

How to complete the MS4 Annual Report template

General Instructions

- Text highlighted yellow represents generic text to be updated.
- Example responses are provided in red text. Delete these if you don't use them.

Part I: Summary of Minimum Control Measure (MCM) Activities

- Best Management Practice (BMP) Summary tables: Each MCM section starts with a BMP Summary table. A description of what to include in each column is below.

New this year: We added an optional field below each BMP summary table If you have a lot to say about a particular BMP and need extra space.

BMP: Self-explanatory.

Status: Provide status of BMP implementation (not started, ongoing/in progress, complete).

Activities in current reporting period: Describe ongoing and completed BMP activities and their status (Not started, ongoing, or completed). Briefly explain if you're on schedule to meet the deadline or not. If not, explain why you don't expect to meet the deadline.

Measurable Goal: Provide a measurable goal for the BMP.

Dept/Person Responsible: Identify the lead department and responsible person for that BMP. Note if it changed from the previous year. Third parties may be listed here if they are implementing the BMP but the permittee retains responsibility for tracking the BMP.

Due: BMP deadline from permit.

Date completed / projected completion date: Actual BMP completion date or when it's scheduled to be completed.

Additional details: Add any additional details including reasons for overdue BMPs, specific location of BMP is applicable, reason for adding an additional BMP.

- Other Tables: Each MCM has specific data reporting requirements. Brief descriptions and/or example responses are provided for each requirement.

Part II: Impaired waters investigation and monitoring

- Brief instructions are provided for each reporting requirement throughout Part II.

Part III: Additional IDDE Program Data

- Brief instructions are provided for each reporting requirement throughout Part III.

Part IV: Certification - Self-explanatory

MS4 General Permit
Town of Stonington & Borough of Stonington 2019 Annual Report
Existing MS4 Permittee
Permit Number GSM 000056 (TOS) & 000113 (BOS)
[January 1, 2019 – December 31, 2019]

This report documents the **Town of Stonington & Borough of Stonington's** efforts to comply with the conditions of the MS4 General Permit to the maximum extent practicable (MEP) from January 1, 2019 to December 31, 2019.

Part I: Summary of Minimum Control Measure Activities

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

1.1 BMP Summary

BMP	Status	Activities in current reporting period (if needed, more space available after this table)	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
1-1 Implement public education and outreach	Ongoing	<ul style="list-style-type: none"> • Updated & maintain the Town and Borough's Stormwater webpage. • Distributed stormwater quality article via- "Stonington Events" magazine mailed quarterly to all Town residents • Work with SWTF to initiate program with elementary school kids • Distributed educational book markers to Stonington School system and local libraries 	<ul style="list-style-type: none"> • Update and maintain Town and Borough websites to include educational materials identified in Table 3 of the SMP and/or available on the CLEAR and CT NEMO MS4 Guide website, CUSH website, or listed in the Connecticut Nonpoint Source Management Program Plan. • Distribute educational materials. 	Storm Water Taskforce (SWTF) & Engineering Dept.	Ongoing	Ongoing	

		<ul style="list-style-type: none"> Participated in Eastern Connecticut Stormwater Collaborative events 					
1-2 Address education/ outreach for pollutants of concern*	Ongoing	<ul style="list-style-type: none"> Distributed article in "Stonington Events" magazine regarding Nitrogen & Bacteria 	Select educational materials appropriate for impaired waters and stormwater pollutants of concern (see Tables 2 and 3 of SMP).	SWTF	Ongoing	Ongoing	

Extra space for describing above BMP activities, if needed:

BMP	

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

- The Town intends to distribute stormwater quality article via "Stonington Events" magazine, which is mailed quarterly to all Town residents. The Town plans to work with its consultant to identify seasonally appropriate stormwater focused articles and information and publish those materials quarterly in "Stonington Events" magazine.
- The Town plans to reinstate the catch basin marking program with the Highway Department in 2020. The Town has purchased stencils and intends to begin marking catch basins in April, 2020.
- The Town and borough intend to work with their consultant to create and disseminate educational stormwater materials to the schools in 2020.
- Participate in Eastern Connecticut Stormwater Collaborative Events.

1.3 Details of activities implemented to educate the community on stormwater

Program Element/Activity	Audience (and number of people reached)	Topic(s) covered	Pollutant of Concern addressed (if applicable)	Responsible dept. or partner org.
Stormwater article was provided in the Stonington Events magazine which is mailed quarterly to all residents	Entire Town	General Stormwater quality, Nitrogen & Bacteria	Fertilizers, pesticides, detergents, pet waste, nitrogen and bacteria	Engineering Department
Updated and maintained the Town and borough's stormwater website	Entire Town	General Stormwater quality, Nitrogen, Bacteria, fertilizer	Fertilizers, pesticides, detergents, pet waste, nitrogen and bacteria	Engineering Department

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

2.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
2-1 Final Stormwater Management Plan publically available	Completed	The Stormwater Management Plan is maintained on the Town Engineering webpage and the Borough Stormwater Management webpage.	Maintain current notices and copy of latest SMP on Borough and Town websites	Engineering & Borough Warden	Ongoing	April 3, 2017	
2-2 Comply with public notice requirements for Annual Reports	Completed	Applicable public notice is still maintained on the Town Engineering webpage and the Borough Stormwater Management webpage.	Maintain current notices and copy of latest Annual Report on Borough and Town websites	Engineering & Borough Warden	Feb 15, 2019	April 1, 2019	
2-3 Establish Stormwater Task Force	Completed	Completed the reformation of the Stormwater Task Force (SWTF).	Create SWTF to assist in implementation of MS4 permit requirements	Town Engineer & Borough Warden	March 2018	Summer 2018	

