

MS4 General Permit Town of Brooklyn 2021 Annual Report

Permit Number GSM 000118

January 1, 2021 – December 31, 2021

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This report documents Brooklyn's efforts to comply with the conditions of the MS4 General Permit to the maximum extent practicable (MEP) from January 1, 2021 to December 31, 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	None		Town website		Maintain website	First Selectman	
1-2 Address education/ outreach for pollutants of concern	None		Town website		Include information specific to pollutants of concern	First Selectman	

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

Create and maintain MS4 page on town website

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	Not Performed	Preparing 2021 Annual Report	Make 2021 Final Annual Report publicly available	First Selectman	April 1 2022 (Projected)	Town Website	
2-2 Comply with public notice requirements for Annual Reports (annually by 2/15)	Not Performed	Preparing to make draft Annual Report available for public comment	Make 2021 Draft Annual Report available for public comment	First Selectman	Feb 15 2022 (Projected)	Town Website	

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

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 7/1/19)	Complete	None	Develop written plan of IDDE program	First Selectman/ Town's Engineering Consultant	Jan 31, 2021.	
3-2 Develop list and maps of all MS4 stormwater outfalls in priority areas (Due 7/1/20)	Complete	Completed data collection to develop GIS layer of MS4 stormwater outfalls in priority areas	Completed GIS layer of MS4 stormwater outfalls in priority areas	Town's Engineering Consultant	April 1, 2020	
3-3 Implement citizen reporting program (Ongoing)	Not Started	None	GIS layer of reports	First Selectman/ Town's Engineering Consultant	February 1, 2022 (Projected)	
3-4 Establish legal authority to prohibit illicit discharges (Due 7/1/19)	Ongoing	None	Adoption of town ordinance with enforcement provisions	Town planner develops consensus document with Town Attorney	Summer 2022	
3-5 Develop record keeping system for IDDE tracking (Due 7/1/17)	Complete	GIS Layer Developed	Develop GIS layer	Town's Engineering Consultant	Summer 2021	
3-6 Address IDDE in areas with pollutants of concern	Not Started	Not required since no IDDE instances occurred.	Investigate outfalls with IDDE, build GIS layer	First Selectman/ Town's Engineering Consultant	Ongoing through term of permit	

Example additional BMP: 3-7 Consolidate IDDE tracking spreadsheets	<i>Not started</i>	<i>Compile all the IDDE tracking requirements into one spreadsheet</i>		<i>Town's Engineering Consultant</i>	<i>February 2022 (Projected)</i>	<i>Reason for addition: Make it easier to track all IDDE activities</i>
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3.2 Describe any IDDE activities planned for the next year, if applicable.

The written program will be posted to the town's webpage and a link listed in next year's Annual Report. 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

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.

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

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	178 (Mapped)
Estimated or actual number of interconnections	13 (Mapped)
Outfall mapping complete	99%
Interconnection mapping complete	99%
System-wide mapping complete (detailed MS4 infrastructure)	99%
Outfall assessment and priority ranking	100%
Dry weather screening of all High and Low priority outfalls complete	100%
Catchment investigations complete	N/A
Estimated percentage of MS4 catchment area investigated	N/A

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).

No training occurred in 2021.

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

4.1 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
4-1 Implement, upgrade, and enforce land use regulations or other legal authority to meet requirements of MS4 general permit (Due 7/1/20)	Not Reviewed		Publish and Implement Regulations	First Selectman/P&Z	Jul 1, 2020	
4-2 Develop/Implement plan for interdepartmental coordination in site plan review and approval (Ongoing)	Not Reviewed		Maintain paper files recording actions	First Selectman/P&Z	Ongoing	
4-3 Review site plans for stormwater quality concerns (Ongoing)	Not Reviewed		Maintain paper files recording actions	First Selectman/P&Z	Ongoing	
4-4 Conduct site inspections (Ongoing)	Not Reviewed		Maintain paper files recording actions	First Selectman/P&Z	Ongoing	
4-5 Implement procedure to allow public comment on site development (Ongoing)	Not Reviewed		Maintain paper files recording actions	First Selectman/P&Z	Ongoing	
4-6 Implement procedure to notify developers about DEEP construction stormwater permit (Ongoing)	Not Reviewed		Maintain paper files recording actions	First Selectman/P&Z	Ongoing	

