pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

January 31, 2022
VIA ELECTRONIC MAIL

Tiffany Strine
Carlisle Borough Cumberland County
53 W South Street
Carlisle, PA 17013-3458

Re: MS4 Periodic Report Review
Carlisle Borough MS4
NPDES Permit No. PAI133517
Carlisle Borough, Cumberland County

Dear Ms. Tiffany Strine:

Thank you for submitting your MS4 Periodic Report as required by Part B 3.d of the NPDES permit. The Department of Environmental Protection (DEP) has reviewed your report and has determined that it is complete and acceptable. Please continue to identify the status of implementing best management practices (BMPs) as part of your stormwater management program and, if applicable, TMDL and/or Pollutant Reduction Plans in all future periodic reports.

Thank you for providing us with an updated stormwater system map.

If you have any questions concerning this letter, please contact me at 717-705-4814 or lestaley@pa.gov.

Sincerely,

Leah Staley

Leah Staley, EIT
Project Manager
Clean Water Program

cc: Scott Arwood

BOROUGH OF CARLISLE

"Committed To Excellence In Community Service"

August 31ST, 2021

Attn: Leah Staley
Pennsylvania Department of Environmental Protection
Clean Water Program, South-central Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110-8200

RE: MS4 Annual Report (2020-2021)
Carlisle Borough MS4
NPDES Permit No. PAI133517

Dear Ms. Staley:

In accordance with Part B, Section 3.d of Carlisle Borough's NPDES Permit Number PAI133517, attached for the Department's review is the Borough of Carlisle's MS4 Annual Report and update on the Borough's progress with meeting the Best Management Practices and Measurable Goals that make up the Stormwater Management Program. Please do not hesitate to contact me at 717-240-6918 if you have any questions on the attached documents.

Sincerely,

Tiffany Strine
MS4 Coordinator

Enclosure(s)

BOROUGH OF CARLISLE

"Committed To Excellence in Community Service"

Municipal Separate Storm Sewer System (MS4)
Annual Report
June 2020 – June 2021

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2 Attachments to Annual Progress Report

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2	Reporting Period Stormwater Articles from Carlisle Gazette and all Carlisle Borough Website Stormwater Page Content and all Carlisle Borough Social Media Platform Stormwater Related Information
3	ALLARM Stormwater Runoff & Fee in Carlisle Informational Handout
4	ALLARM Public Outreach Presentation Materials of Dickinson College's Stormwater BMP
5	February 7th, 2020 Stormwater System Master Plan Engineering Services Contract
6	Illicit Discharge Detection and Elimination Program (MCM#3, BMP#1) and Illicit Discharge Citizen Complaint Form
7	Map of Carlisle Borough's Stormwater System Map
8	MS4 Outfall Map 2021 and Completed Dry Weather Inspection Forms
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11	Employee Training Plan for Reporting Period
12	Updated BMP Project Schedule

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

ANNUAL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) STATUS REPORT

FOR THE PERIOD 2020 TO JUNE 30, 2021

GENERAL INFORMATION			
Permittee Name:	Borough of Carlisle	NPDES Permit No.:	PAI 133517
Mailing Address:	53 W. South Street	Effective Date:	August 1, 2020
City, State, Zip:	Carlisle, PA 17013	Expiration Date:	July 31, 2025
MS4 Contact Person:	Tiffany Strine	Renewal Due Date:	January 27th, 2025
Title:	MS4 Coordinator	Municipality:	Borough of Carlisle
Phone:	717-240-6918	County:	Cumberland
Email:	tstrine@carlislepa.org		

Co-Permittees (if applicable): N/A

Appendix(ces) that permittee is subject to (select all that apply):

☐ Appendix A ☐ Appendix B ☐ Appendix C ☒ Appendix D ☐ Appendix E ☐ Appendix F

WATER QUALITY INFORMATION

Are there any discharges to waters within the Chesapeake Bay Watershed? ☒ Yes ☐ No

Identify all surface waters that receive stormwater discharges from the permittee's MS4 and provide the requested information (see instructions).

Receiving Water Name	Ch. 93 Class.	Impaired?	Cause(s)	TMDL?	WLA?
Condoguinet Creek	WWF	No			
Letort Spring Run Basin, PA 34 Bridge to Railroad	EV, MF	No			
Letort Spring Run Basin, Railroad Bridge at Letort Park to Mouth	HQ-CWF, MF	No			

GENERAL MINIMUM CONTROL MEASURE (MCM) INFORMATION

Have you completed all MCM activities required by the permit for this reporting period? ☒ Yes ☐ No

List the current entity responsible for implementing each MCM of your SWMP, along with contact name and phone number.

MCM	Entity Responsible	Contact Name	Phone
#1 Public Education and Outreach on Storm Water Impacts	Borough of Carlisle	Tiffany Strine	717-240-6918
#2 Public Involvement/Participation	Borough of Carlisle	Tiffany Strine	717-240-6918
#3 Illicit Discharge Detection and Elimination (IDD&E)	Borough of Carlisle	Tiffany Strine	717-240-6918
#4 Construction Site Storm Water Runoff Control	Cumberland County Conservation District	Matt Stough	717-240-7838
#5 Post-Construction Storm Water Management in New Development and Redevelopment	Borough of Carlisle	Tiffany Strine	717-240-6918
#6 Pollution Prevention / Good Housekeeping	Borough of Carlisle	Tiffany Strine	717-240-6918

MCM #1 – PUBLIC EDUCATION AND OUTREACH ON STORM WATER IMPACTS

BMP #1: Develop, implement and maintain a written Public Education and Outreach Program.

1. For new permittees only, has the written PEOP been developed and implemented within the first year of permit coverage?

   ☐ Yes ☐ No

2. Date of latest annual review of PEOP: June 2021 Were updates made? ☐ Yes ☒ No

3. What were the plans and goals for public education and outreach for the reporting period?

   The plans and goals for the Public Education and Outreach portion of the reporting period were to update the Borough's website with new information as needed, increase social media presence, and work with local residential organizations to answer questions and concerns on stormwater management.

4. Did the MS4 achieve its goal(s) for the PEOP during the reporting period? ☒ Yes ☐ No

5. Identify specific plans and goals for public education and outreach for the upcoming year:

   Specific plans and goals for the Public Education and Outreach portion are for Carlisle Borough to review the current status of the Public Education and Outreach Program with ALLARM Stormwater Committee and update the plan as needed.

BMP #2: Develop and maintain lists of target audience groups present within the areas served by your MS4.

1. For new permittees only, have the target audience lists been developed and implemented within the first year of permit coverage?

   ☐ Yes ☐ No

2. Date of latest annual review of target audience lists: June2021 Were updates made? ☐ Yes ☒ No

BMP #3: Annually publish at least one educational item on your Stormwater Management Program.

1. For new permittees only, were stormwater educational and informational items produced and published in print and/or on the Internet within the first year of permit coverage?

☐ Yes ☐ No

2. Date of latest annual review of educational materials: June 2021 Were updates made? ☒ Yes ☐ No

3. Do you have a municipal website? ☒ Yes ☐ No (URL: https://www.carlislepa.org)

If Yes, what MS4-related material does it contain?
Please See Attachment 2 for Borough Website Content.

4. Describe any other method(s) used during the reporting period to provide information on stormwater to the public:
Monthly Borough council meetings/workshops, ALLARM Activities, Carlisle Borough Facebook page, articles in the Carlisle Gazette, & personal public interface.

5. Identify specific plans for the publication of stormwater materials for the upcoming year:
Specific plans for the publication of stormwater materials to in the upcoming year will be to continue to utilize current methods of outreach and update the Borough website with all Stormwater-related materials.

BMP #4: Distribute stormwater educational materials to the target audiences.

Identify the two additional methods of distributing stormwater educational materials during the previous reporting period (e.g., displays, posters, signs, pamphlets, booklets, brochures, radio, local cable TV, newspaper articles, other advertisements, bill stuffers, posters, presentations, conferences, meetings, fact sheets, giveaways, or storm drain stenciling).

Additional methods of the distribution of stormwater educational materials during the previous reporting period include e-mails to the Borough's listserver advertising its various outreach programs, presentations at Borough council monthly workshop meetings on MS4-related topics. The local group, ALLARM (Alliance for Aquatic Resource Monitoring), has created an information handout/sheet regarding Stormwater Runoff & Fee in Carlisle Informational Handout.

MCM #1 Comments:

See Attachment 1 for Carlisle Borough's PEOP/PIPP
See Attachment 2 for Borough Website Content
See Attachment 3 for ALLARM's Stormwater Runoff & Fee in Carlisle Informational Handout
See Attachment 4 for ALLARM's Presentation Materials of Dickinson College's Stormwater BMP

MCM #2 – PUBLIC INVOLVEMENT/PARTICIPATION

BMP #1: Develop, implement and maintain a written Public Involvement and Participation Program (PIPP)

1. For new permittees only, was the PIPP developed and implemented within one year of permit coverage?

☐ Yes ☐ No

2. Date of latest annual review of PIPP: June 2021 Were updates made? ☐ Yes ☒ No

BMP #2: Advertise to the public and solicit public input on ordinances, SOPs, Pollutant Reduction Plans (PRPs) (if applicable) and TMDL Plans (if applicable), including modifications thereto, prior to adoption or submission to DEP:

1. Was an MS4-related ordinance, SOP, PRP or TMDL Plan developed during the reporting period? ☒ Yes ☐ No

2. If Yes, describe how you advertised the draft document(s) and how you provided opportunities for public review, input and feedback:

Draft documents were advertised by means of the Carlisle Borough Facebook page, and via word of mouth at monthly Borough Council meetings. Public comments were accepted via comments on the Borough's Facebook page, via letter/email, and by word of mouth at the Borough's monthly council meeting.

See Attachment 5 for Carlisle Borough's Stormwater System Master Plan for Engineering Services Contract

3. If an ordinance, SOP or plan was developed or amended during the reporting period, provide the following information:

Ordinance / SOP / Plan Name	Date of Public Notice	Date of Public Hearing	Date Enacted or Submitted to DEP
Stormwater Management Ordinance (2021 Model Ordinance	9/24/2019	10/10/2019	10/10/2019
Chesapeake Bay Pollutant Reduction Plan	11/06/2019	12/06/2019	12/06/2019

BMP #3: Regularly solicit public involvement and participation from the target audience groups using available distribution and outreach methods.

1. At least one public meeting or other MS4 event must be held during the 5-year permit coverage period to solicit participation and feedback from target audience groups. Was this meeting or event held during the reporting period?

   ☐ Yes ☒ No If Yes, Date of Meeting or Event:

2. Report instances of cooperation and participation in MS4 activities; presentations the permittee made to local watershed and conservation organizations; and similar instances of participation or coordination with organizations in the community.

   COVID-19 has paused activity.

3. Report activities in which members of the public assisted or participated in the meetings and in the implementation of the SWMP, including education activities or efforts such as cleanups, monitoring, storm drain stenciling, or others.

   COVID-19 has paused activity.

MCM #2 Comments:

COVID-19 has paused most activity.

MCM #3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDD&E)

BMP #1: Develop and implement a written program for the detection, elimination, and prevention of illicit discharges into the regulated small MS4.

1. For new permittees only, was the written IDD&E program developed within one year of permit coverage?

   ☐ Yes ☐ No

2. Date of latest annual review of IDD&E program: June 2021 Were updates made? ☐ Yes ☒ No

BMP #2: Develop and maintain map(s) that show permittee and urbanized area boundaries, the location of all outfalls and, if applicable, observation points, and the locations and names of all surface waters that receive discharges from those outfalls. Outfalls and observation points shall be numbered on the map(s).

1. Have you completed a map(s) that includes all components of BMP #2? ☒ Yes ☐ No

   If Yes and you are a new permittee and have not submitted the map(s) previously, attach the map(s) to this report.

   If No, date by which permittee expects map(s) to be completed:

2. Date of last update or revision to map(s): June 2021

3. Total No. of Outfalls in MS4: 24 Total No. of Outfalls Mapped: 24

4. Total No. of Observation Points: 0 Total No. of Observation Points Mapped: 0

5. During the reporting period, have you identified any existing outfalls that have not been previously reported to DEP in an NOI, application or annual report, or are any new MS4 outfalls proposed for the next reporting period?

   ☐ Yes ☒ No If Yes, select: ☒ Existing Outfall(s) Identified ☐ New Outfall(s) Proposed

BMP #3: In conjunction with the map(s) created under BMP #2 (either on the same map or on a different map), the permittee shall develop and maintain map(s) that show the entire storm sewer collection system within the permittee's jurisdiction that are owned or operated by the permittee (including roads, inlets, piping, swales, catch basins, channels, and any other components of the storm sewer collection system), including privately-owned components of the collection system where conveyances or BMPs on private property receive stormwater flows from upstream publicly-owned components.

1. Have you completed a map(s) that includes all components of BMP #3? ☒ Yes ☐ No

   If Yes and you are a new permittee and have not submitted the map(s) previously, attach the map(s) to this report.

   If No, date by which permittee expects map(s) to be completed:

2. If Yes to #1, is the map(s) on the same map(s) as for outfalls and receiving waters? ☒ Yes ☐ No

3. Date of last update or revision to map(s): June 2021

BMP #4: Conduct dry weather screenings of MS4 outfalls to evaluate the presence of illicit discharges. If any illicit discharges are present, the permittee shall identify the source(s) and take appropriate actions to remove or correct any illicit discharges. The permittee shall also respond to reports received from the public or other agencies of suspected or confirmed illicit discharges associated with the storm sewer system, as well as take enforcement action as necessary. The permittee shall immediately report to DEP illicit discharges that would endanger users downstream from the discharge, or would otherwise result in pollution or create a danger of pollution or would damage property.

For new permittees, all identified outfalls (and if applicable observation points) must be screened during dry weather at least twice within the 5-year period following permit coverage. For existing permittees, all identified outfalls (and if applicable observation points) must be screen during dry weather at least once within the 5-year period following permit coverage and, for areas where past problems have been reported or known sources of dry weather flows occur on a continual basis, outfalls must be screened annually during each year of permit coverage.

1. How many unique outfalls (and if applicable observation points) were screened during the reporting period? 24

2. Indicate the percentage of all outfalls screened in the past five years. 100%

3. Indicate the percent of outfalls screened during the reporting period that revealed dry weather flows: 28.5%

4. Did any dry weather flows reveal color, turbidity, sheen, odor, floating or submerged solids? ☐ Yes ☒ No

5. If Yes for #4, attach all sample results to this report with a map identifying the sample location. Explain the corrective action(s) taken in the attachment.

6. Do you use the MS4 Outfall Field Screening Report form (3800-FM-BCW0521) provided in the permit?

   ☒ Yes ☐ No

   If No, attach a copy of your screening report form.

BMP #5: Enact a Stormwater Management Ordinance or SOP to implement and enforce a stormwater management program that includes prohibition of non-stormwater discharges to the regulated small MS4.

1. Do you have an ordinance (municipal) or SOP or other mechanism (non-municipal) that prohibits non-stormwater discharges? ☒ Yes ☐ No

   If Yes, indicate the date of the ordinance or SOP: 10/10/2019

2. If Yes to #1, is the ordinance or SOP consistent with DEP's 2022 Model Stormwater Management Ordinance (3800-PM-BCW0100j) with respect to authorized non-stormwater discharges? ☒ Yes ☐ No

   If Yes to #2 and the ordinance or SOP has not been submitted to DEP previously, attach the ordinance or SOP.

3. Were there any violations of the ordinance or SOP during the reporting period? ☒ Yes ☐ No

If Yes to #3, complete the table below (attach additional sheets as necessary).

Violation Date	Nature of Violation	Responsible Party	Enforcement Taken
07-06-2020 Please See Attachment No. 6	Improperly Maintained Stormwater Detention Basins	Woda Group, Inc. Dawn Ridge L.P.	Ordinance Notification of Violation Issued to Responsible Party, Proper Post Stormwater Mantiance was then Achieved and Verfication of Correction Made. A list of punch items was generated and the list of punch items implamented. The necessary documentation/verification is attached herein.
04-16-2020 Please See Attachment No. 6	Illicit Discharge/Muddy Run-off from the Bennington Square Construction Site Entered into the Carlisle Borough MS4 System.	Tir Corner Communities LLS-Jonathan Juffe/Kinsley Construction	E&S Controls were evaluated by Cumberland County Conservation and new measures were put into place to control the stormwater from entering into the Borough residents property in surrounding areas. All mud and storm debris have been cleaned and removed from Carlisle Borough residents properties as well as affected Carlisle Borough storm inlets and retention basins. The necessary documentation/verification is attached herein.
04-06-2020 Please See Attachment No. 6	Chesterfield, Phase 2B Deficiencies/Violations regarding identified stormwater management collection, conveyance and retention facility issues. Maintenance issues as well as minor damage to inlets needing correction.	C. Anthony Fruchtl with Penn Terra Engineering, Inc.	Corrective measures to all deficiencies/violations regarding identified stormwater management issues as directed by the Carlisle Borough Engineer have been declared and formally agreed upon by C. Anthony Fruchtl with PennTerra Engineering, Inc.

4. Did you approve any waiver or variance during the reporting period that allowed an exception to non-stormwater discharge provisions of an ordinance or SOP? ☐ Yes ☒ No

If Yes to #4, identify the entity that received the waiver or variance and the type of non-stormwater discharge approved.

N/A

BMP #6: Provide educational outreach to public employees, business owners and employees, property owners, the general public and elected officials (i.e., target audiences) about the program to detect and eliminate illicit discharges.

1. Was IDD&E-related information distributed to public employees, businesses, and the general public during the reporting period? ☒ Yes ☐ No

If Yes, what was distributed? IDDE form on Borough Website

2. Is there a well-publicized method for employees, businesses and the public to report stormwater pollution incidents?

☒ Yes ☐ No

3. Do you maintain documentation of all responses, action taken, and the time required to take action? ☒ Yes ☐ No

MCM #3 Comments:

See Attachment 6 for Carlisle Borough's IDDE Program and IDDE Citizen Complaint Form
See Attachment 7 for Carlisle Borough's Stormwater System Map
See Attachment 8 for Borough's 2020 Outfall Inspections
See Attachment 9 for updated Stormwater Management Ordinance

MCM #4 – CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Are you relying on PA's statewide program for stormwater associated with construction activities to satisfy this MCM?

☒ Yes ☐ No

(If Yes, respond to questions for BMP Nos. 1, 2 and 3 only in this section. If No, respond to questions for all BMPs in this section)

BMP #1: The permittee may not issue a building or other permit or final approval to those proposing or conducting earth disturbance activities requiring an NPDES permit unless the party proposing the earth disturbance has valid NPDES Permit coverage (i.e., not expired) under 25 Pa. Code Chapter 102.

During the reporting period, did you comply with 25 Pa. Code § 102.43 (relating to withholding building or other permits or approvals until DEP or a county conservation district (CCD) has approved NPDES permit coverage)?

☒ Yes ☐ No ☐ Not Applicable (no building permit applications received)

BMP #2: A municipality or county which issues building or other permits shall notify DEP or the applicable CCD within 5 days of the receipt of an application for a permit involving an earth disturbance activity consisting of one acre or more, in accordance with 25 Pa. Code § 102.42.

During the reporting period, did you comply with 25 Pa. Code § 102.42 (relating to notifying DEP/CCD within 5 days of receiving an application involving an earth disturbance activity of one acre or more)?

☒ Yes ☐ No ☐ Not Applicable (no building permit applications received)

BMP #3: Enact, implement and enforce an ordinance or SOP to require the implementation and maintenance of E&S control BMPs, including sanctions for non-compliance, as applicable.

1. Do you have an ordinance (municipal) or SOP or other mechanism (non-municipal) that requires implementation and maintenance of E&S control BMPs? ☒ Yes ☐ No

   If Yes, indicate the date of the ordinance or SOP: 03/11/2011

2. If Yes to #1, is the ordinance or SOP consistent with DEP's 2022 Model Stormwater Management Ordinance (3800-PM-BCW0100j)? ☒ Yes ☐ No

3. If Yes to #2 and the ordinance or SOP has not been submitted previously, attach a copy of the ordinance or SOP.

BMP #4: Review Erosion and Sediment (E&S) control plans to ensure that such plans adequately consider water quality impacts and meet regulatory requirements.

Specify the number of E&S Plans you reviewed during the reporting period:

BMP #5: Conduct inspections regarding installation and maintenance of E&S control measures during earth disturbance activities. Maintain records of site inspections, including dates and inspection results, in accordance with the record retention requirements in this permit.

Specify the number of E&S inspections you completed during the reporting period:

BMP #6: Conduct enforcement when installation and maintenance of E&S control measures during earth disturbance activities does not comply with permit and/or regulatory requirements.

Specify the number of enforcement actions you took during the reporting period for improper E&S:

BMP #7: Develop and implement requirements for construction site operators to control waste at construction sites that may cause adverse impacts to water quality. The permittee shall provide education on these requirements to construction site operators.

Specify the method(s) by which you are educating construction site operators on controlling waste at construction sites:

BMP #8: Develop and implement procedures for the receipt and consideration of public inquiries, concerns, and information submitted by the public to the permittee regarding local construction activities.

1. A tracking system has been established for receipt of public inquiries and complaints. ☐ Yes ☐ No

2. Specify the number of inquiries and complaints received during the reporting period:

MCM #4 Comments:

MCM #5 – POST-CONSTRUCTION STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

BMP #1: Enact, implement and enforce an ordinance or SOP to require post-construction stormwater management from new development and redevelopment projects, including sanctions for non-compliance.

1. Do you have an ordinance (municipal) or SOP or other mechanism (non-municipal) that requires implementation and maintenance of post-construction stormwater management (PCSM) BMPs? ☒ Yes ☐ No

   If Yes, indicate the date of the ordinance or SOP: 10/10/2019

2. If Yes to #1, is the ordinance or SOP consistent with DEP's 2022 Model Stormwater Management Ordinance (3800-PM-BCW0100j)? ☒ Yes ☐ No

3. If Yes to #2 and the ordinance or SOP has not been submitted previously, attach a copy of the ordinance or SOP.

BMP #2: Develop and implement measures to encourage and expand the use of Low Impact Development (LID) in new development and redevelopment. Measures should also be included to encourage retrofitting LID into existing development. Enact ordinances consistent with LID practices and repeal sections of ordinances that conflict with LID practices.

1. Do you have an ordinance (municipal) or SOP or other mechanism (non-municipal) that encourages and expands the use of LID in new development and redevelopment? ☒ Yes ☐ No

   If Yes, indicate the date of the ordinance or SOP: 10/10/2019

2. If Yes to #1, is the ordinance or SOP consistent with DEP's 2022 Model Stormwater Management Ordinance (3800-PM-BCW0100j)? ☒ Yes ☐ No

3. If Yes to #2 and the ordinance or SOP has not been submitted previously, attach a copy of the ordinance or SOP.

BMP #3: Ensure adequate O&M of all post-construction stormwater management BMPs that have been installed at development or redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale.

1. Do you have an inventory of all PCSM BMPs that were installed to meet requirements in NPDES Permits for Stormwater Discharges Associated with Construction Activities approved since March 10, 2003? ☒ Yes ☐ No

   If Yes to #1, complete Table 1 on the next page.

2. Has proper O&M occurred during the reporting period for all PCSM BMPs? ☒ Yes ☐ No

3. If No to #2, explain what action(s) the permittee has taken or plans to take to ensure proper O&M.

If you are relying on PA's statewide program for stormwater associated with construction activities, you may skip to MCM #6, otherwise complete all questions for BMPs #4 - #6 in this section.

BMP #4: Require the implementation of a combination of structural and/or non-structural BMPs that are appropriate to the local community, that minimize water quality impacts, and that are designed to maintain pre-development runoff conditions.

1. Specify the number of PCSM Plans reviewed during the reporting period for projects disturbing greater than or equal to one acre (including projects less than one acre that are part of a larger common plan of development or sale):

2. Has a tracking system been established and maintained to record qualifying projects and their associated BMPs?

   ☐ Yes ☐ No

PCSM BMP INVENTORY

Table 1. To complete the information needed for MCM #5, BMP #3, list all existing structural BMPs that discharge stormwater to the permittee's MS4 that were installed to satisfy PCSM requirements for earth disturbance activities under Chapter 102, and provide the requested information (see instructions).

BMP No.	BMP Name	DA (ac)	Entity Responsible for O&M	Latitude	Longitude	Date Installed	O&M Requirements	NPDES Permit No.
1	(PLEASE SEE ATTACHMENT NO. 10 FOR COMPLETE BMP LISTING)			° ' "	° ' "			
2				° ' "	° ' "			
3				° ' "	° ' "			
4				° ' "	° ' "			
5				° ' "	° ' "			
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13				° ' "	° ' "			
14				° ' "	° ' "			
15				° ' "	° ' "			

16				° ' "	° ' "			

BMP #5: Ensure that controls are installed that shall prevent or minimize water quality impacts. The permittee shall inspect all qualifying development or redevelopment projects during the construction phase to ensure proper installation of the approved structural PCSM BMPs. A tracking system (e.g., database, spreadsheet, or written list) shall be implemented to track the inspections conducted and to track the results of the inspections (e.g., BMPs were, or were not, installed properly).

1. During the reporting period have you inspected all qualifying development and redevelopment projects during the construction phase to ensure proper installation of approved structural BMPs?

   ☐ Yes ☐ No ☐ Not Applicable (no qualifying projects during reporting period)

2. Has a tracking system been established and maintained to record results of inspections?

   ☐ Yes ☐ No

BMP #6: Develop a written procedure that describes how the permittee shall address all required components of this MCM.

Have you developed a written plan that addresses: 1) minimum requirements for use of structural and/or non-structural BMPs in plans for development and redevelopment; 2) criteria for selecting and standards for sizing stormwater BMPs; and 3) implementation of an inspection program to ensure that BMPs are properly installed? ☐ Yes ☐ No

MCM #5 Comments:

See Attachment No.10 for Carlisle Borough BMP Inspection Program and BMP Installation Log (2021)

MCM #6 – POLLUTION PREVENTION / GOOD HOUSEKEEPING

BMP #1: Identify and document all operations that are owned or operated by the permittee and have the potential for generating pollution in stormwater runoff to the MS4. This includes activities conducted by contractors for the permittee.

1. Have you identified all facilities and activities owned and operated by the permitee that have the potential to generate stormwater runoff into the MS4? ☒ Yes ☐ No

2. When was the inventory last reviewed? June 2021

3. When was it last updated? June 2021

BMP #2: Develop, implement and maintain a written O&M program for all operations that could contribute to the discharge of pollutants from the MS4, as identified under BMP #1. This program shall address stormwater collection or conveyance systems within the regulated MS4.

1. Have you developed a written O&M program for the operations identified in BMP #1? ☒ Yes ☐ No

2. Date of last review or update to written O&M program: June 2021

BMP #3: Develop and implement an employee training program that addresses appropriate topics to further the goal of preventing or reducing the discharge of pollutants from operations to the regulated small MS4. All relevant employees and contractors shall receive training.

1. Have you developed an employee training program? ☒ Yes ☐ No

2. Date of last review or update to training program: June 2021 Date of latest training: 06/23/2021

3. Training topics covered:

   Please see Attachment No. 11 for Summarization of Training completed.

4. Name(s) of training presenter(s):

5. Names of training attendees:

MCM #6 Comments:

See Attachment 11 for MS4 Employee Training Program

POLLUTANT CONTROL MEASURES (PCMs)

Indicate the status of implementing PCMs in Appendices A, B and/or C by completing the table below. Skip this section if PCMs are not applicable.

Task	Date Completed	Attached	Anticipated Completion Date
Storm Sewershed Map(s)	June 2021	☒	
Source Inventory		☐	
Investigation of Suspected Sources		☐	
Ordinance/SOP for Controlling Animal Wastes		☐	

PCM Comments:

POLLUTANT REDUCTION PLANS (PRPs) AND TMDL PLANS

1. Complete this section if the development and submission of a PRP and/or TMDL Plan was required as an attachment to the latest NOI or application or was required by the permit, regardless of whether DEP has approved the plan(s).

Type of Plan	Submission Date	DEP Approval Date	Surface Waters Addressed by Plan
☒ Chesapeake Bay PRP (Appendix D)	11/29/2019	07/23/2020	Chesapeake Bay
☐ Impaired Waters PRP (Appendix E)			
☐ TMDL Plan (Appendix F)			
☐ Combined Chesapeake Bay / Impaired Waters PRP			Chesapeake Bay,
☐ Combined PRP / TMDL Plan			

☐ Joint Plan *(if checked, list the name of the MS4 group or names of all entities participating in the joint plan below)*

Joint Plan Participants:

2. Identify the pollutants of concern and pollutant load reduction requirements under the permit (see instructions).

Type of Plan	TSS Load Reduction (lbs/yr)	TP Load Reduction (lbs/yr)	TN Load Reduction (lbs/yr)
☒ Chesapeake Bay PRP (Appendix D)	154,802.93	103.41	1,160.33
☐ Impaired Waters PRP (Appendix E)			
☐ TMDL Plan (Appendix F)			
☐ Combined Chesapeake Bay / Impaired Waters PRP			
☐ Combined PRP / TMDL Plan			

3. Date Final Report Demonstrating Achievement of Pollutant Load Reductions Due: 07/25/2025

4. Have any modifications to the plan(s) occurred since DEP approval? ☐ Yes ☒ No

If Yes to #4, was the updated plan(s) submitted to DEP? ☐ Yes ☐ No

If Yes to #4, did you comply with the public participation requirements of the applicable appendix? ☐ Yes ☐ No

If Yes to #4, describe the plan modifications.

5. Summary of progress achieved during reporting period.

Please See Attachment No. 12 for a summary fo the progress achieved during the reporting period.

6. Anticipated activities for next reporting period.

See Attachment No. 12 for the anticipated activites for the next reporting period.

PRP/TMDL Plan Comments:

NEW BMPs FOR PRP/TMDL PLAN IMPLEMENTATION

Table 2. List all new structural BMPs installed and ongoing non-structural BMPs implemented during the reporting period that are being used toward achieving load reductions in the permittee's PRP and/or TMDL Plan (see instructions).

BMP No.	BMP Name	DA (ac)	% Imp.	BMP Extent	Units	Latitude	Longitude	Date Installed or Implemented	Planning Area?	Ch. 102?	Annual Sediment Load Reduction (lbs/yr)
49	Valley Meadows Tree Planting	4.42	40	4.24	Acres	40°11'38"	77°13'21"	4/2019	☒	☐	270
						° ' "	° ' "		☐	☐	
						° ' "	° ' "		☐	☐	
						° ' "	° ' "		☐	☐	
						° ' "	° ' "		☐	☐	

BMP INVENTORY FOR PRP/TMDL PLAN IMPLEMENTATION

Table 3. List all existing structural BMPs that have been installed in prior reporting periods and are eligible to use toward achieving load reductions in the permittee's PRP and/or TMDL Plan (see instructions).

BMP No.	BMP Name	DA (ac)	% Imp.	BMP Extent	Units	Latitude	Longitude	Date Installed	Annual Sediment Load Reduction (lbs/yr)	Date of Latest Inspect-ion	Satis-factory?
48	Carlisle Green Streets	11.55	40	11.55	Acres	40°12'14"	77°11'59"	9/2019	17,901	6/2021	☒
						° ' "	° ' "				☐
						° ' "	° ' "				☐
						° ' "	° ' "				☐
						° ' "	° ' "				☐

						° ' "	° ' "				☐

CERTIFICATION

For PAG-13 Permittees: I have read the latest PAG-13 General Permit issued by DEP and agree and certify that (1) the permittee continues to be eligible for coverage under the PAG-13 General Permit and (2) the permittee will continue to comply with the conditions of that permit, including any modifications thereto. I understand that if I do not agree to the terms and conditions of the PAG-13 General Permit, I will apply for an individual permit within 90 days of publication of the General Permit. I also acknowledge that any facility construction needed to comply with the General Permit requirements shall be designed, built, operated, and maintained in accordance with operative laws and regulations.

For All Permittees: I certify under penalty of law that this report was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated 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. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Susan Armstrong, Carlisle Borough Manager	Susan Armstrong
Name of Responsible Official	Signature
717-240-6922	August 31, 2021
Telephone No.	Date

BOROUGH OF CARLISLE

"Committed To Excellence in Community Service"

Municipal Separate Storm Sewer System (MS4) Annual Report June 2020 – June 2021

Attachment 1

Integrated Public Education and Outreach and Public Involvement and Participation Program

I. INTRODUCTION

The Borough of Carlisle (Borough) is located in central Cumberland County, within the Cumberland Valley. The Borough is approximately 5.7 square miles in area, with the majority of the land containing high density urbanized development. As of the 2010 United States census, the Borough population was 18,682. Population as of 2014 was 18,916, based on Penn State Data Center estimates. Carlisle serves as the Cumberland County seat. The Borough is home to Dickinson College and the Penn State Dickinson School of Law. The United States Army War College at the Carlisle Barracks is located on the border of the Borough in adjacent North Middleton Township.

The topography of the Borough is a broad valley over limestone bedrock with slopes under eight percent. The Borough is located within the Conodoguinet Creek Watershed. Streams tributary to Conodoguinet Creek that receive runoff from the Borough are Alexander Spring Run, Letort Spring Run, and the Molly Grub. The land in the extreme western edge of the Borough drains to Alexander Spring Run. The north-central portion of the Borough drains to Conodoguinet Creek, and the Letort Spring Run basin is comprised of the remainder of the Borough. The Molly Grub drains into Letort Spring Run at Letort Park, located in the east-central portion of the Borough. Letort Spring Run eventually drains into the Conodoguinet Creek about 3.9 stream miles north of the Borough in North Middleton Township. Conodoguinet Creek discharges into the Susquehanna River in East Pennsboro Township, Cumberland County. The Susquehanna River discharges into the Chesapeake Bay. Therefore, the Borough is located entirely within the Chesapeake Bay watershed.

II. PERMIT REQUIREMENTS

The Borough received a National Pollutant Discharge Elimination System (NPDES) Permit from the Pennsylvania Department of Environmental Protection (DEP) in 2015 for the Borough's Municipal Separate Storm Sewer System (MS4). The NPDES Permit has an effective date of May 1, 2015. The Borough's MS4 collects runoff and conveys it through a system of street gutters, pipes and swales, before discharging the runoff to surface waters located in the Borough or downstream from the Borough. The MS4 Permit places specific requirements on the Borough that includes public education and public involvement in water quality improvement issues. Specifically, the MS4 Permit outlines a series of six Minimum Control Measures, or MCMs. Each of these contains multiple Best Management Practices (BMPs) and Measurable Goals that must be met. The Borough has chosen to integrate several BMPs of MCM #1 and MCM #2 into a singular Plan since both MCMs address working with citizens to attain cleaner water. The requirements for MCM #1 and MCM #2 as provided in the MS4 Permit are as follows:

> ***MCM #1: Public Education and Outreach on Stormwater Impacts***
> *Implement a public education program to distribute education materials to the community or conduct equivalent outreach activities about the impacts of stormwater discharges on water bodies and the steps that the public can take to reduce pollutants in stormwater runoff. (40 CFR Part 122.34(b)(1)(i))*

- **BMP #1:** Develop, implement and maintain a written Public Education and Outreach Program (PEOP).

- **BMP #2:** Develop and maintain lists of target audience groups that are present within the areas served by the regulated MS4s. In most communities the target audiences shall include residents, businesses (including commercial, industrial and retailers), developers, schools, and municipal employees.

- **BMP #3:** Annually publish at least one issue of a newsletter, a pamphlet, a flyer, or a web site that includes general stormwater educational information, a general description of the Borough's Stormwater Management Program, and/or information about stormwater management activities. The list of publications and the content should include a list of references (or links) to refer the reader to additional information (e.g., DEP and US EPA stormwater websites, and any other sources that will be helpful to readers). Implement at least one of the following alternatives:

    a. Publish and distribute in printed form a newsletter, a pamphlet or a flyer containing information consistent with this BMP.
    b. Publish educational and informational items including links to DEP's and EPA's stormwater websites on the municipal website.

- **BMP #4:** Distribute stormwater educational materials and/or information to the target audiences using a variety of distribution methods, including but not limited to: displays, posters, signs, pamphlets, booklets, brochures, radio, local cable TV, newspaper articles, other advertisements (e.g., at bus and train stops/stations), bill stuffers, posters, presentations, conferences, meetings, fact sheets, giveaways, storm drain stenciling. Select and utilize at least two distribution methods in each permit year (in addition to the newsletter and website provisions of BMPs #3 and #4).

MCM #2: Public Involvement / Participation
Comply with applicable state and local public notice requirements when implementing a public involvement/participation program. (40 CFR Part 122.34(b)(2)(i))

- **BMP #1:** Develop, implement and maintain a written Public Involvement and Participation Program (PIPP) which describes various types of possible participation activities and describes methods of encouraging the public's involvement and of soliciting the public's input. The PIPP shall include, but be limited to:

    a. Opportunities for the public to participate in the decision-making processes associated with the development, implementation, and update of programs and activities related to the permit.

b. Methods of routine communication to groups such as watershed associations, environmental advisory committees, and other environmental organizations that operate within proximity to the regulated small MS4s or their receiving waters.

c. Making periodic reports available to the public on the municipal website, municipal offices, or by US Mail upon request.

- **BMP #2:** Prior to adoption of any ordinance required by the Permit, provide adequate public notice and opportunities for public review, input, and feedback.

- **BMP #3:** Regularly solicit public involvement and participation from the target audience groups. This should include an effort to solicit public reporting of suspected illicit discharges and the Borough's implementation of its Stormwater Management Program (SWMP). Conduct public meetings to discuss the on-going implementation of the SWMP. The PIPP shall include, but be limited to:

  a. Holding at least one public meeting per year to solicit public involvement and participation from target audience groups after giving reasonable notice through the usual outlets a reasonable period in advance of each meeting. During the meetings, present a summary of the Borough's progress, activities, and accomplishments with implementation of the SWMP, and provide opportunities for the public to provide feedback and input.

  b. Documenting and reporting instances of cooperation and participation; presentations made to local watershed organizations and conservation organizations; and similar instances of participation or coordination with community organizations.

  c. Documenting and reporting activities in which members of the public assisted or participated in meetings and in the implementation of the Borough's SWMP, including education activities or organized implementation efforts such as cleanups, monitoring, storm-drain stenciling, or others.

Public Education and Outreach Program (PEOP)

I. Purpose:

The Borough of Carlisle recognizes the benefit and importance of stormwater education and the need to develop and implement an outreach program. This document shall be referred to as the official Carlisle Borough Public Education and Outreach Program (PEOP). It will be used to develop the Public Education and Outreach tasks for each permit year. The PEOP is intended to serve as a roadmap to inform the public about water quality impacts of stormwater discharges and actions available to reduce stormwater pollutants.

II. Identification of Target Audience:

Identifying the target audience(s) is important to the development of the Public Education and Outreach Program. The target audiences are noted as follows:

- Borough Residents
- Carlisle Area School District Students (focus on schools located in the Borough)
- Business Owners
- Building Contractors
- Commercial and Residential Developers
- Land Development Design Professionals
- Land Development Contractors
- Borough Public Works and Park and Recreation Employees
- Dickinson College staff and students

In order to meet the educational requirements of the MS4 Permit, the Borough will perform some of the following tasks on a yearly basis while other tasks will be performed at least once per 5-year permit cycle.

III. Yearly tasks and their associated target groups are as follows:

a. Borough Gazette Newsletter articles (minimum of one stormwater related article per year). Potential topics to include educational article on MS4 program, actions residents can undertake to reduce stormwater contamination, status of Borough stormwater management improvement projects, and how to report on any suspicious items in storm system. Primary target audience: Borough residents and business owners. Secondary Target Audience: Any member of the other groups.

b. Develop and maintain the Borough's web site with informational items on Stormwater. Primary Target Audience: Borough residents and business owners. Secondary Target Audience: Any member of the other groups. Potential items on the web site include:
   - Map showing watersheds and stormwater management facilities
   - DEP's "When it Rains it Drains" brochure
   - Illicit Discharges Fact Sheet
   - Procedures for reporting on illicit discharges
   - Don't Let Stormwater Run Off With Your Time and Money brochure
   - Information on swimming pool draining procedures

c. Continue to support the Letort Regional Authority. The Authority's mission is to protect and preserve the LeTort Spring Run and its watershed by promoting flood control and developing access and recreational opportunities within the watershed. Public involvement and education regarding the use and understanding of the watershed's resources is one of the goals of the Authority. Primary Target Audience: commercial and residential developers, land development design professionals, land development contractors and residents.

d. Continue to financially support the Alliance for Aquatic Resources Monitoring (ALLARM). The Borough started a partnership with the Alliance for Aquatic Resource Monitoring (ALLARM) in 2007. ALLARM is a nonprofit organization founded in 1986 based out of Dickinson College's Environmental Studies Department which seeks to educate, engage, and empower the community through citizen science. ALLARM trains volunteers to monitor water quality and works to raise awareness with Dickinson College students and the general public about water quality issues and healthy stream habits. ALLARM also publishes and distributes via e-mail to its list serve a monthly Stormwater Newsletter during the fall and spring semesters. A copy of ALLARM's Public Education and Outreach and Public Involvement and Participation Strategy Plan for May 1, 2018 to April 30, 2019 is attached as an appendix to this Plan.
Primary Target Audience: Dickinson College students and Borough residents.

e. Distribute "When it Rains, It Drains", "Don't Let Stormwater Run Off with Your Time and Money" and "What is Stormwater" with zoning permit applications and construction contracts. Primary Target Audience: Building Contractors.

f. Publish a stormwater educational notice in the local newspaper (the Carlisle Sentinel) Primary Target Audience: Borough residents. Secondary Target Audience: Newspaper readership outside of Carlisle Borough.

g. Provide links on the Borough website to other stormwater related websites such as DEP's EPA, ALLARM, CAPCOG, and Letort Regional Authority.

h. Provide yearly updates to the public works and codes enforcement employees of the importance of being alert for the detection of prohibited materials in the Borough's separate storm sewer system and procedures to follow if an illicit discharge is observed. This will be performed at a monthly PW staff meeting. Primary Target Audience: Public Works Employees

IV. Potential Permit Cycle Education and Outreach Tasks are as follows:

a. Water and Sanitary Sewer Bill Stuffers. Distribute stormwater educational materials and/or notices of upcoming stormwater related events in one of the quarterly utility bills mailed to Borough water and sanitary sewer system users. Primary Target Audience: Borough residents and business owners.

b. Social Media Outlets. Post notices of upcoming stormwater related events on the Borough Face Book page, the ALLARM Face Book page, and/or other social media outlets such as

mySidewalk, NextDoor, and via notices at neighborhood meetings such as the East Side Neighbors Association, South of South Street Neighborhood Association, Pitt Street Pride and the ABC North West Community Group. Primary Target Audience: Borough residents and Dickinson College Students.

c. Storm Drain Stenciling. ALLARM has installed "Don't Dump, Drains to the Letort" markers on most street inlets in the Borough that are tributary to Letort Spring Run. Worn, damaged, or missing markers will be replaced on an as-needed basis.

d. ALLARM Posters. ALLARM prepares and places posters throughout its campus, at downtown businesses, and at Borough Hall announcing special events related to stormwater management topics such as its Rain Barrel Workshop and Adopt a Storm Drain Program. Primary Target Audience: Dickinson College Students, Borough residents, and Business owners.

e. Borough Council Public Meetings. Borough Council generally holds two monthly public meetings that are publically advertised in the Carlisle Sentinel. Borough Council holds a workshop meeting and a general Borough Council meeting monthly (except in December) which are publically advertised in the Carlisle Sentinel. Reporters from the Carlisle Sentinel and the Harrisburg Patriot typically attend Borough Council meetings. Presentations and discussions related to stormwater topics are occasional agenda items at the meetings. The meeting agenda is typically placed on the Borough website and meeting notices are also placed on Borough website. Potential presentation topics may include the Stormwater Management Ordinance, MS4 Program, and establishment of a stormwater utility fee. Carlisle Borough staff will devote a section of either a Workshop Committee meeting or a Borough Council meeting on MS4 permit requirements, pending changes to the stormwater management ordinance, how stormwater requirements could impact development, and the status of compliance with the Borough's MS4 Permit and its Chesapeake Bay Pollutant Reduction Plan. Primary Target Audience: Borough elected officials, Borough residents, and newspaper outlets.

f. Community Event Displays. Provide stormwater related educations materials (brochures, pamphlets, posters, and displays) at a table set up at various community events such as the Amani Festival, Dickinson Community Service Day, Carlisle Summerfair, or Harvest of the Arts Festival. Primary Target Audience: Borough residents, Carlisle school district students, and Dickinson College students.

g. Letort Spring Run Documentary Viewing at Carlisle Theater. ALLARM has produced a film documentary about the history and significance of the LeTort Spring Run. Showings of the documentary could be made at the Carlisle Theater on W. High Street as a trailer prior to the showing of a commercial feature film. Primary Target Audience: Carlisle residents and Dickinson College Students.

h. Distribute stormwater educational materials to Carlisle Area School District Elementary Schools. Primary Audience: Elementary School Students.

V. **Review:**
Each year, the Borough will assess the effectiveness of the tasks performed and adjust the PEOP, as appropriate.

Public Involvement & Participation Program (PIPP)

I. **Purpose:**
Carlisle Borough recognizes the desire to reduce stormwater runoff as well as improve the quality of stormwater. A requirement of its MS4 Permit is to develop a stormwater management program that includes a public involvement and participation program. This document shall be referred to as the official Carlisle Borough Public Involvement and Participation Program (PIPP).