Extra space for describing above BMP activities, if needed:

BMP	
2-1, 2-2	<p>Town of Stonington SWMP and Annual Report available at : https://www.stonington-ct.gov/engineering-floodplain-management/pages/phase-2-stormwater-permitting</p> <p>Borough of Stoningtown SWMP and Annual Report available at: http://www.borough.stonington.ct.us/stormwater-management/</p>

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

- Continue to work with the Eastern CT Conservation District as a Partner in the Eastern Connecticut Stormwater Collaborative to improve on regionalization efforts and minimizing redundancy efforts between local towns with regard to Stormwater Management.
- Continue to work with and support the ECCD in achieving their goals for the Anguilla Brook Watershed Study.
- Work with the Stormwater Task Force to determine ways to engage the public in water quality awareness and activities. The Town currently does not have a Town Engineer on staff but when the new engineer is hired, the Town intends to continue work with the SWTF to engage the public.

2.3 Public Involvement/Participation reporting metrics

Metrics	Implemented	Date	Posted
Availability of the Stormwater Management Plan to public	yes	March 31, 2017	See above links
Availability of Annual Report announced to public	yes	February 15, 2020	See above links

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

3.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
3-1 Develop written IDDE program	Completed	The Town previously completed a joint written IDDE program for the Town and borough using the CT IDDE program template.	Develop joint written plan of IDDE program for the Town and the Borough	Engineering & Borough Warden	Jul 1, 2018	Completed December, 2018	
3-2 Develop list and maps of all MS4 stormwater outfalls in priority areas	Completed	The Town/Borough previously contracted with Fuss & O’Neill to identify and map the priority areas in the Town and Borough and to identify all MS4 stormwater outfalls in the priority areas. The Town/Borough also contracted with Fuss and O’Neill to complete an analysis of directly connected impervious area (DCIA) for each CT DEEP Local Basin within the Town and Borough. Please see the Attachment 1 for the Town’s outfall mapping.	Update GIS storm system mapping & Develop a list (database or spreadsheet) of Stormwater outfalls in priority areas including catchment delineations.	Engineering & Planning	Jul 1, 2019	Completed December, 2018	Priority areas were identified to the CT DEEP Local Basin level and were based on urbanized area, catchment areas with DCIA greater than 11%, and catchment areas of outfalls that directly discharge to impaired waters.

3-3 Implement citizen reporting program	Completed	The stormwater hotline is still available on the Engineering website for citizens to report concerns regarding stormwater.	Continue to support a citizen reporting 'hotline' and advertise it on the Town and Borough websites	Engineering	Ongoing	Completed June 2017	
3-4 Establish legal authority to prohibit illicit discharges	Completed	The Town reviewed and updated the IDDE ordinance in 2018 to ensure compliance with the permit. The IDDE Ordinance is posted on the Town website.	Review existing ordinance and revise accordingly.	Engineering	Jul 1, 2018	Completed June 2018	
3-5 Develop record keeping system for IDDE tracking	Completed	In 2018 the Town/Borough contracted with Fuss & O'Neill to develop a digital data collection system for tracking and recording data related to dry weather outfall inspections and sampling and wet weather sampling of outfalls that discharge to impaired waters. Dry weather outfall inspections and sampling and wet weather sampling of impaired waters began in 2019.	Develop IDDE tracking recordkeeping system	Engineering & Borough Warden	Jul 1, 2017	Completed January 2019	
3-6 Address IDDE in areas with pollutants of concern	Ongoing	The Town/Borough began conducting dry weather outfall inspections and sampling and wet weather sampling of outfalls that discharge to impaired waters in the late winter of 2019.	Conduct dry weather outfall inspection on all outfalls within the priority area and sample as required by the permit. Conduct wet weather outfall sampling on all outfalls that directly discharge to impaired waters. Address identified illicit discharges following the procedures in the written IDDE plan.	Sanitation, Engineering	Not specified	Initial outfall inspections were initiated in 2019 and are currently underway with expected completion in 2020.	
3-7 Assess and prepare a priority ranking of catchments	Completed	The Town/Borough contracted with Fuss & O'Neill to complete catchment ranking and prioritization of outfalls in 2018.	Classify each catchment within priority areas into an excluded, problem, high priority or low priority catchment. Rank catchments within each category (except excluded catchments)	Engineering	July 1, 2019	Completed December 2018	Catchment rankings were completed based on the CT DEEP Local Basins

			based on screening factors found on page 6 & 7 in Appendix B of the Permit				
3-8 Consolidate IDDE tracking spreadsheets	Completed	Compile all the IDDE tracking requirements into one spreadsheet	Create a consolidated spreadsheet	Engineering	-	July 1, 2018	Reason for addition: Make it easier to track all IDDE activities

Extra space for describing above BMP activities, if needed:

BMP	

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

- Post written IDDE program to the Engineering Webpage and keep current with contact/hotline information.
- Maintain master list of any potential Illicit Discharges; monitor, evaluate and address accordingly.
- Complete dry-weather inspection of outfalls in Priority Area.
- Complete wet-weather sampling of 50% of outfalls discharging directly to impaired waters.

