



**Quality Assurance Project Plan (QAPP):**

**District of Columbia Best Management Practice  
(BMP) and Point Source Data Management,  
Verification, and Reporting**

Version #8  
*Updated for Reporting Year 2025*

Project ID:

Effective Date: September 2025

EPA Document Control  
Number (DCN): 220064.2

1200 First Street NE  
Washington, DC

## A2. Approval Page

### Concurrence

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## Approval

#### EPA Region 3 Delegated Approving Official

|                                                                                 |                         |
|---------------------------------------------------------------------------------|-------------------------|
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### A3. Table of Contents, Document Format, and Document Control

#### A3.1 Document Format

This Quality Assurance Project Plan (QAPP) was developed in accordance with the U.S. EPA Quality Assurance Project Plan Standard. The order of the elements in this QAPP follows the Standard, as seen in the Table of Contents. The QAPP is also in accordance with the U.S. EPA Region 3 Quality Management Plan, DCN R3QMP001-20200601.

#### A3.2 Document Control

This table (**Table A3-1**) shows changes to this controlled document over time.

**Table A3-1: QAPP Versions**

| DCN Version  | Changes                                                                                                                                                                                                                                          | Effective Date       |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| DCN 220064.3 | Comprehensive update                                                                                                                                                                                                                             | Draft                |
| DCN 220064.2 | <ul style="list-style-type: none"><li>Updated format to align with EPA QAPP guidance.</li><li>Updated DOEE organizational structure.</li><li>Clarified references to DOEE's stormwater database by replacing with database name (SGS).</li></ul> | Anticipated Jan 2025 |
| Revision 6   | DCN added to title page and EPA Region 3 contacts updated per EPA request. Content related to tree plantings has also updated throughout.                                                                                                        | December 2023        |
| Revision 5   | Title Page and Approval Sheet replaced the Final QA Signature Page Template provided by the Chesapeake Bay Program. Contact info updated in Table A8-1. Updates made to content regarding street sweeping (Pgs 7-8, 28, and 33-35).              | January 2023         |
| Revision 4   | Updates made to erosion and sediment control (pg 64 and 65)                                                                                                                                                                                      | April 2022           |
| Revision 3   | A6: Project Description <ul style="list-style-type: none"><li>Table A6 (2.1) – Conservation landscaping added</li><li>Table A6 (2.2) – Catch basin cleaning added</li><li>Section 2<br/>- Catch Basin Cleaning</li></ul>                         | December 2020        |

| DCN Version | Changes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Effective Date |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|             | <p>Definition updated<br/>- Conservation Landscaping<br/>Definition added</p> <ul style="list-style-type: none"> <li>Pg 33- Changed Catch Basin language to update that it is reported to CBP now</li> </ul> <p>A8: Training</p> <ul style="list-style-type: none"> <li>DOEE Data Manager – Update for new Stormwater Database Manager</li> </ul> <p>A9: Documentation and records</p> <ul style="list-style-type: none"> <li>Added Bayscaping inspection forms</li> </ul> <p>Figure B10.1 Reporting Data Flow</p> <ul style="list-style-type: none"> <li>Changed image to reflect data from DC water and new process for Catch Basin, Trees, Street Sweeping going into SWDB</li> </ul> <p>Table D1(a) – (page 2 of table)</p> <ul style="list-style-type: none"> <li>Updates to catch basin cleaning and street sweeping QA information.</li> </ul> |                |
| Revision 2  | Unknown                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Unknown        |
| Revision 1  | Unknown                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Unknown        |

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## **A4. Project Purpose, Problem Definition, and Background**

### **A4.1 Purpose and Problem Definition**

As a part of its Chesapeake Bay Program (CBP) commitments, the District of Columbia reports its nutrient and sediment load reduction activities, and those of federal agencies within its borders, to the Environmental Protection Agency, CBP Office. The Department of Energy & Environment (DOEE) is the District government agency tasked with collecting this information and verifying that it is correct.

The purpose of this Quality Assurance Project Plan (QAPP) is to document:

- How the District of Columbia collects information on the BMPs installed throughout the city for CBP reporting purposes;
- How the District maintains the database of BMPs installed;
- How the District performs quality assurance/quality control (QA/QC) to identify and replace inaccurate and missing data;
- How the District tracks the maintenance, verification and removal of installed BMPs; and
- How the District reports BMP data to the CBP.

### **A4.2 Background**

The CBP partnership defined and adopted five principles to guide partners' efforts as they build on existing local, state and federal practice tracking and reporting systems and make enhancements to their BMP verification programs (**Table A4.2-1**).

Table A4.2 - 1: Chesapeake Bay BMP Verification Principles

| <b>Principle</b>   | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Practice Reporting | Affirms that verification is required for practices, treatments and technologies reported for nitrogen, phosphorus and/or sediment pollutant load reduction credit through the Bay Program. This principle also outlines general expectations for BMP verification protocols.                                                                                                                                                                           |
| Scientific Rigor   | Asserts that BMP verification should assure effective implementation through scientifically rigorous and defensible, professionally established and accepted sampling, inspection and certification protocols. Recognizes that BMP verification shall allow for varying methods of data collection that balance scientific rigor with cost-effectiveness and the significance of or priority placed upon the practice in achieving pollution reduction. |

| Principle           | Description                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Public Confidence   | Calls for BMP verification protocols to incorporate transparency in both the processes of verification and tracking and reporting of the underlying data. Recognizes that levels of transparency will vary depending upon source sector, acknowledging existing legal limitations and the need to respect individual confidentiality to ensure access to non-cost shared practice data.  |
| Adaptive Management | Recognizes that advancements in practice reporting and scientific rigor, as described above, are integral to assuring desired long-term outcomes while reducing the uncertainty found in natural systems and human behaviors. Calls for BMP verification protocols to recognize existing funding and allow for reasonable levels of flexibility in the allocation or targeting of funds. |
| Sector Equity       | Calls for each jurisdiction's BMP verification program to strive to achieve equity in the measurement of functionality and effectiveness of implemented BMPs among and across the source sectors.                                                                                                                                                                                        |

DOEE has adopted these principles and worked to incorporate them into processes and procedures associated with TMDL reporting. A brief discussion of elements associated with these principles is provided below, with details provided in the appropriate sections of this document:

- Practice Reporting – DOEE has invested significant resources in establishing routine processes, data validations, relationships with staff in federal agencies, and an improved stormwater database (i.e. Surface and Groundwater System (SGS)) enhanced with data elements to support verification.
- Scientific Rigor – DOEE is tracking, inspecting, and reporting individual (verifiable) BMP installations and is committed to performing special studies to verify performance and confirm expert panel assumptions associated with BMP pollution reduction efficiencies. It also provides confidence that reductions can be reliably assigned to the correct sector (MS4, CSS, direct drainage).
- Public Confidence – The majority of DOEE's pollution reduction strategies are implemented through NPDES permits and District stormwater regulations, with program-specific annual reports available to the public.
- Adaptive Management – DOEE's Consolidated TMDL Implementation Plan relies on adaptive management strategies with the goal of meeting TMDL milestones. Examples of anticipated adaptive management strategies are focused implementation efforts in specific watersheds where BMP installation is lagging, continuing improvements in information gathering efforts with federal partners and other District agencies, and pilot



studies to confirm assumptions on pollution reductions. Furthermore, DOEE has demonstrated adaptive management in recent years by modifying processes to implement expert panel recommendations, performing pilot studies for emerging BMPs, and improving tracking reporting mechanisms.

- Sector Equity – DOEE demonstrates sector equity by focusing verification elements on key sectors, point sources, and urban stormwater (including urban tree planting and urban stream restoration). The District has no agricultural sector, no septic sector, and current & past restoration activities, including tree plantings, have been implemented primarily as urban stormwater BMPs.

#### ***Other QA Documents***

This table (**Table A4.2- 2**) lists other QA documents that are related, including Standard Operating Procedures (SOPs) and Chesapeake Bay Program documentation.

