West Chester Borough
Chester County, Pennsylvania

2023 Annual MS4 Status Report

For
West Chester Borough
Chester County, Pennsylvania

Permit Number: PA130026

September 2023

Prepared By:

Remington and Vernick Engineers

List of Attachments

Note that some of the attachments listed under one MCM include information for another subsequent MCM.

Cover Sheet
List of Attachments
MS4 Annual Report
a. 205 Lacey Street BMP Construction Plans

1. MCM #1: Public Education and Outreach on Storm Water Impacts Plan
    a. Written Public Education and Outreach Program
    b. Website Information
    c. Stormwater Protection Fee Newsletter
    d. Public Works Committee Meeting Minutes
2. MCM #2: Public Involvement/Participation
    a. Written Public Involvement/Participation Plan
    b. Social Media Posts
    c. Stormwater Management Ordinance - Meeting Minutes
3. MCM #3: Illicit Discharge Detection and Elimination
    a. Written Program for Detection, Elimination and Prevention of Illicit Discharges
    b. Stormwater Management Ordinance
    c. Outfall Inspection Reports
    d. Outfall Sample Lab Report
    e. Stormwater Management Map
    f. Street Sweeping Records
4. MCM #4: Construction Site Stormwater Runoff Control
    a. Written Program for Construction Site Stormwater Runoff Control
5. MCM #5: Post Construction Storm Water Management in New Development and Redevelopment
    a. Written Program for Construction Site Stormwater Runoff Control
6. MCM #6: Pollution Prevention/Good Housekeeping
    a. Written Program for Pollution Prevention/Good Housekeeping – Borough O&M Manual
    b. Standard Operating Procedures
7. Pollution Reduction Plan(s)
8. TMDL Plan(s)
9. Animal Waste Ordinance

pennsylvania
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 JULY 1, 2022 TO JUNE 30, 2023

GENERAL INFORMATION			
Permittee Name:	West Chester Borough	NPDES Permit No.:	PA130026
Mailing Address:	401 East Gay Street	Effective Date:	June 1, 2019
City, State, Zip:	West Chester, PA 19380	Expiration Date:	May 31, 2024
MS4 Contact Person:	Sean Metrick	Renewal Due Date:	December 1, 2023
Title:	Borough Manager	Municipality:	West Chester Borough
Phone:	610-692-7574	County:	Chester
Email:	smetrick@west-chester.com		

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?
Plum Run	WWF	Yes	Water/Flow Variability	No	N/A
Blackhorse Run	TSF	Yes	Urban Runoff/Storm Sewers	No	N/A
Chester Creek Unnamed to (aka Goose Creek)	TSF	Yes	Municipal Point Source	Yes; TP	0.11 lbs/day
Taylor Run (via unnamed tributaries)	TSF	Yes	Habitat Modifications;Urban Runoff/Storm Sewers	No	N/A

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	West Chester Borough	Will Williams	484-887-2761
#2 Public Involvement/Participation	West Chester Borough	Will Williams	484-887-2761
#3 Illicit Discharge Detection and Elimination (IDD&E)	West Chester Borough	Will Williams	484-887-2761
#4 Construction Site Storm Water Runoff Control	West Chester Borough	Will Williams	484-887-2761
#5 Post-Construction Storm Water Management in New Development and Redevelopment	West Chester Borough	Will Williams	484-887-2761
#6 Pollution Prevention / Good Housekeeping	West Chester Borough	Will Williams	484-887-2761

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 2023 Were updates made? ☒ Yes ☐ No

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

   During this reporting period the Borough wanted to give the community information on how everyone can minimize pollutants carried to streams and rivers by storm water runoff, ensure contractors maintain E&SC and educate the community on how to report violations. The Borough distributed information through the Borough's stormwater protection fee invoices, the Borough website, social media, public meetings, one to one office hours, preconstruction meetings.

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:

The Borough will continue to review and revise the Borough's written Public Education and Outreach Program.

The Borough will publish stormwater educational information and information relating to stormwater management activities through the Borough's stormwater protection fee invoices, social media and the Borough website.

The Borough plans to hold public works meetings. The Director of Public Works, Borough Manager, Sustainability Director and consulting engineers will provide updates regarding repairs to storm sewer infrastructure, planned improvements to storm sewer infrastructure, MS4 compliance activities and clean-up events. This information will benefit meeting attendees and also reach those who view the livestream of the meetings on social media. There will be

public comment periods at each meeting where residents have the opportunity to comment on items related to stormwater management.

The Borough will continue to hold preconstruction meetings with contractors to ensure they are educated on their E&SC responsibilities.

The Borough will maintain a web page on the Borough's website which contains information regarding the Borough's Stormwater Management Program.

The Borough will be working on revisions to the Goose Creek PRP and TMDL plan. The revised plans will be presented at a public meeting and be available for public review.

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: June 2023 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 2023 Were updates made? ☒ Yes ☐ No

3. Do you have a municipal website? ☒ Yes ☐ No (URL: https://www.west-chester.com/187/Stormwater-Management)

If Yes, what MS4-related material does it contain?

The Borough maintains a web page on the Borough's website which contains information regarding the Borough's Stormwater Management Program. The web page notes that the Borough's MS4 stormwater discharge is regulated by the NPDES permitting program and PADEP The web page provides tips on how the public can reduce stormwater runoff pollution and information regarding how to report a pollution incident to the Borough.

The Borough's website includes information on the Stream Protection Fee program.

The following EPA Fact Sheets are linked: Be Storm Water Smart, MS4 Overview Fact Sheet, Illicit Dumping, Green Infrastructure – Healthy communities, NPDES Urban Facts, Facts about Nutrient Pollution EPA, MS4 Resource Guide IDDE, Everhard Street & Nields Street Rain Garden/s Bioretention, Hoopes Alley Porous Pavers, Fact Sheet on Illicit Discharge Detection & Elimination.

The Borough's website also includes meeting minutes from the Borough's public meetings.

4. Describe any other method(s) used during the reporting period to provide information on stormwater to the public:

The Borough holds public works meetings. The Director of Public Works, Borough Manager, Sustainability Director and consulting engineer will provide updates regarding repairs to storm sewer infrastructure, planned improvements to storm sewer infrastructure, MS4 compliance activities and waste collection events. This information will benefit meeting attendees and also reach those who view the livestream of the meetings on social media. There will be public comment periods at each meeting where residents have the opportunity to comment on items related to stormwater management.

Three 4-hour walk-in "office hours" sessions were held in January 2023, for property owners to come in and chat stormwater protection fees and stormwater management. About 25 residents showed up to the three sessions.

The Stream Protection 2023 Program Update was mailed to every property owner in the Borough with the annual Stream Protection Fee assessments 12/28/2022. The Guide To Green Stormwater Infrastructure brochure is available in the Borough Hall building lobby.

Social Media is used to educate borough residents about stormwater management and to advertise clean-up days.

5. Identify specific plans for the publication of stormwater materials for the upcoming year:

The Borough will publish stormwater educational information on social media.

The Borough will include educational information in their stormwater protection fee bill.

The Borough will continue to host public meetings where stormwater management project updates will be conveyed to the public.

The Borough will continue to hold preconstruction meetings where E&SC responsibilities are discussed.

The Borough will maintain a web page on the Borough's website which contains information regarding the Borough's Stormwater Management Program.

The Borough will continue to support local groups and initiatives.

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).

Flyers, fact sheets, brochures, social media, office hours and discussions at various public meetings were utilized.

MCM #1 Comments:

No comment.

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 2023 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:

The stormwater management ordinance was discussed at Council meetings, advertised in Daily Local News 9/12/2022, discussed and adopted at September 21, 2022 Council meeting. Copies of agendas, meeting minutes, proof of advertising and the stormwater ordinance area included.

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
Borough of West Chester Stormwater Management Ordinance Chapter 94	9/12/2022	9/21/2022	9/21/2022

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: See attached Public Works Agendas and Council meeting minutes. Ordinance discussed at mulitple meetings, and adopted at public meeting. Cleanup days held in March & April were advertised on social media. Adopt a Rain Garden was advertised on social media. A polliantor garden preparation was held in April. Tree collection was held in January. Leaf collection was held in the fall.

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.

The Borough held public council and public works meetings. The Borough Manager, Engineer and Public Works Director reported on recently completed stormwater management activities as well as upcoming projects. The Borough provides an agenda item entitled "Public Comment" at each Council Meeting. This agenda item provides a forum for meeting attendees to make comments pertaining to any number of topics, including any additional stormwater management concerns or aspects of the Borough's MS4 program.

The Borough started an Adopt-A-Rain Garden Program. The volunteers assisted with plant selection, planting, and light garden maintenance, and serve as eyes and ears on neighborhood stormwater infrastructure, reporting any problems to Public Works. Have a nice social media post about their work as well.

Clean-up days were held in the Borough. The Borough held the West Chester Community Cleanup on 4/22/2023. Volunteers were solicited on social media.

The Borough sponsored the 25th Annual Chester Ridley Crum Watershed Association Cleanup on Saturday March 25th. Volunteers were solicited on social media.

A Borough advertised a nearby municipality's Pollinator Garden Preparation class on social media.

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.

The Borough held public council and public works meetings. The Borough Manager, Engineer and Public Works Director reported on recently completed stormwater management activities as well as upcoming projects. The Borough provides an agenda item entitled "Public Comment" at each Council Meeting. This agenda item provides a forum for meeting attendees to make comments pertaining to any number of topics, including any additional stormwater management concerns or aspects of the Borough's MS4 program.

The Borough's website has information on regarding how to report a pollution incident to the Borough. Residents and business owners regularly report incidents to the Borough Manager.

The Borough solicits for participation in tree collection, clean-up days, and leaf collection days, and rain garden construction on social media.

The Borough held office hours where residents were permitted to come to Borough hall to have one-to-one conversions about stormwater management.

The Borough started an Adopt-A-Rain Garden Program. The volunteers assisted with plant selection, planting, and light garden maintenance, and serve as eyes and ears on neighborhood stormwater infrastructure, reporting any problems to Public Works. Have a nice social media post about their work as well.

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The Borough sponsored the 25th Annual Chester Ridley Crum Watershed Association Cleanup on Saturday March 25th. Volunteers were solicited on social media.

A Borough advertised a nearby municipality's Pollinator Garden Preparation class on social media..

MCM #2 Comments:

No comment.

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: 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: February 2022

2. Date of last update or revision to map(s): September 2023

3. Total No. of Outfalls in MS4: 49 Total No. of Outfalls Mapped: 49

4. Total No. of Observation Points: 2 Total No. of Observation Points Mapped: 2

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): February 2022, copy included with report

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? 21

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: 14%

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: Chapter 94 Stormwater Management adopted 09-21-2022

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

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.

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? Education on stormwater management was provided via the stormwater protection fee bill. Information on how to report violations can be found on the 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:

No comment.

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:

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: Chapter 94 Stormwater Management adopted 9-21-2022

2.

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: 09/21/2022

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	Paxson	7.68	Paxson Park LP	39°57'8"	75°36'39"	7/29/2014	O&M Manual	PAI011505050
2	WCU Dorms Phase 1 Seepage Bed 1		University Student Housing LLC	39°57'6"	75°36'6"	9/3/2009	O&M Manual	PAG2001507079
3	WCU Dorms Phase 1 Seepage Bed 2		University Student Housing LLC	39°57'1"	75°36'2"	9/3/2009	O&M Manual	PAG2001507079
4	WCU Dorms Phase 1 Seepage Bed 3		University Student Housing LLC	39°57'0"	75°36'2"	9/3/2009	O&M Manual	PAG2001507079
5	WCU Dorms Phase 1 Seepage Bed 4		University Student Housing LLC	39°57'5"	75°36'6"	9/3/2009	O&M Manual	PAG2001507079
6	Union Station UG Bed #1	1.328	Davis Realty Holdings LP	39°57'33"	75°35'51"	10/7/2019	O&M Manual	PAG2001509014-R
7	Union Station UG Bed #2	0.521	Davis Realty Holdings LP	39°57'35"	75°35'50"	10/7/2019	O&M Manual	PAG2001509014-R
8	Union Station UG Bed #3	0.521	Davis Realty Holdings LP	39°57'37"	75°35'53"	10/7/2019	O&M Manual	PAG2001509014-R
9	Shanahan Townhomes UG Detention Storm Tank #1	2.3	105 Everhart Development, LLC	39°57'26"	75°36'51"	10/26/2012	O&M Manual	PAG2001509023
10	Shanahan Townhomes Infiltration Trench #1	0.21	105 Everhart Development, LLC	39°57'28"	75°36'50"	10/26/2012	O&M Manual	PAG2001509023
11	Shanahan Townhomes Infiltration Trench #2	0.17	105 Everhart Development, LLC	39°57'26"	75°36'53"	10/26/2012	O&M Manual	PAG2001509023

12	WCU Recreation Ctr Infiltration Basin A		WCU	39°57’8”	75°36’15”		O&M Manual	
13	WCU Recreation Ctr Infiltration Basin B		WCU	39°57’7”	75°36’13”		O&M Manual	
14	WCU Recreation Ctr East Plaza Green Roof		WCU	39°57’8”	75°36’10”		O&M Manual	
15	WCU Recreation Ctr Wast Plaza Green Roof		WCU	39°57’7”	75°36’13”		O&M Manual	
16	WCU Recreation Ctr Bio-retention Area		WCU	39°57’7”	75°36’10”		O&M Manual	
17	220 E Chestnut St (120 E Gay St/220 Chestnut Assoc) UG SW Facility	1.372	220 Chestnut Associates, LP	39°57’45”	75°36’7”	11/3/2016	O&M Manual	PAI01151241
18	220 E Chestnut St (120 E Gay St/220 Chestnut Assoc) Green Roof		220 Chestnut Associates, LP	39°57’45”	75°36’7”	11/3/2016	O&M Manual	PAI01151241
19	220 E Chestnut St (120 E Gay St/220 Chestnut Assoc) Amended Soil Areas		220 Chestnut Associates, LP	39°57’45”	75°36’7”	11/3/2016	O&M Manual	PAI01151241
20	WCU Business & Public Affairs Ctr BioRetention Area A	0.34	WCU	39°57’16”	75°36’1”	3/15/2017	O&M Manual	PAG02001513014
21	WCU Business & Public Affairs Ctr BioRetention Area B		WCU	39°57’15”	75°36’1”	3/15/2017	O&M Manual	PAG02001513014
22	WCU Business & Public Affairs Ctr BioRetention Area C		WCU	39°57’15”	75°36’2”	3/15/2017	O&M Manual	PAG02001513014

23	WCU Business & Public Affairs Ctr Subsurface Detention Basin #1		WCU	39°57’15”	75°36’3”	3/15/2017	O&M Manual	PAG02001513014
24	WCU Dorm "C" Subsurface Detention Basin		University Student Housing, LLC	39°57’2”	75°36’8”	6/22/2015	O&M Manual	
25	WCU Dorm "C" Street Sweeping Area 1	0.07	University Student Housing, LLC	39°57’60”	75°36’9”	6/22/2015	O&M Manual	
26	WCU Dorm "C" Street Sweeping Area 2	0.24	University Student Housing, LLC	39°57’2”	75°36’11”	6/22/2015	O&M Manual	
27	WCU Quad Additions Infiltration Basin 1	0.335	WCU	39°57’7”	75°35’53”	8/22/2014	O&M Manual	
28	WCU Quad Additions Infiltration Basin 2	0.678	WCU	39°57’9”	75°35’54”	8/22/2014	O&M Manual	
29	Sharpless Hall Redevelopent - The Hickman UG Infiltration Basin	0.81	Hickman Friends Senior Community of West Chester AKA Friends Meeting	39°57’49”	75°36’26”		O&M Manual	PAG02001516002
30	Sharpless Hall Redevelopent - The Hickman UG Inlet Filters		Hickman Friends Senior Community of West Chester AKA Friends Meeting	39°57’50”	75°36’27”		O&M Manual	PAG02001516002
31	Sharpless Hall Redevelopent - The Hickman Soil Restoration/Perm Veg		Hickman Friends Senior Community of West Chester AKA Friends Meeting	39°57’50”	75°36’27”		O&M Manual	PAG02001516002
32	WCU Commons Green Roof	0.911		39°57’7”	75°36’7”		O&M Manual	PAC150028
33	WCU Commons SW Detention Bed 1			39°57’6”	75°36’8”		O&M Manual	PAC150028
34	WCU Commons Extend SW Detention Vault #2	0.697		39°57’10”	75°36’8”		O&M Manual	PAC150028

35	WCU Commons Extend SW Infiltration Bed #3			39°57’5”	75°36’5”		O&M Manual	PAC150028
36	WCU Commons Rain Garden #1			39°57’7”	75°36’5”		O&M Manual	PAC150028
37	WCU Commons Rain Garden #2			39°57’5”	75°36’5”		O&M Manual	PAC150028
				° ’ ”	° ’ ”			
				° ’ ”	° ’ ”			
				° ’ ”	° ’ ”			
				° ’ ”	° ’ ”			

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:

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? September 2023

3. When was it last updated? September 2023

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 2019

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: May 2020 Date of latest training: March 2022

3. Training topics covered:

Employee Good Housekeeping Training Manual / booklet is read by new employees.
Also West Chester is a member of the Christina Watersheds Municipal Partnership (CWMP); the CWMP provided information and services to meet several MCMs.

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

The training program is a booklet to be read by new employees. CWMP hosted many webinars, workshops and volunteer events. .

5. Names of training attendees:

Public Works Department employees

MCM #6 Comments:

The Borough did not have any inlets repairs from 7/21 – 6/22.

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 2019	☒	June 2019
Source Inventory	June 2020	☐	June 2020
Investigation of Suspected Sources	September 2022	☐	9/30/2022
Ordinance/SOP for Controlling Animal Wastes	September 2022	☐	9/30/2022

PCM Comments:

The Borough is regularly investigated suspected sources of illicit discharges.

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)			Chesapeake Bay
☒ Impaired Waters PRP (Appendix E)	July 31, 2018	June 1, 2019	Brandywine Creek, Blackhorse Run, Plum Run, Taylor Run, Chester (Goose) Creek
☒ TMDL Plan (Appendix F)	July 31, 2018	June 1, 2019	Chester Creek / Goose Creek

☐ 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)			
☒ Impaired Waters PRP (Appendix E)	Brandywine Cr 60,946 Chester Cr 22,161		
☒ TMDL Plan (Appendix F)		Chester Cr 4.57	
☐ Combined Chesapeake Bay / Impaired Waters PRP			
☐ Combined PRP / TMDL Plan			

3. Date Final Report Demonstrating Achievement of Pollutant Load Reductions Due: May 31, 2024

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.

Tree planting continuing / ongoing, and the Borough is organizing the planting records. 401 trees have been planted to date, 116 of which were planted in Fall 2018 and Spring 2019; 222 were planted in 2020-2021 (which includes 38 replacement trees; therefore 184 net trees); 101 trees were planted Spring 2022. 2022 Spring tree planting information is included. The Borough has began revising the PRPs and TMDL reports. The Borough is also seeking other sites for BMPs. The Borough install BMPs in Greenfield Park.

6. Anticipated activities for next reporting period.

The Borough will revise the Goose Creek TMDL and PRP.

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)
1	Street Sweeping (Chester Creek)					° ' "	° ' "	+25x/year	☒	☐	2,288
2	Street Sweeping (Brandywine Cr)					° ' "	° ' "	+25x/year	☒	☐	7,150
3	Greenfield Park Rain Gardens					39°57'24"	75°35'49"	2022	☒	☐	
						° ' "	° ' "		☐	☐	
						° ' "	° ' "		☐	☐	

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?
1	Fugett Park/Borough Hall Infiltration Basin (Chester Creek)	~3				75°35'56"	39°57'51"	February 2019	1,660 lbs/yr	9/12/19 8/18/20	☒
2	Veterans Park / Pine Alley Infiltration Basin (Brandywine Cr)	0.55				75°36'42"	39°57'39"	February 2019	483 lbs/yr	9/12/19 8/18/20	☒

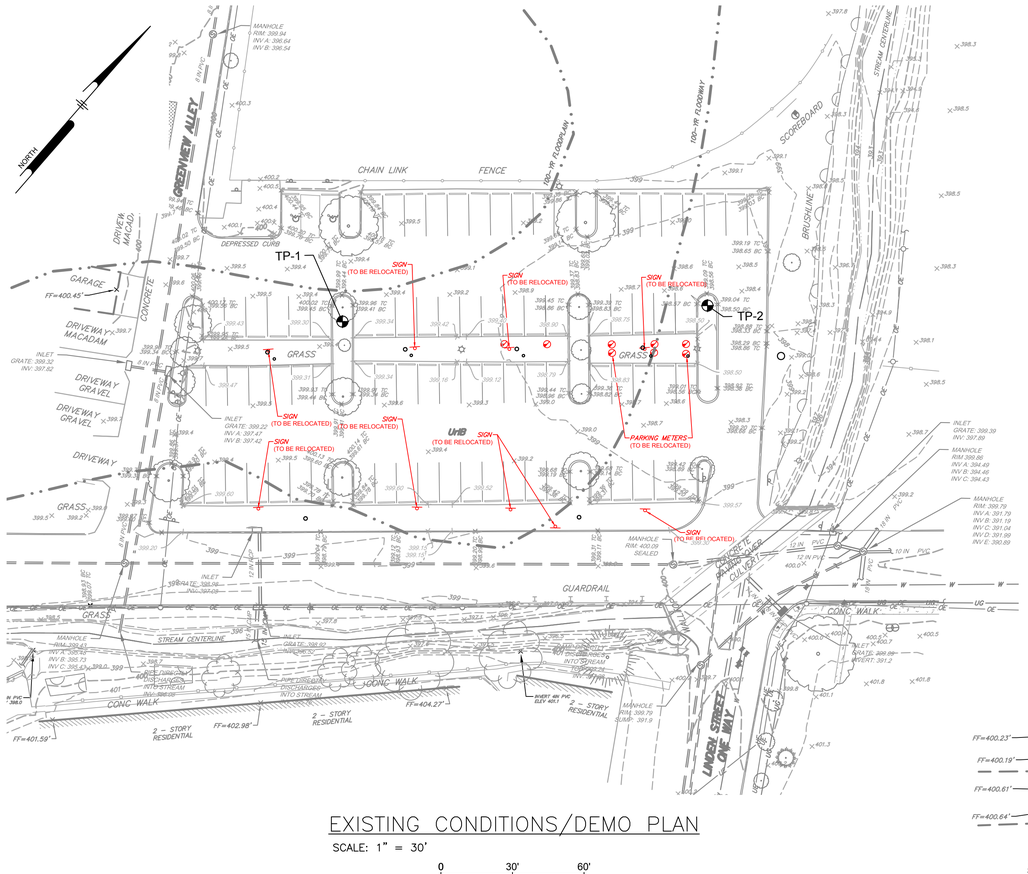
	Tree Planting				401	° ' "	° ' "	2018-2022	79.24	2022	☒
						° ' "	° ' "				☐
						° ' "	° ' "				☐
						° ' "	° ' "				☐

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).

Signature Sean Metrick	
Name of Responsible Official	Signature
610-692-7574	9/20/2023
Telephone No.	Date



EXISTING CONDITIONS/DEMO PLAN

SCALE: 1" = 30'

0 30' 60'

PA ONECALL UTILITIES LIST

ALL DESIGNERS AND CONTRACTORS UTILIZING THIS PLAN AND THE INFORMATION CONTAINED THEREON ARE CAUTIONED TO COMPLY WITH THE REQUIREMENTS OF PENNSYLVANIA ACT 287, AS AMENDED, ENTITLED "UNDERGROUND UTILITY LINE PROTECTION."
SERIAL NO: 20212850646

COMPANY: AT&T
ADDRESS: 1100 3RD AVE
ALTOONA, PA. 16602
CONTACT: PAT SUTTON
EMAIL: PS4364@ATT.COM

COMPANY: AQUA PENNSYLVANIA INC
ADDRESS: 762 W LANCASTER AVENUE
BRYN MAWR, PA. 19010
CONTACT: JAMES THORNTON
EMAIL: JDTHORNTON@AQUAAMERICA.COM

COMPANY: COMCAST
ADDRESS: 1004 CORNERSTONE BLVD
DOWNINGTOWN, PA. 19335
CONTACT: TOM RUSSO
EMAIL: tom_russo@cable.comcast.com

COMPANY: PECO ENERGY C/O USIC
ADDRESS: 450 S HENDERSON RD SUITE B
KING OF PRUSSIA, PA. 19406
CONTACT: NIKKIA SIMPKINS
EMAIL: NIKKIASIMPKINS@USICLLC.COM

COMPANY: WEST CHESTER BOROUGH
ADDRESS: 205 LACEY ST
WEST CHESTER, PA. 19382
CONTACT: ALBERTO VENNETTILLI
EMAIL: avennettilli@west-chester.com

COMPANY: VERIZON BUSINESS FORMERLY MCI
ADDRESS: 400 INTERNATIONAL PARKWAY
RICHARDSON, TX. 75081
CONTACT: DEAN BOYERS
EMAIL: investigations@verizon.com

COMPANY: VERIZON PENNSYLVANIA LLC
ADDRESS: 1050 VIRGINIA DR
FORT WASHINGTON, PA. 19034
CONTACT: DARLINE LEPPERD JOHNSON

PENNSYLVANIA ONE CALL SYSTEM, INC. 1-800-242-1776 STOP - CALL BEFORE YOU DIG!

CALL BEFORE YOU DIG
BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA
CALL 1-800-242-1776
PA. ACT 287 OF 1974 REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL OR BLAST PENNSYLVANIA ONE-CALL SYSTEM, INC.
SERIAL NUMBER(S): 20213011723

SOILS TABLE

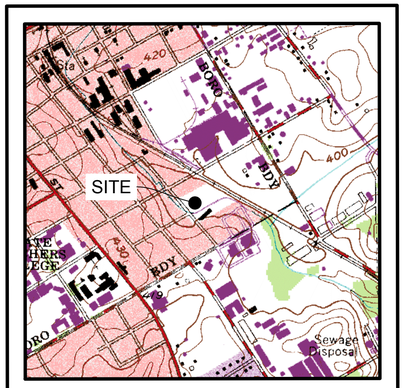
SYMBOL	NAME	HYDROLOGIC SOIL GROUPS	SLOPES (%)	HYDRIC SOILS	DEPTH TO	
					DEPTH TO WATER (INCHES)	BEDROCK (IN)
UrlB	URBAN LAND GLADSTONE COMPLEX	A	0 to 8 %	NO	>80	60-100

INFILTRATION TESTING RESULTS

TEST PIT NUMBER	EXISTING GRADE	TEST ELEVATION	PIT ELEVATION	INFILTRATION RATE (IN/HR)	LIMITING ZONES
1	399.78	397.11	394.78	2.3	N/A
2	399.06	N/A	395.06	N/A	GROUNDWATER @ 2'

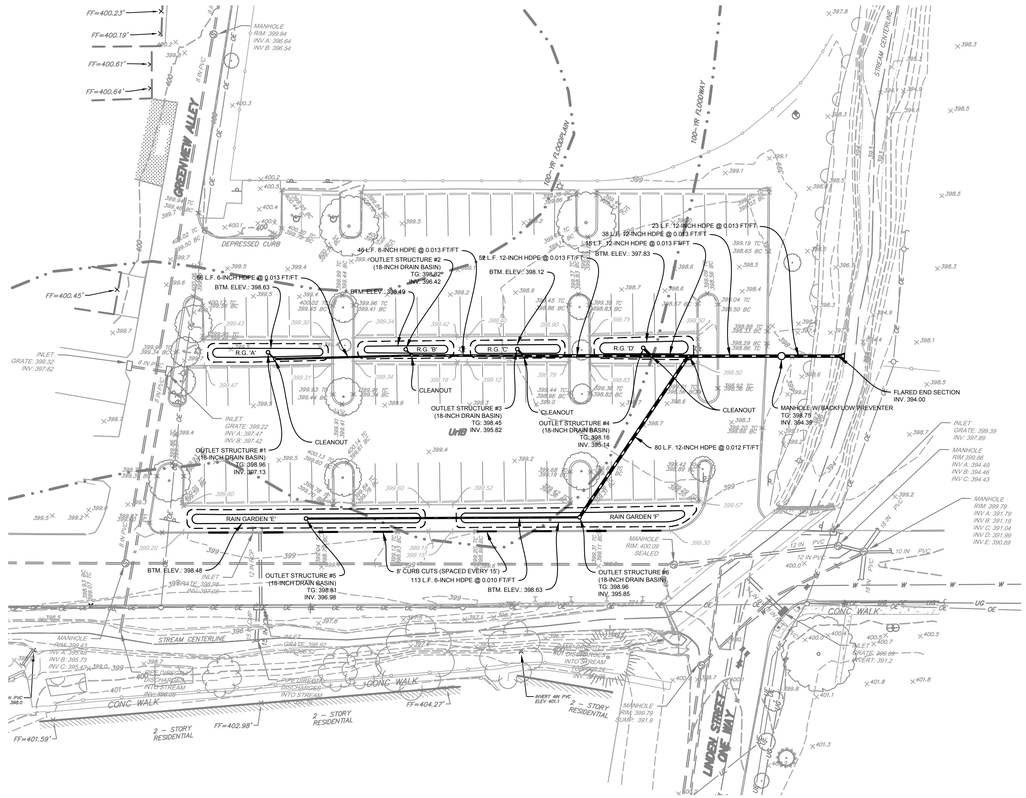
GENERAL NOTES:

1. SITE ADDRESS: GREENVIEW ALLEY & SOUTH FRANKLIN STREET WEST CHESTER, PA 19382
   OWNER: WEST CHESTER BOROUGH 401 EAST GAY STREET WEST CHESTER, PA 19382
2. THE PURPOSE OF THIS PLAN IS TO DEPICT STORMWATER MANAGEMENT IMPROVEMENTS TO THE EXISTING PARKING LOT.
3. THIS SITE IS CURRENTLY ZONED NC2 - NEIGHBORHOOD CONSERVATION DISTRICT 2 BY THE WEST CHESTER BOROUGH ZONING MAP.
4. THE LOCATION OF THE EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN HAVE BEEN TAKEN FROM EXISTING UTILITY RECORDS AVAILABLE AT THE TIME THESE PLANS WERE PREPARED AND FROM SURFACE OBSERVATIONS OF THE SITE.
5. COMPLETENESS OR ACCURACY OF LOCATION AND DEPTH OF UNDERGROUND UTILITIES AND STRUCTURES IS NOT GUARANTEED.
6. IN ACCORDANCE WITH PA ACT 287 OF 1974 AS AMENDED BY PA ACT 187 OF 1996, THE CONTRACTOR SHALL NOTIFY ALL UTILITIES WITHIN THE WORK AREA VIA THE PENNSYLVANIA ONE CALL SYSTEM, INC. (800-242-1776) A MINIMUM OF 3 WORKING DAYS BEFORE THE START OF EXCAVATION.
7. THE CONTRACTOR SHALL VERIFY LOCATIONS AND DEPTHS OF ALL UNDERGROUND UTILITIES AND STRUCTURES BEFORE THE START OF WORK.
8. THE SUBJECT PROPERTY IS LOCATED WITHIN THE DARBY-CRUM CREEKS WATERSHED, WHICH IS CLASSIFIED AS TROUT STOCKING/MIGRATORY FISHES (TSF/MF) WATERCOURSE BY TITLE 25, CHAPTER 93 OF THE PENNSYLVANIA CODE.



N

LOCATION MAP
SCALE: 1" = 1000'



GRADING PLAN

SCALE: 1" = 30'

0 30' 60'

LEGEND:

- PROPERTY LINE
- LEGAL RIGHT-OF-WAY
- EX PROPERTY CORNER FOUND
- EX CONCRETE MONUMENT
- ADJOINING PROPERTY LINE
- EX EASEMENT
- EX BUILDING
- EX CURB
- EX EDGE OF PAVEMENT
- EX EDGE OF GRAVEL
- EX WALL
- EX FENCE LINE
- EX SIGN
- EX LANDSCAPING
- EX TREE ROW
- 391 EX MINOR CONTOUR
- 390 EX MAJOR CONTOUR
- EX STORM SEWER LINES
- EX UTILITY MANHOLE
- EX STORM SEWER INLET
- EX STORMWATER MANHOLE
- OE EX OVERHEAD ELECTRICAL LINES
- UE EX ELECTRICAL LINES
- EX UTILITY POLE
- W EX WATER LINES
- EX FIRE HYDRANT
- EX WATER VALVE
- S EX SANITARY SEWER LINES
- EX SANITARY MANHOLE
- EX SANITARY CLEAN OUT
- G EX NATURAL GAS LINES
- TEST PIT

Pennoni
PENNONI ASSOCIATES INC.
One South Church Street, 2nd Floor
West Chester, PA 19382
T 610.429.8907 F 610.429.8918

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

GREENFIELD PARK SWM IMPROVEMENTS

GREENVIEW ALLEY & S. FRANKLIN STREET
WEST CHESTER BOROUGH, CHESTER CO., PA.

GRADING PLAN

WEST CHESTER BOROUGH PUBLIC WORKS
205 LACEY STREET
WEST CHESTER, PA. 19382

NO.	DATE	REVISIONS	BY

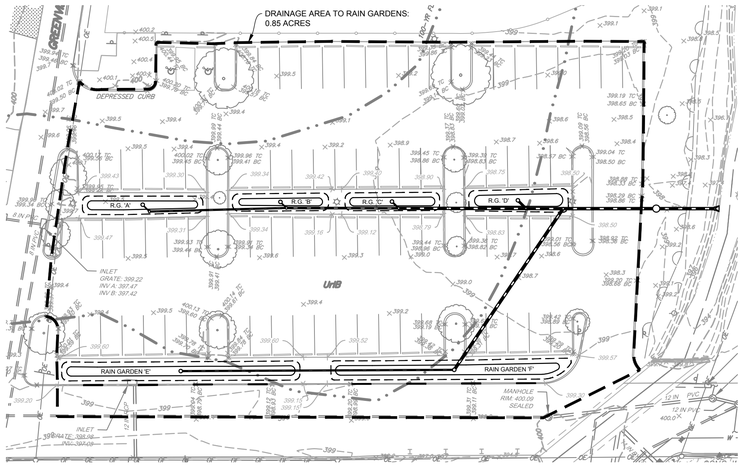
ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATES; AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

PROJECT	WCHBO00007
DATE	11-08-2021
DRAWING SCALE	1" = 30'
DRAWN BY	PJK
APPROVED BY	CRP

CS1501

SHEET 01 OF 02

u:\Accounts\WCHBO\wchbo00007 - greenview alley st\DESIGN_SHEETS\CS1501.dwg PLOTTED: 11/8/2021 3:31 PM, BY: Patrick Kane PLOTSTYLE: Pennoni NCS.ctb PROJECT STATUS: —



DRAINAGE AREA MAP

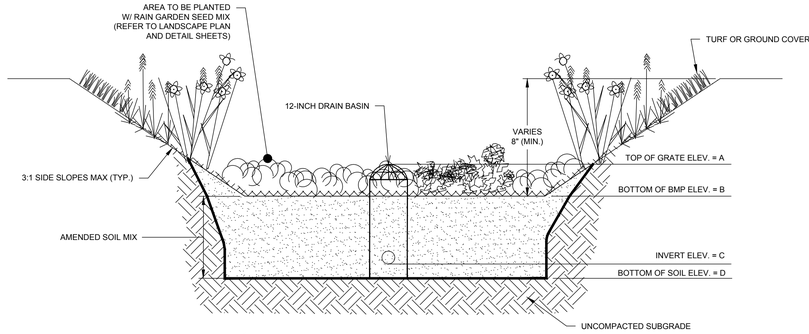
SCALE: 1" = 30'

Other Loading Rates		INPUT
Impervious Developed (lbs/ac/yr)	1839	OUTPUT
Pervious Developed (lbs/ac/yr)	264.96	

BMP Description	Rain Garden A - F			
Location	Greenfield Park - West Chester Borough			
Watershed	Darby - Crum Creeks			
Impervious Reduction (lbs/yr)				
Area (ac)	**Loading Rate**	**BMP Name**	**BMP Effectiveness Value**	**Reduction (lbs/yr)**
0.709	1839	Bioretention/Rain Garden (A/B Soils w/o Underdrain)	90%	1,173.47
Pervious Reduction (lbs/yr)				
Area (ac)	**Loading Rate**	**BMP Name**	**BMP Effectiveness Value**	**Reduction (lbs/yr)**
0.144	264.96	Bioretention/Rain Garden (A/B Soils w/o Underdrain)	90%	34.34
			Sediment Load Reduction (lbs/yr)	1,208

MS4 SEDIMENT REMOVAL CALCULATIONS

NOT TO SCALE



RAIN GARDEN	A	B	C	D
A	398.96	398.63	397.13	396.63
B	398.82	398.49	396.42	396.42
C	398.45	398.12	395.82	395.82
D	398.16	397.83	395.14	395.14
E	398.81	398.48	396.98	396.48
F	398.86	398.63	395.85	395.85

RAIN GARDEN DETAIL & NOTES

NOT TO SCALE

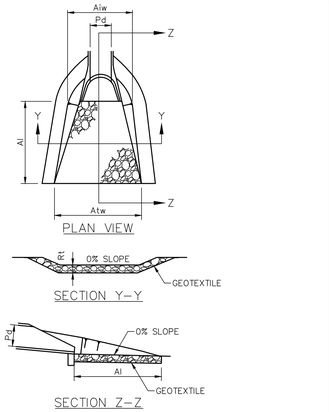
RAIN GARDEN AREA CONSTRUCTION NOTES:

1. ALL CONSTRUCTION ACTIVITIES FOR THE BIO-RETENTION AREA SHOULD OCCUR WITHIN A SHORT TIME PERIOD TO ENSURE THAT SILT AND SEDIMENT DO NOT ENTER THE TRENCH.
2. APPROPRIATE MEASURES ARE TO BE TAKEN IN THE EVENT OF SEDIMENT ENTERING AND CLOGGING THE BIO-RETENTION AREA. SHOULD UNFAVORABLE CONDITIONS (BEDROCK, ETC.) BE ENCOUNTERED DURING THE CONSTRUCTION PROCESS OF THE BIO RETENTION AREA, THE DESIGN ENGINEER SHOULD BE CONTACTED TO ADDRESS SUCH ISSUES.
3. IF INSPECTION INDICATES THAT SOIL OR SEDIMENT HAS ENTERED ANY OF THE BIO RETENTION AREA, APPROPRIATE MEASURES (I.E. CLEARING THE SOIL SEDIMENT FROM BIO RETENTION AREAS) SHOULD BE ADDRESSED.
4. SOIL MIX SPECIFICATIONS:
   a. CLAY CONTENT: LESS THAN 5%
   b. SAND CONTENT: 50-60%
   c. LEAF COMPOST OF AGED LEAF MULCH: 20-30%
   d. HIGH QUALITY TOPSOIL: 20-30%
   e. BIORETENTION SOIL CAN BE CREATED BY AMENDING EXISTING SOIL. DEPENDING ON THE QUALITY OF THE SOIL, COMBINE 20-30% NATIVE SOIL WITH 20-30% COMPOST AND 50% SAND.
   f. HAVE A PERMEABILITY OF AT LEAST 1.0 FEET PER DAY (0.5 INCHES PER HOUR).
   g. BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1.0 INCH IN DIAMETER. IT SHOULD ALSO BE FREE OF BRUSH OR SEEDS FROM NOXIOUS WEEDS. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN LIFTS OF 12-18 INCHES, LOOSELY COMPACTED (TAMPED LIGHTLY WITH A DOZER OR BACKHOE BUCKET).

RAIN GARDEN AREA CONSTRUCTION SEQUENCE:

A LICENSED PROFESSIONAL KNOWLEDGEABLE IN THE DESIGN AND CONSTRUCTION OF STORMWATER BMP'S, PREFERABLY THE DESIGN ENGINEER, SHALL BE ON-SITE TO MONITOR THE CRITICAL STAGES OF CONSTRUCTION IDENTIFIED BELOW. THE LICENSED PROFESSIONAL SHALL BE NOTIFIED A MINIMUM OF 3 DAYS IN ADVANCE OF THE BEGINNING OF CONSTRUCTION.

1. EXCAVATE SOIL TO THE DEPTH SPECIFIED, PLACING SOIL IN STOCKPILE.
2. CRITICAL STAGE: EXCAVATIONS SHALL BE INSPECTED BY DESIGN ENGINEER.
3. CRITICAL STAGE: SOIL MIX SHALL BE INSPECTED BY DESIGN ENGINEER PRIOR TO PLACEMENT.
4. BEGIN PLACEMENT OF AMENDED SOIL MIXTURE AND GRADE AREA AS SHOWN ON PLAN.
5. INSTALL PERMANENT VEGETATION AND IMMEDIATELY STABILIZE WITH TEMPORARY STABILIZATION.



OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP SIZE R––	RIPRAP THICK. Rt (IN)	APRON LENGTH Al (FT)	APRON INITIAL WIDTH Aiw (FT)	APRON TERMINAL WIDTH Atw (FT)
1	12	R–3	18	5	4	7

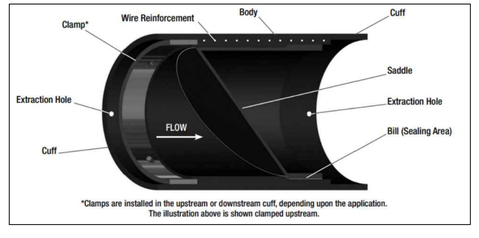
NOTES:

ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.

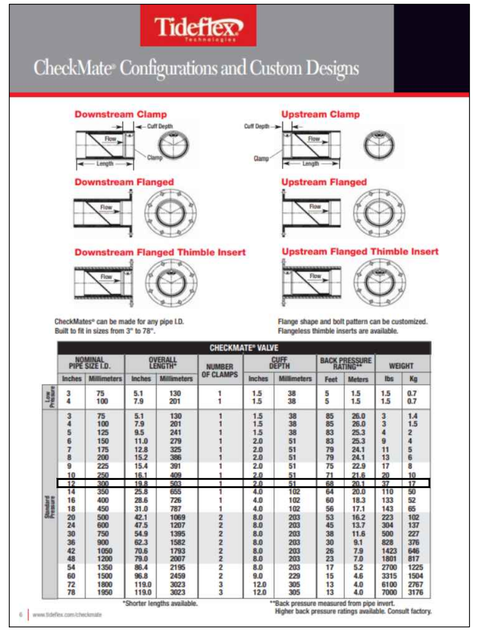
ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

FLARED END SECTION DETAIL

NOT TO SCALE



*Clamps are installed in the upstream or downstream cuff, depending upon the application.
The illustration above is shown clamped upstream.



CHECKMATE® VALVE

	NOMINAL PIPE SIZE I.D.		OVERALL LENGTH*		NUMBER OF CLAMPS	CUFF DEPTH		BACK PRESSURE RATING**		WEIGHT	
	Inches	Millimeters	Inches	Millimeters		Inches	Millimeters	Feet	Meters	lbs	Kg
Low Pressure	3	75	5.1	130	1	1.5	38	5	1.5	1.5	0.7
	4	100	7.9	201	1	1.5	38	5	1.5	1.5	0.7
Rated Pressure	3	75	5.1	130	1	1.5	38	85	26.0	3	1.4
	4	100	7.9	201	1	1.5	38	85	26.0	3	1.5
	5	125	9.5	241	1	1.5	38	83	25.3	4	2
	6	150	11.0	279	1	2.0	51	83	25.3	9	4
	7	175	12.8	325	1	2.0	51	79	24.1	11	5
	8	200	15.2	386	1	2.0	51	79	24.1	13	6
	9	225	15.4	391	1	2.0	51	75	22.9	17	8
	10	250	18.1	459	1	2.0	51	71	21.6	20	10
	12	300	19.8	503	1	2.0	51	68	20.1	37	17
	14	350	25.8	655	1	4.0	102	64	20.0	110	50
	16	400	28.6	726	1	4.0	102	60	18.3	133	52
	18	450	31.0	787	1	4.0	102	56	17.1	143	65
	20	500	42.1	1069	2	8.0	203	53	16.2	223	102
	24	600	47.5	1207	2	8.0	203	45	13.7	304	137
	30	750	54.9	1395	2	8.0	203	38	11.6	500	227
	36	900	62.3	1582	2	8.0	203	30	9.1	828	376
	42	1050	70.6	1793	2	8.0	203	26	7.9	1423	646
	48	1200	79.0	2007	2	8.0	203	23	7.0	1801	817
	54	1350	86.4	2195	2	8.0	203	17	5.2	2700	1225
	60	1500	96.8	2459	2	9.0	229	15	4.6	3315	1504
	72	1800	119.0	3023	3	12.0	305	13	4.0	6100	2767
	78	1950	119.0	3023	3	12.0	305	13	4.0	7000	3176

*Shorter lengths available.
**Back pressure measured from pipe invert.
Higher back pressure ratings available. Consult factory.

6 | www.tideflex.com/checkmate

BACKFLOW PREVENTER DETAIL

NOT TO SCALE

PENNONI ASSOCIATES INC.
One South Church Street, 2nd Floor
West Chester, PA 19382
T 610.429.8907 F 610.429.8918

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

GREENFIELD PARK SWM IMPROVEMENTS
GREENVIEW ALLEY & S. FRANKLIN STREET
WEST CHESTER BOROUGH, CHESTER CO., PA.

DETAILS & NOTES

WEST CHESTER BOROUGH PUBLIC WORKS
205 LACEY STREET
WEST CHESTER, PA. 19382

NO.	DATE	REVISIONS	BY

ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATES; AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

PROJECT	WCHBO00007
DATE	11-08-2021
DRAWING SCALE	NTS
DRAWN BY	PJK
APPROVED BY	CRP

CS1502

SHEET 02 OF 02

u:\Accounts\WCHBO\wchbo00007 - greenview alley gr\DESIGN_SHEETS\CS1502.dwg PLOTTED: 11/8/2021 3:31 PM, BY: Patrick Kane PLOTSTYLE: Pennoni-MCG.ctb PROJECT STATUS: —

PHASE II STORM WATER MANAGEMENT PROGRAM PUBLIC EDUCATION AND PARTICIPATION PLAN: QUESTIONS FOR DEVELOPING YOUR PLAN

PUBLIC EDUCATION COMPONENT

Who Are We Trying to Educate?	How Large is the Audience?	How Do They Receive Information?	What Organizations Focus on Them?	Strategies for Distributing Educational Materials to this Audience
Municipal Employees	How many departments/agencies address storm water-related issues in their responsibilities? **There are four (4):** Building & Housing (4) Public Works (30) Wastewater (16) Sustainability (1) How many employees are there in these departments? **Fifty-one (51)**	What publications do employees regularly receive (e.g., new employee orientation guide; employee newsletter; paycheck)? **Internal emails, memo notice board, SharePoint and monthly staff meetings.** What is the community website? www.west-chester.com Where are central information sources located at each government facility? **Website & SharePoint** When do staff meetings take place? **At least once per month**	What groups do local government employees belong to (e.g., unions; local watershed organizations; churches; special committees; nature centers; block clubs; etc.)? **All of the above, but primarily AFSCME Union**	• Use columns 2, 3, and 4 to determine the most appropriate ways to distribute information to a majority of the target audience. • **Newsletter** • **Emails** • **Website** • **Special Committees** • **Newspaper**

Who Are We Trying to Educate?	How Large is the Audience?	How Do They Receive Information?	What Organizations Focus on Them?	Strategies for Distributing Educational Materials to this Audience
Residents	What is the total population of your community? **Approximately 18,000** How many households are located within your community? **Approximately 5,000**	What is the most popular newspaper in your community? **Daily Local News** What newsletters do residents receive and how often? **Borough Newsletter and we are hoping every six (6) months** What libraries do people visit? **West Chester Public Library** What churches do people attend? **Various denominations of approximately 78 churches** Are there programs in place to reach new residents that move to your community? **Primarily website & effort by realtors along with neighborhood groups.**	What groups exist that target homeowners (e.g., homeowners associations; block clubs; neighborhood development associations; recreational groups; etc.)? **All of the above in addition to neighborhood groups, e.g.:** • **Friends of Veteran Memorial Park** • **Friends of Everhart Park** • **Friends of Marshall Square Park** • **Friends of Hoopes Park** • **Friends of Barclay Park** • **CASE (southeast residents' neighborhood group)**	• **Building & Housing informing developers** • **Daily Local News Newspaper** • **Borough Website** • **Storm Drain Labeling** • **Volunteer Group** • **Borough Newsletter** **In addition, by way of all these organizations meetings.**

Who Are We Trying to Educate?	How Large is the Audience?	How Do They Receive Information?	What Organizations Focus on Them?	Strategies for Distributing Educational Materials to this Audience
Schools	How many schools are located in the community? (Classify as elementary schools, High schools, Colleges and/or universities). **1 – University** **1 – High School** **1 – Elementary** What is the approximate student population at each of these schools? **University: 17,000** **High: 1,226** **Elementary: 800**	Which schools have newspapers and how often do they go out? **West Chester University & morning announcements at other schools** How often does the student body gather for assemblies? **As need, varies** When are guest speakers invited to visit the schools? **No set schedule**	What groups might students belong to at all levels (e.g., boy/girl scouts; 4-H Club; Junior Achievement; student councils; school environmental clubs; local chapters of environmental organizations; nature centers, etc.)? **All of the above in addition to West Chester Area School District and Archdiocese of Philadelphia.**	• **Primarily via Website** • **Emails** • **Individual School Boards**
Businesses	How many businesses are located within your community? **There are several hundred businesses in the Borough**	What newsletters specifically target local businesses? **BID (Business Improvement District), Daily Local News & Chamber of Commerce Newsletter** What newspapers and other periodicals do business owners subscribe to? **Various Newspapers & Periodicals including Daily Local News, News Magazines – time, Philadelphia Inquirer, etc.** What local programs/organizations work to recruit and retain new businesses in your community?	What groups or associations might businesses belong to or communicate with businesses (e.g., chamber of commerce; trade associations; rotary club; community foundations; small business associations; etc.)? **All of the above including:** • **Better Business Bureau** • **Chester County Art Association** • **Chester County Library** • **West Chester County Club** • **West Chester Community Center** • **Business Improvement District (BID)** • **YMCA** • **West Chester Area Senior Center** • **Chamber of Commerce**	• **Primarily via Website** • **Emails** • **Public Hearing** • **Chamber Newsletter** • **BID**

Who Are We Trying to Educate?	How Large is the Audience?	How Do They Receive Information?	What Organizations Focus on Them?	Strategies for Distributing Educational Materials to this Audience
Developers	How many developers and contractors work within your community? **There are numerous that work within West Chester** How many developers have submitted building permit requests? **Approximately 557 permits issued**	Where do developers go to get information on the community's development requirements? • **Building & Housing Department** • **Website** • **Daily Local News** • **Chamber of Commerce** What newsletters specifically target developers in your area? **Borough of West Chester and Building & Housing Webpage** What newspapers and other periodicals do developers subscribe to? **Home Builders Association and Chamber of Commerce**	What groups or associations might developers belong to or communicate with developers (e.g., chamber of commerce; trade associations; rotary club; community foundations; small business associations; etc.)? **All of the above including Home Builders Association and both Chamber of Commerce Delaware and Chester County.**	• **Advertisement in Daily Local** • **Delaware County Daily Times** • **Borough Webpage**

Stormwater Management

About the Borough's Stormwater System

In 2003, West Chester began a comprehensive stormwater management program mandated by the Federal Environmental Protection Agency (EPA) and monitored by the Pennsylvania Department of Environmental Protection (PADEP). The program is designed to manage stormwater, both by protecting water quality and by preventing high volumes of runoff from causing flooding in developed areas. Any municipality with a population of at least 5,000, including counties, must comply with the program. The Stream Protection Fee Program was implemented in 2017 as a way to comply with this mandate by raising revenue to comprehensively address stormwater management in the borough.

Water Pollution

Water pollution degrades surface waters making them unsafe for drinking, fishing, swimming, and other activities. As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that release pollutants into waters of the United States. Point sources can be pipes or man-made ditches that carry stormwater from the street level to the nearest stream.

When left uncontrolled, these discharges can result in fish kills, destruction of wildlife habitats, and contamination of drinking water and recreational waterways. Sediment from yard debris and construction sites can cause stream bank erosion, vegetation destruction, and flooding. It is therefore extremely important to recognize that individual actions can multiply the effect on water quality.

Factors to Pollution

Concentrated development in urbanized areas substantially increases impervious surfaces, such as streets, driveways and parking lots. These surfaces are the primary collector of pollutants until a rain washes them into nearby storm drains. Common pollutants include pesticides, fertilizers, oils, salt, litter, and sediment. Storm drains do not run to treatment plants. They empty directly into waterways.

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Protecting Water Quality

Because West Chester owns the stormwater conveyance system within the municipal boundaries, the responsibility lies with the borough to ensure that any water pollution entering the system is minimized to the fullest extent possible. The borough strives to protect water quality through:

- Education of residents, businesses, developers, and its own staff
- Use of Best Management Practices (BMPs) to reduce the discharge of pollutants into streams

For instance, a large component of the program is the requirement that the borough screens its stormwater outfalls for potential conditions of pollution and takes corrective action in the event a pollutant source is found.

Citizen Participation & Awareness

Another major component of the program requires an effort by the borough to increase citizen participation and awareness. It is important for West Chester's residents and businesses to be aware that increased stormwater runoff and pollution can occur from many different sources, and can cause a number of different problems.

Contact Us



Don Edwards
Director of Public Works

205 Lacey Street
West Chester, PA 19380
Office: 610-696-5282
Fax: 610-436-1383

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E-mail
Office Hours Monday-Friday 8:00 AM - 4:00 PM

Quick Links

- Chester County Conservation District
- Chester County Water Resources Authority
- Chester - Ridley - Crum Watersheds Association

View All Links

Government Websites by CivicPlus®

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Stream Protection Fee

Contact us anytime at SPF@west-chester.com or 484-887-2761.

Click here to pay your SPF assessment, check your balance, or obtain a receipt online

The Stream Protection Fee (SPF) Program was established by Borough Council via ordinance in June 2016 to provide a dedicated funding source for stream restoration and stormwater mitigation initiatives. Per the terms of the ordinance:

- The SPF is assessed annually on all developed property in the Borough, including parcels owned and occupied by government and non-profits
- Each property is assessed based on the impervious area (IA), originally measured in 2016 and updated on an on-going basis with newly available aerial imagery, and/or utilizing professionally-prepared plot plans submitted with building permits. Properties are reassessed following all real estate transactions
- Impervious areas include rooftops, parking areas, sidewalks and walkways, porches, decks, and patios – essentially any developed square footage
- The SPF rate is $6.70 per 1,000 square feet per month, however properties with less than 3,000 square feet fall into five billing tiers:

Tier 1	< 1,000 sqft IA	$40.20 per year
Tier 2	1,000 – 1,500 sqft IA	$100.56 per year
Tier 3	1,500 - 2,000 sqft IA	$140.76 per year
Tier 4	2,000 - 2,500 sqft IA	$180.96 per year
Tier 5	2,500 - 3,000 sqft IA	$221.16 per year

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Tier 6	3,000 sqft IA	$6.70 per 1,000 sqft per month

The SPF ordinance stipulates that funding generated by the SPF is eligible for the following expenses only:

- Implementation and management of a program to manage stormwater within the Borough
- Constructing, operating, and maintaining the Borough's stormwater management system
- Debt service for financing stormwater capital projects
- Payment of other project costs and performance of other functions or duties authorized by law in conjunction with the maintenance, operation, repair, construction, design, planning and management of Stormwater facilities, programs and operations-related regulations



This include repairs to stormwater infrastructure such as pipes, inlets, and outfalls which collectively comprise the Borough's MS4 or municipal separate storm sewer system; restoration of Borough streams and tributaries that convey stormwater from the MS4 into area waterways; and maintenance activities such as street sweeping and inlet cleaning, which are crucial in keeping the stormwater system functioning properly; as well as requisite outflow testing, reporting, and stormwater pollution-mitigation strategies required by state and federal regulations.

Reducing your Stream Protection Fee

Stream Protection Fee Appeals
Property owners that believe their IA measurement is incorrect are welcome to file an appeal. Prior to doing so please review the SPF Appeal Manual.

Click here to submit an Appeal application

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Stream Protection Fee Rebate & Credit Program

Property owners are encouraged to install and maintain stormwater “best management practices” or BMPs that tangibly reduce stormwater runoff, or reduce the rate of stormwater runoff, from their property. One-time rebates and ongoing credits have been established to incentivize these efforts and help reduce annual SPF assessments. Prior to submitting a rebate or credit application please review the Residential Credit & Rebate Manual or the Non-Residential Credit & Rebate Manual.

Click here to submit a SPF appeal, credit or rebate application.

Nonpayment

Per the terms of the SPF ordinance, unpaid assessments will be referred to the Borough's collections agency Portonoff Law Associates with 1.5% per month late fees, and may ultimately result in a property lien. Once a delinquent balance is referred to Portonoff property owners must work with Portonoff to resolve, though the assessment for the current year will remain payable to the Borough until January of the following year.

SPF Documents and Reports

West Chester Borough MS4 Map 2021
West Chester Borough Piped Streams Map 2021
West Chester Borough MS4 Status Report 2022
Goose Creek PRP 2018
Goose Creek TMDL Strategy 2018
Brandywine Creek - Blackhorse Run - Taylor Run PRP 2018
DEP Factsheet - Management of Cleaning Waste Water

Government Websites by CivicPlus®

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Stream Protection Fee

2023 Update

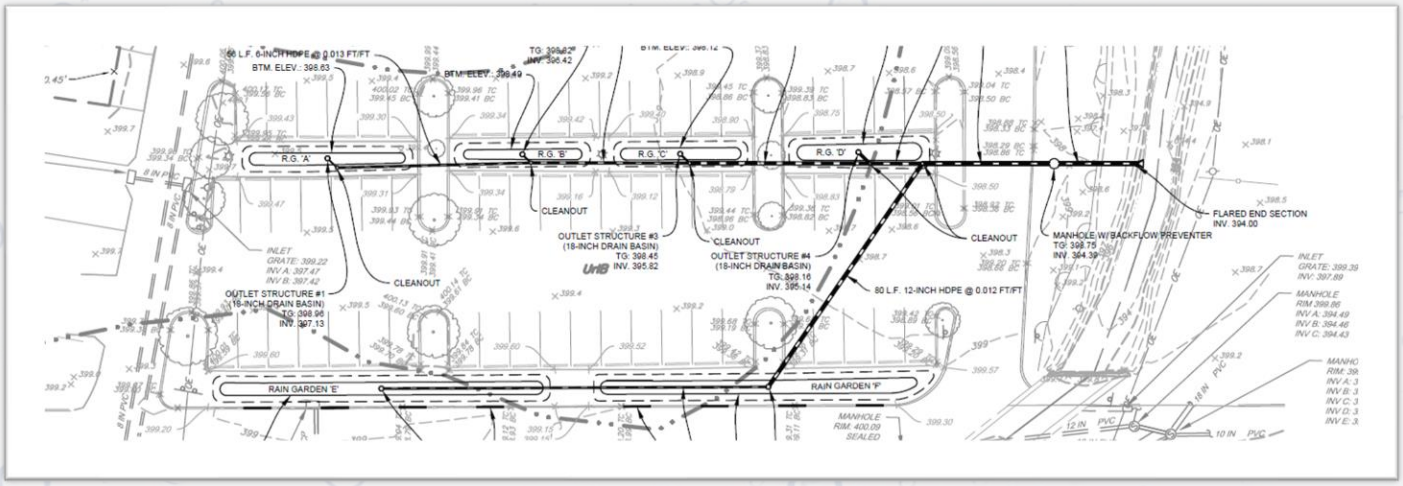
West Chester Borough

Established in 2016, the Stream Protection Fee (SPF) provides a dedicated funding source for stormwater management and stormwater regulatory compliance for the Borough's municipal separate storm sewer system or "MS4". This includes maintaining and replacing existing elements of the MS4 (consisting of 23 miles of underground stormwater conveyance lines, 865 inlets, 175 manholes, and 54 outfalls), investment in new infrastructure to better manage stormwater while reducing pollutant loads, maintaining required MS4 permits, and regulatory reporting to the PA Department of Environmental Protection (DEP). More info about the SPF can be found at www.west-chester.com/SPF.

Project & Grant Updates

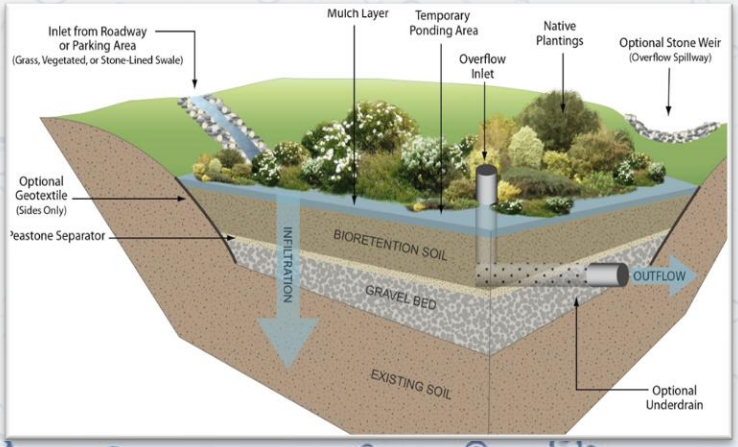
Greenfield Park Stormwater Improvements

Six rain gardens, green stormwater infrastructure designed to collect, infiltrate, clean, and slowly discharge stormwater upstream of flood-prone areas, have been installed in the parking lot and along South Franklin Street. Many such projects are necessary to help alleviate flooding of Goose Creek and for the Borough to meet DEP-mandated stormwater quality improvement goals imposed over the last decade. This project was funded primarily with a grant from the Chester County Conservation District, with supplementary funding from the Borough's Stream Protection Fee. Please note the rain gardens will be landscaped in Spring 2023.



Adopt-a-Rain Garden

With the additions at Greenfield Park the Borough now has 18 rain gardens. These projects aren't just gardens, they capture and hold stormwater runoff during heavy precipitation events, slowing the release of water to flood-prone waterways. Some of the water infiltrates into gravel and soil beneath the garden, and sediment and pollutants settle out or are filtered by hardy plants. They are a critical piece of West Chester's DEP-mandated stormwater quality improvement plans, and help mitigate flooding downstream from their construction.



You can get involved in the Borough's rain gardens and keep them looking their best. Volunteers will be involved in plant selection, planting, and light garden maintenance, and most importantly making sure the infrastructure is working as intended.

Learn more and volunteer at www.west-chester.com/SPF

Stream Protection Fee

2023 Update

West Chester Borough

Goose Creek Cleanup

Borough staff walked the Goose Creek watercourse within the Borough, mapping obstructions like debris and fallen trees, which were then removed by the Public Works department.

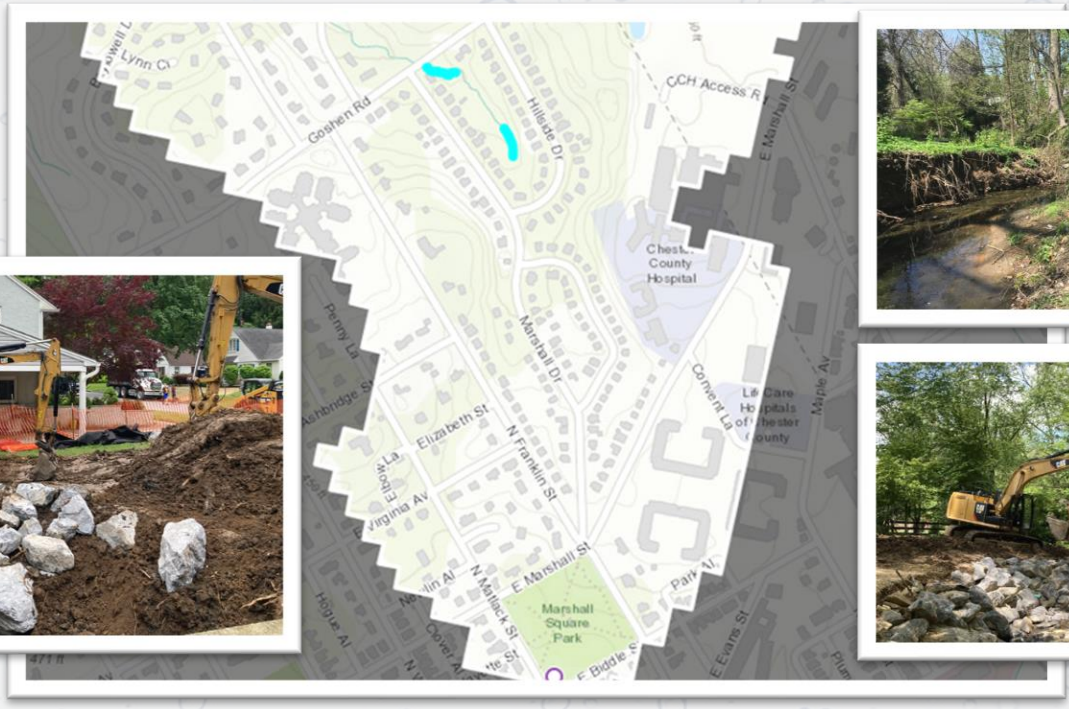


Goose Creek receives stormwater from 755 acres, much of which is impervious, prior to exiting the Borough at Mosteller Park. Though these types of obstructions do not cause the flooding in Goose Creek watershed, they obviously do not help, so this clean up work is completed on a routine basis.

Stream Restoration Work

A project to restore streambanks immediately downstream of a stormwater outfall and upstream of a culvert, both components of the Borough's MS4, was completed this summer. This infrastructure handles stormwater runoff from hundreds of properties north of Marshall Square Park, ultimately flowing to Taylor Run, then the Brandywine Creek.









Street Trees

Every year over 100 new street trees are planted to maintain West Chester's urban canopy. But street trees also provide stormwater benefits by absorbing stormwater and acting like an umbrella over impervious surfaces. Residents may request a free street tree, and receive a $50 rebate towards their SPF, by emailing SPF@west-chester.com. Suitable locations are located on grass between roads and sidewalks, or in existing, empty tree wells, with good clearances from underground utilities (water, sewer, gas), buildings, and overhead power and telecom lines. As a reminder, extensive pruning or removal of street trees requires a permit from the Borough.

Walk-in Appeal Workshop

Do you feel your property is improperly assessed? You can submit an appeal at www.west-chester.com/SPF, or stop by the following dates and times to review with Borough Staff – no appointment or application necessary.

Wednesday Jan. 11th 1:00–6:00pm **Friday Jan. 13th 7:30 am–Noon** **Tuesday Jan. 17th 1:00-6:00pm**

This meeting is being audio recorded for the public record.

Public Works Committee

Date: **December 13, 2022, 6:00 PM**

Committee Members Present: Patrick McCoy – 1st Ward (Chair)
Bernie Flynn – 6th Ward
Sheila Vaccaro – 5th Ward

Department Heads Present:
Don Edwards, Director Public Works
Will Williams, Sustainability Director
Sean Mitchell, Superintendent Goose Creek Treatment Plant

Borough Manager: Sean Metrick

****

1. Call to Order - meeting was called to order at 6:00PM

2. Comments, suggestions, petitions by residents in attendance regarding items not on the agenda.
    - Joan Walsh of West Chester University and a resident at S. Walnut Street wanted to go on record condemning the action of trees removed at the Burger King property at 410 S. High Street. She received a grant at WCU and created a database of street trees. The property owner removed trees, and, in her opinion, it affects the quality of life to Borough residents. We need to improve the tree ordinance. Ms. Walsh is asking that the Borough reaffirm support. Karen Slossburg, Tree Commission member and a resident of Price Street echoed Ms. Walsh's sentiments. We lost storm water management. Please consider modifying and strengthening the ordinance. Mr. Flynn stated while it was an atrocity Council does not have any control on private property. Ms. Slossburg stated the Shade Tree Commission used to receive Development plans and wants to close the loop on that process. Mr. Flynn stated the Tree Commission needs to bring the ordinance back to Council but reminded everyone to tread lightly with trying to legislate private property.

3. a) Discussion items – Departmental Reports

    - Public Works
        - Don Edwards, Public Works Director, summarized Public Works progress with regards to contract bids, leaf collections and a letter to the DEP regarding assistance with Goose Creek flooding. The work-order system is almost ready for kick-off. Mr. Edwards also feels we can work on incentives to property owners to preserve trees.

- Wastewater Report
    - Mike Findley, Taylor Run Superintendent, stated that the employees continued with all Fall/Winter maintenance. Goose Creek repaired the auger and all generators have been serviced. Both plants are working with Penn State regarding Covid testing three times a week (through Summer of 2023) and sent to a private lab at no cost to the Borough. Wastewater will update Council periodically with results. Mr. Flynn explained that sewer treatments plants across the US are tracking Covid. While they can't tell which individual residents/businesses the samples are coming from, they can track townships/municipalities general areas.

- Recreation Department Discussion
    - Keith Kurowski, Director of Parks and Recreation Dept. stated the parades are done for the year. The equipment at Everhart Park is back up and running 100%. All equipment issues have been resolved with the manufacturer and installer. Starting to review events and park needs for 2023.

- Engineer's Report
    - Will Williams, Sustainability Director, stated that the focus is on the PennDOT High Street project. The Borough will be losing approximately eight parking spaces, but in the gran scheme the focus is to improve pedestrian safety. There are concerns with the 7-11 parking lot and they are working on a plan. The bid should go out next year in 2023 and hopefully construction will begin in 2024. Randy Waltermyer from TPD will be presenting on the Gay Street closure at the Council Worksession Meeting on December 20, 2022. Mr. Flynn asked the status of the Giant pedestrian crosswalks. Mr. Williams stated that it is a joint project with E. Bradford, and he hopes to have more information in the upcoming weeks.

    - He is still working with Pennoni on the Borough roof assessment. We should have recommendations in January 2023 on whether or not we need a full replacement or just major repairs. Greenfield Park rain garden project is proceeding nicely. These rain gardens were through a grant. We hope to be submitting more grant applications next year.

    - She also asked about bump out on the 500 and 600 block of Price Street. Mr. Williams said he can look into those as future projects.

b) Goose Creek Alliance

- Mike Dunn spoke about the Goose Creek Alliance and they have for the past few years been working on building alliances with multiple municipalities. Mr. Flynn asked how many municipalities they have spoken to and Mr. Dunn stated two: Westtown and West Goshen. Most of the areas f improvement are in West Goshen. Dr. Megan Fork, professor at West Chester University spoke as an Urban and Fresh Water Ecologist stating that we need to get water infiltrated as close to the source as possible. As a result, we need to work closely with our neighbors. Mr. Dunn asked the Borough to share the cost of the total project blueprint with West Goshen at approximately $42,000. PRP Credits are an option. Mr. Flynn stated we need to continue this discussion since budgets for 2023 are completed. Mayor DeBaptiste said we need to stop talking about this issue and start working on it. Mr. Flynn stated that 3 years ago we met with West Goshen, PennDOT as well as state and federal representatives. A study was supposed to be performed in conjunction with West Goshen and sent to the state. Ms. Vaccaro asked if the County could assist. Mr. Dunn stated the County is aware, but nothing has been done. He stated you have more success with grants if you partner and there is a joint effort.

c) Discuss charging contractors a fee for staging equipment in the streets and at Snyder Avenue.

- Mr. Edwards explained that the Borough does not charge contractors to stage equipment and supplies on our streets or in the Borough. He does not have a dollar figure in mind, but we need to consider charging a fee. Mr. Flynn said he supports it but should go to the Finance Committee to discuss.

b) Action items

- Bids
    - Street/Traffic Signs awarded to Garden State
    - Materials awarded to Glasgow and New Enterprise
    - Emergency Contractor- awarded to DiRocco
    - Rain Gardens awarded to Arche Wild
    - Shade Tree Planting awarded to Arche Wild
    - Traffic Signal awarded to Signal Service
    - Shade Tree Maintenance – talk to solicitor
    - Custodial Services awarded to Golden
        - Approved with a vote of 2 - 0

- Approve November 2022 meeting minutes (attachment)
    - Approved with a vote of 2 – 0

4. Other Business

- Dale Frens of W. Miner Street, representing the Shade Tree Commission is concerned about awarding the tree maintenance contract to McIlvaine. The pruning photos they have on their website are not to standards. They also have a lot of negative references. Mr. Frens feels the Borough is hell bent on saving a few dollars going with the lowest contractor. His recommendation is one of the following three options: 1) approve two contracts and issue work orders to the contractors to monitor their responsiveness and performance; 2) add language to the RFP to be able to reject the low bid on basis of qualifications; 3) Reject all bids and use stronger language in RFP. The Tree Commission feels it should review the RFP before it goes out to bid. We feel we are attracting "bottom feeders" and maybe should do a two-step qualification bid. Mr. Flynn stated that the tree commission and the consulting arborist aren't impressed with this contractor. Ms. Vaccaro asked Mr. Edwards his opinion. Mr. Edwards said their references raved about their performance and they went back to the RFP before the bid and added an arborist needs to be on-site. Mr. Edwards said he was not sure of the legality of two contracts. Mr. Metrick said there would be issues
  and he would need to have the solicitor weigh in on two contracts.

- Removal of Adopt-a-Block signs
  - No discussion because no representation from WCU

5. Adjourn 7:15 PM

This meeting is being audio recorded for the public record.

Public Works Committee

Date: **January 10, 2023, 6:00 PM**

Committee Members Present: Patrick McCoy – 1st Ward (Chair)
Bernie Flynn – 6th Ward
Sheila Vaccaro – 5th Ward

Department Heads Present:
Don Edwards, Director Public Works
Will Williams, Sustainability Director
Sean Mitchell, Superintendent Goose Creek Treatment Plant

Borough Manager: Sean Metrick

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1. Call to Order - meeting was called to order at 6:00PM

2. Comments, suggestions, petitions by residents in attendance regarding items not on the agenda.
    - Keith Kurowski, Parks and Recreation Director along with Victoria Dow addressed the committee regarding approval to apply for a grant for Story Walk. Larger than life pages of a book are put on a pedestal in the park to promote literacy and exercise. The stories are short, roughly 16 pages. The Borough would provide the installation labor and the grant would cover all materials. While a park has not been determined Everhart Park said they would host, but Mr. Kurowski said he would be open to all parks offering to host but the commitment is for three years. Victoria Dow, Director West Chester Public Library stated that it is federal money administered by the Commonwealth. Unfortunately, the deadline for filing the grant is January 20, 2023, so we are asking Council to quickly approve.

      There is a story walk at the Exton library and it has been well received. Ms. Vaccaro expressed concern because the deadline was tight. Mr. Metrick suggested they submit the grant, and the Borough can post-date the resolution. Mr. Metrick asked how many posts, has a book been selected, how are these pedestals anchored, etc. Ms. Dow explained that no book has been selected, but they will make sure the selection appeals to 95% of the people and will most likely be related to nature. Ms. Dow also said the representative from Chester County Library informed her that the frames have been holding up really well. Mr. Metrick said he would like a plan and to have legal review. Ms. Vaccaro stated that while she supports the idea that is seems rushed and she supports the idea of a plan. Mr. Flynn stated that he supports

and suggests Hoopes Park since the two historic parks (Marshall Square and Everhart) already have attractions. Mr. Flynn also stated that Public Works could probably install this in a day with their staff. Also, he feels this should go to the entire Council, not just the committee to weigh in on the story content, keeping track of equipment, maintenance, etc. Mr. McCoy asked Ms. Dow if she could submit everything including the book to the Council Worksession next Tuesday, January 17, 2023. Ms. Vaccaro asked how often the books would be changed out and Ms. Dow said twice a year: Spring and Fall.

- Discuss at Worksession vote of 3 – 0

3. a) Discussion items – Departmental Reports

- Public Works
  - Don Anderson, Public Works Assistant Director, summarized the Public Works report. He explained they had a meeting on snow removal for the upcoming season. Also, a committee was established including Parking and Police to discuss the process, safety and removal of snow. The leaf collection removal program just ended. It is a 6-week program alternating quadrants. A quick analysis and Public Works collected approximately 3,500 cubic yards of leaves. We started collecting Christmas trees from residences; last year we collected over 600 trees. Mr. McCoy asked what we do with the leaves and trees. Mr. Anderson explained they get stored at Snyder Avenue and then mulched by an outside company. Mr. Flynn inquired about FEMA reimbursement, the John O'Green bathrooms and the collaboration with WCU on sustainability and John O'Green Park. Mr. Anderson said he didn't have any updates and was not familiar with the collaboration with WCU.

- Wastewater Report
  - Mike Findley, Taylor Run Superintendent, stated that the employees continued with all Fall/Winter maintenance. A shaft snapped and it is vital to Taylor Run operations. The repair cost is approximately $32,000. Goose Creek has had four pump stations cleaned and inspected. The electrical issue at College Avenue pump station has been repaired. The scum arm on the primary tank failed and was repaired in house.

- Recreation Department Discussion
  - Keith Kurowski, Director of Parks and Recreation Dept. stated the last two events for 2022 were a success: breakfast with Santa and Santa at the Square. Santa at the Square had a couple 100 people before a quick storm came through and emptied out the park. Next year we will consider a rain date. The Recreation plan will be started this year. Mr. Kurowski expressed delight in being able to put emphasis back into the parks.

- Mr. McCoy stated the Capital Plan shows a potential disc golf and bocce courts and was curious if location had been determined. Mr. Kurowski stated it is still in the planning stages and park selection has not taken place. He also stated that historically Recreation has concentrated on youth activities, but he is looking into adult activities. Mr. Flynn inquired about the tennis courts and their needed repairs. Mr. Kurowski stated aside from some patching it is not an easy fix. He is looking to put the courts on the Recreation Plan.

- Traffic & Engineering Reports
  - Will Williams, Sustainability Director, wanted to emphasize three projects: stated that the focus is on the High Street/Miner improvements, PennDOT High Street project and Green Light Go. We are waiting to resubmit the High Street/Miner proposal. We are expecting to receive the approved permit and start the project in the Summer near Dia Dolce Cupcakes at 100 S High. Green Light Go is proceeding smoothly which is to install fiber optic cable infrastructure and the Borough has requested a six-month extension on the grant. The PennDOT project on High Street is a joint effort and PennDOT is spending $2 million to replace sidewalks, curbing, lights, etc. however, replacements are like-to-like.

  - The Goose Creek Stormwater Project is completed, and the contractor is demobilizing. We are in the planning process of the landscaping which will take place in the Spring. The Downingtown Pike/Bradford Avenue Pedestrian Crossing is back on track. We might have a change order, but we should still come under budget. Mr. Flynn asked if the change order was because of material cost and not because of their low bid. Mr. Williams explained the change order would be related to the sidewalk as it needs to curve around further than anticipated as well as a retaining wall needs to be built. Two grant applications were sent in for over $2million for both wastewater plants. Unfortunately, we will not hear back for approximately 8-9 months. Lastly, final analysis has been performed on the roof at 401 E. Gay Street. The estimated cost is $426,000 to repair the water damage, drainage and includes a 25-year warranty. A bid package will be put together in February. Mr. McCoy inquired about the Zukin Hotel and Mr. Williams stated he would need to ask Mr. Gore.

b) Action items

- Approve the joint bid with the CCIU to provide fuel to both Wastewater plants.
    - Mr. Findley explained that the Borough has been a member of this consortium for 8-years. We lock in and get the best price on fuel for both Goose Creek and Taylor Run.
        - Approved with a vote of 3 - 0

- Approve December 2022 meeting minutes (attachment)
        - Approved with a vote of 3 - 0

4. Other Business

    - None

5. Adjourn 6:47 PM

This meeting is being audio recorded for the public record.

Public Works Committee

Date: **February 7, 2023, 6:00 PM**

Committee Members Present: Patrick McCoy – 1st Ward (Chair)
Bernie Flynn – 6th Ward
Sheila Vaccaro – 5th Ward

Department Heads Present:
Don Edwards, Director Public Works
Will Williams, Sustainability Director
Sean Mitchell, Superintendent Goose Creek Treatment Plant

Borough Manager: Sean Metrick

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1. Call to Order - meeting was called to order at 6:00PM

2. Comments, suggestions, petitions by residents in attendance regarding items not on the agenda.
    - None

3. a) Discussion items – Departmental Reports

    - Public Works
        - Don Edwards, Public Works Director, summarized the Public Works report. He explained they had a kick-off meeting with a company that will provide free grant writing service to the Borough. The list of streets has been compiled and we are starting to get ready for the bid process for the 2023 street paving project. Once the list of streets is formalized PW will make a presentation to Borough Council. PW has been briefed on the Harmony 5 Project and again when we receive more concrete information we will inform Council. Finally, we are working with the Willistown Conservation Trust to start the lawn conversion project. Councilperson McCoy asked how PECO & AQUA pave the roads they disrupt. Mr. Edwards explained that it varies: sometimes they pave to the standards or in lieu of paving they provide the Borough with money and we apply those funds to the road paving project in conjunction with the Liquid Fuel Funds.

    - Wastewater Report
        - Sean Mitchell, Goose Creek Superintendent, stated that the Taylor Run Plant s rebuilding the sludge pumps. They just finished rebuilding the scrum mixer. At Goose Creek there was a seal failure at the Worthington Street Pump Station. We repaired the seals and bearings in-house at minimal cost. With

the assistance of the IT Department fiber optic cables were pulled through and installed. This enables Goose Creek to be more up-to-date and assists with remote monitoring of storm issues at pump stations. The DEP likes to see these upgrades as it makes the plant run more efficiently. Councilman Flynn asked how the plants were doing with staffing. Mr. Mitchell stated that Goose Creek made an employment offer and if accepted will be at full staff. Taylor Run is currently interviewing for two open positions.

- Recreation Department Discussion
    - Keith Kurowski, Director of Parks and Recreation Dept. stated that Dec thru February is traditionally when the departments plans the groundwork for the upcoming year. He has had a request, and monies were budgeted, for more adult activities like disc golf, pickle ball, etc. He is working on a Recreation/Master Plan for the Parks with Mr. Metrick. Councilman McCoy asked for a status on the John O'Green bathrooms. Mr. Kurowski said he is still seeking quotes and only McGovern has come in so far. Mr. McCoy also asked in the disc golf idea would interfere with the Story Walk Plans. Mr. Kurowski stated it shouldn't interfere because of location. Councilwoman Dorsey asked if there had been any discussions with the Friends of Hoopes Park regarding disc golf. Again, Mr. Kurowski stated the disc golf plan has been discussed with the Friends of Hoopes Park.

    - Councilwoman Vaccaro stated she has been in parks with disc golfs and never ran into any issues and doesn't feel there are any safety concerns. Mayor DeBaptiste spoke and as questioning the parking lot area. Keith explained that parking lot was located at the ball field. The Mayor claimed they park everywhere but the parking lot. Keith said to move the parking lot would not be an option. Cars can park legally on the street, but not on the grass. The Mayor feels we need to address the parking issues. Mr. McCoy stated this is another good reason for the Parks and Recreation Master Plan.

- Traffic & Engineering Reports
    - Will Williams, Sustainability Director, stated there was a kick-off meeting with Remington Vernick Engineers to work on the MS 4 and TMDL strategy and reporting. They will also be responsible for the stormwater BMP inspections and SPF credits and the High Street/Miner streetscape improvements that the PennDOT plan doesn't include. They will handle the grant related process for this project going forward. We are in the process of finishing up the Greenfield Rain Gardens and will be closing out that grant with the DCNR. We are on pace to start repairing the Borough roof. We continue to work with Pennoni on the Downingtown Pike crosswalk project and it should resume in the next month. Mr. Flynn asked if we are

repairing the entire roof or just a portion. Mr. Williams explained that only a small portion of the roof has extensive damage so that will be repaired, but the entire roof is being re-roofed with a 25 years warranty. Mr. Flynn inquired about solar panels on the roof and Mr. Williams explained not at this present time due to funds. He did say they were examining potential solar in the parking lot and mentioned the incentives from the IRS, etc. are no longer available.

4. Action items

a) a) Approve participation in the 2023 Household Hazardous Waste Collection program. (attachments)

- Mr. Williams explained that historically we participate so that Borough residents can go to any of the events. The cost is divided by the municipalities and the County files a grant to reimburse each municipality up to 50% of the costs.
  - Approved with a vote of 3 - 0

- Approve January 2023 meeting minutes (attachment)
  - Approved with a vote of 3 - 0

4. Other Business

- None

5. Adjourn 6:36 PM

This meeting is being audio recorded for the public record.

Public Works Committee

Date: **March 7, 2023, 6:00 PM**

Committee Members Present: Patrick McCoy – 1st Ward (Chair)
Bernie Flynn – 6th Ward
Sheila Vaccaro – 5th Ward

Department Heads Present:
Don Edwards, Director Public Works
Will Williams, Sustainability Director
Mike Findley, Superintendent Taylor Run Treatment Plant

Borough Manager: Sean Metrick

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1. Call to Order - meeting was called to order at 6:01PM

2. Comments, suggestions, petitions by residents in attendance regarding items not on the agenda.
    - None

3. a) Discussion items – Departmental Reports

    - Public Works
        - Don Edwards, Public Works Director, summarized the Public Works report. He highlighted the Borough will be planting 100 trees in the Spring. The list of roads for the paving project has been creates. Alleys are not eligible for the Liquid Fuel Tax (LFT) funds unless they are wider than 15 feet. Credit to Don Anderson for showing Mr. Edwards the index card library in PW w/alleys, so we can consider paving one mile of alleys this summer. Mr. McCoy questioned does the borough pave High Street or does PennDOT. Mr. Edwards said he is waiting on a response from the email he sent to PennDOT. The Public Works Supervisors experience was used to select the roads for the 2023 paving project. We expect the project to utilize approximately $500,000 of LFT. Once the list is finalized we will place the paving project out to bid. Mr. Flynn questioned the graphics showing Spruce Alley and Mr. Edwards stated it was not Spruce Alley but actually Union Street.

- Wastewater Report
    - Mike Findley, Taylor Run Superintendent, stated that the Taylor Run employees inspected and repaired pumps. Completed the PA DEP lab accreditation licensing. Goose Creek performed preventive maintenance on all pumps. The polymer mixer motor has been replaced, along with a rotor and stator on a sludge recirculation pump. The mixing tank of the soda ash system was cleaned out and had a few pieces of pipe replaced.

- Recreation Department Discussion
    - Keith Kurowski, Director of Parks and Recreation Dept. stated that event season is quickly approaching. The Easter egg hunt will more of an event this year instead of just looking for eggs. Also 2023 will be the 40th anniversary of the Turks Head Music Festival. The RFP for the Parks & Recreation Master Plan is almost ready to be submitted. It will involve a lot of public input. The Disc Golf project is still being looked into and it is a creative way to use the under utilized parks. Mr. Kurowski visited four parks in the area that currently have disc golf courses and most of the feedback has been positive. Hoopes Park wants to add a non-invasive all native garden in an under utilized section. Mr. Kurowski is trying to work with the Park Friends Groups to make the Borough parks more user friendly.

      Mr. Flynn asked the status of the Storybook Grant and Mr. Kurowski explained the Borough was not a recipient of the grant, so that project will not be happening this year. Lisa Dorsey said a few residents around Hoopes Park are concerned about the Disc Golf. They would like to wait until Master Plan is completed before installing in Hoopes. MR. Flynn stated that none of the discs will be going towards any of the homes so they will not create a hazard. Patrick McCoy stated he is in favor of waiting on the plan. Sheila Vaccaro stated she appreciates all of the efforts and understand respecting the residents, but feels this resistance is because it is something new. Ms. Vaccaro said she is excited for new ideas at the parks especially for teenagers and adults. She feels the parks shouldn't just be for dog walkers and small children.

      Lilian DeBaptiste, Mayor, spoke and agrees with Ms. Dorsey. She agrees we need more activities, but we need to wait until the Master Plan is completed and activities need to be evenly distributed around the Borough Parks. Hoopes Park baseball field was poorly planned in her opinion as balls get hit into her yard and cars park along her street rather than the parking lot.

- Traffic & Engineering Reports
    - Will Williams, Sustainability Director, stated the Borough received multiple bids for the roof replacement at Borough Hall. Three new grant applications are underway for pickleball/tennis court restoration, Taylor Run Stream Restoration project along Hannum Avenue and the Gay Street Open Air Market CRP – Phase 1 grant. The Downingtown Pike ARLE project change order has been received and we are getting close to the end of this project. The High and Miner Street project bid package is still under review. The hope is this project will be awarded next month. The Borough is transitioning Stormwater including BMP inspections and Illicit Discharge from Gilmore Associates to Remington Vernick and it is going smoothly. Remington Vernick is also pricing the upgrades not covered by PennDOT for the High Street Project and the Land Development Reviews.

      The Green Light Go Project is nearing completion. Mr. McCoy asked if the High Street Project included the brick sidewalk, granite curbing, lighting and other aesthetic requirements. Mr. Williams said yes, the engineering company is costing that out and hopefully the Borough can go back to PennDOT and possibly WCU to assist with the costs and we are even pursuing some grant options. Mr. Flynn stated the current ARLE site is dangerous and noted the orange fencing is falling down. Mr. Williams stated he will have it addressed within 48-hours.

4. Action items

a) Approve awarding the bid for the Roof Replacement to ARC Roofing for $748,225. (attachments)
    - Mr. Williams stated to please keep in mind that this is the first time we have bid using the responsible contractor bidding process. This cost is 50% over what was originally anticipated. Costs and materials have increased exponentially, but the roof needs to be repaired. A majority of the funds will be from the American Rescue Plan Funds.
        - Approved with a vote of 3 – 0

b) Approve awarding the bid for the 2023 Landscaping contract to JHL Landscaping for $47,710
    - Mr. Edwards explained there were eight bids and JHL was the lowest bidder. The recommendation is to award the 2023 mowing contract for unit price in bid to JHL. Mr. McCoy asked why the contract was $20,000 less than the previous contract. Mr. Edwards stated that the scope of the work changed from the previous bid. The two wastewater plants were not included

in the bid. The wastewater plants will be included in the lawn conversion project. Plus we enhanced the bid with mulching two times in the contract. Ms. Vaccaro asked if the mowing could not be performed when an event is occurring. Mr. Edwards stated that can be coordinated by Mr. Kurowski. Mr. Flynn requested that they slow down when mowing and was happy to see wastewater being part of the lawn conversion project. Mr. Beitel, E. Biddle Street questioned the bid said $0 for mulching and Mr. Edwards stated the Borough will not pay for mulching.

- Approved with a vote of 3 – 0

c) Approve awarding the bid for the 2023 Wastewater Soda Ash to Univar

- Mr. Edwards stated that three bids were received to supply soda ash to the wastewater plants and Univar was the low bidder. It was recommended to approve the bid.
- Approved with a vote of 3 - 0

d) Motion to approve proposed park improvements at Hoopes Park

- Mr. Kurowski explained that the Friends of Hoopes Park want to install an Owl Box, a Bat box and a flower meadow at Hoopes Park. The Friends will pay for everything, including the installation. Mr. Flynn asked about the Meadow and Mr. Kurowski stated the flowers would be native and non-invasive. They would also fence the meadow to protect it and prevent mowing.
- Approved with a vote of 3 – 0

e) Motion to approve the Friends of Marshall Square Park's plans for tree planting Spring 2023

- Mr. Kurowski explained that the Friends of Marshall Square Park would like permission to plant 11 trees this Spring, nine of which are replacements for trees that were lost due to disease or storms. Anne Walters, E. Biddle Street stated that the ask if for 13 trees. The Friends of Marshall Square Park will pay all costs involved. The only ask of the Borough is to borrow gator bags for the watering.
- Approved with a vote of 3 – 0

f) Motion to approve extension of Chestnut Street Garage Pollinator Garden

- Mr. Williams spoke on behalf of John O'Brien from BID who could not attend. The BID is asking to extend the pollinator garden at Chestnut Street Garage. The BID is requesting that Public Works remove and dispose of the old plants in Law Alley. The BID will pay for all new plants, and they will host a volunteer day to plant the new ones.
- Approved with a vote of 3 – 0

g) Approve Goose Creek cleanup March 25, 2023

- Donald Anderson, Assistant Public Works Director, explained the Borough has participated in the clean up for over 15 years. Courtney Finneran is the lead and coordinates the operation with the CRC (Crum Creek Watershed). Public Works has supplied the trash truck and two people to pick up the bags and debris the volunteers pull from the creek.
  - Approved with a vote of 3 – 0

h) Approve February 2023 meeting minutes (attachment)

- Approved with a vote of 3 – 0

5. Other Business

- Jeff Beitel, Tree Commission, presented the Annual Tree Report. Mr. Beitel stated that the Borough has control over the trees in the Right-of-Way, but would like to work with the Borough via the ordinance to save heritage trees on private property. The Tree Commission has been actively trying to plant new trees throughout the Borough. He feels the Borough needs to plant early and water often. He is hopeful a better watering plan will be established. The Borough is losing a lot of its tree canopy because of age, disease, vandalism, accidents, etc. We would like more educational outreach and look to the Borough for funds. The Tree Commission is all volunteer and has 7 members. We are asking to increase the Commission to 9 members to assist with activities and quorum.

  We also would like to assist with a better running program. We need to push Town Center to remove dead trees and replant. Mr. Flynn suggested to reach out to Mr. Metrick regarding funds that are set aside for committees. Mr. Flynn stated he feels the Market Street trees need attention. Mr. McCoy asked if planting locations were selected. Mr. Beitel stated tree replacements are first on the list than request and finally open tree wells. The commission is looking into open tree wells as some locations are impossible due to utilities. Mr. Beitel stated the goal is to maintain 200 new plantings a year to build the canopy back up. The Tree Commission hopes to work with the Public Works Director and Council to increase the budget because we a losing ground in the Borough. Mr. McCoy asked if any members had an issue with increasing the tree commission volunteers from 7 to 9. Mr. Metrick said it would require an ordinance change. Mr. Flynn recommended they concentrate by quadrant. Mr. Darryl Cook, S. Walnut Street, asked if there are any credits give to Heritage trees. Mr. Beitel stated there are some credits through the Stream Protection Program. Mr. Flynn stated not for Mr. Cook's street tree.
  - Recommendation to approve the number of members approved 3 – 0 to move to Council Work session

6. Adjourn 7:15 PM

This meeting is being audio recorded for the public record.

Public Works Committee

Date: **April 11, 2023, 6:00 PM**

Committee Members Present: Patrick McCoy – 1st Ward (Chair)
Bernie Flynn – 6th Ward
Sheila Vaccaro – 5th Ward

Department Heads Present:
Don Edwards, Director Public Works
Don Anderson, Asst. Director Public Works
Will Williams, Sustainability Director
Sean Mitchell, Superintendent Goose Creek Treatment Plant
Keith Kurowski, Director Parks & Recreation (absent)

Borough Manager: Sean Metrick

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1. Call to Order - meeting was called to order at 6:00PM

2. Comments, suggestions, petitions by residents in attendance regarding items not on the agenda.
    - None

3. a) Discussion items – Departmental Reports

    - Public Works
        - Don Edwards, Public Works Director, summarized the Public Works report. He highlighted the bidding documents for the 2023 Paving Project have been submitted to PennDOT for review. We expect their response in the next week and then we can go out to formal bid. All preparations are under way for the Gay Street Closure season. Preparations to start planting at the end of April for the Spring Tree Planting Program have begun and the goal is to plant 100 trees this Spring.

        - Mr. Flynn asked when the decision was made not to use Enterprise for the Fleet purchasing program; Mr. Edwards deferred to Mr. Metrick. Mr. Metrick stated on or about August 2022. Mr. Flynn stated that this current Council probably hasn't had the opportunity to review the Enterprise Program which features cost benefit savings. Mr. Flynn asked Mr. Metrick if he notified Council that we were not going to utilize Enterprise, which was established to save the taxpayers money through this policy. Mr. Metrick stated that the life cycles costs were made internally to purchase outside of Enterprise. Mr. Flynn stated to Mr. Metrick that he unilaterally decided not to notify Council and Mr. Metrick stated he should have

notified Council, but he did not. Mr. Flynn asked if Enterprise was notified of this decision. Mr. Edwards said yes and there were several meetings with Enterprise. Mr. Flynn handed Mr. Edwards a copy of the agreement. Mr. Flynn stated the County utilizes Enterprise with no issues.

- The discussion turned to Mr. Edwards emails. Mr. Edwards stated like Mr. Flynn he is passionate about saving money. Mr. McCoy asked if we have to use Enterprise for every vehicle purchase. Mr. Flynn stated we can go outside of Enterprise, but the Borough's overall savings will be impacted. There were two police cars purchased outside of Enterprise and the purchasing policy. It will be discussed further at the Finance Committee Meeting. Mr. Edwards wanted to clarify that there were no kickbacks. He just found a flaw in the contract. Also, the master agreement does not require a proposal. At the end of the agreement Enterprise gives you a schedule and you have 10 days to review and dispute. My point in the email was to alert you that if you get two bad characters involved the scenario, I wrote about could create problems and the email was to protect the Borough. Mr. Flynn stated if you thought there was a problem you should have alerted the Borough Manager and/or Solicitor. Mr. Flynn asked to froward the email trail and schedule a meeting with Enterprise. Ms. Vaccaro stated that she didn't fully understand a lot of what was just discussed she appreciated it being brought to the forefront.

- Wastewater
  - Sean Mitchell, Superintendent Goose Creek Treatment Plant, gave an overview of both treatment plants. Taylor Run completed the RBC clean outs which removes the old snail shells and debris from the tank. Once it is hosed and vacuumed out the debris will be taken to the landfill. Goose Creek inspected and rebuilt two drives. There was a seal problem at New Street Pump station that was repaired internally at minimal cost. AQUA required the Gosse Creek plant to get a new water meter and the contractor is lined up to perform that installation. Lastly, all lawn equipment has been inspected and landscaping will begin by weeks end. Mr. McCoy commented that he is impressed with what the team repairs in-house. Mr. Mitchell extended an invitation for any Council member to visit the plants. Mr. Flynn asked if Mr. Mitchell was aware of a Borough Purchasing Policy to which he responded yes.

- Parks and Recreation
  - Keith Kurowski was absent, and Mr. Metrick asked if the written report could stand as is, to which Mr. McCoy responded yes.

- Traffic & Engineering Reports
    - Will Williams, Sustainability Director, stated the Borough roof replacement contract is proceeding and a firm schedule will be set in a few weeks with an anticipated completion date at the end of May 2023. It is grant season, we submitted a grant for the Hoopes Park tennis courts and next week we are submitting a grant to the County for the Gay Street Closure project. Lastly the Downingtown Pike ARLE project is completed on the shopping center side. Once AQUA is finished on the Downingtown Pike side the contractor will return to finish the north side of this project. Mr. Flynn observed the ADA ramp and questioned that the turn appears to be too sharp for electric scooters. He requested that Mr. Williams look at the ramp and measure to make sure it is compliant. Mr. Williams said he will go over but that also PennDOT will do a final check and he is confident they will be thorough. Mr. McCoy asked who is responsible for the High Street Corridor Project with regards to the sidewalks, lights and curb line. Mr. Williams stated the replacement is in like form. Also, stated the project from S. Miner to Rosedale is a joint effort between the Borough and PennDOT.

4. Action items

a) Authorize the Solicitor to prepare an amendment to Chapter 104 titled, "Vehicles and Traffic; Section 104-32 to revise no parking at certain times on New Street between prove awarding the bid for the Roof Replacement to ARC Roofing for $748,225. (attachments)

- Mr. Flynn stated that residents on this block are required to move their cars on Monday and Thursday. The ask is that they move just one day a week. Mr. Edwards agrees that one day is plenty and doesn't interfere with the sweeping process.
    - approved with a vote of 3 – 0

b) Approve the sale of the following items on Municibid: North Star Air Compressor, Subaru generator, drum containment and dispensing system and 2015 Nissan Altima

- Donald Anderson, Assistant Public Works Director, explained the items for sale and that Council is always informed before items are listed.
    - Approved with a vote of 3 – 0

c) Approve the Weaver Mulch Snyder Avenue Lease agreement (attachment)

- Mr. Edwards explained that Weaver's would continue to lease and mulch the Borough's yard waste down at Snyder Avenue. In exchange for the space and Weaver's will provide the Borough with 30 yards of mulch. Mr. Flynn asked Mr. Edwards to contact the Solicitor to make sure the Borough can barter for mulch. Mr. Edwards has already spoken to the Solicitor, and they said it was fine. Mr. McCoy feels we should get more mulch. Mr. Edwards stated this is a big cost savings for the Borough, but he will ask Weaver's for more mulch and will have an answer for the Council Worksession next week.
    - Approved with a vote of 3 – 0

d) Approve amendment to Liquid Fuels eligible roads in Borough (attachment)

- Mr. Edwards explained the there are alleys in the Borough that are wider than 16 feet in width, so they are eligible for liquid fuels. With Council's approval we will be submitting resolutions to PennDOT to have them included in the Liquid Fuel program.

- Approved with a vote of 3 – 0

e) Approve the March 2023 meeting minutes (attachment)

- Approved with a vote of 3 – 0

5. Other Business

None

6. Adjourn 7:15 PM

West Chester

Tree Commission

August 2, 2023 Meeting agenda 6:00pm

- Approval of July 5, 2023 meeting minutes

- Introduction of new Tree Commission member Chip Horne

- Requests of members and guests for additional agenda items

- New trees to be reviewed for condemnation.

    - 513 W. Nields St. – Pin Oak – Poor condition – remove & replant
    - 305 W. Marshall St. – Sugar Maple
      Poor condition – remove & replant
    - 52-98 W. Biddle St. – Callery Pear
      Poor condition – remove & replant
    - 139 E. Biddle St. – Cherry – Poor condition – remove & replant
    - Marshall Sq. Park – N. Red Oak – Poor condition
      Poor condition – remove & replant

- Development Plans for review
    - 410 S. High St. revised Landscape Plan

- Old Business/ updates
    - Mike Dunn's July work report
    - 330 W. Market Street
    - E. Gay Street Linear Park

- New Business
    - 2024 Tree Budget – presented at
    - Revisions to approved Street Trees list.
    - Mike Dunn will continue as the Consulting Arborist for 2024.