3.3 List of citizen reports of suspected illicit discharges received during this reporting period.

Date of Report	Location / suspected source	Response taken
No illicit discharges were identified in 2019.		

3.4 Provide a record of illicit discharges occurring during the reporting period and SSOs occurring July 2012 through end of reporting period using the following table.

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)
Velvet Mill, Stonington Borough	11/15/2017	Unknown	Unknown	Velvet Mill	An active sewer lateral was discovered as part of a municipal drainage system CIP project, which drained to an unknown destination. The line was redirected into the Town's sewer system.	N/A
17 Meadow Ave	8/23/2018	MS4	Unknown	Washing Machine connected to sump pump which discharges into stormdrain system.	The Town Engineer visited the site in person with Town Staff and Ledge Light Health District to discuss the issue. The Town followed up with the homeowner in writing and informed them of the illegal discharge and provided a copy of the Town's Private Stormdrain Connection Policy. The illicit discharge was corrected within 48 hours by the homeowner.	N/A

3.5 Briefly describe the method used to track illicit discharge reports, responses to those reports, and who was responsible for tracking this information.

The Town of Stonington Engineering Department is the lead party responsible for tracking and responding to any known or reported Illicit Discharges. Currently, we maintain an Excel spreadsheet with potential Illicit Discharges that require dry weather sampling and further investigation. In addition to the Engineering Department, the Stonington Water Pollution Control Authority (WPCA) and local health district, Ledge Light Health District, typically field calls related to sewer overflows or sanitation issues and concerns. The Engineering Department has advised these Town departments of their responsibility to record any such SSO and/or Illicit Discharge related information on provided standardized forms and report to the Engineering Department on a yearly basis.

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

Location and nature of structure with failing septic systems	Actions taken to respond to and address the failures	Impacted waterbody or watershed, if known

3.7 IDDE reporting metrics

Metrics	
Estimated or actual number of MS4 outfalls	Town (340) Borough (17)
Estimated or actual number of interconnections	Unknown
Outfall mapping complete	100 %
Interconnection mapping complete	(0%)
System-wide mapping complete (detailed MS4 infrastructure)	100%
Outfall assessment and priority ranking	100%
Dry weather screening of all High and Low priority outfalls complete	40%
Catchment investigations complete	0
Estimated percentage of MS4 catchment area investigated	0

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

On February 8, 2019 the Town of Stonington and the Town’s sampling consultant received training regarding use of a digital data collection system for dry weather outfall screening and sampling and wet weather sampling of outfalls that discharge to impaired waters. The training included information on how to conduct outfall screening and sampling to meet permit requirements, how to detect an illicit discharge and how to document and record information gathered during screening and sampling.

Two Town employees attended snow removal training in 2019 and two employees attended pesticide/herbicide training in 2019. The Town has two licensed Supervisory Level Pesticide Employees that attend annual training to keep the license active.

The Town and Borough have contracted with their consultant to conduct annual MS4 training for Town and Borough employees involved in the MS4 program, especially those with specific roles in the Town and Borough’s IDDE program. This training is scheduled for spring 2020.

On December 21, 2017, the Town of Stonington Engineering Department coordinated 2 specific training sessions on the following topics:

- Spill Prevention and Response
- Town wide Stormwater Management Training - MS4

Training was provided for the following facility employees:

- Public Works
- Police Department - Maintenance
- School Facilities – Maintenance
- Water Pollution Control Authority
- Solid Waste/Transfer Station
- Town Dock

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

4.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
4-1 Implement, upgrade, and enforce land use regulations or other legal authority to meet requirements of MS4 general permit	In Progress	The Town/Borough contracted with Fuss & O’Neill in 2019 to complete a review of the Town and Borough’s land use regulations and implementation policies for compliance with the MS4 permit.	Review and update, as necessary, existing land use regulations and implementation policies for compliance with the MS4 General Permit construction site stormwater runoff control requirements.	Town & Borough Land Use Agencies	Jul 1, 2019	July 1, 2021	The Town/Borough’s consultant completed a review of legal authority and land use regulations in 2019. Due to staffing changes in the Town, the process of amending regulations is ongoing.
4-2 Develop/Implement plan for interdepartmental coordination in site plan review and approval	Ongoing	Site plan review & approval processes are followed for all applicable land use applications	Continue to implement interdepartmental coordination procedures as described in Section 5.2 of the Town SWMP	Town & Borough Land Use Agencies	Ongoing	Ongoing throughout entire permit	