Table A4.2 - 2: Other QA Planning Documents that have Relevant Requirements

| Document Title                                                                   | Effective Date | Pertinence to this QAPP                                                         | Document Access Location                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SOP WQD - Annual CBP Reporting BMPs                                              | December 2024  | SOP to be followed for BMP reporting to CBP                                     | DOEE – contact project Quality Assurance Manager                                                                                                                                                                              |
| SOP CBP Point Source Reporting Insignificant Facilities                          | December 2024  | SOP to be followed for Point Source reporting to CBP; referenced in Section 6.2 | DOEE – contact project Quality Assurance Manager                                                                                                                                                                              |
| Phase 6 NEIEN Appendix                                                           | Phase 6        | Referenced in Section B1                                                        | <a href="https://s3.us-east-1.amazonaws.com/cast-reports.chesapeakebay.net/public/NEIEN_NPS_BMP_P6_APPENDIX.xlsx">https://s3.us-east-1.amazonaws.com/cast-reports.chesapeakebay.net/public/NEIEN_NPS_BMP_P6_APPENDIX.xlsx</a> |
| Point Source Data Set Rules                                                      | Phase 6        | Referenced in Section B1                                                        | <a href="https://pointsource.chesapeakebay.net/Home/About">https://pointsource.chesapeakebay.net/Home/About</a>                                                                                                               |
| U.S. EPA Quality Assurance Project Plan Standard (Directive No: CIO 2105-S-02.0) | July 18, 2023  | QAPP developed in accordance with                                               | <a href="https://www.epa.gov/system/files/documents/2024-04/quality_assurance_project_plan_standard.pdf">https://www.epa.gov/system/files/documents/2024-04/quality_assurance_project_plan_standard.pdf</a>                   |
| U.S. EPA Records Management Policy (CIO 2155.5)                                  | June 9, 2020   | Records managed in accordance with                                              | <a href="https://www.epa.gov/system/files/documents/2021-08/records_management_policy.pdf">https://www.epa.gov/system/files/documents/2021-08/records_management_policy.pdf</a>                                               |
| U.S. EPA Region 3 Quality Management Plan (R3QMP001-2022601)                     | June 1, 2020   | QAPP developed in accordance with                                               | <a href="https://www.epa.gov/sites/default/files/2020-06/documents/r3qmp-final-r3-signatures-2020.pdf">https://www.epa.gov/sites/default/files/2020-06/documents/r3qmp-final-r3-signatures-2020.pdf</a>                       |

## A5. Project Task Description

### A5.1 Project Overview and Schedule

EPA's Chesapeake Bay Total Maximum Daily Load (TMDL) requires the District of Columbia to reduce nutrient and sediment pollutant loads to the Chesapeake Bay. Progress towards nutrient and sediment load reduction targets are evaluated annually using the Chesapeake Assessment and Scenario Tool (CAST), which is maintained and implemented by the Chesapeake Bay Program (CBP).

In order for the data to be incorporated into CAST, the District must annually report on:

- Best management practice (BMP) implementation (Section A5.2); and
- Point source facilities (Section A5.3).

The CBP uses a July 1 – June 30 reporting year and all data submissions due on December 1 each year.

To summarize the activities involved in annual reporting, **Table A5- 2** provides a list of the individual tasks, products, and the annual schedule for completing these tasks. Task details are described in Sections B1 and B2 of this QAPP.

Table A5- 2: Task Schedule and Products

| Project Category   | Task                                                                                                   | Annual Schedule | Product                                                 |
|--------------------|--------------------------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------|
| BMP Implementation | Inspection and maintenance of BMPs installed as part of a stormwater management plan                   | Ongoing         | Inspection and maintenance records                      |
| BMP Implementation | Inspection and maintenance of RiverSmart BMPs                                                          | Ongoing         | Inspection and maintenance records                      |
| BMP Implementation | Send Request for Information (re: BMPs not part of the stormwater management plan) to Federal Agencies | July/August     | Email Request for Information (RFI); Reporting template |
| BMP Implementation | Federal Agencies submit to DOEE any BMPs they wish to report that are not part of a                    | October 1       | Dataset(s)                                              |

| Project Category                                      | Task                                                                                                        | Annual Schedule   | Product                                   |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------------------|
|                                                       | Stormwater Management Plan.                                                                                 |                   |                                           |
| BMP Implementation                                    | Enter all BMP information received from Federal Agencies into Surface and Groundwater System Database (SGS) | October/November  | Updated database                          |
| Point Source Facilities                               | Review Insignificant Point Source Facilities and prepare data submission through CBP point source app.      | October/November  | Preliminary dataset                       |
| BMP Implementation                                    | Export BMP records from SGS as XML; Upload to CBP via NEIEN                                                 | November          | Validation Report                         |
| BMP Implementation                                    | Review validation report(s) and make dataset submission revisions as necessary                              | November          | Preliminary dataset                       |
| BMP Implementation                                    | Submit BMP reporting via NEIEN                                                                              | December 1        | Preliminary data submission               |
| Point Source Facilities                               | Submit Point Source reporting via CBP Point Source App                                                      | December 1        | Preliminary data submission               |
| BMP Implementation <b>and</b> Point Source Facilities | Jurisdiction meetings with EPA/CBP Office                                                                   | Early-mid January | EPA request for revisions (if applicable) |
| BMP Implementation <b>and</b> Point Source Facilities | Any/All reporting revisions due                                                                             | Early February    | Final Data Submission                     |

### ***A5.2 BMP Implementation Data***

The District relies heavily on the implementation of Best Management Practices (BMPs) to reduce pollutant load from non-point sources. BMPs implementation is largely driven by the District's Stormwater Regulations<sup>1</sup> and as required by the District's MS4 permit (NPDES Permit No. DC0000221)<sup>2</sup>. Additional BMPs may also be implemented on a 'voluntary' basis<sup>3</sup>. DOEE uses the Surface and Groundwater System database (SGS) to track all BMPs that are implemented in the District.

Table A5.2 - 1 contains a list of all BMPs implemented in the District recognized by the Chesapeake Bay Program (CBP) and their corresponding CBP BMP name and practice classification.

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<sup>1</sup>[https://doee.dc.gov/sites/default/files/dc/sites/ddoe/page\\_content/attachments/0%20Full%2021%20DCMR%20Chapter%205%20with%20Changes%20Accepted%20-%202020%20Amendments.pdf](https://doee.dc.gov/sites/default/files/dc/sites/ddoe/page_content/attachments/0%20Full%2021%20DCMR%20Chapter%205%20with%20Changes%20Accepted%20-%202020%20Amendments.pdf)

<sup>2</sup> [https://doee.dc.gov/sites/default/files/dc/sites/doee/publication/attachments/final\\_dc\\_ms4\\_permit\\_11-16-23.pdf](https://doee.dc.gov/sites/default/files/dc/sites/doee/publication/attachments/final_dc_ms4_permit_11-16-23.pdf)

<sup>3</sup> 'Voluntary' BMPs, for the purpose of this project and all activities described in this QAPP, are defined to be any BMP that was not installed as part of a stormwater management plan or as required by the District MS4 Permit (NPDES Permit No. DC0000221)<sup>2</sup>.