- Next Meeting
    - Wednesday September 6, 2023 - 6:00pm - Room 240 Borough Hall

PHASE II STORM WATER MANAGEMENT PROGRAM PUBLIC EDUCATION AND PARTICIPATION PLAN: QUESTIONS FOR DEVELOPING YOUR PLAN

PUBLIC PARTICIPATION COMPONENT

Who Are We Trying to Involve?	What Organizations Do They Belong To?	What Volunteer Programs Do These Organizations Run?	What is the Scope of these Programs and How Often Do They Take Place?	Strategies for Partnering with Community Organizations to Involve the Public in Storm Water Management
Municipal Employees	What groups do local government employees belong to (e.g., unions; local watershed organizations; churches; special committees; nature centers; block clubs; etc.)? **All of the above & AFSCME Union**	List the volunteer programs that each organization listed in Column 1 administers within the community. **First West Chester Fire Department**	Describe the goals of each program listed in Column 2 and provide details on when and where volunteer activities take place. **Primary goal is safety within the community**	• **Using the information in Columns 2, 3, and 4, describe the most appropriate ways to establish partnerships with existing volunteer programs in the community and incorporate storm water activities such as storm drain stenciling, stream clean-ups, and volunteer water quality monitoring.**
Residents	What groups exist that target homeowners (e.g., homeowners associations; block clubs; neighborhood development associations; recreational groups; etc.)? **All of the above including CASE and other neighborhood groups**	**Chester-Ridley Crum (CRC) Watershed Association**	**The CRC is a non-profit association that is dedicated to Watershed Improvement. They provide training and annual stream clean up.**	• **We donate employee time in clean-up efforts** • **Monetary sponsorship donations** • **Participate at regular meetings**
Schools	What groups might students belong to at all levels (e.g., boy/girl scouts; 4-H Club; Junior Achievement; student councils; school environmental clubs; local chapters of environmental organizations; nature centers, etc.)? **All of the above**	• **Boys & Girls Club** • **Chester County (CCI)**	**The club initiates various activities within the Borough on a weekly basis.**	• **We could coordinate by having inlet tags replaced** • **Identify inlets that need cleaning, etc.**

Who Are We Trying to Involve?	What Organizations Do They Belong To?	What Volunteer Programs Do These Organizations Run?	What is the Scope of these Programs and How Often Do They Take Place?	Strategies for Partnering with Community Organizations to Involve the Public in Storm Water Management
Businesses	What groups or associations might businesses belong to or communicate with businesses (e.g., chamber of commerce; trade associations; rotary club; community foundations; small business associations; etc.)? **All of the above:** • **Better Business Bureau** • **BID** • **Chamber of Commerce** • **West Chester Country Club**	**Habitat for Humanity**	**This is a volunteer group that builds homes for needy residents.**	• **By using these addresses, we could transmit newsletter and address certain meetings to spread pertinent information.**
Developers	What groups or associations might developers belong to or communicate with developers (e.g., chamber of commerce; trade associations; rotary club; community foundations; small business associations; etc.)? **All of the above and Home Builders Association**	• **Adopt-A-Highway** • **Habitat for Humanity**	**This is a volunteer group of residents that builds homes for those in need.**	• **By utilizing contact information and through networking we could target their resources through meetings, etc.**

WEST CHESTER COMMUNITY CLEANUP

Saturday April 22, 2023

HOSTED BY MAYOR LILLIAN L. DEBAPTISTE AND WCPD CHIEF JAMES MOREHEAD

CELEBRATING

EARTH DAY

West Chester
Business Improvement District

Borough of West Chester · Chester County · Est. 1799 · Pennsylvania



Borough of West Chester
July 13 ·

Special thanks to Adopt-a-Rain Garden Volunteers and accidental fossil hunters Andy, Sue, and Megan for braving the heat to help complete the planting at the new rain gardens at Greenfield Park.
This project typifies the type of green infrastructure that can combat flooding in developed areas, by detaining and infiltrating stormwater prior to its release to our streams. Wonder where the rock came from...





22 1 share

Like Comment Share

Write a comment...



CRC's 25th Annual STREAMS CLEANUP

COME JOIN US AT ONE OF OUR 33 SITES!

Saturday, March 25th

Borough of West Chester
April 24 ·

This past Saturday, West Chester celebrated Earth Day with a community clean-up hosted by Mayor Lillian DeBaptiste and West Chester Police Chief James Morehead.
Over 100 volunteers gathered across the borough to help clean up the great town.











12 1 share

Like Comment Share

Write a comment...



Borough of West Chester
March 22 ·

Ready to get outside? Join **Downtown West Chester, PA** in beautifying the downtown by volunteering for spring cleaning at the Prescott Alley Pollinator Garden, behind the Chestnut Street Garage, on Saturday April 1st.

Sign up at https://www.signupgenius.com/.../10c0e4faaad2ea6ffce9...

11 2

Like Comment Share

Write a comment...



Borough of West Chester
December 29, 2022 ·

During the first two weeks of the new year, Public Works will collect your Christmas trees. Christmas tree collections are on the same day as your trash and recycle. Christmas trees will be collected in a separate vehicle from your sanitation trucks. Please place all Christmas trees curbside near your trash or recycle cans.

5 2

Like Comment Share

Write a comment...



Borough of West Chester
November 13, 2022 ·

Reminder for Borough Leaf Collection 2022

Residents are encouraged to follow the link https://west-chester.com/176/Leaf-Collection or visit the Borough website for leaf collection schedules.

The Public Works Department will collect leaves on scheduled dates on the street side of your property. Please do not blow leaves into the alleys.

Any questions can be directed to our public works department at 610-696-5282.

1 1

Like Comment Share

Write a comment...

This meeting is being audio recorded for public record

A G E N D A

Borough Council Meeting

September 21, 2022 @ 6:30 PM

Michael Stefano, President	Member, 4th Ward	Term Expires: 12/31/23
Lisa Dorsey, Vice President	Member, 7th Ward	Term Expires: 12/31/25
Patrick McCoy	Member, 1st Ward	Term Expires: 12/31/25
Nick Allen	Member, 2nd Ward	Term Expires: 12/31/23
Brian McGinnis	Member, 3rd Ward	Term Expires: 12/31/25
Sheila Vaccaro	Member, 5th Ward	Term Expires: 12/31/25
Bernie Flynn	Member, 6th Ward	Term Expires: 12/31/23

Mayor: Lillian L. DeBaptiste **Borough Manager:** Sean Metrick

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Public Hearing @ 6:30 PM

An Ordinance of the Borough of West Chester, Chester County, Pennsylvania, amending the Borough of West Chester Stormwater Management Ordinance, which was adopted on December 18, 2013 as Ordinance No. 18-2013 and is codified in Chapter 94 of the Borough of West Chester code, and adopting amendments required by the 2022 Chester County model act 167 Stormwater Management Ordinance.

Borough Council Meeting:

1) Call to Order

2) Pledge of Allegiance

3) Comments, suggestions, petitions by residents in attendance regarding items that are not on the agenda

4) Comments by the Borough Council and the Mayor

- ***5) DISCUSSION:***

  a) Borough Manager presentation of the Preliminary Budget, 2023

- ***6) CONSENT:***

  a) Approve hiring Zachary Turner as a patrol officer, West Chester Borough Police Department

  b) Approve the Business Improvement District Board of Directors appointment of Tyrone Taylor

  c) Approve Option B as the reapportionment of the Voting Wards (*attachment*)
  i. Proposed Voting Ward Map
  ii. Existing Voting Wards Population Map
  iii. Existing Voting Wards Racial Demographic Map
  iv. Voting Ward Options – Preliminary Analysis

d) Approve selling three vehicles on Municibid (*attachment*)

e) Approve the Hannum & New Street Lot #6 Parking Lease Renewal Agreement between the Chester County and the West Chester Borough with a rate increase to $75/space/month (*attachment*)

f) Approve the Reverse Subdivision Plan for 327-329 South High Street (*attachment*)

g) Approve the August 2022 HARB Certificates of Appropriateness (*attachment*)

1. **2022-23: 151 West Gay Street - 151 Saloon**
   Proposed Work; Renovate Front Façade; cont. from July HARB
   Recommendation Approved: The Board recommends a Certificate of Appropriateness for Application 2022-23 as presented at the August 25th Board Meeting.

2. **2022-26: 135 East Gay Street – Tish Kids**
   Proposed Work; Sign & Awning
   Recommendation: Approved: The Board recommends a Certificate of Appropriateness for Application 2022-26 with the clarification that the awning fabric would cover the sides of the awning frame.

3. **2022-27: 127 North Church Street- Shine Nutrition**
   Proposed Work; Sign
   Recommendation Approved: The Board recommends a Certificate of Appropriateness for Application 2022-27 as submitted.

4. **2022-28: 123 North High St Street- May Day Coffee Shop**
   Proposed Work; Sign
   Recommendation: Approved: The Board recommends a Certificate of Appropriateness for Application 2022-28 on the condition that the field color of the sign will be the black option not the off-white option.

5. **2022-30: 40 East Market Street – Santino's Tap & Table**
   Proposed Work; Sign
   Recommendation: Approved: The Board recommends a Certificate of Appropriateness for Application 2022-30 as submitted.

h) Deny the request for loan forgiveness from the Uptown Knauer Performing Arts Center

i) Adopt the municipal minimum obligations to the nonuniform and uniform defined benefit pension plans, and the defined contribution plan (*attachment*)

j) Approve the August 16 and 17, 2022 Borough Council Meeting Minutes

- ***7) OTHER BUSINESS:***

a) Announce the September 21, 2022 executive session to discuss legal and personnel issues

Adjournment

PLEASE NOTE:

Open House/Public Meeting: October 5th – Concepts on future Gay Street Closures - Borough Council Chambers: 5:30 PM – 7:30 PM

How to Engage in Public Comment During a Borough Council or Committee Meeting

Public Comment is heard at three different points during Borough Council meetings:

• *BEFORE CONSIDERATION OF ITEMS ON THE AGENDA* - The public is permitted to make public comment on any matter not on the agenda. You will have three minutes to make your statement, unless the President or Chair has announced otherwise, so please come prepared.

• *BEFORE ACTION* on a motion or an agenda item. Public Comment at this stage is limited to the item under discussion. As above, please keep your comments to three minutes.

• *AFTER ACTION ON ALL AGENDA ITEMS HAVE BEEN ACTED*. Public Comment is open to any legitimate item of business that can be considered by Council or the Committee. Again, please keep your comments brief.

How to make a comment:

• The President or Chair will announce an opportunity for public comment, either on a specific issue or generally, depending on where we are in the agenda (see above).

• After you are recognized by the President or Chair, come to the microphone, and state your name and address for the record.

• You may then make your comment or ask your question. As noted above, you will have three minutes to make your statement, unless the President or Chair has announced otherwise.

This meeting is being audio recorded for public record

M I N U T E S

Borough Council Worksession Meeting

September 20, 2022 @ 6:30 PM

Michael Stefano, President	Member, 4th Ward	Term Expires: 12/31/23
Lisa Dorsey, Vice President	Member, 7th Ward	Term Expires: 12/31/25
Patrick McCoy	Member, 1st Ward	Term Expires: 12/31/25
Nick Allen	Member, 2nd Ward	Term Expires: 12/31/23
Brian McGinnis	Member, 3rd Ward	Term Expires: 12/31/25
Sheila Vaccaro	Member, 5th Ward	Term Expires: 12/31/25
Bernie Flynn	Member, 6th Ward	Term Expires: 12/31/23

Mayor: Lillian L. DeBaptiste **Borough Manager:** Sean Metrick

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Note: Mayor DeBaptiste was not in attendance at the September 20, 2022 Borough Council meeting

Public Hearing @ 6:30 PM

Amending the Code of the Borough of West Chester, specifically chapter 104, titled "Vehicles and Traffic," Section 104-45 to change the direction of the handicapped parking space at 224 Biddle street from north to west and to add a handicapped parking space at 508 East Miner Street and section 104-47.a(1) to add parking meters on the 200 block of East Market Street.

Amending the Code of the Borough of West Chester, specifically Chapter 77 of the Code of the Borough of West Chester, titled, "Parking Program, Residential" to revise the definition of "holiday" in Section 77-2 and to remove all references to parking stickers throughout the Chapter.

Discussion: The Public Hearing was called to order at 6:30 PM. Mr. Metrick reviewed the amendments and exhibits. The exhibits were entered into the record. Mr. Metrick asked for any questions from Borough Council or those in attendance.

Kevin Mash addressed Borough Council and advised he has been in conversation with the Borough Manager and Ms. Vaccaro to request assistance with parking in the vicinity of 200 East Market Street, which is currently three-hour parking; however, parking is not being enforced. His request is for meters for faster turnover and two 15-minute loadings zones, one in front of Lorenzo's and one in front of the old Star Social Club. Mr. Mash asked to add these items to the amendments. Mr. Metrick replied it is not possible to add his request to the amendment before Council, however, it can be discussed at the Parking Committee.

Mr. Flynn made a motion to approve_amending the Code of the Borough of West Chester, specifically chapter 104, titled "Vehicles and Traffic," Section 104-45 to change the direction of the handicapped parking space at 224 Biddle Street from north to west and to add a handicapped parking space at 508 East Miner Street and section 104-47.a(1) to add parking meters on the 200 block of East Market Street; Ms. Dorsey Seconds the Motion.

Roll Call:

Mr. McCoy – Yes; Mr. McGinnis – Yes; Mr. Stefano – Yes;
Ms. Vaccaro – Yes; Mr. Flynn – Yes; Ms. Dorsey – Yes; Mr. Allen - Yes

Motions Carries 7-0

Discussion: Mr. Metrick reviewed the amendments and exhibits. The exhibits were entered into the Record. Mr. Metrick asked for questions from the Borough Council or those in attendance.

Mr. McGinnis asked Mr. Metrick to state the specific "Holidays." Mr. Metrick replied, New Year's Day, Martin Luther King's Birthday, President's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day. Mr. McGinnis made a Motion to amend the Definition of "Holidays and add Juneteenth. Ms. Dorsey made a second to the Motion. Mr. Metrick said that would be a substantive change and the amendment would have to be revised and republished. He advised Council to table the Hearing and continue at the October business meeting with the addition of Juneteenth in Section 77-2 "holiday"

Roll Call:

Mr. McCoy – Yes; Mr. McGinnis – Yes; Mr. Stefano – Yes;
Ms. Vaccaro – Yes; Mr. Flynn – Yes; Ms. Dorsey – Yes; Mr. Allen - Yes

Motions Carries 7-0

The September 20, 2022 Public Hearings closed at 6:39 PM, with the Public Hearing to amend the Code of the Borough of West Chester, specifically Chapter 77 of the Code of the Borough of West Chester, titled, "Parking Program, Residential" to revise the definition of "holiday" in Section 77-2 and to remove all references to parking stickers throughout the Chapter, be continued until October 19, 2022 and include the amendment to Section 77-2 "holiday" to add Juneteenth.

Borough Council Meeting:

1) Call to Order

   The September 20, 2022 Borough Council Meeting was called to order at 6:39 PM

2) Pledge of Allegiance

   The Pledge of Allegiance was led by Mr. Flynn

3) Comments, suggestions, petitions by residents in attendance regarding items that are not on the agenda

   Mr. Stefano advised the 2023 Preliminary Budget will be discussed at the September 21, 2022 Borough Council meeting.

   Dante D'Andrea addressed Borough Council and advised he is a cyclist and resident. He believes West Chester Borough is not cycling friendly; and, with discussions on the Gay Street Open Air Market, encouraged some degree of discussion on cycling on the sidewalks.

   Mr. Stefano advised D'Andrea his request will be added to the October Public Safety Committee agenda.

4) Approve the request from the Mayor to hire Zachary Taylor

Chief Morehead addressed Borough Council on behalf of the Mayor who was not able to attend the meeting. Due to an officer retirement, an additional vacancy was created. Chief Morehead asked Borough Council to consider hiring Zachary Taylor to fill the position. Mr. Taylor attended Bloomsburg University and obtained an Interpersonal Communications Degree. He is currently attending the Temple University Police Academy, and is currently a full-time dispatcher with the West Chester Borough. Chief Morehead asked Borough Council to consider hiring Mr. Taylor. Mr. Flynn asked what the pay level will be. Chief Morehead advised Mr. Taylor's pay level is the base bottom for an officer that is attending the police academy.

Mr. Flynn asked if Mr. Taylor has his Act 120 Certificate and if he is still employed as a dispatcher. Chief Morehead advised if Council approves hiring Mr. Taylor, he would be sworn in at the October Borough Council meeting when the Mayor is present, and switch from dispatcher credentials to police officer credentials while he finishes out his training.

This item was moved to the September 21, 2022 Consent Agenda.

5) Approve the Business Improvement District Board of Directors appointment of Tyrone Taylor

Discussion: Mr. John O'Brien advised there is a vacancy on the Board due to a recent resignation. Mr. Taylor is a resident of the Borough, owns several commercial properties, and co-owns a business in the Borough. The Bid Board approved the recommendation, and believes he will be a good addition to the BID. Ms. Vaccaro said she enjoyed meeting Mr. Taylor, and recommended and voted for his appointment.

This item was moved to the September 21, 2022 Consent Agenda

- ***Administration, Communications & Technology Committee:***

6) Consider creating a committee/subcommittee to assist and support residents and businesses in performing historical research (*attachment*)

Discussion: Mr. Allen asked Borough Council to table this item for further discussion at the ACT Committee Meeting. He advised he is working on final language and hopes to be finished with this item next month.

This item was tabled until the October, 2022 ACT Meeting

7) Discuss Committee recommendation of the reapportionment of the Voting Wards in the following order: ***Options:*** 1) Option B; 2) Option E; 3) Option A; 4) Option C; and, 5) Option D (*attachment*)

i. Proposed Voting Ward Map
ii. Existing Voting Wards Population Map
iii. Existing Voting Wards Racial Demographic Map

iv. Voting Ward Options – Preliminary Analysis

Discussion: Mr. Allen advised the recommendation of the ACT Committee is 1) Option B for the reapportionment of the Voting Wards. The Committee believes this option works best for the Borough, balancing the seven Wards according to state law, and evenly distributes the student population. However, this option breaks the census block lines, which is prohibited by State law. Voter Services is willing to work with the Borough on this option.

Mr. Allen reviewed the other options: Option E is the existing voting ward map, with changes to the census blocks west of north High Street from ward 1 to ward 7. Option A is the current voting ward map, but is not in compliance. Option C has very negative ramifications, and is the least favorite option. Option D takes that Superblock and makes it its own ward. Ms. Vaccaro said this Option is not realistically possible due to the requirements to run for Borough Council.

Mr. Stefano said this exercise will be useful in establishing why the Borough requires an exception and the negative ramifications of the other options.

Mr. Stefano asked Mr. Metrick if Council chooses to put Option B on the Consent Agenda, what will the process be.

Mr. Metrick replied the Borough's request will have to be placed on the Court of Common Pleas docket for the Court to approve the change to the ward boundaries. He believes we have a compelling argument since we have balanced the population among the Wards, the student population equally among Wards 3, 4 and 5, and honor the 1986-87 Court ruling.

Borough Council agreed to put Option 1 "B" on the consent agenda.

This item was moved to the September 21, 2022 Consent Agenda

8) Authorize the Solicitor to prepare an Ordinance to add a referendum to the voting ballot, amending the Home Rule Charter, to include action that will protect the reproduction rights of women in the West Chester Borough

Discussion: Mr. Metrick replied the process of amending the Home Rule Charter involves Borough Council approving an ordinance to direct the County Voter Services to place language on the ballot that represents an exact change to the Home Rule Charter. Voter Services writes the language that will be placed on the ballot. Borough Council has to be very specific as to the change in the Charter. One approach will be to broadly empower counsel to direct the police department, and the other approach will be to specifically address the issue of reproductive rights.

Ms. Dorsey said it is her understanding that what was discussed last month was very specific to reproductive rights and protecting clients of Planned Parenthood, amending the Charter to protect the rights of clients of the West Chester Planned Parenthood, and from any legal ramifications that would potentially come into effect in the Commonwealth.

Mr. McGinnis offered to assist with specific language and asked about the timeline.

Mr. Metrick said it is not possible to have this on the November ballot but we should be able to include this on the spring ballot. He believes the latest the ordinance should be approved by Council in January as voter services would require notification 13 Tuesdays before the primary.

Ms. Vaccaro said what is most important to her is to make sure women's rights are protected should the law change in Pennsylvania.

Borough Council will discuss this item at the October Public Safety Committee meeting. Mr. McGinnis said all of Council should participate in this meeting.

Borough Council agreed to table this item until the Public Safety Committee meeting in October to finalize the language to place on the ballot.

This item was tabled until the October, 2022 Public Safety Committee Meeting

- ***Public Works Committee:***

9) Approve selling three vehicles on Municibid (*attachment*)

Discussion: Mr. Metrick advised Borough Council approval is required to sell items over $500.00.

This item was moved to the September 21, 2022 Consent Agenda

- ***Parking Committee:***

10) Consider the renewal agreement between the County of Chester and the West Chester Borough at the Hannum & New Street Lot #6, and discuss increasing the current rate of $60/space/per month (*attachment*)

Discussion: Mr. Flynn recommended a rate increase at the Parking Committee Meeting. Ms. Dorsey asked if the rate is competitive. Mr. Metrick replied the spaces in garages are $90.00 monthly day rate; $125 monthly 24/7; $60 dollars per space/month is our lowest surface lot rate. The County has been receiving a 50% discount over our hourly rate. Mr. Flynn said an exact rate increase was not determined at the Parking Committee meeting. Borough Council agreed to increase the rate to $75.00/space/per month. The agreement cannot be unilaterally changed, and the County would have to agree on the new rate.

Mr. Metrick said a Periodic review of rates and fees should be done unilaterally when the fee schedule is approved at the end of the year.

This item was moved to the September 21, 2022 Consent Agenda

- ***Public Safety Committee:***

11) Approve the pending special event application from WCBID for OutFest 10-01-2022 (*attachment*)

Discussion: Mr. O'Brien advised Borough Council he is withdrawing the application due to the overwhelmingly negative response he received from the community. He said the purpose of the event was to be inclusive and welcoming. It is his opinion additional

police will be required to make sure everything goes smoothly with no incident. He does not have the volunteers or the additional costs in his budget for the extra police presence. He informed Council that while the majority of the town is supportive, he does not want there to be any distractions or protests.

Mr. Stefano thanked Mr. O'Brien and said he is in favor of this event and was disappointed that the event is not taking place.

The application was withdrawn and no action was taken on this item.

- ***Smart Growth Committee***

12) Approve the Reverse Subdivision Plan for 327-329 South High Street (*attachment*)

Discussion: Mr. Gore advised this is a simple reverse subdivision to combine two parcels into one parcel, eliminating the lot line. The property is used as an office, with the property owner planning an addition at a later date. There are no zoning issues and the Planning Commission provided a recommendation letter.

Darrel Cooke asked if this would change the parking. Mr. Gore replied the property is located in the Town Center District and no residential units are being added to the property.

This item was moved to the September 21, 2022 Consent Agenda

13) Approve August 2022 HARB Certificates of Appropriateness (*attachment*)

a. **2022-23: 151 West Gay Street - 151 Saloon**
Proposed Work; Renovate Front Façade; cont. from July HARB
Recommendation Approved: The Board recommends a Certificate of Appropriateness for Application 2022-23 as presented at the August 25th Board Meeting.

b. **2022-26: 135 East Gay Street – Tish Kids**
Proposed Work; Sign & Awning
Recommendation: Approved: The Board recommends a Certificate of Appropriateness for Application 2022-26 with the clarification that the awning fabric would cover the sides of the awning frame.

c. **2022-27: 127 North Church Street- Shine Nutrition**
Proposed Work; Sign
Recommendation Approved: The Board recommends a Certificate of Appropriateness for Application 2022-27 as submitted.

d. **2022-28: 123 North High St Street- May Day Coffee Shop**
Proposed Work; Sign
Recommendation: Approved: The Board recommends a Certificate of Appropriateness for Application 2022-28 on the condition that the field color of the sign will be the black option not the off-white option.

e. **2022-30: 40 East Market Street – Santino's Tap & Table**
Proposed Work; Sign

Discussion: Mr. McGinnis advised the Smart Growth Committee did not have any concerns with the applications.

This August HARB Certificates of Appropriate were moved to the September 21, 2022 Consent Agenda

14) Consider Solicitor attendance at the Zoning Hearing to represent the Borough relative to Zoning Hearing Application: #998-611 East Nields St LLC, applicant seeks a variance from Section 112-602.M to allow three entrance and exit drives along South Bolmar Street *(attachment)*

Discussion: Mr. Gore stated the applicant is seeking a variance to allow 3 entrances along South Bolmar Street. The property owner is proposing two warehouse facilities on the site, which is a permitted use in the zoning code as a use by right. Mr. Gore does not believe the Solicitor must attend the Zoning Hearing.

Ms. Dorsey asked if there will be any traffic restrictions with this development as there are residences in the vicinity.

Mr. Gore advised the traffic study has been reviewed by the Borough traffic engineer, and there are no significant traffic implications at this time. The majority of traffic is going to come from the south, from Auto Park Boulevard up to Bolmar Street, into the site. Traffic will be restricted going north on Bolmar Street, and only a right-hand turn will be available to go south on Bolmar back to Auto Park Boulevard and back to 202, preventing trucks from going north into the Borough.

Traffic counts are based on what the proposed use might be, and a conservative number was used for that traffic study. The applicant does not know what the specific use will be, and the Borough can require the applicant to perform a post-occupancy traffic study and have them implement those changes based on any approval recommendations in the final land development process.

Ms. Dorsey requested truck traffic be managed on the residential side.

Mr. Flynn remarked there will be multiple tenants in the buildings.

Mr. Adams said once the tenants are in place, it will be a matter of making sure it is conveyed to the employees and trucking companies how to enter and exit the facility.

Mr. Metrick asked about the use of the property.

Mr. Adams replied a warehouse and distribution facility. The use of the property could allow for manufacturing, but the buildings are more designed for a typical warehouse distribution operation.

Mr. McCoy said there appear to be 400 parking spaces and asked if they considered runoff issues and flooding.

Mr. Adams said there is an environmental constraint on the property, which requires capping the entire site due to legacy environmental issues.

Borough Council agreed Solicitor attendance is not required at the Zoning Hearing.

This item was removed from the September 21, 2022 Borough Council Meeting agenda

- ***Finance & Revenue Committee***

15) Discuss repayment of the Uptown Knauer Performing Arts Center Grant loan; and, establish a revolving loan fund

Discussion: Mr. Stefano said this is a two-part item to discuss repayment of the loan and establish a revolving loan.

Mr. Allen said the money for the loan originally came from a grant. The idea is to make the loan available to members of our community for community growth. The idea is to loan the money out, get it back and then loan the money for other community projects.

Mr. McGinnis said for the record, the amount owed is $225,000 with interest.

Mr. McCoy said if the Borough is going to establish a revolving loan, there should be parameters.

Mr. Allen agreed and said intentions must be clear to approve or deny a request for a loan, and Council should discuss guidelines at a future committee meeting.

Mr. Metrick advised Ms. Lionti performed some research and the guidelines are very clear the loan must be repaid.

The revolving loan establishment and guidelines will be discussed at the Finance Committee. Borough Council agreed to deny the request for loan forgiveness.

Agreement to deny the loan forgiveness of the Uptown Knauer Performing Arts Center Grant loan was moved to the September 21, 2022 Consent Agenda

16) Adopt the municipal minimum obligations to the nonuniform and uniform defined benefit pension plans, and the defined contribution plan (*attachment*)

Discussion: Mr. Stefano said the Borough is required to adopt the obligations yearly.

This item was moved to the September 21, 2022 Consent Agenda

17) Other Business:

a) Approve the August 16 and 17, 2022 Borough Council Meeting Minutes

Discussion: Borough Council approved the August 16 and 17, 2022 Borough Council Meeting Minutes with no edits requested.

This item was moved to the September 21, 2022 Consent Agenda

Mr. Gore advised Borough Council he just returned from Louisville, Kentucky and attended the International Company Council annual conference. He was elected by his peers to the vice chair position of one of the membership Councils. He thanked Borough Council for continuing to allow the opportunity to attend these conferences and code hearings. It is critically important that we continue the involvement with the Code Council. Not for the betterment of myself and my department, but the community as a whole, you know, being involved in the code development process is.

Adjournment:
The September 20, 2022 Borough Council Meeting adjourned at 7:39 PM

Respectfully Submitted,

Dana

Dana C. DiDomenico
Executive Assistant to the Borough Manager

This meeting is being audio recorded for public record

M I N U T E S

Borough Council Meeting

September 21, 2022 @ 6:30 PM

Michael Stefano, President	Member, 4th Ward	Term Expires: 12/31/23
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Mayor: Lillian L. DeBaptiste **Borough Manager:** Sean Metrick

---

Public Hearing @ 6:30 PM

An Ordinance of the Borough of West Chester, Chester County, Pennsylvania, amending the Borough of West Chester Stormwater Management Ordinance, which was adopted on December 18, 2013 as Ordinance No. 18-2013 and is codified in Chapter 94 of the Borough of West Chester code, and adopting amendments required by the 2022 Chester County model act 167 Stormwater Management Ordinance.

Mr. Stefano announced the Borough Council voting session will begin at 6:31 PM

Borough Council Meeting:

1) Call to Order at 6:31 PM

2) The Pledge of Allegiance was led by McCoy

Mayor DeBaptiste introduced the four sworn new officers and provided their backgrounds. Borough Council welcomed the new officers.

- Officer Douglas Gilbert
- Officer Luis Lopez-Torres
- Officer Ryan McMillen
- Officer Cara Dougherty

Mr. Stefano opened the Public Hearing at 6:34 PM

Solicitor Kristin Camp explained the Chester County Water Resources Authority took the lead to amend the Countywide Stormwater Management Ordinance, which was adopted in 2013. All municipalities were required to adopt the County model, which the Borough did on December, 18th, 2013, and has been administering as development projects come forward. The State law changed, and the Chester County Water Resources Authority modified the 2013 model ordinance and adopted a 2022 Act 167 model ordinance, which was adopted on August 17th, 2022. The most significant change was the new model ordinance, adopting a new Section 706 that mandates that either the municipality or the landowner is required to do inspections of the stormwater facilities after they are installed.

Mr. Flynn asked if there is any clarification if this is a fee or tax. Ms. Camp said this amendment is only specific to the amount of impervious cover on property and relates only to the engineering development. It is in a completely different Chapter in the Code from the Stream Protection Fee.

Ms. Dorsey made a motion to amend the Borough of West Chester Stormwater Management Ordinance, which was adopted on December 18, 2013 as Ordinance No. 18-2013 and is codified in Chapter 94 of the Borough of West Chester code, and adopting amendments required by the 2022 Chester County model act 167 Stormwater Management Ordinance; Ms. Vaccaro made a Second to the Motion.

Roll Call:

Mr. McCoy – Yes; Mr. McGinnis – Yes; Ms. Vaccaro - Yes; Mr. Stefano – Yes; Mr. Allen – Yes; Mr. Flynn – Yes; Ms. Dorsey – Yes

Motion Carries: 7-0

The Public Hearing closed at 6:41 PM

3) Comments, suggestions, petitions by residents in attendance regarding items that are not on the agenda

Ms. Beth Ann Rosica addressed Borough Council. She congratulated the new police officers and asked to comment on the cancelation of the Outfest event. She read a statement and informed Borough Council she submitted a Right to Know to review emails sent to Borough Council regarding the event, so she can objectively assess the level of hate that was being expressed. She said she spoke to many parents who submitted emails, and they informed her they were most concerned about one aspect of the event. It is her opinion if the Borough wants to host a drag queen event, to move it to an inside venue, and have an evening activity for adults. She never asked for the event to be canceled and instead sent a thoughtful, respectful email to suggest how to better handle the situation and received a response telling her that she is the problem. She asked to work together, rather than canceling anyone who has a different opinion, and proposes creating an inclusivity advisory committee to address this issue.

Mr. Stefano said he received a magnitude of hateful emails regarding the event and is quite frankly disgusted.

4) Comments by the Borough Council and the Mayor

Mr. McCoy: Is happy to see a recent article in *Philadelphia Magazine* where West Chester Borough made the top 14 walkable Philadelphia suburbs.

Ms. Vaccaro: Is very disappointed that the Outfest event was canceled and is looking forward to a future event. She received many more emails that support the event than oppose the event, and it makes her feel positive. There are many ways the community can support this event, by contacting John O'Brien.

Mr. McGinnis: Agrees that what happened was taken out of context, but he is not surprised. He hopes there will be plans to make this a bigger event.

Mr. Flynn: West Chester is a great place to live, with great job opportunities and great schools. The historic Borough of West Chester is 1 of 4 Pennsylvania cities that landed on the 2021 top 100 best places to live in America. He congratulated the Downtown Foundation on the Up on the Roof event, which was very well attended.

Mr. Allen: Thanked Mr. O'Brien for his work on the Outfest event and his comments last night were great. Thanked Ms. Vaccaro for the emails she received and shared. He feels good about the future direction as he has seen the outpouring of support from the community. He believes we should make our values known and be true to our beliefs. Congratulations to all of the new officers. In Ward 2 news, there will be a community meeting October 5th at 10 am. Thanked Mr. Metrick for his assistance with John O'Green park.

Ms. Dorsey: She recognized the BID and West Chester Downtown Foundation on the Up on the Roof event, which was highly successful. She thanked Parks and Recreation for the restaurant festival. She too is disappointed that John O'Brien felt he was forced to cancel Outfest. There are many assumptions about drag queens, and, unfortunately, we are not exposing our children to people who are different. Outfest has her full support

Mayor DeBaptiste: Congratulated the four officers and thanked Council for their support. The *New York Times* featured Andiaro Restaurant as one of the best restaurants in America. While she believes there is room for improvement in the Borough, she feels positive about all of the support received regarding Outfest and looks forward to, and supports, a future Outfest event. All of the community should be valued.

Mr. Stefano: Had a great time at Up on the Roof. Congratulated the new police officers. Very disappointed about the cancellation of Outfest, and he takes the negative remarks personally. He thanked John O'Brien, and he understands the reason he reluctantly withdrew the application. He and Borough Council are committed to, and support, bigger and better events.

- ***5) DISCUSSION:***

a) Borough Manager presentation of the Preliminary Budget, 2023

Mr. Metrick reviewed the 2023 draft preliminary budget. He appreciates the support from Council, staff, and Ms. Lionti. He informed Council the budget is a year-round process connected to proper financial management, and his commitment to a culture of constant process improvement. He presented a draft operating budget, which balances all the restricted purpose and business type funds. However, the general fund budget is out of balance by 1% or $250,000. The expense and revenue accounts will go through an additional cycle within the next 4 weeks, with a final preliminary budget to consider at the October meeting.

Mr. Allen said he appreciates the way Mr. Metrick is looking at the big picture, and the 5-year projections from each department have been invaluable. He appreciates the transparency and how easy it is to understand the budget. When he started his term, Pennsylvania was the second most aggressively taxed State in the country; and, now is

number 7. We are moving in the right direction. He is hoping we could look at options not on the table to assist with these issues.

He believes that looking beyond his term is really important, and Sean has a good vision. He would like to see more investment in grant procurement for capital programming.

Mr. Stefano agrees Council needs to look past their terms and look at grant programs He thanked Barb Lionti & Mr. Metrick for their work

Mr. Flynn quoted resident Kyle Hudson who has said small increases in taxes are acceptable. He asked if the $140,000 for Good Fellowship was in the budget. Mr. Metrick replied, yes. He asked about the large increase in parking in 2024. Mr. Metrick replied it was for a Hoopes Park project. Mr. Flynn also asked about the year-end carryover and if there is anything in the budget for the necessary carry-over. Ms. Lionti said no, not currently. Mr. Flynn suggested a reserve line item. He also asked about the capital reserve fund and if it is mandated that the fund be held in low-conservative investments. Ms. Lionti replied OPEB funds follow the accounting guidelines that they should be placed in a trust. However, the Borough OPEB funds are not set up in a trust, rather they are set up in a liquid cash account through PLGIT. The reasoning is quick access to the money and the account is safe. Mr. Flynn also asked if there is a plan for state grant writing, as there is grant money available in Harrisburg, and has hiring WCU interns to assist been considered.

McCoy reiterated his support for the grant writing process. He asked Mr. Metrick if there is a KPI, a key performance indicator for grants as a percent of the total budget and asked what the Borough's typical grant revenue is. Mr. Metrick said he would look into Mr. McCoy's questions.

Mayor DeBaptiste asked if there is a specific person that writes our grants. Mr. Metrick said it will be a team effort, and we have talent in-house for grant writing. Mr. Metrick said he would like to collaborate with the Police Department on grant opportunities.

Mr. McGinnis would like to see Mr. Metrick and Ms. Lionti offer other revenue opportunities. He asked when the last parking garage increase was. Mr. Metrick said he will research the increase. Mr. McGinnis said all options should be on the table and with inflation at 8%, Council should be mindful of that number when considering a tax increase. He asked for more revenue brainstorming ideas from the Finance Committee.

Mr. Flynn said he appreciates Mr. McGinnis' comments and asked about higher interest rates for the Capital Reserve fund, and to consider assistance with the Borough Pension Board Committee.

- ***6) CONSENT:***

a) Approve hiring Zachary Turner as a patrol officer, West Chester Borough Police Department

b) Approve the Business Improvement District Board of Directors appointment of Tyrone Taylor

c) Approve Option B as the reapportionment of the Voting Wards (*attachment*)
   i. Proposed Voting Ward Map

ii. Existing Voting Wards Population Map
iii. Existing Voting Wards Racial Demographic Map
iv. Voting Ward Options – Preliminary Analysis

d) Approve selling three vehicles on Municibid (*attachment*)

e) Approve the Hannum & New Street Lot #6 Parking Lease Renewal Agreement between the Chester County and the West Chester Borough with a rate increase to $75/space/month (*attachment*)

f) Approve the Reverse Subdivision Plan for 327-329 South High Street (*attachment*)

g) Approve the August 2022 HARB Certificates of Appropriateness (*attachment*)

1. **2022-23: 151 West Gay Street - 151 Saloon**
Proposed Work; Renovate Front Façade; cont. from July HARB
Recommendation Approved: The Board recommends a Certificate of Appropriateness for Application 2022-23 as presented at the August 25th Board Meeting.

2. **2022-26: 135 East Gay Street – Tish Kids**
Proposed Work; Sign & Awning
Recommendation: Approved: The Board recommends a Certificate of Appropriateness for Application 2022-26 with the clarification that the awning fabric would cover the sides of the awning frame.

3. **2022-27: 127 North Church Street- Shine Nutrition**
Proposed Work; Sign
Recommendation Approved: The Board recommends a Certificate of Appropriateness for Application 2022-27 as submitted.

4. **2022-28: 123 North High St Street- May Day Coffee Shop**
Proposed Work; Sign
Recommendation: Approved: The Board recommends a Certificate of Appropriateness for Application 2022-28 on the condition that the field color of the sign will be the black option not the off-white option.

5. **2022-30: 40 East Market Street – Santino's Tap & Table**
Proposed Work; Sign
Recommendation: Approved: The Board recommends a Certificate of Appropriateness for Application 2022-30 as submitted.

h) Deny the request for loan forgiveness from the Uptown Knauer Performing Arts Center

i) Adopt the municipal minimum obligations to the nonuniform and uniform defined benefit pension plans, and the defined contribution plan (*attachment*)

j) Approve the August 16 and 17, 2022 Borough Council Meeting Minutes

Mr. Flynn made a Motion to adopt the September 21, 2022 Borough Council Consent agenda; Ms. Dorsey made a Second to the Motion.

Roll Call:

Mr. McCoy – Yes; Mr. McGinnis – Yes; Ms. Vaccaro - Yes; Mr. Stefano – Yes; Mr. Allen – Yes; Mr. Flynn – Yes; Ms. Dorsey – Yes

Motion Carries: 7-0

- ***7) OTHER BUSINESS:***

a) Announce the September 21, 2022 executive session to discuss legal and personnel issues

Mr. Stefano announced an Executive Session will be held after the September 21, 2022 Borough Council meeting to discuss legal and personnel issues.

No other business was discussed.

Adjournment:
The September 21, 2022 Borough Council meeting adjourned at 7:51 PM

Respectfully Submitted,

Dana

Dana C. DiDomenico
Executive Assistant to the Borough Manager

ILLICIT DISCHARGE DETECTION AND

ELIMINATION MANUAL

FOR

WEST CHESTER BOROUGH
CHESTER COUNTY, PENNSYLVANIA

JUNE 2019

Prepared by:

Gilmore & Associates, Inc.
184 W. Main Street
Trappe, PA 19426

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Introduction and Purpose

Polluted stormwater runoff has been identified by the US Environmental Protection Agency (EPA) as one of the main causes of the nation's water quality problems. To help alleviate this situation, the EPA requires communities with municipal separate storm sewer systems (MS4s) to obtain a individual permit under the National Pollutant Discharge Elimination System (NPDES) program authorizing their stormwater discharges.

As a requirement of the MS4 NPDES permit, West Chester Borough must develop, implement, update and maintain a written Illicit Discharge Detection and Elimination Program. This document will serve to establish procedures for identifying, testing, reporting, and eliminating illicit discharges to the municipality's storm sewer system (MS4).

This manual was prepared by utilizing the Definitions section and Part C Special Conditions from the 2018 PAG-13 Permit Sample document (Permit), as well as the *Illicit Discharge Detection & Elimination Manual: A Guidance for Program Development & Technical Assistance*, prepared by the Center for Watershed Protection, dated October 2004 (Guidance Manual). The full text of the guidance report can be found by following the link below:

http://www.epa.gov/npdes/pubs/idde_manualwithappendices.pdf.

Definition & Types of Illicit Discharge

The Permit defines an *Illicit Discharge* as any discharge to a municipal separate storm sewer that is not composed entirely of stormwater, except non-stormwater discharges as described in the "Discharges Authorized by this General Permit" section of this General Permit. Examples of illicit discharges include dumping of motor vehicle fluids, household hazardous wastes, grass clippings, leaf litter, animal wastes, or unauthorized discharges of sewage, industrial waste, restaurant wastes, or any other non-stormwater waste into a municipal separate storm sewer system. Illicit discharges can be accidental or intentional.

For the purpose of this manual, "illicit discharge" shall be defined as a storm drain that has measurable flow during dry weather containing contaminants and/or pathogens. A storm drain that has flow during dry weather, but does not contain contaminants and/or pathogens is not considered an illicit discharge. Illicit discharges often originate from an unwanted interaction or mixing of the sewage disposal system and the storm sewer system. Illicit flows may also originate as runoff from cleaning or washing activities. Below is a list of common sources of dry weather flow (Note that the presence of dry weather flow does not mean that an illicit discharge is present. Testing is required to determine if the dry weather flow contains contaminants and/or pathogens):

- Sewage and septic flows.
- "Washwater" flows from residential laundry, commercial car washes, shop floor drains, etc.
- Liquid wastes such as oil, paint, and process water.
- Potable water entering the storm sewer through infiltration. This often occurs in older water distribution system that experience high loss rates.
- Landscape irrigation runoff from overwatering.
- Groundwater and spring flows.

The Permit defines *dry weather* as a condition in which there are no precipitation, snowmelt, drainage or other events producing a stormwater discharge for more than 48 consecutive hours. Additionally, the Permit defines *Stormwater* to mean runoff from precipitation, snow melt runoff, and surface runoff and drainage.

All types of dry weather flow can be characterized into three types of flow:

- **Continuous** flows are present most or all of the time and are generally the easiest to detect.

- **Intermittent** flows occur over a short period of time maybe a few hours a day or a few days out of the year. These flows are often harder to find due to their shortened flow time.

- **Transitory** flows are defined as one-time flows caused by a spill or other event. Examples of transitory flows include: sewer breaks, storage tank leaks, traffic accidents, etc. These types of flows are rarely detected during routine monitoring, but have the potential to have severe impacts on the waterway.

Dry weather flows can either enter the storm sewer system directly or indirectly. **Direct** flows occur through a sewer pipe, shop drain, or other conveyance method and are many times the result of an improper plumbing connection. Older industrial and commercial areas often contain direct illicit connections to the storm sewer system. Alternatively, an **indirect** flow is generated outside of the storm sewer system and enters though drain inlets or groundwater infiltration. Examples of indirect flows include: groundwater seepage, spills, illegal dumping into storm drains, outdoor washing runoff, overuse of irrigation systems.

The Permit regulates the Municipally owned storm sewer system, and defines the *Municipal Separate Storm Sewer* as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters; (ii) Designed or used for collecting or conveying stormwater; (iii) Which is not a combined sewer; and (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2. (25 Pa. Code § 92a.32(a) and 40 CFR § 122.26(b)(8)). The *Municipal Separate Storm Sewer System* (MS4) is defined by the Permit to mean all separate storm sewers that are defined as “large” or “medium” or “small” municipal separate storm sewer systems pursuant to 40 CFR §§ 122.26(b)(4), (b)(7), and (b)(16), respectively, or designated under 40 CFR § 122.26(a)(1)(v). (25 Pa. Code § 92a.32(a) and 40 CFR § 122.26(b)(18)).

The Permit defines *Surface Waters* to mean perennial and intermittent streams, rivers, lakes, reservoirs, ponds, wetlands, springs, natural seeps and estuaries, excluding water at facilities approved for wastewater treatment such as wastewater treatment impoundments, cooling water ponds and constructed wetlands used as part of a wastewater treatment process. (25 Pa. Code § 92a.2)

The below table was taken from the Guidance Manual and outlines potential types of illicit discharges based on land use. Additional information is also included in Appendix C.

Table 2: Land Uses, Generating Sites and Activities That Produce Indirect Discharges

Land Use	Generating Site	Activity that Produces Discharge
Residential	• Apartments • Multi-family • Single Family Detached	• Car Washing • Driveway Cleaning • Dumping/Spills (e.g., leaf litter and RV/boat holding tank effluent) • Equipment Washdowns • Lawn/Landscape Watering • Septic System Maintenance • Swimming Pool Discharges
Commercial	• Campgrounds/RV parks • Car Dealers/Rental Car Companies • Car Washes • Commercial Laundry/Dry Cleaning • Gas Stations/Auto Repair Shops • Marinas • Nurseries and Garden Centers • Oil Change Shops • Restaurants • Swimming Pools	• Building Maintenance (power washing) • Dumping/Spills • Landscaping/Grounds Care (irrigation) • Outdoor Fluid Storage • Parking Lot Maintenance (power washing) • Vehicle Fueling • Vehicle Maintenance/Repair • Vehicle Washing • Washdown of greasy equipment and grease traps
Industrial	• Auto recyclers • Beverages and brewing • Construction vehicle washouts • Distribution centers • Food processing • Garbage truck washouts • Marinas, boat building and repair • Metal plating operations • Paper and wood products • Petroleum storage and refining • Printing	• All commercial activities • Industrial process water or rinse water • Loading and un-loading area washdowns • Outdoor material storage (fluids)
Institutional	• Cemeteries • Churches • Corporate Campuses • Hospitals • Schools and Universities	• Building Maintenance (e.g., power washing) • Dumping/Spills • Landscaping/Grounds Care (irrigation) • Parking Lot Maintenance (power washing) • Vehicle Washing
Municipal	• Airports • Landfills • Maintenance Depots • Municipal Fleet Storage Areas • Ports • Public Works Yards • Streets and Highways	• Building Maintenance (power washing) • Dumping/Spills • Landscaping/Grounds Care (irrigation) • Outdoor Fluid Storage • Parking Lot Maintenance (power washing) • Road Maintenance • Spill Prevention/Response • Vehicle Fueling • Vehicle Maintenance/Repair • Vehicle Washing

Illicit Discharge Detection & Elimination Procedures

Potential illicit discharges at a regulated MS4 outfall may be discovered and reported to the Municipality through a variety of ways, including: outfall inspections, discovery by Municipal staff during regular activities, reporting by emergency personnel, or resident complaints.

The Permit defines an *Outfall* to mean a point source as defined by 40 CFR § 122.2 at the point where a municipal separate storm sewer discharges to surface waters and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other surface waters and are used to convey surface waters. (25 Pa. Code § 92a.32(a) and 40 CFR § 122.26(b)(9)). The Permit defines a *Point Source* to mean a discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, Concentrated Aquatic Animal Production Facility (CAAP), Concentrated Animal Feeding Operation (CAFO), landfill leachate collection system, or vessel or other floating craft from which pollutants are or may be discharged. (25 Pa. Code § 92a.2)

When an illicit discharge is discovered or reported, the incident shall be recorded and investigated by the Borough, and the source identified when possible. Accompanying the incident record will be a detailed description of how the issue was addressed and a recommendation for further action if necessary.

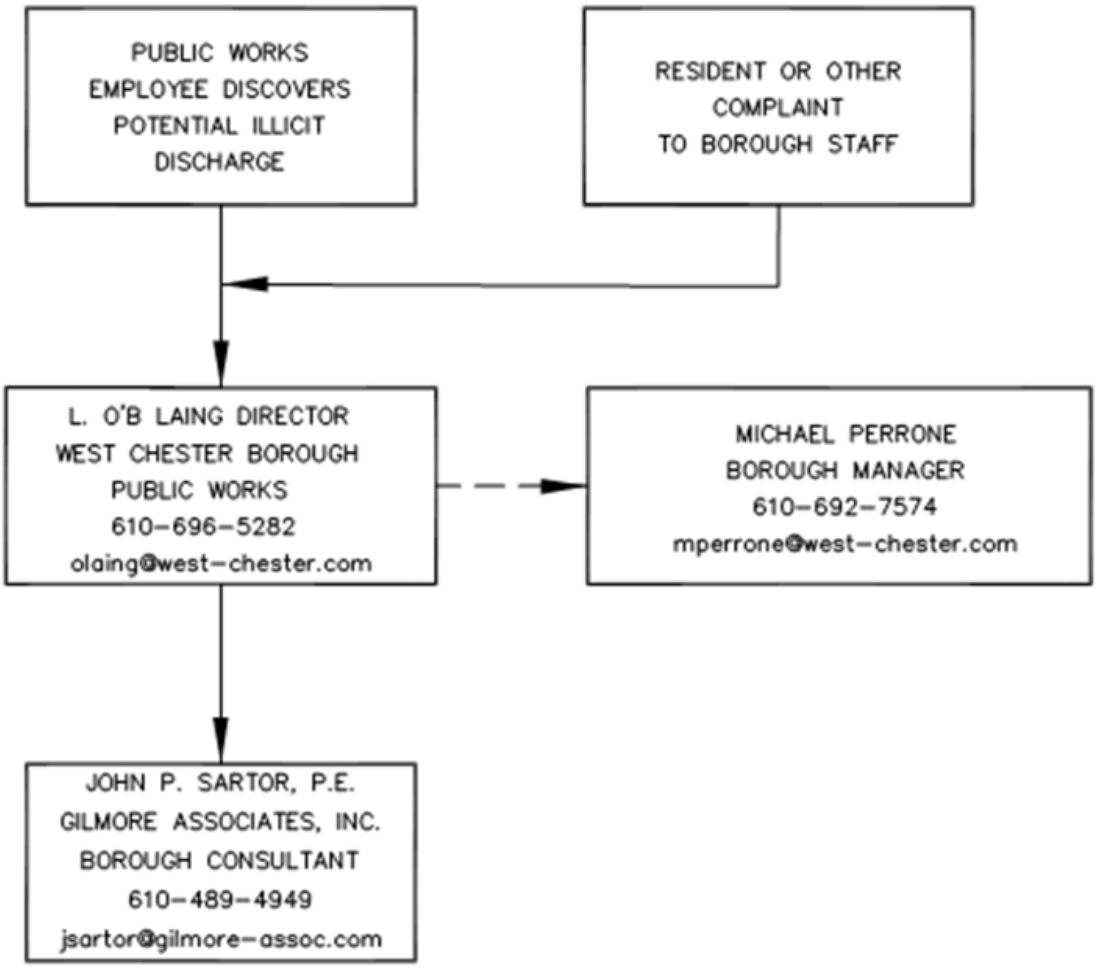
Residents currently should contact the Borough's MS4 Coordinator to report an illicit discharge. A "Stormwater Incident Tracking Sheet" is included in Appendix A. West Chester Borough also has "Reportable Problems or Violations" with a "Who to Call" chart on the Borough's stormwater webpage (chart has a contact with phone number for each Issue). The phone call would be directed to Mr. O'B Laing, Director of Public Works, who is designated as the Borough's MS4 Coordinator. Mr. Laing will then direct one of the road crew Supervisors to go and inspect the outfall to make a determination whether it is an illicit discharge. If it is determined to be an illicit discharge, Borough staff would attempt to track to source.

Current Municipal Ordinances prohibit illicit discharges to the storm sewer system and give the Borough authority to require land owners to remove an illicit discharge once it is discovered. If necessary, the Borough may elect to utilize the Solicitor's office in order to notify a land owner of a potential illicit discharge coming from their property and request access to the subject property to further investigate the situation.

The Borough has multiple instances of piped streams, and therefore, has multiple locations of constant flow at outfalls. This flow is stream flow, and not assumed to be illicit flow (in and of itself). The Borough has created a map showing the locations of these piped streams, which will be revised as necessary (see Appendix I).

When a discharge is suspected to be illicit, the Borough will take a sample to be tested. The illicit discharge shall be eliminated.

The flow chart below can be used to ensure that the discharge is investigated.



As the Municipality's designated MS4 coordinator, Mr. Laing is aware of all the Municipality's obligations related to the individual permit. All reports of illicit discharges made to the Municipality will go to O'B Laing and he will be responsible for assessing the specific situation and involving Gilmore & Associates, Inc. (Borough Consultant) if necessary. Gilmore & Associates has knowledge of MS4 requirements including illicit discharge detection and analysis, and will assist the Borough to determine the proper mode of investigation in the event that an illicit discharge is discovered.

Outfall Monitoring Procedures

Under the current MS4 individual permit coverage, the Municipality is required to screen every outfall within the Municipality at least once. Per the Permit, for areas where past

problems have been reported or where known sources of dry weather flows occur on a continual basis, outfalls shall be screened annually during each year of permit coverage.

Per the Permit, a map shall be developed and maintained that shows the municipal 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). Also, 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 shall be shown.

Typically, the Municipality should first identify the priority areas for screening; these are areas 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. The priority areas shall be screened first. Additionally, the Borough is considering inspecting these priority areas twice a year. The Borough has identified priority areas as: 1) High & Gay St. intersection, 2) E. Miner Street, 3) East Barnard Street, 4) Old Downingtown Pike, and 5) Pine Alley outfall, off of Hannum Avenue. The Borough will update their priority areas as needed.

The outfall screening shall be in accordance with the Guidance Manual. Inspection reports for each outfall shall be completed, using the MS4 Outfall Field Screening Report (Appendix B). A spreadsheet list of all outfalls/pipe discharges is also included in Appendix G.

A summary of the IDD&E Permit requirements and checklist are included in Appendix D.

In the event existing outfall(s) are identified during the term of Permit coverage that were not identified on maps submitted as part of the NOI (where required), the permittee shall identify the outfall(s) in the subsequent Annual MS4 Status Report that is submitted to the DEP office that approved permit coverage.

In the event new stormwater outfalls are proposed, the permittee shall submit written notification to the DEP office that approved permit coverage at least 60 days prior to commencing a discharge, unless such discharges would meet one or more of the criteria specified in the "Discharges Not Authorized By This General Permit" section, in which case an individual permit application must be submitted and an individual permit obtained prior to commencing a discharge.

Program Evaluation & Assessment

This Illicit Discharge Detection and Elimination Manual is intended to be a living document. Each year the Municipality's MS4 Coordinator and pertinent Municipal staff will review the manual and determine whether a revision to the document is needed. If revisions are made, a copy of this manual will be included in the Municipality's annual report submission to DEP. Any comments received from DEP will be evaluated and incorporated in the revised manual as the Municipality deems necessary.

Appendix A
Stormwater Incident Tracking Sheet

STORMWATER INCIDENT TRACKING SHEET

Incident ID:

Stream address or outfall #:

Closest street address:

Nearby landmark:

Primary Location Description	**Secondary Location Description:**		
☐ Stream corridor *(In or adjacent to stream)*	☐ Outfall	☐ In-stream flow	☐ Along banks
☐ Upland area *(Not adjacent to stream)*	☐ Near storm drain	☐ Near other water source (storm water pond, wetland, etc.):	

Narrative description of location:

☐ Dumping	☐ Oil/solvents/chemicals	☐ Sewage
☐ Wash water, suds, etc.	☐ Other:	

Odor	☐ None	☐ Sewage	☐ Rancid/Sour	☐ Petroleum (gas)
	☐ Sulfide (rotten eggs); natural gas	☐ Other: Describe in "Narrative" section		
Appearance	☐ "Normal"	☐ Oil sheen	☐ Cloudy	☐ Suds
	☐ Other: Describe in "Narrative" section			
Floatables	☐ None:	☐ Sewage (toilet paper, etc)	☐ Algae	☐ Dead fish
	Other: Describe in "Narrative" section			

Narrative description of problem indicators:

Suspected Violator (name, personal or vehicle description, license plate #, etc.):

Initial investigation date:	Investigators:
☐ No investigation made	Reason:
☐ Referred to different department/agency:	Department/Agency:
☐ Investigated: No action necessary	
☐ Investigated: Requires action	Description of actions:

Notes:

Appendix B
MS4 Outfall Field Screening Report

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:	NPDES Permit No.: PA
Date of Inspection:	Outfall ID No.:
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☐ Suburban Residential ☐ Open Space ☐ Other:	Latitude: _____° _____' _____" Longitude: _____° _____' _____" Dry Weather Inspection? ☐ Yes ☐ No Date of Previous Precipitation: Amount of Previous Precipitation: in
Inspector Name(s):	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).

Responsible Official Name	Signature
Telephone No.	Date

Appendix C
Additional IDD&E Program Information

Illicit Discharge
Illicit discharges are 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.

Each illicit discharge has a unique frequency, composition and mode of entry in the storm drain system. Illicit discharges are frequently caused when the sewage disposal system interacts with the storm drain system. A variety of monitoring techniques is used to locate and eliminate illegal sewage connections. These techniques trace sewage flows from the stream or outfall, and go back up the pipes or conveyances to reach the problem connection.

Illicit discharges of other pollutants are produced from specific source areas and operations known as “generating sites.” Knowledge about these generating sites can be helpful to locate and prevent non-sewage illicit discharges. Depending on the regulatory status of specific “generating sites,” education, enforcement and other pollution prevention techniques can be used to manage this class of illicit discharges.

Storm Drain
A storm drain can be either an enclosed pipe or an open channel. Some “pipes” found in urban areas may look like storm drains but actually serve other purposes. Examples include foundation drains, weep holes, culverts, etc. These pipes are generally not considered storm drains from a regulatory or practical standpoint. Small diameter “straight pipes,” however, are a common source of illicit discharges in many communities and should be investigated to determine if they are a pollutant source.
Not all dry weather storm drain flow contains pollutants or pathogens. Indeed, many communities find that storm drains with dry weather flow are, in fact, relatively clean. Flow in these drains may be derived from springs, groundwater seepage, or leaks from water distribution pipes.

Discharge Frequency
The frequency of dry weather discharges in storm drains is important, and can be classified as continuous, intermittent or transitory. Continuous discharges occur most or all of the time, are usually easier to detect, and typically produce the greatest pollutant load. Intermittent discharges occur over a shorter period of time (e.g., a few hours per day or a few days per year). Because they are infrequent, intermittent discharges are hard to detect, but can still represent a serious water quality problem, depending on their flow type. Transitory discharges occur rarely, usually in response to a singular event such as an industrial spill, ruptured tank, sewer break, transport accident or illegal dumping episode. These discharges are extremely hard to detect with routine monitoring, but under the right conditions, can exert severe water quality problems on downstream receiving waters.

Dry weather discharges are composed of one or more possible flow types:

- Sewage flows are produced from sewer pipes and septic systems.

- Washwater flows are generated from a wide variety of activities and operations. Examples include discharges of gray water (laundry) from homes, commercial carwash wastewater, fleet washing, commercial laundry wastewater, and floor washing to shop drains.
- Liquid wastes refer to a wide variety of flows, such as oil, paint, and process water that enter the storm drain system.
- Groundwater and spring water flows occur when the local water table rises above the bottom elevation of the storm drain (known as the invert) and enters the storm drain either through cracks and joints, or where open channels or pipes associated with the MS4 may intercept seeps and springs.

Mode of Entry

Illicit discharges can be further classified based on how they enter the storm drain system. The mode of entry can either be direct or indirect. Direct entry means that the discharge is directly connected to the storm drain pipe through a sewage pipe, shop drain, or other kind of pipe. Direct entry usually produces discharges that are continuous or intermittent. Direct entry usually occurs when two different kinds of "plumbing" are improperly connected.

Indirect entry means that flows generated outside the storm drain system enter through storm drain inlets or by infiltrating through the joints of the pipe. Generally, indirect modes of entry produce intermittent or transitory discharges, with the exception of groundwater seepage.

Land Use and Potential Generating Sites

Land use can predict the potential for indirect discharges, which are often intermittent or transitory. Many indirect discharges can be identified and prevented using the concept of "generating sites," which are sites where common operations can generate indirect discharges in a community. Some common generating sites are described below.

Residential Generating Sites: Failing septic systems were the most common residential discharge reported in IDDE programs surveyed (CWP, 2002). In addition, indirect residential discharges were also detected in 20% of the IDDE programs surveyed, which consisted of oil dumping, irrigation overflows, swimming pool discharges, and car washing.

Commercial Generating Sites: Illicit discharges from commercial sites were reported as almost 20% of local IDDE programs surveyed (CWP, 2002). Typical commercial discharge generators included operations such as outdoor washing; disposal of food wastes; car fueling, repair, and washing; parking lot power washing; and poor dumpster management. It is important to note that not all businesses within a generating category actually produce illicit discharges; generally, only a relatively small fraction of businesses do. Consequently, on-site inspections of individual businesses are needed to confirm whether a property is actually a generating site.

Finding, Fixing, and Preventing Illicit Discharges
The purpose of an IDDE program is to find, fix and prevent illicit discharges, and a series of techniques exist to meet these objectives. The remainder of the manual describes the major tools used to build a local IDDE program, but they are briefly introduced below:

Finding Illicit Discharges
The highest priority in most programs is to find any continuous and intermittent sewage discharges to the storm drain system. A range of monitoring techniques can be used to find sewage discharges. In general, monitoring techniques are used to find problem areas and then trace the problem back up the stream or pipe to identify the ultimate generating site or connection. Monitoring can sometimes pick up other types of illicit discharge that occur on a continuous or intermittent basis (e.g., wash water and liquid wastes). Monitoring techniques are classified into three major groups:

- Outfall Reconnaissance Inventory
- Indicator Monitoring at Storm Water Outfalls and In-stream
- Tracking Discharges to their Source

Fixing Illicit Discharges
Once sewage discharges or other connections are discovered, they can be fixed, repaired or eliminated through several different mechanisms. Communities should establish targeted education programs along with legal authority to promote timely corrections.

Summary of NPDES Phase II Requirements
Each regulated small MS4 must satisfy six minimum control measures:
1. Public education and outreach
2. Public participation/involvement
3. Illicit discharge detection and elimination
4. Construction site runoff control
5. Post-construction runoff control
6. Pollution prevention/Good housekeeping

Under the third minimum measure, an illicit discharge is defined as any discharge to an MS4 that is not composed entirely of storm water, except allowable discharges pursuant to an NPDES permit, including those resulting from firefighting activities (40 CFR 122.26(b)(2)). To satisfy this minimum measure, the regulated small MS4 must include the following five components:

- Develop a storm sewer system map that shows the location of all outfalls and the names and locations of all waters of the United States that receive discharges from those outfalls
- Prohibit, through ordinance or other regulatory mechanism, non-storm water discharges into the storm sewer system and implement appropriate enforcement procedures and actions

- Develop and implement a plan to detect and address illicit discharges to the MS4
- Educate public employees, businesses, and the general public of hazards associated with illicit discharges and improper disposal of waste
- Identify the appropriate best management practices and measurable goals for this minimum measure

In the regulation, EPA recommends that the plan to detect and address illicit discharges include procedures for:

- Locating priority areas likely to have illicit discharges (which may include visually screening outfalls during dry weather and conducting field tests of selected pollutants)
- Tracing the source of an illicit discharge
- Removing the source of the discharge
- Program evaluation and assessment

Components of an Effective IDDE Program

The prospect of developing and administering an IDDE program can be daunting, complex and challenging in many communities. This Chapter organizes and simplifies the basic tasks needed to build a program. In general, a community should consider eight basic program components, as follows:

1. Audit Existing Resources and Programs – The first program component reviews existing local resources, regulations, and responsibilities that bear on illicit discharge control in the community. A systematic audit defines local needs and capabilities, and provides the foundation for developing the initial IDDE program plan over the first permit cycle.
2. Establish Responsibility, Authority and Tracking – This component finds the right "home" for the IDDE program within existing local departments and agencies. It also establishes the local legal authority to regulate illicit discharges, either by amending an existing ordinance, or crafting a new illicit discharge ordinance. This program component also involves creation of a tracking system to report illicit discharges, suspect outfalls, and citizen complaints, and to document local management response and enforcement efforts.
3. Complete a Desktop Assessment of Illicit Discharge Potential – Illicit discharges are not uniformly distributed across a community, but tend to be clustered within certain land uses, subwatersheds, and sewage infrastructure eras. This program component helps narrow your search for the most severe illicit discharge problems, through rapid analysis of existing mapping and water quality monitoring data.
4. Develop Program Goals and Implementation Strategies – This program component integrates information developed from the first three program components to establish measurable goals for the overall IDDE program during the first permit cycle. Based on these goals, managers develop specific implementation strategies to improve water quality and measure program success.

5. Search for Illicit Discharge Problems in the Field – This component involves rapid outfall screening to find problem outfalls within priority subwatersheds. Results of outfall surveys are then used to design a more sophisticated outfall monitoring system to identify flow types and trace discharge sources. Many different monitoring options exist, depending on local needs and discharge conditions.
6. Isolate and Fix Individual Discharges – Once illicit discharge problems are found, the next step is to trace them back up the pipe to isolate the specific source or improper connection that generates them. Thus, this program component improves local capacity to locate specific discharges, make needed corrections, and take any enforcement actions.
7. Prevent Illicit Discharges – Many transitory and intermittent discharges are produced by careless practices at the home or workplace. This important program component uses a combination of education and enforcement to promote better pollution prevention practices. A series of carrots and sticks is used to reach out to targeted individuals to prevent illegal or unintentional illicit discharges.
8. Evaluate the Program – The last component addresses the ongoing management of the IDDE program. The measurable goals set for the IDDE program are periodically reviewed and revisited to determine if progress is being made, or implementation strategies need to be adjusted.

Searching for Illicit Discharge Problems in the Field

The primary field screening tool is the Outfall Reconnaissance Inventory (ORI), which is used to find illicit discharge problems and develop a systematic outfall inventory and map of the MS4. The search for illicit discharge problems yields several important management products, including:

- An updated map of the locations of all outfalls within the MS4
- Incorporation of ORI data into the outfall inventory/tracking system
- Design and implementation of an indicator monitoring strategy to test suspect outfalls
- Creation of a local chemical “fingerprint” library of pollutant concentrations for various discharge flow types
- Data reports that evaluate the significance and distribution of illicit discharge problems in the community

Budget and/or Staff Resources Required: Field screening and indicator monitoring can consume substantial staff and budget resources. Monitoring costs are closely related to the number of outfalls screened and the complexity of illicit discharge problems discovered.

Isolating and Fixing Individual Illicit Discharges

Five basic tools exist to isolate and fix individual discharges, including:

- Pollution reporting hotline
- Drainage area investigations

- Trunk investigations
- On-site discharge investigations
- Correction and enforcement

Finding and fixing illicit discharges is the core goal of any IDDE program. The process of finding and fixing discharges has several desirable outcomes, such as:

- Improved water quality
- Increased homeowner and business awareness about pollution prevention
- Maintenance of a tracking system to document repairs and identify repeat offenders.

Isolating Illicit Discharges
Outfall screening and monitoring are excellent for finding illicit discharge problems, but they often cannot detect most intermittent or transient flows, nor can they always isolate the exact source, particularly when the outfall has a large contributing area and an extensive pipe network.

Pollution Complaint Hotline
The first tool is a pollution complaint hotline, which is particularly effective at finding obvious illicit discharges, such as transitory flows from generating sites and sewer overflows. A complaint hotline is a dedicated phone number or website where citizens can easily report illicit discharge and pollution concerns. The hotline should always be supported by prompt investigations of each complaint by trained inspectors, usually within 24 hours. The other three investigative tools involve drainage area, trunk, and on-site investigations.

Illicit Discharge Investigations
Once an illicit discharge is detected at an outfall or stream, one of four types of illicit discharge investigations is triggered to track down the individual source. These investigations are often time consuming and expensive, require special training and staff expertise, and may result in legal action. They include:

- Storm drain network investigations
- Drainage area investigations
- On-site investigations
- Septic system investigations

Storm drain network investigations
Storm drain or “trunk” investigations narrow the source of a discharge problem to a single segment of a storm sewer. The investigation starts at the outfall, and the field crew must decide how it will explore the upstream pipe network. The three options include:

- Work progressively up the trunk from the outfall and test manholes along the way

- Split the trunk into equal segments and test manholes at strategic points of the storm drain system
- Work progressively down the trunk (i.e., from the headwaters of the storm drain network and move downstream)

The decision to move up, split, or move down the trunk depends on the nature of the drainage system and the surrounding land use. The three options also require different levels of advance preparation. Moving up the trunk can begin immediately when an illicit discharge is detected at an outfall, and only a map of the storm drain system is required. Splitting the trunk requires a little more preparation to examine the storm drain system and find the most strategic manholes to sample. Moving down the trunk requires even more advance preparation, since the most upstream segments of the storm drain network may be poorly understood.

Once crews choose one of these options, they need to select the most appropriate investigative methods to track down the source. Common methods include:

- Visual inspection at manholes
- Sandbagging or damming the trunk
- Dye testing
- Smoke testing
- Video testing

Drainage area investigations
Drainage area investigations are initially conducted in the office, but quickly move into the field. They involve a parcel by parcel analysis of potential generating sites within the drainage area of a problem outfall. They are most appropriate when the drainage area to the outfall is large or complex, and when the flow type in the discharge appears to be specific to a certain type of land use or generating site. These investigations may include the following techniques:

- Land use investigations
- Permit review
- As-built review
- Aerial photography analysis
- Property ownership certification

On-site investigations
Once the illicit discharge has been isolated to a specific section of storm drain, an on-site investigation can be performed to find the specific source of the discharge. In some situations, such as subwatersheds dominated by industrial land uses or many generating sites, on-site investigations may be immediately pursued.

Fixing Illicit Discharges
Once the source of an illicit discharge has been identified, steps should be taken to fix or eliminate the discharge. Four questions should be answered for each individual illicit

discharge to determine how to proceed; the answers will usually vary depending on the source of the discharge.

- Who is responsible?
- What methods will be used to repair?
- How long will the repair take?
- How will removal be confirmed?

Financial responsibility for source removal will typically fall on property owners, MS4 operators, or a combination of the two. Methods for removing illicit discharges usually involve a combination of education and enforcement. A process for addressing illicit discharges that focuses on identifying the responsible party and enforcement procedures is presented in Figure 13, while Table 26 presents various options for removing illicit discharges from various sources. Additional information on common removal actions and associated costs can be found in Chapter 14.

Program managers should use judgment in exercising the right mix of compliance assistance and enforcement. The authority and responsibility for correction and enforcement should be clearly defined in the local IDDE ordinance developed earlier in the program. An escalating enforcement approach is often warranted and is usually a reasonable process to follow. Voluntary compliance should be used for first-time, minor offenders. Often, property owners are not even aware of a problem, and are willing to fix it when educated. More serious violations or continued non-compliance may warrant a more aggressive, enforcement-oriented approach.

Preventing Illicit Discharges

The desired outcome is a mix of local prevention programs that target the most common intermittent and transitory discharges in the community. Program managers need to develop targeted pollution prevention programs for three sectors of the community:

- Neighborhood Discharges. The pollution prevention practices related to discharge prevention in residential neighborhoods include storm drain stenciling, lawn care, septic system maintenance, vehicle fluid changing, car washing, household hazardous waste disposal and swimming pool draining.
- Generating Sites. This group of pollution prevention practices can reduce spills and transitory discharges generated during common business operations. Practices include business outreach, spill prevention and response plans, employee training and site inspections.
- Municipal Housekeeping. This group of pollution prevention practices is performed during municipal operations, such as sewer and storm drain maintenance, plumbing code revision, and provision of household hazardous waste and used oil collection services.

Overview of Preventing Illicit Discharges

Intermittent and transitory discharges are difficult to detect through outfall screening or indicator monitoring. Indeed, the best way to manage these discharges is to promote

pollution prevention practices in the community that prevent them from occurring. Effective IDDE programs develop education and outreach materials targeted toward neighborhoods, generating sites, and municipal operations. The discharge prevention message is normally integrated with other storm water education programs required under MS4 NPDES Phase II permits such as

- Public education and outreach
- Public participation/involvement
- Municipal pollution prevention/good housekeeping

Preventing Illicit Discharges from Neighborhoods

Many common neighborhood behaviors can cause transitory discharges that are seldom defined or regulated as illicit discharges by most communities. Individually, these behaviors cause relatively small discharges, but collectively, they can produce significant pollutant loads. Most communities use outreach and education to promote pollution prevention practices, and some of the more effective practices to influence these behaviors are described in this section:

- Storm drain stenciling
- Septic system maintenance
- Vehicle fluid changing
- Car washing
- Household hazardous waste storage and disposal
- Swimming pool draining

Storm Drain Stenciling

Storm drain stenciling sends a clear message to keep trash and debris, leaf litter, and pollutants out of the storm drain system, and may deter illegal dumping and discharges (Figure 14). Stenciling may increase watershed awareness and neighborhood stewardship and can be used in any neighborhood with enclosed storm drains.

Stenciling is an excellent way to involve the public, and just a few trained volunteers can systematically stencil all the storm drains within a neighborhood in a short time. Volunteers can be recruited from scouting, community service, and watershed organizations, or from high schools and neighborhood associations. Program managers should designate a staff person to coordinate storm drain stenciling and be responsible for recruiting, training, managing, and supplying volunteers. Storm drain stenciling programs are relatively inexpensive. Most communities use stencils, although some are now using permanent markers made of tile, clay, or metal.

Vehicle Fluid Changing

Dumping of automotive fluids into storm drains can cause major water quality problems, since only a few quarts of oil or a few gallons of antifreeze can severely degrade a small stream. Dumping delivers hydrocarbons, oil and grease, metals, xylene and other pollutants to streams, which can be toxic during dry-weather conditions when existing flow cannot dilute these discharges. The major culprit has been the backyard mechanic

who changes his or her own automotive fluids. Communities have a range of tools to prevent illegal dumping of car fluids, including:

- Outreach materials distributed at auto parts store and service stations
- Community oil recycling centers
- Directories of used oil collection stations
- Free or discounted oil disposal containers
- Pollution hotlines
- Fines and other enforcement actions

Car Washing

Car washing is a common neighborhood behavior that can produce transitory discharges of sediment, nutrients and other pollutants to the curb, and ultimately the storm drain. Communities have utilized many innovative outreach tools to promote environmentally safe car washing, including:

- Media campaigns
- Brochures promoting nozzles with shut off valves
- Storm drain plug and wet vac provisions for charity car wash events
- Water bill inserts promoting environmentally safe car washing products
- Discounted tickets for use at commercial car washes

Household Hazardous Waste Storage and Disposal

The average garage contains a lot of products that are classified as hazardous wastes, including paints, stains, solvents, used motor oil, pesticides and cleaning products. While some household hazardous waste (HHW) may be dumped into storm drains, most enters the storm drain system as a result of outdoor rinsing and cleanup. Improper disposal of HHW can result in acute toxicity to downstream aquatic life. The desired neighborhood behavior is to participate in HHW collection days, and to use appropriate pollution prevention techniques when conducting rinsing, cleaning and fueling operations. Convenience and awareness appear to be the critical factors in getting residents to participate in household hazardous waste collection programs. Participation depends on the number of days each year collection events are held and is inversely related to both the distance homeowners must travel to recycle waste and the restrictions on what is accepted. Communities have used a variety of techniques to promote and expand HHW collection, including:

- Mass media campaigns to educate residents about proper outdoor cleaning/ rinsing techniques
- Conventional outreach materials notifying residents about HHW and collection days
- More frequent HHW collection days
- Providing curbside disposal options for some HHW
- Establishing permanent collection facilities at solid waste facilities
- Providing mobile HHW pickup
- Waiving disposal fees at landfills

Swimming Pool Draining
Routine and end-of-season maintenance tasks for aboveground or in-ground pools can cause the discharge of chlorinated water or filter back flush water into the storm drain system or the stream. The ideal practice is to discharge chlorinated pool water into the sanitary sewer system, or hold it until chlorine and temperature levels are acceptable to permit spreading it over a suitable pervious surface.

Preventing Illicit Discharges from Generating Sites
Many indirect discharges can be identified and prevented using the concept of generating sites, which are a small subset of commercial, industrial, institutional, municipal and transport-related operations that have the greatest risk of generating indirect discharges. Program managers should become intimately familiar with the types of generating sites found in their community, particularly those regulated by industrial NPDES storm water permits.

Preventing Illicit Discharges from Municipal Operations
Many municipal operations and services have the potential to create or reduce illicit discharges. Program managers should review all municipal operations and services to make sure good housekeeping is practiced. In addition, program managers should examine:

- Routine sewer and storm drain maintenance
- Plumbing code revisions
- HHW collection services
- Used motor oil collection services

Routine Sewer and Storm Drain Maintenance
Failure to regularly inspect and maintain local sewer and storm water infrastructure can cause illicit discharges to receiving waters. Within the storm drain system, maintenance should focus on frequent cleaning to keep trash, debris and illegally dumped material from entering the storm drain system. In the sanitary sewer network, maintenance should focus on finding damaged infrastructure that allows sewage discharges from the sanitary sewer. In-stream monitoring, historical data reviews of past complaints, or aging sewer infrastructure can often be used to identify likely problem areas.

Plumbing Code Revisions
Communities need to establish the legal authority to prohibit illicit connections to the storm drain system. When the illicit discharge ordinance is being prepared, communities should thoroughly review all of their plumbing codes to prevent any misinterpretation that might create cross connections to the storm drain system. Program managers should also specifically target licensed plumbers to educate them on any code changes.

Household Hazardous Waste Collection Services
Households generate a lot of hazardous wastes, and communities need to educate residents about proper household hazardous wastes (HHW) handling and disposal, and

provide convenient options for pick up and disposal. Communities have experimented with several innovative ways to deal with HHW including:

- A permanent facility that accepts HHW year-round and can serve as a central location for HHW exchange and recycling
- Mobile collection at temporary facilities. On designated special collection days, mobile units can move through communities accepting HHW and take the form of curbside pickup or central collection locations
- Some local businesses may act as drop off centers for certain products. Some local garages, for example, may accept used motor oil for recycling

Used Motor Oil Collection Services

Used motor oil collection has been a common municipal service for many years; however, program managers may need to refine their programs to increase participation. Suggested outreach approaches include:

- Conventional outreach materials provided at points of sale (e.g., auto parts stores, service stations)
- Multilingual outreach materials
- Directories of used oil collection stations
- Free or discounted oil disposal containers

Tracking Discharges to a Source

Storm Drain Network Investigation

Field crews strategically inspect manholes within the storm drain network system to measure chemical or physical indicators that can isolate discharges to a specific segment of the network. Once the pipe segment has been identified, on-site investigations are used to find the specific discharge or improper connection. Once an illicit discharge is found, a combination of methods is used to isolate its specific source.

Drainage Area Investigation

This method relies on an analysis of land use or other characteristics of the drainage area that is producing the illicit discharge. The investigation can be as simple as a “windshield” survey of the drainage area or a more complex mapping analysis of the storm drain network and potential generating sites. Drainage area investigations work best when prior indicator monitoring reveals strong clues as to the likely generating site producing the discharge.

On-site Investigation

On-site methods are used to trace the source of an illicit discharge in a pipe segment, and may involve dye, video or smoke testing within isolated segments of the storm drain network.

Septic System Investigation

Low-density residential watersheds may require special investigation methods if they are not served by sanitary sewers and/ or storm water is conveyed in ditches or swales. The major illicit discharges found in low-density development are failing septic systems and illegal dumping. Homeowner surveys, surface inspections and infrared photography have all been effectively used to find failing septic systems in low-density watersheds.

Drainage Area Investigations
The source of some illicit discharges can be determined through a survey or analysis of the drainage area of the problem outfall. The simplest approach is a rapid windshield survey of the drainage area to find the potential discharger or generating sites. A more sophisticated approach relies on an analysis of available GIS data and permit databases to identify industrial or other generating sites. In both cases, drainage area investigations are only effective if the discharge observed at an outfall has distinct or unique characteristics that allow crews to quickly ascertain the probable operation or business that is generating it. Often, discharges with a unique color, smell, or off-the-chart indicator sample reading may point to a specific industrial or commercial source. Drainage area investigations are not helpful in tracing sewage discharges, since they are often not always related to specific land uses or generating sites.

Rapid Windshield Survey
A rapid drive-by survey works well in small drainage areas, particularly if field crews are already familiar with its business operations. Field crews try to match the characteristics of the discharge to the most likely type of generating site, and then inspect all of the sites of the same type within the drainage area until the culprit is found. For example, if fuel is observed at an outfall, crews might quickly check every business operation in the catchment that stores or dispenses fuel.

On-site Investigations
On-site investigations are used to pinpoint the exact source or connection producing a discharge within the storm drain network. The basic approaches are dye and video. While each approach can determine the actual source of a discharge, each needs to be applied under the right conditions and test limitations. It should be noted that on-site investigations are not particularly effective in finding indirect discharges to the storm drain network.

Dye Testing
Dye testing is an excellent indicator of illicit connections and is conducted by introducing non-toxic dye into toilets, sinks, shop drains and other plumbing fixtures. The discovery of dye in the storm drain, rather than the sanitary sewer, conclusively determines that the illicit connection exists.

Video Testing
Video testing works by guiding a mobile video camera through the storm drain pipe to locate the actual connection producing an illicit discharge. Video testing

shows flows and leaks within the pipe that may indicate an illicit discharge, and can show cracks and other pipe damage that enable sewage or contaminated water to flow into the storm drain pipe. This technique will not detect all types of discharges, particularly when the illicit connection is not flowing at the time of the video survey.

Septic System Investigations

The techniques for tracing illicit discharges are different in rural or low-density residential watersheds. Often, these watersheds lack sanitary sewer service and storm water is conveyed through ditches or swales, rather than enclosed pipes. Consequently, many illicit discharges enter the stream as indirect discharges, through surface breakouts of septic fields or through straight pipe discharges from bypassed septic systems.

Techniques to Fix Discharges

Quick and efficient correction of illicit discharges begins with having well defined legal authority and responsibilities coupled with strong enforcement and follow-up measures. Most illicit discharge corrective actions involve some form of infrastructure modification or repair. These structural repairs are used to eliminate a wide variety of direct discharges such as sewage cross-connections, straight pipes, industrial cross-connections, and commercial cross-connections. Fixes range from simple plumbing projects to excavation and replacement of sewer lines. Most transitory discharges are corrected simply with spill containment and clean-up procedures.

Implementation Considerations

Once the source of an illicit discharge has been identified, steps should be taken to fix or eliminate the discharge. The following four questions should be answered for each individual illicit discharge to determine how to proceed:

- Who is responsible?
- What methods will be used to fix it?
- How long will it take?
- How will removal be confirmed?

The answer to each of these questions depends on the source of the discharge. Illicit discharges generally originate from one of the following sources:

- An internal plumbing connection (e.g., the discharge from a washing machine is directed to the building's storm lateral; the floor drain in a garage is connected to the building's storm lateral)
- A service lateral cross-connection (e.g., the sanitary lateral from a building is connected to the MS4)
- An infrastructure failure within the sanitary sewer or MS4 (e.g., a collapsed sanitary line is discharging into the MS4)
- An indirect transitory discharge resulting from leaks, spills, or overflows.

Financial responsibility for source removal will typically fall on property owners, MS4 operators, or some combination of the two.

Ultimate responsibility for removing the source of a discharge is generally that of either the property owner or the municipality/utility (e.g., primary owner/operator of the MS4).

Appendix D
IDD&E Permit Requirements Summary and Checklist

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

(25 Pa. Code § 92a.32(a) and 40 CFR § 122.34(b)(3))

1. The permittee shall develop, implement and enforce a program to detect and eliminate illicit discharges into the permittee's regulated small MS4.

   a. BMP #1: The permittee shall develop and implement a written program for the detection, elimination, and prevention of illicit discharges into the regulated small MS4. The program shall include the following:

      - Procedures for identifying priority areas. These are areas 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.

      - Procedures for screening outfalls in priority areas. The program shall include dry weather field screening of outfalls for non-stormwater flows, and sampling of dry weather discharges for selected chemical and biological parameters. Test results shall be used as indicators of possible discharge sources.

      - Procedures for identifying the source of an illicit discharge when a contaminated flow is detected at a regulated small MS4 outfall.

      - Procedures for eliminating an illicit discharge.

      - 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.

      - 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.

      - Procedures for program documentation, evaluation and assessment. 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.

- Procedures for addressing information or complaints received from the public.

For new permittees, the IDD&E program shall be developed during the first year of coverage under this General Permit and shall be implemented and evaluated each year thereafter.

For existing permittees, the IDD&E program shall continue to be implemented and evaluated annually.

b. BMP #2: The permittee shall 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).

For new permittees, the map(s) must be developed and submitted to DEP as an attachment to an Annual MS4 Status Report by September 30, 2022 or the fourth (4th) Annual MS4 Status Report following approval of coverage under this General Permit, whichever is later.

For existing permittees, the existing map(s) shall be updated and maintained as necessary during each year of coverage under this General Permit.

c. 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.

For new permittees, the map(s) must be developed and submitted to DEP as an attachment to an Annual MS4 Status Report by September 30, 2022

or the fourth (4th) Annual MS4 Status Report following approval of coverage under this General Permit, whichever is later.

For existing permittees, the existing map(s) shall be updated and maintained as necessary during each year of coverage under this General Permit.

d. BMP #4: The permittee shall conduct dry weather screenings of its 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, in accordance with Part A III.D.4 of this General Permit.

For new permittees, all of the identified regulated small MS4 outfalls shall be screened during dry weather at least twice within the 5-year period following approval of coverage under this General Permit.

For existing permittees, each of the identified regulated small MS4 outfalls shall be screened during dry weather at least once by March 15, 2023. For areas where past problems have been reported or known sources of dry weather flows occur on a continual basis, outfalls shall be screened annually during each year of permit coverage.

(1) If a discharge is observed from any outfall during dry weather screenings, the discharge shall be inspected for color, odor, floating solids, scum, sheen, and substances that result in observed deposits in the surface waters. In addition, the discharge cannot contain substances that result in deposits in the receiving water or produce an observable change in the color, odor or turbidity of the receiving water.

If the discharge exhibits any of the above characteristics, or contains any other pollutants or causes an observed change in the surface waters, the permittee shall sample the discharge(s) for field

and/or laboratory analysis of one or more common IDD&E parameters in order to determine if the dry weather flow is illicit. Possible parameters include, but are not limited to: pH, Conductivity, Fecal Coliform bacteria, Heavy Metals, Chemical Oxygen Demand (COD), 5-day Biochemical Oxygen Demand (BOD5), Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Oil and Grease, Total Residual Chlorine (TRC) and Ammonia-Nitrogen. Proper quality assurance and quality control procedures shall be followed when collecting, transporting or analyzing water samples. The permittee shall retain sample results with the inspection report in accordance with Part A III.B of this General Permit.

(2) Each time an outfall is screened, the permittee shall record outfall observations, regardless of the presence of dry weather flow. All outfall inspections shall be documented on the MS4 Outfall Field Screening Report form (3800-FM-BCW0521), or equivalent. The report must be signed by the inspector and be maintained by the permittee in accordance with Part A III.B of this General Permit. If an outfall flow is determined by the permittee to be illicit, the actions taken to identify and eliminate the illicit flow shall also be documented.

(3) The permittee shall summarize the results of outfall inspections and actions taken to remove or correct illicit discharges in Annual MS4 Status Reports.

(4) If the permittee determines that an outfall cannot be accessed due to safety or other reasons, the permittee shall establish an “observation point” at an appropriate location prior to the outfall where outfall field screening shall be performed. If observation points are established by the permittee, such points shall be identified on the map required under BMP #2 of this section.

(5) Permittees must ensure that outfalls are properly maintained in accordance with Part C I.B.6.b of this General Permit.

e. 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) Municipal permittees shall submit a copy of an ordinance that is consistent with DEP's 2022 Model Stormwater Management Ordinance (3800-PM-BCW0100j) as an attachment to an Annual MS4 Status Report by September 30, 2022 (existing permittees) or the fourth (4th) Annual MS4 Status Report following approval of coverage under this General Permit (new permittees).

(2) Permittees that lack the authority to enact ordinances (non-municipal permittees and counties) shall develop and adopt an SOP that prohibits non-stormwater discharges consistent with this General Permit, and shall submit a copy of the SOP as an attachment to an Annual MS4 Status Report by September 30, 2022 (existing permittees) or the fourth (4th) Annual MS4 Status Report following approval of coverage under this General Permit (new permittees).

(3) Notice must be provided to DEP of the approval of any waiver or variance by the permittee that allows an exception to non-stormwater discharge provisions of an ordinance or SOP. This notice shall be submitted in the next Annual MS4 Status Report following approval of the waiver or variance.

f. 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) During each year of permit coverage, appropriate educational information concerning illicit discharges shall be distributed to the target audiences using methods outlined under MCM #1. The permittee shall establish and promote a stormwater pollution reporting mechanism (e.g., a complaint line with message recording) by the end of the first year of General Permit coverage for the public to use to notify the permittee of illicit discharges, illegal dumping or outfall pollution. The permittee shall respond to all complaints in a timely and appropriate manner. The permittee shall document all responses, including the action taken, the time required to take the action, and whether the complaint was resolved successfully.

(2) Educational outreach may include: distribution of brochures and guidance for target audiences including schools; programs to encourage and facilitate public reporting of illicit discharges; organizing volunteers to locate and visually inspect outfalls and to stencil storm drains; and implement and encourage recycling programs for common wastes such as motor oil, antifreeze and pesticides.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) ILLICIT DISCHARGE DETECTION & ELIMINATION (IDD&E) CHECKLIST

This checklist may be used by MS4 permittees to ensure complete implementation of MCM #3 of MS4 NPDES permits.

Requirement	Check if Completed
BMP #1: Develop and maintain a written IDD&E program to detect, eliminate and prevent illicit discharges. The program must be developed within one year of permit coverage for new permittees and updated and evaluated annually for renewal permittees. The program must include:	☐
a. Dry weather field screening of outfalls for non-stormwater flows.	☐
b. Sampling of dry weather discharges for selected chemical and biological parameters.	☐
c. Procedures for identifying priority areas. These are areas 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.	☐
d. Procedures for screening outfalls in priority areas during varying seasonal and meteorological conditions.	☐
e. Procedures for identifying the source of an illicit discharge when a contaminated flow is detected at a regulated small MS4 outfall.	☐
f. Procedures for eliminating an illicit discharge.	☐
g. 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.	☐
h. Mechanisms for gaining access to private property to inspect outfalls (e.g., land easements, consent agreements, search warrants).	☐
i. Procedures for program documentation, evaluation and assessment.	☐
j. Recordkeeping – records must 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.	☐
BMPs #2 & #3: Develop and maintain map(s) of your regulated small MS4. The map(s) must be developed by the fourth year of permit coverage for new permittees and be updated as necessary. The map(s) must depict the following:	☐
a. Locations of all outfalls directly or indirectly discharging stormwater from your MS4.	☐
b. Locations and names of all surface waters of the Commonwealth that receive discharges from those outfalls.	☐
c. The entire storm sewer collection system, including roads, inlets, piping, swales, catch basins, channels, basins, etc.	☐
d. Municipal and/or watershed boundaries.	☐
BMP #4: Conduct outfall field screening, identify the source of any illicit discharges, and remove or correct any illicit discharges using procedures developed under BMP #1. Specific requirements include the following:	☐
a. New permittees – screen all identified MS4 outfalls at least twice during dry weather during the permit term; screen at least forty percent of the total number of outfalls per year.	☐
b. Renewal permittees – screen all identified MS4 outfalls at least once during each permit coverage term; 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.	☐

Requirement	Check if Completed
c. If screening reveals dry weather flow, the discharge from the outfall and the area around the outfall must be inspected visually for color, turbidity, sheen, floating or submerged solids; for adverse effects on plants or animals in proximity to the outfall; and for odor. If the outfall produces any odor, or if the visual inspection shows any indication that the discharge may contain pollutants, then samples of the discharge must be collected for field and/or lab testing of selected chemical and biological parameters as part of a process to determine if the dry weather flow is illicit.	☐
d. Prioritize outfall screenings according to the perceived chance of illicit discharges within the outfall's contributing drainage area.	☐
e. Inspections must be recorded on the Outfall Reconnaissance Inventory/Sample Collection field sheet.	☐
f. Adequate written documentation must be maintained to justify a determination that an outfall flow is not illicit. If an outfall flow is illicit, the actions taken to identify and eliminate the illicit flow must be documented.	☐
g. The results of outfall inspections and actions taken to remove or correct illicit discharges must be summarized in periodic reports.	☐
BMP #5: Enact a stormwater management ordinance to implement and enforce a stormwater management program that includes prohibition of non-stormwater discharges to the regulated small MS4.	☐
a. New permittees – within the first year of coverage under the permit, new permittees must enact and implement an ordinance from an Act 167 Plan approved by the Department in 2005 or later, the MS4 Stormwater Management Ordinance, or an ordinance that satisfies all applicable requirements in a completed and signed MS4 Stormwater Management Ordinance Checklist.	☐
b. New permittees – submit a letter signed by a municipal official, municipal engineer, or the municipal solicitor as an attachment to your first year report certifying the enactment of an ordinance that meets all applicable requirements of this permit.	☐
c. Renewal permittees – continue to maintain, update, implement, and enforce a Stormwater Management Ordinance that satisfies all applicable requirements.	☐
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.	☐
a. During each year of permit coverage, appropriate educational information concerning illicit discharges shall be distributed to the target audiences using methods outlined under MCM #1 of the MS4 NPDES permit.	☐
b. Establish and promote a stormwater pollution reporting mechanism (e.g., a complaint line with message recording) by the end of the first year of permit coverage for the public to use to notify you of illicit discharges, illegal dumping or outfall pollution.	☐
c. Respond to all complaints in a timely and appropriate manner. Document all responses, include the action taken, the time required to take the action, whether the complaint was resolved successfully.	☐

Appendix E
EPA IDD&E Fact Sheet

United States Environmental Protection Agency
Office of Water (4203)
EPA 833-F-00-007
January 2000 (revised December 2005)
Fact Sheet 2.5

Stormwater Phase II Final Rule

Illicit Discharge Detection and Elimination Minimum Control Measure

Stormwater Phase II Final Rule Fact Sheet Series

Overview

1.0 – Stormwater Phase II Final Rule: An Overview

Small MS4 Program

2.0 – Small MS4 Stormwater Program Overview

2.1 – Who's Covered? Designation and Waivers of Regulated Small MS4s

2.2 – Urbanized Areas: Definition and Description

Minimum Control Measures

2.3 – Public Education and Outreach

2.4 – Public Participation/ Involvement

2.5 – Illicit Discharge Detection and Elimination

2.6 – Construction Site Runoff Control

2.7 – Post-Construction Runoff Control

2.8 – Pollution Prevention/Good Housekeeping

2.9 – Permitting and Reporting: The Process and Requirements

2.10 – Federal and State-Operated MS4s: Program Implementation

Construction Program

3.0 – Construction Program Overview

3.1 – Construction Rainfall Erosivity Waiver

Industrial "No Exposure"

4.0 – Conditional No Exposure Exclusion for Industrial Activity

This fact sheet profiles the Illicit Discharge Detection and Elimination minimum control measure, one of six measures the operator of a Phase II regulated small municipal separate storm sewer system (MS4) is required to include in its stormwater management program to meet the conditions of its National Pollutant Discharge Elimination System (NPDES) permit. This fact sheet outlines the Phase II Final Rule requirements and offers some general guidance on how to satisfy them. It is important to keep in mind that the small MS4 operator has a great deal of flexibility in choosing exactly how to satisfy the minimum control measure requirements.

What Is An "Illicit Discharge"?

Federal regulations define an illicit discharge as "...any discharge to an MS4 that is not composed entirely of stormwater..." with some exceptions. These exceptions include discharges from NPDES-permitted industrial sources and discharges from fire-fighting activities. Illicit discharges (see Table 1) are considered "illicit" because MS4s are not designed to accept, process, or discharge such non-stormwater wastes.

Table 1

Sources of Illicit Discharges
Sanitary wastewater
Effluent from septic tanks
Car wash wastewaters
Improper oil disposal
Radiator flushing disposal
Laundry wastewaters
Spills from roadway accidents
Improper disposal of auto and household toxics

Why Are Illicit Discharge Detection and Elimination Efforts Necessary?

Discharges from MS4s often include wastes and wastewater from non-stormwater sources. A study conducted in 1987 in Sacramento, California, found that almost one-half of the water discharged from a local MS4 was not directly attributable to precipitation runoff. A significant portion of these dry weather flows were from illicit and/or inappropriate discharges and connections to the 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 paint or used oil dumped directly into a drain). The result is untreated discharges that contribute high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria to receiving waterbodies. Pollutant levels from these illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic, wildlife, and human health.

What Is Required?

Recognizing the adverse effects illicit discharges can have on receiving waters, the Phase II Final Rule requires an operator of a regulated small MS4 to develop, implement and enforce an illicit discharge detection and elimination program. This program must include the following:

- ❑ A storm sewer system map, showing the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls;
- ❑ Through an ordinance, or other regulatory mechanism, a prohibition (to the extent allowable under State, Tribal, or local law) on non-stormwater discharges into the MS4, and appropriate enforcement procedures and actions;
- ❑ A plan to detect and address non-stormwater discharges, including illegal dumping, into the MS4;
- ❑ The education of public employees, businesses, and the general public about the hazards associated with illegal discharges and improper disposal of waste; and
- ❑ The determination of appropriate best management practices (BMPs) and measurable goals for this minimum control measure. Some program implementation approaches, BMPs (i.e., the program actions/activities), and measurable goals are suggested below.

Does This Measure Need to Address All Illicit Discharges?

No. The illicit discharge detection and elimination program does not need to address the following categories of non-stormwater discharges or flows unless the operator of the regulated small MS4 identifies them as significant contributors of pollutants to its MS4:

- ❑ Water line flushing;
- ❑ Landscape irrigation;
- ❑ Diverted stream flows;
- ❑ Rising ground waters;
- ❑ Uncontaminated ground water infiltration;
- ❑ Uncontaminated pumped ground water;
- ❑ Discharges from potable water sources;
- ❑ Foundation drains;
- ❑ Air conditioning condensation;
- ❑ Irrigation water;
- ❑ Springs;
- ❑ Water from crawl space pumps;
- ❑ Footing drains;
- ❑ Lawn watering;
- ❑ Individual residential car washing;
- ❑ Flows from riparian habitats and wetlands;
- ❑ Dechlorinated swimming pool discharges; and
- ❑ Street wash water.

What Are Some Guidelines for Developing and Implementing This Measure?

The objective of the illicit discharge detection and elimination minimum control measure is to have regulated small MS4 operators gain a thorough awareness of their systems. This awareness allows them to determine the types and sources of illicit discharges entering their system; and establish the legal, technical, and educational means needed to eliminate these discharges. Permittees could meet these objectives in a variety of ways depending on their individual needs and abilities, but some general guidance for each requirement is provided below.

The Map

The storm sewer system map is meant to demonstrate a basic awareness of the intake and discharge areas of the system. It is needed to help determine the extent of discharged dry weather flows, the possible sources of the dry weather flows, and the particular waterbodies these flows may be affecting. An existing map, such as a topographical map, on which the location of major pipes and outfalls can be clearly presented demonstrates such awareness.

EPA recommends collecting all existing information on outfall locations (e.g., review city records, drainage maps, storm drain maps), and then conducting field surveys to verify locations. It probably will be necessary to walk (i.e., wade through small receiving waters or use a boat for larger waters) the streambanks and shorelines for visual observation. More than one trip may be needed to locate all outfalls.

Legal Prohibition and Enforcement

EPA recognizes that some permittees may have limited authority under State, Tribal or local law to establish and enforce an ordinance or other regulatory mechanism prohibiting illicit discharges. In such a case, the permittee is encouraged to obtain the necessary authority, if possible.

The Plan

The plan to detect and address illicit discharges is the central component of this minimum control measure. The plan is dependant upon several factors, including the permittee's available resources, size of staff, and degree and character of its illicit discharges. As guidance only, the four steps of a recommended plan are outlined below:

❶ **Locate Problem Areas**

EPA recommends that priority areas be identified for detailed screening of the system based on the likelihood of illicit connections (e.g., areas with older sanitary sewer lines). Methods that can locate problem areas include: visual screening; water sampling from manholes and outfalls during dry weather; the use of infrared and thermal photography, cross-training field staff to detect illicit discharges, and public complaints.

❷ **Find the Source**

Once a problem area or discharge is found, additional efforts usually are necessary to determine the source of the problem. Methods that can find the source of the illicit discharge include: dye-testing buildings in problem areas; dye- or smoke-testing buildings at the time of sale; tracing the discharge upstream in the storm sewer; employing a certification program that shows that buildings have been checked for illicit connections; implementing an inspection program of existing septic systems; and using video to inspect the storm sewers.

❸ **Remove/Correct Illicit Connections**

Once the source is identified, the offending discharger should be notified and directed to correct the problem. Education efforts and working with the discharger can be effective in resolving the problem before taking legal action.

