Part NaCl Salt  In the Winter of 2018-2019 the deicing mixture was change to a straight treated NaCl.</p>
Total amount of each deicing material applied	<p>Winter 2017 to 2018 - 4,000± Tons Sand/Salt Deicing Mix  Winter 2018 to 2019 - 1,000± Tons of treated NaCl Salt.  The deicing additive consists of Ice B'Gone and is applied at the rate of 3 gallons per ton.  Winter 2019 to 2020 - 800± Tons of treated NaCl Salt  Winter 2020 to 2021 - 1,000± tons of treated NaCl Salt  Winter 2020 to 2021 - 900± tons of treated NaCl Salt (Est.)</p>
Type(s) of deicing equipment used	<p>Nine large snow plow/spreaders, Five mason dump truck snow plow/spreaders and Three pickup truck snow plow /spreaders.</p> <p>All spreaders are manually controlled and are adjusted based on storm conditions to meet performance standards.</p> <p>It is anticipated that three ground speed controllers and road temperature sensing units will be retrofitted to existing spreaders each year until all spreaders are ground speed controlled as preliminary evidence has suggested a 30% reduction in road deicing costs.</p>
Lane-miles treated (A lane-mile is a mile of roadway in a single driving lane)	128.22
Snow disposal location	<p>Roadside.  During infrequent snow storm events (&gt;24") the snow is removed from the downtown area and stockpiled at the Transfer Station.</p>



Staff training provided on application methods & equipment	See Above The spreaders are calibrated every Fall prior to the snow plowing season.
Municipal turf management program actions (for permittee properties in basins with N/P impairments)	
Reduction in application of fertilizers (since start of permit)	Not Applicable
Reduction in turf area (since start of permit)	Not Applicable
Lands with high potential to contribute bacteria (dog parks, parks with open water, & sites with failing septic systems)	
Cost of mitigation actions/retrofits	\$0

#### 6.4 Catch basin cleaning program

**Provide any updates or modifications to your catch basin cleaning program.**

There are 1,564 catch basins in the Town of Portland.  
 2017 through 2020 - All of the catch basins were cleaned.  
 As all catch basins are cleaned every year and the town has switched to a pretreated NaCl deicing mixture it is anticipated that starting in 2021 approximately 800 of the catch basins would be cleaned every other year except for those catch basin in problem areas which will be cleaned every year.  
 2021 - 927 catch basins were cleaned.

#### 6.5 Retrofit program

**Briefly describe the Retrofit Program identification and prioritization process, the projects selected for implementation, the rationale for the selection of those projects and the total DCIA to be disconnected upon completion of each project. (Due 07/01/20)**

Storm Drainage Retrofit prioritization will be given to stormwater outfalls that are known to result in soil erosion and sedimentation. Prioritization will be given to the outfalls within the impaired water drainage basins with particular emphasis placed on stormwater outfalls which are located on fine grained glacial till soils. The retrofit program will be prioritized based on setback distance from watercourse and/or waterbodies.

**Describe plans for continuing the Retrofit program and how to achieve a goal of 1% DCIA disconnection annually in future years. (Due 07/01/22)**

Based on information contained in the *Factsheet: Town of Portland Water Quality and Stormwater Summary*, prepared by the CT DEEP, 1,689.56 acres of the town has an impervious area exceeding 12% which is approximately 10.65% of the town.

The 2012 Baseline DCIA for the town was computed to be 65.55 acres. The CT DEEP goal of a 2% DCIA reduction by 2022 will require a DCIA reduction of 1.311 acres by June 30, 2022.

Land use files will be reviewed to determine disconnection of DCIA since July 01, 2012 for utilization in reaching the CT DEEP goal of 2% disconnection of DCIA by June 30, 2022.

## Part II: Impaired waters investigation and monitoring

### 1. Impaired waters investigation and monitoring program

For details on this requirement, visit <https://nemo.uconn.edu/ms4/tasks/monitoring.htm>. Refer to the yellow column of the Monitoring comparison chart and the Impaired waters monitoring flowchart.

**1.1 Indicate which stormwater pollutant(s) of concern occur(s) in your municipality or institution.** This data is available on the MS4 map viewer: <http://s.uconn.edu/ctms4map>.

Nitrogen/ Phosphorus

Bacteria

Mercury

Other Pollutant of Concern

### 1.2 Describe program status

**Discuss 1) the status of monitoring work completed, 2) a summary of the results and any notable findings, and 3) any changes to the Stormwater Management Plan based on monitoring results.**

Industrial Outfall I-1 was sampled on November 16, 2017. Based on the high count the outfall will be resampled. Resampling was not conducted in 2018, 2019 or 2020. Resampling will be conducted in 2021.