The PIPP is intended to provide the public with the opportunity to participate in the Borough's stormwater management program development and implementation by involving the public in the decision making regarding stormwater management, informing the public of stormwater related activities, and attempting to gain broader support for Borough stormwater projects.

II. **Methods of Encouraging the Public's Involvement:**
See Public Education and Outreach Program (PEOP)

III. **Potential Permit Cycle Public Participation Activities:**

a. Support the annual Dickinson College freshman service day that includes clean-up along Letort Spring Run and throughout the Borough of Carlisle. Primary Target Audience: Dickinson College students.

b. Adopt a Storm Drain Campaign. ALLARM runs the Adopt a Storm Drain Campaign to have volunteers "adopt" a storm drain near their home and keep it clear of debris and trash. This ensures that stormwater can flow into storm drains as quickly as possible to reduce pollution and street flooding. Volunteers are asked to attend to their adopted storm drain once a week and remove any debris on top of the inlet grating. ALLARM holds an annual workshop with volunteers to explain the program and provide all supplies needed (gloves, safety vests, and leaf litter bags). Primary Target Audience: Carlisle residents and Dickinson College students.

c. Rain Barrel Workshops. ALLARM holds publically advertised workshops to help Carlisle residents construct rain barrels. After an educational presentation, residents are allowed to take home their own rain barrel. Workshops are organized with assistance from the Cumberland County Conservation District. At these workshops, ALLARM volunteers teach participants about the importance of reducing stormwater pollution and the benefits of using rain barrels. Primary Target Audience: Carlisle residents.

d. LeTort Service Day. ALLARM leads publically advertised community maintenance activities at LeTort Park. Stormwater will also be discussed and how it can impact the LeTort. Primary Target Audience: Carlisle residents.

e. Letort Hike. Guided hike along Letort Spring Run Trail lead by ALLARM and Letort Spring Run Authority volunteers designed to engage community members of all ages and teach them about the history, importance, and ecology of the Letort Spring Run and stormwater management. Primary Target Audience: Carlisle residents and Dickinson College students.

f. Stormwater Best Management Practices (BMP) Scavenger Hunt. Scavenger hunt organized by ALLARM volunteers to teach participants about stormwater BMPs used on Dickinson College campus, the Cumberland County Conservation District office, or elsewhere around the Borough. Primary Target Audience: Carlisle School District students and Dickinson College students. (In school or afterschool activity).

IV. Soliciting Public Input.

a. A Borough Public Works employee knowledgeable about the Borough's MS4 activities will attend the regularly held meetings of the ALLARM Stormwater Steering Committee to provide routine communication to the group and seek input on PEOP and PIPP activities.

b. The Borough will post updates on public outreach activities, upcoming public meetings with stormwater agenda items, other MS4 Permit activities, and its annual MS4 report on the Borough website.

c. The Borough will dedicate a portion of at least one Borough Council Workshop or Council meeting annually to stormwater issues in the Borough and seek input from meeting attendees. All Council meetings will be publically advertised in the Carlisle Sentinel to solicit public involvement and participation.

d. Prior to adoption of any ordinance required by the Permit, the Borough will publically advertise the draft ordinance to provide adequate public notice and opportunities for public review, input, and feedback.

e. The Borough will make its annual MS4 reports available to the public on the municipal website, at the Public Works engineering Department offices, or by US Mail upon request.

VI. Review:

Each year, the Borough will assess the effectiveness of the tasks performed and adjust the PIPP, as appropriate.

BOROUGH OF CARLISLE

"Committed To Excellence in Community Service"

Municipal Separate Storm Sewer System (MS4) Annual Report June 2020 – June 2021

Attachment 2

Carlisle Borough Website Content, Social Media Content and Carlisle Gazette Content

What Can You Do to Prevent Stormwater Pollution?

Stormwater runoff is water from rain or melting snow that "runs off" across the land instead of seeping into the ground. Stormwater runoff is created when rain or snow falls on roads, driveways, parking lots, rooftops, and other covered surfaces that do not allow water to soak into the ground. This runoff eventually enters area waterways through our storm sewer system.



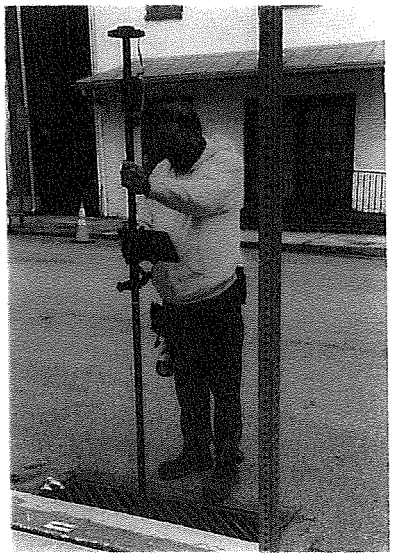
Only rain in the drain!

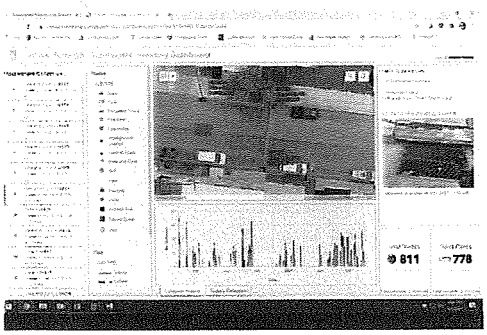
While the Borough is working on improving its stormwater infrastructure to reduce runoff and pollution, there are some simple things you can do to ensure only rain makes it down the drain!

- **Use lawn and garden chemicals sparingly.** Choose organic alternatives when possible and don't apply chemicals when heavy rain is in the forecast.
- **Clean up pet waste.** Pet waste contains harmful bacteria. Properly dispose of waste to prevent the bacteria from washing into storm drains.
- **Properly dispose of all trash.** Trash that is left in your yard or on the street will eventually end up in the closest creek or stream.
- **Recycle used motor oil.** Auto supply stores will often help you dispose of used oil. Do not dispose of oil, gasoline, or solvents down a storm drain!
- **Wash your vehicle at a commercial car wash.** When you wash your car in your driveway or on the street, the dirt, grease, and soap can wash directly into storm drains and travel to our local waterways. If you do wash your car at home, do it on grassy or gravel areas that can absorb the water without it washing into the street.
- **Keep grass clippings out of the street.** The nitrogen and phosphorus in grass are stormwater pollutants. Practice grasscycling and leave the clippings on your lawn after mowing. They act as a natural fertilizer, as well as help the soil retain water, which promotes root growth and a healthy lawn.

Mapping Our Stormwater System

The Borough's Water Resources crews have been collecting field data of the Borough's stormwater system to help create a hydraulic model of the system for a stormwater master plan. Once completed, this master plan will enable us to undertake planning, design, and budgeting efforts to improve our stormwater system, reduce flooding in the Borough, and comply with regulatory requirements.

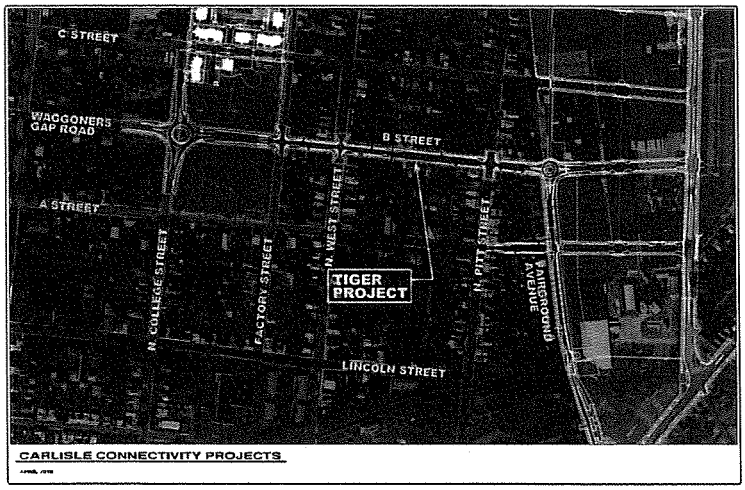




Using GPS equipment, crews measure the location, surface elevation, direction, and size of upstream and downstream piping. They use a computer notepad mounted to the equipment to enter the data, as well as photograph and record the condition of each stormwater inlet and manhole in the Borough's system. This information is then imported into an online dashboard. So far, crews have collected 1,100 of the 2,400 data points needed. By recording the data ourselves, rather than utilizing our consultant's services, we are saving about $30,000 in program costs.

In addition to the data collection, crews are also cleaning and inspecting all stormwater inlets in the system, recording any defects observed, and developing a work order database for the repair of observed defects.

Carlisle Connectivity Project Continues



Despite delays related to COVID-19, work on the TIGER Project portion of the Carlisle Connectivity Project (CCP) continues on. The TIGER portion of the CCP includes improvements to Fairground Avenue north of the railroad tracks and to B Street from Carlisle Springs Road west to North College Street. The project also features construction of a 3-point roundabout at B Street & Fairground Avenue and a 4-point roundabout at B Street & North College Street.

Work on the project began in March of 2020 with pre-construction activities before being shut down due to COVID-19. Construction restrictions were lifted a few months later and construction picked up in June of 2020. To date, crews have replaced old water mains and service laterals along B Street and Fairground Avenue, installation of new stormwater inlets and stormwater piping along B Street and Fairground Avenue, construction of stormwater flow-thru planters along Fairground Avenue and grading for a multi-use trail along Fairground Avenue. Construction will continue through the winter if conditions allow. The project is tentatively scheduled to wrap up in November of 2021.

Meanwhile, Project One of the CCP has not yet begun. We anticipate that we will advertise for construction bids in summer of 2021, award the bid in late summer of 2021, and construction to run from fall of 2021 to spring of 2023. Project One includes improvements to the intersection of North Hanover Street and Carlisle Springs Road, as well as a 5-point roundabout at North Hanover, West and East Penn Streets, and Fairground Avenue. We will continue to provide updates on these projects through press releases, our website, social media, and future editions of the Gazette.

Winter Weather Is Here

Whether you love snow falling from the sky or you long for the warmth of summer, winter is here and that means measurable snowfall for our area. Measureable snowfall means snow plowing is necessary.

It takes approximately eight hours for Borough equipment to complete the plowing of two lanes of traffic over the entire Borough street network. When all Borough streets are open to traffic, an effort is then made to open avenues/alleys and to plow as close to the curb as possible. This work may take an additional six to eight hours. PennDOT-owned streets, including High and Hanover, are plowed by PennDOT's crews.

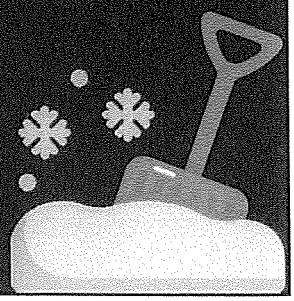
To avoid having to re-shovel, we suggest that residents shovel snow in the direction of vehicle traffic.

In order to promote safe sidewalks during winter months, the owner, occupant, or tenant of every property in the Borough of Carlisle is required to remove all snow and ice from sidewalks within 24 hours from the end of the weather event. The tenant of a property shall be responsible for the removal if the property is a single unit property. In all other situations, the owner is the responsible individual.

Be a Good Neighbor, Lend a Shovel!

Storm drain maintenance is important even in the winter.

Snow can clog the drains, resulting in street flooding during rain events or periods of snow. If you are shoveling and see a blocked storm drain, feel free to clear it as we welcome your assistance!



Carlisle Borough Government

Published by Stephanie Taylor · April 6 ·

Our crews are spending this beautiful Tuesday afternoon improving the Borough's stormwater infrastructure! They are replacing 75 feet of stormwater piping on Sutton Drive. The original pipe has reached the end of its useful operating life.

Improvements and investments to our aging stormwater infrastructure go a long way to reduce localized flooding and keep pollutants out of our local waterways.



Carlisle Borough Government

Published by Stephanie Taylor · April 16 ·

#DidYouKnow routine automobile repair and maintenance can contribute to stormwater pollution? Stormwater runoff carries pollutants such as oil, grease, solvents, and antifreeze to local waterways.

Here are some helpful tips to stop these chemicals from traveling down the storm drain:

🚗Do not perform repair or maintenance activities during rain events.

🚗Immediately clean up and contain any spills. Dispose of all waste and absorbent materials properly.

🚗Store hazardous materials and waste indoors, under cover, or in watertight containers.

🚗Perform automobile maintenance and repairs over water-resistant surfaces like concrete.

🚗Use drip pans and plastic sheeting to contain spills.

🚗Never pour oil in storm drains. Recycle used oil and antifreeze. Many service stations and auto supply stores will help you dispose of them.

#StormwaterSmart #stormwatermanagement

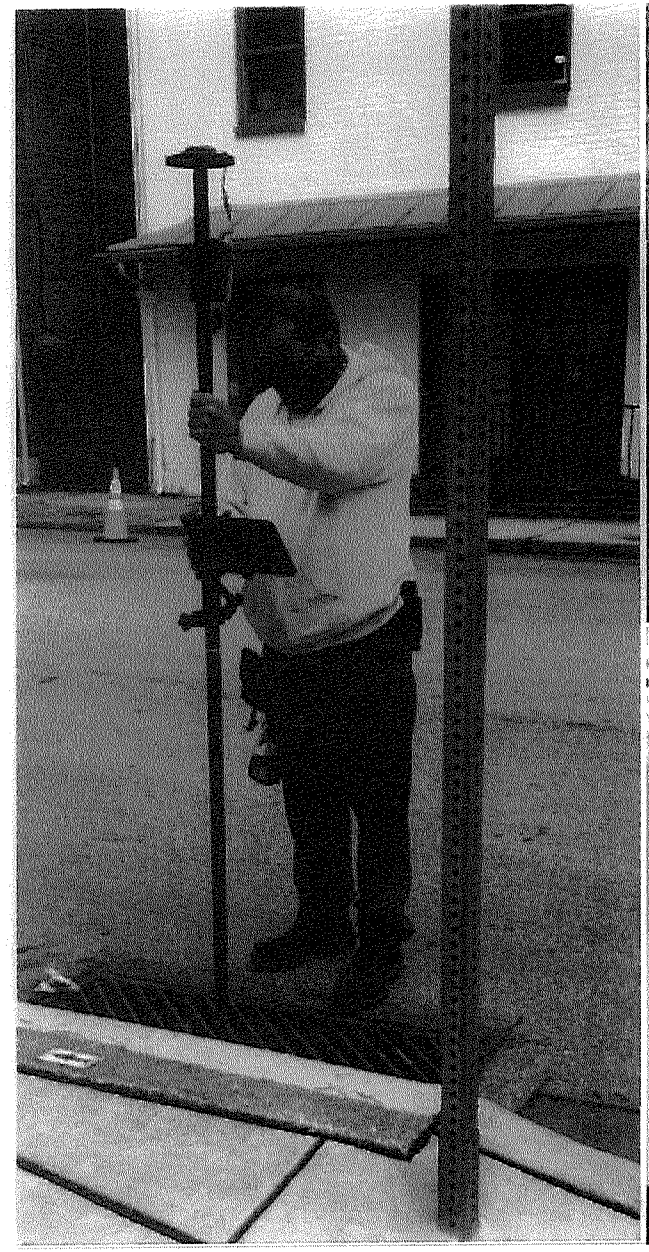
Carlisle Borough Government

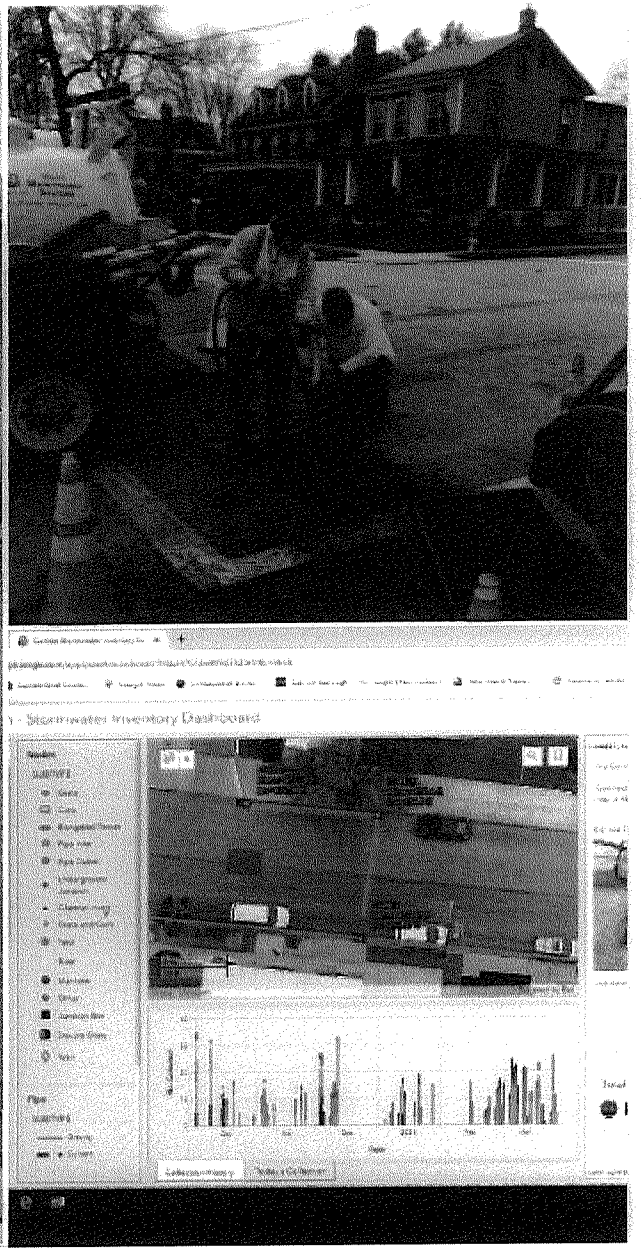
Published by Stephanie Taylor · April 21 ·

The Borough's Water Resources crews have been out and about collecting field data of the Borough's stormwater system to help create a hydraulic model of the system for a stormwater master plan. Once completed, this master plan will enable us to undertake planning, design, and budgeting efforts to improve our stormwater system, reduce flooding in the Borough, and comply with regulatory requirements.

Using GPS equipment, crews measure the location, surface elevation, bottom elevation, direction, and size of upstream and downstream piping. They use a computer notepad mounted to the equipment to enter the data, as well as photograph and record the condition of each stormwater inlet and manhole in the Borough's system. This information is then imported into an online dashboard. So far, crews have collected 1,100 of the 2,400 data points needed. By recording this data ourselves, rather than utilizing our consultant's services, we are saving about $30,000 in program costs!

In addition to data collection, crews are also cleaning and inspecting all stormwater inlets in the system, recording any defects observed, and developing a work order database for the repair of observed defects.





Carlisle Borough Government

Published by Stephanie Taylor · June 25 at 10:41 AM ·

The Borough's Water Resources Department continues to look for ways to effectively manage stormwater runoff on Borough-owned properties. Most recently, stormwater management improvements were made to the West Pomfret Street Parking Lot.

The parking lot is 0.49 acres and contains 76 parking spaces. During precipitation events, runoff from the lot contributes to localized flooding at the South Pitt Street and Church Avenue intersection.

Staff designed and worked with a contractor to replace the elevated concrete island in the middle of the lot with an at-grade, landscaped drainage trench. This trench will receive runoff from about half of the lot, allowing water to infiltrate on-site, rather than runoff the lot and potentially contribute to drainage issues downstream. The new trench will also have tree wells to add additional runoff control and provide shading for the lot. Pervious brick pavers and new landscaping will be added soon.

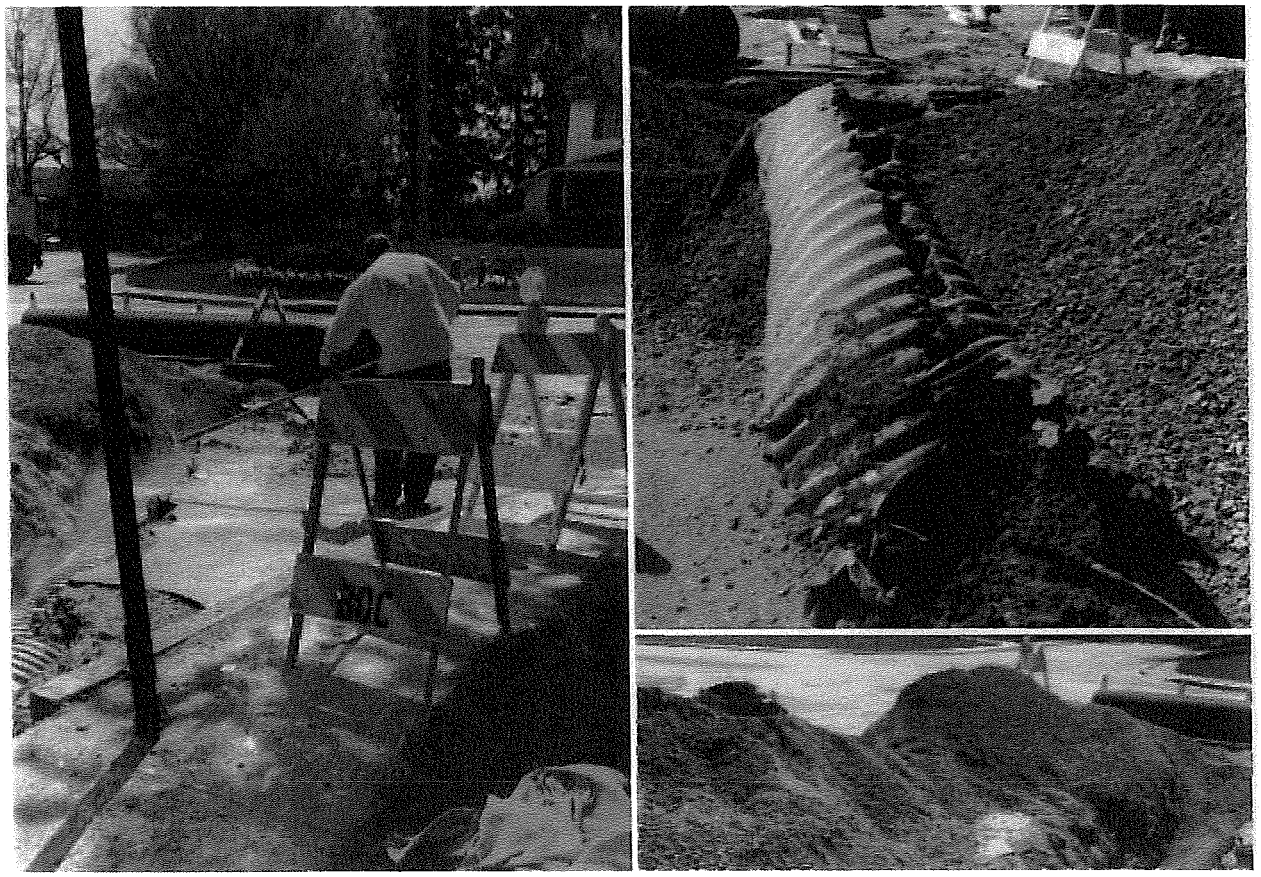
#stormwatermanagement

Carlisle Borough Government

Published by Stephanie Taylor · April 6 ·

Our crews are spending this beautiful Tuesday afternoon improving the Borough's stormwater infrastructure! They are replacing 75 feet of stormwater piping on Sutton Drive. The original pipe has reached the end of its useful operating life.

Improvements and investments to our aging stormwater infrastructure go a long way to reduce localized flooding and keep pollutants out of our local waterways.



Carlisle Borough Government

Published by Stephanie Taylor · March 23 ·

Now that spring has arrived, lawns will soon be growing green once again! We have some tips to keep your lawn stormwater friendly and absorbing rainwater without harming local streams.

- Set mower height to three inches or higher. Taller grass slows the rate of runoff and will produce a deeper and denser root system. Denser roots absorb more water, reducing lawn runoff and preventing erosion.

- Retain grass clippings and chopped leaves on-site. Grass clippings decompose quickly and provide valuable nutrients for your lawn. Please keep clippings off the street and out of storm drains.

- Use pesticides and fertilizers sparingly. Spreading grass clippings on your lawn can reduce the amount of fertilizer required. If fertilizer is needed, apply less than one pound per 1000 square feet per application. Apply only during the growing season to decrease the risk of the chemicals running off into streams. Check the weather, too. Do not fertilize or apply pesticides before a rain event, because most of it will wash off in stormwater runoff.

#stormwatermanagement #StormwaterSmart

Carlisle Borough Government

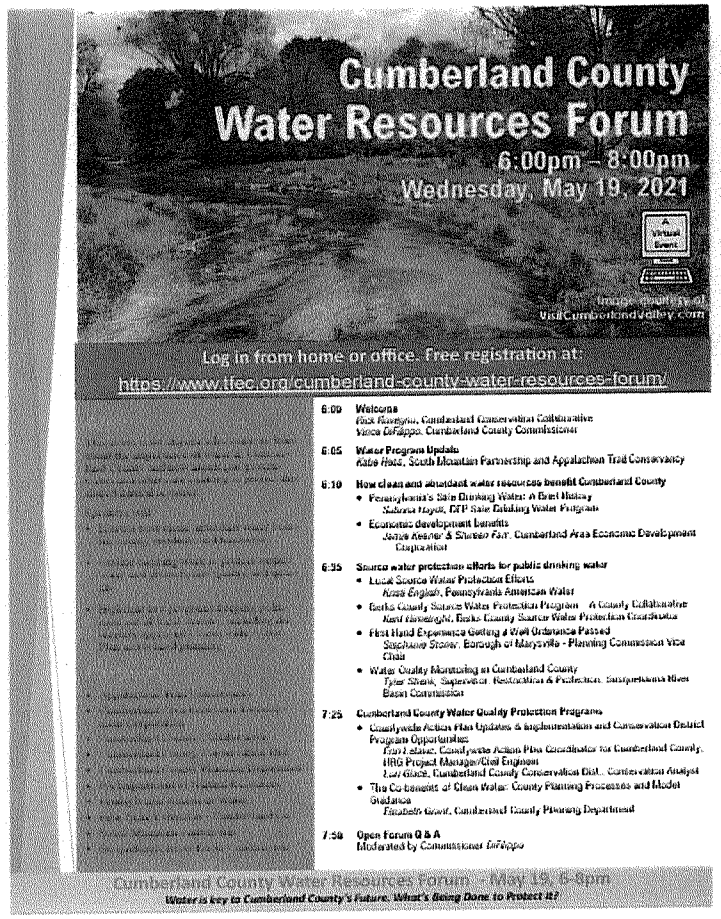
Published by Stephanie Taylor · May 7 ·

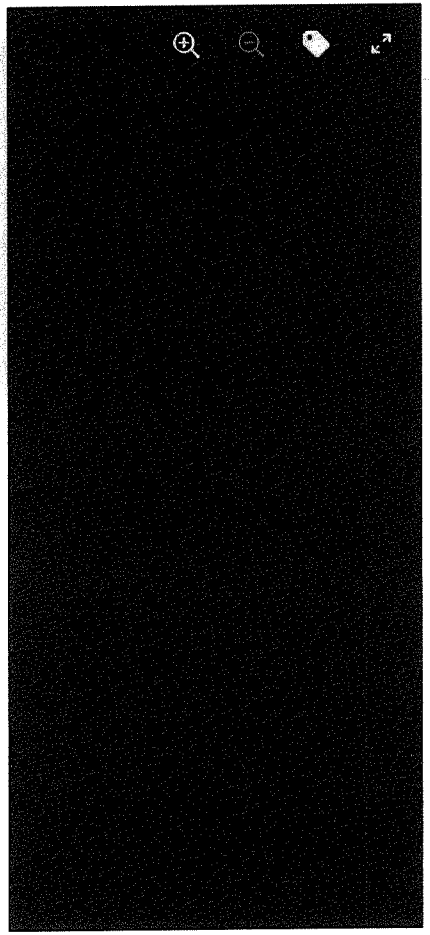


Pennsylvania Department of Transportation (PennDOT)

May 7 ·

Litter is a problem in Pennsylvania. When trash is left on the side of the road, it can clog storm drains and negatively impact the environment. Dispose of your trash responsibly.





Carlisle Borough Government
Published by Stephanie Taylor · May 12

The Cumberland County Water Resources Forum will be held on Wednesday, May 19 from 6:00 PM to 8:00 PM.

This event is for anyone who wants to learn more about the importance of water in Cumberland County and how municipal governments and other organizations are working to protect this precious, shared natural resource.

Visit https://www.tfec.org/cumberland-county-water-resources.../ and register today!

#waterresources #conservation

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Like Comment Share

Comment as Carlisle ...

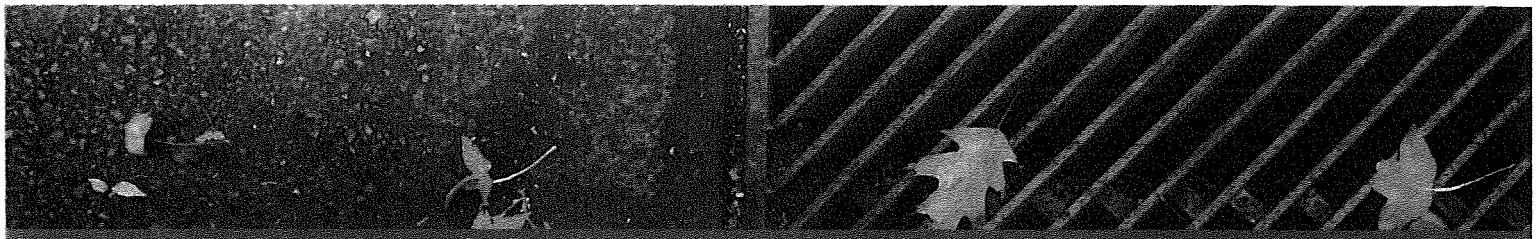
BOROUGH OF CARLISLE

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Municipal Separate Storm Sewer System (MS4) Annual Report June 2020 – June 2021

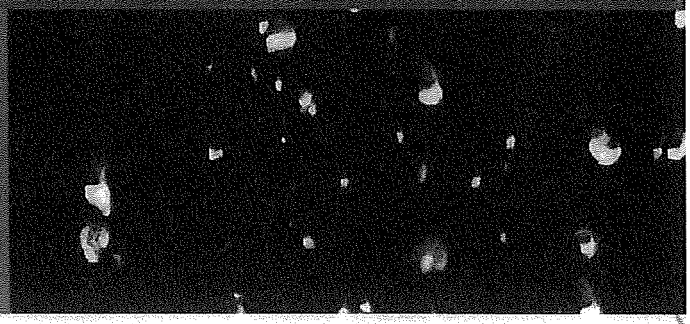
Attachment 3

ALLARM's Stormwater Runoff & Fee in Carlisle Informational Handout



STORMWATER

Runoff & Fee in Carlisle



Stormwater Runoff

Stormwater runoff is rain and/or snowmelt over impervious surfaces such as roads, sidewalks, driveways, parking lots or areas with a lot of paved ground. This precipitation drains into nearby streams without treatment (CBF, 2019).



Tercek, 2017

Why Manage Stormwater?

Stormwater can pick up many *pollutants* on its way to larger bodies of water such as oil, fertilizer or pet waste. This not only affects the health of those bodies of water, but also the people who interact with them. Pet waste contains illness causing-bacteria that can be transferred to nearby waterways through stormwater. This bacteria can accumulate in bodies of water used for recreation and force these areas to close for indefinite amounts of time.

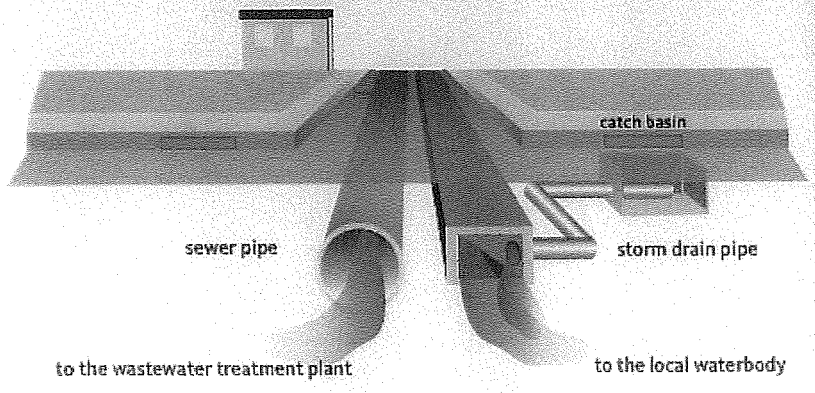
In addition, impervious surfaces eliminate the crucial water cycle function of *infiltration*, when precipitation moves down through soil rather than run over land. The removal of infiltration from the water cycle means stormwater can collect in high volumes and cause major damage due to flooding. In fact, the National Weather Service estimated that over the last 30 years, the US lost an average of 82 lives and $7.96 billion per year due to flooding." Proper stormwater management can prevent these unnecessary casualties and high economic burdens (Penn Future, 2017).

Carlisle's Municipal Separate Storm Sewer System (MS4)

In Carlisle, precipitation is directed to a stormdrain network and then flows into the LeTort Spring Run untreated (Penn Future, 2017). A Municipal Separate Storm Sewer System means that there are two separate pipes used for stormwater versus domestic wastewater. Conversely, wastewater from residential or commercial buildings is directed to the Carlisle Wastewater Treatment Plant.

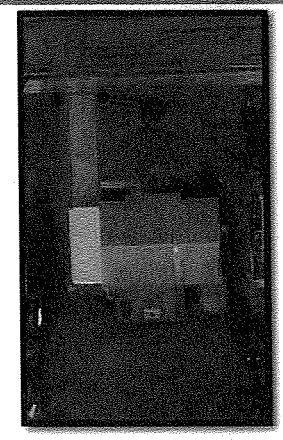
Carlisle has a Municipal Separate Storm Sewer System (MS4) that discharges untreated stormwater into the LeTort Spring Run, eventually making its way to the Chesapeake Bay. As a result, Carlisle has a federal MS4 permit that requires the Borough to uphold certain stormwater management standards. Furthermore, the permit defines stormwater and requires municipalities to create stormwater infrastructure and submit periodic reports on the quality of the stormwater being discharged into the Chesapeake Bay Watershed (NACLA, 2018).

Separate Sewer System



Penn Future, 2019

Managing Stormwater: Green Infrastructure



Typical residential parcel with impervious area shaded in blue

Single-Family Residential Properties		
Impervious Area (in units of Square Feet)	**Assigned Tier**	**Monthly* Stormwater Utility Fee**
Up to 1,800	1	$3.50
1,800 to 3,600	2	$7.00
Over 3,600	3	$10.50
Non-Single Family Residential Properties		
Monthly* Stormwater Fee = (Measured Impervious Area on Property/2,410) x $7.00		

Carlisle Borough, 2019

Green infrastructure, or stormwater best management practices, take advantage of natural evaporation and infiltration processes to reduce the volume and speed of water entering storm drains. They control the flow of stormwater by reintroducing key water cycle functions (evaporation and infiltration) that can remove pollutants or reduce flooding while also being aesthetically pleasing. Some examples of green infrastructure are: rain gardens, tree trenches, green roofs, porous pavement or rain barrels (CBF, 2019). More information about green infrastructure can be found on the EPA website titled: Stormwater Management and Green Infastructure Research.

Stormwater Fee

In November 2018, Carlisle adopted an ordinance creating a Stormwater Fee for property owners. The funds raised from this fee go to managing stormwater and is based upon the amount of impervious surface present on a property. This includes: single family or multi-family residences, apartments, churches, schools and parking lots. The average residential property in Carlisle, which has about 2,410 square feet of impervious area, will pay $7.00 per month. Residential properties with up to 1,800 square feet of impervious area will pay $3.50 per month and over 3,600 square feet will pay $10.50 per month. If you live in a non-single-family property the fee will be based on measured impervious surface on the property divided by 2,410 square feet (Carlisle Borough, 2019).

Before the stormwater fee, stormwater improvement projects were funded by a combination of property taxes, state and federal grants, and bonds and loans (Penn Future, 2017). The stormwater fee provides a long-term and stable source of revenue to support stormwater development projects. In addition, it is more equitable than a tax because it applies to all properties, including the typically tax-exempt such as churches, schools or government properties. In addition, it will only be used for stormwater management projects which will make long-term storm water projects easier because of steady funding and the dedication of a full-time staff (Carlisle Borough, 2017).

Stormwater management is for the betterment of the entire community, it keeps our waterbodies clean and citizens healthy. The fee is important because it allows Carlisle to fund and build infrastructure, equitably distribute costs, create jobs, and improve communities (Valderrama and Hammer, 2018).

Additional Resources

https://www.carlislepa.org/my-borough/stormwater-information/
https://www.epa.gov/water-research/stormwater-management-and-green-infrastructure-research
https://www3.epa.gov/npdes/pubs/region3_factsheet_funding.pdf
https://www.epa.gov/sites/production/files/2015-12/documents/sw_utility_-_combined_slides_-_aug_13_2015.pdf
https://www.nrdc.org/resources/making-it-rain-effective-stormwater-fees-can-create-jobs-build-infrastructure-and-drive

Citations can be found here **https://bit.ly/MS4cite**

Contact Us

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dickinson.edu/allarm

Dickinson

BOROUGH OF CARLISLE

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Municipal Separate Storm Sewer System (MS4) Annual Report June 2020 – June 2021

Attachment 4

ALLARM's Presentation Materials of Dickinson College's Stormwater BMP

Dickinson College's Stormwater BMP

Alliance for Aquatic Resource Monitoring (ALLARM)

April 7, 2020

What are Stormwater BMP's?



Stormwater is precipitation such as rain or melted snow that washes over land, roads, lawns, and sidewalks, picking up different pollutants (car oil, fertilizers, pet wastes). In Carlisle, stormwater flows into drains that discharge directly into the LeTort Spring run without treatment.

Best Management Practices or BMP's are steps we can implement to control the amount of flow of stormwater runoff. BMP's removes pollutants and improves water quality before it reaches surface water or groundwater.

Penn State Extension has prepared a YouTube playlist that provides additional information of stormwater, BMPs, MS4, and other related topics. The link below directs you towards their online playlist.

Penn State Extension



Maxar

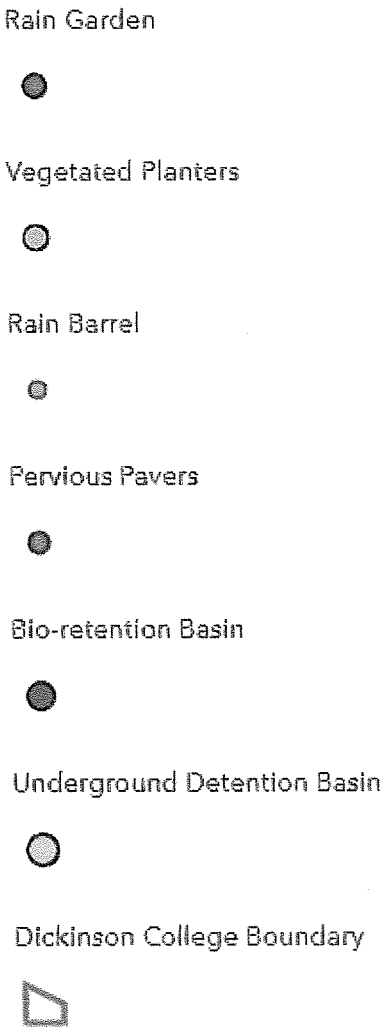
Powered by Esri

BMP's at Dickinson College

Dickinson College, with its commitment towards reducing stormwater pollution, has implemented several BMP's around campus. Each BMP has its own unique function, usefulness, and attributes.

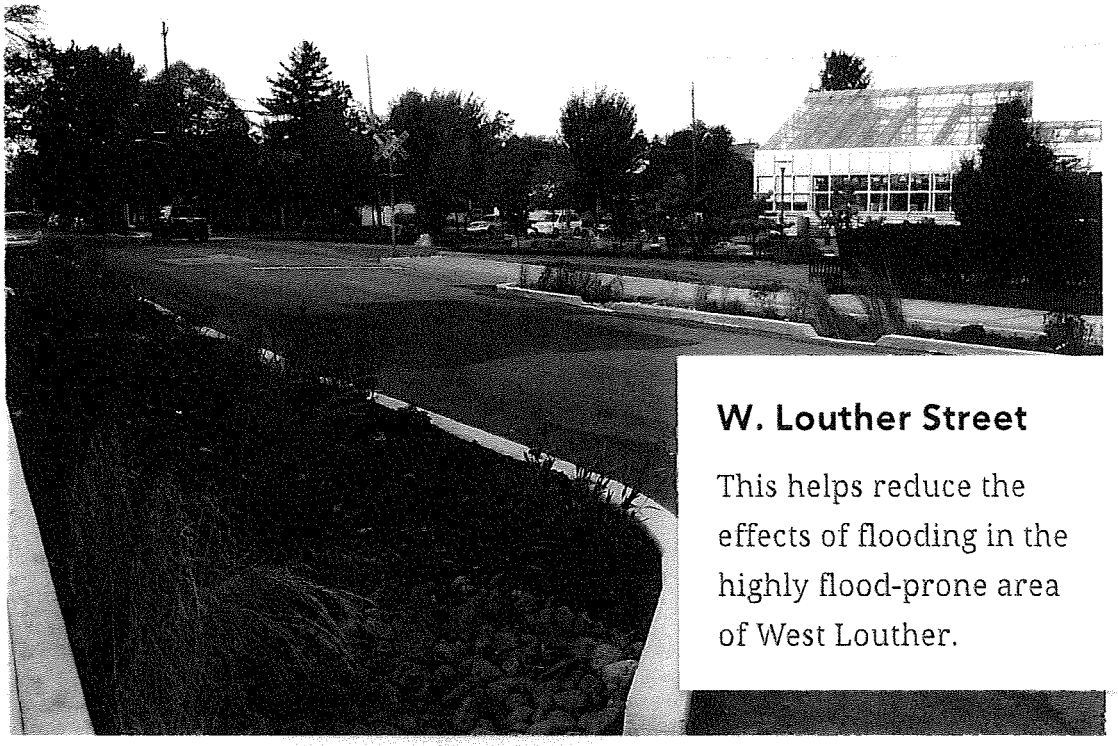
The map to the right provides an outline of all the BMP's on Dickinson. It is important to note that this map is a summary, rather than a list of all BMP's in the campus.

Legend:



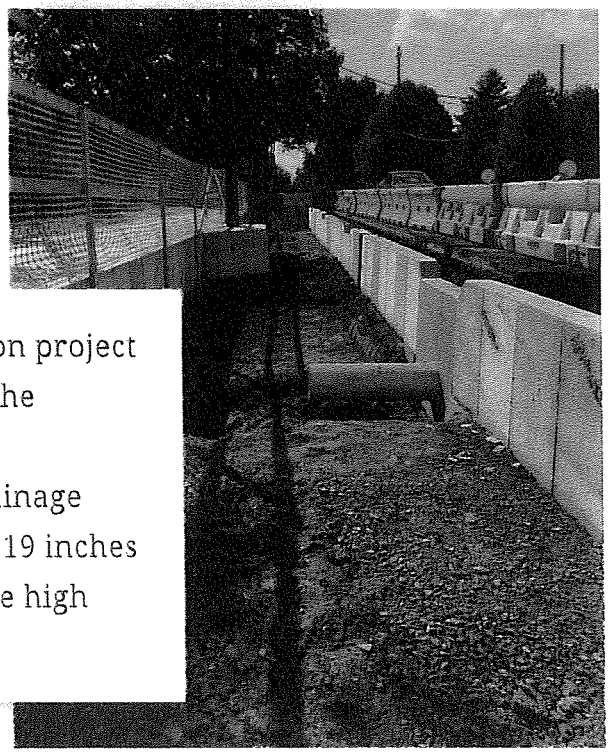
Bio-retention Basins

Bio-retention are landscape depressions or shallow basin that help mitigate flooding as well as filter stormwater runoff. A new bio-retention was built on W. Louther Street in the Fall 2019 semester.

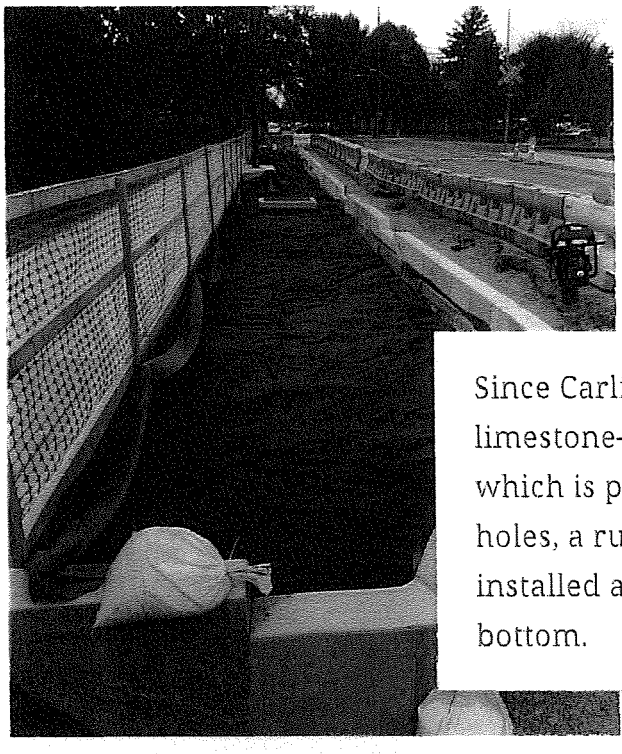


W. Louther Street

This helps reduce the effects of flooding in the highly flood-prone area of West Louther.