4-3 Review site plans for stormwater quality concerns	Ongoing	Reviewed 15 Land development applications for compliance with existing stormwater quality regulations in the Town of Stonington. The Borough reviewed 19 site plans for land development in 2019.	Continue to complete site plan reviews for all projects subject to the land use regulations listed in BMP 4-1.	Engineering & Town & Borough Land Use Agencies	Ongoing	Ongoing throughout entire permit	
4-4 Conduct site inspections	Ongoing	The Stonington Zoning Enforcement Officer is tasked with ensuring all erosion and sediment control measures are adequately installed prior to the start of construction.	Continue to conduct inspections and enforcement to assess and ensure the adequacy of the installation, maintenance, operation, and repair of construction and postconstruction control measures.	Town & Borough Land Use Agencies and/or Town staff (Stonington ZEO)	Ongoing	Ongoing throughout entire permit	Additional and ongoing inspections for the maintenance of E&S measures is something the Town will continue to consider when funding becomes available for increased inspections.
4-5 Implement procedure to allow public comment on site development	Ongoing	Both the Town of Stonington & Borough have a hotline which remains active and up to date.	Continue to post notices of Stonington's "hotline" for stormwater related comments on the municipal stormwater websites	Town & Borough Land Use Agencies	Ongoing	March 31, 2017	
4-6 Implement procedure to notify developers about DEEP construction stormwater permit	Ongoing	Require qualifying land development projects to register with the CTDEEP and show proof of registration prior to construction	Continue to inform developers/contractors of their obligation to register under the DEEP construction general permit and to provide a copy of the Storm Water Pollution Control Plan to Stonington upon Request, as necessary.	Town & Borough Land Use Agencies / Engineering Department	Ongoing	Ongoing throughout entire permit	

Extra space for describing above BMP activities, if needed:

BMP	
------------	--

--	--

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

- Continue to monitor construction sites to the best of staff ability.
- Ensure the CTDEEP Construction General Permit is applied for and on file with the Town for applicable projects prior to the start of construction.

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

5.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
5-1 Establish and/or update legal authority and guidelines regarding LID and runoff reduction in site development planning	Ongoing	The Town/Borough contracted with Fuss & O’Neill in 2019 to complete a review of the Town and Borough’s land use regulations, including the Town’s Technical Standards. This includes review of the Town’s Post-construction regulatory mechanisms and legal authority, as well as identification of regulatory barriers to implementing LID and runoff reduction practices and suggestions for reducing or eliminating those barriers.	Review and update, as necessary, existing land use regulations and implementation policies (including Technical Standards) for compliance with the General Permit postconstruction stormwater management requirements	Town Planning Zoning Commission, Borough Planning Zoning Commission, Engineering, SWTF	Jul 1, 2021	Jul 1, 2021	
5-2 Enforce LID/runoff reduction requirements for development and redevelopment projects	Ongoing	The Town/Borough contracted with Fuss & O’Neill in 2019 to complete a review of the Town and Borough’s land use regulations, including the Town’s Technical Standards. This includes review of the Town’s Post-construction regulatory mechanisms and legal authority, as	Review and update, as necessary, current regulations to identify, reduce, or eliminate existing regulatory barriers to implementation	Town Planning Zoning Commission, Borough Planning Zoning Commission, Engineering	Ongoing beginning Jul 1, 2019	Jul 1, 2021	The Town/Borough’s consultant completed a review of legal authority and land use regulations in 2019. Due to staffing changes in the Town, the

		well as identification of regulatory barriers to implementing LID and runoff reduction practices and suggestions for reducing or eliminating those barriers.	of LID and runoff reduction practices.				process of amending regulations is ongoing.
5-3 Identify retention and detention ponds in priority areas	Ongoing	The Town and Borough have contracted with Fuss & O'Neill to identify additional existing stormwater BMPs throughout the Town and Borough and update this list annually. This survey will include identification of ownership and maintenance responsibility. The Town has also contracted with Fuss & O'Neill to develop operation and maintenance procedures for Town-owned or operated stormwater BMPs.	Review past permits and known stormwater facilities in an effort to create a comprehensive list of stormwater systems within priority areas.	Planning Department, Engineering Department, Public Works, Borough Warden	Jul 1, 2019	Ongoing throughout permit term	The Town/Borough are working to update the list annually with their consultant
5-4 Implement long-term maintenance plan for stormwater basins and treatment structures	Ongoing	The Engineering Department and Planning Department continue to require maintenance plans for all stormwater infrastructure proposed as part of land-use applications. Follow-up of implementation strategies and measures can be improved upon. The Town/Borough have also contracted with Fuss & O'Neill to develop operation and maintenance procedures for Town-owned or operated stormwater BMPs.	Develop a long-term maintenance plan for retention/detention basins and stormwater treatment structures. Implement maintenance plan including annual inspection of retention / detention basins and stormwater treatment structures and removal of accumulated sediment and pollutants.	Planning: Town Planning Department, Borough Planning & Zoning Commission, Engineering Implementation: Engineering, Public Works, Planning Department	Ongoing beginning Jul 1, 2019	Ongoing throughout permit term	
5-5 DCIA mapping	Initial mapping is completed, revisions will be ongoing as	The Town/Borough contracted with Fuss & O'Neill to complete an initial analysis of directly connected impervious area (DCIA) for each CT DEEP Local Basin within the Town and Borough. The Town/Borough	Calculate the Directly Connected Impervious Area (DCIA) of outfall catchment areas using guidance	Engineering & Planning	Jul 1, 2020	Completed December, 2018; updates ongoing throughout permit term.	DCIA was calculated using estimates of total impervious area provided by the UConn NEMO program and