Table A5.2 - 1: Best Management Practices (BMPs) implemented in the District

| Traditional/<br>Alternative<br>BMP | SGS BMP Name                                         | SGS BMP Group                    | SGS BMP Type                            | SGS BMP<br>Sub-type | Stormwater Management Guidebook<br>Reference              | NEIEN6 BMP Type for CBP<br>Reporting |
|------------------------------------|------------------------------------------------------|----------------------------------|-----------------------------------------|---------------------|-----------------------------------------------------------|--------------------------------------|
| Traditional                        | Bioretention - Enhanced                              | Bioretention                     | Bioretention                            | Enhanced            | Chapter 3, Section 3.6 "Bioretention"                     | Retrofit Runoff Reduction            |
| Traditional                        | Bioretention - Standard                              | Bioretention                     | Bioretention                            | Standard            | Chapter 3, Section 3.6 "Bioretention"                     | Retrofit Runoff Reduction            |
| Traditional                        | Cisterns & Rain Barrels                              | Rainwater Harvesting             | Rainwater harvesting                    |                     | Chapter 3, Section 3.3 "Rainwater Harvesting"             | Retrofit Runoff Reduction            |
| Traditional                        | Conservation Landscaping Practices                   | Bayscaping                       | Bayscaping                              |                     | NA                                                        | Conservation Landscaping Practices   |
| Traditional                        | Impervious Disconnection                             | Impervious Surface Disconnection | Simple disconnection to a pervious area |                     | Chapter 3, Section 3.4 "Impervious Surface Disconnection" | Retrofit Runoff Reduction            |
| Traditional                        | Dry Detention Ponds                                  | Storage                          | Storage                                 |                     | Chapter 3, Section 3.12 "Storage Practices"               | Dry Detention Ponds                  |
| Traditional                        | Dry Swale                                            | Open Channel                     | Dry swale                               |                     | Chapter 3, Section 3.9 "Open Channel Systems"             | Retrofit Runoff Reduction            |
| Traditional                        | Filtering Practices                                  | Filtering System                 | Filtering Systems                       |                     | Chapter 3, Section 3.7 "Filtering Systems"                | Retrofit Stormwater Treatment        |
| Traditional                        | Grass Channel                                        | Open Channel                     | Grass channel                           |                     | Chapter 3, Section 3.9 "Open Channel Systems"             | Retrofit Runoff Reduction            |
| Traditional                        | Green Roofs                                          | Green Roof                       | Green roof                              |                     | Chapter 3, Section 3.2 "Green Roofs"                      | Retrofit Runoff Reduction            |
| Traditional                        | Permeable Pavement - Enhanced                        | Permeable Pavement               | Permeable pavement                      | Enhanced            | Chapter 3, Section 3.5 "Permeable Pavement Systems"       | Retrofit Runoff Reduction            |
| Traditional                        | Permeable Pavement - Standard                        | Permeable Pavement               | Permeable pavement                      | Standard            | Chapter 3, Section 3.5 "Permeable Pavement Systems"       | Retrofit Runoff Reduction            |
| Traditional                        | Proprietary Practice - Retrofit Stormwater Treatment | Proprietary Practice             | Proprietary practice                    |                     | Chapter 3, Section 3.13 "Proprietary Practices"           | Retrofit Stormwater Treatment        |
| Traditional                        | Urban Infiltration Practices                         | Infiltration                     | Infiltration                            |                     | Chapter 3, Section 3.8 "Infiltration"                     | Retrofit Runoff Reduction            |
| Traditional                        | Vegetated Open Channels                              | Open Channel                     | Vegetated Open Channels                 |                     | Chapter 3, Section 3.9 "Open Channel Systems"             | Retrofit Runoff Reduction            |
| Traditional                        | Wet Pond                                             | Ponds                            | Ponds                                   |                     | Chapter 3, Section 3.10 "Ponds"                           | Retrofit Runoff Reduction            |
| Traditional                        | Wet Swale                                            | Open Channel                     | Wet Swale                               |                     | Chapter 3, Section 3.9 "Open Channel Systems"             | Retrofit Runoff Reduction            |
| Traditional                        | Wetland                                              | Wetlands                         | Wetlands                                |                     | Chapter 3, Section 3.11 "Stormwater Wetlands"             | Retrofit Runoff Reduction            |
| Alternative                        | Erosion and Sediment Control Level 1                 | Erosion and Sediment Control     | Erosion and Sediment Control            | Level 1             | NA                                                        | Erosion and Sediment Control Level 1 |
| Alternative                        | Erosion and Sediment Control Level 2                 | Erosion and Sediment Control     | Erosion and Sediment Control            | Level 2             | NA                                                        | Erosion and Sediment Control Level 2 |

|             |                                      |                                |                              |                 |    |                                      |
|-------------|--------------------------------------|--------------------------------|------------------------------|-----------------|----|--------------------------------------|
| Alternative | Erosion and Sediment Control Level 3 | Erosion and Sediment Control   | Erosion and Sediment Control | Level 3         | NA | Erosion and Sediment Control Level 3 |
| Alternative | Narrow Urban Forest Buffer           | Tree Planting and Preservation | Narrow Urban Forest Buffer   |                 | NA | Narrow Urban Forest Buffer           |
| Alternative | Reduction of Impervious Surface      | Impervious Surface Removal     | Impervious Surface Removal   |                 | NA | Retrofit Runoff Reduction            |
| Alternative | Storm Drain Cleaning                 | Storm Drain Cleaning           | Storm Drain Cleaning         | TN              | NA | Storm Drain Cleaning                 |
| Alternative | Storm Drain Cleaning                 | Storm Drain Cleaning           | Storm Drain Cleaning         | TP              | NA | Storm Drain Cleaning                 |
| Alternative | Storm Drain Cleaning                 | Storm Drain Cleaning           | Storm Drain Cleaning         | TSS             | NA | Storm Drain Cleaning                 |
| Alternative | Stream Restoration Urban             | Stream Restoration             | Stream Restoration           | Length Restored | NA | Stream Restoration Urban             |
| Alternative | Stream Restoration Urban             | Stream Restoration             | Stream Restoration           | Protocol 1 TN   | NA | Stream Restoration Urban             |
| Alternative | Stream Restoration Urban             | Stream Restoration             | Stream Restoration           | Protocol 1 TP   | NA | Stream Restoration Urban             |
| Alternative | Stream Restoration Urban             | Stream Restoration             | Stream Restoration           | Protocol 1 TSS  | NA | Stream Restoration Urban             |
| Alternative | Stream Restoration Urban             | Stream Restoration             | Stream Restoration           | Protocol 2 TN   | NA | Stream Restoration Urban             |
| Alternative | Stream Restoration Urban             | Stream Restoration             | Stream Restoration           | Protocol 3 TN   | NA | Stream Restoration Urban             |
| Alternative | Stream Restoration Urban             | Stream Restoration             | Stream Restoration           | Protocol 3 TP   | NA | Stream Restoration Urban             |
| Alternative | Stream Restoration Urban             | Stream Restoration             | Stream Restoration           | Protocol 3 TSS  | NA | Stream Restoration Urban             |
| Alternative | Street Cleaning Practice 1           | Street Sweeping                | Street Cleaning Practice 1   |                 | NA | Street Cleaning Practice 1           |
| Alternative | Street Cleaning Practice 2           | Street Sweeping                | Street Cleaning Practice 2   |                 | NA | Street Cleaning Practice 2           |
| Alternative | Street Cleaning Practice 3           | Street Sweeping                | Street Cleaning Practice 3   |                 | NA | Street Cleaning Practice 3           |
| Alternative | Street Cleaning Practice 4           | Street Sweeping                | Street Cleaning Practice 4   |                 | NA | Street Cleaning Practice 4           |
| Alternative | Street Cleaning Practice 5           | Street Sweeping                | Street Cleaning Practice 5   |                 | NA | Street Cleaning Practice 5           |
| Alternative | Street Cleaning Practice 6           | Street Sweeping                | Street Cleaning Practice 6   |                 | NA | Street Cleaning Practice 6           |
| Alternative | Street Cleaning Practice 7           | Street Sweeping                | Street Cleaning Practice 7   |                 | NA | Street Cleaning Practice 7           |
| Alternative | Street Cleaning Practice 8           | Street Sweeping                | Street Cleaning Practice 8   |                 | NA | Street Cleaning Practice 8           |

|             |                                |                                |                                |  |                                                          |                                |
|-------------|--------------------------------|--------------------------------|--------------------------------|--|----------------------------------------------------------|--------------------------------|
| Alternative | Street Cleaning Practice 9     | Street Sweeping                | Street Cleaning Practice 9     |  | NA                                                       | Street Cleaning Practice 9     |
| Alternative | Street Cleaning Practice 10    | Street Sweeping                | Street Cleaning Practice 10    |  | NA                                                       | Street Cleaning Practice 10    |
| Alternative | Street Cleaning Practice 11    | Street Sweeping                | Street Cleaning Practice 11    |  | NA                                                       | Street Cleaning Practice 11    |
| Alternative | Tree Planting                  | Tree Planting and Preservation | Tree planting                  |  | Chapter 3, Section 3.14 "Tree Planting and Preservation" | Tree Planting                  |
| Alternative | Urban Forest Buffer            | Tree Planting and Preservation | Urban Forest Buffer            |  | NA                                                       | Urban Forest Buffer            |
| Alternative | Urban Forest Planting          | Tree Planting and Preservation | Urban Forest Planting          |  | NA                                                       | Urban Forest Planting          |
| Alternative | Urban Nutrient Management Plan | Urban Nutrient Management Plan | Urban Nutrient Management Plan |  | NA                                                       | Urban Nutrient Management Plan |
| Alternative | Urban Nutrient Management Plan | Urban Nutrient Management Plan | Urban Nutrient Management Plan |  | NA                                                       | Urban Nutrient Management Plan |
| Alternative | Urban Nutrient Management Plan | Urban Nutrient Management Plan | Urban Nutrient Management Plan |  | NA                                                       | Urban Nutrient Management Plan |
| Alternative | Wetland Rehabilitation         | Wetlands                       | Wetland Rehabilitation         |  | NA                                                       | Wetland Rehabilitation         |



### **A5.3 Point Source Data**

DOEE and DC Water shared responsibility for annual reporting to the Chesapeake Bay Program on point source pollution from NPDES facilities in the District of Columbia. Reporting responsibility is based upon whether the facility is considered ‘Significant’ or ‘Insignificant’ as defined in Section 4.4.1 (*Significant and Nonsignificant Municipal and Industrial Facilities*) of the Chesapeake Bay TMDL<sup>4</sup>.

#### **Significant Facilities**

The only ‘significant facility’ in the District is the Blue Plains Wastewater Treatment Facility. This facility is operated by DC Water, who reports directly to the Chesapeake Bay Program regarding this facility. DOEE is not involved in the data collection, management, validation, or reporting activities related to significant facilities and therefore, are not described in this QAPP.