This construction project also increased the diameter of the stormwater drainage pipes from 6 to 19 inches to accommodate high flow situations.



Since Carlisle has limestone-heavy soil which is prone to sink holes, a rubber liner is installed along the bottom.



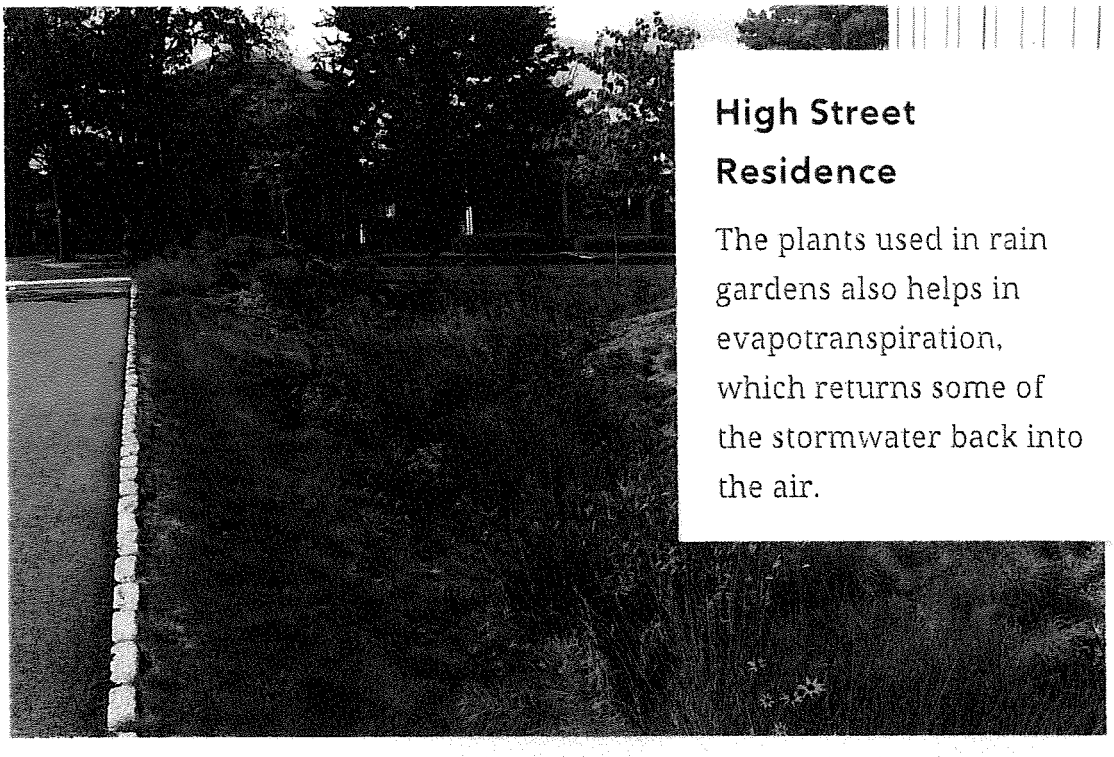
A layer of soil is added to allow vegetation to grow on the surface. This also helps filter out large pollutants.



Finally, layer of vegetation is added. These plants are selected based on their ability to survive in harsh conditions, particularly when there is heavy rains, snow, or floods.

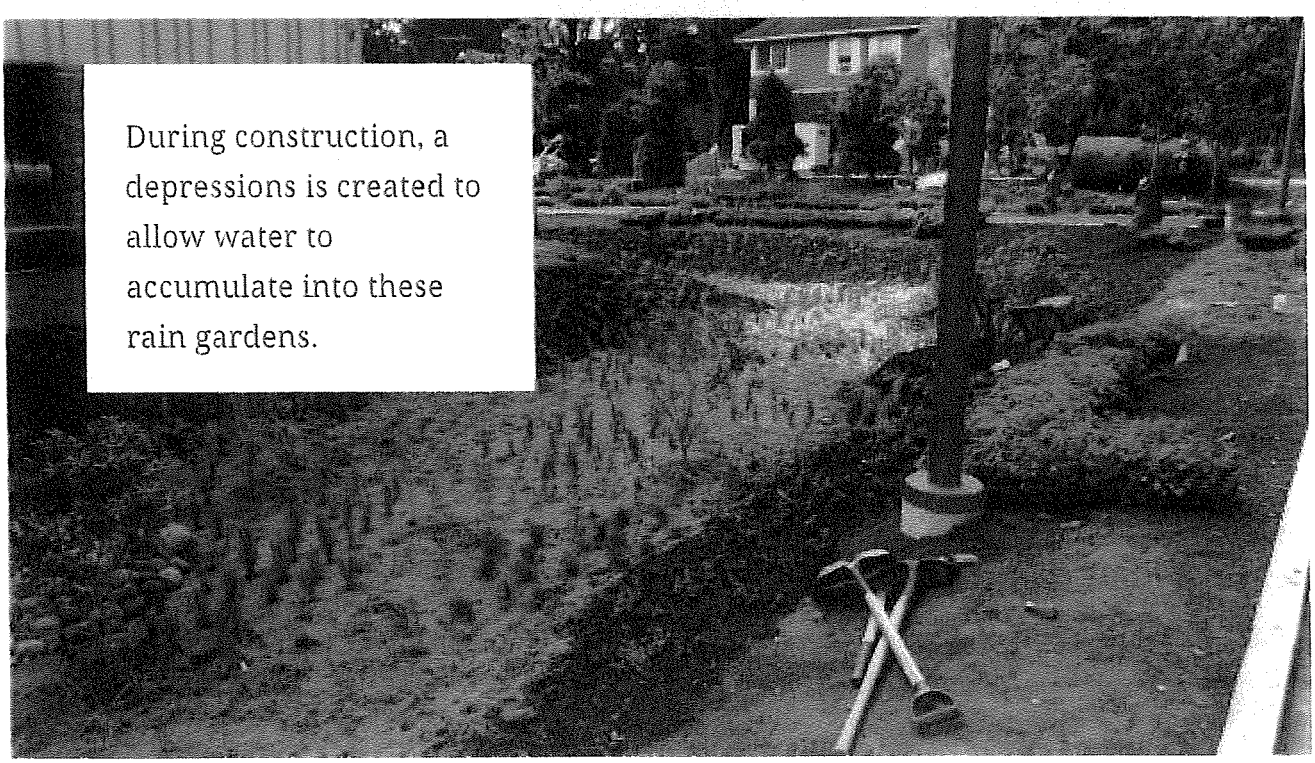
Rain Gardens

Rain gardens are planted shallow depression or inclines that uses water-tolerant plants and landscaping to soak up stormwater flowing from downspouts or impervious surfaces. Rain garden allow water to slowly seep into the ground, reducing the amount of water that flows directly into the nearest storm drain. Rain gardens typically consist of an absorbent soil mix, a mulch layer, and plants such as shrubs, grasses, and flowering plants.



High Street Residence

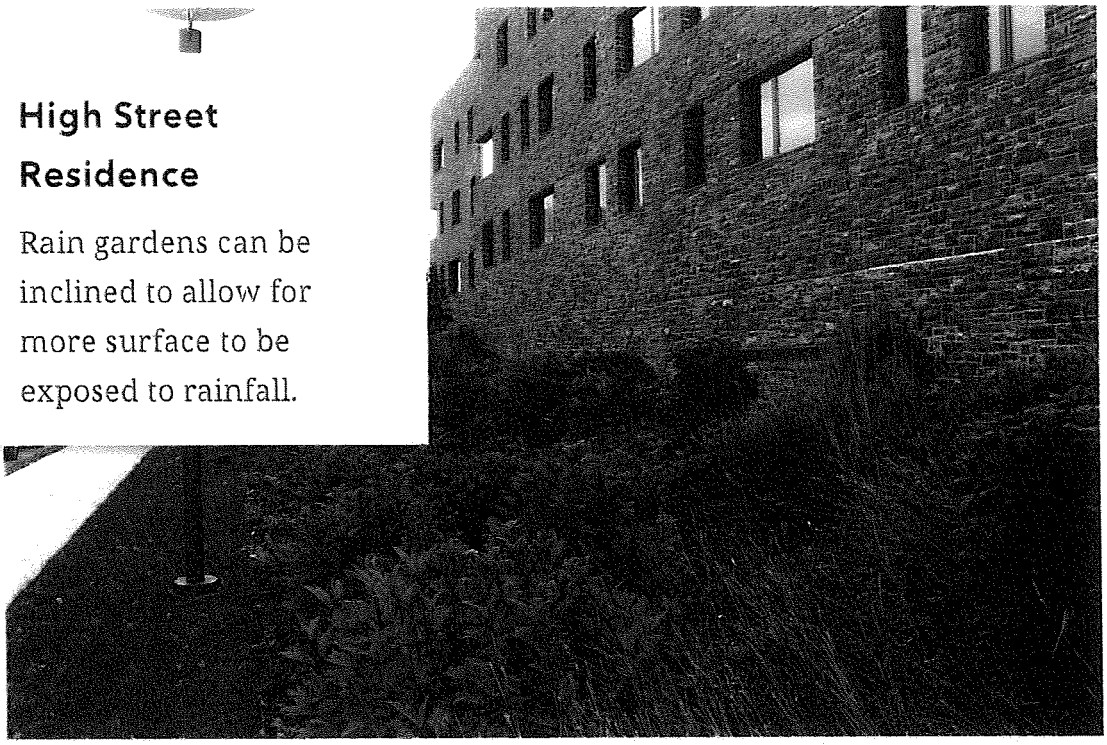
The plants used in rain gardens also helps in evapotranspiration, which returns some of the stormwater back into the air.



During construction, a depressions is created to allow water to accumulate into these rain gardens.

High Street Residence

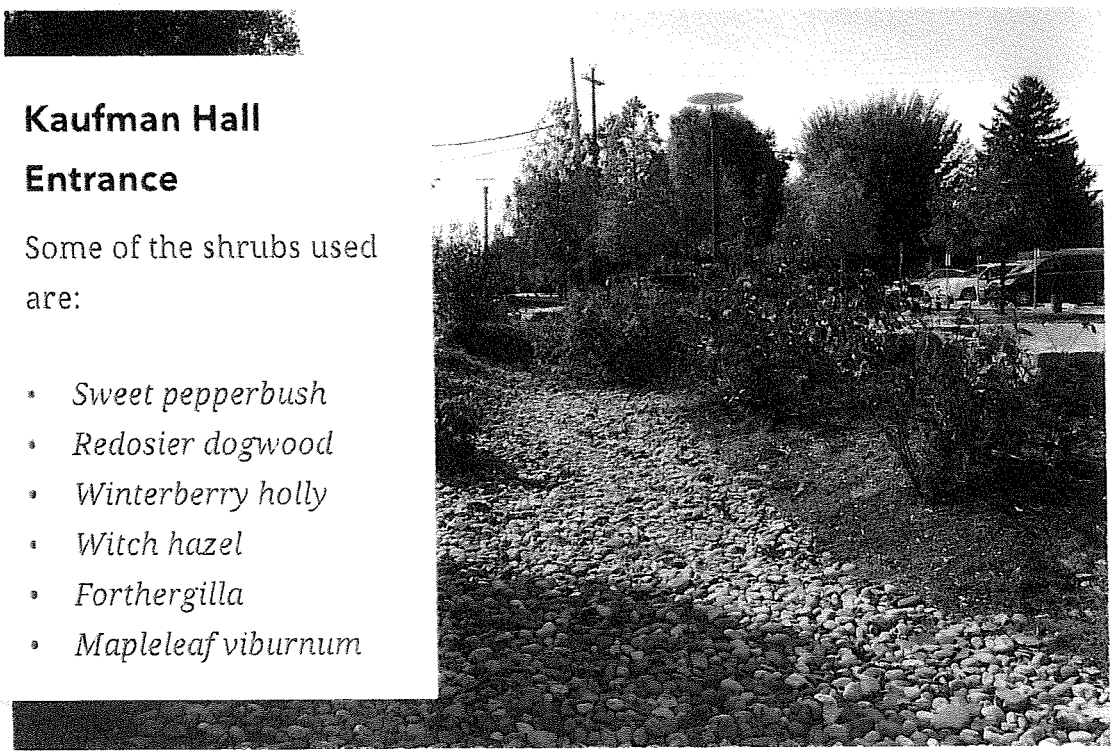
Rain gardens can be inclined to allow for more surface to be exposed to rainfall.

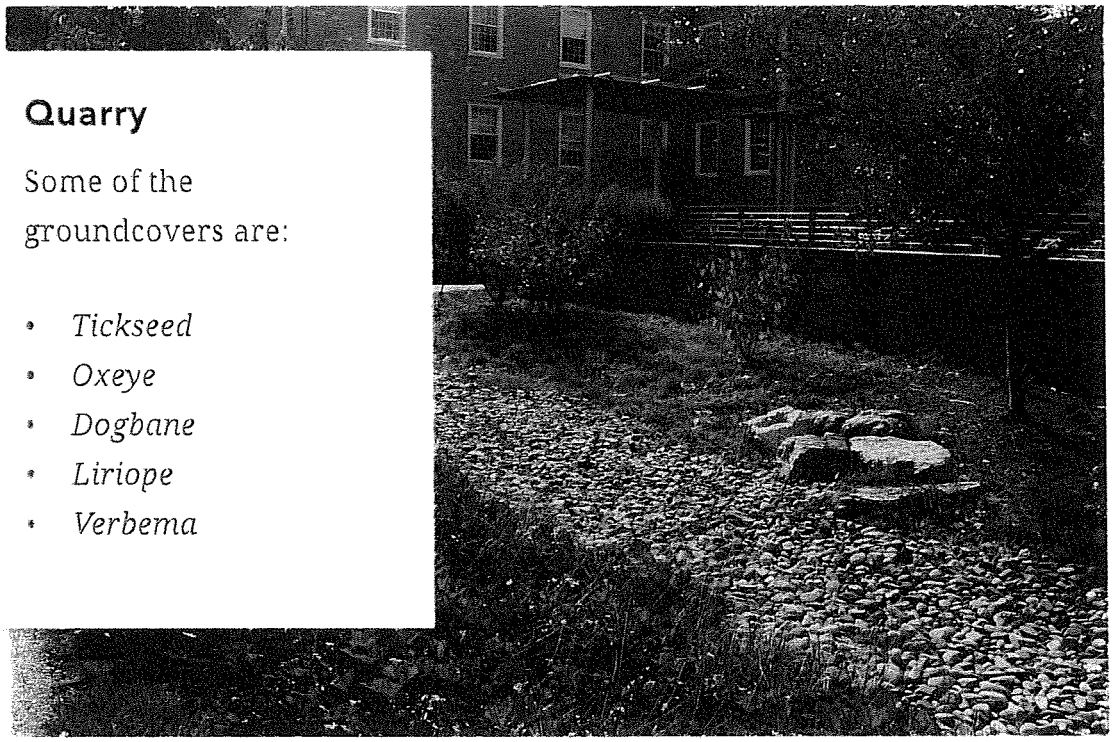


Kaufman Hall Entrance

Some of the shrubs used are:

- *Sweet pepperbush*
- *Redosier dogwood*
- *Winterberry holly*
- *Witch hazel*
- *Forthergilla*
- *Mapleleaf viburnum*





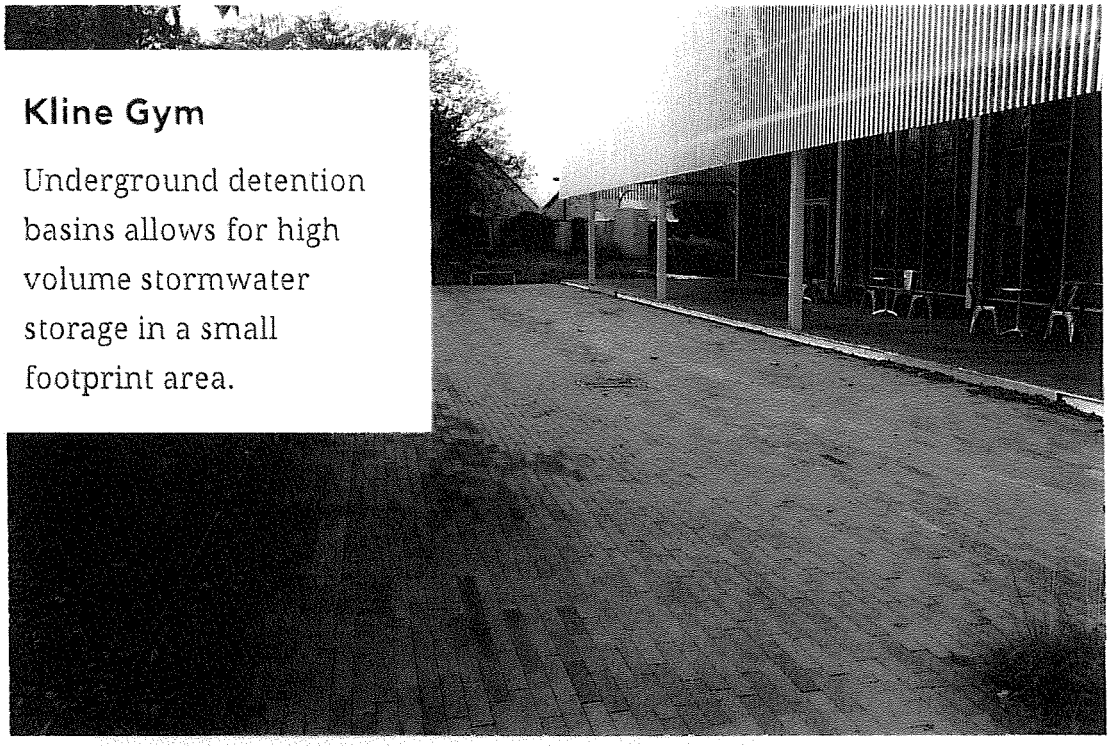
Quarry

Some of the groundcovers are:

- *Tickseed*
- *Oxeye*
- *Dogbane*
- *Liriope*
- *Verbema*

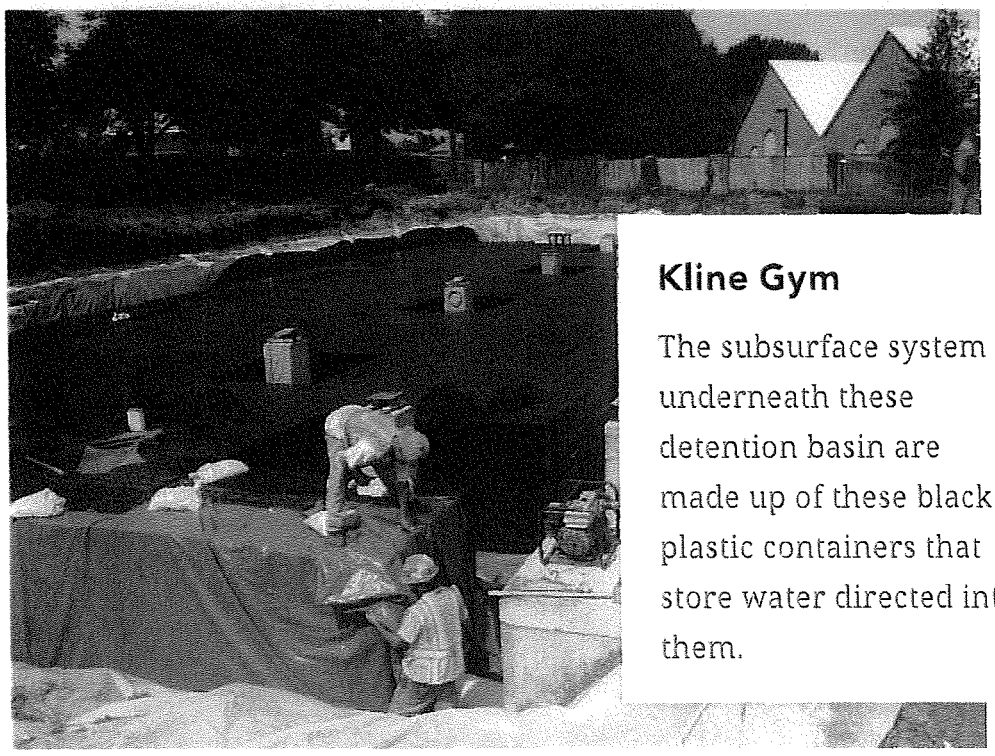
Underground Detention Basin

Often relying on infiltration into the ground to reduce stormwater might not be a practical solution. In such case, here at Dickinson, there is an underground detention basin. Underneath this detention basin are series of plastic containers wrapped with geotextiles to prevent debris from entering.



Kline Gym

Underground detention basins allows for high volume stormwater storage in a small footprint area.



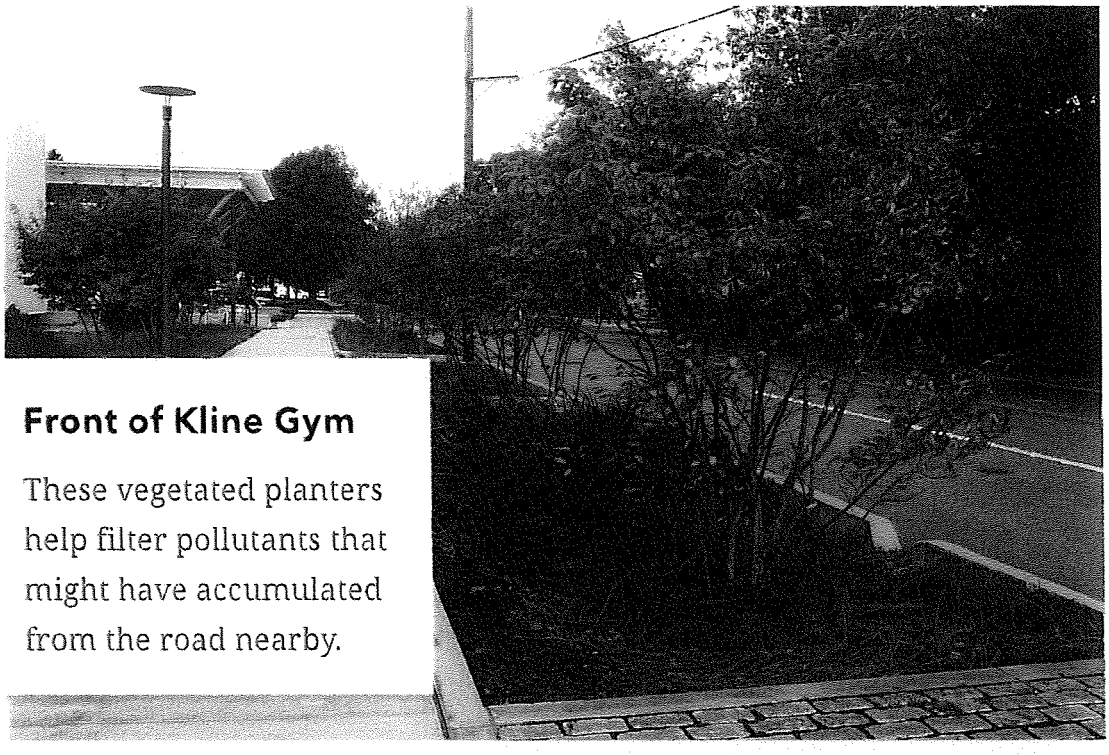
Kline Gym

The subsurface system underneath these detention basin are made up of these black plastic containers that store water directed into them.

Vegetated Planters

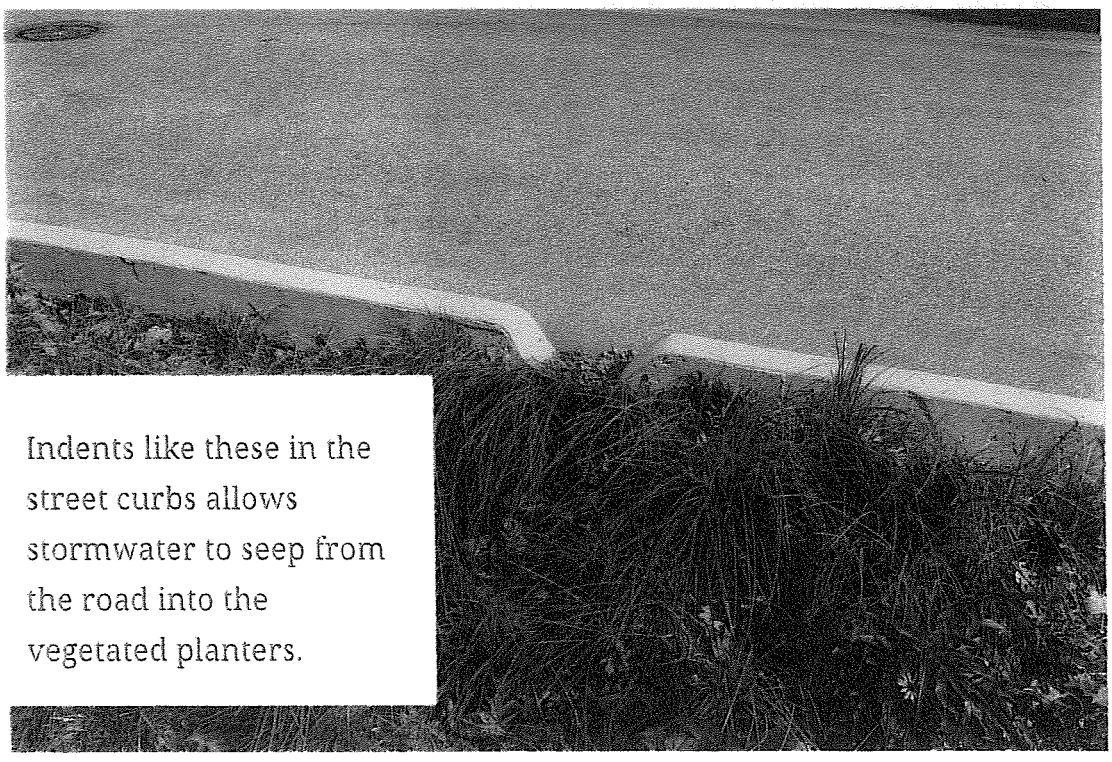
The role of vegetated planters is to direct stormwater from the streets into the ground through infiltration. These planters

have gaps in their edges to allow for water to flow into these planters from roads. Roads are built with concrete and without the help of these planters, the water in the road would simply runoff into nearby storm drains.



Front of Kline Gym

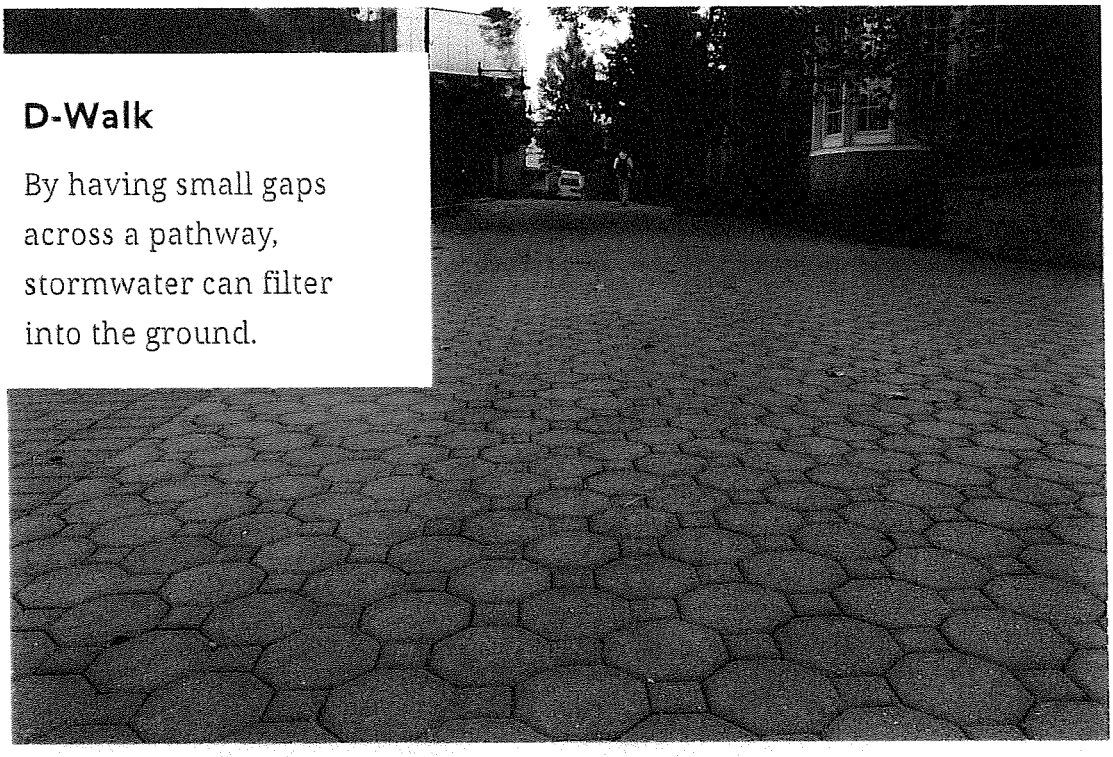
These vegetated planters help filter pollutants that might have accumulated from the road nearby.



Indents like these in the street curbs allows stormwater to seep from the road into the vegetated planters.

Permeable Pavement

Permeable pavement, through gaps between each paver, allow stormwater to seep into these gaps and into the ground. Underneath these pavers, stones are laid to help filter stormwater before it reaches ground water.



D-Walk

By having small gaps across a pathway, stormwater can filter into the ground.



Kaufman Parking Lot

Parking lots, which often flood during heavy rain discharge, can be made with permeable asphalt to allow stormwater to infiltrate down.

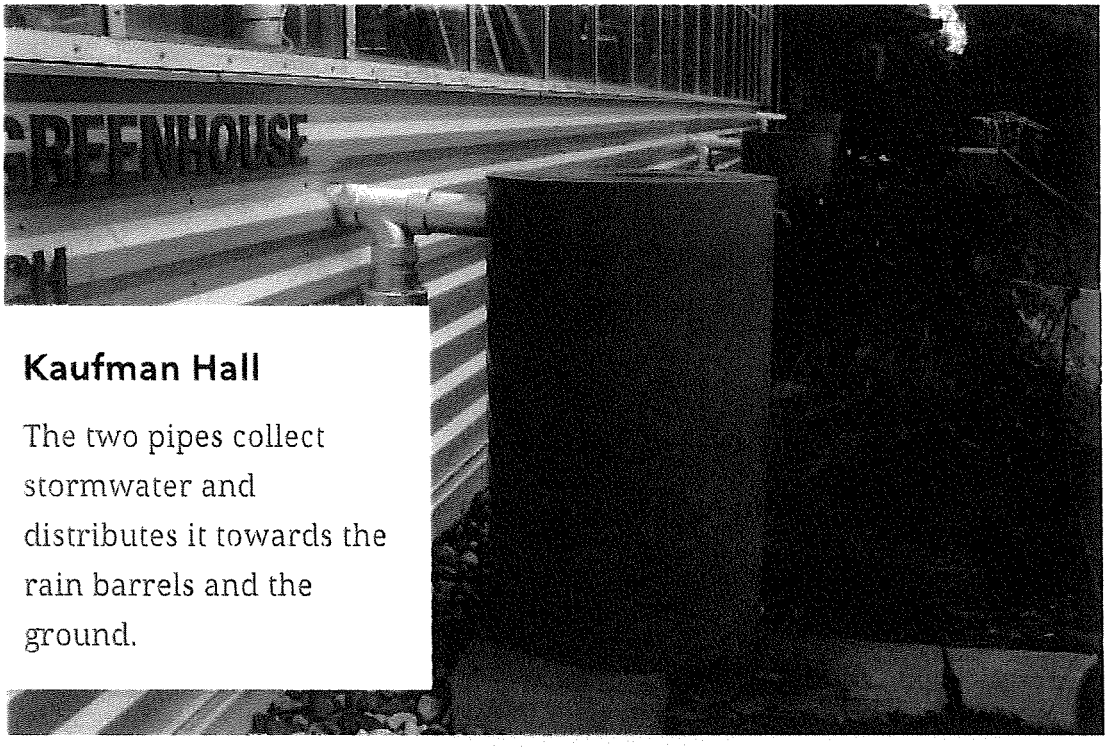


Kaufman Bike Stand

Even bike stands can be made with permeable asphalt.

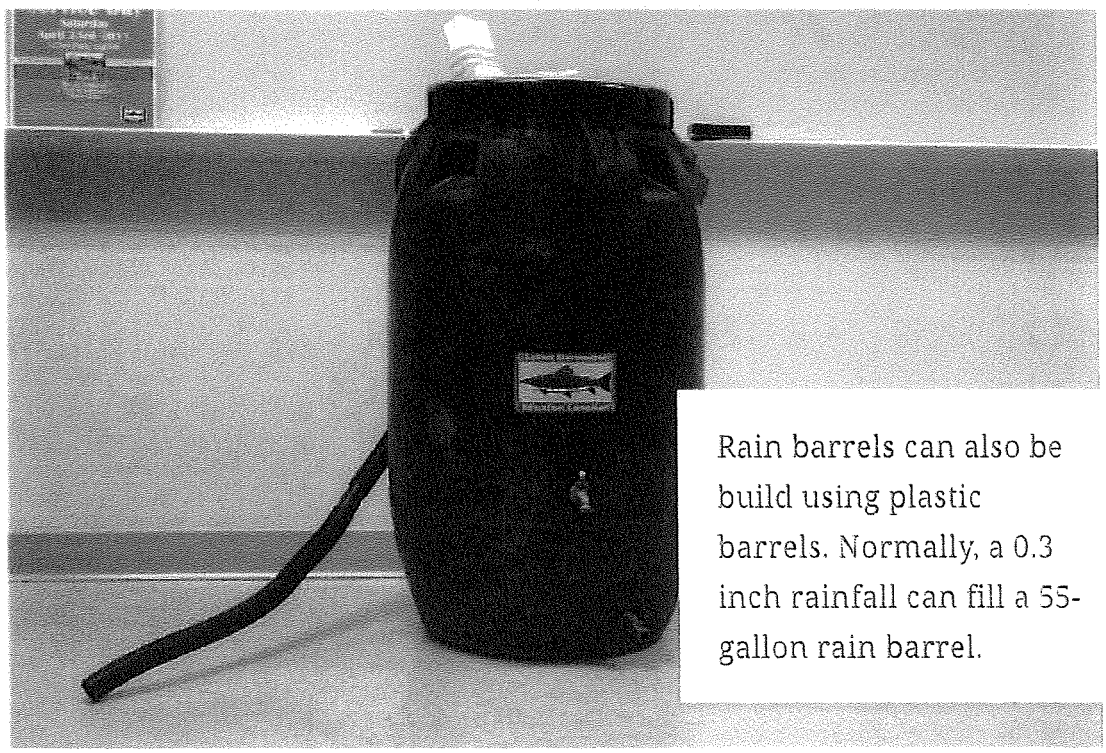
Rain Barrels

Rain barrels (sometimes called cisterns) are water storage vessels that collect stormwater from downspouts or gutters. Rain barrels have valves at the bottom to allow people to use the collected water. These can prevent rainwater from flooding into impervious surfaces. The water that is stored in these barrels can be used to water plants, which can be especially helpful during droughts.



Kaufman Hall

The two pipes collect stormwater and distributes it towards the rain barrels and the ground.



Rain barrels can also be build using plastic barrels. Normally, a 0.3 inch rainfall can fill a 55-gallon rain barrel.

Be Involved with Stormwater

Adopt a Storm Drain



Adopt a Storm Drain is one of ALLARM's campaign to help minimize street flooding and pollution runoff. Volunteers are responsible for attending to their adopted storm drain making sure that it is clear of debris. ALLARM provides with all the equipment needed to carry this task.

Build your own Rain Barrel



Rain barrels can be useful in collecting rainwater and using it for cleaning, watering plants, etc.

In the Spring Semester, ALLARM hosts workshops educating both Dickinson students and residents of the Borough on the use of rain barrels. Participants are also provided with all the equipment to build their own rain barrel. If you would like to participant, please contact ALLARM.

Contact Us

Email: allarm@dickinson.edu

BOROUGH OF CARLISLE

"Committed To Excellence in Community Service"

Municipal Separate Storm Sewer System (MS4) Annual Report June 2020 – June 2021

Attachment 5

Carlisle Borough's Stormwater

System Master Plan

For Engineering Services Contract

PUBLIC WORKS COMMITTEE
POLICY BRIEFING SUMMARY

Re: Stormwater System Master Plan Engineering Services Contract

Date Prepared:	February 7, 2020
Prepared By:	Mark A. Malarich, P.E.
Proposed Meeting Date:	February 13, 2020
Deadline for Action:	N/A

I. Request/Issue Needing Borough Council Action

Borough Council may enter into an engineering services contract with Gannett Fleming, Inc. to perform an evaluation of the Borough's stormwater management system that includes development of a Stormwater System Master Plan for a not-to-exceed cost of $160,000.00 (one hundred sixty thousand dollars) subject to the Borough Solicitor's review and approval of the contract. Additionally, staff recommends that a project contingency be allocated at a maximum amount of $15,000 to be utilized at the discretion of the Borough Manager to support the development of the stormwater system CIP.

II. Current Policy and/or Practice

The Borough Code, under Article XIV (Contracts), authorizes Borough Council to enter into contracts. The Code specifically exempts Borough Council from advertising, bidding or obtaining price quotations for professional engineering services. Preparation of a CIP for the stormwater management system requires the services of an engineering consultant that has experienced staff and adequate resources to provide the Borough with planning and modeling solutions needed to address aging and inadequately sized pipeline infrastructure in a cost-effective manner. Given the size and complexity of this project, Borough staff prepared and distributed a Request for Proposals (RFP) to engineering firms and conducted interviews of the firms responding to the RFP. This practice is consistent with the approach taken by the Borough in 2014 for the sanitary sewer system infiltration and inflow study and in 2016 for the water distribution system evaluation that resulted in the preparation of Capital Improvement Plans for the Borough's sanitary sewer collection system and water distribution system.

III. Other Background Information

The Borough owns and operates a Municipal Separate Storm Sewer System (MS4) that is used for collecting and conveying stormwater from developed portions of the Borough to area streams to minimize surface flooding. The Borough's stormsewer system includes about 29 miles of storm sewers ranging from 8-inch to 54-inch diameter, over 1,000 street inlets, 5 miles of grass-lined channels, 3 retention basins and 24 outfalls to LeTort Spring Run, an exceptional quality stream. The goal of the stormwater system evaluation is to develop a comprehensive stormwater system master plan that enables the Borough to undertake planning, design, and budgeting efforts for stormwater system improvements to reduce flooding in the Borough, comply with regulatory requirements, and maintain a reliable and efficient stormwater management system.

The RFP for the stormwater system evaluation was distributed on December 9, 2019 to ten engineering firms who were known by staff to have stormwater system planning and hydraulic modeling experience. The RFP established minimum qualifications for the project. Only consultants who had documented experience in stormwater system modeling and in rehabilitation of stormwater piping networks of similar size and age to the Borough's system were considered eligible for proposal submission. Three of the firms who submitted proposals met the minimum qualifications established

by the RFP. A Borough staff committee comprised of Susan Armstrong, Corey Flythe, Jacob Shaffer, and Mark Malarich independently reviewed the proposals received. All three qualified consultants were interviewed by the staff committee on Friday, February 7, 2020. The three engineering firms interviewed were HRG, GHD, and Gannett Fleming. The staff committee used a proposal and interview scoring form to assign a weighted numerical score to each consultant on the basis of their project manager's experience with similar projects, the team's demonstrated qualifications, their capacity to perform the work, office distance from the Borough, and their proposed approach to completing the project.

The staff committee was unanimous in assigning Gannett Fleming the highest score of the three firms interviewed. Gannett Fleming's submitted proposal and interview responses presented the best approach, most qualified project team, and highest level of understanding of the project goals. The staff committee felt very comfortable with the Gannett Fleming team members and project manager who will work closely with Borough staff to complete the required work.

IV. Financial Impact on Budget

The Water Resources 2020 budget includes $190,000 for this project. Gannett Fleming's proposal of $160,000 is well within the allotted budget. Staff recommends that Council also authorize a project contingency amount of $15,000, should it be determined by staff that additional facility assessment investigations are required to adequately collect all of the background information needed to accurately assess the condition of existing infrastructure to support the findings of the CIP. Potential additional investigations may include site surveys, in-pipe inspections, and other nondestructive pipeline testing to assess pipeline condition. The project contingency funding will only be used with approval of the Borough Manager.

V. Board, Commission, or Agency Review

None

VI. Staff Recommendation and Reason(s)

Staff recommends that Council enter into an engineering services contract with Gannett Fleming to perform a water distribution system evaluation for a not-to-exceed amount of $160,000 for the reasons given above. Additionally, staff recommends that a project contingency be allocated at a maximum amount of $15,000 to be utilized at the discretion of the Borough Manager to support the development of the stormwater system CIP.

BOROUGH OF CARLISLE

"Committed To Excellence in Community Service"

Municipal Separate Storm Sewer System (MS4) Annual Report June 2020 – June 2021

Attachment 6

Carlisle Borough's Illicit Discharge Detection and Elimination Program and Illicit Discharge Detection and Elimination Citizen Complaint Form

BOROUGH OF CARLISLE, CUMBERLAND COUNTY, PA
ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM (IDD&E)

I. PURPOSE

The Borough of Carlisle (Borough) owns and operates a Municipal Separate Storm Sewer System (MS4) that is used for collecting and conveying storm water from developed portions of the Borough to area streams to minimize surface flooding. Stormwater is defined as drainage runoff from the surface of the land resulting from precipitation or snow or ice melt. The term "illicit discharge" has many meanings in regulation. From the standpoint of stormwater management, an illicit discharge is defined as a storm drain that has measurable flow during dry weather containing pollutants and/or pathogens. A storm drain with measurable flow but containing no pollutants is simply considered a discharge. Attachment 1 gives examples of some typical illicit discharges. Attachment 2 gives examples of dry weather discharges that are not considered illicit and are therefore exempt from MS4 Permit requirements.

The Borough received a National Pollutant Discharge Elimination System (NPDES) Permit from the Pennsylvania Department of Environmental Protection (DEP) in 2015 for the Borough's MS4. The Borough's MS4 collects runoff and conveys it through a system of street gutters, pipes and swales, before discharging the runoff to surface waters located in the Borough or downstream from the Borough. The MS4 Permit places certain requirements on the Borough. Specifically, the MS4 Permit outlines a series of six Minimum Control Measures, or MCMs. Each of these contains multiple Best Management Practices (BMPs) and Measurable Goals that must be met. MCM#3 covers illicit discharge detection and elimination.

This document shall be referred to as the official Borough of Carlisle Illicit Discharge Detection and Elimination (IDD&E) Program. It will facilitate the detection and elimination of non-stormwater discharges, including illegal dumping into the Borough's MS4. Illicit discharges enter the system through either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration into the MS4 from cracked sanitary systems, spills collected by drain outlets, or other non-stormwater items (such as paint, used oil and wash water) dumped directly into a drain.

II. PROGRAM REQUIREMENTS

The requirements for MCM #3 as provided in the Borough's MS4 Permit are as follows:

- *Develop, implement, and enforce a program to detect and eliminate illicit discharges into the MS4*
- *Develop a storm sewer system map showing the location of all outfalls and the names and locations of all surface waters of the Commonwealth that receive discharges from those outfalls.*
- *To the extent allowable under State or local law, effectively prohibit, through ordinance, or other regulatory mechanism, non-stormwater discharges into your storm sewer system and implement appropriate enforcement procedures and actions.*

- *Develop and implement a plan to detect and address non-stormwater discharges, including illegal dumping, to the MS4.*
- *Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.*

The following Best Management Practices (BMPs) are to be implemented and achieved:

- **BMP #1:** Develop and implement a written program for the detection, elimination, and prevention of illicit discharges including the following:
  a. Procedures for identifying priority areas.
  b. Procedures for screening outfalls in priority areas during varying seasonal and meteorological conditions.
  c. Procedures for identifying the source of an illicit discharge when a contaminated flow is detected at a MS4 outfall.
  d. Procedures for eliminating an illicit discharge.
  e. Procedures for assessing the potential for illicit discharges caused by the interaction of sewage disposal systems (e.g., on-lot septic systems, sanitary piping) with storm drain systems.
  f. Mechanisms for gaining access to private property to inspect outfalls (e.g., land easements, consent agreements, search warrants) and for investigating illicit connections and discharges.
  g. Procedures for program documentation, evaluation and assessment.

- **BMP #2:** Develop and maintain a map of the regulated MS4 showing the location of all outfalls and the locations and names of all surface waters of the Commonwealth that receive discharges from those outfalls.

- **BMP #3:** In conjunction with the map created under BMP #2 (either on the same map or on a different map), show the entire storm sewer collection system including roads, inlets, piping, swales, catch basins, channels, and any other components of the storm sewer collection system , including municipal boundaries and watershed boundaries.

- **BMP #4:** Conduct dry weather screenings of MS4 outfalls to evaluate the presence of illicit discharges. If any illicit discharges are present, identify the source(s) and take appropriate actions to remove or correct any illicit discharges. The permittee shall also respond to reports received from the public or other agencies of suspected or confirmed illicit discharges associated with the storm sewer system, as well as take enforcement action as necessary. In each permit year, at least 40% of the total number of outfalls should be screened.

