

# CITY OF ABERDEEN

## NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT FOR DISCHARGES FROM SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS

General Discharge Permit No. 13-IM-5500

General NPDES No. MDR055500

## FISCAL YEAR 2019 ANNUAL REPORT YEAR 1



October 24, 2019



**MARYLAND DEPARTMENT OF THE ENVIRONMENT  
WATER AND SCIENCE ADMINISTRATION**

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM  
GENERAL PERMIT FOR DISCHARGES FROM  
SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS**

**GENERAL DISCHARGE PERMIT NO. 13-IM-5500  
GENERAL NPDES NO. MDR055500**

Final Determination: April 27, 2018  
Effective Date: October 31, 2018  
Expiration Date: October 30, 2023

This National Pollutant Discharge Elimination System (NPDES) general permit covers small municipal separate storm sewer systems (MS4s) in certain portions of the State of Maryland. MS4 owners and operators to be regulated under this general permit must submit a Notice of Intent (NOI) to MDE by October 31, 2018. An NOI serves as notification that the MS4 owner or operator intends to comply with the terms and conditions of this general permit.

## **APPENDIX D**

### **Municipal Small MS4 Progress Report**

**Maryland Department of the Environment (MDE)**

**National Pollutant Discharge Elimination System (NPDES)  
Small Municipal Separate Storm Sewer Systems (MS4) General Permit**

This Progress Report is required for those jurisdictions covered under General Discharge Permit No. 13-IM-5500. Progress Reports must be submitted to:

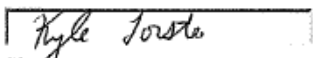
Maryland Department of the Environment, Water and Science Administration  
Sediment, Stormwater, and Dam Safety Program  
1800 Washington Boulevard, Suite 440, Baltimore, MD 21230-1708  
Phone: 410-537-3543 FAX: 410-537-3553  
Web Site: [www.mde.maryland.gov](http://www.mde.maryland.gov)

**Contact Information**

Permittee Name:	City of Aberdeen
Responsible Personnel:	Kyle Torster, P.E.
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Phone Number(s):	410-272-1600 Extension 217
Email address:	ktorster@aberddeenmd.gov
Additional Contact(s):	
Mailing Address:	
Phone Number(s):	
Email address:	

**Signature of Responsible Personnel**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Kyle Torster		10/24/2019
Printed Name	Signature	Date

**Reporting Period (State Fiscal Year):**

FY19; July 1, 2018 - June 30, 2019

**Due Date:**

10/31/2019

**Date of Submission:**

10/24/2019

**Type of Report Submitted:**

Impervious Area Restoration Progress Report (Annual): ☒

Six Minimum Control Measures Progress (Years 2 and 4): ☐

Both: ☐

**Permittee Information:**

Renewal Permittee: ☒

New Permittee: ☐

### **Compliance with Reporting Requirements**

Part VI of the Small MS4 General Discharge Permit (No. 13-IM-5500) specifies the reporting information that must be submitted to MDE to demonstrate compliance with permit conditions. The specific information required in this MS4 Progress Report includes:

1. Annual: Progress toward compliance with impervious area restoration requirements in accordance with Part V of the general permit. All requested information and supporting documentation must be submitted as specified in Section I of the Progress Report.
2. Years 2 and 4: Progress toward compliance with the six minimum control measures in accordance with Part IV of the general permit. All requested information and supporting documentation shall be reported as specified in Section II of the Progress Report. MDE may request more frequent reporting and/or a final report in year 5 if additional information is needed to demonstrate compliance with the permit.

### **Instructions for Completing Appendix D Reporting Forms**

The reporting forms provided in Appendix D allow the user to electronically fill in answers to questions. Users may enter quantifiable information (e.g., number of outfalls inspected) in text boxes. When a more descriptive explanation is requested, the reporting forms will expand as the user types to allow as much information needed to fully answer the question. The permittee must indicate in the forms when attachments are included to provide sufficient information required in the MS4 Progress Report.

## **Section I: Impervious Area Restoration Reporting Form**

## Section I: Impervious Area Restoration Reporting

1. a. Was the impervious area baseline assessment submitted in year 1?

☒ Yes ☐ No

The Impervious Area Baseline Assessment is discussed in the “Impervious Area Restoration Work Plan – Year 1 Summary” submitted as **Attachment A** of this Annual Report.

b. If No, describe the status of completing the required information and provide a date at which all information required by MDE will be submitted:

- c. Has the baseline been adjusted since the previous reporting year?

☐ Yes ☒ No

N/A

2. Complete the information below based on the most recent data:

Total impervious acres of jurisdiction covered under this permit: 998.51

Total impervious acres treated by stormwater water quality best management practices (BMPs): 32.72

Total impervious acres treated by BMPs providing partial water quality treatment (multiply acres treated by percent of water quality provided): 12.71

Total impervious acres treated by nonstructural practices (i.e., rooftop disconnections, non-rooftop disconnections, or vegetated swales): N/A

An analysis of these practices will be considered in Year 2.

Total impervious acres untreated in the jurisdiction: 965.79

Twenty percent of this total area (this is the restoration requirement): 193.16

Verify that all impervious area draining to BMPs with missing inspection records is not considered treated. Describe how this information was incorporated into the overall analysis:

A best case scenario was submitted with this report, meaning all BMPs were assumed to be performing as designed. In FY 2020, the City of Aberdeen will determine which BMPs have missing inspection reports and which BMPs need to be maintained. If it is determined that some BMP treatment areas need to be removed due to failing performance or missing inspections, the numbers above will be revised in the FY 2020 Annual Report.

### Section I: Impervious Area Restoration Reporting

2. Has an Impervious Area Restoration Work Plan been developed and submitted to MDE in accordance with Part V.B, Table 1 of the permit or other format?

☒ Yes ☐ No

The “Impervious Area Restoration Work Plan – Year 1 Summary” is submitted as **Attachment A** of this Annual Report.

Has MDE approved the work plan?

☐ Yes ☒ No

If the answer to either question is No, describe the status of submitting (or resubmitting) the work plan to MDE and provide a date at which all outstanding information will be available:

The “Impervious Area Restoration Work Plan – Year 1 Summary” is submitted as **Attachment A** of this Annual Report.

Describe progress made toward restoration planning, design, and construction efforts and describe adaptive management strategies necessary to meet restoration requirements by the end of the permit term:

The City of Aberdeen has begun identifying potential projects. A consulting firm was hired to calculate baseline impervious surface areas. The City will continue to assess projects and timelines during Year 2.

3. Has a Restoration Schedule been completed and submitted to MDE in accordance with Part V.B, Table 2 of the permit?

☐ Yes ☒ No

The City of Aberdeen is working on the Restoration Schedule in Year 2.

In year 5, has a complete restoration schedule been submitted including a complete list of projects and implementation dates for all BMPs needed to meet the twenty percent restoration requirement?

☐ Yes ☐ No

N/A

Are the projected implementation years for completion of all BMPs no later than 2025?

☒ Yes ☐ No

The City of Aberdeen has begun identifying potential projects, and will continue to assess projects and timelines during Year 2.

Describe actions planned to provide a complete list of projects in order to achieve compliance by the end of the permit term:

The City of Aberdeen is developing the Project List in Year 2.

Describe the progress of restoration efforts (attach examples and photos of proposed or completed projects when available):

The City of Aberdeen is developing the Project List in Year 2.



4. Has the BMP database been submitted to MDE in Microsoft Excel format in accordance with Appendix B, Tables B.1.a, b, and c?

☒ Yes ☐ No

The BMP database is submitted as **Attachment B** of this Annual Report.

Is the database complete?

☐ Yes ☒ No

If either answer is No, describe efforts underway to complete all data fields, and a date that MDE will receive the required information:

Drainage areas for each BMP were calculated. The City of Aberdeen will work to provide a complete BMP database by the FY 2020 Annual Report.

5. Provide a summary of impervious area restoration activities planned for the next reporting cycle (attach additional information if necessary):

A consulting firm was hired to perform the impervious area restoration activities for Year 2. The Scope of Work for these activities is provided as **Attachment C**.

6. Describe coordination efforts with other agencies regarding the implementation of impervious area restoration activities:

The City of Aberdeen has had discussions with other permittees, and no partnerships have been developed to date. Although it is possible opportunities may develop, at this time the City feels that partnerships are unlikely to develop.

7. List total cost of developing and implementing the impervious area restoration program during the permit term:

The total cost is unknown at this time.

## **Section II: Minimum Control Measures Reporting Forms**

Not required in Year 1 of the Permit.

### **MCM #1: Public Education and Outreach**

1. Does the permittee maintain a process and phone number for the public to report water quality complaints?

☐ Yes ☐ No

Number of complaints received:

Describe the actions taken to address the complaints:

2. Describe training to employees to reduce pollutants to the MS4:

3. Describe the target audience(s) within the jurisdiction:

4. Are examples of educational/training materials attached with this report?

☐ Yes ☐ No

Provide the number and type of educational materials distributed:

Describe how the public outreach program is appropriate for the target audience(s):

5. Describe how stormwater educational materials were distributed to the public (e.g., newsletters, website):

6. Describe how educational programs facilitated efforts to reduce pollutants in stormwater runoff:

7. Provide a summary of the activities planned for the next reporting cycle:

8. List the total cost of implementing this MCM over the permit term:

## MCM #2: Public Involvement and Participation

1. Describe how the public involvement and participation program is appropriate for the target audience(s):

2. Quantify and report public involvement and participation efforts shown below where applicable.

Number of participants at public events:

Quantity of trash and debris removed at clean up events:

Number of employee volunteers participating in sponsored events:

Number of trees planted:

Length of stream cleaned (feet):

Number of storm drains stenciled:

Number of public notices published to facilitate public participation:

Number of public meetings organized:

Total number of attendees at all public meetings:

Describe the agenda, items discussed, and collaboration efforts with interested parties for public meetings:

Describe how public comments have been incorporated into the permittee's MS4 program, including water quality improvement projects to address impervious area restoration requirements:

Describe any additional events and activities if applicable:

**MCM #2: Public Involvement and Participation**

3. Provide a summary of activities planned for the next reporting cycle:

4. List the total cost of implementing this MCM for the permit term:

### **MCM #3: Illicit Discharge Detection and Elimination (IDDE)**

1. Does the permittee maintain a map of the MS4 owned or operated by the permittee, including stormwater conveyances, outfalls, stormwater best management practices (BMPs), and waters of the U.S. receiving stormwater discharges?

☐ Yes ☐ No

If Yes, attach the map to this report and provide a progress update on any features that are still being mapped. If No, detail the current status of map development and provide an estimated date of submission to MDE:

2. Does the permittee have an ordinance, or other regulatory means, that prohibits illicit discharges?

☐ Yes ☐ No

If Yes, describe the means for enforcement utilized by the permittee (alternatively, a link may be provided to the permittee's webpage where this information is available). If No, describe the permittee's plan, including approximate time frame, to establish a regulatory means to prohibit illicit discharges:

3. Describe the process the permittee utilizes for gaining access to private property to investigate and eliminate illicit discharges:

4. Did the permittee submit to MDE standard operating procedures (SOPs) in accordance with Part IV.C of the permit?

☐ Yes ☐ No

If No, provide a proposed date that SOPs will be submitted to MDE. MDE may require more frequent reports for delays in program development:

Did MDE approve the submitted SOPs?

☐ Yes ☐ No

If No, describe the status of requested SOP revisions and approximate date of resubmission for MDE approval:

**MCM #3: Illicit Discharge Detection and Elimination (IDDE)**

5. Describe how the permittee prioritized screening locations in areas of high pollutant potential and identify the areas within which screenings were conducted during this reporting period:

6. Answers to the following questions must reflect this two-year reporting period.

How many outfalls are identified on the map?

How many outfalls were required to be screened for dry weather flows to meet the minimum numeric requirement (i.e., 20% of total outfalls, up to 100)?

How many outfalls were screened for dry weather flows?

Per the permittee's SOP, how frequently were outfalls required to be screened?

At what frequency were outfalls screened during the reporting period?

How many dry weather flows were observed?

If dry weather flows were observed, how many were determined to be illicit discharges?

Describe the investigation process to track and eliminate each suspected illicit discharge and report the status of resolution:

7. Describe maintenance or corrective actions undertaken during this reporting period to address erosion, debris buildup, sediment accumulation, or blockage problems:

8. Is the permittee maintaining all IDDE inspection records and are they available to MDE during site inspections?

☐ Yes ☐ No

**MCM #3: Illicit Discharge Detection and Elimination (IDDE)**

<p>9. If spills, illicit discharges, and illegal dumping occurred during this reporting period, describe the corrective actions taken, including enforcement activities, and indicate the status of resolution:</p>
<p>10. Attach to this report specific examples of educational materials distributed to the public related to illicit discharge reporting, illegal dumping, and spill prevention. If these are not available, describe plans to develop public education materials and submit examples with the next Progress Report:</p>
<p>11. Specify the number of employees trained in illicit discharge detection and spill prevention: <input type="text"/></p> <p>12. Provide examples of training materials. If not available, describe plans to develop employee training and submit examples with the next Progress Report:</p>
<p>13. List the cost of implementing this MCM during this permit term:</p>



#### **MCM #4: Construction Site Stormwater Runoff Control**

##### **Erosion & Sediment Control Program Procedures, Ordinances, and Legal Authority**

1. Does the permittee have an MDE approved ordinance?

☐ Yes ☐ No

Has the permittee submitted modifications to MDE?

☐ Yes ☐ No

Has the adopted ordinance been submitted to MDE?

☐ Yes ☐ No

If No, is the adopted ordinance attached?

☐ Yes ☐ No

2. Does the permittee rely on the County, local Soil Conservation District, or MDE to perform any or all requirements for an acceptable erosion and sediment control program? ☐ Yes ☐ No

If Yes, check all that apply:

☐ Plan Review and Approval

☐ Construction Inspections

☐ Enforcement

3. Does the permittee have a process to ensure that all necessary permits for a proposed development have been obtained prior to issuance of a grading or building permit?

☐ Yes ☐ No

Explain how the permittee ensures all permits are in place:

##### **Erosion & Sediment Control Program Implementation Information**

1. Does the permittee have a process for receiving, investigating, and resolving complaints from interested parties related to construction activities and erosion and sediment control?

☐ Yes ☐ No

Describe the process:

Provide a list of all complaints and summary of actions taken to resolve them:

#### MCM #4: Construction Site Stormwater Runoff Control

2. Total number of active construction projects within the reporting period:

Provide a list of all construction projects and disturbed areas:

Does the permittee submit grading reports to MDE (only applies if the permittee has an MDE approved ordinance)?

☐ Yes ☐ No ☐ N/A

3. Total number of violation notices issued related to this MCM within the permit area (report total number whether the permittee or another entity performs inspections):

Describe the status of enforcement activities:

Describe how the permittee communicates and collaborates with the enforcement authority for violations within the permit area. Include measures taken by the permittee such as suspending or denying a building or grading permit in order to prevent the discharge of pollutants into the MS4:

Are erosion and sediment control inspection records retained and available to MDE during field review of local programs?