	DCIA is added or removed.	have contracted with Fuss & O'Neill to complete revisions to DCIA estimates in based on development projects completed within 5 years prior to the permit effective date.	provided by DEEP and UConn CLEAR. Revise DCIA estimate as development, redevelopment, or retrofit projects effectively add or remove DCIA.				literature-based equations relating to total and connected impervious area for various land uses.
5-6 Address post-construction issues in areas with pollutants of concern	Not Started	Not Started	Address erosion and sediment problems noted during inspections conducted under BMP 5-3 through the retrofit program developed under BMP 6-7.	Engineering, Planning, Public Works	Not specified	On or before Jul 1, 2022	

Extra space for describing above BMP activities, if needed:

BMP	

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

- Update annual stormwater BMP inventory
- Update DCIA mapping based on site plans from 5 years before the effective permit date through current year
- Work with the SWTF and Zoning to determine best means and methods for requiring post-construction stormwater management maintenance and ensuring/tracking/monitoring ongoing maintenance.

5.3 Post-Construction Stormwater Management reporting metrics

Metrics

Baseline (2012) Directly Connected Impervious Area (DCIA)	871 acres
DCIA disconnected (redevelopment plus retrofits)	0
Retrofits completed	0
DCIA disconnected	Unknown- to be updated in 2020
Estimated cost of retrofits	0
Detention or retention ponds identified	2/2

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

DCIA was estimated for each CTDEEP local basin. All local basins were clipped to the geographic extent of the Town and therefore only include areas of the basins within this extent. The 30-meter resolution 2011 National Land Cover Database (NLCD) was used along with the 1-foot resolution 2012 Connecticut Statewide Impervious Surface dataset provided by CTECO to estimate DCIA. Land cover in the basin was separated into four categories that represent varying degrees of development density (Developed, High Intensity; Developed, Medium Intensity; Developed, Low Intensity; and all other classes). Each of these four categories was related to the four levels of basin connectivity as described on the UConn NEMO website (“Wicked Connected,” “Moderately Connected,” “Sorta Connected,” and “Slightly Connected”). The Sutherland equations provided by UConn NEMO that are associated with each of the four connectivity levels were used to convert percent impervious area to percent DCIA. DCIA was estimated for each basin using the following steps:

1. The percent impervious cover was calculated for each 30x30 meter land cover raster cell and the total percentage was summed across all raster cells in the local basin, resulting in a percent impervious cover value for each land cover category.
2. The Sutherland equations were used to convert percent IC across the local basin to percent DCIA for each of the four areas of land cover.
3. The percent DCIA for each land cover category was multiplied by the total area of that category. The four resulting values were added together to find the total local basin DCIA.
4. The total local basin DCIA was divided by the local basin area (within the town boundary) to determine percent DCIA for the local basin.

Step 1 above was performed on a loop for each local basin using GIS and Python, while the remaining steps were performed as spreadsheet calculations. The 1-foot resolution IC raster was resampled to 5-foot resolution in order to reduce computational time. This changed the raster from 18 binary (1 for impervious, 0 for pervious) to non-binary, where the value of each 5x5 foot raster cell is the total square footage of IC within the cell (between 0 and 25 square feet). The DCIA analysis was conducted prior to the decision by CT DEEP that state roads should not be included in DCIA calculations. As such, the Town’s calculations represent an overestimate of DCIA. The overestimation will be corrected at a later date as DCIA is tracked in subsequent years.

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

6.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
6-1 Develop/implement formal employee training program	Ongoing	<p>The Town and Borough have contracted with their consultant to do annual MS4 training that is scheduled for spring 2020. The training will include the following topics: Spill Prevention and Response Town wide Stormwater Management Training (MS4).</p> <p>On February 8, 2019 the Town of Stonington and the Town's sampling consultant received training regarding use of a digital data collection system for dry weather outfall screening and sampling and wet weather sampling of outfalls that discharge to impaired waters.</p>	Continue to implement joint training program for Town and Borough employees, building on the Town's current program defined in section 7.2 of the SMP	Public Works, Engineering & Borough	Ongoing	Ongoing throughout entire permit	
6-2 Implement MS4 property and operations maintenance	Ongoing	<p>The Department of Public Works has two State certified lawn/turf care applicators of which are directly responsible for the day to day maintenance of athletic fields for the Stonington school district. The care of these athletic field is high quality and utilizes current industry BMP standards.</p> <p>Two Town employees attended pesticide/herbicide training in 2019. In 2019 the Town was able to reduce herbicides used on Town properties by 20%.</p> <p>All other municipal buildings and facilities grounds are maintained by the Public Works Department.</p> <p>The leaf removal program in Stonington eliminated the Town-wide residential leaf collection program. The Town still collects leaves from the public right of way and from areas with poor drainage.</p>	<ul style="list-style-type: none"> • Implement turf/fertilizer management BMPs for parks and open space • Implement pet waste education program and install additional signage, baggies, and disposal receptacles, as needed, in areas where pet walking is common • Implement waterfowl management BMPs in targeted areas as needed • Evaluate municipal buildings and facilities for spill prevention and pollution prevention practices and implement 	Town & Borough Public Works Departments	Ongoing beginning Jul 1, 2018	Ongoing throughout entire permit timeframe	