#### **Insignificant Facilities**

There are 7 insignificant facilities with current NPDES permits in the District of Columbia (Table 5.3 - 1). DOEE reviews data submitted to NetDMR by these facilities and reports data to the Chesapeake Bay Program via the CBP’s online Point Source Reporting App.

Table 5.3 - 1: List of Insignificant Facilities and Number of Outfalls at Each

| <b>NPDES ID</b> | <b>Facility Name</b>                                           | <b>Discharge Type</b> | <b>Number of Permitted Outfalls</b> |
|-----------------|----------------------------------------------------------------|-----------------------|-------------------------------------|
| DC0000175       | Bardon Inc., (D/B/A/ Aggregate Industries, aka Super Concrete) | Industrial            | 1                                   |
| DC0000248       | JKF Center for the Performing Arts                             | Industrial            | 1                                   |
| DC0000345       | National World War II Memorial                                 | Industrial            | 1                                   |
| DC0000094       | PEPCO – Benning                                                | Industrial            | 8                                   |
| DC0000019       | Washington Aqueduct                                            | Industrial            | 8                                   |
| DC0000141       | Washington Navy Yard                                           | Industrial            | 11                                  |
| DC0000337       | WMATA – Mississippi Ave DPS                                    | Industrial            | 1                                   |

### **A6. Information/Data Quality Objectives and Performance/Acceptance Criteria**

The data reported by DOEE to the Chesapeake Bay Program will be used to model pollutant load reduction and evaluate progress towards nutrient and sediment load reduction targets.

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<sup>4</sup> [https://www.epa.gov/sites/default/files/2014-12/documents/cbay\\_final\\_tmdl\\_section\\_4\\_final\\_0.pdf](https://www.epa.gov/sites/default/files/2014-12/documents/cbay_final_tmdl_section_4_final_0.pdf)

Typical quality objectives and performance criteria are not applicable for this project as no novel data or information is being generated. The individual data points used by this project are subject to the QA/QC standards and rigor of the program/organization providing the data. The quality objectives of this project therefore are to ensure timely, accurate, and complete data submissions.

#### ***A6.1 Timely Data Submission***

Data should be provided (or readily available) to DOEE for this project in a timely manner for on-time reporting to the Chesapeake Bay Program.

DOEE will ensure all BMP implementation data received by October 1 is reported to the Chesapeake Bay Program on time (typically December 1). BMP implementation data received after October 1 will be reported as soon as practically possible. If data received after October 1 cannot be included in the December 1 data submission, it will be retained and reported in the first subsequent submission possible.

Point source data from insignificant facilities is uploaded by facilities to netDMR based on the frequency/schedule of each facility's individual NPDES permit. DOEE does not anticipate that data will be immediately available on netDMR at the end of the reporting year (July 1 – June 30) and will wait at least 90 days (October 1) before attempting to access missing data directly from a facility.

#### ***A6.2 Accurate Data Submission***

Although individual data point QA/QC is ultimately the responsibility of the data provider (Section B2), DOEE strives to ensure that all data entered into and managed within the Surface and Groundwater System (SGS) database is accurate (Section B3). Such activities and safeguards include:

- SGS validations and governance processes to minimize data entry error
- Confirmation by DOEE plan reviewers that all calculations, designs, and plans are consistent with the stormwater regulations
- On-site inspections with as-built documents to confirm that implementation reflects the approved plan.
- Photo documentation of self-inspection, self-reporting (SISR) submissions
- Ongoing reconciliation of SGS and federal agencies database records

#### ***A6.3 Complete Data Submission***

Data reported to the Chesapeake Bay Program should be as complete and up to date as possible.

DOEE's data management governance processes assigns each BMP in the District a unique BMP ID in DOEE's SGS database which identifies it through time. When a BMP is inspected, maintained, retired, or otherwise updated the unique BMP record is updated with the new event status codes, dates, and results. Rather than attempting to amend previously submitted data by only reporting new or revised records, *all* BMPs in the SGS are reported to the

Chesapeake Bay Program each year. Previous submissions are then superseded. This ensures complete and up to date reporting every time.

For some historic BMPs, the exact implementation date may not be known. Because NEIEN requires implementation date in the format YYYY-MM-DD, the DOEE SGS applies assumed implementation dates based on other known information (permit approval date, most recent inspection date, etc.) in order to successfully validate and submit progress submissions. For cases in the legacy stormwater database when site locations did not report valid addresses, BMP locations were geo-referenced manually using project descriptions (intersections of cross streets, or lengths of roads between bounding streets) and site diagrams in approved plans, in order to obtain the most accurate location information as possible for the practice.

The point source data available from insignificant facilities is based on the monitoring requirements of each facility's individual NPDES permit. Facilities therefore may have incomplete datasets in regards to Chesapeake Bay Program reporting expectations. In these instances, DOEE provides estimates to complete reporting to the Chesapeake Bay Program<sup>5</sup>.

## A7. Distribution List

The individuals listed in **Table A7 - 1** provide critical project roles and will receive an electronic copy of this QAPP and any subsequent revisions. A complete copy of the original version and all revisions of the QAPP shall be maintained in the organization's files by the Project Manager and made available upon request. The project roles noted in **Table A7 - 1** are detailed in Section A8.

Table A7 - 1: QAPP Distribution List and Project QA Roles

| Name              | Project QA Role                   | Organizational Affiliation                                            |
|-------------------|-----------------------------------|-----------------------------------------------------------------------|
| Richard Jackson   | DOEE's Quality Management Officer | DOEE                                                                  |
| Steve Saari       | Senior Manager                    | DOEE – Natural Resource Administration; Watershed Protection Division |
| Meredith Upchurch | Senior Manager                    | DOEE – Regulatory Review Division                                     |
| Jayne Brown       | Senior Manager                    | DOEE – Inspection & Enforcement Division                              |

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<sup>5</sup> Estimates are calculated based upon the assumptions and methods described in "SOP CBP Point Source Reporting Insig Facilities"

| Name                | Project QA Role                                 | Organizational Affiliation           |
|---------------------|-------------------------------------------------|--------------------------------------|
| Jonathan Champion   | Quality Assurance Manager (QAM)                 | DOEE – Water Quality Division        |
| Caitlin Blair       | Project Manager                                 | DOEE – Water Quality Division        |
| Matt Johnson        | Project Manager                                 | DOEE – Regulatory Review Division    |
| Alicia Ritzenthaler | Project Staff; Principal Data User              | DOEE – Water Quality Division        |
| Matt English        | Project Staff; Principal Data User              | DOEE – Watershed Protection Division |
| Sherry Schwechten   | Project Staff                                   | DOEE – Regulatory Review Division    |
| Matthew Espie       | Project Staff                                   | DOEE – Regulatory Review Division    |
| Durga Ghosh         | EPA Region 3 Delegated Approving Official (DAO) | USGS;                                |
| Thomas Butler       | Principal Data User                             | EPA Region 3; Chesapeake Bay Program |

## A8. Project Organization

The section describes the responsibilities of all project quality assurance (QA) roles and describes the organization and relationship of data contributors.

### ***A8.1 Project Quality Assurance (QA) Roles and Responsibilities***

Individuals with QA roles for this project are summarized in Section A7. The responsibilities of these roles are described below.

#### ***Delegated Approving Official (DAO)***

The Delegated Approving Official (DAO) has the responsibility to:

- Be knowledgeable of EPA requirements for QAPPs and other equivalent QA documents.

- Follow the quality document review process outlined in the US EPA Region 3 Quality Management Plan (QMP) Acquire DAO certification as outlined in the QMP.
- Not approve QA documents they authored or prepared, or for projects/programs they manage.

Durga Ghosh (USGS) is the Delegated Approving Official for this QAPP.

#### Quality Assurance Manager (QAM)

The Quality Assurance Manager (QAM) will be responsible for the following activities:

- Reviewing QAPP
- Assessing effectiveness of the QAPP
- Discussing any corrective actions or other quality issues with Project Manager and any relevant staff as applicable.
- As necessary, discussing quality-related issues with their organization's senior manager, even if outside of their direct supervisory chain.

Jonathan Champion currently serves as DOEE's Quality Assurance Managers (QAM).

#### Senior Manager(s)

The Senior Managers, who have leadership authority for the project, will be responsible for the following activities:

- Oversee resource allocation.
- Review and internally approve the QAPP and any other relevant documentation (e.g., health and safety plan)
- Ensure all project personnel are properly trained and/or have the skills to fulfill assigned project tasks.

Steve Saari (DOEE – Natural Resource Administration) currently serves as senior manager for data validation and reporting.