☐ Yes ☐ No

If No, explain:

4. Number of staff trained in MDE's Responsible Personnel Certification:

5. Describe the coordination efforts with other entities regarding the implementation of this MCM:

6. List the total cost of implementing this MCM over the permit term:

### MCM #5: Post Construction Stormwater Management

Stormwater Management Program Procedures, Ordinances, and Legal Authority	
1. Does the permittee have an MDE approved ordinance?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Has the permittee submitted modifications to MDE?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Has the adopted ordinance been submitted to MDE?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If No, is the adopted ordinance attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Does the permittee have a memorandum of understanding (MOU) with the County to perform any or all requirements for an acceptable stormwater program? <input type="checkbox"/> Yes <input type="checkbox"/> No	
If Yes, check all that apply: <input type="checkbox"/> Plan Review and Approval <input type="checkbox"/> First Year Post Construction Inspections <input type="checkbox"/> As-Built Plan Approval <input type="checkbox"/> Post Construction Triennial Inspections <input type="checkbox"/> Enforcement <input type="checkbox"/> BMP Tracking and Reporting	
Stormwater Management Program Implementation Information	
1. Has an Urban BMP database been submitted in accordance with the database structure in Appendix B, Tables B.1.a, b, and c as a Microsoft Excel file? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Describe the status of the database and efforts to complete all data fields:	
2. Total number of triennial inspections performed: <input type="text"/>	
Total number of BMPs jurisdiction-wide: <input type="text"/>	
Are inspections performed at least once every three years for all BMPs? <input type="checkbox"/> Yes <input type="checkbox"/> No	
If No, describe how the permittee will catch up on past inspections and remain on track to perform BMP inspections once every three years:	

### MCM #5: Post Construction Stormwater Management

Are BMP inspection records retained and available to MDE during field review of local programs?

☐ Yes ☐ No

3. Total number of violation notices issued:

Describe efforts to bring BMPs into compliance and the status of enforcement activities within the jurisdiction:

4. Describe how the permittee coordinates and cooperates with the County to ensure stormwater BMPs are functioning according to approved standards. (Applicable for municipalities that rely on the County to perform stormwater triennial inspections):

5. Provide a summary of routine maintenance activities for all publicly owned BMPs:

Number of publicly owned BMPs:

Describe how often BMPs are maintained. Specify whether maintenance activities are more frequent for certain BMP types:

Are BMP maintenance checklists and procedures for publicly owned BMPs available to MDE during field review of local programs?

☐ Yes ☐ No

Are BMP maintenance records retained and available to MDE during field review of local programs?

☐ Yes ☐ No

If either answer is No, describe planned actions to implement maintenance checklists and procedures and provide formal documentation of these activities:

6. Number of staff trained in proper BMP design, performance, inspection, and routine maintenance:

**MCM #5: Post Construction Stormwater Management**

7. Provide a summary of activities planned for the next reporting cycle:
8. List the total cost of implementing this MCM over the permit term:

### **MCM #6: Pollution Prevention and Good Housekeeping**

1. Provide a list of topics covered during the last training session related to pollution prevention and good housekeeping, and attach to this report specific examples of training materials:

List all training dates within this two-year reporting period:

Number of staff attended:

2. Are the good housekeeping plan and inspection records at each property retained and available to MDE during field review of the local program? ☐ Yes ☐ No

If No, explain:

Provide details of all discharges, releases, leaks, or spills that occurred in the past reporting period using the following format (attach additional sheets if necessary).

Property Name:

Date:

Describe observations:

Describe permittee's response:

3. Quantify and report property management efforts as shown below, where applicable (attach additional sheets if necessary).

Number of miles swept:

Amount of debris collected from sweeping (indicate units):

If roads and streets are swept, describe the strategy the permittee has implemented to maximize efficiency and target high priority areas:

Number of inlets cleaned:

Amount of debris collected from inlet cleaning (indicate units):

### **MCM #6: Pollution Prevention and Good Housekeeping**

Describe how trash and hazardous waste materials are disposed of at permittee owned and operated property(ies), including debris collected from street sweeping and inlet cleaning:

Does the permittee have a current State of Maryland public agency permit to apply pesticides?

☐ Yes ☐ No

If No, explain (e.g., contractor applies pesticides):

Does the permittee employ at least one individual certified in pesticide application?

☐ Yes ☐ No

If Yes, list name(s):

If the permittee applied pesticides during the reporting year, describe good housekeeping methods (e.g., integrated pest management, alternative materials/techniques):

If the permittee applied fertilizer during the reporting year, describe good housekeeping methods (e.g., application methods, chemical storage, native or low maintenance species, training):

If the permittee applied materials for snow and ice control during the reporting year, describe good housekeeping methods (e.g., pre-treatment, truck calibration and storage, salt domes):

Describe good housekeeping BMP alternatives not listed above:

4. If applicable, provide a status update for permittee owned or operated properties regarding coverage under the Maryland General Permit for Stormwater Discharges Associated with Industrial Activity or an individual industrial surface water discharge permit:

5. List the total cost of implementing this MCM over the permit term:

# **CITY OF ABERDEEN**

## **NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

### **GENERAL PERMIT FOR DISCHARGES FROM**

### **SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS**

General Discharge Permit No. 03-IM-5500 / General NPDES Permit No. MDR055500



# **FISCAL YEAR 2019 ANNUAL REPORT – YEAR 1**

## **ATTACHMENT A**

# **IMPERVIOUS AREA RESTORATION WORK PLAN – YEAR 1**



NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PROGRAM

**CITY OF ABERDEEN**

**PHASE II MS4 PERMIT**

General Discharge Permit No. 13-IM-5500

General NPDES No. MDR055500

**IMPERVIOUS AREA RESTORATION WORK PLAN  
YEAR 1 SUMMARY**



October 14, 2019

**CITY OF ABERDEEN**  
**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PROGRAM**  
General Discharge Permit No. 13-IM-5500 / General NPDES No. MDR055500  
**IMPERVIOUS AREA RESTORATION WORK PLAN – YEAR 1 SUMMARY**

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## **CITY OF ABERDEEN**

### **NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PROGRAM**

General Discharge Permit No. 13-IM-5500 / General NPDES No. MDR055500

## **IMPERVIOUS AREA RESTORATION WORK PLAN – YEAR 1 SUMMARY**

### **I. Develop Impervious Area Baseline Assessment**

**Step 1:** Delineate Best Management Practices (BMP) drainage areas and calculate the acreage of each drainage area.

- Drainage areas for each BMP were delineated using available plans, stormwater management reports, aerial imagery, contour data, and the City's Municipal Separate Storm Sewer System (MS4) data.
- Drainage areas were delineated as polygons in a Geographic Information System (GIS).
- A Quality Assurance/Quality Control (QA/QC) analysis was performed on the delineated drainage areas by a water resources engineer.
- The acreage of each drainage area was calculated in GIS.

**Step 2:** Calculate the total (2004) impervious acreage for the City as per the Permit, Appendix B, Section III.

- In GIS, base data was obtained and compiled on a map. Layers used in this analysis included the following:
  - Impervious Area for Harford County (2014).
  - Orthoimagery for Harford County (2004)
    - Available 2007 imagery had missing tiles and therefore was not used for analysis.
  - Orthoimagery for Harford County (2017) (used as a reference).
  - Aberdeen municipal boundary.
- 2014 impervious area data was used as the starting point to calculate the 2004 baseline because it was the best available impervious GIS data.

- The initial impervious area for the City based on the 2014 impervious layer was approximately 1392.49 acres.
- The GIS layers were prepared for further analysis by clipping the County data to the City's corporate limits.
- The 2014 impervious area layer was copied and saved as the new 2004 impervious layer. This layer was edited and developed into the final 2004 impervious area baseline layer.
- The City was divided into 1,000 feet by 1,000 feet grids using GIS tools. Grid by grid, the 2004 baseline layer was analyzed and edited. Impervious areas were represented by polygons in GIS. Areas that were impervious in 2014 but not in 2004 were removed. Areas that were impervious in 2004 but not in 2014 were added through digitization.
- Areas not under the responsibility of the City, such as County-owned parcels, schools, and Maryland State Highway Administration right-of-way, were removed from the total impervious area.
- A QA/QC analysis was performed on the final 2004 impervious area layer.
- When calculating the total acreage, overlapping polygons in the GIS layer could cause the total to be inflated. To resolve this issue, the polygons within the impervious layer were merged into one combined polygon.
- Using GIS tools, the final total 2004 impervious area was calculated.
  - **The total impervious area is approximately 998.51 acres (Table 1).**

**Table 1 – 2004 Impervious Areas <sup>1</sup>**

Category	Total Area (Acres)
<b>Total Impervious Area</b>	<b>998.51</b>
Impervious Area Treated by BMPs with Full Water Quality Treatment <sup>2</sup>	20.01
Impervious Area Treated by BMPs with Partial Water Quality Treatment <sup>3</sup>	12.71
Impervious Area Treated by Non-structural Practices	To Be Determined in Year 2 of Permit.
Untreated Impervious Area	965.79
<b>Restoration Requirement (20% of Untreated Impervious Area)</b>	<b>193.16</b>

<sup>1</sup> Areas may continue to be refined during each reporting year as funding allows and as new data becomes available.

<sup>2</sup> BMPs with a  $P_E$  value  $\geq 1$  were considered Full Water Quality Treatment BMPs.

<sup>3</sup> BMPs with a  $P_E$  value  $< 1$  were considered Partial Water Quality Treatment BMPs.

**Step 3:** Determine what water quality BMPs prior to 2006\* treat existing impervious. Calculate the total impervious area treated by each of the City's water quality BMPs.

\* According to the permit, BMPs built after 2006 may be claimed for restoration credits. The impervious area baseline was developed using 2004 imagery. BMPs built between 2004 and 2006 were counted as water quality BMPs in the impervious area baseline assessment if the BMP treated existing 2004 impervious area.

- Using available plans, stormwater management reports, and the drainage areas delineated in Step 1, a desktop analysis was performed by a water resources engineer to determine the amount of water quality treatment for each BMP.
  - In cases where the available plans for the BMP provided a PE value, this value was recorded and the impervious acres treated value was calculated.
  - In cases where the available plans for the BMP did not provide a PE value but provided other water quality information, an engineer reviewed the plans and calculated the impervious acres treated.
  - BMPs without available plans and plans with incomplete information will be assessed in Year 2 of the Permit.
- A QA/QC analysis was performed on the water quality calculations.
- Fact Sheets were created for each BMP detailing the calculations used to determine the impervious acres treated. The Fact Sheets have been included in **Appendix A**.
- **The total impervious area treated by BMPs providing FULL water quality treatment is approximately 20.01 acres (Table 1).**
- **The total impervious area treated by BMPs providing PARTIAL water quality treatment is approximately 12.71 acres (Table 1).**

**Step 4:** Calculate the revised total (2004) impervious area baseline by removing impervious areas already treated by water quality BMPs.

- From the Fact Sheets created in Step 3, the total impervious acreage treated by water quality BMPs was determined to be approximately 32.72 acres.
  - Removing the 32.72 acres treated by water quality BMPs, the **final total 2004 impervious area baseline was reduced to 965.79 acres (Table 1).**

## **II. Develop a Restoration Work Plan for MDE Review and Approval**

**Next Steps:** In the upcoming years of the general permit, the City will continue to revise and adjust the Impervious Area Restoration Work Plan as appropriate. The City has already begun to discuss plans for meeting the restoration requirement. Future steps the City plans to take include:

- Assess impervious acres treated by nonstructural practices.
  - Rooftop disconnections.
    - GIS analysis, in conjunction with field verification, will be used to determine the credit that can be applied towards reducing the total impervious acreage.
  - Vegetated swales.
    - An assessment of the vegetated swales within the City will be used to determine credit that can be applied towards reducing the total impervious acreage.
- Assess impervious acre credits available based on Alternative Urban BMPs.
  - Street sweeping.
    - Guidelines from Appendix B, Table B.4 of the Permit will be used to determine the impervious area credit available to the City based on the amount of street sweeping completed.
  - Storm drain cleaning.
    - Guidelines from Appendix B, Table B.4 of the Permit will be used to determine the impervious area credit available to the City based on the amount of storm drain cleaning completed.
  - Stream restoration.
    - Guidelines from Appendix B, Table B.4 of the Permit will be used to determine the impervious credit available for existing stream restorations within the City.
    - The City will evaluate potential areas for future stream restorations and will identify these on the Restoration Activity Schedule.
  - Outfall stabilization.
    - Guidelines from Appendix B, Table B.4 of the Permit will be used to determine the impervious area credit available to the City based on outfall stabilization projects that have been completed.

### **III. Assess Opportunities and Timelines for Implementing Water Quality BMPs**

The City has begun identifying potential opportunities to implement Water Quality BMPs, and will continue to assess opportunities and timelines for implementing water quality BMPs during Year 2.

### **IV. Assess Opportunities to Develop Partnerships with other NPDES Permittees**

The City has had discussions with other permittees, and no partnerships have been developed to date. It is possible that opportunities for partnerships with other permittees may develop later in the permit process. The City feels partnerships are unlikely to develop.

### **V. Determine Funding Needs and Develop a Long-Term Budget**

Once the analysis of the baseline impervious has been completed and the City knows their 20% restoration requirement, funding needs and a long term budget will be developed.

### **VI. References**

Maryland Department of the Environment. (2018). *National Pollutant Discharge Elimination System General Permit for Discharges from Small Municipal Separate Storm Sewer Systems: General Discharge Permit No. 13-IM-5500, General NPDES No. MDR055500*. Baltimore, MD: Author.

Maryland Department of the Environment. (2019). *NPDES MS4 Phase II Permit Guidance: Developing and Verifying the Impervious Area Baseline and Restoration Target*. Baltimore, MD: Author.