- **BMP #5:** Enact a Stormwater Management Ordinance to implement and enforce a stormwater management program that includes prohibition of non-stormwater discharges to the MS4.

- **BMP #6:** Provide educational outreach to public employees, business owners and employees, property owners, the general public and elected officials (i.e., target audiences) about the program to detect and eliminate illicit discharges. Education outreach should include:
  a. Distribution of brochures and guidance for target audiences including schools;
  b. Programs to encourage and facilitate public reporting of illicit discharges
  c. Organizing volunteers to locate and visually inspect outfall or to stencil storm drains; and

d. Implement and encourage recycling programs for common wastes such as motor oil, antifreeze and pesticides.

III. STORM SEWER MAP

The existing maps of the Borough's storm sewer system include the location of all known inlets, outfalls, and pipes, which is available to determine the extent of any dry-weather flows and the possible source(s) of illicit discharges is currently under development. A reduced scale copy of the Borough's current storm sewer system map is provided as Attachment 3. The Borough's MS4 Permit requires that a complete map of the system be developed by the end of the 4th year of permit coverage (by April 30, 2019). A table listing the known outfalls is also included in Attachment 3. Attachment 3 will be updated as new information on the Borough's MS4 system is obtained.

IV. PRIORITY AREAS

From the standpoint of the IDD&E, priority areas are those portions of the Borough with a higher likelihood of illicit discharges, illicit connections or illegal dumping. Priority areas may include areas with older infrastructure, a concentration of high-risk activities, or past history of water pollution problems.

All developed parcels in the Borough are connected to the public sanitary sewer system. The Borough undertook a detailed sanitary sewer system flow monitoring program in 2014 followed by extensive internal television inspections and smoke testing of the sanitary sewer system. Based on the results of these investigations, it is highly unlikely there are illicit discharges caused by the interaction of the Borough sanitary sewer systems with the MS4.

Borough staff undertook a review of its storm sewer system and land use records and initially identified the following potential priority areas within the MS4 area:

- Industrial area off Ritner Highway (US Route 11) and Allen Road. This industrial zoned area is bordered on the north by the Norfolk Southern Railroad, which forms the border between the Borough of Carlisle and North Middleton Township and represents the largest industrial land use area in the Borough. Land use is primarily composted of trucking terminals, but does have some manufacturing operations and large bakeries. The Borough's MS4 in this area does not have an outfall. The entire area eventually drains to a vegetative swale that flows north, via a culvert under the Norfolk Southern Railroad tracks before entering a vegetative swale on the north side of the railroad tracks in North Middleton Township. The vegetative swale flows north into the industrial area off Newville Road (PA Route 641) before eventually entering Alexander Spring Run. The approximate travel distance from the Borough border through the vegetative swales in North Middleton Township to Alexander Spring Run is about 1.05 miles. Given the lack of an outfall, this area is eliminated as a priority area.

- Industrial area north of E. High Street and east of Carlisle Spring Road. This industrial zoned area is primarily occupied by the Carlisle Frog & Switch manufacturing operations. There is no Borough owned stormwater management facilities in this area. Runoff from the site drains to E. High Street, where the Borough's has a stormsewer on the south side of the road that

eventually drains to Letort Spring Run (Outfall Numbers 9 through 12). Given the industrial component, this should be a priority area.

- Downtown Historic District. The Borough does not have a record of illicit discharges, illicit connections, or water quality problem areas within the Borough caused by illicit discharges. Nevertheless, the downtown historic district is the oldest area of the Borough, has the highest concentration of development with a mix of land uses. This area has the oldest portion of the Borough's MS4, which eventually drains into a 54-inch concrete culvert that discharges to Letort Spring Run at Outfall No.2. Given the service area age and size, this should be considered a priority area.

V. STORMWATER MANAGEMENT ORDINANCE

The current Stormwater Management Ordinance was adopted by Borough Council on March 11, 2011 and is codified as Chapter 217 of the Code of the Borough of Carlisle. Chapter 217, Article VII, Section 217-28, states that it shall be illegal to discharge non-storm water to the Borough-owned separate storm sewer system. Chapter 217-31, Article VIII provides the Borough with the right to enter onto any property within the Borough, upon presentation of proper credentials, to inspect the condition of the stormwater structures and facilities in regards to any aspect regulated by Chapter 217. Chapter 217-35, Article VIII provides for penalties for violating the provisions of Chapter 217.

VI. EDUCATIONAL OUTREACH

Outreach to the target audience regarding ways to detect and eliminate illicit discharges is another integral part of the IDDEP. This outreach may include:

- Developing informational materials and guidance documents for the target audiences noted in the Borough Public Education and Outreach Program (PEOP) for MCMs #1 and #2. These materials are located on the Borough's website.
- Placing advertisements for the general public regarding illicit discharges.
- Providing within the stormwater section of the Borough's website a reporting form for the public to use to notify the Borough of potential illicit discharges, illegal dumping or outfall pollution.
- Using an inlet-marking program for storm drains.
- Partnering with ALLARM on its volunteer Adopt a Storm Drain Program within the Borough's MS4.
- Providing links on the Borough website to the Cumberland County Solid Waste Authority information on available recycling programs for common household wastes such as motor oil, antifreeze and pesticides.

VII. IDD&E PROGRAM

The Borough's MS4 Permit requires that a program be developed to address the discharge of illicit (non-stormwater) pollutants into the MS4. A standard procedure has been developed for detecting pollutants in storm drains, inlets, and outfalls. Borough staff trained in the detection of illegal discharges can prevent and help eliminate sources of pollutants to area waterways.

a. **OUTFALL LOCATIONS.** According to the definition provided in the Borough's MS4 Permit, a municipal stormwater outfall means a point source "where a municipal separate storm sewer discharges to other surface waters of the Commonwealth. This does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream and are used to convey waters of the Commonwealth." The Borough has mapped the MS4 outfalls located within its limits. A reduced scale copy of the Borough's current storm sewer system map is provided as Attachment 3. A table listing the known outfalls is also included in Attachment 3.

b. **OUTFALL VISUAL INSPECTION RATIONALE.** In most urban areas, the flow of water from a storm drain system is not a routine event during dry weather periods and, therefore, can be an indicator of illicit discharges (e.g., illegal dumping and unauthorized connections to a MS4). However, dry weather flows from an MS4 can be from other non-stormwater discharges that would not be considered an illicit discharge and are a normal event for some MS4 outfalls (depending on location). These non-stormwater discharges could include: groundwater infiltration into the storm sewer system, irrigation return flow, foundation drain discharges, and normal stream base flow for conduit enclosed streams (such as dry weather flow within the Molly Grub). Using the assumption that dry weather flows may not always be good indicators of possible illicit discharges in the MS4, outfall inspections will be conducted focusing on visually conspicuous evidence of possible illicit discharges to the MS4.

c. **INSPECTION FREQUENCY.** The current MS4 Permit requires the Borough to conduct dry weather screenings of MS4 outfalls to evaluate the presence of illicit discharges at least 40% of the total number of outfalls each year. Based on the table included in Attachment 3, there are currently 24 outfalls within the Borough's MS4. Therefore, the Borough should conduct at least 9 dry weather outfall inspections each year. Borough Public Works staff should also respond to reports received from the public or governmental agencies of suspected or confirmed illicit discharges associated with the storm sewer system, as well as take enforcement action as necessary. If time permits, field staff should also attempt to view outfalls during normal precipitation events for signs of any unusual conditions. These unusual conditions should be reported to the Public Works Field Operations Manager.

d. **OUTFALL SCREENING PROCEDURES.** The standard DEP MS4 Outfall Field Screening Report should be used for recording each outfall visit. A copy of the form is provided in Attachment 4. The form should be filled out in the field by the inspector and provided to the Public Works Director, along with any photographs or other notes taken during the inspection. If a site cannot be inspected, field staff should record an explanation of the circumstances on the form. The WWTP maintains a rain gauge and records daily precipitation values. Use the WWTP rain gauge data for determining days since the last rainfall and the inches of the last precipitation event. Field staff is also asked to note any unique information observed during the inspection on the back of the form if not covered by the standard inspection form. Field staff should inspect

all dry-weather flows for the presence of odor, color, turbidity, and floatable matter. Unusual flows, pungent odors and discoloration or oil substances in the water, stains or waste residues in ditches, channels, or drain boxes are indicators of an illicit discharge. Staff should also observe outfalls for deposits and stains, vegetation, and damage to outfall structures. Field staff should record whether water is flowing from the end-of-pipe, the appearance of the water including color, turbidity (muddiness), the presence of petroleum product, and sediment or debris accumulation in the end-of-pipe or ditch. If debris has accumulated in the end-of-pipe, field crews are asked to estimate the amount and describe the type of debris. Field staff should bring inspection forms to a Public Works Field Operations Manager's attention if a pipe or ditch is more than one-half filled with debris or sediment.

If dry weather flow is observed and the flow contains a color or odor or has floating solids, scum, sheen or substances that result in deposits, the inspector should collect a sample of the dry weather flow. Collected samples should be delivered to the WWTP laboratory for processing. Collected samples should be analyzed for ammonia-nitrogen, BOD5, Total Suspended Solids, Total Dissolved Solids, and Fecal Coliform Bacteria. If a sample is collected, measurements for pH, total residual chlorine, and conductivity should be made in the field. Dry weather flows that have a visible sheen should also be analyzed for Oil and Grease. The Carlisle WWTP is a DEP accredited laboratory for Ammonia Nitrogen, BOD5, Total Suspended Solids, Fecal Coliform and accredited by "rule" for pH and total residual chlorine. Analyses for other parameters should be sent to a DEP accredited laboratory for the desired substances. ALS Environmental Laboratory in Middletown, PA is typically used by the WWTP staff for other needed analyses. Proper quality assurance and quality control procedures shall be followed when collecting, transporting or analyzing water samples. If an outfall does not have any dry weather flow, then sampling and testing are not needed.

e. **IDENTIFYING ILLICIT DISCHARGE SOURCE.** If any illicit discharge is detected, Public Works staff should take steps to identify the source or sources and take appropriate actions to remove or minimize the impacts of the illicit discharges. Borough staff should immediately begin to trace the source of water using the Borough's comprehensive utility maps. Field staff should contact the Borough GIS coordinator for assistance at 240-6935, if needed. Methods used to remove/correct the illicit connections will be site specific. Any employee who observes an illicit discharge should fill out an Illicit Discharge Form, a copy of which is included as Attachment 4. If the source of the illicit discharge is located, the observer should record, as applicable, the location, time, date, individuals present, causal activity, license plate number, and take photos. This information should be turned over to the Borough Public Works Director. If the potential violator appears threatening, the Public Works employee should call for Borough Police and Borough Codes Enforcement staff assistance. The Codes Enforcement Officer will conduct a follow-up inspection of the site. However, if the violator is non-threatening, information for Part 3 of the Illicit Discharge Observation Form should be collected by the lead Public Works employee present at the site. Public Works field staff and Borough Codes Enforcement employees should also be observant in their daily routines to watch for evidence of illicit discharges or unusual flows from the storm drain systems. Should a suspected discharge be discovered, it should be reported to the immediate supervisor. The supervisor will in turn relay the information to the Public Works Director at 240-6932.

f. **PROCEDURES FOR GRAINING ACCESS.** All of the Borough's MS4 outfalls are located on public property except for outfall No.1. Borough staff will need to contact the US Army Carlisle Barracks to gain access to outfall No.1. Outfalls 20 through 24 are located on land owned by the Letort Regional Authority and are readily accessible via the Letort Regional Authority Nature Trail. Authority authorization to access the trail is not needed as the trail is open for public access. In the event that access to private property is needed and the property owner is unwilling to allow access to Public Works staff, staff should contact one of the Borough Codes Enforcement Officers to secure a search warrant.

g. **PROCEDURES FOR ASSESSING SEWAGE INTERACTIONS** - The potential for illicit discharges caused by the interaction of sewage disposal systems (e.g., on-lot septic systems, sanitary piping) with storm drain systems has been reviewed by the Borough. All developed properties in the Borough are currently connected to the public sanitary sewer system. Also, the Borough undertook a comprehensive evaluation of its sanitary sewer system during 2014. There are currently no known locations in the sanitary sewer system that experience overflows. Therefore, there is a minimal likelihood of sanitary sewer system malfunctions and interaction with the Borough's MS4.

h. **PROGRAM DOCUMENTATION.** All actions taken under this plan shall be documented by Public Works staff. Records shall be kept of all outfall inspections, flows observed, results of field screening and testing, and other follow-up investigation and corrective action work performed under this program in the Borough's "S" Shared Drive under "S:\MS4 Program\MCM3 IDDE\(Permit Year)". The Borough Public Works Director will be responsible for maintaining the MS4 files and conducting annual reviews on potential changes to the program.

i. **TRAINING.** The above IDD&E Program will be included in training sessions for appropriate field staff. In addition, new Public Works Department staff will be trained as part of their initial employee training program. Refresher/update trainings will also be scheduled with field staff to address any changes to and/or concerns. At a minimum, training shall consist of personnel reviewing the inspection forms presented in Attachment 4.

ATTACHMENT 1: EXAMPLES OF PROHIBITED MS4 DISCHARGES

Illicit discharges can be accidental or intentional. The following are examples of illicit (illegal) discharges to the Borough's MS4 (this list is provided for guidance only and is not considered all inclusive):

Sanitary wastewater from improper sewage connections, exfiltration or leakage

Overflows of sanitary sewer systems

Leakage or drainage from sanitary sewer flushing and cleaning operations

Untreated (e.g., through a well maintained oil/water separator) commercial car wash wastewaters

Untreated radiator flushing wastewaters

Untreated engine degreasing wastes

Improper oil, gasoline, and other automotive fluids disposal

Leaky underground storage tanks

Untreated leaking of oils, gasoline and other automotive fluids for automobiles

Direct spraying of fertilizers, pesticides or herbicides onto impervious surfaces

Over-application of fertilizers, pesticides or herbicides onto landscaping resulting in runoff

Laundry wastes

Non-contact cooling waters

Dewatering of construction sites

Washing of concrete ready-mix trucks

Contaminated sump pump discharges

Improper disposal of household toxic wastes

Spills from roadway and other accidents

Chemicals, hazardous materials, garbage, and sanitary sludge landfills and disposal sites

Commercial use of soaps and detergents in cleaning pavement, vehicles and equipment

Sediment from lack of or improper maintenance of erosion and sedimentation controls

Latex/oil-based paints & solvents

Trash and debris: littering and dumping, household or construction waste; and restaurant grease

Chlorinated swimming pool drainage

Dumping motor vehicle fluids, household hazardous waste, restaurant wastes, or any other non-stormwater waste into the MS4.

ATTACHMENT 2: EXAMPLES OF EXEMPT DISCHARGES

An IDD&E Program does not need to address the certain categories of non-stormwater discharges or flows unless the operator of the regulated small MS4 (the Borough) identifies them as significant contributors of pollutants to its MS4. An Illicit Discharge does not refer to discharges authorized under an NPDES Permit. Certain allowable non-stormwater discharges are described in the EPA regulations, the Borough's NPDES MS4 permit or the Borough's Stormwater Management Ordinance. Examples of exempt discharges include the following:

- Discharges from firefighting activities,
- Potable water sources including de-chlorinated water line and fire hydrant flushing,
- Irrigation drainage,
- Routine external building wash-down (which does not use detergents or other compounds),
- Air conditioning condensate,
- Water from individual residential car washing,
- Springs,
- Water from crawl space pumps,
- Uncontaminated water from foundation or from footing drains,
- Flows from riparian habitats and wetlands,
- Lawn watering,
- Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) and where detergents have not been used,
- De-chlorinated swimming pool discharges,
- Uncontaminated groundwater.

ATTACHMENT 3: STORMSEWER MAP AND OUTFALL TABLE

ATTACHMENT 4: IDD&E FORMS

CITIZEN COMPLAINT
ILLICIT DISCHARGE REPORTING FORM

Name: _____ **Contact Phone Number:** _____

Date: _____ **Time Discharge Discovered:** _____

Date of Last Rain Event: _____ **Estimated Quantity of Rain:** _____ **in.**

LOCATION OF DISCHARGE (indicate nearby street intersections, addresses, and/or landmarks for reference): _____
_____
_____

WHERE WAS DISCHARGE FOUND? OPEN DITCH STREAM PIPE OUTFALL OTHER: _____

WAS WATER FLOW OBSERVED? NO YES

WAS FLOW SOLID OR PULSING? SOLID PULSING

WAS A PHOTO TAKEN? NO YES (Please attach a copy to form)

ODOR: NONE MUSTY SEWAGE ROTTEN EGGS SOUR MILK OTHER: _____

COLOR: CLEAR RED YELLOW BROWN GREEN GREY OTHER: _____

CLARITY: CLEAR CLOUDY OPAQUE

WAS THERE AN:
OILY SHEEN YES NO
GARBAGE/SEWAGE YES NO
OTHER: _____

ADDITIONAL INFORMATION TO ASSIST IN THE INVESTIGATION: _____
_____
_____

Follow up Investigation (to be completed by CCD staff)
OUTFALL NO: _____ **INSPECTOR NAME** _____ **PHONE** _____

FIELD ANALYSIS:
WATER TEMP: _____ °F / °C
pH: _____
Oil and Grease: _____ mg/l
CHLORINE (Total): _____ mg/l
BOD5: _____ mg/l
TSS: _____ mg/l

WAS A SAMPLE COLLECTED? NO YES (if yes attach copy of chain-of-custody record)
COMMENTS: _____
_____
_____

DATA SHEET FILLED OUT BY: (signature): _____ DATE: _____

Additional notes to file: _____
_____
_____

Follow-up with Complainant: _____
_____
_____
_____

BOROUGH OF CARLISLE

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Municipal Separate Storm Sewer System (MS4) Annual Report June 2020 – June 2021

Attachment No. 6

Illicit Discharge Detection and Elimination (IDD&E)

BMP NO.5

VIOLATION DOCUMENTATION

FOR 07-06-2020

July 6, 2020

Woda Group Inc.
Dawn Ridge L.P.
500 S. Front St., 10th Floor
Columbus OH 43215
Attn: Jeffrey J. Woda

Via Certified Mail: #7018 0680 0001 2837 2742

RE: Notice of Violation for Dawn Ridge L.P., Tax Parcel ID 03-22-0487-008, Carlisle Borough, Dawn Ridge Stormwater Management Facilities

Dear Mr. Woda:

An inspection of the Dawn Ridge Land Development Plan was conducted on May 5, 2020 by Randy Clark, Carlisle Borough Construction Inspector, and Jacob Shaffer, Carlisle Borough MS4 Coordinator. The purpose of the inspection was to determine if all punch list items from construction of the Land Development had been properly addressed so that the financial security held by the Borough for the project can be released. The Borough continues to hold $5,550.00 in financial security for three missing street trees ($1,050) and stormwater detention basin construction ($4,000).

Borough staff determined the development continues to lack three street trees (list the types needed) and confirmed the stormwater detention basins where constructed in accordance with the approved Land Development Plans. However, Borough staff observed that the stormwater detention facilities constructed as part of the Dawn Ridge Land Development Plan are not being properly maintained by the owner in violation of Chapter 217 of the Code of the Borough of Carlisle. Borough staff observations are documented in the following descriptions and pictures. All photographs were taken on May 5, 2020. If you would like to request an on-site visit to discuss the observed deficiencies, please contact the Borough's MS4 Coordinator, Jacob Shaffer, at (717) 240-6918 or jshaffer@carlislepa.org

Item #1 – General Operation & Maintenance – Extended Detention Basins

Basin A-1 is overgrown with small trees, high grass and weeds. The basin also holds dumps of lawn clippings, large leaf piles and an old Christmas tree. There is a lot of trash in this area that could create a blockage and lead to improper drainage. The following two pictures below show the condition of Basin A-1 as observed during the inspection. The basin should be free of all invasive species and debris. It appears little to no maintenance of the basins has been performed since construction. Please review the Post-Construction Stormwater Management Operation & Maintenance Plan for the intended maintenance practices and frequencies for all Stormwater Best Management Practices (BMPs) on-site.





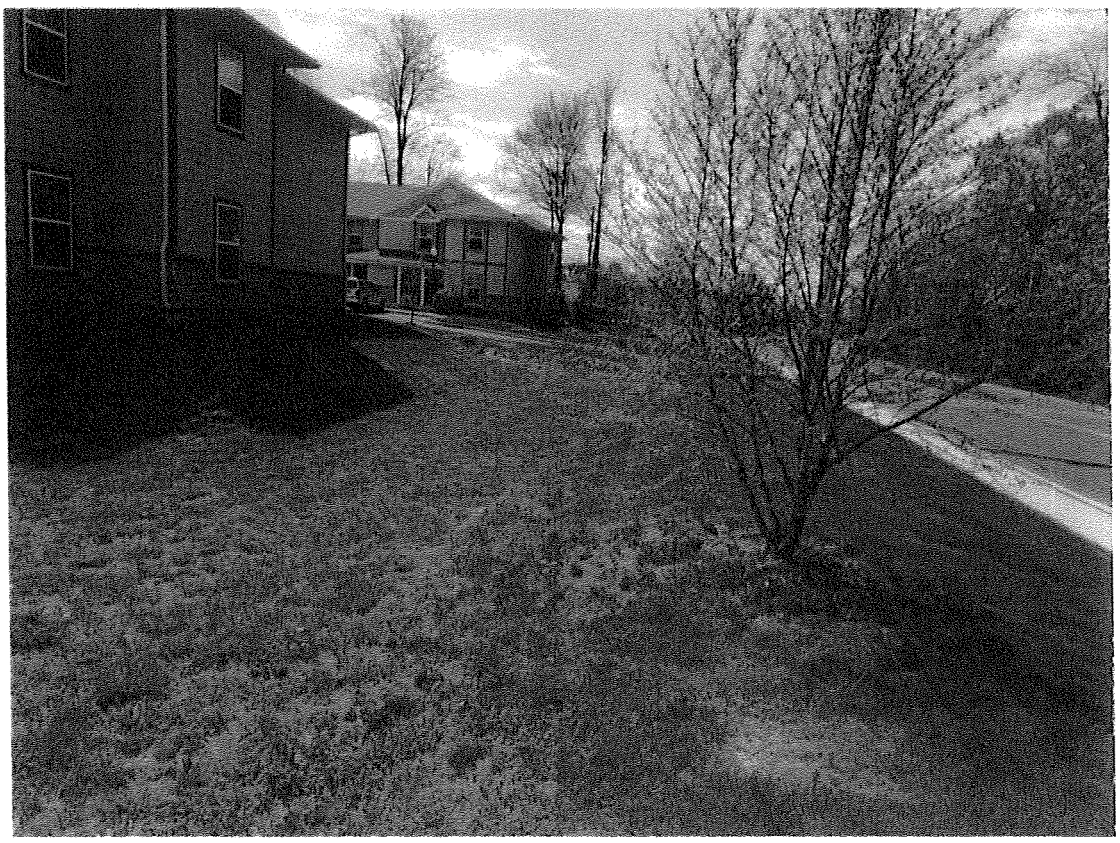
Item #1 – General Operation & Maintenance – Vegetative Swales

The vegetative Swales connecting basins A-1 and A-2 have the same issues as the basins, being overgrown with small trees, weeds, and littered with debris. The following picture shows the current condition of the vegetative swales. Swales, like the basin, should be free of invasive species and debris. Please review the Post-Construction Stormwater Management Operation & Maintenance Plan for the intended maintenance practices and frequencies for all BMPs on-site.



Item #2 – Missing Plantings

Along with basins lacking the proper plantings, three trees are missing along Samuels Drive at Basin "B". There should be five total trees at this location according to page 4 of the Final Land Development Plan for Dawn Ridge (3 Large Convex-Leaved Holly and 2 Sunset Maple Trees should be planted here). The following picture shows the current condition of the area along Samuels Drive. The missing trees must be replaced before the financial security can be released.



Staff observed the required stormwater detention facilities are not functioning as designed, primarily due to lack of regular maintenance. The Ordinance provisions listed below indicate citations are applicable:

Ordinance Section	
217-25.D - Stormwater Management	The Borough may take enforcement actions against an owner for any failure to satisfy the provisions of this Ordinance.
S. 217-26 –	Operation and maintenance - The owner is responsible for operation and maintenance of the Stormwater Management BMPs. If the owner fails to adhere to the operation and maintenance agreement, the Borough may perform the services required and charge the owner appropriate fees. Nothing herein shall be construed to place a duty or obligation upon the Borough to perform any services or repairs. Nonpayment of fees may result in a lien against the property or other judicial action.
S. 217-34	The Borough Engineer will provide the owner, or the owner's designee, with a written notice of the violation and the time period allowed for the owner to correct the violation. If the owner does not correct the violation within the deadline, we may revoke or suspend any, or all, applicable approvals and permits pertaining to any provision of this Chapter.

Due to the nature of these maintenance deficiencies, Ordinance violations now exist. This letter is your written notice of the violations and direction to complete the necessary corrective actions within 45 days of receipt of this letter. .

As per S. 217-35 - Violations and Penalties - Any person violating the provisions of Chapter 217 shall be guilty of a summary offense and, upon conviction, shall be subject to a fine of not more than $1,000 for each violation, recoverable with costs, and/or imprisonment for a period not exceeding 30 days for each violation. Each day that the violation continues shall be a separate offense, and penalties shall be cumulative. The Borough may also institute injunctive, mandamus or any other appropriate action or proceeding at law or in equity for the enforcement of this Ordinance. A court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus or other appropriate forms of remedy or relief.

If you wish to appeal this violation determination, you can appeal to the Borough Council, which shall hold a hearing pursuant to the Local Agency Law, 2 PA. C.S.A. § 551 et seq., within 30 days of that action. Any further action may then be appealed to the Cumberland County Court of Common Pleas within 30 days of Council's decision.

If you have any comments or questions, please direct them to either me mmalarich@carlislepa.org or Jacob Shaffer jshaffer@carlislepa.org.

Sincerely,

Mark A. Malarich, P.E.
Borough Engineer

cc. Jacob Shaffer, MS4 Coordinator
Post-Construction Stormwater Management Operation and Maintenance Owner/Operation

As of 7/24/2020, I, Jacob Shaffer, spoke with Mr. Joseph Schmidt of Woda Group via phone call about plans moving forward with Dawn Ridge. It is to our understanding that Basin A-1 is to be cut and re-seeded and replanted appropriately, as per the engineered drawings. The vegetated swale connecting basin A-1 and basin A-2 will be treated in the same manner and reseeded appropriately. Basin A-2 is losing vegetative cover and the side slopes are currently below 95% vegetative cover. Slopes will be reseeded, and straw will be applied followed by erosion netting to ensure proper stabilization of the ground. Work onsite will begin next week beginning on Monday, July 27th, and Mr. Schmidt has agreed to contact myself when work will be performed onsite. Currently, I have permitted Mr. Schmidt's technician to use cuttings from the basin to be re-applied as mulch in basin A1, with the warning to Mr. Schmidt that excess mulch may result in clogging of the drains. For this reason, Mr. Schmidt's activities onsite will be closely monitored to ensure stormwater facilities are properly functioning at all times restored to the original condition and maintained as such. I have also permitted Mr. Schmidt to leave trees alone if they are in the location that they need to be as to not waste resources and risk the possibility of delaying the project. No earthmoving is required for this project.

A punch list of the following work items to be completed will be listed below:

- Basin A-1 will be reseeded and stabilized
- Basin A-2 will be cut, cleared, and re-seeded and re-planted with the appropriate plantings and trees.
- The vegetated channel connecting basin A-1 and basin A-2 will be cleared and reseeded as planned

BOROUGH OF CARLISLE

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Municipal Separate Storm Sewer System (MS4) Annual Report June 2020 – June 2021

Attachment No. 6

Illicit Discharge Detection and Elimination (IDD&E)

BMP NO.5

VIOLATION DOCUMENTATION

FOR 04-16-2020

Strine, Tiffany

From: Malarich, Mark
Sent: Monday, August 9, 2021 3:59 PM
To: Strine, Tiffany
Subject: FW: Bennington Square Inspection Report
Attachments: Conservation Dist._20210419_081737.pdf; June 2021 Monthly PW Construction Inspectors Report.pdf

Tiffany,
Attached for inclusion in the Borough's MS4 Annual Report is a follow-up letter from the CCCD regarding muddy runoff from the Bennington Square construction site entering the Borough's MS4. Also attached is a copy of Randy's monthly construction inspection report to me which gives the status at the end of June 2021.
Mark

From: Clark, Randy <rclark@carlislepa.org>
Sent: Monday, April 19, 2021 10:35 AM
To: Malarich, Mark <mmalarich@carlislepa.org>
Subject: Fwd: Bennington Square Inspection Report

Sent from my iPhone

Begin forwarded message:

> **From:** "Falvey, Kimberly" <kfalvey@ccpa.net>
> **Date:** April 19, 2021 at 10:33:49 AM EDT
> **To:** ERIC JOHNSTON <kraffensberger@comcast.net>, M Dean Peifer <dpeifer@kinsleyconstruction.com>
> **Cc:** Jason Seitz <jseitz@kinsleyconstruction.com>, "Clark, Randy" <rclark@carlislepa.org>, dbrehm@brehm-lebo.com
> **Subject: Bennington Square Inspection Report**
>
> See attached. Please let me know if you have any questions. Thanks.
>
> Kim Falvey
> Cumberland County Conservation District
> Conservation Coordinator
> 310 Allen Road, Suite 301
> Carlisle, PA 17013
> (717)240-5359

The information in this message may be privileged and confidential and protected from disclosure. If the reader of this message is neither the intended recipient, nor an employee or agent responsible for delivering this message to the intended recipient, then you are hereby notified that any dissemination, distribution, unauthorized use, or copying of this communication

is strictly prohibited. If you have received this communication in error, please notify us immediately by replying to this message and deleting it from your computer. Thank you, Cumberland County, PA.

3150-FM-BWEW0092 Rev. 1/2016

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATERWAYS ENGINEERING AND WETLANDS

Permit No. PAC210104
Report No. 21-01

EARTH DISTURBANCE INSPECTION REPORT

Project Name Bennington Square **Inspection Date** 4/16/2021 **Inspection Time** 10:00

Weather Conditions M. Cloudy **Total Project Area** 53

Location McClures Gap Road across from Westminster Cemetery **Total Disturbed Area** 53

Municipality North Middleton **County** Cumberland

Receiving Water(s) Conodoguinet Creek **Designated/Existing Use** WWF/MF

Responsible Party(s) (name & address)	Tri Corner CommunitiesLLC-Jonathan Juffe 3405 North 6th Street Harrisburg, PA 17110	Kinsley Construction-Dean Piefer PO Box 2886 York, PA 17405
Phone	(717) 232-8090	(717) 243-7160

Site Representative (name) Dean Peifer-Kinsley
(title) See sign-in form

Inspector (name) Kim Falvey
(title) Conservation Coordinator

Type of Inspection (check only one) **Photographs Taken** Yes ☒ No ☐

Routine complete ☐ Routine partial ☒ Follow-up ☐ Complaint ☐ Final ☐

Site Description & Observations The District was notified by Kinsley Construction of silt sock failure that occurred on April 11, 2021 after a rain event. Pictures of the repair were provided the following day. Sediment residue and debris was observed off site. Based on the current grading and condition of the site, additional BMPs may be needed. A site meeting was scheduled with Kinsley Construction, Carlisle Borough, North Middleton Township and adjacent residents to address the concerns. Sediment traps 2 and 3 are installed however they are higher than the existing topography limiting the amount of water getting to them. It appears that the stormwater run-off flowed around the sediment traps becoming concentrated and overtopped and/or moved the silt sock.

☐ **Continued on page 3 of ____.**

Permit and Plan Requirements

Y	N	
☒	☐	Written Erosion & Sediment Plan required
☒	☐	Written Post Construction Stormwater Management Plan required
☐	☒	Erosion & Sediment Plan requested
☐	☒	Post Construction Stormwater Management Plan requested
☐	☒	E & S Permit required ☐ ESCGP Permit required
☒	☐	NPDES Permit required ☐ Phased Constr. ☐ Non-Phased Constr.

Permit #: PAC201047 Exp. Date: 5-20-24

Type of Activity (check as many as appropriate)

☐	Pub. Road Constr./Maint. (PRC)	☐	Pvt. Road/Residence (PRRS)
☒	Res. Subdivision (RSBD)	☐	Comm./Indust. Dev. (CMIN)
☐	Govmt. Facilities (GOV)	☐	Recreation Facilities (RECF)
☐	Utilities Facilities (UTL)	☐	Agricul. Activities (AGA)
☐	Sewer/Water Systems (SWS)	☐	Pipeline (PL)
☐	Remediation/Restoration (RRES)	☐	Silviculture (SILV)

☐ Other ____

☐ White - Inspector ☐ Yellow - Responsible Party ☐ Pink - Department ☐ Goldenrod - Other

This report is official notification that a representative of the Department of Environmental Protection has conducted an inspection of your earth disturbance activity to determine compliance with Title 25, Chapter 92a, National Pollutant Discharge Elimination System, Title 25, Chapter 102, Erosion and Sediment Control, and the Pennsylvania Clean Streams Law. This representative may be an employee of the local County Conservation District, which by delegation agreement with the Department of Environmental Protection, is authorized to investigate complaints, inspect earth disturbance activities and conduct compliance actions. Any violations observed by the Department/Conservation District have been noted on this report form and constitute unlawful conduct as defined in Section 611 of the Clean Streams Law.

There will be no written confirmation of those violations from the Department. Failure to take corrective actions to resolve the violations may result in administrative, civil and/or criminal penalties being instituted by the Department of Environmental Protection as defined in Section 602 of the Clean Streams Law of Pennsylvania. The Clean Streams Law provides for up to $10,000 per day in civil penalties, up to $10,000 in summary criminal penalties, and up to $25,000 in misdemeanor criminal penalties for each violation.

This report does not constitute an Order or appealable action of the Department. Nothing contained herein shall be deemed to grant or imply immunity from legal action for any violation noted herein.

For further information or assistance please contact:

Kim Falvey
Cumberland County Conservation District
310 Allen Road, Suite 301
Carlisle, PA 17013
(717)240-5359
kfalvey@ccpa.net

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATERWAYS ENGINEERING AND WETLANDS

Permit No. PAC210104
Report No. 21-01

EARTH DISTURBANCE INSPECTION REPORT

Project Name Bennington Square **Inspection Date** 4/16/2021 **Inspection Time** 10:00

Inspection Findings	**Reference**
No violations observed at this time.	☐ (N/A)
a. Failure to develop a written Erosion and Sediment (E&S) Plan.	☐ (102.4)
b. Failure to have an E&S Plan available onsite.	☐ (102.4)
c. Failure to submit an E&S Plan as requested.	☐ (102.4)
d. Failure to implement effective E&S Best Management Practices (BMPs).	☒ (102.4)
e. Failure to maintain effective E&S BMPs.	☐ (102.4)
f. Failure to use Antidegradation Best Available Combination of Technologies (ABACT) BMPs for discharges to High Quality or Exceptional Value Waters.	☐ (102.4)
g. Failure to obtain an NPDES Permit for Stormwater Discharges Associated with Construction Activities.	☐ (102.5)
h. Failure to obtain an E&S Permit.	☐ (102.5)
i. Failure to prepare and implement a Preparedness, Prevention, and Contingency (PPC) Plan.	☐ (102.5)
j. Failure to submit a Notice of Termination (NOT).	☐ (102.7)
k. Failure to develop a written Post Construction Stormwater Management (PCSM) Plan/Restoration Plan.	☐ (102.8)
l. Failure to have PCSM Plan/Restoration Plan available onsite.	☐ (102.8)
m. Failure to submit PCSM Plan/Restoration Plan as requested.	☐ (102.8)
n. Failure to implement effective PCSM BMPs.	☐ (102.8)
o. Failure to maintain effective PCSM BMPs.	☐ (102.8)
p. Failure to perform reporting and recordkeeping as required.	☐ (102.8)
q. Failure to implement riparian buffer or riparian forest buffer.	☐ (102.14)
r. Failure to meet regulatory requirements for riparian forest buffer.	☐ (102.14)
s. Failure to provide temporary stabilization of the earth disturbance site.	☐ (102.22)
t. Failure to provide permanent stabilization of the earth disturbance site.	☐ (102.22)
u. Failure to comply with permit conditions.	☐ (402 CSL)
v. Sediment or other pollutant was discharged into waters of the Commonwealth.	☒ (401 CSL)
w. Site conditions present a potential for pollution to waters of the Commonwealth.	☐ (402 CSL)
x. Failure to comply with a Department Order.	☐ (402, 611 CSL)
y. Failure to comply with PCSM long-term operation and maintenance requirements.	☐ (102.8)
z. Failure to conduct a preconstruction meeting.	☐ (102.5)
aa. Failure to provide proof of consultation with the Pennsylvania Natural Heritage Program regarding the presence of a State or Federal threatened or endangered species on a project site requiring a Chapter 102 permit.	☐ (102.6)
bb. Failure to withhold a building or other permit or approval from those proposing or conducting earth disturbance activities, which require a Department permit, until the Department or conservation district has approved/acknowledged the Chapter 102 permit.	☐ (102.43)

☒ **Inspection of this project has revealed site conditions which constitute violations of 25 Pa. Code Chapters 92a and/or 102 and the Clean Streams Law, the act of June 22, 1937, P.L. 1987, 35 P.S. §691.1 *et seq.***

Additional information regarding these violations can be found on the back of this page.

☐ White - Inspector ☐ Yellow - Responsible Party ☐ Pink - Department ☐ Goldenrod - Other

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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATERWAYS ENGINEERING AND WETLANDS

Permit No. PAC210104
Report No 21-01

EARTH DISTURBANCE INSPECTION REPORT

Project Name Bennington Square **Inspection Date** 4/16/2021 **Inspection Time** 10:00

Continuation Sheet

Site Description & Observations

Compliance Assistance Measures Johnston and Associates has prposed a mulch berm which is 8 feet width and 4 feet high to be installed downgradient of the areas of concerntarted flow and silt sock failure. All areas left idle or at final grade should be seeded and mulched. A red lined plan should be submitted to the District for approval.

Follow-up Inspection will occur on or about (date) April 23, 2021

(Signature of Site Representative)	(Date)	(Inspector's Signature)	4/16/2021 (Date)

The Site Representatives' signature acknowledges that they have read the report and received a copy and that they were given an opportunity to discuss it with the inspector. The signature does not necessarily mean the signee agrees with the report.

☐ White - Inspector ☐ Yellow - Responsible Party ☐ Pink - Department ☐ Goldenrod - Other

KINSLEY

DATE: 4-16-21

PROJECT: Bennington Square

CONTACT: Jason Seitz

NAME	COMPANY	PHONE #	E-MAIL
Dean Peifer	Kinsley Construction	717-801-5428	dpeifer@kinsleyconstruction.com
Jason Seitz	Kinsley	717-542-4259	jseitz@kinsleyconstruction.com
Larry Parr	Kinsley	717-324-6109	LParr@Kinsleyconstruction.com
TED PLUTA	BREHM-LEBO	717-243-9114	tpluta@BREHM-LEBO.COM
Kim Fabrey	CCCD	717-240-5359	Kfabrey@ccpa.net
Mark Malarich	Borough of Carlisle	717-248-0932	m.malarich@carlislepa.org
Randy Clark	Borough of Carlisle	717 462 1446	rclark@carlislepa.org
ZACH JUFFE	BUPPER	609-577-3696	ZJUFFE@GMAIL.COM

Strine, Tiffany

From: Malarich, Mark
Sent: Monday, August 9, 2021 3:53 PM
To: Strine, Tiffany
Subject: FW: Bennington land Development Sewer System

Tiffany,
Please include the below in the Borough's MS4 annual report on investigations by Randy Clark of the Borough and Lee Koch of North Middleton Township about a potential illicit discharge that was determined to be stormwater runoff and the Bennington Square Land Development Plan in North Middleton Township which drains into the Borough's MS4.
Thanks
Mark

Mark A. Malarich, P.E.
Director of Public Works
Borough of Carlisle
53 W. South Street
Carlisle, PA 17013
717-240-6932
mmalarich@carlislepa.org

From: Malarich, Mark
Sent: Thursday, May 6, 2021 3:22 PM
To: E. Lee Koch <elkoch@northmiddletonauthority.com>; Brian White <bwhite@northmiddletonauthority.com>
Cc: Clark, Randy <rclark@carlislepa.org>; Doug Brehm (dbrehm@brehm-lebo.com) <dbrehm@brehm-lebo.com>; Jodie Fuller <jfuller@northmiddletonauthority.com>
Subject: RE: Bennington land Development Sewer System

Lee,
OK, thanks.
Mark

From: E. Lee Koch <elkoch@northmiddletonauthority.com>
Sent: Thursday, May 6, 2021 11:34 AM
To: Malarich, Mark <mmalarich@carlislepa.org>; Brian White <bwhite@northmiddletonauthority.com>
Cc: Clark, Randy <rclark@carlislepa.org>; Doug Brehm (dbrehm@brehm-lebo.com) <dbrehm@brehm-lebo.com>; Jodie Fuller <jfuller@northmiddletonauthority.com>
Subject: RE: Bennington land Development Sewer System

Mark: Did a follow up, they have a small pump (garden hose) discharging the storm water from MH#5 to the mulch filter bed. Will check the pipe & manholes later for debris.

Lee Koch

From: Malarich, Mark <mmalarich@carlislepa.org>
Sent: Thursday, May 6, 2021 7:52 AM
To: E. Lee Koch <elkoch@northmiddletonauthority.com>; Brian White <bwhite@northmiddletonauthority.com>
Cc: Clark, Randy <rclark@carlislepa.org>; Doug Brehm (dbrehm@brehm-lebo.com) <dbrehm@brehm-lebo.com>; Jodie

Fuller <jfuller@northmiddletonauthority.com>
Subject: RE: Bennington land Development Sewer System

Lee,
Good to hear. Thanks for your follow-up and checking.
Mark

From: E. Lee Koch <elkoch@northmiddletonauthority.com>
Sent: Thursday, May 6, 2021 7:48 AM
To: Malarich, Mark <mmalarich@carlislepa.org>; Brian White <bwhite@northmiddletonauthority.com>
Cc: Clark, Randy <rclark@carlislepa.org>; Doug Brehm (dbrehm@brehm-lebo.com) <dbrehm@brehm-lebo.com>; Jodie Fuller <jfuller@northmiddletonauthority.com>
Subject: RE: Bennington land Development Sewer System

Good morning: Went out first thing this morning to Bennington Square subdivision and talked with pipe foreman about MH #5. The line was purposely plugged (downstream of MH #5) to protect the receiving system (BOC) from receiving any ground water/surface water during construction in the event of heavy rainfall, such as yesterday. He went on to say he purposely created a make sift filtering system on the line his crew was working at, upstream from MH#5 to prevent the open collection system- (not backfilled portion) from floating.

It obviously worked, but just doesn't look good to have groundwater/surface water flowing out of a new manhole. They are now setting up a small pump to discharge the groundwater out of the system to a mulch filter bed, slowly, so not to disturb or cause any erosion. I will allow them to set up and check on them later this morning.

I informed him if this allowed any stone or other dirt/debris into the system the system will need to be flushed and cleaned out prior to quality control testing.

Will be in touch.

Lee Koch

From: Malarich, Mark <mmalarich@carlislepa.org>
Sent: Wednesday, May 5, 2021 1:42 PM
To: E. Lee Koch <elkoch@northmiddletonauthority.com>
Cc: Clark, Randy <rclark@carlislepa.org>
Subject: Bennington land Development Sewer System

Lee,
Attached for your information is a video taken by Randy Clark of the borough showing water overflowing from the manhole within the Bennington development that we discussed over the phone today.
Mark

From: Clark, Randy <rclark@carlislepa.org>
Sent: Wednesday, May 5, 2021 12:32 PM
To: Malarich, Mark <mmalarich@carlislepa.org>
Subject:

Sent from my iPhone

JUNE 2021 MONTHLY REPORT

Street Cuts

- Working with UGI (Robert Wrightstone) and ACER paving (Chris Black) on final restoration of UGI street cuts.
- Working with Linda Dougherty from BOC on street cut permit overdue and reminder letters for final restoration.
- Financial securities have been set and approved for street cuts.
- 2021 BOC paving schedule has been forwarded to UGI.
- BOC is working on final restoration for zone 2 and 2020 street cuts.
- BOC has completed 24 existing street cuts for zone 2 list.
- UGI working on pre paving work.
- UGI/ACER paving working on 30 street cuts for final restoration.
- Working with Corey and Nichole to add older BOC street cuts on cards to mobile 311 so that we can track their status.

Street cuts between 90-180 days:

1. 19 BOC
2. 13 UGI
3. 5 Other

Street cuts over 180 days:

1. 70 BOC
2. 25 UGI- 17 of them on B Street Tiger Project
3. 7 Other

Letort Meadows

Paving: Paving completed May 7th.

Missing Street trees:

- 37 missing street trees. May need to use some as site trees.

Signs:

- 3 missing no parking signs
- 1 missing stop sign

Dawn Ridge

- 3 missing street trees.