#### Project Manager(s)

The Project Manager(s) will:

- Support senior managers to ensure all project personnel are properly trained and/or have the skills to fulfill assigned project tasks.
- Oversee participation, data collection, and data analysis tasks, ensuring all protocols and this QAPP are followed during sampling and other operations.
- Authorize all changes or deviations in the operation of the project, including management and implementation of any corrective actions.
- Issue reports as applicable, including preparing a summary of any data quality issues.
- Retain project records according to applicable Agency policy.
- Review and approve QAPP and any other relevant documentation.
- Distribute final QAPP and any subsequent revisions.

Matt Johnson (DOEE - Regulatory Review Division) and Caitlin Blair (DOEE - Water Quality Division) currently serve as project managers for data validation and reporting respectively.

### Project Staff

The Project staff will be responsible for:

- Prepare, maintain, and amend this QAPP as requested by Project Manager and/or QAM.
- Conduct outreach with potential participants, data users, and stakeholders.
- Reading and being very familiar with this QAPP and the related standard operating procedure(s) (SOPs) or methods for any operation they perform.
- Ensuring they are properly trained and/or have the skills to fulfill assigned task.
- Identifying and reporting to the Project Manager any emerging/unanticipated problems, data anomalies, or other project/data issues.
- Annotating the related SOPs for any activity they perform if necessary and permanent changes arise or authoring new SOPs if a gap exists.
- Recording, entering, verifying, and validating data as outlined in this QAPP.
- Maintaining data and retaining project records in conjunction with the project manager and in accordance with applicable Agency policy.

Key project staff currently include:

Alicia Ritzenthaler – DOEE; Water Quality Division  
Matt English – DOEE; Watershed Protection Division  
Sherry Schwechten – DOEE; Regulatory Review Division  
Matthew Espie – DOEE; Regulatory Review Division

### Principal Data User

The Principal Data User(s) will need to:

- Communicate early in the project with Senior or Project management about any specific needs and objectives.
- Read reports or other documentation to understand any quality concerns, e.g., any limitations to data use, flags on lab data, etc., before using information/data.

Key data users currently include:

Alicia Ritzenthaler – DOEE; Water Quality Division  
Matt English – DOEE; Watershed Protection Division  
  
Thomas Butler – EPA Region 3; Chesapeake Bay Program  
Olivia Devereux – Devereux Consulting; consultant to CBP  
Jess Rigelman – J7 LLC; consultant to CBP

### ***A8.2 Contributing Agencies/Organizations***

DOEE is the primary organization responsible for the BMP implementation and point source data management, validation, and reporting activities described in this QAPP. DC government 'sister agencies', federal agencies, DC Water, and NPDES regulated industrial facilities in the District also make key contributions.

*District of Columbia; Department of Energy & Environment (DOEE)*

DOEE's Natural Resource Administration (NRA) is organized into six (6) divisions, which are further organized into branches. Figure A8-1 indicates which teams (i.e. divisions, branches) are responsible for tasks related to the activities described in this QAPP. The responsibilities carried out by each of the four (4) participating divisions are described below.

*DOEE Water Quality Division (WQD) Planning and Reporting Branch (PRB) –*

The primary responsible of this team is to prepare and submit both the BMP implementation data and point source data to the Chesapeake Bay Program. WQD coordinates the collection of all non-stormwater management plan BMP implementation data and point source data (e.g. flow split data) from other contributing agencies/organizations as applicable. WQD staff conducts GIS analysis on street sweeping routes in order to record as BMP implementation.

*DOEE Regulatory Review Division (RRD) –*

Tracks, reviews, and records all plans for new development or redevelopment in the District. The Stormwater and Green Area Ratio Branch ensures that all permitted construction over 50 square feet has a plan to have appropriate erosion and sediment control devices in place and that all permitted construction over 5,000 square feet has plans to install stormwater suitable BMPs. The Stormwater and Green Area Ratio Branch records all submitted construction plans in DOEE's SGS which they manage and performs QA/QCs on.

*DOEE Inspection and Enforcement Division (IED)–*

Inspects sites under construction to make sure that they are in compliance with erosion and sediment control regulations, performs inspections during the installation of BMPs, the final inspection on constructed BMPs, and maintenance inspections of installed BMPs. This Division aims to inspect all installed BMPs every five years to ensure that they are in good working order. A process for owner-conducted Self-Inspections/ Self-Reporting (SISR) of stormwater BMPs (overseen and implemented by RRD) was developed to increase stormwater management compliance amongst the regulated community. If the BMPs require maintenance, landowners are required to perform the required maintenance to bring it into compliance. The Inspection and Enforcement Division maintains records of inspections in DOEE's SGS database and QA/QCs recorded data.

IED also inspects point sources facility NPDES permits in the District and supports WQD in preparing the point source data submission as needed.

*DOEE Watershed Protection Division (WPD)–*

Compiles, geo-codes, QA/QCs the information on stormwater BMPs installed and non-structural stormwater BMP activities from the various reporting agencies, divisions and branches. DOEE WPD then works with WQD to report the voluntary BMP data to the CBP including the location of the BMP, the type of BMP installed, the volume capture of

the BMP, and the number of acres treated by the BMP. DOEE WPD and WQD also QA/QC and report the inspection, maintenance and/or removal of any previously installed and reported BMP.

WPD also manages the collection tree planting BMP data from partners across the District.

#### DC Government Sister Agencies

Although DOEE fulfills the reporting responsibilities of the District, various other District agencies have responsibilities which contribute to the District's pollutant reduction targets and are reported in the BMP implementation data submission to the Chesapeake Bay Program. The activities and responsibilities carried out by sister agencies are described below.

##### *Department of Public Works (DPW) –*

As required by the District's MS4 permit, DPW performs routine street sweeping practices. DPW employees GPS technology to track these activities then shares the sweeper and route information with DOEE's WQD to be recorded as BMP implementation.

#### DC Water

In addition to directly reporting on the Blue Plains Wastewater Treatment Plant (Section A5.3), DC Water also provides flow splits to the Chesapeake Bay Program as needed. The flow split information details what fraction of the total load from the treatment plant's outfall should be attributed to which land river segment in the CAST model. *Note: these values do not typically change unless significant infrastructure improvement projects have been completed (i.e. Clean Rivers Project).*

#### Federal Agencies

DOEE reports on behalf of federal agencies who therefore do not have a direct role in the quality assurance (QA) of this project. Close coordination with federal agencies, however, is critical to ensuring the project's quality assurance objectives (Section A6) are met. Table A8.2 - 1 indicates the primary federal agency point of contacts who engage with DOEE on this project.

In addition to BMP implementation as required by the stormwater regulations, agencies with their own Chesapeake Bay TMDL pollutant reduction targets (Department of Defense (DOD), General Services Administration (GSA), Department of Agriculture (USDA), and National Park Service (NPS)) may choose to implement 'voluntary' BMPs as well, which must be communicated to DOEE in order to be added to SGS and included in the annual data submission to the Chesapeake Bay Program (CBP).

Table A8.2 - 1: Federal Agency Contacts

| Name         | Agency | Position/Role                          | Contact Information            |
|--------------|--------|----------------------------------------|--------------------------------|
| Kevin DuBois | DOD    | DOD Chesapeake Bay Program Coordinator | kevin.r.dubois.civ@us.navy.mil |



|                    |       |                                                                       |                                  |
|--------------------|-------|-----------------------------------------------------------------------|----------------------------------|
| Ashley Kelly       | DOD   | DOD Chesapeake Bay Program Coordinator                                | ashley.l.kelly10.civ@us.navy.mil |
| Pearl Ashitey      | DOD   | Contact to the DOD Chesapeake Bay Program                             | Pearl.Ashitey@jacobs.com         |
| Evan Miles         | DOD   | Regional Stormwater Program Manager, NAVFAC Washington                | evan.m.miles2.civ@us.navy.mil    |
| Alma Vela          | DOD   | NSAW Stormwater Program Manager                                       | alma.b.vela.civ@us.navy.mil      |
| Jennifer McDonnell | DOD   | Environmental Element Chief, Joint Base Anacostia-Bolling             | jennifer.mcdonnell.2@us.af.mil   |
| Shavaun Jenkins    | DOD   | Stormwater & Wastewater Program Manager, Joint Base Anacostia-Bolling | shavaun.jenkins@us.af.mil        |
| Rachel Ledonne     | USACE | Engineering Technician, Baltimore District Washington Aqueduct        | rachel.ledonne@usace.army.mil    |
| Any Oetman         | GSA   | Stormwater Program Specialist                                         | andrew.oetman@gsa.gov            |
| Russ Clark         | GSA   | Stormwater Program Manager                                            | russell.clark@gsa.gov            |
| Rene Sanos         | NPS   | Project Manager, NPS National Capital Region                          | rene_sanos@nps.gov               |
| John Houston       | USDA  | Environmental Engineer, Agricultural Research Center                  | john.houston@usda.gov            |

## A9. Project Quality Assurance Manager Independence<sup>6</sup>

Jonathan Champion (Associate Director, DOEE Water Quality Division) is currently DOEE's designated Project Quality Assurance Manager (QAM) for the Chesapeake Bay Program Best Management Practice (BMP) Management, Reporting and Verification Project described in this QAPP. The QAM has oversight authority and responsibilities for planning, documenting, coordinating, and assessing effectiveness of the QAPP as well as authority to access and discuss quality-related issues with DOEE's Quality Management Officer (QMO), Richard Jackson. The QAM shall maintain independence by not having direct involvement in the environmental information operations described in this QAPP.