❹ **Document Actions Taken**

As a final step, all actions taken under the plan should be documented. This illustrates that progress is being made to eliminate illicit connections and discharges. Documented actions should be included in annual reports and include information such as: the number of outfalls screened; any complaints received and corrected; the number of discharges and quantities of flow eliminated; and the number of dye or smoke tests conducted.

Educational Outreach

The Center for Watershed Protection and Robert Pitt (2004) researched the most cost-effective and efficient techniques that can be employed to identify and correct inappropriate discharges. Data from Montgomery County, Maryland, was analyzed and it was determined that staff identify and correct about six inappropriate discharges per year as a result of regular screening. By contrast, over 185 inappropriate discharges are corrected each year in Montgomery County as a direct result of citizen complaints and calls to a storm water compliant hotline. Public education and labeling of outfalls and other storm drain infrastructure is an important element of establishing a successful citizen hotline. Outreach to public employees, businesses, property owners, the general public, and elected officials regarding ways to detect and eliminate illicit discharges is an integral part of this minimum measure.

Suggested educational outreach efforts include:

- Developing ***informative brochures, and guidances*** for specific audiences (e.g., carpet cleaning businesses) and school curricula;
- Designing a program to ***publicize and facilitate public reporting*** of illicit discharges;
- ***Coordinating volunteers*** for locating, and visually inspecting, outfalls or to stencil storm drains; and
- Initiating ***recycling programs*** for commonly dumped wastes, such as motor oil, antifreeze, and pesticides.

What Are Appropriate Measurable Goals?

Measurable goals, which are required for each minimum control measure, are intended to gauge permit compliance and program effectiveness. The measurable goals, as well as the BMPs, should reflect the needs and characteristics of the operator and the area served by its small MS4. Furthermore, they should be chosen using an integrated approach that fully addresses the requirements and intent of the minimum control measure.

EPA has developed a Measurable Goals Guidance for Phase II MS4s that is designed to help program managers comply with the requirement to develop measurable goals. The guidance presents an approach for MS4 operators to develop measurable goals as part of their stormwater management plan. For example, an MS4 could establish a measurable goal of responding to all complaints received by the citizen complaint hotline within 24 hours to minimize water quality impacts or recurrent dumping. A complaint tracking system could be used to log response and enforcement activity.

The educational outreach measurable goals for this minimum control measure could be combined with the measurable goals for the Public Education and Outreach minimum control measure (see Fact Sheet 2.3).

Sources

Center for Watershed Protection and R. Pitt. 2004. Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments. Center for Watershed Protection, Ellicott City, MD, and University of Alabama, Birmingham, AL.

Maryland Department of the Environment, Water Management Administration. 1997. *Dry Weather Flow and Illicit Discharges in Maryland Storm Drain Systems*. Baltimore, Maryland.

U.S. EPA Office of Water. 1993. *Investigation of Inappropriate Pollutant Entries into Storm Drainage Systems: A User's Guide*. EPA/600/R-92/238. Washington, D.C.

Wayne County Rouge River National Wet Weather Demonstration Project. 1997. *Guidance for Preparing a Program for the Elimination of Illicit Discharges*. Wayne County, Michigan.

For Additional Information

Contacts

☞ U.S. EPA Office of Wastewater Management
http://www.epa.gov/npdes/stormwater
Phone: 202-564-9545

☞ Your NPDES Permitting Authority. Most States and Territories are authorized to administer the NPDES Program, except the following, for which EPA is the permitting authority:

Alaska	Guam
District of Columbia	Johnston Atoll
Idaho	Midway and Wake Islands
Massachusetts	Northern Mariana Islands
New Hampshire	Puerto Rico
New Mexico	Trust Territories
American Samoa	

☞ A list of names and telephone numbers for each EPA Region and State is located at http://www.epa.gov/npdes/stormwater (click on "Contacts").

Reference Documents

☞ EPA's Stormwater Web Site
http://www.epa.gov/npdes/stormwater
- Stormwater Phase II Final Rule Fact Sheet Series
- Stormwater Phase II Final Rule (64 *FR* 68722)
- National Menu of Best Management Practices for Stormwater Phase II
- Measurable Goals Guidance for Phase II Small MS4s
- Stormwater Case Studies
- And many others

☞ Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments
http://www.cwp.org/idde_verify.htm

Appendix F
Management of Swimming Pool, Hot Tub, and Spa Water Discharges DEP Fact Sheet

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

MANAGEMENT OF SWIMMING POOL, HOT TUB, AND SPA WATER DISCHARGES

This fact sheet addresses the discharge of water from swimming pools, hot tubs, and spas that are disinfected using chlorine, bromine, or "salt water disinfection," and that also may contain residual amounts of other treatment chemicals including algaecides. Servicing of a pool, hot tub, or spa often involves discharging all or a portion of the water or backwash water from filters, both of which may contain residual chlorine at levels that could be damaging to the environment. As such, these waters may be considered "polluted" (i.e., "wastewater"), and must be managed to protect public health and to prevent pollution to waters of the commonwealth such as rivers, streams, lakes, and including storm sewers. The purpose of this fact sheet is to describe acceptable methods of managing discharges from swimming pools, hot tubs, and spas to avoid causing pollution. Pool, hot tub, and spa water should not be allowed to directly or indirectly discharge to waters of the commonwealth, including storm sewers.

What substances in pools, hot tubs, or spas could cause pollution?

Chlorine and/or other disinfectants are typically added in sufficient amounts to kill potentially harmful bacteria. These disinfectants also react with other organic matter such as dirt, sweat, skin cells, leaves, and organisms creating potentially harmful disinfection byproducts. Other contaminants are added from the users, such as oil and grease from natural body oils and applied lotions and sunscreens. Chemicals commonly used in maintaining these systems, such as salt, borax, algaecides, phenols, caustic, and acid solutions, can be deadly to fish and other aquatic life. Backwashing of pool filters also contributes accumulated debris. All of these chemicals and materials have the potential to cause pollution and adversely affect public health and waters of the commonwealth.

What are acceptable methods for managing swimming pool, hot tub, and spa waters?

The best approach for managing these wastewaters is disposal into a public sewer system or at a sewage treatment facility, with authorization of the sewer system owner. A permit is generally not necessary to reuse or recycle pool wastewaters, but approval from the owner of a sewer system or sewage treatment facility is typically required. Some municipalities have enacted additional requirements related to discharges from pools. Contact your municipality if you're unsure whether additional guidelines exist.

What if no public sewer is available?

The wastewater can be drained and allowed to infiltrate into a vegetated area or used for on-site irrigation after these guidelines are met:

1. Shut off the chlorination/chemical feed system if there is one, or stop adding chlorine and chemicals.
2. Shut off the heating system, if there is one.
3. Hold the water in the pool or hot tub to reduce the chlorine level to 0.5 mg/L or less (if applicable), and the temperature to an acceptable level (generally within 10° F of the air temperature).
4. Test frequently – the water may need to be held for 10 days or more depending on the surrounding conditions. Recirculating the water may help to speed up this process.
5. Adjust the pH, if necessary, to between 6.0 and 9.0 standard units.
6. Never drain the pool on a rainy day or if the soil is saturated.

When discharging on-site for infiltration or using the water for irrigation, ensure that:

- The water will not flow into a storm sewer or other water of the commonwealth.
- The water does not run off the property.
- Nuisances such as prolonged ponding, odors, and mosquito breeding conditions are prevented.
- The flow rate is slow enough to allow infiltration and does not cause erosion.
- Solids are captured by attaching a filter bag to the end of the discharge hose, if needed.

May water from swimming pools, hot tubs, or spas be discharged to onlot septic systems?

No, pool water should not be discharged into or on the surface of onlot systems because the system is not designed for the additional flow and the contaminants could impact the operation.

May chemicals (e.g., strong acids or caustics) be used to clean my pool, hot tub, or spa?

Yes, as long as the wastewater is captured or collected, properly treated and disposed of, and prevented from entering waters of the commonwealth, including storm sewers.

How should wastewater from cleaning my pool be handled, properly treated and disposed of?

Cleaning wastewaters that contain acid, caustics, or chlorine rinses used to clean pool surfaces should be treated prior to discharge. All wastewaters, but especially cleaning wastewater, must be neutralized to a pH between 6.0 and 9.0 standard units. Chlorine rinses can be dechlorinated or should stand for a period of 10 days to allow chlorine degradation to a residual of 0.5 mg/L or less prior to discharge.

Any pool wastewaters that have unnatural cloudiness, color, oil film, solids, foam, debris, vegetation, algae, or are not or cannot be properly treated, should be collected and hauled to a treatment facility in accordance with the facility's guidelines.

What should be done with standing water that has accumulated in a pool?

Standing water, accumulated rainfall, or pool water from the previous season should be pumped from the top, but only if the chlorine residual and pH values are acceptable, to avoid disturbing solids on the pool bottom, which should not be discharged. After the water has been pumped, manually clean out the solids.

Could someone who causes pollution by discharging water from swimming pools, hot tubs, or spas be penalized?

If DEP determines that the management of swimming pool, hot tub, and spa wastewaters has caused pollution to waters of the commonwealth, the responsible party could be liable for civil penalties up to $10,000 per day under the Clean Streams Law.

For questions and additional information, contact the Clean Water Program in DEP's regional offices:

Northwest Regional Office
230 Chestnut St.
Meadville, PA 16335-3481
Main Telephone: 814-332-6945
24-Hour Emergency: 800-373-3398
Counties: *Armstrong, Butler, Clarion, Crawford, Elk, Erie, Forest, Indiana, Jefferson, Lawrence, McKean, Mercer, Venango, and Warren*

North-central Regional Office
208 W. Third St., Suite 101
Williamsport, PA 17701-6448
Main Telephone: 570-327-3636
24-Hour Emergency: 570-327-3636
Counties: *Bradford, Cameron, Clearfield, Centre, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga, and Union*

Northeast Regional Office
2 Public Square
Wilkes-Barre, PA 18701-1915
Main Telephone: 570-826-2511
24-Hour Emergency: 570-826-2511
Counties: *Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne, and Wyoming*

Southwest Regional Office
400 Waterfront Drive
Pittsburgh, PA 15222-4745
Main Telephone: 412-442-4000
24-Hour Emergency: 412-442-4000
Counties: *Allegheny, Beaver, Cambria, Fayette, Greene, Somerset, Washington, and Westmoreland*

South-central Regional Office
909 Elmerton Ave.
Harrisburg, PA 17110-8200
Main Telephone: 717-705-4700
24-Hour Emergency: 866-825-0208
Counties: *Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, and York*

Southeast Regional Office
2 East Main St.
Norristown, PA 19401-4915
Main Telephone: 484-250-5900
24-Hour Emergency: 484-250-5900
Counties: *Bucks, Chester, Delaware, Montgomery, and Philadelphia*

For more information, visit www.dep.pa.gov.

Appendix G
List of Outfalls
and
Pipe Discharges

Appendix H
MS4 Map

Appendix I
Piped Streams Map

WEST GOSHEN TOWNSHIP

EAST BRADFORD TOWNSHIP

WEST GOSHEN TOWNSHIP

WEST GOSHEN TOWNSHIP

Legend

Stormwater Features

- Unknown
- Headwall
- Inlet
- Manhole
- Road Crossing
- Junction Manhole Box
- Private Inlet
- Stormwater Outfall
- Pipe Discharge

- Municipal Boundary
- TrenchDrain
- Updated Stormwater Pipes
- Stormwater Pipes
- Streams
- Swale
- Piped Stream Flow

WEST CHESTER BOROUGH
MS4 MAP
PIPED STREAM FLOW

WEST CHESTER BOROUGH, CHESTER COUNTY, PA

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Chapter 94. Stormwater Management

[HISTORY: Adopted by the Council of the Borough of West Chester 9-21-2022 by Ord. No. 09-2022.[1] Amendments noted where applicable.]

ATTACHMENTS

Attachment 1 - Appendix A Simplified Approach to Stormwater Management for Small Projects

Attachment 2 - Appendix B Chester Creek Watershed Release Rate Map

Attachment 3 - Appendix C Natural Hydrology Site Design Process

Attachment 4 - Appendix D Runoff Coefficients and Curve Numbers

Attachment 5 - Appendix E West Nile Virus Guidance

Attachment 6 - Appendix F Stormwater Best Management Practices and Conveyance

[1] *Editor's Note: This ordinance also repealed former Ch. 94, Stormwater Management, adopted 12-18-2013 by Ord. No. 18-2013, as amended.*

Article I. General Provisions

§ 94-101. Short title.

This chapter shall be known as the "Borough of West Chester's Stormwater Management Ordinance."

§ 94-102. Statement of findings.

Borough Council of the Borough finds that:

A. Inadequate management of accelerated stormwater runoff resulting from land disturbance and development throughout a watershed increases flooding, flows and velocities, contributes to erosion and sedimentation, overtaxes the capacity of streams and storm sewers, greatly increases the cost of public facilities to convey and manage stormwater, undermines floodplain management and flood reduction efforts in upstream and downstream communities, reduces infiltration and groundwater recharge, increases nonpoint source pollution to waterways, and threatens public health and safety.

B. Inadequate planning and management of stormwater runoff resulting from land disturbance and development throughout a watershed can harm surface water resources by changing the natural hydrologic patterns, accelerating stream flows (which increase scour and erosion of stream beds and stream banks, thereby elevating sedimentation), destroying aquatic habitat, and elevating aquatic pollutant concentrations and loadings such as sediments, nutrients, heavy metals, and pathogens. Groundwater resources are also impacted through loss of recharge.

C. A comprehensive program of stormwater management, including minimization of impacts of new development, redevelopment, and other earth disturbance activities causing accelerated runoff and erosion and loss of natural infiltration, is fundamental to the public health, safety, and general welfare of the people of the Borough and all of the people of the commonwealth, their resources, and the environment.

D. Stormwater is an important water resource that provides infiltration and groundwater recharge for water supplies and baseflow of streams, which also protects and maintains surface water quality.

E. Impacts from stormwater runoff can be minimized by reducing the volume of stormwater generated and by using project designs that maintain the natural hydrologic regime and sustain high water quality, infiltration, stream baseflow, and aquatic ecosystems. Cost-effective and environmentally sensitive stormwater management can be achieved through the use of nonstructural site design techniques that minimize impervious surfaces, reduce disturbance of land and natural resources, avoid sensitive areas (i.e., riparian buffers, floodplains, steep slopes, wetlands, etc.), and consider topography and soils to maintain the natural hydrologic regime.

F. Public education on the control of pollution from stormwater is an essential component in successfully addressing stormwater.

G. Federal and state regulations require the Borough to implement a program of stormwater controls. The Borough is required to obtain a permit and comply with its provisions for stormwater discharges from its separate storm sewer system under the National Pollutant Discharge Elimination System (NPDES).

H. Nonstormwater discharges to municipal or other storm sewer systems can contribute to pollution of the waters of the commonwealth.

I. The use of green infrastructure, low-impact development (LID), and conservation design (CD) are intended to address the root cause of water quality impairment by using systems and practices which use or mimic natural processes to: 1) Infiltrate and recharge; 2) Evapotranspire; and/or 3) Harvest and use precipitation near where it falls to earth. Green infrastructure practices, LID, and CD contribute to the restoration or maintenance of predevelopment hydrology.

§ 94-103. Purpose.

The purpose of this chapter is to protect public health, safety and general welfare, property and water quality by implementing drainage and stormwater management practices, criteria, and provisions included herein for land development, construction and earth disturbance activities, to achieve the following throughout the Borough:

A. Reduce the frequency and magnitude of flooding and stormwater impacts affecting people, property, infrastructure and public services.

B. Sustain or improve the natural hydrologic characteristics and water quality of groundwater and surface waters.

C. Protect natural resources, including riparian and aquatic living resources and habitats.

D. Maintain the natural hydrologic regime of land development sites and their receiving watersheds.

E. Minimize land disturbance and protect and incorporate natural hydrologic features, drainage patterns, infiltration, and flow conditions within land development site designs.

F. Reduce and minimize the volume of stormwater generated, and manage and release stormwater as close to the source of runoff as possible.

G. Provide infiltration and maintain natural groundwater recharge to protect groundwater supplies and stream baseflows, prevent degradation of surface water and groundwater quality, and to otherwise protect water resources.

H. Reduce stormwater pollutant loads to protect and improve the chemical, physical, and biological quality of ground- and surface-waters.

I. Reduce scour, erosion and sedimentation of stream channels.

J. Reduce flooding impacts and preserve and restore the natural flood-carrying capacity of streams and their floodplains.

K. Protect adjacent and downgradient lands from adverse impacts of direct stormwater discharges.

L. Minimize impervious surfaces and connected impervious surfaces to promote infiltration and reduce the volume and impacts of stormwater runoff.

M. Provide proper long-term operation and maintenance of all permanent stormwater management facilities, BMPs and conveyances that are implemented within the Borough.

N. Reduce the impacts of runoff from existing developed land undergoing redevelopment while encouraging new development and redevelopment in urban areas and areas designated for growth.

O. Implement an illicit discharge detection and elimination program that addresses nonstormwater discharges.

P. Provide stormwater management performance standards and design criteria on watershed-based basis.

Q. Provide standards to meet certain NPDES stormwater permit requirements.

R. 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 the commonwealth.

S. Implement the requirements of total maximum daily load (TMDLs) where applicable to waters within or impacted by the Borough.

T. Provide review procedures and performance standards for stormwater planning and management.

U. Fulfill the purpose and requirements of PA Act 167 (PA Act 167, Section 3):

> "(1) Encourage planning and management of stormwater runoff in each watershed which is consistent with sound water and land use practices.
>
> (2) Authorize a comprehensive program of stormwater management designated to preserve and restore the flood carrying capacity of commonwealth streams; to preserve to the maximum extent practicable natural stormwater runoff regimes and natural course, current and cross-section of water of the commonwealth; and to protect and conserve groundwaters and groundwater recharge areas.
>
> (3) Encourage local administration and management of stormwater consistent with the commonwealth's duty as trustee of natural resources and the people's constitutional right to the preservation of natural, economic, scenic, aesthetic, recreational and historic values of the environment."

§ 94-104. Statutory authority.

The Borough is empowered or required to regulate land use activities that affect runoff and surface and groundwater quality and quantity by the authority of:

A. Act of October 4, 1978, P.L. 864 (Act 167) 32 P.S. § 680.1 et seq., as amended, the "Stormwater Management Act" (hereinafter referred to as "the Act");

B. Act of July 31, 1968, P.L. 805, No. 247, 53 P.S. § 10101, et seq., as amended, the Pennsylvania Municipalities Planning Code, Act 247, hereinafter referred to as the "MPC").

§ 94-105. Applicability.

A. The following activities are regulated by this chapter:

(1) All regulated activities as defined in this chapter, including, but not limited to, new development, redevelopment, and earth disturbance activities that are located within the Borough shall be subject to regulation by this chapter.

(2) When a building and/or grading permit is required for any regulated activity on an existing parcel or approved lot created by a subdivision and/or improved as a land development project, issuance of the permit shall be conditioned upon adherence to the terms of this chapter.

(3) This chapter contains the stormwater management performance standards and design criteria that are necessary from a watershed-based perspective. The Borough's stormwater management conveyance and system design criteria (e.g., inlet spacing, inlet type, collection system design and details, outlet structure design, etc.) shall continue to be regulated by the applicable municipal ordinance(s) and applicable state regulations, or as included in § **94-311** of this chapter.

B. Duty of persons engaged in a regulated activity. Notwithstanding any provision(s) of this chapter, including exemptions, any landowner or any person engaged in a regulated activity, including but not limited to the alteration or development of land, which may affect stormwater runoff characteristics, shall implement such measures as are reasonably necessary to prevent injury to health, safety, or other property. Such measures also shall include actions as are required to manage the rate, volume, direction, and quality of resulting stormwater runoff in a manner which otherwise adequately protects health, property, and water quality of waters of the commonwealth.

C. Phased and incremental project requirements.

(1) Any regulated activity (including but not limited to new development, redevelopment, or earth disturbance) that is to take place incrementally or in phases, or occurs in sequential projects on the same parcel or property, shall be subject to regulation by this chapter if the regulated impervious surface or earth disturbance exceeds the corresponding threshold for exemption (as presented in Table 106.1, "Thresholds for Regulated Activities Exempt From Chapter Provisions").

(2) The date of adoption of this chapter shall be the starting point from which to consider tracts as parent tracts relative to future subdivisions, and from which impervious surface and earth disturbance computations shall be cumulatively considered, unless such requirements have previously been adopted, then the earliest date of the applicable municipal ordinance adoption shall remain as the starting point. For example: If, after adoption of this chapter, an applicant proposes construction of a 400-square-foot garage, that project would be exempt from the requirements of this chapter as noted in Table 106.1. If, at a later date, an applicant proposes to construct a 300-square-foot room addition on the same property, the applicant would then be required to implement the stormwater management and plan submission requirements of this chapter for the cumulative total of 700 square feet of additional impervious surface added to the property since adoption of this chapter.

D. Notwithstanding anything to the contrary contained herein, the provisions of Article **VIII**, titled, "Prohibitions" shall apply to every person in the Borough regardless if they are engaged in a regulated activity.

§ 94-106. Exemptions and modified requirements.

A. Requirements for exempt activities.

(1) An exemption from any requirement of this chapter shall not relieve the applicant from implementing all other applicable requirements of this chapter or from implementing such measures as are necessary to protect public health, safety, and welfare, property and water quality.

(2) An exemption shall not relieve the applicant from complying with the requirements for state-designated special protection waters designated by PADEP as high-quality (HQ) or exceptional-value (EV) waters, or any other current or future state or municipal water quality protection requirements.

(3) An exemption under this chapter shall not relieve the applicant from complying with all other applicable municipal ordinances or regulations.

B. General exemptions. Regulated activities that:

(1) Are less than 500 square feet of regulated impervious surfaces and less than 2,500 square feet of earth disturbance;

(2) Are listed in Subsection **C**, are exempt from those (and only those) requirements of this chapter that are included in the sections and articles listed in Table 106.1. Exemptions are for the items noted in Table 106.1 only, and shall not relieve the landowner from other applicable requirements of this chapter. Exemption shall not relieve the applicant from implementing such measures as are necessary to protect health, safety, and welfare, property, and water quality.

TABLE 106.1
Thresholds for Regulated Activities That Are Exempt from the Provisions of This Chapter as Listed Below

Ordinance Article/Section	Activities Listed in § 106C	Less Than 500 Square Feet of Proposed Regulated Impervious Surfaces and Less Than 2,500 Square Feet of Proposed Earth Disturbance	Equal To or Greater Than 500 Square Feet of Regulated Impervious Surfaces or Equal To or Greater Than 2,500 Square Feet of Proposed Earth Disturbance
Article **I**	Not exempt	Not exempt	Not exempt
Article **II**	Not exempt	Not exempt	Not exempt
§§ 302, and 303, 311	Not exempt	Not exempt	Not exempt
§§ 301, 304, 305, 306, 307, 308, 309, and 310	Exempt	Exempt	Not exempt
Article **IV**	Exempt	Exempt	Not exempt
Article **V**	Exempt	Exempt	Not exempt
Article **VI**	Exempt	Exempt	Not exempt
Article **VII**	Exempt	Exempt	Not exempt
Article **VIII**	Not exempt	Not exempt	Not exempt
Article **IX**	Not exempt	Not exempt	Not exempt
Other erosion, sediment and pollution control requirements	Must comply with Title 25, Chapter **102** of the PA Code and other applicable state and municipal codes, including the Clean Streams Law.		

C. Exemptions for specific activities. The following specific regulated activities are exempt from the requirements of §§ **94-301**, **94-304**, **94-305**, **94-306**, **94-307**, **94-308**, **94-309** and **94-310**, and Articles **IV**, **V**, **VI** and **VII** of this chapter (as shown in Table 106.1), unless otherwise noted below. All other conveyance and system design standards established by the Borough in other codes or ordinances shall be required, and all other provisions of this chapter shall apply.

(1) Emergency exemption. Emergency maintenance work performed for the protection of public health, safety and welfare. This exemption is limited to repair of the existing stormwater management facility; upgrades, additions or other improvements are not exempt. A written description of the scope and extent of any emergency work performed shall be submitted to the Borough within two calendar days of the commencement of the activity. A detailed plan shall be submitted no later than 30 days following commencement of the activity. If the

Borough finds that the work is not an emergency, then the work shall cease immediately and the requirements of this chapter shall be addressed as applicable.

(2) Maintenance. Any maintenance to an existing stormwater management system, stormwater management facility, BMP or conveyance made in accordance with plans and specifications approved by the Municipal Engineer or Borough.

(3) Existing landscaping. Use of land for maintenance, replacement or enhancement of existing landscaping.

(4) Gardening. Use of land for gardening for home consumption.

(5) Agricultural-related activities.

(a) Agricultural activities (as defined in Article **II**), when performed in accordance with the requirements of 25 Pa. Code Chapter **102**.

(b) Conservation practices (as defined in Article **II**) that do not involve construction of any new or expanded impervious surfaces.

(c) High tunnels (as defined in § **94-202**), if:

[1] The high tunnel or its flooring does not result in an impervious area exceeding 25% of all structures located on the owner's total contiguous land area; and

[2] The high tunnel meets one of the following:

[a] The high tunnel is located at least 100 feet from any perennial stream or watercourse, public road or neighboring property line;

[b] The high tunnel is located at least 35 feet from any perennial stream or watercourse, public road, or neighboring property line and located on land with a slope not greater than 7%; or

[c] The high tunnel is supported with a buffer or diversion system that does not directly drain into a stream or other watercourse by managing stormwater runoff in a manner consistent with the requirements of this chapter.

(6) Forest management. Forest management operations, which are consistent with a sound forest management plan as filed with the Borough and which comply with the Pennsylvania Department of Environmental Protection's management practices contained in its publication "Soil Erosion and Sedimentation Control Guidelines for Forestry" (as amended or replaced by subsequent guidance). Such operations are required to have an erosion and sedimentation control plan, which meets the requirements of 25 Pa. Code Chapter **102** and meets the erosion and sediment control standards of § **94-303** of this chapter.

(7) Maintenance of existing gravel and paved surfaces. Replacement of existing gravel and paved surfaces shall meet the erosion and sediment control requirements of 25 Pa. Code Chapter **102** and § **94-303** of this chapter, and is exempt from all other requirements of this chapter listed in Subsection **C** above. Resurfacing of existing gravel and paved surfaces is exempt from the requirements of this chapter listed above. Construction of new or additional impervious surfaces shall comply with all requirements of this chapter as indicated in Table 106.1.

(8) Municipal roadway shoulder improvements. Shoulder improvements conducted within the existing roadway cross section of municipal-owned roadways, unless an NPDES permit is required, in which case the proposed work must comply with all requirements of this chapter.

(9) In-place replacement, repair, or maintenance of residential impervious surfaces: the replacement of existing residential patios, decks, driveways, pools, garages, and/or sidewalks that are accessory to an existing one- or two-family dwelling unit in the exact footprint of the existing impervious surface.

D. Modified requirements for small projects. Regulated activities that involve 500 square feet but less than 1,000 square feet of regulated impervious surfaces and 2,500 square feet but less than 5,000 square feet of earth disturbance may apply the modified requirements presented in the "Simplified Approach to Stormwater Management for Small Projects" (Simplified Approach) (Appendix A) to comply with the requirements of §§ **94-304**, **94-305**, **94-306**, **94-307**, **94-308**, **94-309** and **94-310**, and Articles **IV**, **V**, **VI** and **VII** of this chapter (as shown in Table 106.1). The applicant shall first contact the Municipal Engineer to confirm that the proposed project is eligible for use of the Simplified Approach and is not otherwise exempt from these chapter provisions; to determine what components of the proposed project are to be considered as impervious surfaces; and to determine if other known site or local conditions exist that may preclude the use of any techniques included in the Simplified Approach. Appendix A includes instructions and procedures for preparation, submittal, review and approval of documents required when using the Simplified Approach and shall be adhered to by the applicant. Infiltration testing for projects using the simplified approach is recommend but is not required by this chapter. All other provisions of this chapter shall apply.

TABLE 106.2
Thresholds for Regulated Activities That Are Eligible for "Modified" Requirements for the Provisions of This Chapter That Are Listed Below

Chapter Article/Section	Activities Listed in § 106D
Article **I**	All provisions apply
Article **II**	All provisions apply
§§ 302, 303, and 311	All provisions apply
§§ 301, 304, 305, 306, 307, 308, 309, and 310	Exempt if modified requirements of § 106D are applied
Article **IV**	Exempt if modified requirements of § 106D are applied
Article **V**	Exempt if modified requirements of § 106D are applied
Article **VI**	Exempt if modified requirements of § 106D are applied
Article **VII**	Exempt if modified requirements of § 106D are applied
Article **VIII**	All provisions apply
Article **IX**	All provisions apply
Other erosion, sediment and pollution control requirements	Must comply with Title 25, Chapter **102** of the PA Code and other applicable state and municipal codes, including the Clean Streams Law.

Table 106.2 Notes:

- "Modified Requirements" - Regulated activities listed within the subsections of this chapter noted in Table 106.2 are eligible for exemption only from the indicated sections and subsections of this chapter and only if the modified requirements of § 106D are met to the satisfaction of the municipality; all other provisions of this chapter apply.

§ 94-107. Repealer.

The Stormwater Management Ordinance adopted on December 18, 2013, as Ordinance No. 2013, which is codified in Chapter **94** of the Borough Code, is hereby repealed. Any other ordinance or ordinance provision of the Borough Code which is inconsistent with any of the provisions of this chapter is hereby repealed to the extent of the inconsistency only.

§ 94-108. Severability.

If any sentence, clause, section or part of this chapter is for any reason found to be unconstitutional, illegal or invalid, such unconstitutionality, illegality or invalidity shall not affect or impair any of the

remaining provisions, sentences, clauses, sections or parts of this chapter. It is hereby declared the intent of Borough Council of the Borough that this chapter would have been adopted had such unconstitutional, illegal or invalid provision, sentence, clause, section or part thereof not been included herein.

§ 94-109. Compatibility with other ordinances or legal requirements.

A. Approvals issued and actions taken pursuant to this chapter do not relieve the applicant of the responsibility to secure and comply with other required permits or approvals for activities regulated by any other applicable code, rule, act, law, regulation, or ordinance.

B. To the extent that this chapter imposes more rigorous or stringent requirements for stormwater management than any other code, rule, act, law, regulation or ordinance, the specific requirements contained in this chapter shall take precedence.

C. Nothing in this chapter shall be construed to affect any of the Borough's requirements regarding stormwater matters that do not conflict with the provisions of this chapter, such as local stormwater management design criteria (e.g., inlet spacing, inlet type, collection system design and details, outlet structure design, etc.). The requirements of this chapter shall supersede any conflicting requirements in other municipal ordinances or regulations.

§ 94-110. Financial security.

For all activities requiring submittal of a stormwater management (SWM) site plan that involve subdivision or land development, the applicant shall post financial security with the Borough for the timely installation and proper construction of all stormwater management facilities as required by the approved SWM site plan and this chapter, and such financial security shall:

A. Be equal to or greater than the full construction cost of the required facilities except to the extent that financial security for the cost of any of such improvements is required to be and is posted with the Pennsylvania Department of Transportation in connection with a highway occupancy permit application; and

B. Be determined, collected, applied and enforced in accordance with §§ 509 through 511 of the MPC and the provisions of the Borough's Subdivision and Land Development Ordinance (SALDO).[1]

[1] *Editor's Note: See 53 P.S. §§ 10509 through 10511 and Ch.* ***97****, Subdivision and Land Development, respectively.*

§ 94-111. Waivers.

A. General. The requirements of this chapter are essential and shall be strictly adhered to. For any regulated activity where, after a close evaluation of alternative site designs, it proves to be impracticable to meet any one or more of the mandatory minimum standards of this chapter on the site, the Borough may approve measures other than those in this chapter, subject to Subsections **B** and **C**.

B. The Borough Council shall have the authority to waive or modify the requirements of one or more provisions of this chapter if the literal enforcement will exact undue hardship because of peculiar conditions pertaining to the land in question, provided that such modification will not be contrary to the public interest and that the purpose and intent of the chapter is observed. Cost or financial burden shall not be considered a hardship. Modification may also be considered if an alternative standard or approach can be demonstrated to provide equal or better achievement of the results intended by the chapter. A request for modification shall be in writing and accompany the SWM site

plan submission. The request shall state in full the grounds and facts on which the request is based, the provision or provisions of the chapter involved and the minimum modification necessary.

C. PADEP approval required. No waiver or modification of any regulated stormwater activity involving Earth Disturbance greater than or equal to one acre may be granted by the municipality unless that action is approved in advance by PADEP or the Chester County Conservation District.

§ 94-112. Erroneous permit.

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 municipality purporting to validate such a violation.

Article II. Definitions

§ 94-201. Interpretation; 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 word "person" includes an individual, partnership, public or private association or corporation, firm, trust, estate, Borough, governmental unit, public utility or any other legal entity whatsoever which is recognized by law as the subject of rights and duties. Whenever used in any section prescribing or imposing a penalty, the term "person" shall include the members of a partnership, the officers, members, servants and agents of an association, officers, agents and servants of a corporation, and the officers of a Borough.

D. The words "shall" and "must" are mandatory; the words "may" and "should" are permissive.

E. The words "used" or "occupied" include the words "intended, designed, maintained, or arranged to be used, occupied, or maintained."

F. The definitions in this chapter are for the purposes of enforcing the provisions of this chapter and have no bearing on other municipal regulations or ordinances.

§ 94-202. Definitions.

As used in this chapter, the following terms shall have the meanings indicated:

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, plowing, disking, harrowing, planting or 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 Borough for approval to engage in any regulated activity as defined in this chapter.

AS-BUILT PLAN (DRAWINGS)

Engineering or site plans or drawings that document the actual locations, dimensions and elevations of the improvements, and building components, and changes made to the original design plans. The final version of these documents, or a copy of same, are signed and sealed by a qualified licensed professional and submitted to the Borough at the completion of the project, as per the requirements of § **94-502** of this chapter, as "final as-built plans."

BANKFULL

The channel at the top-of-bank or point from where water begins to overflow onto a floodplain.

BASEFLOW

Portion of stream discharge derived from groundwater; the sustained discharge that does not result from direct runoff or from water diversions, reservoir releases, piped discharges, or other human activities.

BMP (BEST MANAGEMENT PRACTICE)

Activities, facilities, designs, measures, or procedures used to manage stormwater impacts from regulated activities, to provide water quality treatment, infiltration, volume reduction, and/or peak rate control, 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 include certain low-impact development and conservation design practices used to minimize the contact of pollutants with stormwater runoff. These practices aim to limit the total volume of stormwater runoff and manage stormwater at its source by techniques such as protecting natural systems and incorporating existing landscape features. Nonstructural BMPs include, but are not limited to, the protection of sensitive and special value features such as wetlands and riparian areas, the preservation of open space while clustering and concentrating development, the reduction of impervious cover, and the disconnection of rooftops from storm sewers. Structural BMPs are those that consist of a system that is designed and engineered 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, bioretention, wet ponds, permeable paving, grassed swales, riparian buffer, sand filters, detention basins, and manufactured devices. Structural and nonstructural stormwater BMPs are permanent appurtenances to the site. (See also "stormwater management facility" and "stormwater control measure (SCM).")

BOROUGH

West Chester Borough, Chester County, Pennsylvania.

BUFFER

See "riparian buffer."

CARBONATE GEOLOGY or CARBONATE ROCK FORMATIONS

See "karst."

CFS

Cubic feet per second.

CHANNEL

A natural or artificial open drainage feature that conveys, continuously or periodically, flowing water and through which stormwater flows. Channels include, but shall not be limited to, natural and man-made drainageways, swales, streams, ditches, canals, and pipes flowing partly full.

CN

Curve number.

COMMONWEALTH

Commonwealth of Pennsylvania.

CONSERVATION DESIGN

A series of holistic land development design goals that maximize protection of key land and environmental resources, preserve significant concentrations of open space and greenways, evaluate, and maintain site hydrology, and ensure flexibility in development design to meet community needs for complimentary and aesthetically pleasing development. Conservation design encompasses the following objectives: conservation/enhancement of natural resources, wildlife habitat, biodiversity corridors, and greenways (interconnected open space); minimization of environmental impact resulting from a change in land use (minimum disturbance, minimum maintenance); maintenance of a balanced water budget by making use of site characteristics and infiltration; incorporation of unique natural, scenic and historic site features into the configuration of the development; preservation of the integral characteristics of the site as viewed from adjoining roads; and reduction in maintenance required for stormwater management practices. Such objectives can be met on a site through an integrated development process that respects natural site conditions and attempts, to the maximum extent possible, to replicate or improve the natural hydrology of a site.

CONSERVATION DISTRICT

The Chester County Conservation District.

CONSERVATION PLAN

A plan written by a planner certified by NRCS that identifies conservation practices and includes site-specific BMPs for agricultural plowing or tilling activities and animal heavy use areas.

CONSERVATION PRACTICES

Practices installed on agricultural lands to improve farmland, soil and/or water quality which have been identified in a current conservation plan.

CONVEYANCE

A natural or man-made, existing or proposed stormwater management facility, feature or channel used for the transportation or transmission of stormwater from one place to another. For the purposes of this chapter, conveyance shall include pipes, drainage ditches, channels and swales (vegetated and other), gutters, stream channels, and like facilities or features.

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 BASIN

An impoundment designed to collect and retard stormwater runoff by temporarily storing the runoff and releasing it at a predetermined rate. Detention basins are designed to drain completely shortly after any given rainfall event.

DETENTION or TO DETAIN

Capture and temporary storage of runoff in a stormwater management facility for release at a controlled rate.

DETENTION VOLUME

The volume of runoff that is captured and released into the waters of the commonwealth at a controlled rate.

DEVELOPER

A person, company, or organization who seeks to undertake any regulated activities at a site in the Borough.

DIAMETER AT BREAST HEIGHT (DBH)

The outside bark diameter of a tree at breast height which is defined as 4.5 feet (1.37 meters) above the forest floor on the uphill side of the tree.

DISTURBED AREA

Land area disturbed by or where an "earth disturbance activity" is occurring or has occurred.

DRAINAGE AREA

That land area contributing runoff to a single point (including but not limited to the point/line of interest used for hydrologic and hydraulic calculations) and that is enclosed by a natural or manmade ridgeline.

EARTH DISTURBANCE or 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; land development; building construction; and the moving, depositing, stockpiling, or storing of soil, rock, or earth materials.

EASEMENT

A right of use granted by a landowner to allow a grantee the use of the designated portion of land for a specified purpose, such as for stormwater management or other drainage purposes.

EROSION

The process by which the surface of the land, including water/stream channels, is worn away by water, wind, or chemical action.

EROSION AND SEDIMENT CONTROL PLAN

A plan required by the Conservation District or the Borough to minimize accelerated erosion and sedimentation, and that must be prepared and approved per the applicable requirements.

EVAPOTRANSPIRATION (ET)

The combined processes of evaporation from the water or soil surface and transpiration of water by plants.

FEMA

Federal Emergency Management Agency.

FLOOD

A temporary condition of partial or complete inundation of land areas from the overflow of streams, rivers, and other waters of this commonwealth.

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.

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 (also called the base flood or 1% annual chance 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 floodway, it is assumed, absent evidence to the contrary, that the floodway extends from the center line of the stream and to 50 feet beyond the top of the bank of the stream on both sides.

FOREST MANAGEMENT/TIMBER OPERATIONS

Planning and activities necessary for the management of forest lands. These include timber inventory, preparation of forest management plans, silvicultural treatment, cutting budgets, logging road design and construction, timber harvesting, site preparation, and reforestation.

FREEBOARD

A vertical distance between the design high-water elevation and the elevation of the top of a dam, levee, tank, basin, swale, or diversion berm. The space is required as a safety margin in a pond or basin.

GEOTEXTILE

A fabric manufactured from synthetic fiber that is used to achieve specific objectives, including infiltration, separation between different types of media (i.e., between soil and stone), or filtration.

GOVERNING BODY

The Borough Council of the Borough of West Chester.

GRADE/GRADING

1. (noun) A slope, usually of a road, channel, or natural ground, specified in percent and shown on plans as specified herein. 2. (verb) To finish the surface of a roadbed, the top of an embankment, or the bottom of an excavation.

GREEN INFRASTRUCTURE

Systems and practices that use or mimic natural processes to infiltrate, evapotranspire, or reuse stormwater on the site where it is generated.

GROUNDWATER

Water that occurs in the subsurface and fills or saturates the porous openings, fractures and fissures of underground soils and rock units.

GROUNDWATER RECHARGE

The replenishment of existing natural groundwater supplies from infiltration of rain or overland flow.

HEC-1

The U.S. Army Corps of Engineers, Hydrologic Engineering Center (HEC) hydrologic runoff model.

HEC-HMS

The U.S. Army Corps of Engineers, Hydrologic Engineering Center (HEC) - Hydrologic Modeling System (HMS).

HIGH TUNNEL

A structure which meets the following:

A. Is used for the production, processing, keeping, storing, sale or shelter of an agricultural commodity as defined in Section 2 of the Act of December 19, 1974 (P.L. 973, No. 319), known as the "Pennsylvania Farmland and Forest Land Assessment Act of 1974,"[1] or for the storage of agricultural equipment or supplies; and

B. Is constructed with all the following:

   (1) Has a metal, wood or plastic frame;

   (2) When covered, has a plastic, woven textile or other flexible covering; and

   (3) Has a floor made of soil, crushed stone, matting, pavers or a floating concrete slab.

HOTSPOTS

Areas where prior or existing land use or activities can potentially generate highly contaminated runoff with concentrations of pollutants in excess of those typically found in stormwater.

HYDROLOGIC REGIME

The hydrologic system, cycle or balance that sustains the quality and quantity of stormwater, stream baseflow, storage, and groundwater supplies under natural conditions.

HYDROLOGIC SOIL GROUP (HSG)

A classification of soils, by the Natural Resources Conservation Service (NRCS), into four runoff potential groups. The groups range from A soils, which are very permeable and produce little runoff, to D soils, which are not very permeable and produce much more runoff.

IMPERVIOUS SURFACE

A surface that has been compacted or covered with a layer of material so that it prevents or is resistant to infiltration of water, including but not limited to: structures such as roofs, buildings, storage sheds; other solid, paved or concrete areas such as streets, driveways, sidewalks, parking lots, patios, decks, swimming pools, tennis or other paved courts; or athletic playfields comprised of synthetic turf materials. For the purposes of determining compliance with this chapter, compacted soils or stone surfaces used for vehicle parking and movement shall be considered impervious. Surfaces that were designed to allow infiltration (i.e., pavers and areas of porous pavement) are not to be considered impervious surface if designed to function as a BMP per review by the Municipal Engineer. Additionally, for the purposes of determining compliance with this chapter, the total horizontal projection area of all ground-mounted and free-standing solar collectors, including solar photovoltaic cells, panels, and arrays, shall be considered pervious so long as the designs note that natural vegetative cover will be preserved and/or restored underneath the solar photovoltaic cells, panels, and arrays, and the area disturbed is planned as a vegetated pervious surface.

INFILTRATION

Movement of surface water into the soil, where it is absorbed by plant roots, evaporated into the atmosphere, or percolated downward to recharge groundwater.

INFILTRATION FACILITY

A stormwater BMP designed to collect and discharge runoff into the subsurface in a manner that allows infiltration into underlying soils and groundwater (e.g., french drains, seepage pits, or seepage trenches, etc.).

INTERMITTENT STREAM

A defined channel in which surface water is absent during a portion of the year, in response to seasonal variations in precipitation or groundwater discharge.

INVERT

The lowest surface, the floor or bottom of a culvert, pipe, drain, sewer, channel, basin, BMP or orifice.

KARST

A type of topography that is formed over limestone or other carbonate rock formations by dissolving or solution of the rock by water, and that is characterized by closed depressions, sinkholes, caves, a subsurface network of solution conduits and fissures through which groundwater moves, and no perennial surface drainage features.

LAND DEVELOPMENT

Any of the following activities:

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 residential or nonresidential 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, whether initially or cumulatively, 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. A subdivision of land;

C. Development in accordance with Section 503(1.1) of the Pennsylvania Municipalities Planning Code (as amended).[2]

LANDOWNER

The legal or beneficial owner or owners of land including the holder of an option or contract to purchase (whether or not such option or contract is subject to any condition), a lessee if they are authorized under the lease to exercise the rights of the landowner, or other person having a proprietary interest in the land.

LICENSED PROFESSIONAL

A Pennsylvania registered professional engineer, registered landscape architect, registered professional land surveyor, or registered professional geologist, or any person licensed by the Pennsylvania Department of State or qualified by law to perform the work required by the chapter within the Commonwealth of Pennsylvania.

LIMITING ZONE

A soil horizon or condition in the soil profile or underlying strata that includes one of the following:

A. A seasonal high-water table, whether perched or regional, determined by direct observation of the water table or indicated by other subsurface or soil conditions.

B. A rock with open joints, fracture or solution channels, or masses of loose rock fragments, including gravel, with insufficient fine soil to fill the voids between the fragments.

C. A rock formation, other stratum, or soil condition that is so slowly permeable that it effectively limits downward passage of water.

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, provide evapotranspiration 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.

MAINTENANCE

The action taken to restore or preserve the as-built functional design of any stormwater management facility or system.

MFEMP

Mushroom Farm Environmental Management Plan.

MPC

Act of July 31, 1968, P.L. 805, No. 247, 53 P.S. § 10101 et seq., as amended, the Pennsylvania Municipalities Planning Code, Act 247.

MS4

Municipal separate storm sewer system.

MUNICIPAL ENGINEER

A professional engineer licensed as such in the Commonwealth of Pennsylvania, duly appointed as the engineer for a Borough, planning agency, or joint planning commission.

NEW DEVELOPMENT

Any regulated activity involving placement or construction of new impervious surface or grading over existing pervious land areas not classified as redevelopment as defined in this chapter.

NOAA

National Oceanic and Atmospheric Administration.

NONPOINT SOURCE POLLUTION
Pollution that enters a water body from diffuse origins in the watershed and does not result from discernible, confined, or discrete conveyances.

NONSTORMWATER DISCHARGES
Water flowing in stormwater collection facilities, such as pipes or swales, which is not the result of a rainfall event or snowmelt.

NONSTRUCTURAL BEST MANAGEMENT PRACTICE (BMPs)
See "best management practice (BMP)."

NPDES
National Pollutant Discharge Elimination System, the federal government's system for issuance of permits under the Clean Water Act, which is delegated to PADEP in Pennsylvania.

NRCS
Natural Resource Conservation Service (previously Soil Conservation Service, SCS), an agency of the U.S. Department of Agriculture.

PADEP
Pennsylvania Department of Environmental Protection.

PARENT TRACT
The parcel of land from which a land development or subdivision originates, determined from the date of March 17, 2004.

PEAK DISCHARGE
The maximum rate of stormwater runoff from a specific storm event.

PennDOT
Pennsylvania Department of Transportation.

PENNSYLVANIA STORMWATER BEST MANAGEMENT PRACTICES MANUAL (PA BMP MANUAL)
Document Number 363-0300-002 (December 2006, and as subsequently amended).

PERVIOUS SURFACE or PERVIOUS AREA
Any area not defined as impervious surface.

PLANNING COMMISSION
The Planning Commission of West Chester Borough.

POINT SOURCE
Any discernible, confined, and discrete conveyance including, but not limited to, any pipe, ditch, channel, tunnel, or conduit from which stormwater is or may be discharged, as defined in state regulations at 25 Pa. Code § 92.1.[3]

POSTCONSTRUCTION
Period after construction during which disturbed areas are stabilized, stormwater controls are in place and functioning, and all proposed improvements approved by the Borough are completed.

PREDEVELOPMENT
Ground cover conditions assumed to exist within the proposed disturbed area prior to commencement of the regulated activity for the purpose of calculating the predevelopment water quality volume, infiltration volume, and peak flow rates as required in this chapter.

PRETREATMENT

Techniques employed in stormwater BMPs to provide storage or filtering, or other methods to trap or remove coarse materials and other pollutants before they enter the stormwater system, but may not necessarily be designed to meet the entire water quality volume requirements of this chapter.

PROPOSED IMPERVIOUS SURFACE

All new, additional and replacement impervious surfaces.

RAINFALL INTENSITY

The depth of accumulated rainfall per unit of time.

RECHARGE

The replenishment of groundwater through the infiltration of rainfall, other surface waters, or land application of water or treated wastewater.

REDEVELOPMENT

Any regulated activity that involves demolition, removal, reconstruction, or replacement of existing impervious surface(s).

REGULATED ACTIVITY

Any earth disturbance activity(ies) or any activity that involves the alteration or development of land in a manner that may affect stormwater runoff.

REGULATED EARTH DISTURBANCE ACTIVITY

Any activity involving earth disturbance subject to regulation under 25 Pennsylvania Code Chapter **92**,[4] Chapter **102**, or the Clean Streams Law.[5]

REGULATED IMPERVIOUS SURFACE

A proposed impervious surface as part of a current proposed activity and all existing impervious surfaces installed after December 18, 2013 (date of adoption of 2013 Countywide Model Stormwater Ordinance).

RETENTION BASIN

An impoundment that is designed to temporarily detain a certain amount of stormwater from a catchment area and which may be designed to permanently retain stormwater runoff from the catchment area; retention basins always contain water.

RETENTION or TO RETAIN

The prevention of direct discharge of stormwater runoff into surface waters or water bodies during or after a storm event by permanent containment in a pond or depression; examples include systems which discharge by percolation to groundwater, exfiltration, and/or evaporation processes and which generally have residence times of less than three days.

RETENTION VOLUME/REMOVED RUNOFF

The volume of runoff that is captured and not released directly into the surface waters of the 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

Pertaining to anything connected with or immediately adjacent to the banks of a stream or other body of water.

RIPARIAN BUFFER

An area of land adjacent to a body of water and managed to maintain vegetation to protect the integrity of stream channels and shorelines, to reduce the impact of upland sources of pollution by trapping, filtering, and converting sediments, nutrients, and other chemicals, and to supply food, cover and thermal protection to fish and other aquatic species and wildlife.

RUNOFF

Any part of precipitation that flows over the land surface.

SALDO

See Subdivision and Land Development Ordinance.[6]

SCS

Soil Conservation Service, now known as the Natural Resources Conservation Service.

SEDIMENT

Soil or other materials transported by, suspended in or deposited by surface water as a product of erosion.

SEPARATE STORM SEWER SYSTEM

A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) primarily used for collecting and conveying stormwater runoff.

SHEET FLOW

A flow process associated with broad, shallow water movement on sloping ground surfaces that is not channelized or concentrated.

SITE

Total area of land in the Borough where any proposed regulated activity, as defined in this chapter, is planned, conducted, or maintained or that is otherwise impacted by the regulated activity.

SOIL COVER COMPLEX METHOD

A method of runoff computation developed by NRCS that is based on relating soil type and land use/cover to a runoff parameter called curve number (CN).

STATE WATER QUALITY REQUIREMENTS

The regulatory requirements to protect, maintain, reclaim, and restore water quality under Pennsylvania Code Title 25 and the Clean Streams Law.[7]

STORM FREQUENCY

See "return period."

STORMWATER

Drainage runoff from the surface of the land resulting from precipitation or snow or ice melt.

STORMWATER CONTROL MEASURE

Physical features used to effectively control, minimize, and treat stormwater runoff. See "best management practice (BMP)."

STORMWATER MANAGEMENT (SWM) SITE PLAN

The plan prepared by the applicant or its representative, in accordance with the requirements of Article **IV** of this chapter, indicating how stormwater runoff will be managed at a particular site in accordance with this chapter, and including all necessary design drawings, calculations, supporting text, and documentation to demonstrate that chapter requirements have been met, herein referred to as "SWM site plan." All references in this chapter to "final" or "approved" SWM site plans shall incorporate the approved SWM site plan and all subsequent approved revisions thereto.

STORMWATER MANAGEMENT FACILITY

Any feature, natural or man-made, that, due to its condition, design, or construction, conveys, stores, or otherwise affects stormwater runoff quality, rate, or quantity, including best management practices and stormwater control measures. Typical stormwater management facilities include, but are not limited to, detention and retention basins, open channels, storm sewers, pipes, and infiltration facilities.

STREAM

A natural watercourse.

STRUCTURAL BEST MANAGEMENT PRACTICES

See "BMP (best management practices)."

SUBDIVISION

The division or redivision of a lot, tract, or parcel of land as defined in The Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247 (as amended).[8]

SUBDIVISION AND LAND DEVELOPMENT ORDINANCE

Subdivision and Land Development Ordinance of West Chester Borough, Chester County, PA, as amended.[9]

SWALE

An artificial or natural waterway or low-lying stretch of land that gathers and conveys stormwater or runoff, and is generally vegetated for soil stabilization, stormwater pollutant removal, and infiltration.

SWM SITE PLAN

See "stormwater management site plan."

TIMBER OPERATIONS

See "forest management."

TOP-OF-BANK

Highest point of elevation of the bank of a stream or channel cross section at which a rising water level just begins to flow out of the channel and into the floodplain.

USDA

United States Department of Agriculture.

WATER TABLE

The uppermost level of saturation of pore space or fractures by groundwater. "Seasonal high-water table" refers to a water table that rises and falls with the seasons due either to natural or man-made causes.

WATERCOURSE

A channel or conveyance of surface water having a defined bed and banks, whether natural or artificial, with perennial or intermittent flow.

WATERS OF THE COMMONWEALTH

Any and all rivers, streams, creeks, rivulets, impoundments, ditches, watercourses, storm sewers, lakes, dammed water, wetlands, ponds, 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 the commonwealth.

WATERSHED

Region or area drained by a river, watercourse, or other body of water, whether natural or artificial.

WETLAND

Those 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. Wetlands generally include swamps, marshes, bogs, fens, and similar areas.

WOODS

Any land area of at least 0.25 acre with a natural or naturalized ground cover (excluding manicured turf grass) and that has an average density of two or more viable trees per 1,500 square feet with a DBH of six inches or greater and where such trees existed at any time within three years of the time of land development application submission of the proposed project. The land area to be considered woods shall be measured from the outer driplines of the outer trees.

[1] *Editor's Note: See 72 P.S. § 5490.1 et seq.*

[2] *Editor's Note: See 53 P.S. § 10503(1.1).*

[3] *Editor's Note: Chapter **92** of Title 25 of the Pennsylvania Code was reserved 10-8-2010, effective 10-9-2010. Defined terms can now be found at 25 Pa. Code § 92a.2.*

[4] *Editor's Note: Chapter **92** of Title 25 of the Pennsylvania Code was reserved 10-8-2010, effective 10-9-2010. It was replaced by Chapter 92a, National Pollutant Discharge Elimination System (NPDES) Permitting, Monitoring and Compliance.*

[5] *Editor's Note: See 35 P.S. § 691.1 et seq.*

[6] *Editor's Note: See Ch. **97**, Subdivision and Land Development.*

[7] *Editor's Note: See 35 P.S. § 691.1 et seq.*

[8] *Editor's Note: See 53 P.S. § 10101 et seq.*

[9] *Editor's Note: See Ch. **97**, Subdivision and Land Development.*

Article III. Stormwater Management Standards

§ 94-301. General requirements.

A. Applicants proposing regulated activities in the Borough which are not exempt under § **94-106** shall submit a stormwater management site plan (SWM site plan) to the Borough for review and approval in accordance with Articles **III** and **IV**. SWM site plans approved by the Borough shall be on site throughout the duration of the regulated activity.

B. The stormwater management and runoff control criteria and standards in this chapter shall apply to the total proposed regulated activity, even if it is to take place in stages. The measurement of impervious surfaces shall include all of the impervious surfaces in the total proposed regulated activity even if the development is to take place in stages.

C. No regulated activity within the Borough shall commence until:

(1) The Borough issues approval of a SWM site plan, which demonstrates compliance with the requirements of this chapter; and

(2) The applicant has received a letter of adequacy or approval for the erosion and sediment control plan review by the Borough and the Conservation District (if required), and has received all other local, state and federal permit approvals required for the project involving the regulated activity.

D. Neither submission of a SWM site plan under the provisions herein nor compliance with the provisions of this chapter shall relieve any person from responsibility for damage to any person or property otherwise imposed by law.

E. The applicant shall design the site to minimize disturbances to land, site hydrology, and natural resources, and to maintain the natural hydrologic regime, drainage patterns and flow conditions. The applicant shall apply the procedures set forth in § **94-304** for the overall site design and for selection, location and design of features and BMPs to be used to comply with the requirements of this chapter.

F. To the maximum extent practicable, postconstruction stormwater shall be discharged within the drainage area of the same stream or water body receiving the runoff prior to construction of the proposed regulated activity.

G. For regulated activities with one acre or more of proposed earth disturbance, existing drainage peak rate discharges up to and including the 100-year storm and the volume of runoff up to and including the two-year storm onto or through adjacent property(ies) or downgradient property(ies), including diffuse drainage discharge, shall not be altered in any manner by regulated activities under this chapter without written permission from, and, where applicable as determined by the Borough an easement and agreement with, the affected landowner(s) for conveyance of discharges onto or through their property(ies). Altered stormwater discharges shall be subject to any applicable discharge criteria specified in this chapter.

H. Areas located outside of the site (i.e., areas outside of the regulated activity) that drain through a proposed site are not subject to water quality and volume control, infiltration, stream channel protection, or peak flow rate control requirements (as presented in §§ **94-305**, **94-306**, **94-307**, and **94-308**). Drainage facilities located on the site shall be designed to safely convey flows from outside of the site through the site.

I. If site conditions preclude capture of runoff from limited portions of the disturbed area for achieving water quality volume control standards, stream channel protection standards, and the two-, five-, and ten-year storm event peak runoff rate reduction standards for new development required by this chapter, the applicant shall propose alternate methods to mitigate the bypass of the BMPs, subject to the approval of the Municipal Engineer. In no case shall resulting peak rate be greater than the predevelopment peak rate for the equivalent design storm.

J. For all regulated activities, erosion, and sediment control BMPs shall be designed, implemented, operated, and maintained during the regulated activities (i.e., during construction) as required to meet the purposes and requirements of this chapter, to meet the erosion and sediment control requirements of the Borough, if applicable, and to meet all requirements under Title 25 of the Pennsylvania Code and the Clean Streams Law.[1]

[1] *Editor's Note: See 35 P.S. § 691.1 et seq.*

K. For all regulated activities, permanent BMPs and conveyances 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, and the Stormwater Management Act.[2]

[2] *Editor's Note: See 35 P.S. § 691.1 et seq. and 32 P.S. § 680.1 et seq., respectively.*

L. The design of all BMPs and conveyances shall incorporate sound engineering principles and practices in a manner that does not aggravate existing stormwater problems as identified by the Borough. The Borough reserves the right to disapprove any design that would result in construction in an area affected by existing stormwater problem(s) or continuation of an existing stormwater problem(s).

M. Existing wetlands, either on the site or on an adjacent property, shall not be used to meet the minimum design requirements for stormwater management or stormwater runoff quality treatment. Stormwater discharges to existing wetlands shall not degrade the quality or hydrologic integrity of the wetland.

N. Hotspot runoff controls. Specific structural or pollution prevention practices may be required, as determined to be necessary by the Municipal Engineer, to pretreat runoff from hotspots prior to infiltration. Following is a list of examples of hotspots:

(1) Vehicle salvage yards and recycling facilities;

(2) Vehicle fueling stations;

(3) Vehicle service and maintenance facilities;

(4) Vehicle and equipment cleaning facilities;

(5) Fleet storage areas (bus, truck, etc.);

(6) Industrial sites based on Standard Industrial Classification Codes;

(7) Marinas (service and maintenance areas);

(8) Outdoor liquid container storage;

(9) Outdoor loading/unloading facilities;

(10) Public works storage areas;

(11) Facilities that generate or store hazardous materials;

(12) Commercial container nursery;

(13) Contaminated sites/brownfields;

(14) Other land uses and activities as designated by the Borough.

O. Contaminated and brownfield sites. Where BMPs may contribute to the migration of contaminants in groundwater, the water quality and runoff volume, stream channel protection, and peak rate control standards shall be met; however, at the Municipal Engineer's discretion, the minimum infiltration requirement may be reduced or eliminated commensurate with the contaminated area and the required water quality and runoff control measures may be increased to mitigate the reduced infiltration requirement for the contaminated area.

P. Additional water quality requirements. The Borough may require additional stormwater control measures for stormwater discharges to special management areas including, but not limited to:

(1) Water bodies listed as "impaired" by PADEP.

(2) Any water body or watershed with an approved total maximum daily load (TMDL).

(3) Areas of known existing flooding problems.

(4) Critical areas with sensitive resources (e.g., state-designated special protection waters, cold-water fisheries, carbonate geology or other groundwater recharge areas that may be highly vulnerable to contamination, drainage areas to water supply reservoirs, etc.).

Q. Applicants shall utilize the Pennsylvania Stormwater Best Management Practices Manual (PA BMP Manual), as amended, or other sources acceptable to the Municipal Engineer, for testing and design standards for BMPs, and where there is a conflict with the provisions of this chapter, the most restrictive applies. If methods other than green infrastructure, LID, and CD 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, green infrastructure, and CD are not practicable.

R. For areas underlain by karst or carbonate geology that may be susceptible to the formation of sinkholes and other karst features, the location, type, and design of infiltration BMPs shall be based on a site evaluation conducted by a qualified licensed professional and based on the PA BMP Manual (as amended) or other design guidance acceptable to the Municipal Engineer.

S. All regulated activities located within a special flood hazard area designated by the Federal Emergency Management Agency (FEMA) shall comply with Chapter **112** of the Borough Code, titled "Zoning," specifically Article XII, titled "FP Floodplain Conservation District," and shall be designed to maintain the flood-carrying capacity of the floodway such that the base flood elevations are not increased, either upstream or downstream. The natural conveyance characteristics of the site and the receiving floodplain shall be incorporated into the stormwater management practices proposed for the site.

T. Disturbance of existing ground cover during construction of the proposed regulated activity is prohibited within 50 feet of top-of-bank of all perennial and intermittent waterways, water bodies (lakes, ponds, etc.) and wetlands, except for activities otherwise approved by state or local agencies (e.g., stream restoration projects, road crossings, subsurface utility projects, etc.). At the Municipal Engineer's discretion, and with Conservation District and PADEP approval where necessary, the nondisturbance buffer may be reduced to 25% of the setback, but never be less than 10 feet. If an existing buffer is legally prescribed (e.g., deed covenant, easement, etc.) and it exceeds the requirement of this chapter, the existing buffer shall be maintained.

§ 94-302. Permit requirements by other governmental entities.

The following permit or other regulatory requirements may apply to certain regulated activities and shall be met prior to (or as a condition of) final approval by the Borough of the SWM site plan and prior to commencement of any regulated activities, as applicable:

A. All regulated activities subject to permit or regulatory requirements by PADEP under regulations at Title 25 Pennsylvania Code Chapter **102**, or erosion and sediment control requirements of the Borough.

B. Work within natural drainageways subject to permit by PADEP under Title 25 Pennsylvania Code Chapter 105.

C. Any BMP or conveyance that would be located in or adjacent to surface waters of the commonwealth, including wetlands, subject to permit by PADEP under Title 25 Pennsylvania Code Chapter 105.

D. Any BMP or conveyance that would be located on or discharge to a state highway right-of-way, or require access to or from a state highway and be subject to approval by PennDOT.

E. Culverts, bridges, storm sewers, or any other facilities which must pass or convey flows from the tributary area and any facility which may constitute a dam subject to permit by PADEP under Title 25 Pennsylvania Code Chapter 105.

§ 94-303. Erosion and sediment control.

A. No regulated activity within the Borough shall commence until:

(1) The Borough receives documentation that the applicant has received:

(a) A "letter of adequacy" from the Conservation District or other approval from PADEP in compliance with Title 25 Chapter **102** of the Pennsylvania Code of an erosion and sediment control plan for construction activities for projects where the area of disturbance exceeds one acre, where pond dredging is involved, or when the disturbance is associated with activities described under Title 25 Chapter 105 of the Pennsylvania Code permits, if applicable;

(b) A PADEP NPDES Permit for Stormwater Discharges Associated with Construction Activities as required under Title 25 Pennsylvania Code Chapter **92**,[1] if applicable;

[1] *Editor's Note: Chapter **92** of Title 25 of the Pennsylvania Code was reserved 10-8-2010, effective 10-9-2010. It was replaced by Chapter 92a, National Pollutant Discharge Elimination System (NPDES) Permitting, Monitoring and Compliance.*

(c) Evidence of any other permit(s) or approvals required for the regulated activities; and

(2) An erosion and sediment control plan has been approved by the Borough, if required.

B. A copy of the erosion and sediment control plan and any required permit(s), as required by PADEP regulations, shall be available on the site at all times.

C. Additional erosion and sediment control measures shall be applied where infiltration BMPs are proposed, at a minimum including those required in § **94-306M**.

§ 94-304. Site design process.

The applicant shall design the site to minimize the disturbances to land, site hydrology, and natural resources, and to maintain the natural hydrologic regime, drainage patterns and flow conditions. The applicant shall demonstrate in its SWM site plan (as required in § **94-402C**) that the design sequence, objectives and techniques described below were applied to the maximum extent practicable in the site design of the regulated activity while complying with all other requirements of this chapter. The site design shall:

A. First, identify and delineate all existing natural resources and natural and man-made hydrologic features listed in § **94-402B(8)** that are located within the site, or receive discharge from, or may be impacted by the proposed regulated activity.

B. Second, provide a prioritized listing of these resources and features to identify:

(1) Those to be incorporated into the site design in a manner that provides protection from any disturbance or impact from the proposed regulated activity;

(2) Those to be protected from further disturbance or impact but for which the proposed regulated activity will provide improvement to existing conditions;

(3) Those that can be incorporated into and utilized as components of the overall site, or design in a manner that protects or improves their existing conditions while utilizing their hydrologic function within the limits of their available capacity (e.g., for infiltration, evapotranspiration, or reducing pollutant loads, runoff volume or peak discharge rates, etc.) to reduce the need for or size of constructed BMPs; and

(4) Those that may be considered for alteration, disturbance or removal.

C. Third, develop the site design to achieve the following:

(1) Recognize and incorporate the priorities identified in § **94-304B** as the basis for the proposed site layout, grading, construction, and permanent ground cover design;

(2) Minimize earth disturbance (both surface and subsurface);

(3) Maximize protection of or improvement to natural resources and special management areas;

(4) Minimize the disturbance of natural site hydrology, in particular natural drainage features and patterns, discharge points and flow characteristics, natural infiltration patterns and characteristics, and natural channel and floodplain conveyance capacity;

(5) Incorporate natural hydrologic features and functions identified in § **94-304B** into the site design to protect and utilize those features and their hydrologic functions to reduce the need for or size of constructed BMPs;

(6) Maximize infiltration and the use of natural site infiltration features, patterns and conditions, and evapotranspiration features;

(7) Apply selective grading design methods to provide final grading patterns or preserve existing topography in order to evenly distribute runoff and minimize concentrated flows;

(8) Minimize the cumulative area to be covered by impervious surfaces and:

(a) Minimize the size of individual impervious surfaces;

(b) Separate large impervious surfaces into smaller components;

(c) Disconnect runoff from one impervious surface to another; and

(d) Utilize porous materials in place of impervious wherever practicable;

(9) Minimize the volume and peak discharge rates of stormwater generated;

(10) Avoid or minimize stormwater runoff pollutant loads and receiving stream channel erosion;

(11) Locate infiltration and other BMPs:

(a) At or as near to the source of generation as possible; and

(b) At depths that are as shallow as possible;

(12) Prioritize the selection and design of BMPs as follows:

(a) Nonstructural and vegetation BMPs; then

(b) Structural (surface and subsurface) BMPs;

(13) For flow volumes requiring conveyance from the source of generation to a BMP for management, give preference to open-channel conveyance techniques that provide infiltration and water quality benefits, and landscaped-based management in common open space areas, where practicable; and

(14) Consider additional guidance for incorporating natural hydrology into the site and BMP designs, methods and techniques that support the objectives of § **94-304B** and **C**. Appendix C presents additional discussion conservation design and low-impact development.[1]

[1] *Editor's Note: Appendix C is* ***included as an attachment to this chapter****.*

D. The procedures set forth above shall be utilized to the maximum extent practicable for the overall site design and selection, location and design of features and BMPs to be used to comply with the requirements of §§ **94-305**, **94-306**, **94-307** and **94-308**.

§ 94-305. Water quality and runoff volume requirements.

To control postconstruction stormwater impacts from regulated activities and meet state water quality requirements, BMPs shall be provided in the site design that replicate predevelopment stormwater infiltration and runoff conditions, such that postconstruction stormwater discharges do not degrade the physical, chemical, or biological characteristics of the receiving waters. The green infrastructure and Low Impact Development (LID) practices provided in the PA BMP Manual, as well as the guidance on green infrastructure, LID and Conservation Design (CD) provided in Appendix B, shall be utilized for all regulated activities wherever possible. The applicant shall comply with the following water quality and runoff volume requirements for all regulated activities, including all new development and redevelopment activities:

A. The postconstruction total runoff volume shall not exceed the predevelopment total runoff volume for all storms equal to or less than the two-year, twenty-four-hour duration precipitation (design storm). The water quality and runoff volume to be managed shall consist of any runoff volume generated by the proposed regulated activity over and above the predevelopment total runoff volume and shall be captured and permanently retained or infiltrated on the site. Permanent retention options may include, but are not limited to, reuse, evaporation, transpiration, and infiltration.

B. For modeling purposes, the predevelopment ground cover conditions shall be determined using the corresponding ground cover assumptions presented in § **94-309D** of this chapter.

C. The design of the stormwater management facility outlet shall provide for protection from clogging and unwanted sedimentation.

D. BMPs that moderate the temperature of stormwater shall be used to protect the temperature of receiving waters.

E. Water quality improvement shall be achieved in conjunction with achieving the infiltration requirements of § **94-306**. The infiltration volume required under § **94-306** may be included as a component of the water quality volume. If the calculated water quality and runoff volume is greater than the volume infiltrated, then the difference between the two volumes shall be managed for water quality and runoff volume control through other techniques or practices but shall not be discharged from the site.

F. Runoff from the disturbed area shall be treated for water quality prior to entering existing waterways or water bodies. If a stormwater management practice does not provide water quality treatment, then water quality BMPs shall be utilized to provide pretreatment prior to the runoff entering the stormwater management practice.

G. The Borough may require additional water quality and runoff control measures for stormwater discharging to special management areas such as those listed in § **94-301P**.

H. When the regulated activity contains or is divided by multiple drainage areas, the water quality and runoff volume shall be separately addressed for each drainage area.

I. Weighted averaging of runoff coefficients shall not be used for manual computations or input data for water quality and runoff volume calculations.

J. Areas located outside of the site (i.e., areas outside of the regulated activity) may be excluded from the calculation of the water quality and runoff volume requirements.

K. Water quality and volume control practices shall be selected and designed to meet the criteria of § **94-304C** that apply to water quality and volume control.

L. Evapotranspiration may be quantified and credited towards meeting volume requirements according to the PADEP Post Construction Stormwater Management (PCSM) Spreadsheet and Instructions (December 2020) or the most recent guidance from PADEP.

§ 94-306. Infiltration requirements.

Providing for infiltration consistent with the natural hydrologic regime is required to compensate for the reduction in the recharge that occurs when the ground surface is disturbed or impervious surface is created or expanded. The applicant shall achieve the following infiltration requirements:

A. For Regulated Activities involving both new development and redevelopment, infiltration should be designed to accommodate the entire water quality and runoff volume required in § **94-305**. Infiltration BMPs should be consistent with the design and infiltration period guidelines included in the PA BMP Manual or other PA DEP design guidance. If the runoff volume required by Section 305 cannot be infiltrated, then alternative methods consistent with the PA BMP Manual (as amended) or other PA DEP guidance, such as the Managed Release Concept, may be used to manage this volume with approval from the Municipal Engineer.

B. For regulated activities involving both new development and redevelopment, the volume of a minimum of one inch of runoff from all regulated impervious surfaces shall be infiltrated.

C. If the requirements of § **94-306A** or **B** cannot be physically accomplished, then the applicant shall be responsible for demonstrating with data or calculations to the satisfaction of the Municipal Engineer why this infiltration volume cannot be physically accomplished on the site (e.g., shallow depth to bedrock or limiting zone, open voids, steep slopes, etc.) and what alternative volume can be infiltrated.

D. Only if a minimum infiltration of the first 0.5 inch of runoff cannot be physically accomplished on the site, shall a waiver from § **94-306** be considered by the Borough, in accordance with Section **94-**

111.

E. If site conditions preclude capture of runoff from portions of the impervious surfaces, the infiltration volume for the remaining area shall be increased an equivalent amount to offset the loss.

F. When a project contains or is divided by multiple watersheds, the infiltration volume shall be separately addressed for each watershed.

G. Existing impervious surfaces located in areas outside of the site (i.e., outside of the regulated activity) may be excluded from the calculation of the required infiltration volume.

H. A detailed soils evaluation of the site shall be conducted by a qualified professional and at a minimum shall address soil permeability, depth to bedrock, and subgrade stability. The general process for designing the infiltration BMP shall be conducted by a qualified licensed professional and shall be consistent with the PA BMP Manual (as amended) (or other guidance acceptable to the Municipal Engineer) and in general shall:

(1) Analyze hydrologic soil groups as well as natural and man-made features within the site to determine general areas of suitability for infiltration practices. In areas where development on fill material is under consideration, conduct geotechnical investigations of subgrade stability; infiltration may not be ruled out without conducting these tests.

(2) Provide field tests such as double-ring infiltrometer or other hydraulic conductivity tests (at the elevation of the proposed infiltration surface) to determine the appropriate hydraulic conductivity rate. Standard septic/sewage percolation tests are not acceptable for design purposes.

(3) Design the infiltration facility for the required retention (infiltration) volume based on field-determined infiltration capacity (and apply safety factor as per applicable design guidelines) at the elevation of the proposed infiltration surface.

(4) On-lot infiltration features are encouraged; however, it shall be demonstrated to the Municipal Engineer that the soils are conducive to infiltration on the identified lots.

I. Infiltration BMPs shall be selected based on suitability of soils and site conditions and shall be constructed on soils that have the following characteristics:

(1) A minimum depth of 24 inches between the bottom of the BMP and the top of the limiting zone. Additional depth may be required in areas underlain by karst or carbonate geology (see § **94-306M**).

(2) An infiltration rate sufficient to accept the additional stormwater volume and drain completely as determined by field tests conducted by the applicant.

(3) The infiltration facility shall completely drain the retention (infiltration) volume within three days (72 hours) from the end of the design storm.

J. All infiltration practices shall:

(1) Be selected and designed to meet the criteria of § **94-304C** that are applicable to infiltration;

(2) Be set back at least five feet from all property lines or right-of-way boundaries;

(3) Be set back at least 10 feet from all buildings and features with subgrade elements (e.g., basements, foundation walls, etc.), unless otherwise approved by the Municipal Engineer;

(4) For any infiltration practice that collects runoff from shared or multiple features and that is located within 25 feet of a building or feature with subgrade elements (e.g., basements, foundation walls, etc.), the bottom elevation shall be set below the elevation of the subgrade element.

K. Infiltration facilities shall, to the maximum extent practicable, be located to avoid introducing contaminants to groundwater:

(1) When a hotspot is located in the area draining to a proposed infiltration facility, an evaluation of the potential of groundwater contamination from the proposed infiltration facility shall be performed, including a hydrogeologic investigation (if necessary) by a qualified licensed professional to determine what, if any, pretreatment or additional design considerations are needed to protect groundwater quality.

(2) When located within a "wellhead protection area" of a public water supply well, infiltration practices shall be in conformance with the applicable approved source water protection assessment or source water protection plan.

(3) The applicant shall provide appropriate safeguards against groundwater contamination for land uses that may cause groundwater contamination should there be a mishap or spill.

L. During site construction, all infiltration practice components shall be protected from compaction due to heavy equipment operation or storage of fill or construction material. Infiltration areas shall also be protected from sedimentation. Areas that are accidentally compacted or graded shall be remediated to restore soil composition and porosity. Adequate documentation to this effect shall be submitted to the Municipal Engineer for review. All areas designated for infiltration shall not receive runoff until the contributory drainage area has achieved final stabilization.

M. Where sediment transport in the stormwater runoff is anticipated to reach the infiltration system, appropriate permanent measures to prevent or collect sediment shall be installed prior to discharge to the infiltration system.

N. Where roof drains are designed to discharge to infiltration practices, they shall have appropriate measures to prevent clogging by unwanted debris (for example, silt, leaves and vegetation). Such measures shall include but are not limited to leaf traps, gutter guards and cleanouts.

O. All infiltration practices shall have appropriate positive overflow controls.

P. No sand, salt or other particulate matter may be applied to a porous surface material for winter ice conditions.

Q. The following procedures and materials shall be required during the construction of all subsurface facilities:

(1) Excavation for the infiltration facility shall be performed with equipment that will not compact the bottom of the seepage bed/trench or like facility.

(2) The bottom of the bed and/or trench shall be scarified prior to the placement of aggregate.

(3) Only clean aggregate with documented porosity, free of fines, shall be allowed.

(4) The tops, bottoms and sides of all seepage beds, trenches, or like facilities shall be covered with drainage fabric. Fabric shall be nonwoven fabric acceptable to the Municipal Engineer.

(5) Stormwater shall be distributed throughout the entire seepage bed/trench or like facility and provisions for the collection of debris shall be provided in all facilities.

§ 94-307. Stream channel protection requirements.

For regulated activities involving new development with one or more acres of earth disturbance, the applicant shall comply with the following stream channel protection requirements to minimize stream channel erosion and associated water quality impacts to the receiving waters:

A. The peak flow rate of the postconstruction two-year, twenty-four-hour design storm shall be reduced to the predevelopment peak flow rate of the one-year, twenty-four-hour duration

precipitation, using the SCS Type II distribution.

B. To the maximum extent practicable, and unless otherwise approved by the Municipal Engineer, the postconstruction one-year, twenty-four-hour storm flow shall be detained for a minimum of 24 hours and a maximum not to exceed 72 hours from a point in time when the maximum volume of water from the one-year, twenty-four-hour storm is stored in a proposed BMP (i.e., when the maximum water surface elevation is achieved in the facility). Release of water can begin at the start of the storm (i.e., the invert of the orifice is at the invert of the proposed BMP).

C. For modeling purposes, the predevelopment ground cover conditions shall be determined using the corresponding ground cover assumptions presented in § **94-309D** of this chapter.

D. The minimum orifice size in the outlet structure to the BMP shall be three inches in diameter unless otherwise approved by the Municipal Engineer, and a trash rack shall be installed to prevent clogging. For sites with small drainage areas contributing to the BMP that do not provide enough runoff volume to allow a twenty-four-hour attenuation with the three-inch orifice, the calculations shall be submitted showing this condition.

E. When the calculated orifice size is below three inches, gravel filters (or other methods) are recommended to discharge low-flow rates subject to the Municipal Engineer's satisfaction. When filters are utilized, maintenance provisions shall be provided to ensure filters meet the design function.

F. All proposed stormwater facilities shall make use of measures to extend the flow path and increase the travel time of flows in the facility.

G. When a regulated activity contains or is divided by multiple drainage areas, the peak flow rate control shall be separately addressed for each drainage area.

§ 94-308. Stormwater peak rate control requirements.

The applicant shall comply with the following peak flow rate control requirements for all regulated activities including those that involve new development and redevelopment that are not located in the Chester Creek Watershed.

A. Postconstruction peak flow rates from any regulated activity shall not exceed the predevelopment peak flow rates as shown for each of the design storms specified in Table 308.1.

Table 308.1
Peak Rate Control Standards
(Peak Flow Rate of the Postconstruction Design Storm Shall Be Reduced to the Peak Flow Rate of the Corresponding Predevelopment Design Storm Shown in the Table)

Postconstruction Design Storm Frequency (24-Hour Duration)	Predevelopment Design Storm	
	New Development Regulated Activities	Redevelopment Regulated Activities
2-Year	1-Year	2-Year
5-Year	2-Year	5-Year
10-Year	2-Year	10-Year
25-Year	25-Year	25-Year
50-Year	50-Year	50-Year
100-Year	100-Year	100-Year

B. For modeling purposes, the predevelopment ground cover conditions shall be determined using the corresponding ground cover assumptions presented in § **94-309D** of this chapter.

C. For regulated activities involving only redevelopment, no peak flow rate controls are required when and only if the total regulated impervious surface area is at least 20% less than the total existing impervious surface area to be disturbed by the regulated activity. In all cases where this requirement is not met, the redevelopment regulated activity shall achieve the peak flow rate controls presented in Table 308.1, using the redevelopment ground cover assumptions presented in § **94-309D**. This design criterion for Redevelopment is only permitted with approval of Municipal Engineer. It shall result in no impact on downstream properties.

D. Only the area of the proposed regulated activity shall be subject to the peak flow rate control standards of this chapter. Undisturbed areas for which the discharge point has not changed are not subject to the peak flow rate control standards.

E. Areas located outside of the site (i.e., areas outside of the regulated activity) that drain through a proposed site are not subject to peak flow rate control requirements. Drainage facilities located on the site shall be designed to safely convey flows from outside of the site through the site.

F. When a regulated activity contains or is divided by multiple drainage areas, the peak flow rate controls shall be separately addressed for each drainage area.

G. The effect of structural and nonstructural stormwater management practices implemented as part of the overall site design may be taken into consideration when calculating total storage volume and peak flow rates.

H. Regulated activities located within the Chester Creek Watershed shall achieve the applicable peak flow release rate control requirements presented in the approved PA Act 167 plan for that watershed and as presented in Table 308.1 above, and as presented in the Chester Creek Watershed Release Rate Map in Appendix B of this chapter.[1]

[1] *Editor's Note: Appendix B is* ***included as an attachment to this chapter****.*

§ 94-309. Calculation methodology.

A. Stormwater runoff from all regulated activity sites with a drainage area of greater than five acres shall be calculated using a generally accepted calculation technique(s) that is based on the NRCS soil cover complex method. Table 309.1 summarizes acceptable computation methods. The method selected for use shall be based on the individual limitations and suitability of each method for a particular site. The use of the rational method to estimate peak discharges for drainage areas greater than five acres shall be permitted only upon approval by the Municipal Engineer.

Table 309.1
Acceptable Computation Methodologies for SWM Site Plan

Method	Developed By	Applicability
TR-20 (or commercial computer package based on TR-20)	USDA NRCS	Applicable where use of full hydrology computer model is desirable or necessary.
TR-55 (or commercial computer package based on TR-55)	USDA NRCS	Applicable for land development plans where limitations described in TR-55 are met.
HEC-1/HEC-HMS	US Army Corps of Engineers	Applicable where use of a full hydrologic computer model is desirable or necessary.
Rational Method (or commercial computer package based on Rational Method)	Emil Kuichling (1889)	For sites up to five acres, or as approved by the Borough.
Other methods	Varies	Other computation methodologies approved by the Borough.

B. All calculations using the soil cover complex method shall use the appropriate design rainfall depths for the various return period storms consistent with this chapter. Rainfall depths used shall 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 Atlas 14) values consistent with a partial duration series. When stormwater calculations are performed for routing procedures or infiltration, water quality and runoff volume functions, the duration of rainfall shall be 24 hours.

C. All calculations using the rational method shall use rainfall intensities consistent with appropriate times of concentration (duration) and storm events with rainfall intensities obtained from NOAA Atlas 14 partial duration series estimates, or the latest version of the PennDOT Drainage Manual (PDM Publication 584). Times of concentration shall be calculated based on the methodology recommended in the respective model used. Times of concentration for channel and pipe flow shall be computed using Manning's equation.

D. The applicant shall utilize the following ground cover assumptions for all predevelopment water quality and runoff volume, infiltration volume and peak flow rate calculations:

(1) For regulated activities involving new development, the following ground cover assumptions shall be used:

(a) For areas that are woods (as defined in Article **II** of this chapter), predevelopment calculations shall assume ground cover of "woods in good condition."

(b) For all other areas (including all impervious surfaces), predevelopment calculations shall assume ground cover of "meadow."

(2) For regulated activities involving redevelopment, the following ground cover assumptions shall be used:

(a) For areas that are woods (as defined in Article **II** of this chapter), predevelopment calculations shall assume ground cover of "woods in good condition."

(b) For areas that are not woods or not impervious surfaces, predevelopment calculations shall assume ground cover of "meadow."

(c) For areas that are impervious surfaces, predevelopment calculations shall assume at least 40% of the existing impervious surface area to be disturbed as "meadow" ground cover.

(3) The applicant shall determine which stormwater standards apply to the proposed regulated activity as follows:

(a) Stormwater standards for new development shall apply to all proposed regulated activities that involve only new development activities as defined in this chapter.

(b) Stormwater standards for redevelopment shall apply to all proposed regulated activities that involve only redevelopment activities as defined in this chapter.

(c) At the discretion of the Municipal Engineer, regulated activities that involve a combination of both new development and redevelopment activities, as defined in this chapter, may either:

[1] Apply the stormwater standards (redevelopment or new development) that are associated with the activity that involves the greatest amount of land area; or

[2] Apply the redevelopment and new development stormwater standards to the corresponding redevelopment and new development portions of the proposed regulated activity.

E. Runoff curve numbers (CN) for both predevelopment and proposed (postconstruction) conditions to be used in the Soil Cover Complex Method shall be obtained from Table D-1 in Appendix D of this chapter.[1]

[1] *Editor's Note: Appendix D is* ***included as an attachment to this chapter****.*

F. Runoff coefficients (C) for both predevelopment and proposed (postconstruction) conditions for use in the Rational Method shall be obtained from Table D-2 in Appendix D of this chapter.

G. Weighted averaging of runoff coefficients shall not be used for manual computations or input data for water quality and runoff volume calculations.

H. Hydraulic computations to determine the capacity of pipes, culverts, and storm sewers shall be consistent with methods and computations contained in the Federal Highway Administration Hydraulic Design Series Number 5 (Publication No. FHWA-NHI-01-020 HDS No. 5, as amended). Hydraulic computations to determine the capacity of open channels shall be consistent with methods and computations contained in the Federal Highway Administration Hydraulic Engineering Circular Number 15 (Publication No. FHWA-NHI-05-114 HEC 15, as amended). Values for Manning's roughness coefficient (n) shall be consistent with Table D-3 in Appendix D of the chapter.

I. Runoff calculations shall include the following assumptions:

(1) Average antecedent moisture conditions (for the Soil Cover Complex Method only for example, TR-55, TR-20).

(2) A Type II distribution storm (for the Soil Cover Complex Method only for example, TR-55, TR-20).

§ 94-310. Other requirements.

A. Any BMP intended to hold standing water for four days or longer shall be designed to incorporate biologic controls consistent with the West Nile Guidance found in Appendix E,[1] PADEP document 363-0300-001 "Design Criteria — Wetlands Replacement/Monitoring" (as amended), (or contact the Pennsylvania State Cooperative Wetland Center or the Penn State Cooperative Extension Office for design information.)

[1] *Editor's Note: Appendix E is* ***included as an attachment to this chapter****.*

B. Any stormwater basin required or regulated by this chapter designed to store runoff and requiring a berm or earthen embankment shall be designed to provide an emergency spillway to safely convey flow up to and including the 100-year proposed conditions. The height of embankment shall provide a minimum one foot of freeboard above the maximum pool elevation computed when the facility functions for the 100-year proposed conditions inflow. Should any BMP require a dam safety permit under Pa. Chapter 105 regulations,[2] the facility shall be designed in accordance with and meet the regulations of Pa. Chapter 105 concerning dam safety. Pennsylvania Chapter 105 may require the safe conveyance of storms larger than 100-year event.

[2] *Editor's Note: See 25 Pa. Code Chapter 105.*

C. Any drainage conveyance facility and/or channel not governed by Pa. Chapter 105 regulations shall be designed to convey, without damage to the drainage facility or roadway, runoff from the twenty-five-year storm event. Larger storm events (fifty-year and 100-year storms) shall also be safely conveyed in the direction of natural flow without creating additional damage to any drainage facilities, nearby structures, or roadways.

D. Conveyance facilities to or exiting from stormwater management facilities (i.e., detention basins) shall be designed to convey the design flow to or from the facility.

E. Roadway crossings or structures located within designated floodplain areas shall be able to convey runoff from a 100-year design storm consistent with Federal Emergency Management Agency National Flood Insurance Program — Floodplain Management Requirements.

F. Any stormwater management facility located within a PennDOT right-of-way shall comply with PennDOT minimum design standards and permit submission and approval requirements.

G. Adequate erosion protection and energy dissipation shall be provided along all open channels and at all points of discharge. Design methods shall be consistent with the Federal Highway

Administration Hydraulic Engineering Circular Number 11 (Publication No. FHWA-IP-89-016, as amended) and the PADEP Erosion and Sediment Pollution Control Program Manual (Publication No. 363-2134-008, as amended), or other design guidance acceptable to the Municipal Engineer.

§ 94-311. Other conveyance and system design standards.

A. Stormwater pipes and inlets shall be designed in accordance with the PennDOT standard specifications. Where Type C inlets are located on grades, they shall have a maximum inlet capacity of 5.5 cubic feet per second. Where located at low points, this inlet capacity may be increased to eight cubic feet per second.

B. Storm sewers shall have a minimum diameter of 15 inches and a minimum grade of 1/2 of 1%.

C. Changes in alignment of storm sewers shall be by straight sections connected by inlets or manholes. Manholes and/or inlets shall not be more than 300 feet apart on sizes up to 24 inches and not more than 450 feet apart on greater sizes. At street intersections, inlets shall be placed in the tangent and not on the curved portion of the curbing.

D. Storm sewer pipes shall be reinforced concrete pipe or high-density polyethylene pipe and provided in accordance with PennDOT standard specifications.

E. Manhole frames and covers shall be good quality cast iron. Covers shall be marked "STORM."

§ 94-312. Riparian buffers.

A. In order to protect and improve water quality, a riparian buffer shall be created and depicted on the plan and recorded as part of any subdivision or land development that encompasses a stream to aid in the establishment of a riparian buffer.

B. Except as required by Chapter **102**, the riparian buffer shall be measured to be the greater of the limit of the 100-year floodplain or a minimum of 50 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.

(2) Whenever practicable, invasive vegetation shall be actively removed and the riparian buffer 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 shall be enforceable by the municipality and shall run with the land and shall limit the use of the property located therein. The area of the property encumbered by the riparian buffer shall be privately owned and shall count toward the minimum lot area as required by Zoning, unless otherwise specified in the municipal Zoning Ordinance.[1]

[1] *Editor's Note: See Ch. **112**, Zoning.*

E. Any permitted use within the riparian buffer 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 and shall comply with setback requirements established under 25 Pa. Code Chapter **73**.

Article IV. Stormwater Management (SWM) Site Plan Requirements

§ 94-401. General requirements.

For any regulated activity, unless exempt per the provisions of § **94-106**:

A. Preparation and implementation of an approved SWM site plan is required.

B. No regulated activity shall commence until the Borough issues written approval of a SWM site plan, which demonstrates compliance with the requirements of this chapter and, if required, a letter of adequacy has been issued by the Conservation District for an erosion and sediment control plan.

C. The preliminary or final approval of subdivision and/or land development plans, and the issuance of any building or occupancy permit shall not proceed until the applicant has received written approval of a SWM site plan from the Borough.

D. The SWM site plan approved by the Borough shall be on site throughout the duration of the regulated activity.

§ 94-402. SWM site plan contents.

The SWM site plan shall consist of a general description of the project including items described in § **94-304**, calculations, maps, and plans. A note on the maps shall refer to the associated computations and erosion and sediment control plan by title and date. The cover sheet of the computations and erosion and sediment control plan shall refer to the associated maps by title and date. All SWM site plan materials shall be submitted to the Borough in a format that is clear, concise, legible, neat, and well organized; otherwise, the SWM site plan shall not be accepted for review and shall be returned to the applicant. The following items shall be included in the SWM site plan:

A. General.

(1) A general description of the proposed project.

(2) A listing of all regulatory approvals required for the proposed project and the status of the review and approval process for each. Final approval or adequacy letters must be submitted to the Borough prior to (or as a condition of) the Borough's issuing final approval of the SWM site plan. Proof of application or documentation of required permit(s) or approvals for the programs listed below shall be part of the SWM site plan, if applicable:

(a) NPDES Permit for Stormwater Discharges associated with Construction Activities;

(b) PADEP permits as needed:

[1] PADEP Joint Permit Application;

[2] Chapter 105 (Dam Safety and Waterway Management)[1];
[1] *Editor's Note: See 25 Pa. Code Ch. 105.*

[3] Chapter **106** (Floodplain Management)[2];
[2] *Editor's Note: See 25 Pa. Code Ch. **106**.*

(c) PennDOT Highway Occupancy Permit;

(d) Erosion and sediment control plan letter of adequacy; and

(e) Any other permit under applicable state or federal regulations.

(3) A statement, signed by the applicant, acknowledging that any revision to the approved SWM site plan shall be submitted to and approved by the Borough, and that a revised erosion and sediment control plan shall be submitted to, and approved by, the Conservation District or Borough (as applicable) for a determination of adequacy prior to construction of the revised features.

(4) The following signature block signed and sealed by the qualified licensed professional responsible for the preparation of the SWM site plan:

"I (name), on this date (date of signature), hereby certify to the best of my knowledge that the SWM site plan meets all design standards and criteria of the Borough of West Chester Ordinance No. _____, Stormwater Management Ordinance." [Note: Include signature, name, discipline of professional license, and license stamp or seal here.]

(5) The following signature block signed and sealed by the qualified licensed professional responsible for the preparation of the SWM site plan:

"On behalf of the Borough of West Chester, [Municipal official or designee], on this date [Signature date], has reviewed and hereby certifies to the best of my knowledge that the SWM Site Plan meets all design standards and criteria of the Municipal Ordinance No. [number assigned to ordinance]."

B. Maps or plan sheets. Map(s) or plan sheets of the site shall be submitted on minimum twenty-four-inch-by-thirty-six-inch sheets and shall be prepared in a form that meets the requirements for recording at the Chester County Office of the Recorder of Deeds and the requirements of the operation and maintenance (O&M) plan and O&M agreement (Article **VII**). If the SALDO has additional or more stringent criteria than this chapter, then the SALDO criteria shall also apply. Unless otherwise approved by the Municipal Engineer, the contents of the maps or plan sheets shall include, but not be limited to:

(1) A location map, with a scale of one inch equals 2,000 feet or greater, showing the site location relative to highways, municipal boundaries, or other identifiable landmarks.

(2) The name of the project, tax parcel number(s), and the names, addresses and phone numbers of the owner of the property, the applicant, and firm preparing the plan.

(3) Signature and seal of the qualified licensed professional(s) responsible for preparation of the maps and plan sheets.

(4) The date of SWM site plan submission and revision dates, as applicable.

(5) A graphic and written scale of one inch equals no more than 50 feet.

(6) A north arrow.

(7) Legal property boundaries, including:

(a) The total project property boundary and size with distances marked to the nearest foot and bearings to the nearest degree.

(b) Boundaries, size and description of purpose of all existing easements and deed-restricted areas of the project property, with distances marked to the nearest foot and bearings to the nearest degree.

(8) Existing natural resources and natural or man-made hydrologic features that are located within the site or receiving discharge from, or that may otherwise be impacted by, the proposed regulated activity, including but not limited to:

(a) All existing natural resources, hydrologic features and drainage patterns including natural waterways, water bodies, wetlands, streams (intermittent and perennial), ponds, lakes, vernal pools, etc., natural infiltration areas and patterns, areas of significant natural evapotranspiration, and other water features and aquatic resources.

(b) Any existing man-made drainage features, BMPs, conveyances, facilities, open channels, swales, drainage patterns, or other flood, stormwater or drainage control features.

(c) For the site, discharge points and locations of concentrated flows and their drainage areas.

(d) For named waters, show names and their watershed boundaries within the site.

(e) Special management areas (as per § **94-301Q**).

(f) For the water bodies, streams and wetlands identified in § **94-402B(8)(a)**, label or otherwise show the following attributes, if applicable:

[1] The designated use as determined by PADEP (25 Pa. Code Chapter 93);

[2] Impairments listed on the PADEP "Integrated List" (as updated) and the listed source and cause of impairment;

[3] Name, date, and target pollutant(s) for any approved total maximum daily load (TMDL); and

[4] Drainages to water supply reservoirs.

(g) Areas that are part of the Pennsylvania Natural Diversity Inventory (PNDI) and a list of potential impacts and clearances received (for regulated activities involving one acre or more proposed earth disturbance).

(h) Woods, vegetated riparian buffers and other areas of natural vegetation.

(i) Topography using contours (with elevations based on established bench marks) at intervals of two feet. In areas of slopes greater than 15%, five-foot contour intervals may be used. The datum used and the location, elevation and datum of any benchmarks used shall be shown.

(j) Areas classified by the Borough as steep slopes.

(k) Soil names and boundaries, general type of soils with hydrologic soil group noted, and in particular note areas most conducive to infiltration BMPs, such as Groups A and B, etc., estimated permeabilities in inches per hour, and location and other results of all soil tests and borings.

(l) If present, areas with underlying carbonate geologic units, existing sinkholes, subsidence or other karst features, and any associated groundwater recharge areas with increased vulnerability to contamination.

(m) Any contaminated surface or subsurface areas of the site.

(n) Water supply wells:

[1] Location of existing well(s) on the project property and delineation of the(ir) recharge area(s) (if known), or a fifty-foot diameter assumed recharge area;

[2] Location of existing well(s) within 50 feet beyond the boundary of the project property boundary (if public water supply is proposed for the regulated activity); and

(o) Current FEMA 100-year floodplain boundaries, elevations, and floodway boundaries for any special flood hazard areas on or within 100 feet of the property.

(p) Boundaries of riparian buffer(s) as required by § **94-312**.

(q) Boundaries of a fifty-foot construction nondisturbance buffer to protect streams (intermittent and perennial), wetlands and other water bodies during construction of the proposed regulated activity.

(9) Location of the proposed regulated activity, limits of earth disturbance (disturbed area), and BMPs and conveyances relative to the location of existing natural resources and hydrologic features and special management areas resulting from the site design process of § **94-304**.

(10) Description of existing and proposed ground cover and land use including the type and total area.

(11) Existing and proposed man-made features including roads, paved areas, buildings, and other impervious and pervious surfaces on the project property (or an appropriate portion of the property as determined in consultation with the Municipal Engineer) and within the proposed disturbed area, and including the type and total area of the following:

(a) Existing impervious surfaces installed after December 18, 2013;

(b) Existing impervious surfaces proposed to be replaced;

(c) Existing impervious surfaces to be permanently removed and replaced with pervious ground cover;

(d) New or additional impervious surfaces; and

(e) Percent of the site covered by impervious surfaces for both the existing and proposed postconstruction conditions.

(12) The total extent of the upstream area draining through the site.

(13) All BMPs, conveyances and other stormwater management facilities shall be located on the plan sheets, including design drawings, profile drawings, construction details, materials to be used, description of function, etc.

(14) Complete delineation of the flow paths used for calculating the time of concentration for the predevelopment and postconstruction conditions shall be included.

(15) The locations of all existing and proposed utilities, sanitary sewers, on-lot wastewater facilities (including subsurface tanks and leach fields), and water supply lines within the site and within 50 feet beyond the proposed limits of earth disturbance.

(16) A grading plan, including all areas of proposed earth disturbance and the proposed regulated activity and delineating the boundary or limits of earth disturbance of the site. The total disturbed area of the site shall be noted in square feet and acres.

(17) Proposed final grade elevations and contours at intervals of two feet. In areas of steep slopes (greater than 15%), five-foot contour intervals may be used.

(18) For each proposed BMP and conveyance included in the SWM site plan (including any to be located on any property other than the property being developed by the applicant), the following shall be included on the SWM site plan map or plan sheets:

(a) Identification of the person responsible for ongoing inspections, operation, repair, and maintenance of the BMP or conveyance after completion of construction.

(b) Delineation of the land area, structures, impervious surfaces, and conveyances draining to and from the BMP or conveyance.

(c) Easements, as per the requirements of Article **VII**, that shall include:

[1] Boundaries labeled with distances shown in feet and bearings to the nearest degree;

[2] Notes or other documentation, as needed, to grant the Borough the right of access to all BMPs and conveyances for the purposes of inspection and enforcement of the requirements of this chapter, and any applicable O&M plans and O&M agreements;

[3] Notes or other documentation, as needed, to grant the Borough the right of access to all roadways necessary to access all BMPs and conveyances, where roadways are not to be dedicated to the Borough;

[4] Notes or other documentation as needed to grant the owner of any BMP or conveyance the right of access for the purpose of inspection, operation, maintenance, and repair of the BMP or conveyance that is to be owned, operated and maintained by a person other than the Borough, and other than the owner of the property on which the BMP or conveyance is located;

[5] A minimum twenty-foot-wide perimeter (or other width as determined in consultation with the Municipal Engineer) around all BMPs and conveyances;

[6] Sufficient vehicular ingress to and egress from a public right-of-way or roadway, as determined in consultation with the Municipal Engineer; and

[7] Accompanying notes or other documentation as needed, and in accordance with Article **VII**, describing the type, purpose and total area of easements, who the easement is granted to, and the rights, duties and obligations of the parties with respect to every BMP or conveyance.

(d) Boundaries of land areas (if any) for which deed restrictions are required for the purpose of protecting and prohibiting disturbance to a BMP or conveyance, indicating the area to which the restriction applies with distances shown in feet and bearings to the nearest degree, and a written description of the type, purpose and nature of the restriction.

(e) Other items that may be needed to comply with all other requirements of Article **VII**.