SANITARY SEWER REHABILITATION PROJECT

A. B4-1 Sanitary sewer replacement and spot repair.
   - This part of the project is complete.

B. B4-2 Sanitary sewer rehabilitation
   - All punch list items completed and inspected on 6/18/21.

Outstanding Items:

- Close out documents

PENN DOT Bridge Project

- 30" storm sewer pipe installed to existing manhole
- Water main has been connected
- Bacteria test completed and passed on new section of installed water main.
- Water turned on to new section of water main
- Sink hole – UGI excavated around this area and found no problems with the abandoned gas main. The representative from UGI said this is not there problem. The excavated area was backfilled and a temporary patch placed. I notified the Penn Dot inspector of this information.
- The east bound lane of this project is completed. Contractor has moved all traffic control devices to the west bound lane to start back up early spring. Final paving will be completed at the end of this project.
- AS-BUILT drawings submitted to borough on 2-16-21.
- Contractor has started on the East bound side of bridge.

Curb and sidewalk program

A. Zone 2
   - Inspected in 2018.
   - 125 properties have deficient curb/sidewalk issues.
   - Second notices sent out.
   - All deficient curb/sidewalk issues have been re-marked.
   - Final notices sent out giving 90 days to comply.

B. Zone 3
   - Inspected in 2019.
   - 40 properties have deficient curb/sidewalk issues.

- First notices sent out.
- All deficient curb/sidewalk issues have been re-marked.
- Final notices sent out giving 90 days to comply.

C. Zone 4
- Was Due in 2020.
- Postponed due to COVID-19
- 593 properties inspected.
- 80 properties have deficient curb/sidewalk issues.
- Notices going out.

Pre paving curb inspection

- Property owners received certified letters giving a 45 day deadline on 4/23/21.
- Check for compliance on 6/10/21
- All pre paving curb deficient areas have been corrected.

Bennington Square (N. Middleton TWP sub division)

- E&S controls have been re- evaluated by Cumberland County Conservation (Kim Falvey) and new measures put in place to control the storm water from entering into Borough residents property on Shannon Lane.
- All mud and storm debris have been cleaned and removed from Borough residents properties along with Borough storm inlets and retention basins.
- Nothing to report at this time.
- Will continue to monitor.

2021 Curb Ramp

The following are complete and ready for BOC to base at curb.

1. Glendale – Hillside NW
2. Glendale – Hillside NE
3. Glendale – Walnut SE
4. Glendale – Walnut SW
5. Walnut – Belvedere NW
6. Walnut – Belvedere SW
7. Walnut – Orange NE
8. Walnut – Orange SE
9. Orange – Walnut NW
10. Orange – Hillside NE
11. Orange – Hillside NE
12. Orange – White Birch NW
13. Orange – White Birch SW
14. Orange – N. Georgetown NW

15. Orange – N. Georgetown SW
16. Orange – S. Georgetown NW
17. Orange – S. Georgetown SW
18. White Birch – Georgetown NW
19. White Birch – Georgetown NE
20. White Birch – Georgetown SW

BOROUGH OF CARLISLE

"Committed To Excellence in Community Service"

Municipal Separate Storm Sewer System (MS4) Annual Report June 2020 – June 2021

Attachment No. 6

Illicit Discharge Detection and Elimination (IDD&E)

BMP NO.5

VIOLATION DOCUMENTATION

FOR 04-06-2020

Skelly, Mike

From: Malarich, Mark
Sent: Wednesday, April 8, 2020 4:27 PM
To: Thomas J. Jacobs
Cc: Shaffer, Jacob; Skelly, Mike; Eyster, Dave
Subject: RE: Chesterfield Existing Stormwater Deficiencies

Tom,

Thank you for your email. As noted in our May 6, 2020 letter of violation, you can request a time extension to take corrective action on the noted deficiencies given the Governor's work closure order. We take your email as a request for a time extension. We are aware that you have submitted a Final Land Development Plan for Chesterfield, Section 2B to the Borough. However, the land development planning approval process may take several months to complete and subsequent construction perhaps years. We do not want these deficiencies to remain unresolved until the phase 2B infrastructure construction is completed. Accordingly, we hereby grant you an extension that places the time required to take correction action to address the identified deficiencies to 45 calendar days after the Governor's work closure order is lifted.

If you have any comments or questions or need further time, please direct them to either me or Jacob Shaffer at jshaffer@carlislepa.org.

Mark

Mark A. Malarich, P.E.
Director of Public Works
Borough of Carlisle
53 W. South Street
Carlisle, PA 17013
717-240-6932
mmalarich@carlislepa.org

From: Thomas J. Jacobs <TJacobs@sahomebuilder.com>
Sent: Wednesday, April 8, 2020 3:44 PM
To: Malarich, Mark <mmalarich@carlislepa.org>; Shaffer, Jacob <jshaffer@carlislepa.org>
Subject: Chesterfield

Mark, James,
I am in receipt of your letter/notice of violation dated 4/6/20 as it pertains to the SWM system in the future Phase 3A of the Chesterfield Community.
I'm not sure if either of you are aware but we are in the process of gaining final LDP approval for phase 2B of this community. I was made aware of items 1 and 2 of the deficiency letter during a site visit I conducted with the conservation district on 3/3/20. I will investigate item 3 as soon as I am able. As of the moment, I am only able to work from my residence due to Governor Wolf's closure order. That being noted, it was/is my intent to add the remediation here as well as the remediation of the cul-de-sac at the current termination of Sussex drive requested by Dave Eyster to the scope of work for our team that will be developed for the phase 2B infrastructure (which includes modifications to the SWM system, basin and swale in the future phase 3A). As of the moment I do not know when we will be permitted to actually perform any physical work, but I will most likely be the person providing direct oversight on this project and will ensure that these issues are addressed accordingly when permitted.
In the event you do not have my cell number, it is (814)-404-5953. Feel free to reach out to me should you have any questions/concerns.

BOROUGH OF CARLISLE

"Committed To Excellence In Community Service"

April 6, 2020

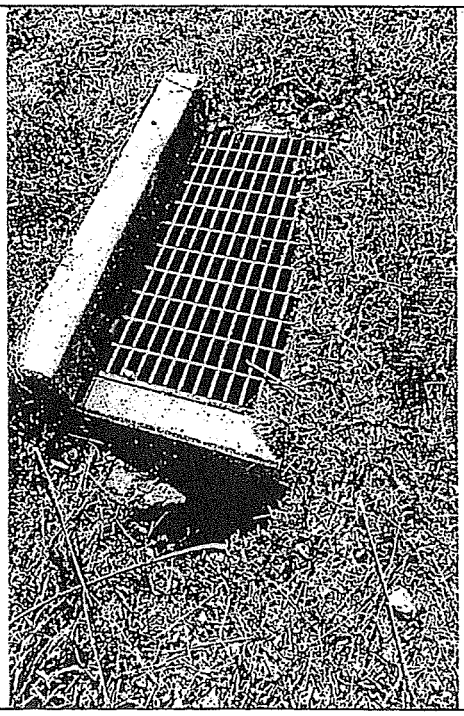
S & A Homes
Attn: Tom Jacobs
800 Science Park Rd.
State College, PA 16803

Via Certified Mail: # 7018 0680 0001 2837 2704

RE: Notice of Violation for Lot 133, PB 85 PG 88, Tax Parcel ID 05-19-1647-205, Carlisle Borough, Chesterfield Subdivision Stormwater Management Facilities

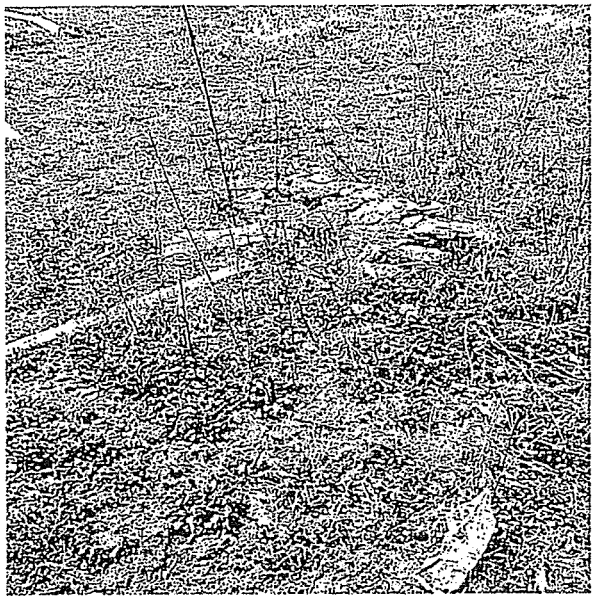
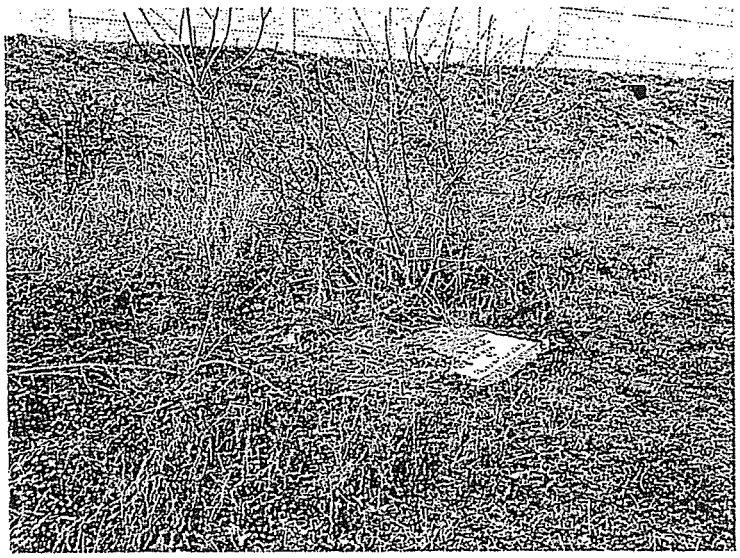
Dear Mr. Jacobs:

As noted in the following descriptions and pictures, Borough staff has recently inspected the stormwater management facilities associated with the above-referenced subdivision, and determined that violations exist per the Stormwater Management Ordinance. All photographs were taken on March 27, 2020.

Item #1 – This inlet must be replaced or repaired. (Located in Lot 133 North of Cheltenham Lane) The vertical wall of the inlet has three openings, two of which contain piping. The third opening lacks a pipe and was temporarily filled with stone. The stone has washed into the inlet causing the collapse of the surrounding soil. The unused wall opening must be cemented shut to prevent continued erosion of surrounding soil. The stone and soil mixture within the inlet must also be removed and the adjacent void space backfilled and seeded.	

53 West South Street, Carlisle, PA 17013 Tel. (717) 249-4422

Item #2 – This end wall supports the stormwater pipes that discharge into the stormwater detention basin located on Lot 133 north of Sussex Drive. The basin and piping do not appear to have been adequately maintained since the completion of construction. There is an accumulation of trash, leaf debris, and sediment blocking the free discharge of stormwater runoff. A tree is also growing in front of the pipe outfall. All of the debris, tree and accumulated sediment around this headwall needs to be removed.	
	

Deficient Item #3 – There is a collection of debris and non-grass vegetation located within the swale / detention basin on Lot 133, which is contributing to isolated ponding and reduced stormwater storage capacity. Old clothes, trash, residual construction materials, general debris, and non-grass vegetation are found scattered throughout Lot 133 and needs to be removed per the Post-Construction Stormwater Management Plan.	 

Staff believes the required collection, conveyance and stormwater detention facilities are not functioning as designed, primarily due to lack of regular maintenance. The Ordinance listed below indicate citations are applicable:

Ordinance citation	
217-25.D - Stormwater Management	The Borough may take enforcement actions against an owner for any failure to satisfy the provisions of this Ordinance.
S. 217-26 –	Operation and maintenance - The owner is responsible for operation and

	maintenance of the SWM BMPs. If the owner fails to adhere to the operation and maintenance agreement, the Borough may perform the services required and charge the owner appropriate fees. Nothing herein shall be construed to place a duty or obligation upon the Borough to perform any services or repairs. Nonpayment of fees may result in a lien against the property or other judicial action.
S. 217-34	The Borough Engineer will provide the owner, or the owner's designee, with a written notice of the violation and the time period allowed for the owner to correct the violation. If the owner does not correct the violation within the deadline, we may revoke or suspend any, or all, applicable approvals and permits pertaining to any provision of this Chapter.

Due to the nature of these maintenance deficiencies, Ordinance violations unfortunately now exist. I request that you complete the necessary corrective actions within 45 days of receipt of this letter. In light of the current Pennsylvania Governor's 3/19/20 *Order of Closure of All Businesses That Are Not Life Sustaining*, please call me or Jacob Shaffer if you require a time extension.

As per S. 217-35 - Violations and Penalties - Any person violating the provisions of Chap. 217 shall be guilty of a summary offense and, upon conviction, shall be subject to a fine of not more than $1,000 for each violation, recoverable with costs, and/or imprisonment for a period not exceeding 30 days for each violation. Each day that the violation continues shall be a separate offense, and penalties shall be cumulative. The Borough may also institute injunctive, mandamus or any other appropriate action or proceeding at law or in equity for the enforcement of this Ordinance. A court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus or other appropriate forms of remedy or relief.

If you wish to appeal this violation determination, you can appeal to the Borough Council, which shall hold a hearing pursuant to the Local Agency Law, 2 PA. C.S.A. § 551 et seq., within 30 days of that action. Any further action may then be appealed to the Cumberland County Court of Common Pleas within 30 days of Council's decision.

If you have any comments or questions, please direct them to either me mmalarich@carlislepa.org or Jacob Shaffer jshaffer@carlislepa.org.

Sincerely,

Jacob B. Shaffer
for

Mark A. Malarich, P.E.
Borough Engineer

cc. Jacob Shaffer, MS4 Coordinator
Phase 2B Subdivision File

BOROUGH OF CARLISLE

"Committed To Excellence In Community Service"

June 15, 2020

C. Anthony Fruchtl
PennTerra Engineering, Inc.
3075 Enterprise Drive, Suite 100
State College, PA 16801

Via email: afruchtl@pennterra.com

RE: Notice of Plan Approval, and Conditions – Chesterfield, Phase 2B

Be advised that, on ***June 11, 2020***, Carlisle Borough Council conditionally approved a Final Subdivision Plan for Chesterfield Phase 2B, prepared by PennTerra Engineering, Inc., dated 3/9/20, subject to the applicant's acceptance and satisfactory resolution of the conditions listed below.

1. Verify if a County Recorder of Deeds Certificate is warranted for title Sheet #1.

2. Revise the cul-de-sac, on Sheet #2, to include a 50 ft. ROW surrounding the 40 ft. cartway to enable emergency vehicles and trash haulers to not trespass onto private property. (226-24.C, D)

3. Provide paving detail for proposed "temporary" cul-de-sac consistent with the Borough's Public Works Standard Specifications. (226-23.A)

4. Wholly include, on Sheet #2, the entire proposed cul-de-sac ROW as it is a key design – transportation feature of both this particular Phase, and the entire Subdivision. It is very likely based on the progress of land development and home construction that the western end of this Subdivision may not be fully build-out within 10-years. Consequently, the cul-de-sac is not legitimately a "temporary" improvement. (226-2.B & C, 4.B, 21.C, 34)

5. Retain grading and cartway / ROW improvements on Sheet #5; however, the appropriate design remedy for these semi off-site improvements is to formally make a minor Plan modification to Recorded Plan of Subdivision for Phase 3A.

6. Clarify, on Sheet #4, the appropriateness of the "K" Factor Vertical Crest Curvature for Newcastle Drive. Given the established speed limit for residential streets in the Borough is 25 mph, a "K" Factor of 12 may be more appropriate, or provide a longer curve length of 200 feet. (226-24.F)

7. Correct all deficiencies / violations noted in M. Malarich letter to S&A Homes, dated 4/6/20, regarding identified stormwater management collection, conveyance and retention facilities issues. There are several maintenance issues, as well as some minor damage to inlets that must be correct. These issues impede proper function of the designed and intended facilities. As per S. 226-15, in addition to other legal remedies, the Borough may also deny any permit, or refuse to issue or grant further approval necessary to further improve or develop the subject property, if violations to this Ordinance currently exist. As stormwater management is integral to the purpose of the SALDO, the cited deficiencies must be corrected prior to Plan Recordation. Borough staff has agreed to a time extension to resolve all deficiencies within 45 calendar days after the PA Governor's work closure order is lifted.

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8. Provide an analysis / report from an arborist or RLA as to the potential for incorporating a portion of the existing strand of mature trees as part of the backyard for Lots 41 & 68. As per § 226-30, the design and development of all subdivisions and land developments shall preserve, whenever possible, natural features ... [such as] woodland areas, large trees, natural watercourses and bodies of water, wetlands, rock outcroppings and scenic views."

9. Add to road / curb detail, a bituminous seal on all abutting pavement and curbs joints.

10. Revise pavement section detail to provide for Skid Resistance Level (SRL) M or superior wearing course and 5-inches of SRL-M binder course. (226-36.A)

11. Provide concrete monuments (on the Plan) to demarcate angles – curves in property boundary at street ROW intersections. (226-35)

12. Consider preparing and recording individual lot deeds for Lots 71, 72, 67 (Drainage & Utility Easement) to assist in clarifying homeowner's rights & restrictions as to construction, placing objects, and landscaping within these conveyance features. (226-25.A)

13. Provide and include Plan legend symbols for proposed street lights – particularly, at intersection. (226-24.L)

14. Provide a note on the Plans that all construction shall conform to the Borough of Carlisle's Public Works Standard Specifications as well as PennDOT Specifications Publication No. 408. (226-23.A)

15. Provide for revised CCPC Plan approval block on Sheet #1.

16. Provide three (3) copies of the plan for recording purposes, including applicant's signature, original seal and signature of the professional engineer and the professional land surveyor. (226-20A.4, 5)

17. Provide location for boulevard – shade trees as per S. 226-30.A Trees shall have a minimum caliper of 1.5 inches, and to be planted at intervals of not less than 30 ft., nor greater than 50 ft.

18. Clarify that water laterals shall be copper tubing conforming to requirements of ASTM B-88, Type K. No splices permitted in lengths less than 100 feet.

19. Clarify that curb stops shall be brass curb stops with a ball valve allowing full nominal diameter and a tee-head allowing 90° motion. Curb stops ¾ inch through 2-inch shall be Ford Meter Box Company, Inc. Model B44-xxx-Q style with compression quick joints for copper tubing. All curb stops shall conform to the latest revision of AWWA Standard C800.

20. Verify the location of existing fire hydrant adjacent to Lot #64 /19 Princeton Dr. (226-22.A.1)

21. Provide a design – installation detail for fire hydrant, consistent with Borough PW Specifications for American Darling – Model B-84-B painted light blue (226-34, 37)

22. Replace proposed cul-de-sac blow-off valve assembly with a hydrant to reduce replacement costs and aid in maintenance flushing.

23. Provide details for water mains and water valves (226-23.A)

24. Provide legible sanitary sewer manhole detail.

25. Include an exterior cleanout on sanitary sewer lateral detail. (226-23.A)

26. Provide fee in-lieu of parkland dedication in the amount of $3,160 as per S. 226-32.B(1).

27. Provide water and sewage capacity – reservation Borough fees for associated EDUs for each lot, will be paid at or before time of building permit. (226-13, 20.B, 34)

28. Provide an approved sewage plan revision module from PA DEP. (226-22.B.2)

29. Provide a construction cost estimate, prepared and certified by a professional engineer, for the full material and installation costs for all proposed improvements. (226-21.H, I)

30. Upon Borough approval of the construction cost estimate, provide suitable escrow, LOC, or other security by a recognized chartered financial lending institution. (226-21.C-P)

31. Sign and execute a Developer's Agreement for all improvements for on and off-site including - Lot 133R, and Sussex Dr. cul-de-sac. (226-21.D, G, H, I; 22.B.4)

32. Provide copy of approved erosion and sedimentation control plan from CCCD. (226-20.k, 28)

33. Provide copy of approved NPDES Permit for stormwater discharges during construction. (226-20.L)

34. Provide a statement by the owner dedicating streets, rights-or-way, easements and any sites for public uses which are to be dedicated. (226-22.A)

35. Provide the diameter and invert elevations of the existing stormwater mains (226-20.7.i)

36. Sign and execute a Stormwater Operations & Maintenance Agreement with the Borough for the entire development as an existing agreement does not exist. (217-17.E.15; 26)

37. Revise Basin Permanent Seeding detail on Sheet 6 to change "may" to "shall". (217-17.E.16)

38. Revise and resubmit Post Construction Stormwater Management Report to provide consistency between hydrograph reports and Pre-Development Peak Flow table on Page 2, Post-Development peak flow table on Page 16, and Summary of Pre and Post Peak flows on Page 34 of the Report.

39. Revise and resubmit NPDES Worksheets to reflect proposed stormwater discharge is to an MS4 Storm Sewer System and to provide consistency between hydrograph reports and pre- and post-construction peak discharge rates listed in Rate Control Table.

* * *

As per Section 226-21.A of the Borough's SALDO, the above-stated conditions of approval shall be formally agreed to and accepted by the applicant, as noted below. This written acceptance ***must be returned to our office within 15 days of mailing*** to the applicant of this notice of the decision. Unless a written time extension is submitted by applicant, and accepted by Council, the applicant shall satisfy all conditions noted in this approval letter ***within 90 days***

following the date of approval, ***or the conditional approval shall expire and be deemed revoked.***

All compliance / document items required to fulfill the above conditions shall be submitted in one, complete package as opposed to multiple, partial submissions. This will minimize ongoing communication, reviews, and staff time.

No land shall be conveyed, transferred, or sold, nor shall building permits be issued, or shall construction improvements be initiated, until the associated escrow security is accepted by the Borough, and the final plan, developer's agreement, and stormwater management O&M agreements are recorded. The recordation of this plan does not serve to formally join any receiving properties or tract with the acreage to be conveyed unless separate deed descriptions are recorded.

Vesting Period – Unless a time extension is formally approved by Council, the applicant / landowner shall ensure that all required improvements as depicted and identified on the final plan are ***"substantially completed" within five (5) years of Borough Council's approval.*** When final approval is preceded by preliminary approval, the aforesaid 5-year period shall be counted from the date of the preliminary approval.

If the conditions imposed are deemed unacceptable, or you are unwilling to comply to them, or you intend to reject them, ***then the approval of this plan application shall be deemed rescinded, and the plan shall be deemed to have been disapproved*** ab initio by Borough Council.

APPLICANT'S AGREEMENT AND ACCEPTANCE OF CONDITIONS:

I, _____, hereby agree to and accept the above-noted conditions of plan approval, and understand the obligations for completion within the time limits imposed.

Dated: _____.

** * * Please return a signed copy of this notice to: Carlisle Borough Community Development Dept. * * **

Penn Terra
ENGINEERING, INC.

3075 Enterprise Drive, Suite 100, State College, PA 16801
Phone: (814) 231-8285 Fax: (814) 237-2308
www.pennterra.com

August 14, 2020

MT 8/26/20

Mr. Michael Skelly
Manager of Community Development
Borough of Carlisle
53 West South Street
Carlisle, PA 17013

RE: Final Subdivision Plan for Chesterfield Phase 2B - Review Comments

Dear Mike,

Please find attached 4 sets of full-size plans revised to address comments received in a letter from your office dated May 5, 2020. Also attached are three sets of Chesterfield, Phase 2B Post Construction Stormwater Management Report, last revised May 18, 2020, Responses to the outstanding comments are as follows:

Zoning:

1. So noted.

SALDO:

2. A Recorder of Deeds block is added to Record Plan Sheet 2 of 10.
3. The cul-de-sac on Sheet 2 is revised to include a 50 ft. diameter temporary access easement to allow vehicles to use it without trespassing on private property. A plan of the proposed cul-de-sac and 50 ft. diameter temporary access easement at the end of Sussex Drive is added to Sheet 2.
4. A paving detail for the temporary cul-de-sac is added to General Construction Detail Sheet 7 of 10.
5. The proposed cul-de-sac, to be constructed with subbase and base course paving is shown on Sheet 2. The base course paving provides a structure in excess of a temporary condition.
6. A plan of the proposed cul-de-sac and 50 ft. diameter temporary access easement at the end of Sussex Drive is added to Sheet 2, so it will be recorded. Sheet 5 is revised to accurately depict lots and residual tracts as they currently exist. Sheet 3 depicts lots in future phases as they are approved and intended to be when those phases are developed.
7. Per the attached Table 3-72 from *AASHTO Geometric Design of Highways and Streets*, a 200' sight distance is achieved on a 30 MPH design road with a K value of 19. Given the proposed K value of 19 and the posted speed limit is 25 MPH, the required site distance of 200' (per Ordinance Section 226-24.F) is met.
8. All deficiencies / violations as noted in the letter from Mark Malarich dated 4-6-20 will be addressed as follows:

a. The existing inlets on future Cheltenham Lane immediately adjacent to Lot 133 will be removed and replaced as shown on Sheet 5.
b. A note is added to the plan specifying all trash, debris, sediment and vegetation blocking the out fall of the existing headwall is to be removed as part of this project. A second note requires the existing pipes to be cleaned.
c. A note is added to Sheet 5 specifying all construction material, trash, debris, and non-grass vegetation to be removed from the existing swale and basin as part of this project.

9. The Developer respectfully requests that an analysis from an RLA for Lots 41 & 68 be provided at the time of building permit issuance. The RLA will consider the house footprint and specific grading to determine the viability of existing trees to remain after construction.
10. The details that include curbing on Sheet 7 are revised to specify bituminous seal on joint.
11. The pavement section detail on Sheet is revised to have an SRL of (M).
12. Sheet 2 is revised to specify concrete monuments to demarcate property boundary points.
13. Deeds for all individual lots will included references to all access, drainage, & utility easements.
14. A proposed street light is added to Sheet 2.
15. Project Note 17 is added to the plan requiring all work to conform to Carlisle Borough and PennDOT specification.
16. The revised CCCP Plan approval block is added to Sheet 1.
17. Three copies of the signed plans will be provided upon staff approval of these revisions along with outstanding documentation (bond, agreement, fees, etc....)
18. Street tree locations are added to Sheet 2.
19. Note 4 is added to the Water Service Lateral detail on Sheet 7 with the lateral specifications.
20. Notes 1, 2, & 3 are added to the Water Service Lateral detail on Sheet 7 with the curb stop specifications.
21. The location of the existing fire hydrant is verified and relocated on Sheet 2.
22. A detail for an American Darling Model B-84-B is added to Sheet 7.
23. The cul-de-sac blow off assemblies are replaced with hydrants on Sheets 2 and 5.
24. Details for water mains and valves are added to Sheet
25. The Pre-Cast Concrete Manhole Installation detail on Sheet 7 is revised.
26. The Sanitary Sewer Detail on Sheet 7 is revised to include a cleanout.
27. Fee-In-Lieu for parkland dedication will be provided upon staff approval of these revisions.
28. Water and Sewer fees will be paid at or before building permits are pulled.
29. The approved sewage planning module from DEP will be provided when received.
30. A construction cost estimate certified by a PE is included with this submission in Appendix A of the Developer's Agreement listed below.
31. Suitable method of bonding for improvements will be provided upon approval of the cost estimate.
32. A draft Developer's Agreement for all improvements for on and off site is included with this submission for review. Changes to the template are highlighted in yellow. It is understood the amounts in the agreement are subject to approval of the cost estimate.
33. A copy of the approved E&S Plan are sheets 8, 9 & 10 of the plan set. Also attached is a copy of the NPDES Construction Activities E & S Module 1.
34. A copy of the approved NPDES permit is included with this submission.
35. A statement by the owner dedicating streets, rights-of-way, easements and other public uses is included in the Owner Dedication Block on Sheet 2.

Stormwater Management Ordinance

36. Diameters and inverts of the stormwater mains have been added to the plans.
37. A draft Stormwater Operations and Maintenance Agreement with the Borough for the entire development is included with this submission.
38. The detail on Sheet 6 has been revised accordingly.
39. The summary tables have been revised for consistency.
40. The NPDES worksheets have been revised to reflect discharge to an M$ Storm Sewer System.

If anything else is needed to complete review of the revised package, please contact me a 231-8285, extension 306 or e-mail me at afruchtl@pennterra.com.

Sincerely,

C. Anthony Fruchtl

C. Anthony Fruchtl, P.E.
Project Manager

Cc: General file 95188-2B

BOROUGH OF CARLISLE

"Committed To Excellence in Community Service"

Municipal Separate Storm Sewer System (MS4) Annual Report June 2020 – June 2021

Attachment 7

Carlisle Borough's

Stormwater System Map

BOROUGH OF CARLISLE

"Committed To Excellence in Community Service"

Municipal Separate Storm Sewer System (MS4) Annual Report June 2020 – June 2021

Attachment 8

Carlisle Borough's

Outfall Map 2021 and Completed Dry Weather Inspections Forms


1
2
3
5A
5
4A
6
6A
7
9
12
15
13
14B
14A
16
Unknown
HENDERSON
WEBSTER
HIGH
PARK VIEW
NORTH
LOUTHER
ASHBURN
BROOKE
FLOWER
BOULDER
CARLISLE SPRINGS
FAIRGROUND
HANOVER
CARLISLE PLAZA
BUCHANAN



CHURCH
LIBERTY
POMFRET
SOUTH
CHESTNUT
WALNUT
PINE
BALTIMORE
WILLOW
FILLMORE
ROBINS
ALLIANCE
NOBLE
GARDEN
ROBIN
SPRING GARDEN
GARLAND
WILLIAM
LINN
I 81 S ONRAMP EXIT 47
I 81 S OFFRAMP EXIT 47B
I 81 N OFFRAMP EXIT 47
I 81 N ONRAMP EXIT 47
I 81
9
13
14
15
16
17
18
19
21
22
23
24
22" x 13"
29" X 18" X 18"
22" x 13"
18"
24"
12"
52"
21"
15"
48"
58" X 36"
Unknown

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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI133517
Date of Inspection: **07/02/2020**	Outfall ID No.: **#2 (Mcknight St & Letort Spring Rd)**
Land Uses in Outfall Drainage Area (Select All): ☒ Industrial ☒ Urban Residential ☒ Commercial ☐ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 40° 12' 24"
	Longitude: 77° 10' 51"
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: **6/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☒ Circular ☒ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: **55.5** in	☒ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☒ Yes ☐ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☒ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☒ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☒ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☒ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☒ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☒ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☒ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

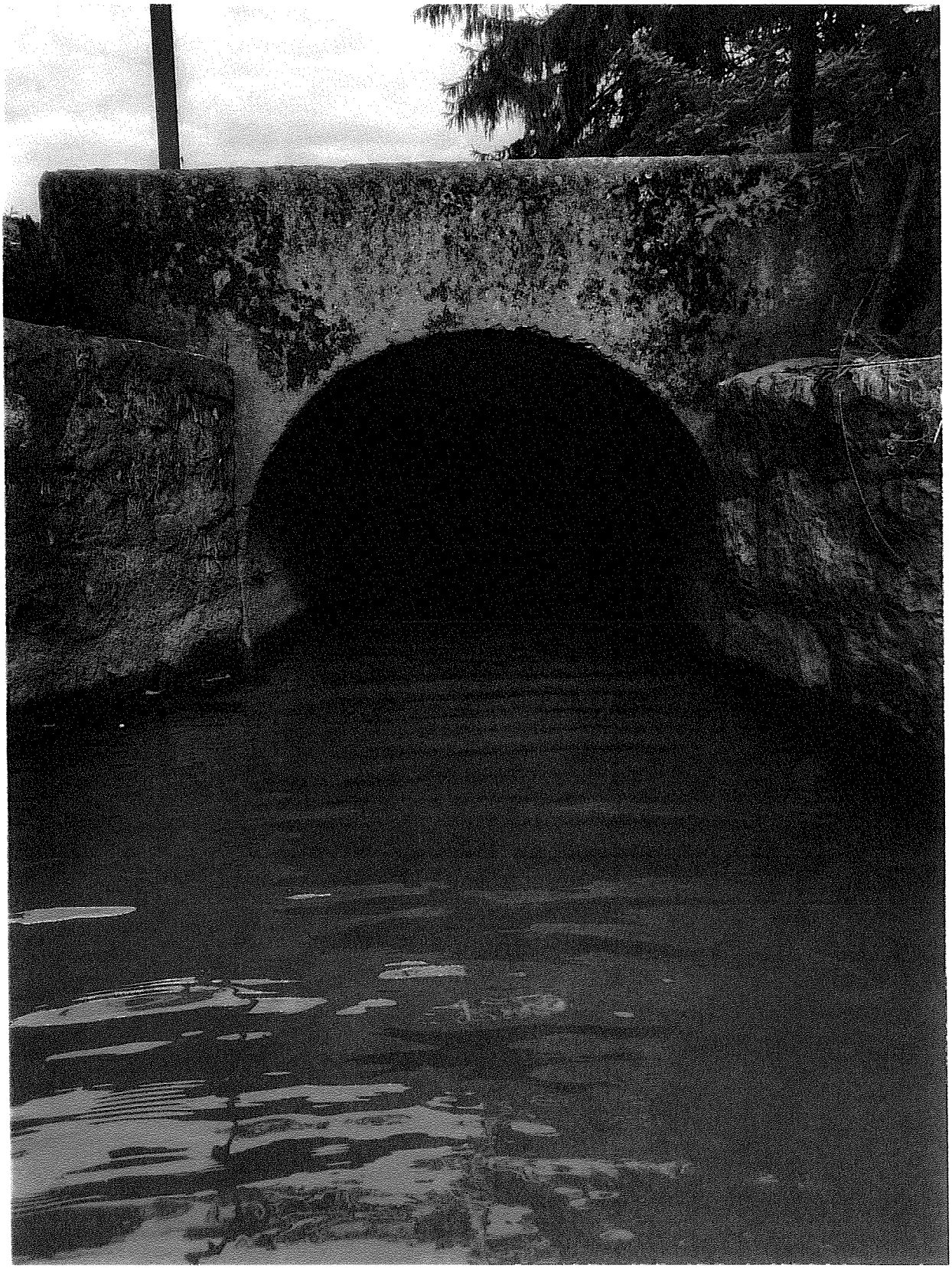
Inspector Comments:

Water Depth: 18"

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Jacob Shaffer	Jacob B Shaffer
Responsible Official Name	Signature
717-240-6918	07/02/2020
Telephone No.	Date



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DEPARTMENT OF ENVIRONMENTAL PROTECTION
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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI133517
Date of Inspection: **07/02/2020**	Outfall ID No.: **#3 Elm St & N East St)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 12' 20"
☒ Industrial ☒ Urban Residential	Longitude: 77° 10' 54"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☐ Open Space ☐ Other:	Date of Previous Precipitation: **6/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☒ Circular ☒ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: **15** in	☐ In Water ☐ With Sediment
☒ Open Channel	☐ Concrete ☒ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☒ Parabolic ☐ Other	Depth: **12** in Top Width: **96** in Bottom Width: **48** in	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Jacob Shaffer	Jacob B Shaffer
Responsible Official Name	Signature
717-240-6918	07/02/2020
Telephone No.	Date



pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI133517
Date of Inspection: **07/02/2020**	Outfall ID No.: **#4 E North St (NW Side)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 12' 14"
☒ Industrial ☒ Urban Residential	Longitude: 77° 10' 56"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☐ Open Space ☐ Other:	Date of Previous Precipitation: **6/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☒ Circular ☒ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: 12 in	☒ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☒ Yes ☐ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☒ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☒ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☒ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☒ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☒ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☒ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☒ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

Water Depth: 6.5 in

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Jacob Shaffer	Jacob B Shaffer
Responsible Official Name	Signature
717-240-6918	07/02/2020
Telephone No.	Date



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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI133517
Date of Inspection: **07/02/2020**	Outfall ID No.: **#4A E North St (NE Side)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 12' 14"
☒ Industrial ☒ Urban Residential	Longitude: 77° 10' 56"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☐ Open Space ☐ Other:	Date of Previous Precipitation: **6/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☒ Circular ☒ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: 12 in	☒ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☒ Yes ☐ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☒ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☒ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☒ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☒ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☒ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☒ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☒ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

Water Depth: 4 in

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Jacob Shaffer	Jacob B Shaffer
Responsible Official Name	Signature
717-240-6918	07/02/2020
Telephone No.	Date



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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI**133517**
Date of Inspection: **07/02/2020**	Outfall ID No.: **#5 E North St (East Side)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 12' 14"
☒ Industrial ☒ Urban Residential	Longitude: 77° 10' 56"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☐ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☐ RCP ☐ CMP ☒ PVC ☐ HDPE ☐ Steel ☐ Other	☒ Circular ☐ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☒ Other	Diameter: 4 in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☒ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☒ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

10 Outfalls on East side of the bridge

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Jacob Shaffer	Jacob B Shaffer
Responsible Official Name	Signature
717-240-6918	07/02/2020
Telephone No.	Date



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BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI133517
Date of Inspection: **07/02/2020**	Outfall ID No.: **#5 E North St (West Side)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 12' 14"
☒ Industrial ☒ Urban Residential	Longitude: 77° 10' 56"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☐ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☐ RCP ☐ CMP ☒ PVC ☐ HDPE ☐ Steel ☐ Other	☒ Circular ☐ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☒ Other	Diameter: 4 in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☒ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☒ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

10 Outfalls on West side of the bridge

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Jacob Shaffer	Jacob B Shaffer
Responsible Official Name	Signature
717-240-6918	07/02/2020
Telephone No.	Date



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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI**133517**
Date of Inspection: **07/02/2020**	Outfall ID No.: **#6 E Louther St (NW Side)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 12' 09"
☒ Industrial ☒ Urban Residential	Longitude: 77° 10' 59"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☐ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☐ Circular ☒ Single ☐ Elliptical ☐ Double ☒ Box ☐ Triple ☐ Other ☐ Other	Diameter: **40 in X 24** in	☐ In Water ☒ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

Sediment: 1/4 in
Water flows into base but insignificant amount at time of inspection

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Jacob Shaffer	Jacob B Shaffer
Responsible Official Name	Signature
717-240-6918	07/02/2020
Telephone No.	Date



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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI133517
Date of Inspection: **07/02/2020**	Outfall ID No.: **#6A E Louther St (SW Side)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 12' 09"
☒ Industrial ☒ Urban Residential	Longitude: 77° 10' 59"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☐ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☐ Circular ☒ Single ☐ Elliptical ☐ Double ☒ Box ☐ Triple ☐ Other ☐ Other	Diameter: **40 in X 24** in	☒ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☒ Yes ☐ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☒ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☒ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☒ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☒ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☒ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☒ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☒ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

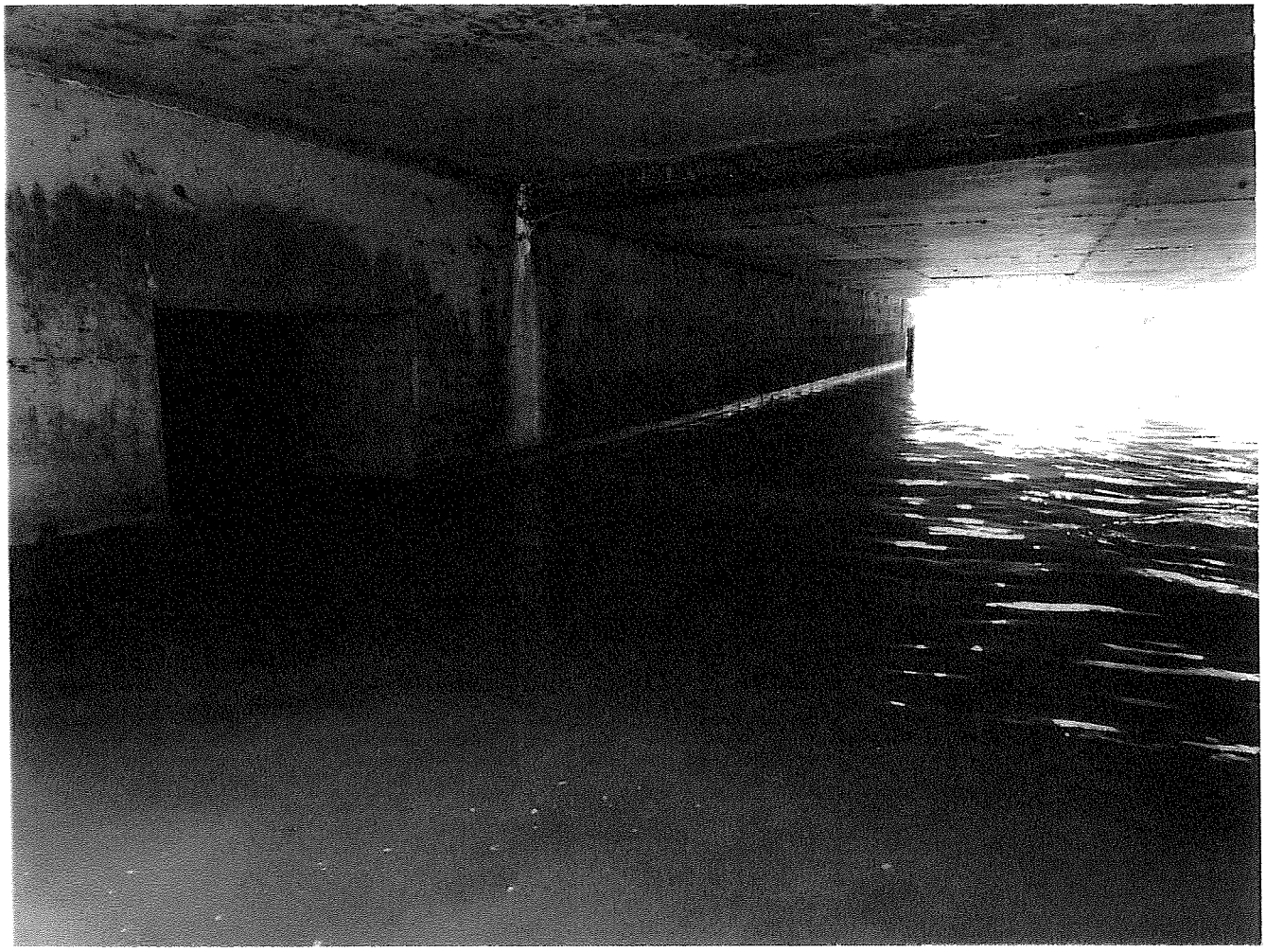
Inspector Comments:

Water Depth: 1 in

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Jacob Shaffer	Jacob B Shaffer
Responsible Official Name	Signature
717-240-6918	07/02/2020
Telephone No.	Date



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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI**133517**
Date of Inspection: **07/02/2020**	Outfall ID No.: **#7 E Louther St (SE Side)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 12' 09"
☒ Industrial ☒ Urban Residential	Longitude: 77° 10' 58"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☐ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☒ Circular ☒ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: **18** in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

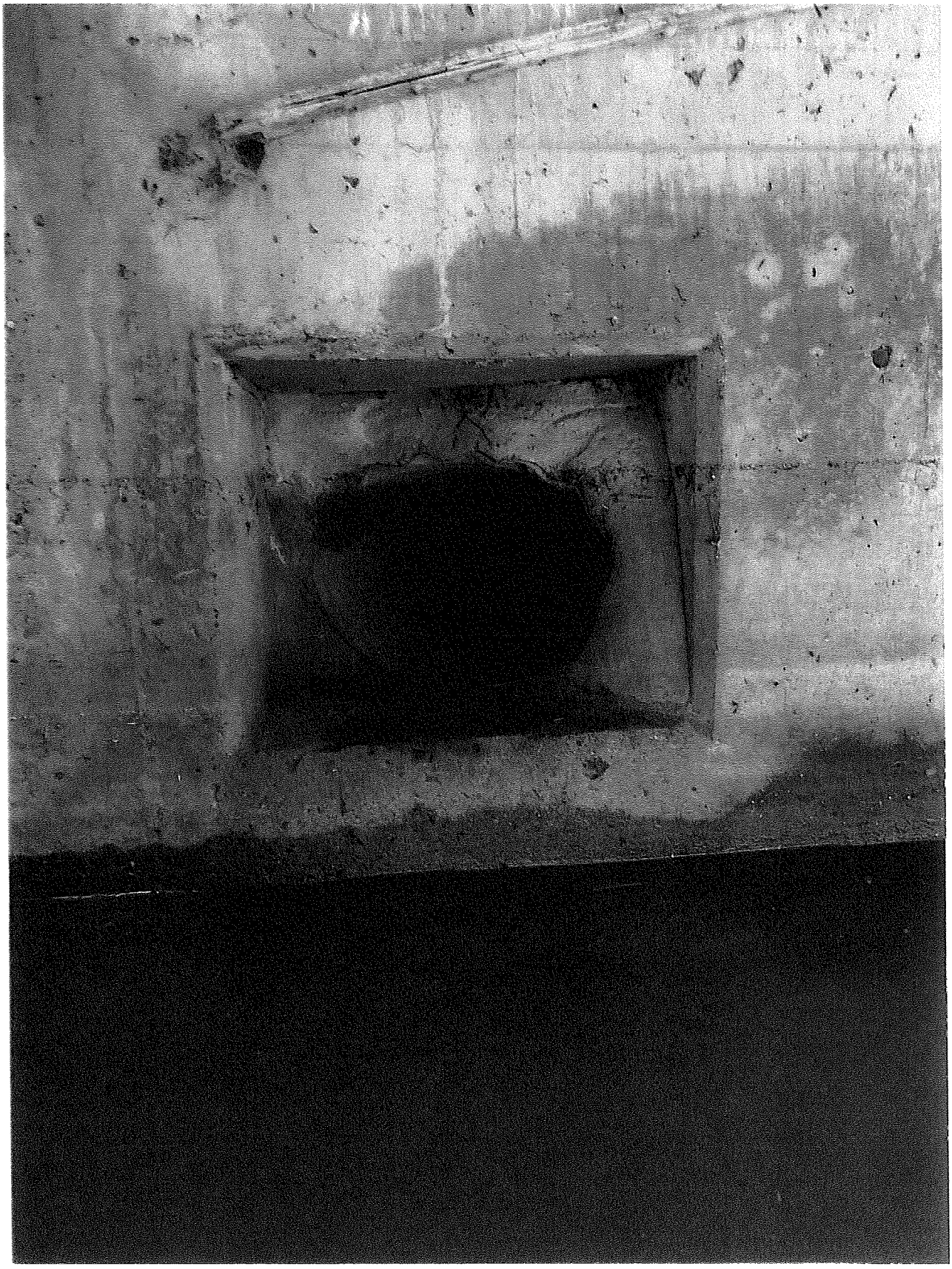
Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Jacob Shaffer	Jacob B Shaffer
Responsible Official Name	Signature
717-240-6918	07/02/2020
Telephone No.	Date



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DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI133517
Date of Inspection: **07/02/2020**	Outfall ID No.: **#8 E Louther St (SW Side)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 12' 09"
☒ Industrial ☒ Urban Residential	Longitude: 77° 10' 59"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☐ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☒ Circular ☒ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: **18** in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

Will collapse in the future, starting to ellipses, no sign of current collapse at the time of inspection.