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

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 7/1/22)	<i>Not started</i>	<i>None</i>	<i>Written legal authority in place.</i>	<i>First Selectman/P&Z</i>	<i>Jul 1, 2022 (Projected)</i>	
5-2 Enforce LID/runoff reduction requirements for development and redevelopment projects (Due 7/1/22)	<i>Not started</i>	<i>None</i>	<i>Written regulations in place</i>	<i>First Selectman/P&Z</i>	<i>Jul 1, 2022 (Projected)</i>	
5-3 Identify retention and detention ponds in priority areas (Due 7/1/20)	<i>Ongoing</i>	<i>Locating known water quality basins</i>	<i>GIS layer completed</i>	<i>First Selectman/Town's engineering consultant</i>	<i>Jul 1, 2022 (Projected)</i>	
5-4 Implement long-term maintenance plan for stormwater basins and treatment structures (Ongoing)	<i>Not started</i>	<i>None</i>	<i>Plans and BMPS on file</i>	<i>First Selectman/Town's engineering consultant</i>	<i>Jul 1, 2022 (Projected)</i>	

5-5 DCIA mapping (Due 7/1/20)	<i>In progress</i>	<i>Baseline DCIA GIS map complete</i>	<i>GIS layer complete</i>	<i>First Selectman/ planning staff/Engineering Consultant</i>	<i>Jul 1, 2022 (Projected)</i>	
5-6 Address post-construction issues in areas with pollutants of concern	<i>Ongoing</i>		<i>Record of issues addressed</i>	<i>First Selectman/ planning staff/Engineering Consultant</i>	<i>Not specified</i>	<i>No post-construction issues in areas with pollutants of concern identified</i>

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

Seek to inspect and maintain as necessary, highest priority stormwater quality basins.

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)	384 acres (2.1%)
DCIA disconnected (redevelopment plus retrofits)	acres this year / acres total
Retrofit projects completed	#
DCIA disconnected	% this year / % total since 2012
Estimated cost of retrofits	\$
Detention or retention ponds identified	# this year /# total

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

The baseline DCIA for each watershed was determined using the Sutherland Equations as presented in the Small MS4 Permit Technical Support Document, Revised April 2014 (Original Document, April 2011)

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

6.1 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
6-1 Develop/implement formal employee training program (Ongoing)	<i>Not Started</i>	<i>None</i>	<i>Annual training for staff</i>	<i>First Selectman/ Engineering Consultant</i>	<i>Spring 2022 (Projected)</i>	
6-2 Implement MS4 property and operations maintenance (Ongoing)	<i>Ongoing</i>		<i>Develop and execute SWPPS for town properties</i>	<i>First Selectman</i>	<i>Ongoing beginning Jul 1, 2018</i>	
6-3 Implement coordination with interconnected MS4s	<i>Not started</i>	<i>None</i>	<i>Document and create GIS layer. Make available to CTDOT as needed.</i>	<i>First Selectman/Engineering Consultant</i>	<i>Spring 2022 (Projected)</i>	
6-4 Develop/implement program to control other sources of pollutants to the MS4	<i>Not started</i>			<i>First Selectman /Engineering Consultant</i>		
6-5 Evaluate additional measures for discharges to impaired waters*	<i>Not started</i>			<i>First Selectman/ Engineering Consultant</i>		
6-6 Track projects that disconnect DCIA (Ongoing)	<i>Not started</i>			<i>Engineering Consultant</i>		