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General Discharge Permit No. 03-IM-5500 / General NPDES Permit No. MDR055500

**IMPERVIOUS AREA RESTORATION WORK PLAN**  
**YEAR 1 SUMMARY**

**APPENDIX A**  
**BMP FACT SHEETS**





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Date:

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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

**NOTE: This BMP does not provide water quality treatment.**

$$R_v = .05 + .009(I)$$

BMP ID Number	AB00BMO000041
BMP Type	Detention Structure (Dry Pond)
BMP Type Code	XDPD
Plan Date	1999
GIS Drainage Area (Acres)	16.60
Total Impervious Area (Acres)	6.81
Total Impervious Area within City Limits (Acres)	6.81
I	41.00
R <sub>v</sub>	0.42
Runoff Storage Volume (cf) (RS)	0
P <sub>e</sub> Treated by BMP (inches) (P <sub>e</sub> )	0.00

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	0.00
---	------

**Impervious Area Treated Calculation:**

If P<sub>e</sub> is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If P<sub>e</sub> is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>P<sub>e</sub> Treated by BMP (inches):</b>		<b>0.00</b>	
<b>Total Impervious (Acres):</b>	<b>6.81</b>	<b>Town Owned Impervious (Acres):</b>	<b>6.81</b>
<b>Impervious Acres Treated:</b>		<b>0.00</b>	



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**Pe Addressed Calculation:**

$$Pe = \frac{(RS) * 12}{(Rv) * A}$$

$$Rv = .05 + .009(I)$$

BMP ID Number	AB00BMO000150
BMP Type	Shallow Marsh
BMP Type Code	WSHW
Plan Date	2000
GIS Drainage Area (Acres)	30.85
Total Impervious Area (Acres)	17.08
Total Impervious Area within City Limits (Acres)	17.08
I	55.00
Rv	0.55
Runoff Storage Volume (cf) (RS)	32670
Pe Treated by BMP (inches) (Pe)	0.50

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	0.53
---	------

**Impervious Area Treated Calculation:**

If  $P_E$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times PE \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_E$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(PE \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>Pe Treated by BMP (inches):</b>		<b>0.50</b>	
<b>Total Impervious (Acres):</b>	<b>17.08</b>	<b>Town Owned Impervious (Acres):</b>	<b>17.08</b>
<b>Impervious Acres Treated:</b>		<b>8.54</b>	



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**Pe Addressed Calculation:**

$$Pe = \frac{(RS) * 12}{(Rv) * A}$$

$$Rv = .05 + .009(I)$$

BMP ID Number	AB00BMP000030
BMP Type	Other - Water Quality Basin
BMP Type Code	XOTH
Plan Date	1999
GIS Drainage Area (Acres)	0.95
Total Impervious Area (Acres)	0.78
Total Impervious Area within City Limits (Acres)	0.78
I	82.00
Rv	0.79
Runoff Storage Volume (cf) (RS)	979
Pe Treated by BMP (inches) (Pe)	0.40

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	0.35
---	------

**Impervious Area Treated Calculation:**

If  $P_E$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times PE \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_E$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(PE \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>Pe Treated by BMP (inches):</b>		<b>0.40</b>	
<b>Total Impervious (Acres):</b>	<b>0.78</b>	<b>Town Owned Impervious (Acres):</b>	<b>0.78</b>
<b>Impervious Acres Treated:</b>		<b>0.31</b>	



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

$$R_v = .05 + .009(I)$$

BMP ID Number	AB00BMP000151
BMP Type	Shallow Marsh
BMP Type Code	WSHW
Plan Date	2000
GIS Drainage Area (Acres)	3.11
Total Impervious Area (Acres)	0.60
Total Impervious Area within City Limits (Acres)	0.60
I	19.00
Rv	0.22
Runoff Storage Volume (cf) (RS)	Attributed to AB00BMP000152
Pe Treated by BMP (inches) (Pe)	N/A

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	
---	--

**Impervious Area Treated Calculation:**

If  $P_e$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_e$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>Pe Treated by BMP (inches):</b>		<b>N/A</b>	
<b>Total Impervious (Acres):</b>	<b>0.60</b>	<b>Town Owned Impervious (Acres):</b>	<b>0.60</b>
<b>Impervious Acres Treated:</b>		<b>N/A</b>	



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**Pe Addressed Calculation:**

$$Pe = \frac{(RS) * 12}{(Rv) * A}$$

$$Rv = .05 + .009(I)$$

BMP ID Number	AB00BMP000152
BMP Type	Shallow Marsh
BMP Type Code	WSHW
Plan Date	2000
GIS Drainage Area (Acres)	4.48
Total Impervious Area (Acres)	1.54
Total Impervious Area within City Limits (Acres)	1.54
I	34.00
Rv	0.36
Runoff Storage Volume (cf) (RS)	11566
Pe Treated by BMP (inches) (Pe)	2.00

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	2.07
---	------

**Impervious Area Treated Calculation:**

If  $P_E$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times PE \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_E$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(PE \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>Pe Treated by BMP (inches):</b>		<b>2.00</b>	
<b>Total Impervious (Acres):</b>	<b>1.54</b>	<b>Town Owned Impervious (Acres):</b>	<b>1.54</b>
<b>Impervious Acres Treated:</b>		<b>1.92</b>	



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

$$R_v = .05 + .009(I)$$

BMP ID Number	AB00BMP000193
BMP Type	Wet Swale
BMP Type Code	OWSW
Plan Date	2000
GIS Drainage Area (Acres)	3.00
Total Impervious Area (Acres)	2.55
Total Impervious Area within City Limits (Acres)	2.55
I	85.00
Rv	0.82
Runoff Storage Volume (cf) (RS)	2264
Pe Treated by BMP (inches) (Pe)	0.30

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	0.24
---	------

**Impervious Area Treated Calculation:**

If  $P_e$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_e$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

Construction Purpose:		Baseline	
Pe Treated by BMP (inches):		0.30	
Total Impervious (Acres):	2.55	Town Owned Impervious (Acres):	2.55
Impervious Acres Treated:		0.77	



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

$$R_v = .05 + .009(I)$$

NOTE: Additional information is needed to determine the treatment provided by this facility.

BMP ID Number	AB01BMP000118
BMP Type	Extended Detention Structure, Wet
BMP Type Code	PWED
Plan Date	2001
GIS Drainage Area (Acres)	46.18
Total Impervious Area (Acres)	6.19
Total Impervious Area within City Limits (Acres)	2.72
I	13.00
Rv	0.17
Runoff Storage Volume (cf) (RS)	UNK
Pe Treated by BMP (inches) (Pe)	

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	
---	--

**Impervious Area Treated Calculation:**

If  $P_e$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_e$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

Construction Purpose:		Baseline	
Pe Treated by BMP (inches):			
Total Impervious (Acres):	6.19	Town Owned Impervious (Acres):	2.72
Impervious Acres Treated:			



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

**NOTE: This BMP does not provide water quality treatment.**

$$R_v = .05 + .009(I)$$

BMP ID Number	AB01BMP000124
BMP Type	Detention Structure (Dry Pond)
BMP Type Code	XDPD
Plan Date	2001
GIS Drainage Area (Acres)	6.63
Total Impervious Area (Acres)	3.13
Total Impervious Area within City Limits (Acres)	3.13
I	47.00
R <sub>v</sub>	0.47
Runoff Storage Volume (cf) (RS)	0
P <sub>E</sub> Treated by BMP (inches) (P <sub>e</sub> )	0.00

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	0.00
---	------

**Impervious Area Treated Calculation:**

If P<sub>E</sub> is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_E \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If P<sub>E</sub> is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_E \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>P<sub>E</sub> Treated by BMP (inches):</b>		<b>0.00</b>	
<b>Total Impervious (Acres):</b>	<b>3.13</b>	<b>Town Owned Impervious (Acres):</b>	<b>3.13</b>
<b>Impervious Acres Treated:</b>		<b>0.00</b>	





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**Pe Addressed Calculation:**

$$Pe = \frac{(RS) * 12}{(Rv) * A}$$

$$Rv = .05 + .009(I)$$

BMP ID Number	AB02BMP000006
BMP Type	Retention Pond (Wet Pond)
BMP Type Code	PWET
Plan Date	2001
GIS Drainage Area (Acres)	34.60
Total Impervious Area (Acres)	16.35
Total Impervious Area within City Limits (Acres)	2.89
I	47.00
Rv	0.47
Runoff Storage Volume (cf) (RS)	60907
Pe Treated by BMP (inches) (Pe)	1.00

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	1.03
---	------

**Impervious Area Treated Calculation:**

If  $P_E$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times PE \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_E$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(PE \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

Construction Purpose:		Baseline	
Pe Treated by BMP (inches):		1.00	
Total Impervious (Acres):	16.35	Town Owned Impervious (Acres):	2.89
Impervious Acres Treated:		2.89	



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) \cdot 12}{(R_v) \cdot A}$$

$$R_v = .05 + .009(I)$$

BMP ID Number	AB02BMP000016
BMP Type	Extended Detention Structure, Dry
BMP Type Code	XDED
Plan Date	2000
GIS Drainage Area (Acres)	5.49
Total Impervious Area (Acres)	4.33
Total Impervious Area within City Limits (Acres)	4.33
I	79.00
R <sub>v</sub>	0.76
Runoff Storage Volume (cf) (RS)	7841
P <sub>E</sub> Treated by BMP (inches) (P <sub>e</sub> )	0.50

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) \cdot 12}{(IA)}$$

Q	0.50
---	------

**Impervious Area Treated Calculation:**

If P<sub>E</sub> is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_E \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If P<sub>E</sub> is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_E \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>P<sub>E</sub> Treated by BMP (inches):</b>		<b>0.50</b>	
<b>Total Impervious (Acres):</b>	<b>4.33</b>	<b>Town Owned Impervious (Acres):</b>	<b>4.33</b>
<b>Impervious Acres Treated:</b>		<b>2.17</b>	



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

$$R_v = .05 + .009(I)$$

**NOTE:** Additional information is needed to determine the treatment provided by this facility.

BMP ID Number	AB02BMP000122
BMP Type	UNK
BMP Type Code	UNK
Plan Date	UNK
GIS Drainage Area (Acres)	198.34
Total Impervious Area (Acres)	48.53
Total Impervious Area within City Limits (Acres)	48.53
I	24.00
Rv	0.27
Runoff Storage Volume (cf) (RS)	UNK
Pe Treated by BMP (inches) (Pe)	

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	
---	--

**Impervious Area Treated Calculation:**

If  $P_e$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_e$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>Pe Treated by BMP (inches):</b>			
<b>Total Impervious (Acres):</b>	<b>48.53</b>	<b>Town Owned Impervious (Acres):</b>	<b>48.53</b>
<b>Impervious Acres Treated:</b>			



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

$$R_v = .05 + .009(I)$$

BMP ID Number	AB03BMP000012
BMP Type	Extended Detention Structure, Dry
BMP Type Code	XDED
Plan Date	2001
GIS Drainage Area (Acres)	2.09
Total Impervious Area (Acres)	1.39
Total Impervious Area within City Limits (Acres)	1.39
I	66.00
R <sub>v</sub>	0.64
Runoff Storage Volume (cf) (RS)	4792
P <sub>e</sub> Treated by BMP (inches) (P <sub>e</sub> )	1.00

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	0.95
---	------

**Impervious Area Treated Calculation:**

If P<sub>e</sub> is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If P<sub>e</sub> is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

Construction Purpose:		Baseline	
P <sub>e</sub> Treated by BMP (inches):		1.00	
Total Impervious (Acres):	1.39	Town Owned Impervious (Acres):	1.39
Impervious Acres Treated:		1.39	



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

**NOTE: This BMP does not provide water quality treatment.**

$$R_v = .05 + .009(I)$$

BMP ID Number	AB03BMP000139
BMP Type	Oil Grit Separator
BMP Type Code	XOGS
Plan Date	2003
GIS Drainage Area (Acres)	0.65
Total Impervious Area (Acres)	0.00
Total Impervious Area within City Limits (Acres)	0.00
I	0.00
Rv	0.05
Runoff Storage Volume (cf) (RS)	0
Pe Treated by BMP (inches) (Pe)	0.00

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	
---	--

**Impervious Area Treated Calculation:**

If  $P_e$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_e$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>Pe Treated by BMP (inches):</b>		<b>0.00</b>	
<b>Total Impervious (Acres):</b>	<b>0.00</b>	<b>Town Owned Impervious (Acres):</b>	<b>0.00</b>
<b>Impervious Acres Treated:</b>		<b>0.00</b>	



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**Pe Addressed Calculation:**

$$Pe = \frac{(RS) * 12}{(Rv) * A}$$

$$Rv = .05 + .009(I)$$

BMP ID Number	AB03BMP000183
BMP Type	Sand Filter
BMP Type Code	FSND
Plan Date	2002
GIS Drainage Area (Acres)	7.25
Total Impervious Area (Acres)	3.99
Total Impervious Area within City Limits (Acres)	3.99
I	55.00
Rv	0.55
Runoff Storage Volume (cf) (RS)	29839
Pe Treated by BMP (inches) (Pe)	2.10

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	2.06
---	------

**Impervious Area Treated Calculation:**

If  $P_E$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times PE \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_E$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(PE \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>Pe Treated by BMP (inches):</b>		<b>2.10</b>	
<b>Total Impervious (Acres):</b>	<b>3.99</b>	<b>Town Owned Impervious (Acres):</b>	<b>3.99</b>
<b>Impervious Acres Treated:</b>		<b>5.08</b>	



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

$$R_v = .05 + .009(I)$$

BMP ID Number	AB03BMP000184
BMP Type	Multiple Pond System
BMP Type Code	PMPS
Plan Date	2002
GIS Drainage Area (Acres)	17.38
Total Impervious Area (Acres)	4.18
Total Impervious Area within City Limits (Acres)	4.18
I	24.00
Rv	0.27
Runoff Storage Volume (cf) (RS)	41077
Pe Treated by BMP (inches) (Pe)	2.40

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	2.71
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**Impervious Area Treated Calculation:**

If  $P_e$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_e$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

Construction Purpose:		Baseline	
Pe Treated by BMP (inches):		2.40	
Total Impervious (Acres):	4.18	Town Owned Impervious (Acres):	4.18
Impervious Acres Treated:		5.64	



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

$$R_v = .05 + .009(I)$$

**NOTE:** Additional information is needed to determine the treatment provided by this facility.

BMP ID Number	AB03BMP000186
BMP Type	UNK
BMP Type Code	UNK
Plan Date	UNK
GIS Drainage Area (Acres)	10.37
Total Impervious Area (Acres)	6.26
Total Impervious Area within City Limits (Acres)	6.26
I	60.00
Rv	0.59
Runoff Storage Volume (cf) (RS)	UNK
Pe Treated by BMP (inches) (Pe)	

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	
---	--

**Impervious Area Treated Calculation:**

If  $P_e$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_e$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>Pe Treated by BMP (inches):</b>			
<b>Total Impervious (Acres):</b>	6.26	<b>Town Owned Impervious (Acres):</b>	6.26
<b>Impervious Acres Treated:</b>			





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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

$$R_v = .05 + .009(I)$$

**NOTE:** Additional information is needed to determine the treatment provided by this facility.

BMP ID Number	AB04BMP000049
BMP Type	UNK
BMP Type Code	UNK
Plan Date	Before 1999
GIS Drainage Area (Acres)	13.70
Total Impervious Area (Acres)	5.60
Total Impervious Area within City Limits (Acres)	5.60
I	41.00
Rv	0.42
Runoff Storage Volume (cf) (RS)	UNK
Pe Treated by BMP (inches) (Pe)	

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	
---	--

**Impervious Area Treated Calculation:**

If  $P_e$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_e$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>Pe Treated by BMP (inches):</b>			
<b>Total Impervious (Acres):</b>	5.60	<b>Town Owned Impervious (Acres):</b>	5.60
<b>Impervious Acres Treated:</b>			