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<sup>6</sup> Non-EPA Organizations: The two functions, QA and operations, must remain independent; however, in small organizations outside of EPA and EPA contractors (e.g., small tribal departments), these two functions may be combined with approval from the EPA R3 QAM.

## A10. Project Organization Chart and Communications Project Organization Chart

DOEE is the primary organization responsible for the BMP implementation and point source data management, validation, and reporting activities described in this QAPP. DC government 'sister agencies', federal agencies, DC Water, and NPDES regulated industrial facilities in the District also make key contributions (Section A8.2). The project organization and communication pathways for this project are illustrated in Figures A10-1 and A10-2.

Figure A10 - 1: Project organization and communication chart for BMP implementation data reporting

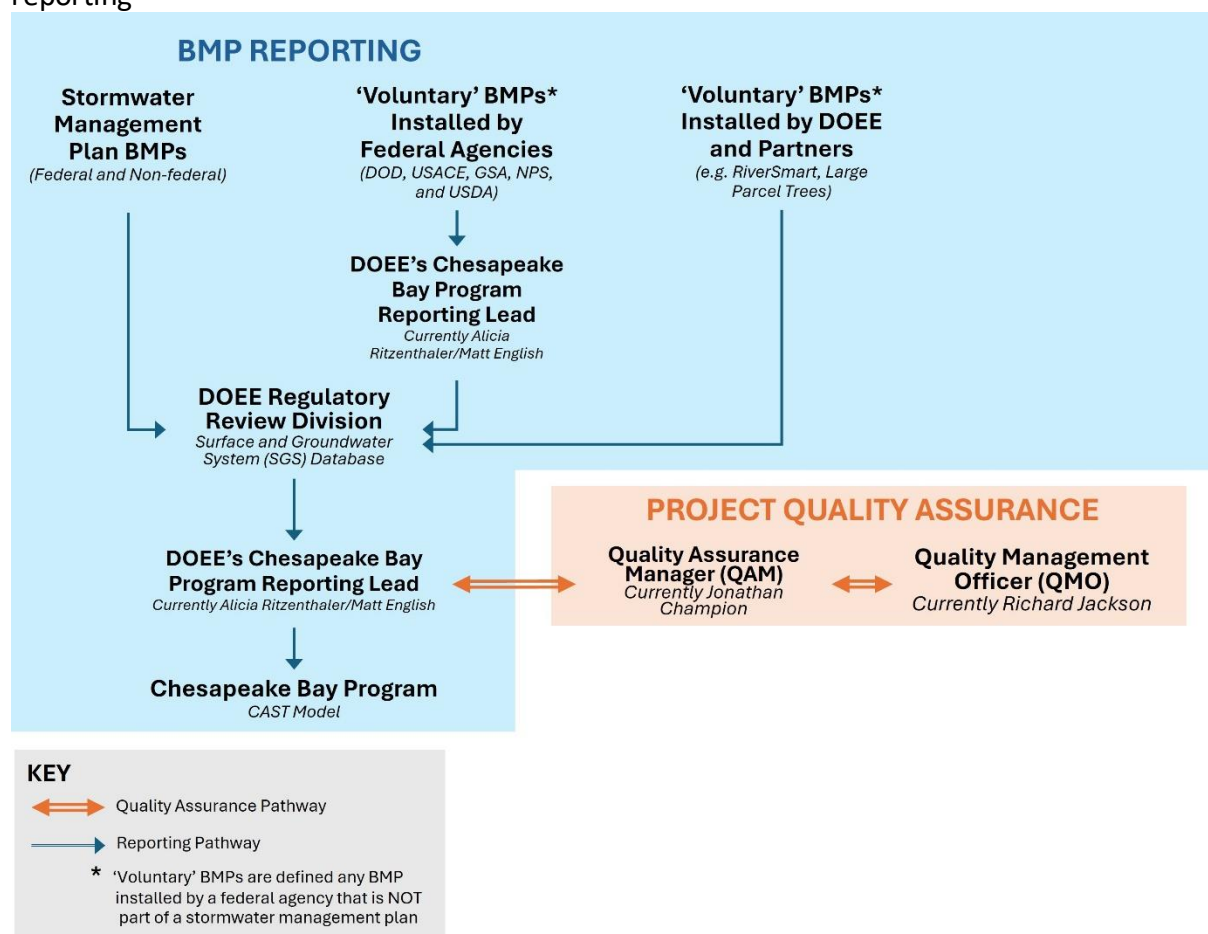
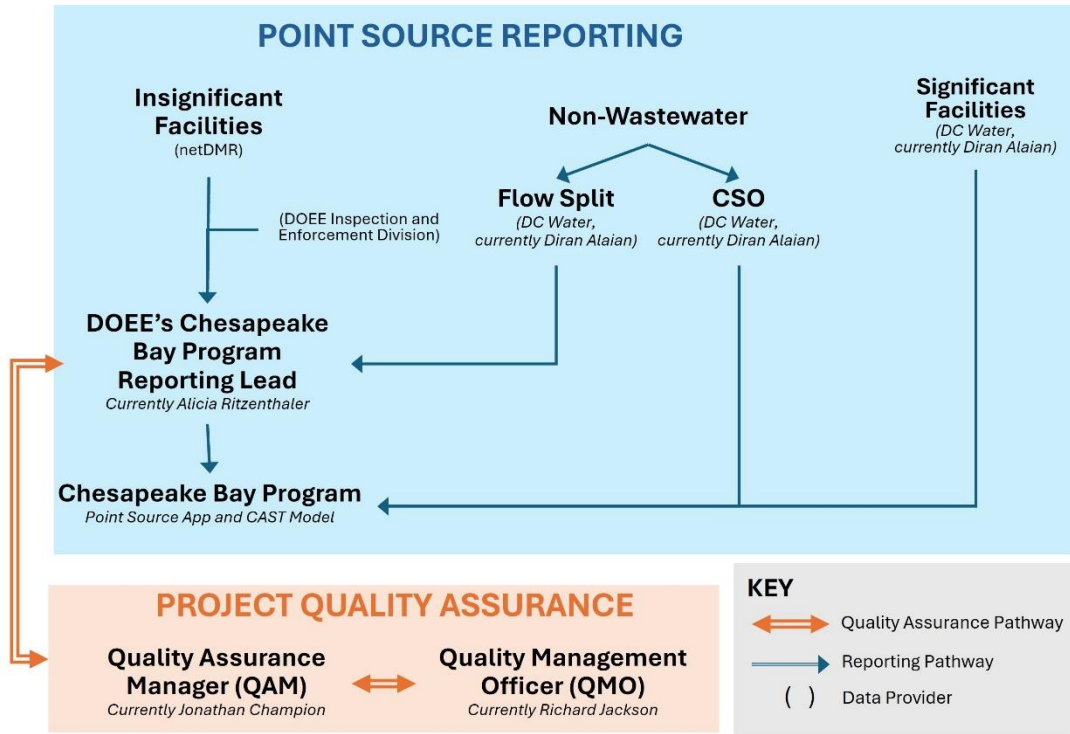


Figure A10 - 2: Project organization and communication chart for point source data reporting



**A11. Personnel Training/Certification**

Senior managers, with support from project managers, are responsible for ensuring all project personnel are properly trained and/or have the skills to fulfill assigned project tasks.

**A12. Documents and Records**

DOEE project documents (Table A4.2 - 2) and records (i.e. BMP implementation data submissions, point source data submissions) will be managed in accordance with current DOEE policies and in accordance with this QAPP.

**A12.1 QAPP Preparation and Distribution**

This QAPP conforms to the format described in the U.S. Environmental Protection Agency publication Quality Assurance Project Plan Standard [Directive No: CIO 2105-S-02.0] and shall govern the operation of the project and must be accessible during operations. Each responsible party listed in Table A7-1 shall receive an electronic copy of this QAPP and adhere to the procedural requirements of the QAPP and ensure that subordinate personnel do likewise.