			<p>additional BMPs as necessary</p> <ul style="list-style-type: none"> • Evaluate and modify, as necessary, municipal vehicle and equipment parking, fueling, and maintenance practices • Continue to collect leaf litter from the Town ROW, roadways, Town properties and areas of poor drainage 				
6-3 Implement coordination with interconnected MS4s	Ongoing	The Town currently notifies the clerk of any adjoining municipality or subdivision applications for which a significant portion of water drainage will flow through and significantly impact the adjoining municipality. The Town also requires Subdividers to obtain an encroachment permit from CTDOT that when a proposed drainage system connects to a state maintained drainage system.	Coordinate with neighboring municipalities, institutions, and DOT regarding stormwater management program activities associated with the adjacent MS4s	Town Public Works, and Borough Highway Department	Not specified	Ongoing	
6-4 Develop/implement program to control other sources of pollutants to the MS4	Ongoing	The Town and Borough continue to control sources of pollution to the MS4 through the existing IDDE program, water quality monitoring, the Town's ordinance related to illicit discharge and illegal connection, and targeted education and outreach to commercial, industrial, municipal, institutional facilities owners/operators.	Control through IDDE program, water quality monitoring, the Town's Illicit Discharge and Illegal Connection Ordinance, and targeted education and outreach to commercial, industrial, municipal, institutional facilities owners/operators (see BMP 1-1 within the SMP).	SWTF	Not specified	Ongoing	
6-5 Evaluate additional measures for discharges to impaired waters*	Not Started	None	Implement the measures and procedures described in Section 7.2 of the SMP including those measures to address stormwater pollutants of concern	Town & Borough DPW	Not specified	Summer 2021	

6-6 Track projects that disconnect DCIA	In Progress	The Town/Borough have contracted with Fuss & O'Neill to complete revisions to DCIA estimates in based on development projects completed within 5 years prior to the permit effective date to the current date.	Annually track total acreage of DCIA that is disconnected as a result of redevelopment or retrofits (see BMPs 5-4 and 6-7 of the SMP)	Town Engineering, Planning	Ongoing	Ongoing throughout entire permit timeframe	
6-7 Implement infrastructure repair/rehab program	Ongoing	<p>In 2019 the Stonington Department of Public Works completed the following stormwater infrastructure repairs/improvements:</p> <ul style="list-style-type: none"> - Replaced (5) Culverts - Repaired (69) catch basins - Inspected (1310) catch basins <p>The Stonington Borough DPW completed the following repairs/improvements:</p> <ul style="list-style-type: none"> - Repaired (1) catch basin -Inspected (65) catch basins <p>The Engineering Department has initiated a request for funding to complete (2) large scale capital improvement projects pertaining to existing stormwater conveyance systems:</p> <ol style="list-style-type: none"> 1. Coogan Boulevard Culvert Rehabilitation. Funding for this project was requested in 2019 but was unavailable. Funding will again be requested in 2020. 2. Washington Street Drainage Improvements. Partial funding for this project was approved in 2019. Additional funding will be requested in 2020. The Town's consultant has initiated some initial planning and permitting work for this project. 	Repair, rehabilitate, or retrofit MS4 infrastructure (e.g., conveyances, structures, outfalls) as needed in a timely manner.	Engineering, Public Works	Jul 1, 2021	Ongoing throughout entire permit timeframe	
6-8 Develop/implement plan to identify/prioritize retrofit projects	Not Started	None	Develop retrofit plan and list of priority sites	Engineering, Planning SWTF	Jul 1, 2020	Summer 2022	

6-9 Implement retrofit projects to disconnect 2% of DCIA	Not Started	None	Disconnect 1% per year of Stonington’s DCIA from the MS4	Engineering, Planning SWTF	Jul 1, 2022	Summer 2022	
6-10 Develop/implement street sweeping program	Ongoing	Both the Town and the Borough sweep streets on an annual basis. Downtown areas get swept multiple times per year to keep areas clean and prepare for special events.	Continue to inspect and sweep all municipally-owned or –operated streets and parking lots Schedule for completion: a. Priority Areas – annually in spring following the cessation of winter maintenance activities (i.e., sanding, deicing, etc.) b. Outside Priority Areas (inc. rural uncurbed streets and parking lots with no catch basins) – in spring or develop and implement an inspection, documentation, and targeted sweeping plan	Town of Stonington & Borough DPW	Ongoing beginning Jul 1, 2017	Ongoing throughout permit timeframe	
6-11 Develop/implement catch basin cleaning program	Ongoing	Both the Town and the Borough clean/vacuum catch basins on an annual basis.	Inspect and clean catch basins as necessary Inspection Schedule: a. 100% within Priority Areas b. 100% of MS4 Develop a plan for optimizing catch basin cleaning (i.e., reduced frequency in certain areas) based on inspection findings, such that no catch basin is more than 50% full	Town of Stonington & Borough DPW	Ongoing beginning Jul 1, 2020	Ongoing throughout permit timeframe	
6-12 Develop/implement snow management practices	Ongoing	The Town of Stonington has 14 designated plow routes. All plow drivers have attended training for salt application and snow removal BMPS in the past. Employees are trained annually on BMPs for snow management. Training was completed in November 2019 during the prewinter	<ul style="list-style-type: none"> • Calibrate all trucks with spreaders prior to the start of any winter event • Recheck truck calibration again in February 	Town of Stonington & Borough DPW	Ongoing beginning Jul 1, 2018	Ongoing throughout permit timeframe	