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

$$R_v = .05 + .009(I)$$

BMP ID Number	AB04BMP000052
BMP Type	Extended Detention – Wetland
BMP Type Code	WEDW
Plan Date	2002
GIS Drainage Area (Acres)	5.23
Total Impervious Area (Acres)	0.52
Total Impervious Area within City Limits (Acres)	0.52
I	10.00
Rv	0.14
Runoff Storage Volume (cf) (RS)	9652
Pe Treated by BMP (inches) (Pe)	2.60

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	5.16
---	------

**Impervious Area Treated Calculation:**

If  $P_e$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_e$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

Construction Purpose:		Baseline	
Pe Treated by BMP (inches):		2.60	
Total Impervious (Acres):	0.52	Town Owned Impervious (Acres):	0.52
Impervious Acres Treated:		0.72	



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

NOTE: This BMP does not provide water quality treatment.

$$R_v = .05 + .009(I)$$

BMP ID Number	AB04BMP000053
BMP Type	Other - Conveyance Swale
BMP Type Code	XOTH
Plan Date	2002
GIS Drainage Area (Acres)	4.73
Total Impervious Area (Acres)	0.01
Total Impervious Area within City Limits (Acres)	0.01
I	0.00
Rv	0.05
Runoff Storage Volume (cf) (RS)	0
Pe Treated by BMP (inches) (Pe)	0.00

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	0.00
---	------

**Impervious Area Treated Calculation:**

If  $P_e$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_e$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

Construction Purpose:		Baseline	
Pe Treated by BMP (inches):		0.00	
Total Impervious (Acres):	0.01	Town Owned Impervious (Acres):	0.01
Impervious Acres Treated:		0.00	



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) \cdot 12}{(R_v) \cdot A}$$

**NOTE: This BMP does not provide water quality treatment.**

$$R_v = .05 + .009(I)$$

BMP ID Number	AB04BMP000054
BMP Type	Other - Conveyance Swale
BMP Type Code	XOTH
Plan Date	2002
GIS Drainage Area (Acres)	0.72
Total Impervious Area (Acres)	0.08
Total Impervious Area within City Limits (Acres)	0.08
I	11.00
R <sub>v</sub>	0.15
Runoff Storage Volume (cf) (RS)	0
P <sub>e</sub> Treated by BMP (inches) (P <sub>e</sub> )	0.00

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) \cdot 12}{(IA)}$$

Q	0.00
---	------

**Impervious Area Treated Calculation:**

If P<sub>e</sub> is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If P<sub>e</sub> is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>P<sub>e</sub> Treated by BMP (inches):</b>		<b>0.00</b>	
<b>Total Impervious (Acres):</b>	<b>0.08</b>	<b>Town Owned Impervious (Acres):</b>	<b>0.08</b>
<b>Impervious Acres Treated:</b>		<b>0.00</b>	



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) \cdot 12}{(R_v) \cdot A}$$

**NOTE: This BMP does not provide water quality treatment.**

$$R_v = .05 + .009(I)$$

BMP ID Number	AB04BMP000055
BMP Type	Other - Conveyance Swale
BMP Type Code	XOTH
Plan Date	2002
GIS Drainage Area (Acres)	0.47
Total Impervious Area (Acres)	0.00
Total Impervious Area within City Limits (Acres)	0.00
I	0.00
Rv	0.05
Runoff Storage Volume (cf) (RS)	0
Pe Treated by BMP (inches) (Pe)	0.00

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) \cdot 12}{(IA)}$$

Q	
---	--

**Impervious Area Treated Calculation:**

If  $P_e$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_e$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>Pe Treated by BMP (inches):</b>		<b>0.00</b>	
<b>Total Impervious (Acres):</b>	<b>0.00</b>	<b>Town Owned Impervious (Acres):</b>	<b>0.00</b>
<b>Impervious Acres Treated:</b>		<b>0.00</b>	



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

$$R_v = .05 + .009(I)$$

BMP ID Number	AB04BMP000109
BMP Type	Infiltration Trench
BMP Type Code	ITRN
Plan Date	2004
GIS Drainage Area (Acres)	1.53
Total Impervious Area (Acres)	1.37
Total Impervious Area within City Limits (Acres)	1.37
I	89.00
Rv	0.85
Runoff Storage Volume (cf) (RS)	2465
Pe Treated by BMP (inches) (Pe)	0.50

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	0.50
---	------

**Impervious Area Treated Calculation:**

If  $P_e$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_e$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

Construction Purpose:		Baseline	
Pe Treated by BMP (inches):		0.50	
Total Impervious (Acres):	1.37	Town Owned Impervious (Acres):	1.37
Impervious Acres Treated:		0.69	



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**Pe Addressed Calculation:**

$$Pe = \frac{(RS) * 12}{(Rv) * A}$$

$$Rv = .05 + .009(I)$$

BMP ID Number	AB04BMP000110
BMP Type	Underground Filter
BMP Type Code	FUND
Plan Date	2004
GIS Drainage Area (Acres)	0.19
Total Impervious Area (Acres)	0.17
Total Impervious Area within City Limits (Acres)	0.17
I	90.00
Rv	0.86
Runoff Storage Volume (cf) (RS)	960
Pe Treated by BMP (inches) (Pe)	1.60

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	1.57
---	------

**Impervious Area Treated Calculation:**

If  $P_E$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times PE \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_E$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(PE \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>Pe Treated by BMP (inches):</b>		<b>1.60</b>	
<b>Total Impervious (Acres):</b>	<b>0.17</b>	<b>Town Owned Impervious (Acres):</b>	<b>0.17</b>
<b>Impervious Acres Treated:</b>		<b>0.19</b>	



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**Pe Addressed Calculation:**

$$Pe = \frac{(RS) * 12}{(Rv) * A}$$

$$Rv = .05 + .009(I)$$

BMP ID Number	AB04BMP000111
BMP Type	Underground Filter
BMP Type Code	FUND
Plan Date	2004
GIS Drainage Area (Acres)	0.23
Total Impervious Area (Acres)	0.21
Total Impervious Area within City Limits (Acres)	0.21
I	90.00
Rv	0.86
Runoff Storage Volume (cf) (RS)	960
Pe Treated by BMP (inches) (Pe)	1.40

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	1.29
---	------

**Impervious Area Treated Calculation:**

If  $P_E$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times PE \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_E$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(PE \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>Pe Treated by BMP (inches):</b>		<b>1.40</b>	
<b>Total Impervious (Acres):</b>	<b>0.21</b>	<b>Town Owned Impervious (Acres):</b>	<b>0.21</b>
<b>Impervious Acres Treated:</b>		<b>0.23</b>	





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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

$$R_v = .05 + .009(I)$$

BMP ID Number	AB04BMP000147
BMP Type	Dry Swale
BMP Type Code	ODSW
Plan Date	2003
GIS Drainage Area (Acres)	0.31
Total Impervious Area (Acres)	0.10
Total Impervious Area within City Limits (Acres)	0.10
I	32.00
R <sub>v</sub>	0.34
Runoff Storage Volume (cf) (RS)	399
P <sub>e</sub> Treated by BMP (inches) (P <sub>e</sub> )	1.00

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	1.10
---	------

**Impervious Area Treated Calculation:**

If P<sub>e</sub> is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If P<sub>e</sub> is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

Construction Purpose:		Baseline	
P <sub>e</sub> Treated by BMP (inches):		1.00	
Total Impervious (Acres):	0.10	Town Owned Impervious (Acres):	0.10
Impervious Acres Treated:		0.10	



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(Rv) * A}$$

$$Rv = .05 + .009(I)$$

NOTE: Additional information is needed to determine the treatment provided by this facility.

BMP ID Number	AB04BMP000200
BMP Type	UNK
BMP Type Code	UNK
Plan Date	UNK
GIS Drainage Area (Acres)	21.61
Total Impervious Area (Acres)	17.24
Total Impervious Area within City Limits (Acres)	17.24
I	80.00
Rv	0.77
Runoff Storage Volume (cf) (RS)	UNK
Pe Treated by BMP (inches) (Pe)	

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	
---	--

**Impervious Area Treated Calculation:**

If  $P_e$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_e$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

Construction Purpose:		Baseline	
Pe Treated by BMP (inches):			
Total Impervious (Acres):	17.24	Town Owned Impervious (Acres):	17.24
Impervious Acres Treated:			



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

$$R_v = .05 + .009(I)$$

BMP ID Number	AB05BMP000046
BMP Type	Impervious Surface Elimination (to pervious)
BMP Type Code	IMPP
Plan Date	2005
GIS Drainage Area (Acres)	0.09
Total Impervious Area (Acres)	0.09
Total Impervious Area within City Limits (Acres)	0.09
I	100.00
Rv	0.95
Runoff Storage Volume (cf) (RS)	N/A
Pe Treated by BMP (inches) (Pe)	1.00

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	
---	--

**Impervious Area Treated Calculation:**

If  $P_e$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_e$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

Construction Purpose:		Baseline	
Pe Treated by BMP (inches):		1.00	
Total Impervious (Acres):	0.09	Town Owned Impervious (Acres):	0.09
Impervious Acres Treated:		0.09	



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

**NOTE: This BMP does not provide water quality treatment.**

$$R_v = .05 + .009(I)$$

BMP ID Number	AB05BMP000084
BMP Type	Extended Detention Structure, Dry
BMP Type Code	XDED
Plan Date	1997
GIS Drainage Area (Acres)	10.39
Total Impervious Area (Acres)	5.88
Total Impervious Area within City Limits (Acres)	5.56
I	57.00
R <sub>v</sub>	0.56
Runoff Storage Volume (cf) (RS)	0
P <sub>e</sub> Treated by BMP (inches) (P <sub>e</sub> )	0.00

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	0.00
---	------

**Impervious Area Treated Calculation:**

If P<sub>e</sub> is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If P<sub>e</sub> is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>P<sub>e</sub> Treated by BMP (inches):</b>		<b>0.00</b>	
<b>Total Impervious (Acres):</b>	<b>5.88</b>	<b>Town Owned Impervious (Acres):</b>	<b>5.56</b>
<b>Impervious Acres Treated:</b>		<b>0.00</b>	



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**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

$$R_v = .05 + .009(I)$$

BMP ID Number	AB05BMP000102
BMP Type	Bioretention
BMP Type Code	FBIO
Plan Date	2003
GIS Drainage Area (Acres)	0.66
Total Impervious Area (Acres)	0.65
Total Impervious Area within City Limits (Acres)	0.65
I	98.00
R <sub>v</sub>	0.93
Runoff Storage Volume (cf) (RS)	448
P <sub>e</sub> Treated by BMP (inches) (P <sub>e</sub> )	0.20

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	0.19
---	------

**Impervious Area Treated Calculation:**

If P<sub>e</sub> is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If P<sub>e</sub> is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>P<sub>e</sub> Treated by BMP (inches):</b>		<b>0.20</b>	
<b>Total Impervious (Acres):</b>	<b>0.65</b>	<b>Town Owned Impervious (Acres):</b>	<b>0.65</b>
<b>Impervious Acres Treated:</b>		<b>0.13</b>	



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BMP FACT SHEET



Date:

9/27/2019

**Pe Addressed Calculation:**

$$P_e = \frac{(RS) * 12}{(R_v) * A}$$

$$R_v = .05 + .009(I)$$

BMP ID Number	AB05BMP000148
BMP Type	Dry Swale
BMP Type Code	ODSW
Plan Date	2003
GIS Drainage Area (Acres)	0.78
Total Impervious Area (Acres)	0.15
Total Impervious Area within City Limits (Acres)	0.15
I	19.00
R <sub>v</sub>	0.22
Runoff Storage Volume (cf) (RS)	460
P <sub>e</sub> Treated by BMP (inches) (P <sub>e</sub> )	0.70

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	0.87
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**Impervious Area Treated Calculation:**

If P<sub>e</sub> is less than or equal to 1, then:

$$\text{Impervious Acres} \times P_e \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If P<sub>e</sub> is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(P_e \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

Construction Purpose:		Baseline	
P <sub>e</sub> Treated by BMP (inches):		0.70	
Total Impervious (Acres):	0.15	Town Owned Impervious (Acres):	0.15
Impervious Acres Treated:		0.10	



**CITY OF ABERDEEN  
NATIONAL POLLUTANT DISCHARGE  
ELIMINATION SYSTEM PROGRAM  
BMP FACT SHEET**



Date:

9/27/2019

**Pe Addressed Calculation:**

$$Pe = \frac{(RS) * 12}{(Rv) * A}$$

$$Rv = .05 + .009(I)$$

BMP ID Number	AB05BMP000167
BMP Type	Extended Detention Structure, Wet
BMP Type Code	PWED
Plan Date	2001
GIS Drainage Area (Acres)	5.38
Total Impervious Area (Acres)	1.21
Total Impervious Area within City Limits (Acres)	1.21
I	23.00
Rv	0.26
Runoff Storage Volume (cf) (RS)	7492
Pe Treated by BMP (inches) (Pe)	1.50

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	1.70
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**Impervious Area Treated Calculation:**

If  $P_E$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times PE \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_E$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(PE \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

<b>Construction Purpose:</b>		<b>Baseline</b>	
<b>Pe Treated by BMP (inches):</b>		<b>1.50</b>	
<b>Total Impervious (Acres):</b>	<b>1.21</b>	<b>Town Owned Impervious (Acres):</b>	<b>1.21</b>
<b>Impervious Acres Treated:</b>		<b>1.36</b>	



CITY OF ABERDEEN  
NATIONAL POLLUTANT DISCHARGE  
ELIMINATION SYSTEM PROGRAM  
BMP FACT SHEET



Date:

9/27/2019

**Pe Addressed Calculation:**

$$Pe = \frac{(RS) * 12}{(Rv) * A}$$

$$Rv = .05 + .009(I)$$

BMP ID Number	Rock Glenn Business Park
BMP Type	Other - Grass Chanel Credit
BMP Type Code	XOTH
Plan Date	2002
GIS Drainage Area (Acres)	0.92
Total Impervious Area (Acres)	0.40
Total Impervious Area within City Limits (Acres)	0.40
I	43.00
Rv	0.44
Runoff Storage Volume (cf) (RS)	N/A
Pe Treated by BMP (inches) (Pe)	1.00

**Runoff Depth Treated per Impervious:**

$$Q = \frac{(RS) * 12}{(IA)}$$

Q	
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**Impervious Area Treated Calculation:**

If  $P_E$  is less than or equal to 1, then:

$$\text{Impervious Acres} \times PE \text{ Treated by BMP} = \text{Impervious Acres Treated}$$

If  $P_E$  is greater than 1, then:

$$\left[ \text{Impervious Acres} \times \frac{(PE \text{ Treated by BMP} - 1)}{0.4} \times 0.1 \right] + \text{Impervious Acres} = \text{Impervious Acres Treated}$$

Construction Purpose:		Baseline	
Pe Treated by BMP (inches):		1.00	
Total Impervious (Acres):	0.40	Town Owned Impervious (Acres):	0.40
Impervious Acres Treated:		0.40	