This QAPP shall be reviewed at least annually, as updated as applicable, to ensure that the project will achieve all intended purposes. Project Managers, QA Staff and other applicable personnel in Table A7-1 shall participate in the review of the QAPP. Any revisions will be documented and returned to EPA DAO for reapproval.

**A12.2 Data Storage**

All BMP implementation data is entered and managed in the Surface and Groundwater System (SGS) database (Section B7). The SGS is a cloud-based platform. DOEE retains BMP records and supporting documents in accordance with agency retention schedules, including after BMP removal. On an as-needed basis, DOEE can access a recent daily backup to analyze or review prior versions of data. Point source data is uploaded by facilities directly to netDMR where DOEE accesses it for this project through EPA's point source app. DOEE stores only the final submission reported to the Chesapeake Bay Program.

Per DC Government and DOEE policy, all data will be retained for at least 10 years (i.e. 5 years at DOEE offices + additional 5 years retained in records) at the conclusion of this project.

**B Implementing Environmental Operations**

This section is intended to describe how the project is designed and implemented by providing details such as appropriate methods for sampling, measurement and analysis, data collection or generation, data handling, and QC activities are employed and are properly documented. This project relies solely on the collection of existing data however, and therefore not all sections within this chapter are directly applicable as was intended in the U.S. EPA Quality Assurance Project Plan Standard (Table A4.2 - 2). Therefore, the included sections have been adapted to be relevant to this project and, in many cases, are intended simply to provide additional context to this project rather than to prescribe the type of implementation operation details typically included in this section of a QAPP document.

## **B1. Identification of Project Environmental Information Operations**

This project includes the collection of existing BMP implementation data and existing point source data for reporting to the Chesapeake Bay Program (CBP). No novel data or information are generated as part of this project.

The specific BMP implementation data gathered for this project and reported to the Chesapeake Bay Program, and the format in which the data submission is prepared, is detailed in the Phase 6 NEIEN Appendix (see Table A4.2 - 2).

The 'Point Source Data Set Rules' section of the Chesapeake Bay Program Point Source App (see Table A4.2 - 2) documents the reported data fields and provides documentation of the data rules which apply.

## **B2. Methods for Environmental Information Acquisition**

In order to prepare the reporting to the Chesapeake Bay Program (CBP), DOEE accesses BMP implementation data and point source data from the Surface and Groundwater System (SGS) and netDMR respectively. The data sources and data flows most regularly relied upon for this project are summarized below.

### ***B2.1 Surface and Groundwater System (SGS)***

All BMP implementation data is managed by DOEE in the Surface and Groundwater System (SGS) database (Section B7). Data and information from following activities, tasks, and programs are either fully integrated into the SGS or manually input into the SGS.

#### **Stormwater Management Plans (SWMP)**

Stormwater management plans (SWMP) are required for all 'major land disturbing activities' and 'major substantial improvement activities' as defined in the Rule on Stormwater Management and Soil Erosion and Sediment Control (henceforth referred to as 'The Rule') (Chapter 5 of Title 21 of the District of Columbia Municipal Regulations<sup>7</sup>). DOEE also reviews SWMPs for several DOEE-funded programs including for BMPs built for the SRC trading program, RiverSmart Communities, and RiverSmart Schools.

Major land-disturbing activities must retain the volume from a 1.2-inch storm event, and major substantial improvement activities must typically retain the volume from a 0.8-inch storm event. The retention volume can be achieved through a combination of on-site retention and off-site retention. By retaining stormwater, retention practices effectively provide both treatment and additional volume control, significantly improving protection for District waterbodies. This Stormwater Retention Volume (SWRv) can be managed through runoff reduction (e.g., infiltration, water reuse plant/soil filter systems or permeable pavement). The Stormwater Management Guidebook<sup>8</sup> provides technical guidance on complying with The Rule.

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<sup>7</sup> Accessible at <https://www.dcregs.dc.gov/>

<sup>8</sup> Accessible at <https://octo.quickbase.com/up/bjezqk3qc/a/r257/e6/v0>

All best management practice (BMP) design standards, criteria, and definitions are documented in the Guidebook.

SWMPs detail the design of a site and its BMPs, including to show compliance with The Rule. All SWMPs are managed in DOEE's Surface and Groundwater System (SGS). Applicants submitting their Stormwater Management Plan (SWMP) enter detailed information about the design of BMP projects into the SGS after which DOEE staff review and approve these BMP designs electronically. The SGS is used to track these projects from the planning stage, through implementation, and beyond – all inspection and maintenance information is also managed in the SGS.

#### Self-Inspection, Self-Reporting (SISR)

Property owners with a DOEE-approved stormwater management plan (SWMP) are required to periodically inspect and maintain their stormwater BMPs to keep them in good working order. DOEE's online Self-Inspection and Self-Reporting (SISR) program<sup>9</sup> (which is integrated with the SGS) makes it easy for property owners and managers to report, track, share, and store inspection and maintenance records for stormwater best management practices (BMPs) by allowing them to:

- manage multiple properties and view all SWMPs and BMPs in one place,
- easily maintain accurate records to comply with DC stormwater regulations,
- assign access to property managers and maintenance professional to complete forms on their behalf, and
- complete inspection requirements for the Stormwater Retention Credit (SRC) program<sup>10</sup>.

#### Watershed Protection Division Inputs

##### RiverSmart Homes

DOEE WPD RiverSmart Branch issues a grant and coordinates the approval and installation of small-scale BMPs at residential properties. These projects do not require a SWMP. However, a 10% sample of projects are inspected each year by DOEE staff and grantees. In addition, property owners can self report using the RiverSmart Rewards application every three years to maintain a discount on their DC water bill. Inspections are completed in an OCTO application that is directly linked to the SGS. The application generates an inspection report that can be sent directly to the resident.

##### RiverSmart Schools

DOEE WPD Partnering and Engagement Branch issues a contract and a grant coordinating the design, permitting, and installation of outdoor learning labs, LIDs, and small-scale BMPs at schoolyards throughout the District of Columbia. The projects enhance and improve schoolyards through the installation of green infrastructure projects, landscape practices, and outdoor classrooms that maximize stormwater capture and infiltration. Students, teachers, and

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<sup>9</sup> For more information, visit <https://doee.dc.gov/service/sisr>

<sup>10</sup> For more information, visit <https://doee.dc.gov/src>

parents participate in design charrettes and help with community planting days. BMPs for these projects are recorded through the standard process of BMP approval via Stormwater Management and Erosion Sediment Control Plans and are fully integrated within the SGS. Participating schools are provided with an operations and maintenance (O&M) manual to provide guidance once the installations are completed.

#### RiverSmart Communities

DOEE WPD Restoration Branch issues a grant and coordinates the development and installation of LID and BMPs at houses of worship and non-profit organizations throughout the District of Columbia. BMPs for these projects are recorded through the standard process of BMP approval via Stormwater management plans and are fully integrated within the SGS. Participating houses of worship or non-profit organizations are provided with a maintenance manual to provide guidance once the installation is completed.

#### Stream Restorations

Stream restoration projects are recorded in approved Stormwater Management Plans within the SGS. Stream restoration specific BMP data is collected in a standard template created by the DOEE Regulatory Review Division. The data within the template is then manually entered within the SGS. Inspections and maintenance visits for stream restoration BMPs are also manually entered within the SGS when each report is uploaded. Additional BMPs that are installed within the restoration site, such as tree plantings, are recorded through the standard BMP reporting procedures within the SGS.

#### Low Impact Development

DOEE WPD coordinates the development and installation of LID and BMPs within the District of Columbia. BMPs for these projects are recorded through the standard process of BMP approval via Stormwater Management Plans and are fully integrated with the SGS.

#### Tree Plantings

Trees planted as part of an approved SWMP are subject to visual inspection for SRCs. The inspection is currently conducted by an ISA certified DOEE staffer. The visual inspection confirms location, species, size class ( $\leq 40'$ ), and condition per the SWGB inspection checklist. The inspection form along with photos of each tree are uploaded to SGS as part of the SISR procedure.

#### 'Voluntary' BMP Reporting Templates

DOEE's Water Quality Division provides templates to federal agencies on an annual basis requesting BMP implementation data for any BMP installed that wasn't part of a stormwater management plan (referred to in the context of this project as 'voluntary BMPs'). Data received is reviewed by DOEE Regulatory Review Division (RRD) staff to confirm it does not represent a duplicate record then entered into the SGS.

### Construction Acres

To estimate the number of acres under construction in the District each year, DOEE sums the total area of all unique Erosion and Sediment Control plans which had 1 (or more) construction inspections recorded during the reporting period (July – June). To normalize for year-to-year fluctuations in development and redevelopment activities DOEE provides a 5-year average of construction acres to the Chesapeake Bay Program for use in the CAST model. Note: reliable construction inspection data is not available before 2016. Historic, default estimates of construction acres are therefore applied prior to 2016.