C. A written description of the following information shall be included in the SWM site plan:

(1) Existing features, conditions, natural resources, hydrologic features, and special management areas [as listed in § **94-402B(8)**];

(2) How the site design achieves the requirements of § **94-304**, and, if applicable, where they could not be achieved and why;

(3) The overall stormwater management design concept for the project and how the site design achieves the requirements of §§ **94-301** through **94-311** of Article **III**;

(4) Proposed features and conditions, proposed erosion and sediment control features, proposed BMPs, conveyances, and any other stormwater facilities;

(5) A description of the effect of the project (in terms of flow alteration and runoff volumes, water quality and peak flows, etc.) on existing natural resources, hydrologic features and special management areas, adjacent and downgradient properties, and any existing municipal or other stormwater conveyance system(s), that may be affected by or receive runoff from the regulated activity (whether located within or outside of the area of the regulated activity), and specifics of how erosion, water quality and flow impacts will be avoided or otherwise mitigated;

(6) Proposed nonpoint source pollution controls and justification and confirmation that the proposed project will not result in any increased pollutant loadings to any existing stream or stream impairment identified by PADEP, or to any receiving water body;

(7) Expected project time schedule;

(8) Description of construction stages or project phases, if so proposed; and

(9) A detailed justification must be included in the SWM site plan if BMPs other than green infrastructure methods, LID practices, or CD are proposed to achieve the volume, rate, and water quality controls under this chapter.

D. A detailed site evaluation conducted by a qualified licensed professional for projects proposed in areas of carbonate geology or karst topography, and other environmentally sensitive areas, such as contaminated sites and brownfields, as described in § **94-301O** and **R** of this chapter.

E. Stormwater runoff design computations and documentation, such as hydrologic, hydraulic, and structural computations, assumptions, BMP loading ratios, etc., consistent with the guidelines and criteria presented in the PA BMP Manual (as amended) or other guidance acceptable to the Municipal Engineer, and used in the design of the BMPs, conveyances and other features proposed to be utilized for stormwater management, or as otherwise necessary to demonstrate that the requirements of this chapter have been met, specifically including the requirements in §§ **94-301** and **94-304** through **94-309**.

F. Inspections, operation and maintenance requirements. The following documents shall be prepared and submitted to the Borough for review and approval as part of the SWM site plan, in accordance with the requirements of Article **VII**, for each BMP and conveyance included in the SWM site plan (including any to be located on any property other than the property being developed by the applicant):

(1) An O&M plan;

(2) An O&M agreement;

(3) Any easement agreements that are needed to ensure access, inspection, maintenance, operation, repair and permanent protection of any permanent BMPs and conveyances associated with the regulated activity;

(4) Any written deed, deed amendment or equivalent document (if needed) to be recorded against a subject property, as shown on the SWM site plan maps or plan sheets, or recorded plan sheets for the purpose of protecting and prohibiting disturbance to a BMP or conveyance; and

(5) Written approval, easement agreements, or other documentation for discharges to adjacent or downgradient properties when required to comply with § **94-301G** and Article **VII** of this chapter.

G. An erosion and sediment control plan, where applicable, as prepared for and submitted to the Conservation District and/or Borough. A letter of adequacy from the Conservation District, if applicable, must be submitted to the Borough prior to (or as a condition of) the Borough's final approval of the SWM site plan.

H. A highway occupancy permit from the Pennsylvania Department of Transportation (PennDOT) District Office must be submitted to the Borough prior to (or as a condition of) the Borough's final approval of the SWM site plan when utilization of a PennDOT storm drainage system is proposed.

§ 94-403. SWM site plan submission.

A complete SWM site plan that complies with all applicable provisions of § **94-402** shall be submitted to the Borough for review and approval, as follows:

A. The SWM site plan shall be coordinated with the applicable state and federal permit process and the municipal SALDO review process. All permit approvals or letters of adequacy not yet received by the applicant at the time of submittal of the SWM site plan to the Borough must be submitted to the Borough prior to (or as a condition of) the Borough's final approval of the SWM site plan.

B. For projects that require SALDO approval, the SWM site plan shall be submitted by the applicant as part of the preliminary plan submission where applicable for the regulated activity.

C. For regulated activities that do not require SALDO approval, the SWM site plan shall be submitted by the applicant with the building permit or zoning permit application.

D. Two copies of the SWM site plan shall be submitted by the applicant for review.

E. The corresponding review fee shall be submitted to the Borough simultaneously with the SWM site plan, per the Borough's fee schedule.

F. Any submissions to the Borough that are found to be incomplete shall not be accepted for review and shall be returned to the applicant within 30 days with a notification in writing of the specific manner in which the submission is incomplete.

G. If requested by the Borough, financial security, per the requirements of § **94-110**, shall be submitted to the Borough prior to approval of the SWM site plan or as part of the financial security required for a subdivision or land development per the requirements in the SALDO.

§ 94-404. SWM site plan review.

A. The SWM site plan shall be submitted to the Borough for review by the Municipal Engineer for consistency with this chapter and the respective PA Act 167 Stormwater Management Plan(s). The Municipal Engineer will review the SWM site plan for any subdivision or land development for compliance with this chapter and the municipal SALDO provisions not otherwise superseded by this chapter.

B. If applicable, the applicant shall have received a "letter of adequacy" from the Conservation District or other PADEP approval for the proposed regulated activity prior to (or as a condition of) final approval by the Borough.

C. The Municipal Engineer will notify the applicant and the Borough, in writing, within 45 calendar days, whether the SWM site plan is consistent with the requirements of this chapter. If the SWM site plan involves a subdivision and land development plan, the notification shall occur within the time period allowed by the MPC (as amended).[1] If a longer notification period is provided by other statute, regulation, or ordinance, the applicant will be so notified by the Borough.

(1) If the Municipal Engineer determines that the SWM site plan is consistent with this chapter, the Municipal Engineer shall forward a letter of consistency to the Borough, who shall then forward a copy to the applicant.

(2) The Borough may approve the SWM site plan with conditions reasonably defined to make the SWM site plan compliant with the terms of this chapter, and, if so, shall provide the conditions for approval in writing.

(3) If the Municipal Engineer determines that the SWM site plan is inconsistent or noncompliant with this chapter, the Municipal Engineer will forward a letter to the Borough, with a copy to the applicant citing the reason(s) and specific chapter sections for the inconsistency or noncompliance. Inconsistency or noncompliance may be due to inadequate information to make a reasonable judgment as to compliance with this chapter. Any SWM site plans that are inconsistent or noncompliant may be revised by the applicant and resubmitted in accordance with § **94-406** when consistent with this chapter. Resubmission will commence a new municipal review and notification time period.

[1] *Editor's Note: See 53 P.S. § 10101 et seq.*

D. The Borough will not grant final approval to any proposed subdivision, land development, or regulated activity specified in this chapter if the SWM site plan has been found to be inconsistent with this chapter.

E. All required permits from PADEP shall be obtained and submitted to the Borough prior to (or as a condition of) final approval of any proposed subdivision, land development, or other regulated activity by the Borough.

F. No building permits for any regulated activity will be approved by the Borough if the SWM site plan has been found to be inconsistent with this chapter, as determined by the Municipal Engineer. All required permits from PADEP shall be obtained prior to issuance of a building permit.

G. The Borough's approval of a SWM site plan shall be valid for a period not to exceed five years commencing on the date that the Borough approved the SWM site plan. If stormwater management facilities included in the approved SWM site plan have not been constructed, or if constructed, as-built plans of these facilities have not been approved within this five-year time period, then the applicant may seek reinstatement of approval of the expired SWM site plan. If the Borough determines that the expired SWM site plan is consistent and compliant with current regulations and requirements, then the expired SWM site plan will be reinstated; otherwise, it will be rejected. The applicant will be prohibited from conducting any regulated activity until a reinstated or newly approved SWM site plan is obtained in accordance with § **94-406** of this chapter.

H. All or portions of the final approved SWM site plan shall be recorded (as "record plans") as part of the final subdivision or land development plan or as an attachment to the O&M agreement.

I. Upon completion of construction, the applicant shall be responsible for completing final as-built plans of all BMPs, conveyances, or other stormwater management facilities included in the approved SWM site plan as per the requirements of § **94-502** of this chapter.

J. For any SWM Site Plan that proposes to use any BMPs other than green infrastructure, LID practices, or CD 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, LID practices, and CD are not practicable.

§ 94-405. Revision of SWM site plans.

A. A submitted SWM site plan under review by the Borough shall be revised and resubmitted for any of the following reasons. The revised SWM site plan shall be resubmitted in accordance with § **94-403** and subject to review as specified in § **94-404** of this chapter.

   (1) A change in stormwater management BMPs, conveyances, facilities or techniques;

   (2) Relocation or redesign of stormwater management BMPs, conveyances, or facilities; or

   (3) Soil or other site conditions are not as stated on the SWM site plan as determined by the Municipal Engineer, and the new conditions necessitate design changes.

B. A revision to an approved SWM site plan shall be submitted to the Borough, accompanied by the applicable municipal review fee.

§ 94-406. Resubmission of inconsistent or noncompliant SWM site plans.

Any SWM site plan deemed inconsistent or noncompliant may be revised and resubmitted with the revisions addressing the Municipal Engineer's concerns documented in writing. The submission shall be addressed to the Borough in accordance with § **94-403** of this chapter, distributed accordingly, and be subject to review as specified in § **94-404** of this chapter. The applicable municipal review fee shall accompany a resubmission of a SWM site plan previously determined to be inconsistent or noncompliant.

Article V. Performance and Inspection of Regulated Activities; Final As-Built Plans

§ 94-501. Performance and inspection of regulated activities.

A. All regulated activities shall be conducted, operated and maintained in accordance with the requirements set forth in Articles **III**, **VII**, and **VIII** of this chapter. When a SWM site plan is required by this chapter, all regulated activities shall be performed in accordance with the requirements of the final approved SWM site plan.

B. The Municipal Engineer or other municipal designee shall be provided access to the site to inspect all phases of the erosion and sediment control measures and installation of the permanent BMPs and conveyances at such times as deemed appropriate by the Municipal Engineer or other municipal designee.

C. Periodic inspections may be made by the Municipal Engineer or other designee during construction. A set of design plans approved by the Borough shall be on file and available for viewing at the site throughout the duration of the construction activity.

D. Inspections, including but not limited to a final inspection, of all constructed BMPs, conveyances, or other stormwater facilities, and related improvements may be conducted by the Municipal Engineer or other designee to confirm compliance with this chapter and with the final approved SWM site plan prior to the issuance of any occupancy permit, use permit, or other form of final approval of the project by the Borough.

E. If an NPDES permit for stormwater discharges associated with construction activities was required for the regulated activity, a notice of termination (NOT) approval must be obtained upon completion of construction prior to final approval of the project by the municipality.

F. Upon completion of construction, every permanent stormwater BMP, conveyance or other stormwater facility constructed or used as part of the regulated activity shall be operated, maintained and inspected by the landowner, or other designated person, in accordance with the O&M plan and O&M agreement approved by the Borough.

G. The Borough or its designee may periodically inspect any permanent stormwater BMP, conveyance or facility for compliance with this chapter, an approved O&M plan, or an approved O&M agreement, per the provisions of Article **IX**. The Borough may inspect at any time it has reason to believe a violation exists. The Borough may pursue enforcement for violations consistent with the provisions of Article **IX**.

§ 94-502. Final as-built plans.

A. The applicant shall provide to the Borough final as-built plans (signed and sealed by a qualified licensed professional) of all BMPs, conveyances, other stormwater facilities, and related improvements shown in the final approved SWM site plan.

B. The final as-built plans shall include the following for all BMPs, conveyances, other stormwater facilities and related improvements:

   (1) The location, elevations, dimensions, and as-built conditions of all BMPs, conveyances, other stormwater facilities, and related improvements including topographic contours and all typical details for storm drainage and conveyance systems, stormwater management facilities and impervious surfaces (existing, proposed, or constructed) included in the approved SWM site plan. The latitude and longitude coordinates for all permanent SWM BMPs must also be submitted at the central location of the BMPs; and

   (2) Explanation of any discrepancies or variations from the final approved SWM site plan, other related approved construction plans, calculations and specifications (and approved revisions thereto).

C. The final as-built plans shall include a certification of completion signed and sealed by a qualified licensed professional verifying that all permanent BMPs and conveyances have been constructed according to the final approved SWM site plan and related approved construction plans, calculations and specifications.

D. All areas of the regulated activity draining to BMPs must be stabilized prior to submittal of the as-built plans.

E. After receipt of the as-built plans by the Borough, the Borough or its designee may review the as-built plans for consistency with this chapter, the final approved SWM site plan, other related approved construction plans, and subsequent approved revisions thereto, as well as actual conditions at the site, and the Borough may conduct a final inspection, as per § **94-501D**.

F. The as-built plans must be received, reviewed and determined to be acceptable by the Borough prior to:

(1) Close out of the drainage permit or other close out of the project by the Borough;

(2) Release of the financial security or other performance guarantee; and

(3) Dedication of the stormwater facilities to the Borough, or conveyance to a homeowners' association, or other person responsible for operation, maintenance and repair.

G. Final occupancy permit(s) or use permit or other final approval to use or operate the constructed improvement may not be issued by the Borough until the final as-built plans have been accepted unless sufficient financial security has been posted with the Borough to guarantee completion of the final as-built plans.

H. Upon final acceptance of the final as-built plans by the Borough, the applicant shall review and, if required by the Borough, revise and re-record the O&M plan and the O&M agreement to reflect the final as-built conditions and information for each permanent BMP or conveyance, in accordance with the requirements of Article **VII**.

I. All or portions of the final as-built plans shall be recorded if required by the Borough.

Article VI. Fees and Expenses

§ 94-601. Site plan review and inspection fees established.

Fees have been established by the Borough in the fee resolution which is adopted from time to time by Borough Council to defray plan review and construction inspection costs incurred by the Borough. All fees listed in § **94-602A** shall be paid by the applicant at the time of SWM site plan submission or as otherwise directed by the Borough.

§ 94-602. Expenses covered by fees.

A. The fees required of the applicant by this chapter shall at a minimum cover:

(1) Administrative costs;

(2) The review of the SWM site plan by the Borough, the Municipal Engineer and other municipal consultants;

(3) Coordination and meetings with the applicant;

(4) The inspection of erosion and sediment control measures, BMPs, conveyances and other related improvements during construction;

(5) Review of project communications, reports, and additional supporting information;

(6) Other site inspections;

(7) The final inspection upon completion of the BMPs, conveyances, and other stormwater management facilities and related improvements presented in the SWM site plan; and

(8) Review of final as-built plan submission and revised calculations, and inspections as needed.

B. The applicant shall also reimburse all expenses incurred by the Borough for any additional work or municipal consultant fees required to enforce any permit provisions regulated by this chapter, correct violations, and ensure proper completion of remedial actions.

Article VII. Operation and Maintenance (O&M) Responsibilities and Easements

§ 94-701. General requirements for protection, operation and maintenance of stormwater BMPs and conveyances.

The following shall apply to all regulated activities in accordance with the requirements of the subsequent sections of this Article **VII**.

A. Continuing operations and maintenance responsibilities of all permanent BMPs, conveyances, or other stormwater management facilities shall be reviewed and approved by the Borough along with the SWM site plan. The Borough may require an offer of 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 operations and maintenance responsibility for any portion of or all of the BMPs, conveyances or other stormwater controls and facilities.

B. An operation and maintenance (O&M) plan shall be submitted to the Borough for review and approval for all existing and proposed permanent BMPs and man-made conveyances or other stormwater facilities identified in the SWM site plan. Multiple BMPs or conveyances may be addressed by a combined O&M plan where all such facilities are similar in O&M requirements and ownership.

C. The O&M plan(s) and O&M agreement(s) shall name the person identified in the SWM site plan who shall be the owner of and be responsible for ongoing inspections, operation, repair, and maintenance of each BMP or conveyance following completion of construction.

D. For any BMP or man-made conveyance (including any to be located on any property other than the property being developed by the applicant) to be owned by a person other than the Borough:

(1) An O&M agreement shall be submitted to the Borough for review and approval; and

(2) The O&M plan shall be attached to, incorporated within, and recorded as a public record along with a fully executed O&M agreement, all of which shall be recorded as a restrictive covenant that runs with the land and shall be binding upon the landowner and any heirs, administrators, successors in interest or assigns of the landowner.

E. The following shall be provided for all BMPs and conveyances (including any to be located on any property other than the property being developed by the applicant) by an O&M or other agreement or by otherwise establishing covenants, easements, deed restrictions, or by dedication to the Borough:

(1) Permanent protection of the BMP or conveyance from disturbance or alteration;

(2) Right of entry and access for the Borough for inspection and enforcement of this chapter (including § **94-903G**) and any applicable O&M plan or O&M agreement; and

(3) Right of entry and access for the person owning the BMP or conveyance and responsible for fulfilling the O&M requirements when that person is not the Borough and is different from the owner of the property on which the BMP or conveyance is located (such as may be applicable for § **94-301G** of this chapter).

F. All O&M and other agreements, covenants, easements and deed restrictions shall:

(1) Be submitted to the Borough for review and approval;

(2) Be recorded as a public record, upon approval, against each parcel(s) which is part of the SWM site plan or otherwise contains any BMP or conveyance comprising part of the regulated activity which is the subject of an O&M agreement; and

(3) Run with the land and be binding upon the landowner, its heirs, administrators, successors in interest, and assigns.

G. The materials, documents and content required by this Article **VII** may be prepared in conjunction with and incorporated with similar materials, documents and content required for other permit or approval applications, such as those required by PADEP for the postconstruction stormwater management plan.

§ 94-702. Operation and maintenance plans.

The following items shall be included in the O&M plan, unless otherwise approved by the Municipal Engineer:

A. A plan sheet(s) or map(s) showing each BMP and man-made conveyance and which shall include, but not be limited to:

(1) Property(ies) identification (owner name and address; and property address and/or lot and/or tax parcel number, etc.), property boundaries and tax parcel number of the land parcel on which the BMP or conveyance is located.

(2) Name, address, phone number, date prepared, signature and seal of the licensed professional responsible for preparation of the plan sheet or map.

(3) Clear identification of the location, dimensions, and function of each BMP or conveyance covered by the O&M plan.

(4) The location of each BMP and conveyance relative to roadways, property boundaries, or other identifiable landmarks and existing natural drainage features such as streams, lakes, ponds, or other bodies of water within the immediate vicinity of, or receiving discharge from, the BMP or conveyance.

(5) Delineation of the land area, structures, impervious surfaces and conveyances draining to and from the BMP.

(6) Representative elevations and/or topographic contours at intervals of two feet, or other as acceptable to the Municipal Engineer.

(7) Other features including FEMA floodplain and floodway boundaries, sinkholes, etc., located within the immediate proximity of each BMP and conveyance.

(8) Locations of areas of vegetation to be managed or preserved that function as a BMP or conveyance.

(9) The locations of all surface and subsurface utilities, on-lot wastewater facilities, sanitary sewers, and water lines within 20 feet of each BMP or conveyance.

(10) The following as it pertains to any easements, covenants and deed restrictions established for each applicable BMP or conveyance:

(a) Boundaries delineated with bearings and distances shown that encompass the BMP or conveyance and that includes a twenty-foot perimeter area surrounding these features and sufficient vehicular ingress to and egress from a public right-of-way and roadway;

(b) Labels specifying the type and purpose of the easement, covenant, or deed restriction and who it benefits; and

(c) Labels with reference to any corresponding easement agreement, covenant, deed restriction or other document to be recorded.

(11) The plan sheet or map shall be prepared at sufficient scale for municipal review, and ultimately for the use by the person responsible for operation and maintenance, and shall also be prepared at a legible scale that meets the requirements for recordation along with (and as an attachment to) the O&M agreement and O&M plan at the Chester County Office of the Recorder of Deeds.

B. The following information shall be included in the O&M plan and written in a manner consistent with the knowledge and understanding of the person who will be responsible for the maintenance activities:

(1) The name and address of the following:

(a) Property(ies) on which each BMP or conveyance is located;

(b) Owner of the property;

(c) Owner of each stormwater BMP or conveyance who is responsible for implementation of the O&M plan;

(d) Person responsible for maintaining adequate liability insurance and payment of taxes; and

(e) Person preparing the O&M plan.

(2) A description of each BMP and conveyance and how the BMPs and conveyances are intended to function.

(3) A description of actions necessary to operate, inspect, and maintain each BMP or conveyance, including but not limited to:

(a) Lawn care, vegetation maintenance, landscaping and planting;

(b) Clean out of accumulated debris and sediment (including from grates, trash racks, inlets, etc.); and

(c) Other anticipated periodic maintenance and repair.

(4) The following statement shall be included:

"The landowner acknowledges that, per the provisions of the Borough's Stormwater Management Ordinance, it is unlawful to modify, remove, fill, landscape, alter or impair the effectiveness of, or place any structure, other vegetation, yard waste, brush cuttings, or other waste or debris into any permanent stormwater management BMP or conveyance described in this O&M plan or to allow the BMP or conveyance to exist in a condition which does not conform to this O&M plan, without written approval from the Borough."

(5) Inspection and maintenance schedules.

(6) Explanation of the purpose and limitations of any easements, covenants, or deed restrictions associated with any BMP or conveyance that are to be recorded against the property.

C. A statement that no BMP or man-made conveyance may be used by the owner or others for any purpose other than its intended stormwater control function, or, if approved by the Municipal Engineer, a statement of specific allowable uses of the BMP (i.e., recreational benefits that may be associated with certain BMPs owned by a homeowners' association, or allowable uses by an individual residential landowner).

D. A statement that establishes a reasonable time frame for remedy of deficiencies found by the owner during his or her inspections.

E. Language needed to fulfill the requirements of § **94-705B**, **C** and **D** of this chapter.

§ 94-703. Operation and maintenance agreements.

A. An O&M agreement shall be required for any BMP or man-made conveyance to be owned by a person other than the Borough, and the agreement shall:

(1) Be between the owner of the BMP or conveyance and the Borough, and shall be substantially the same as the O&M agreement in Appendix F;

(2) Incorporate the approved O&M plan(s) for all BMPs or conveyances to be covered by the O&M agreement;

(3) Set forth the rights, duties and obligations of the owner of the BMP or conveyance and the Borough, and be consistent with the approved O&M plan(s);

(4) Be recorded as a deed restriction or restrictive covenant that runs with the land and shall be binding upon the landowner, its heirs, administrators, successors in interest, and assigns;

(5) Be submitted to the Borough for review prior to approval of the SWM site plan;

(6) Upon approval by the Borough, be signed by the designated owner of the BMP or conveyance and submitted for signature by the Borough; and

(7) When fully executed, be recorded by the landowner at the Chester County Office of the Recorder of Deeds following municipal approval of the O&M plan and prior to the start of construction.

B. Other items or conditions may be required by the Borough to be included in the O&M agreement where determined necessary by the Borough to guarantee the satisfactory operation and maintenance of all permanent BMPs and conveyances.

C. After approval of the final as-built plans per the requirements of Article **V**, the applicant shall review and, if necessary and if required by the Borough, revise and re-record the O&M plan and O&M agreement to reflect the final as-built conditions of each BMP and conveyance if different from the information included in the original recorded documents.

§ 94-704. Easements and deed restrictions.

A. Easements shall be established in connection with any regulated activity for all permanent BMPs and conveyances that will not be dedicated to or otherwise owned by the Borough (including any to be located on any property other than the property being developed by the applicant) and shall:

(1) Include all land area occupied by each BMP or conveyance;

(2) Include a twenty-foot-wide perimeter (or other width as determined in consultation with the Municipal Engineer) surrounding the feature(s);

(3) Provide sufficient vehicular ingress and egress from a public right-of-way and roadway;

(4) Permanently protect every BMP and conveyance from disturbance or alteration where not otherwise protected by a recorded O&M agreement, covenant, deed restriction or other means;

(5) Grant the Borough the right, but not the duty, to access every BMP and conveyance from a public right-of-way or public roadway to conduct periodic inspections and to undertake other actions that may be necessary to enforce the requirements of this chapter, or of any applicable O&M plan or O&M agreement; where roadways will not be dedicated to the Borough, the Borough shall be granted access to the private roadways as necessary to access every BMP and conveyance;

(6) Grant the owner of each BMP and conveyance the right to access, inspect, operate, maintain, and repair the BMP or conveyance when the feature is to be owned, operated and maintained by a person other than the Borough and other than the owner of the parcel on which it is located;

(7) Be shown, with bearings and distances noted, on the SWM site plan map/plan sheets, O&M plan map/plan sheets, final as-built plans, and be signed and sealed by a qualified licensed professional;

(8) Include language legally sufficient to ensure that the easement shall run with the land and bind the landowner granting the easement, its heirs, administrators, successors in interest and assigns, into perpetuity; and

(9) Be recorded at the Chester County Office of the Recorder of Deeds following municipal approval and prior to the start of construction.

B. For any BMP or conveyance to be owned by a person other than the Borough or the landowner owning the parcel upon which a BMP or conveyance is located, an easement agreement shall be prepared and executed between the landowner and the owner of the BMP or conveyance which shall:

(1) Describe the ownership interests of all parties to the easement agreement, including the ownership of the BMP or conveyance;

(2) Include a written legal (metes and bounds) description of the easement area, with reference to a recorded plan sheet showing the legal boundaries of the easement area (or an accompanying plan sheet/map), signed and sealed by a qualified licensed professional;

(3) Grant an easement from the landowner to the owner of each BMP and conveyance, establishing the right and obligation to occupy, access, inspect, operate, maintain, and repair the BMP or conveyance;

(4) Include a description of the purpose of the easement and the responsibilities of the parties involved;

(5) Incorporate by reference, or be recorded with, the corresponding O&M plan and O&M agreement;

(6) Restrict the landowner's use of the easement area of the parcel on which the BMP or conveyance is located, consistent with the rights granted to the owner of the BMP or conveyance;

(7) Be submitted to the Borough for review and approval prior to approval of the SWM site plan;

(8) Upon approval by the Borough, be signed by the owner of the BMP(s) or conveyance(s) and the landowner and submitted for signature by the Borough;

(9) Include language legally sufficient to ensure that the easement will run with the land affected by the easement and that the easement agreement is binding upon the parties to the easement agreement, their heirs, administrators, successors in interest and assigns, into perpetuity;

(10) Contain additional provisions or information as required by the Borough; and

(11) When fully executed, be recorded by the landowner at the Chester County Office of the Recorder of Deeds against all parcels affected by the terms of the easement agreement prior to the release of financial security.

C. For any BMP or conveyance which is designed to receive runoff from another parcel or parcels and which is owned by the landowner of the parcel upon which the BMP or conveyance is located, in addition to any easement or easement agreement required pursuant to § **94-704A** or **B**, an easement agreement shall be prepared and executed between the landowner of the parcel or parcels draining to the BMP or conveyance and the owner of the BMP or conveyance. This easement agreement shall:

(1) Describe the ownership interests of all parties to the easement agreement, including the ownership of all affected parcels and of the BMP or conveyance;

(2) Provide for the grant of a drainage easement from the owner of the BMP or conveyance to the landowner of the parcel(s) draining to the BMP, which shall extend from the shared parcel boundary(ies) to the receiving BMP and shall include the connecting flow path(s) or conveyance;

(3) Include a written legal (metes and bounds) description of the easement area, with reference to a recorded plan sheet showing the legal boundaries of the easement area (or an accompanying plan sheet/map), signed and sealed by a licensed professional;

(4) Incorporate by reference or be recorded with the corresponding O&M plan and O&M agreement;

(5) State that the purpose of the easement agreement is to ensure the continuous right of the discharging parcel to discharge onto the parcel containing the BMP and into the BMP or conveyance;

(6) Restrict the BMP or conveyance owner's use of the easement area of the parcel upon which the BMP or conveyance is located, consistent with the purpose of the easement granted;

(7) Establish the duty and responsibility of the landowner of the parcel or parcels draining to the BMP or conveyance to maintain the existing drainages on the discharging parcel or parcels as designed and constructed to discharge to the receiving BMP;

(8) Include language legally sufficient to ensure that the easement will run with the land and will bind all parties to the easement agreement, their heirs, administrators, successors in interest and assigns, into perpetuity;

(9) Be submitted to the Borough for review and approval prior to approval of the SWM site plan;

(10) Contain all additional provisions or information as the Borough may require upon review; and

(11) Be executed by the parties to the easement agreement and recorded at the Chester County Recorder of Deeds Office against the draining parcel(s) and the parcel upon which the BMP or conveyance is located prior to the release of the financial security.

D. For any area(s) shown on the SWM site plan maps/plan sheets or as-built plan sheets as requiring, or area(s) that is otherwise determined to require, deed restriction(s) for the purpose of protecting and prohibiting disturbance to a BMP or conveyance, such deed restrictions will be incorporated into a written deed, restrictive covenant, or equivalent document. The deed or other document shall:

(1) Include a clear and understandable description of the purpose, terms and conditions of the restricted use;

(2) Include the written legal description (metes and bounds description) of the area to which the restrictions apply that is consistent with the boundary shown on the O&M plan sheets and

SWM site plan maps/plan sheets;

(3) Make reference to any corresponding O&M plan(s) and O&M agreement(s);

(4) Include language legally sufficient to ensure that the terms of the restriction run with the land and shall be binding upon the landowner, its heirs, administrators, successors in interest, and assigns;

(5) Be submitted to the Borough for review and approval prior to approval of the SWM site plan;

(6) Upon approval by the Borough, be signed by the landowner and owner of the BMP or conveyance and submitted to the Borough; and

(7) Be fully executed and recorded at the Chester County Office of the Recorder of Deeds prior to the release of the financial security.

§ 94-705. Other postconstruction responsibilities.

A. The provisions of § **94-804** of this chapter shall apply to any permanent BMP or conveyance that is constructed as part of an approved SWM site plan or covered by an approved O&M plan.

B. The person responsible for the operation and maintenance of a BMP or conveyance shall make records of the installation and of all maintenance and repairs, and shall retain the records for at least 10 years. These records shall be submitted to the Borough.

C. Upon final inspection, the Borough shall inform the person responsible for the operation and maintenance whether the submission of periodic (annual or other frequency) inspection and maintenance reports will be required.

D. The owner of each BMP and conveyance shall keep on file with the Borough the name, address, and telephone number of the person responsible for maintenance activities and implementation of the O&M plan. In the event of a change, new information shall be submitted by the BMP or conveyance owner to the Borough within 30 working days of the change.

§ 94-706. Municipal stormwater control and BMP operation and maintenance fund and inspection and BMP operations and maintenance requirements.

A. The municipality shall inspect SWM BMPs, facilities and/or structures installed under this chapter according to the following frequencies, at a minimum, to ensure the BMPs, facilities and/or structures continue to function as intended. Persons installing stormwater controls or BMPs shall be required to reimburse the Borough for all costs of inspections in accordance with the fee schedule adopted by the Borough Council that is in effect when the inspections are conducted. The inspections shall be conducted at the following minimum frequencies:

(1) Annually for the first five years.

(2) Once every three years thereafter.

(3) During or immediately after the cessation of a twenty-five-year or greater storm, as determined by the Municipal Engineer.

B. The above referenced inspections shall be conducted during or immediately following precipitation events or in dry weather conditions if the BMP design parameters include dewatering within a specified period of time. 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, Stormwater Management Facility or structure

inspected, observations on performance, and recommendations for improving performance, if applicable.

Article VIII. Prohibitions

§ 94-801. Prohibited discharges.

A. Any drain or conveyance, whether on the surface or subsurface, that allows any nonstormwater discharge including sewage, process wastewater, and wash water to enter the Borough's separate storm sewer system, riparian buffers, wetlands or other waters of the commonwealth is prohibited.

B. No person shall allow, or cause to allow, discharges into the Borough's separate storm sewer system or the waters of the commonwealth that are not composed entirely of stormwater, except:

(1) As provided in § **94-801C** below; and

(2) Discharges allowed under a state or federal permit.

C. The following discharges are authorized unless they are determined by the Borough to be significant contributors to pollution to the Borough's separate storm sewer system or to the waters of the commonwealth:

(1) Discharges from fire-fighting activities;

(2) Potable water sources including waterline and fire hydrant flushings, if such discharges do not contain detectable concentrations of total residual chlorine (TRC);

(3) Non-contmainated irrigation drainage water;

(4) Non-contaminated HVAC condesnation and water from geothermal systems;

(5) Springs;

(6) Water from crawl space pumps;

(7) 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;

(8) Diverted stream flows;

(9) Flows from riparian habitats and wetlands;

(10) Uncontaminated water from foundations or from footing drains;

(11) Lawn watering;

(12) Uncontaminated groundwater;

(13) Water from individual residential car washing;

(14) Routine external building washdown (which does not use detergents or other compounds); and

(15) Non-contaminated hydrostatic test water discharges, if such discharges do not contain detectable concentrations of TRC.

(16) Washdown of trash receptacles;

D. In the event that the Borough determines that any of the discharges identified in § **94-801C** significantly contribute pollutants to the Borough's separate storm sewer system or to the waters of the commonwealth, or is notified of such significant contribution of pollution by PADEP, the Borough will notify the responsible person to cease the discharge.

E. Upon notice provided by the Borough under § **94-801D**, the discharger shall, within a reasonable time period, as determined by the Borough consistent with the degree of pollution caused by the discharge, cease the discharge.

F. Nothing in this section shall affect a discharger's responsibilities under state law.

§ 94-802. Prohibited connections.

The following connections are prohibited, except as provided in § **94-801C** above:

A. Any drain or conveyance, whether on the surface or subsurface, that allows any nonstormwater discharge, including sewage, process wastewater, and wash water, to enter a separate storm sewer system, and any connections to the separate storm sewer system from indoor drains and sinks. Any drain or conveyance that delivers nonstormwater discharges directly into wetlands, riparian buffers, or other waters of the Commonwealth is prohibited.

B. Any drain or conveyance connected from a commercial or industrial land use to a separate storm sewer system, which has not been documented in plans, maps, or equivalent records and approved by the Borough.

§ 94-803. Roof drains and sump pumps.

A. Roof drains and sump pump discharges shall not be connected to sanitary sewers.

B. Roof drain, sump pump, foundation and footing drain discharges:

(1) To the maximum extent practicable, shall discharge to infiltration or vegetative BMPs, or to vegetated or other areas with adequate capacity;

(2) May be connected to streets, storm sewers, or roadside ditches only if determined necessary or acceptable by the Municipal Engineer; and

(3) Shall be considered in stormwater management calculations to demonstrate that conveyance and receiving facilities have adequate capacity.

§ 94-804. Alteration of BMPs.

A. No person shall modify, remove, fill, landscape, alter, or impair the effectiveness of any stormwater BMPs, conveyances, storm water management facilities, areas or structures unless the activity is part of an approved maintenance program, without the written approval of the Borough.

B. No person shall place any structure, fill, landscaping, additional vegetation, yard waste, brush cuttings, or other waste or debris into a BMP or conveyance, or within a stormwater easement, that would limit or alter the functioning of the stormwater BMP or conveyance, without the written approval of the Borough.

Article IX. Enforcement; Violations and Penalties

§ 94-901. Public nuisance.

A. Any regulated activity conducted in the violation of any provision of this chapter is hereby deemed a public nuisance.

B. Each day that a violation continues shall constitute a separate violation.

C. A separate violation will be found to exist for each section of this chapter found to have been violated.

D. To the extent that the Borough does not enforce any provision of this chapter, such action or inaction shall not constitute a waiver by the Borough of its rights of future enforcement hereunder.

§ 94-902. Right of entry.

A. Upon presentation of proper credentials, duly authorized officers or agents of the Borough may enter at reasonable times upon any property within the Borough to inspect the implementation, condition, or operation and maintenance of all erosion and sediment controls and permanent stormwater BMPs, conveyances, or other stormwater management facilities both during and after completion of a regulated activity, or for compliance with any requirement of this chapter.

B. Persons working on behalf of the Borough shall have the right to temporarily locate on or in any BMP, conveyance or other stormwater management facility in the Borough such devices as are necessary to conduct monitoring and/or sampling of the discharges from such BMP or conveyance, or other stormwater facilities.

C. Failure of the landowner or representative to grant access to the Borough after proper notification, verbal or written, is a violation of this chapter.

§ 94-903. Enforcement.

A. The Borough Code Enforcement Department, Municipal Engineer or other designee is hereby authorized and directed to enforce all of the provisions of this chapter. The Borough Council may delegate enforcement duties, including the initial determination of chapter violation and service of notice, if notice is given, to such other officers or agents as the Borough shall deem qualified for that purpose.

B. It shall be the responsibility of the landowner of the real property on which any regulated activity is proposed to occur, is occurring, or has occurred to comply with the applicable terms and conditions of this chapter.

C. All municipal inspections for compliance with the approved SWM site plan shall be the responsibility of the Borough or its designee.

D. During any stage of the work of any regulated activity, if the Municipal Engineer or other designee determines that the erosion and sediment control measures, permanent BMPs, conveyances or other stormwater facilities are not being installed or maintained in accordance with the approved SWM site plan, the Borough may suspend or revoke any existing permits or other approvals until the deficiencies are corrected or until a revised SWM site plan is submitted and approved, if and as determined to be necessary by the Municipal Engineer or other designee.

E. In the event that the Code Enforcement Department, Municipal Engineer or other designee finds that a person has violated a provision of this chapter, or fails to conform to the requirements of any permit or approval issued by the Borough, or any O&M plan or O&M agreement approved by the Borough, the Borough may order compliance by written notice of the violation to the landowner.

F. Such notice may, without limitation, require the following remedies:

(1) Performance of monitoring, analyses, and reporting;

(2) Elimination of prohibited connections or discharges;

(3) Cessation of any violating discharges, practices, or operations;

(4) Abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property;

(5) Payment of a fine to cover administrative and remediation costs and/or forfeiture of financial security;

(6) Implementation of stormwater controls, BMPs, and conveyances; and

(7) Operation, maintenance or repair of BMPs, conveyances or other stormwater facilities.

G. Such notice shall set forth the nature of the violation(s), citing to specific sections of this chapter which have not been met, and establish a time limit for commencement of correction and completion of correction of the violation(s). The notice shall provide for a right of the landowner's appeal to the Court of Common Pleas in accordance with § **94-906** of this chapter. Said notice shall further advise that, if applicable, should the violator fail to take the required action within the established deadline, possible sanctions, clearly described, may be imposed, or the work may be done by the Borough or designee, and the expense thereof shall be charged to the violator.

H. Failure to comply within the time specified in such notice shall also subject such person to the penalty provisions of this chapter. All such penalties shall be deemed cumulative and shall not prevent the Borough from pursuing any and all other remedies available in law or equity.

§ 94-904. Suspension and revocation of permits and approvals.

A. Any building, land development, or other permit or approval issued by the Borough may be suspended or revoked by the Borough for:

(1) Noncompliance with or failure to implement any provision of the permit or approved SWM site plan or O&M agreement;

(2) A violation of any provision of this chapter or any other law or regulation applicable to the regulated activity;

(3) The creation of any condition or the commission of any act during the regulated activity that constitutes or creates a hazard or nuisance, or endangers the life, health, safety, or property of others; or

(4) Failure to correct a violation within the allowed time period allowed per notice given by the Borough.

B. Prior to revocation or suspension of a permit, unless there is immediate danger or threat of such danger to life, public health or property, at the request of the applicant, the Borough Council shall schedule a hearing on the violation and proposed revocation or suspension, pursuant to public notice. The expense of a hearing shall be the applicant's responsibility.

C. A suspended permit or approval may be reinstated by the Borough when:

(1) The Municipal Engineer or other designee has inspected and approved the corrections to the BMPs, conveyances or other stormwater management facilities, or the elimination of the hazard or nuisance; and

(2) The Borough is satisfied that the violation has been corrected.

D. A permit or approval that has been revoked by the Borough cannot be reinstated. The applicant may apply for a new permit or approval in accordance with this chapter.

§ 94-905. Violations and penalties.

A. Any person who violates or permits the violation of any provision of this chapter shall, upon conviction thereof in a summary proceeding brought before a District Justice under the Pennsylvania Rules of Criminal Procedure, be guilty of a summary offense and shall be subject to the payment of a fine of not less than $100 and not more than $1,000, plus the costs of prosecution. In default of payment thereof, the defendant may be sentenced to imprisonment in the county prison for a term of not more than 30 days. Each section of this chapter violated shall constitute a separate offense, and each day or portion thereof in which a violation of this chapter is found to exist shall constitute a separate offense, each of which violations shall be punishable by a separate fine imposed by the District Justice of not less than $100 and not more than $500, plus the costs of prosecution or, upon default of payment thereof, the defendant may be sentenced to imprisonment in the county prison for a term of not more than 30 days. All fines and penalties collected for the violation of this chapter shall be paid to the Borough Treasurer.

B. In addition, the Borough may, through its solicitor, 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 legal or equitable forms of remedy or relief. Such relief may include costs, fees, and charges, including the Borough's attorney's fees (charged at the hourly rate approved by the governing body of the Borough) and costs, as may be permitted by law.

C. When it is necessary to make an inspection to enforce the provisions of this chapter, the Borough's Code Official and Municipal Engineer shall be authorized to enter the property at reasonable times to inspect or perform the duties imposed by this chapter provided that if the property is occupied, that credentials be presented to the occupant and entry requested. If such property is unoccupied, the Code Official shall first make a reasonable effort to locate the owner or other person having charge or control of the property and request entry. If entry is refused, the Code Official shall have recourse to the remedies provided by law to secure entry. If the Borough incurs expenses associated with correcting any violation of this chapter, such expenses shall be charged to the property owner responsible for the violation.

§ 94-906. Appeals.

Any person aggrieved by any decision or determination of the Borough relevant to the provisions of this chapter may file an appeal in the Court of Common Pleas pursuant to the Local Agency Law[1] within 30 days of the Borough's decision or determination.

[1] *Editor's Note: See 2 Pa.C.S.A. § 105 et seq.*

§ 94-907. Effective date.

This chapter shall become effective upon enactment as provided by law.

This meeting is being audio recorded for public record

A G E N D A

Borough Council Meeting

September 21, 2022 @ 6:30 PM

Michael Stefano, President	Member, 4th Ward	Term Expires: 12/31/23
Lisa Dorsey, Vice President	Member, 7th Ward	Term Expires: 12/31/25
Patrick McCoy	Member, 1st Ward	Term Expires: 12/31/25
Nick Allen	Member, 2nd Ward	Term Expires: 12/31/23
Brian McGinnis	Member, 3rd Ward	Term Expires: 12/31/25
Sheila Vaccaro	Member, 5th Ward	Term Expires: 12/31/25
Bernie Flynn	Member, 6th Ward	Term Expires: 12/31/23

Mayor: Lillian L. DeBaptiste **Borough Manager:** Sean Metrick

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Public Hearing @ 6:30 PM

An Ordinance of the Borough of West Chester, Chester County, Pennsylvania, amending the Borough of West Chester Stormwater Management Ordinance, which was adopted on December 18, 2013 as Ordinance No. 18-2013 and is codified in Chapter 94 of the Borough of West Chester code, and adopting amendments required by the 2022 Chester County model act 167 Stormwater Management Ordinance.

Borough Council Meeting:

1) Call to Order

2) Pledge of Allegiance

3) Comments, suggestions, petitions by residents in attendance regarding items that are not on the agenda

4) Comments by the Borough Council and the Mayor

- ***5) DISCUSSION:***

  a) Borough Manager presentation of the Preliminary Budget, 2023

- ***6) CONSENT:***

  a) Approve hiring Zachary Turner as a patrol officer, West Chester Borough Police Department

  b) Approve the Business Improvement District Board of Directors appointment of Tyrone Taylor

  c) Approve Option B as the reapportionment of the Voting Wards (*attachment*)
  i. Proposed Voting Ward Map
  ii. Existing Voting Wards Population Map
  iii. Existing Voting Wards Racial Demographic Map
  iv. Voting Ward Options – Preliminary Analysis

d) Approve selling three vehicles on Municibid (*attachment*)

e) Approve the Hannum & New Street Lot #6 Parking Lease Renewal Agreement between the Chester County and the West Chester Borough with a rate increase to $75/space/month (*attachment*)

f) Approve the Reverse Subdivision Plan for 327-329 South High Street (*attachment*)

g) Approve the August 2022 HARB Certificates of Appropriateness (*attachment*)

1. **2022-23: 151 West Gay Street - 151 Saloon**
   Proposed Work; Renovate Front Façade; cont. from July HARB
   Recommendation Approved: The Board recommends a Certificate of Appropriateness for Application 2022-23 as presented at the August 25th Board Meeting.

2. **2022-26: 135 East Gay Street – Tish Kids**
   Proposed Work; Sign & Awning
   Recommendation: Approved: The Board recommends a Certificate of Appropriateness for Application 2022-26 with the clarification that the awning fabric would cover the sides of the awning frame.

3. **2022-27: 127 North Church Street- Shine Nutrition**
   Proposed Work; Sign
   Recommendation Approved: The Board recommends a Certificate of Appropriateness for Application 2022-27 as submitted.

4. **2022-28: 123 North High St Street- May Day Coffee Shop**
   Proposed Work; Sign
   Recommendation: Approved: The Board recommends a Certificate of Appropriateness for Application 2022-28 on the condition that the field color of the sign will be the black option not the off-white option.

5. **2022-30: 40 East Market Street – Santino's Tap & Table**
   Proposed Work; Sign
   Recommendation: Approved: The Board recommends a Certificate of Appropriateness for Application 2022-30 as submitted.

h) Deny the request for loan forgiveness from the Uptown Knauer Performing Arts Center

i) Adopt the municipal minimum obligations to the nonuniform and uniform defined benefit pension plans, and the defined contribution plan (*attachment*)

j) Approve the August 16 and 17, 2022 Borough Council Meeting Minutes

- ***7) OTHER BUSINESS:***

a) Announce the September 21, 2022 executive session to discuss legal and personnel issues

Adjournment

PLEASE NOTE:

Open House/Public Meeting: October 5th – Concepts on future Gay Street Closures - Borough Council Chambers: 5:30 PM – 7:30 PM

How to Engage in Public Comment During a Borough Council or Committee Meeting

Public Comment is heard at three different points during Borough Council meetings:

• *BEFORE CONSIDERATION OF ITEMS ON THE AGENDA* - The public is permitted to make public comment on any matter not on the agenda. You will have three minutes to make your statement, unless the President or Chair has announced otherwise, so please come prepared.

• *BEFORE ACTION* on a motion or an agenda item. Public Comment at this stage is limited to the item under discussion. As above, please keep your comments to three minutes.

• *AFTER ACTION ON ALL AGENDA ITEMS HAVE BEEN ACTED*. Public Comment is open to any legitimate item of business that can be considered by Council or the Committee. Again, please keep your comments brief.

How to make a comment:

• The President or Chair will announce an opportunity for public comment, either on a specific issue or generally, depending on where we are in the agenda (see above).

• After you are recognized by the President or Chair, come to the microphone, and state your name and address for the record.

• You may then make your comment or ask your question. As noted above, you will have three minutes to make your statement, unless the President or Chair has announced otherwise.

This meeting is being audio recorded for public record

M I N U T E S

Borough Council Worksession Meeting

September 20, 2022 @ 6:30 PM

Michael Stefano, President	Member, 4th Ward	Term Expires: 12/31/23
Lisa Dorsey, Vice President	Member, 7th Ward	Term Expires: 12/31/25
Patrick McCoy	Member, 1st Ward	Term Expires: 12/31/25
Nick Allen	Member, 2nd Ward	Term Expires: 12/31/23
Brian McGinnis	Member, 3rd Ward	Term Expires: 12/31/25
Sheila Vaccaro	Member, 5th Ward	Term Expires: 12/31/25
Bernie Flynn	Member, 6th Ward	Term Expires: 12/31/23

Mayor: Lillian L. DeBaptiste **Borough Manager:** Sean Metrick

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Note: Mayor DeBaptiste was not in attendance at the September 20, 2022 Borough Council meeting

Public Hearing @ 6:30 PM

Amending the Code of the Borough of West Chester, specifically chapter 104, titled "Vehicles and Traffic," Section 104-45 to change the direction of the handicapped parking space at 224 Biddle street from north to west and to add a handicapped parking space at 508 East Miner Street and section 104-47.a(1) to add parking meters on the 200 block of East Market Street.

Amending the Code of the Borough of West Chester, specifically Chapter 77 of the Code of the Borough of West Chester, titled, "Parking Program, Residential" to revise the definition of "holiday" in Section 77-2 and to remove all references to parking stickers throughout the Chapter.

Discussion: The Public Hearing was called to order at 6:30 PM. Mr. Metrick reviewed the amendments and exhibits. The exhibits were entered into the record. Mr. Metrick asked for any questions from Borough Council or those in attendance.

Kevin Mash addressed Borough Council and advised he has been in conversation with the Borough Manager and Ms. Vaccaro to request assistance with parking in the vicinity of 200 East Market Street, which is currently three-hour parking; however, parking is not being enforced. His request is for meters for faster turnover and two 15-minute loadings zones, one in front of Lorenzo's and one in front of the old Star Social Club. Mr. Mash asked to add these items to the amendments. Mr. Metrick replied it is not possible to add his request to the amendment before Council, however, it can be discussed at the Parking Committee.

Mr. Flynn made a motion to approve_amending the Code of the Borough of West Chester, specifically chapter 104, titled "Vehicles and Traffic," Section 104-45 to change the direction of the handicapped parking space at 224 Biddle Street from north to west and to add a handicapped parking space at 508 East Miner Street and section 104-47.a(1) to add parking meters on the 200 block of East Market Street; Ms. Dorsey Seconds the Motion.

Roll Call:

Mr. McCoy – Yes; Mr. McGinnis – Yes; Mr. Stefano – Yes;
Ms. Vaccaro – Yes; Mr. Flynn – Yes; Ms. Dorsey – Yes; Mr. Allen - Yes

Motions Carries 7-0

Discussion: Mr. Metrick reviewed the amendments and exhibits. The exhibits were entered into the Record. Mr. Metrick asked for questions from the Borough Council or those in attendance.

Mr. McGinnis asked Mr. Metrick to state the specific "Holidays." Mr. Metrick replied, New Year's Day, Martin Luther King's Birthday, President's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day. Mr. McGinnis made a Motion to amend the Definition of "Holidays and add Juneteenth. Ms. Dorsey made a second to the Motion. Mr. Metrick said that would be a substantive change and the amendment would have to be revised and republished. He advised Council to table the Hearing and continue at the October business meeting with the addition of Juneteenth in Section 77-2 "holiday"

Roll Call:

Mr. McCoy – Yes; Mr. McGinnis – Yes; Mr. Stefano – Yes;
Ms. Vaccaro – Yes; Mr. Flynn – Yes; Ms. Dorsey – Yes; Mr. Allen - Yes

Motions Carries 7-0

The September 20, 2022 Public Hearings closed at 6:39 PM, with the Public Hearing to amend the Code of the Borough of West Chester, specifically Chapter 77 of the Code of the Borough of West Chester, titled, "Parking Program, Residential" to revise the definition of "holiday" in Section 77-2 and to remove all references to parking stickers throughout the Chapter, be continued until October 19, 2022 and include the amendment to Section 77-2 "holiday" to add Juneteenth.

Borough Council Meeting:

1) Call to Order

   The September 20, 2022 Borough Council Meeting was called to order at 6:39 PM

2) Pledge of Allegiance

   The Pledge of Allegiance was led by Mr. Flynn

3) Comments, suggestions, petitions by residents in attendance regarding items that are not on the agenda

   Mr. Stefano advised the 2023 Preliminary Budget will be discussed at the September 21, 2022 Borough Council meeting.

   Dante D'Andrea addressed Borough Council and advised he is a cyclist and resident. He believes West Chester Borough is not cycling friendly; and, with discussions on the Gay Street Open Air Market, encouraged some degree of discussion on cycling on the sidewalks.

   Mr. Stefano advised D'Andrea his request will be added to the October Public Safety Committee agenda.

4) Approve the request from the Mayor to hire Zachary Taylor

Chief Morehead addressed Borough Council on behalf of the Mayor who was not able to attend the meeting. Due to an officer retirement, an additional vacancy was created. Chief Morehead asked Borough Council to consider hiring Zachary Taylor to fill the position. Mr. Taylor attended Bloomsburg University and obtained an Interpersonal Communications Degree. He is currently attending the Temple University Police Academy, and is currently a full-time dispatcher with the West Chester Borough. Chief Morehead asked Borough Council to consider hiring Mr. Taylor. Mr. Flynn asked what the pay level will be. Chief Morehead advised Mr. Taylor's pay level is the base bottom for an officer that is attending the police academy.

Mr. Flynn asked if Mr. Taylor has his Act 120 Certificate and if he is still employed as a dispatcher. Chief Morehead advised if Council approves hiring Mr. Taylor, he would be sworn in at the October Borough Council meeting when the Mayor is present, and switch from dispatcher credentials to police officer credentials while he finishes out his training.

This item was moved to the September 21, 2022 Consent Agenda.

5) Approve the Business Improvement District Board of Directors appointment of Tyrone Taylor

Discussion: Mr. John O'Brien advised there is a vacancy on the Board due to a recent resignation. Mr. Taylor is a resident of the Borough, owns several commercial properties, and co-owns a business in the Borough. The Bid Board approved the recommendation, and believes he will be a good addition to the BID. Ms. Vaccaro said she enjoyed meeting Mr. Taylor, and recommended and voted for his appointment.

This item was moved to the September 21, 2022 Consent Agenda

- ***Administration, Communications & Technology Committee:***

6) Consider creating a committee/subcommittee to assist and support residents and businesses in performing historical research (*attachment*)

Discussion: Mr. Allen asked Borough Council to table this item for further discussion at the ACT Committee Meeting. He advised he is working on final language and hopes to be finished with this item next month.

This item was tabled until the October, 2022 ACT Meeting

7) Discuss Committee recommendation of the reapportionment of the Voting Wards in the following order: ***Options:*** 1) Option B; 2) Option E; 3) Option A; 4) Option C; and, 5) Option D (*attachment*)

i. Proposed Voting Ward Map
ii. Existing Voting Wards Population Map
iii. Existing Voting Wards Racial Demographic Map

iv. Voting Ward Options – Preliminary Analysis

Discussion: Mr. Allen advised the recommendation of the ACT Committee is 1) Option B for the reapportionment of the Voting Wards. The Committee believes this option works best for the Borough, balancing the seven Wards according to state law, and evenly distributes the student population. However, this option breaks the census block lines, which is prohibited by State law. Voter Services is willing to work with the Borough on this option.

Mr. Allen reviewed the other options: Option E is the existing voting ward map, with changes to the census blocks west of north High Street from ward 1 to ward 7. Option A is the current voting ward map, but is not in compliance. Option C has very negative ramifications, and is the least favorite option. Option D takes that Superblock and makes it its own ward. Ms. Vaccaro said this Option is not realistically possible due to the requirements to run for Borough Council.

Mr. Stefano said this exercise will be useful in establishing why the Borough requires an exception and the negative ramifications of the other options.

Mr. Stefano asked Mr. Metrick if Council chooses to put Option B on the Consent Agenda, what will the process be.

Mr. Metrick replied the Borough's request will have to be placed on the Court of Common Pleas docket for the Court to approve the change to the ward boundaries. He believes we have a compelling argument since we have balanced the population among the Wards, the student population equally among Wards 3, 4 and 5, and honor the 1986-87 Court ruling.

Borough Council agreed to put Option 1 "B" on the consent agenda.

This item was moved to the September 21, 2022 Consent Agenda

8) Authorize the Solicitor to prepare an Ordinance to add a referendum to the voting ballot, amending the Home Rule Charter, to include action that will protect the reproduction rights of women in the West Chester Borough

Discussion: Mr. Metrick replied the process of amending the Home Rule Charter involves Borough Council approving an ordinance to direct the County Voter Services to place language on the ballot that represents an exact change to the Home Rule Charter. Voter Services writes the language that will be placed on the ballot. Borough Council has to be very specific as to the change in the Charter. One approach will be to broadly empower counsel to direct the police department, and the other approach will be to specifically address the issue of reproductive rights.

Ms. Dorsey said it is her understanding that what was discussed last month was very specific to reproductive rights and protecting clients of Planned Parenthood, amending the Charter to protect the rights of clients of the West Chester Planned Parenthood, and from any legal ramifications that would potentially come into effect in the Commonwealth.

Mr. McGinnis offered to assist with specific language and asked about the timeline.

Mr. Metrick said it is not possible to have this on the November ballot but we should be able to include this on the spring ballot. He believes the latest the ordinance should be approved by Council in January as voter services would require notification 13 Tuesdays before the primary.

Ms. Vaccaro said what is most important to her is to make sure women's rights are protected should the law change in Pennsylvania.

Borough Council will discuss this item at the October Public Safety Committee meeting. Mr. McGinnis said all of Council should participate in this meeting.

Borough Council agreed to table this item until the Public Safety Committee meeting in October to finalize the language to place on the ballot.

This item was tabled until the October, 2022 Public Safety Committee Meeting

- ***Public Works Committee:***

9) Approve selling three vehicles on Municibid (*attachment*)

Discussion: Mr. Metrick advised Borough Council approval is required to sell items over $500.00.

This item was moved to the September 21, 2022 Consent Agenda

- ***Parking Committee:***

10) Consider the renewal agreement between the County of Chester and the West Chester Borough at the Hannum & New Street Lot #6, and discuss increasing the current rate of $60/space/per month (*attachment*)

Discussion: Mr. Flynn recommended a rate increase at the Parking Committee Meeting. Ms. Dorsey asked if the rate is competitive. Mr. Metrick replied the spaces in garages are $90.00 monthly day rate; $125 monthly 24/7; $60 dollars per space/month is our lowest surface lot rate. The County has been receiving a 50% discount over our hourly rate. Mr. Flynn said an exact rate increase was not determined at the Parking Committee meeting. Borough Council agreed to increase the rate to $75.00/space/per month. The agreement cannot be unilaterally changed, and the County would have to agree on the new rate.

Mr. Metrick said a Periodic review of rates and fees should be done unilaterally when the fee schedule is approved at the end of the year.

This item was moved to the September 21, 2022 Consent Agenda

- ***Public Safety Committee:***

11) Approve the pending special event application from WCBID for OutFest 10-01-2022 (*attachment*)

Discussion: Mr. O'Brien advised Borough Council he is withdrawing the application due to the overwhelmingly negative response he received from the community. He said the purpose of the event was to be inclusive and welcoming. It is his opinion additional

police will be required to make sure everything goes smoothly with no incident. He does not have the volunteers or the additional costs in his budget for the extra police presence. He informed Council that while the majority of the town is supportive, he does not want there to be any distractions or protests.

Mr. Stefano thanked Mr. O'Brien and said he is in favor of this event and was disappointed that the event is not taking place.

The application was withdrawn and no action was taken on this item.

- ***Smart Growth Committee***

12) Approve the Reverse Subdivision Plan for 327-329 South High Street (*attachment*)

Discussion: Mr. Gore advised this is a simple reverse subdivision to combine two parcels into one parcel, eliminating the lot line. The property is used as an office, with the property owner planning an addition at a later date. There are no zoning issues and the Planning Commission provided a recommendation letter.

Darrel Cooke asked if this would change the parking. Mr. Gore replied the property is located in the Town Center District and no residential units are being added to the property.

This item was moved to the September 21, 2022 Consent Agenda

13) Approve August 2022 HARB Certificates of Appropriateness (*attachment*)

a. **2022-23: 151 West Gay Street - 151 Saloon**
Proposed Work; Renovate Front Façade; cont. from July HARB
Recommendation Approved: The Board recommends a Certificate of Appropriateness for Application 2022-23 as presented at the August 25th Board Meeting.

b. **2022-26: 135 East Gay Street – Tish Kids**
Proposed Work; Sign & Awning
Recommendation: Approved: The Board recommends a Certificate of Appropriateness for Application 2022-26 with the clarification that the awning fabric would cover the sides of the awning frame.

c. **2022-27: 127 North Church Street- Shine Nutrition**
Proposed Work; Sign
Recommendation Approved: The Board recommends a Certificate of Appropriateness for Application 2022-27 as submitted.

d. **2022-28: 123 North High St Street- May Day Coffee Shop**
Proposed Work; Sign
Recommendation: Approved: The Board recommends a Certificate of Appropriateness for Application 2022-28 on the condition that the field color of the sign will be the black option not the off-white option.

e. **2022-30: 40 East Market Street – Santino's Tap & Table**
Proposed Work; Sign

Discussion: Mr. McGinnis advised the Smart Growth Committee did not have any concerns with the applications.

This August HARB Certificates of Appropriate were moved to the September 21, 2022 Consent Agenda

14) Consider Solicitor attendance at the Zoning Hearing to represent the Borough relative to Zoning Hearing Application: #998-611 East Nields St LLC, applicant seeks a variance from Section 112-602.M to allow three entrance and exit drives along South Bolmar Street *(attachment)*

Discussion: Mr. Gore stated the applicant is seeking a variance to allow 3 entrances along South Bolmar Street. The property owner is proposing two warehouse facilities on the site, which is a permitted use in the zoning code as a use by right. Mr. Gore does not believe the Solicitor must attend the Zoning Hearing.

Ms. Dorsey asked if there will be any traffic restrictions with this development as there are residences in the vicinity.

Mr. Gore advised the traffic study has been reviewed by the Borough traffic engineer, and there are no significant traffic implications at this time. The majority of traffic is going to come from the south, from Auto Park Boulevard up to Bolmar Street, into the site. Traffic will be restricted going north on Bolmar Street, and only a right-hand turn will be available to go south on Bolmar back to Auto Park Boulevard and back to 202, preventing trucks from going north into the Borough.

Traffic counts are based on what the proposed use might be, and a conservative number was used for that traffic study. The applicant does not know what the specific use will be, and the Borough can require the applicant to perform a post-occupancy traffic study and have them implement those changes based on any approval recommendations in the final land development process.

Ms. Dorsey requested truck traffic be managed on the residential side.

Mr. Flynn remarked there will be multiple tenants in the buildings.

Mr. Adams said once the tenants are in place, it will be a matter of making sure it is conveyed to the employees and trucking companies how to enter and exit the facility.

Mr. Metrick asked about the use of the property.

Mr. Adams replied a warehouse and distribution facility. The use of the property could allow for manufacturing, but the buildings are more designed for a typical warehouse distribution operation.

Mr. McCoy said there appear to be 400 parking spaces and asked if they considered runoff issues and flooding.

Mr. Adams said there is an environmental constraint on the property, which requires capping the entire site due to legacy environmental issues.

Borough Council agreed Solicitor attendance is not required at the Zoning Hearing.

This item was removed from the September 21, 2022 Borough Council Meeting agenda

- ***Finance & Revenue Committee***

15) Discuss repayment of the Uptown Knauer Performing Arts Center Grant loan; and, establish a revolving loan fund

Discussion: Mr. Stefano said this is a two-part item to discuss repayment of the loan and establish a revolving loan.

Mr. Allen said the money for the loan originally came from a grant. The idea is to make the loan available to members of our community for community growth. The idea is to loan the money out, get it back and then loan the money for other community projects.

Mr. McGinnis said for the record, the amount owed is $225,000 with interest.

Mr. McCoy said if the Borough is going to establish a revolving loan, there should be parameters.

Mr. Allen agreed and said intentions must be clear to approve or deny a request for a loan, and Council should discuss guidelines at a future committee meeting.

Mr. Metrick advised Ms. Lionti performed some research and the guidelines are very clear the loan must be repaid.

The revolving loan establishment and guidelines will be discussed at the Finance Committee. Borough Council agreed to deny the request for loan forgiveness.

Agreement to deny the loan forgiveness of the Uptown Knauer Performing Arts Center Grant loan was moved to the September 21, 2022 Consent Agenda

16) Adopt the municipal minimum obligations to the nonuniform and uniform defined benefit pension plans, and the defined contribution plan (*attachment*)

Discussion: Mr. Stefano said the Borough is required to adopt the obligations yearly.

This item was moved to the September 21, 2022 Consent Agenda

17) Other Business:

a) Approve the August 16 and 17, 2022 Borough Council Meeting Minutes

Discussion: Borough Council approved the August 16 and 17, 2022 Borough Council Meeting Minutes with no edits requested.

This item was moved to the September 21, 2022 Consent Agenda

Mr. Gore advised Borough Council he just returned from Louisville, Kentucky and attended the International Company Council annual conference. He was elected by his peers to the vice chair position of one of the membership Councils. He thanked Borough Council for continuing to allow the opportunity to attend these conferences and code hearings. It is critically important that we continue the involvement with the Code Council. Not for the betterment of myself and my department, but the community as a whole, you know, being involved in the code development process is.

Adjournment:
The September 20, 2022 Borough Council Meeting adjourned at 7:39 PM

Respectfully Submitted,

Dana

Dana C. DiDomenico
Executive Assistant to the Borough Manager

This meeting is being audio recorded for public record

M I N U T E S

Borough Council Meeting

September 21, 2022 @ 6:30 PM

Michael Stefano, President	Member, 4th Ward	Term Expires: 12/31/23
Lisa Dorsey, Vice President	Member, 7th Ward	Term Expires: 12/31/25
Patrick McCoy	Member, 1st Ward	Term Expires: 12/31/25
Nick Allen	Member, 2nd Ward	Term Expires: 12/31/23
Brian McGinnis	Member, 3rd Ward	Term Expires: 12/31/25
Sheila Vaccaro	Member, 5th Ward	Term Expires: 12/31/25
Bernie Flynn	Member, 6th Ward	Term Expires: 12/31/23

Mayor: Lillian L. DeBaptiste **Borough Manager:** Sean Metrick

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Public Hearing @ 6:30 PM

An Ordinance of the Borough of West Chester, Chester County, Pennsylvania, amending the Borough of West Chester Stormwater Management Ordinance, which was adopted on December 18, 2013 as Ordinance No. 18-2013 and is codified in Chapter 94 of the Borough of West Chester code, and adopting amendments required by the 2022 Chester County model act 167 Stormwater Management Ordinance.

Mr. Stefano announced the Borough Council voting session will begin at 6:31 PM

Borough Council Meeting:

1) Call to Order at 6:31 PM

2) The Pledge of Allegiance was led by McCoy

Mayor DeBaptiste introduced the four sworn new officers and provided their backgrounds. Borough Council welcomed the new officers.

- Officer Douglas Gilbert
- Officer Luis Lopez-Torres
- Officer Ryan McMillen
- Officer Cara Dougherty

Mr. Stefano opened the Public Hearing at 6:34 PM

Solicitor Kristin Camp explained the Chester County Water Resources Authority took the lead to amend the Countywide Stormwater Management Ordinance, which was adopted in 2013. All municipalities were required to adopt the County model, which the Borough did on December, 18th, 2013, and has been administering as development projects come forward. The State law changed, and the Chester County Water Resources Authority modified the 2013 model ordinance and adopted a 2022 Act 167 model ordinance, which was adopted on August 17th, 2022. The most significant change was the new model ordinance, adopting a new Section 706 that mandates that either the municipality or the landowner is required to do inspections of the stormwater facilities after they are installed.

Mr. Flynn asked if there is any clarification if this is a fee or tax. Ms. Camp said this amendment is only specific to the amount of impervious cover on property and relates only to the engineering development. It is in a completely different Chapter in the Code from the Stream Protection Fee.

Ms. Dorsey made a motion to amend the Borough of West Chester Stormwater Management Ordinance, which was adopted on December 18, 2013 as Ordinance No. 18-2013 and is codified in Chapter 94 of the Borough of West Chester code, and adopting amendments required by the 2022 Chester County model act 167 Stormwater Management Ordinance; Ms. Vaccaro made a Second to the Motion.

Roll Call:

Mr. McCoy – Yes; Mr. McGinnis – Yes; Ms. Vaccaro - Yes; Mr. Stefano – Yes; Mr. Allen – Yes; Mr. Flynn – Yes; Ms. Dorsey – Yes

Motion Carries: 7-0

The Public Hearing closed at 6:41 PM

3) Comments, suggestions, petitions by residents in attendance regarding items that are not on the agenda

Ms. Beth Ann Rosica addressed Borough Council. She congratulated the new police officers and asked to comment on the cancelation of the Outfest event. She read a statement and informed Borough Council she submitted a Right to Know to review emails sent to Borough Council regarding the event, so she can objectively assess the level of hate that was being expressed. She said she spoke to many parents who submitted emails, and they informed her they were most concerned about one aspect of the event. It is her opinion if the Borough wants to host a drag queen event, to move it to an inside venue, and have an evening activity for adults. She never asked for the event to be canceled and instead sent a thoughtful, respectful email to suggest how to better handle the situation and received a response telling her that she is the problem. She asked to work together, rather than canceling anyone who has a different opinion, and proposes creating an inclusivity advisory committee to address this issue.

Mr. Stefano said he received a magnitude of hateful emails regarding the event and is quite frankly disgusted.

4) Comments by the Borough Council and the Mayor

Mr. McCoy: Is happy to see a recent article in *Philadelphia Magazine* where West Chester Borough made the top 14 walkable Philadelphia suburbs.

Ms. Vaccaro: Is very disappointed that the Outfest event was canceled and is looking forward to a future event. She received many more emails that support the event than oppose the event, and it makes her feel positive. There are many ways the community can support this event, by contacting John O'Brien.

Mr. McGinnis: Agrees that what happened was taken out of context, but he is not surprised. He hopes there will be plans to make this a bigger event.

Mr. Flynn: West Chester is a great place to live, with great job opportunities and great schools. The historic Borough of West Chester is 1 of 4 Pennsylvania cities that landed on the 2021 top 100 best places to live in America. He congratulated the Downtown Foundation on the Up on the Roof event, which was very well attended.

Mr. Allen: Thanked Mr. O'Brien for his work on the Outfest event and his comments last night were great. Thanked Ms. Vaccaro for the emails she received and shared. He feels good about the future direction as he has seen the outpouring of support from the community. He believes we should make our values known and be true to our beliefs. Congratulations to all of the new officers. In Ward 2 news, there will be a community meeting October 5th at 10 am. Thanked Mr. Metrick for his assistance with John O'Green park.

Ms. Dorsey: She recognized the BID and West Chester Downtown Foundation on the Up on the Roof event, which was highly successful. She thanked Parks and Recreation for the restaurant festival. She too is disappointed that John O'Brien felt he was forced to cancel Outfest. There are many assumptions about drag queens, and, unfortunately, we are not exposing our children to people who are different. Outfest has her full support

Mayor DeBaptiste: Congratulated the four officers and thanked Council for their support. The *New York Times* featured Andiaro Restaurant as one of the best restaurants in America. While she believes there is room for improvement in the Borough, she feels positive about all of the support received regarding Outfest and looks forward to, and supports, a future Outfest event. All of the community should be valued.

Mr. Stefano: Had a great time at Up on the Roof. Congratulated the new police officers. Very disappointed about the cancellation of Outfest, and he takes the negative remarks personally. He thanked John O'Brien, and he understands the reason he reluctantly withdrew the application. He and Borough Council are committed to, and support, bigger and better events.

- ***5) DISCUSSION:***

a) Borough Manager presentation of the Preliminary Budget, 2023

Mr. Metrick reviewed the 2023 draft preliminary budget. He appreciates the support from Council, staff, and Ms. Lionti. He informed Council the budget is a year-round process connected to proper financial management, and his commitment to a culture of constant process improvement. He presented a draft operating budget, which balances all the restricted purpose and business type funds. However, the general fund budget is out of balance by 1% or $250,000. The expense and revenue accounts will go through an additional cycle within the next 4 weeks, with a final preliminary budget to consider at the October meeting.

Mr. Allen said he appreciates the way Mr. Metrick is looking at the big picture, and the 5-year projections from each department have been invaluable. He appreciates the transparency and how easy it is to understand the budget. When he started his term, Pennsylvania was the second most aggressively taxed State in the country; and, now is

number 7. We are moving in the right direction. He is hoping we could look at options not on the table to assist with these issues.

He believes that looking beyond his term is really important, and Sean has a good vision. He would like to see more investment in grant procurement for capital programming.

Mr. Stefano agrees Council needs to look past their terms and look at grant programs He thanked Barb Lionti & Mr. Metrick for their work

Mr. Flynn quoted resident Kyle Hudson who has said small increases in taxes are acceptable. He asked if the $140,000 for Good Fellowship was in the budget. Mr. Metrick replied, yes. He asked about the large increase in parking in 2024. Mr. Metrick replied it was for a Hoopes Park project. Mr. Flynn also asked about the year-end carryover and if there is anything in the budget for the necessary carry-over. Ms. Lionti said no, not currently. Mr. Flynn suggested a reserve line item. He also asked about the capital reserve fund and if it is mandated that the fund be held in low-conservative investments. Ms. Lionti replied OPEB funds follow the accounting guidelines that they should be placed in a trust. However, the Borough OPEB funds are not set up in a trust, rather they are set up in a liquid cash account through PLGIT. The reasoning is quick access to the money and the account is safe. Mr. Flynn also asked if there is a plan for state grant writing, as there is grant money available in Harrisburg, and has hiring WCU interns to assist been considered.

McCoy reiterated his support for the grant writing process. He asked Mr. Metrick if there is a KPI, a key performance indicator for grants as a percent of the total budget and asked what the Borough's typical grant revenue is. Mr. Metrick said he would look into Mr. McCoy's questions.

Mayor DeBaptiste asked if there is a specific person that writes our grants. Mr. Metrick said it will be a team effort, and we have talent in-house for grant writing. Mr. Metrick said he would like to collaborate with the Police Department on grant opportunities.

Mr. McGinnis would like to see Mr. Metrick and Ms. Lionti offer other revenue opportunities. He asked when the last parking garage increase was. Mr. Metrick said he will research the increase. Mr. McGinnis said all options should be on the table and with inflation at 8%, Council should be mindful of that number when considering a tax increase. He asked for more revenue brainstorming ideas from the Finance Committee.

Mr. Flynn said he appreciates Mr. McGinnis' comments and asked about higher interest rates for the Capital Reserve fund, and to consider assistance with the Borough Pension Board Committee.

- ***6) CONSENT:***

a) Approve hiring Zachary Turner as a patrol officer, West Chester Borough Police Department

b) Approve the Business Improvement District Board of Directors appointment of Tyrone Taylor

c) Approve Option B as the reapportionment of the Voting Wards (*attachment*)
   i. Proposed Voting Ward Map

ii. Existing Voting Wards Population Map
iii. Existing Voting Wards Racial Demographic Map
iv. Voting Ward Options – Preliminary Analysis

d) Approve selling three vehicles on Municibid (*attachment*)

e) Approve the Hannum & New Street Lot #6 Parking Lease Renewal Agreement between the Chester County and the West Chester Borough with a rate increase to $75/space/month (*attachment*)

f) Approve the Reverse Subdivision Plan for 327-329 South High Street (*attachment*)

g) Approve the August 2022 HARB Certificates of Appropriateness (*attachment*)

1. **2022-23: 151 West Gay Street - 151 Saloon**
Proposed Work; Renovate Front Façade; cont. from July HARB
Recommendation Approved: The Board recommends a Certificate of Appropriateness for Application 2022-23 as presented at the August 25th Board Meeting.

2. **2022-26: 135 East Gay Street – Tish Kids**
Proposed Work; Sign & Awning
Recommendation: Approved: The Board recommends a Certificate of Appropriateness for Application 2022-26 with the clarification that the awning fabric would cover the sides of the awning frame.

3. **2022-27: 127 North Church Street- Shine Nutrition**
Proposed Work; Sign
Recommendation Approved: The Board recommends a Certificate of Appropriateness for Application 2022-27 as submitted.

4. **2022-28: 123 North High St Street- May Day Coffee Shop**
Proposed Work; Sign
Recommendation: Approved: The Board recommends a Certificate of Appropriateness for Application 2022-28 on the condition that the field color of the sign will be the black option not the off-white option.

5. **2022-30: 40 East Market Street – Santino's Tap & Table**
Proposed Work; Sign
Recommendation: Approved: The Board recommends a Certificate of Appropriateness for Application 2022-30 as submitted.

h) Deny the request for loan forgiveness from the Uptown Knauer Performing Arts Center

i) Adopt the municipal minimum obligations to the nonuniform and uniform defined benefit pension plans, and the defined contribution plan (*attachment*)

j) Approve the August 16 and 17, 2022 Borough Council Meeting Minutes

Mr. Flynn made a Motion to adopt the September 21, 2022 Borough Council Consent agenda; Ms. Dorsey made a Second to the Motion.

Roll Call:

Mr. McCoy – Yes; Mr. McGinnis – Yes; Ms. Vaccaro - Yes; Mr. Stefano – Yes; Mr. Allen – Yes; Mr. Flynn – Yes; Ms. Dorsey – Yes

Motion Carries: 7-0

- ***7) OTHER BUSINESS:***

a) Announce the September 21, 2022 executive session to discuss legal and personnel issues

Mr. Stefano announced an Executive Session will be held after the September 21, 2022 Borough Council meeting to discuss legal and personnel issues.

No other business was discussed.

Adjournment:
The September 21, 2022 Borough Council meeting adjourned at 7:51 PM

Respectfully Submitted,

Dana

Dana C. DiDomenico
Executive Assistant to the Borough Manager

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: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 01
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☐ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 58 ' 18 "
	Longitude: 75 ° 36 ' 19.3 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 48 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).

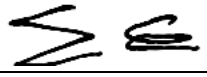
Eric Eason	
Responsible Official Name	Signature
6102335147	2023-07-14
Telephone No.	Date



PHOTO 1:



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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 2
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 51.9 "
	Longitude: 75 ° 35 ' 48.2 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 48 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).

Eric Eason	EE
Responsible Official Name	Signature
6102335047	2023-07-14
Telephone No.	Date



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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name:	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 4
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 35.5 "
	Longitude: 75 ° 36 ' 50.9 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.2 in
Inspector Name(s): Alex Van Vooren	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	☐ 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.

Brown

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

Construction dirt

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

Thick construction discharge purposefully filling water

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

Brick, hay, wet concrete, dirt, etc

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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Eric Eason — Responsible Official Name

 — Signature

6102335047 — Telephone No.

Date



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BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 8
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 46 "
	Longitude: 75 ° 37 ' 17 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 60 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.

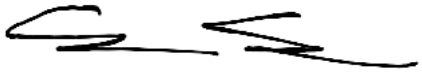
Inspector Comments:

RESPONSIBLE OFFICIAL CERTIFICATION

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Eric Eason

Responsible Official Name



Signature

6102335047

Telephone No.

2023-07-14

Date



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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 01
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☐ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 58 ' 18 "
	Longitude: 75 ° 36 ' 19.3 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 48 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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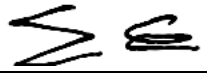
Eric Eason	
Responsible Official Name	Signature
6102335147	2023-07-14
Telephone No.	Date



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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 2
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 51.9 "
	Longitude: 75 ° 35 ' 48.2 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 48 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).

Eric Eason	EE
Responsible Official Name	Signature
6102335047	2023-07-14
Telephone No.	Date



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BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 8
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 46 "
	Longitude: 75 ° 37 ' 17 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 60 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.

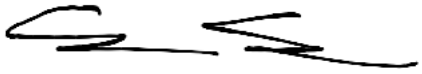
Inspector Comments:

RESPONSIBLE OFFICIAL CERTIFICATION

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Eric Eason

Responsible Official Name



Signature

6102335047

Telephone No.

2023-07-14

Date



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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 16
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 10.8 "
	Longitude: 75 ° 36 ' 48.1 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 48 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).

Eric Eason	
Responsible Official Name	Signature
6102335047	2023-07-14
Telephone No.	Date



PHOTO 1:



PHOTO 2:



PHOTO 3:

PHOTO 4:

PHOTO 5:

PHOTO 6:

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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 23
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 4.4 "
	Longitude: 75 ° 36 ' 14.2 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 65 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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Eric Eason	EE
Responsible Official Name	Signature
6102335047	2023-07-14
Telephone No.	Date



PHOTO 1:



PHOTO 2:



PHOTO 3:



PHOTO 4:



PHOTO 5:

PHOTO 6:

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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 33
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 38.9 "
	Longitude: 75 ° 35 ' 59.6 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 60 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:
Some Pictures Provided to show how to reach the site

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).

Eric Eason	EE
Responsible Official Name	Signature
6102335047	2023-07-14
Telephone No.	Date



PHOTO 1:



PHOTO 2:



PHOTO 3:



PHOTO 4:



PHOTO 5:

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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name:	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 38
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 43.8 "
	Longitude: 75 ° 35 ' 55.3 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 60 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).

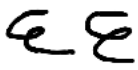
Eric Eason	
Responsible Official Name	Signature
6102335047	2023-07-14
Telephone No.	Date



PHOTO 1:



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BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 48
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 49.8 "
	Longitude: 75 ° 35 ' 47.2 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 62 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).

Eric Eason — Responsible Official Name

 — Signature

6102335047 — Telephone No.

2023-07-14 — Date



PHOTO 1:



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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 0526
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 58 ' 12.8 "
	Longitude: 75 ° 36 ' 44.5 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 36 in Top Width: 30 in Bottom Width: 48	

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.

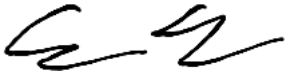
Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

RESPONSIBLE OFFICIAL CERTIFICATION

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Eric Eason — Responsible Official Name

 — Signature

6102335047 — Telephone No.

2023-07-14 — Date



PHOTO 1:



PHOTO 2:



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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 915
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 35.5 "
	Longitude: 75 ° 36 ' 50.9 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex	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: 24 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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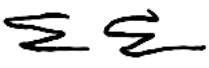
Eric Eason	
Responsible Official Name	Signature
6102335047	2023-07-14
Telephone No.	Date



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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 1103
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 33.9 "
	Longitude: 75 ° 36 ' 55.9 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 6 in Top Width: 2 in Bottom Width: 5	

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).

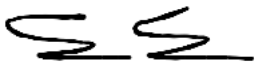
Eric Eason	
Responsible Official Name	Signature
6102335047	2023-07-14
Telephone No.	Date



PHOTO 1:



PHOTO 2:

PHOTO 3:

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PHOTO 5:

PHOTO 6:

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BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 14000
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 58 ' 9.5 "
	Longitude: 75 ° 36 ' 15.2 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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:

RESPONSIBLE OFFICIAL CERTIFICATION

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Eric Eason	
Responsible Official Name	Signature
6102335047	2023-07-14
Telephone No.	Date



PHOTO 1:



PHOTO 2:



PHOTO 3:

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BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 16
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 10.8 "
	Longitude: 75 ° 36 ' 48.1 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 48 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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Eric Eason	
Responsible Official Name	Signature
6102335047	2023-07-14
Telephone No.	Date



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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 23
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 4.4 "
	Longitude: 75 ° 36 ' 14.2 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 65 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).

Eric Eason	EE
Responsible Official Name	Signature
6102335047	2023-07-14
Telephone No.	Date



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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 33
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 38.9 "
	Longitude: 75 ° 35 ' 59.6 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 60 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:
Some Pictures Provided to show how to reach the site

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).

Eric Eason	EE
Responsible Official Name	Signature
6102335047	2023-07-14
Telephone No.	Date



PHOTO 1:



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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 34
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 10.8 "
	Longitude: 75 ° 36 ' 50.2 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 36 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.

Bubbles

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.

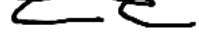
Inspector Comments:

RESPONSIBLE OFFICIAL CERTIFICATION

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Eric Eason

Responsible Official Name



Signature

6102335047

Telephone No.

Date



PHOTO 1:



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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 37
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☒ Urban Residential ☐ Commercial ☐ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 23.5 "
	Longitude: 75 ° 35 ' 30.5 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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).

Eric Eason — Responsible Official Name

 — Signature

6102335047 — Telephone No.

Date



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BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name:	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 38
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 43.8 "
	Longitude: 75 ° 35 ' 55.3 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 60 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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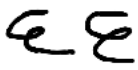
Eric Eason	
Responsible Official Name	Signature
6102335047	2023-07-14
Telephone No.	Date



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BUREAU OF CLEAN WATER

MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 48
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 49.8 "
	Longitude: 75 ° 35 ' 47.2 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 62 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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Eric Eason — Responsible Official Name

 — Signature

6102335047 — Telephone No.

2023-07-14 — Date



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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 0526
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 58 ' 12.8 "
	Longitude: 75 ° 36 ' 44.5 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 36 in Top Width: 30 in Bottom Width: 48	

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.

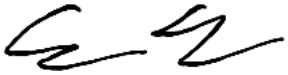
Describe corrective actions taken by the permittee in response to the finding of an illicit discharge.

Inspector Comments:

RESPONSIBLE OFFICIAL CERTIFICATION

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Eric Eason — Responsible Official Name

 — Signature

6102335047 — Telephone No.

2023-07-14 — Date



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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 915
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 35.5 "
	Longitude: 75 ° 36 ' 50.9 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex	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: 24 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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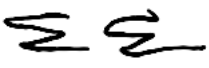
Eric Eason	
Responsible Official Name	Signature
6102335047	2023-07-14
Telephone No.	Date



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MS4 OUTFALL FIELD SCREENING REPORT

BACKGROUND INFORMATION

Permittee Name: West Chester Borough	NPDES Permit No.: PA
Date of Inspection: 2023-07-13	Outfall ID No.: 1103
Land Uses in Outfall Drainage Area (Select All): ☐ Industrial ☐ Urban Residential ☐ Commercial ☒ Suburban Residential ☐ Open Space ☐ Other:	Latitude: 39 ° 57 ' 33.9 "
	Longitude: 75 ° 36 ' 55.9 "
	Dry Weather Inspection? ☒ Yes ☐ No
	Date of Previous Precipitation: 2023-07-10
	Amount of Previous Precipitation: 1.92 in
Inspector Name(s): Alex Van Vooren	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: 6 in Top Width: 2 in Bottom Width: 5	

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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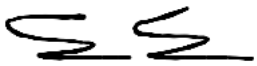
Eric Eason	
Responsible Official Name	Signature
6102335047	2023-07-14
Telephone No.	Date



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ANALYTICAL REPORT

PREPARED FOR

Attn: Eric Easton
Remington & Vernick Engineers
555 Croton Road
Suite 401
King of Prussia, Pennsylvania 19406

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JOB DESCRIPTION

Remington & Vernick Engineers

JOB NUMBER

630-68219-1

Eurofins Environment Testing Philadelphia, LLC
213 Witmer Road
Horsham PA 19044-0962

See page two for job notes and contact information.

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Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Philadelphia, LLC Project Manager.

Authorization



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Authorized for release by
Nicki Smith, Environmental Administration Manager
Nicolette.Smith@et.eurofinsus.com
(215)355-3900

Eurofins Environment Testing Philadelphia, LLC

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD,and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments. QC data that exceed the upper limits and are associated with non-detect samples are qualified but no further narration is needed since the bias is high and does not change a non-detect result. Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Coliform MCLs

· Based on the EPA primary drinking water standard MCL for total coliforms, a water supply is considered bacteriologically "SAFE" if no coliform bacteria are detected. To be considered "SAFE" your report should indicate "<1 cfu/100mL" or "NEG" for the coliform test. If you report indicates a positive result "POS" or a value greater than or equal to one, then your supply is "UNSAFE FOR DRINKING" contact your local health department.

Warranties, Terms, and Conditions

· Analyses for Field Parameters are performed by Eurofins Philadelphia field staff. Locations and certifications are identified on the Chain of Custody as follows:

ERF = field staff performs tests under NJ State certification #02015
VL = field staff performs tests under NJ State certification #06005
WG = field staff performs tests under NJ State certification #PA001
H = field staff performs tests under NJ NELAP certification #PA093, PA NELAP certification # 46-05499

· Test results meet all TNI or other applicable regulatory agency requirements, including holding times and preservation, unless otherwise indicated.

· The report shall not be reproduced, except in full, without the written consent of the laboratory

· All samples are collected as "grab" samples unless otherwise identified.

· Reported results related only to the samples as tested. Eurofins Philadelphia is not responsible for sample integrity unless sampling has been performed by a member of our staff.

· Eurofins Philadelphia is not responsible for sampling and/or testing omissions. Note that regulatory authorities may assess substantial fines for testing omissions. Please track your sample collection schedules and results on a regular basis (e.g. weekly, monthly, or quarterly) to ensure compliance.

· Eurofins' online data portal "TotalAccess" will provide you with real-time access to collection dates and testing results. Please contact Client Services for further information.

· The following personnel or their deputies have approved the results of the tests performed by Eurofins Philadelphia : Nicki Smith (Environmental Chemistry) and Jacqueline Gartner (Water Microbiology).



Case Narrative

Client: Remington & Vernick Engineers
Project/Site: Remington & Vernick Engineers

Job ID: 630-68219-1

Job ID: 630-68219-1

Laboratory: Eurofins Environment Testing Philadelphia, LLC

Narrative

Job Narrative
630-68219-1

Receipt
The sample was received on 8/1/2023 10:07 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 20.9°C

General Chemistry
Method 2540D: Elevated reporting limits are provided for the following sample due to insufficient sample provided for analysis: West Chester Outfall #4 (630-68219-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Biology
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Sample Summary

Client: Remington & Vernick Engineers
Project/Site: Remington & Vernick Engineers

Job ID: 630-68219-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
630-68219-1	West Chester Outfall #4	Stormwater	08/01/23 09:30	08/01/23 10:07

Client Sample Results

Client: Remington & Vernick Engineers
Project/Site: Remington & Vernick Engineers

Job ID: 630-68219-1

Client Sample ID: West Chester Outfall #4

Lab Sample ID: 630-68219-1

Date Collected: 08/01/23 09:30

Matrix: Stormwater

Date Received: 08/01/23 10:07

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
HEM (Oil & Grease)	ND		5.3		mg/L		08/15/23 18:00	1	QT6L
Specific Conductance	**1200**		5.0		umhos/cm		08/02/23 15:33	1	DI9Q
Total Dissolved Solids	**440**		60		mg/L		08/03/23 06:38	1	M98K
Total Suspended Solids	ND		3.9		mg/L		08/03/23 17:00	1	UOCA
Chemical Oxygen Demand	ND		75		mg/L		08/03/23 10:31	1	USAE
Residual Chlorine	ND	HF	0.20		mg/L		08/07/23 19:55	1	DI9Q
pH	**7.1**	**HF**	0.01		S.U.		08/17/23 19:42	1	DI9Q
Temperature	**22.3**	**HF**	0.01		Degrees C		08/17/23 19:42	1	DI9Q
Biochemical Oxygen Demand	**4.0**		2.0		mg/L		08/02/23 14:30	1	B6LN
Ammonia as N	**0.27**		0.10		mg/L		08/03/23 11:40	1	JCG7

Method: 9222D - Coliforms, Fecal (Membrane Filter)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Fecal Coliform	**>6000**		100		CFU/100mL		08/01/23 15:50	1	RBK

Accreditation/Certification and Definitions Summary

Client: Remington & Vernick Engineers
Job ID: 630-68219-1
Project/Site: Remington & Vernick Engineers

Laboratory: Eurofins Environment Testing Philadelphia, LLC

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Pennsylvania	NELAP	46-05499 (Horsham)	02-29-24

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alabama	State	43200	01-31-24
Alaska	State	PA00009	06-30-24
Alaska (UST)	State	17-027	02-28-24
Arizona	State	AZ0780	03-12-24
Arkansas DEQ	State	88-00660	08-09-24
California	State	2792	11-30-23
Colorado	State	PA00009	06-30-24
Connecticut	State	PH-0746	06-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24
Florida	NELAP	E87997	06-30-24
Georgia (DW)	State	C048	01-31-24
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-24
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-24
Maine	State	2019012	03-12-25
Maryland	State	100	06-30-24
Massachusetts	State	M-PA009	06-30-24
Michigan	State	9930	01-31-24
Minnesota	NELAP	042-999-487	12-31-23
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-24
New York	NELAP	10670	04-01-24
North Carolina (DW)	State	42705	07-31-24
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-24
Oklahoma	NELAP	9804	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-24
Tennessee	State	02838	01-31-24

Client: Remington & Vernick Engineers
Job ID: 630-68219-1
Project/Site: Remington & Vernick Engineers

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704194-23-46	08-31-23
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-25
Washington	State	C457	04-11-24
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-24
Wyoming	State	8TMS-L	01-31-24
Wyoming (UST)	A2LA	0001.01	11-30-24

Qualifiers

General Chemistry

Qualifier	Qualifier Description
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
MRL	Method Reporting Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
SDL	Sample Detection Limit
SDL	Sample Detection Limit
SDL	Sample Detection Limit
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Method Summary

Client: Remington & Vernick Engineers
Project/Site: Remington & Vernick Engineers

Job ID: 630-68219-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	ELLE
2510B-2011	Conductivity, Specific Conductance	SM	ELLE
2540C - 2015	Solids, Total Dissolved (TDS)	SM	ELLE
2540D-2015	Total Suspended Solids (Dried at 103-105°C)	SM	ELLE
410.4	COD	EPA	ELLE
4500 Cl F-2011	Chlorine Residual (DPD)	SM	ELLE
4500 H+ B-2011	pH	SM	ELLE
5210 B-2016	BOD, 5-Day	SM	ELLE
EPA 350.1	Nitrogen, Ammonia	EPA	ELLE
9222D	Coliforms, Fecal (Membrane Filter)	SM	EET PA

Protocol References:

1664A = EPA-821-98-002

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET PA = Eurofins Environment Testing Philadelphia, LLC, 213 Witmer Road, Horsham, PA 19044-0962, TEL (215)355-3900

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

eurofins | Environment Testing America

CHAIN OF CUSTODY

Page ____ of ____

630-68219 Chain of Custody

TRIX CODES

213 Witmer Road
Horsham, PA 19044
Phone: 215-355-3900

Bill to/Report to (if different)

Sampling Site Address (if different) Include State

Client/Acct. No.
Address: 555 Croton Rd Downington + Vernicle
City/State/Zip: YOP PA 19406
Phone/Fax: 610-940-1050
Client Contact:

P.O. No. PWSID #:
Quote #
e-mail:

LAB USE ONLY

PROJECT

FIELD ID	Collection Date	Collection Military Time	GRAB	COMP	Matrix Code	Number of Containers Total	H_2SO_4	HCl	Vials	HNO_3	NaOH	Znac	UNPRE	BACT	ANALYSIS REQUESTED	Field pH, Temp (°C), DO, Cl2, Cond. etc.
West Chester Outfall #4	8/1	9:30													pH, Chlorine, COND, Ammonia, Fecal, COD, BOD_5, TSS, TDS, O&G	

Lab LIM:

LAB USE

1 BACT

___ Ascorbic/HCL Vials # ___ HCl Vials
___ $Na_2S_2O_3$
___ Na OH/Zn acetate pH
___ HNO_3 pH
1 H_2SO_4 pH PT
___ NaOH pH
4 Unpreserved 9t
1 HCl # ___ NH4Cl # ___ MeOH
___ DI Water

DW: DRINKING WATER
GW: GROUND WATER
WW: WASTEWATER
SO: SOIL
SL: SLUDGE
OIL: OIL
SOL: NON SOIL SOLID
MI: MISCELLANEOUS
X: OTHER

SAMPLED BY: (Name/Company)
Alex VanVooren

TAT: ☐ STANDARD (10 DAY)
or DUE DATE ___/___/___

Report Format: ☐ Standard ☐ NJ-RDD ☐ SRP-RDD
☐ Standard + QC ☐ Forms ☐ EDD

Please call for pricing and availability for rush (<10 day) turnaround and for all but standard reporting format.

Field Parameters Analyzed By:
Initials | Date/Time:

SAMPLE CUSTODY EXCHANGES MUST BE DOCUMENTED BELOW. USE FULL LEGAL SIGNATURE, DATE AND MILITARY TIME (24 HOUR CLOCK, I.E. 8AM IS 0800, 4 PM IS 1600)

	RELINQUISHED BY SAMPLER	DATE	TIME	RECEIVED BY	DATE	TIME
1.	Alex Van Vooren	8/1	10:07	Nicolette Smith	8/1/23	10107
2.	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
3.	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
4.	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
5.	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME

DELIVERY: ☐ EQC COURIER ☐ CLIENT ☐ UPS ☐ FEDEX ☐ OTHER ___

Custody Seal Number

Rec'd Temp.: 20.7/20.9°C Initials: NAS Ice Y (N) Location: EEIP

COMMENTS:

Hazardous: yes / no

8/18/2023

Eurofins Environment Testing Philadelphia
213 Witmer Road
Horsham, PA 19044-0962
Phone: 215-355-3900

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Smith, Nicki	Carrier Tracking No(s):	COC No: 630-11386.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Nicolette.Smith@et.eurofinsus.com	State of Origin: Pennsylvania	Page: Page 1 of 1
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note): NELAP - Pennsylvania		Job #: 630-68219-1
Address: 2425 New Holland Pike, ,	Due Date Requested: 8/14/2023			
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone: 717-656-2300(Tel)	PO #:			
Email:	WO #:			
Project Name: Remington & Vernick Engineers	Project #: 63006898			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM4500_H+/ pH and Temperature	4500_Cl_F	2510B/ Conductivity	360.1/ Ammonia	410.4	SM5210B_Calc/ (MOD) BOD5	2540D	2540C_SingleDry	1664A_NP/ (MOD) Oil & Grease				Total Number of containers	Special Instructions/Note:
			Preservation Code:																	
West Chester Outfall #4 (630-68219-1)	8/1/23	09:30 Eastern		Water			X	X	X	X	X	X	X	X	X				6	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Philadelphia, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Philadelphia, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Philadelphia, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Philadelphia, LLC.

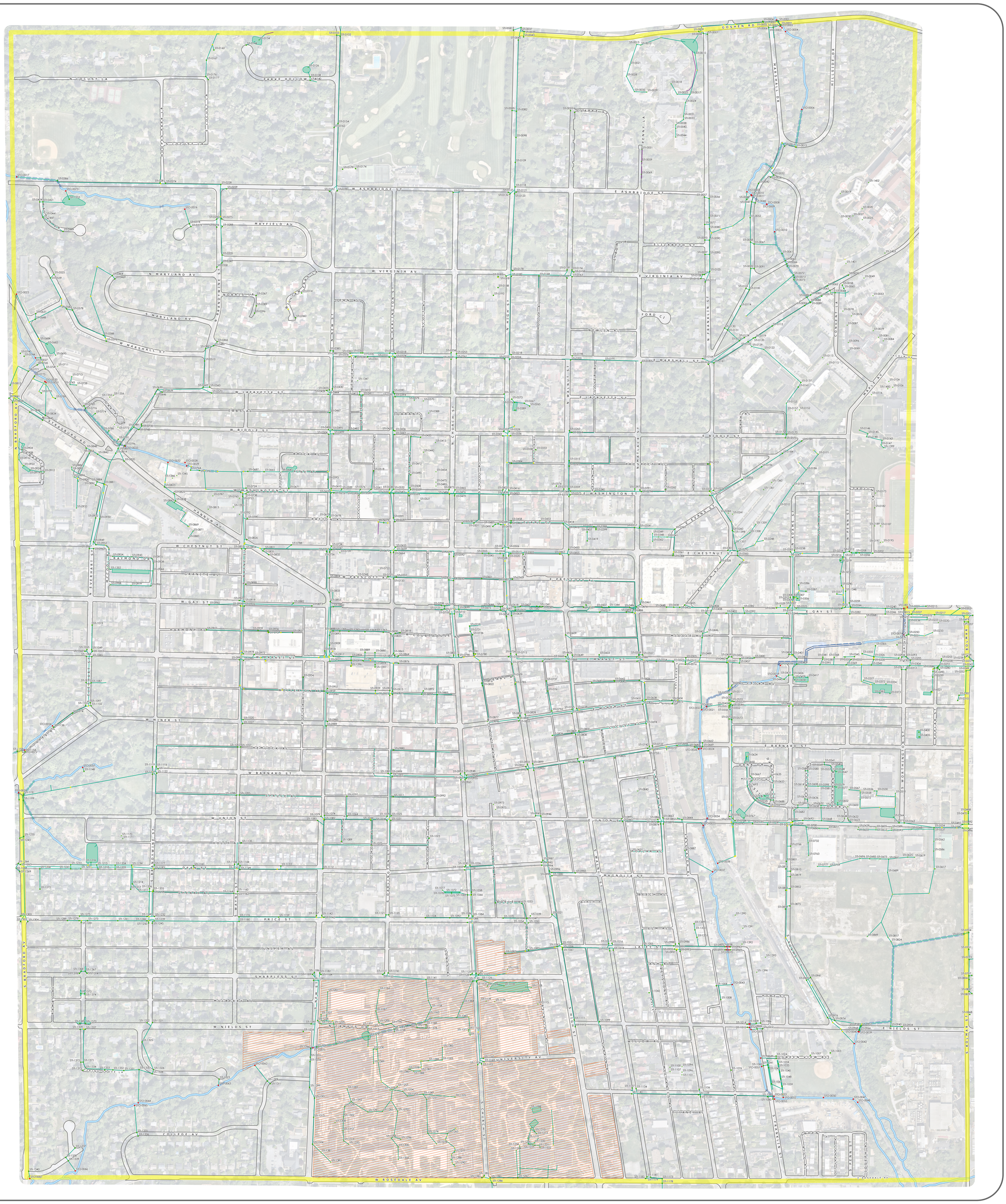
Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 1	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		8/1/23 1228	ET	22		
2						
3					8/1/23 1943	Eliet

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 22	Cooler Temperature(s) °C and Other Remarks: raw 2.5 cor 2.3

Ver: 06/08/2021



Borough of West Chester
MS4

Sources: Borough of West Chester, Chester County, Nearmap

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Street Sweeping Records

	Hours	Miles	Loads*
22-Jan	0	0	0
22-Feb	33	134	8
22-Mar	154	738	43
22-Apr	156	718	39
22-May	170	806	41
22-Jun	140	651	37
22-Jul	140	738	36
22-Aug	136	612	31
22-Sep	137	564	37
22-Oct	149	759	54
22-Nov	160.5	727	76
22-Dec	167.75	732	47
YTD Totals	1543.25	7179	449

*Each Load is 3 CF

Construction Site Storm Water Runoff Control

The Borough of West Chester (Borough) is relying on PA's statewide program for stormwater associated with construction activities to satisfy this MCM.

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.

The Borough has adopted Chapter 94, known as the Stormwater Management Ordinance, into the Borough Code.

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.

The Borough has adopted Chapter 94, known as the Stormwater Management Ordinance, into the Borough Code. The ordinance requires the incorporation of techniques for low-impact development practices described in the Pennsylvania Stormwater Best Management Practices Manual.

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.

The Borough is developing an inventory of known post-construction stormwater management BMPs. The inventory captures important information for each post-construction stormwater management BMP, including the following parameters:

1. BMP Name
2. Drainage Area
3. Entity Responsible for O&M
4. Longitude and Latitude Location
5. Installation Date
6. O&M Requirements
7. NPDES Permit Number

The inventory will be updated on an ongoing basis as new developments are completed.