## **CITY OF ABERDEEN**

### **NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

#### **GENERAL PERMIT FOR DISCHARGES FROM**

#### **SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS**

General Discharge Permit No. 03-IM-5500 / General NPDES Permit No. MDR055500



## **FISCAL YEAR 2019 ANNUAL REPORT – YEAR 1**

### **ATTACHMENT B**

### **BEST MANAGEMENT PRACTICES DATABASE – YEAR 1**

ALSO SUBMITTED VIA SEPARATE EXCEL FILE

Table B.1.a. BMP Reporting Requirements

BMP_ID	REPORTING_YEAR	MD_NORTH	MD_EAST	PERMIT_NUM	LOCAL_BMP_ID	BMP_NAME	BMP_CLASS	BMP_TYPE	CON_PURPOSE	LAST_INSP_DATE	BMP_STATUS	MAIN_DATE	REINSP_DATE	REINSP_STATUS	GEN_COMMENTS
AB19BMP000001	2019	667724.8	1545761	13-IM-5500	AB00BMO000041	Beaver's Auto Body Shop	S	XDED	NEWD	9/21/2012					
AB19BMP000002	2019	679996.6488	1542638.935	13-IM-5500	AB00BMO000150	Ripken Stadium	S	XDED	NEWD	3/19/2018					
AB19BMP000003	2019	670827.5261	1547375.214	13-IM-5500	AB00BMP0000030	Auto Zone	S	WQ Basin	NEWD	6/5/2012					
AB19BMP000004	2019	679681.9999	1540917	13-IM-5500	AB00BMP0000151	Ripken Stadium Water Quality Trap #1	S	WSHW	NEWD	3/19/2018					
AB19BMP000005	2019	679464	1541067	13-IM-5500	AB00BMP0000152	Ripken Stadium Water Quality Trap #2	S	WSHW	NEWD	3/19/2018					
AB19BMP000006	2019	680179.9998	1542475	13-IM-5500	AB00BMP0000154	Ripken Stadium Water Quality Trap # 5	S	WSHW	NEWD	3/19/2018					
AB19BMP000007	2019	679322.0235	1541398.549	13-IM-5500	AB00BMP0000193	Ripken Stadium Water Quality Trap #3	S	WSHW	NEWD	3/19/2018					
AB19BMP000008	2019	679882.8223	1542555.32	13-IM-5500	AB00BMP0000194	Ripken Stadium Water Quality Trap # 4	S	WSHW	NEWD	3/19/2018					
AB19BMP000009	2019	681236	1540735	13-IM-5500	AB01BMP0000118	Long Drive	S	XDED	NEWD	12/12/2018					
AB19BMP000010	2019	674304.8489	1550582.146	13-IM-5500	AB01BMP0000124	North Deen Park SWM Pond	S	XDED	NEWD	3/9/2018					
AB19BMP000011	2019	673988.961	1545748.427	13-IM-5500	AB02BMP0000006	Aberdeen High School (Pond)	S	XDPD	NEWD						
AB19BMP000012	2019	674180	1546596	13-IM-5500	AB02BMP0000007	Aberdeen High School (Field House-Weight Room)	S	MIDW	NEWD						
AB19BMP000013	2019	674404.9999	1546327	13-IM-5500	AB02BMP0000008	Aberdeen High School (Field House-Weight Room)	S	MIDW	NEWD						
AB19BMP000014	2019	674125.4299	1546608.58	13-IM-5500	AB02BMP0000009	Aberdeen High School (Field House-Weight Room)	S	MIDW	NEWD						
AB19BMP000015	2019	666767.9499	1543693.55	13-IM-5500	AB02BMP0000016	Aberdeen Stack n Store SWM	S	XDED	NEWD	3/29/2018					
AB19BMP000016	2019	675436.0001	1548338	13-IM-5500	AB02BMP0000122	Mount Royal Avenue SWM	S	XDED	NEWD	4/11/2019					
AB19BMP000017	2019	665664.335	1543910.22	13-IM-5500	AB03BMP0000012	Aberdeen Industrial Center Lot 2c (Borghi USA)	S	XDED	NEWD	1/24/2019					
AB19BMP000018	2019	676601.1799	1541901.106	13-IM-5500	AB03BMP0000139	Olive Tree Plaza II		XOTH	NEWD						
AB19BMP000019	2019	679057.7026	1555587.398	13-IM-5500	AB03BMP0000183	Medline Facility Pond # 2	S	FSND	NEWD	12/11/2018					Never constructed as a sand filter.
AB19BMP000020	2019	678474.3694	1555298.336	13-IM-5500	AB03BMP0000184	Rock Glenn Business Park SWM Facility # 1	S	XDED	NEWD	3/19/2018					Retrofitted GP #14-06
AB19BMP000021	2019	679581.0499	1555574.976	13-IM-5500	AB03BMP0000186	Medline Submerged Gravel Wetland	S	IBAS	NEWD	12/11/2018					
AB19BMP000022	2019	673304.2101	1541593.89	13-IM-5500	AB04BMP0000049	Chapel Glen	S	XDED	NEWD	10/4/2019					
AB19BMP000023	2019	671635.9999	1551469	13-IM-5500	AB04BMP0000052	DPW Maintenance Building	S	XDED	NEWD	2/14/2018					
AB19BMP000024	2019	671991.0002	1551540	13-IM-5500	AB04BMP0000053	DPW Maintenance Building	E	MSWG	NEWD	2/14/2018					
AB19BMP000025	2019	671747	1551654	13-IM-5500	AB04BMP0000054	DPW Maintenance Building	E	MSWG	NEWD	2/14/2018					
AB19BMP000026	2019	671794.9999	1551190	13-IM-5500	AB04BMP0000055	DPW Maintenance Building	E	MSWG	NEWD	2/14/2018					
AB19BMP000027	2019	667235.0001	1540335	13-IM-5500	AB04BMP0000082	Frito-Lay Hickory Ridge lot 2 Submerged Gravel Wetlands 1	E	MSGW	NEWD	11/2/2018					
AB19BMP000028	2019	677229.9998	1543250	13-IM-5500	AB04BMP0000109	Home Depot UG Facility #1		XDPD	NEWD	2/22/2019					
AB19BMP000029	2019	677229.9998	1543470	13-IM-5500	AB04BMP0000110	Home Depot UG Facility #2		XDPD	NEWD	2/22/2019					
AB19BMP000030	2019	677229.9998	1543760	13-IM-5500	AB04BMP0000111	Home Depot UG Facility #3		XDPD	NEWD	2/22/2019					
AB19BMP000031	2019	672250	1547588	13-IM-5500	AB04BMP0000115	Johnson Family Pharmacy 119 W. Bel Air Avenue	E	MSWG	NEWD	1/11/2019					
AB19BMP000032	2019	672720	1547757	13-IM-5500	AB04BMP0000116	Johnson Family Pharmacy 119 W. Bel Air Avenue	E	MSWG	NEWD	1/11/2019					
AB19BMP000033	2019	676120.6431	1549113.14	13-IM-5500	AB04BMP0000147	Ramsey's Crest WQ #1	S	ITRN	NEWD	12/10/2018					
AB19BMP000034	2019	675001.961	1551653.673	13-IM-5500	AB04BMP0000200	400 Old Post Road	S		NEWD	4/17/2015					
AB19BMP000035	2019	669175.4221	1546536.488	13-IM-5500	AB05BMO0000144	Precision Tune (Pond)	S	XDED	NEWD	9/4/2015					
AB19BMP000036	2019	675503	1544715	13-IM-5500	AB05BMP0000003	Aberdeen Corporate Park Pond	S	XDED	NEWD	7/23/2018					
AB19BMP000037	2019	672307.3319	1548237.055	13-IM-5500	AB05BMP0000046	Cecil Federal Bank (kna Howard Bank)	A	IMPP	REDE	2/27/2019					
AB19BMP000038	2019	664684	1537430	13-IM-5500	AB05BMP0000084	Gilmer Moving+Storage	S	XDED	NEWD	7/10/2019					
AB19BMP000039	2019	672034.5391	1548053.195	13-IM-5500	AB05BMP0000102	Harford Bank	S	FBIO	NEWD	12/11/2018					
AB19BMP000040	2019	673282.78	1547668.01	13-IM-5500	AB05BMP0000135	North Rogers Street Parking Lot	S	FSND	NEWD	2019-10-09					
AB19BMP000041	2019	667993.6279	1545150.61	13-IM-5500	AB05BMP0000141	Panther Systems	S	XDED	NEWD	3/5/2019					
AB19BMP000042	2019	676012.85	1544039.118	13-IM-5500	AB05BMP0000148	Ramsey's Crest WQ #2	S	ITRN	NEWD	12/10/2018					
AB19BMP000043	2019	672874.876	1550708.254	13-IM-5500	AB05BMP0000167	West Deen Townhouses	S	XDED	NEWD	1/31/2017					
AB19BMP000044	2019	673989	1545748	13-IM-5500	AB05BMP0000223	Aberdeen High School Retention Pond			NEWD	5/29/2019					
AB19BMP000045	2019	675754.2826	1541254.178	13-IM-5500	AB06BMP0000018	Aberdeen Shopping Plaza Maintenance Bldg	S	XDED	NEWD	12/14/2018					
AB19BMP000046	2019	665069.9999	1538512	13-IM-5500	AB06BMP0000020	Action Electric Lot 8	S	WQ Basin	NEWD	1/23/2019					
AB19BMP000047	2019	665073.9999	1538537	13-IM-5500	AB06BMP0000024	Action Electric Lot 8	S	FSND	NEWD	1/23/2019					
AB19BMP000048	2019	677456	1542705	13-IM-5500	AB06BMP0000027	Applebees Redevelopment Impervious Reduction	A	IMPP	NEWD	2/27/2019					
AB19BMP000049	2019	678658.58	1542626.38	13-IM-5500	AB06BMP0000045	Catholic Charities	S	XDED	NEWD	7/25/2012					
AB19BMP000050	2019	679240.0001	1546790	13-IM-5500	AB06BMP0000117	Lauren's Grace	S	XDED	NEWD	3/20/2019					
AB19BMP000051	2019	673732.9999	1549418	13-IM-5500	AB06BMP0000166	WaWa			NEWD	6/27/2012					
AB19BMP000052	2019			13-IM-5500	AB06BMP0000201	Parke Street 141#3 ( All Access Fitness)	S	XOTH	NEWD	3/24/2014					
AB19BMP000053	2019			13-IM-5500	AB06BMP0000202	Parke Street 141# 2 (All Access Fitness)	S	XOTH	NEWD	3/24/2014					
AB19BMP000054	2019			13-IM-5500	AB06BMP0000203	Parke Street 141#1 ( All Access Fitness)	S	XOTH	NEWD	3/24/2014					
AB19BMP000055	2019	665069.9999	1538512	13-IM-5500	AB06BMP0000215	Action Electric Lot 8	S	Pretreatment Forebay	NEWD	1/23/2019					
AB19BMP000056	2019	665069.9999	1538512	13-IM-5500	AB06BMP0000216	Action Electric Lot 8 1050 Hardees Drive	S	WQ Swale	NEWD	1/23/2019					
AB19BMP000057	2019	667842.9569	1544767.177	13-IM-5500	AB07BMP0000022	Aberdeen Station WQ Under Ground Facility	S	WQ Under *	NEWD	3/5/2019					
AB19BMP000058	2019	674611.1629	1540986.247	13-IM-5500	AB07BMP0000047	Chapel Crossing Pond	S	XDED	NEWD	10/4/2019					
AB19BMP000059	2019	668275.1201	1545209.05	13-IM-5500	AB07BMP0000085	Golden Corral (Pond)	S	XDED	NEWD	3/5/2019					
AB19BMP000060	2019	666463.9571	1540353.157	13-IM-5500	AB07BMP0000086	Greenway Business Park	S	XDED	NEWD						
AB19BMP000061	2019	666397.5277	1540387.361	13-IM-5500	AB07BMP0000087	Greenway Business Park	S	ITRN	NEWD						
AB19BMP000062	2019	677268.7019	1547908.031	13-IM-5500	AB07BMP0000106	Hillcrest/Windemere	S	XDED	NEWD						
AB19BMP000063	2019	677371.9999	1544084	13-IM-5500	AB07BMP0000121	Middleton Holdings	S	WPWS	NEWD						
AB19BMP000064	2019	667658.8589	1544949.764	13-IM-5500	AB07BMP0000163	Walmart Pond 2	S	XDED	NEWD	8/22/2012					
AB19BMP000065	2019	667319.102	1545654.065	13-IM-5500	AB07BMP0000164	Walmart Pond 3	S	XDED	NEWD						