6-7 Implement infrastructure repair/rehab program (Due 7/1/21)	Not started					
6-8 Develop/implement plan to identify/prioritize retrofit projects (Due 7/1/20)	Not started					
6-9 Implement retrofit projects to disconnect 2% of DCIA (Due 7/1/22)	Not started					
6-10 Develop/implement street sweeping program (Ongoing)	Complete	Annual sweeping	Document to file	First Selectman	Ongoing beginning Jul 1, 2018	Jul 1, 2017
6-11 Develop/implement catch basin cleaning program (Ongoing)	Complete	All catch basins cleaned annually	Document to file	First Selectman	Ongoing beginning Jul 1, 2020	Jul 1, 2017
6-12 Develop/implement snow management practices (Due 7/1/18)	Complete			First Selectman	Ongoing beginning Jul 1, 2018	Jul 1, 2017

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

6.3 Pollution Prevention/ Good Housekeeping reporting metrics

Metrics	
Employee training provided for key staff	(y/n) / date(s)
Street sweeping	
Curb miles swept	73
Volume (or mass) of material collected	650 tons
Catch basin cleaning	
Total catch basins in priority areas (value will be less than or equal to total catch basins town or institution-wide)	409 (Mapped)
Total catch basins town- (or institution-) wide	613 (Mapped)
Catch basins inspected	All in 2020
Catch basins cleaned	All
Volume (or mass) of material removed from all catch basins	60 tons
Volume removed from catch basins to impaired waters (if known)	lbs or tons
Snow management	
Type(s) of deicing material used	
Total amount of each deicing material applied	560 tons
Type(s) of deicing equipment used	
Lane-miles treated (A lane-mile is a mile of roadway in a single driving lane)	73 miles
Snow disposal location	
Staff training provided on application methods & equipment	(y/n) / dates(s)
Municipal turf management program actions (for permittee properties in basins with N/P impairments)	
Reduction in application of fertilizers (since start of permit)	lbs or %
Reduction in turf area (since start of permit)	acres
Lands with high potential to contribute bacteria (dog parks, parks with open water, & sites with failing septic systems)	
Cost of mitigation actions/retrofits	\$

6.4 Catch basin cleaning program

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

No updates or modifications at this time.

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 7/1/20)

Describe plans for continuing the Retrofit program and how to achieve a goal of 1% DCIA disconnection annually in future years. (Due 7/1/22)

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.

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. 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? *
19	-71.887834 / 41.801481	11/30/20	Other	36.6	Phoenix	Yes
20	-71.888061 / 41.801641	11/30/20	Other	Less than in-stream		No

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 ID	Status of drainage area investigation	Control measure to address impairment
19	Not Commenced	Not Yet Determined

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.

Outfall	Latitude / Longitude	Sample Date	Parameter(s)	Results	Name of Laboratory (if used)
19	-71.887834 / 41.801481	11/30/20	Other	36.6	Phoenix

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

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	Surfactants	Water Temp	Pollutant of concern	If required, follow-up actions taken
10	-71.899289 / 41.789785	12/4/2020	0.21	0.02	140	<0.5	20	0.05	54.1	None	
22	-71.887639 / 41.799541	12/4/2020	0.07	0.02	310	<0.5	41	0.05	53.6	None	
23	-71.901774 / 41.80383	12/4/2020	0.19	0.02	212	<0.5	10	0.05	50.1	None	

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

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

For details on this requirement, visit 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

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.


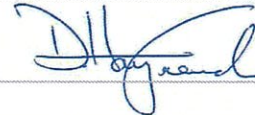
Outfall ID	Latitude / Longitude	Sample date	Ammonia	Chlorine	Surfactants

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: AUSTIN TANNER, FIRST SELECTMAN	Print name: DARREN HAYWARD, P.E.
Signature / Date:  3/24/2022	Signature / Date:  March 24, 2022
Email: A.TANNER@BROOKLYNCT.ORG	Email: DHAYWARD@CLAENGINEERS.COM