Chapter 94 states that BMPs should be inspected for proper operation by the landowner, or the owner's designee, according to the following list of minimum frequencies:

1. annually for the first five years,
2. once every three years thereafter,
3. during or immediately after the cessation of a ten-year, twenty-four-hour, or greater storm event,
4. as specified in the O&M agreement.

Whenever the Borough finds that a person has violated a prohibition or failed to meet a requirement, the Borough orders compliance by notifying the responsible person. The notice includes items as listed in Chapter 94.

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.

The Borough is relying on PA's statewide program for stormwater associated with construction activities to satisfy this BMP.

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).

The Borough is relying on PA's statewide program for stormwater associated with construction activities to satisfy this BMP.

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

The Borough is relying on PA's statewide program for stormwater associated with construction activities to satisfy this BMP.

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.

The Borough has adopted Chapter 23, known as the Stormwater Management Ordinance, into the Hatboro Borough Code. Part 3 through Part 8 of this ordinance provides stormwater management requirements, including requirements for post construction stormwater runoff. Part 9 of this ordinance addresses enforcement and penalties for non-compliance with other ordinance requirements.

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.

The Borough has adopted Chapter 23, known as the Stormwater Management Ordinance, into the Hatboro Borough Code. The ordinance requires the incorporation of techniques for low-impact development practices described in the Pennsylvania Stormwater Best Management Practices Manual.

In addition, the Borough has developed a "Small Project Stormwater Management (SWM) Site Plan" document which is intended to assist applicants, frequently residential property owners, with the development of their own simplified stormwater management plans and calculations to meet the ordinance requirements for many small projects. This guidance document includes instructions, sample calculations and plans for reference.

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.

The Borough is developing an inventory of known post-construction stormwater management BMPs. The inventory captures important information for each post-construction stormwater management BMP, including the following parameters:

1. Property Address
2. Date Completed
3. Description

The inventory will be updated on an ongoing basis as new developments are completed.

The Borough inspects stormwater BMPS on an as-needed basis and when issues are reported by the public.

Chapter 23-902 states that BMPs should be inspected for proper operation by the landowner, or the owner's designee, according to the following list of minimum frequencies:

1. annually for the first five years,
2. once every three years thereafter,
3. during or immediately after the cessation of a ten-year, twenty-four-hour, or greater storm event,
4. as specified in the O&M agreement.

Whenever the Borough finds that a person has violated a prohibition or failed to meet a requirement, the Borough orders compliance by notifying the responsible person. The notice includes items as listed in Chapter 23 of the Hatboro Code of Ordinances.

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.

The Borough is relying on PA's statewide program for stormwater associated with construction activities to satisfy this BMP.

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).

The Borough is relying on PA's statewide program for stormwater associated with construction activities to satisfy this BMP.

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

The Borough is relying on PA's statewide program for stormwater associated with construction activities to satisfy this BMP.

OPERATION, MAINTENANCE AND INSPECTION PROGRAM MANUAL

FOR

WEST CHESTER BOROUGH
CHESTER COUNTY, PENNSYLVANIA

JUNE 2019

Prepared by:

Gilmore & Associates, Inc.
184 W. Main Street
Trappe, PA 19426

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Appendix D – Inlets and Storm Manholes Inspection Spreadsheets

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Appendix F – List of Stormwater Basin(s) Owned or Maintained by the Municipality

Appendix G – Overall Stormwater Facilities Map of Municipality (MS4 Map)

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Introduction and Purpose

Polluted stormwater runoff has been identified by the US Environmental Protection Agency (EPA) as one of the main causes of the nation's water quality problems. To help alleviate this situation, the EPA requires communities with municipal separate storm sewer systems (MS4s) to obtain a general permit under the National Pollutant Discharge Elimination System (NPDES) program authorizing their stormwater discharges.

Under the NPDES permit for its MS4, West Chester Borough is required to establish a regular inspection and maintenance program for all of its municipally owned stormwater management facilities. All components of the stormwater collection system owned by the MS4 are included in this program. The components of the municipally owned stormwater system include municipal roads, municipally-owned parking lots or other paved areas; storm drain inlets, storm sewer piping and outfalls, swales, ditches or other stormwater conveyances, municipally-owned or maintained detention/retention basins and other stormwater management structures.

The goal of this Operations, Maintenance, Inspection and Repair Manual (O&M manual) is to ensure that all of West Chester Borough's stormwater management facilities are functioning properly and to prevent or reduce pollutant runoff to the maximum extent practical. West Chester Borough personnel should follow this O&M manual when operating, maintaining, inspecting or repairing any aspect of the MS4's stormwater management facilities. If work on any part of the MS4's stormwater system is conducted by outside contractors, they should also follow the procedures outlined in this manual.

The original manual has been revised to provide more information. The original manual is contained herein. See Appendix H for EPA's MCM Pollution Prevention and Good Housekeeping Fact Sheet.

Pollution Prevention/Good Housekeeping Procedures for Municipal Operations

Pollution prevention and good housekeeping are the simplest and least costly methods to implement to help protect stormwater quality from municipal facilities. These are integral components to an effective stormwater management policy because it is easier to prevent pollution from entering waterways than to clean it up later.

Good Housekeeping

Good housekeeping practices are designed to maintain a clean and orderly work environment. Often the most effective first step towards preventing pollution in the stormwater collection system simply involves using common sense to improve basic

housekeeping methods. A clean and orderly work area reduces the possibility of accidental spills caused by mishandling of chemicals or equipment and should reduce safety hazards to municipal personnel.

Maintain clean, dry floors and ground surfaces by using brooms, shovels, vacuum cleaners or cleaning machines. Sweeping shall be conducted when practical to get rid of dirt and other debris. Regular pickup of garbage and waste materials should occur, and place all trash, dirt, and other debris in the proper disposal facility (i.e., dumpster, etc.). The municipality's recycling program shall be utilized to collect and properly dispose of recyclables.

Material Storage Practices

Improper storage can result in the release of materials or chemicals that can cause stormwater runoff pollution. Keep storage areas clean and well organized and provide adequate space to facilitate material transfer and easy access for inspections.

All containers, drums, and bags shall be stored away from direct traffic routes to prevent accidental spills. When practical, chemicals, fluids, and supplies should be kept indoors. If containers containing chemicals are stored outside, they should be covered when not being used and placed on spill platforms. All containers shall be kept in good condition, tightly closed when not in use, properly labeled and marked, and the labels must remain clean and visible. Perform regular inspections of all indoor and outdoor storage locations.

Materials Handling Practices

Absorbent material, spill kits and drip pans should be kept near any potential spill hazard and protected from rainfall. If spills or accidents occur, contain with dikes, berms, or appropriate absorbent materials and dispose of properly after use. Spills of hazardous materials require special care and should only be attempted by trained municipal or contracted personnel. Notify the acting supervisor and emergency responders immediately if potentially harmful conditions exist. Collect all waste fluids in properly labeled containers and dispose of properly.

Training

See Appendix A for the Municipal Training Manual and Employee Acknowledgement Form. This training manual should be read by all new municipal staff employees (i.e., new hires that have not previously read the Manual), and can also be read annually as a reminder to all employees. Employees should then sign the Acknowledgement Form.

Stormwater Facility Operation, Inspection and Maintenance

Stormwater Facility Operation

All municipally-owned stormwater facilities will be operated according to their design specifications and in a manner that prevents or reduces adverse environmental or public health and safety impacts.

Stormwater Facility Inspection

Regular inspections are to be conducted by municipal staff to evaluate the performance of the stormwater facilities and to note amounts of pollutants, trash and debris in the stormwater collection system. These inspections should occur as part of regular job duties. Inspections should also check for excessive silt build-up, erosion, and water quality concerns such as unusual algae growth, discolored water, water with a sheen, and suspect odors.

The municipality maintains a list of its stormwater facilities and they are to be inspected by staff personnel at least annually, to ensure they are working properly and are clear of debris. A copy of the list of these facilities is included as part of this manual for reference purposes. Inspections should be completed on an annual basis with additional inspections performed on an as-needed basis.

All inspection activities, results and recommendations are to be documented in writing and kept on file with the municipality. Typical records to be retained for future reference include a log of all inspections, repairs and maintenance performed at the site, copies of inspection reports, invoices for work performed, and photographs of facilities if practical.

Roadways

The overall condition and cleanliness of municipal roads and municipally-owned parking lots shall be inspected and evaluated during routine travels by Public Works personnel. Those areas with excessive staining, surface defects, trash or sediment will be investigated and scheduled for cleaning or repaired as necessary. Appropriate corrective actions shall be considered for any areas exhibiting flooding or poor drainage patterns.

Storm Drain Inlets, Manholes and Headwalls

The municipality owns and maintains storm drain inlets and manholes located along roadways and in municipally-owned parking lots. Inlets are typically PennDOT Type C and PennDOT Type M. All of the municipality's storm drain inlets and manholes are to be inspected at least annually to remove trash and sediment loads and to evaluate the overall condition of the structure. If the depth of deposits is greater than or equal to

one-third the depth from the basin bottom to the invert of the lowest pipe or opening into or out of the basin, cleaning will be scheduled. While inspecting storm drains inlets, municipal staff will check for evidence of illegal dumping or illicit discharges. If evidence of illegal dumping or illicit discharges are found, efforts are to be made to identify the source of these discharges. Municipal staff will keep a log of inlets inspected, cleaned, repairs needed and repairs completed.

Storm Sewer Piping, Drainage Channels, and Outfalls

The municipality owns underground storm sewer piping and culverts. The age range of the piping is unknown but can range from over 100 years old to new pipe that was recently installed. The piping is constructed of a variety of materials, such as reinforced concrete pipe, vitrified clay pipe, corrugated metal pipe, cast iron/ductile iron pipe, PVC pipe and polyethylene pipe. The municipality also owns various culverts and these are typically routinely inspected routinely by the municipality to check for blockages, especially after rain events.

Similarly, storm sewer outfalls are to be inspected once per permit term to check for discharges, structural integrity and any erosion. While inspecting storm sewer outfall structures, personnel is also to check for evidence of dry weather discharges that may indicate an illicit discharge to the storm sewer system. If evidence of an illicit discharge is found, efforts are to be made to trace the dry weather flow and identify the source of this discharge. See the *Illicit Discharge Detection and Elimination Manual* regarding outfall inspections.

Stormwater Basins

Stormwater basins that are owned by the municipality will be inspected on an annual basis by staff. BMPs that are located on private property will be inspected in accordance with Ordinance requirements. Tracking spreadsheets of these inspections are maintained and updated regularly.

Stormwater Facility Maintenance

The goal of this stormwater O&M program is to inspect all facilities and to provide maintenance as needed. Although the operable life of stormwater facilities is generally expected to be several decades or more, lack of maintenance resulting in overgrown vegetation, accumulated sediment and debris, and deteriorated structures can greatly reduce their effectiveness. Without regular operation and maintenance programs, these facilities may not store or convey stormwater according to their design, and may require frequent repair or even replacement. Regular maintenance allows facilities to operate as designed for their maximum lifetime, enabling optimum flood control and water quality treatment as well as demonstrating to the public that stormwater capital investments are being protected in a systematic, responsible and cost-effective manner.

See Appendix B for additional information regarding maintenance and inspection of various stormwater BMPs.

Roadways

The municipality is responsible for repairs and maintenance of municipally-owned roads. Roadway maintenance activities that can affect stormwater quality include roadway paving repair, snow removal and de-icing, and street sweeping.

Roadway Paving Repair

The following guidelines should be followed when conducting roadway paving repairs within the municipality:

- **Avoid paving activities during wet weather.**
- **Ensure that storm drain inlets and open manholes are protected** during road repair work to prevent slurry mixes, dust, and debris from entering the storm sewers.
- **Ensure that roadside ditches are protected.** During wet weather on uncurbed roadways, use temporary berms or dikes at the edge of the road to prevent sediment, debris and waste materials from washing into roadside ditches.
- **Avoid using water to clean up.** Mechanically sweep and/or vacuum dust and debris following all activities. DO NOT wash residue into the storm drain system.
- **Place stockpiles away from waterways and stormwater inlets** to prevent materials from being washed into streams. Cover stockpiles or contain with berms.
- **Contain water and wastes** generated during cleaning and flushing of spray equipment and field servicing of equipment. Use booms and inlet protection, and vacuum or allow area to dry before uncovering storm drain inlets.
- **Recycle used materials such as asphalt.** Store these materials properly**.**
- **Use drip pans to contain leaks** from vehicles and equipment parked at the site overnight.

Snow Removal and De-Icing

The storage and application of materials used for roadway de-icing or traction control shall be conducted in a manner that reduces the impact to the storm sewer system and the environment. All salt storage should be protected from precipitation.

During loading and unloading of road salt, prevent and/or minimize spills by utilizing safe work practices and sound judgment. If any material is spilled, promptly collect it using dry cleaning methods only, to prevent polluted runoff. At a minimum, clean up around the salt piles should happen at least once a day. All collected material shall be either reused or properly discarded. Minimize the tracking of materials from the storage area and the distance that road salt is transported during loading/unloading operations.

All operators of snow plows/salt spreaders are to be trained in the proper application rates of road salt. The salt spreaders are to be examined before operating to ensure that they are functioning properly. The application of road salt to roads or parking lots will be only enough to accomplish the task and will take into consideration site specific characteristics such as road width and design, traffic concentration, and proximity to surface waters.

Street Sweeping

The municipality's roads and municipally-owned parking lots should be cleaned on a regular basis. Street sweeping helps to keep the streets and storm drain inlets clear of debris.

Per the approved TMDL and PRP Plans, West Chester Borough will street sweep all streets in the Borough more than 25 times annually.

Storm Drain Inlets

Municipal personnel shall schedule cleaning of municipal storm drain inlets when inspections reveal an excessive accumulation of sediment or debris. Structural repairs to any part of storm drain inlets will be performed as needed including replacement of damaged or deficient piping. A log should be kept of when each inlet is cleaned and any repairs needed or completed.

Drainage Channels and Outfalls

For storm drainage channels such as ditches or swales, debris, sediment and overgrown vegetation will be removed when needed. For storm sewer easements, the municipality will remove any obstruction that is identified via inspection. For storm sewer outfalls, trash/obstructions will be removed to maintain free flowing conditions. Velocity reducers will be maintained or replaced as needed.

Stormwater Basins

When deemed necessary by inspections, removal of yard waste, non-degradable waste, nuisance or exotic/invasive vegetation and sediment in detention basins will occur during dry conditions when possible. In the process of performing repairs or basin cleaning, vegetation may be disturbed or removed. These areas will be immediately stabilized and re-vegetated. Mowing and/or trimming of vegetation will occur as needed to sustain the basin and all debris will be removed. Areas of bare or sparse vegetation will be addressed by soil aerating, conditioning, seeding and mulching, as necessary to restore a proper vegetative cover. Basin outlet structures will be cleared of debris when needed to allow for unimpeded flow.

Disposal of Debris

Any materials recovered from any part of the storm sewer collection system will be handled and disposed of in accordance with all applicable state and federal disposal regulations.

Most of the typical materials recovered by personnel will be municipal wastes that can be discarded with the normal waste stream. This includes street sweepings, storm drain inlet cleanings, sewage contaminated soils, and general trash that is not obviously or knowingly contaminated.

Examples of residual wastes include oil-contaminated materials, asbestos piping, and used tires and oils. Asphalt millings are classified as a co-product if stored and managed properly; otherwise it is a residual waste. Disposal of residual wastes will be subject to the requirements of the disposal facility. Chunks of cured asphalt cannot be placed in waterways (e.g., creeks, wetlands) or floodways. If used asphalt will not be used as clean fill, it must be disposed of as residual waste.

Ultimately, municipal staff collecting or handling recovered materials shall determine the proper waste designation and disposal methods. Any questions can be directed to your local solid waste authority or the Department Of Environmental Protection's Waste Management Program at (484) 250-5760.

This O&M manual will be reviewed and revised as needed.

Previous Operations & Maintenance Manual

(*"Renewal permittees shall continue to implement their existing program."*)

Note: This taken directly from the Protocol, previous permit(s):

Inspect All Municipally-Owned Stormwater Facilities

Stormwater control facilities (and other BMPs) are important components of the MS4 and its ability to prevent stormwater impacts downstream. You must establish "baseline" information on these facilities in your MS4, if you haven't done so already. Your inspections should document current conditions and identify any needed maintenance or repair. If any system features are not functioning properly, a plan to address the deficiencies must be developed.

Develop a Stormwater Facility Operation and Maintenance Program

Using the criteria and requirement described below for Year 3, establish an operation and maintenance program for all municipally-owned storm system facilities and other BMPs. All municipally-owned facilities will be inspected at least annually during the remainder of the permit term (years 3, 4, 5) to ensure they are meeting design criteria and are properly maintained and functional. By the end of Year 2, you must have a detailed schedule for inspecting all stormwater facilities, and for their operation and maintenance.

Stormwater Facility Maintenance

Inspect stormwater detention/retention facilities and other BMPs: Follow the inspection schedule developed during Year 2. Conduct planned maintenance activities.

Inspect and clean catch basins: Inspect each catch basin at least once annually to determine if it needs cleaning and note any repair needs. If the depth of deposits is greater than or equal to one-third the depth from the basin bottom to the invert of the lowest pipe or opening into or out of the basin (EP 1999), have the catch basin cleaned as soon as possible. Inspect catch basins in which debris significantly exceeds the one-third depth standard twice annually.

Dispose of sediment and debris removed from catch basins in a proper manner, as this may be classified as hazardous waste. It will require chemical analysis to determine appropriate disposal techniques.

Municipal Storm Water Facility Operation, Maintenance and Inspection

Included in this operations and maintenance manual for **municipally owned or operated stormwater facilities** are the following items:

- **Spreadsheets** listing inlets and storm manholes located as part of the MS4 mapping.
- **Spreadsheets** listing BMPs in the municipality (PCSWM Tracking Spreadsheet).
- **List of stormwater basin(s) owned or maintained by municipality**.
- **Overall map** of municipality, showing inlet locations.

Complete the storm inlet and storm manhole inspection spreadsheets as follows:

- **Permit Year**: Enter the permit year the inspections are performed.
- **Inlet / MH ID No.**: Lists the ID number assigned to each structure.
- **Date of Inspection**: Complete the date the inspection is performed.
- **Debris Removal Required/Completed**: Complete whether debris was noted. If not write N/A; if so, note “Required” and note date debris removed.
- **Maintenance Required/Completed**: Complete whether maintenance is required. If not write N/A; if so, note maintenance required and date completed.

Complete the infiltration basin inspection form (self-explanatory).

Note that BMPs must also be inspected. As BMPs are constructed, the PCSWM Tracking Spreadsheet should be revised accordingly. Complete the BMP inspection spreadsheet as follows:

- **Permit Year**: Enter the permit year the inspections are performed.
- **BMP Location**: Provide the location of the BMP (address or Tax Parcel No.).
- **Date of Inspection**: Complete the date the inspection is performed.
- **Maintenance Required/Completed**: Complete what maintenance was required. If none write N/A; if so, note “Required” and note date maintenance completed.

Operation, Maintenance and Inspection Program Permit Requirements

MCM #6 – Pollution Prevention / Good Housekeeping

Note: This is taken directly from Part C, Special Conditions, Stormwater Management Program (SWMP) of the current permit.

The permittee must develop and implement an O&M program that includes a training component and has the ultimate goal of preventing and reducing pollutant runoff from operations, facilities and activities under the control of the permittee (collectively, "operations"). The program must include employee training to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance.

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 regulated small MS4. This includes activities conducted by contractors for the permittee. Activities may include the following: street sweeping; snow removal/deicing; inlet/outfall cleaning; lawn/grounds care; general storm sewer system inspections and maintenance/repairs; park and open space maintenance; municipal building maintenance; new construction and land disturbances; right-of-way maintenance; vehicle operation, fueling, washing and maintenance; and material transfer operations, including leaf/yard debris pickup and disposal procedures. Facilities can include streets; roads; highways; parking lots and other large paved surfaces; maintenance and storage yards; waste transfer stations; parks; fleet or maintenance shops; wastewater treatment plants; stormwater conveyances (open and closed pipe); riparian buffers; and stormwater storage or treatment units (e.g., basins, infiltration/filtering structures, constructed wetlands, etc.).

- New permittees shall create an inventory of all operations and land uses that may contribute to pollution in stormwater runoff within areas of operations that discharge to the regulated small MS4 by the end of the first year of General Permit coverage, and review and update the inventory annually thereafter.

- All permittees must review and update the inventory each year of General Permit coverage, as necessary.

BMP #2: Develop, implement and maintain a written O&M program for all operations that could contribute to the discharge of pollutants from the regulated small MS4, as identified under BMP #1. This program shall address stormwater collection or conveyance systems within the regulated MS4. The written O&M program shall stress pollution prevention and good housekeeping measures, contain site-specific information, and include the following:

- Management practices, policies, and procedures shall be developed and implemented to reduce or prevent the discharge of pollutants to the regulated small MS4s. The permittee shall consider eliminating maintenance area discharges from floor drains and other drains if they have the potential to discharge to storm sewers.

- Maintenance activities, maintenance schedules, and inspection procedures to reduce the potential for pollutants to reach the regulated small MS4s.

- Controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, salt / sand (anti-skid) storage locations and snow disposal areas. Controls for solid chemical products stored and utilized for the principal purpose of deicing roadways for public safety must be consistent with the BMPs for existing salt storage and distribution sites contained in the PAG-03 NPDES General Permit for Stormwater Discharges Associated with Industrial Activity.

- Procedures for the proper disposal of waste, including dredge spoil, accumulated sediments, trash, household hazardous waste, used motor oil, street sweepings, and other debris.

- New permittees shall develop and implement a written O&M program by the end of the first year of General Permit coverage and review and update the program each year thereafter.

- All permittees must review and update the written O&M program each year of General Permit coverage, as necessary.

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. The program may be developed and implemented using guidance and training materials that are available from federal, state or local agencies, or other organizations. All relevant employees and contractors shall receive training (i.e., public works staff, building, zoning, and code enforcement staff, engineering staff, police and fire responders, etc.). Training topics shall include operation, inspection, maintenance and repair activities associated with any of the operations identified under BMP #1. Training must cover all relevant parts of the permittee's overall stormwater management program that could affect operations, such as illicit discharge detection and elimination, construction sites, and ordinance requirements.

- New permittees shall develop and implement a training program that identifies the training topics that will be covered and what training methods and materials

will be used by the end of the first year of General Permit coverage.

- All permittees must review and update the training program each year of General Permit coverage, as necessary.

- Employee training shall occur at least annually and shall be documented in writing and reported in Annual MS4 Status Reports. Documentation shall include the date(s) of the training, the names of attendees, the topics covered, and the training presenter(s).

NOTE: Checklists outlining requirements are included in Appendix C, which should be completed and subsequently revised as necessary.

Appendix A

Municipal Training Manual
and
Employee Acknowledgement Form

Appendix B
Guidelines for
Maintenance and Inspection of
Stormwater BMPs
and
Field Data Sheets for Visual Inspections

Appendix C

Checklist Municipal Operations and Facilities

Appendix D
Inlets and Storm Manholes
Inspection Spreadsheets

Appendix E

BMPs in the Municipality

PCSWM Tracking Spreadsheet

Appendix F

List of Stormwater Basin(s) Owned or Maintained by the Municipality

Appendix G

Overall Stormwater Facilities Map of Municipality

(MS4 Map)

Appendix H
Pollution Prevention and
Good Housekeeping Fact Sheet



This Employee Training Program booklet is being provided in fulfillment of the NPDES MS4 Phase II requirement for Municipal Employee Training.

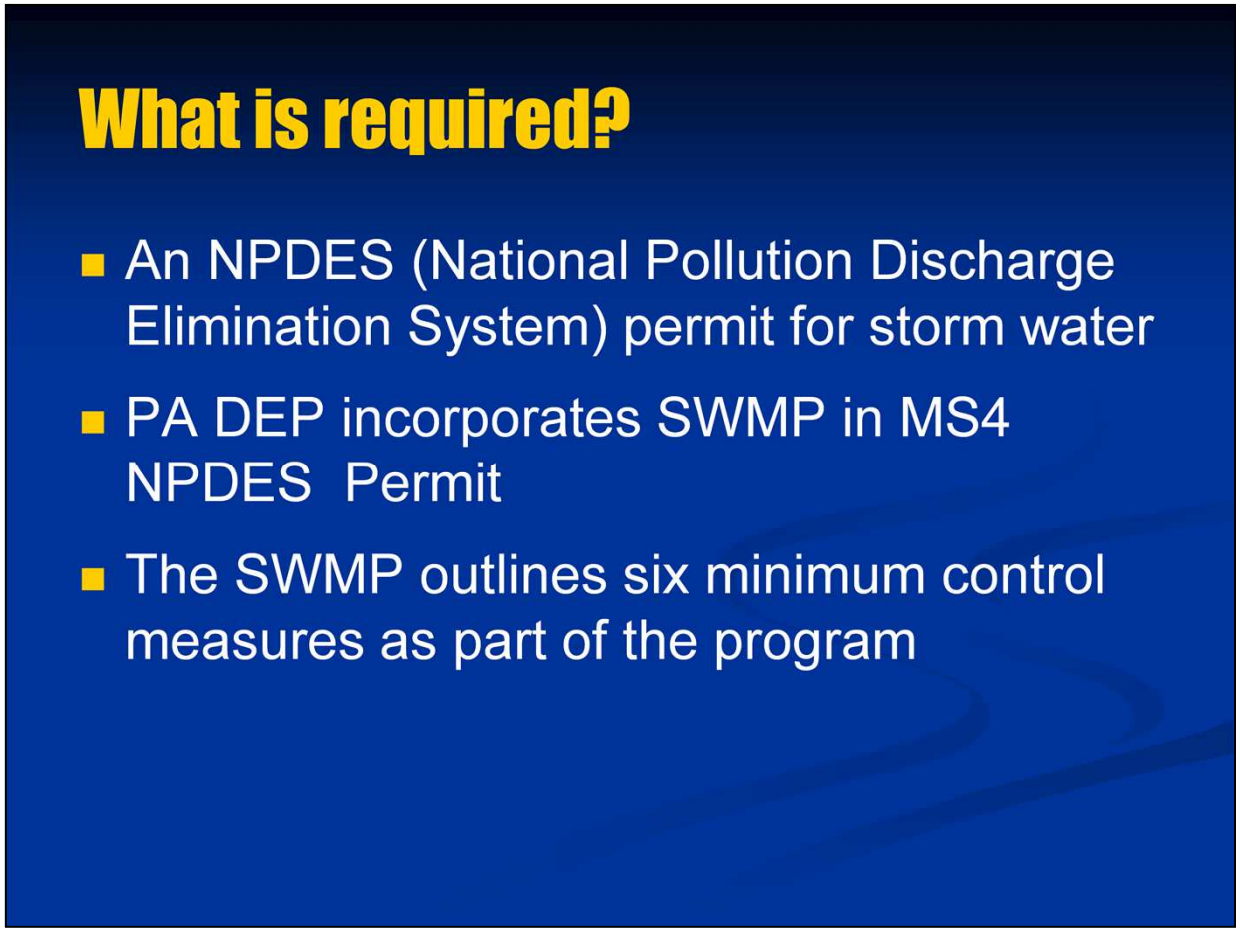


MS4 stands for Municipal Separate Storm Sewer System.

Federal regulations require municipalities and other entities (such as universities and prisons) that meet certain standards to obtain a permit for stormwater discharges from their MS4.

The Department of Environmental Protection then created a permitting program to meet these regulations. The MS4 program was "Phased" based on the population in each municipality. Phase I was for municipalities with a population greater than 100,000, Phase II is for urban areas with populations of less than 100,000.

In Pennsylvania, there are two Large MS4s, no Medium MS4s, and 953 Small MS4s.



MS4s must apply for NPDES permit coverage (or a waiver) if they are located in an urbanized area as determined by the latest Decennial Census by the U.S. Census Bureau, or if they are designated as needing a permit by DEP.

MS4 permittees must develop, implement, and enforce a Stormwater Management Program (SWMP) designed to reduce the discharge of pollutants from the MS4 to the maximum extent practicable, to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act and the Pennsylvania Clean Streams Law.

To assist municipalities and provide a guideline for permit requirements, DEP produced the Protocol, now referred to as the SWMP (found in Part C Special Conditions of the Permit), which contains information for developing and implementing a municipal stormwater management program, including schedules and measurable goals, over the permit term.

The measurable goals are referred to as Minimum Control Measures, or MCM's. The SWMP consists of six MCMs.



These are the six minimum control measures. This Employee Training focuses on MCM #6, Municipal Operations Pollution Prevention and Good Housekeeping.

The goal of this MCM is to help ensure a reduction in the amount and type of pollution that is generated from municipally-owned and maintained facilities (e.g., streets, parking lots, and vehicle maintenance areas), and eventually discharged into local waterways. An additional goal of MCM 6 is to reduce the amount of pollution that is discharged to waterways from environmentally damaging land development, flood management practices, and/or poor maintenance of storm sewer systems.

The permittee must develop and implement a program that includes a training component and has the ultimate goal of preventing and reducing pollutant runoff from operations, facilities and activities under the control of the permittee (collectively, "operations"). The program must include employee training to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance.



MCM #6, Municipal Operations Pollution Prevention and Good Housekeeping, consists of three Best Management Practices (BMPs):

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 regulated small MS4.

BMP #2: Develop, implement and maintain a written O&M program for all operations that could contribute to the discharge of pollutants from the regulated small MS4, as identified under BMP #1.

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. Training topics shall include operation, inspection, maintenance and repair activities associated with any of the operations identified under BMP #1. Training must cover all relevant parts of the permittee's overall stormwater management program that could affect operations, such as illicit discharge detection and elimination, construction sites, and ordinance requirements.

Municipal Operations Pollution Prevention Program

- Three key items that the program focuses on are:

1. Vehicle maintenance, fueling and washing
2. Stormwater facility operation, maintenance, and inspection
3. Training

This Employee Training focuses on a pollution prevention program for municipal operations focusing particularly on vehicle maintenance, fueling and washing, maintenance of stormwater facilities and employee training.

Changes in habits and procedures may be necessary to meet these regulations.

Any municipal employee or contractor must receive training, including, but not limited to: Public works staff, Building/zoning/code enforcement staff, Engineering staff (on-site and contracted), Administrative staff, Elected officials, Police and fire responders, Volunteers, Contracted personnel.

Municipal Vehicles: Maintenance

- Having on hand dry absorbent material such as kitty litter, straw or sawdust for cleaning up spills;
- Having designated receptacles for disposal of oils, oily rags, used filters, batteries, spent coolants, degreasers, etc.
- Covered or pervious, i.e., grass or gravel washing areas
- Signs to remind employees of good housekeeping

The SWMP requires that the MS4 establish an operations and maintenance program for all municipal vehicle operations. Some of these O&M aspects may already be part of your daily routine; however, as a reminder, the following items relate to vehicle maintenance:

Dry absorbent materials
Designated receptacles for waste
Designated vehicle wash areas
Reminder Signage



Management practices, policies, and procedures shall be developed and implemented to reduce or prevent the discharge of pollutants to the regulated small MS4s. The permittee shall consider eliminating maintenance area discharges from floor drains and other drains if they have the potential to discharge to storm sewers.

Reduce or eliminate the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, maintenance shops with outdoor storage areas, salt / sand (anti-skid) storage locations and snow disposal areas.

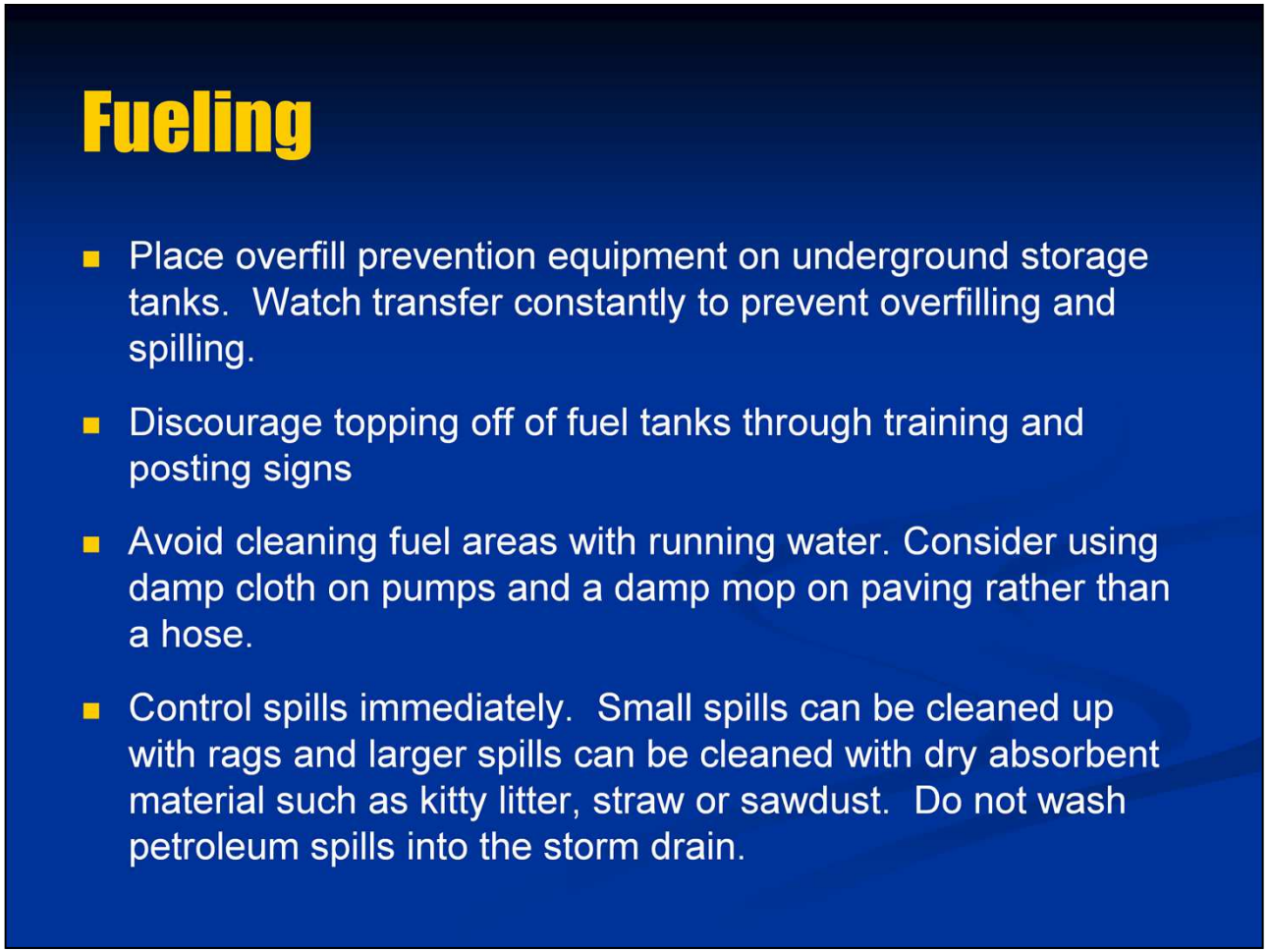
Properly dispose of waste, including dredge spoil, accumulated sediments, trash, household hazardous waste, used motor oil, street sweepings, and other debris.

Consider eliminating maintenance area discharges from floor drains and other drains if they have the potential to discharge to storm sewers.

Maintenance

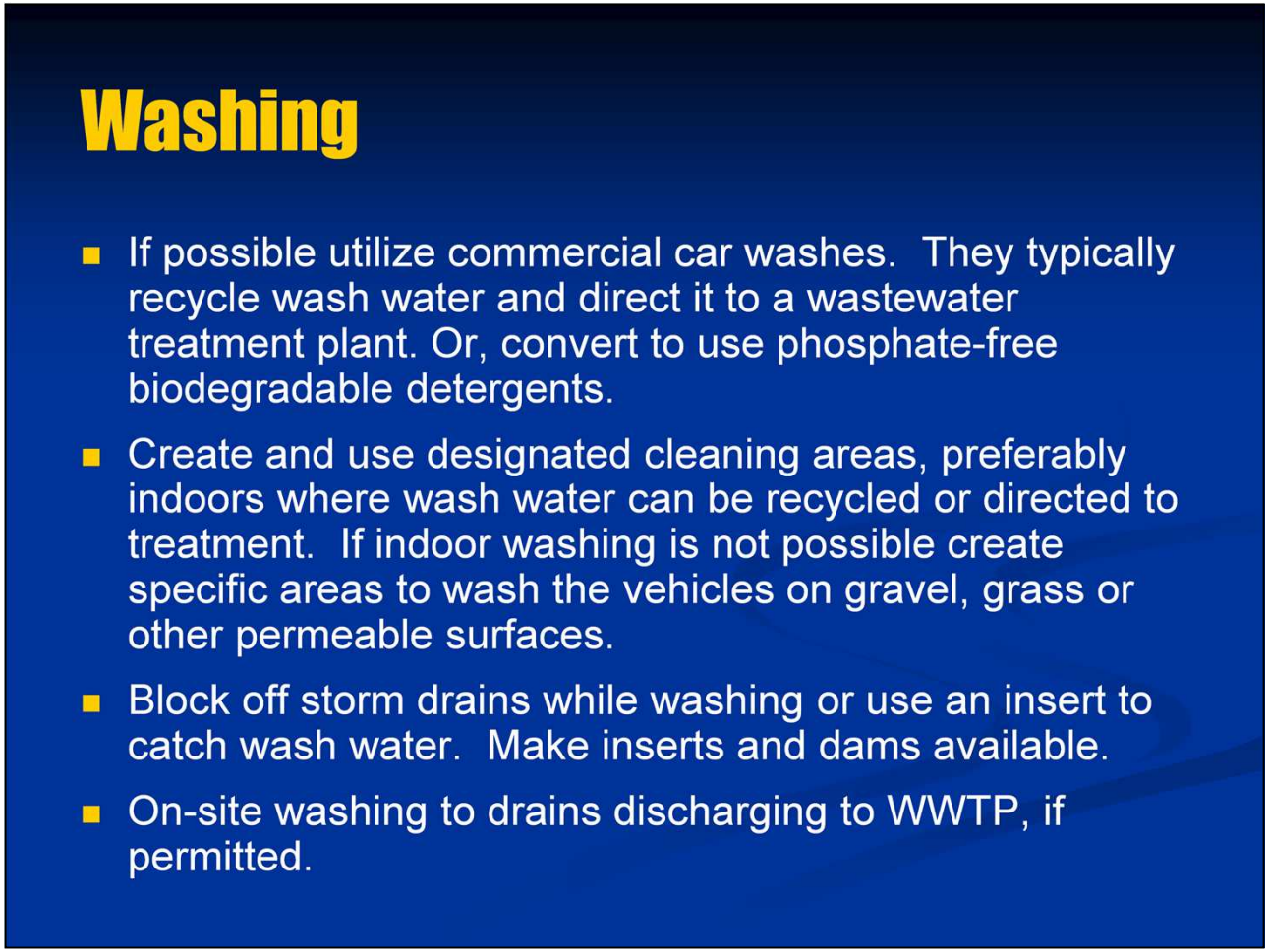
- Make proper disposal of greasy rags, oil filters, air filters, batteries, spent coolant, degreasers, etc., easy by providing appropriate receptacles. Locate waste and recycling drums in properly controlled areas of the yard, preferably areas with a concrete slab and secondary containment.
- Avoid hosing down work areas. Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sanitary sewer connections.
- Put leaking vehicles coming in for service under cover or immediately place drip pans under them.
- Collect leaking or dripping fluids in drip pans or containers.

There are some simple steps you can take to make your maintenance easier. Some suggestions to properly maintain your vehicle storage area include proper disposal of waste items, better ways of cleaning work areas, and to deal with leaking vehicles right away by capturing the leaking fluids.



Avoid overfilling underground storage tanks and vehicles. Provide overfill protection equipment and discourage topping off of fuel tanks.

Properly maintain the vehicle fueling area, by providing containment for potential spillage, properly cleaning fuel areas, and cleaning up spills as soon as they occur.



The proper washing of municipal vehicles is part of the NPDES permit.

If wash water cannot be collected, it is recommended that the municipality try to utilize off-site washing facilities, or designate a wash area in a gravel or grassy area. Consider converting to a phosphate-free biodegradable detergent if vehicle washing will occur on-site.

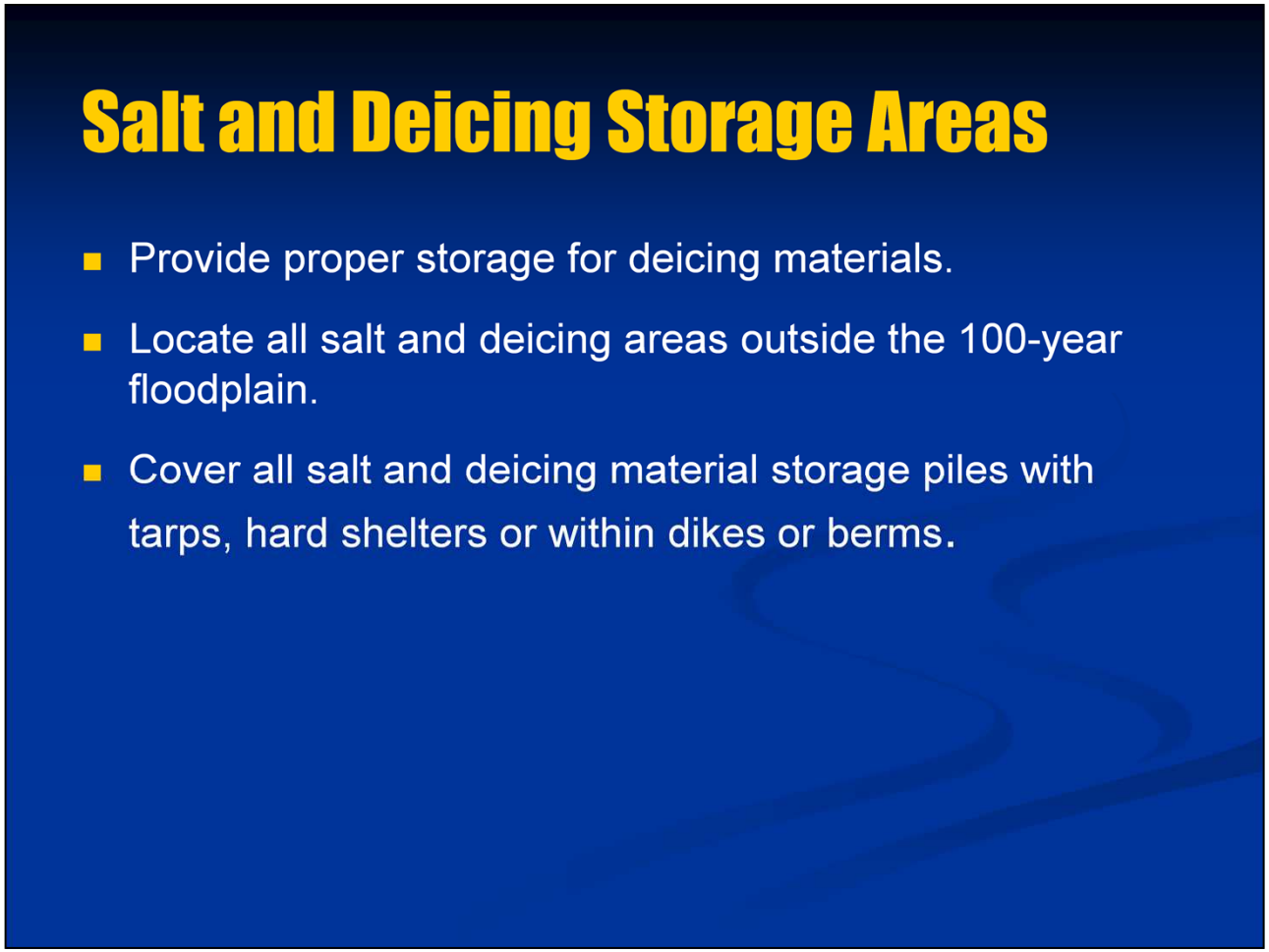
Most important, if you do wash vehicles on-site, you should not allow the wash water to flow unimpeded into a storm drain or a waterway.



The use of road salts is a major contributing factor to the pollution of our waterways. Salt applied to roads finds its way into waterways.

Your municipality may want to consider alternatives to salt in your deicing activities.

You can contact LTAP for assistance, or use technical releases to obtain more information.



Your salt and deicing materials should be stored so as not to contribute to stormwater pollution.

Controls for solid chemical products stored and utilized for the principal purpose of deicing roadways for public safety must be consistent with the BMPs for existing salt storage and distribution sites contained in the PAG-03 NPDES General Permit for Stormwater Discharges Associated with Industrial Activity.

All salt and deicing storage areas should be located outside of floodplains.

Salt and deicing materials should be covered.

Application of Salt and Deicing Materials

- Apply deicing materials according to manufacturer's recommendations for the given circumstance. When determining the amount to apply consider the road width, traffic concentration, proximity to surface waters and road temperature to prevent over application.
- Use trucks with calibration devices or volume controls on their spreaders.
- Avoid applying deicing materials near surface waters, groundwater drinking sources or other environmentally sensitive areas. In these areas and the High Quality (HQ) and Environmental Value (EV) waters apply alternative deicing materials such as sand or salt substitutes.

In the application of deicing materials, always follow manufacturer's directions.

Use trucks with controlled spreaders, and avoid application of deicing materials near environmentally sensitive areas, such as surface waters or drinking water sources.



After application of anti-skid materials, consider sweeping up left-over material and stockpiling for future re-use.

Landscaping

- Ensure that the applicators have a valid state license.
- Application of chemicals. Pretest the soils to determine the proper application rates.
- Apply fertilizer, herbicides and pesticides exactly according to the manufacture guidelines. More is not better.
- Ensure that all applicators are licensed by the state. Require that the applicators attend continuing education to keep abreast of the current and proper application techniques.

In the maintenance of municipally owned vegetative areas and stormwater facilities, be careful when applying fertilizers, etc.

Follow manufacturer's application rates for all chemicals. Be sure anyone performing the application is properly licensed and attends applicable continuing education courses.

Inlets and Storm Sewer Facilities

- Inspection of the facilities and outfalls identified in the permit.
- Maintain and clean the systems on a regular basis, including cleaning the inlets.
- Keep gutters and swales clean and storm sewers will require less cleaning.
- Inspect each catch basin at least once a year to determine if it needs cleaning and note any repairs needed. If the depth of the materials in the bottom of the catch basins is greater than or equal to one-third the depth of the inlet bottom to the invert of the lowest pipe opening, have the catch basin cleaned as soon as possible.

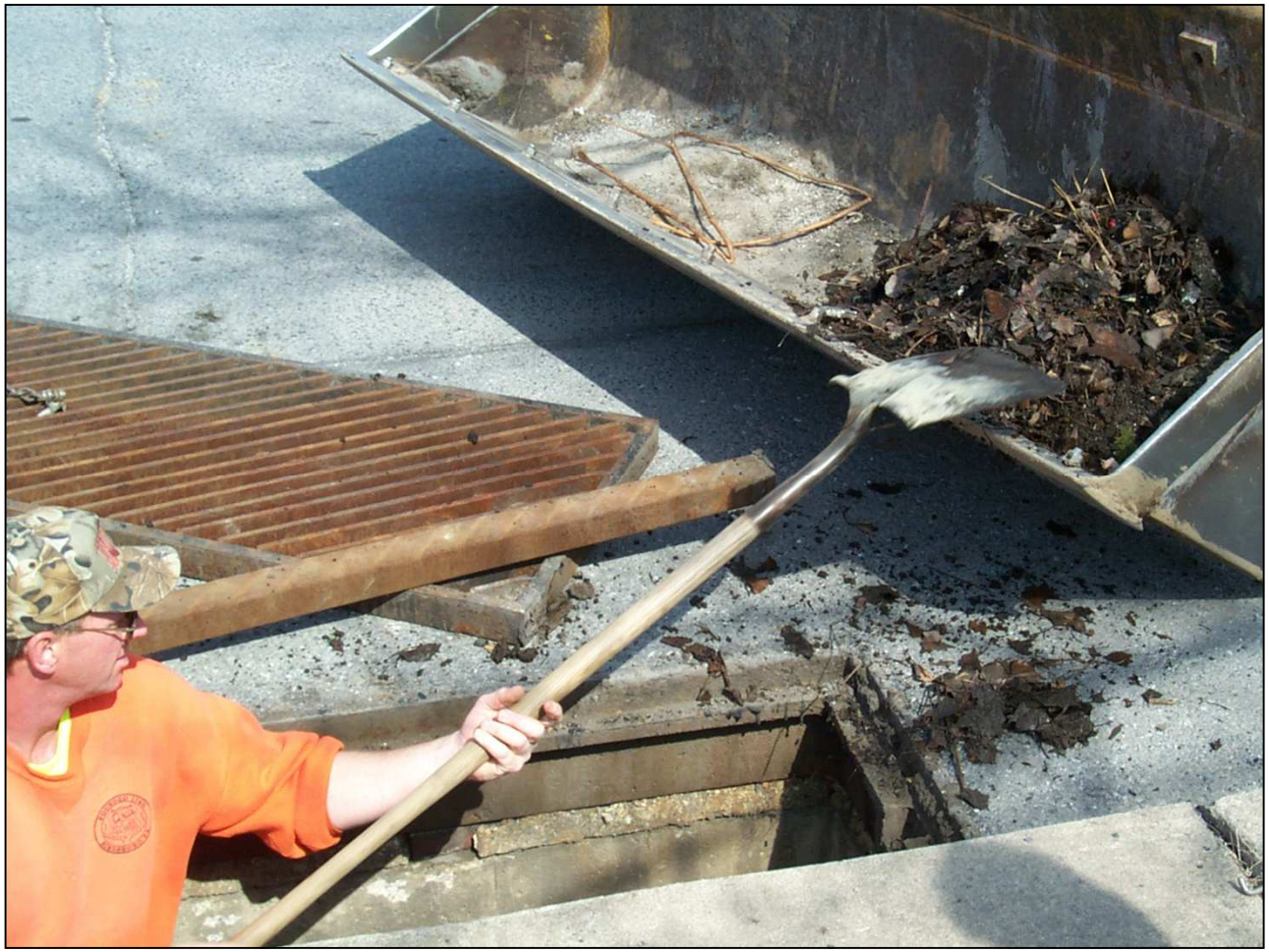
As part of the NPDES permit for your municipality, all municipally owned inlets are to be inspected each year to determine if any cleaning of the inlet is required, and to note any required repairs.

Inlets and Storm Sewer Facilities

- Catch basins that require regular cleaning inspect more often than once a year.
- Remove leaves, anti-skid and other debris from gutter lines and swales as soon as possible to prevent the materials from depositing in the catch basin.
- Dispose of the sediment and debris from the catch basins in a proper manner.

Any inlets that may collect excessive amounts of debris either in the inlet box or on the surface near the grate should be inspected more than once a year and cleaned as necessary. Keep gutters and swales as clear as possible.

Dispose of the collected material in a proper manner.



This shows an example of removing debris from an inlet.

Stenciling

- Location – Painting street with stencil
- Decal – No Dumping Drains to Creek with Frog Logo
- Painting – No Dumping Drains to Creek with Fish Logo

Public Participation is a required part of the NPDES permit. Inlet stenciling can be one way to fulfill this requirement by utilizing volunteer groups, environmental committees, boy scout troops, girl scout troops, etc.

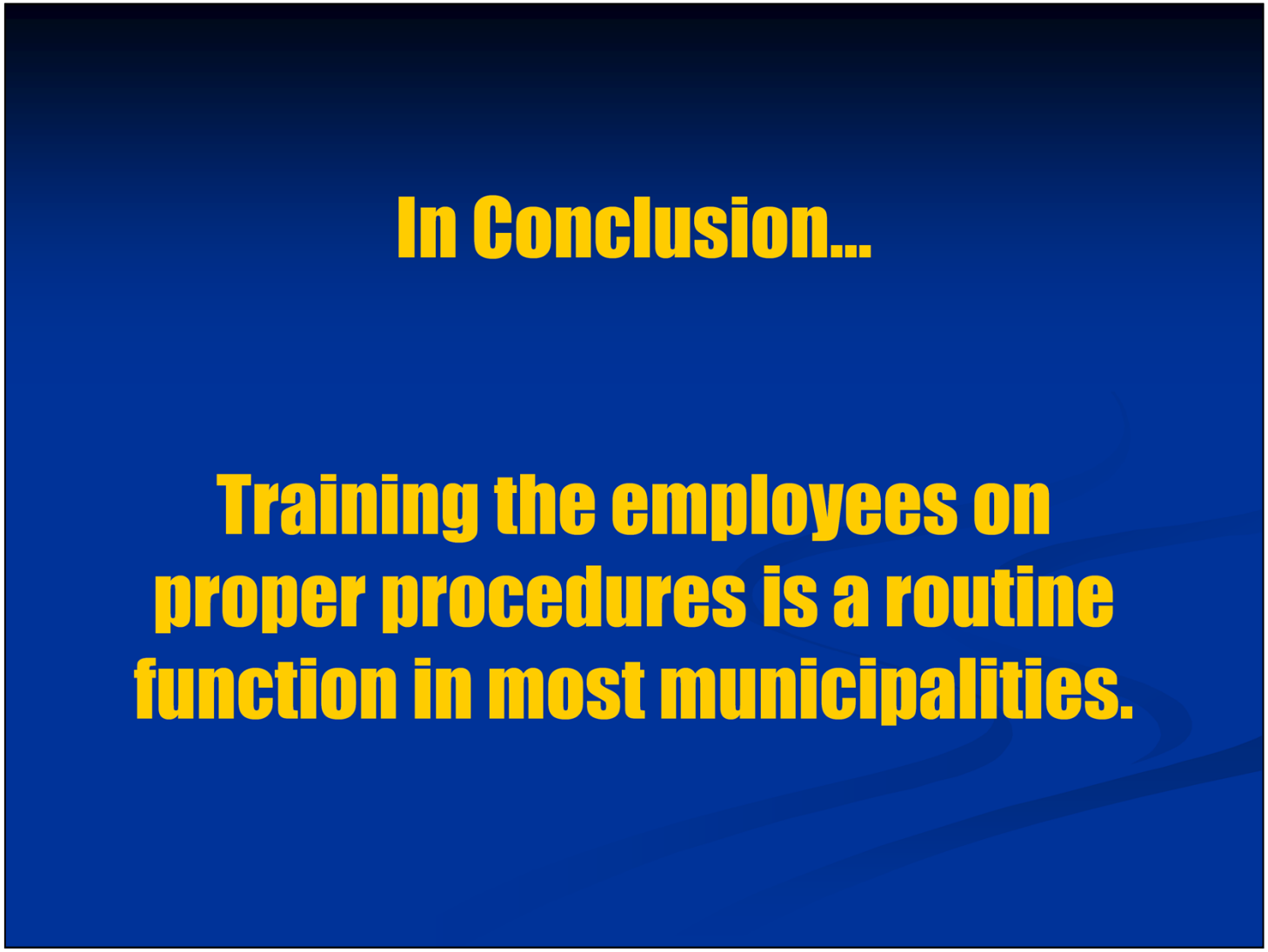
There are two ways to stencil the inlets, either by using a "decal" or a stencil.



This is an example of an inlet stencil. Blue traffic paint is sprayed over the stencil. These can be painted on the curb behind the inlet, or on the inlet box or street if there is no curbing.



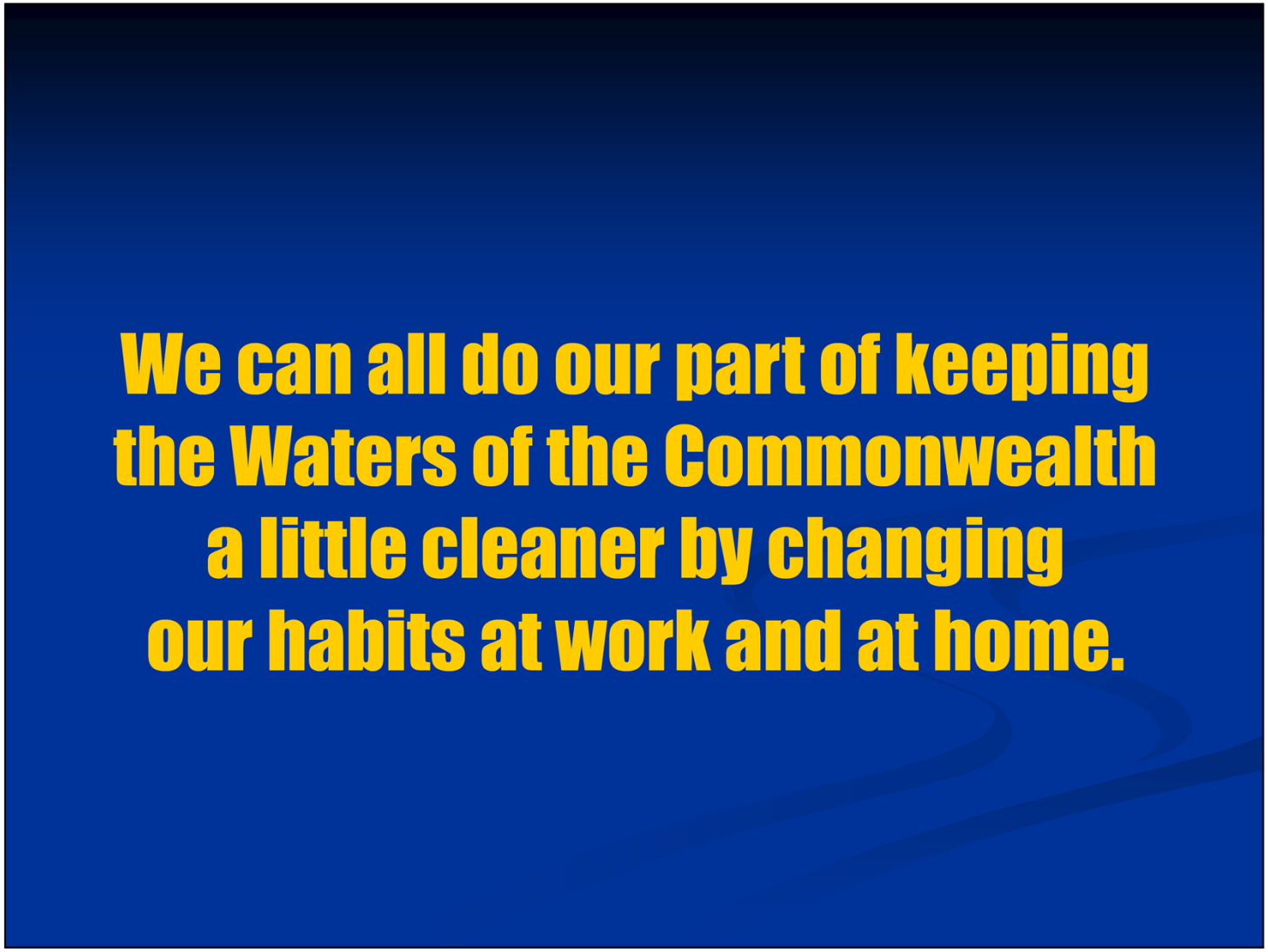
This is an example of a decal. The decal is glued to the curbing or the inlet.



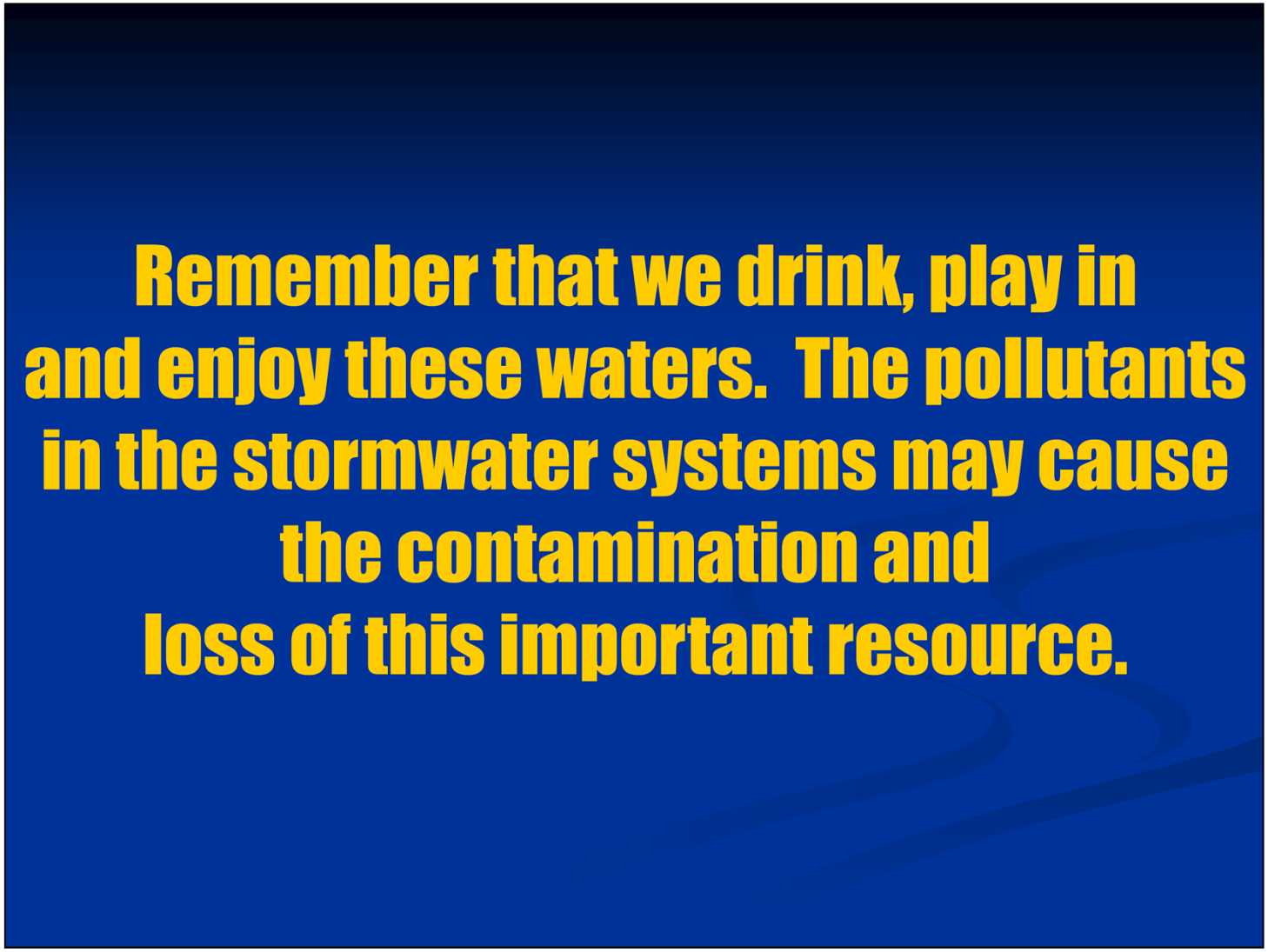
Training the employees on proper procedures is a routine function in most municipalities.



The NPDES permit requirement for employee training involves incorporating new procedures for the inspection, cleaning and maintenance of stormwater facilities.



Everyone can help get and keep our rivers, creeks and streams cleaner by changing habits both at work and at home.



Remember that we drink from, play in and enjoy our waterways.

Pollutants in our stormwater systems find their way directly into these waterways and can cause contamination and potential loss of this important resource.



Thank you!

Special thanks to:

- Birdsboro Borough
- Cumru Township
- Spring Township
- Wyomissing Borough
- Berks County Planning Commission
- Berks County Public Works Association
- City of Reading
- Spotts, Stevens and McCoy, Inc.



This presentation was taken in part from a presentation prepared and given by Berks County Planning Commission and Spotts, Stevens and McCoy. We would like to thank these people for their work.

Minimum Control Measure #6: Pollution Prevention/Good Housekeeping

The goal of the Pollution Prevention/Good Housekeeping MCM is to help ensure a reduction in the amount and type of pollution that is generated from municipally-owned and maintained facilities (e.g., streets, parking lots, and vehicle maintenance areas) and eventually discharged into local waterways. An additional goal of MCM 6 is to reduce the amount of pollution that is discharged to waterways from environmentally damaging land development, flood management practices, and/or poor maintenance of storm sewer systems.

BMP #1 – Identify and document all facilities and activities that are owned or operated by the permittee and have the potential for generating stormwater runoff to the small regulated MS4. This includes activities conducted by contractors for the permittee. The examples below are not limited to these facilities.

Municipal Facility Examples	Municipal Activity Examples
• Streets, roads, highways, and parking lots • Maintenance and storage yards • Waste transfer stations • Parks • Fleet or maintenance shops • Wastewater treatment plants • Stormwater conveyances (open and closed) • Riparian buffers • Stormwater storage or treatment units (e.g., basins, constructed wetlands, etc.)	• Street sweeping • Snow removal/deicing • Inlet/outlet cleaning • Lawn/grounds care • Storm system maintenance, inspection, and repair • Park and open space maintenance • Municipal building maintenance • New construction and land disturbances • Right of Way maintenance • Vehicle maintenance, operation, fueling, and washing • Material transfer operations, including leaf/yard debris pickup and disposal procedures



Figure 11: Municipal facilities and activities (Source: SPC and regional partners)

BMP #2 – Develop, implement, and maintain a written operation and maintenance (O&M) program for all municipal operations and facilities that could contribute to the discharge of pollutants from the regulated small MS4s, as identified under BMP #1. A written plan must be developed within your O&M program. The O&M plan should stress pollution prevention and good housekeeping measures, contain site-specific information, and address the following areas:

- Management practices, policies, and procedures to reduce or prevent the discharge of pollutants to your small regulated MS4. Consider eliminating maintenance-area floor drains.
- Maintenance activities, schedules, and inspection procedures to reduce the potential for pollutants to reach your small regulated MS4.
- Controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, salt/sand (anti-skid) storage locations, and snow disposal areas.
- Procedures for the proper disposal of waste removed from your regulated MS4s and your municipal operations, including dredge spoil, accumulated sediments, trash, household hazardous waste, used motor oil, and other debris.



Figure 12: Vandergrift streetscape with mature tree and porous concrete to reduce impervious surfaces (Source: Westmoreland Conservation District)

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 municipal operations to your regulated small MS4s. The program may be developed and implemented using any guidance and training materials that are available from federal, state, or local agencies, or other organizations. Any municipal employee or contractor must receive training, including, but not limited to:

- Public works staff
- Building/zoning/code enforcement staff
- Engineering staff (on-site and contracted)
- Administrative staff
- Elected officials
- Police and fire responders
- Volunteers
- Contracted personnel

Training should cover all relevant parts of the permittees' overall stormwater management program that could affect municipal operations, such as illicit discharge detection and elimination, construction sites, and ordinance requirements.

Helpful Tips

- **Even if you contract out your catch basin cleanings, be sure to have records regarding the cleanings.**
- **Remember that your municipal garage isn't the only housekeeping you need to do. Good housekeeping applies to your entire permit area/municipality.**
- **Be specific regarding the training your employees are receiving. Document the date and topic of the training.**
- **Organization is key. Keeping good records and using a tracking software will help with implementation as well as a DEP or EPA audit. Even with a tracking software in place, paper copies/binders still need to be kept.**

EMPLOYEE ACKNOWLEDGEMENT FORM
MUNICIPAL OPERATIONS AND MAINTENANCE EMPLOYEE TRAINING
MUNICIPALITY: WEST CHESTER BOROUGH

NAME	DEPARTMENT	DATE

Guidelines for Maintenance and Inspection of Stormwater BMPs

Because many BMPs are rendered ineffective for runoff control if not installed and maintained properly, it is essential that maintenance schedules are maintained and repairs made promptly. Therefore, routine maintenance and non-routine repair of stormwater BMPs should be done according to a schedule, or as soon as a problem is discovered.

All catch basins and inlets should be inspected and cleaned at least once per year. Emergency cleanings and inspections may also need to be completed following larger storm events.

The following maintenance and inspection procedures should be followed for each type of stormwater management facility. A BMP inspection report or memorandum outlining the type of BMP, location, conditions, observations, recommended maintenance (if any), etc., should be completed for each inspection.

Above Ground Detention Basins

A detention basin is an impoundment with an outlet control structure that stores excess runoff during rain events and reduces peak flows by letting flow out slowly over time (usually 12-24 hours).

Inspection/Maintenance Issues:

- The vegetation along the surface of the basin should be maintained in good condition, and any bare spots revegetated as soon as possible.
- Outlet structure and outlet pipe should be kept free of debris.
- Inspect the basin inflow pipes and upstream inlets to ensure they are clear of debris.
- Inspect for accumulated sediment, damage to outlet control structures, erosion control measures, signs of water contamination/spills, and slope stability in the berms.
- Mow only as appropriate for vegetative cover species.
- Remove accumulated sediment from basin as required. Restore original cross section and infiltration. Properly dispose of sediment.
- If concrete low flow channel is present, inspect for structural defects and ensure that it is free of debris.

Infiltration Basins

An infiltration basin is a shallow impoundment that stores and infiltrates runoff over a level, un-compacted (preferably undisturbed area), with relatively permeable soils.

Inspection/Maintenance Issues:

- The vegetation along the surface of the infiltration should be maintained in good condition, and any bare spots re-vegetated as soon as possible.

- Vehicles should not be parked or driven on an Infiltration Basin, and care should be taken to avoid excess compaction by mowers.
- Inspect the basin after runoff events and make sure the runoff drains down within 72 hours. Mosquito's should not be a problem if the water drains in 72 hours. Mosquitos require a considerably long breeding period with relatively static water levels.
- Also inspect for accumulated sediment, damage to outlet control structures, erosion control measures, signs of water contamination/spills, and slope stability in the berms.
- Mow only as appropriate for vegetative cover species.
- Remove accumulated sediment from basin as required. Restore original cross section and infiltration. Properly dispose of sediment

Subsurface Infiltration Bed

Subsurface Infiltration Beds provide temporary storage and infiltration of stormwater runoff by placing storage media of various types beneath the proposed surface. Subsurface Infiltration generally requires less maintenance than other practices of its type. The vegetation associated with Subsurface Infiltration is less substantial than other BMPs. Maintenance activities required for the subsurface bed are similar to those of any infiltration system and focus on regular sediment and debris removal.

Inspection/Maintenance Issues:

- The overlying vegetation of Subsurface Infiltration features should be maintained in good condition, and any bare spots revegetated as soon as possible.
- Vehicular access on Subsurface Infiltration areas should be prohibited, and care should be taken to avoid excessive compaction by mowers. If access in needed, use of permeable, turf reinforcement should be considered.
- If inspection ports, cleanouts, or inlets are present; lid or cover should be removed to observe if standing water is present within the facility.

Infiltration Trench

An Infiltration Trench is a "leaky" pipe in a stone filled trench with a level bottom. An Infiltration Trench may be used as part of a larger storm sewer system, such as a relatively flat section of storm sewer, or it may serve as a portion of a stormwater system for a small area, such as a portion of a roof or a single catch basin.

Inspection/Maintenance Issues:

- The vegetation along the surface of the Infiltration Trench should be maintained in good condition, and any bare spots revegetated as soon as possible.
- Vehicles should not be parked or driven on a vegetated Infiltration Trench, and care should be taken to avoid excessive compaction by mowers.
- Maintenance will require periodic removal of sediment and leaves from yard drains and cleanouts.

- Inspect inlets upstream of infiltration trench. Remove accumulated sediment and/or debris from the inlets.

Rain Garden/Bioretention

A Rain Garden (also called Bioretention) is an excavated shallow surface depression planted with specifically selected native vegetation to treat and capture runoff. Properly designed and installed Rain Garden will require some regular maintenance.

Inspection/Maintenance Issues:

- While vegetation is being established, pruning and weeding may be required.
- Waste or debris of any kind may also need to be removed every year. Perennial plantings may be cut down at the end of the growing season.
- Mulch should be re-spread when erosion is evident and be replenished as needed. Once every 2 to 3 years the entire area may require mulch replacement.
- Bioretention areas should be inspected at least two times per year for sediment buildup, erosion, vegetative conditions, etc.
- During periods of extended drought, Bioretention areas may require watering.
- Trees and shrubs should be inspected twice per year to evaluate health.
- Invasive plant species (weeds) should be removed if observed.

Dry Well/Seepage Pit

A Dry Well, or Seepage Pit, is a variation on an infiltration system that is designed to temporarily store and infiltrate rooftop runoff. Maintenance will require periodic removal of sediment and leaves from sumps and cleanouts.

Inspection/Maintenance Issues:

- Dry Wells should be inspected two times per year, as well as periodically after large rain events.
- Dispose of sediment, debris/trash, and any other waste material removed from a Dry Well at suitable disposal/recycling sites in compliance with local state, and federal waste regulations.
- Evaluate the drain-down time of the Dry Well to ensure the maximum time of 72 hours is not being exceeded. If drain-down times are exceeding the maximum, drain the well via pumping and clean out the perforated piping, if included. If slow drainage persists, the system may need to be replaced.
- Regularly clean out gutters and ensure proper connections to facilitate the effectiveness of the dry well.
- Replace filter screen that intercepts roof runoff as necessary.
- If an intermediate sump box exists, clean it out at least once per year.

Vegetated Swale

A Vegetated Swale is a broad, shallow trapezoidal or parabolic channel, densely planted with a variety of trees, shrubs, and/or grasses. It is designed to reduce the

runoff volume and in some cases to infiltrate runoff from adjacent impervious surfaces, allowing some pollutants to settle out in the process.

Inspection/Maintenance Issues (semi-annually and within 48 hours after major storm):

- Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation.
- Inspect vegetation on side slopes for erosion of rills (small streams) or gullies, correct as needed.
- Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade.
- Mow and trim vegetation to ensure safety, aesthetics, proper swale operation, or to suppress weeds and invasive vegetation; dispose of cuttings in local composting facility; mow only when swale is dry to avoid rutting
- Inspect for litter; remove prior to mowing
- Inspect for uniformity in cross section and longitudinal slope, correct as needed.
- Inspect swale inlet (curb cuts, pipes, etc.) and outflow for signs of erosion or blockage, correct as needed.

Inspection/Maintenance Issues (to be done as needed):

- Plant alternative grass species in the event of unsuccessful establishment
- Reseed bare areas; install appropriate erosion control measures when native soil is exposed or erosion channels are forming
- Rototill and replant swale if draw down time is more than 48 hours.
- Inspect and correct check dams when signs of altered water flow (channelization, obstructions, erosion, etc.) are identified

Inspection/Maintenance Issues (after winter season):

- Inspect swale immediately after the spring melt, remove residuals (e.g. sand) and replace damaged vegetation without disturbing remaining vegetation.
- If roadside or parking lot runoff is directed to the swale, mulching and/or soil aeration/manipulation may be required in the spring to restore soil structure and moisture capacity and to reduce the impacts of de-icing agents.

Wet Pond/Retention Basin

Wet Ponds/Retention Basins are stormwater basins that include a substantial permanent pool of water for quality treatment and additional capacity above the permanent pool for temporary runoff storage.

Inspection/Maintenance Issues:

- During the first growing season or until established, vegetation should be inspected every 2 to 3 weeks.
- Wet Ponds should be inspected at least 2 times per year and after major storms or rapid ice breakup.
- Inspections should access the vegetation, erosion, flow channelization, bank stability, inlet/outlet conditions, embankment, and sediment/debris accumulation.
- The pond drain should also be inspected and tested at least 2 times per year.

- Wet Pond and buffer vegetation may need support (watering, weeding, mulching, replanting etc.) during the first 3 years.
- Once established, vegetation should maintain at least an 85 percent cover of the emergent vegetation zone and buffer area.
- Annual harvesting of vegetation may increase the nutrient removal of Wet Ponds; if performed it should generally be done in the summer so that there is adequate regrowth before winter.
- Sediment should be removed from the forebay before it occupies 50 percent of the forebay, typically every 5 to 10 years.

NOTE: Maintenance guidelines outlined in this document are taken from PA DEP Stormwater Best Management Practices Manual (2006).

Stormwater Treatment: Assessment and Maintenance

Field Data Sheet for Visual Inspection: Infiltration Basins and Trenches

Inspector's Name(s): _____
Date of Inspection: _____
Location of the infiltration practice (address or intersection):_____
Project/Subdivision Name (if applicable): _____

Based on visual assessment of the site, answer the following questions and make photographic documentation:

1. Has it rained within the last 48 hours at this location? □ Yes □ No □ I don't know

2. Access
   a) Access to the infiltration basin or trench is:
   □ Clear □ Partially obstructed □ Mostly obstructed □ Inaccessible
   b) **If** obstructed, the obstruction is _____ and is (choose):
   □ temporary **and** □ no action needed **or** □ action needed
   □ permanent
   c) Access to the upstream and downstream drainage is:
   □ Clear □ Partially obstructed □ Mostly obstructed □ Inaccessible
   d) **If** obstructed, the obstruction is _____ and is (choose) :
   □ temporary **and** □ no action needed **or** □ action needed
   □ permanent
   c) Are any of the inlet structures askew or misaligned from the original design or otherwise in need of maintenance?
   □ Yes □ No (if yes, write in reason: frost heave, vandalism, unknown, etc.) _____
   _____

3. Is there standing water in the infiltration practice? □ Yes □ No
   a) If yes, does the water have:
   □ Surface sheen (from oils or gasoline)
   □ Murky color (from suspended solids)
   □ Green color (from algae or other biological activity)
   □ Other (describe) _____

4. Does the infiltration basin or trench smell like gasoline or oil? □ Yes □ No

5. What is the approximate percentage of vegetation coverage in the practice? _____%

6. Are there indications of any of the following in the infiltration practice?
   - □ Sediment deposition that will significantly impede infiltration
   - □ Erosion or channelization
   - □ Bare soil or lack of healthy vegetation significantly different from the original design
   - □ Litter or debris
   - □ Standing water more than 48 hours after the end of the most recent runoff event
   - □ Other (describe) _____
   - □ No

   a) If sediment deposition is evident, is the source:
   - □ Erosion or channelization inside the infiltration practice
   - □ Erosion or channelization outside the infiltration practice
   - □ Construction site erosion
   - □ Other (describe) _____
   - □ Unknown

7. Are there indications of any of the following on the banks of the infiltration basin or trench:
   - □ Erosion or channelization
   - □ Soil slides or bulges
   - □ Excessive animal burrows
   - □ Seeps and wet spots
   - □ Poorly vegetated areas
   - □ Trees on constructed slopes
   - □ Other (describe) _____

8. Is the bottom of the infiltration basin or trench covered with a layer of silts and/or clays? Yes □ No

9. Are any overflow structures clogged? □ No □ Partially □ Completely □ N/A
   a) If yes, describe the clogging material (i.e. debris, sediment, vegetation, etc.): _____
   _____

b) Are any of the overflow structures askew or misaligned from the original design or otherwise in need of maintenance? (if yes, write in reason: frost heave, vandalism, unknown, etc.)

_____

10. Write any other observations below.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Stormwater Treatment Assessment and Maintenance

Field Data Sheet for Visual Inspection: Bioretention Practices (including Rain Gardens)

Inspector's Name(s):_____
Date of Inspection:_____
Location of the bioretention practice (address or intersection):_____
Project/Subdivision Name (if applicable): _____

Based on visual assessment of the site, answer the following questions and make photographic documentation:

1. Has it rained within the last 48 hours at this location? □ Yes □ No □ I don't know

2. Access
   a) Access to the bioretention practice is:
   □ Clear □ Partially obstructed □ Mostly obstructed □ Inaccessible
   b) If obstructed, the obstruction is _____ and is (choose):
   □ temporary **and** □ no action needed **or** □ action needed
   □ permanent
   c) Access to the upstream and downstream drainage is:
   □ Clear □ Partially obstructed □ Mostly obstructed □ Inaccessible
   d) If obstructed, the obstruction is _____ and is (choose):
   □ temporary **and** □ no action needed **or** □ action needed
   □ permanent

3. Inlet Structures / Yard Drains
   a) How many inlet structures are present? _____
   b) Are any of the inlet structures clogged? (If yes, note the location from site plan as well as items causing clogging (i.e., debris, sediment, vegetation, etc.) _____
   _____

   c) Are any of the inlet structures in need of maintenance? (note which inlets and reason: frost heave, vandalism, unknown, etc.) _____
   _____

4. Is there standing water in the bioretention practice? □ Yes □ No
   a) If yes, does the water have:
   - □ Surface sheen (from oils or gasoline)
   - □ Murky color (from suspended solids)
   - □ Green color (from algae or other biological activity)
   - □ Other (describe) _____

5. What is the approximate percentage of vegetation coverage in the practice?_____%
   a) Does the current vegetation appear to match the original design? □ Yes □ No □ Unknown
   b) Is there presence of:
   - □ Weeds
   - □ Wetland vegetation
   - □ Invasive vegetation
   - □ None of the above
   - □ Other, specify_____

   c) Does the vegetation appear to be healthy? □ Yes □ No (if no, describe) _____
   _____

7. Are there indications of any of the following in the bioretention practice?
   - □ Sediment deposition
   - □ Erosion or channelization
   - □ Excessive or undesirable vegetation (that needs mowing or removal)
   - □ Litter or debris
   - □ Other, specify _____
   - □ No

   a) If sediment deposition is evident, is source:
   - □ Erosion or channelization inside the infiltration practice
   - □ Erosion or channelization outside the infiltration practice
   - □ Construction site erosion
   - □ Other, specify _____
   - □ Unknown

8. Are there indications of any of the following on the banks of the bioretention practice:
   - □ Erosion or channelization
   - □ Soil slides or bulges
   - □ Excessive animal burrows
   - □ Seeps and wet spots
   - □ Poorly vegetated areas
   - □ Trees on constructed slopes
   - □ None of the above, the banks are in good condition
   - □ Other, specify_____

9. Are any overflow or bypass structures clogged? □ No □ Partially □ Completely □ N/A
   a) If yes, note the clogging material (i.e. debris, sediment, vegetation, etc.): _____
   _____

   b) Are any of the overflow or bypass structures misaligned from the original design or otherwise in need of maintenance? (describe and note possible reason: frost heave, vandalism, unknown)
   _____

10. Write any other observations below.

_____

_____

_____

_____

_____

_____

_____



UNIVERSITY OF MINNESOTA

Stormwater Treatment: Assessment and Maintenance

Field Data Sheet for Level 1 Assessment: Visual Inspection
Dry Ponds

Inspector's Name(s):_____
Date of Inspection:_____
Location of the wet pond:_____
Address or Intersection:_____
Latititude, Longitude:_____
Date the wet pond began operation: _____
Wet pond dimensions. Depth (ft.): _____
Area (ft. x ft.) _____
Time since last rainfall (hr): _____
Quantity of last rainfall (in): _____
Rainfall Measurement Location: _____

Site Sketch (include inlets, outlets, north arrow, etc.)

Based on visual assessment of the site, answer the following questions and make photographic or video-graphic documentation:

1. Has visual inspection been conducted at this location before? □ Yes □ No □ I don't know
   1. a) If yes, enter date:_____
   1. b) Based on previous visual inspections, have any corrective actions been taken?
   □ Yes □ No □ I don't know (If yes, describe actions in comments box)

2. Has it rained within the last 48 hours at this location? □ Yes □ No □ I don't know

3. Access
   3. a) Access to the dry pond is:
   □ Clear □ Partially obstructed □ Mostly obstructed □ Inaccessible
   3. b) If obstructed, the obstruction is (choose and provide comments) :
   □ temporary **and** □ no action needed **or** □ action needed
   □ permanent **and** □ before or during installation **or** □ new since installation
   3. c) Access to the upstream and downstream drainage is:
   □ Clear □ Partially obstructed □ Mostly obstructed □ Inaccessible
   3. d) If obstructed, the obstruction is (choose and provide comments) :
   □ temporary **and** □ no action needed **or** □ action needed
   □ permanent **and** □ before or during installation **or** □ new since installation

Comments

4. Inlet Structures

4. a) How many inlet structures are present? □ 0 □ 1 □ 2 □ 3 □ 4 □ 5 □ > 5

4. b) Are any of the inlet structures clogged? (If yes, mark location on site sketch above and fill in boxes below with items causing clogging (ie. debris, sediment, vegetation, etc.)

	Inlet #:	Inlet #:	Inlet #:	Inlet #:	Inlet #:
Partially					
Completely					
Not Applicable					

4. c) Are any of the inlet structures askew or misaligned from the original design or otherwise in need of maintenance? (if yes, write in reason: frost heave, vandalism, unknown, etc.)

	Inlet #:	Inlet #:	Inlet #:	Inlet #:	Inlet #:
Reason					

5. Is there standing water in the dry pond? □ Yes □ No

5. a) If yes, does the water have:

□ Surface sheen (from oils or gasoline)
□ Murky color (from suspended solids)
□ Green color (from algae or other biological activity)
□ Other (describe In comment box)

6. Is there evidence of illicit storm sewer discharges?

□ Yes □ No □ I don't know (if yes, describe in comment box)

7. Are there indications of any of the following in the dry pond? (If yes, mark on site sketch)

□ Sediment deposition
□ Erosion or channelization
□ Excessive or undesirable vegetation (that needs mowing or removal)
□ Bare soil or lack of healthy vegetation significantly different from the original design
□ Litter or debris
□ Other
□ No

7. a) If sediment deposition is evident, what is the source?

□ Erosion or channelization inside the dry pond
□ Erosion or channelization outside the dry pond
□ Construction site erosion
□ Other
□ Unknown

Comments

8. Are there indications of any of the following on the banks of the dry pond:
   - □ Erosion or channelization
   - □ Soil slides or bulges
   - □ Excessive animal burrows
   - □ Seeps and wet spots
   - □ Poorly vegetated areas
   - □ Trees on constructed slopes

9. Are any outlet or overflow structures clogged? □ No □ Partially □ Completely □ NA

   9. a) If yes, specify the clogging material (i.e. debris, sediment, vegetation, etc.) in the box below.

	Outlet #:	Outlet #:	Outlet #:
Material			
Partial or Comp.			

   9. b) Are any of the outlet or overflow structures askew or misaligned from the original design or otherwise in need of maintenance? (if yes, write in reason: frost heave, vandalism, unknown, etc.)

	Outlet #:	Outlet #:	Outlet #:
Reason			

10. Inspector's Recommendations. When is maintenance needed?
    - □ Before the next rainfall
    - □ Before the next rainy season
    - □ Within a year or two
    - □ No sign that any is required

Comments

11. Summarize the results of this inspection and write any other observations in the box below.

Summary and other observations



UNIVERSITY OF MINNESOTA

Stormwater Treatment: Assessment and Maintenance

Field Data Sheet for Level 1 Assessment: Visual Inspection
Wet Ponds

Inspector's Name(s):_____
Date of Inspection:_____
Location of the wet pond:_____
Address or Intersection:_____
Latititude, Longitude:_____
Date the wet pond began operation: _____
Wet pond dimensions. Depth (ft.): _____
Area (ft. x ft.) _____
Time since last rainfall (hr): _____
Quantity of last rainfall (in): _____
Rainfall Measurement Location: _____

Site Sketch (include inlets, outlets, north arrow, etc.)

Based on visual assessment of the site, answer the following questions and make photographic or video-graphic documentation:

1. Has visual inspection been conducted at this location before? □ Yes □ No □ I don't know
   1. a) If yes, enter date:_____
   1. b) Based on previous visual inspections, have any corrective actions been taken?
   □ Yes □ No □ I don't know (If yes, describe actions in comments box)

2. Has it rained within the last 48 hours at this location? □ Yes □ No □ I don't know

3. Access
   3. a) Access to the wet pond is:
   □ Clear □ Partially obstructed □ Mostly obstructed □ Inaccessible
   3. b) If obstructed, the obstruction is (choose and provide comments) :
   □ temporary **and** □ no action needed **or** □ action needed
   □ permanent **and** □ before or during installation **or** □ new since installation
   3. c) Access to the upstream and downstream drainage is:
   □ Clear □ Partially obstructed □ Mostly obstructed □ Inaccessible
   3. d) If obstructed, the obstruction is (choose and provide comments) :
   □ temporary **and** □ no action needed **or** □ action needed
   □ permanent **and** □ before or during installation **or** □ new since installation

Comments

4. Inlet Structures

4. a) How many inlet structures are present? □ 0 □ 1 □ 2 □ 3 □ 4 □ 5 □ > 5

4. b) Are any of the inlet structures clogged? (If yes, mark location on site sketch above and fill in boxes below with items causing clogging (ie. debris, sediment, vegetation, etc.)

	Inlet #:	Inlet #:	Inlet #:	Inlet #:	Inlet #:
Partially					
Completely					
Not Applicable					

4. c) Are any of the inlet structures askew or misaligned from the original design or otherwise in need of maintenance? (if yes, write in reason: frost heave, vandalism, unknown, etc.)

	Inlet #:	Inlet #:	Inlet #:	Inlet #:	Inlet #:
Reason					

5. How many cells are in the wet pond system? _____

5. a) Does the water in the pond have:
- □ Surface sheen (from oils or gasoline)
- □ Murky color (from suspended solids)
- □ Green color (from algae or other biological activity)
- □ Other (describe In comment box)

6. Is there evidence of illicit storm sewer discharges?
□ Yes □ No □ I don't know (if yes, describe in comment box)

7. Does the wet pond smell like gasoline or oil? □ Yes □ No

8. Are there indications of any of the following in the wet pond? (If yes, mark on site sketch)
- □ Sediment deposition in excess of 50% of the sediment storage capacity
- □ Erosion or channelization
- □ Excessive or undesirable vegetation (that needs mowing or removal)
- □ Bare soil or lack of healthy vegetation significantly different from the original design
- □ Litter or debris
- □ Other
- □ No

8. a) If sediment deposition is evident, what is the source?
- □ Erosion or channelization inside the wet pond
- □ Erosion or channelization outside the wet pond
- □ Construction site erosion
- □ Other
- □ Unknown

Comments

9. Are there indications of any of the following on the banks of the wet pond:
   - □ Erosion or channelization
   - □ Soil slides or bulges
   - □ Excessive animal burrows
   - □ Seeps and wet spots
   - □ Poorly vegetated areas
   - □ Trees on constructed slopes

10. Are any outlet or overflow structures clogged? □ No □ Partially □ Completely □ NA

10. a) If yes, specify the clogging material (i.e. debris, sediment, vegetation, etc.) in the box below.

	Outlet #:	Outlet #:	Outlet #:
Material			
Partial or Comp.			

10. b) Are any of the outlet or overflow structures askew or misaligned from the original design or otherwise in need of maintenance? (if yes, write in reason: frost heave, vandalism, unknown, etc.)

	Outlet #:	Outlet #:	Outlet #:
Reason			

11. Is there any evidence of any of the following downstream of the outlet structure?
    □ Sediment deposition □ Erosion or channelization □ Other □ No

11. a) If sediment deposition is evident, what is the source?
    - □ Erosion or channelization inside the filtration practice
    - □ Erosion or channelization outside the filtration practice
    - □ Construction site erosion
    - □ Other, Specify_____
    - □ Unknown

12. Inspector's Recommendations. When is maintenance needed?
    - □ Before the next rainfall
    - □ Before the next rainy season
    - □ Within a year or two
    - □ No sign that any is required

Comments

12. Summarize the results of this inspection and write any other observations in the box below.

Summary and other observations



UNIVERSITY OF MINNESOTA

Stormwater Treatment: Assessment and Maintenance

Field Data Sheet for Level 1 Assessment: Visual Inspection
Permeable Pavements

Inspector's Name(s):_____
Date of Inspection:_____
Location of the permeable pavement:_____
Address or Intersection:_____
Latititude, Longitude:_____
Date the permeable pavement began operation: _____
Pavement area (ft. x ft.): _____
Time since last rainfall (hr): _____
Quantity of last rainfall (in): _____
Rainfall Measurement Location: _____

Site Sketch (include curbs, islands, trees, north arrow, etc.)

Based on visual assessment of the site, answer the following questions and make photographic or video-graphic documentation:

1. Has visual inspection been conducted at this location before? □ Yes □ No □ I don't know
   1. a) If yes, enter date:_____
   1. b) Based on previous visual inspections, have any corrective actions been taken?
   □ Yes □ No □ I don't know (If yes, describe actions in comments box)

2. Has it rained within the last 48 hours at this location? □ Yes □ No □ I don't know

3. Is there standing water on top of or water within the permeable pavement?
   □ Yes □ No

4. Are there indications of any of the following on top of or within the permeable pavement?
   (If yes, mark on site sketch)
   □ Sediment deposition
   □ Litter or debris
   □ Other
   □ No

Comments

4. a) If sediment deposition is evident, what is the source?
   - □ Erosion or channelization inside the permeable pavement
   - □ Erosion or channelization outside the permeable pavement
   - □ Construction site erosion
   - □ Other
   - □ Unknown

5. Inspector's Recommendations. When is maintenance needed?
   - □ Before the next rainfall
   - □ Before the next rainy season
   - □ Within a year or two
   - □ No sign that any is required

Comments

6. Summarize the results of this inspection and write any other observations in the box below.

Summary and other observations

MCM #6 – POLLUTION PREVENTION / GOOD HOUSEKEEPING

MS4: _____

Date: _____

	MUNICIPALLY OWNED FACILITY	Yes/No	Name	Locations	Further Information
1	Streets/Alleys				
2	Parking Lots				
3	Parks				
4	SWM Basins / Rain Gardens				
5	Maintenance and Storage Yards				
6	Fleet or Maintenance Shops				

MCM #6 – POLLUTION PREVENTION / GOOD HOUSEKEEPING

MS4: _____

Date: _____

	TASK	Yes/No	Frequency	Locations	Further Information
Municipally Owned Operations					
1	Street Sweeping?				
2	Snow Removal/Deicing?				
3	Inlet/Outfall Cleaning?				
4	Lawn/Grounds Care?				
5	General Storm sewer Inspection and Maintenance?				
6	Park / Open Space Maintenance?				
7	New Construction?				
8	ROW Maintenance?				
9	Vehicle Operation, Fueling, Washing?				
10	Municipal Building Maintenance?				
11	Leaf/Yard Debris Pickup or Collection Locations?				
12	Basin Maintenance?				
13	Material transfer operations (leaf/yard debris pickup and disposal procedures)				

MCM #6 – POLLUTION PREVENTION / GOOD HOUSEKEEPING

MS4: _____

Date: _____

	TASK	Yes/No	Frequency	Locations	Further Information
1	Develop a Basic Inventory of all MS4-owned Facilities				
2	Implement practices to reduce or prevent discharge of pollutants to MS4				
3	Maintenance Activities and Schedules				
4	Inspection Procedures				
5	Procedures for Maintaining Municipal BMPs				
6	Controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, and salt / sand (anti-skid) storage locations and snow disposal areas.				
7	Procedures for the proper disposal of waste removed from your regulated small MS4s and your municipal operations, including dredge spoil, accumulated sediments, trash, household hazardous waste, used motor oil, and other debris.				
8	Review Program Annually				
9	Employee Training Program for Good Housekeeping				

United States Environmental Protection Agency | Office of Water (4203) | EPA 833-F-00-010 January 2000 (revised December 2005) Fact Sheet 2.8

Stormwater Phase II Final Rule

Pollution Prevention/Good Housekeeping Minimum Control Measure

Stormwater Phase II Final Rule Fact Sheet Series

Overview

1.0 – Stormwater Phase II Final Rule: An Overview

Small MS4 Program

2.0 – Small MS4 Stormwater Program Overview

2.1 – Who's Covered? Designation and Waivers of Regulated Small MS4s

2.2 – Urbanized Areas: Definition and Description

Minimum Control Measures

2.3 – Public Education and Outreach

2.4 – Public Participation/ Involvement

2.5 – Illicit Discharge Detection and Elimination

2.6 – Construction Site Runoff Control

2.7 – Post-Construction Runoff Control

2.8 – Pollution Prevention/Good Housekeeping

2.9 – Permitting and Reporting: The Process and Requirements

2.10 – Federal and State-Operated MS4s: Program Implementation

Construction Program

3.0 – Construction Program Overview

3.1 – Construction Rainfall Erosivity Waiver

Industrial "No Exposure"

4.0 – Conditional No Exposure Exclusion for Industrial Activity

This fact sheet profiles the Pollution Prevention/Good Housekeeping for Municipal Operations minimum control measure, one of six measures the operator of a Phase II regulated small municipal separate storm sewer system (MS4) is required to include in its storm water management program to meet the conditions of its National Pollutant Discharge Elimination System (NPDES) permit. This fact sheet outlines the Phase II Final Rule requirements and offers some general guidance on how to satisfy them. It is important to keep in mind that the small MS4 operator has a great deal of flexibility in choosing exactly how to satisfy the minimum control measure requirements.

Why Is Pollution Prevention/Good Housekeeping Necessary?

The Pollution Prevention/Good Housekeeping for municipal operations minimum control measure is a key element of the small MS4 stormwater management program. This measure requires the small MS4 operator to examine and subsequently alter their own actions to help ensure a reduction in the amount and type of pollution that: (1) collects on streets, parking lots, open spaces, and storage and vehicle maintenance areas and is discharged into local waterways; and (2) results from actions such as environmentally damaging land development and flood management practices or poor maintenance of storm sewer systems.

While this measure is meant primarily to improve or protect receiving water quality by altering municipal or facility operations, it also can result in a cost savings for the small MS4 operator, since proper and timely maintenance of storm sewer systems can help avoid repair costs from damage caused by age and neglect.

What Is Required?

Recognizing the benefits of pollution prevention practices, the rule requires an operator of a regulated small MS4 to:

- ❑ Develop and implement an operation and maintenance program with the ultimate goal of preventing or reducing pollutant runoff from municipal operations into the storm sewer system;
- ❑ Include employee training on how to incorporate pollution prevention/good housekeeping techniques into municipal operations such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance. To minimize duplication of effort and conserve resources, the MS4 operator can use training materials that are available from EPA, their State or Tribe, or relevant organizations;
- ❑ Determine the appropriate best management practices (BMPs) and measurable goals for this minimum control measure. Some program implementation approaches, BMPs (i.e., the program actions/activities), and measurable goals are suggested below.

What Are Some Guidelines for Developing and Implementing This Measure?

The intent of this control measure is to ensure that existing municipal, State or Federal operations are performed in ways that will minimize contamination of stormwater discharges. EPA encourages the small MS4 operator to consider the following components when developing their program for this measure:

- ***Maintenance activities, maintenance schedules, and long-term inspection procedures*** for structural and non-structural controls to reduce floatables and other pollutants discharged from the separate storm sewers;
- ***Controls for reducing or eliminating the discharge of pollutants*** from areas such as roads and parking lots, maintenance and storage yards (including salt/sand storage and snow disposal areas), and waste transfer stations. These controls could include programs that promote recycling (to reduce litter), minimize pesticide use, and ensure the proper disposal of animal waste;
- ***Procedures for the proper disposal of waste*** removed from separate storm sewer systems and areas listed in the bullet above, including dredge spoil, accumulated sediments, floatables, and other debris; and
- ***Ways to ensure that new flood management projects assess the impacts on water quality*** and examine existing projects for incorporation of additional water quality protection devices or practices. EPA encourages coordination with flood control managers for the purpose of identifying and addressing environmental impacts from such projects.

The effective performance of this control measure hinges on the proper maintenance of the BMPs used, particularly for the first two bullets above. For example, structural controls, such as grates on outfalls to capture floatables, typically need regular cleaning, while non-structural controls, such as training materials and recycling programs, need periodic updating.

What Are Appropriate Measurable Goals?

Measurable goals, which are required for each minimum control measure, are meant to gauge permit compliance and program effectiveness. The measurable goals, as well as the BMPs, should consider the needs and characteristics of the operator and the area served by its small MS4. The measurable goals should be chosen using an integrated approach that fully addresses the requirements and intent of the minimum control measure.

EPA has developed a Measurable Goals Guidance for Phase II MS4s that is designed to help program managers comply with the requirement to develop measurable goals. The guidance presents an approach for MS4 operators to develop measurable goals as part of their stormwater management plan. For example, an MS4 program goal might be to incorporate the use of road salt alternatives for highway deicing and reduce traditional road salt use by 50 percent in the first year of the permit term.

For Additional Information

Contacts

☞ U.S. EPA Office of Wastewater Management
http://www.epa.gov/npdes/stormwater
Phone: 202-564-9545

☞ Your NPDES Permitting Authority. Most States and Territories are authorized to administer the NPDES Program, except the following, for which EPA is the permitting authority:

Alaska	Guam
District of Columbia	Johnston Atoll
Idaho	Midway and Wake Islands
Massachusetts	Northern Mariana Islands
New Hampshire	Puerto Rico
New Mexico	Trust Territories
American Samoa	

☞ A list of names and telephone numbers for each EPA Region and State is located at http://www.epa.gov/npdes/stormwater (click on "Contacts").

Reference Documents

☞ EPA's Stormwater Web Site
http://www.epa.gov/npdes/stormwater
- Stormwater Phase II Final Rule Fact Sheet Series
- Stormwater Phase II Final Rule (64 *FR* 68722)
- National Menu of Best Management Practices for Stormwater Phase II
- Measurable Goals Guidance for Phase II Small MS4s
- Stormwater Case Studies
- And many others

Standard Operating Procedure: Public Works Building Operation and Maintenance

West Chester Borough

1.0 Purpose

The Purpose of this Standard Operating Procedure (SOP) is to outline the proper Operation and Maintenance (O&M) of the Public Works Buildings and Maintenance Yards. This SOP. must be followed in order to prevent oil or any illicit material from entering the Municipal Separate Storm Sewer System (MS4), which negatively impacts the natural watercourses that flow throughout the Municipality.

2.0 Location

This SOP applies to the Public Works Building and Maintenance Yard located at 205 Lacey Street in West Chester Borough.

3.0 Responsibility

All Municipal Staff are responsible for preventing any Illicit Discharges (MCM#3) from activities performed on Municipal owned properties. The public works building contains materials which must be kept in double containment to prevent the leaking of any of the stored material into inlets, surface water and groundwater.

3.1 Department of Public Works Superintendent

The Department of Public Works Director is responsible for ensuring that all Department of Public Works staff complies with this SOP. The Department of Public Works Director is responsible for maintaining this SOP and training the Department of Public Works staff.