Table B.1.a. BMP Reporting Requirements

BMP_ID	REPORTING_YEAR	MD_NORTH	MD_EAST	PERMIT_NUM	LOCAL_BMP_ID	BMP_NAME	BMP_CLASS	BMP_TYPE	CON_PURPOSE	LAST_INSP_DATE	BMP_STATUS	MAIN_DATE	REINSP_DATE	REINSP_STATUS	GEN_COMMENTS
AB19BMP000066	2019	677868.41	1549066.37	13-IM-5500	AB07BMP000170	Windemere Sect 5 Pond A (1.0 acres)	S	XDED	NEWD						
AB19BMP000067	2019	679040.4631	1547488.486	13-IM-5500	AB07BMP000171	Windemere Sect 5 Pond B (0.489 acres)	S	XDED	NEWD	8/20/2015					
AB19BMP000068	2019	675840.2201	1541192.98	13-IM-5500	AB08BMP000017	Aberdeen Shopping Office Plaza Retrofit of ASP Maint Bldg	S	FSND	NEWD	12/14/2018					
AB19BMP000069	2019	677410.0001	1542907	13-IM-5500	AB08BMP000056	Dunkin Donuts Beards Hill Plaza	A	IMPP	NEWD	2/27/2019					
AB19BMP000070	2019	671338.57	1550971.16	13-IM-5500	AB08BMP000088	Halls Cross Roads Elementary School WQ #1	E	MSWG	NEWD						
AB19BMP000071	2019	671338.57	1550971.16	13-IM-5500	AB08BMP000089	Halls Cross Roads Elementary School WQ #2	E	MSWG	NEWD						
AB19BMP000072	2019	672051.5499	1549511.37	13-IM-5500	AB08BMP000131	North Post Commons SWM Facility #1	S	XDED	NEWD	9/18/2012					
AB19BMP000073	2019	672083.3799	1549487.46	13-IM-5500	AB08BMP000132	North Post Commons WQ Facility #2	S	FSND	NEWD	9/18/2012					
AB19BMP000074	2019	672142.03	1549613.44	13-IM-5500	AB08BMP000133	North Post Commons WQ Facility #3	S	FSND	NEWD	9/18/2012					
AB19BMP000075	2019	672025.05	1549473.54	13-IM-5500	AB08BMP000134	North Post Commons WQ Facility #4	S	FSND	NEWD	9/18/2012					
AB19BMP000076	2019	682114.37	1555879.26	13-IM-5500	AB08BMP000177	Woods at Rock Glenn WQ 2	S	XDED	NEWD	11/28/2011					
AB19BMP000077	2019	681631.16	1555051.54	13-IM-5500	AB08BMP000178	Woods at Rock Glenn WQ 3	S	XDED	NEWD	11/28/2011					
AB19BMP000078	2019	673392.9202	1541845.754	13-IM-5500	AB08BMP000181	Woodland Green			NEWD	10/4/2019					
AB19BMP000079	2019	681519.2541	1541629.082	13-IM-5500	AB08BMP000195	Ripken Center Yankee Stadium WQ	S	ITRN	NEWD	6/20/2018					
AB19BMP000080	2019	675824	1542823	13-IM-5500	AB09BMP000028	Ashas Hotel	S	XDED	NEWD	2/22/2019					
AB19BMP000081	2019	676043.9999	1542814	13-IM-5500	AB09BMP000029	Ashas Hotel	S	FSND	NEWD	2/22/2019					
AB19BMP000082	2019	671948.9336	1552555.872	13-IM-5500	AB10BMP000189	AWWTP Reinforced Turf Area	S	FBIO	NEWD	3/13/2018					
AB19BMP000083	2019	672667.2327	1553309.006	13-IM-5500	AB10BMP000190	Stabilize Stormwater Outfall	E	MSWG	NEWD						
AB19BMP000084	2019	672638.7774	1552843.025	13-IM-5500	AB10BMP000191	AWWTP Stormwater Bioretention Basin (BRB-1)	S	FBIO	NEWD	3/13/2018					
AB19BMP000085	2019	672610.4116	1553182.477	13-IM-5500	AB10BMP000192	AWWTP Stormseptor 450i	S	FBIO	NEWD	4/2/2018					
AB19BMP000086	2019	668096.6999	1544703.925	13-IM-5500	AB11BMP000021	Aberdeen Station (aka Happy Harry's)	S	XDED	NEWD	3/5/2019					
AB19BMP000087	2019	667386.9998	1543901	13-IM-5500	AB11BMP000061	Edmund Street Booster Station	S	XDED	NEWD	3/5/2018					
AB19BMP000088	2019	677976	1544413	13-IM-5500	AB11BMP000218	Aberdeen Station (aka Happy Harry's)	S	Swale	NEWD	3/5/2019					
AB19BMP000089	2019	670306.0731	1553193.073	13-IM-5500	AB12BMP000129	North Gate Business Park Pond 2			NEWD						
AB19BMP000090	2019	672443.6	1547604.97	13-IM-5500	AB12BMP000208	Grace United Methodist Church Rain Garden #3			NEWD	12/11/2018					
AB19BMP000091	2019	672315.96	1547546.84	13-IM-5500	AB12BMP000209	Grace United Methodist Church Rain Garden #1			NEWD	12/11/2018					
AB19BMP000092	2019	667809	1546515	13-IM-5500	AB13BMO000065	Ferrell Fuel WQ Facility #1	S	FSND	NEWD	12/11/2018					
AB19BMP000093	2019	667937.0001	1546543	13-IM-5500	AB13BMP000066	Ferrell Fuel WQ Facility #2	S	FSND	NEWD	12/11/2018					
AB19BMP000094	2019	666648.96	1543359.35	13-IM-5500	AB13BMP000112	Home2 (Aberdeen Xchange Lot 4)		Recharge *	NEWD						
AB19BMP000095	2019	667034.9999	1544035	13-IM-5500	AB13BMP000162	Walmart Pond 1			NEWD	8/22/2012					
AB19BMP000096	2019	680322.7699	1558257.13	13-IM-5500	AB14BMP000068	Fields at Rock Glenn Facility #2	S	XDED	NEWD	4/8/2013					
AB19BMP000097	2019	667235.0001	1540335	13-IM-5500	AB14BMP000070	Frito-Lay Hickory Ridge lot 2 Micro-Bioretention MB 1	S	MMBR	NEWD	11/2/2018					
AB19BMP000098	2019	667235.0001	1540335	13-IM-5500	AB14BMP000071	Frito-Lay Hickory Ridge lot 2 Micro-Bioretention MB 2	S	MMBR	NEWD	11/2/2018					
AB19BMP000099	2019	667235.0001	1540335	13-IM-5500	AB14BMP000072	Frito-Lay Hickory Ridge lot 2 Micro-Bioretention MB 3	S	MMBR	NEWD	11/2/2018					
AB19BMP000100	2019	667373.889	1541010.695	13-IM-5500	AB14BMP000073	Frito-Lay Hickory Ridge lot 2 Micro-Bioretention MB 4	S	MMBR	NEWD	11/2/2018					
AB19BMP000101	2019	667307.9167	1540962.778	13-IM-5500	AB14BMP000074	Frito-Lay Hickory Ridge lot 2 Micro-Bioretention MB 5	S	MMBR	NEWD	11/2/2018					
AB19BMP000102	2019	667260.6947	1540893.333	13-IM-5500	AB14BMP000075	Frito-Lay Hickory Ridge lot 2 Micro-Bioretention MB 6	S	MMBR	NEWD	11/2/2018					
AB19BMP000103	2019	667227.3614	1540766.944	13-IM-5500	AB14BMP000076	Frito-Lay Hickory Ridge lot 2 Micro-Bioretention MB 7	S	MMBR	NEWD	11/2/2018	5/20/2019				
AB19BMP000104	2019	667246.1113	1540616.25	13-IM-5500	AB14BMP000077	Frito-Lay Hickory Ridge lot 2 Micro-Bioretention MB 8	S	MMBR	NEWD	11/2/2018					
AB19BMP000105	2019	667414.1668	1540541.25	13-IM-5500	AB14BMP000079	Frito-Lay Hickory Ridge lot 2 Micro-Bioretention MB 10	S	MMBR	NEWD	11/2/2018					
AB19BMP000106	2019	667235.0001	1540335	13-IM-5500	AB14BMP000080	Frito-Lay Hickory Ridge lot 2 Micro-Bioretention MB 11	S	MMBR	NEWD	11/2/2018					
AB19BMP000107	2019	667235.0001	1540335	13-IM-5500	AB14BMP000081	Frito-Lay Hickory Ridge lot 2 Micro-Bioretention MB 12	S	MMBR	NEWD	11/2/2018					
AB19BMP000108	2019	673752.9999	1556036	13-IM-5500	AB14BMP000107	Highland Commons, The Village of Pond 1	S	XDED	NEWD						
AB19BMP000109	2019	670735.5581	1550335.194	13-IM-5500	AB14BMP000187	Boys \$ Girls Club Baseball Field Micro Bioretention	S	FBIO	NEWD	3/5/2018					
AB19BMP000110	2019	670768.7943	1550408.627	13-IM-5500	AB14BMP000196	Boys n Girls Club Non rooftop disconnect area	E	NDNR	NEWD	3/5/2018					
AB19BMP000111	2019	677676.5	1542278.02	13-IM-5500	AB14BMP000210	Firestone StormCeptor STC 450i	S			12/12/2018					
AB19BMP000112	2019			13-IM-5500	AB14BMP000212	Corner at Beards Hill Bioretention Facility 1	S		NEWD	10/30/2018					
AB19BMP000113	2019			13-IM-5500	AB14BMP000213	Corner at Beards Hill Bioretention Facility 1	S		NEWD	10/30/2018					
AB19BMP000114	2019	676750	1542250	13-IM-5500	AB15BMP000219	Chic Fil A Micro Bioretention 1		MMBR	NEWD	2/22/19					
AB19BMP000115	2019	676750	1542250	13-IM-5500	AB15BMP000220	Chic Fil A Pervious Concrete 2			NEWD	2/22/19					
AB19BMP000116	2019	676750	1542250	13-IM-5500	AB15BMP000221	Chic Fiil A Micro Bioretention 3		MMBR	NEWD	2/22/19					
AB19BMP000117	2019	676750	1542250	13-IM-5500	AB15BMP000222	Chic Fil A Micro Bioretention 4		MMBR	NEWD	2/22/19					
AB19BMP000118	2019	677858.97	1542388.56	13-IM-5500	AB16BMP000173	Windy Hill Business Park	S	XDED	NEWD	10/30/2018					
AB19BMP000119	2019	676063.9999	1544790	13-IM-5500	AB17BMP000004	Aberdeen Corporate Park Recharge Trench 1	S	ITRN	NEWD	7/23/2018					
AB19BMP000120	2019	676456.0001	1544898	13-IM-5500	AB17BMP000005	Aberdeen Corporate Park Recharge Trench 2	S	ITRN	NEWD	7/23/2018					
AB19BMP000121	2019	677999.9999	1542000	13-IM-5500	AB17BMP000050	Comfort Suites	S	XDED	NEWD						
AB19BMP000122	2019	665757.4122	1543701.183	13-IM-5500	AB17BMP000113	Horne Construction	S	XDED	NEWD						
AB19BMP000123	2019	669579.1543	1552848.686	13-IM-5500	AB17BMP000126	North Gate Business Park Pond 1	S	XDED	NEWD						
AB19BMP000124	2019	669508.8394	1552870.524	13-IM-5500	AB17BMP000127	North Gate Business Park Pond 1 Sand Filter	S	FSND	NEWD						
AB19BMP000125	2019	669725.2153	1552579.556	13-IM-5500	AB17BMP000128	North Gate Business Park Pond 1 UG Recharge Trench	S	FSND	NEWD						
AB19BMP000126	2019	671503.2898	1552772.42	13-IM-5500	AB17BMP000130	North Gate Business Park Pond 3	S	XDED	NEWD						
AB19BMP000127	2019	673617.6301	1549735.09	13-IM-5500	AB17BMP000174	Winston's Choice Pond 1	E	MIDW	NEWD	12/212016					
AB19BMP000128	2019	673010.0001	1549188	13-IM-5500	AB17BMP000175	Winston's Choice Pond 2	E	MIDW	NEWD	3/9/2018					
AB19BMP000129	2019	683371.6601	1540311.3	13-IM-5500	AB18BMP000057	Eagles Rest Pond 1	S	XDED	NEWD						
AB19BMP000130	2019	684430.3801	1540263.39	13-IM-5500	AB18BMP000058	Eagles Rest Pond 2	S	XDED	NEWD	1/25/2019					
AB19BMP000131	2019	683541.8799	1540129.1	13-IM-5500	AB18BMP000059	Eagles Rest Pond 3	S	XDED	NEWD	1/25/2019					