### Sediment and Erosion Control Level

DOEE uses the information managed in the SGS to routinely verify the level of sediment and erosion control occurring in the District for the Chesapeake Bay Program. Sediment and erosion control level, as defined for the CBP, are described the ‘Recommendations of the Expert Panel to Define Removal Rates for Erosion and Sediment Control Practices’ Final Report<sup>11</sup>.

### **B2.2 netDMR**

Regulated facilities operating in the District are issued individual NPDES permits by EPA, which are then enforced by DOEE’s Inspection and Enforcement Division (IED). The specific discharge monitoring requirements of any facility are defined in their NPDES permits. When monitoring is completed, each facility is responsible for uploading results to netDMR – which is the national electronic reporting platform used for all NPDES discharge monitoring reporting. Once a facility submits data to netDMR it is available to regulators, and eventually the public via ECHO (Enforcement and Compliance History Online)<sup>12</sup>.

The Chesapeake Bay Program Point Source App, which DOEE uses to complete point source data reporting (Section A5.3), pulls facility data directly from netDMR.

## **B3. Integrity of Environmental Information**

No novel data or environmental information is being generated as part of this project. Therefore, the integrity of environmental information is subject to be held to the standards and rigor of the program/organization providing the data and/or information. Once data is obtained, DOEE relies on the SGS database (Section B7) and the quality objects/performance criteria described in this QAPP (Section A6) to ensure integrity of environmental information continues to be upheld.

## **B4. Quality Control**

See Section A6.

## **B5. Instrument/Equipment Calibration, Testing, Inspection, and Maintenance**

Not applicable.

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<sup>11</sup> <https://www.chesapeakebay.net/what/publications/recommendations-of-the-esc-expert-panel>

<sup>12</sup> <https://echo.epa.gov/>



## **B6. Inspection/Acceptance of Supplies and Services**

Not applicable.

## **B7. Environmental Information Management**

This project includes the collection of existing BMP implementation data and existing point source data for reporting to the Chesapeake Bay Program (CBP). BMP data is managed in DOEE's Surface and Groundwater System. Point source data is managed by facilities using netDMR.

### ***B7.1 Surface and Groundwater System (SGS)***

BMP implementation data is managed in the Surface and Groundwater database, maintained by DOEE. The SGS is an online platform that DOEE uses to track all BMPs (regulated and voluntary). DOEE uses the SGS to receive and approve SWMPs during permitting. DOEE also uses the SGS to document construction and maintenance inspections. The SGS also includes BMP data for voluntary programs that do not require a SWMP. DOEE tracks related program information such as Stormwater Retention Credit trading and stormwater fee discounts.

For each BMP, DOEE can track the location (latitude/longitude), contributing drainage area, and retention volume. The SGS automatically converts all BMP data into a NEIEN-compliant XML format for annual reporting.

The SGS also integrates with other District databases including for publication of BMP data as a shapefile. The SGS draws upon District government data sets to help determine the watershed/sewershed where a project is located and to determine who the site owner is.

### ***B7.2 netDMR***

Point source data is managed by using EPA's netDMR database. See Section B2.2.

## **C Assessment, Response Actions, and Oversight**

This section is intended to describe how team members will fulfil their QA and QC related roles (Section A8) in collaboration with one another.

### **C1. Assessments and Response Actions**

It is the responsibility of the Quality Assurance Manager (QAM) to assess the effectiveness of this QAPP (Section A8.1). Effectiveness will be assessed by whether or not the data quality objectives described in Section A6 are upheld.

If data quality objectives are found not being met the QAM will communicate with the Project Manager(s) who are responsible for authorizing any/all changes and deviations in the operations of the project – including management and implementation of any necessary corrective actions (Section A8.1). Applicable corrective actions will be determined by the Project Manager on a case-by-case basis to directly and specifically address the failed data quality objective(s).

At least once annually, this QAPP will be reviewed and updated as applicable (Section A12.1). QAPP revisions will reflect, as appropriate, any responsive actions taken in order to improve the effectiveness of this QAPP in the future.

## **C2. Oversight and Reports to Management**

Project staff are responsible reporting to the Project Manager any emerging/unanticipated problems, data anomalies, or other project/data issues which they identify in the course of their work (Section A8.1).

Primary data users should communicate with Senior or Project management about any specific needs and objectives early in the project and/or when changes are anticipated (Section A8.1).

DOEE shall report to EPA on QA/QC activities associated with this project by submitting this QAPP in accordance with U.S. EPA Quality Assurance Project Plan Standard Directive No: CIO 2105-S-02.0 (Table 4.2-2).

## **D Environmental Information Review and Useability Determination**

This section is intended to describe how this project's data is reviewed and determined useable. This project relies solely on the collection of existing data however, and therefore not all sections within this chapter are directly applicable as was intended in the U.S. EPA Quality Assurance Project Plan Standard (Table A4.2 - 2). Therefore, the included sections have been adapted to be relevant to this project and, in many cases, are intended simply to provide additional context to this project rather than to prescribe the type of implementation operation details typically included in this section of a QAPP document.

### **D1. Environmental Information Review**

For the purposes of BMP and non-point source discharge reporting, the CBP partners have agreed upon the following definitions for data review, verification, and validation:

**Data Review** – Data reviews should be independent, meaning that they are carried out by someone within the same organization having technical expertise in the subject matter to a degree at least equivalent to that needed for the original work, but who was not involved as a participant, supervisor, technical reviewer, or advisor in the development or operations of the program/practice under review. An external independent review is done by someone from an outside organization with technical expertise in the subject matter to a degree at least equivalent to that needed for the original work. (CBP 2014)

**Verification** – BMP verification is: “the process through which agency partners ensure practices, treatments, and technologies resulting in reductions of nitrogen, phosphorus, and/or sediment pollutant loads are implemented and operating correctly.” (CBP 2014).

**Data Validation** – BMP data validation is defined as a QA/QC check of a data record. The CBP's preferred validation method is a visual field check of an adequate statistical sample. It is expected that all BMPs, both internal and external, have at least a basic database or paper check of an adequate statistical sample.

During information/data review, verification, and validation, staff will be guided by the data quality criteria listed in Section A6 as well as any additional criteria discussed in B3-B7.

### ***D1.1 Data Review***

DOEE's Stormwater and Green Area Ratio Branch (Regulatory Review Division) provide data review of all best management practices (BMP) data via the process of approving all permitted constructions activity. Regulatory Review Division staff also provide the necessary independent data review of all permitted construction over 50 square feet has a plan to have appropriate erosion and sediment control devices in place.

Review of non-point source data is conducted by each reporting facilities in accordance with their individual NPDES permits.

### ***D1.2 Verification***

BMP inspections are used to demonstrate verification as defined above. DOEE prioritizes, assigns, and conducts maintenance inspections of regulated stormwater BMPs based on the following factors:

- Complaints received from the public or stakeholders
- Requests from BMP owners or operators
- Requests from District agencies
- BMPs located within the MS4 area
- BMPs that have never been inspected
- BMPs that have not been inspected in more than five years

Verification of non-point source data is conducted by each reporting facility in accordance with their individual NPDES permits.

### ***D1.3 Data Validation***

Data validation includes:

1. The SGS automatically finds spatial data (such as sewershed and watershed) for BMPs based on latitude and longitude using data stored on the District's Opendata platform.
2. Each SWMP is reviewed by DOEE's Regulatory Review Division, which includes validation of the approved BMP sizes and contributing drainage areas.
3. Each SWMP and ESC plan must be inspected by DOEE's Inspection and Enforcement Division. Each SWMP must be inspected regularly for maintenance post-construction as well. In-person inspections and virtual self-inspections help DOEE determine when a BMP was built and, if applicable, removed.

4. Submittal of as-built SWMPs following the completion of construction.
5. DOEE employees validate the data for voluntary, non-SWMP BMPs (for example, to confirm the sites that received DOEE-funded BMPs).
6. Procedural requirements ensure that applicants enter complete information when submitting project information (for example, a SWMP cannot be submitted without entering the detailed BMP design information into fields to track retention volume).
7. The SGS sends reminders to applicants, plan reviewers, and inspectors when action is needed (for example, to submit a plan, to approve a plan, or to inspect a plan).

Validation of non-point source data is conducted by each reporting facility in accordance with their individual NPDES permits.

## **D2. Useability Determination**

The data quality objectives and validation procedures described in this QAPP have been developed such that, when upheld, the best management practice (BMP) and point source data reported is determined useable.