3.1.1 Department of Public Works Director Contact Information

Name: Donald Edwards

Email: DEdwards@west-chester.com

Phone Number: 610-696-2700

3.2 Department of Public Works Personnel

Staff and appropriate personnel must follow all procedures established in this SOP.

3.3 Stormwater Quality Personnel

The Stormwater Quality Personnel may either be a staff member or consultant but is responsible for working with the Municipal Staff to review the SOP. on an annual basis

and confirm it is compliant with current PADEP standards and the Municipality's MS4 permit. This individual must also track and record all illicit discharges to be submitted with the MS4 Annual Report or identify who is responsible for these records.

3.3.1 Stormwater Quality Personnel Contact Information

Contact 1

Name: Sean Metrick, Borough Manager

Email: smetrick@west-chester.com

Phone Number: 610-696-2700

Contact 2

Name: Kelly Goff, Borough MS4 Engineer

Email: kelly.goff@rve.com

Phone Number: 484-843-3653

4.0 General Procedure

4.1 All personnel should be aware of the location of stormwater inlets within the drainage area of the Public Works Building and Maintenance Yard and their corresponding discharge points. A location map is included as **Appendix A**.

4.2 Deliveries of materials by vendors to the Public Works Building and Maintenance Yard must be monitored and tracked in order to provide proper storage.

4.3 Spill-kits should be kept in stock should any material spill or leak.

4.4 All Inlets and Stormwater Infrastructure should be protected during deliveries of high-risk materials.

4.5 Any stormwater inlets receiving runoff from the Public Works Building or Maintenance Yard must have pre-determined protection measures should planned activities result in polluted runoff. Filter bags should suffice for most inlets. Inlets that receive runoff from areas of heavy vehicle maintenance should have Oil Water Separators.

5.0 Spill Procedure

5.1 Should a spill occur of nonhazardous material, a spill kit should be used immediately, and inlet protection deployed for any nearby inlets if not already in place. Notify Stormwater Quality personnel to determine if site visit is needed and to make sure proper documentation occurs.

5.2 Should a spill occur of hazardous materials, immediately notify OSHA trained personnel and local emergency services. Notify Stormwater Quality personnel to determine if site visit is needed and to make sure proper documentation occurs.

5.3 Once the spill is contained, if an illicit discharge occurred to a stormwater inlet, the discharge point must be immediately inspected, and remediation measures taken to avoid discharge to the local waterway.

5.4 If a discharge to a local waterway occurs, the local conservation district must be notified so that an inspection can be performed, and remediation efforts determined.

5.4.1 Local Conservation District Contact Information

Name: Chester County Conservation District

Phone Number: (610) 455-1360

5.5 Should there be an oil spill, chemical, biological, or radiological release, PADEP must be notified.

5.5.1 Local PADEP Spill Contact Information

Name: South East Region

Emergency Phone Number: (484) 250-2900

5.6 Should there be a spill of a chemical subject to the Emergency Planning and Community Right-to-Know Act (EPCRA), Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), or Section 112(r) of the Clean Air Act a formal report must be submitted to the EPA.

6.0 Typical Activities that Require Inlet Protection

6.1 Vehicle Maintenance
6.2 Vehicle Washing
6.3 Pesticide Application

7.0 Review of Procedures

This SOP will be reviewed by Municipal Staff and Municipal Engineer personnel every 1 year. There will be Training for Public Works Yard operation for all employees involved in activities that may result in an illicit discharge.

8.0 Regulatory Impacts

All outdoor Public Works Yard or areas that contain products that could contaminate stormwater runoff are considered a priority facility by the PADEP. Pollution prevention and good housekeeping practices are required for these facilities. Printed versions of this SOP. should be printed and posted at the Public Works Building and maintained on the Municipal website.

Appendix A



Storm Inlets

Public Works Campus
205 Lacey Street, West Chester

Standard Operating Procedure: Salt Storage Shed Operation and Maintenance

West Chester Borough

1.0 Purpose

The Purpose of this Standard Operating Procedure (SOP) is to outline the proper Operation and Maintenance (O&M) of the Salt Storage Sheds. This SOP must be followed in order to prevent salt runoff from entering the Municipal Separate Storm Sewer System (MS4), which negatively impacts the natural watercourses that flow throughout the Municipality.

2.0 Location

This SOP applies to the Salt Storage Sheds at the following locations:

1. West Chester Borough Public Works Department Building
   205 Lacey Street
   West Chester PA

2. 351 Snyder Avenue
   West Chester PA 19382

3.0 Responsibility

All Department of Public Works Staff are responsible for preventing any Illicit Discharges (MCM#3) from the salt shed operations. The salt shed contains materials which must be kept covered to prevent the escape of any of the stored material into surface water and groundwater.

3.1 Department of Public Works Supervisor

The Department of Public Works Supervisor(s) are responsible for ensuring that all Department of Public Works staff complies with this SOP The Department of Public Works Supervisor(s) are responsible for maintaining this SOP, and training Department of Public Works staff.

3.2 Department of Public Works Personnel

Staff and appropriate personnel must follow all procedures established in this SOP.

3.3 Municipal Engineer

The Municipal Engineer is responsible for working with the Municipal Staff to review the SOP on an annual basis and confirm it is compliant with current PADEP standards and the Municipality's MS4 permit.

4.0 General Procedure

4.1 Deliveries of materials by vendors to the Salt Storage Shed must be monitored and tracked in order to prevent any spillage of material. If any material is spilled, it is to be swept and properly placed in the Salt Storage Shed. All Inlets and Stormwater Infrastructure should be protected during material deliveries. Location maps of infrastructure are included as **Appendix A**.

4.2 Loading of materials onto trucks for de-icing purposes must be monitored to prevent the spilling or scattering of material. If any material is spilled, it is to be swept and properly placed in the Salt Storage Shed. Material must remain on the site and cannot be tracked off.

4.3 Any inlets receiving runoff from the Salt Storage Shed must be protected at all times. Any protection that effectively catches salt material will suffice (e.g. filter bags).

4.4 Salt needs to be stored in a designated covered structure with an impervious surface to prevent salt contamination into any stormwater runoff.

4.5 A designated amount of salt shall be placed in the loader bucket at a time to prevent spillage across the site. When moving salt, do not overfill the loader bucket at any time to prevent spillage across the site.

4.6 Salt spreaders located on trucks must be cleaned after use in a protected area to prevent excess salt material from contaminating runoff during rain events.

5.0 Review of Procedures

This SOP will be reviewed by Municipal Staff and Municipal Engineer personnel annually. There will be OSHA and/or In-House Safety Training for Salt Shed Storage operation for all employees involved in the distribution and loading of salt material.

6.0 Regulatory Impacts

All outdoor Salt Storage Sheds or areas that contain products that could contaminate stormwater runoff are considered a priority facility by the PADEP. Pollution prevention and good housekeeping practices are required for these facilities. Printed versions of this S.O.P. should be printed and posted at the Salt Storage Shed and maintained on the Municipal website.

Appendix A



Storm Inlets

Public Works Campus
205 Lacey Street, West Chester



Storm Inlets

Snyder Ave Yard
351 Snyder Ave, West Goshen

NPDES Stormwater Discharges from MS4

West Chester Borough
Brandywine Creek
Blackhorse Run
Plum Run
Taylor Run

Pollutant Reduction Plan

Prepared For:

West Chester Borough

401 East Gay St.
West Chester, PA 19380
610-692-7574

September 2017
Revised July 2018

Prepared By:

Gilmore & Associates, Inc.
Engineers ♦ Land Surveyors ♦ Planners ♦ GIS Consultants
184 West Main Street, Suite 300
Trappe, PA 19426
(610) 489-4949

MS4 Pollutant Reduction Plan

West Chester Borough

Chester County, Pennsylvania

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Appendices

Appendix A Applicable portion of the MS4 Requirements Table (Municipal) Anticipated Obligations for Subsequent NPDES Permit Term (Revised 3/5/2018)

Appendix B Public Participation

- Public Notice & Proof of Advertisement
- Public Meeting Agenda and Meeting Minutes

Appendix C Maps

- West Chester Borough MS4 PRP Map
- West Chester Borough MS4 PRP Land Uses (MapShed) Map

Appendix D 3800-PM-BCW0100m 5/2016 BMP Effectiveness Values

Appendix E MapShed GWLF-E Average Loads by Source for Watershed

Appendix F CH2M Green Infrastructure Concepts

Appendix G Removal Rates for Street Cleaning *(excerpts from "Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices")*

West Chester Borough, Chester County is submitting this Pollutant Reduction Plan (PRP) in accordance with the requirements of the *National Pollutant Discharge Elimination System (NPDES) Individual Permit to Discharge Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4)*; specifically, in accordance with the *MS4 Requirements Table (Municipal) Anticipated Obligations for Subsequent NPDES Permit Term (Revised 3/5/2018)*. West Chester Borough must create a PRP due to discharges from their MS4 to Brandywine Creek, Blackhorse Run, Plum Run and Taylor Run, which have been listed as impaired for Siltation (see Appendix A).

The intent of this MS4 PRP is to establish the existing loading of pollutants discharged from the MS4 to Brandywine Creek, Blackhorse Run, Plum Run and Taylor Run, and to present a plan to reduce these pollutants. This MS4 PRP is organized to follow the 3800-PM-BCW0100k Rev. 3/2017 *National Pollutant Discharge Elimination System (NPDES) Stormwater Discharges from Small Municipal Separate Storm Sewer Systems Pollutant Reduction Plan (PRP) Instructions* included as part of the *PAG-13 MS4 General Permit* package. This PRP may be evaluated and updated by West Chester Borough on an as-needed basis, based on its effectiveness in reducing pollutant loads in discharges from the regulated small MS4. If this occurs, West Chester Borough will work with the Department of Environmental Protection (DEP) for review and approval of any revisions or updates.

Each MS4 PRP must include the following Required PRP Elements:

Section A: Public Participation
Section B: Map
Section C: Pollutants of Concern
Section D: Determine Existing Loading for Pollutants of Concern
Section E: Select BMPs to Achieve the Minimum Required Reductions in Pollutant Loading
Section F: Identify Funding Mechanisms
Section G: Identify Responsible Parties for Operation and Maintenance (O&M) of BMPs

This PRP is organized to follow the above outline of required elements as shown on the following pages. Relevant verbiage from the PRP Instructions are reiterated herein for each of the above required PRP Elements.

A. Public Participation

As part of the preparation of this MS4 PRP, public participation is required. West Chester Borough shall complete the following public participation measures listed below, and report in the PRP that each was completed.

- The Borough shall make a complete copy of the PRP available for public review.

- The Borough shall publish, in a newspaper of general circulation in the area, a public notice containing a statement describing the plan, where it may be reviewed by the public, and the length of time the Borough will provide for the receipt of comments. The public notice must be published at least 45 days prior to the deadline for submission of the PRP to DEP. Include a copy of the public notice with the PRP.

- The Borough shall accept written comments for a minimum of 30 days from the date of public notice. Include a copy of all written comments received from the public with the PRP.

- The Borough shall accept comments from any interested member of the public at a public meeting or hearing, which may include a regularly-scheduled meeting of the governing body of the municipality or municipal authority that is the permittee.

- The Borough shall consider and make a record of the consideration of each timely comment received from the public during the public comment period concerning the plan, identifying any changes made to the plan in response to the comment. Include a copy of the Borough's record of consideration of all timely comments received in the public comment period with the PRP.

West Chester Borough has completed the above-listed Public Participation measures and all required documentation of public participation is included as Appendix B.

- PRP public notice was published in: Daily Local News
- Date PRP public notice was published in newspaper: July 10, 2017
- Date PRP was made available for public review/comment: June 10, 2017
- End date for receipt of written comments (30 days from the date of public notice): August 10, 2017
- Date PRP comments were accepted at a public meeting: August 8, 2017

Questions received were of a general nature only, and no comments were made that required a response in, or revision to, this document.

Please note that when specific stream segments (along which streambank restoration will occur) are known, the PRP shall be revised to note same and re-advertised for public comment.

B. Map

Attach maps that identify **land uses** and the **storm sewershed boundaries** associated with the MS4 that discharge to impaired surface waters, and calculate the storm sewershed area that is subject to Appendix E of PAG-13. In addition, the proposed location(s) of structural BMP(s) that will be implemented to achieve the required pollutant load reductions must be identified on a map.

The map may be the same as that used to satisfy MCM #3 of the PAG-13 General or Individual Permit, with the addition of land use, the storm sewershed boundary, and locations of proposed BMPs, or may be a different map.

The map must be sufficiently detailed to identify the PRP Planning Area relevant to satisfying the requirements of Appendix E, and to demonstrate that BMPs will be located in appropriate storm sewersheds to meet the requirements.

NOTE – Delineation of storm sewersheds associated with individual MS4 outfalls is typically necessary in order to determine the PRP Planning Area. The MS4 may display the storm sewershed for each MS4 outfall or just the PRP Planning Area, at its discretion.

The map may show areas that are to be "parsed" from the PRP Planning Area. In other words, at the MS4's discretion (subject to DEP rules), certain areas may be shown on the map that are within the Planning Area but are not included in the calculation of land area and existing pollutant loading. Guidance on parsing is outlined below. Note that if parsing is done, BMPs implemented within the parsed area will not count toward achieving pollutant reduction objectives.

Parsing Guidelines for MS4s in Pollutant Reduction Plans

DEP has developed these guidelines to assist owners and operators of MS4s that are required to develop Pollutant Reduction Plans (PRPs) in understanding where it is possible to "parse" land area in the course of developing those plans. For the purpose of this document, parsing is

defined as a process in which land area is removed from a Planning Area in order to calculate the actual or target pollutant loads that are applicable to an MS4.

Parsing is not required by NPDES permits and is therefore optional; however, some MS4 permittees may benefit from parsing. When parsing is done, best management practices (BMPs) implemented within the land area that is parsed may not be considered for meeting pollutant loading reductions.

MS4s must identify the target pollutant loadings (i.e., existing pollutant loading minus loading reduced by existing BMPs). In order to estimate existing pollutant loading, MS4s may parse out appropriate land area.

All parsing must be supported by a map and a determination of the area being parsed and/or appropriate calculations demonstrating how the parsing was done.

Parsing for PRPs

Parsing provides an opportunity for an MS4 permittee to eliminate areas within the storm sewershed that do not drain to the MS4 and areas that are already covered by an NPDES permit (i.e., not a waiver or no exposure certification) for the control of stormwater. For example, the land area of an industrial site that is covered by the PAG-03 General Permit for Stormwater Associated with Industrial Activity that discharges stormwater to the MS4 may be parsed out of the assessment of land area within the storm sewershed that is subject to the calculation of existing pollutant loading. If, however, the industrial land area is removed, BMPs implemented on that land may not be used as credit toward meeting the MS4's pollutant loading reduction requirements. Other examples of land area that may be parsed include:

- The land area associated with non-municipal stormwater NPDES permit coverage that exists within the urbanized area of a municipality (in such cases the entities may submit a combined PRP);
- Land area associated with PennDOT roadways and the Pennsylvania Turnpike (roads and right of ways);

- Lands associated with the production area of a Concentrated Animal Feeding Operation that is covered by an NPDES permit;

- Land areas in which stormwater runoff does not enter the MS4. If an accurate storm sewershed map is developed, these lands may be parsed or excluded as part of that process. Potential examples include homeowner's associations and schools which do not contain municipal roads or other municipal infrastructure.

If parsing is initially done for the PRP but the MS4 permittee decides later that it would be in their best interests to include that land in the PRP, the permittee may submit a modified PRP to DEP, following the public participation requirements of Appendix F of the permit.

The MS4 PRP map(s) shall also show the proposed locations of structural BMPs that will be implemented to achieve the required pollutant load reductions.

The West Chester Borough MS4 PRP Map identifies the PRP Planning Area, which includes all storm sewershed boundaries, as well as the proposed locations of structural BMPs to be implemented to achieve required pollutant load reductions. The PRP Planning Area in the Brandywine Creek, Blackhorse Run, Plum Run and Taylor Run watersheds was calculated to be 810 acres.

For clarity, land uses within the PRP Planning Area are shown separately on the West Chester Borough MS4 PRP Land Uses (MapShed) Map.

The above referenced Maps are included in Appendix C.

C. Pollutants of Concern

Identify the pollutants of concern for each storm sewershed or the overall PRP Planning Area.

The term "nutrients" refers to "Total Nitrogen" (TN) and "Total Phosphorus" (TP) unless specifically stated otherwise in DEP's latest Integrated Report. The terms "sediment," "siltation," and "suspended solids" all refer to inorganic solids and are hereinafter referred to as "sediment." The term, "storm sewershed" is defined in the PAG-13 General Permit as the land area that drains to the municipal separate storm sewer from within the jurisdiction of the MS4 permittee. This term is used in these instructions as well as the term "PRP Planning Area" (or "Planning Area"), which refers to all of the storm sewersheds that an MS4 must calculate existing loads and plan load reductions for.

For all PRPs, MS4s shall calculate existing loading of the pollutant(s) of concern in lb/year; calculate the minimum reduction in loading in lb/year; select Best Management Practice(s) (BMP(s)) to reduce loading; and demonstrate that the selected BMPs will achieve the minimum reductions.

For PRPs developed for Appendix E, impaired waters, the pollutant(s) are based on the impairment listing, as provided in the MS4 Requirements Table. If the impairment is based on siltation only, a minimum 10% sediment reduction is required. If the impairment is based on nutrients only or other surrogates for nutrients (e.g., "Excessive Algal Growth" and "Organic Enrichment/Low D.O."), a minimum 5% TP reduction is required. If the impairment is due to both siltation and nutrients, both sediment (10% reduction) and TP (5% reduction) must be addressed. PRPs may use a presumptive approach in which it is assumed that a 10% sediment reduction will also accomplish a 5% TP reduction. However, MS4s may not presume that a reduction in nutrients will accomplish a commensurate reduction in sediment.

The impaired downstream waters are Brandywine Creek, Blackhorse Run, Plum Run and Taylor Run, which have an impairment of Siltation. Since the impairment is siltation, a minimum 10% reduction is required. This MS4 PRP presents the minimum reduction in loading for siltation as pounds per year (lb/yr).

D. Determine Existing Loading for Pollutants of Concern

Identify the date associated with the existing loading estimate. Calculate the existing loading, in lbs. per year, for the pollutant(s) of concern in the PRP Planning Area.

There are several possible methods to estimate existing loading, ranging from simplistic to complex. One method to estimate existing loading that is acceptable to DEP is to determine the percent impervious and pervious surface within the urbanized area of the storm sewershed and calculate existing loading by multiplying the developed impervious and developed pervious land areas (acres) by pollutant loading rates (lb/acre/year) ("simplified method"). The MS4 may use loading rates for undeveloped land for areas outside of the urbanized area which flows into the urbanized area. Where structural BMPs are currently in place and are functioning, the existing loading estimate may be reduced to account for pollutant reductions from those BMPs.

Use of DEP's simplified method is not required. Any methodology that calculates existing pollutant loading in terms of lbs. per year, evaluates BMP-based pollutant reductions utilizing the BMP effectiveness values contained in 3800-PM-BCW0100m or Chesapeake Bay Program expert panel reports, uses average annual precipitation conditions, considers both overland flow and stream erosion, and is based on sound science may be considered acceptable.

Whatever tool or approach that is used to estimate existing loading from the PRP Planning Area must also be used to estimate existing loading to planned BMPs. This avoids errors in percent pollutant removal calculations that would result if different methods were used. Later BMP design efforts will usually apply a more sophisticated method than used in planning to calculate load to a BMP. The design loading may not however be used to alter the assumed pollutant reduction by the BMP unless the PRP is revised to apply the more sophisticated method to the load from the storm sewershed as a whole.

MS4s may claim "credit" for structural BMPs implemented prior to development of the PRP to reduce existing loading estimates. In order to claim credit, identify all such structural BMPs in Section D of the PRP along with the following information:

- A detailed description of the BMP;
- Latitude and longitude coordinates for the BMP;
- Location of the BMP on the storm sewershed map;
- The permit number, if any, that authorized installation of the BMP;
- Calculations demonstrating the pollutant reductions achieved by the BMP;
- The date the BMP was installed and a statement that the BMP continues to serve the function(s) it was designed for; and
- The operation and maintenance (O&M) activities and O&M frequencies associated with the BMP.

The MS4 permittee may optionally submit design drawings of the BMP for previously installed or future BMPs with the PRP.

Existing loading must be calculated and reported for the portion of the Planning Area which drains to impaired waters as of the date of the development of the PRP. MS4s may not claim credit for street sweeping and other non-structural BMPs implemented in the past, and an MS4 may not reduce its obligations for achieving permit term pollutant load reductions through previously installed BMPs. If structural BMPs were implemented prior to development of the PRP and continue to be operated and maintained, the MS4 may claim pollutant reduction credit in the form of reduced existing loading.

An MS4 may use all BMPs installed prior to the date of the load calculation to reduce its estimate of existing pollutant loading. For example, if a rain garden was installed ten years ago and is expected to remove 100 lbs. of sediment annually, and the overall annual loading of sediment in the storm sewershed is estimated to be 1,000 lbs. without specifically addressing the rain garden, an MS4 may not claim that the rain garden satisfies its obligations to reduce sediment loading by 10%. The MS4 may, however, use the rain garden to demonstrate that the existing load is 900 lbs. instead of 1,000 lbs., and that 90 lbs. rather than 100 lbs. needs to be reduced during the term of permit coverage.

Each impairment identified on the MS4 Requirements Table ("Table") must be addressed in a PRP document. The Table listings for each MS4 are different because they reflect local conditions, which is why an MS4 must carefully interpret the information on the Table.

NOTE - MapShed, or any other watershed model where channel erosion is explicitly modeled, should be run on a minimum of ~10 mi2 area to properly account for downstream channel impacts and include impaired waters identified in the MS4 Requirements Table. Aggregation of these waters up to approximately the 12-digit HUC scale for modeling purposes is acceptable. Modeling may not be done at the individual storm sewershed or municipal scale where the extent of downstream impact is not included in load calculation.

For PRPs developed for impaired waters (Appendix E), the pollutant(s) are based on the impairment listing, as provided in the MS4 Requirements Table. If the impairment is based on siltation only, a minimum 10% sediment reduction is required. If the impairment is based on nutrients only or other surrogates for nutrients (e.g., "Excessive Algal Growth" and "Organic Enrichment/Low D.O."), a minimum 5% TP reduction is required. If the impairment is due to both siltation and nutrients, both sediment (10% reduction) and TP (5% reduction) must be addressed. PRPs may use a presumptive approach in which it is assumed that a 10% sediment reduction will also accomplish a 5% TP reduction. However, MS4s may not presume that a reduction in nutrients will accomplish a commensurate reduction in sediment.

All MS4s must use the BMP effectiveness values contained within DEP's BMP Effectiveness Values document (3800-PM-BCW0100m) or Chesapeake Bay Program expert panel reports for BMPs listed in those resources when determining pollutant load reductions in PRPs, except as otherwise approved by DEP. An example of other approaches that may be approved by DEP include the use of thoroughly vetted mechanistic models with self-contained BMP modules (e.g., Storm Water Management Model (SWMM), WinSLAMM) to demonstrate achievement of reduction targets. Application of these data intensive models could allow for a streamlining of the planning and design phases of BMPs that may provide future cost savings as municipalities move toward implementation of the plan. Such resources must be documented in the PRP, and must reflect both overland flow and in-stream erosion components.

NOTE - Calculation of sediment load reductions for PRP purposes using the *Expert Panel to Define Removal Rates for Individual Stream Restoration Projects* report should be done as follows:

- Where existing sediment loads were calculated using modeling at a local watershed scale, the default rate to be used is 115 lb/ft/yr. This default rate comes from a convergence of MapShed modeled streambank erosion loads from a group of urbanized watersheds, the 248 lb/ft default edge-of-field (EOF) rate in the Expert Panel Report with the 50% efficiency uncertainty factor specified for the Protocols applied, and field data were collected following the BANCS methodology where projects have been implemented and load reductions calculated using the Protocols.

NOTE – Use of default effectiveness values (115 lb/ft/yr) will be accepted for the subsequent permit term. It is recommended that the data required to complete load calculations using the Protocols be collected during the design phase for use in subsequent load reduction calculations.

NOTE – Desktop MapShed users may not use the streambank restoration or street sweeping components included in the MapShed BMP editor for pollutant reduction calculations. Pollutant reductions associated with streambank restoration projects must use the methods described above; whereas, reductions from street sweeping must be calculated in accordance with the *Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices* or the BMP Effectiveness Values Table.

NOTE – If BMP effectiveness values are updated in DEP's BMP Effectiveness Values document or in Chesapeake Bay Program expert panel reports between the time the PRP is approved and the time the final report is developed to document compliance with the permit, those updated effectiveness values may optionally be used.

MapShed was utilized to compute the existing sediment loading of the PRP Planning Area, which drains to Brandywine Creek, via the Blackhorse Run, Plum Run and Taylor Run

watersheds. The date the existing loading was calculated / the date of development of this PRP is September 2017, and revised in July 2018.

West Chester Borough has a total existing sediment loading of 609,460 lbs/year to Brandywine Creek, in its Blackhorse Run, Plum Run and Taylor Run storm sewersheds. This is from the total Sediment loads for “00200”, “Area1”, and “Area2” from the Brandywine Creek and the Chester Creek MapShed model runs, included in Appendix E, under “C:MapShed\Runfiles\BrandywineJuly\Output\BrandywineJuly-0_ua.csv”.

E. Select BMPs to Achieve the Minimum Required Reductions in Pollutant Loading

Identify the minimum required reductions in pollutant loading. Applicants must propose the implementation of BMP(s) or land use changes within the PRP Planning Area that will result in meeting the minimum required reductions in pollutant loading within the Planning Area. These BMP(s) must be implemented within 5 years of DEP's approval of coverage under the PAG-13 General Permit or an individual permit, and may be located on either public or private property. If the applicant is aware of BMPs that will be implemented by others (either in cooperation with the applicant or otherwise) within the Planning Area that will result in net pollutant loading reductions, the applicant may include those BMPs within its PRP.

Historic street sweeping practices should not be considered in calculating credit for future practices. All proposed street sweeping practices may be used for credit if the minimum standard is met for credit (see 3800-PM-BCW0100m). In other words, if sweeping was conducted 1/month and will be increased to 25/year in the future, the MS4 does not need to use the "net reduction" resulting from the increased sweeping; it may take credit for the full amount of reductions from 25/year sweeping.

NOTE – Street sweeping may be proposed as a BMP for pollutant loading reductions if 1) street sweeping is not the only method identified for reducing pollutant loading, and 2) the BMP effectiveness values contained in 3800-PM-BCW0100m or Chesapeake Bay Program expert panel reports are utilized.

The names and descriptions of BMPs and land uses reported in the PRP should be in accordance with the Chesapeake Bay Program Model. The names and descriptions are available through CAST (log into www.casttool.org, select "Documentation," select "Source Data" and see worksheets named "Land Use Definitions" and "BMP Definitions").

Opportunities for BMP installation vary across a municipality, and for that reason MS4s with multiple PRP obligations need not propose BMPs to address each impairment listed in the Table during the permit term. The existing loading must be calculated for the entire PRP

Planning Area which drains to impaired waters, but pollutant controls to be installed during the subsequent permit term may be located such that they reduce the load in one sub-watershed by less than 10% and by more than 10% in another (as long as the overall amount of lbs. reduced constitutes 10% of the existing loading for the entire PRP Planning Area).

MS4s may propose and take credit for only those BMPs that are not required to meet regulatory requirements or otherwise go above and beyond regulatory requirements. For example, a BMP that was installed to meet Chapter 102 NPDES permit requirements for stormwater associated with construction activities may not be used to meet permit term minimum pollutant reductions unless the MS4 can demonstrate that the BMP exceeded regulatory requirements; if this is done, the MS4 may take credit for only those reductions that will occur as a result of exceeding regulatory requirements.

The impairment for West Chester Borough in the Brandywine Creek, via the Blackhorse Run, Plum Run and Taylor Run watersheds is siltation, which requires a minimum 10% reduction. The required reduction is 60,946 lbs/year. The reduction is calculated as follows:

The storm sewershed (the PRP Planning Area) that drains to the municipal separate storm sewer system within the jurisdiction of the MS4 to Brandywine Creek, is via the Blackhorse Run, Plum Run and Taylor Run watersheds, and has been delineated using PAMAP data known as Light Detection and Ranging (LiDAR) contours. For West Chester Borough, the PRP Planning Area consists of three areas, totaling 810 acres. The Brandywine Creek watershed, consisting of the Blackhorse Run, Plum Run and Taylor Run Watersheds consists of 6,882 acres per MapShed.

The first MapShed model run used the PRP Planning Area as an “urban area” to determine the total Brandywine Creek, via the Blackhorse Run, Plum Run and Taylor Run watersheds’ loading as well as the loading exclusively from the MS4 storm sewershed(s) / PRP Planning Area. Note that based on MapShed’s Basin delineations, there are small portions of the PRP Planning Area located in the adjacent watershed (Goose Creek / Chester Creek), as well as a small area located in the Brandywine watershed that drains to Goose Creek. Closer inspection of contours and stormwater collection system indicated that these areas drain to the Brandywine Creek, via

Blackhorse Run, Plum Run and Taylor Run watershed and to the Goose Creek (Chester Creek) watershed. Therefore, the Basin delineation between these watersheds (i.e., Blackhorse / Plum / Taylor and Goose Creek) was revised to match the MS4 storm sewershed(s) / PRP Planning Area(s).

Please note that from the MapShed output ("GWLF-E Average Loads by Source for Watershed 0", included in Appendix E) Taylor Run is "00200", Blackhorse Run is "Area1", and Plum Run is "Area2".

West Chester Borough proposes to install BMP infiltration facilities with a goal of capturing and infiltrating the runoff generated from 1.5" of rainfall. The Borough is considering one (1) project, located at Veterans Park (which is located at the intersections of Brick Alley, Pine Alley and Veit Alley). West Chester Borough proposes to install several small BMP infiltration facilities consisting of rain gardens, vegetated curb extensions, bioswales and infiltration trenches at Veterans Park. This project has been designed by others (see Appendix F), with the drainage area supplied for use in the preparation of this PRP. The drainage area to Veterans Park is 0.55 acre; shape files were loaded into MapShed and the land uses within this drainage area noted, and consist of HD Mixed and HD Residential. The area of 0.55 acre (0.222 hectares), the land use of HD Residential (used to model the total BMP drainage area as the loading rates for HD Residential and HD Mixed are nearly identical), and an infiltration rate of 1.5" (3.81 cm) were utilized in the BMP Editor in MapShed (Urban BMP Editor) and the model run to ascertain the reduction in sediment loading as a result of this BMP. The reduction is 483 lbs. (4,121,075 lbs total load prior to BMPs, and 4,120,592 lbs. total load after BMPs).

The BMP Editor in MapShed for an Infiltration Basin BMP with 1.5" (3.81 cm) Rainfall Captured utilizes an efficiency rate of 0.82 for TSS. Note that per the BMP Effectiveness Values from DEP (3800-PM-BCW0100m 5/2016), Infiltration Practices w/Sand, Veg. has a BMP Efficiency Value of 95%; therefore, the MapShed efficiency rate is acceptable. Note that once the designs have been completed, reductions will be more accurately calculated.

Stream bank restoration and street sweeping are calculated outside of the MapShed program, per the PRP instructions, with streambank restoration as 115 lbs/ft/yr reduction. West Chester

Borough will consider the potential of streambank restoration in the Blackhorse Run, Plum Run and Taylor Run watersheds. If streambank restoration is undertaken, the Borough would propose to install approximately five-hundred (500) feet of streambank restoration. Therefore, the proposed streambank restoration of five hundred (500) feet would result in 57,500 lbs./yr (500 ft * 115 lbs/ft/yr) reduction.

West Chester Borough is proposing to street sweep all streets in the borough more than 25 times annually. Per the BMP Effectiveness Values (5/2016), Street sweeping must be conducted 25 times annually; only count those streets that are swept at least 25 times in a year. The acres associated with all streets that are swept at least 25 times in a year would be eligible for pollutant reductions consistent with the given BMP effectiveness values. From the "Street and Drain Cleaning Expert Panel Report," the standard street cleaning unit is curb miles swept. In general, one impervious acre is equivalent to one curb lane mile swept, assuming they are swept on one-side only (one acre = one curb lane mile rule of thumb). From Table 4, the Average TSS Load is 0.65 tons/ac/yr (1,300 #/ac/yr). From Table 15, using street sweeping frequency of 25 times annually (as a minimum), the sweeping schedule is 1P2W (one pass every 2 weeks). From Table 17, this corresponds to Practice #SCP-3 with a TSS Removal of 11% (see Appendix G). The Borough maintains 33 miles of street; the miles of street within the Brandywine Creek, via the Blackhorse Run, Plum Run and Taylor Run watersheds is approximately 25 miles. Since the Borough sweeps both sides of the streets, the curb lane miles would be 50 miles. Therefore, 0.65 tons/ac/yr * 2000 lbs/ton * 50 curb lane miles * 1 acre/curb lane mile * 11% TSS removal yields 7,150 lbs/yr TSS removal.

West Chester Borough also plants trees every year. The BMP effectiveness values for tree planting are estimated by DEP. DEP estimates that 100 fully mature trees of mixed species (both deciduous and non-deciduous) provide pollutant load reductions for the equivalent of one acre (i.e., one mature tree = 0.01 acre). The BMP effectiveness values given are based on immature trees (seedlings or saplings); the effectiveness values are expected to increase as the trees mature. To determine the amount of pollutant load reduction that can credited for tree planting efforts: 1) multiply the number of trees planted by 0.01; 2) multiply the acreage determined in step 1 by the pollutant loading rate for the land prior to planting the trees (in

lbs/acre/year); and 3) multiply the result of step 2 by the BMP effectiveness values given. The Tree Planting BMP Effectiveness Value is 20% for Sediment.

In the Brandywine Creek, via the Blackhorse Run, Plum Run and Taylor Run watersheds, the Borough intends to plant a minimum of 175 trees annually. The locations of these trees are unknown at this time; however, given the urban nature of the Borough, they estimate that approximately 140 will be street trees. The HD Residential loading rate from MapShed for the Brandywine Creek, Blackhorse Run, Plum Run and Taylor Run watershed will be used to best represent paved streets / sidewalks (i.e., land prior to planting the trees is along streets, i.e., pavement and sidewalks). The sediment HD Residential loading rate from MapShed is 99.8 lb/ac/yr. The reduction is therefore 27.9 lbs/yr. (140 street trees/yr * 0.01 * 99.8 lb/ac/year * 20%).

The final total proposed potential sediment reduction is summarized below in Table E-1. The actual reductions will be refined at the time of design of each BMP.

TABLE E-1: REQUIRED 10% SILTATION REDUCTION

	Brandywine Creek, Blackhorse Run, Plum Run and Taylor Run Storm Sewershed
Existing Load (lb/yr)	609,460
Percent Reduction	10%
Required Reduction (lb/yr)	60,946
Proposed Reduction (lbs./yr)	483 (One BMP) 7,150 (Street Sweeping) 28 (Plant Street Trees) 57,500 (Streambank Restoration) Total Potential Reduction 65,161

West Chester Borough plans to achieve the sediment reduction by designing, constructing, operating and maintaining Best Management Practices (BMPs). West Chester Borough is required to implement this plan over the next five (5) years.

The following table summarizes the sediment load and required and proposed potential reductions for West Chester Borough's Brandywine Creek, via that Blackhorse Run, Plum Run and Taylor Run Storm Sewershed / PRP Planning Area.

TABLE E-2: MS4 PRP STRATEGY SUMMARY

Description	Value	Unit
Brandywine Creek, Blackhorse Run, Plum Run and Taylor Run Storm Sewershed / PRP Planning Area	810	acres
Existing Sediment Load	609,460	lb/year
Required Sediment Pollutant Load Reduction Percentage	10%	lb/year
Minimum Required Pollutant Load Reduction	60,946	lb/year
Proposed BMPs' Sediment Load Reduction	65,161	lb/year

F. Identify Funding Mechanism(s)

Prior to approving coverage DEP will evaluate the feasibility of implementation of an applicant's PRP. Part of this analysis includes a review of the applicant's proposed method(s) by which BMPs will be funded. Applicants must identify all project sponsors and partners and probable funding sources for each BMP.

West Chester Borough has adopted a Stream Protection Fee, moneys from which will be used to fund BMP projects the Borough will undertake in the next NPDES Permit term.

G. Identify Responsible Parties for Operation and Maintenance (O&M) of BMPs

Once implemented, the BMPs must be maintained in order to continue producing the expected pollutant reductions. Applicants must identify the following for each selected BMP:

- The party(ies) responsible for ongoing O&M;
- The activities involved with O&M for each BMP; and
- The frequency at which O&M activities will occur.

MS4 permittees will need to identify actual O&M activities in Annual MS4 Status Reports submitted under the Individual Permit. Table G-1 lists the required information.

TABLE G-1 OPERATION AND MAINTENANCE OF BMPs

NAME OF BMP	RESPONSIBLE PARTY	O&M ACTIVITY & FREQUENCY
Street Sweeping	West Chester Borough	Per PA BMP Manual (latest revision) BMP 5.9.1 pg 94-97
Street Tree Planting	West Chester Borough	Per PA BMP Manual (latest revision) BMP 5.6.3 pg 63-67
Streambank Restoration	West Chester Borough	Per PA BMP Manual (latest revision) BMP 6.7.1 pg 191-210
Proposed Infiltration Facilities	West Chester Borough	Per PA BMP Manual (latest revision) BMP 6.4.3/6.4.4 pg 33-47

H. GENERAL INFORMATION

Submission of PRP: Attach one copy of the PRP with the NOI or individual permit application that is submitted to the regional office of DEP responsible for reviewing the NOI or application. In addition, one copy of the PRP (not the NOI or application) must be submitted to DEP's Bureau of Clean Water (BCW). BCW prefers electronic copies of PRPs, if possible. Email the electronic version of the PRP, including map(s) (if feasible), to RA-EPPAMS4@pa.gov. If the MS4 determines that submission of an electronic copy is not possible, submit a hard copy to: PA Department of Environmental Protection, Bureau of Clean Water, 400 Market Street, PO Box 8774, Harrisburg, PA 17105-8774.

PRP Implementation and Final Report: Under the NPDES Individual Permit, the permittee must achieve the required pollutant load reductions within 5 years following DEP's approval of coverage under the Individual Permit, and must submit a report demonstrating compliance with the minimum pollutant load reductions as an attachment to the first Annual MS4 Status Report that is due following completion of the 5th year of Individual Permit coverage.

For example, if DEP issues written approval of coverage to a permittee on June 1, 2018, the required pollutant load reductions must be implemented by June 1, 2023 and the final report documenting the BMPs that were implemented (with appropriate calculations) must be attached to the annual report that is due September 30, 2023.

West Chester Borough will submit the PRP in accordance with the above requirements.

APPENDIX A

MS4 Name	NPDES ID	Individual Permit Required?	Reason	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)	Other Cause(s) of Impairment
Chester County						
WEST BRANDYWINE TWP	PAI130544	Yes	TMDL Plan, SP, IP	West Branch Brandywine Creek	Appendix C-PCB (4a), Appendix E-Siltation (4a)	Water/Flow Variability (4c)
				Beaver Creek		Cause Unknown (4a), Other Habitat Alterations, Water/Flow Variability (4c)
				Christina River Basin Nutrients	TMDL Plan-Nutrients, Organic Enrichment/Low D.O. (4a)	
				Culbertson Run	Appendix E-Siltation (4a)	Other Habitat Alterations (4c)
				East Branch Brandywine Creek		Cause Unknown (4a), Other Habitat Alterations, Water/Flow Variability (4c)
				Unnamed Tributaries to West Branch Brandywine Creek		Cause Unknown (4a)
WEST CALN TWP	PAG130145	Yes	TMDL Plan, SP	Christina River Basin Nutrients	TMDL Plan-Nutrients, Organic Enrichment/Low D.O. (4a)	
				Christina River Basin Sediment	TMDL Plan-Siltation, Suspended Solids (4a)	
				Indian Spring Run	Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation (4a)	
				Pequea Creek	Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation (4a)	
				West Branch Brandywine Creek	Appendix C-PCB (4a)	Water/Flow Variability (4c)
				Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	
WEST CHESTER BORO	PAG130002	Yes	TMDL Plan	Blackhorse Run	Appendix E-Siltation (4a)	Other Habitat Alterations, Water/Flow Variability (4c)
				Brandywine Creek	Appendix E-Siltation (4a)	
				Chester Creek	Appendix B-Pathogens (5), Appendix E-Siltation (5)	Cause Unknown (5), Flow Alterations, Water/Flow Variability (4c)
				Goose Creek TMDL	TMDL Plan-Nutrients (4a)	Cause Unknown (4a)
				Plum Run	Appendix E-Siltation (4a)	Water/Flow Variability (4c)
				Taylor Run	Appendix E-Siltation (4a)	Cause Unknown (4a), Other Habitat Alterations (4c)
WEST GOSHEN TWP	PAI130532	Yes	TMDL Plan, SP, IP	Broad Run		Water/Flow Variability (4c)
				Taylor Run		Cause Unknown (4a), Other Habitat Alterations (4c)
				Plum Run		Water/Flow Variability (4c)
				John Smedley Run		Water/Flow Variability (4c)
				Goose Creek TMDL	TMDL Plan-Nutrients (4a)	Cause Unknown (4a)
				East Branch Chester Creek	Appendix E-Siltation (5)	Cause Unknown (5), Other Habitat Alterations, Water/Flow Variability (4c)
				East Branch Brandywine Creek		Cause Unknown (4a), Water/Flow Variability (4c)
				Chester Creek	Appendix B-Pathogens (5), Appendix E-Siltation (5)	Cause Unknown (5), Flow Alterations, Water/Flow Variability (4c)
				Christina River Basin Sediment	TMDL Plan-Siltation, Suspended Solids (4a)	

APPENDIX B

Public Notice & Proof of Publication

Plan needs to be on July 18 Workshop Agenda

Christine McAllister

To: legals@dailylocal.com
Subject: Public Notice Advertisement
Attachments: ADVERTISEMENT-WC (002).DOCX

Importance: High

7/7/17

Maureen – Please advertise the attached Notice on July 10. E-mail me a Proof of Publication and send the invoice to my attention.

Thank you for your help with EVERYTHING!!!!

Regards,

Christine

Christine M. McAllister
Administrative Assistant to the Borough Manager
Borough of West Chester
cmcallister@west-chester.com
610-344-3246 (W)
484-456-8281 (Cell)
610-436-0009 (F)

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BOROUGH OF WEST CHESTER

MS4 POLLUTANT REDUCTION PLANS AND TMDL PLAN

JUNE 30, 2017

The Borough Council of the Borough of West Chester will accept comments from the public beginning on June 10, 2017 and extending through August 10, 2017 associated with the Borough's two (2) Pollutant Reduction Plans (PRPs) and one (1) Total Maximum Daily Load (TMDL) Plan as required by the Pennsylvania Department of Environmental Protection as a component of the Borough's *National Pollutant Discharge Elimination System (NPDES) Individual Permit to Discharge Stormwater from Small Municipal Separate Storm Sewer Systems* (MS4s). The PRPs outline in general terms the Borough's 5-year plan between 2018 and 2023 to reduce sediment loadings from the MS4 stormwater discharges to Chester Creek/Goose Creek, Brandywine Creek, Blackhorse Run, Plum Run, and Taylor Run. The TMDL Plan outlines in general terms the Borough's 5-year plan between 2018 and 2023 to reduce Total Phosphorus loadings from the MS4 stormwater discharges to Goose Creek. The PRPs and TMDL Plan will be available for public review Monday through Friday between the hours of 8:30 AM to 4:00 PM at the municipal offices of the Borough of West Chester located at 401 E. Gay Street, West Chester, PA 19380. The PRPs and TMDL Plan is also available for public review on the Borough's website at www.west-chester.com. Comments may be provided in writing and delivered in person or via e-mail or regular mail and addressed to Michael A. Cotter, Borough Manager at macotter@west-chester.com. The PRPs and TMDL Plan will be on the agenda for the Borough Council Work Session meeting scheduled for July 18, 2017. Comments received after August 10, 2017 will not be considered by the Borough Council.

Michael A. Cotter
Borough Manager

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401 E GAY STREET
WEST CHESTER, PA 19380
Attention:

STATE OF PENNSYLVANIA,
COUNTY OF MONTGOMERY

The undersigned Kathy Vincent, being duly sworn the he/she is the principal clerk of Daily Local News, Daily Local News Digital, published in the English language for the dissemination of local or transmitted news and intelligence of a general character, which are duly qualified newspapers, and the annexed hereto is a copy of certain order, notice, publication or advertisement of:

WEST CHESTER BOROUGH

Published in the following edition(s):

Daily Local News	07/10/17
Daily Local News Digital	07/10/17

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NOTARIAL SEAL
MAUREEN SCHMID, Notary Public
Lansdale Boro., Montgomery County
My Commission Expires March 31, 2021

Sworn to the subscribed before me this 7/11/2017.

Maureen Schmid

Notary Public, State of Pennsylvania
Acting in County of Montgomery

The Borough Council of the Borough of West Chester will accept comments from the public beginning on June 10, 2017 and extending through August 10, 2017 associated with the Borough's two (2) Pollutant Reduction Plans (PRPs) and one (1) Total Maximum Daily Load (TMDL) Plan as required by the Pennsylvania Department of Environmental Protection as a component of the Borough's National Pollutant Discharge Elimination System (NPDES) Individual Permit to Discharge Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s). The PRPs outline in general terms the Borough's 5-year plan between 2018 and 2023 to reduce sediment loadings from the MS4 stormwater discharges to Chester Creek/Goose Creek, Brandywine Creek, Blackhorse Run, Plum Run, and Taylor Run. The TMDL Plan outlines in general terms the Borough's 5-year plan between 2018 and 2023 to reduce Total Phosphorus loadings from the MS4 stormwater discharges to Goose Creek. The PRPs and TMDL Plan will be available for public review Monday through Friday between the hours of 8:30 AM to 4:00 PM at the municipal offices of the Borough of West Chester located at 401 E. Gay Street, West Chester, PA 19380. The PRPs and TMDL Plan is also available for public review on the Borough's website at www.west-chester.com. Comments may be provided in writing and delivered in person or via e-mail or regular mail and addressed to Michael A. Cotter, Borough Manager at macotter@west-chester.com. The PRPs and TMDL Plan will be on the agenda for the Borough Council Work Session meeting scheduled for July 18, 2017. Comments received after August 10, 2017 will not be considered by the Borough Council.
Michael A. Cotter
Borough Manager
DL-July 10-1a

Advertisement Information

Client Id: 884439 **Ad Id:** 1379705 **PO:** **Sales Person:** 093304

and 455-14.C to allow a minimum Front Yard Setback of 30.05 feet and minimum Rear Yard Setback of 55.37 feet where the minimum Front and Rear Yard Setbacks are 75 feet; Section 455-132 to allow a pool and associated structures within the minimum Rear Yard Setback where they are not permitted; and from Section 274-19 to allow land disturbance, improvements, and construction activities within the Riparian Buffer where no disturbance is permitted; and any other relief that may be deemed necessary by the Zoning Hearing Board.

2. ZHB 563 – Nguyen/Vu – 1026A Lancaster Avenue, Berwyn. (VB District TPN 55-2L-4) Applicant has changed the property's use from commercial to single-family detached dwelling without Township approval. Applicant seeks a Variance from Section 455-21.(A)(1) to eliminate the need for commercial uses where second floor apartments are only allowed as accessory uses to nonresidential uses on the ground-level floor; a Special Exception in accordance with Section 455-122.B to change a nonconforming use or in the alternative appeal of the Zoning Officer's determination that the Applicant changed the property's use from commercial to single-family detached dwelling which is not a permitted use, and any other relief that may be deemed necessary by the Zoning Hearing Board.

Copies of applications are available for review in the Easttown Township Building weekdays from 8:00 a.m. through 12:00 p.m. and 12:30 p.m. through 4:30 p.m. If any person wishing to attend the hearing has a disability and/or requires an auxiliary aid, service or other accommodation, he or she should contact the Township at 610-687-3000 to discuss how those needs may be accommodated.
dln. 7/10, 17 - 1a.

The Borough Council of the Borough of West Chester will accept comments from the public beginning on June 10, 2017 and extending through August 10, 2017 associated with the Borough's two (2) Pollutant Reduction Plans (PRPs) and one (1) Total Maximum Daily Load (TMDL) Plan as required by the Pennsylvania Department of Environmental Protection as a component of the Borough's National Pollutant Discharge Elimination System (NPDES) Individual Permit to Discharge Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s). The PRPs outline in general terms the Borough's 5-year plan between 2018 and 2023 to reduce sediment loadings from the MS4 stormwater discharges to Chester Creek/Goose Creek, Brandywine Creek, Blackhorse Run, Plum Run, and Taylor Run. The TMDL Plan outlines in general terms the Borough's 5-year plan between 2018 and 2023 to reduce Total Phosphorus loadings from the MS4 stormwater discharges to Goose Creek. The PRPs and TMDL Plan will be available for public review Monday through Friday between the hours of 8:30 AM to 4:00 PM at the municipal offices of the Borough of West Chester located at 401 E. Gay Street, West Chester, PA 19380. The PRPs and TMDL Plan is also available for public review on the Borough's website at www.west-chester.com. Comments may be provided in writing and delivered in person or via e-mail or regular mail and addressed to Michael A. Cotter, Borough Manager at macotter@west-chester.com. The PRPs and TMDL Plan will be on the agenda for the Borough Council Work Session meeting scheduled for July 18, 2017. Comments received after August 10, 2017 will not be considered by the Borough Council.
Michael A. Cotter
Borough Manager
DL-July 10-1a

BIDS & PROPOSALS

ADVERTISEMENT FOR BIDS

Sealed bids for the construction of the **Dogwood / Scott Drive Sewer Extension** will be received by the Caln Township Municipal Authority electronically via **PennBid™** until **10:00 A.M. local time, Tuesday, August 8, 2017** at which time all bids will be opened online.

Construction of the sewer extension will involve the installation of approximately 4,000 linear feet of low pressure sewer lines by open trench and horizontal directional drilling, installation of approximately 400 linear feet of gravity sanitary sewer by open trench, and the completion of all other necessary work to provide public sewer to approximately 55 existing homes located in Caln Township, Chester County Pennsylvania.

All Bid Documents and solicitation details are available at **PennBid™** - www.PennBid.net. Click on the "Solicitations" then "View" tabs. Please note the low bidder is responsible for a fee to **PennBid™**.

Each bid must be accompanied by a bid bond or a certified check in an amount not less than ten percent (10%) of the amount of the bid in the form and subject to the conditions provided in the Instructions to Bidders. No bid may be withdrawn for the

Public Agenda

And

Meeting Minutes

Public Works Committee

July 11, 2017 – 5:35 pm

Committee Members Present:	Don Braceland (Chair) Bernard Flynn (Council Member) Denise Polk
Department Heads Present:	**O'B Laing, Public Works** **Keith Kurowski, Recreation** **Mac Cotter (Borough Manager)**

1. Call to Order – meeting was called to order at 5:35 PM

2. Comments, suggestions, petitions by residents in attendance regarding items not on the agenda:
   a) Keith Kurowski reminded everyone that the 35th Annual Turks Head Music Festival was taking place this Sunday, July 16th at Everhart Park.

3. Discuss the Marshall Square Park sidewalk and fieldstone step reconstruction.
   a) After an extended discussion, this item was tabled for further discussion. It was decided that Jeff Beitel, at his request, would offer reasonable alternative to repair the sidewalk instead of total reconstruction.

4. Discuss substitute material to replace tree well grates throughout the BID.
   a) Alternative material was shown along with photograph of similar product which is currently in place for over eight (8) years. This was well received by Council and members of the public. No decision was made however, Jeff Beitel indicated that as the Chairman of the Shade Tree Commission he had some concerns about the product and would like Council to allow him some time to look at alternative products to which Council complied.

5. Appraise Council of proposed Bid solicitation for 2017 Pavement Markings project.
   a) The Public Works Director gave a brief overview of the Pavement Markings project which included the bid documents to be ready for contract award in August.

6. Appraise Council of proposed Bid solicitation for 2017 Street and Alley Resurfacing/Reconstruction project.
   a) The Public Works Director gave a brief overview of the Street and Alley Resurfacing/Reconstruction project which included the bid documents to be ready for contract award in August.

7. Appraise Council of proposed Bid Solicitation for the Barnard Street Culvert project.
   a) The Public Works Director informed Council that this project is scheduled for bidding as soon as possible. He also noted that this is one of the projects which was long overdue, but would not be possible to expedite had it not been for the newly implemented Stream Protection Fee (SPF) which will cover all cost for the project. Councilman Flynn, however, remarked that he would suggest that the bridge abutment be painted with graffiti resistant paint. No action needed.

8. Consider Planned University Campus Overlay Traffic Planning Proposal
   a) Borough Manager gave a brief overview of this project, highlighting scope of work and also indicated it will be joint effort between WCU, West Goshen Township and The Borough.

9. Consider Proposal for Town Center Closed Loop System Upgrade
   a) Borough Manager gave a synopsis of this project which was subsequently sent through by a vote of 3 – 0.
      - **TO WORK SESSION AGENDA**

10. Consider Stream Protection Program Support Change Order.
    a) Courtney Finneran, Project Manager of CH2, gave a brief overview highlighting the rationale for the change order request. This was followed by a 3 – 0 vote by Council.
       - **TO WORK SESSION AGENDA**

11. Authorization to Advertise the Goose Creek Pollution Reduction Plan
    a) Borough Manager gave a brief overview of this plan which was followed by a 3 – 0 approval by Council.
       - **TO WORK SESSION AGENDA**

12. Discuss Tennis Court maintenance at Hoopes Park 2017
    a) 3 - 0 approval to move ahead with the project
       - **TO WORK SESSION AGENDA**

13. Discuss Kathy McBratnie Park Playground Renovation 2017
    a) Informative only, no action required or taken.

14. Approve June 2017 Public Works Committee minutes

15. Other Business
    a) None

16. Adjourn
    a) Meeting called for adjournment by Don Braceland, all in favor 3 – 0 .

Updated August 8, 2017

AGENDA

Public Works Committee

August 8, 2017 – 5:30 pm

Committee Members: Donald Braceland (Chair)
Denise Polk
Bernard Flynn

Department Heads: O'B Laing, Public Works
Keith Kurowski, Parks & Recreation

Borough Manager: Michael A. Cotter

1. Call to Order

2. Comments, suggestions, petitions by residents in attendance regarding items not on the agenda.

3. Discuss Gilmore PRP/TMDL Plans *(Issue Briefing (see Agenda Bookmark) & Attachment)*

4. Discuss Marshall Square Park proposal for sidewalk and staircase reconstruction *(Issue Briefing (see Agenda Bookmark) & Attachment)*

5. Discuss PennDOT Winter Traffic Services Agreement *(Issue Briefing (see Agenda Bookmark) & Attachment)*

6. Appraise Council of pending Shade Tree Grant application *(Information only)*

7. Review and approval of Bid Award for Barnard Street Culvert project *(Issue Briefing (see Agenda Bookmark) & Attachment)*

8. Review and approval of Paving Project Bid Award *(Issue Briefing (see Agenda Bookmark) & Attachment)*

9. Review and approval of Bid Award for Pavement markings *(Issue Briefing (see Agenda Bookmark) & Attachment)*

10. Discuss request from Councilman Bernie Flynn to remove bench from the North side of Gay Street in the vicinity of Rite Aid Pharmacy *(Information only)*

11. Friends of Marshall Square Park – discuss two granite in-lay park signs *(Issue Briefing (see Agenda Bookmark) & Attachment)*

12. Friends of Marshall Square Park – discuss "No Smoking Inside Gazebo" signs *(Issue Briefing (see Agenda Bookmark))*

13. Approve July's Public Works Committee meeting minutes *(see Agenda Bookmark)*

14. Other Business

15. Adjourn

Attachment Information:

Click here to access the Attachments.

Attachments can also be located at www.west-chester.com in the Document Center's "Agenda Attachments" folder.

****IDENTIFIER KEY = PW****

WEST CHESTER BOROUGH

POLLUTANT REDUCTION PLANS
AND
TOTAL MAXIMUM DAILY LOAD STRATEGY PLAN

EXECUTIVE SUMMARY

- West Chester Borough is currently operating under the PADEP's General (PAG-13) Small Municipal Separate Storm Sewer Systems (MS4) permit. Requirements include the following:

  - Public Education and Outreach
  - Public Participation
  - Illicit Discharge Detection and Elimination
  - Construction Site Runoff Control
  - Post-Construction Runoff Control
  - Pollution Prevention / Good Housekeeping

- The first permit was issued in 2003 with renewals every 5 years. The next permit period extends from 2018 to 2023. The Borough is required to prepare and submit a new permit application by September 16, 2017.

- Past permit requirements were limited to the fulfillment and reporting of the above listed efforts. A key component of this next permit cycle is the submission of a Pollutant Reduction Plan (PRP) and/or a Total Maximum Daily Load (TMDL) Strategy Plan to accomplish a specified percentage reduction in the amount of pollutants contributing to impaired streams. Pollutant reductions must be achieved within the 5-year permit period.

- PADEP has identified the following streams in the Borough as having specific impairments:

Goose Creek:	Nutrients (i.e., Total Phosphorus)*
Chester Creek (Goose Creek):	Siltation (i.e., sediment) and pathogens
Brandywine Creek:	Siltation
Blackhorse Run:	Siltation
Plum Run:	Siltation
Taylor Run:	Siltation

*Per U.S. Environmental Protection Agency, Philadelphia, PA report titled *Nutrient Total Maximum Daily Load in Goose Creek Watershed, Pennsylvania*, dated June 30, 2008.

As a result, the Borough is required to develop one (1) TMDL Strategy Plan to achieve a 53.9% reduction in the Total Phosphorus loading contributing to Goose Creek and two (2) PRPs to demonstrate a 10% reduction in the sediment loading contributing to Chester Creek/Goose Creek and Brandywine Creek/Blackhorse Run/Plum Run/Taylor Run.

- Because the Borough is subject to the Total Phosphorus TMDL Plan reduction requirements, the Borough will no longer be eligible to be covered by the PAG-13 permit, but now will be required to obtain an Individual MS4 Permit from PADEP.

- The existing sediment and Total Phosphorus loadings and reductions have been calculated based on the land uses within the contributing drainage areas to the impaired streams.

- Effective stormwater Best Management Practices (BMPs) are proposed, including the following combinations of various BMPs:

  - Rain gardens
  - Vegetated curb extensions
  - Bioswales
  - Infiltration trenches
  - Brick pavers with underground infiltration
  - Streambank restoration
  - Street sweeping
  - Tree plantings
  - Pretreatment and membrane filtration systems
  - Storm inlet cleaning

- The above listed BMPs are proposed to be installed at the following locations throughout the Borough:

  - John O. Green Memorial Park
  - Fugett Park/Borough Hall
  - Greenview Alley

- Veterans Park/Pine Alley
- Marshall Square Park
- South Brandywine Street
- Storm sewer system outfalls at E. Nields Street west of S. Franklin Street

- The Public Participation component of the TMDL Strategy Plan and PRPs has been satisfied as follows:

  - The public notice regarding the draft TMDL strategy plan and PRPs was advertised on July 10, 2017.
  - The required public meeting (this discussion) was held on August 8, 2017.
  - Public comments were accepted from July 10, 2017 to August 10, 2017.
  - Public comments will be incorporated, documents will be finalized, and the permit application will be submitted by September 16, 2017 to PADEP.

APPENDIX C

WEST GOSHEN TOWNSHIP

EAST BRADFORD TOWNSHIP

WEST GOSHEN TOWNSHIP

WEST GOSHEN TOWNSHIP

Unnamed Trib Taylor Run

Unnamed Trib Taylor Run

Unnamed Trib Taylor Run

Hannum Trib to Taylor Run

Streambank Restoration BMP Area Approximate Limits

Streambank Restoration BMP Area Approximate Limits

Streambank Restoration BMP Area Approximate Limits

Unnamed Trib Blackhorse Creek

BLACKHORSE CREEK

PLUM RUN

GOOSE CREEK

GOOSE CREEK

UNNAMED TRIB TO GOOSE CREEK

GOSHEN RD

N LOCUST LA

PARKE HOLLOW LA

THOMAS PARK LA

E LOCUST LA

S LOCUST LA

W ASHBRIDGE ST

E ASHBRIDGE ST

CLARKE ST

PENNY LA

CLOVER AL

MARSHALL DR

HILLSIDE DR

WALDEN DR

MAYFIELD AV

N BRANDYWINE ST

W VIRGINIA AV

E VIRGINIA AV

ELIZABETH ST

E MARSHALL ST

N MARYLAND AV

S MARYLAND AV

NORRIS LA

EBBS LA

JEAN AL

N DARLINGTON ST

BOBBITT AL

HOBBIE AL

N WALNUT ST

N FRANKLIN ST

FORD CI

NEWLIN AL

W MARSHALL ST

DOWNINGTOWN PK

OAK PL

N EVERHART ST

N WAYNE ST

WEAVER AL

DEWEES AL

N HIGH ST

W LAFAYETTE ST

E LAFAYETTE ST

CLOVER AL

CONVENT LA

MARIE AV

LINCOLN AV

W STRASBURG RD

BRICK AL

PINE AL

W BIDDLE ST

SCHOOL AL

PROSPECT AL

HELEN AL

HESTON AL

HALL AL

PARK AL

E BIDDLE ST

W WASHINGTON ST

E WASHINGTON ST

PEAR AL

N CHURCH ST

E EVANS ST

N ADAMS ST

PLUM AL

N PENN ST

STADIUM AL

PATTON AL

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PATTON AV

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HARMONY AL

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POTTER AL

MIDDLE AL

N PACKER ST

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E MARKET ST

S BRADFORD AV

S EVERHART ST

S BRANDYWINE ST

WOODBINE AL

WOLLERTON AL

PEARL AL

CEDAR AL

RAILROAD ST

E MINER ST

W MINER ST

HOOPES AL

HEMLOCK AL

W BARNARD ST

LOCUST AL

APPLE AL

WILLOWMERE AL

SPRUCE AL

S MARKET ST

S FRANKLIN ST

S WORTHINGTON ST

S PENN ST

S POPLAR ST

E BARNARD ST

W UNION ST

E UNION ST

OAK AL

HICKORY AL

S DARLINGTON ST

S CHURCH ST

CLINTON AL

S HIGH ST

POPLAR AL

MAGNOLIA ST

BEECH AL

ELM AL

BIRCH AL

ADELE AL

PRICE ST

LACEY ST

ASH AL

KEYSTONE AL

MULBERRY AL

HOWE ST

RIGG AL

S ADAMS ST

S FRANKLIN ST

S MOLAR ST

JUNIPER AL

JONES AL

SHARPLESS ST

MULBERRY AL

RANGE AL

W NIELDS ST

E NIELDS ST

N CAMPUS DR

UNIVERSITY AV

RICHARDS AL

WILLOW AL

SPRING GROVE LA

S BRANDYWINE ST

COLLEGE AV

S NEW ST

S WAYNE ST

W ROSEDALE AV

E ROSEDALE AV

TACIE LYNN DR

S BRADFORD AV

DEAN CT

DEAN ST

CHERRY AL

HOLLY AL

LINDEN ST

DULANEY AL

ROSS AL

S ADAMS ST

UNNAMED AL

S PENN ST

JOSEPH AL

S MOLAR ST

Legend

Stormwater Features

- Inlet
- Manhole
- Junction Manhole Box
- Private Inlet
- Stormwater Outfall
- Pipe Discharge
- Stormwater Pipes
- Streams
- Swale

- Municipal Boundary
- BMP
- BLACKHORSE CREEK
- PLUM RUN
- TAYLOR RUN
- Parsed Areas

Parsed areas - Stormwater Outfall is located along / at the creek; any overland flow that flows into a creek and does not enter MS4 collection system.

WEST CHESTER BOROUGH
MS4 PRP MAP

BRANDYWINE CREEK/ BLACKHORSE RUN/ PLUM RUN/ TAYLOR RUN

WEST CHESTER BOROUGH, CHESTER COUNTY, PA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
65 E. BUTLER AVE. SUITE 100, NEW BRITAIN, PA 18901-5106 - (215) 345-4330
www.gilmore-assoc.com

JOB NO: 15-08026T | DATE: JULY 2018 | 0 100 200 400 Feet

WEST GOSHEN TOWNSHIP

EAST BRADFORD TOWNSHIP

WEST GOSHEN TOWNSHIP

WEST GOSHEN TOWNSHIP

Legend

Stormwater Features

- Inlet
- Manhole
- Junction Manhole Box
- Private Inlet
- Stormwater Outfall
- Pipe Discharge
- Stormwater Pipes
- Streams
- Swale

Mapshed Landuse Code

- Water
- Low-Density Residential
- Medium-Density Residential
- High-Density Residential
- Low-Density Mixed Urban
- Medium-Density Mixed Urban
- High-Density Mixed Urban
- Hay/Pasture
- Cropland
- Coniferous
- Decidious
- Mixed Woodland
- Woody Wetland
- Emergent Wetland
- Disturbed
- Disturbed
- Turf/Golf

WEST CHESTER BOROUGH
MS4 PRP LAND USE (MAPSHED) MAP

BRANDYWINE CREEK/ BLACKHORSE RUN/ PLUM RUN/ TAYLOR RUN

WEST CHESTER BOROUGH, CHESTER COUNTY, PA

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APPENDIX D

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STORMWATER DISCHARGES FROM
SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS
BMP EFFECTIVENESS VALUES

This table of BMP effectiveness values (i.e., pollutant removal efficiencies) is intended for use by MS4s that are developing and implementing Pollutant Reduction Plans and TMDL Plans to comply with NPDES permit requirements. The values used in this table generally consider pollutant reductions from both overland flow and reduced downstream erosion, and are based primarily on average values within the Chesapeake Assessment Scenario Tool (CAST) (www.casttool.org). Design considerations, operation and maintenance, and construction sequences should be as outlined in the Pennsylvania Stormwater BMP Manual, Chesapeake Bay Program guidance, or other technical sources. The Department of Environmental Protection (DEP) will update the information contained in this table as new information becomes available. Interested parties may submit information to DEP for consideration in updating this table to DEP's MS4 resource account, RA-EPPAMS4@pa.gov. Where an MS4 proposes a BMP not identified in this document or in Chesapeake Bay Program expert panel reports, other technical resources may be consulted for BMP effectiveness values. Note – TN = Total Nitrogen and TP = Total Phosphorus.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Wet Ponds and Wetlands	20%	45%	60%	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal.
Dry Detention Basins and Hydrodynamic Structures	5%	10%	10%	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff.
Dry Extended Detention Basins	20%	20%	60%	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Infiltration Practices w/ Sand, Veg.	85%	85%	95%	A depression to form an infiltration basin where sediment is trapped and water infiltrates the soil. No underdrains are associated with infiltration basins and trenches, because by definition these systems provide complete infiltration. Design specifications require infiltration basins and trenches to be built in good soil, they are not constructed on poor soils, such as C and D soil types. Engineers are required to test the soil before approval to build is issued. To receive credit over the longer term, jurisdictions must conduct yearly inspections to determine if the basin or trench is still infiltrating runoff.
Filtering Practices	40%	60%	80%	Practices that capture and temporarily store runoff and pass it through a filter bed of either sand or an organic media. There are various sand filter designs, such as above ground, below ground, perimeter, etc. An organic media filter uses another medium besides sand to enhance pollutant removal for many compounds due to the increased cation exchange capacity achieved by increasing the organic matter. These systems require yearly inspection and maintenance to receive pollutant reduction credit.
Filter Strip Runoff Reduction	20%	54%	56%	Urban filter strips are stable areas with vegetated cover on flat or gently sloping land. Runoff entering the filter strip must be in the form of sheet-flow and must enter at a non-erosive rate for the site-specific soil conditions. A 0.4 design ratio of filter strip length to impervious flow length is recommended for runoff reduction urban filter strips.
Filter Strip Stormwater Treatment	0%	0%	22%	Urban filter strips are stable areas with vegetated cover on flat or gently sloping land. Runoff entering the filter strip must be in the form of sheet-flow and must enter at a non-erosive rate for the site-specific soil conditions. A 0.2 design ratio of filter strip length to impervious flow length is recommended for stormwater treatment urban filter strips.
Bioretention – Raingarden (C/D soils w/ underdrain)	25%	45%	55%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has an underdrain and is in C or D soil.
Bioretention / Raingarden (A/B soils w/ underdrain)	70%	75%	80%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has an underdrain and is in A or B soil.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Bioretention / Raingarden (A/B soils w/o underdrain)	80%	85%	90%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has no underdrain and is in A or B soil.
Vegetated Open Channels (C/D Soils)	10%	10%	50%	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This BMP has no underdrain and is in C or D soil.
Vegetated Open Channels (A/B Soils)	45%	45%	70%	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This BMP has no underdrain and is in A or B soil.
Bioswale	70%	75%	80%	With a bioswale, the load is reduced because, unlike other open channel designs, there is now treatment through the soil. A bioswale is designed to function as a bioretention area.
Permeable Pavement w/o Sand or Veg. (C/D Soils w/ underdrain)	10%	20%	55%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, no sand or vegetation and is in C or D soil.
Permeable Pavement w/o Sand or Veg. (A/B Soils w/ underdrain)	45%	50%	70%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, no sand or vegetation and is in A or B soil.
Permeable Pavement w/o Sand or Veg. (A/B Soils w/o underdrain)	75%	80%	85%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has no underdrain, no sand or vegetation and is in A or B soil.
Permeable Pavement w/ Sand or Veg. (A/B Soils w/ underdrain)	50%	50%	70%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, has sand and/or vegetation and is in A or B soil.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Permeable Pavement w/ Sand or Veg. (A/B Soils w/o underdrain)	80%	80%	85%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has no underdrain, has sand and/or vegetation and is in A or B soil.
Permeable Pavement w/ Sand or Veg. (C/D Soils w/ underdrain)	20%	20%	55%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, has sand and/or vegetation and is in C or D soil.
Stream Restoration	0.075 lbs/ft/yr	0.068 lbs/ft/yr	44.88 lbs/ft/yr	An annual mass nutrient and sediment reduction credit for qualifying stream restoration practices that prevent channel or bank erosion that otherwise would be delivered downstream from an actively enlarging or incising urban stream. Applies to 0 to 3rd order streams that are not tidally influenced. If one of the protocols is cited and pounds are reported, then the mass reduction is received for the protocol.
Forest Buffers	25%	50%	50%	An area of trees at least 35 feet wide on one side of a stream, usually accompanied by trees, shrubs and other vegetation that is adjacent to a body of water. The riparian area is managed to maintain the integrity of stream channels and shorelines, to reduce the impacts of upland sources of pollution by trapping, filtering, and converting sediments, nutrients, and other chemicals. (Note – the values represent pollutant load reductions from stormwater draining through buffers).
Tree Planting	10%	15%	20%	The BMP effectiveness values for tree planting are estimated by DEP. DEP estimates that 100 fully mature trees of mixed species (both deciduous and non-deciduous) provide pollutant load reductions for the equivalent of one acre (i.e., one mature tree = 0.01 acre). The BMP effectiveness values given are based on immature trees (seedlings or saplings); the effectiveness values are expected to increase as the trees mature. To determine the amount of pollutant load reduction that can credited for tree planting efforts: 1) multiply the number of trees planted by 0.01; 2) multiply the acreage determined in step 1 by the pollutant loading rate for the land prior to planting the trees (in lbs/acre/year); and 3) multiply the result of step 2 by the BMP effectiveness values given.
Street Sweeping	3%	3%	9%	Street sweeping must be conducted 25 times annually. Only count those streets that have been swept at least 25 times in a year. The acres associated with all streets that have been swept at least 25 times in a year would be eligible for pollutant reductions consistent with the given BMP effectiveness values.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Storm Sewer System Solids Removal	0.0027 for sediment, 0.0111 for organic matter	0.0006 for sediment, 0.0012 for organic matter	1 – TN and TP concentrations	This BMP (also referred to as "Storm Drain Cleaning") involves the collection or capture and proper disposal of solid material within the storm system to prevent discharge to surface waters. Examples include catch basins, stormwater inlet filter bags, end of pipe or outlet solids removal systems and related practices. Credit is authorized for this BMP only when proper maintenance practices are observed (i.e., inspection and removal of solids as recommended by the system manufacturer or other available guidelines). The entity using this BMP for pollutant removal credits must demonstrate that they have developed and are implementing a standard operating procedure for tracking the material removed from the sewer system. Locating such BMPs should consider the potential for backups onto roadways or other areas that can produce safety hazards. To determine pollutant reductions for this BMP, these steps must be taken: 1) Measure the weight of solid/organic material collected (lbs). Sum the total weight of material collected for an annual period. Note – do not include refuse, debris and floatables in the determination of total mass collected. 2) Convert the annual wet weight captured into annual dry weight (lbs) by using site-specific measurements (i.e., dry a sample of the wet material to find its weight) or by using default factors of 0.7 (material that is predominantly wet sediment) or 0.2 (material that is predominantly wet organic matter, e.g., leaf litter). 3) Multiply the annual dry weight of material collected by default or site-specific pollutant concentration factors. The default concentrations are shown in the BMP Effectiveness Values columns. Alternatively, the material may be sampled (at least annually) to determine site-specific pollutant concentrations. DEP will allow up to 50% of total pollutant reduction requirements to be met through this BMP. The drainage area treated by this BMP may be no greater than 0.5 acre unless it can be demonstrated that the specific system proposed is capable of treating stormwater from larger drainage areas. For planning purposes, the sediment removal efficiency specified by the manufacturer may be assumed, but no higher than 80%.

APPENDIX E

Select input data file: C:\MapShed\Runfiles\BrandywineJuly\Output\BrandywineJuly-0_ua.csv

Watershed Totals | Municipality Loads | Regulated Loads | Unregulated Loads

GWLF-E Average Loads by Source for Watershed 0

Source	Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	403	81482.85	202.20	261.87	0.65	67.31	0.17
Cropland	124	221630.71	1787.30	734.21	5.92	136.62	1.10
Forest	1169	17659.03	15.10	92.09	0.08	12.43	0.01
Wetland	126	1080.27	8.60	30.23	0.24	2.05	0.02
Disturbed	5	396.83	79.40	0.97	0.19	0.31	0.06
Turfgrass	153	13999.35	91.40	110.52	0.72	13.32	0.09
Open Land	914	222534.61	243.50	1067.19	1.17	131.48	0.14
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	49	1212.54	24.70	28.31	0.58	3.09	0.06
MD Mixed	215	21428.93	99.70	458.08	2.13	52.56	0.24
HD Mixed	880	87699.89	99.70	1874.39	2.13	215.08	0.24
LD Residential	222	5467.46	24.60	127.43	0.57	13.85	0.06
MD Residential	2390	238231.52	99.70	5091.42	2.13	584.20	0.24
HD Residential	230	22906.03	99.60	489.67	2.13	56.20	0.24
Water	1.7946637						
Farm Animals				0.0		0.0	
Tile Drainage		0.0		0.0		0.0	
Stream Bank		3185344.6		1591.7		425.5	
Groundwater				13090.3		251.9	
Point Sources				0.0		0.0	
Septic Systems				1563.1		0.0	
Totals	6882	4121075		26611		1966	

Print | Export to JPEG | Exit

Select input data file: C:\MapShed\Runfiles\BrandywineJuly\Output\BrandywineJuly-0_ua.csv

Watershed Totals | **Municipality Loads** | Regulated Loads | Unregulated Loads

View loads for municipality: (00200)

Source	Source Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	0	0.00	0.00	0.00	0.00	0.00	0.00
Cropland	0	0.00	0.00	0.00	0.00	0.00	0.00
Forest	7	105.70	15.10	0.60	0.08	0.10	0.01
Wetland	0	0.00	0.00	0.00	0.00	0.00	0.00
Disturbed	0	0.00	0.00	0.00	0.00	0.00	0.00
Turfgrass	27	2467.80	91.40	19.40	0.72	2.40	0.09
Open Land	7	1704.50	243.50	8.20	1.17	1.00	0.14
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	0	0.00	0.00	0.00	0.00	0.00	0.00
MD Mixed	10	997.00	99.70	21.30	2.13	2.40	0.24
HD Mixed	205	20438.50	99.70	436.70	2.13	49.20	0.24
LD Residential	2	49.20	24.60	1.10	0.57	0.10	0.06
MD Residential	188	18743.60	99.70	400.40	2.13	45.10	0.24
HD Residential	67	6673.20	99.60	142.70	2.13	16.10	0.24
Water	0						
							Source Weighting
Farm Animals				0.0		0.0	0.000
Tile Drainage		0.00		0.0		0.0	0.000
Stream Bank		326219.28		163.0		43.6	0.144
Groundwater				1374.5		26.4	0.105
Point Sources				0.0		0.0	0.000
Septic Systems				17.2		0.0	0.011
Totals	**513**	**377398.8**		**2585.1**		**186.4**	

Print | Export to JPEG | Exit

Select input data file: C:\MapShed\Runfiles\BrandywineJuly\Output\BrandywineJuly-0_ua.csv

Watershed Totals | **Municipality Loads** | Regulated Loads | Unregulated Loads

View loads for municipality: Area1 (00001)

Source	Source Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	0	0.00	0.00	0.00	0.00	0.00	0.00
Cropland	0	0.00	0.00	0.00	0.00	0.00	0.00
Forest	10	151.00	15.10	0.80	0.08	0.10	0.01
Wetland	0	0.00	0.00	0.00	0.00	0.00	0.00
Disturbed	0	0.00	0.00	0.00	0.00	0.00	0.00
Turfgrass	0	0.00	0.00	0.00	0.00	0.00	0.00
Open Land	10	2435.00	243.50	11.70	1.17	1.40	0.14
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	2	49.40	24.70	1.20	0.58	0.10	0.06
MD Mixed	0	0.00	0.00	0.00	0.00	0.00	0.00
HD Mixed	30	2991.00	99.70	63.90	2.13	7.20	0.24
LD Residential	20	492.00	24.60	11.40	0.57	1.20	0.06
MD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
HD Residential	59	5876.40	99.60	125.70	2.13	14.20	0.24
Water	0						Source Weighting
Farm Animals				0.0		0.0	0.000
Tile Drainage		0.00		0.0		0.0	0.000
Stream Bank		79700.82		39.8		10.6	0.034
Groundwater				327.3		6.3	0.025
Point Sources				0.0		0.0	0.000
Septic Systems				139.1		0.0	0.089
Totals	**131**	**91695.6**		**720.9**		**41.1**	

Print | Export to JPEG | Exit

Select input data file: C:\MapShed\Runfiles\BrandywineJuly\Output\BrandywineJuly-0_ua.csv

Watershed Totals | **Municipality Loads** | Regulated Loads | Unregulated Loads

View loads for municipality: Area2 (00002)

Source	Source Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	0	0.00	0.00	0.00	0.00	0.00	0.00
Cropland	0	0.00	0.00	0.00	0.00	0.00	0.00
Forest	0	0.00	0.00	0.00	0.00	0.00	0.00
Wetland	0	0.00	0.00	0.00	0.00	0.00	0.00
Disturbed	0	0.00	0.00	0.00	0.00	0.00	0.00
Turfgrass	0	0.00	0.00	0.00	0.00	0.00	0.00
Open Land	0	0.00	0.00	0.00	0.00	0.00	0.00
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	0	0.00	0.00	0.00	0.00	0.00	0.00
MD Mixed	0	0.00	0.00	0.00	0.00	0.00	0.00
HD Mixed	94	9371.80	99.70	200.20	2.13	22.60	0.24
LD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
MD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
HD Residential	72	7171.20	99.60	153.40	2.13	17.30	0.24
Water	0						
							Source Weighting
Farm Animals				0.0		0.0	0.000
Tile Drainage		0.00		0.0		0.0	0.000
Stream Bank		123822.43		61.9		16.5	0.061
Groundwater				484.3		9.3	0.037
Point Sources				0.0		0.0	0.000
Septic Systems				0.0		0.0	0.000
Totals	166	140365.4		899.8		65.7	

Print | Export to JPEG | Exit

Urban Scenario BMP Editor

Performance Standard Calculations

Retrofits

BMP Type: Infiltration Basin

Area Treated (ha)		Existing Area (ha)	
LD Residential	0	LD Residential	90
MD Residential	0	MD Residential	967
HD Residential	0.222	HD Residential	93
LD Mixed	0	LD Mixed	20
MD Mixed	0	MD Mixed	87
HD Mixed	0	HD Mixed	356
Total	0	**Total**	1613

Rainfall Captured (2.54 cm = 1 in)

Depth (cm): 3.81

Volume (m3): 74

Run

Calculated Reduction Efficiency

TN 0.65 TP 0.76 TSS 0.82

New Development

BMP Type: Select BMP Type

Area Developed (ha)		Area Replaced (ha)		Existing Area (ha)	
LD Residential	0	Hay/Pasture	0	Hay/Pasture	163
MD Residential	0	Cropland	0	Cropland	50
HD Residential	0	Forest	0	Forest	473
LD Mixed	0	Disturbed	0	Disturbed	2
MD Mixed	0	Turfgrass	0	Turfgrass	62
HD Mixed	0	Open Land	0	Open Land	370
Total	0	**Total**	0	**Total**	1120

Rainfall Captured (2.54 cm = 1 in)

Depth (cm): 7.10

Volume (m3): 0

Run

Calculated Reduction Efficiency

TN 0.00 TP 0.00 TSS 0.00

Stream Protection

Vegetative buffer strip width (m)	0
Fraction of streams treated (0-1)	0.000
Total streams in non-ag areas (km)	29.8
Streams w/bank stabilization (km)	0.0

Street Sweeping

Fraction of area treated (0-1): 1.000

Sweep Type: (•) Mechanical ( ) Vacuum

Times/month

Jan	0	Apr	0	Jul	0	Oct	0
Feb	0	May	0	Aug	0	Nov	0
Mar	0	Jun	0	Sep	0	Dec	0

Rural BMP Editor

BMP Efficiency Editor

Export to JPEG

Save File

Close

Select input data file: C:\MapShed\Runfiles\BrandywineJuly\Output\BrandywineBMPJuly-0_ua.csv

Watershed Totals | Municipality Loads | Regulated Loads | Unregulated Loads

GWLF-E Average Loads by Source for Watershed 0

Source	Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	403	81482.85	202.20	261.87	0.65	67.31	0.17
Cropland	124	221630.71	1787.30	734.21	5.92	136.62	1.10
Forest	1169	17659.03	15.10	92.09	0.08	12.43	0.01
Wetland	126	1080.27	8.60	30.23	0.24	2.05	0.02
Disturbed	5	396.83	79.40	0.97	0.19	0.31	0.06
Turfgrass	153	13999.35	91.40	110.52	0.72	13.32	0.09
Open Land	914	222534.61	243.50	1067.19	1.17	131.48	0.14
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	49	1212.54	24.70	28.31	0.58	3.09	0.06
MD Mixed	215	21428.93	99.70	458.01	2.13	52.56	0.24
HD Mixed	880	87677.84	99.60	1874.15	2.13	215.04	0.24
LD Residential	222	5467.46	24.60	127.41	0.57	13.85	0.06
MD Residential	2390	238187.43	99.70	5090.74	2.13	584.11	0.24
HD Residential	230	22906.03	99.60	489.60	2.13	56.17	0.24
Water	1.7946637						
Farm Animals				0.0		0.0	
Tile Drainage		0.0		0.0		0.0	
Stream Bank		3184927.9		1591.7		425.5	
Groundwater				13090.2		251.9	
Point Sources				0.0		0.0	
Septic Systems				1563.1		0.0	
Totals	**6882**	**4120592**		**26610**		**1966**	

Print | Export to JPEG | Exit

APPENDIX F

VETERANS PARK/PINE ALLEY: PROPOSED GREEN INFRASTRUCTURE CONCEPTS



Veterans Park is a 0.49 acre park tucked behind residential homes in northwest West Chester. Park visitors can enter the park by car or foot via Brick Alley, Pine Alley, Veit Alley, and by foot at the entrance on W Washington Street.

Proposed green infrastructure (GI) concepts for the park include a vegetated infiltration trench along Pine Alley to capture alley, roadway, and roof runoff, rain gardens (one in the park and two smaller versions near the park entrance on Washington St), planters, and tree plantings throughout to enhance gaps in existing tree canopy. General park enhancement recommendations include improving signage and wayfinding at the park entrances and improving lighting around the park and connecting alleys. There are significant erosion issues along the paved alleys due to vehicular traffic and solutions include introducing vegetated barriers (i.e. dense low-growing shrubs), curbing, bollards, and/or other deterrents. Finally, the amount of impervious paving around the pavilion is excessive and can be slightly reduced and replaced with plantings as shown.

Collectively, these GI features would capture and treat runoff from the park property and several adjacent streets as shown on the concept plan. During larger storm events, overflow structures would allow excess runoff to flow into existing storm sewers. In addition to reducing and treating stormwater runoff, these GI features have the potential to add aesthetic value to the park and work in harmony with the existing active and passive recreational uses on the site. The proposed features along Pine Alley would be closely coordinated with the planned reconstruction of the 36-inch brick storm sewer the runs beneath the alley.

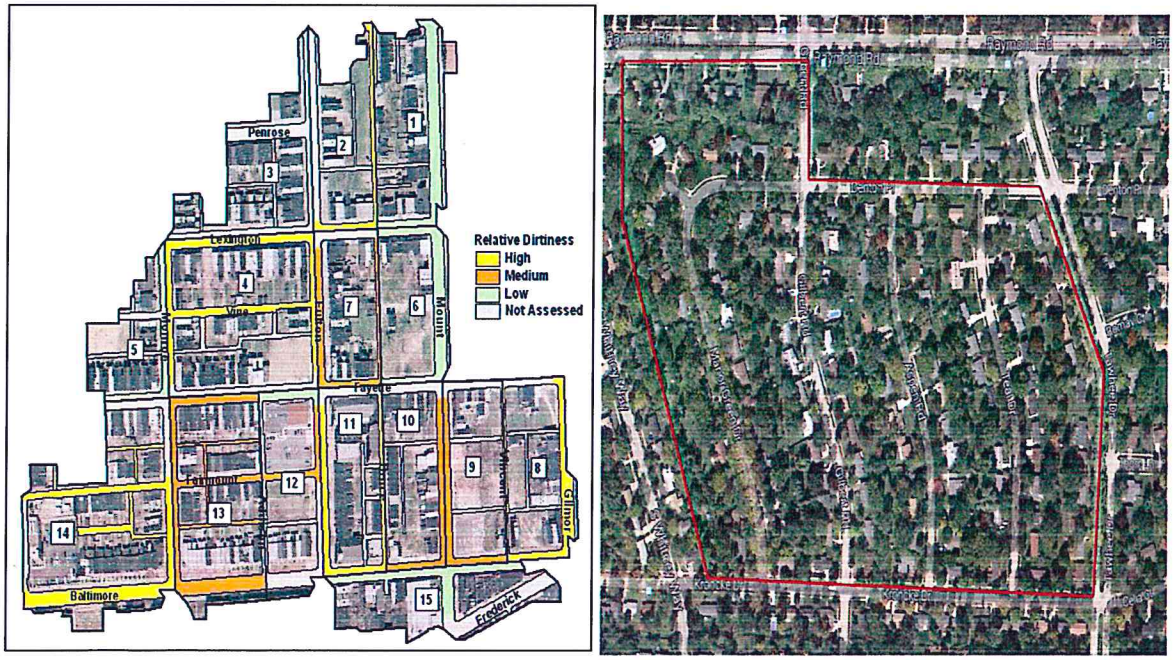
APPENDIX G

Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices

Sebastian Donner, Bill Frost, Norm Goulet, Marty Hurd, Neely Law, Thomas Maguire, Bill Selbig, Justin Shafer, Steve Stewart and Jenny Tribo

FINAL REPORT

Approved by CBP Management Board



May 19, 2016

Prepared by:

Tom Schueler, Chesapeake Stormwater Network

Table 3. Summary of Street Cleaning Implementation, 2009-2013, as reported and credited in annual progress runs (acres and lbs)

YEAR	DC	DE	PA	WV	VA
2009	1 ac			218,000 lbs	632 ac
2010	1,631 ac			227,000 lbs	
2011	1,540 ac		619 ac		75,385,792 lbs
2012	1,539 ac		413 ac		
2013	1,526 ac	79,541 lbs	3,240,489 lbs	190,000 lbs	218,677 lbs
2014	1,531 ac	413,367 lbs	3,367,040 lbs	700,000 lbs	426,671 lbs

3.4 How the CBWM Simulates Loads From Streets

The Phase 5.3.2 Chesapeake Bay Watershed Model simulates two types of urban land: pervious and impervious cover. These two cover types are used to simulate the full range of urban land use categories (industrial, commercial, residential, institutional and transport). This means that different street types (e.g., highways, arterials, residential streets) are lumped in with other impervious surfaces (e.g., driveways, sidewalks, rooftops, parking lots), and are currently represented as a single impervious layer. As a result, streets and roads do not load differently and are not counted separately in the current version of the CBWM. Table 4 portrays the average annual nutrient and sediment loadings associated with urban impervious cover in the current model.

Table 4. Loading Rates Associated with Urban Impervious Cover in the Chesapeake Bay Watershed Model, Version 5.3.2.

Acres in Watershed [1]	1,269,030
Average TN Load [2]	15.5 lbs/ac/yr
Average TP Load [2]	1.93 lbs/ac/yr
Average TSS Load [2]	0.65 t/ac/yr
Key Inputs	Air Deposition, Build-up/Wash-off, No Groundwater Interaction, No Direct Interaction with Pervious Cover

[1] Acres, as reported in most recent CBWM version 5.3.2
[2] Average values, as reported in Tetra Tech (2014), although actual values are regionally variable across the watershed.

It should be noted that not all of the sediment load generated from urban impervious cover actually reaches the Chesapeake Bay. The sediment loads at the edge of pavement are adjusted downward by a sediment delivery factor in the current version of the CBWM. For a more thorough discussion of the sediment delivery factor, please consult the discussion in SR EP (2014).

The Panel elected to not to use WINSLAMM to explicitly simulate nutrients, and instead estimated them based on empirical nutrient enrichment ratios for street solids (see Section 4.4).

Table 15. Adapting the WINSLAMM Model for the Chesapeake Bay Watershed

Bay rainfall data. The model used the calibration period from 1995 through 2005 using Washington National Airport Station event-based rainfall data. The rainfall data was processed assuming the minimum number of hours between events is 6 hours and the minimum rainfall event depth is 0.01 inch.

East Coast input data files were prepared to represent street conditions across the Chesapeake Bay watershed. The particle size distribution and peak-to-average flow ratio files were set to the program default average pavement and flow ratio files

Four different street types were simulated to represent in different land uses that had curb and gutter drainage systems:

Single-family residential: Approximately 0.25-acre lots, with cul-de-sacs connecting to two-lane residential feeder roads with parallel parking on one side; light traffic; and 25 mile-per-hour (mph) speed limit. Approximately 33 houses in a 10-acre area. The driveways are simulated as draining onto the roads.

Commercial (80 percent impervious): Big box stores and parking lots. Feeder roads (two travel lanes and center turn lane) with no on-street parking, 35 mph speed limit, and heavy traffic.

Ultra-urban downtown (95 percent impervious): Multistory buildings. Two-lane urban roads with parallel parking on both sides of the street, sidewalks, and 25 mph speed limit.

Arterial highway: A four-lane divided road with median with barrier; high-speed traffic with turn lanes; and no on-street parking. Assumed to be commercial land use

Three different sweeping start/stop dates to reflect regional differences in climate across the watershed:

- Sweeping occurs over the entire year
- Sweeping suspended December 1, restarts March 15
- Sweeping suspended December 15, restarts February 15

Six different fixed sweeping schedules

2PW = 2 passes per week	1P4W = 1 pass every 4 weeks
1PW = 1 pass every week	1P8W = 1 pass every 8 weeks
1P2W = 1 pass every 2 weeks	1P12W = 1 pass every 12 weeks

Four seasonal sweeping schedules (more intensive in Spring or Fall)

- S1: Spring – One pass every week from March to April. Monthly otherwise
- S2: Spring – One pass every other week from March to April. Monthly otherwise
- S3: Spring and fall – One pass every week (March to April, October to November). Monthly otherwise
- S4: Spring and fall – One pass every other week during the season. Monthly otherwise

Two Levels of Sweeper Technology

MBC = Mechanical broom cleaning	VAC = Vacuum assisted cleaning

Four Options for Street Parking Density and No Parking Enforcement

For more details, consult the technical memo (Tetra Tech, Inc., 2015)

each street cleaning scenario, and subtracting the resulting nutrient load from the unit area nutrient load for impervious cover calculated by the watershed model.

The standard street cleaning unit are curb miles swept. In general, one impervious acre is equivalent to one curb-lane mile swept, assuming they are swept on one-side only. Credit is also provided for cleaning municipal and commercial parking lots (in this case, the acres of parking lot swept are reported, and converted to lane miles using the one acre = one curb lane mile rule of thumb.

The panel elected to consolidate the model results to show specific removal rates for eleven different street cleaning practices, primarily involving the use of advanced street cleaning technology at different frequencies (Table 17).

Table 17. Pollutant Reductions Associated with Different Street Cleaning Practices

Practice #	Description [1]	Approx Passes/Yr [2]	TSS Removal (%)	TN Removal (%)	TP Removal (%)
SCP-1	AST- 2 PW	~100	21	4	10
SCP-2	AST- 1 PW	~50	16	3	8
SCP-3	AST- 1 P2W	~25	11	2	5
SCP-4	AST- 1 P4W	~10	6	1	3
SCP-5	AST- 1 P8W	~6	4	0.7	2
SCP-6	AST- 1 P12W	~4	2	0	1
SCP-7	AST- S1 or S2	~15	7	1	4
SCP-8	AST- S3 or S4	~20	10	2	5
SCP-9	MBT- 2PW	~100	1.0	0	0
SCP-10	MBT- 1 PW	~50	0.5	0	0
SCP-11	MBT- 1 P4W	~10	0.1	0	0

AST: Advanced Sweeping Technology MBT: Mechanical Broom Technology
[1] See Table 15 for the codes used to define street cleaning frequency
[2] Depending on the length of the winter shutdown, the number of passes/yr may be lower than shown

NPDES Stormwater Discharges from MS4

West Chester Borough Chester Creek / Goose Creek

Pollutant Reduction Plan

Prepared For:

West Chester Borough

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September 2017
Revised July 2018

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MS4 Pollutant Reduction Plan

West Chester Borough

Chester County, Pennsylvania

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Appendices

Appendix A Applicable portion of the MS4 Requirements Table (Municipal) Anticipated Obligations for Subsequent NPDES Permit Term (Revised 3/5/2018)

Appendix B Public Participation

- Public Notice & Proof of Advertisement
- Public Meeting Agenda and Meeting Minutes

Appendix C Maps

- West Chester Borough MS4 PRP Map
- West Chester Borough MS4 PRP Land Uses (MapShed) Map

Appendix D 3800-PM-BCW0100m 5/2016 BMP Effectiveness Values

Appendix E MapShed GWLF-E Average Loads by Source for Watershed

Appendix F Jellyfish Filter Solutions Guide Contech

Appendix G CH2M Green Infrastructure Concepts

Appendix H Removal Rates for Street Cleaning *(excerpts from "Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices")*

West Chester Borough, Chester County is submitting this Pollutant Reduction Plan (PRP) in accordance with the requirements of the *National Pollutant Discharge Elimination System (NPDES) Individual Permit to Discharge Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4)*; specifically, in accordance with the *MS4 Requirements Table (Municipal) Anticipated Obligations for Subsequent NPDES Permit Term (Revised 3/5/2018)*. West Chester Borough must create a PRP due to discharges from their MS4 to Chester Creek, which have been listed as impaired for Siltation (see Appendix A).

The intent of this MS4 PRP is to establish the existing loading of pollutants discharged from the MS4 to Chester Creek, and to present a plan to reduce these pollutants. This MS4 PRP is organized to follow the 3800-PM-BCW0100k Rev. 3/2017 *National Pollutant Discharge Elimination System (NPDES) Stormwater Discharges from Small Municipal Separate Storm Sewer Systems Pollutant Reduction Plan (PRP) Instructions* included as part of the *PAG-13 MS4 General Permit* package. This PRP may be evaluated and updated by West Chester Borough on an as-needed basis, based on its effectiveness in reducing pollutant loads in discharges from the regulated small MS4. If this occurs, West Chester Borough will work with the Department of Environmental Protection (DEP) for review and approval of any revisions or updates.

Each MS4 PRP must include the following Required PRP Elements:

Section A: Public Participation
Section B: Map
Section C: Pollutants of Concern
Section D: Determine Existing Loading for Pollutants of Concern
Section E: Select BMPs to Achieve the Minimum Required Reductions in Pollutant Loading
Section F: Identify Funding Mechanisms
Section G: Identify Responsible Parties for Operation and Maintenance (O&M) of BMPs

This PRP is organized to follow the above outline of required elements as shown on the following pages. Relevant verbiage from the PRP Instructions is reiterated herein for each of the above required PRP Elements.

A. Public Participation

As part of the preparation of this MS4 PRP, public participation is required. West Chester Borough shall complete the following public participation measures listed below, and report in the PRP that each was completed.

- The Borough shall make a complete copy of the PRP available for public review.

- The Borough shall publish, in a newspaper of general circulation in the area, a public notice containing a statement describing the plan, where it may be reviewed by the public, and the length of time the Borough will provide for the receipt of comments. The public notice must be published at least 45 days prior to the deadline for submission of the PRP to DEP. Include a copy of the public notice with the PRP.

- The Borough shall accept written comments for a minimum of 30 days from the date of public notice. Include a copy of all written comments received from the public with the PRP.

- The Borough shall accept comments from any interested member of the public at a public meeting or hearing, which may include a regularly-scheduled meeting of the governing body of the municipality or municipal authority that is the permittee.

- The Borough shall consider and make a record of the consideration of each timely comment received from the public during the public comment period concerning the plan, identifying any changes made to the plan in response to the comment. Include a copy of the Borough's record of consideration of all timely comments received in the public comment period with the PRP.

West Chester Borough has completed the above-listed Public Participation measures and all required documentation of public participation is included as Appendix B.

- PRP public notice was published in: Daily Local News
- Date PRP public notice was published in newspaper: July 10, 2017
- Date PRP was made available for public review/comment: June 10, 2017
- End date for receipt of written comments (30 days from the date of public notice): August 10, 2017
- Date PRP comments were accepted at a public meeting: August 8, 2017

Questions received were of a general nature only, and no comments were made that required a response in, or revision to, this document.

Please note that when the specific stream segments (along which streambank restoration will occur) are known, the PRP shall be revised to note same and re-advertised for public comment.

B. Map

Attach maps that identify **land uses** and the **storm sewershed boundaries** associated with the MS4 that discharge to impaired surface waters, and calculate the storm sewershed area that is subject to Appendix E of PAG-13. In addition, the proposed location(s) of structural BMP(s) that will be implemented to achieve the required pollutant load reductions must be identified on a map.

The map may be the same as that used to satisfy MCM #3 of the PAG-13 General or Individual Permit, with the addition of land use, the storm sewershed boundary, and locations of proposed BMPs, or may be a different map.

The map must be sufficiently detailed to identify the PRP Planning Area relevant to satisfying the requirements of Appendix E, and to demonstrate that BMPs will be located in appropriate storm sewersheds to meet the requirements.

NOTE – Delineation of storm sewersheds associated with individual MS4 outfalls is typically necessary in order to determine the PRP Planning Area. The MS4 may display the storm sewershed for each MS4 outfall or just the PRP Planning Area, at its discretion.

The map may show areas that are to be "parsed" from the PRP Planning Area. In other words, at the MS4's discretion (subject to DEP rules), certain areas may be shown on the map that are within the Planning Area but are not included in the calculation of land area and existing pollutant loading. Guidance on parsing is outlined below. Note that if parsing is done, BMPs implemented within the parsed area will not count toward achieving pollutant reduction objectives.

Parsing Guidelines for MS4s in Pollutant Reduction Plans

DEP has developed these guidelines to assist owners and operators of MS4s that are required to develop Pollutant Reduction Plans (PRPs) in understanding where it is possible to "parse" land area in the course of developing those plans. For the purpose of this document, parsing is

defined as a process in which land area is removed from a Planning Area in order to calculate the actual or target pollutant loads that are applicable to an MS4.

Parsing is not required by NPDES permits and is therefore optional; however, some MS4 permittees may benefit from parsing. When parsing is done, best management practices (BMPs) implemented within the land area that is parsed may not be considered for meeting pollutant loading reductions.

MS4s must identify the target pollutant loadings (i.e., existing pollutant loading minus loading reduced by existing BMPs). In order to estimate existing pollutant loading, MS4s may parse out appropriate land area.

All parsing must be supported by a map and a determination of the area being parsed and/or appropriate calculations demonstrating how the parsing was done.

Parsing for PRPs

Parsing provides an opportunity for an MS4 permittee to eliminate areas within the storm sewershed that do not drain to the MS4 and areas that are already covered by an NPDES permit (i.e., not a waiver or no exposure certification) for the control of stormwater. For example, the land area of an industrial site that is covered by the PAG-03 General Permit for Stormwater Associated with Industrial Activity that discharges stormwater to the MS4 may be parsed out of the assessment of land area within the storm sewershed that is subject to the calculation of existing pollutant loading. If, however, the industrial land area is removed, BMPs implemented on that land may not be used as credit toward meeting the MS4's pollutant loading reduction requirements. Other examples of land area that may be parsed include:

- The land area associated with non-municipal stormwater NPDES permit coverage that exists within the urbanized area of a municipality (in such cases the entities may submit a combined PRP);
- Land area associated with PennDOT roadways and the Pennsylvania Turnpike (roads and right of ways);

- Lands associated with the production area of a Concentrated Animal Feeding Operation that is covered by an NPDES permit;

- Land areas in which stormwater runoff does not enter the MS4. If an accurate storm sewershed map is developed, these lands may be parsed or excluded as part of that process. Potential examples include homeowner's associations and schools which do not contain municipal roads or other municipal infrastructure.