Table B.1.a. BMP Reporting Requirements

BMP_ID	REPORTING_YEAR	MD_NORTH	MD_EAST	PERMIT_NUM	LOCAL_BMP_ID	BMP_NAME	BMP_CLASS	BMP_TYPE	CON_PURPOSE	LAST_INSP_DATE	BMP_STATUS	MAIN_DATE	REINSP_DATE	REINSP_STATUS	GEN_COMMENTS
AB19BMP000132	2019	683736.1299	1538736.73	13-IM-5500	AB18BMP000060	Eagles Rest Pond 4	S	XDED	NEWD	1/25/2019					
AB19BMP000133	2019	678945.65	1555915.12	13-IM-5500	AB18BMP000067	Fields at Rock Glenn Facility #1	S	XDED	NEWD						
AB19BMP000134	2019			13-IM-5500	AB19BMP0000211	Frito Lay Lot 2 Submerged Gravel Wetlands 2	E	MSGW	NEWD	11/2/2018					
AB19BMP000135	2019	670834.9998	1545002	13-IM-5500	AB75BMP000142	Parrotta Subdivision lots 1-2	S	WQ type k*	NEWD						
AB19BMP000136	2019	670938.6489	1543059.948	13-IM-5500	AB81BMP000043	Burton Manor	S	XDED	NEWD	3/27/2008					
AB19BMP000137	2019	676347.3021	1541673.083	13-IM-5500	AB85BMP000039	Beards Hill Park SWM Pond (lots 1-6 )	S	XDED	NEWD	10/31/2018					
AB19BMP000138	2019	677077.8381	1543501.223	13-IM-5500	AB86BMP000040	Beards Hill Plaza	S	XDED	NEWD	2/22/2019					
AB19BMP000139	2019	669575.0001	1547020	13-IM-5500	AB87BMP000001	Aberdeen Automotive Store (Auto Zone)	S	ITRN	NEWD	2/22/2019					
AB19BMP000140	2019	671759.1361	1548423.83	13-IM-5500	AB89BMP000026	Amtrak/American Investment	S	ITRN	NEWD						
AB19BMP000141	2019	672609.9999	1547150	13-IM-5500	AB89BMP000035	Bargainer Business Center	S	ITRN	NEWD	1/25/2013					
AB19BMP000142	2019	676250.0002	1548750	13-IM-5500	AB89BMP000036	Bar-Kess Apartments	S	XDED	NEWD	1/31/2017					
AB19BMP000143	2019	681740	1547210	13-IM-5500	AB89BMP000063	Evangelical Assembly of GOD	S	ITRN	NEWD	1/23/2019					
AB19BMP000144	2019	665590.0002	1539780	13-IM-5500	AB89BMP000091	Hardee's Ind Pk Lot 1	S	XDED	NEWD	1/23/2019					
AB19BMP000145	2019	673721	1548898	13-IM-5500	AB89BMP000114	Ice House Liquors	S	ITRN	NEWD	1/21/2009					
AB19BMP000146	2019	667460.1539	1541973.383	13-IM-5500	AB89BMP000149	Red Roof Inn		UG Detens*	NEWD	2/27/2019					
AB19BMP000147	2019	678290	1549130	13-IM-5500	AB89BMP000172	Windemere Sect 5 WQ	S	WQ Basin	NEWD	8/20/2015					
AB19BMP000148	2019	678450.5076	1548387.152	13-IM-5500	AB89BMP000185	Windmere Estates Pond 1	S	XDED	NEWD						
AB19BMP000149	2019	675288.4096	1550650.493	13-IM-5500	AB90BMP000038	Bay Country Rentals	E	MSWG	NEWD	1/10/2013					
AB19BMP000150	2019	664109.9998	1541780	13-IM-5500	AB90BMP000051	Cranberry Run Business Center	S	XDED	NEWD	10/18/2018					
AB19BMP000151	2019	678998.9999	1543189	13-IM-5500	AB90BMP000062	Eighty Four Lumber	S	XDED	NEWD	7/26/2018					
AB19BMP000152	2019	674485.0001	1551180	13-IM-5500	AB90BMP000125	North Deen Townhouses	S	XDED	NEWD	1/31/2017					
AB19BMP000153	2019	676377.2801	1542529.75	13-IM-5500	AB90BMP000158	Super 8 Motel		XDPD	NEWD	1/16/2009					
AB19BMP000154	2019			13-IM-5500	AB90BMP000197	Mars Shopping Plaza Pond # 2	S	PWET	NEWD	2/22/2019					
AB19BMP000155	2019	665605.4483	1543888.836	13-IM-5500	AB91BMP000011	Aberdeen Industrial Center Lot 2b (Ryder Truck Rental)	S	WQ	NEWD	1/10/2019					
AB19BMP000156	2019	665161	1538621	13-IM-5500	AB91BMP000031	Automotive Machine Screw (Hardees Ind Park Lot 9)	S	ITRN	NEWD	1/23/2019					
AB19BMP000157	2019	675430.6399	1541740.653	13-IM-5500	AB91BMP000083	Genesis Trucking (aka Over&Sons)	S	XDED	NEWD						
AB19BMP000158	2019	665280.0001	1538295	13-IM-5500	AB91BMP000095	Hardee's Ind Pk lot 2 (American Equipment)	S	XDED	NEWD	1/23/2019					
AB19BMP000159	2019	665204.4301	1537759.07	13-IM-5500	AB91BMP000096	Hardee's Ind Pk lot 3+6 Pond	S	XDED	NEWD	1/23/2019					
AB19BMP000160	2019	665419.55	1538383.81	13-IM-5500	AB91BMP000097	Hardee's Ind Pk lot 3+6 Recharge Facility		Recharge *	NEWD	1/23/2019					
AB19BMP000161	2019	665200	1537820	13-IM-5500	AB91BMP000098	Hardee's Ind Pk lot 3+ 6 Northcross East	S	FSND	NEWD	1/23/2019					
AB19BMP000162	2019	665069.9999	1537830	13-IM-5500	AB91BMP000099	Hardee's Ind Pk lot 3+ 6	E	MSWG	NEWD	1/23/2019					
AB19BMP000163	2019	672787.9799	1547643.91	13-IM-5500	AB91BMP000123	Mr Tire fka Western Auto	S	ITRN	NEWD	6/21/2016					
AB19BMP000164	2019	664121.53	1543232.58	13-IM-5500	AB91BMP000143	Pier One Imports	S	XDED	NEWD	3/20/2019					
AB19BMP000165	2019	665200	1537820	13-IM-5500	AB91BMP000217	Hardee's Ind Pk lot 3+6 North Cross East			NEWD	1/23/2019					
AB19BMP000166	2019	665905.9999	1544278	13-IM-5500	AB92BMP000032	B&D Trucking Lot 1 + VFE	S	ITRN	NEWD	1/10/2019					
AB19BMP000167	2019	667033.1774	1540486.91	13-IM-5500	AB92BMP000069	Frito-Lay Hickory Ridge lot 2 Pond	S	IBAS	NEWD	11/2/2018					
AB19BMP000168	2019	667323.1945	1540537.083	13-IM-5500	AB92BMP000078	Frito-Lay Hickory Ridge lot 2 Micro-Bioretention MB 9	S	MMBR	NEWD	11/2/2018					
AB19BMP000169	2019	678942.4105	1547980.052	13-IM-5500	AB92BMP000180	Windemere Estates			NEWD						
AB19BMP000170	2019	665660	1538760	13-IM-5500	AB93BMP000092	Hardee's Ind Pk Lot 1 Pond A	S	XDED	NEWD	1/23/2019					
AB19BMP000171	2019	676938.5706	1549401.565	13-IM-5500	AB93BMP000119	Meadows at Bar Kess	S	XDED	NEWD	12/11/2012					
AB19BMP000172	2019	673316.8318	1548489.374	13-IM-5500	AB93BMP000188	Aberdeen Senior Center	S	ITRN	NEWD	8/10/2018					
AB19BMP000173	2019	665541.8451	1543836.964	13-IM-5500	AB94BMP000013	Aberdeen Industrial Center Lot 3a (B.E.K. Services)	S	ITRN	NEWD	1/24/2019					
AB19BMP000174	2019	665377.9399	1541222.559	13-IM-5500	AB94BMP000044	C&S (Camden Cold Storage)AIC Sect 2	S	XDED	NEWD	3/8/2010					
AB19BMP000175	2019			13-IM-5500	AB94BMP000223	Woodland Green		XDED	NEWD	10/4/2019					
AB19BMP000176	2019			13-IM-5500	AB94BMP000224	Woodland Green	S		NEWD	10/4/2019					
AB19BMP000177	2019	665377.5692	1541221.777	13-IM-5500	AB95BMP000010	Aberdeen Industrial Center (Camden Cold Storage)	S	XDED	NEWD	12/5/2018					
AB19BMP000178	2019	676574.5061	1543828.263	13-IM-5500	AB95BMP000157	Shell (Texaco aka Crown Station) Aberdeen Market Place	S	WQ Ext Det	NEWD	7/26/2018					
AB19BMP000179	2019	666150.1129	1544078.956	13-IM-5500	AB95BMP000161	VFW Old Philadelphia Road (Aberdeen Memorial)	S	XDED	NEWD	1/10/2019					
AB19BMP000180	2019	678726.6901	1548931.696	13-IM-5500	AB95BMP000168	Windemere Estates WQ	S	WQ	NEWD	3/1/2017					
AB19BMP000181	2019	677891.615	1549415.614	13-IM-5500	AB95BMP000169	Windemere Estates WQ	S	WQ	NEWD	3/1/2017					
AB19BMP000182	2019	666000.3809	1543988.055	13-IM-5500	AB96BMP000033	B&D Trucking Lot 2	S	ITRN	NEWD	1/10/2019					
AB19BMP000183	2019	676655.7001	1543656.53	13-IM-5500	AB96BMP000042	Bob Evans	S	ITRN	NEWD	8/6/2018					
AB19BMP000184	2019	675497.6001	1544330.1	13-IM-5500	AB96BMP000156	Sam's Paving	S	XDED	NEWD	3/26/2012					
AB19BMP000185	2019	671394.3701	1551915.67	13-IM-5500	AB96BMP000165	Water Quality Enhancement (Step Pool)	A	SPSC	NEWD	1/7/2019					
AB19BMP000186	2019	667235.0001	1540340	13-IM-5500	AB97BMP000064	Fairbrook Senior Housing	S	XDED	NEWD	3/7/2008					
AB19BMP000187	2019	667529.2341	1541661.081	13-IM-5500	AB97BMP000104	Hickory Ridge lot 1 Pond 1b (SAKS 5th Avenue)	S	XDED	NEWD	1/25/2019					
AB19BMP000188	2019	665744.9998	1540697	13-IM-5500	AB97BMP000105	Hickory Ridge lot 3	S	XDED	NEWD	5/17/2017					
AB19BMP000189	2019	669887.922	1547535.232	13-IM-5500	AB97BMP000108	Hinder, Lands of	E	MSWG	NEWD						
AB19BMP000190	2019	676250.0002	1549250	13-IM-5500	AB97BMP000120	Meadows of Bar Kess Townhouses	S	ITRN	NEWD						
AB19BMP000191	2019	676772.6012	1544434.752	13-IM-5500	AB97BMP000159	Target Store SWM (pond and 3 Baysavers)	S	XDED	NEWD	2/22/2019					
AB19BMP000192	2019	668036.5871	1542117.863	13-IM-5500	AB98BMP000103	Hickory Ridge lot 1 Pond 1b (SAKS 5th Avenue)		XDED	NEWD	1/25/2019					
AB19BMP000193	2019	676881.5662	1544150.036	13-IM-5500	AB98BMP000155	Royal Farm Store		XOTH	NEWD	2/22/2019					
AB19BMP000194	2019	664725.9999	1541090	13-IM-5500	AB98BMP000160	T I P Facility ( GE Trailer Fleet Services)	S	XDED	NEWD	1/10/2019					
AB19BMP000195	2019	673360	1548620	13-IM-5500	AB98BMP000176	Woland Dental	S	XDED	NEWD	08/13/2018					
AB19BMP000196	2019	665206.333	1544786.648	13-IM-5500	AB98BMP000204	Aberdeen Industrial Lot 3 (Trap 1)		XOTH	NEWD	1/24/2019					
AB19BMP000197	2019			13-IM-5500	AB98BMP000205	Aberdeen Industrial Lot 3 (Trap 2)	S	XOTH	NEWD	1/24/2019					

Table B.1.a. BMP Reporting Requirements

BMP_ID	REPORTING_YEAR	MD_NORTH	MD_EAST	PERMIT_NUM	LOCAL_BMP_ID	BMP_NAME	BMP_CLASS	BMP_TYPE	CON_PURPOSE	LAST_INSP_DATE	BMP_STATUS	MAIN_DATE	REINSP_DATE	REINSP_STATUS	GEN_COMMENTS
AB19BMP000198	2019			13-IM-5500	AB98BMP000206	Aberdeen Industrial Lot 3 (Trap 3)	S	XOTH	NEWD	1/24/2019					
AB19BMP000199	2019	676212.8519	1543626.914	13-IM-5500	AB99BMP000090	Harco FCU Aberdeen Marketplace lot 5	S	WQ Basin	NEWD	7/26/2018					
AB19BMP000200	2019			13-IM-5500	ABXXBMP000190	Aberdeen WWTP stormwater Bioretention Basin (BRB-2)	S	FBIO	NEWD	3/13/2018					
AB19BMP000201	2019			13-IM-5500	ABXXBMP000198	Walgreens Baysaver	S	XOTH	NEWD	12/14/2018					
AB19BMP000202	2019			13-IM-5500	ABXXBMP000199	Seven Eleven West Bel Air Avenue				7/26/2018					
AB19BMP000203	2019	667235	1154335	13-IM-5500	ABXXBMP000214	Forebay	S		NEWD	11/2/2018					



**Table B.1.b. Reporting Requirements for ESD and Structural Practices**

BMP_ID	NUM_BMPS	ON_OFF_SITE	CONVERTED_FROM	BMP_STATUS	BMP_DRAIN_AREA	IMP_ACRES	PE_ADR	APPR_DATE	BUILT_DATE	GEN_COMMENTS
AB19BMP000001	1			ACT	16.60	6.81	0.00		8/18/2000	
AB19BMP000002	1			ACT	30.85	17.08	0.50		6/1/2000	
AB19BMP000003	1			ACT	0.95	0.78	0.40		3/22/2000	
AB19BMP000004	1			ACT	3.11	0.6			6/1/2000	
AB19BMP000005	1			ACT	4.48	1.54	2.00		6/1/2000	
AB19BMP000006	1			ACT					6/1/2000	
AB19BMP000007	1			ACT	3.00	2.55	0.30		2/14/2000	
AB19BMP000008	1			ACT					2/14/2000	
AB19BMP000009	1			ACT	46.18	2.72			10/12/2001	
AB19BMP000010	1			ACT	6.63	3.13	0.00		6/1/2001	
AB19BMP000011	1			ACT	34.60	2.89	1.00		2/11/2002	
AB19BMP000012	1			ACT					2/11/2002	
AB19BMP000013	1			ACT					2/11/2002	
AB19BMP000014	1			ACT					2/11/2002	
AB19BMP000015	1			ACT	5.49	4.33	0.50		1/24/2002	
AB19BMP000016	1			ACT	198.34	48.53			2/11/2002	
AB19BMP000017	1			ACT	2.09	1.39	1.00		12/30/2003	
										Never constructed as a sand filter.
AB19BMP000019	1			ACT	7.25	3.99	2.10		1/24/2015	Retrofitted GP #14-06
AB19BMP000020	1			ACT	17.38	4.18	2.40		5/20/2003	
AB19BMP000021	1			ACT	10.37	6.26			1/24/2015	
AB19BMP000022	1			ACT	13.70	5.60			1/1/2004	
AB19BMP000023	1			ACT	5.23	0.52	2.60		9/9/2004	
AB19BMP000024	1			ACT	4.73	0.01	0.00		9/9/2004	
AB19BMP000025	1			ACT	0.72	0.08	0.00		9/9/2004	
AB19BMP000026	1			ACT	0.47	0.00	0.00		9/9/2004	
AB19BMP000027	1			ACT	2.685	2.301	2.7		9/1/1992	
AB19BMP000031	1			ACT					10/12/2004	
AB19BMP000032	1			ACT					10/12/2004	
AB19BMP000033	1			ACT	0.31	0.10	1.00		6/1/2004	
AB19BMP000034	1				21.61	17.24			9/2/2004	
AB19BMP000035	1			ACT		0.49			12/30/2005	
AB19BMP000036	1			ACT					7/2/1905	
AB19BMP000038	1			ACT	10.39	5.56	0.00		6/1/2005	
AB19BMP000039	1			ACT	0.66	0.65	0.20		10/10/2005	
AB19BMP000040	1			ACT	0	0			6/22/1905	
AB19BMP000041	1			ACT	0	0			6/23/1905	
AB19BMP000042	1			ACT	0.78	0.15	0.70		6/1/2005	
AB19BMP000043	1			ACT	5.38	1.21	1.50		12/15/2005	
AB19BMP000045	1			ACT		2.5			1/23/2006	
AB19BMP000046	1			ACT					1/26/2006	
AB19BMP000047	1			ACT					1/26/2006	
AB19BMP000049	1			ACT					6/1/2006	
AB19BMP000050	1			ACT					7/5/2006	

**Table B.1.b. Reporting Requirements for ESD and Structural Practices**

BMP_ID	NUM_BMPS	ON_OFF_SITE	CONVERTED_FROM	BMP_STATUS	BMP_DRAIN_AREA	IMP_ACRES	PE_ADR	APPR_DATE	BUILT_DATE	GEN_COMMENTS
AB19BMP000052	1			ACT					12/12/2006	
AB19BMP000053	1			ACT					12/12/2006	
AB19BMP000054	1			ACT					12/12/2006	
AB19BMP000055	1									
AB19BMP000056	1			ACT					1/25/2006	
AB19BMP000057	1			ACT		12.44			8/1/2007	
AB19BMP000058	1			ACT					5/18/2007	
AB19BMP000059	1			ACT					6/1/2007	
AB19BMP000060	1			ACT					6/1/2007	
AB19BMP000061	1			ACT					6/1/2007	
AB19BMP000062	1			ACT					6/18/2007	
AB19BMP000063	1			ACT	4.58				9/12/2007	
AB19BMP000064	1			ACT		4.98			12/30/2007	
AB19BMP000065	1			ACT		11.62			12/30/2007	
AB19BMP000066	1			ACT					8/10/2007	
AB19BMP000067	1			ACT					8/10/2007	
AB19BMP000068	1			ACT					5/8/2008	
AB19BMP000070	1			ACT					2/14/2008	
AB19BMP000071	1			ACT					2/14/2008	
AB19BMP000072	1			ACT					1/4/2008	
AB19BMP000073	1			ACT					1/4/2008	
AB19BMP000074	1			ACT					1/4/2008	
AB19BMP000075	1			ACT					1/4/2008	
AB19BMP000076	1			ACT					1/28/2008	
AB19BMP000077	1			ACT					1/28/2008	
AB19BMP000079	1			ACT					4/3/2008	
AB19BMP000080	1			ACT					9/28/2009	
AB19BMP000081	1			ACT					9/28/2009	
AB19BMP000082	1			ACT					5/28/2010	
AB19BMP000083	1			ACT					5/28/2010	
AB19BMP000084	1			ACT					5/28/2010	
AB19BMP000085	1			ACT					5/13/2010	
AB19BMP000086	1			ACT		12.44			10/17/2011	
AB19BMP000087	1			ACT					6/1/2011	
AB19BMP000088	1			ACT		12.44			10/16/2011	
AB19BMP000092	1			ACT					4/12/2013	
AB19BMP000093	1			ACT					4/12/2013	
AB19BMP000096	1			ACT					8/14/2014	
AB19BMP000097	1			ACT	0.358	0.268	2.7		8/14/2014	
AB19BMP000098	1			ACT	0.331	0.27	2.7		8/14/2014	
AB19BMP000099	1			ACT	0.296	0.221	2.7		8/14/2014	
AB19BMP000100	1			ACT	0.553	0.466	2.7		8/14/2014	
AB19BMP000101	1			ACT	0.553	0.437	2.7		8/14/2014	
AB19BMP000102	1			ACT	0.367	0.252	2.7		8/14/2014	