	<p>operations meeting. Software to manage salt application is installed in all large trucks with built in spreaders. All trucks with spreaders are calibrated prior to the start of any winter event and then are rechecked in February. The Town minimizes the use of salt and no sand is used on the Town's road system. The Town uses treated salt only and it is only applied when the road surface is wet to ensure maximum adhesion to the road surface.</p> <p>GPS units were installed on all plow trucks within the Town of Stonington DPW Department.</p>	<ul style="list-style-type: none"> • Minimize the use of salt to the extent practicable. • Use treated salt only and apply when road surface is wet to ensure maximum adhesion to the road surface. • Provide annual training to staff on snow removal 				
--	---	---	--	--	--	--

Extra space for describing above BMP activities, if needed:

BMP	
	Software was installed on all large trucks with built-in spreaders to track quantity of salt used and the application rate. This information provides the DPW with valuable information necessary to improve and properly manage snow removal operations ensuring each treatment is effective.

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

Training staff for advanced snow management techniques such as pretreatment and brine applications will continue in an effort to stay in tune with the leading industry standards.

The Town/Borough have contracted with Fuss & O'Neill to complete revisions to DCIA estimates based on development projects completed within 5 years prior to the permit effective date to the current date.

6.3 Pollution Prevention/ Good Housekeeping reporting metrics

Metrics	
Employee training provided for key staff	Yes; February 8, 2019 (general sw training), November

	2019 (snow removal)
Street sweeping	
Curb miles swept	Town: 76 miles Borough: 9 miles
Volume (or mass) of material collected	Town: 70 tons Borough: 45 yds
Catch basin cleaning	
Total catch basins in priority areas	Unknown
Total catch basins in MS4	Town: 1600 Borough: 110
Catch basins inspected	Town: 1310 Borough: 65
Catch basins cleaned	Town: 1310 Borough: 65
Volume (or mass) of material removed from all catch basins	Town: 65 tons Borough: 9 yds
Volume removed from catch basins to impaired waters (if known)	Unknown
Snow management	
Type(s) of deicing material used	Morton Ice-B-Gone Road Salt
Total amount of each deicing material applied	Town: 560 tons Borough: 30 yds
Type(s) of deicing equipment used	Town: Compu-Spread by Rexroth Borough: Standard Spreaders
Lane-miles treated	Town: 119 miles of road, 101,670 square yards of parking lots per event. Borough: 9 miles per ice/snow event, 6 events in 2019
Snow disposal location	Spellman Park common space
Staff training provided on application methods & equipment	Two Town employees attended snow removal training in 2019

Municipal turf management program actions (for permittee properties in basins with N/P impairments)	
Reduction in application of fertilizers (since start of permit)	The Town of Stonington reduced its pesticide application rate on Town land by approximately 25% in 2018 and reduced herbicide use by approximately 20% in 2019.
Reduction in turf area (since start of permit)	None
Lands with high potential to contribute bacteria (dog parks, parks with open water, & sites with failing septic systems)	
Cost of mitigation actions/retrofits	None

6.4 Catch basin cleaning program

Provide any updates or modifications to your catch basin cleaning program

Both the Town and the Borough continue to clean/vacuum catch basins on a yearly basis.

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.

The Town and Borough have not yet started the Retrofit Program identification and prioritization process but intend to initiate the process in 2020.

Describe plans for continuing the Retrofit program and how to achieve a goal of 1% DCIA disconnection in future years.

The Town and Borough have not yet started the Retrofit Program identification and prioritization process but intend to initiate the process in 2020.

Describe plans for continuing the Retrofit program beyond this permit term with the goal to disconnect 1% DCIA annually over the next 5 years.

The Town and Borough have not yet started the Retrofit Program identification and prioritization process but intend to initiate the process in 2020.

Part II: Impaired waters investigation and monitoring

1. Impaired waters investigation and monitoring program

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.

Wet Weather impaired waters sampling began in spring of 2019. In 2018 the Town/Borough contracted with Fuss & O'Neill to install a digital data collection system for dry weather outfall screening and sampling and wet weather impaired waters sampling. Wet Weather sampling was completed in 2019 for 5 outfalls. The results of the sampling are provided in the tables below.

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

2.1 Screening data

Complete the table below for any outfalls screened during the reporting period. Each Annual Report will add the previous year's screening data showing a cumulative list of outfall screening data.

Outfall ID	Sample date	Parameter (Nitrogen, Phosphorus, Bacteria, or Other pollutant of concern)	Results	Name of Laboratory (if used)	Follow-up required? *
OF 47	10/9/2019 16:00	Fecal Coliform, Enterococcus	Fecal Coliform (MPN/100 mL): 20 Enterococcus (MPN/100mL): 581	Phoenix Laboratories	Yes
OF 92	10/9/2019 16:00	Fecal Coliform, Enterococcus, Total Phosphorus, Total Nitrogen	Fecal Coliform (MPN/100 mL): 51 Enterococcus (MPN/100mL): 50 Total Phosphorus (mg/L): 3.21 Total Nitrogen (mg/L): 2.43	Phoenix Laboratories	Yes
OF 225	10/9/2019 16:00	Fecal Coliform, Enterococcus	Fecal Coliform (MPN/100 mL): 2050	Phoenix Laboratories	Yes