If parsing is initially done for the PRP but the MS4 permittee decides later that it would be in their best interests to include that land in the PRP, the permittee may submit a modified PRP to DEP, following the public participation requirements of Appendix E of the permit.

The MS4 PRP map(s) shall also show the proposed locations of structural BMPs that will be implemented to achieve the required pollutant load reductions.

The West Chester Borough MS4 PRP Map identifies the PRP Planning Area, which includes all storm sewershed boundaries, as well as the proposed locations of structural BMPs to be implemented to achieve required pollutant load reductions. The West Chester PRP Planning Area in the Chester Creek watershed was calculated to be 256 acres.

For clarity, land uses within the PRP Planning Area are shown separately on the West Chester Borough MS4 PRP Land Uses (MapShed) Map.

The above referenced Maps are included in Appendix C.

C. Pollutants of Concern

Identify the pollutants of concern for each storm sewershed or the overall PRP Planning Area.

The term “nutrients” refers to “Total Nitrogen” (TN) and “Total Phosphorus” (TP) unless specifically stated otherwise in DEP’s latest Integrated Report. The terms “sediment,” “siltation,” and “suspended solids” all refer to inorganic solids and are hereinafter referred to as “sediment.” The term, “storm sewershed” is defined in the PAG-13 General Permit as the land area that drains to the municipal separate storm sewer from within the jurisdiction of the MS4 permittee. This term is used in these instructions as well as the term “PRP Planning Area” (or “Planning Area”), which refers to all of the storm sewersheds that an MS4 must calculate existing loads and plan load reductions for.

For all PRPs, MS4s shall calculate existing loading of the pollutant(s) of concern in lb/year; calculate the minimum reduction in loading in lb/year; select Best Management Practice(s) (BMP(s)) to reduce loading; and demonstrate that the selected BMPs will achieve the minimum reductions.

For PRPs developed for Appendix E, impaired waters, the pollutant(s) are based on the impairment listing, as provided in the MS4 Requirements Table. If the impairment is based on siltation only, a minimum 10% sediment reduction is required. If the impairment is based on nutrients only or other surrogates for nutrients (e.g., “Excessive Algal Growth” and “Organic Enrichment/Low D.O.”), a minimum 5% TP reduction is required. If the impairment is due to both siltation and nutrients, both sediment (10% reduction) and TP (5% reduction) must be addressed. PRPs may use a presumptive approach in which it is assumed that a 10% sediment reduction will also accomplish a 5% TP reduction. However, MS4s may not presume that a reduction in nutrients will accomplish a commensurate reduction in sediment.

The impaired downstream waters are Chester Creek, which has an impairment of Siltation. Since the impairment is siltation, a minimum 10% reduction is required. This MS4 PRP presents the minimum reduction in loading for siltation as pounds per year (lb/yr).

D. Determine Existing Loading for Pollutants of Concern

Identify the date associated with the existing loading estimate. Calculate the existing loading, in lbs. per year, for the pollutant(s) of concern in the PRP Planning Area.

There are several possible methods to estimate existing loading, ranging from simplistic to complex. One method to estimate existing loading that is acceptable to DEP is to determine the percent impervious and pervious surface within the urbanized area of the storm sewershed and calculate existing loading by multiplying the developed impervious and developed pervious land areas (acres) by pollutant loading rates (lb/acre/year) ("simplified method"). The MS4 may use loading rates for undeveloped land for areas outside of the urbanized area which flows into the urbanized area. Where structural BMPs are currently in place and are functioning, the existing loading estimate may be reduced to account for pollutant reductions from those BMPs.

Use of DEP's simplified method is not required. Any methodology that calculates existing pollutant loading in terms of lbs. per year, evaluates BMP-based pollutant reductions utilizing the BMP effectiveness values contained in 3800-PM-BCW0100m or Chesapeake Bay Program expert panel reports, uses average annual precipitation conditions, considers both overland flow and stream erosion, and is based on sound science may be considered acceptable.

Whatever tool or approach that is used to estimate existing loading from the PRP Planning Area must also be used to estimate existing loading to planned BMPs. This avoids errors in percent pollutant removal calculations that would result if different methods were used. Later BMP design efforts will usually apply a more sophisticated method than used in planning to calculate load to a BMP. The design loading may not however be used to alter the assumed pollutant reduction by the BMP unless the PRP is revised to apply the more sophisticated method to the load from the storm sewershed as a whole.

MS4s may claim "credit" for structural BMPs implemented prior to development of the PRP to reduce existing loading estimates. In order to claim credit, identify all such structural BMPs in Section D of the PRP along with the following information:

- A detailed description of the BMP;
- Latitude and longitude coordinates for the BMP;
- Location of the BMP on the storm sewershed map;
- The permit number, if any, that authorized installation of the BMP;
- Calculations demonstrating the pollutant reductions achieved by the BMP;
- The date the BMP was installed and a statement that the BMP continues to serve the function(s) it was designed for; and
- The operation and maintenance (O&M) activities and O&M frequencies associated with the BMP.

The MS4 permittee may optionally submit design drawings of the BMP for previously installed or future BMPs with the PRP.

Existing loading must be calculated and reported for the portion of the Planning Area which drains to impaired waters as of the date of the development of the PRP. MS4s may not claim credit for street sweeping and other non-structural BMPs implemented in the past, and an MS4 may not reduce its obligations for achieving permit term pollutant load reductions through previously installed BMPs. If structural BMPs were implemented prior to development of the PRP and continue to be operated and maintained, the MS4 may claim pollutant reduction credit in the form of reduced existing loading.

An MS4 may use all BMPs installed prior to the date of the load calculation to reduce its estimate of existing pollutant loading. For example, if a rain garden was installed ten years ago and is expected to remove 100 lbs. of sediment annually, and the overall annual loading of sediment in the storm sewershed is estimated to be 1,000 lbs. without specifically addressing the rain garden, an MS4 may not claim that the rain garden satisfies its obligations to reduce sediment loading by 10%. The MS4 may, however, use the rain garden to demonstrate that the existing load is 900 lbs. instead of 1,000 lbs., and that 90 lbs. rather than 100 lbs. needs to be reduced during the term of permit coverage.

Each impairment identified on the MS4 Requirements Table ("Table") must be addressed in a PRP document. The Table listings for each MS4 are different because they reflect local conditions, which is why an MS4 must carefully interpret the information on the Table.

NOTE - MapShed, or any other watershed model where channel erosion is explicitly modeled, should be run on a minimum of ~10 mi2 area to properly account for downstream channel impacts and include impaired waters identified in the MS4 Requirements Table. Aggregation of these waters up to approximately the 12-digit HUC scale for modeling purposes is acceptable. Modeling may not be done at the individual storm sewershed or municipal scale where the extent of downstream impact is not included in load calculation.

For PRPs developed for impaired waters (Appendix E), the pollutant(s) are based on the impairment listing, as provided in the MS4 Requirements Table. If the impairment is based on siltation only, a minimum 10% sediment reduction is required. If the impairment is based on nutrients only or other surrogates for nutrients (e.g., "Excessive Algal Growth" and "Organic Enrichment/Low D.O."), a minimum 5% TP reduction is required. If the impairment is due to both siltation and nutrients, both sediment (10% reduction) and TP (5% reduction) must be addressed. PRPs may use a presumptive approach in which it is assumed that a 10% sediment reduction will also accomplish a 5% TP reduction. However, MS4s may not presume that a reduction in nutrients will accomplish a commensurate reduction in sediment.

All MS4s must use the BMP effectiveness values contained within DEP's BMP Effectiveness Values document (3800-PM-BCW0100m) or Chesapeake Bay Program expert panel reports for BMPs listed in those resources when determining pollutant load reductions in PRPs, except as otherwise approved by DEP. An example of other approaches that may be approved by DEP include the use of thoroughly vetted mechanistic models with self-contained BMP modules (e.g., Storm Water Management Model (SWMM), WinSLAMM) to demonstrate achievement of reduction targets. Application of these data intensive models could allow for a streamlining of the planning and design phases of BMPs that may provide future cost savings as municipalities move toward implementation of the plan. Such resources must be documented in the PRP, and must reflect both overland flow and in-stream erosion components.

NOTE - Calculation of sediment load reductions for PRP purposes using the *Expert Panel to Define Removal Rates for Individual Stream Restoration Projects* report should be done as follows:

- Where existing sediment loads were calculated using modeling at a local watershed scale, the default rate to be used is 115 lb/ft/yr. This default rate comes from a convergence of MapShed modeled streambank erosion loads from a group of urbanized watersheds, the 248 lb/ft default edge-of-field (EOF) rate in the Expert Panel Report with the 50% efficiency uncertainty factor specified for the Protocols applied, and field data were collected following the BANCS methodology where projects have been implemented and load reductions calculated using the Protocols.

NOTE – Use of default effectiveness values (115 lb/ft/yr) will be accepted for the subsequent permit term. It is recommended that the data required to complete load calculations using the Protocols be collected during the design phase for use in subsequent load reduction calculations.

NOTE – Desktop MapShed users may not use the streambank restoration or street sweeping components included in the MapShed BMP editor for pollutant reduction calculations. Pollutant reductions associated with streambank restoration projects must use the methods described above; whereas, reductions from street sweeping must be calculated in accordance with the *Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices* or the BMP Effectiveness Values Table.

NOTE – If BMP effectiveness values are updated in DEP's BMP Effectiveness Values document or in Chesapeake Bay Program expert panel reports between the time the PRP is approved and the time the final report is developed to document compliance with the permit, those updated effectiveness values may optionally be used.

MapShed was utilized to compute the existing sediment loading of the PRP Planning Area, which drains to Chester Creek. The date the existing loading was calculated / the date of development of this PRP is September 2017, revised in July 2018.

West Chester Borough has a total existing sediment loading of 221,612 lbs/year in its Chester Creek storm sewershed. This is from the total Sediment loads for “00200” from the Chester Creek model run, included in Appendix E, under “C:MapShed\Runfiles\Goose2018\Output\ Goose2018-0_ua.csv”.

E. Select BMPs to Achieve the Minimum Required Reductions in Pollutant Loading

Identify the minimum required reductions in pollutant loading. Applicants must propose the implementation of BMP(s) or land use changes within the PRP Planning Area that will result in meeting the minimum required reductions in pollutant loading within the Planning Area. These BMP(s) must be implemented within 5 years of DEP's approval of coverage under the PAG-13 General Permit or an individual permit, and may be located on either public or private property. If the applicant is aware of BMPs that will be implemented by others (either in cooperation with the applicant or otherwise) within the Planning Area that will result in net pollutant loading reductions, the applicant may include those BMPs within its PRP.

Historic street sweeping practices should not be considered in calculating credit for future practices. All proposed street sweeping practices may be used for credit if the minimum standard is met for credit (see 3800-PM-BCW0100m). In other words, if sweeping was conducted 1/month and will be increased to 25/year in the future, the MS4 does not need to use the "net reduction" resulting from the increased sweeping; it may take credit for the full amount of reductions from 25/year sweeping.

NOTE – Street sweeping may be proposed as a BMP for pollutant loading reductions if 1) street sweeping is not the only method identified for reducing pollutant loading, and 2) the BMP effectiveness values contained in 3800-PM-BCW0100m or Chesapeake Bay Program expert panel reports are utilized.

The names and descriptions of BMPs and land uses reported in the PRP should be in accordance with the Chesapeake Bay Program Model. The names and descriptions are available through CAST (log into www.casttool.org, select "Documentation," select "Source Data" and see worksheets named "Land Use Definitions" and "BMP Definitions").

Opportunities for BMP installation vary across a municipality, and for that reason MS4s with multiple PRP obligations need not propose BMPs to address each impairment listed in the Table during the permit term. The existing loading must be calculated for the entire PRP

Planning Area which drains to impaired waters, but pollutant controls to be installed during the subsequent permit term may be located such that they reduce the load in one sub-watershed by less than 10% and by more than 10% in another (as long as the overall amount of lbs. reduced constitutes 10% of the existing loading for the entire PRP Planning Area).

MS4s may propose and take credit for only those BMPs that are not required to meet regulatory requirements or otherwise go above and beyond regulatory requirements. For example, a BMP that was installed to meet Chapter 102 NPDES permit requirements for stormwater associated with construction activities may not be used to meet permit term minimum pollutant reductions unless the MS4 can demonstrate that the BMP exceeded regulatory requirements; if this is done, the MS4 may take credit for only those reductions that will occur as a result of exceeding regulatory requirements.

The impairment for West Chester Borough in the Chester Creek watersheds is siltation, which requires a minimum 10% reduction. The required reduction is 22,161 lbs/year. The reduction is calculated as follows:

The storm sewershed (the PRP Planning Area) that drains to the municipal separate storm sewer system within the jurisdiction of the MS4 to the Chester Creek watershed has been delineated using PAMAP data known as Light Detection and Ranging (LiDAR) contours. For West Chester Borough, the PRP Planning Area consists of 256 acres. The East Branch Chester Creek Watersheds used in MapShed consist of 6,941 acres.

The MapShed model run used the PRP Planning Area as an “urban area” to determine the total Chester Creek watershed loading as well as the loading exclusively from the MS4 storm sewershed(s) / PRP Planning Area. Note that based on MapShed’s Basin delineations, there was a small portion of the Chester Creek PRP Planning Area located in the adjacent watershed (Brandywine Creek via Blackhorse Run, Plum Run and Taylor Run). Closer inspection of the contours and stormwater collection systems indicated that the area drains to the Goose Creek / Chester Creek watershed. Therefore, the basin delineation between the adjacent Brandywine Creek (Blackhorse Run, Plum Run and Taylor Run) basins and the Goose Creek / Chester Creek (again as an “urban area”) was adjusted accordingly.

Please note that from the MapShed output ("GWLF-E Average Loads by Source for Watershed 0", included in Appendix E) Goose Creek /Chester Creek Planning Area is "0020".

West Chester Borough proposes to install several small BMP infiltration facilities consisting of rain gardens, vegetated curb extensions, bioswales and infiltration trenches proposed at three locations, with the goal to capture and infiltrate the runoff generated from 1.5" of rainfall. These projects have been designed by others (see Appendix G), with the drainage areas supplied for use in the preparation of this PRP. The locations for these facilities are: John O. Green Memorial Park located at the intersection of Railroad Street, East Miner Street, and South Matlack Street; Fugett Park at Borough Hall located at 401 East Gay Street; and Greenview Alley located off South Franklin Street just north of intersection with East Nields Street.

The drainage areas' shape files were loaded into MapShed and the land uses within these drainage areas noted visually. The land use areas were noted to be HD Mixed for John O. Green Park and Fugett Park / Borough Hall, and HD Mixed, LD Mixed, and MD Mixed for Greenview Alley. The total area of 5.53 acres consists of 5.24 acres HD Mixed (2.12 hectares), 0.22 acres MD Mixed (0.09 hectares) and 0.06 acres LD Mixed (0.02 hectares) and an infiltration rate of 1.5" (3.81 cm) were utilized in the BMP Editor in MapShed (Urban BMP Editor) and the model run to ascertain the reduction in sediment loading as a result of these BMPs. The reduction will be 4,991 lbs. (4,060,650 lbs total load prior to BMPs, and 4,055,659 lbs. total load after BMPs).

The BMP Editor in MapShed for an Infiltration Basin BMP with 1.5" (3.81 cm) Rainfall Captured utilizes an efficiency rate of 0.82 for TSS. Note that per the BMP Effectiveness Values from DEP (3800-PM-BCW0100m 5/2016), Infiltration Practices w/Sand, Veg. has a BMP Efficiency Value of 95%; therefore, the MapShed efficiency rate is acceptable. Note that once the designs have been completed, reductions will be more accurately calculated.

Stream bank restoration and street sweeping are calculated outside of the MapShed program, per the PRP instructions, with streambank restoration as 115 lbs/ft/yr reduction. West Chester Borough will consider the potential of streambank restoration in the Chester Creek watershed.

If streambank restoration is undertaken, the Borough would propose to install approximately two-hundred (200) feet of streambank restoration. Therefore, the proposed streambank restoration of two-hundred (200) feet would result in 23,000 lbs./yr (200 ft * 115 lbs/ft/yr) reduction.

West Chester Borough is proposing to street sweep all streets in the borough more than 25 times annually. Per the BMP Effectiveness Values (5/2016), street sweeping must be conducted 25 times annually; only count those streets that are swept at least 25 times in a year. The acres associated with all streets that are swept at least 25 times in a year would be eligible for pollutant reductions consistent with the given BMP effectiveness values. From the "Street and Drain Cleaning Expert Panel Report," the standard street cleaning unit is curb miles swept. In general, one impervious acre is equivalent to one curb lane mile swept, assuming they are swept on one-side only (one acre = one curb lane mile rule of thumb). From Table 4, the Average TSS Load is 0.65 tons/ac/yr (1,300 #/ac/yr). From Table 15, using street sweeping frequency of 25 times annually (as a minimum), the sweeping schedule is 1P2W (one pass every 2 weeks). From Table 17, this corresponds to Practice #SCP-3 with a TSS Removal of 11% (see Appendix H). The Borough maintains 33 miles of street; the miles of street within the Chester Creek watershed is approximately 8 miles; since the Borough sweeps both sides of the streets, the curb lane miles would be 16 miles. Therefore, 0.65 tons/ac/yr * 2000 lbs/ton * 16 curb lane miles * 1 acre/curb lane mile * 11% TSS removal yields 2,288 lbs/yr TSS removal.

West Chester Borough also plants trees every year. The BMP effectiveness values for tree planting are estimated by DEP. DEP estimates that 100 fully mature trees of mixed species (both deciduous and non-deciduous) provide pollutant load reductions for the equivalent of one acre (i.e., one mature tree = 0.01 acre). The BMP effectiveness values given are based on immature trees (seedlings or saplings); the effectiveness values are expected to increase as the trees mature. To determine the amount of pollutant load reduction that can credited for tree planting efforts: 1) multiply the number of trees planted by 0.01; 2) multiply the acreage determined in step 1 by the pollutant loading rate for the land prior to planting the trees (in lbs/acre/year); and 3) multiply the result of step 2 by the BMP effectiveness values given. The Tree Planting BMP Effectiveness Value is 20% for Sediment.

In the Chester Creek watershed, the Borough intends to plant a minimum of 100 trees annually. The locations of these trees are unknown at this time; however, given the urban nature of the Borough, the estimate is that 90% are expected to be street trees. The HD Residential loading rate from MapShed for the Chester Creek watershed will be used to best represent paved streets / sidewalks (i.e., land prior to planting the trees is along streets, i.e., pavement and sidewalks). The sediment HD Residential loading rate from MapShed is 99.5 lb/ac/year. The reduction is therefore 18 lbs/yr. (100 trees/year * 90% street trees * 0.01 * 99.5 lb/ac/year * 20%).

West Chester Borough is also considering using Jellyfish Filters from Contech. There are two discharge points (i.e., endwalls) that discharge runoff from large collection areas. The two endwall identifications are nos. 13 and 37, with drainage areas of 44 and 35 acres respectively. The endwalls are located off of East Nields Street, west of the intersection with South Franklin Street. From the BMP Effectiveness Table, this type of BMP is Storm Sewer System Solids Removal. DEP will allow up to 50% of total pollutant reduction requirements to be met through this BMP. The drainage area treated by this BMP may be no greater than 0.5 acre unless it can be demonstrated that the specific system proposed is capable of treating stormwater from larger drainage areas. For planning purposes, the sediment removal efficiency specified by the manufacturer may be assumed, but no higher than 80%. The Jellyfish Filter has an 89% removal efficiency for Total Suspended Solids. Therefore, per the DEP Effectiveness Table, 80% removal efficiency is to be used. To ascertain only the land uses and loading rates of the drainage areas to these endwalls, the drainage areas were modeled as “Urban Areas” in MapShed. The GWLF-E Average Loads by Source for Watershed output from this run is included (“MapShed\Runfiles\Goose EWs\Output\GooseEWs-0_ua.csv”). The sediment load from the drainage area to Endwall 13 (“Area1” in output) is 4,369 lbs./year (the overland flow, HD Mixed), and from Endwall 37 (“Area2” in output) the sediment load is 3,475 lbs./year (the overland flow, HD Mixed). Note that because the volume and rate reductions are negligible, the conservative assumption is that stream bank loading will not be reduced as a result of the Jellyfish Filters. Additionally, since at this time the design of the units has not been completed, the size of the unit(s) is unknown. Making the assumption that the Borough could remove 25% of the load at either endwall (i.e., treat 25% of the drainage area), the reduction at Endwall 13 could be 874 lbs./year (4,369 lbs./year * 80% Efficiency * 25% Assumed Load Removed) and

the reduction at Endwall 37 could be 695 lbs./year (3,475 lbs./year * 80% Efficiency * 25% Assumed Load Removed). Information on the Jellyfish Filter is included as Appendix F. Note that the units will need to be sized / designed, which is beyond the scope of this PRP, with the actual removal calculated at that time.

The final total proposed potential sediment reduction is summarized below in Table E-1. The actual reductions will be refined at the time of design of each BMP.

TABLE E-1: REQUIRED REDUCTION AND PROPOSED BMPS

Existing Load (lb/yr)	221,612
Percent Reduction	10%
Required Reduction (lb/yr)	22,161
Proposed Reduction (lbs./yr)	4,991 (Three BMP Locations) 2,288 (Street Sweeping) 18 (Plant Street Trees) 23,000 (Streambank Restoration) 874 (Endwall 13) 695 (Endwall 37) Total Potential Reduction 31,866

West Chester Borough plans to achieve the sediment reduction by designing, constructing, operating and maintaining Best Management Practices (BMPs). West Chester Borough is required to implement this plan over the next five (5) years.

The following table summarizes the sediment load and required and proposed potential reductions for West Chester Borough's Chester Creek Storm Sewershed / PRP Planning Area.

TABLE E-2: MS4 PRP STRATEGY SUMMARY

Description	Value	Unit
Chester Creek Storm Sewershed / PRP Planning Area	256	acres
Existing Sediment Load	221,612	lb/year
Required Sediment Pollutant Load Reduction Percentage	10%	lb/year
Minimum Required Pollutant Load Reduction	22,161	lb/year
Proposed Sediment Load Reduction from BMPs	31,866	lb/year

F. Identify Funding Mechanism(s)

Prior to approving coverage DEP will evaluate the feasibility of implementation of an applicant's PRP. Part of this analysis includes a review of the applicant's proposed method(s) by which BMPs will be funded. Applicants must identify all project sponsors and partners and probable funding sources for each BMP.

West Chester Borough has adopted a Stream Protection Fee, which will be used to fund all BMP projects the Borough will undertake in the next NPDES Permit term.

G. Identify Responsible Parties for Operation and Maintenance (O&M) of BMPs

Once implemented, the BMPs must be maintained in order to continue producing the expected pollutant reductions. Applicants must identify the following for each selected BMP:

- The party(ies) responsible for ongoing O&M;
- The activities involved with O&M for each BMP; and
- The frequency at which O&M activities will occur.

MS4 permittees will need to identify actual O&M activities in Annual MS4 Status Reports submitted under the Individual Permit. Table G-1 lists the required information.

TABLE G-1 OPERATION AND MAINTENANCE OF BMPs

NAME OF BMP	RESPONSIBLE PARTY	O&M ACTIVITY & FREQUENCY
Street Sweeping	West Chester Borough	Per PA BMP Manual (latest revision) BMP 5.9.1 pg 94-97
Street Tree Planting	West Chester Borough	Per PA BMP Manual (latest revision) BMP 5.6.3 pg 63-67
Streambank Restoration	West Chester Borough	Per PA BMP Manual (latest revision) BMP 6.7.1 pg 191-210
Proposed Infiltration Facilities	West Chester Borough	Per PA BMP Manual (latest revision) BMP 6.4.3/6.4.4 pg 33-47
Jellyfish Filter	West Chester Borough	Per Manufacturer's Instructions

H. GENERAL INFORMATION

Submission of PRP: Attach one copy of the PRP with the NOI or individual permit application that is submitted to the regional office of DEP responsible for reviewing the NOI or application. In addition, one copy of the PRP (not the NOI or application) must be submitted to DEP's Bureau of Clean Water (BCW). BCW prefers electronic copies of PRPs, if possible. Email the electronic version of the PRP, including map(s) (if feasible), to RA-EPPAMS4@pa.gov. If the MS4 determines that submission of an electronic copy is not possible, submit a hard copy to: PA Department of Environmental Protection, Bureau of Clean Water, 400 Market Street, PO Box 8774, Harrisburg, PA 17105-8774.

PRP Implementation and Final Report: Under the NPDES Individual Permit, the permittee must achieve the required pollutant load reductions within 5 years following DEP's approval of coverage under the Individual Permit, and must submit a report demonstrating compliance with the minimum pollutant load reductions as an attachment to the first Annual MS4 Status Report that is due following completion of the 5th year of Individual Permit coverage.

For example, if DEP issues written approval of coverage to a permittee on June 1, 2018, the required pollutant load reductions must be implemented by June 1, 2023 and the final report documenting the BMPs that were implemented (with appropriate calculations) must be attached to the annual report that is due September 30, 2023.

West Chester Borough will submit the PRP in accordance with the above requirements.

APPENDIX A

MS4 Name	NPDES ID	Individual Permit Required?	Reason	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)	Other Cause(s) of Impairment
Chester County						
WEST BRANDYWINE TWP	PAI130544	Yes	TMDL Plan, SP, IP	West Branch Brandywine Creek	Appendix C-PCB (4a), Appendix E-Siltation (4a)	Water/Flow Variability (4c)
				Beaver Creek		Cause Unknown (4a), Other Habitat Alterations, Water/Flow Variability (4c)
				Christina River Basin Nutrients	TMDL Plan-Nutrients, Organic Enrichment/Low D.O. (4a)	
				Culbertson Run	Appendix E-Siltation (4a)	Other Habitat Alterations (4c)
				East Branch Brandywine Creek		Cause Unknown (4a), Other Habitat Alterations, Water/Flow Variability (4c)
				Unnamed Tributaries to West Branch Brandywine Creek		Cause Unknown (4a)
WEST CALN TWP	PAG130145	Yes	TMDL Plan, SP	Christina River Basin Nutrients	TMDL Plan-Nutrients, Organic Enrichment/Low D.O. (4a)	
				Christina River Basin Sediment	TMDL Plan-Siltation, Suspended Solids (4a)	
				Indian Spring Run	Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation (4a)	
				Pequea Creek	Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation (4a)	
				West Branch Brandywine Creek	Appendix C-PCB (4a)	Water/Flow Variability (4c)
				Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	
WEST CHESTER BORO	PAG130002	Yes	TMDL Plan	Blackhorse Run	Appendix E-Siltation (4a)	Other Habitat Alterations, Water/Flow Variability (4c)
				Brandywine Creek	Appendix E-Siltation (4a)	
				Chester Creek	Appendix B-Pathogens (5), Appendix E-Siltation (5)	Cause Unknown (5), Flow Alterations, Water/Flow Variability (4c)
				Goose Creek TMDL	TMDL Plan-Nutrients (4a)	Cause Unknown (4a)
				Plum Run	Appendix E-Siltation (4a)	Water/Flow Variability (4c)
				Taylor Run	Appendix E-Siltation (4a)	Cause Unknown (4a), Other Habitat Alterations (4c)
WEST GOSHEN TWP	PAI130532	Yes	TMDL Plan, SP, IP	Broad Run		Water/Flow Variability (4c)
				Taylor Run		Cause Unknown (4a), Other Habitat Alterations (4c)
				Plum Run		Water/Flow Variability (4c)
				John Smedley Run		Water/Flow Variability (4c)
				Goose Creek TMDL	TMDL Plan-Nutrients (4a)	Cause Unknown (4a)
				East Branch Chester Creek	Appendix E-Siltation (5)	Cause Unknown (5), Other Habitat Alterations, Water/Flow Variability (4c)
				East Branch Brandywine Creek		Cause Unknown (4a), Water/Flow Variability (4c)
				Chester Creek	Appendix B-Pathogens (5), Appendix E-Siltation (5)	Cause Unknown (5), Flow Alterations, Water/Flow Variability (4c)
				Christina River Basin Sediment	TMDL Plan-Siltation, Suspended Solids (4a)	

APPENDIX B

Public Notice & Proof of Publication

Plan needs to be on July 18 Workshop Agenda

Christine McAllister

To: legals@dailylocal.com
Subject: Public Notice Advertisement
Attachments: ADVERTISEMENT-WC (002).DOCX

Importance: High

7/7/17

Maureen – Please advertise the attached Notice on July 10. E-mail me a Proof of Publication and send the invoice to my attention.

Thank you for your help with EVERYTHING!!!!

Regards,

Christine

Christine M. McAllister
Administrative Assistant to the Borough Manager
Borough of West Chester
cmcallister@west-chester.com
610-344-3246 (W)
484-456-8281 (Cell)
610-436-0009 (F)

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BOROUGH OF WEST CHESTER

MS4 POLLUTANT REDUCTION PLANS AND TMDL PLAN

JUNE 30, 2017

The Borough Council of the Borough of West Chester will accept comments from the public beginning on June 10, 2017 and extending through August 10, 2017 associated with the Borough's two (2) Pollutant Reduction Plans (PRPs) and one (1) Total Maximum Daily Load (TMDL) Plan as required by the Pennsylvania Department of Environmental Protection as a component of the Borough's *National Pollutant Discharge Elimination System (NPDES) Individual Permit to Discharge Stormwater from Small Municipal Separate Storm Sewer Systems* (MS4s). The PRPs outline in general terms the Borough's 5-year plan between 2018 and 2023 to reduce sediment loadings from the MS4 stormwater discharges to Chester Creek/Goose Creek, Brandywine Creek, Blackhorse Run, Plum Run, and Taylor Run. The TMDL Plan outlines in general terms the Borough's 5-year plan between 2018 and 2023 to reduce Total Phosphorus loadings from the MS4 stormwater discharges to Goose Creek. The PRPs and TMDL Plan will be available for public review Monday through Friday between the hours of 8:30 AM to 4:00 PM at the municipal offices of the Borough of West Chester located at 401 E. Gay Street, West Chester, PA 19380. The PRPs and TMDL Plan is also available for public review on the Borough's website at www.west-chester.com. Comments may be provided in writing and delivered in person or via e-mail or regular mail and addressed to Michael A. Cotter, Borough Manager at macotter@west-chester.com. The PRPs and TMDL Plan will be on the agenda for the Borough Council Work Session meeting scheduled for July 18, 2017. Comments received after August 10, 2017 will not be considered by the Borough Council.

Michael A. Cotter
Borough Manager

21ST CENTURY media

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AFFIDAVIT OF PUBLICATION

307 Derstine Avenue • Lansdale, PA 19446

WEST CHESTER BOROUGH
401 E GAY STREET
WEST CHESTER, PA 19380
Attention:

STATE OF PENNSYLVANIA,
COUNTY OF MONTGOMERY

The undersigned Kathy Vincent, being duly sworn the he/she is the principal clerk of Daily Local News, Daily Local News Digital, published in the English language for the dissemination of local or transmitted news and intelligence of a general character, which are duly qualified newspapers, and the annexed hereto is a copy of certain order, notice, publication or advertisement of:

WEST CHESTER BOROUGH

Published in the following edition(s):

Daily Local News	07/10/17
Daily Local News Digital	07/10/17

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
MAUREEN SCHMID, Notary Public
Lansdale Boro., Montgomery County
My Commission Expires March 31, 2021

Sworn to the subscribed before me this 7/11/2017.

Maureen Schmid

Notary Public, State of Pennsylvania
Acting in County of Montgomery

The Borough Council of the Borough of West Chester will accept comments from the public beginning on June 10, 2017 and extending through August 10, 2017 associated with the Borough's two (2) Pollutant Reduction Plans (PRPs) and one (1) Total Maximum Daily Load (TMDL) Plan as required by the Pennsylvania Department of Environmental Protection as a component of the Borough's National Pollutant Discharge Elimination System (NPDES) Individual Permit to Discharge Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s). The PRPs outline in general terms the Borough's 5-year plan between 2018 and 2023 to reduce sediment loadings from the MS4 stormwater discharges to Chester Creek/Goose Creek, Brandywine Creek, Blackhorse Run, Plum Run, and Taylor Run. The TMDL Plan outlines in general terms the Borough's 5-year plan between 2018 and 2023 to reduce Total Phosphorus loadings from the MS4 stormwater discharges to Goose Creek. The PRPs and TMDL Plan will be available for public review Monday through Friday between the hours of 8:30 AM to 4:00 PM at the municipal offices of the Borough of West Chester located at 401 E. Gay Street, West Chester, PA 19380. The PRPs and TMDL Plan is also available for public review on the Borough's website at www.west-chester.com. Comments may be provided in writing and delivered in person or via e-mail or regular mail and addressed to Michael A. Cotter, Borough Manager at macotter@west-chester.com. The PRPs and TMDL Plan will be on the agenda for the Borough Council Work Session meeting scheduled for July 18, 2017. Comments received after August 10, 2017 will not be considered by the Borough Council.
Michael A. Cotter
Borough Manager
DL-July 10-1a

Advertisement Information

Client Id: 884439 **Ad Id:** 1379705 **PO:** **Sales Person:** 093304

and 455-14.C to allow a minimum Front Yard Setback of 30.05 feet and minimum Rear Yard Setback of 55.37 feet where the minimum Front and Rear Yard Setbacks are 75 feet; Section 455-132 to allow a pool and associated structures within the minimum Rear Yard Setback where they are not permitted; and from Section 274-19 to allow land disturbance, improvements, and construction activities within the Riparian Buffer where no disturbance is permitted; and any other relief that may be deemed necessary by the Zoning Hearing Board.

2. ZHB 563 – Nguyen/Vu – 1026A Lancaster Avenue, Berwyn. (VB District TPN 55-2L-4) Applicant has changed the property's use from commercial to single-family detached dwelling without Township approval. Applicant seeks a Variance from Section 455-21.(A)(1) to eliminate the need for commercial uses where second floor apartments are only allowed as accessory uses to nonresidential uses on the ground-level floor; a Special Exception in accordance with Section 455-122.B to change a nonconforming use or in the alternative appeal of the Zoning Officer's determination that the Applicant changed the property's use from commercial to single-family detached dwelling which is not a permitted use, and any other relief that may be deemed necessary by the Zoning Hearing Board.

Copies of applications are available for review in the Easttown Township Building weekdays from 8:00 a.m. through 12:00 p.m. and 12:30 p.m. through 4:30 p.m. If any person wishing to attend the hearing has a disability and/or requires an auxiliary aid, service or other accommodation, he or she should contact the Township at 610-687-3000 to discuss how those needs may be accommodated.
dln. 7/10, 17 - 1a.

The Borough Council of the Borough of West Chester will accept comments from the public beginning on June 10, 2017 and extending through August 10, 2017 associated with the Borough's two (2) Pollutant Reduction Plans (PRPs) and one (1) Total Maximum Daily Load (TMDL) Plan as required by the Pennsylvania Department of Environmental Protection as a component of the Borough's National Pollutant Discharge Elimination System (NPDES) Individual Permit to Discharge Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s). The PRPs outline in general terms the Borough's 5-year plan between 2018 and 2023 to reduce sediment loadings from the MS4 stormwater discharges to Chester Creek/Goose Creek, Brandywine Creek, Blackhorse Run, Plum Run, and Taylor Run. The TMDL Plan outlines in general terms the Borough's 5-year plan between 2018 and 2023 to reduce Total Phosphorus loadings from the MS4 stormwater discharges to Goose Creek. The PRPs and TMDL Plan will be available for public review Monday through Friday between the hours of 8:30 AM to 4:00 PM at the municipal offices of the Borough of West Chester located at 401 E. Gay Street, West Chester, PA 19380. The PRPs and TMDL Plan is also available for public review on the Borough's website at www.west-chester.com. Comments may be provided in writing and delivered in person or via e-mail or regular mail and addressed to Michael A. Cotter, Borough Manager at macotter@west-chester.com. The PRPs and TMDL Plan will be on the agenda for the Borough Council Work Session meeting scheduled for July 18, 2017. Comments received after August 10, 2017 will not be considered by the Borough Council.
Michael A. Cotter
Borough Manager
DL-July 10-1a

BIDS & PROPOSALS

ADVERTISEMENT FOR BIDS

Sealed bids for the construction of the **Dogwood / Scott Drive Sewer Extension** will be received by the Caln Township Municipal Authority electronically via PennBid™ until 10:00 **A.M. local time, Tuesday, August 8, 2017** at which time all bids will be opened online.

Construction of the sewer extension will involve the installation of approximately 4,000 linear feet of low pressure sewer lines by open trench and horizontal directional drilling, installation of approximately 400 linear feet of gravity sanitary sewer by open trench, and the completion of all other necessary work to provide public sewer to approximately 55 existing homes located in Caln Township, Chester County Pennsylvania.

All Bid Documents and solicitation details are available at PennBid™ - www.PennBid.net. Click on the "Solicitations" then "View" tabs. Please note the low bidder is responsible for a fee to PennBid™.

Each bid must be accompanied by a bid bond or a certified check in an amount not less than ten percent (10%) of the amount of the bid in the form and subject to the conditions provided in the Instructions to Bidders. No bid may be withdrawn for the

Public Agenda

And

Meeting Minutes

Public Works Committee

July 11, 2017 – 5:35 pm

Committee Members Present:	Don Braceland (Chair) Bernard Flynn (Council Member) Denise Polk
Department Heads Present:	**O'B Laing, Public Works** **Keith Kurowski, Recreation** **Mac Cotter (Borough Manager)**

1. Call to Order – meeting was called to order at 5:35 PM

2. Comments, suggestions, petitions by residents in attendance regarding items not on the agenda:
   a) Keith Kurowski reminded everyone that the 35th Annual Turks Head Music Festival was taking place this Sunday, July 16th at Everhart Park.

3. Discuss the Marshall Square Park sidewalk and fieldstone step reconstruction.
   a) After an extended discussion, this item was tabled for further discussion. It was decided that Jeff Beitel, at his request, would offer reasonable alternative to repair the sidewalk instead of total reconstruction.

4. Discuss substitute material to replace tree well grates throughout the BID.
   a) Alternative material was shown along with photograph of similar product which is currently in place for over eight (8) years. This was well received by Council and members of the public. No decision was made however, Jeff Beitel indicated that as the Chairman of the Shade Tree Commission he had some concerns about the product and would like Council to allow him some time to look at alternative products to which Council complied.

5. Appraise Council of proposed Bid solicitation for 2017 Pavement Markings project.
   a) The Public Works Director gave a brief overview of the Pavement Markings project which included the bid documents to be ready for contract award in August.

6. Appraise Council of proposed Bid solicitation for 2017 Street and Alley Resurfacing/Reconstruction project.
   a) The Public Works Director gave a brief overview of the Street and Alley Resurfacing/Reconstruction project which included the bid documents to be ready for contract award in August.

7. Appraise Council of proposed Bid Solicitation for the Barnard Street Culvert project.
   a) The Public Works Director informed Council that this project is scheduled for bidding as soon as possible. He also noted that this is one of the projects which was long overdue, but would not be possible to expedite had it not been for the newly implemented Stream Protection Fee (SPF) which will cover all cost for the project. Councilman Flynn, however, remarked that he would suggest that the bridge abutment be painted with graffiti resistant paint. No action needed.

8. Consider Planned University Campus Overlay Traffic Planning Proposal
   a) Borough Manager gave a brief overview of this project, highlighting scope of work and also indicated it will be joint effort between WCU, West Goshen Township and The Borough.

9. Consider Proposal for Town Center Closed Loop System Upgrade
   a) Borough Manager gave a synopsis of this project which was subsequently sent through by a vote of 3 – 0.
      - **TO WORK SESSION AGENDA**

10. Consider Stream Protection Program Support Change Order.
    a) Courtney Finneran, Project Manager of CH2, gave a brief overview highlighting the rationale for the change order request. This was followed by a 3 – 0 vote by Council.
       - **TO WORK SESSION AGENDA**

11. Authorization to Advertise the Goose Creek Pollution Reduction Plan
    a) Borough Manager gave a brief overview of this plan which was followed by a 3 – 0 approval by Council.
       - **TO WORK SESSION AGENDA**

12. Discuss Tennis Court maintenance at Hoopes Park 2017
    a) 3 - 0 approval to move ahead with the project
       - **TO WORK SESSION AGENDA**

13. Discuss Kathy McBratnie Park Playground Renovation 2017
    a) Informative only, no action required or taken.

14. Approve June 2017 Public Works Committee minutes

15. Other Business
    a) None

16. Adjourn
    a) Meeting called for adjournment by Don Braceland, all in favor 3 – 0 .

Updated August 8, 2017

AGENDA

Public Works Committee

August 8, 2017 – 5:30 pm

Committee Members: Donald Braceland (Chair)
Denise Polk
Bernard Flynn

Department Heads: O'B Laing, Public Works
Keith Kurowski, Parks & Recreation

Borough Manager: Michael A. Cotter

1. Call to Order
2. Comments, suggestions, petitions by residents in attendance regarding items not on the agenda.
3. Discuss Gilmore PRP/TMDL Plans *(Issue Briefing (see Agenda Bookmark) & Attachment)*
4. Discuss Marshall Square Park proposal for sidewalk and staircase reconstruction *(Issue Briefing (see Agenda Bookmark) & Attachment)*
5. Discuss PennDOT Winter Traffic Services Agreement *(Issue Briefing (see Agenda Bookmark) & Attachment)*
6. Appraise Council of pending Shade Tree Grant application *(Information only)*
7. Review and approval of Bid Award for Barnard Street Culvert project *(Issue Briefing (see Agenda Bookmark) & Attachment)*
8. Review and approval of Paving Project Bid Award *(Issue Briefing (see Agenda Bookmark) & Attachment)*
9. Review and approval of Bid Award for Pavement markings *(Issue Briefing (see Agenda Bookmark) & Attachment)*
10. Discuss request from Councilman Bernie Flynn to remove bench from the North side of Gay Street in the vicinity of Rite Aid Pharmacy *(Information only)*
11. Friends of Marshall Square Park – discuss two granite in-lay park signs *(Issue Briefing (see Agenda Bookmark) & Attachment)*
12. Friends of Marshall Square Park – discuss "No Smoking Inside Gazebo" signs *(Issue Briefing (see Agenda Bookmark))*

13. Approve July's Public Works Committee meeting minutes *(see Agenda Bookmark)*

14. Other Business

15. Adjourn

Attachment Information:

Click here to access the Attachments.

Attachments can also be located at www.west-chester.com in the Document Center's "Agenda Attachments" folder.

****IDENTIFIER KEY = PW****

WEST CHESTER BOROUGH

POLLUTANT REDUCTION PLANS
AND
TOTAL MAXIMUM DAILY LOAD STRATEGY PLAN

EXECUTIVE SUMMARY

- West Chester Borough is currently operating under the PADEP's General (PAG-13) Small Municipal Separate Storm Sewer Systems (MS4) permit. Requirements include the following:

  - Public Education and Outreach
  - Public Participation
  - Illicit Discharge Detection and Elimination
  - Construction Site Runoff Control
  - Post-Construction Runoff Control
  - Pollution Prevention / Good Housekeeping

- The first permit was issued in 2003 with renewals every 5 years. The next permit period extends from 2018 to 2023. The Borough is required to prepare and submit a new permit application by September 16, 2017.

- Past permit requirements were limited to the fulfillment and reporting of the above listed efforts. A key component of this next permit cycle is the submission of a Pollutant Reduction Plan (PRP) and/or a Total Maximum Daily Load (TMDL) Strategy Plan to accomplish a specified percentage reduction in the amount of pollutants contributing to impaired streams. Pollutant reductions must be achieved within the 5-year permit period.

- PADEP has identified the following streams in the Borough as having specific impairments:

Goose Creek:	Nutrients (i.e., Total Phosphorus)*
Chester Creek (Goose Creek):	Siltation (i.e., sediment) and pathogens
Brandywine Creek:	Siltation
Blackhorse Run:	Siltation
Plum Run:	Siltation
Taylor Run:	Siltation

*Per U.S. Environmental Protection Agency, Philadelphia, PA report titled *Nutrient Total Maximum Daily Load in Goose Creek Watershed, Pennsylvania*, dated June 30, 2008.

As a result, the Borough is required to develop one (1) TMDL Strategy Plan to achieve a 53.9% reduction in the Total Phosphorus loading contributing to Goose Creek and two (2) PRPs to demonstrate a 10% reduction in the sediment loading contributing to Chester Creek/Goose Creek and Brandywine Creek/Blackhorse Run/Plum Run/Taylor Run.

- Because the Borough is subject to the Total Phosphorus TMDL Plan reduction requirements, the Borough will no longer be eligible to be covered by the PAG-13 permit, but now will be required to obtain an Individual MS4 Permit from PADEP.

- The existing sediment and Total Phosphorus loadings and reductions have been calculated based on the land uses within the contributing drainage areas to the impaired streams.

- Effective stormwater Best Management Practices (BMPs) are proposed, including the following combinations of various BMPs:

  - Rain gardens
  - Vegetated curb extensions
  - Bioswales
  - Infiltration trenches
  - Brick pavers with underground infiltration
  - Streambank restoration
  - Street sweeping
  - Tree plantings
  - Pretreatment and membrane filtration systems
  - Storm inlet cleaning

- The above listed BMPs are proposed to be installed at the following locations throughout the Borough:

  - John O. Green Memorial Park
  - Fugett Park/Borough Hall
  - Greenview Alley

- Veterans Park/Pine Alley
- Marshall Square Park
- South Brandywine Street
- Storm sewer system outfalls at E. Nields Street west of S. Franklin Street

- The Public Participation component of the TMDL Strategy Plan and PRPs has been satisfied as follows:

  - The public notice regarding the draft TMDL strategy plan and PRPs was advertised on July 10, 2017.
  - The required public meeting (this discussion) was held on August 8, 2017.
  - Public comments were accepted from July 10, 2017 to August 10, 2017.
  - Public comments will be incorporated, documents will be finalized, and the permit application will be submitted by September 16, 2017 to PADEP.

APPENDIX C

WEST GOSHEN TOWNSHIP

EAST BRADFORD TOWNSHIP

WEST GOSHEN TOWNSHIP

WEST GOSHEN TOWNSHIP

Legend

Stormwater Features

- Inlet
- Manhole
- Junction Manhole Box
- Private Inlet
- Stormwater Outfall
- Pipe Discharge
- Stormwater Pipes
- Streams
- Swale

Mapshed Landuse Code

- Water
- Low-Density Residential
- Medium-Density Residential
- High-Density Residential
- Low-Density Mixed Urban
- Medium-Density Mixed Urban
- High-Density Mixed Urban
- Hay/Pasture
- Cropland
- Coniferous
- Decidious
- Mixed Woodland
- Woody Wetland
- Emergent Wetland
- Disturbed
- Disturbed
- Turf/Golf

WEST CHESTER BOROUGH
MS4 PRP LAND USE (MAPSHED) MAP
CHESTER CREEK/ GOOSE CREEK

WEST CHESTER BOROUGH, CHESTER COUNTY, PA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
65 E. BUTLER AVE. SUITE 100, NEW BRITAIN, PA 18901-5106 - (215) 345-4330
www.gilmore-assoc.com

JOB NO: 15-08026T | DATE: JULY 2018 | 0 100 200 400 Feet

WEST GOSHEN TOWNSHIP

EAST BRADFORD TOWNSHIP

WEST GOSHEN TOWNSHIP

WEST GOSHEN TOWNSHIP

Unnamed Trib Taylor Run

Unnamed Trib Taylor Run

Unnamed Trib Taylor Run

Hannum Trib to Taylor Run

Unnamed Trib Blackhorse Creek

BLACKHORSE CREEK

PLUM RUN

GOOSE CREEK

UNNAMED TRIB TO GOOSE CREEK

Streambank Restoration BMP Approximate Limits

Outfalls 13 & 37

GOSHEN RD

N LOCUST LA

PARKE HOLLOW LA

HOOPES PARK LA

S LOCUST LA

W ASHBRIDGE ST

E ASHBRIDGE ST

CLARKE ST

PENNY LA

CLOVER AL

ELBOW LA

ELIZABETH ST

E VIRGINIA AV

W VIRGINIA AV

MAYFIELD AV

N BRANDYWINE ST

N MARYLAND AV

S MARYLAND AV

NORRIS LA

EBBS LA

JEAN AL

N DARLINGTON ST

SCOTT AL

HOSIE AL

N WALNUT ST

NEWLIN AL

FORD CI

N FRANKLIN ST

HILLSIDE DR

MARSHALL DR

E MARSHALL ST

LINCOLN AV

MARIE AV

CONVENT LA

PARK AL

W MARSHALL ST

WEAVER AL

DEWEES AL

N HIGH ST

W LAFAYETTE ST

E LAFAYETTE ST

N WAYNE ST

W BIDDLE ST

E BIDDLE ST

BRICK AL

PINE AL

N CHURCH ST

SCHOOL AL

PROSPECT AL

HISTORY AL

HALL AL

W WASHINGTON ST

E WASHINGTON ST

N ADAMS ST

PLUM AL

S FRANKLIN ST

E EVANS ST

PEAR AL

PATTON AL

HANNUM AV

W CHESTNUT ST

E CHESTNUT ST

GRANITE AL

W PRESCOTT AL

LAW AL

N MATLACK ST

PATTON AV

W GAY ST

E GAY ST

HARMONY AL

W COURTHOUSE AL

POTTER AL

MIDDLE AL

N STRICKLEN ST

W MARKET ST

E MARKET ST

WOLFERTON AL

WORTHINGTON ST

PEARL AL

CEDAR AL

RAILROAD ST

E MINER ST

LOCUST AL

APPLE AL

S WALNUT ST

S FRANKLIN ST

S ADAMS ST

S PENN ST

S WORTHINGTON ST

E BARNARD ST

SPRUCE AL

HEMLOCK AL

W BARNARD ST

E UNION ST

HOLLY AL

OAK AL

HICKORY AL

S STRICKLEN ST

S CHURCH ST

S HIGH ST

POPLAR AL

MAGNOLIA ST

DEAN ST

CHERRY AL

BEECH AL

ELM AL

LACEY ST

ASH AL

KEYSTONE AL

MULBERRY AL

RIGG AL

HOWE ST

E NIELDS ST

JUNIPER AL

SHARPLESS ST

PRICE ST

ADELE AL

DOGWOOD AL

BIRCH AL

WILLOW AL

MULBERRY AL

W NIELDS ST

N CAMPUS DR

UNIVERSITY AV

COLLEGE AV

W ROSEDALE AV

E ROSEDALE AV

LINDEN ST

DULANEY AL

S MATLACK ST

S ADAMS ST

S PENN ST

JOSEPH AL

RIGG AL

S BRADFORD AV

N EVERHART ST

S EVERHART ST

S BRANDYWINE ST

S WAYNE ST

S NEW ST

S BOOTHAM ST

N BOOTHAM ST

N BRADFORD AV

S BRADFORD AV

W STRASBURG RD

OAK PL

WORTHINGTON ST

SPRING GROVE LA

TACIE LYNN DR

W BIDDLE ST

DOWNINGTOWN PIKE

WALDEN DR

Legend

Stormwater Features

- Inlet
- Manhole
- Junction Manhole Box
- Private Inlet
- Stormwater Outfall
- Pipe Discharge
- Stormwater Pipes
- Streams
- Swale
- Municipal Boundary
- Small BMP Locations

Planning Area

- GOOSE CREEK
- Parsed Areas

Parsed areas - Stormwater Outfall is located along / at the creek; any overland flow that flows into a creek and does not enter MS4 collection system.

WEST CHESTER BOROUGH
MS4 PRP MAP
CHESTER CREEK/ GOOSE CREEK

WEST CHESTER BOROUGH, CHESTER COUNTY, PA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
65 E. BUTLER AVE. SUITE 100, NEW BRITAIN, PA 18901-5106 - (215) 345-4330
www.gilmore-assoc.com

JOB NO: 15-08026T | DATE: JULY 2018

0 100 200 400 Feet

APPENDIX D

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STORMWATER DISCHARGES FROM
SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS
BMP EFFECTIVENESS VALUES

This table of BMP effectiveness values (i.e., pollutant removal efficiencies) is intended for use by MS4s that are developing and implementing Pollutant Reduction Plans and TMDL Plans to comply with NPDES permit requirements. The values used in this table generally consider pollutant reductions from both overland flow and reduced downstream erosion, and are based primarily on average values within the Chesapeake Assessment Scenario Tool (CAST) (www.casttool.org). Design considerations, operation and maintenance, and construction sequences should be as outlined in the Pennsylvania Stormwater BMP Manual, Chesapeake Bay Program guidance, or other technical sources. The Department of Environmental Protection (DEP) will update the information contained in this table as new information becomes available. Interested parties may submit information to DEP for consideration in updating this table to DEP's MS4 resource account, RA-EPPAMS4@pa.gov. Where an MS4 proposes a BMP not identified in this document or in Chesapeake Bay Program expert panel reports, other technical resources may be consulted for BMP effectiveness values. Note – TN = Total Nitrogen and TP = Total Phosphorus.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Wet Ponds and Wetlands	20%	45%	60%	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal.
Dry Detention Basins and Hydrodynamic Structures	5%	10%	10%	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff.
Dry Extended Detention Basins	20%	20%	60%	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Infiltration Practices w/ Sand, Veg.	85%	85%	95%	A depression to form an infiltration basin where sediment is trapped and water infiltrates the soil. No underdrains are associated with infiltration basins and trenches, because by definition these systems provide complete infiltration. Design specifications require infiltration basins and trenches to be built in good soil, they are not constructed on poor soils, such as C and D soil types. Engineers are required to test the soil before approval to build is issued. To receive credit over the longer term, jurisdictions must conduct yearly inspections to determine if the basin or trench is still infiltrating runoff.
Filtering Practices	40%	60%	80%	Practices that capture and temporarily store runoff and pass it through a filter bed of either sand or an organic media. There are various sand filter designs, such as above ground, below ground, perimeter, etc. An organic media filter uses another medium besides sand to enhance pollutant removal for many compounds due to the increased cation exchange capacity achieved by increasing the organic matter. These systems require yearly inspection and maintenance to receive pollutant reduction credit.
Filter Strip Runoff Reduction	20%	54%	56%	Urban filter strips are stable areas with vegetated cover on flat or gently sloping land. Runoff entering the filter strip must be in the form of sheet-flow and must enter at a non-erosive rate for the site-specific soil conditions. A 0.4 design ratio of filter strip length to impervious flow length is recommended for runoff reduction urban filter strips.
Filter Strip Stormwater Treatment	0%	0%	22%	Urban filter strips are stable areas with vegetated cover on flat or gently sloping land. Runoff entering the filter strip must be in the form of sheet-flow and must enter at a non-erosive rate for the site-specific soil conditions. A 0.2 design ratio of filter strip length to impervious flow length is recommended for stormwater treatment urban filter strips.
Bioretention – Raingarden (C/D soils w/ underdrain)	25%	45%	55%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has an underdrain and is in C or D soil.
Bioretention / Raingarden (A/B soils w/ underdrain)	70%	75%	80%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has an underdrain and is in A or B soil.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Bioretention / Raingarden (A/B soils w/o underdrain)	80%	85%	90%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has no underdrain and is in A or B soil.
Vegetated Open Channels (C/D Soils)	10%	10%	50%	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This BMP has no underdrain and is in C or D soil.
Vegetated Open Channels (A/B Soils)	45%	45%	70%	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This BMP has no underdrain and is in A or B soil.
Bioswale	70%	75%	80%	With a bioswale, the load is reduced because, unlike other open channel designs, there is now treatment through the soil. A bioswale is designed to function as a bioretention area.
Permeable Pavement w/o Sand or Veg. (C/D Soils w/ underdrain)	10%	20%	55%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, no sand or vegetation and is in C or D soil.
Permeable Pavement w/o Sand or Veg. (A/B Soils w/ underdrain)	45%	50%	70%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, no sand or vegetation and is in A or B soil.
Permeable Pavement w/o Sand or Veg. (A/B Soils w/o underdrain)	75%	80%	85%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has no underdrain, no sand or vegetation and is in A or B soil.
Permeable Pavement w/ Sand or Veg. (A/B Soils w/ underdrain)	50%	50%	70%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, has sand and/or vegetation and is in A or B soil.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Permeable Pavement w/ Sand or Veg. (A/B Soils w/o underdrain)	80%	80%	85%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has no underdrain, has sand and/or vegetation and is in A or B soil.
Permeable Pavement w/ Sand or Veg. (C/D Soils w/ underdrain)	20%	20%	55%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, has sand and/or vegetation and is in C or D soil.
Stream Restoration	0.075 lbs/ft/yr	0.068 lbs/ft/yr	44.88 lbs/ft/yr	An annual mass nutrient and sediment reduction credit for qualifying stream restoration practices that prevent channel or bank erosion that otherwise would be delivered downstream from an actively enlarging or incising urban stream. Applies to 0 to 3rd order streams that are not tidally influenced. If one of the protocols is cited and pounds are reported, then the mass reduction is received for the protocol.
Forest Buffers	25%	50%	50%	An area of trees at least 35 feet wide on one side of a stream, usually accompanied by trees, shrubs and other vegetation that is adjacent to a body of water. The riparian area is managed to maintain the integrity of stream channels and shorelines, to reduce the impacts of upland sources of pollution by trapping, filtering, and converting sediments, nutrients, and other chemicals. (Note – the values represent pollutant load reductions from stormwater draining through buffers).
Tree Planting	10%	15%	20%	The BMP effectiveness values for tree planting are estimated by DEP. DEP estimates that 100 fully mature trees of mixed species (both deciduous and non-deciduous) provide pollutant load reductions for the equivalent of one acre (i.e., one mature tree = 0.01 acre). The BMP effectiveness values given are based on immature trees (seedlings or saplings); the effectiveness values are expected to increase as the trees mature. To determine the amount of pollutant load reduction that can credited for tree planting efforts: 1) multiply the number of trees planted by 0.01; 2) multiply the acreage determined in step 1 by the pollutant loading rate for the land prior to planting the trees (in lbs/acre/year); and 3) multiply the result of step 2 by the BMP effectiveness values given.
Street Sweeping	3%	3%	9%	Street sweeping must be conducted 25 times annually. Only count those streets that have been swept at least 25 times in a year. The acres associated with all streets that have been swept at least 25 times in a year would be eligible for pollutant reductions consistent with the given BMP effectiveness values.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Storm Sewer System Solids Removal	0.0027 for sediment, 0.0111 for organic matter	0.0006 for sediment, 0.0012 for organic matter	1 – TN and TP concentrations	This BMP (also referred to as "Storm Drain Cleaning") involves the collection or capture and proper disposal of solid material within the storm system to prevent discharge to surface waters. Examples include catch basins, stormwater inlet filter bags, end of pipe or outlet solids removal systems and related practices. Credit is authorized for this BMP only when proper maintenance practices are observed (i.e., inspection and removal of solids as recommended by the system manufacturer or other available guidelines). The entity using this BMP for pollutant removal credits must demonstrate that they have developed and are implementing a standard operating procedure for tracking the material removed from the sewer system. Locating such BMPs should consider the potential for backups onto roadways or other areas that can produce safety hazards. To determine pollutant reductions for this BMP, these steps must be taken: 1) Measure the weight of solid/organic material collected (lbs). Sum the total weight of material collected for an annual period. Note – do not include refuse, debris and floatables in the determination of total mass collected. 2) Convert the annual wet weight captured into annual dry weight (lbs) by using site-specific measurements (i.e., dry a sample of the wet material to find its weight) or by using default factors of 0.7 (material that is predominantly wet sediment) or 0.2 (material that is predominantly wet organic matter, e.g., leaf litter). 3) Multiply the annual dry weight of material collected by default or site-specific pollutant concentration factors. The default concentrations are shown in the BMP Effectiveness Values columns. Alternatively, the material may be sampled (at least annually) to determine site-specific pollutant concentrations. DEP will allow up to 50% of total pollutant reduction requirements to be met through this BMP. The drainage area treated by this BMP may be no greater than 0.5 acre unless it can be demonstrated that the specific system proposed is capable of treating stormwater from larger drainage areas. For planning purposes, the sediment removal efficiency specified by the manufacturer may be assumed, but no higher than 80%.

APPENDIX E

Select input data file: C:\MapShed\Runfiles\Goose2018\Output\Goose2018-0_ua.csv

Watershed Totals | Municipality Loads | Regulated Loads | Unregulated Loads

GWLF-E Average Loads by Source for Watershed 0

Source	Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	282	26609.80	94.40	122.40	0.43	30.07	0.11
Cropland	151	226833.62	1502.20	808.61	5.36	139.13	0.92
Forest	1144	15498.50	13.50	86.60	0.08	10.96	0.01
Wetland	235	1278.68	5.40	54.81	0.23	3.42	0.01
Disturbed	0	0.00	0.00	0.00	0.00	0.00	0.00
Turfgrass	0	0.00	0.00	0.00	0.00	0.00	0.00
Open Land	872	165633.30	189.90	924.84	1.06	97.66	0.11
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	148	3637.63	24.60	84.94	0.57	9.24	0.06
MD Mixed	403	40013.90	99.30	928.61	2.30	103.77	0.26
HD Mixed	1152	114397.87	99.30	2654.78	2.30	296.70	0.26
LD Residential	642	15763.05	24.60	368.13	0.57	40.01	0.06
MD Residential	1853	184130.08	99.40	4272.74	2.31	477.52	0.26
HD Residential	57	5643.83	99.00	131.02	2.30	14.64	0.26
Water	2						
Farm Animals				0.0		0.0	
Tile Drainage		0.0		0.0		0.0	
Stream Bank		3261210.1		1631.4		423.3	
Groundwater				10019.7		218.3	
Point Sources				0.0		0.0	
Septic Systems				4532.9		0.0	
Totals	**6941**	**4060650**		**26621**		**1865**	

Print | Export to JPEG | Exit

Select input data file: C:\MapShed\Runfiles\Goose2018\Output\Goose2018-0_ua.csv

Watershed Totals | **Municipality Loads** | Regulated Loads | Unregulated Loads

View loads for municipality: (00200)

Source	Source Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	0	0.00	0.00	0.00	0.00	0.00	0.00
Cropland	0	0.00	0.00	0.00	0.00	0.00	0.00
Forest	2	27.00	13.50	0.20	0.08	0.00	0.00
Wetland	0	0.00	0.00	0.00	0.00	0.00	0.00
Disturbed	0	0.00	0.00	0.00	0.00	0.00	0.00
Turfgrass	0	0.00	0.00	0.00	0.00	0.00	0.00
Open Land	0	0.00	0.00	0.00	0.00	0.00	0.00
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	0	0.00	0.00	0.00	0.00	0.00	0.00
MD Mixed	0	0.00	0.00	0.00	0.00	0.00	0.00
HD Mixed	210	20853.00	99.30	483.00	2.30	54.60	0.26
LD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
MD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
HD Residential	44	4356.00	99.00	101.20	2.30	11.40	0.26
Water	0						
							Source Weighting
Farm Animals				0.0		0.0	0.000
Tile Drainage		0.00		0.0		0.0	0.000
Stream Bank		196376.44		98.2		25.5	0.095
Groundwater				541.1		11.8	0.054
Point Sources				0.0		0.0	0.000
Septic Systems				0.0		0.0	0.000
Totals	256	221612.4		1223.7		103.3	

Print | Export to JPEG | Exit

Urban Scenario BMP Editor

Performance Standard Calculations

Retrofits

BMP Type: Infiltration Basin

Area Treated (ha)		Existing Area (ha)	
LD Residential	0	LD Residential	260
MD Residential	0	MD Residential	750
HD Residential	0	HD Residential	23
LD Mixed	0.02	LD Mixed	60
MD Mixed	0.09	MD Mixed	163
HD Mixed	2.12	HD Mixed	466
Total	2	**Total**	1722

Rainfall Captured (2.54 cm = 1 in)

Depth (cm): 3.81

Volume (m3): 721

Run

Calculated Reduction Efficiency

TN 0.65 TP 0.76 TSS 0.82

New Development

BMP Type: Select BMP Type

Area Developed (ha)		Area Replaced (ha)		Existing Area (ha)	
LD Residential	0	Hay/Pasture	0	Hay/Pasture	114
MD Residential	0	Cropland	0	Cropland	61
HD Residential	0	Forest	0	Forest	463
LD Mixed	0	Disturbed	0	Disturbed	0
MD Mixed	0	Turfgrass	0	Turfgrass	0
HD Mixed	0	Open Land	0	Open Land	353
Total	0	**Total**	0	**Total**	991

Rainfall Captured (2.54 cm = 1 in)

Depth (cm): 7.10

Volume (m3): 0

Run

Calculated Reduction Efficiency

TN 0.00 TP 0.00 TSS 0.00

Stream Protection

Vegetative buffer strip width (m)	0
Fraction of streams treated (0-1)	0.000
Total streams in non-ag areas (km)	31.1
Streams w/bank stabilization (km)	0.0

Street Sweeping

Fraction of area treated (0-1): 1.000

Sweep Type: (•) Mechanical ( ) Vacuum

Times/month

Jan	0	Apr	0	Jul	0	Oct	0
Feb	0	May	0	Aug	0	Nov	0
Mar	0	Jun	0	Sep	0	Dec	0

Rural BMP Editor

BMP Efficiency Editor

Export to JPEG

Save File

Close

Select input data file: C:\MapShed\Runfiles\Gosse2018\Output\Goose2018BMPs-0_ua.csv

Watershed Totals | Municipality Loads | Regulated Loads | Unregulated Loads

GWLF-E Average Loads by Source for Watershed 0

Source	Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	282	26609.80	94.40	122.40	0.43	30.07	0.11
Cropland	151	226833.62	1502.20	808.61	5.36	139.13	0.92
Forest	1144	15498.50	13.50	86.60	0.08	10.96	0.01
Wetland	235	1278.68	5.40	54.81	0.23	3.42	0.01
Disturbed	0	0.00	0.00	0.00	0.00	0.00	0.00
Turfgrass	0	0.00	0.00	0.00	0.00	0.00	0.00
Open Land	872	165633.30	189.90	924.84	1.06	97.66	0.11
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	148	3637.63	24.60	84.83	0.57	9.22	0.06
MD Mixed	403	39947.76	99.10	927.40	2.30	103.62	0.26
HD Mixed	1152	114221.50	99.20	2651.35	2.30	296.26	0.26
LD Residential	642	15741.01	24.50	367.66	0.57	39.95	0.06
MD Residential	1853	183821.43	99.20	4267.18	2.30	476.79	0.26
HD Residential	57	5643.83	99.00	130.87	2.30	14.62	0.26
Water	2						
Farm Animals				0.0		0.0	
Tile Drainage		0.0		0.0		0.0	
Stream Bank		3256792.0		1629.2		421.1	
Groundwater				10019.7		218.3	
Point Sources				0.0		0.0	
Septic Systems				4532.9		0.0	
Totals	**6941**	**4055659**		**26608**		**1861**	

Print | Export to JPEG | Exit

Select input data file: C:\MapShed\Runfiles\Goose EWs\Output\GooseEWs-0_ua.csv

Watershed Totals | Municipality Loads | Regulated Loads | Unregulated Loads

GWLF-E Average Loads by Source for Watershed 0

Source	Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	282	26609.80	94.40	122.40	0.43	30.07	0.11
Cropland	151	226833.62	1502.20	808.61	5.36	139.13	0.92
Forest	1144	15498.50	13.50	86.60	0.08	10.96	0.01
Wetland	235	1278.68	5.40	54.81	0.23	3.42	0.01
Disturbed	0	0.00	0.00	0.00	0.00	0.00	0.00
Turfgrass	0	0.00	0.00	0.00	0.00	0.00	0.00
Open Land	872	165633.30	189.90	924.84	1.06	97.66	0.11
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	148	3637.63	24.60	84.94	0.57	9.24	0.06
MD Mixed	403	40013.90	99.30	928.61	2.30	103.77	0.26
HD Mixed	1152	114397.87	99.30	2654.78	2.30	296.70	0.26
LD Residential	642	15763.05	24.60	368.13	0.57	40.01	0.06
MD Residential	1853	184130.08	99.40	4272.74	2.31	477.52	0.26
HD Residential	57	5643.83	99.00	131.02	2.30	14.64	0.26
Water	2						
Farm Animals				0.0		0.0	
Tile Drainage		0.0		0.0		0.0	
Stream Bank		3261194.6		1631.4		423.3	
Groundwater				10019.7		218.3	
Point Sources				0.0		0.0	
Septic Systems				4532.9		0.0	
Totals	**6941**	**4060635**		**26621**		**1865**	

Print | Export to JPEG | Exit

Select input data file: C:\MapShed\Runfiles\Goose EWs\Output\GooseEWs-0_ua.csv

Watershed Totals | **Municipality Loads** | Regulated Loads | Unregulated Loads

View loads for municipality: Area1 (00001)

Source	Source Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	0	0.00	0.00	0.00	0.00	0.00	0.00
Cropland	0	0.00	0.00	0.00	0.00	0.00	0.00
Forest	0	0.00	0.00	0.00	0.00	0.00	0.00
Wetland	0	0.00	0.00	0.00	0.00	0.00	0.00
Disturbed	0	0.00	0.00	0.00	0.00	0.00	0.00
Turfgrass	0	0.00	0.00	0.00	0.00	0.00	0.00
Open Land	0	0.00	0.00	0.00	0.00	0.00	0.00
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	0	0.00	0.00	0.00	0.00	0.00	0.00
MD Mixed	0	0.00	0.00	0.00	0.00	0.00	0.00
HD Mixed	44	4369.20	99.30	101.20	2.30	11.40	0.26
LD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
MD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
HD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
Water	0						
							Source Weighting
Farm Animals				0.0		0.0	0.000
Tile Drainage		0.00		0.0		0.0	0.000
Stream Bank		34580.03		17.3		4.5	0.017
Groundwater				90.2		2.0	0.009
Point Sources				0.0		0.0	0.000
Septic Systems				0.0		0.0	0.000
Totals	**44**	**38949.2**		**208.7**		**17.9**	

Print | Export to JPEG | Exit

Select input data file: C:\MapShed\Runfiles\Goose EWs\Output\GooseEWs-0_ua.csv

Watershed Totals | **Municipality Loads** | Regulated Loads | Unregulated Loads

View loads for municipality: Area2 (00002)

Source	Source Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	0	0.00	0.00	0.00	0.00	0.00	0.00
Cropland	0	0.00	0.00	0.00	0.00	0.00	0.00
Forest	0	0.00	0.00	0.00	0.00	0.00	0.00
Wetland	0	0.00	0.00	0.00	0.00	0.00	0.00
Disturbed	0	0.00	0.00	0.00	0.00	0.00	0.00
Turfgrass	0	0.00	0.00	0.00	0.00	0.00	0.00
Open Land	0	0.00	0.00	0.00	0.00	0.00	0.00
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	0	0.00	0.00	0.00	0.00	0.00	0.00
MD Mixed	0	0.00	0.00	0.00	0.00	0.00	0.00
HD Mixed	35	3475.50	99.30	80.50	2.30	9.10	0.26
LD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
MD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
HD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
Water	0						
							Source Weighting
Farm Animals				0.0		0.0	0.000
Tile Drainage		0.00		0.0		0.0	0.000
Stream Bank		26824.96		13.4		3.5	0.013
Groundwater				70.1		1.5	0.007
Point Sources				0.0		0.0	0.000
Septic Systems				0.0		0.0	0.000
Totals	**35**	**30300.5**		**164.0**		**14.1**	

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APPENDIX F







CONTECH®
ENGINEERED SOLUTIONS

Jellyfish® Filter

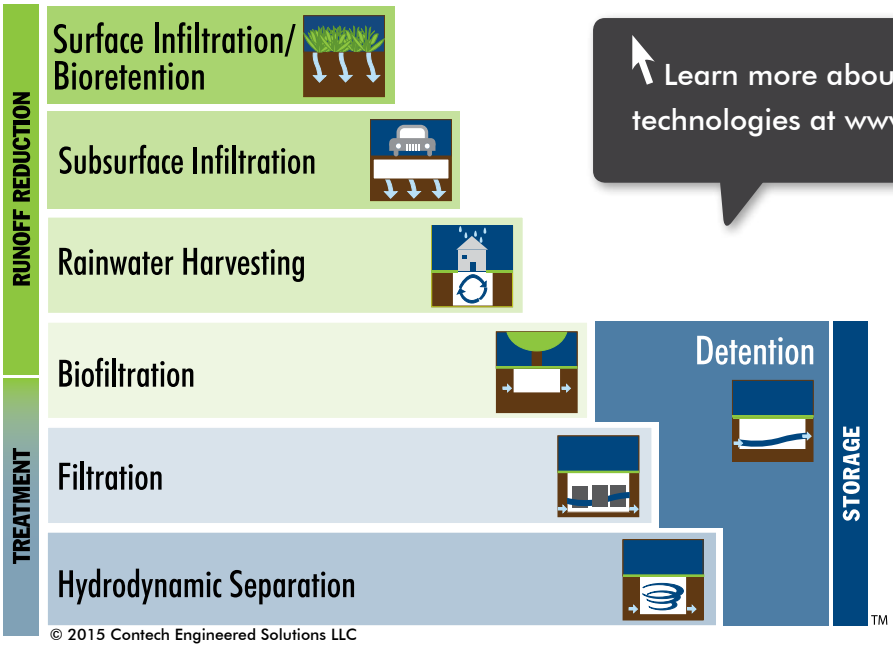
Solutions Guide



UrbanGreen® Stormwater Solutions from Contech

Selecting the Right Stormwater Solution Just Got Easier...

It's simple to choose the right low impact development (LID) solution to achieve your runoff reduction and treatment goals with the Contech UrbanGreen® Staircase. First, select the runoff reduction practices that are most appropriate for your site, paying particular attention to pretreatment needs. If the entire design storm cannot be retained, select a best management practice (BMP) to treat the balance. Finally, select a detention system to address any outstanding downstream erosion.



© 2015 Contech Engineered Solutions LLC

Learn more about all of our stormwater technologies at www.ContechES.com/urbangreen

Learn About the Jellyfish® Filter

Go online and watch our animation to learn how the Jellyfish Filter works. The animation also highlights important features of the Jellyfish Filter including…

- Applications
- Performance test results
- Inspection and maintenance
- Regulatory approvals

To view the Jellyfish Filter animation, visit:
www.conteches.com/jellyfish



Jellyfish® Filter

Filtration as a Stormwater Management Strategy

Stormwater regulations are increasingly calling for more robust treatment levels. In addition to the removal of suspended solids, many regulations now require best management practices to remove significant amounts of nutrients, metals, and other common pollutants found in stormwater runoff. Meeting these regulations often requires the use of a filtration solution.

Low Impact Development (LID) and Green Infrastructure (GI) are complimented by filtration solutions. Benefits of LID and GI systems include retaining runoff and aesthetic appeal. Keeping LID and GI sites free from fine sediments, oils, trash, and debris while functioning as designed can be time consuming and costly.

As a result, the practice of combining LID and GI with filtration is becoming more common. Providing a single point of maintenance promotes proper system functionality and increases the aesthetic appeal by removing unsightly trash and debris.



A Jellyfish Filter Curb Inlet pretreats runoff entering a bioretention system

The Jellyfish® Filter - Setting New Standards in Stormwater Treatment

The Jellyfish Filter is a stormwater quality treatment technology featuring high surface area and high flow rate membrane filtration at low driving head. By incorporating pretreatment with light-weight membrane filtration, the Jellyfish Filter removes floatables, trash, oil, debris, TSS, fine silt-sized particles, and a high percentage of particulate-bound pollutants; including phosphorus and nitrogen, metals and hydrocarbons.

The high surface area membrane cartridges, combined with up flow hydraulics, frequent backwashing, and rinseable/reusable cartridges ensures long-lasting performance.



The Jellyfish Filter.

Jellyfish® Filter Features and Benefits

FEATURES	BENEFITS
1. High surface area, high flow rate membrane filtration	1. Long-lasting and effective stormwater treatment
2. Highest design treatment flow rate per cartridge (up to 80 gpm (5 L/S)	2. Compact system with a small footprint, lower construction cost
3. Low driving head (typically 18 inches or less (457 mm))	3. Design Flexibility, lower construction cost
4. Lightweight cartridges with passive backwash	4. Easy maintenance and low life-cycle cost
5. 3rd party verified field performance per TARP protocol	5. Superior pollutant capture with confidence

Jellyfish® Filter Applications

- Urban development
- Highways, airports, seaports, and military installations
- Commercial and residential development, infill and redevelopment, and stormwater quality retrofit applications
- Pretreatment for Low Impact Development (LID), Green Infrastructure (GI), infiltration, and rainwater harvesting and reuse systems
- Industrial sites



A Jellyfish Filter pretreats a bioretention/ bioswale system at a commercial site in Ontario, Canada.



A catch basin Jellyfish Filter is installed in a commercial development in Virginia.



A Jellyfish Filter provides treatment at an Industrial Park in Lake Tahoe, Nevada.

Jellyfish® Filter Field Performance Test Results

POLLUTANT OF CONCERN	% REMOVAL
Total Trash	99%
Total Suspended Solids (TSS)	89%
Total Phosphorus (TP)	59%
Total Nitrogen (TN)	51%
Total Copper (TCu)	>80%
Total Zinc (TZn)	>50%
Turbidity (NTU)	<15%

Sources:
TARP II Field Study – 2012 JF 4-2-1 Configuration
MRDC Floatables Testing – 2008 JF6-6-1 Configuration



The pleated tentacles of the Jellyfish Filter provide a large surface area for pollutant removal.

Jellyfish® Filter Approvals

The Jellyfish Filter is approved through numerous state and federal verification programs, including:

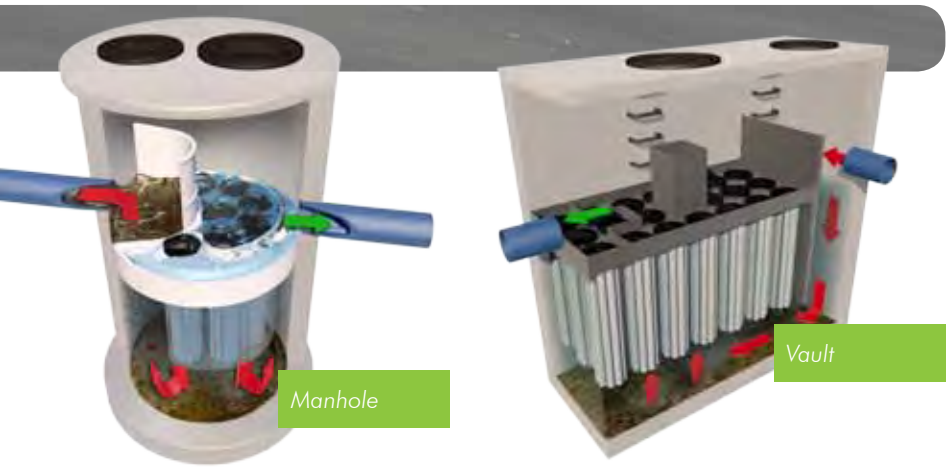
- New Jersey Corporation for Advanced Technology (NJCAT) – Field Performance Verification per TARP Tier II Protocol
- New Jersey Department of Environmental Protection (NJDEP) – Certification
- Washington State Department of Ecology (TAPE – CULD)
- Maryland Department of the Environment (MD DOE)
- Texas Commission on Environmental Quality (TCEQ)
- Virginia Department of Environmental Quality (VA DEQ)
- Ontario Ministry of the Environment – New Environmental Technology Evaluation (NETE) – Certification



Learn more at www.ContechES.com/jellyfish

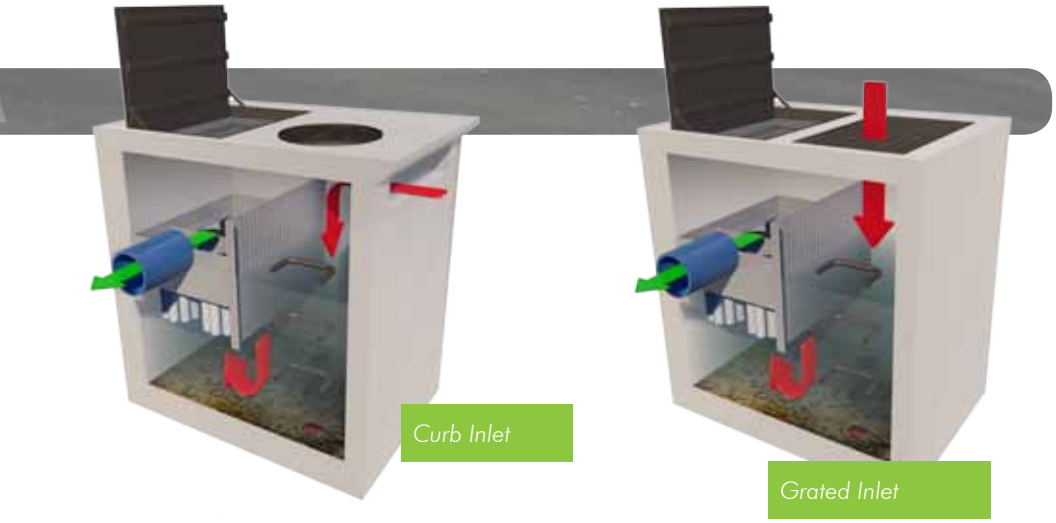
Jellyfish® Filter Configurations

The Jellyfish Filter is available in a variety of configurations. Typically, 18 inches (457 mm) of driving head is designed into the system. For low drop sites, the designed driving head can be less.



Manhole

Vault



Curb Inlet

Grated Inlet

Lightweight Jellyfish Filter Configurations

Custom configurations include Jellyfish Filter tanks made from fiberglass for site specific applications.



A Jellyfish Filter was constructed from fiberglass to reduce the weight of the system, allowing for a suspended installation above an underground parking structure. The reduced weight eliminated the need for structural changes, and suspending the Jellyfish resulted in no loss of parking space, maximizing real-estate value.

Other custom configurations include:

- On-line capability (internal bypass)
- Peak Diversion Vault Configurations

Jellyfish® Filter Maintenance

Inspection and maintenance activities for the Jellyfish Filter typically include:

- Visual inspection of deck, cartridge lids, and maintenance access wall.
- Vacuum extraction of oil, floatable trash/debris, and sediment from manhole sump.
- External rinsing and re-installing of filter cartridges.
- Replacement of filter cartridge tentacles as needed. Cartridge replacement intervals vary by site; typical replacement is anticipated every 2-5 years.



The Jellyfish Filter cartridge is light and easy to clean.

Jellyfish® Filter Inspection and Maintenance Video

Inspecting and maintaining the Jellyfish Filter is easier than you may think. Watch the Jellyfish inspection and maintenance video at **www.ContechES.com/jellyfish**





LEARN MORE

- Access project profiles, photos, videos and more online at **www.ContechES.com/jellyfish**

CONNECT WITH US

- Call us at 800-338-1122
- Contact your local rep at **www.ContechES.com/localresources**

START A PROJECT

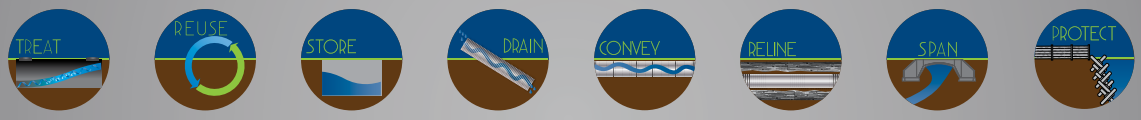
- Submit your system requirements on our product Design Worksheet **www.ContechES.com/start-project**

USE OUR ONLINE TOOLS

- Low Impact Development Site Planner **www.ContechES.com/LIDsiteplanner**

CONTECH® ENGINEERED SOLUTIONS

COMPLETE SITE SOLUTIONS



TREATMENT SOLUTIONS
Helping to satisfy stormwater and wastewater management requirements on land development projects

- Stormwater & Wastewater Treatment
- Detention/Infiltration
- Rainwater Harvesting
- Biofiltration/Bioretention

PIPE SOLUTIONS
Meeting project needs for durability, hydraulics, corrosion resistance, and stiffness

- Corrugated Metal Pipe (CMP)
- Steel Reinforced Polyethylene (SRPE)
- High Density Polyethylene (HDPE)
- Polyvinyl Chloride (PVC)

STRUCTURES SOLUTIONS
Providing innovative options and support for crossings, culverts, and bridges

- Plate, Precast & Truss bridges
- Hard Armor
- Retaining Walls
- Tunnel Liner Plate

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Jellyfish Brochure (5M) PDF Revision 4/15

CONTECH® ENGINEERED SOLUTIONS

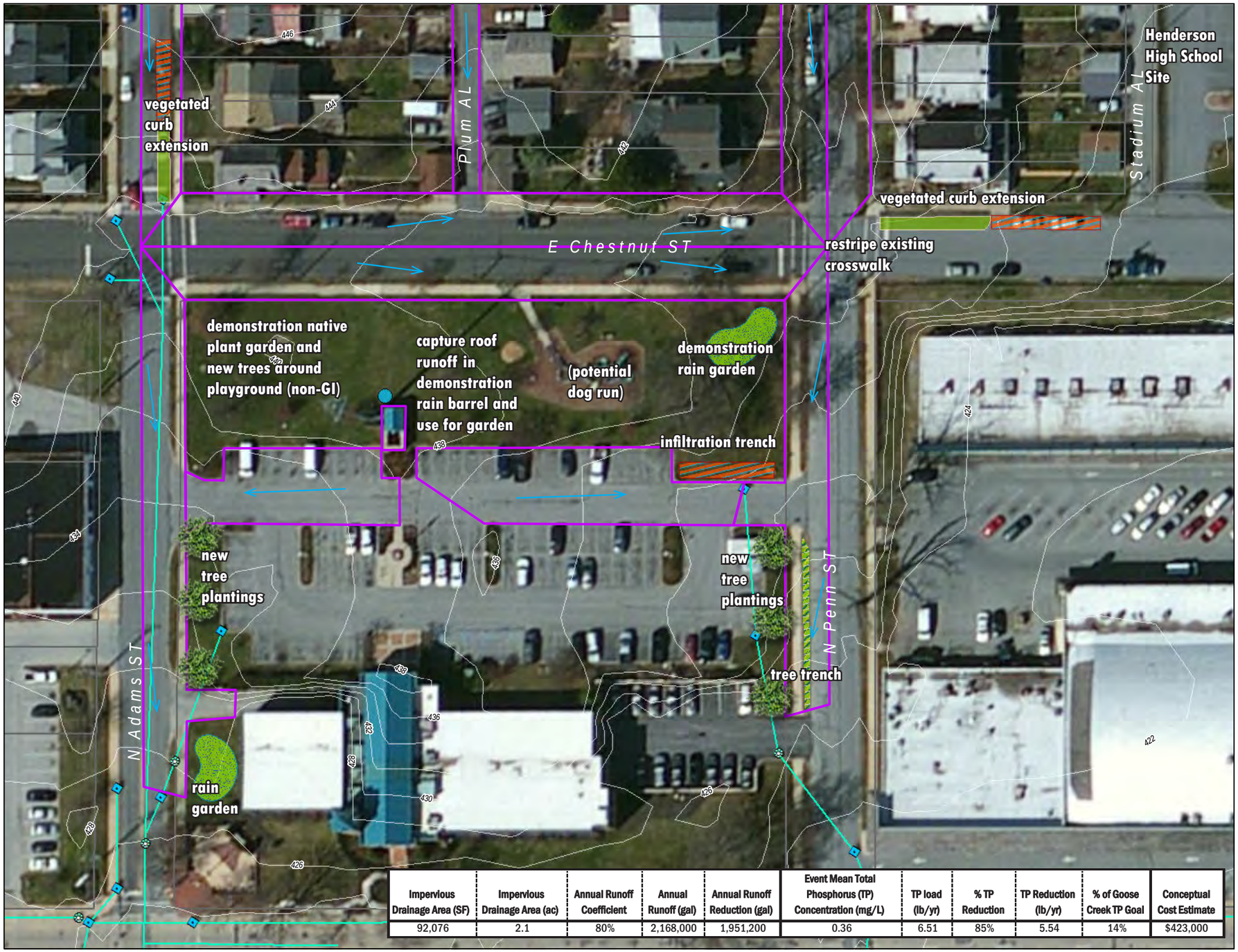
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FSC

APPENDIX G

FUGETT PARK/BOROUGH HALL: PROPOSED GREEN INFRASTRUCTURE CONCEPTS



Impervious Drainage Area (SF)	Impervious Drainage Area (ac)	Annual Runoff Coefficient	Annual Runoff (gal)	Annual Runoff Reduction (gal)	Event Mean Total Phosphorus (TP) Concentration (mg/L)	TP load (lb/yr)	% TP Reduction	TP Reduction (lb/yr)	% of Goose Creek TP Goal	Conceptual Cost Estimate
92,076	2.1	80%	2,168,000	1,951,200	0.36	6.51	85%	5.54	14%	$423,000

Fugett Park and West Chester Borough Hall make up a 2.66 acre site near the eastern border of West Chester Borough. The park features new playground equipment and several established mature trees. The site is bordered by E Chestnut Street, N Adams St, E Gay St, and N Penn St. The park is bordered by residential homes to the north and west, the Henderson High School site to the northeast, and commercial properties to the east.

This high-visibility site has frequent visitors (both Borough residents and others) and therefore has the potential to feature numerous "demonstration" green infrastructure technologies and showcase the Borough's commitment to green infrastructure and stormwater solutions. With that vision in mind, the green infrastructure concepts proposed for the site consist of vegetated curb extensions with subsurface infiltration trench components (one on N Adams St and one on E Chestnut St), a demonstration rain garden in the northeast corner of the park, another rain garden on the western side of Borough Hall, a subsurface infiltration trench to capture parking lot runoff, a tree trench along N Penn St, and a demonstration rain barrel to capture roof runoff from the shed to be used in a potential demonstration native plant/backyard wildlife garden. In addition, new tree plantings are proposed on both edges of the parking lot.

Collectively, these GI features would capture and treat runoff from the site and several adjacent streets as shown on the concept plan. During larger storm events, overflow structures would allow excess runoff to flow into existing storm sewers. In addition to reducing and treating stormwater runoff, these GI features have the potential to add aesthetic value to the park, promote traffic calming, and work in harmony with the site's existing active and passive recreational uses such as the existing playground and proposed dog run areas.

- Inlet
- Stormwater MH
- Existing Stormwater Pipes
- 2 ft Contours
- Surface Flow
- Parcels
- Drainage Area

Proposed GI Features

- Infiltration Trench
- Tree Trench
- Rain Barrel
- Rain Garden
- Vegetated Curb Extension

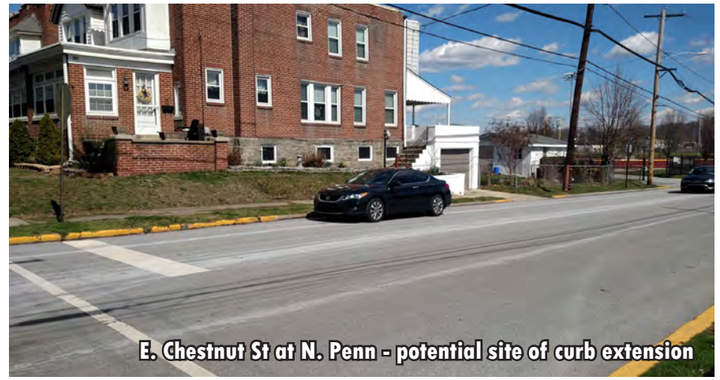
NORTH

0 25 50 Feet

FUGETT PARK/BOROUGH HALL: PROPOSED GREEN INFRASTRUCTURE CONCEPTS


existing view of West Side of Borough Hall


north corner of Fugett Park - potential site of rain garden


E. Chestnut St at N. Penn - potential site of curb extension

Existing Conditions



Proposed Rain Garden on West Side of Borough Hall


rain garden - Syracuse, NY


rain barrel


curb extension - Lancaster, PA

Examples of GI Technology

GREENVIEW ALLEY: PROPOSED GREEN INFRASTRUCTURE CONCEPTS



- Inlet
- Stormwater MH
- Stormwater Outfall (53)
- Existing Stormwater Pipes
- Surface Waterways
- 2 ft Contours
- Surface Flow
- Parcels
- Drainage Area

Proposed GI Features

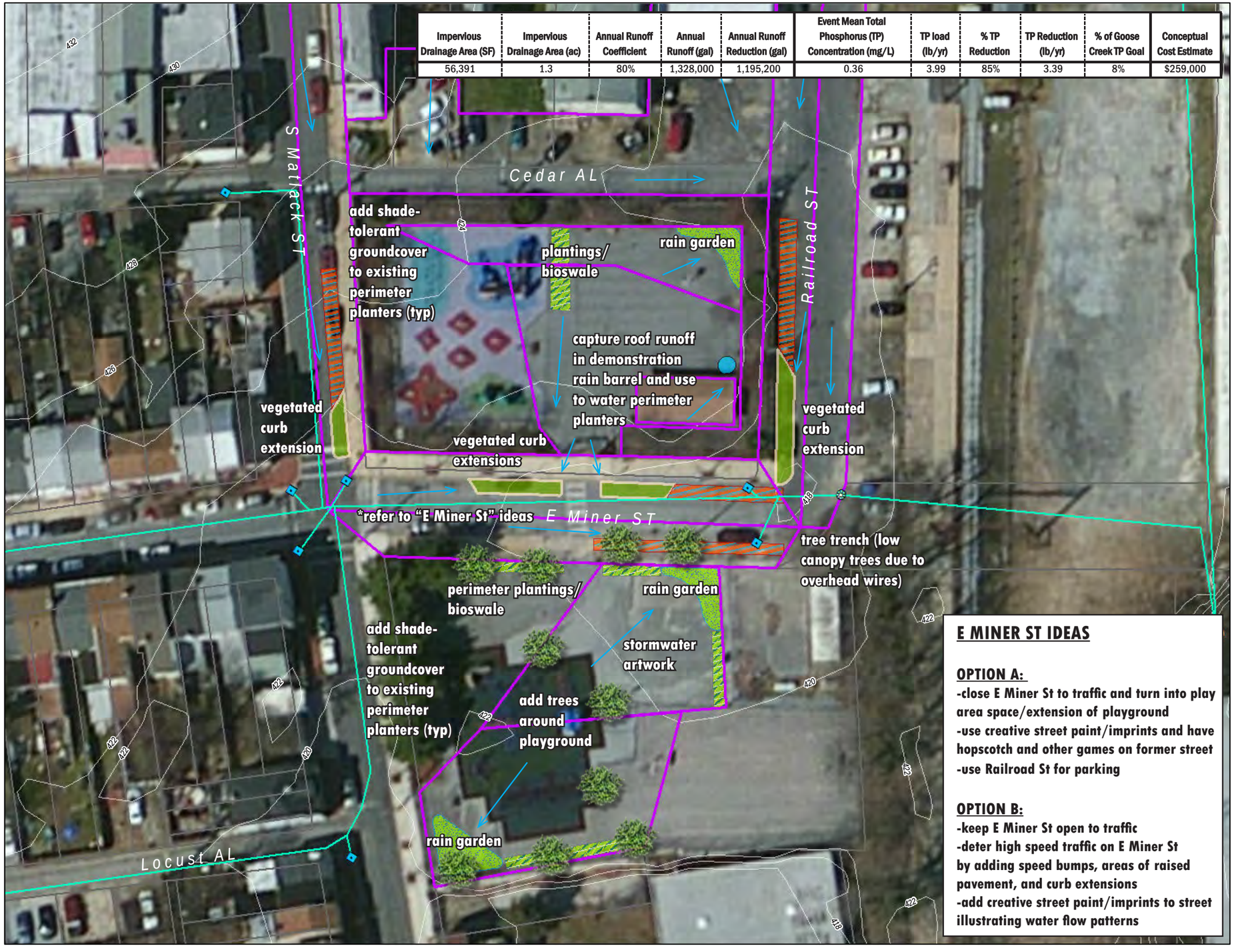
- Infiltration Trench
- Bioswale

NORTH

0 25 50 Feet

JOHN O. GREEN MEMORIAL PARK: PROPOSED GREEN INFRASTRUCTURE CONCEPTS

Impervious Drainage Area (SF)	Impervious Drainage Area (ac)	Annual Runoff Coefficient	Annual Runoff (gal)	Annual Runoff Reduction (gal)	Event Mean Total Phosphorus (TP) Concentration (mg/L)	TP load (lb/yr)	% TP Reduction	TP Reduction (lb/yr)	% of Goose Creek TP Goal	Conceptual Cost Estimate
56,391	1.3	80%	1,328,000	1,195,200	0.36	3.99	85%	3.39	8%	$259,000



E MINER ST IDEAS

OPTION A:

-close E Miner St to traffic and turn into play area space/extension of playground

-use creative street paint/imprints and have hopscotch and other games on former street

-use Railroad St for parking

OPTION B:

-keep E Miner St open to traffic

-deter high speed traffic on E Miner St by adding speed bumps, areas of raised pavement, and curb extensions

-add creative street paint/imprints to street illustrating water flow patterns

John O. Green Memorial Park is a 1.24 acre park in southeast West Chester that features a variety of community amenities such as playgrounds, a full-size basketball court, a spray ground, pavilion with tables, and open areas for free play. This well-used neighborhood park is bordered by S Matlack Street, Cedar Alley, and Railroad Street with E Miner Street dividing the park into two discrete sections. The park is bordered by residential homes to the west and south and is adjacent to the West Chester railroad and parking lot to the east. Formerly a manufactured gas plant owned by PECO, the site was cleaned up and turned over to the Borough in 1998.

The green infrastructure (GI) concepts proposed for the site consist of vegetated curb extensions with subsurface infiltration trench components (one on S Matlack St, one on Railroad St, and two at the northern park entrance on E Miner St), a tree trench on E Miner St, rain gardens in several corners of the park on both parcels, a demonstration rain barrel to capture roof runoff from the pavilion, and overall recommendations for planters, additional groundcover, and new trees to further "green" the park and provide shade to play areas.

Collectively, these GI features would capture and treat runoff from the park property and several adjacent streets as shown on the concept plan. During larger storm events, overflow structures would allow excess runoff to flow into existing storm sewers. In addition to reducing and treating stormwater runoff, these GI features have the potential to add aesthetic value to the park, promote traffic calming, and work in harmony with the park's existing active and passive recreational uses.

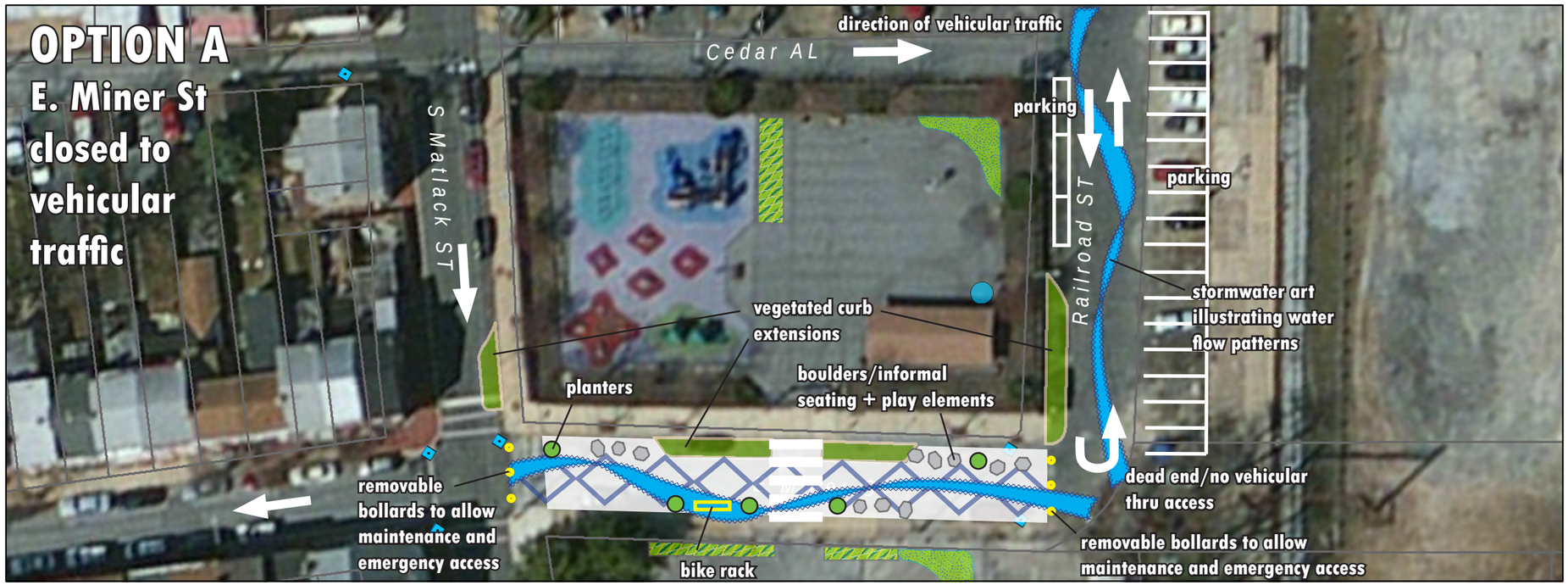
- Inlet
- Stormwater MH
- Stormwater Outfall (53)
- Existing Stormwater Pipes
- 2 ft Contours
- Surface Flow
- Parcels
- Drainage Area

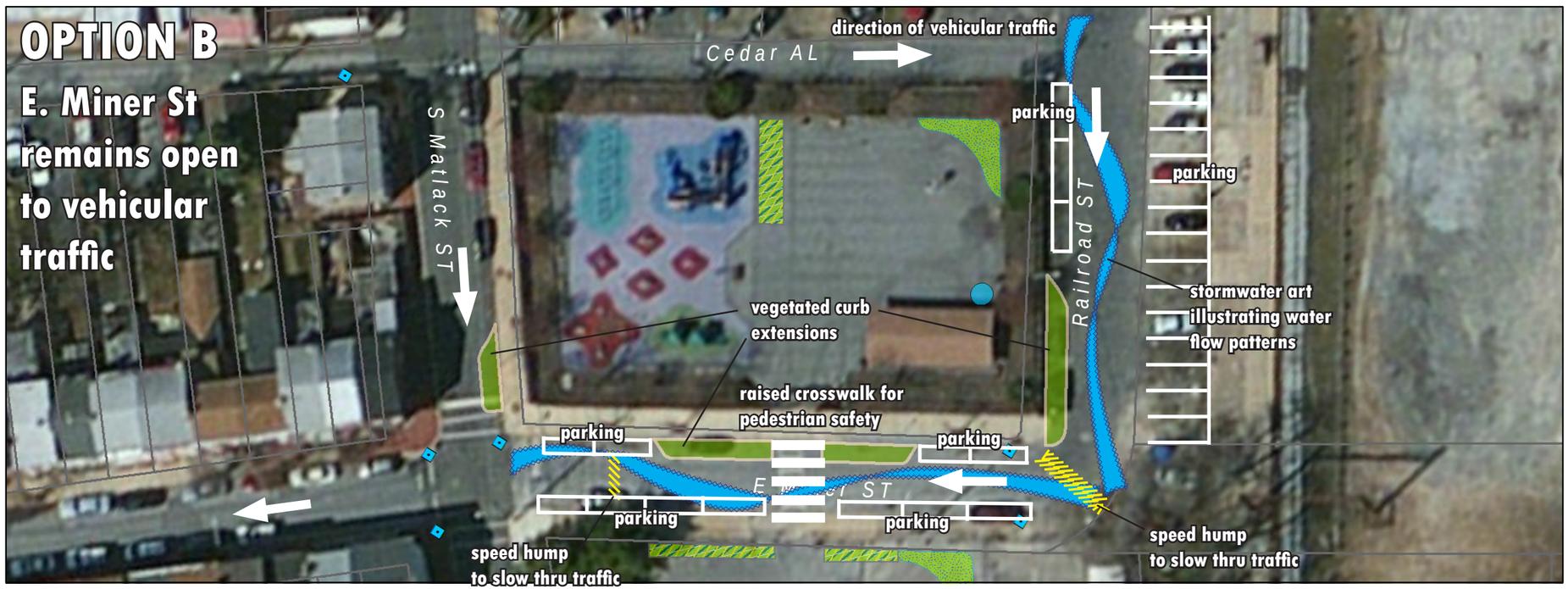
Proposed GI Features

- Bioswale/Plantings
- Infiltration Trench
- Rain Barrel
- Rain Garden
- Vegetated Curb Extension

NORTH 0 20 40 Feet

JOHN O. GREEN MEMORIAL PARK: PROPOSED GREEN INFRASTRUCTURE CONCEPTS





In addition to the proposed green infrastructure elements for John O. Green Memorial Park, there are several potential options for addressing vehicular traffic, pedestrian safety, and parking on the block of E. Miner Street between the two park parcels.