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI**133517**
Date of Inspection: **07/02/2020**	Outfall ID No.: **#9 E High St (N of Bridge)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 12' 04"
☒ Industrial ☒ Urban Residential	Longitude: 77° 10' 58"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☐ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☒ Circular ☒ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: **18** in	☒ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☒ Yes ☐ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☒ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☒ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☒ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☒ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☒ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☒ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☒ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

Water Depth: 6 in

RESPONSIBLE OFFICIAL CERTIFICATION

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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI**133517**
Date of Inspection:	Outfall ID No.: **#10 E High St (NW of Bridge)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 12' 03"
☒ Industrial ☒ Urban Residential	Longitude: 77° 10' 59"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☐ Open Space ☒ Other: **Outfall is inaccessible due to PennDOT bridge construction**	Date of Previous Precipitation:
	Amount of Previous Precipitation: in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☐ Closed Pipe	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☐ Circular ☐ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: _____ in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☐ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI**133517**
Date of Inspection:	Outfall ID No.: **#10A E High St (SW of Bridge)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 12' 03"
☒ Industrial ☒ Urban Residential	Longitude: 77° 10' 59"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☐ Open Space ☒ Other: **Outfall is inaccessible due to PennDOT bridge construction**	Date of Previous Precipitation:
	Amount of Previous Precipitation: in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☐ Closed Pipe	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☐ Circular ☐ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: _____ in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☐ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

RESPONSIBLE OFFICIAL CERTIFICATION

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Jacob Shaffer
Responsible Official Name

Jacob B Shaffer
Signature

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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI133517
Date of Inspection:	Outfall ID No.: **#11 E High St (SW of Bridge)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 12' 03"
☒ Industrial ☒ Urban Residential	Longitude: 77° 10' 59"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☐ Open Space ☒ Other: **Outfall is inaccessible due to PennDOT bridge construction**	Date of Previous Precipitation:
	Amount of Previous Precipitation: in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☐ Closed Pipe	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☐ Circular ☐ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: _____ in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☐ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

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Signature

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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI133517
Date of Inspection:	Outfall ID No.: **#12 E High St (S of Bridge)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 12' 03"
☒ Industrial ☒ Urban Residential	Longitude: 77° 10' 59"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☐ Open Space ☒ Other: **Outfall is inaccessible due to PennDOT bridge construction**	Date of Previous Precipitation:
	Amount of Previous Precipitation: in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☐ Closed Pipe	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☐ Circular ☐ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: _____ in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☐ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

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BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI**133517**
Date of Inspection: **07/02/2020**	Outfall ID No.: **#13 E Pomfret St (NE Side)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 11' 58"
☒ Industrial ☒ Urban Residential	Longitude: 77° 10' 59"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☒ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☒ Circular ☒ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: 16 in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

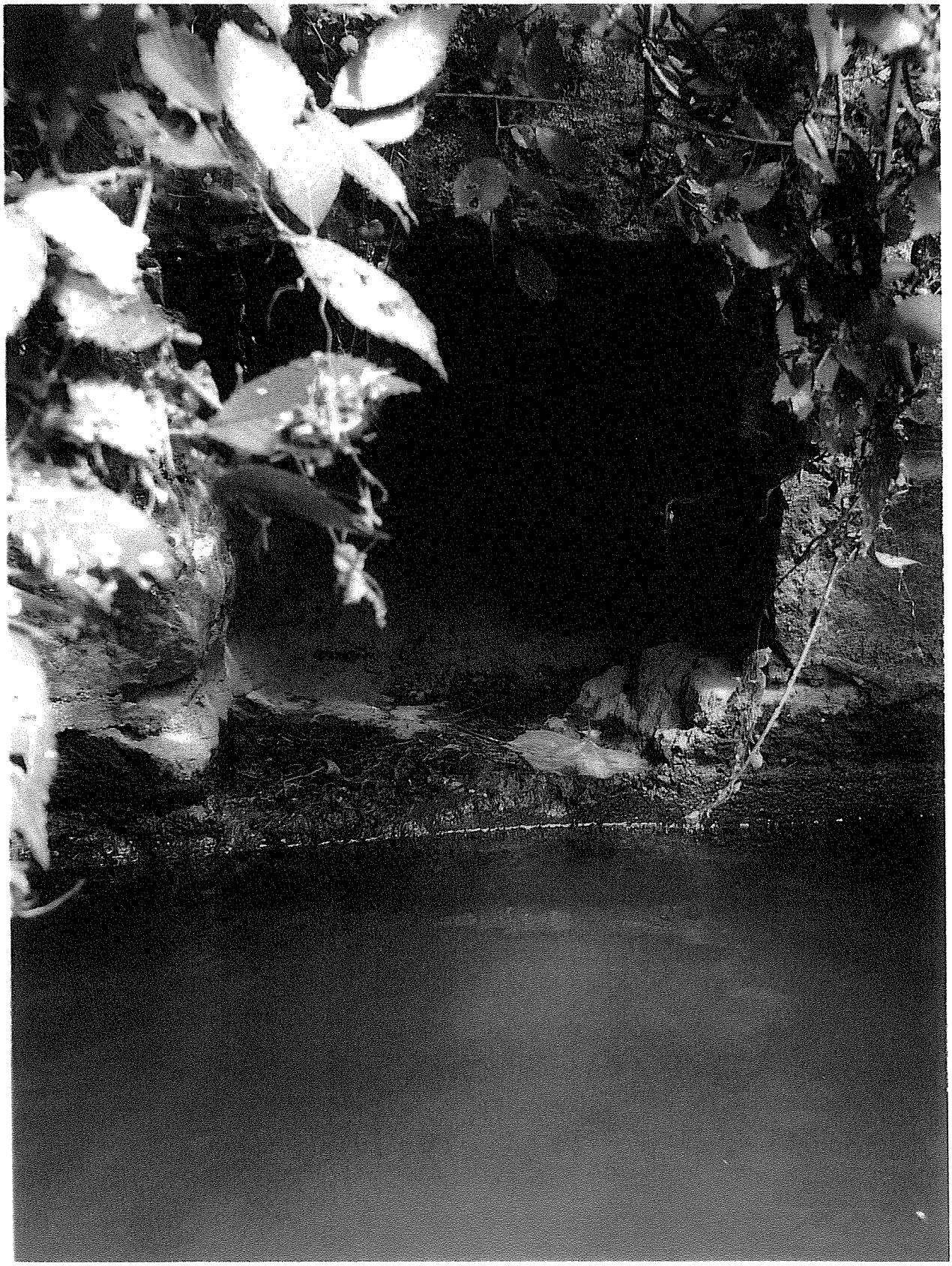
Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Jacob Shaffer	Jacob B Shaffer
Responsible Official Name	Signature
717-240-6918	07/02/2020
Telephone No.	Date



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DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI133517
Date of Inspection: **07/02/2020**	Outfall ID No.: **#14 E Pomfret St (East Side)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 11' 58"
☒ Industrial ☒ Urban Residential	Longitude: 77° 11' 00"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☒ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☐ RCP ☐ CMP ☒ PVC ☐ HDPE ☐ Steel ☐ Other	☒ Circular ☐ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☒ Other	Diameter: 4 in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

4 Outfalls under bridge on East side

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Jacob Shaffer	Jacob B Shaffer
Responsible Official Name	Signature
717-240-6918	07/02/2020
Telephone No.	Date



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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI133517
Date of Inspection: **07/02/2020**	Outfall ID No.: **#14A E Pomfret St (West Side)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 11' 57"
☒ Industrial ☒ Urban Residential	Longitude: 77° 11' 00"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☒ Open Space ☐ Other:	Date of Previous Precipitation:
	Amount of Previous Precipitation: in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☐ RCP ☐ CMP ☒ PVC ☐ HDPE ☐ Steel ☐ Other	☒ Circular ☐ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☒ Other	Diameter: 4 in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

4 Outfalls on the West side

RESPONSIBLE OFFICIAL CERTIFICATION

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Jacob Shaffer	Jacob B Shaffer
Responsible Official Name	Signature
717-240-6918	07/02/2020
Telephone No.	Date



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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI**133517**
Date of Inspection: **07/02/2020**	Outfall ID No.: **#15 E Pomfret St (SE Side)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 11' 57"
☒ Industrial ☒ Urban Residential	Longitude: 77° 11' 00"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☒ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☒ Circular ☒ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: **12** in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

RESPONSIBLE OFFICIAL CERTIFICATION

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Jacob Shaffer	Jacob B Shaffer
Responsible Official Name	Signature
717-240-6918	07/02/2020
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BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI**133517**
Date of Inspection: **07/02/2020**	Outfall ID No.: **#16 N of South St (Letort Park)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 11' 55"
☐ Industrial ☐ Urban Residential	Longitude: 77° 11' 01"
☐ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☒ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☐ RCP ☐ CMP ☐ PVC ☒ HDPE ☐ Steel ☐ Other	☒ Circular ☒ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: 12 in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

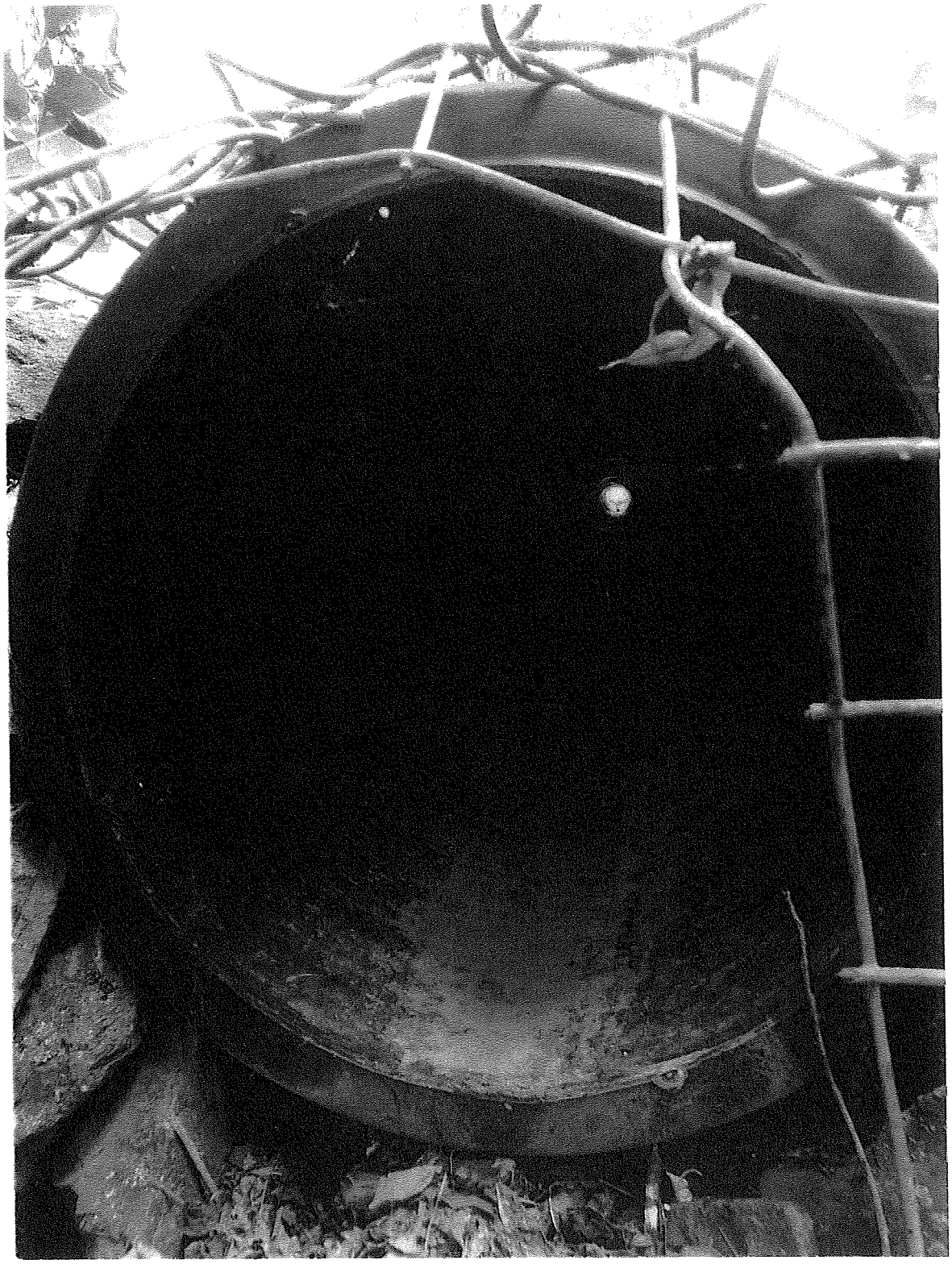
Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

RESPONSIBLE OFFICIAL CERTIFICATION

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Jacob Shaffer	Jacob B Shaffer
Responsible Official Name	Signature
717-240-6918	07/02/2020
Telephone No.	Date



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BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI133517
Date of Inspection: **07/02/2020**	Outfall ID No.: **#17 E of South St (Letort Park)**
Land Uses in Outfall Drainage Area (Select All): ☒ Industrial ☒ Urban Residential ☒ Commercial ☐ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 40° 11' 52"
	Longitude: 77° 11' 04"
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☐ Circular ☒ Single ☐ Elliptical ☐ Double ☒ Box ☐ Triple ☐ Other ☐ Other	Diameter: **51" X 19"** in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☒ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

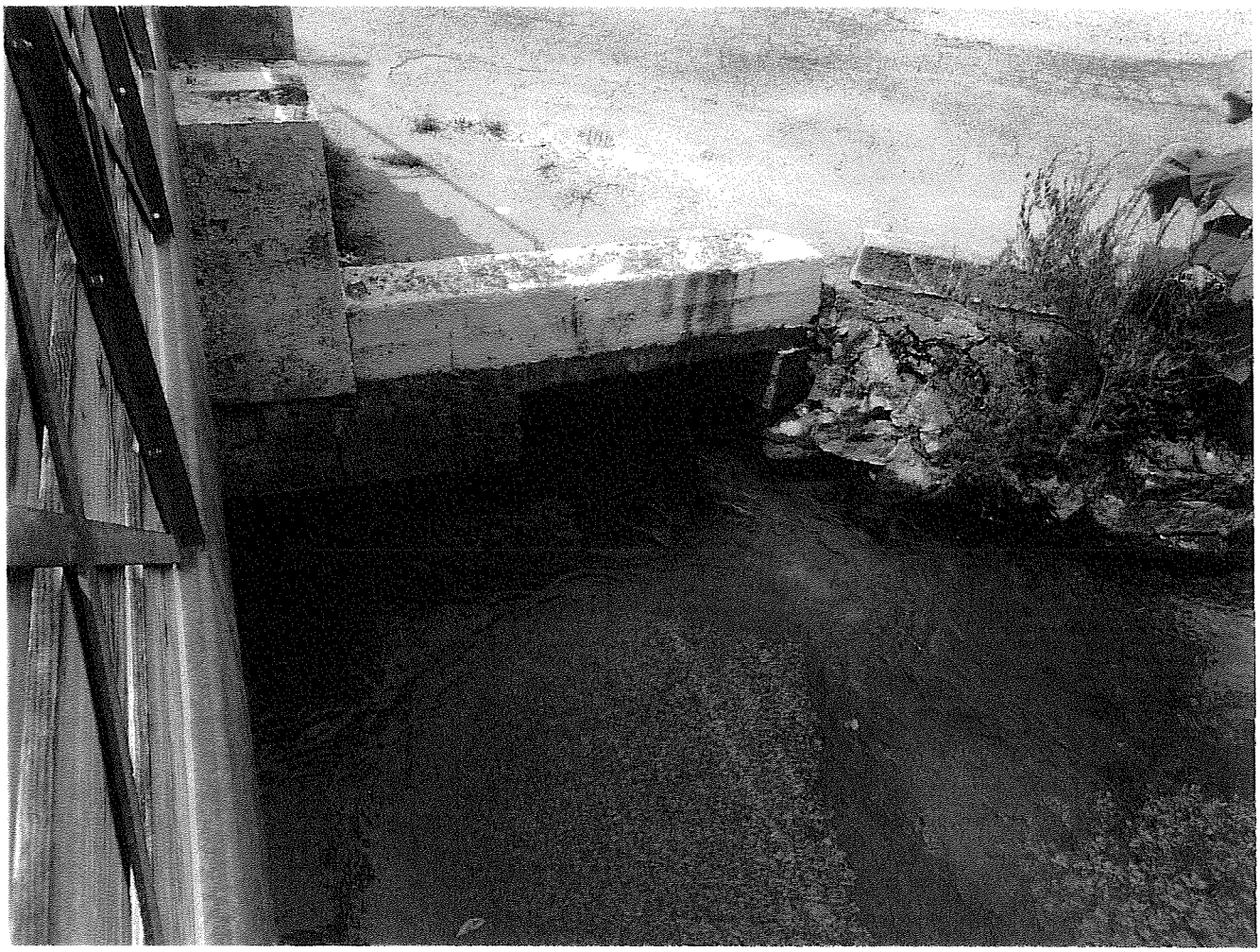
Inspector Comments:

Water Depth: 1.5 in

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Jacob Shaffer	Jacob B Shaffer
Responsible Official Name	Signature
717-240-6918	07/02/2020
Telephone No.	Date



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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI**133517**
Date of Inspection: **07/02/2020**	Outfall ID No.: **#18 E South St (N Side)**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 11' 52"
☒ Industrial ☒ Urban Residential	Longitude: 77° 11' 03"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☐ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☐ Circular ☒ Single ☐ Elliptical ☐ Double ☒ Box ☐ Triple ☐ Other ☐ Other	Diameter: **42" x 20.5"** in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☒ Yes ☐ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☒ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☒ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☒ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☒ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☒ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☒ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☒ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

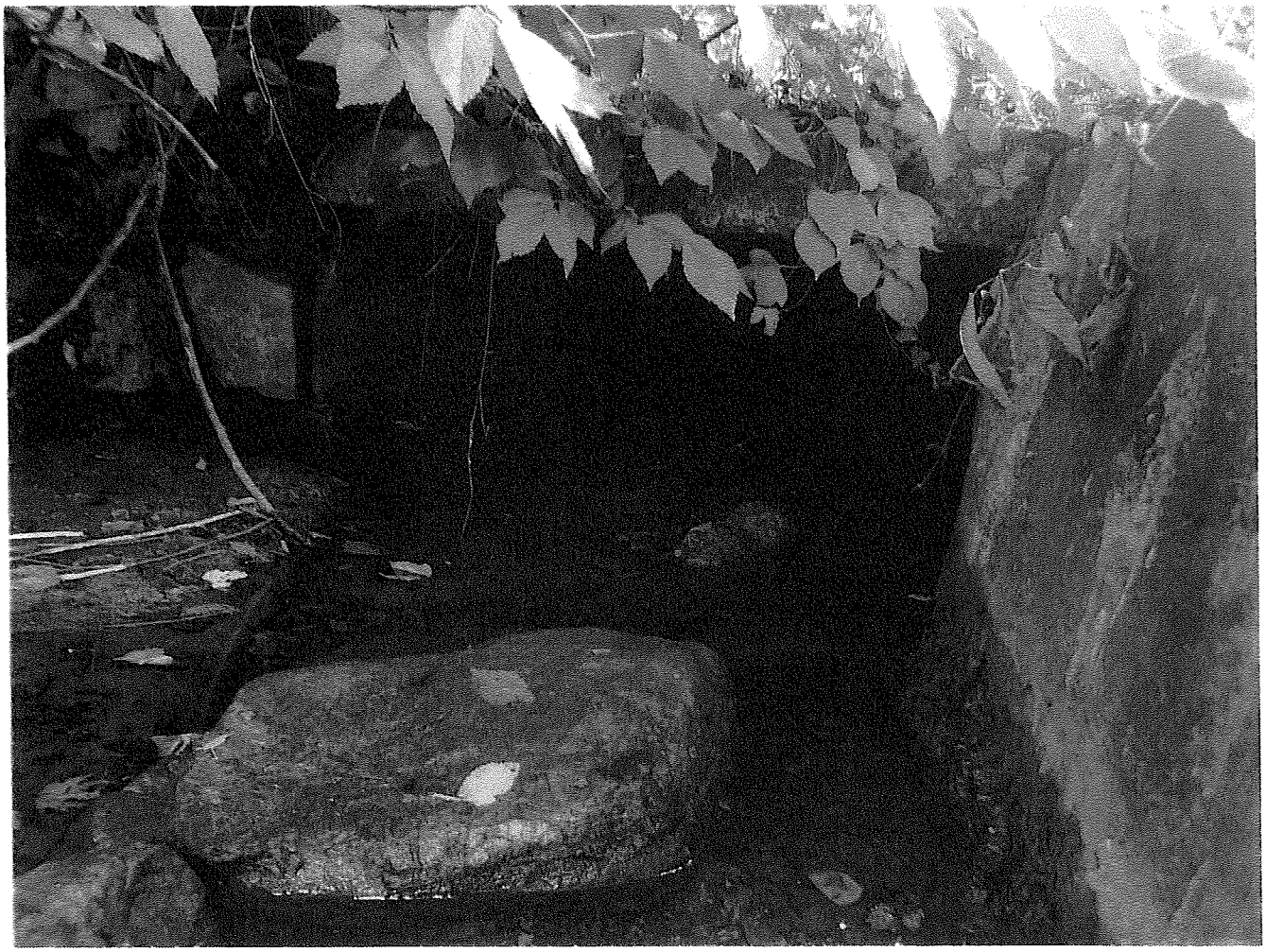
Inspector Comments:

Water Depth: 4 in

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Jacob Shaffer	Jacob B Shaffer
Responsible Official Name	Signature
717-240-6918	07/02/2020
Telephone No.	Date



3800-FM-BCW0521 12/2015
MS4 Outfall Field Screening Report

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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI**133517**
Date of Inspection: **07/02/2020**	Outfall ID No.: **#19 S Bedford St**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 11' 46"
☒ Industrial ☒ Urban Residential	Longitude: 77° 11' 13"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☐ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☒ Other	☒ Circular ☒ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: **10** in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Jacob Shaffer	Jacob B Shaffer
Responsible Official Name	Signature
717-240-6918	07/02/2020
Telephone No.	Date



pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI**133517**
Date of Inspection: **07/02/2020**	Outfall ID No.: **#20 S Hanover St**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 11' 43"
☒ Industrial ☒ Urban Residential	Longitude: 77° 11' 23"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☐ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☒ Circular ☒ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: 12 in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

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BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI**133517**
Date of Inspection: **07/02/2020**	Outfall ID No.: **#21 Letort Nature Trail**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 11' 29"
☐ Industrial ☒ Urban Residential	Longitude: 77° 11' 10"
☐ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☒ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☒ Other	☒ Circular ☒ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: 24 in	☐ In Water ☐ With Sediment
☐ Open Channel	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

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3800-FM-BCW0521 12/2015
MS4 Outfall Field Screening Report

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BUREAU OF CLEAN WATER

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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI133517
Date of Inspection: **07/02/2020**	Outfall ID No.: **#22 Letort Nature Trail**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 11' 20"
☐ Industrial ☒ Urban Residential	Longitude: 77° 11' 09"
☐ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☒ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☒ Circular ☒ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: **32** in	☐ In Water ☐ With Sediment
☒ Open Channel	☐ Concrete ☒ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☒ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

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BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI133517
Date of Inspection: **07/02/2020**	Outfall ID No.: **#23 Letort Nature Trail**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 11' 11"
☒ Industrial ☐ Urban Residential	Longitude: 77° 11' 12"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☒ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☐ Closed Pipe	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☐ Circular ☐ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: _____ in	☐ In Water ☐ With Sediment
☒ Open Channel	☐ Concrete ☒ Earthen ☐ Rip-Rap ☐ Other	☒ Trapezoid ☐ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

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BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: **Borough of Carlisle**	NPDES Permit No.: PAI133517
Date of Inspection: **07/02/2020**	Outfall ID No.: **#24 Letort Nature Trail**
Land Uses in Outfall Drainage Area (Select All):	Latitude: 40° 11' 05"
☒ Industrial ☐ Urban Residential	Longitude: 77° 11' 13"
☒ Commercial ☐ Suburban Residential	Dry Weather Inspection? ☒ Yes ☐ No
☒ Open Space ☐ Other:	Date of Previous Precipitation: **06/29/2020**
	Amount of Previous Precipitation: **0.03** in
Inspector Name(s): **Jacob Shaffer**	Were Photographs Taken? ☒ Yes ☐ No
	Are Photographs Attached? ☒ Yes ☐ No

OUTFALL DESCRIPTION

TYPE	MATERIAL	SHAPE	DIMENSIONS	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other	☒ Circular ☒ Single ☐ Elliptical ☐ Double ☐ Box ☐ Triple ☐ Other ☐ Other	Diameter: 24 in	☐ In Water ☐ With Sediment
☒ Open Channel	☐ Concrete ☒ Earthen ☐ Rip-Rap ☐ Other	☐ Trapezoid ☒ Parabolic ☐ Other	Depth: _____ in Top Width: _____ in Bottom Width: _____	

Dry Weather Flow Present at Outfall During Inspection? ☐ Yes ☒ No *(If No, skip to Certification Section)*

Description of Flow Rate: ☐ Trickle ☐ Moderate ☐ Significant ☐ N/A

DRY WEATHER FLOW EVALUATION

Does the dry weather flow contain color? ☐ Yes ☐ No If Yes, provide a description below.

Does the dry weather flow contain an odor? ☐ Yes ☐ No If Yes, provide a description below.

Is there an observed change in the receiving waters as a result of the discharge? ☐ Yes ☐ No
If Yes, provide a description below.

Does the dry weather flow contain floating solids, scum, sheen or substances that result in deposits? ☐ Yes ☐ No
If Yes, provide a description below.

Were sample(s) collected of the dry weather flow? ☐ Yes ☐ No (If Yes, No. Samples: _____)

FIELD / LABORATORY ANALYSIS

PARAMETER	RESULTS	UNITS	PARAMETER	RESULTS	UNITS
Flow Rate		GPM	Fecal Coliform		No./100 mL
pH		S.U.	COD		mg/L
Total Residual Chlorine (TRC)		mg/L	BOD5		mg/L
Conductivity		µmhos/cm	TSS		mg/L
Ammonia-Nitrogen		mg/L	TDS		mg/L
Other: _____			Oil and Grease		mg/L
Other: _____			Other: _____		

Indicate the parameters above that were analyzed by a DEP-certified laboratory:

ILLICIT DISCHARGES

Is the dry weather flow an illicit discharge? ☐ Yes ☐ No

If Yes, describe efforts made to determine the source(s) of the illicit discharge.

Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

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BOROUGH OF CARLISLE

"Committed To Excellence in Community Service"

Municipal Separate Storm Sewer System (MS4) Annual Report June 2020 – June 2021

Attachment 9

Carlisle Borough's

Updated Stormwater Management Ordinance

Chapter 217

STORMWATER MANAGEMENT

GENERAL REFERENCES

Fees — See Ch. 120.

Floodplain management — See Ch. 135.

Sewers — See Ch. 197.

Street openings for utility installations — See Ch. 223, Art. IV.

Subdivision and land development — See Ch. 226.

ARTICLE I
General Provisions

§ 217-1. Short title.

This chapter shall be known and may be cited as the "Carlisle Borough Stormwater Management Ordinance."

§ 217-2. Statement of findings.

The Borough Council finds that:

A. Inadequate management of accelerated runoff of stormwater resulting from development throughout a watershed increases runoff volumes, flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of streams and storm sewers, greatly increases the cost of public facilities to carry and control stormwater, undermines floodplain management and flood control efforts in downstream communities, reduces groundwater recharge, threatens public health and safety, and increases non-point source pollution of water resources. **[Amended 10-10-2019 by Ord. No. 2348, approved 10-10-2019]**

B. A comprehensive program of stormwater management, including reasonable regulation of development and activities causing accelerated runoff, is fundamental to the public health, safety and welfare and the protection of people of the commonwealth, their resources and the environment.

C. Stormwater is an important water resource, which provides groundwater recharge for water supplies and base flow of streams, which also protects and maintains surface water quality.

D. Federal and state regulations require certain municipalities to implement a program of stormwater controls. These municipalities are required to obtain a permit for stormwater discharges from their separate storm sewer systems under the National Pollutant Discharge Elimination System (NPDES).

E. The use of green infrastructure and low impact development (LID) are intended to address the root cause of water quality impairment by using systems and practices which use or mimic natural processes to infiltrate and recharge, evapotranspire, and/or harvest and use precipitation near where it falls to earth. Green infrastructure practices and LID contribute to the restoration or maintenance of predevelopment hydrology. **[Added 10-10-2019 by Ord. No. 2348, approved 10-10-2019]**

F. Federal and state regulations require certain municipalities to implement a program of stormwater controls. These municipalities are required to obtain a permit for stormwater discharges from their separate storm sewer systems under the National Pollutant Discharge Elimination System (NPDES) program. **[Added 10-10-2019 by Ord. No. 2348, approved 10-10-2019]**

§ 217-3. Purpose.

The purpose of this chapter is to promote health, safety, and welfare within the Borough and its watershed by minimizing the harms and maximizing the benefits described in § 217-2 of this chapter through provisions designed to:

A. Meet legal water quality requirements under state law, including regulations at 25 Pa. Code Chapter 93 to protect, maintain, reclaim and restore the existing and designated uses of the waters of this commonwealth.

B. Preserve the natural drainage systems as much as possible.

C. Manage stormwater runoff close to the source, reduce runoff volumes and mimic predevelopment hydrology. **[Amended 10-10-2019 by Ord. No. 2348, approved 10-10-2019]**

D. Provide procedures and performance standards for stormwater planning and management.

E. Maintain groundwater recharge, to prevent degradation of surface water and groundwater quality and to otherwise protect water resources.

F. Prevent scour and erosion of stream banks and streambeds.

G. Provide proper operation and maintenance of all permanent stormwater management (SWM) best management practices (BMPs) that are implemented within the Borough.

H. Provide standards to meet NPDES permit requirements.

I. Meet general water quality and soil disturbance goals by implementing measures to:

(1) Minimize disturbance to floodplains, wetlands, natural slopes over 15%, and existing native vegetation.

(2) Preserve and maintain trees and woodlands. Maintain or extend riparian buffers and protect existing forested buffer. Provide trees and woodlands adjacent to impervious areas whenever feasible.

(3) Establish and maintain nonerosive flow conditions in natural flow pathways.

(4) Minimize soil disturbance and soil compaction. Over disturbed areas, replace topsoil to a minimum depth equal to the original depth or four inches, whichever is greater. Use tracked equipment for grading when feasible.

(5) Disconnect impervious surfaces by directing runoff to pervious areas, wherever possible.

(6) Incorporate the techniques for low-impact development practices described in the most current version of "The Pennsylvania Stormwater Best Management Practices Manual" (SWM Manual). [Pennsylvania Department of Environmental Protection (DEP). No. 363-0300-002 (2006), as amended and updated. Pennsylvania Stormwater Best Management Practices Manual. Harrisburg, PA.]

(7) Minimize thermal impacts to waters of the commonwealth.

§ 217-4. Statutory authority.

A. Primary authority.

(1) The Borough is empowered to regulate these activities by the authority of the Stormwater Management Act, Act of October 4, 1978, P.L. 864 (Act 167), 32 P.S.

§ 680.1 et seq., as amended, Article XXII and Section 1202(74) of the Pennsylvania Borough Code, 53 P.S. § 47201 et seq., and 53 P.S. § 46202(74).

(2) Hereafter, all earth disturbance activities and land development within this Borough, including, without limitation, the location, design and construction within the watershed of stormwater management systems, obstructions, flood control projects, subdivisions and major land developments, highways and transportation facilities, facilities for the provision of public utility services and facilities owned or financed in whole or in part by funds from the commonwealth, shall be in full compliance with the requirements of the Cumberland County Stormwater Management Plan and shall be conducted in a manner consistent therewith. Any violation of the Cumberland County Stormwater Management Plan shall be considered a violation of this chapter.

B. Secondary authority. The Borough is also empowered to regulate land use activities that affect runoff by the authority of the Act of July 31, 1968, P.L. 805, No. 247, The Pennsylvania Municipalities Planning Code, as amended, and/or the Act of October 4, 1978, P.L. 864 (Act 167), 32 P.S. § 680.1, et seq., as amended, The Stormwater Management Act. **[Amended 10-10-2019 by Ord. No. 2348, approved 10-10-2019]**

§ 217-5. Applicability; minimum requirements.

A. All regulated activities and all activities that may affect stormwater runoff, including land development and earth disturbance activity, are subject to regulation by this chapter as is reasonably necessary to prevent injury to health, safety or other property. The following activities are encompassed by the definition of regulated activities (see § 217-11) and shall be subject to the provisions of this chapter unless otherwise exempted by § 217-13:

(1) Land development and/or redevelopment.

(2) Subdivision.

(3) Construction of new or additional impervious or semi-pervious surfaces (streets, driveways, parking lots, etc.).

(4) Construction of structures or additions to existing structures, as determined by the Borough.

(5) Diversion or piping of any natural or man-made stream channel.

(6) Installation of stormwater management facilities or appurtenances thereto.

(7) Forest management/timber operations that include logging road construction and timber harvesting.

B. In interpreting and applying the provisions of this chapter, they shall be held to be the minimum requirements for the promotion of public health, safety, comfort, convenience and general welfare. Where provisions of this chapter impose greater restrictions than those of Chapter 135, Floodplain Management, of this Code, Chapter 226, Subdivision and Land Development, of this Code, or of any statute, other ordinance, restriction or regulation, the provisions of this chapter shall be controlling. Where the provisions of Chapter 135, Chapter 226 or of any statute, other ordinance, resolution or regulation impose greater restrictions than this chapter, the provisions of such statute, resolution, ordinance or regulation shall be controlling. This chapter shall be interpreted whenever

possible to achieve a result consistent with the provisions of Chapter 135 and Chapter 226, as applicable.

§ 217-6. Repealer.

Any other Chapter or ordinance provision(s) or regulations of the Borough inconsistent with any of the provisions of this chapter are hereby repealed to the extent of the inconsistency only.

§ 217-7. Severability.

In the event that a court of competent jurisdiction declares any section or provision of this chapter invalid, such decision shall not affect the validity of any of the remaining provisions of this chapter.

§ 217-8. Compatibility with other requirements.

Approvals issued and actions taken under this chapter do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other code, law, regulation, chapter or ordinance.

§ 217-9. Waiver procedure. [Amended 10-10-2019 by Ord. No. 2348, approved 10-10-2019]

A. If the Borough of Carlisle determines that any requirement under this chapter cannot be achieved for a particular regulated activity, the municipality may, after an evaluation of alternatives, approve measures other than those in this chapter, subject to § 217-9B and C.

B. Waivers or modifications of the requirements of this chapter may be approved by the Borough of Carlisle if enforcement will exact undue hardship because of peculiar conditions pertaining to the land in question, provided that the modifications will not be contrary to the public interest and that the purpose of the chapter is preserved. Cost or financial burden shall not be considered a hardship. Modification may be considered if an alternative standard or approach will provide equal or better achievement of the purpose of the chapter. A request for modifications shall be in writing and accompany the stormwater management site plan submission. The request shall provide the facts on which the request is based, the provision(s) of the chapter involved and the proposed modification.

C. No waiver or modification of any regulated stormwater activity involving earth disturbance greater than or equal to one acre may be granted by the Borough of Carlisle unless that action is approved in advance by the Department of Environmental Protection (DEP) or the Cumberland County Conservation District.

ARTICLE II
Definitions

§ 217-10. Word usage.

For the purposes of this chapter, certain terms and words used herein shall be interpreted as follows:

A. Words used in the present tense include the future tense; the singular number includes the plural; and the plural number includes the singular; words of masculine gender include feminine gender; and words of feminine gender include masculine gender.

B. The word "includes" or "including" shall not limit the term to the specific example but is intended to extend its meaning to all other instances of like kind and character.

C. The words "shall" and "must" are mandatory; the words "may" and "should" are permissive.

§ 217-11. Definitions. [Amended 10-10-2019 by Ord. No. 2348, approved 10-10-2019]

AGRICULTURAL ACTIVITY — Activities associated with agriculture, such as agricultural cultivation, agricultural operation, and animal heavy use areas. This includes the work of producing crops, including tillage, land clearing, plowing, disking, harrowing, planting, harvesting crops or pasturing and raising of livestock and installation of conservation measures. Construction of new buildings or impervious area is not considered an agricultural activity.

APPLICANT — A landowner, developer, or other person who has filed an application to the municipality for approval to engage in any regulated activity at a project site in the municipality.

BEST MANAGEMENT PRACTICE (BMP) — Activities, facilities, designs, measures, or procedures used to manage stormwater impacts from regulated activities, to meet state water quality requirements, to promote groundwater recharge, and to otherwise meet the purposes of this chapter. Stormwater BMPs are commonly grouped into one of two broad categories or measures: "structural" or "nonstructural." In this chapter nonstructural BMPs or measures refer to operational and/or behavior-related practices that attempt to minimize the contact of pollutants with stormwater runoff, whereas structural BMPs or measures are those that consist of a physical device or practice that is installed to capture and treat stormwater runoff. Structural BMPs include, but are not limited to, a wide variety of practices and devices, from large-scale retention ponds and constructed wetlands, to small-scale underground treatment systems, infiltration facilities, filter strips, low impact design, bioretention, wet ponds, permeable paving, grassed swales, riparian or forested buffers, sand filters, detention basins, and manufactured devices. Structural stormwater BMPs are permanent appurtenances to the project site.

BOROUGH — The Borough of Carlisle, Cumberland County, Pennsylvania; Carlisle Borough.

BOROUGH COUNCIL — The governing body of the Borough of Carlisle, Cumberland County, Pennsylvania.

CODE — The Code of the Borough of Carlisle.

CONSERVATION DISTRICT — A conservation district, as defined in § 3(c) of the Conservation District Law [3 P.S. § 851(c)] that has the authority under a delegation agreement executed with DEP to administer and enforce all or a portion of the regulations promulgated under 25 Pa. Code 102.

DEP — The Pennsylvania Department of Environmental Protection.

DESIGN STORM — The magnitude and temporal distribution of precipitation from a storm event measured in probability of occurrence (e.g., a five-year storm) and duration (e.g., 24 hours) used in the design and evaluation of stormwater management systems. Also see "return period."

DETENTION VOLUME — The volume of runoff that is captured and released into the waters of the commonwealth at a controlled rate.

DEVELOPMENT SITE (SITE) — See "project site."

DISTURBED AREA — An unstabilized land area where an earth disturbance activity is occurring or has occurred.

EARTH DISTURBANCE ACTIVITY — A construction or other human activity which disturbs the surface of the land, including, but not limited to, clearing and grubbing; grading; excavations; embankments; road maintenance; building construction; and the moving, depositing, stockpiling, or storing of soil, rock, or earth materials.

EROSION — The natural process by which the surface of the land is worn away by water, wind or chemical action.

EXISTING CONDITION — The dominant land cover during the five-year period immediately preceding a proposed regulated activity.

FEMA — Federal Emergency Management Agency.

FLOODPLAIN — Any land area susceptible to inundation by water from any natural source or delineated by applicable FEMA maps and studies as being a special flood hazard area. Also includes areas that comprise Group 13 Soils, as listed in Appendix A of the Pennsylvania DEP Technical Manual for Sewage Enforcement Officers (as amended or replaced from time to time by DEP).

FLOODWAY — The channel of the watercourse and those portions of the adjoining floodplains that are reasonably required to carry and discharge the 100-year flood. Unless otherwise specified, the boundary of the floodway is as indicated on maps and flood insurance studies provided by FEMA. In an area where no FEMA maps or studies have defined the boundary of the 100-year floodway, it is assumed, absent evidence to the contrary, that the floodway extends from the stream to 50 feet from the top of the bank of the stream.

FOREST MANAGEMENT/TIMBER OPERATIONS — Planning and activities necessary for the management of forestland. These include conducting a timber inventory, preparation of forest management plans, silvicultural treatment, cutting budgets, logging road design and construction, timber harvesting, site preparation, and reforestation.

GREEN INFRASTRUCTURE — Systems and practices that use or mimic natural processes to infiltrate, evapotranspire, or reuse stormwater on the site where it is generated.

HYDROLOGIC SOIL GROUP (HSG) — Infiltration rates of soils vary widely and are affected by subsurface permeability as well as surface intake rates. Soils are classified into four HSGs (A, B, C, and D) according to their minimum infiltration rate, which is obtained for bare soil after prolonged wetting. The NRCS defines the four groups and provides a list of most of the soils in the United States and their group classification. The soils in the area of the development site may be identified from a soil survey report that can be obtained from local NRCS offices or conservation district offices. Soils become less pervious as the HSG varies from A to D (NRCS).

IMPERVIOUS SURFACE (IMPERVIOUS AREA) — A surface that prevents the infiltration of water into the ground. Impervious surfaces (or areas) shall include, but not be limited to: roofs; additional indoor living spaces, patios, garages, storage sheds and similar structures; and any new streets or sidewalks. Decks, parking areas, and driveway areas are not counted as impervious areas if they do not prevent infiltration.

KARST — A type of topography or landscape characterized by surface depressions, sinkholes, rock pinnacles/uneven bedrock surface, underground drainage, and caves. Karst is formed on carbonate rocks, such as limestone or dolomite.

LAND DEVELOPMENT (DEVELOPMENT) — Inclusive of any or all of the following meanings:

A. The improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving:

   (1) A group of two or more buildings, whether proposed initially or cumulatively, or a single nonresidential building on a lot or lots regardless of the number of occupants or tenure; or

   (2) The division or allocation of land or space between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups, or other features;

B. Any subdivision of land as defined in the Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247, 53 P.S. § 10107.

C. Development in accordance with § 503(1.1) of the PA Municipalities Planning Code.[1]

LOW IMPACT DEVELOPMENT (LID) — Site design approaches and small-scale stormwater management practices that promote the use of natural systems for infiltration, evapotranspiration, and reuse of rainwater. LID can be applied to new development, urban retrofits, and revitalization projects. LID utilizes design techniques that infiltrate, filter, evaporate, and store runoff close to its source. Rather than rely on costly large-scale conveyance and treatment systems, LID addresses stormwater through a variety of small, cost-effective landscape features located on-site.

MUNICIPALITY — Carlisle Borough, Cumberland County, Pennsylvania.

NRCS — USDA Natural Resources Conservation Service (previously SCS).

PEAK DISCHARGE — The maximum rate of stormwater runoff from a specific storm event.

PERSON — Any individual, group of individuals, unincorporated association, partnership, corporation, limited liability partnership, limited liability company and any other form of entity.

PERVIOUS AREA — Any area not defined as impervious.

PROJECT SITE — The specific area of land where any regulated activities in the municipality are planned, conducted, or maintained.

QUALIFIED PROFESSIONAL — Any person licensed by the Pennsylvania Department of State or otherwise qualified by law to perform the work required by this chapter.

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1. **Editor's Note: See 53 P.S. § 10101 et seq.**

REGULATED ACTIVITIES — Any earth disturbance activities or any activities that involve the alteration or development of land in a manner that may affect stormwater runoff as specified in § 217-5.

REGULATED EARTH DISTURBANCE ACTIVITY — Activity involving earth disturbance subject to regulation under 25 Pa. Code 92, 25 Pa. Code 102, or the Clean Streams Law.[2]

RETENTION VOLUME/REMOVED RUNOFF — The volume of runoff that is captured and not released directly into the surface waters of this commonwealth during or after a storm event.

RETURN PERIOD — The average interval, in years, within which a storm event of a given magnitude can be expected to occur one time. For example, the twenty-five-year return period rainfall would be expected to occur on average once every 25 years; or stated in another way, the probability of a twenty-five-year storm occurring in any one year is 0.04 (i.e., a 4% chance).

RIPARIAN BUFFER — A permanent area of trees and shrubs located adjacent to streams, lakes, ponds and wetlands.

RUNOFF — Any part of precipitation that flows over the land.

SEDIMENT — Soils or other materials transported by surface water as a product of erosion.

STATE WATER QUALITY REQUIREMENTS — The regulatory requirements to protect, maintain, reclaim, and restore water quality under Title 25 of the Pennsylvania Code and the Clean Streams Law.[3]

STORMWATER — Drainage runoff from the surface of the land resulting from precipitation or snow or ice melt.