## 2. Screening data for outfalls to impaired waterbodies (Section 6(i)(1) / page 41)

### 2.1 Screening data

Complete the table below to report data for any wet weather sampling completed for MS4 outfalls that discharge directly to a stormwater impaired waterbody during the reporting period. For details on this requirement, visit [www.nemo.uconn.edu/ms4/tasks/monitoring.htm](http://www.nemo.uconn.edu/ms4/tasks/monitoring.htm). Refer to the yellow column of the Monitoring comparison chart and the Impaired waters monitoring flowchart.

Each Annual Report will add on to the previous year’s data showing a cumulative list of sampling data.

**You may also attach an excel spreadsheet with the same data rather than copying it into this table.**  
If you do attach a spreadsheet, please write “See Attachment” below.

Outfall ID	Latitude / Longitude	Sample date	Parameter (Nitrogen, Phosphorus, Bacteria, or Other pollutant of concern)	Results	Name of Laboratory (if used)	Follow-up required? *
I-1		11/16/2017	Bacteria - E. coli	9,680	EMLI	Sample in 2021

2017 - One outfall discharging to Impaired Waters was sampled.

2018 through 2021 - No wet weather sampling to Impaired Waters was conducted.

Follow-up investigation required (last column) if the following pollutant thresholds are exceeded:

Pollutant of concern	Pollutant threshold
Nitrogen	Total N > 2.5 mg/l
Phosphorus	Total P > 0.3 mg/l
Bacteria (fresh waterbody)	<ul style="list-style-type: none"> <li>E. coli &gt; 235 col/100ml for swimming areas or 410 col/100ml for all others</li> <li>Total Coliform &gt; 500 col/100ml</li> </ul>
Bacteria (salt waterbody)	<ul style="list-style-type: none"> <li>Fecal Coliform &gt; 31 col/100ml for Class SA and &gt; 260 col/100ml for Class SB</li> </ul>

	<ul style="list-style-type: none"><li>• Enterococci &gt; 104 col/100ml for swimming areas or 500 col/100 for all others</li></ul>
Other pollutants of concern	Sample turbidity is 5 NTU > in-stream sample

DRAFT

**3. Follow-up investigations** (Section 6(i)(1)(D) / page 43)

Provide the following information for outfalls exceeding the pollutant threshold.

<b>Outfall ID</b>	<b>Status of drainage area investigation</b>	<b>Control measure to address impairment</b>

DRAFT

**4. Prioritized outfall monitoring** (Section 6(i)(1)(D) / page 43)

Once outfall sampling has been completed for at least 50% of outfalls to impaired waters, identify 6 of the highest contributors of any pollutants of concern. Begin monitoring these outfalls on an annual basis by July 1, 2021.

**You may also attach an excel spreadsheet with the same data rather than copying it to this table.**

If you do attach a spreadsheet, please write "See Attachment" below.

<b>Outfall</b>	<b>Latitude / Longitude</b>	<b>Sample Date</b>	<b>Parameter(s)</b>	<b>Results</b>	<b>Name of Laboratory (if used)</b>

DRAFT

### Part III: Additional IDDE Program Data

#### 1. Assessment and Priority Ranking of Catchments Data (Appendix B (A)(7)(c) / page 5)

Provide a list of all catchments with ranking results (DEEP basins may be used instead of manual catchment delineations).

1. Catchment ID (DEEP Basin ID)	2. Category	3. Rank
4000-00-6+R22 13.29% Impervious	E. coli Impairment	1
4000-00-6+R23 14.49% Impervious	E. coli Impairment	1
4000-00-6+R24 43.96% Impervious	E. coli Impairment	1
4000-00-6-R25 17.61% Impervious	E. coli Impairment	1

**2. Outfall and Interconnection Screening and Sampling Data** (Appendix B (A)(7)(d) / page 7)

**2.1 Dry weather screening and sampling data from outfalls and interconnections**

For details on this requirement, visit <https://nemo.uconn.edu/ms4/tasks/monitoring.htm>. Refer to the blue column of the Monitoring comparison chart and the IDDE baseline monitoring flowchart.

Provide sample data for outfalls where flow is observed. Only include Pollutant of concern data for outfalls that discharge into stormwater impaired waterbodies.

**You may also attach an excel spreadsheet with the same data rather than copying it to this table.**

If you do attach a spreadsheet, please write "See Attachment" below.

Outfall / Interconnection ID	Latitude / Longitude	Screening / sample date	Ammonia	Chlorine	Conductivity	Salinity	E. coli or enterococcus	Surfactants	Water Temp	Pollutant of concern	If required, follow-up actions taken

2017 - No Dry weather screening was conducted. One dry weather sample discharging to Impaired Waters was sampled.