**Table B.1.b. Reporting Requirements for ESD and Structural Practices**

BMP_ID	NUM_BMPS	ON_OFF_SITE	CONVERTED_FROM	BMP_STATUS	BMP_DRAIN_AREA	IMP_ACRES	PE_ADR	APPR_DATE	BUILT_DATE	GEN_COMMENTS
AB19BMP000103	1			ACT	0.373	0.264	2.7		8/14/2014	
AB19BMP000104	1			ACT	0.435	0.356	2.7		8/14/2014	
AB19BMP000105	1			ACT	0.459	0.373	2.7		8/14/2014	
AB19BMP000106	1			ACT	0.452	0.385	2.7		8/14/2014	
AB19BMP000107	1			ACT	0.41	0.366	1.24		8/14/2014	
AB19BMP000108	1			ACT					12/5/2014	
AB19BMP000109	1			ACT					3/19/2014	
AB19BMP000110	1			ACT					3/19/2014	
AB19BMP000111	1									
AB19BMP000112	1			ACT						
AB19BMP000113	1			ACT						
AB19BMP000118	1			ACT	21.09				12/12/2016	
AB19BMP000119	1			ACT					4/26/2017	
AB19BMP000120	1			ACT					4/26/2017	
AB19BMP000121	1			ACT					7/20/2017	
AB19BMP000122	1			ACT	2.08				4/24/2017	
AB19BMP000123	1			ACT					12/19/2017	
AB19BMP000124	1			ACT					12/19/2017	
AB19BMP000125	1			ACT					12/19/2017	
AB19BMP000126	1			ACT		30.08			10/23/2017	
AB19BMP000127	1			ACT					10/13/2017	
AB19BMP000128	1			ACT	6.51				10/13/2017	
AB19BMP000129	1			ACT					1/9/2018	
AB19BMP000130	1			ACT					1/9/2018	
AB19BMP000131	1			ACT					1/9/2018	
AB19BMP000132	1			ACT					1/9/2018	
AB19BMP000133	1			ACT					4/16/2018	
AB19BMP000134	1			ACT					1/11/2019	
AB19BMP000135	1			ACT					1/1/1975	
AB19BMP000136	1			ACT					6/1/1981	
AB19BMP000137	1			ACT					6/1/1985	
AB19BMP000138	1			ACT		9.52			6/1/1986	
AB19BMP000139	1			ACT		0.4235			11/1/1987	
AB19BMP000140	1			ACT		1.012			6/1/1989	
AB19BMP000141	1			ACT					8/15/1989	
AB19BMP000142	1			ACT					6/1/1989	
AB19BMP000143	1			ACT					6/1/1989	
AB19BMP000144	1			ACT		1.6			6/1/1989	
AB19BMP000145	1			ACT					6/12/1989	
AB19BMP000147	1			ACT					6/1/1989	
AB19BMP000148	1			ACT					1/27/1989	
AB19BMP000149	1			ACT					10/5/1990	
AB19BMP000150	1			ACT					2/19/1990	
AB19BMP000151	1			ACT					2/7/1990	



**Table B.1.b. Reporting Requirements for ESD and Structural Practices**

BMP_ID	NUM_BMPS	ON_OFF_SITE	CONVERTED_FROM	BMP_STATUS	BMP_DRAIN_AREA	IMP_ACRES	PE_ADR	APPR_DATE	BUILT_DATE	GEN_COMMENTS
AB19BMP000152	1			ACT					1/6/1990	
AB19BMP000154	1			ACT					2/12/1990	
AB19BMP000155	1			ACT		2.4			7/1/1991	
AB19BMP000156	1			ACT					10/2/1991	
AB19BMP000157	1			ACT					2/17/1991	
AB19BMP000158	1			ACT		0.375344			6/1/1991	
AB19BMP000159	1			ACT					9/21/1991	
AB19BMP000161	1			ACT					9/21/1991	
AB19BMP000162	1			ACT					9/21/1991	
AB19BMP000163	1			ACT					5/15/1991	
AB19BMP000164	1			ACT					2/15/1991	
AB19BMP000166	1			ACT					1/10/1992	
AB19BMP000167	1			ACT					9/8/1992	
AB19BMP000168	1			ACT	0.475	0.415	2.7		9/1/1992	
AB19BMP000170	1			ACT		4.95			3/3/1993	
AB19BMP000171	1			ACT					9/30/1993	
AB19BMP000172	1			ACT					1/19/1993	
AB19BMP000173	1			ACT		5.45			12/30/1994	
AB19BMP000174	1			ACT		13.13			12/30/1994	
AB19BMP000176	1			ACT		0.2			11/3/2003	
AB19BMP000177	1			ACT		12.9			12/14/1995	
AB19BMP000178	1			ACT					12/21/1995	
AB19BMP000179	1			ACT					2/28/1995	
AB19BMP000180	1			ACT					7/31/1995	
AB19BMP000181	1			ACT					7/31/1995	
AB19BMP000182	1			ACT					3/31/1996	
AB19BMP000183	1			ACT					6/6/1996	
AB19BMP000184	1			ACT					9/12/1996	
AB19BMP000186	1			ACT					6/5/1997	
AB19BMP000187	1			ACT					6/6/1997	
AB19BMP000188	1			ACT					6/6/1997	
AB19BMP000189	1			ACT		0.715			12/30/1997	
AB19BMP000190	1			ACT					5/30/1997	
AB19BMP000191	1			ACT					9/12/1997	
AB19BMP000194	1			ACT					12/17/1998	
AB19BMP000195	1			ACT					6/1/1998	
AB19BMP000197	1			ACT					3/19/1998	
AB19BMP000198	1			ACT					3/19/1998	
AB19BMP000199	1			ACT		0.72			12/30/1999	
AB19BMP000200	1			ACT					5/28/2010	
AB19BMP000201	1								9/5/2017	
AB19BMP000203	1			ACT						

Table B.1.c Reporting Requirements for Alternative BMPs

BMP_ID	PROJECT_DESC	PROJECT_LENGTH	ACRES_SWEPT	TIMES_SWEPT	ACRES_PLANTED	IMP_ACR_ELIM	EQU_IMP_ACR	INSTALL_DATE	IMPL_COMP_YR	GEN_COMMENTS
AB19BMP000037										
AB19BMP000048										
AB19BMP000069										
AB19BMP000185										

## **CITY OF ABERDEEN**

### **NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

#### **GENERAL PERMIT FOR DISCHARGES FROM**

#### **SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS**

General Discharge Permit No. 03-IM-5500 / General NPDES Permit No. MDR055500



## **FISCAL YEAR 2019 ANNUAL REPORT – YEAR 1**

### **ATTACHMENT C**

### **SCOPE OF WORK – APPENDIX D, SECTION I, QUESTION 5**

## **CITY OF ABERDEEN**



### **NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT FOR DISCHARGES FROM SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS** General Discharge Permit No. 13-IM-5500 / General NPDES No. MDR055500

## **FISCAL YEAR 2019 ANNUAL REPORT – YEAR 1**

### **ATTACHMENT C SCOPE OF WORK – APPENDIX D, SECTION I, QUESTION 5**

The following is a summary of impervious area restoration activities planned for Year 2.

#### GIS Analysis and Data Review

Existing data will be analyzed to help pinpoint problem areas and to support the desktop evaluation of restoration improvements completed in subsequent tasks.

#### Visual Watershed Inspection

Visual assessments following standard procedures developed for watershed reconnaissance and restoration will be used, to include a Stream Corridor Assessment (SCA), Neighborhood Site Assessment (NSA), and Hotspot Site Investigation (HSI).

#### Stream Corridor Assessment (SCA)

The SCA (MDNR, 2001) will be completed by walking the stream channel and conducting a visual assessment to locate problem areas within the stream valley, and to identify their correctability, severity, and accessibility.

- Approximately 3 – 6 miles of stream within the City limits will be walked.
- During the assessment, recommended improvements will be noted, along with information needed for concept design, including measurements of bank height and project length.

#### Neighborhood Source Assessment (NSA)

The NSA characterizes residential areas in the watershed and rates the potential severity and type of non-point source pollution from yards, driveways and curbs, rooftops, and common areas.

- GIS data will be reviewed to select a representative set of neighborhoods to be assessed.
- It is assumed that approximately 3.0 square miles of neighborhood area will be assessed throughout the City.
- Recommendations for on-site retrofits, landscaping, and other changes in residential behavior will be provided.
- Every street will be driven to record observations. Survey results will generate recommendations that apply across similar neighborhood types.

### Hotspot Site Investigation (HSI)

The HSI will be used to identify potential stormwater pollution sources, such as gas stations, commercial car washes, vehicle and equipment maintenance facilities, and sites where pesticides, fertilizers, or industrial chemicals may be stored or used. The HSI is targeted towards business, commercial, and industrial areas in the urbanized areas of the watershed.

- Each hotspot will be rated on the likelihood that current site activities are causing stormwater runoff contamination. Recommendations will be provided regarding appropriate follow-up actions, such as education, retrofits, and referral for immediate enforcement.
- It will be assumed that approximately 1.5 square miles of commercial and industrial areas throughout the City will be assessed.

### Identify Restoration Projects

The results of the GIS analysis and field assessments (SCA, NSA, HSI) will be used to identify existing water quality problem areas where restoration projects could be effective. These could include the following:

- Habitat Degradation (forest, wetland, stream).
- Channel Stability (erosion, channel alteration).
- Biological Degradation (poor biological indicators).
- Septic Systems (failed, within Critical Area).
- Water Quality Impairment (untreated runoff, lack of source controls).

Once the issues have been identified, improvement projects will be identified to treat the impairment.

### Field Assessment

A field assessment of up to 30 stormwater sites will be conducted using the Retrofit Reconnaissance Investigation (RRI) published by the Center for Watershed Protection. This assessment will verify the feasibility of the desktop sites and collect sufficient information for subsequent prioritization. The information needed for subsequent prioritization will be provided, including:

- Surface area available and footprint of new treatment.
- Field verification of drainage areas.
- For existing BMPs, size, condition, or problems that may need remediation.

### Concept Reports

In order to compare potential projects and determine which could be most effective at meeting the City's goals, concept design and cost estimate information will be developed for up to 15 potential sites, as follows:

- Calculations for Stormwater Management (SWM) or Environmental Site Design (ESD) systems will be based on default values and criteria from the 2009 MDE SWM Manual. For each SWM or ESD facility, the required treatment volumes for water quality will be calculated assuming 1" of rainfall. Drainage areas will be delineated, and impervious area calculated for sites with proposed new stormwater treatment. The amount of treatment that can be provided will be determined based on the field measurements of available space, retrofit constraints, and other factors, as follows:
  - For retrofits of existing ponds, an estimate of capacity will be made based on the difference between required volume and field measurements or record documents.
  - For new SWM ponds, wetlands, or other storage facilities, estimates will be based on a concept level design, which varies according to surface area and depth to provide the maximum volume within site constraints.
  - Filtration and infiltration facilities will be sized based on typical configurations of depth and infiltration rates to determine the required surface area.
  - Swales and conveyance treatments will be sized similarly, with varying length, width, and side slopes to estimate the maximum volume that can be treated at the site.
- Analysis for stream restoration projects will be developed at a planning-level of detail and will include designs for three types of linear projects:
  - Major changes in planform grade or cross-section.
  - Stabilization with minor changes in channel dimensions.
  - Buffer restoration and reforestation potential.

### Concept Plans

The information above will be provided for review by City staff, and recommendations for the highest priority projects will be discussed. For the 15 selected projects, concept plans will be prepared in the format of 2- to 4-page 8½" x 11" documents without plan sheets. The concept plans will include the following:

- *Narrative Description of Issue to be Addressed:* This section is a short description of the project, including the area to be treated, any existing facilities or treatments in place, or the condition of the stream reach or shoreline to be restored.

- *Purpose of Restoration Activity:* The project description will include a summary of the effects of the proposed improvement. These could include such things as reduction in runoff pollutants, runoff volume, peak flows, or erosive velocities; reduction of channel widening or bank failure; and, habitat improvements.
- *Pollutant Load Reduction Estimate:* Estimates of pollutant load reductions per Best Management Practice (BMP) will be made using a spreadsheet model to estimate runoff loads by land use and secondary loads from septic systems, stream erosion, or other sources. Pollutant removal estimates will be calculated for structural BMPs, ESD, and alternative treatment using the reduction rates from MDE (2014).
- *Site Location Map.* This map is a small inset showing the project site and adjacent roads, sufficient to locate it on a larger area map.
- *Concept Sketch:* For each site, a sketch of the project concept will be prepared in the field on maps prepared from GIS data, which include orthophotography, topography, streams and hydrology, storm drains, and property boundaries.
- *Existing Condition Photos:* Photos of existing conditions will be taken during the field assessment and will be included in the concept plans.
- *Cost Estimates.* Cost estimates will be presented at a basic planning level for the design and construction of the project.
- *Feasibility Assessment for Constructability:* Feasibility will be assessed during the site visit, with review by an Environmental Scientist for constraints such as wetland and forest impacts, and by an Engineer for design constraints such as slope or soils issues. Constructability will also include the following items:
  - Land Ownership - Land ownership will be assessed to the level of the type of ownership (Town, County, State, Federal, private, HOA, other) based on readily available GIS data, but not to the level of researching the particular parcel owner.
  - Construction Access - Access issues will be identified in the field, including assessing impacts to sensitive areas (wetlands, forests, steep slopes, erodible soils, etc.), availability of stockpile and laydown areas, and staging areas for equipment.
  - Erosion and Sediment Control – Erosion and Sediment Control is generally addressed with more detailed designs; however at a conceptual level these issues could affect the phasing of different elements of a project, or the overall limits of disturbance.
  - Utility Conflict - Potential utility conflicts will be identified through review of GIS data, available as-built drawings, and field observations.