STORMWATER MANAGEMENT FACILITY — Any structure, natural or man-made, that, due to its condition, design, or construction, conveys, stores, or otherwise affects stormwater runoff. Typical stormwater management facilities include, but are not limited to: detention and retention basins; open channels; storm sewers; pipes; and infiltration facilities.

STORMWATER MANAGEMENT PLAN — The Cumberland County Stormwater Management Plan for managing stormwater runoff adopted by the County of Cumberland as required by the Stormwater Management Act, the Act of October 4, 1978, P.L. 864, (Act 167),[4] as amended.

STORMWATER MANAGEMENT SITE PLAN — The plan prepared by the developer or his representative indicating how stormwater runoff will be managed at the development site in accordance with this chapter. Stormwater management site plan will be designated as SWM site plan throughout this chapter.

SUBDIVISION — As defined in The Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247.[5]

USDA — United States Department of Agriculture.

WATERS OF THIS COMMONWEALTH — Any and all rivers, streams, creeks, rivulets, impoundments, ditches, watercourses, storm sewers, lakes, dammed water, wetlands, ponds,

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2. **Editor's Note: See 35 P.S. § 691.1 et seq.**
3. **Editor's Note: See 35 P.S. § 691.1 et seq.**
4. **Editor's Note: See 32 P.S. § 680.1 et seq.**
5. **Editor's Note: See 53 P.S. § 10101 et seq.**

springs, and all other bodies or channels of conveyance of surface and underground water, or parts thereof, whether natural or artificial, within or on the boundaries of this commonwealth.

WATERSHED — Region or area drained by a river, watercourse, or other surface water of this commonwealth.

WETLAND — Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, and similar areas.

ARTICLE III
Stormwater Management Standards

§ 217-12. General requirements. [Amended 10-10-2019 by Ord. No. 2348, approved 10-10-2019]

A. For all regulated activities, unless preparation of a SWM site plan is specifically exempted in § 217-13:

(1) Preparation and implementation of an approved SWM site plan is required.

(2) No regulated activities shall commence until the Borough issues written approval of a SWM site plan, which demonstrates compliance with the requirements of this chapter.

B. SWM site plans approved by the Borough, in accordance with § 217-22, shall be on site throughout the duration of the regulated activity.

C. The Borough, after consultation with DEP, may approve measures for meeting the state water quality requirements other than those in this chapter, provided that they meet the minimum requirements of, and do not conflict with, state law, including but not limited to the Clean Streams Law.[6]

D. For all regulated earth disturbance activities, erosion and sediment control BMPs shall be designed, implemented, operated, and maintained during the regulated earth disturbance activities (e.g., during construction) to meet the purposes and requirements of this chapter and to meet all requirements under the Pennsylvania Code Title 25 and the Clean Streams Law. Various BMPs and their design standards are listed in the Erosion and Sediment Pollution Control Program Manual (E&S Manual) [The Pennsylvania Department of Environmental Protection (DEP). 363-2134-008 (2000), as amended and updated. Erosion and Sediment Pollution Control Program Manual. Harrisburg, PA.], commonwealth of Pennsylvania, Department of Environmental Protection, No. 363-2134-008 (2000), as amended and updated.

E. Impervious areas:

(1) The measurement of impervious areas shall include all of the impervious areas in the total proposed development even if development is to take place in stages.

(2) For development taking place in stages, the entire development plan must be used in determining conformance with this chapter.

(3) For projects that add impervious area to a parcel, the total impervious area on the parcel is subject to the requirements of this chapter; except that the volume controls in § 217-14 and the peak rate controls of § 217-15 do not need to be retrofitted to existing impervious areas that are not being altered by the proposed regulated activity.

F. Stormwater flows onto adjacent property shall not be created, increased, decreased, relocated, or otherwise altered without written notification to the adjacent property owner(s). Such stormwater flows shall be subject to the requirements of this chapter.

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6. **Editor's Note: See 53 P.S. 691.1 et seq.**

G. For all regulated activities not exempted by § 217-13, implementation of the volume controls in § 217-14 is required.

H. All regulated activities shall include such measures as necessary to:

(1) Protect health, safety, and property.

(2) Meet the water quality goals of this chapter by implementing measures to:

(a) Minimize disturbance to floodplains, wetlands, and wooded areas.

(b) Maintain or extend riparian buffers.

(c) Avoid erosive flow conditions in natural flow pathways.

(d) Minimize thermal impacts to waters of this commonwealth.

(e) Disconnect impervious surfaces by directing runoff to pervious areas, wherever possible.

(3) Incorporate methods described in the Pennsylvania Stormwater Best Management Practices Manual (BMP Manual). If methods other than green infrastructure and LID methods are proposed to achieve the volume and rate controls required under this chapter, the SWM site plan must include a detailed justification demonstrating that the use of LID and green infrastructure is not practicable.

I. For all new development projects, the measurement of impervious areas shall include all of the impervious areas in the total proposed development even if development is to take place in stages. Similarly, for new development projects taking place in stages, the entire proposed new development plan must be used in determining conformance with this chapter.

J. Stormwater flows/direct discharges onto adjacent property shall not be created, increased, decreased, relocated, or otherwise altered without written notification to the adjacent property owner(s). Such stormwater flows shall be subject to the requirements of this chapter.

K. The design of all facilities over karst topography shall include an evaluation of measures to minimize adverse effects in accordance with the procedures outlined in Section 7.4 (Special Management Areas – Karst Areas) of the most current version of the SWM Manual. [Pennsylvania Department of Environmental Protection (DEP). No. 363-0300-002 (2006), as amended and updated. Pennsylvania Stormwater Best Management Practices Manual. Harrisburg, PA.]

L. Infiltration BMPs should be spread out, made as shallow as practicable, and located to maximize use of natural on-site infiltration features while still meeting the other requirements of this chapter.

M. Normally dry, open top, storage facilities should completely drain both the volume control and rate control capacities over a period of time not less than 24 and not more than 72 hours from the end of the design storm.

N. The design storm volumes to be used in the analysis of peak rates of discharge should be obtained from the latest version of the Precipitation-Frequency Atlas of the United States,

National Oceanic and Atmospheric Administration (NOAA), National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland. NOAA's Atlas 14 can be accessed at: http://hdsc.nws.noaa.gov/hdsc/pfds/.

O. For all regulated activities, SWM BMPs shall be designed, implemented, operated, and maintained to meet the purposes and requirements of this chapter and to meet all requirements under Title 25 of the Pennsylvania Code, the Clean Streams Law,[7] and the Stormwater Management Act.[8]

P. Various BMPs and their design standards are listed in the BMP Manual.

§ 217-13. Exemptions.

A. Regulated activities resulting in less than or equal to 1,000 square feet of new impervious surface are exempt from Article IV Stormwater Management (SWM) Site Plan Preparation Requirements, including §§ 217-14 and 217-15 of this chapter. Regulated activities greater than 1,000 square feet and less than or equal to 5,000 square feet of new impervious area may be exempt from the SWM site plan preparation requirements, including §§ 217-14 and 217-15 of this chapter when justification is provided that stormwater impact is minimal.*

B. Regulated activities that create new disconnected impervious areas greater than 1,000 square feet and less than or equal to 5,000 square feet that are proven to meet the seventy-five-foot minimum pervious flow path requirement outlined in Appendix B[9] are exempt from the SWM site plan preparation requirements, including §§ 217-14 and 217-15 of this chapter.*

C. Regulated activities meeting the following parcel size and square footage requirements are exempt from the peak rate control requirements, but not the volume control or SWM site plan preparation requirements of this chapter. These criteria shall apply to the total proposed development even if development is to take place in phases. The effective date of this chapter shall be the starting point from which to consider tracts as "parent tracts" in which future subdivisions and respective impervious area computations shall be cumulatively considered.*

New Impervious Area Exemption Criteria for Peak Rate Control

Total Parcel Size (acres)	Total Parcel Size (square feet)	New Impervious Area Exemption (square feet)
Less than 0.25	Less than 10,890	1,500
0.25 to 0.5	10,890 to 21,780	2,500
Greater than 0.5	Greater than 21,780	5,000

D. Agricultural plowing and tilling are exempt from the SWM site plan requirements, including §§ 217-14 and 217-15 of this chapter, provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.

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7. **Editor's Note: See 53 P.S. 691.1 et seq.**
8. **Editor's Note: See 32 P.S. § 680.1 et seq.**
9. **Editor's Note: Appendix B is on file in the office of the Borough Secretary.**

E. Forest management and timber operations are exempt from the rate control and SWM site plan preparation requirements of this chapter, provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.

* NOTE: The Borough has, at its discretion, the ability to deny exemption from any requirements of this chapter. Exemption from any requirements of this chapter does not convey exemption from any requirements of any other applicable local codes or ordinances (i.e., local building permit requirements).

§ 217-14. Volume controls. [Amended 10-10-2019 by Ord. No. 2348, approved 10-10-2019]

The green infrastructure and low impact development practices provided in the BMP Manual shall be utilized for all regulated activities wherever possible. Water volume controls shall be implemented using the Design Storm Method in Subsection A or the Simplified Method in Subsection B below for all regulated activities not otherwise exempted by § 217-13. For regulated activity areas equal or less than one acre that do not require hydrologic routing to design the stormwater facilities, this chapter establishes no preference for either methodology; therefore, the applicant may select either methodology on the basis of economic considerations, the intrinsic limitations on applicability of the analytical procedures associated with each methodology, and other factors.

A. The Design Storm Method [see Section 8.7 of the most current version of the SWM Manual (Pennsylvania Department of Environmental Protection (DEP). No. 363-0300-002 (2006), as amended and updated. Pennsylvania Stormwater Best Management Practices Manual. Harrisburg, PA.)] is applicable to any size of regulated activity. This method requires detailed modeling based on site conditions.

(1) Do not increase the post-development total runoff volume for all storms equal to or less than the two-year, twenty-four-hour duration precipitation.

(2) For modeling purposes:

(a) Existing (predevelopment) nonforested pervious areas must be considered meadow or its equivalent.

(b) Twenty percent of existing impervious area, when present, shall be considered meadow in the model for existing conditions.

B. The Simplified Method [see Section 8.7 of the most current version of the SWM Manual (Pennsylvania Department of Environmental Protection (DEP). No. 363-0300-002 (2006), as amended and updated. Pennsylvania Stormwater Best Management Practices Manual. Harrisburg, PA.)] provided below is independent of site conditions and should be used if the Design Storm Method is not followed. This method is not applicable to regulated activities greater than one acre or for projects that require design of stormwater detention or rate control facilities. For new impervious surfaces:

(1) Stormwater facilities shall be sized to capture at least the first two inches of runoff from all new impervious surfaces.

(2) At least the first one inch of runoff from new impervious surfaces shall be permanently removed from the runoff flow; i.e., it shall not be released into the

surface waters of this commonwealth. Removal options include reuse, evaporation, transpiration, and infiltration.

(3) Infiltration facilities should be designed to accommodate infiltration of the entire permanently removed runoff; however, in all cases at least the first 1/2 inch of the permanently removed runoff should be infiltrated.

(4) The second one inch of runoff from new impervious surfaces should be detained using structural and nonstructural BMPs (as outlined in the most current version of the SWM Manual) and released at a controlled rate.

(5) Regulated activities eligible under this method are exempt from the requirements of § 217-15, Rate controls.

(6) This method is exempt from the requirements of § 217-15, Rate controls.

§ 217-15. Rate controls.

See Section 8.3 of the most current version of the SWM Manual. [Pennsylvania Department of Environmental Protection (DEP). No. 363-0300-002 (2006), as amended and updated. Pennsylvania Stormwater Best Management Practices Manual. Harrisburg, PA.]

A. Areas not covered by a release rate map from an approved Act 167 stormwater management plan. Post-development discharge rates shall not exceed the predevelopment discharge rates for the one-, two-, five-, ten-, twenty-five-, fifty-, and one-hundred-year storms. If it is shown that the peak rates of discharge indicated by the post-development analysis are less than or equal to the peak rates of discharge indicated by the predevelopment analysis for one-, two-, five-, ten-, twenty-five-, fifty-, and one-hundred-year, twenty-four-hour storms, then the requirements of this section have been met. Otherwise, the applicant shall provide additional controls as necessary to satisfy the peak rate of discharge requirement.

B. Areas covered by a release rate map from an approved Act 167 stormwater management plan (see Appendix C[10]). For the one-, two-, five-, ten-, twenty-five-, fifty-, and one-hundred-year storms, the post-development peak discharge rates will follow the applicable approved release rate maps (see Appendix C). For any areas not shown on the release rate maps, the post-development discharge rates shall not exceed the predevelopment discharge rates.

§ 217-16. Additional SWM and drainage requirements.

A. Subbasin requirements. Special requirements shall apply to activity within a geographical area which supplies stormwater runoff to a point directly west of the intersection of the terminus of West South Street and Orange Street [A map of this area is on file in the Borough Engineer's Office and is incorporated into this paragraph.]:

(1) Use of stormwater pond facility. Fully on-site stormwater management shall not be required in this area, but development in the area shall make use of a Borough-constructed jointly used stormwater pond facility for purposes of stormwater handling, control and management.

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10. Editor's Note: Appendix C is on file in the office of the Borough Secretary.

(2) Additional responsibilities of applicant, developer or party seeking subdivision, earth disturbance or land development approval. Payment of a fee for the use of this stormwater pond facility shall be a requisite to any area development, earth disturbance, subdivision or land development within the scope of this chapter, which fee shall be determined by Borough Council from time to time and set forth in Chapter 120, Fees. It shall also be the responsibility of the applicant, developer or other party to construct and maintain any and all drainage structures necessary to direct flow off the site in question and into the jointly used drainage swales and facilities in such manner as not to erode or otherwise compromise the integrity of existing or future facilities; the method used to bring flow to the jointly used facilities shall be subject to approval of the Borough Engineer. This responsibility shall also include the acquisition of any easements or other interests necessary to the delivery of flow to the jointly used facilities.

(3) Limitation on meaning of "jointly used facility or facilities." The jointly used facility or facilities shall include only those facilities owned by the Borough and maintained by it. The term shall not include any common ditches, swales or other facilities used by two or more landowners or any other private arrangement or agreement for the use and/or conveyance of stormwater.

(4) Use of jointly used facility. Nothing herein is intended to preclude Borough Council from authorizing use of the jointly used facility by parties outside of the area upon such terms and conditions as it deems proper and in a manner not inconsistent with its purpose as described herein.

§ 217-16.1. Riparian buffers. [Added 10-10-2019 by Ord. No. 2348, approved 10-10-2019]

A. In order to protect and improve water quality, a riparian buffer easement shall be created and recorded as part of any subdivision or land development that encompasses a riparian buffer.

B. Except as required by Chapter 102, the riparian buffer easement shall be measured to be the greater of the limit of the 100-year floodplain or a minimum of 35 feet from the top of the streambank (on each side).

C. Minimum management requirements for riparian buffers.

(1) Existing native vegetation shall be protected and maintained within the riparian buffer easement.

(2) Whenever practicable invasive vegetation shall be actively removed and the riparian buffer easement shall be planted with native trees, shrubs and other vegetation to create a diverse native plant community appropriate to the intended ecological context of the site.

D. The riparian buffer easement shall be enforceable by the municipality and shall be recorded in the appropriate County Recorder of Deeds Office, so that it shall run with the land and shall limit the use of the property located therein. The easement shall allow for the continued private ownership and shall count toward the minimum lot area a required by zoning, unless otherwise specified in the municipal Zoning Ordinance.

E. Any permitted use within the riparian buffer easement shall be conducted in a manner that will maintain the extent of the existing 100-year floodplain, improve or maintain the stream stability, and preserve and protect the ecological function of the floodplain.

F. The following conditions shall apply when public and/or private recreation trails are permitted within riparian buffers:

(1) Trails shall be for nonmotorized use only.

(2) Trails shall be designed to have the least impact on native plant species and other sensitive environmental features.

G. Septic drainfields and sewage disposal systems shall not be permitted within the riparian buffer easement and shall comply with setback requirements established under 25 Pa. Code Chapter 73.

§ 217-16.2. Erroneous permit. [Added 10-10-2019 by Ord. No. 2348, approved 10-10-2019]

A. Any permit or authorization issued or approved based on false, misleading or erroneous information provided by an applicant is void without the necessity of any proceedings for revocation. Any work undertaken or use established pursuant to such permit or other authorization is unlawful. No action may be taken by a board, agency or employee of the Carlisle Borough purporting to validate such a violation.

ARTICLE IV
Stormwater Management (SWM) Site Plan Requirements

§ 217-17. Plan requirements.

The following items shall be included in the SWM site plan:

A. Appropriate sections from the Carlisle Borough Subdivision and Land Development Ordinance (see Chapter 226), and other applicable Code provisions, ordinances, and regulations, shall be followed in preparing the SWM site plans.

B. The Borough Engineer shall not approve any SWM site plan that is deficient in meeting the requirements of this chapter. At its sole discretion and in accordance with this article, when a SWM site plan is found to be deficient, the Borough Engineer may either disapprove the submission and require a resubmission, or in the case of minor deficiencies, the Borough Engineer may accept submission of modifications.

C. Provisions for permanent access or maintenance easements as determined necessary by the Borough Engineer for all physical SWM BMPs, such as ponds and infiltration structures, to implement the operation and maintenance plan discussed in Subsection E(15) below.

D. Include the following signature block:

> Borough Engineer or his designee, on this date (_____), has reviewed and hereby certifies that the SWM site plan meets all design standards and criteria of Chapter 217 of the Code of the Borough of Carlisle governing Stormwater Management.

E. The SWM site plan shall provide the following information with plan(s) drawn to a scale of one inch equals 50 feet:

(1) A written description of the overall stormwater management concept for the project.

(2) Name, address and telephone number of the SWM plan preparer and of the landowner or developer submitting the plan.

(3) Names of adjacent or surrounding landowners.

(4) Site boundaries with bearings and distances.

(5) Existing topography and proposed finished grades illustrating all natural features of the area.

(6) The location and dimensions of all existing and proposed buildings and other impervious areas such as existing and proposed street and parking areas, sidewalks and other structures.

(7) The Location and dimensions of existing and proposed lots, tracts or parcels.

(8) A determination of site conditions in accordance with the BMP Manual. A detailed site evaluation shall be completed for projects proposed in areas of carbonate geology or karst topography, and other environmentally sensitive areas, such as brownfields. [Pennsylvania Department of Environmental Protection (DEP). No. 363-0300-002 (2006), as amended and updated. Pennsylvania Stormwater Best Management

Practices Manual. Harrisburg, PA.] **[Amended 10-10-2019 by Ord. No. 2348, approved 10-10-2019]**

(9) Stormwater runoff design computations and documentation as specified in this chapter, or as otherwise necessary to demonstrate that measures have been taken to meet the requirements of this chapter, including the recommendations and general requirements in § 217-12.

(10) Expected project time schedule.

(11) A soil erosion and sediment control plan, where applicable, as prepared for and submitted to the approval authority.

(12) The effect of the project (in terms of runoff volumes, water quality, and peak flows) on surrounding properties and adjacent aquatic features and on any existing stormwater conveyance system that may be affected by the project. The plan shall show how the proposed SWM facilities relate to or tie into existing facilities, both on site and off site.

(13) Plan and profile drawings of all SWM BMPs, including drainage structures, pipes, open channels, and swales.

(14) The SWM site plan shall show the locations of existing on-lot wastewater facilities and water supply wells.

(15) The SWM site plan shall include an operation and maintenance (O&M) plan for all proposed physical stormwater management facilities (see Appendix A[11]). This plan shall address long-term ownership and responsibilities for operation and maintenance as well as schedules for O&M activities.

(16) Such other information as may be required by the Borough Engineer.

(17) The identity and location of all stormwater facilities, streets and other features identified for future public use as depicted on the Official Map. **[Added 12-11-2014 by Ord. No. 2212, approved 12-11-2014]**

(18) A justification must be included in the SWM site plan if BMPs other than green infrastructure methods and LID practices are proposed to achieve the volume, rate and water quality controls under this chapter. **[Added 10-10-2019 by Ord. No. 2348, approved 10-10-2019]**

§ 217-18. Plan submission.

A. Five copies of the SWM site plan shall be submitted as follows: **[Amended 10-10-2019 by Ord. No. 2348, approved 10-10-2019]**

(1) Two copies to the Borough.

(2) One copy to the Borough Engineer.

(3) One copy to the County Conservation District.

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11. Editor's Note: Appendix A is on file in the office of the Borough Secretary.

(4) One copy to the County Planning/Commission Office.

B. Additional copies shall be submitted as requested by the Borough Engineer.

C. For any SWM site plan that proposes to use any BMPs other than green infrastructure and LID practices to achieve the volume and rate controls required under this chapter, the municipality will not approve the SWM site plan unless it determines that green infrastructure and LID practices are not practicable. **[Added 10-10-2019 by Ord. No. 2348, approved 10-10-2019]**

D. If the municipality disapproves the SWM site plan, the municipality will state the reasons for the disapproval in writing. The municipality also may approve the SWM site plan with conditions and, if so, shall provide the acceptable conditions for approval in writing. **[Added 10-10-2019 by Ord. No. 2348, approved 10-10-2019]**

§ 217-19. Plan review.

A. The SWM site plan shall be reviewed by the Borough Engineer for the Borough for consistency with the provisions of this chapter. After review, the Borough Engineer shall approve or disapprove the SWM site plan. If it is recommended to disapprove the SWM site plan, the Borough Engineer shall state the reasons for the disapproval in writing. The Borough Engineer also may approve the SWM site plan with conditions and, if so, shall provide the acceptable conditions for approval in writing. The SWM site plan review shall be completed within the time allowed by the Municipalities Planning Code[12] for reviewing subdivision plans.

B. For SWM site plans that do not require subdivision and land development approval, the Borough Engineer shall notify the applicant in writing within 60 calendar days whether the SWM site plan is approved or disapproved. If the SWM site plan involves a subdivision and land development plan, the notification period is 90 days. If a longer notification period is provided by other statute, regulation, or ordinance, the applicant will be so notified by the Borough Engineer. If the Borough Engineer disapproves the SWM site plan, the Borough shall cite the reasons for disapproval in writing.

§ 217-20. Modification of plans.

A modification to a submitted SWM site plan that involves a change in SWM BMPs or techniques, or that involves the relocation or redesign of SWM BMPs, or that is necessary because soil or other conditions are not as stated on the SWM site plan as determined by the Borough, shall require a resubmission of the modified SWM site plan in accordance with this article.

§ 217-21. Resubmission of disapproved stormwater management site plans.

A disapproved SWM site plan may be resubmitted, with the revisions addressing the Borough Engineer's concerns, in accordance with this article. The applicable review fee must accompany a resubmission of a disapproved SWM site plan.

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12. **Editor's Note: See 53 P.S. § 10101 et seq.**

§ 217-22. Authorization to construct and term of validity. [Amended 10-10-2019 by Ord. No. 2348, approved 10-10-2019]

In circumstances where no subdivision or land development plan is required, the Borough Engineer's approval of an SWM site plan authorizes completion of the regulated activities contained in the SWM site plan for a maximum term of validity of five years following the date of approval. The Carlisle Borough may specify a term of validity shorter than five years in the approval of any SWM site plan. Terms of validity shall commence on the date the Borough Engineer signs the approval for an SWM site plan. In the case of a required subdivision or land development plan, the maximum term of validity shall be five years following the date of preliminary plan approval by the Borough Council. If an approved SWM site plan is not completed according to § 217-23 within the term of validity, then the Borough may consider the SWM site plan disapproved and may revoke any and all permits issued by the Borough. SWM site plans that are considered disapproved by the Borough shall be resubmitted in accordance with § 217-21 of this chapter.

§ 217-23. As-built plans, completion certificate and final inspection.

A. The applicant shall be responsible for providing as-built plans of all SWM BMPs included in the approved SWM site plan. The as-built plans and an explanation of any discrepancies with the construction plans shall be submitted to the Borough within 30 calendar days of project completion or, in the case of dedicated public improvements, prior to acceptance of the improvements by the Borough Council.

B. The as-built submission shall include a certification of completion signed by a qualified professional verifying that all permanent SWM BMPs have been constructed according to the approved plans and specifications. The latitude and longitude coordinates for all permanent SWM BMPs must also be submitted, at the central location of the BMPs. If any licensed qualified professionals contributed to the construction plans, then a licensed qualified professional must sign the completion certificate. **[Amended 10-10-2019 by Ord. No. 2348, approved 10-10-2019]**

C. After receipt of the as-built plan, the Borough may conduct a final inspection.

§ 217-24. Municipal liability.

The granting of a permit or approval of a stormwater plan or facility shall not constitute a representation, guaranty or warranty of any kind by the Borough of Carlisle or by any official or employee thereof and shall create no liability upon the Borough, its officials or employees.

ARTICLE V
Operation and Maintenance

§ 217-25. Responsibilities of developers and landowners.

A. The Borough Engineer shall make the final determination on the continuing maintenance and inspection responsibilities prior to final approval of the SWM site plan. The Borough Engineer may require a dedication of such facilities as part of the requirements for approval of the SWM site plan. Such a requirement is not an indication that the Borough will accept the facilities. The Borough reserves the right to accept or reject the ownership and operating responsibility for any portion of the stormwater management controls. Prior to acceptance by the Borough, all newly installed storm sewer mains and lines shall be inspected by the Borough Engineer, and the person offering dedication shall pay the fee established in the amount and according to the formula set forth in Chapter 120, Fees.

B. Facilities, areas, or structures used as stormwater management BMPs shall be enumerated as permanent real estate appurtenances and recorded as deed restrictions or conservation easements that run with the land.

C. The operation and maintenance plan shall be recorded as a restrictive deed covenant that runs with the land.

D. The Borough may take enforcement actions against an owner for any failure to satisfy the provisions of this article.

§ 217-26. Operation and maintenance agreements. [Amended 10-10-2019 by Ord. No. 2348, approved 10-10-2019]

A. Prior to final approval of the SWM site plan, the property owner shall sign and record an operation and maintenance (O&M) agreement (see Appendix A)[13] covering all stormwater control facilities which are to be privately owned.

(1) The owner, successor and assigns shall maintain all facilities in accordance with the approved maintenance schedule in the O&M agreement.

(2) The owner shall convey to the municipality conservation easements to assure access for periodic inspections by the municipality and maintenance, as necessary.

(3) The owner shall keep on file with the municipality the name, address, and telephone number of the person or company responsible for maintenance activities; in the event of a change, new information shall be submitted by the owner to the municipality within 10 working days of the change.

B. The owner is responsible for operation and maintenance of the SWM BMPs. If the owner fails to adhere to the operation and maintenance agreement (see the sample Operations and Maintenance Agreement in Appendix A[14]), the Borough may perform the services required and charge the owner appropriate fees. Nothing herein shall be construed to place a duty or obligation upon the Borough to perform any services or repairs. Nonpayment of fees may result in a lien against the property or other judicial action.

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13. Editor's Note: Said appendix is on file in the Borough offices.

14. Editor's Note: Appendix A is on file in the office of the Borough Secretary.

§ 217-26.1. Performance guarantee. [Added 10-10-2019 by Ord. No. 2348, approved 10-10-2019]

For SWM site plans that involve subdivision and land development, the applicant shall provide a financial guarantee to the municipality for the timely installation and proper construction of all stormwater management controls as required by the approved SWM site plan and this chapter in accordance with the provisions of §§ 509, 510, and 511 of the Pennsylvania Municipalities Planning Code.

ARTICLE VI
Fees and Expenses

§ 217-27. General.

The Borough may include all costs incurred in the review fee charged to an applicant. Any person who has filed a SWM plan pursuant to this chapter shall pay a fee in an amount and according to a formula as set forth in Chapter 120, Fees, as enacted and ordained by the Borough Council from time to time, for review of said plan by the Borough Engineer. No plan shall be approved until said fee has been paid. The review fee may include but not be limited to costs for the following:

A. Administrative/clerical processing.

B. Review of the SWM site plan.

C. Attendance at meetings.

D. Inspections.

ARTICLE VII
Prohibitions

§ 217-28. Prohibited discharges and connections.

A. Any drain or conveyance, whether on the surface or subsurface, which allows any nonstormwater discharge, including, but not limited to, sewage, process wastewater, wash water, ammonia, chlorine, petroleum products (gasoline, fuel oil, etc.) pesticides, pollutants and other hazardous materials to enter the waters of the commonwealth is prohibited.

Handling and disposal of all materials and wastes shall comply with all federal and state requirements. Structural and nonstructural BMPs, in accordance with Chapters 5 and 6 of the most current version of the SWM Manual, shall be implemented where necessary to preserve the quality of stormwater runoff.

B. Discharges to waters of the commonwealth which are not composed entirely of stormwater shall be prohibited, except as provided in Subsection C below, and discharges allowed under a state or federal permit.

C. The following discharges are authorized unless they are determined to be significant contributors to pollution to the waters of this commonwealth: **[Amended 10-10-2019 by Ord. No. 2348, approved 10-10-2019]**

(1) Discharges or flows from firefighting activities;

(2) Discharges from potable water sources, including waterline flushing and fire hydrant flushing, if such discharges do not contain detectable concentrations of total residual chlorine (TRC).

(3) Noncontaminated irrigation water, water from lawn maintenance, landscape drainage and flows from riparian habitats and wetlands.

(4) Noncontaminated HVAC condensation and water from geothermal systems.

(5) Diverted stream flows and springs.

(6) Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) and where detergents are not used.

(7) Flows from riparian habitats and wetlands.

(8) Noncontaminated pumped groundwater and water from foundation and footing drains and crawl space pumps.

(9) Dechlorinated swimming pool discharges.

(10) Uncontaminated groundwater.

(11) Residential (i.e., not commercial) vehicle wash water where cleaning agents are not utilized.

(12) Routine external building wash down (which does not use detergents or other compounds).

(13) Noncontaminated hydrostatic test water discharges, if such discharges do not contain detectable concentrations of TRC.

D. In the event that the Borough Engineer or DEP determines that any of the discharges identified in Subsection C significantly contribute to pollution of the waters of this commonwealth, the Borough or DEP will notify the responsible person(s) to cease the discharge.

§ 217-29. Roof drains and sump pumps. [Amended 10-10-2019 by Ord. No. 2348, approved 10-10-2019]

Roof drains and sump pumps shall discharge to infiltration or vegetative BMPs wherever feasible.

§ 217-30. Alteration of SWM BMPs.

No person shall modify, remove, fill, landscape, or alter any SWM BMPs, facilities, areas, or structures, without the written approval of the Borough.

ARTICLE VIII
Enforcement and Penalties

§ 217-31. Right of entry.

Upon presentation of proper credentials and in accordance with applicable law, the Borough Engineer may enter at reasonable times upon any property within the Borough to inspect the condition of the stormwater structures and facilities in regard to any aspect regulated by this chapter.

§ 217-32. Inspection.

SWM BMPs must be inspected by the landowner, or the owner's designee (including the Borough Engineer for dedicated and owned facilities) according to the following list of minimum frequencies or as otherwise specified by the Borough. All inspection reports shall be submitted to the Borough Engineer within 30 days of the inspection.

A. Annually for the first five years.

B. Once every three years thereafter.

C. During or immediately after the cessation of a ten-year or greater storm. Inspections should be conducted during or immediately following precipitation events. A written inspection report shall be created to document each inspection. The inspection report shall contain the date and time of the inspection, the individual(s) who completed the inspection, the location of the BMP, facility or structure inspected, observations on performance, and recommendations for improving performance, if applicable. Inspection reports shall be submitted to the municipality within 30 days following completion of the inspection. **[Added 10-10-2019 by Ord. No. 2348, approved 10-10-2019]**

§ 217-33. Enforcement.

A. It shall be unlawful for a person to undertake any regulated activity except as provided in an approved SWM site plan, unless specifically exempted in § 217-13.

B. Inspections regarding compliance with the SWM site plan during project construction are a responsibility of the Borough.

§ 217-34. Suspension and revocation.

A. Any approval or permit issued by the Borough Engineer may be suspended or revoked for:

(1) Noncompliance with or failure to implement any provision of the approved SWM site plan or operation and maintenance agreement.

(2) A violation of any provision of this chapter or any other applicable law, Code chapter, ordinance, rule or regulation relating to the regulated activity.

(3) The creation of any condition or the commission of any act during the regulated activity which constitutes or creates a hazard or nuisance, pollution, or which endangers the life or property of others.

B. A suspended approval may be reinstated by the Borough Engineer when:

(1) The Borough Engineer has inspected and approved the corrections to the violations that caused the suspension.

(2) The Borough Engineer is satisfied that the violation has been corrected.

C. An approval that has been revoked by the Borough Engineer cannot be reinstated. The applicant may apply for a new approval under the provisions of this chapter.

D. If a violation causes no immediate danger to life, public health, or property, at its sole discretion, the Borough Engineer may provide a limited time period for the owner to correct the violation. In these cases, the Borough Engineer will provide the owner, or the owner's designee, with a written notice of the violation and the time period allowed for the owner to correct the violation. If the owner does not correct the violation within the allowed time period, the Borough Engineer may revoke or suspend any, or all, applicable approvals and permits pertaining to any provision of this chapter.

§ 217-35. Violations and Penalties.

A. Any person violating the provisions of this chapter shall be guilty of a summary offense and, upon conviction, shall be subject to a fine of not more than $1,000 for each violation, recoverable with costs, and/or imprisonment for a period not exceeding 30 days for each violation. Each day that the violation continues shall be a separate offense, and penalties shall be cumulative.

B. In addition, the Borough may institute injunctive, mandamus or any other appropriate action or proceeding at law or in equity for the enforcement of this chapter. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus or other appropriate forms of remedy or relief.

§ 217-36. Appeals.

A. Any person aggrieved by any action of the Borough Engineer or his designee, relevant to the provisions of this chapter, may appeal to the Borough Council which shall hold a hearing pursuant to the Local Agency Law, 2 Pa.C.S.A. § 551 et seq., within 30 days of that action.

B. Any person aggrieved by any decision of the Borough Council, relevant to the above appeal of this chapter, may appeal to the Cumberland County Court of Common Pleas within 30 days of the Borough Council's decision.

BOROUGH OF CARLISLE

"Committed To Excellence in Community Service"

Municipal Separate Storm Sewer System (MS4) Annual Report June 2020 – June 2021

Attachment 10

Carlisle Borough's

BMP Inspection Program and

BMP Installation Log

BOROUGH OF CARLISLE, CUMBERLAND COUNTY, PA
POST-CONSTRUCTION STORMWATER MANAGEMENT (PCSM) IN NEW AND REDEVELOPMENT ACTIVITES

BEST MANAGEMENT PRACTICE INSPECTION PROGRAM

I. PURPOSE

The Borough of Carlisle (Borough) owns and operates a Municipal Separate Storm Sewer System (MS4) that is used for collecting and conveying storm water from developed portions of the Borough to area streams to minimize surface flooding. Stormwater is defined as drainage runoff from the surface of the land resulting from precipitation or snow or ice melt.

The Borough received a National Pollutant Discharge Elimination System (NPDES) Permit from the Pennsylvania Department of Environmental Protection (DEP) in 2015 for the Borough's MS4. The Borough's MS4 collects runoff and conveys it through a system of street gutters, pipes and swales, before discharging the runoff to surface waters located in the Borough or downstream from the Borough. The MS4 Permit places certain requirements on the Borough. Specifically, the MS4 Permit outlines a series of six Minimum Control Measures, or MCMs. Each of these contains multiple Best Management Practices (BMPs) and Measurable Goals that must be met. MCM#5 covers post-construction stormwater management for new and re-development activities.

MCM#5 includes six BMPs. The Borough is relying on DEP's statewide process for issuing NPDES Permits for Stormwater Discharges Associated with Construction Activities to satisfy BMPs 1 thru 3. BMP#4 addresses the need to enact, implement, and enforce a stormwater management ordinance. BMP #5 covers measures to encourage and expand the use of low impact development. BMP#6 addresses operation and maintenance of all post-construction stormwater management BMPs. This document describes the Borough's written inspection program to ensure stormwater BMPs are properly operated and maintained.

II. PERMIT REQUIREMENTS

The requirements for MCM #5, BMP#6 as provided in the Borough's MS4 Permit are as follows:

BMP#6: Ensure adequate operation and maintenance (O&M) of all post-construction stormwater management BMPs installed at all qualifying development or redevelopment projects (including those owned and operated by the permittee).

Measureable Goal #1: Within the first year of coverage, develop and implement a written inspection program to ensure that stormwater BMPs are properly operated and maintained. The program shall include sanctions and penalties for non-compliance. All permittees shall review and update the inspection program annually and shall continue to implement this BMP.
Measureable Goal #2: An inventory of PCSM BMPs shall be developed by the permittee and shall be continually updated during the term of coverage under this permit as development projects are

reviewed, approved, and constructed. This inventory shall include all PCSM BMPs installed since March 10, 2003 that discharge directly or indirectly to the Borough's MS4. The inventory also should include PCSM BMPs discharging to the regulated small MS4s that may cause or contribute to violation of water quality standards. The inventory shall include:

a. All PCSM BMPs that were installed to meet requirements in NPDES Permits for Stormwater Discharges Associated with Construction Activities approved since March 10, 2003.
b. The exact location of the PCSM BMP (e.g. street address)
c. Information (e.g., name, address, phone number) for BMP owner and entity responsible for BMP O&M, if different from BMP owner,
d. The type of BMP and the year it was installed;
e. Maintenance required for the BMP type according to the PA Stormwater BMP Manual or other manuals and resources;
f. The actual inspection/maintenance activities for each BMP;
g. An assessment by the permittee if proper O&M occurred during the year and if not, what actions the permittee has taken, or shall take, to address compliance with O&M requirements.

III. INSPECTION PROGRAM

a. PCSWM BMP Inventory. Borough Public Works Engineering Department staff has developed an Excel based spreadsheet listing all land developments constructed in the Borough since 2003 for developments with land disturbance areas greater than one acre. The file is saved on the Borough share drive at "S:\MS4 Program\MCM5 PCSWM\BMP Installation Log.xls". The file was populated based on staff review of land development plan submissions to the Borough that have received final land development approval and have been either partially or fully constructed. Engineering staff will update the file as new land development plans are submitted and approved or as additional information is obtained through the post-construction inspection process.

The inventory spreadsheet includes the following information:

- Development site number corresponding to development location on Borough parcel map
- Development name
- Development street address
- List of BMPs installed
- Year BMPs were initially installed
- Property Owner's Name, address, and phone number
- Name, address, and phone number of entity responsible for BMP O&M
- Brief description of BMP maintenance required
- Date of last Borough inspection
- Date of last owner submitted O&M report
- Date of last enforcement action taken against property related to BMP O&M activities

- Whether a BMP O&M Agreement is in place

b. Stormwater Facility Operation and Maintenance Agreements. Borough Council adopted a new stormwater management ordinance on March 11, 2011. The ordinance has been codified as Chapter 217 of the Code of the Borough of Carlisle. Chapter 217-26 of the Code requires the owner of the Land Development that installs stormwater management facilities to enter into a Stormwater Management Operations and Maintenance Agreement with the Borough. The Agreement designates the owner of the land development as responsible for operation and maintenance of the stormwater management BMPs within his project. Every development with SWM BMPs receiving land development approval from Borough Council since 2015 has an operation and maintenance agreement executed by both Borough Council and the owner of the BMP specifying operation and maintenance responsibilities. Inspections are to be performed by the owner of the BMP. O&M reports are required to be submitted by the owner of the BMP on an annual basis to the Borough.

c. Borough Inspections. This inspection program is currently being established by the Borough and will start implemention in the 2016-2017 permit year with the goal of having all private BMPs identified and inspected within the first 5-year permit cycle. Generally, the program will include the following components to be completed by Borough Public Works staff:

- Review Stormwater BMP O&M reports submitted by land owners with Stormwater O&M Agreements to ensure reports document activities consistent with the approved Stormwater Management Plan for the development.
- Send written notifications to property owners who submitted incomplete annual Stormwater BMP O&M reports or who failed to submit annual reports providing them with a 45-day time period to submit the complete report.
- Conduct an inspection of Stormwater BMPs on the inventory list for projects which failed to submit complete reports. Use the Chesapeake Stormwater Network's BMP Visual Inspection Form as a guide during the inspection. A copy of the form is attached.
- Conduct biannual inspection of Stormwater BMPs on the inventory list for projects which were not required to submit annual Stormwater BMP O&M reports once fully implemented within first 5-year permit cycle. Use the Chesapeake Stormwater Network's BMP Visual Inspection Form as a guide during the inspection.
- Provide written notices to property owners following the inspection if the inspection showed a lack of adequate operation or maintenance of the BMPs. Give the BMP Owner a designated time period to take corrective action, if the inspection identifies deficiencies.
- After proper notification, BMP Owners who are unresponsive to needed corrections are referred to the Borough Solicitor for guidance in enforcement action against the owner. The type of enforcement action may vary dependent upon the Solicitor's guidance.

- Maintain records of the inspection process and save records collected during the inspection process on the Borough share drive at "S:\MS4 Program\MCM5 PCSWM\BMP Inspections\Permit Year".
- Provide summary of BMP inspection program as component of annual MS4 report.

FACILITY ID: 5 Logistics Drive	DATE: 7 / 2 /2020	ASSESSED BY: Jacob Shaffer

NAME: _____

ADDRESS: 5 Logistics Drive

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☑ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☐ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☐ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)

☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☐ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☐ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☑ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☐None ☑Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☐None ☐Slight ☐Moderate ☐Severe
Algae: ☐None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☑ Riser Overflow ☐ Weir ☐ Other: _____

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☐ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.
_____Trees 100% Grasses/Perennials _____ Ponded water _____ Other: _____
_____ Managed Turf _____ Bare Soil _____Shrubs _____ N/A
_____ Gravel/stone _____ Mulch _____ Emergent wetland

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☐None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems ☐None ☐Slight ☐Moderate ☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☐ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☑ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☐None	☐Slight	☐Moderate	☐Severe
Odor	☐None	☐Slight	☐Moderate	☐Severe
Turbidity	☐None	☐Slight	☐Moderate	☐Severe
Color	☐Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted		Poor BMP design, severe performance problems or failure		
(10)	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES:

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Walnut Court	DATE: 6/18/20	ASSESSED BY: Jacob Shaffer

NAME: _____

ADDRESS: _____

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☐ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☐ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res

_____Forested _____Institutional _____Golf course _____Park

_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☐ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☐ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
- ☐ On-line Facility
- ☐ Off-line Facility

DESIGN STORM(S):
- ☐ Water Quality
- ☐ Flood Control
- ☐ Channel Protection
- ☐ Unknown

BMP SIGNAGE: (check all that apply)

☐ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat

☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE: ☐ N/A – infiltration w/ no outlet ☐ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel ☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES: ☐ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device ☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels

Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:

Erosion at Outlet: ☐None ☐Slight ☐Moderate ☐Severe

Outlet Clogging: ☐None ☐Slight ☐Moderate ☐Severe

Structural Problems: ☐None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL: ☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____ ☐Unknown

Active Erosion: ☐None ☐Slight ☐Moderate ☐Severe

Trash: ☐None ☐Slight ☐Moderate ☐Severe

Sedimentation: ☐None ☐Slight ☐Moderate ☐Severe

Odor: ☐None ☐Slight ☐Moderate ☐Severe

Algae: ☐None ☐Slight ☐Moderate ☐Severe

Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☐ Other: _____

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☐ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____Trees _____Grasses/Perennials _____ Ponded water _____ Other:_____
_____ Managed Turf _____ Bare Soil _____Shrubs _____ N/A
_____ Gravel/stone _____ Mulch _____ Emergent wetland

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☐None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems ☐None ☐Slight ☐Moderate ☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☐None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems ☐None ☐Slight ☐Moderate ☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☐ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☐None	☐Slight	☐Moderate	☐Severe
Odor	☐None	☐Slight	☐Moderate	☐Severe
Turbidity	☐None	☐Slight	☐Moderate	☐Severe
Color	☐Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance			BMP is well designed, but is undersized or has a few performance problems			BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure
10	9	8	7	6	5	4	3	2	1

Field Notes

Good or Interesting Design Features:

Photo #'s:

Poor or Problematic Design Features:

Photo #'s:

SECTION 3 – Design Plan Verification

Plan Available: ☐ As-built ☐ Other: ____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Sheetz	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer

NAME: _____ HANDHELD/ GPS ID:

ADDRESS: 1900 Ritner Hwy

PHOTO IDS: _____

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☑ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☑ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☑ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP
☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☑None ☐Slight ☐Moderate ☐Severe
Algae: ☑None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☑None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☑ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.
10% Trees 90% Grasses/Perennials _____ Ponded water _____ Other: _____
_____ Managed Turf _____ Bare Soil _____ Shrubs _____ N/A
_____ Gravel/stone _____ Mulch _____ Emergent wetland

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☑ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted		Poor BMP design, severe performance problems or failure	
10	9	8	7	6	5	4	3	2	1

Field Notes

Good or Interesting Design Features:

Photo #'s:

Poor or Problematic Design Features:

Photo #'s:

SECTION 3 – Design Plan Verification

Plan Available: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Burger King & Sunoco	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer

NAME: _____

ADDRESS: 370 Allen Road

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☑ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)

☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☑None ☐Slight ☐Moderate ☐Severe
Algae: ☑None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☑None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____Trees	100% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	_____Shrubs	_____ N/A
_____ Gravel/stone	_____ Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☑ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted		Poor BMP design, severe performance problems or failure	
10	(9)	8	7	6	5	4	3	2	1

Field Notes

Good or Interesting Design Features:

Photo #'s:

Poor or Problematic Design Features:

Photo #'s:

SECTION 3 – Design Plan Verification

Plan Available: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Solar Field/Undeveloped Dickinson Green	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer

NAME: _____

ADDRESS: _____

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☑ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res

_____Forested _____Institutional _____Golf course _____Park

_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)

☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☑None ☐Slight ☐Moderate ☐Severe
Algae: ☑None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☑None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note -- All percentages should sum up to 100 %.
_____Trees 100% Grasses/Perennials _____ Ponded water _____ Other: _____
_____ Managed Turf _____ Bare Soil _____Shrubs _____ N/A
_____ Gravel/stone _____ Mulch _____ Emergent wetland

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☑ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance			BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure	
(10)	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES:

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Seven Gables	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer

NAME: _____

ADDRESS: 1 Rush Drive

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☑ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☑ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☑ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other: _____

YEAR CONSTRUCTED: _____

OWNERSHIP
☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) IMPERVIOUS COVER: _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☑None ☐Slight ☐Moderate ☐Severe
Algae: ☑None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☑None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☑ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.
10% Trees 90% Grasses/Perennials _____ Ponded water _____ Other: _____
_____ Managed Turf _____ Bare Soil _____ Shrubs _____ N/A
_____ Gravel/stone _____ Mulch _____ Emergent wetland

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☑ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance			BMP is well designed, but is undersized or has a few performance problems			BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure
10	9	8	7	6	5	4	3	2	1

Field Notes

Good or Interesting Design Features:

Photo #'s:

Poor or Problematic Design Features:

Photo #'s:

SECTION 3 – Design Plan Verification

Plan Available: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Royer's Flowers and Gifts | **DATE:** 7 / 2 / 2020 | **ASSESSED BY:** Jacob Shaffer

NAME: _____

ADDRESS: 100 York Road

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☑ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP
☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☑None ☐Slight ☐Moderate ☐Severe
Algae: ☑None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☑None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____ Trees	100% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	_____ Shrubs	_____ N/A
_____ Gravel/stone	_____ Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☑ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☐None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☐Slight	☐Moderate	☐Severe
Structural Problems	☐None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☑ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES:

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Rockfield | **DATE:** 7 / 2 /2020 | **ASSESSED BY:** Jacob Shaffer

NAME: _____

ADDRESS: Wellington Court

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☑ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other: _____

YEAR CONSTRUCTED: _____

OWNERSHIP
☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☑None ☐Slight ☐Moderate ☐Severe
Algae: ☑None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☑None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____Trees	100% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	_____Shrubs	_____ N/A
_____ Gravel/stone	_____ Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☑ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☐None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☐Slight	☐Moderate	☐Severe
Structural Problems	☐None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☑ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance			BMP is well designed, but is undersized or has a few performance problems			BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure
10	9	8	7	6	5	4	3	2	1

Field Notes

Good or Interesting Design Features:

Photo #'s:

Poor or Problematic Design Features:

Photo #'s:

SECTION 3 – Design Plan Verification

Plan Available: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Project SHARE | **DATE:** 7 / 2 /2020 | **ASSESSED BY:** Jacob Shaffer

NAME: _____

ADDRESS: 123 Lincoln St.