			Enterococcus (MPN/100mL): 5790		
OF 328	10/9/2019 16:00	Fecal Coliform, Enterococcus	Fecal Coliform (MPN/100 mL): 583 Enterococcus (MPN/100mL): 2280	Phoenix Laboratories	Yes
OF 245	10/9/2019 16:00	Fecal Coliform, Enterococcus	Fecal Coliform (MPN/100 mL): 2360 Enterococcus (MPN/100mL): 7270	Phoenix Laboratories	Yes

2.2 Credit for screening data collected under 2004 permit

If any outfalls to impaired waters were sampled under the 2004 MS4 permit, that data can count towards the monitoring requirements under the modified 2017 MS4 permit. Complete the table below to record sampling data for any outfalls to impaired waters under the 2004 MS4 permit.

Outfall	Sample date	Parameter (Nitrogen, Phosphorus, Bacteria, or Other pollutant of concern)	Results	Name of Laboratory (if used)	Follow-up required? *
Nothing to report					

*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"> E. coli > 235 col/100ml for swimming areas or 410 col/100ml for all others Total Coliform > 500 col/100ml
Bacteria (salt waterbody)	<ul style="list-style-type: none"> Fecal Coliform > 31 col/100ml for Class SA and > 260 col/100ml for Class SB Enterococci > 104 col/100ml for swimming areas or 500 col/100 for all others
Other pollutants of concern	Sample turbidity is 5 NTU > in-stream sample

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

Provide the following information for outfalls exceeding the pollutant threshold.

Outfall	Status of drainage area investigation	Control measure implementation to address impairment
OF-47	Not yet started	
OF-92	Not yet started	
OF-225	Not yet started	
OF-328	Not yet started	
OF-245	Not yet started	

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

Once outfall screening 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, 2020.

Outfall	Sample Date	Parameter(s)	Results	Name of Laboratory (if used)
Not yet started.				

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
Please see the Attachment 2 for the catchment ranking		

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

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

Outfall / Interconnection ID	Screening / sample date	Ammonia	Chlorine	Conductivity	Salinity	E. coli or enterococcus	Surfactants	Water Temp	Pollutant of concern	If required, follow-up actions taken
OF 113	09/19/2019 19:00	0.31	0	0	0.1	10	0.05	22.8	Total Phosphorus (mg/L): 0.285 Total Nitrogen (mg/L): 2.93	
OF 71	09/20/2019 19:18	0.38	0	124	0.1	10	0.08	20	Total Phosphorus (mg/L): 0.019	

										Total Nitrogen (mg/L): 0.68	
--	--	--	--	--	--	--	--	--	--	-----------------------------	--

2.2 Wet weather sample and inspection data

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

Outfall / Interconnection ID	Sample date	Ammonia	Chlorine	Conductivity	Salinity	E. coli or Enterococcus	Surfactants	Water Temp	Pollutant of concern
Not yet started.									

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

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
Not yet started.		

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

Key Junction Manhole ID	Screening / Sample date	Visual/ olfactory evidence of illicit discharge	Ammonia	Chlorine	Surfactants
Not yet started.					

3.3 Wet weather investigation outfall sampling data

Outfall ID	Sample date	Ammonia	Chlorine	Surfactants
Not yet started.				

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
Not yet started.							

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:	Print name:
Signature / Date:	Signature / Date:

Attachment 1

Outfall Mapping



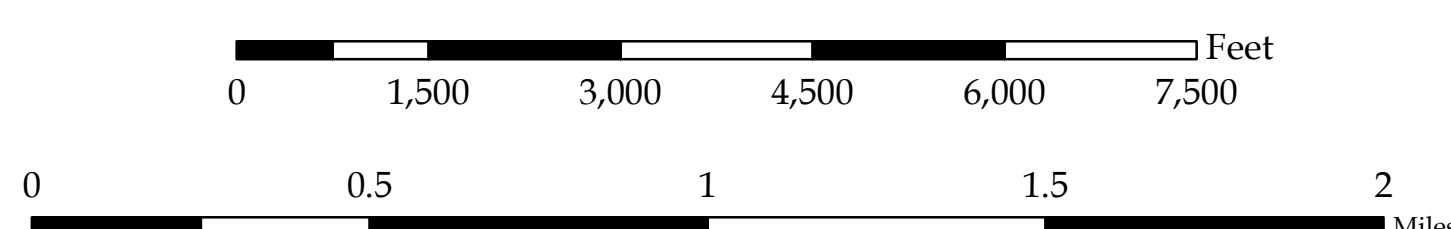
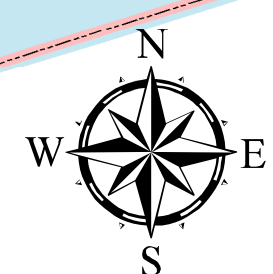
Town of Stonington, CT

Drainage Network Index Map



- Outfalls
- Catch Basins
- Storm Lines

Drainage Network Latest Revision 2018



Disclaimer:
 This map is for informational purposes only. All information is subject to verification by any user. The Town of Stonington and its mapping contractors assume no legal responsibility for the information contained herein.



Attachment 2

Catchment Ranking