2018 through 2021- No dry weather screening or dry weather stormwater sampling to Impaired Waters was conducted.

2022 - It is anticipated that dry weather screening will be completed and dry weather sampling will be conducted in the late Spring and early Summer of 2022.



## 2.2 Wet weather sample and inspection data

For details on this requirement, visit <https://nemo.uconn.edu/ms4/tasks/monitoring.htm>. Refer to the green column of the Monitoring comparison chart and the IDDE catchment investigation flowchart.

Provide sample data for outfalls and key junction manholes of any catchment area with at least one System Vulnerability Factor.

**You may also attach an excel spreadsheet with the same data rather than copying it to this table.**

If you do attach a spreadsheet, please write "See Attachment" below.

Outfall / Interconnection ID	Latitude / Longitude	Sample date	Ammonia	Chlorine	Conductivity	Salinity	E. coli or Enterococcus	Surfactants	Water Temp	Pollutant of concern

2018 through 2021- No wet weather stormwater sampling was conducted.

2022 - It is anticipated that wet weather sampling will be completed in the late Spring and early Summer of 2022.

### 3. Catchment Investigation data (Appendix B (A)(7)(e) / page 9)

For details on this requirement, visit [www.nemo.uconn.edu/ms4/tasks/monitoring.htm](http://www.nemo.uconn.edu/ms4/tasks/monitoring.htm). Refer to the green column of the Monitoring comparison chart and the IDDE catchment investigation flowchart.

#### 3.1 System Vulnerability Factor Summary

For those catchments being investigated for illicit discharges (i.e. categorized as high priority, low priority, or problem) document the presence or absence of System Vulnerability Factors (SVF). If present, report which SVF's were identified. An example is provided below.

Outfall ID	Receiving Water	System Vulnerability Factors

Where SVFs are:

1. History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages.
2. Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs.
3. Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints.
4. Common or twin-invert manholes serving storm and sanitary sewer alignments.
5. Common trench construction serving both storm and sanitary sewer alignments.
6. Crossings of storm and sanitary sewer alignments.
7. Sanitary sewer alignments known or suspected to have been constructed with an underdrain system.
8. Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, directly piped connections between storm drain and sanitary sewer infrastructure, or other vulnerability factors identified through Inflow/Infiltration Analyses, Sanitary Sewer Evaluation Surveys, or other infrastructure investigations.
9. Areas formerly served by combined sewer systems.
10. Any sanitary sewer and storm drain infrastructure greater than 40 years old in medium and densely developed areas.
11. Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather than poor owner maintenance).
12. History of multiple local health department or sanitarian actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather than poor owner maintenance).

### 3.2 Key junction manhole dry weather screening and sampling data

You may also attach an excel spreadsheet with the same data rather than copying it to this table.

If you do attach a spreadsheet, please write "See Attachment" below.

Key Junction Manhole ID	Latitude / Longitude	Screening / Sample date	Visual/ olfactory evidence of illicit discharge	Ammonia	Chlorine	Surfactants

2017 - No manhole dry weather screening or dry weather sampling was conducted.

2018 - No manhole dry weather screening or dry weather sampling was conducted. It was anticipated to conduct manhole dry weather screening and dry weather sampling during the Fall of 2018. However, unseasonably high precipitation precluded dry weather screening and dry weather sampling.

2019 through 2021 - No manhole dry weather screening or dry weather sampling was conducted.

2022 - It is anticipated that dry weather screening and dry weather sampling would be conducted in the late Spring or early Summer.

**Note that dry weather sampling will only be conducted if there is evidence of an illicit discharge.**

### 3.3 Wet weather investigation outfall sampling data

You may also attach an excel spreadsheet with the same data rather than copying it to this table.

If you do attach a spreadsheet, please write "See Attachment" below.

Outfall ID	Latitude / Longitude	Sample date	Ammonia	Chlorine	Surfactants

2017 through 2021 - No wet weather screening or wet weather sampling was conducted.

2022 - It is anticipated that wet weather screening and sampling will be conducted in 2022.

### 3.4 Data for each illicit discharge source confirmed through the catchment investigation procedure

Discharge location	Source location	Discharge description	Method of discovery	Date of discovery	Date of elimination	Mitigation or enforcement action	Estimated volume of flow removed

## Part IV: Certification

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

Chief Elected Official or Principal Executive Officer	Document Prepared by
Print name: Ryan J. Curley, First Selectman	Print Name: Wade M. Thomas, CPMSM
Signature:	Signature:
Date: April , 2022	Date: April , 2022
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