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☑ Infiltration (specify: UNDGRD INFIL BED)
  - ☑ Check if structure is underground
- ☐ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP
☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☑None ☐Slight ☐Moderate ☐Severe
Algae: ☑None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☑None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☐ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____Trees	100% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	_____Shrubs	_____ N/A
_____ Gravel/stone	_____ Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☐None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☐Slight	☐Moderate	☐Severe
Structural Problems	☐None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☑ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems			BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure	
10	9	(8)	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:
PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES:
PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Parkview	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer

NAME: _____ HANDHELD/ GPS ID:

ADDRESS: Parkview Drive

PHOTO IDS: _____

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☑ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☑ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP
☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☐ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☐None ☐Slight ☑Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☑None ☐Slight ☐Moderate ☐Severe
Algae: ☑None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☑None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☐ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____Trees	100% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	_____Shrubs	_____ N/A
_____ Gravel/stone	_____ Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☐None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☐Slight	☐Moderate	☐Severe
Structural Problems	☐None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☑ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

FACILITY ID: Orrstown Bank	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer
NAME:		HANDHELD/ GPS ID:
ADDRESS: 1 Giant Lane		
PHOTO IDS:		

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☑ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☑ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP
☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☑Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐ Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☑None ☐Slight ☐Moderate ☐Severe
Algae: ☑None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☑None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☐ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet)**:**
Note – All percentages should sum up to 100 %.

_____Trees	100% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	_____Shrubs	_____ N/A
_____ Gravel/stone	_____ Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☐None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☐Slight	☐Moderate	☐Severe
Structural Problems	☐None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☑ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal:		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure	
10	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES:

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Meeting House Heights | **DATE:** 7 / 2 / 2020 | **ASSESSED BY:** Jacob Shaffer

NAME: _____

ADDRESS: Meeting House Spring Road

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☑ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☐ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other: _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☐ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☑None ☐Slight ☐Moderate ☐Severe
Algae: ☑None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☑None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)

☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface? _____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☐ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____Trees 80% Grasses/Perennials _____ Ponded water _____ Other: _____
_____ Managed Turf 20% Bare Soil _____Shrubs _____ N/A
_____ Gravel/stone _____ Mulch _____ Emergent wetland

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☐None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems ☐None ☐Slight ☐Moderate ☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☐None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems ☐None ☐Slight ☐Moderate ☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☐ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☑ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe	
Odor	☑None	☐Slight	☐Moderate	☐Severe	
Turbidity	☑None	☐Slight	☐Moderate	☐Severe	
Color	☑Normal	☐Abnormal: _____			

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure	
10	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES: Area not yet stabilized due to construction

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Key Ritner Warehouse	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer

NAME: _____

ADDRESS: 1700 Ritner Hwy

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☑ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other: _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☐ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☑None ☐Slight ☐Moderate ☐Severe
Algae: ☐None ☑Slight ☐Moderate ☐Severe
Other WQ Problems: ☑None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)

☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☐ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☑ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____Trees 100% Grasses/Perennials _____ Ponded water _____ Other: _____
_____ Managed Turf _____ Bare Soil _____Shrubs _____ N/A
_____ Gravel/stone _____ Mulch _____ Emergent wetland

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☐ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure	
10	9	8	7	6	5	4	3	2	1

Field Notes

Good or Interesting Design Features:

Photo #'s:

Poor or Problematic Design Features:

Photo #'s:

SECTION 3 – Design Plan Verification

Plan Available: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Home Depot | **DATE:** 7 / 2 / 2020 | **ASSESSED BY:** Jacob Shaffer

NAME:

ADDRESS: 1013 S Hanover St

PHOTO IDS:

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☑ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☑ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☑ Other: Vortech Unit

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other:

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL: _____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other:

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☐ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other:

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other:
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☑None ☐Slight ☐Moderate ☐Severe
Algae: ☑None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☑None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☐ Landscaped
☐ Aquatic Bench
☑ Invasive Species
☑ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____Trees	100% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	_____Shrubs	_____ N/A
_____ Gravel/stone	_____ Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☐ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems			BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure	
10	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES: invasive species located in detention ponds

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Hite Electric | **DATE:** 7 / 2 / 2020 | **ASSESSED BY:** Jacob Shaffer

NAME:

ADDRESS: 1550 Ritner Hwy

PHOTO IDS:

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☑ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP
☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL: _____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☐ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☐ N/A ☑ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☐None ☐Slight ☐Moderate ☐Severe
Odor: ☑None ☐Slight ☐Moderate ☐Severe
Algae: ☑None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☑None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☐ Landscaped
☐ Aquatic Bench
☑ Invasive Species
☑ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____ Trees	100% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	_____ Shrubs	_____ N/A
_____ Gravel/stone	_____ Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☑ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☐Slight	☐Moderate	☑Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☐None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☐Slight	☐Moderate	☐Severe
Structural Problems	☐None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☐ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance			BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure
10	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES:

PHOTO #'S:

Must unclog outlet bordering Meadow Boulevard, remove invasive species and re-seed with non-invasive species

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Goodman-N-Logistics	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer

NAME: _____

ADDRESS: 100 & 200 Goodman Dr

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☑ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☐ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☐ N/A ☑ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☑None ☐Slight ☐Moderate ☐Severe
Algae: ☑None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☑None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☐ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☑ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.
_____Trees 100% Grasses/Perennials _____ Ponded water _____ Other: _____
_____ Managed Turf _____ Bare Soil _____Shrubs _____ N/A
_____ Gravel/stone _____ Mulch _____ Emergent wetland

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance			BMP is well designed, but is undersized or has a few performance problems			BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure
10	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES:

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Giant Foods	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer

NAME: _____

ADDRESS: 255 S Spring Garden Street

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☑ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other: _____

YEAR CONSTRUCTED: _____

OWNERSHIP
☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☐ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☐ N/A ☑ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☑None ☐Slight ☐Moderate ☐Severe
Algae: ☑None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☑None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other _____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface? _____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☐ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☑ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.
_____ Trees
_____ Managed Turf
_____ Gravel/stone
100% Grasses/Perennials
_____ Bare Soil
_____ Mulch
_____ Ponded water
_____ Shrubs
_____ Emergent wetland
_____ Other: _____
_____ N/A

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other _____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width: _____(in)
INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe ☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Elevation difference between bottom of inlet and BMP surface:
_____ (in)
Comments:

INLET #2:
Diameter/Width: _____(in)
INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe ☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Elevation difference between bottom of inlet and BMP surface:
_____ (in)
Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft³)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐ Moderate ☐ Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well? ☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other: _____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure	
10	9	8	7	6	5	4	3	2	1

Field Notes

Good or Interesting Design Features:

Photo #'s:

Poor or Problematic Design Features:

Photo #'s:

SECTION 3 – Design Plan Verification

Plan Available: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Excel - North of Rt. 11	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer
NAME:		HANDHELD/ GPS ID:
ADDRESS: 1295 & 1501 Ritner Hwy, Giant Foods Warehouse, Ross Dress for Less		
PHOTO IDS:		

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☑ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☑ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other: _____

YEAR CONSTRUCTED: _____

OWNERSHIP
☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☐ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☐ N/A ☑ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☐None ☑Slight ☐Moderate ☐Severe
Odor: ☑None ☐Slight ☐Moderate ☐Severe
Algae: ☑None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☑None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☐ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☑ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____ Trees	70% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	30% Shrubs	_____ N/A
_____ Gravel/stone	_____ Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure	
10	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES:

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: El Rodeo | **DATE:** 7 / 2 / 2020 | **ASSESSED BY:** Jacob Shaffer

NAME: _____

ADDRESS: 398 E High Street

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☑ Infiltration (specify: pipe bank)
  - ☑ Check if structure is underground
- ☐ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP
☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☐ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☐None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☐None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☐None ☐Slight ☐Moderate ☐Severe
Trash: ☐None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☐None ☐Slight ☐Moderate ☐Severe
Odor: ☐None ☐Slight ☐Moderate ☐Severe
Algae: ☐None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☐ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____Trees _____Grasses/Perennials _____ Ponded water _____ Other: _____
_____ Managed Turf _____ Bare Soil _____Shrubs _____ N/A
_____ Gravel/stone _____ Mulch _____ Emergent wetland

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance			BMP is well designed, but is undersized or has a few performance problems			BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure
10	9	8	7	6	5	4	3	2	1

Field Notes

Good or Interesting Design Features:

Photo #'s:

Poor or Problematic Design Features:

Photo #'s:

SECTION 3 – Design Plan Verification

Plan Available: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Dickinson Rector Science Complex | **DATE:** 7 / 2 / 2020 | **ASSESSED BY:** Jacob Shaffer

NAME: _____

ADDRESS: 301 W. Louther St.

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☑ Infiltration (specify: _____)
  - ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☑ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☑ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other: _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL: _____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)

☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☐ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☐None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☐None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☐None ☐Slight ☐Moderate ☐Severe
Trash: ☐None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☐None ☐Slight ☐Moderate ☐Severe
Odor: ☐None ☐Slight ☐Moderate ☐Severe
Algae: ☐None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☑ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

15% Trees	70% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	10% Shrubs	_____ N/A
_____ Gravel/stone	5% Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☐None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☐Slight	☐Moderate	☐Severe
Structural Problems	☐None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☐None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☐Slight	☐Moderate	☐Severe
Structural Problems	☐None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☑ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted		Poor BMP design, severe performance problems or failure		
10	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES:

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Dickinson Kline Center Addition	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer
NAME:		HANDHELD/ GPS ID:
ADDRESS: 40 Cherry St.		
PHOTO IDS:		

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☑ Infiltration (specify: _____)
  - ☑ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☑ Grass Channel
- ☐ Dry Well
- ☑ Permeable Pavement
- ☑ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other: _____

YEAR CONSTRUCTED: _____

OWNERSHIP
☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☐ None ☐ Flood Warning ☑ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☐ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☐None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☐None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☐None ☐Slight ☐Moderate ☐Severe
Trash: ☐None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☐None ☐Slight ☐Moderate ☐Severe
Odor: ☐None ☐Slight ☐Moderate ☐Severe
Algae: ☐None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)

☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☑ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

15% Trees | 70% Grasses/Perennials | _____ Ponded water | _____ Other: _____
_____ Managed Turf | _____ Bare Soil | 10% Shrubs | _____ N/A
_____ Gravel/stone | 5% Mulch | _____ Emergent wetland

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width: _____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe ☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface: _____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☐None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems ☐None ☐Slight ☐Moderate ☐Severe

Comments:

INLET #2:
Diameter/Width: _____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe ☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface: _____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☐None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems ☐None ☐Slight ☐Moderate ☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☑ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance			BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure
10	9	8	7	6	5	4	3	2	1

Field Notes

Good or Interesting Design Features:

Photo #'s:

Poor or Problematic Design Features:

Photo #'s:

SECTION 3 – Design Plan Verification

Plan Available: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Dickinson High St. Residence Hall	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer
NAME:		HANDHELD/ GPS ID:
ADDRESS: 448/450 W. High St.		
PHOTO IDS:		

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☑ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other: _____

YEAR CONSTRUCTED: _____

OWNERSHIP
☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☐ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☐None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☐None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☐None ☐Slight ☐Moderate ☐Severe
Trash: ☐None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☐None ☐Slight ☐Moderate ☐Severe
Odor: ☐None ☐Slight ☐Moderate ☐Severe
Algae: ☐None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☑ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____ Trees	80% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	10% Shrubs	_____ N/A
_____ Gravel/stone	10% Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☑ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☐None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☐Slight	☐Moderate	☐Severe
Structural Problems	☐None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☑ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope:
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure	
10	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES:

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Dickinson Green | DATE: 6/18/20 | ASSESSED BY: Jacob Shaffer

NAME: _____ HANDHELD/ GPS ID:

ADDRESS: _____

PHOTO IDS: _____

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☒ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☒ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res

_____Forested _____Institutional _____Golf course _____Park

_____Crop _____Pasture Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☒ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☒ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)

☒ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☐ N/A – infiltration w/ no outlet ☒ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☒ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☐ N/A ☒ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☒None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☒None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☒None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☒ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☒None ☐Slight ☐Moderate ☐Severe
Trash: ☒None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☒None ☐Slight ☐Moderate ☐Severe
Odor: ☐None ☐Slight ☐Moderate ☐Severe
Algae: ☐None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☒ Channel ☐ Riser Overflow ☐ Weir ☐ Other: _____

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☐ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.
_____Trees 100% Grasses/Perennials _____ Ponded water _____ Other: _____
_____ Managed Turf _____ Bare Soil _____Shrubs _____ N/A
_____ Gravel/stone _____ Mulch _____ Emergent wetland

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width: _____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe ☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface: _____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☒None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☒None ☐Slight ☐Moderate ☐Severe
Structural Problems ☒None ☐Slight ☐Moderate ☐Severe

Comments: multiple inlets, no erosion, clogging, or debris at any inlet

INLET #2:
Diameter/Width: _____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe ☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface: _____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☒None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☒None ☐Slight ☐Moderate ☐Severe
Structural Problems ☒None ☐Slight ☐Moderate ☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☐ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☐None	☐Slight	☐Moderate	☐Severe
Odor	☐None	☐Slight	☐Moderate	☐Severe
Turbidity	☐None	☐Slight	☐Moderate	☐Severe
Color	☐Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure	
10	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES:

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: CPARC	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer
NAME:		HANDHELD/ GPS ID:
ADDRESS: 71 Ashland Avenue		
PHOTO IDS:		

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☑ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify:_____)
- ☐ Check if structure is underground
- ☐ Dry Swale
- ☐ Wet Swale
- ☑ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other: _____

YEAR CONSTRUCTED: _____

OWNERSHIP
☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☐ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☐None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☐None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☐None ☐Slight ☐Moderate ☐Severe
Trash: ☐None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☐None ☐Slight ☐Moderate ☐Severe
Odor: ☐None ☐Slight ☐Moderate ☐Severe
Algae: ☐None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☑ Other: None

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____ Trees	100% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	_____ Shrubs	_____ N/A
_____ Gravel/stone	_____ Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☐None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☐Slight	☐Moderate	☐Severe
Structural Problems	☐None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☐None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☐Slight	☐Moderate	☐Severe
Structural Problems	☐None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☑ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure	
10	9	8	7	6	5	4	3	2	1

Field Notes

Good or Interesting Design Features:

Photo #'s:

Poor or Problematic Design Features:

Photo #'s:

SECTION 3 – Design Plan Verification

Plan Available: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Courtyards of Carlisle | **DATE:** 7 / 2 / 2020 | **ASSESSED BY:** Jacob Shaffer

NAME: _____

ADDRESS: Courtyard Drive

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☑ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☐ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☐ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☐ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☑ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☑ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐ Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☐None ☐Slight ☐Moderate ☐Severe
Algae: ☐None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☐ Other: _____

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____ Trees	100% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	_____ Shrubs	_____ N/A
_____ Gravel/stone	_____ Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width: _____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe ☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface: _____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☑ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☐None	☐Slight	☑Moderate	☐Severe

Comments: Concrete inlet is eroded and requires immediate maintenance/repair, but is still temporarily functional.

INLET #2:
Diameter/Width: _____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe ☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface: _____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☐None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☐Slight	☐Moderate	☐Severe
Structural Problems	☐None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☑ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☑ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance			BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure
10	9	8	7	6	5	4	3	2	1

Field Notes

Good or Interesting Design Features:

Photo #'s:

Poor or Problematic Design Features:

Photo #'s:

SECTION 3 – Design Plan Verification

Plan Available: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Chesterfield	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer

NAME: _____

ADDRESS: Sussex Drive

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☑ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other: _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)

☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☐ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☐ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☐None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☐None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☐None ☐Slight ☐Moderate ☐Severe
Trash: ☐None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☐None ☐Slight ☐Moderate ☐Severe
Odor: ☐None ☐Slight ☐Moderate ☐Severe
Algae: ☐None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☐ Other: _____

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)

☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☑ Invasive Species
☑ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____Trees 100% Grasses/Perennials _____ Ponded water _____ Other: _____
_____Managed Turf _____ Bare Soil _____Shrubs _____ N/A
_____ Gravel/stone _____ Mulch _____ Emergent wetland

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☐None ☑Slight ☐Moderate ☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☐None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems ☐None ☐Slight ☐Moderate ☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☑ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☑ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☑ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☑ Too many invasive plants
- ☑ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted		Poor BMP design, severe performance problems or failure	
10	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES:

PHOTO #'S:

Trees growing in BMP, trash around BMP area,
still operating as intended but requires maintenance per the O&M plan

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: CASD Hamilton Addition | **DATE:** 7 / 2 / 2020 | **ASSESSED BY:** Jacob Shaffer

NAME: Hamilton Elementary

ADDRESS: 735 Clay Street

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☑ Infiltration (specify: _____)
  - ☑ Check if structure is underground
- ☐ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP
☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other:

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☐ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☐ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☐None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☐None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☐None ☐Slight ☐Moderate ☐Severe
Trash: ☐None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☐None ☐Slight ☐Moderate ☐Severe
Odor: ☐None ☐Slight ☐Moderate ☐Severe
Algae: ☐None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☐ Other: _____

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____ Trees	100% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	_____ Shrubs	_____ N/A
_____ Gravel/stone	_____ Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☐None	☑Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance			BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure
10	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES:

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Carlisle Police Station	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer

NAME: Dry detention Basin

ADDRESS: 240 Lincoln Street

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☑ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☐ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res

_____Forested _____Institutional _____Golf course _____Park

_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)

☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☐ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☐ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☐None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☐None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☐None ☐Slight ☐Moderate ☐Severe — Odor: ☐None ☐Slight ☐Moderate ☐Severe
Trash: ☐None ☐Slight ☐Moderate ☐Severe — Algae: ☐None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☐None ☐Slight ☐Moderate ☐Severe — Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☐ Other: _____

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____ Trees	100% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	_____ Shrubs	_____ N/A
_____ Gravel/stone	_____ Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☑ Hardwood 3 (in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width: _____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe ☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface: _____ (in)

INLET SUBMERSION:
☐ Complete
☑ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☑Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width: _____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe ☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface: _____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☐None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☐Slight	☐Moderate	☐Severe
Structural Problems	☐None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft³)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☐None	☑Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure	
10	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES:

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Carlisle Green Streets	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer

NAME: Boiretention/Raingarden

ADDRESS: N Cherry / W Louther Streets

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☐ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☑ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) IMPERVIOUS COVER: _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res

_____Forested _____Institutional _____Golf course _____Park

_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)

☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☐ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☐ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☐None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☐None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☐None ☐Slight ☐Moderate ☐Severe
Trash: ☐None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☐None ☐Slight ☐Moderate ☐Severe
Odor: ☐None ☐Slight ☐Moderate ☐Severe
Algae: ☐None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☐ Other: _____

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☑ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____ Trees	60% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	20% Shrubs	_____ N/A
_____ Gravel/stone	20% Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☑ Hardwood 3 (in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width: _____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe ☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface: _____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width: _____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe ☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface: _____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted		Poor BMP design, severe performance problems or failure		
10	9	8	7	6	5	4	3	2	1

Field Notes

Good or Interesting Design Features:

Photo #'s:

Poor or Problematic Design Features:

Photo #'s:

SECTION 3 – Design Plan Verification

Plan Available: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Carlisle Construction Materials	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer

NAME: _____

ADDRESS: _____

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☐ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res

_____Forested _____Institutional _____Golf course _____Park

_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)

☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☐ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☐ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☑ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☑ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☐None ☐Slight ☐Moderate ☐Severe
Algae: ☐None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☐ Other: _____

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____ Trees	100% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	_____ Shrubs	_____ N/A
_____ Gravel/stone	_____ Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☑ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☐None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☐Slight	☐Moderate	☐Severe
Structural Problems	☐None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure	
10	9	8	7	6	5	4	3	2	1

Field Notes

Good or Interesting Design Features:

Photo #'s:

Poor or Problematic Design Features:

Photo #'s:

SECTION 3 – Design Plan Verification

Plan Available: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Carlisle Alliance Church	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer

NAME: _____

ADDRESS: 237 E. North St.

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☐ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other: _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☐ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☐ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☑ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☑None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☑None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☑ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☐None ☐Slight ☐Moderate ☐Severe
Algae: ☐None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☐ Channel ☐ Riser Overflow ☐ Weir ☐ Other: _____

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)

☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____Trees 100% Grasses/Perennials _____ Ponded water _____ Other: _____
_____ Managed Turf _____ Bare Soil _____Shrubs _____ N/A
_____ Gravel/stone _____ Mulch _____ Emergent wetland

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☑ None

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☐None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems ☐None ☐Slight ☐Moderate ☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems			BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure
10	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES: Gravel should not have grass growing through it, in violation of O&M plan.

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: Allen Distribution (Exel Lot)	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer

NAME: _____

ADDRESS: 7 Logistics Drive

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☑ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☐ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res

_____Forested _____Institutional _____Golf course _____Park

_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☐ N/A – infiltration w/ no outlet ☑ Pipe ☑ Riser ☐ Weir ☑ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☑ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☑ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☐None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☐None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☐None ☐Slight ☐Moderate ☐Severe
Algae: ☐None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☑ Channel ☐ Riser Overflow ☐ Weir ☐ Other: _____

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____ Trees	100% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	_____ Shrubs	_____ N/A
_____ Gravel/stone	_____ Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☑ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☐None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☐Slight	☐Moderate	☐Severe
Structural Problems	☐None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance			BMP is well designed, but is undersized or has a few performance problems			BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure
10	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES:

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: N College Townhomes	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer

NAME: _____

ADDRESS: 650 N College St

PHOTO IDS: _____

HANDHELD/ GPS ID:

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☐ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☐ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)

☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☑ N/A – infiltration w/ no outlet ☐ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☑ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☐None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☐None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☐ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☐None ☐Slight ☐Moderate ☐Severe
Trash: ☐None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☐None ☐Slight ☐Moderate ☐Severe
Odor: ☐None ☐Slight ☐Moderate ☐Severe
Algae: ☐None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☑ Channel ☐ Riser Overflow ☐ Weir ☐ Other: _____

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____ Trees	100% Grasses/Perennials	_____ Ponded water	_____ Other: _____
_____ Managed Turf	_____ Bare Soil	_____ Shrubs	_____ N/A
_____ Gravel/stone	_____ Mulch	_____ Emergent wetland	

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____(in) ☐ Other_____(in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☑ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☑None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☑None	☐Slight	☐Moderate	☐Severe
Structural Problems	☑None	☐Slight	☐Moderate	☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☐ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☐ Partial
☐ None

INLET CONDITIONS:

Inlet Erosion	☐None	☐Slight	☐Moderate	☐Severe
Inlet Clogging	☐None	☐Slight	☐Moderate	☐Severe
Structural Problems	☐None	☐Slight	☐Moderate	☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft^3)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☐ Clean Out
☐ Observation Well
Is water present in observation well?
☐ Yes ☐ No Depth: _____ ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others _____
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☑None	☐Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal: _____		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance			BMP is well designed, but is undersized or has a few performance problems			BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure
10	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES:

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

FACILITY ID: 218 Allen Road	DATE: 7 / 2 / 2020	ASSESSED BY: Jacob Shaffer

NAME: _____

ADDRESS: _____ HANDHELD/ GPS ID:

PHOTO IDS: _____

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE :

- ☑ Dry Detention Pond
- ☐ Extended Detention Pond
- ☐ Wet Pond
- ☐ Filter (specify: _____)
- ☐ Infiltration (specify: _____)
- ☐ Check if structure is underground
- ☑ Dry Swale
- ☐ Wet Swale
- ☐ Grass Channel
- ☐ Dry Well
- ☐ Permeable Pavement
- ☐ Bioretention
- ☐ Wetland
- ☐ Level Spreader
- ☐ WQ Inlet
- ☐ Proprietary Device
- ☐ Other: _____

YEAR CONSTRUCTED: _____

OWNERSHIP

☐ Public ☑ Private ☐ Unknown

SITE CHARACTERIZATION

DRAINAGE AREA: _____(acres) **IMPERVIOUS COVER:** _____(acres) Discerned from: ☐ Plan ☐ County Data ☐ GIS ☐ Field

CONTRIBUTING DRAINAGE AREA (% land use): *Note – All percentages should sum up to 100%.*

_____Industrial _____Commercial _____Urban/Residential _____Suburban/Res
_____Forested _____Institutional _____Golf course _____Park
_____Crop _____Pasture _____Other: _____

WATER QUALITY VOL (FROM DESIGN PLAN): _____(ft^3)

SECTION 2- FIELD VISIT

Rain in last 48 hrs? ☐ Yes ☑ No

Evidence of high water table (e.g., excessive soil saturation)? ☐ Yes ☑ No

DESIGN ELEMENTS

FACILITY SIZE:
Length: _____(ft)
Width: _____(ft)
Surface Area: _____(ft^2)
Depth of WQ storage _____(ft)

OBSERVED WQ STORAGE VOL:
_____(ft^3)

HYDRAULIC CONFIGURATION
☐ On-line Facility
☐ Off-line Facility

DESIGN STORM(S):
☐ Water Quality
☐ Flood Control
☐ Channel Protection
☐ Unknown

BMP SIGNAGE: (check all that apply)
☑ None ☐ Flood Warning ☐ Stormwater Education ☐ No Trespassing ☐ Wildlife Habitat
☐ Public Property ☐ Do Not Mow ☐ Other: _____

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:
☐ N/A – infiltration w/ no outlet ☑ Pipe ☐ Riser ☐ Weir ☐ Large Storm Overflow ☐ Open channel
☐ Large Storm By-pass ☐ Other: _____

OUTLET FEATURES:
☐ N/A ☐ Trash Rack ☐ Pond Drain ☐ Inverted outlet pipe ☐ Hooded outlet ☐ Anti-vortex device
☐ Perforated pipe ☐ Gravel Diaphragm ☐ Micropool outlet ☐ Multiple outlet levels
Outlet includes restrictor? ☐ Yes ☐ No

OUTLET STRUCTURE CONDITIONS:
Erosion at Outlet: ☐None ☐Slight ☐Moderate ☐Severe
Outlet Clogging: ☐None ☐Slight ☐Moderate ☐Severe
Structural Problems: ☐None ☐Slight ☐Moderate ☐Severe

CONDITIONS AT OUTFALL:
☐ Stream ☐ Closed storm sewer ☐ Surface channel ☑ Road ditch ☐ Other: _____
☐Unknown

Active Erosion: ☑None ☐Slight ☐Moderate ☐Severe
Trash: ☑None ☐Slight ☐Moderate ☐Severe
Sedimentation: ☑None ☐Slight ☐Moderate ☐Severe
Odor: ☐None ☐Slight ☐Moderate ☐Severe
Algae: ☐None ☐Slight ☐Moderate ☐Severe
Other WQ Problems: ☐None ☐Slight ☐Moderate ☐Severe

Emergency Spillway Type: ☑ Channel ☐ Riser Overflow ☐ Weir ☐ Other: _____

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)

☐ Soil mix _____(in) ☐ Sand _____(in) ☐ Gravel _____(in) ☐ Large Stone _____(in)
☐ Organic material _____(in) ☐ Other_____ ☐ N/A ☐ Unknown
Avg. depth of sediment build-up on surface?_____(in)

SOIL MEDIA SAMPLE: *Note – Complete during site investigation, if applicable*
Dominant Soil Type ☐ Clay ☐ Loam ☐ Sand ☐ Sand/Loam
Is the soil homogenous? ☐ Yes ☐ No

Comments:

VEGETATION

GENERAL OBSERVATIONS:
☑ Landscaped
☐ Aquatic Bench
☐ Invasive Species
☐ Plant Diversity

TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet):
Note – All percentages should sum up to 100 %.

_____Trees 100% Grasses/Perennials _____ Ponded water _____ Other: _____
_____ Managed Turf _____ Bare Soil _____Shrubs _____ N/A
_____ Gravel/stone _____ Mulch _____ Emergent wetland

Depth of mulch, if present: ☐ Hardwood _____(in) ☐ Pine Straw _____ (in) ☐ Other_____ (in)
Rate degree of shading of BMP Surface Area by trees: ☐ Well Shaded ☐ Some Shading ☐ No Shading ☐ N/A

INLET CHARACTERISTICS

INLET #1:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☑ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Comments:

INLET #2:
Diameter/Width:
_____(in)

TYPE OF INLET: ☐ Open Channel ☑ Closed Pipe
☐ Sheet Flow ☐ Curb Cut ☐ Other: _____

Elevation difference between bottom of inlet and BMP surface:
_____ (in)

INLET SUBMERSION:
☐ Complete
☑ Partial
☐ None

INLET CONDITIONS:
Inlet Erosion ☑None ☐Slight ☐Moderate ☐Severe
Inlet Clogging ☑None ☐Slight ☐Moderate ☐Severe
Structural Problems ☑None ☐Slight ☐Moderate ☐Severe

Comments:

PRETREATMENT

TYPE OF PRETREATMENT *(check all that apply)*
☑ None
☐ Sediment Forebay (_____ ft³)
☐ Grass Channel
☐ Riprap Channel or Apron
☐ Grass Filter Strip
☐ Plunge Pool?
☐ Stone Diaphragm
☐ Other: _____

PRETREATMENT FUNCTION ☐ By design ☐ Incidental
Is pretreatment functioning? ☐ Yes ☐ No
Is sediment removal necessary? ☐ Yes ☐ No
Signs of pretreatment bypass? ☐ Yes ☐ No
Signs of flow of sediment from pretreatment to BMP? ☐ Yes ☐ No
Severity: ☐ Slight ☐Moderate ☐Severe

GENERAL DESIGN

BMP FEATURES (check all that apply)
☐ Maintenance Access
☐ Fence
☐ Multi-cell
☐ Micropool
☐ Impermeable Liner
☐ Underdrain
☑ Clean Out
☑ Observation Well
Is water present in observation well?
☑ Yes ☐ No Depth: 0.25 ft
☐ Pond Drain
☐ Other:_____

CONVEYANCE THROUGH BMP
☐ No Defined Channel
☐ Low Flow Channel
☐ Concrete ☐ Eroded ☐ Earthen ☐ Other _____
Length of Shortest Flow Path: _____(ft)

Is BMP designed with a Permanent Pool? ☐ Yes ☐ No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- ☐ Maintenance Needed
- ☐ Water Bypass of Inlet
- ☐ Water Bypass of Outlet
- ☐ Incorrect Flow Paths
- ☐ Short-circuiting of treatment mechanism
- ☐ No or ineffective treatment
- ☐ Ineffective pretreatment
- ☐ Others
- ☐ Erosion at Embankments
- ☐ Erosion within Facility
- ☐ Deposition within Facility
- ☐ Inappropriate Ponding of Water
- ☐ Clogged Pond Drain/Underdrain
- ☐ Clogged Media
- ☐ Inappropriate media material
- ☐ Inappropriate underlying soil (infiltration)
- ☐ Permanent Pools not stable
- ☐ Inadequate vegetation
- ☐ Dead or Diseased Vegetation
- ☐ Too many invasive plants
- ☐ Trees on Embankment
- ☐ Failing structural components
- ☐ Safety issue (Note:_____)

WATER QUALITY IN FACILITY: ☐N/A

Algae	☐None	☑Slight	☐Moderate	☐Severe
Odor	☑None	☐Slight	☐Moderate	☐Severe
Turbidity	☑None	☐Slight	☐Moderate	☐Severe
Color	☑Normal	☐Abnormal:		

EVIDENCE OF:

- ☐ Geese
- ☐ Animal Burrows
- ☐ Mosquitoes
- ☐ BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance		BMP is well designed, but is undersized or has a few performance problems		BMP is adequately designed, several problems with performance are noted			Poor BMP design, severe performance problems or failure	
10	9	8	7	6	5	4	3	2	1

FIELD NOTES

GOOD OR INTERESTING DESIGN FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC DESIGN FEATURES:

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: ☐ As-built ☐ Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility	☐ N/A	☐ Yes	☐ No	If no, describe:
Pretreatment type and size	☐ N/A	☐ Yes	☐ No	If no, describe:
Signage	☐ N/A	☐ Yes	☐ No	If no, describe:
Low-flow channel	☐ N/A	☐ Yes	☐ No	If no, describe:
Dimensions/volume	☐ N/A	☐ Yes	☐ No	If no, describe:
Inlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Outlet type, #, and sizing	☐ N/A	☐ Yes	☐ No	If no, describe:
Vegetation composition	☐ N/A	☐ Yes	☐ No	If no, describe:
Other features	☐ N/A	☐ Yes	☐ No	If no, describe:

BOROUGH OF CARLISLE

"Committed To Excellence in Community Service"

Municipal Separate Storm Sewer System (MS4) Annual Report June 2020 – June 2021

Attachment 11

Carlisle Borough's

MS4 Employee Training Program

BOROUGH OF CARLISLE, CUMBERLAND COUNTY, PA
MS4 PROGRAM EMPLOYEE TRAINING PLAN

I. **Permit Years 1 and 2 (August 1, 2020 through June 30, 2022) Training**. The Borough's focus on its first two years of MS4 activities will be with program development and meeting permit requirements, rather than employee training. Training topics and impacted staff will be as noted in below table. Other trainings to be conducted as opportunities arise.

Training Topics	Staff to Train	Training Venue
MS4 Program Basics	Public Works Field Operations Staff	Lecture type presentation with Q&A at Field Operations Garage
MS4 Data Collection and Documentation	Public Works Management	CAPCOG Training Sessions
Spill prevention and Control	Public Works Management/Public Works Crew Leaders	CAPCOG Training Sessions
Chesapeake Bay Pollutant Reduction Plan	Public Works Management	CAPCOG Training Sessions DEP Training Sessions

II. **Permit Year 3 (July 1, 2022 through June 30, 2023) Training**. Focus on third year training will be to introduce all applicable Borough staff and contractors to basic MS4 programs and requirements, with an emphasis on illicit discharge detection and pollution prevention/good housekeeping techniques. Given current deficiencies with vehicle washing and material storage at Public Works Garage, Public Works Management staff will tour other municipal operations and conduct interviews with other operations staff from other municipalities to develop an approach for these operations at Carlisle. Other trainings to be conducted as opportunities arise.

Training Topics	Staff to Train	Training Venue
MS4 Program Basics	Parks and Recreation management and maintenance staff	Lecture type presentation with Q&A at Parks and Recreation Garage
MS4 Program Basics	Borough Zoning and Codes Enforcement staff	Lecture type presentation with Q&A at Borough Hall
MS4 Program Basics	New Public Works Field Operations Staff or Public Works staff who missed the Year 1 training	Lecture type presentation with Q&A at Field Operations Garage

Illicit Discharge Detection and Elimination Program Basics	Public Works Field Operations Staff	Lecture type presentation with Q&A at Field Operations Garage
Illicit Discharge Detection and Elimination Program Basics	Parks and Recreation management and maintenance staff and Borough Zoning and Codes Enforcement staff	Lecture type presentation with Q&A at Borough Hall
Vehicle and equipment washing and materials storage	Public Works Management	Tour other facilities

III. **Permit Year 4 (July 1, 2023 through June 30, 2024) Training**. Training plan for this permit year to be developed by Public Works Management staff at end of Permit Year 3 based on Year 3 training success and year 4 needs.

IV. **Permit Year 5 (July 1, 2024 through June 30, 2025) Training**

BOROUGH OF CARLISLE: SUMMARY OF MS4 TRAINING CONDUCTED DURING PERMIT YEAR FROM JULY 1, 2020 TO JUNE 30, 2021

Date	Training Topic	Location	Training Method	Trainer	Staff Attending	Number of Staff Attending	Training Hours	Total Hours of Staff Training
7/22/2020	Chesapeake Assessment Scenario Tool Trends & Analysis	Carlisle Municipal Building 53 W. South Street	Webinar	Chesapeake Bay Program Office	J. Shaffer	1	1.00	1.00
8/12/20	Chesapeake Bay Certified Landscape Professional Level 1 training	Carlisle Municipal Building 53 W. South Street	Online workshop	Chesapeake Conservation Landscaping Council	J. Shaffer	1	3.00	3.00
8/26/20	Chesapeake Bay Certified Landscape Professional Level 1 training	Carlisle Municipal Building 53 W. South Street	Online workshop	Chesapeake Conservation Landscaping Council	J. Shaffer	1	3.00	3.00
9/15/20	Stormwater Pond Problems/Challenges	Carlisle Municipal Building 53 W. South Street	Webinar	NMSA	J. Shaffer, Malarich	2	2.00	4.00
9/23/20	Chesapeake Bay Certified Landscape Professional Level 1 training	Lower Allen Township Municipal Building	Field Practicum	Chesapeake Conservation Landscaping Council	J. Shaffer	1	5.00	5.00
10/14/20	Use of GPS equipment to site stormwater infrastructure	Carlisle, PA	On-site training	Gannett Fleming	J. Shaffer	1	8.00	8.00
12/2/20	Use of GPS equipment to site stormwater infrastructure	Carlisle, PA	On-site training	Gannett Fleming	C. Shaffer, J. Derr	2	8.00	16.00
4/28/2021	Enhanced Aquifer Recharge: Influent of stormwater on groundwater quality	Carlisle Municipal Building 53 W. South Street	Webinar	EPA	Malarich	1	1.50	1.50
5/5/2021	Pennsylvania MS4 Form	Carlisle Municipal Building 53 W. South Street	Webinar	EPA, DEP	Malarich	1	4.00	4.00
5/6/2021	Pennsylvania MS4 Form	Carlisle Municipal Building 53 W. South Street	Webinar	EPA, DEP	Malarich	1	4.00	4.00
5/12/2021	Stream Restoration - From City to Pasture to Suburbs	Carlisle Municipal Building 53 W. South Street	Webinar	PAWEF	Malarich	1	1.00	1.00
5/25/21	Harmful Algal Blooms and Agal Toxins	Carlisle Municipal Building 53 W. South Street	Webinar	EPA	Malarich, Flythe	2	1.50	3.00
5/26/2021	Community-enabled Lifecycle Analysis of Stormwater Infrastructure Costs (CLASIC): Tool Functionality and Case Studies	Carlisle Municipal Building 53 W. South Street	Webinar	EPA	Malarich	1	1.00	1.00
6/3/20	WEF MS4 Survey and Dashboard: Stormwater Data Coming Aline	Carlisle Municipal Building 53 W. South Street	Webinar	WEF	Malarich	1	1.50	1.50
						Yearly Training Hours:		**55.00**

BOROUGH OF CARLISLE

"Committed To Excellence in Community Service"

Municipal Separate Storm Sewer System (MS4) Annual Report June 2020 – June 2021

Attachment 12

Carlisle Borough's

Updated BMP Project Schedule

For Chesapeake Bay Pollutant Reduction Plan

APPENDIX I: Proposed Stormwater BMP Project Schedule

CBPRP Project	Receiving Water(s)	Non-Structural BMPs	Structural BMPs	Tentative Project Schedule
Valley Meadows	Conodoguinet Creek	Tree Planting	None	Completed Spring 2019
Carlisle Green Streets	Letort Spring Run	None	Rain Garden	Completed September 2019
Thornwald Park	Letort Spring Run	None	Rain Garden(s), Vegetative Channel(s), Bioswale(s)	Design: Winter 2022 - Spring 2023 Permitting: Summer 2023 Bidding: Fall 2023 Construction: Spring 2024 – Fall 2024
Orange Street Retrofit	Letort Spring Run	None	Rain Garden(s), Vegetative Channel(s), Bioswale(s)	Design: Summer 2022 - Fall 2022 Permitting: Fall 2022 Bidding: Winter 2023 Construction: Spring 2023 – Fall 2023
Tiger Streetscape	Letort Spring Run	Plantings	Rain Gardens, Bioswales	Design: completed Permitting: completed Bidding: Winter 2019 Construction: Spring 2020 –Spring 2022
Louther Lot Stormwater Improvements	Letort Spring Run	None	Infiltration Strips	Design: Spring 2023 Construction: Summer 2023
Pomfret Lot Stormwater Improvements	Letort Spring Run	None	Infiltration Strips	Design: Spring 2021 Construction: Summer 2021-Fall 2021
N Hanover Streetscape	Letort Spring Run	Plantings	Rain Gardens, Bioswales	Design: completed Permitting: Spring 2022 Bidding: Summer 2022 Construction: Fall 2022 – Fall 2024
Biddle Mission Park	Letort Spring Run	Protect sensitive features, Protect/enhance riparian buffer	Streambank Restoration	Design: Winter 2022 - Spring 2023 Permitting: Summer 2023 Bidding: Fall 2023 Construction: Spring 2024 – Fall 2024

Insert to Page 14 of MS4 Annual Report

5. Summary of progress achieved during reporting period.

The Carlisle Borough CBPRP, last revised May 2020, identified nine separate projects to be undertaken by the Borough during the period through 2025 to achieve the pollutant reduction requirements of the Borough's MS4 Permit. Appendix I from the Borough's May 2020 CBPRP included a BMP Project schedule. During the reporting year from July 1, 2020 through June 30, 2021, the Borough started construction on the following:

- **Project 3, Tiger Streetscape Project**. The proposed BMPs includes urban tree canopy additions, raingardens, pervious parking approaches, and bioswales to manage stormwater runoff. All of the proposed BMPs will be located within the public street right-of-way. During the reporting period the Borough's contractor reconstructed Fairground Avenue from the Norfolk Southern Railroad Tracks north to B Street and shifted the street to the east thereby providing green space for planting of street trees and vegetative cover along the west side of the street. Flow-through planting s were also installed along the curbline of Fairground Avenue to intercept runoff and pass it through constructed bioswales before conveyance of the runoff to the Borough's MS4. The Borough's contractor also started reconstructed of B Street between Factory Street and Fairground Avenue. B Street will have similar BMPs to Fairground Avenue. Construction and final planting is expected during the remainder of 2021 into spring of 2022.
- **Pomfret Lot Stormwater Improvements**. The existing Pomfret Street parking lot is 100% impervious. The project will repave most of the lot, but remove the existing paving within the center line of the lot and replace the paving with an infiltration strip and tree plantings. Construction of the infiltration strip started late spring 2021 and is expected to be completed in September 2021 after repaving is finished. . Tree planting will take place fall 2021.

Since the above two projects are not complete, the applicable BMPs have not been added to Table 2, Page 15 of this annual report. An update to Appendix I from the Borough's May 2020 CBPRP is included as Attachment 12 to this annual report. The update provides revisions to the tentative project Schedule to reflect progress to date and changes to the schedule to address delays due to COVID-19.

6. Anticipated activities for next reporting period.

See Attachment 12 to this annual report. Active projects during reporting period include completion of construction for Tiger Streetscape Project and Pomfret Street SW Improvements, design of Orange Street stormwater basin retrofit, and permitting North Hanover Street Streetscape project.