Option A would close E. Miner Street between Railroad Street and S. Matlack Street to vehicular thru-traffic. This portion of E. Miner Street would become a car-free zone and a safe place for pedestrians to sit, children to play, and park-goers to freely move between the north and south park areas. Removable bollards would be placed at either ends of the closed block to enable occasional access for emergency and maintenance vehicles. Parking would not be allowed on E. Miner Street, rather all parking would be directed to Railroad Street.

Option A Pros
-maximizes pedestrian and park-goer safety
-maintains emergency vehicular access
-creates a car-free play zone between the park areas

Option A Cons
-removes parking on E. Miner Street
-removes vehicular thru-way

Option B would keep E. Miner Street between Railroad Street and S. Matlack Street open to vehicular thru-traffic. Parallel parking would be permitted on both sides of the street. Speed humps and a raised crosswalk would be strategically placed to slow vehicular traffic and increase park-user and pedestrian safety.

Option B Pros
-maximizes parking on E. Miner Street
-maintains vehicular thru-way

Option B Cons
-less benefits for pedestrian and park-goer safety
-does not create a car-free play zone

Inlet
Parcels
Proposed GI Features
Bioswale/Plantings
Rain Barrel
Rain Garden
Vegetated Curb Extension

NORTH
0 20 40 Feet

JOHN O. GREEN MEMORIAL PARK: PROPOSED GREEN INFRASTRUCTURE CONCEPTS


existing paved play area


existing park entrance on Miner St


existing stormwater runoff conditions


existing playground and basketball court

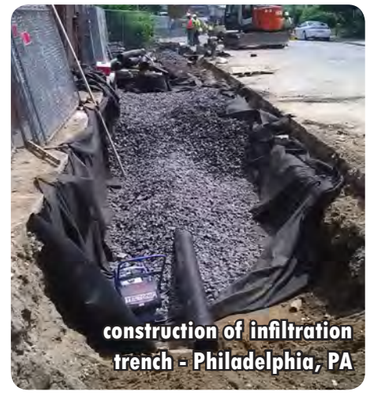
Existing Conditions



Proposed Rain Garden and Planting Beds


rain garden - Lancaster, PA


curb extension - Lancaster, PA


construction of infiltration trench - Philadelphia, PA

Examples of GI Features

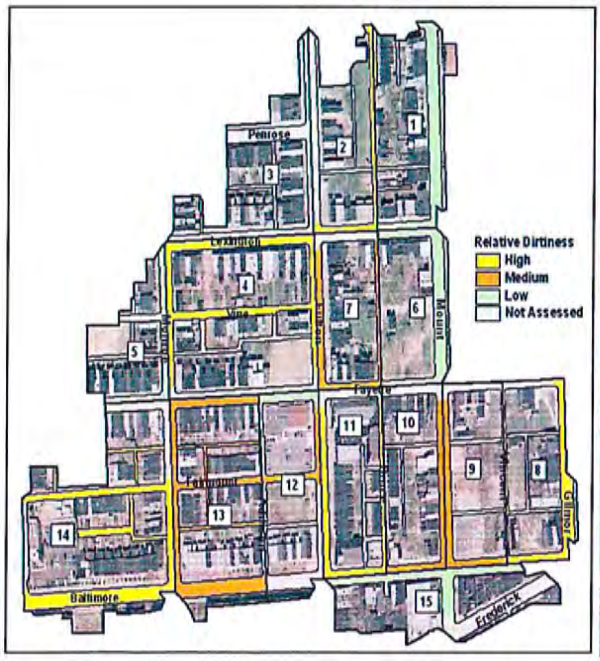
APPENDIX H

Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices

Sebastian Donner, Bill Frost, Norm Goulet, Marty Hurd, Neely Law, Thomas Maguire, Bill Selbig, Justin Shafer, Steve Stewart and Jenny Tribo

FINAL REPORT

Approved by CBP Management Board





May 19, 2016

Prepared by:

Tom Schueler, Chesapeake Stormwater Network

Table 3. Summary of Street Cleaning Implementation, 2009-2013, as reported and credited in annual progress runs (acres and lbs)

YEAR	DC	DE	PA	WV	VA
2009	1 ac			218,000 lbs	632 ac
2010	1,631 ac			227,000 lbs	
2011	1,540 ac		619 ac		75,385,792 lbs
2012	1,539 ac		413 ac		
2013	1,526 ac	79,541 lbs	3,240,489 lbs	190,000 lbs	218,677 lbs
2014	1,531 ac	413,367 lbs	3,367,040 lbs	700,000 lbs	426,671 lbs

3.4 How the CBWM Simulates Loads From Streets

The Phase 5.3.2 Chesapeake Bay Watershed Model simulates two types of urban land: pervious and impervious cover. These two cover types are used to simulate the full range of urban land use categories (industrial, commercial, residential, institutional and transport). This means that different street types (e.g., highways, arterials, residential streets) are lumped in with other impervious surfaces (e.g., driveways, sidewalks, rooftops, parking lots), and are currently represented as a single impervious layer. As a result, streets and roads do not load differently and are not counted separately in the current version of the CBWM. Table 4 portrays the average annual nutrient and sediment loadings associated with urban impervious cover in the current model.

Table 4. Loading Rates Associated with Urban Impervious Cover in the Chesapeake Bay Watershed Model, Version 5.3.2.

Acres in Watershed [1]	1,269,030
Average TN Load [2]	15.5 lbs/ac/yr
Average TP Load [2]	1.93 lbs/ac/yr
Average TSS Load [2]	0.65 t/ac/yr
Key Inputs	Air Deposition, Build-up/Wash-off, No Groundwater Interaction, No Direct Interaction with Pervious Cover

[1] Acres, as reported in most recent CBWM version 5.3.2
[2] Average values, as reported in Tetra Tech (2014), although actual values are regionally variable across the watershed.

It should be noted that not all of the sediment load generated from urban impervious cover actually reaches the Chesapeake Bay. The sediment loads at the edge of pavement are adjusted downward by a sediment delivery factor in the current version of the CBWM. For a more thorough discussion of the sediment delivery factor, please consult the discussion in SR EP (2014).

The Panel elected to not to use WINSLAMM to explicitly simulate nutrients, and instead estimated them based on empirical nutrient enrichment ratios for street solids (see Section 4.4).

Table 15. Adapting the WINSLAMM Model for the Chesapeake Bay Watershed

Bay rainfall data. The model used the calibration period from 1995 through 2005 using Washington National Airport Station event-based rainfall data. The rainfall data was processed assuming the minimum number of hours between events is 6 hours and the minimum rainfall event depth is 0.01 inch.

East Coast input data files were prepared to represent street conditions across the Chesapeake Bay watershed. The particle size distribution and peak-to-average flow ratio files were set to the program default average pavement and flow ratio files

Four different street types were simulated to represent in different land uses that had curb and gutter drainage systems:

Single-family residential: Approximately 0.25-acre lots, with cul-de-sacs connecting to two-lane residential feeder roads with parallel parking on one side; light traffic; and 25 mile-per-hour (mph) speed limit. Approximately 33 houses in a 10-acre area. The driveways are simulated as draining onto the roads.

Commercial (80 percent impervious): Big box stores and parking lots. Feeder roads (two travel lanes and center turn lane) with no on-street parking, 35 mph speed limit, and heavy traffic.

Ultra-urban downtown (95 percent impervious): Multistory buildings. Two-lane urban roads with parallel parking on both sides of the street, sidewalks, and 25 mph speed limit.

Arterial highway: A four-lane divided road with median with barrier; high-speed traffic with turn lanes; and no on-street parking. Assumed to be commercial land use

Three different sweeping start/stop dates to reflect regional differences in climate across the watershed:

Sweeping occurs over the entire year
Sweeping suspended December 1, restarts March 15
Sweeping suspended December 15, restarts February 15

Six different fixed sweeping schedules

2PW = 2 passes per week	1P4W = 1 pass every 4 weeks
1PW = 1 pass every week	1P8W = 1 pass every 8 weeks
1P2W = 1 pass every 2 weeks	1P12W = 1 pass every 12 weeks

Four seasonal sweeping schedules (more intensive in Spring or Fall)

S1: Spring – One pass every week from March to April. Monthly otherwise
S2: Spring – One pass every other week from March to April. Monthly otherwise
S3: Spring and fall – One pass every week (March to April, October to November). Monthly otherwise
S4: Spring and fall – One pass every other week during the season. Monthly otherwise

Two Levels of Sweeper Technology

MBC = Mechanical broom cleaning	VAC = Vacuum assisted cleaning

Four Options for Street Parking Density and No Parking Enforcement

For more details, consult the technical memo (Tetra Tech, Inc., 2015)

each street cleaning scenario, and subtracting the resulting nutrient load from the unit area nutrient load for impervious cover calculated by the watershed model.

The standard street cleaning unit are curb miles swept. In general, one impervious acre is equivalent to one curb-lane mile swept, assuming they are swept on one-side only. Credit is also provided for cleaning municipal and commercial parking lots (in this case, the acres of parking lot swept are reported, and converted to lane miles using the one acre = one curb lane mile rule of thumb.

The panel elected to consolidate the model results to show specific removal rates for eleven different street cleaning practices, primarily involving the use of advanced street cleaning technology at different frequencies (Table 17).

Table 17. Pollutant Reductions Associated with Different Street Cleaning Practices

Practice #	Description [1]	Approx Passes/Yr [2]	TSS Removal (%)	TN Removal (%)	TP Removal (%)
SCP-1	AST- 2 PW	~100	21	4	10
SCP-2	AST- 1 PW	~50	16	3	8
SCP-3	AST- 1 P2W	~25	11	2	5
SCP-4	AST- 1 P4W	~10	6	1	3
SCP-5	AST- 1 P8W	~6	4	0.7	2
SCP-6	AST- 1 P12W	~4	2	0	1
SCP-7	AST- S1 or S2	~15	7	1	4
SCP-8	AST- S3 or S4	~20	10	2	5
SCP-9	MBT- 2PW	~100	1.0	0	0
SCP-10	MBT- 1 PW	~50	0.5	0	0
SCP-11	MBT- 1 P4W	~10	0.1	0	0

AST: Advanced Sweeping Technology MBT: Mechanical Broom Technology

[1] See Table 15 for the codes used to define street cleaning frequency

[2] Depending on the length of the winter shutdown, the number of passes/yr may be lower than shown

TMDL Plan
West Chester Borough Goose Creek MS4

MS4 TMDL Strategy

Submitted By: **West Chester Borough**

September 2017
Revised July 2018

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Appendices

Appendix A Public Participation

- Public Notice & Proof of Advertisement
- Public Meeting Agenda and Meeting Minutes

Appendix B Maps

- West Chester Borough MS4 TMDL Map
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Appendix E Jellyfish Filter Solutions Guide Contech

Appendix F CH2M Green Infrastructure Concepts

Appendix G MS4 Anticipated Obligations Requirements Table

Appendix H Removal Rates for Street Cleaning *(excerpts from "Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices")*

West Chester Borough, Chester County is submitting this TMDL Strategy in accordance with the requirements of the *National Pollutant Discharge Elimination System (NPDES) Individual Permit to Discharge Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4)*; specifically, in accordance with the *MS4 Requirements Table (Municipal) Anticipated Obligations for Subsequent NPDES Permit Term (Revised 3/05/2018)*. West Chester Borough must create a TMDL due to discharges from their MS4 to Chester Creek, which has been listed as having a Requirement of TMDL Plan Nutrients, for Goose Creek TMDL (see Appendix G).

The intent of this MS4 TMDL is to establish the existing loading of pollutants discharged from the MS4 to Goose (Chester) Creek, and to present a plan to reduce these pollutants. This MS4 TMDL is organized to follow the 3800-PM-BCW0200d Rev. 3/2017 *National Pollutant Discharge Elimination System (NPDES) Individual Permit to Discharge Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s) TMDL Plan Instructions* included as part of the *MS4 Individual Permit* package. This TMDL may be evaluated and updated by West Chester Borough on an as-needed basis, based on its effectiveness in reducing pollutant loads in discharges from the regulated small MS4. If this occurs, West Chester Borough will work with the Department of Environmental Protection (DEP) for review and approval of any revisions or updates.

Each MS4 TMDL must include the following Required TMDL Elements:

Section A: Public Participation
Section B: Map
Section C: Pollutants of Concern
Section D: Existing Load for Pollutant(s) of Concern
Section E: Wasteload Allocation(s) (WLA(s))
Section F: Analysis of TMDL Objectives
Section G: Select BMPs to Achieve the Minimum Required Reductions in Pollutant Load
Section H: Identify Funding Mechanisms
Section I: Identify Responsible Parties for Operation and Maintenance (O&M) of BMPs

This TMDL is organized to follow the above outline of required elements as shown on the following pages. Relevant verbiage from the TMDL Instructions is reiterated herein for each of the above required TMDL Elements.

I. General Information

A. **Terms**: The term "nutrients" refers to "Total Phosphorus" (TP) unless specifically stated otherwise in DEP's latest Integrated Report. The terms "sediment," "siltation," and "suspended solids" all refer to inorganic solids and are hereinafter referred to as "sediment."

The term "storm sewershed" is defined in the PAG-13 General Permit as the land area that drains to the municipal separate storm sewer from within the jurisdiction of the MS4 permittee. This term is used in these instructions as well as the term, "TMDL Planning Area" (or "Planning Area") which refers to all the storm sewersheds for which an MS4 must calculate existing loads and plan load reductions.

The term "baseline load" is used in these instructions to refer to the pollutant load discharged by an MS4 as reported in a TMDL. A baseline load can be revised by 1) conducting a new modeling effort that utilizes the land use/land cover information from the original TMDL and 2) by considering the reductions achieved through structural BMPs installed prior to approval of a TMDL that were not considered during development of the TMDL.

The term "existing load" refers to the pollutant load that the MS4 estimates is draining to impaired waters from the Planning Area at the time of TMDL Plan submission. The existing load will be the same as the baseline load (regardless of whether or not the baseline load is revised) unless the MS4 accounts for reductions from structural BMPs installed between the date of TMDL approval and TMDL Plan submission.

B. **Pollutant(s) of Concern**: The pollutant(s) of concern for TMDL Plans will be based on the following:

- If a WLA has been established in a TMDL for sediment, the MS4 is expected to develop the TMDL Plan based on the reduction of sediment.

- If WLAs have been established in a TMDL for sediment and nutrients, the MS4 is expected to develop the TMDL Plan based on the reduction of sediment and TP, unless the MS4 chooses to utilize a presumptive approach for TP. DEP will allow MS4s to calculate loads and pollutant reductions based on sediment, under the assumption that the achievement of TMDL Plan objectives for sediment will also achieve the objectives for TP. MS4s must identify use of the presumptive approach in its TMDL Plan if chosen.

- If a WLA has been established in a TMDL for nutrients alone (or surrogates for nutrients such as "excessive algal growth" and "organic enrichment/low D.O."), the MS4 is expected to develop the TMDL Plan based on the reduction of TP, unless the presumptive approach is chosen, as described above.

C. **TMDL Plan Objectives**: There are two objectives for a TMDL Plan:

1. **Long-Term Reduction** – Plan for the reduction of pollutant load(s) to achieve the WLA(s) in the TMDL.

   The TMDL Plan must describe a general plan as to how WLA(s) will ultimately be achieved.

2. **Short-Term Reduction** – Plan for the short-term reduction of pollutant load(s) that will be achieved within the subsequent NPDES permit term (i.e., the 5-year permit term resulting from DEP's issuance of a permit in response to the receipt of the MS4's next submission of an individual permit application).

   MS4s must achieve at least one of the following objectives within the 5-year permit term: 1) the WLA(s) in the TMDL, or 2) if the WLA(s) cannot be achieved, a load reduction of at least 10% for sediment and/or 5% for TP, compared to the existing load for these pollutants at the time of TMDL Plan submission. A load reduction of at least 10% for sediment may be used as the objective in lieu of a 5% reduction in TP under the presumptive approach.

NOTE – The presumptive approach cannot be used to assume that meeting TMDL Plan objectives for nutrients will result in meeting objectives for sediment.

NOTE – The minimum required reduction to be to be accomplished during the permit term is based on the existing pollutant load at the time of TMDL Plan submission, not at the time of the original TMDL approval. If an MS4 can demonstrate to DEP's satisfaction in its TMDL Plan that it has already achieved the WLA(s) of the applicable TMDL(s), the MS4 will not be required to implement further pollutant load reductions during the subsequent permit term.

D. **Existing Pollutant Load(s)**: The estimation or determination of existing loads for TMDL Plans is different than the estimation of existing loads for PRPs. MS4s have two options in establishing the existing pollutant load(s) for pollutant(s) of concern for TMDL Plans:

1. MS4s may report the existing load(s) specified in the TMDL (i.e., the TMDL "baseline load"). The baseline load(s) may be represented in the TMDL as either:

    - Load(s) that are specific to the MS4 (i.e., the load is listed in a table within the TMDL with the name of the MS4 identified); or
    - Load(s) that are not specific to the MS4 (i.e., are represented in the TMDL as bulk/aggregate load(s) for all MS4s in the TMDL watershed), in which the MS4 will need to distribute its individual load(s) UNLESS a collaborative TMDL Plan is developed with all other MS4s identified in the TMDL.

2. MS4s may choose to calculate existing load(s) for a TMDL Plan through a new modeling effort using the MapShed model developed by the Pennsylvania State University (www.mapshed.psu.edu) or a comparable, or more robust, continuous simulation model. Any new modeling effort must focus on the TMDL Planning Area and account for overland flow as well as downstream channel and bank erosion; therefore, modeling must be done at a scale that allows for the

quantification of both impacts. New modeling must utilize the same land use/land cover information that was used to develop the TMDL or other quality assured land use/land cover data from the time of TMDL approval. DEP recommends that prior to and/or during any new modeling effort that MS4s contact DEP's Bureau of Clean Water, Water Quality Division, TMDL Section at (717) 787-5017 for guidance.

If a combined PRP and TMDL Plan is developed (see Section I.F), in which the PRP and TMDL Planning Areas are combined into one Planning Area, the existing loads for the Planning Area may only be derived using a new modeling effort (Option 2 above).

NOTE – If an MS4 is aware of the date(s) of data collection in support of TMDL development, land use/land cover information from this date rather than the TMDL approval date may be used.

NOTE – MapShed, or any other watershed model where channel erosion is explicitly modeled, should be run on a minimum of ~10 mi2 area to properly account for downstream impacts and include impaired waters identified in the MS4 Requirements Table. Aggregation of these waters up to approximately the 12-digit HUC scale for modeling purposes is acceptable. Modeling may not be done at the individual storm sewershed or municipal scale where the extent of downstream impact is not included in load calculation.

NOTE – Baseline loads in older TMDLs typically did not account for load reductions from urban stormwater BMPs existing at the time of TMDL preparation. In such cases, MS4s may consider structural BMPs installed **prior to** the TMDL approval date in estimating existing loads. MS4s may also consider the load reductions achieved through structural BMPs installed after the TMDL was approved. Prior to the TMDL approval date, load reductions associated with structural BMPs installed under Chapter 102 NPDES permits may be credited in full. After the TMDL approval date, load reductions associated with structural BMPs installed under Chapter 102 NPDES permits may be credited only to the extent that the BMPs produce a net load reduction (see example below). Existing BMPs

that are used to reduce the existing load(s) must be documented as functional (see Section II.D).

Remodeled TMDL load calculations will typically use updated methods to better estimate the load that existed at the time of the original TMDL load calculation, using the same land use/land cover information as was used for the original TMDL. In a remodeling effort, TMDL Plans may account for all BMPs, including Chapter 102 BMPs, installed after approval of the original TMDL as long as changes in impervious surface in the drainage area of those BMPs are considered in the effort. In other words, the TMDL Plan must include the impacts of increased development/imperviousness in order to count load reductions from BMPs installed during the construction process. Chapter 102 BMPs installed after TMDL Plan development would be assumed to result in zero net loading change (i.e., no progress toward TMDL objectives), unless there is a demonstration that pollutant loading is less following an earth disturbance project compared to prior conditions.

NOTE – MS4s that calculate existing load(s) through a new modeling effort will need to plan for the same percent reduction in pollutant loads as prescribed by the TMDL. This step is optional. MS4s may elect to use the baseline load reported in a TMDL as the existing load at the time of TMDL Plan submission, rather than conduct modeling to revise the baseline load.

E. **BMP Effectiveness**: All MS4s must use the BMP effectiveness values contained within DEP's BMP Effectiveness Values document (3800-PM-BCW0100m) or Chesapeake Bay Program expert panel reports for BMPs listed in those resources when determining pollutant load reductions in TMDL Plans, except as otherwise approved by DEP. For example, PRPs/TMDL Plans may also apply thoroughly vetted mechanistic models with self-contained BMP modules (e.g. Storm Water Management Model (SWMM), WinSLAMM) to demonstrate achievement of reduction targets. Application of these data intensive models could allow for a streamlining of the planning and design phases of the stormwater control process that may provide future cost savings as municipalities move

toward implementation of the plan. Such resources must be documented in the TMDL Plan, and must reflect both overland flow and in-stream erosion components.

NOTE - Calculation of sediment load reductions for PRP/TMDL Plan purposes using the *Expert Panel to Define Removal Rates for Individual Stream Restoration Projects* report should be done as follows:

- Where existing sediment loads were calculated using modeling at a local watershed scale, the default rate to be used is 115 lb/ft/yr. This default rate comes from a convergence of MapShed modeled streambank erosion loads from a group of urbanized watersheds, the 248 lb/ft/yr default edge-of-field (EOF) rate in the Expert Panel Report with the 50% efficiency uncertainty factor specified for the Protocols applied, and field data that was collected following the BANCS methodology where projects have been implemented and load reductions calculated using the Protocols.

  Alternately, sediment reduction from streambank restoration projects when existing loads are calculated using modeling at a local scale may be estimated using the Protocols outlined in Section 5 of the report and must then apply the 50% efficiency uncertainty factor.

NOTE – Use of default effectiveness value (115 lb/ft/yr) will be accepted for the subsequent permit term. It is recommended that the data required to complete load calculations using the Protocols be collected during the design phase for use in subsequent load reduction calculations.

NOTE - Desktop MapShed users may not use the streambank restoration or street sweeping components included in the MapShed BMP editor for pollutant reduction calculations. Pollutant reductions associated with streambank restoration projects must use the methods described above; whereas, reductions from street sweeping must be calculated in accordance with the *Recommendations of the Expert Panel to Define*

Removal Rates for Street and Storm Drain Cleaning Practices or the BMP Effectiveness Values document.

NOTE – If BMP effectiveness values are updated in DEP's BMP Effectiveness Values document or in Chesapeake Bay Program expert panel reports between the time the TMDL is approved and the time the final report is developed to document compliance with the permit, those updated effectiveness values may optionally be used.

F. **Combining Planning Obligations**: MS4s with multiple TMDL Plan development obligations may develop one TMDL Plan for submission to DEP, if desired. If this is done, MS4s may elect to address each TMDL water separately or in combination. If done in combination, unless specifically restricted in the TMDL, the MS4 has flexibility when locating BMPs between the TMDL Planning Areas. If the MS4 elects to meet the percent reduction requirements (10% sediment or 5% TP) in lieu of meeting the WLA(s) within the first permit term, it may elect to reduce pollutants by a greater percentage in one TMDL Planning Area over another, as long as the overall reduction for the planning effort achieves the percent reduction requirements.

G. **Offsets**. An MS4 may propose stormwater pollutant reduction BMPs outside of the TMDL and/or PRP Planning Area for possible approval as offsets toward meeting TMDL and/or PRP load reduction requirements. Unless approved otherwise by DEP, such projects must be located within the jurisdiction of the developer of the TMDL Plan and/or PRP, and treat or manage stormwater that would drain to the impaired waters of interest under a TMDL Plan or PRP. In all cases where offsets are proposed, an individual permit is required.

Examples of projects where offsets may be approved by DEP include but are not limited to a reduction of impervious areas outside of the Planning Area and BMPs at agricultural operations that are outside of the planning area but within the drainage area of the impaired waters of interest. DEP may grant offsets for the amount (lbs) of pollutants expected to be reduced after baseline and regulatory requirements are met. For the purpose of TMDL Plans and PRPs, baseline requirements are, in general, load reduction

requirements established in TMDLs for sectors that do not require NPDES permits. For example, if a TMDL specifies that a sediment load reduction of 80% is necessary from the unregulated or non-urban stormwater sector in order to meet water quality standards, DEP may approve offsets for a reduction in impervious area outside of the planning area for the amount (lbs) of sediment removed after the 80% reduction requirement is met. Where published load reduction requirements are inapplicable or unavailable, DEP's Bureau of Clean Water will establish the baseline. MS4s that are seeking approval for offsets are encouraged to contact DEP during the development phase of plans in order to understand the amount of offsets that may be approved in an individual permit for a proposed project.

An operation and maintenance (O&M) plan as well as assurances for ongoing O&M must be submitted as an attachment to any TMDL Plan and/or PRP proposing the implementation of BMPs for offsets. Permittees must report actual O&M activities on Annual MS4 Status Reports to continue receiving approval for the use of offsets.

H. **BMP Selection**: MS4s may select BMPs from the Pennsylvania Stormwater Best Management Practices Manual (363-0300-002), BMPs recognized by the EPA Chesapeake Bay Program, or other BMPs where the pollutant reduction efficiency is known or may be determined. Land use changes are not BMPs but may be used to demonstrate pollutant load reductions. For land use changes and BMPs implemented within a TMDL Planning Area as part of an NPDES permit requirement (e.g., post-construction stormwater management BMPs for Chapter 102 NPDES permits), pollutant load reduction credit may be claimed based on an analysis of pre- and post-construction or land use conditions, where the credit is a demonstrated net decrease in pollutant load. BMP effectiveness values must be consistent with sources identified in section I.E of these instructions.

NOTE – Street sweeping may be proposed as a BMP for pollutant loading reductions if 1) street sweeping is not the only method identified for reducing pollutant loading, and 2) the BMP effectiveness values contained in 3800-PM-BCW0100m or Chesapeake Bay Program expert panel reports are utilized.

II. Required TMDL Plan Elements

Each TMDL Plan must include the following elements. The paragraph numbers in these instructions correspond to the organization of the TMDL Plan. For example, Section A of the TMDL Plan must be "Public Participation," Section B must be the "Map," Section C must be "Pollutants of Concern," etc.

A. Public Participation.

The MS4 shall complete the following public participation measures listed below, and report in the TMDL Plan that each was completed and attach copies of applicable information.

- The applicant shall make a complete copy of the TMDL Plan available for public review.

- The applicant shall publish, in a newspaper of general circulation in the area, a public notice containing a statement describing the plan, where it may be reviewed by the public, and the length of time the permittee will provide for the receipt of comments. The public notice must be published at least 45 days prior to the deadline for submission of the TMDL Plan to DEP. Attach a copy of the public notice to the TMDL Plan.

- The applicant shall accept written comments for a minimum of 30 days from the date of public notice. Attach a copy of all written comments received from the public to the TMDL Plan.

- The applicant shall accept comments from any interested member of the public at a public meeting or hearing, which may include a regularly scheduled meeting of the governing body of the municipality or municipal authority that is the permittee.

- The applicant shall consider and make a record of the consideration of each timely comment received from the public during the public comment period concerning the plan, identifying any changes made to the plan in response to the comment. Attach a

copy of the permittee's record of consideration of all timely comment received in the public comment period to the TMDL Plan.

West Chester Borough has completed the above-listed Public Participation measures and all required documentation of public participation is included as Appendix A.

- TMDL public notice was published in: Daily Local News
- Date TMDL public notice was published in newspaper: July 10, 2017
- Date TMDL was made available for public review/comment: June 10, 2017
- End date for receipt of written comments (30 days from the date of public notice): August 10, 2017
- Date TMDL comments were accepted at a public meeting: August 8, 2017

Questions received were of a general nature only, and no comments were made that required a response in, or revision to, this document.

Please note that when the specific stream segments (along which streambank restoration will occur) are known, the PRP shall be revised to note same and re-advertised for public comment.

B. Map.

Attach a map that identifies land uses and/or impervious / pervious surfaces and the storm sewershed boundary associated with each MS4 outfall that discharges to TMDL waters, and calculate the storm sewershed drainage area. In addition, the map must identify the proposed location(s) of structural BMP(s) that will be implemented to achieve required pollutant load reductions.

The map may be the same as that used to satisfy MCM #3 of the permit, with the addition of land use and/or impervious / pervious surfaces, the storm sewershed boundary, and locations of proposed BMPs, or may be a different map.

The map must be sufficiently detailed to identify the planning area relevant to satisfying TMDL Plan objectives, and to demonstrate that BMPs will be located in appropriate TMDL Planning Areas to meet the objectives. For a single MS4, the planning area constitutes the storm sewersheds of all MS4 outfalls within the permittee's jurisdiction. For MS4s participating in a joint TMDL Plan, the planning area constitutes the storm sewersheds of all MS4 outfalls within the jurisdictions of all MS4s in the joint effort. Planning areas may be reduced through parsing.

For additional information and guidance on parsing, see Attachment A, Parsing Guidelines For MS4s in TMDL Plans.

For clarity, land uses within the TMDL Planning Area are shown separately on the West Chester Borough MS4 TMDL Land Uses (MapShed) Map.

The above referenced Maps are included in Appendix B.

C. Pollutant(s) of Concern.

Identify the pollutant(s) of concern for each storm sewershed (see Section I.B of these instructions).

West Chester Borough is listed with a Waste Load Allocation (WLA) for Total Phosphorus in the *Nutrient Total Maximum Daily Load in Goose Creek Watershed, Pennsylvania* dated June 30, 2008 by the U.S. Environmental Protection Agency, Philadelphia, PA (herein referred to as TMDL Report).

Total Phosphorus (as presented in the applicable TMDL Report listed above) is applicable to West Chester Borough because a Waste Load Allocation has been listed for West Chester Borough. Table C-1 lists the pollutant (total phosphorous, TP) load (lb/day) and Allocated TP Load as presented in the Nutrient TMDL Report for West Chester Borough and for all other municipalities listed in the TMDL Report. The TMDL Report presents WLAs as Required Reduction (%), and the terms and numbers are presented in Table 1 exactly as presented in the TMDL Report.

Table C-1 Nutrient TMDL Goose Creek (Table 3-3)
TP Load in the Goose Creek Watershed by MS4 Area

MS4 Permit Holder	Area by MS4 (ac)	Existing TP Load (lb/day)	Allocated TP Load (lb/day)	Required Reduction
West Goshen Township	1,488	1.16	0.54	53.9%
West Chester Borough	310	0.24	0.11	53.9%
Westtown Township	1,791	1.40	0.64	53.9%
Thornbury Township (Chester County)	772	0.60	.028	53.9%
Thornbury Township (Delaware County)	113	0.09	0.04	53.9%
Total	**4,474**	**3.49**	**1.61**	**53.9%**

D. Existing Load for Pollutant(s) of Concern.

Calculate or report the existing load, in lbs per year, for the pollutant(s) of concern in the TMDL Planning Area. See section I.D of these instructions and Attachment A for guidance.

As noted previously, the options for evaluating existing load for TMDL Plans differs from PRPs. TMDL Plans must use: 1) the baseline load established in a TMDL, or 2) a load that is distributed from a bulk existing load for a group of MS4s in a TMDL, or 3) a recalculated load as determined using the MapShed model or equivalent.

If MapShed or equivalent will be used to estimate existing load, the same model should also be used to estimate future pollutant load for different BMP implementation scenarios to ensure consistency with input parameters between existing and future loading.

MS4s may claim credit for constructed structural BMPs as discussed in Section I.D, assuming those BMPs continue to be maintained and are functioning as designed. In order to claim credit, identify all such structural BMPs in Section D of the TMDL Plan along with the following information:

- A detailed description of the BMP;
- Latitude and longitude coordinates for the BMP;
- Location of the BMP on the storm sewershed map;
- The permit number, if any, that authorized installation of the BMP;
- Calculations demonstrating the pollutant reductions achieved by the BMP;
- The date the BMP was installed and a statement that the BMP continues to serve the function(s) it was designed for; and
- The operation and maintenance (O&M) activities of the BMP, O&M frequencies, and party(ies) who are responsible for O&M.

The MS4 permittee may optionally submit design drawings of the BMP for previously installed or future BMPs with the TMDL Plan.

West Chester Borough is listed with a Waste Load Allocation (WLA) for Total Phosphorus in the TMDL Report. From the TMDL Report *Nutrient Total Maximum Daily Load in Goose Creek Watershed, Pennsylvania.* June 30, 2008, pg. 3-7:

> *"3.5 Overall Recommended TMDL Allocations*
>
> *At this time, EPA cannot determine what portion of the municipalities are designated/used for collection or conveying stormwater, as opposed to the portions that are truly nonpoint sources. As part of the Phase II stormwater permit process, MS4 facilities will be responsible for evaluating and mapping out areas that are draining to or discharging to storm sewers. Since these systems have not yet been delineated, the TMDL lumps the nonpoint source loads into the WLA portion of the TMDLs. Once these delineations are available, the nonpoint source loads can then be separated from the WLA and added to the LA."*

The West Chester Borough MS4 TMDL Goose Creek Map identifies the TMDL Planning Area, which includes all storm sewershed boundaries. The TMDL Storm Sewershed was delineated for West Chester Borough based on mapping of the MS4 system and topography; and the delineated TMDL Storm Sewershed land area was then used to pro-rate the MS4 Baseline, MS4 Allocation, and Load Reduction requirement. The West Chester TMDL Planning Area in the Goose Creek / Chester Creek watersheds was calculated to be 256 acres.

Table 1, as presented in Section C, lists the applicable pollutant Load Reductions required by the TMDL Report. West Chester Borough is located within the Goose Creek Watershed. Table 1 indicates that a pollutant Load Reduction is required by West Chester Borough for Total Phosphorous.

Phosphorus Reductions: The Nutrient TMDL Report presents pollutant Load Reductions by Municipality by "percent". Calculating the required MS4 Load Reduction (MS4 LR) can be done as follows:

(MS4 Load Reduction) = (MS4 Baseline Load) – (MS4 Allocation)

(MS4 LR) = (Existing TP Load) – (Allocated TP Load)

MS4 LR = 0.24 lb/day – 0.11 lb/day

MS4 LR = 0.13 lb/day

(Percent Required Reduction) = (MS4 Load Reduction) / (MS4 Baseline Load)

% Reduction = (MS4 LR) / (Existing TP Load)

53.9% = MS4 LR / 0.24 lb/day

MS4 LR = 0.13 lb/day

The TMDL Planning Area is the delineation of the MS4 land area(s) to be used to calculate an Adjusted MS4 Baseline, MS4 Allocation, and required Load Reduction using the following Adjustment Equation. MS4 Allocation is used herein to refer to EPA's "MS4 Allocation", EPA's "MS4 Load Allocation", as used in the TMDL Reports, and which appear to be used by EPA as synonyms for "Waste Load Allocation" (WLA).

$$\text{Adjustment Ratio} = \frac{\left(\begin{matrix}Actual\ Contributing\ land\ area\ (acres)\\ as\ delineated\ by\ the\ Municipality\end{matrix}\right)}{\left(\begin{matrix}Land\ area\ (acres)\ used\ by\ EPA\ to\\ calculate\ the\ EPA\ TMDL\ Allocation\end{matrix}\right)}$$

The West Chester TMDL Planning Area in the Goose Creek / Chester Creek watersheds was calculated to be 254 acres. The TMDL Report assigned West Chester Borough 310 acres as the Area by MS4.

$$\text{Adjustment Ratio} = \frac{(256)}{(310)}$$

Therefore, the Adjustment Ratio is 82.58%.

Adjusted MS4 LR = Adjustment Ratio x (MS4 LR) x 365 days/year
Adjusted MS4 LR = 82.58% x 0.13 lb/day x 365 days/year
Adjusted MS4 LR = 0.106 lbs/day x 365 days/year
Adjusted MS4 LR = 39.18 lbs./year

E. Wasteload Allocation(s) (WLA(s)).

For TMDLs with specific WLA(s), report the specific WLA(s) established for the MS4(s). For TMDLs with bulk WLA(s), distribute the portion of the WLA(s) that are specific to the MS4 UNLESS all MS4s identified in a TMDL develop a joint TMDL Plan.

The MS4 Load Reduction for West Chester Borough was calculated in the previous section, and is 38.86 lbs./year.

F. Analysis of TMDL Objectives.

In this section of the Plan, MS4s must present the following:

1. Long-Term Reduction – The pollutant load reduction required to meet the WLA(s), in lbs/yr, and percentage of existing load.

   The percent reduction per the TMDL Report is 53.90%. West Chester Borough is required to reduce 38.86 lbs./year TP (Adjusted MS4 LR) per the TMDL Report.

2. Short-Term Reduction – The MS4's decision on which objective will be pursued for the subsequent permit term, i.e., either 1) achieve the WLA(s) or 2) reduce existing load by 10% (sediment) or 5% (TP), as well as the pollutant load reduction, in lbs/yr.

West Chester Borough's objective is Long-Term Reduction to meet the WLA, with the Short Term Reduction of reducing the existing sediment load by 10%. Please see *West Chester Borough Chester Creek / Goose Creek Pollutant Reduction Plan* (submitted to DEP September 2017 as required and revised July 2018) for sediment reduction calculations. Calculations are included herein to show the potential proposed phosphorous reductions for the subsequent permit term, utilizing the same BMPs as in the *West Chester Borough Chester Creek / Goose Creek Pollutant Reduction Plan*.

MapShed was used to model the Goose Creek (Chester Creek) watershed to ascertain only the land use loading rates, as well as the phosphorous load, from the Planning Area. The Planning Area was modeled as an “Urban Area” in MapShed; Goose Creek is “(0020)” in the included MapShed output.

Note that a portion of the Planning Area that drains to Goose Creek is, per MapShed, included in adjacent watersheds; however, per analysis of the storm collection system and LiDAR contours this drains to Goose Creek. Therefore, the basin delineation between the adjacent Brandywine Creek (Blackhorse Run, Plum Run and Taylor Run) basins and the Goose Creek / Chester Creek (again as an “urban area”) was adjusted accordingly. The Total Load from Phosphorus is 91.5 lbs./year (for the purposes of this TMDL, the Total Load excludes groundwater as the MS4 does not contribute to groundwater); a 5% reduction of 91.5 lbs./yr is 4.57 lbs./yr.

G. Select BMPs To Achieve the Minimum Required Reductions in Pollutant Load.

This section must be divided into two parts if the MS4 determines it will be unable to achieve the WLA(s) in the subsequent permit term: 1) short-term reductions for the permit term, and 2) long-term reductions to meet the WLA(s).

Short-Term Reductions for the Permit Term

Specific BMP(s), their location(s) and estimated date(s) of implementation must be identified along with calculations demonstrating that the TMDL objective will be achieved. The analysis should be similar to the examples presented in the PRP Instructions (see Attachments C and D therein). The number, type and location of BMPs may be modified following DEP's approval of the TMDL Plan, and the process for modifying TMDL Plans will be specified in the individual permit.

West Chester Borough proposes to install several small BMP infiltration facilities consisting of rain gardens, vegetated curb extensions, bioswales and infiltration trenches proposed at three locations, with the goal to capture and infiltrate the runoff generated from 1.5" of rainfall. The locations for these facilities are: John O. Green Memorial Park located at the intersection of Railroad Street, East Miner Street, and South Matlack Street; Fugett Park at Borough Hall located at 401 East Gay Street; and Greenview Alley located off South Franklin Street just north of intersection with East Nields Street. These projects have been designed by others (See Appendix F), with drainage areas supplied for use in the preparation of this TMDL.

The BMP drainage area shape files were loaded into MapShed and the land uses within these drainage areas noted visually. The land use areas were noted to be HD Mixed for John O. Green Park and Fugett Park / Borough Hall, and HD Mixed, LD Mixed, and MD Mixed for Greenview Alley. The total area of 5.53 acres consists of 5.24 acres HD Mixed, 0.22 acres MD Mixed and 0.06 acres LD Mixed.

Note that per the BMP Effectiveness Values from DEP (3800-PM-BCW0100m 5/2016), Infiltration Practices w/Sand, Veg. has a BMP Effectiveness Value of 85% for TP. Note that

once the designs for each BMP have been completed, reductions will be more accurately calculated.

The table below summarizes the small BMP infiltration facilities.

Table G-1: Proposed BMPs and TP Reductions

Location	Drainage Area (ac)	Land Use	Loading (lbs./ac/yr)	Efficiency (%)	Reduction (lbs./yr)
John O. Green Park	1.58	HD Mixed	0.26	85	0.35
Fugett Park / Borough Hall	3.20	HD Mixed	0.26	85	0.70
Greenview Alley	0.47 0.22 0.06	HD Mixed MD Mixed LD Mixed	0.26 0.26 0.06	85 85 85	0.10 0.05 0.0
Total Reduction	5.53				1.20

Stream bank restoration and street sweeping are calculated outside of the MapShed program, per the instructions, with streambank restoration as 115 lbs/ft/yr reduction (for sediment). West Chester Borough will consider the potential of streambank restoration in the Chester Creek watershed. If streambank restoration is undertaken, the Borough would propose to install approximately two-hundred (200) feet of streambank restoration. The DEP's BMP Effectiveness Value for TP removal will be utilized. Therefore, the proposed streambank restoration of two hundred (200) feet would result in 13.6 lbs./yr (i.e., 200 ft * 0.068 lbs/ft/yr) reduction TP.

West Chester Borough is proposing to street sweep all streets in the borough more than 25 times annually. Per the BMP Effectiveness Values (5/2016), street sweeping must be conducted 25 times annually; only count those streets that are swept at least 25 times in a year. The acres associated with all streets that are swept at least 25 times in a year would be eligible

for pollutant reductions consistent with the given BMP effectiveness values. From the "Street and Drain Cleaning Expert Panel Report," the standard street cleaning unit is curb miles swept. In general, one impervious acre is equivalent to one curb lane mile swept, assuming they are swept on one-side only (one acre = one curb lane mile rule of thumb). From Table 4, the Average TP Load is 1.93 lbs/ac/yr. From Table 15, using street sweeping frequency of 25 times annually (as a minimum), the sweeping schedule is 1P2W (one pass every 2 weeks). From Table 17, this corresponds to Practice #SCP-3 with a TP Removal of 5% (see Appendix H). The Borough maintains 33 miles of street; the miles of street within the Chester Creek watershed is approximately 8 miles; since the Borough sweeps both sides of the streets, the curb lane miles would be 16 miles. Therefore, 1.93 lbs/ac/yr * 16 curb lane miles * 1 acre/curb lane mile * 5% TP removal yields 1.54 lbs/yr TP removal.

West Chester Borough also plants trees every year. The BMP effectiveness values for tree planting are estimated by DEP. DEP estimates that 100 fully mature trees of mixed species (both deciduous and non-deciduous) provide pollutant load reductions for the equivalent of one acre (i.e., one mature tree = 0.01 acre). The BMP effectiveness values given are based on immature trees (seedlings or saplings); the effectiveness values are expected to increase as the trees mature. To determine the amount of pollutant load reduction that can credited for tree planting efforts: 1) multiply the number of trees planted by 0.01; 2) multiply the acreage determined in step 1 by the pollutant loading rate for the land prior to planting the trees (in lbs/acre/year); and 3) multiply the result of step 2 by the BMP effectiveness values given. The Tree Planting BMP Effectiveness Value is 15% for TP.

In the Chester Creek watershed, the Borough intends to plant a minimum of 100 trees annually. The locations of these trees are unknown at this time; however, given the urban nature of the Borough, the estimate is that 90% are expected to be street trees. The HD Residential loading rate from MapShed for the Chester Creek watershed will be used to best represent paved streets / sidewalks (i.e., land prior to planting the trees is along streets, i.e., pavement and sidewalks). The TP HD Residential loading rate from MapShed is 0.26 lb/ac/year. The reduction is therefore 0.04 lbs/yr. (100 trees/year * 90% street trees * 0.01 * 0.26 lb/ac/year * 15%).

West Chester Borough is also considering using Jellyfish Filters from Contech. There are two discharge points (i.e., endwalls) that discharge runoff from large collection areas. The two endwall identifications are 13 and 37, with drainage areas of 44 and 35 acres respectively. The endwalls are located off of East Nields Street, west of the intersection with South Franklin Street. From the BMP Effectiveness Table, this type of BMP is Storm Sewer System Solids Removal. DEP will allow up to 50% of total pollutant reduction requirements to be met through this BMP. The drainage area treated by this BMP may be no greater than 0.5 acre unless it can be demonstrated that the specific system proposed is capable of treating stormwater from larger drainage areas. For planning purposes, the phosphorous removal efficiency specified by the manufacturer may be assumed, but no higher than 80%. The Jellyfish Filter has 59% removal efficiency for Total Phosphorus. Therefore, the Jellyfish Filter removal rate will be used.

To ascertain only the land uses and loading rates of the drainage areas to these endwalls, the drainage areas were modeled as “Urban Areas” in MapShed. The GWLF-E Average Loads by Source for Watershed output from this run is included (Appendix D). The phosphorus load from the drainage area to Endwall 13 (“Area1” in output) is 11.4 lbs./year (from overland flow), and from Endwall 37 (“Area2” in output) the phosphorus load is 9.1 lbs./year (from overland flow). Note that because volume is not reduced, the conservative assumption appears to be that stream bank loading will not be reduced as a result of the Jellyfish Filters. Additionally, since at this time the design of the units has not been completed, size and costs are unknown. Note that the units will need to be sized / designed, which is beyond the scope of this PRP, with the actual removal calculated at that time. Making the assumption that the Borough could remove 25% of the load at either endwall, the reduction at Endwall 13 could be 1.68 lbs./year (11.4 lbs./year * 59% removal * 25% Assumed Load Removal) and the reduction at Endwall 37 could be 1.34 lbs./year (9.1 lbs./year * 59% removal * 25% Assumed Load Removal). Information on the Jellyfish Filter is included as Appendix E.

West Chester Borough also intends to utilize inlet cleaning as a TMDL BMP, i.e., physically / manually removing debris from inlet boxes. This BMP (also referred to as “Storm Drain Cleaning” in the BMP Effectiveness Table) involves the collection or capture and proper disposal of solid material within the storm system to prevent discharge to surface waters. Examples include catch basins, stormwater inlet filter bags, end of pipe or outlet solids removal

systems and related practices. Credit is authorized for this BMP only when proper maintenance practices are observed (i.e., inspection and removal of solids as recommended by the system manufacturer or other available guidelines). The entity using this BMP for pollutant removal credits must demonstrate that they have developed and are implementing a standard operating procedure for tracking the material removed from the sewer system. Locating such BMPs should consider the potential for backups onto roadways or other areas that can produce safety hazards. DEP will allow up to 50% of total pollutant reduction requirements to be met through this BMP. The drainage area treated by this BMP may be no greater than 0.5 acre unless it can be demonstrated that the specific system proposed is capable of treating stormwater from larger drainage areas.

To determine pollutant reductions for this BMP, the following steps must be taken. Note that at this point, there is insufficient information to provide any calculations as to TP removal.

1. Measure the weight of solid/organic material collected (lbs). Sum the total weight of material collected for an annual period. Note – do not include refuse, debris and floatables in the determination of total mass collected.

2. Convert the annual wet weight captured into annual dry weight (lbs) by using site-specific measurements (i.e., dry a sample of the wet material to find its weight) or by using default factors of 0.7 (material that is predominantly wet sediment) or 0.2 (material that is predominantly wet organic matter, e.g., leaf litter).

3. Multiply the annual dry weight of material collected by default or site-specific pollutant concentration factors. The default concentrations are shown in the BMP Effectiveness Values columns. Alternatively, the material may be sampled (at least annually) to determine site-specific pollutant concentrations.

The final total proposed potential phosphorus reduction is summarized below in Table G-2. The actual reductions will be refined at the time of design of each BMP.

Table G-2: Required Reduction and Proposed BMPs

Adjusted MS4 LR in the TMDL Study (lb/yr)	39.18
Required Short-Term Reduction: 5% of the existing load for TP at the time of TMDL Plan submission	4.57 lbs./yr
Proposed Potential Reduction (lbs./yr)	1.20 (Three BMP Locations) 1.54 (Street Sweeping) 0.04 (Plant Street Trees) 13.6 (Streambank Restoration) 1.68 (Endwall 13) 1.34 (Endwall 37) Potential Total of 19.40

For all structural BMPs, MS4s must report the anticipated operation and maintenance (O&M) responsibilities and the anticipated provider of O&M as part of the TMDL Plan.

Table G-3: Operation and Maintenance of BMPs

NAME OF BMP	RESPONSIBLE PARTY	O&M ACTIVITY & FREQUENCY
Street Sweeping	West Chester Borough	Per PA BMP Manual (latest revision) BMP 5.9.1 pg 94-97
Street Tree Planting	West Chester Borough	Per PA BMP Manual (latest revision) BMP 5.6.3 pg 63-67
Streambank Restoration	West Chester Borough	Per PA BMP Manual (latest revision) BMP 6.7.1 pg 191-210
Proposed Infiltration Facilities	West Chester Borough	Per PA BMP Manual (latest revision) BMP 6.4.3/6.4.4 pg 33-47
Jellyfish Filters	West Chester Borough	Per Manufacturer's Instructions
Inlet Cleaning	West Chester Borough	Per PA DEP Direction and Applicable Manufacturer's Instructions

Historic street sweeping practices should not be considered in calculating credit for future practices. All proposed street sweeping practices may be used for credit if the minimum standard is met for credit (see 3800-PM-BCW0100m). In other words, if sweeping was conducted 1/month and will be increased to 25/year in the future, the MS4 does not need to use the "net reduction" resulting from the increased sweeping; it may take credit for the full amount of reductions from 25/year sweeping.

The names and descriptions of BMPs and land uses reported in the TMDL Plan should be in accordance with the Chesapeake Bay Program Model, to the extent possible. The names and descriptions are available through CAST (log into www.casttool.org, select "Documentation," select "Source Data" and see worksheets named "Land Use Definitions" and "BMP Definitions").

Long-Term Reductions to Meet the WLA(s)

In this section of the TMDL Plan (where applicable), the MS4 must present, at a minimum, a conceptual plan for how the WLA(s) will be achieved, long-term. This section may be less detailed than the section addressing short-term reductions, but nonetheless should describe a feasible plan toward achieving the WLA(s). Calculations are not required, but are recommended. An estimate on the number of years it will take the MS4 to achieve the WLA(s) should be reported based on the preliminary analysis.

West Chester Borough is required to remove 38.86 lbs./year total phosphorous. Table G-4 presents the TMDL implementation timeline and milestones for West Chester Borough.

Table G-4. Timeline for Attaining TMDL Pollutant Load Reductions 2018-2033

TMDL Watershed	Pollutant	Load Reduction Required (lb/year)	Timeframe for Attaining Reduction		Cumulative Percent of Required Pollutant Load Reduction		
			Total years	Calendar Year	2023	2028	2033
Goose Creek	Phosphorus	39.18	15	2033	33%	66%	100%

H. Identify Funding Mechanism(s).

Prior to approving coverage DEP will evaluate the feasibility of implementation of an MS4's TMDL Plan. Part of this analysis includes a review of the applicant's proposed method(s) by which BMPs will be funded. Applicants must identify project sponsors and partners and probable funding sources for each BMP. DEP does not expect that sources identified in the TMDL Plan be guaranteed, but does expect that applicants propose their preferred funding options with alternatives in the event the preferred options do not materialize.

West Chester Borough has adopted a Stream Protection Fee, which will be used to fund all BMP projects the Borough will undertake in the next NPDES Permit term.

I. Identify Responsible Parties for Operation and Maintenance (O&M) of BMPs. Once implemented the BMPs must be maintained in order to continue producing the expected pollutant reductions. Applicants must identify the following for each BMP selected for the subsequent permit term:

- The anticipated party(ies) responsible for ongoing O&M;
- The activities involved with O&M for each BMP; and
- The anticipated frequency at which O&M activities will occur.

MS4 permittees will need to identify actual O&M activities in Annual MS4 Status Reports submitted under the permit.

Table I-1 Operation and Maintenance of BMPs

NAME OF BMP	RESPONSIBLE PARTY	O&M ACTIVITY & FREQUENCY
Street Sweeping	West Chester Borough	Per PA BMP Manual (latest revision) BMP 5.9.1 pg 94-97
Street Tree Planting	West Chester Borough	Per PA BMP Manual (latest revision) BMP 5.6.3 pg 63-67
Streambank Restoration	West Chester Borough	Per PA BMP Manual (latest revision) BMP 6.7.1 pg 191-210
Proposed Infiltration Facilities	West Chester Borough	Per PA BMP Manual (latest revision) BMP 6.4.3/6.4.4 pg 33-47
Jellyfish Filters	West Chester Borough	Per Manufacturer's Instructions
Inlet Cleaning	West Chester Borough	Per PA DEP Direction and Applicable Manufacturer's Instructions

III. Submission of TMDL Plan

Attach one copy of the TMDL Plan with the individual permit application that is submitted to the regional office of DEP responsible for reviewing the application. In addition, one copy of the TMDL Plan (not the application) must be submitted to DEP's Bureau of Clean Water (BCW). BCW prefers electronic copies of TMDL Plans, if possible. Email the electronic version of the TMDL Plan, including map(s) (if feasible), to RA-EPPAMS4@pa.gov. If the MS4 determines that submission of an electronic copy is not possible, submit a hard copy to: PA Department of Environmental Protection, Bureau of Clean Water, 400 Market Street, PO Box 8774, Harrisburg, PA 17105-8774.

IV. TMDL Plan Implementation and Final Report

Under the individual permit, the permittee must achieve the required pollutant load reductions within 5 years following DEP's issuance of the permit, and must submit a report demonstrating compliance with the minimum pollutant load reductions as an attachment to the first Annual MS4 Status Report that is due following expiration of the permit.

For example, if DEP issues a permit to a permittee on June 1, 2018, the required pollutant load reductions must be implemented by June 1, 2023 and the final report documenting the BMPs that were implemented (with appropriate calculations) must be attached to the annual report that is due September 30, 2023.

ATTACHMENT A
PARSING GUIDELINES FOR MS4s IN TMDL PLANS

Please refer to Attachment A of the PRP Instructions (3800-PM-BCW0100k) for information on where it is possible to parse (remove) land area in the course of developing PRPs. Those instructions are also applicable to TMDL Plans.

Parsing may also be undertaken where a TMDL utilized the entire land area of a municipality instead of the storm sewershed of outfalls discharging to TMDL waters (TMDL Planning Area). In such cases the MS4 is not required to take responsibilities for pollutant loads generated outside of the TMDL Planning Area, and may therefore parse out that area.

Two possible parsing methods are outlined in this document. DEP may accept other methods proposed in TMDL Plans not identified herein if based on sound science and if all other MS4s subject to a bulk WLA use the same method. All parsing must be supported by appropriate calculations and mapping.

1. Land Area Approach

   A. Determine the total land area of the municipality within the TMDL watershed (e.g., 10,000 acres).

   B. Determine the total land area served by the MS4 within the municipality and within the TMDL watershed (e.g., 6,000 acres).

   C. Calculate the ratio of land areas by dividing the land area determined in Step B to the land area determined in Step A (e.g., 6,000 acres / 10,000 acres) and apply it to both the existing MS4 pollutant load(s) and the WLA(s) that are assigned to the MS4 in the TMDL. The required percent (%) reduction of pollutant load should not change.

Example:

Inputs: Existing pollutant load = 5,000 lbs/yr, WLA = 3,500 lbs/yr, % reduction = 30%

- Step A: 10,000 acres
- Step B: 6,000 acres
- Step C: Ratio = 6,000/10,000 = 0.6

Outputs:

- Parsed existing load = 0.6 x 5,000 lbs/yr = 3,000 lbs/yr
- Parsed WLA = 0.6 * 3,500 lbs/yr = 2,100 lbs/yr
- New % reduction [(3,000 – 2,100)/3,000] x 100 = 30%

2. Weighted Land Use Approach

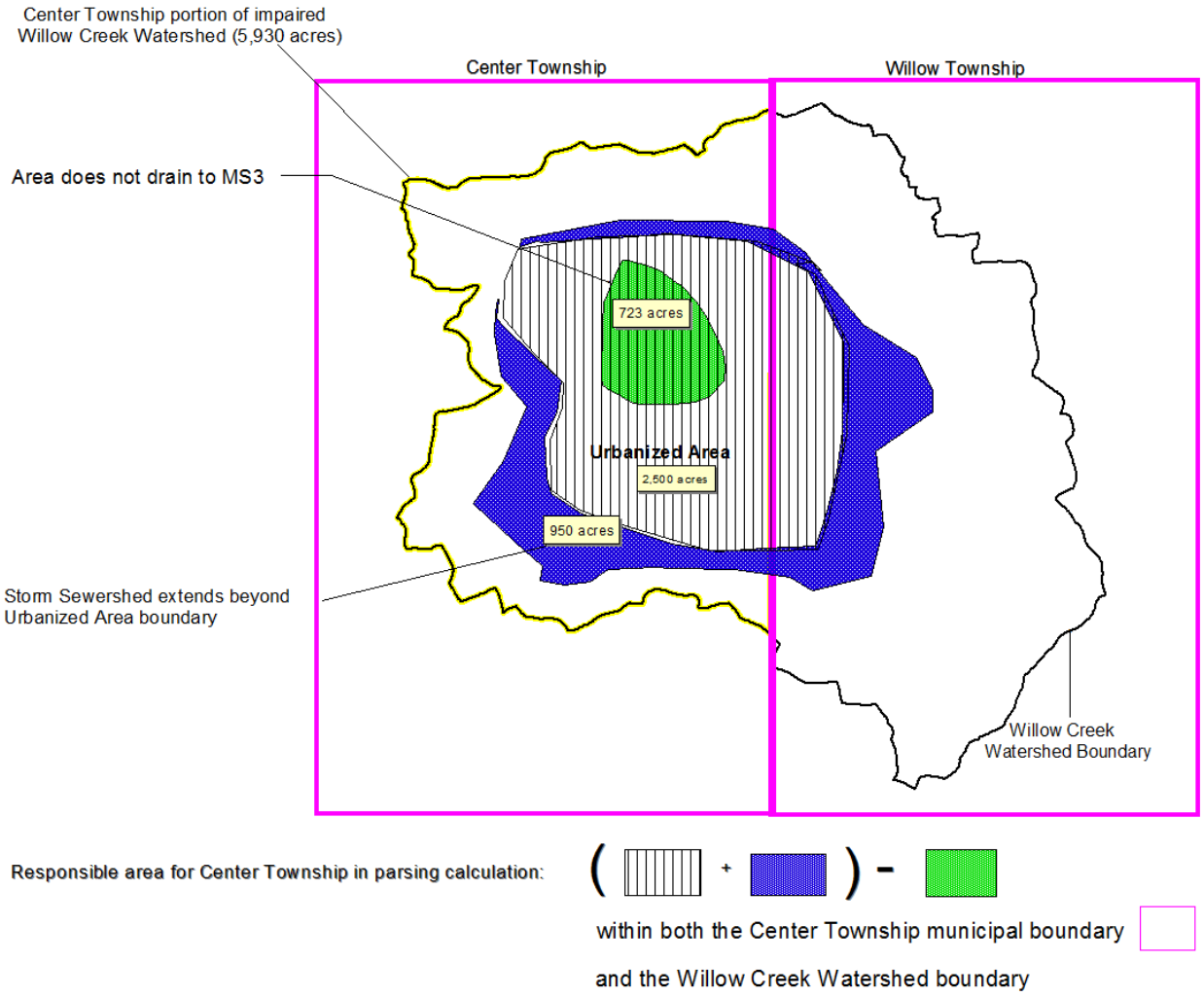
The principle of this approach may be stated as follows: *If the TMDL calculated the WLA based on the entire land area for a municipality that is contained in the impaired watershed, an MS4 permittee may parse (reduce) the WLA using the proportion of the load generated from the TMDL Planning Area. This may be done on a land area basis as described in Example 1. Alternately, another criterion, such as impervious area, may be applied as described in the following example.*

Example: A TMDL was developed and approved for the Willow Creek watershed in 2005. At that time, a bulk WLA was calculated using the entire watershed area. Center Township wishes to use the weighted land use approach to determine its parsed WLAs in the Willow Creek Watershed TMDL (see Figure 1, below). The impaired watershed is 5,930 acres total, including municipalities outside of Center Township. The pink line represents municipal boundaries. The yellow line represents the impaired watershed boundary within Center Township (2,950 acres). The striped area is the UA within Center Township (2,500 acres), and the blue area represents land outside of the UA in Center Township that drains into the MS4 (950 acres). The green area represents land within the UA that does not drain into the MS4 (723 acres). The TMDL Planning Area is

represented by the following formula: UA + Additional Land Draining to MS4 – Land within UA Not Draining to MS4. In this example, the storm sewershed is 2,727 acres (2,500 acres + 950 acres – 723 acres).

Once the planning area is calculated, determine the land uses in the planning area. A GIS-based analysis or assessment using other mapping tools is generally necessary.

Figure 1: Example Storm Sewershed Analysis



APPENDIX A

Public Notice & Proof of Publication

Plan needs to be on July 18 Workshop Agenda

Christine McAllister

To: legals@dailylocal.com
Subject: Public Notice Advertisement
Attachments: ADVERTISEMENT-WC (002).DOCX

Importance: High

7/7/17

Maureen – Please advertise the attached Notice on July 10. E-mail me a Proof of Publication and send the invoice to my attention.

Thank you for your help with EVERYTHING!!!!

Regards,

Christine

Christine M. McAllister
Administrative Assistant to the Borough Manager
Borough of West Chester
cmcallister@west-chester.com
610-344-3246 (W)
484-456-8281 (Cell)
610-436-0009 (F)

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BOROUGH OF WEST CHESTER

MS4 POLLUTANT REDUCTION PLANS AND TMDL PLAN

JUNE 30, 2017

The Borough Council of the Borough of West Chester will accept comments from the public beginning on June 10, 2017 and extending through August 10, 2017 associated with the Borough's two (2) Pollutant Reduction Plans (PRPs) and one (1) Total Maximum Daily Load (TMDL) Plan as required by the Pennsylvania Department of Environmental Protection as a component of the Borough's *National Pollutant Discharge Elimination System (NPDES) Individual Permit to Discharge Stormwater from Small Municipal Separate Storm Sewer Systems* (MS4s). The PRPs outline in general terms the Borough's 5-year plan between 2018 and 2023 to reduce sediment loadings from the MS4 stormwater discharges to Chester Creek/Goose Creek, Brandywine Creek, Blackhorse Run, Plum Run, and Taylor Run. The TMDL Plan outlines in general terms the Borough's 5-year plan between 2018 and 2023 to reduce Total Phosphorus loadings from the MS4 stormwater discharges to Goose Creek. The PRPs and TMDL Plan will be available for public review Monday through Friday between the hours of 8:30 AM to 4:00 PM at the municipal offices of the Borough of West Chester located at 401 E. Gay Street, West Chester, PA 19380. The PRPs and TMDL Plan is also available for public review on the Borough's website at www.west-chester.com. Comments may be provided in writing and delivered in person or via e-mail or regular mail and addressed to Michael A. Cotter, Borough Manager at macotter@west-chester.com. The PRPs and TMDL Plan will be on the agenda for the Borough Council Work Session meeting scheduled for July 18, 2017. Comments received after August 10, 2017 will not be considered by the Borough Council.

Michael A. Cotter
Borough Manager

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307 Derstine Avenue • Lansdale, PA 19446

WEST CHESTER BOROUGH
401 E GAY STREET
WEST CHESTER, PA 19380
Attention:

STATE OF PENNSYLVANIA,
COUNTY OF MONTGOMERY

The undersigned Kathy Vincent, being duly sworn the he/she is the principal clerk of Daily Local News, Daily Local News Digital, published in the English language for the dissemination of local or transmitted news and intelligence of a general character, which are duly qualified newspapers, and the annexed hereto is a copy of certain order, notice, publication or advertisement of:

WEST CHESTER BOROUGH

Published in the following edition(s):

Daily Local News	07/10/17
Daily Local News Digital	07/10/17

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
MAUREEN SCHMID, Notary Public
Lansdale Boro., Montgomery County
My Commission Expires March 31, 2021

Sworn to the subscribed before me this 7/11/2017.

Maureen Schmid

Notary Public, State of Pennsylvania
Acting in County of Montgomery

The Borough Council of the Borough of West Chester will accept comments from the public beginning on June 10, 2017 and extending through August 10, 2017 associated with the Borough's two (2) Pollutant Reduction Plans (PRPs) and one (1) Total Maximum Daily Load (TMDL) Plan as required by the Pennsylvania Department of Environmental Protection as a component of the Borough's National Pollutant Discharge Elimination System (NPDES) Individual Permit to Discharge Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s). The PRPs outline in general terms the Borough's 5-year plan between 2018 and 2023 to reduce sediment loadings from the MS4 stormwater discharges to Chester Creek/Goose Creek, Brandywine Creek, Blackhorse Run, Plum Run, and Taylor Run. The TMDL Plan outlines in general terms the Borough's 5-year plan between 2018 and 2023 to reduce Total Phosphorus loadings from the MS4 stormwater discharges to Goose Creek. The PRPs and TMDL Plan will be available for public review Monday through Friday between the hours of 8:30 AM to 4:00 PM at the municipal offices of the Borough of West Chester located at 401 E. Gay Street, West Chester, PA 19380. The PRPs and TMDL Plan is also available for public review on the Borough's website at www.west-chester.com. Comments may be provided in writing and delivered in person or via e-mail or regular mail and addressed to Michael A. Cotter, Borough Manager at macotter@west-chester.com. The PRPs and TMDL Plan will be on the agenda for the Borough Council Work Session meeting scheduled for July 18, 2017. Comments received after August 10, 2017 will not be considered by the Borough Council.
Michael A. Cotter
Borough Manager
DL-July 10-1a

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and 455-14.C to allow a minimum Front Yard Setback of 30.05 feet and minimum Rear Yard Setback of 55.37 feet where the minimum Front and Rear Yard Setbacks are 75 feet; Section 455-132 to allow a pool and associated structures within the minimum Rear Yard Setback where they are not permitted; and from Section 274-19 to allow land disturbance, improvements, and construction activities within the Riparian Buffer where no disturbance is permitted; and any other relief that may be deemed necessary by the Zoning Hearing Board.

2. ZHB 563 – Nguyen/Vu – 1026A Lancaster Avenue, Berwyn. (VB District TPN 55-2L-4) Applicant has changed the property's use from commercial to single-family detached dwelling without Township approval. Applicant seeks a Variance from Section 455-21.(A)(1) to eliminate the need for commercial uses where second floor apartments are only allowed as accessory uses to nonresidential uses on the ground-level floor; a Special Exception in accordance with Section 455-122.B to change a nonconforming use or in the alternative appeal of the Zoning Officer's determination that the Applicant changed the property's use from commercial to single-family detached dwelling which is not a permitted use, and any other relief that may be deemed necessary by the Zoning Hearing Board.

Copies of applications are available for review in the Easttown Township Building weekdays from 8:00 a.m. through 12:00 p.m. and 12:30 p.m. through 4:30 p.m. If any person wishing to attend the hearing has a disability and/or requires an auxiliary aid, service or other accommodation, he or she should contact the Township at 610-687-3000 to discuss how those needs may be accommodated.
dln. 7/10, 17 - 1a.

The Borough Council of the Borough of West Chester will accept comments from the public beginning on June 10, 2017 and extending through August 10, 2017 associated with the Borough's two (2) Pollutant Reduction Plans (PRPs) and one (1) Total Maximum Daily Load (TMDL) Plan as required by the Pennsylvania Department of Environmental Protection as a component of the Borough's National Pollutant Discharge Elimination System (NPDES) Individual Permit to Discharge Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s). The PRPs outline in general terms the Borough's 5-year plan between 2018 and 2023 to reduce sediment loadings from the MS4 stormwater discharges to Chester Creek/Goose Creek, Brandywine Creek, Blackhorse Run, Plum Run, and Taylor Run. The TMDL Plan outlines in general terms the Borough's 5-year plan between 2018 and 2023 to reduce Total Phosphorus loadings from the MS4 stormwater discharges to Goose Creek. The PRPs and TMDL Plan will be available for public review Monday through Friday between the hours of 8:30 AM to 4:00 PM at the municipal offices of the Borough of West Chester located at 401 E. Gay Street, West Chester, PA 19380. The PRPs and TMDL Plan is also available for public review on the Borough's website at www.west-chester.com. Comments may be provided in writing and delivered in person or via e-mail or regular mail and addressed to Michael A. Cotter, Borough Manager at macotter@west-chester.com. The PRPs and TMDL Plan will be on the agenda for the Borough Council Work Session meeting scheduled for July 18, 2017. Comments received after August 10, 2017 will not be considered by the Borough Council.
Michael A. Cotter
Borough Manager
DL-July 10-1a

BIDS & PROPOSALS

ADVERTISEMENT FOR BIDS

Sealed bids for the construction of the **Dogwood / Scott Drive Sewer Extension** will be received by the Caln Township Municipal Authority electronically via PennBid™ until 10:00 **A.M. local time, Tuesday, August 8, 2017** at which time all bids will be opened online.

Construction of the sewer extension will involve the installation of approximately 4,000 linear feet of low pressure sewer lines by open trench and horizontal directional drilling, installation of approximately 400 linear feet of gravity sanitary sewer by open trench, and the completion of all other necessary work to provide public sewer to approximately 55 existing homes located in Caln Township, Chester County Pennsylvania.

All Bid Documents and solicitation details are available at PennBid™ - www.PennBid.net. Click on the "Solicitations" then "View" tabs. Please note the low bidder is responsible for a fee to PennBid™.

Each bid must be accompanied by a bid bond or a certified check in an amount not less than ten percent (10%) of the amount of the bid in the form and subject to the conditions provided in the Instructions to Bidders. No bid may be withdrawn for the

Public Agenda

And

Meeting Minutes

Public Works Committee

July 11, 2017 – 5:35 pm

Committee Members Present:	Don Braceland (Chair) Bernard Flynn (Council Member) Denise Polk
Department Heads Present:	**O'B Laing, Public Works** **Keith Kurowski, Recreation** **Mac Cotter (Borough Manager)**

1. Call to Order – meeting was called to order at 5:35 PM

2. Comments, suggestions, petitions by residents in attendance regarding items not on the agenda:
   a) Keith Kurowski reminded everyone that the 35th Annual Turks Head Music Festival was taking place this Sunday, July 16th at Everhart Park.

3. Discuss the Marshall Square Park sidewalk and fieldstone step reconstruction.
   a) After an extended discussion, this item was tabled for further discussion. It was decided that Jeff Beitel, at his request, would offer reasonable alternative to repair the sidewalk instead of total reconstruction.

4. Discuss substitute material to replace tree well grates throughout the BID.
   a) Alternative material was shown along with photograph of similar product which is currently in place for over eight (8) years. This was well received by Council and members of the public. No decision was made however, Jeff Beitel indicated that as the Chairman of the Shade Tree Commission he had some concerns about the product and would like Council to allow him some time to look at alternative products to which Council complied.

5. Appraise Council of proposed Bid solicitation for 2017 Pavement Markings project.
   a) The Public Works Director gave a brief overview of the Pavement Markings project which included the bid documents to be ready for contract award in August.

6. Appraise Council of proposed Bid solicitation for 2017 Street and Alley Resurfacing/Reconstruction project.
   a) The Public Works Director gave a brief overview of the Street and Alley Resurfacing/Reconstruction project which included the bid documents to be ready for contract award in August.

7. Appraise Council of proposed Bid Solicitation for the Barnard Street Culvert project.
   a) The Public Works Director informed Council that this project is scheduled for bidding as soon as possible. He also noted that this is one of the projects which was long overdue, but would not be possible to expedite had it not been for the newly implemented Stream Protection Fee (SPF) which will cover all cost for the project. Councilman Flynn, however, remarked that he would suggest that the bridge abutment be painted with graffiti resistant paint. No action needed.

8. Consider Planned University Campus Overlay Traffic Planning Proposal
   a) Borough Manager gave a brief overview of this project, highlighting scope of work and also indicated it will be joint effort between WCU, West Goshen Township and The Borough.

9. Consider Proposal for Town Center Closed Loop System Upgrade
   a) Borough Manager gave a synopsis of this project which was subsequently sent through by a vote of 3 – 0.
      - **TO WORK SESSION AGENDA**

10. Consider Stream Protection Program Support Change Order.
    a) Courtney Finneran, Project Manager of CH2, gave a brief overview highlighting the rationale for the change order request. This was followed by a 3 – 0 vote by Council.
       - **TO WORK SESSION AGENDA**

11. Authorization to Advertise the Goose Creek Pollution Reduction Plan
    a) Borough Manager gave a brief overview of this plan which was followed by a 3 – 0 approval by Council.
       - **TO WORK SESSION AGENDA**

12. Discuss Tennis Court maintenance at Hoopes Park 2017
    a) 3 - 0 approval to move ahead with the project
       - **TO WORK SESSION AGENDA**

13. Discuss Kathy McBratnie Park Playground Renovation 2017
    a) Informative only, no action required or taken.

14. Approve June 2017 Public Works Committee minutes

15. Other Business
    a) None

16. Adjourn
    a) Meeting called for adjournment by Don Braceland, all in favor 3 – 0 .

Updated August 8, 2017

AGENDA

Public Works Committee

August 8, 2017 – 5:30 pm

Committee Members: Donald Braceland (Chair)
Denise Polk
Bernard Flynn

Department Heads: O'B Laing, Public Works
Keith Kurowski, Parks & Recreation

Borough Manager: Michael A. Cotter

1. Call to Order
2. Comments, suggestions, petitions by residents in attendance regarding items not on the agenda.
3. Discuss Gilmore PRP/TMDL Plans *(Issue Briefing (see Agenda Bookmark) & Attachment)*
4. Discuss Marshall Square Park proposal for sidewalk and staircase reconstruction *(Issue Briefing (see Agenda Bookmark) & Attachment)*
5. Discuss PennDOT Winter Traffic Services Agreement *(Issue Briefing (see Agenda Bookmark) & Attachment)*
6. Appraise Council of pending Shade Tree Grant application *(Information only)*
7. Review and approval of Bid Award for Barnard Street Culvert project *(Issue Briefing (see Agenda Bookmark) & Attachment)*
8. Review and approval of Paving Project Bid Award *(Issue Briefing (see Agenda Bookmark) & Attachment)*
9. Review and approval of Bid Award for Pavement markings *(Issue Briefing (see Agenda Bookmark) & Attachment)*
10. Discuss request from Councilman Bernie Flynn to remove bench from the North side of Gay Street in the vicinity of Rite Aid Pharmacy *(Information only)*
11. Friends of Marshall Square Park – discuss two granite in-lay park signs *(Issue Briefing (see Agenda Bookmark) & Attachment)*
12. Friends of Marshall Square Park – discuss "No Smoking Inside Gazebo" signs *(Issue Briefing (see Agenda Bookmark))*

13. Approve July's Public Works Committee meeting minutes *(see Agenda Bookmark)*

14. Other Business

15. Adjourn

Attachment Information:

Click here to access the Attachments.

Attachments can also be located at www.west-chester.com in the Document Center's "Agenda Attachments" folder.

****IDENTIFIER KEY = PW****

WEST CHESTER BOROUGH

POLLUTANT REDUCTION PLANS
AND
TOTAL MAXIMUM DAILY LOAD STRATEGY PLAN

EXECUTIVE SUMMARY

- West Chester Borough is currently operating under the PADEP's General (PAG-13) Small Municipal Separate Storm Sewer Systems (MS4) permit. Requirements include the following:

  - Public Education and Outreach
  - Public Participation
  - Illicit Discharge Detection and Elimination
  - Construction Site Runoff Control
  - Post-Construction Runoff Control
  - Pollution Prevention / Good Housekeeping

- The first permit was issued in 2003 with renewals every 5 years. The next permit period extends from 2018 to 2023. The Borough is required to prepare and submit a new permit application by September 16, 2017.

- Past permit requirements were limited to the fulfillment and reporting of the above listed efforts. A key component of this next permit cycle is the submission of a Pollutant Reduction Plan (PRP) and/or a Total Maximum Daily Load (TMDL) Strategy Plan to accomplish a specified percentage reduction in the amount of pollutants contributing to impaired streams. Pollutant reductions must be achieved within the 5-year permit period.

- PADEP has identified the following streams in the Borough as having specific impairments:

Goose Creek:	Nutrients (i.e., Total Phosphorus)*
Chester Creek (Goose Creek):	Siltation (i.e., sediment) and pathogens
Brandywine Creek:	Siltation
Blackhorse Run:	Siltation
Plum Run:	Siltation
Taylor Run:	Siltation

*Per U.S. Environmental Protection Agency, Philadelphia, PA report titled *Nutrient Total Maximum Daily Load in Goose Creek Watershed, Pennsylvania*, dated June 30, 2008.

As a result, the Borough is required to develop one (1) TMDL Strategy Plan to achieve a 53.9% reduction in the Total Phosphorus loading contributing to Goose Creek and two (2) PRPs to demonstrate a 10% reduction in the sediment loading contributing to Chester Creek/Goose Creek and Brandywine Creek/Blackhorse Run/Plum Run/Taylor Run.

- Because the Borough is subject to the Total Phosphorus TMDL Plan reduction requirements, the Borough will no longer be eligible to be covered by the PAG-13 permit, but now will be required to obtain an Individual MS4 Permit from PADEP.

- The existing sediment and Total Phosphorus loadings and reductions have been calculated based on the land uses within the contributing drainage areas to the impaired streams.

- Effective stormwater Best Management Practices (BMPs) are proposed, including the following combinations of various BMPs:

  - Rain gardens
  - Vegetated curb extensions
  - Bioswales
  - Infiltration trenches
  - Brick pavers with underground infiltration
  - Streambank restoration
  - Street sweeping
  - Tree plantings
  - Pretreatment and membrane filtration systems
  - Storm inlet cleaning

- The above listed BMPs are proposed to be installed at the following locations throughout the Borough:

  - John O. Green Memorial Park
  - Fugett Park/Borough Hall
  - Greenview Alley

- Veterans Park/Pine Alley
- Marshall Square Park
- South Brandywine Street
- Storm sewer system outfalls at E. Nields Street west of S. Franklin Street

- The Public Participation component of the TMDL Strategy Plan and PRPs has been satisfied as follows:

  - The public notice regarding the draft TMDL strategy plan and PRPs was advertised on July 10, 2017.
  - The required public meeting (this discussion) was held on August 8, 2017.
  - Public comments were accepted from July 10, 2017 to August 10, 2017.
  - Public comments will be incorporated, documents will be finalized, and the permit application will be submitted by September 16, 2017 to PADEP.

APPENDIX B

WEST GOSHEN TOWNSHIP

EAST BRADFORD TOWNSHIP

WEST GOSHEN TOWNSHIP

WEST GOSHEN TOWNSHIP

Unnamed Trib Taylor Run

Unnamed Trib Taylor Run

Unnamed Trib Taylor Run

Hannum Trib to Taylor Run

Unnamed Trib Blackhorse Creek

BLACKHORSE CREEK

PLUM RUN

GOOSE CREEK

UNNAMED TRIB TO GOOSE CREEK

Streambank Restoration BMP Approximate Limits

Outfalls 13 & 37

Legend

Stormwater Features

- Inlet
- Manhole
- Junction Manhole Box
- Private Inlet
- Stormwater Outfall
- Pipe Discharge
- Stormwater Pipes
- Streams
- Swale
- Municipal Boundary
- Small BMP Locations

Planning Area

- GOOSE CREEK
- Parsed Areas

Parsed areas - Stormwater Outfall is located along / at the creek; any overland flow that flows into a creek and does not enter MS4 collection system.

WEST CHESTER BOROUGH
MS4 TMDL MAP
GOOSE CREEK

WEST CHESTER BOROUGH, CHESTER COUNTY, PA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
65 E. BUTLER AVE. SUITE 100, NEW BRITAIN, PA 18901-5106 - (215) 345-4330
www.gilmore-assoc.com

JOB NO: 15-08026T | DATE: JULY 2018 | 0 100 200 400 Feet

WEST GOSHEN TOWNSHIP

EAST BRADFORD TOWNSHIP

WEST GOSHEN TOWNSHIP

WEST GOSHEN TOWNSHIP

WEST GOSHEN TOWNSHIP

Unnamed Trib Taylor Run

Unnamed Trib Taylor Run

Hannum Trib to Taylor Run

Unnamed Trib Blackhorse Creek

BLACKHORSE CREEK

PLUM RUN

GOOSE CREEK

UNNAMED TRIB TO GOOSE CREEK

GOOSE CREEK

GOSHEN RD

N LOCUST LA

PARKE HOLLOW LA

HOOPES PARK LA

E LOCUST LA

S LOCUST LA

W ASHBRIDGE ST

E ASHBRIDGE ST

CLARKE ST

PENNY LA

CLOVER AL

ELIZABETH ST

EL BOW LA

HILLSIDE DR

MARSHALL DR

E MARSHALL ST

WALDEN DR

MAYFIELD AV

N BRANDYWINE ST

W VIRGINIA AV

E VIRGINIA AV

N MARYLAND AV

S MARYLAND AV

NORRIS LA

EBBS LA

JEAN AL

N DARLINGTON ST

SCOTT AL

WEAVER AL

HOUSE AL

N WALNUT ST

NEWLIN AL

FORD CI

N FRANKLIN ST

CONVENT LA

MARIE AV

LINCOLN AV

W MARSHALL ST

W LAFAYETTE ST

E LAFAYETTE ST

N HIGH ST

PARK AL

E BIDDLE ST

OAK PL

N EVERHART ST

N WAYNE ST

EBBS AL

W STRASBURG RD

BRICK AL

PINE AL

N NEW ST

W BIDDLE ST

SCHOOL AL

CLOVER AL

PROSPECT AL

HISTORY AL

HALE AL

E EVANS ST

E WASHINGTON ST

W WASHINGTON ST

N CHURCH ST

PEARL AL

PATTON AL

EVANS ST

N ADAMS ST

PENN AL

N PENN ST

N BOUNDARY ST

HANNUM AV

W CHESTNUT ST

E CHESTNUT ST

GRANITE AL

W PRESCOTT AL

E PRESCOTT AL

N WALNUT ST

PATTON AV

W GAY ST

E GAY ST

N EVERHART ST

N BRADFORD AV

HARMONY AL

W COURTHOUSE AL

POTTER AL

MIDDLE AL

N FRANKLIN ST

W MARKET ST

E MARKET ST

RAILROAD ST

CEDAR AL

PEARL AL

WOLFERTON AL

WOSPRINE AL

E MINER ST

S FRANKLIN ST

S ADAMS ST

S PENN ST

S BOUNDARY ST

LOCUST AL

E BARNARD ST

S WORTHINGTON ST

HEMLOCK AL

W BARNARD ST

SPRUCE AL

W UNION ST

E UNION ST

HOLLY AL

OAK AL

S CHURCH ST

S NEW ST

S WAYNE ST

S DARLINGTON ST

S HIGH ST

DEAN ST

SHERRY AL

MAGNOLIA ST

BIRCH AL

APPLE AL

PRICE ST

ELM AL

LACEY ST

JUNIPER AL

DOGWOOD DR

SHARPLESS ST

MULBERRY AL

W NIELDS ST

E NIELDS ST

N CAMPUS DR

UNIVERSITY AV

COLLEGE AV

S BRANDYWINE ST

SPRING GROVE LA

W ROSEDALE AV

LINDEN ST

OULANEY AL

S BRADFORD AV

S EVERHART ST

TACIE LYNN DR

W BIDDLE ST

HOOPES AL

DOWNINGTOWN PK

Legend

Stormwater Features

- Inlet
- Manhole
- Junction Manhole Box
- Private Inlet
- Stormwater Outfall
- Pipe Discharge
- Stormwater Pipes
- Streams
- Swale

Mapshed Landuse Code

- Water
- Low-Density Residential
- Medium-Density Residential
- High-Density Residential
- Low-Density Mixed Urban
- Medium-Density Mixed Urban
- High-Density Mixed Urban
- Hay/Pasture
- Cropland
- Coniferous
- Decidious
- Mixed Woodland
- Woody Wetland
- Emergent Wetland
- Disturbed
- Disturbed
- Turf/Golf

WEST CHESTER BOROUGH
MS4 TMDL LAND USE (MAPSHED) MAP
GOOSE CREEK

WEST CHESTER BOROUGH, CHESTER COUNTY, PA

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APPENDIX C

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STORMWATER DISCHARGES FROM
SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS
BMP EFFECTIVENESS VALUES

This table of BMP effectiveness values (i.e., pollutant removal efficiencies) is intended for use by MS4s that are developing and implementing Pollutant Reduction Plans and TMDL Plans to comply with NPDES permit requirements. The values used in this table generally consider pollutant reductions from both overland flow and reduced downstream erosion, and are based primarily on average values within the Chesapeake Assessment Scenario Tool (CAST) (www.casttool.org). Design considerations, operation and maintenance, and construction sequences should be as outlined in the Pennsylvania Stormwater BMP Manual, Chesapeake Bay Program guidance, or other technical sources. The Department of Environmental Protection (DEP) will update the information contained in this table as new information becomes available. Interested parties may submit information to DEP for consideration in updating this table to DEP's MS4 resource account, RA-EPPAMS4@pa.gov. Where an MS4 proposes a BMP not identified in this document or in Chesapeake Bay Program expert panel reports, other technical resources may be consulted for BMP effectiveness values. Note – TN = Total Nitrogen and TP = Total Phosphorus.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Wet Ponds and Wetlands	20%	45%	60%	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal.
Dry Detention Basins and Hydrodynamic Structures	5%	10%	10%	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff.
Dry Extended Detention Basins	20%	20%	60%	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Infiltration Practices w/ Sand, Veg.	85%	85%	95%	A depression to form an infiltration basin where sediment is trapped and water infiltrates the soil. No underdrains are associated with infiltration basins and trenches, because by definition these systems provide complete infiltration. Design specifications require infiltration basins and trenches to be built in good soil, they are not constructed on poor soils, such as C and D soil types. Engineers are required to test the soil before approval to build is issued. To receive credit over the longer term, jurisdictions must conduct yearly inspections to determine if the basin or trench is still infiltrating runoff.
Filtering Practices	40%	60%	80%	Practices that capture and temporarily store runoff and pass it through a filter bed of either sand or an organic media. There are various sand filter designs, such as above ground, below ground, perimeter, etc. An organic media filter uses another medium besides sand to enhance pollutant removal for many compounds due to the increased cation exchange capacity achieved by increasing the organic matter. These systems require yearly inspection and maintenance to receive pollutant reduction credit.
Filter Strip Runoff Reduction	20%	54%	56%	Urban filter strips are stable areas with vegetated cover on flat or gently sloping land. Runoff entering the filter strip must be in the form of sheet-flow and must enter at a non-erosive rate for the site-specific soil conditions. A 0.4 design ratio of filter strip length to impervious flow length is recommended for runoff reduction urban filter strips.
Filter Strip Stormwater Treatment	0%	0%	22%	Urban filter strips are stable areas with vegetated cover on flat or gently sloping land. Runoff entering the filter strip must be in the form of sheet-flow and must enter at a non-erosive rate for the site-specific soil conditions. A 0.2 design ratio of filter strip length to impervious flow length is recommended for stormwater treatment urban filter strips.
Bioretention – Raingarden (C/D soils w/ underdrain)	25%	45%	55%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has an underdrain and is in C or D soil.
Bioretention / Raingarden (A/B soils w/ underdrain)	70%	75%	80%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has an underdrain and is in A or B soil.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Bioretention / Raingarden (A/B soils w/o underdrain)	80%	85%	90%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has no underdrain and is in A or B soil.
Vegetated Open Channels (C/D Soils)	10%	10%	50%	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This BMP has no underdrain and is in C or D soil.
Vegetated Open Channels (A/B Soils)	45%	45%	70%	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This BMP has no underdrain and is in A or B soil.
Bioswale	70%	75%	80%	With a bioswale, the load is reduced because, unlike other open channel designs, there is now treatment through the soil. A bioswale is designed to function as a bioretention area.
Permeable Pavement w/o Sand or Veg. (C/D Soils w/ underdrain)	10%	20%	55%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, no sand or vegetation and is in C or D soil.
Permeable Pavement w/o Sand or Veg. (A/B Soils w/ underdrain)	45%	50%	70%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, no sand or vegetation and is in A or B soil.
Permeable Pavement w/o Sand or Veg. (A/B Soils w/o underdrain)	75%	80%	85%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has no underdrain, no sand or vegetation and is in A or B soil.
Permeable Pavement w/ Sand or Veg. (A/B Soils w/ underdrain)	50%	50%	70%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, has sand and/or vegetation and is in A or B soil.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Permeable Pavement w/ Sand or Veg. (A/B Soils w/o underdrain)	80%	80%	85%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has no underdrain, has sand and/or vegetation and is in A or B soil.
Permeable Pavement w/ Sand or Veg. (C/D Soils w/ underdrain)	20%	20%	55%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, has sand and/or vegetation and is in C or D soil.
Stream Restoration	0.075 lbs/ft/yr	0.068 lbs/ft/yr	44.88 lbs/ft/yr	An annual mass nutrient and sediment reduction credit for qualifying stream restoration practices that prevent channel or bank erosion that otherwise would be delivered downstream from an actively enlarging or incising urban stream. Applies to 0 to 3rd order streams that are not tidally influenced. If one of the protocols is cited and pounds are reported, then the mass reduction is received for the protocol.
Forest Buffers	25%	50%	50%	An area of trees at least 35 feet wide on one side of a stream, usually accompanied by trees, shrubs and other vegetation that is adjacent to a body of water. The riparian area is managed to maintain the integrity of stream channels and shorelines, to reduce the impacts of upland sources of pollution by trapping, filtering, and converting sediments, nutrients, and other chemicals. (Note – the values represent pollutant load reductions from stormwater draining through buffers).
Tree Planting	10%	15%	20%	The BMP effectiveness values for tree planting are estimated by DEP. DEP estimates that 100 fully mature trees of mixed species (both deciduous and non-deciduous) provide pollutant load reductions for the equivalent of one acre (i.e., one mature tree = 0.01 acre). The BMP effectiveness values given are based on immature trees (seedlings or saplings); the effectiveness values are expected to increase as the trees mature. To determine the amount of pollutant load reduction that can credited for tree planting efforts: 1) multiply the number of trees planted by 0.01; 2) multiply the acreage determined in step 1 by the pollutant loading rate for the land prior to planting the trees (in lbs/acre/year); and 3) multiply the result of step 2 by the BMP effectiveness values given.
Street Sweeping	3%	3%	9%	Street sweeping must be conducted 25 times annually. Only count those streets that have been swept at least 25 times in a year. The acres associated with all streets that have been swept at least 25 times in a year would be eligible for pollutant reductions consistent with the given BMP effectiveness values.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Storm Sewer System Solids Removal	0.0027 for sediment, 0.0111 for organic matter	0.0006 for sediment, 0.0012 for organic matter	1 – TN and TP concentrations	This BMP (also referred to as "Storm Drain Cleaning") involves the collection or capture and proper disposal of solid material within the storm system to prevent discharge to surface waters. Examples include catch basins, stormwater inlet filter bags, end of pipe or outlet solids removal systems and related practices. Credit is authorized for this BMP only when proper maintenance practices are observed (i.e., inspection and removal of solids as recommended by the system manufacturer or other available guidelines). The entity using this BMP for pollutant removal credits must demonstrate that they have developed and are implementing a standard operating procedure for tracking the material removed from the sewer system. Locating such BMPs should consider the potential for backups onto roadways or other areas that can produce safety hazards. To determine pollutant reductions for this BMP, these steps must be taken: 1) Measure the weight of solid/organic material collected (lbs). Sum the total weight of material collected for an annual period. Note – do not include refuse, debris and floatables in the determination of total mass collected. 2) Convert the annual wet weight captured into annual dry weight (lbs) by using site-specific measurements (i.e., dry a sample of the wet material to find its weight) or by using default factors of 0.7 (material that is predominantly wet sediment) or 0.2 (material that is predominantly wet organic matter, e.g., leaf litter). 3) Multiply the annual dry weight of material collected by default or site-specific pollutant concentration factors. The default concentrations are shown in the BMP Effectiveness Values columns. Alternatively, the material may be sampled (at least annually) to determine site-specific pollutant concentrations. DEP will allow up to 50% of total pollutant reduction requirements to be met through this BMP. The drainage area treated by this BMP may be no greater than 0.5 acre unless it can be demonstrated that the specific system proposed is capable of treating stormwater from larger drainage areas. For planning purposes, the sediment removal efficiency specified by the manufacturer may be assumed, but no higher than 80%.

APPENDIX D

Select input data file: C:\MapShed\Runfiles\Goose2018\Output\Goose2018-0_ua.csv

Watershed Totals | Municipality Loads | Regulated Loads | Unregulated Loads

GWLF-E Average Loads by Source for Watershed 0

Source	Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	282	26609.80	94.40	122.40	0.43	30.07	0.11
Cropland	151	226833.62	1502.20	808.61	5.36	139.13	0.92
Forest	1144	15498.50	13.50	86.60	0.08	10.96	0.01
Wetland	235	1278.68	5.40	54.81	0.23	3.42	0.01
Disturbed	0	0.00	0.00	0.00	0.00	0.00	0.00
Turfgrass	0	0.00	0.00	0.00	0.00	0.00	0.00
Open Land	872	165633.30	189.90	924.84	1.06	97.66	0.11
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	148	3637.63	24.60	84.94	0.57	9.24	0.06
MD Mixed	403	40013.90	99.30	928.61	2.30	103.77	0.26
HD Mixed	1152	114397.87	99.30	2654.78	2.30	296.70	0.26
LD Residential	642	15763.05	24.60	368.13	0.57	40.01	0.06
MD Residential	1853	184130.08	99.40	4272.74	2.31	477.52	0.26
HD Residential	57	5643.83	99.00	131.02	2.30	14.64	0.26
Water	2						
Farm Animals				0.0		0.0	
Tile Drainage		0.0		0.0		0.0	
Stream Bank		3261210.1		1631.4		423.3	
Groundwater				10019.7		218.3	
Point Sources				0.0		0.0	
Septic Systems				4532.9		0.0	
Totals	**6941**	**4060650**		**26621**		**1865**	

Print | Export to JPEG | Exit

Select input data file: C:\MapShed\Runfiles\Goose2018\Output\Goose2018-0_ua.csv

Watershed Totals | **Municipality Loads** | Regulated Loads | Unregulated Loads

View loads for municipality: (00200)

Source	Source Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	0	0.00	0.00	0.00	0.00	0.00	0.00
Cropland	0	0.00	0.00	0.00	0.00	0.00	0.00
Forest	2	27.00	13.50	0.20	0.08	0.00	0.00
Wetland	0	0.00	0.00	0.00	0.00	0.00	0.00
Disturbed	0	0.00	0.00	0.00	0.00	0.00	0.00
Turfgrass	0	0.00	0.00	0.00	0.00	0.00	0.00
Open Land	0	0.00	0.00	0.00	0.00	0.00	0.00
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	0	0.00	0.00	0.00	0.00	0.00	0.00
MD Mixed	0	0.00	0.00	0.00	0.00	0.00	0.00
HD Mixed	210	20853.00	99.30	483.00	2.30	54.60	0.26
LD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
MD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
HD Residential	44	4356.00	99.00	101.20	2.30	11.40	0.26
Water	0						
							Source Weighting
Farm Animals				0.0		0.0	0.000
Tile Drainage		0.00		0.0		0.0	0.000
Stream Bank		196376.44		98.2		25.5	0.095
Groundwater				541.1		11.8	0.054
Point Sources				0.0		0.0	0.000
Septic Systems				0.0		0.0	0.000
Totals	256	221612.4		1223.7		103.3	

Print | Export to JPEG | Exit

Urban Scenario BMP Editor

Performance Standard Calculations

Retrofits

BMP Type: Infiltration Basin

Area Treated (ha)		Existing Area (ha)	
LD Residential	0	LD Residential	260
MD Residential	0	MD Residential	750
HD Residential	0	HD Residential	23
LD Mixed	0.02	LD Mixed	60
MD Mixed	0.09	MD Mixed	163
HD Mixed	2.12	HD Mixed	466
Total	2	**Total**	1722

Rainfall Captured (2.54 cm = 1 in)

Depth (cm): 3.81

Volume (m3): 721

Run

Calculated Reduction Efficiency

TN 0.65 TP 0.76 TSS 0.82

New Development

BMP Type: Select BMP Type

Area Developed (ha)		Area Replaced (ha)		Existing Area (ha)	
LD Residential	0	Hay/Pasture	0	Hay/Pasture	114
MD Residential	0	Cropland	0	Cropland	61
HD Residential	0	Forest	0	Forest	463
LD Mixed	0	Disturbed	0	Disturbed	0
MD Mixed	0	Turfgrass	0	Turfgrass	0
HD Mixed	0	Open Land	0	Open Land	353
Total	0	**Total**	0	**Total**	991

Rainfall Captured (2.54 cm = 1 in)

Depth (cm): 7.10

Volume (m3): 0

Run

Calculated Reduction Efficiency

TN 0.00 TP 0.00 TSS 0.00

Stream Protection

Vegetative buffer strip width (m)	0
Fraction of streams treated (0-1)	0.000
Total streams in non-ag areas (km)	31.1
Streams w/bank stabilization (km)	0.0

Street Sweeping

Fraction of area treated (0-1): 1.000

Sweep Type: (•) Mechanical ( ) Vacuum

Times/month

Jan	0	Apr	0	Jul	0	Oct	0
Feb	0	May	0	Aug	0	Nov	0
Mar	0	Jun	0	Sep	0	Dec	0

Rural BMP Editor

BMP Efficiency Editor

Export to JPEG

Save File

Close

Select input data file: C:\MapShed\Runfiles\Gosse2018\Output\Goose2018BMPs-0_ua.csv

Watershed Totals | Municipality Loads | Regulated Loads | Unregulated Loads

GWLF-E Average Loads by Source for Watershed 0

Source	Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	282	26609.80	94.40	122.40	0.43	30.07	0.11
Cropland	151	226833.62	1502.20	808.61	5.36	139.13	0.92
Forest	1144	15498.50	13.50	86.60	0.08	10.96	0.01
Wetland	235	1278.68	5.40	54.81	0.23	3.42	0.01
Disturbed	0	0.00	0.00	0.00	0.00	0.00	0.00
Turfgrass	0	0.00	0.00	0.00	0.00	0.00	0.00
Open Land	872	165633.30	189.90	924.84	1.06	97.66	0.11
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	148	3637.63	24.60	84.83	0.57	9.22	0.06
MD Mixed	403	39947.76	99.10	927.40	2.30	103.62	0.26
HD Mixed	1152	114221.50	99.20	2651.35	2.30	296.26	0.26
LD Residential	642	15741.01	24.50	367.66	0.57	39.95	0.06
MD Residential	1853	183821.43	99.20	4267.18	2.30	476.79	0.26
HD Residential	57	5643.83	99.00	130.87	2.30	14.62	0.26
Water	2						
Farm Animals				0.0		0.0	
Tile Drainage		0.0		0.0		0.0	
Stream Bank		3256792.0		1629.2		421.1	
Groundwater				10019.7		218.3	
Point Sources				0.0		0.0	
Septic Systems				4532.9		0.0	
Totals	**6941**	**4055659**		**26608**		**1861**	

Print | Export to JPEG | Exit

Select input data file: C:\MapShed\Runfiles\Goose EWs\Output\GooseEWs-0_ua.csv

Watershed Totals | Municipality Loads | Regulated Loads | Unregulated Loads

GWLF-E Average Loads by Source for Watershed 0

Source	Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	282	26609.80	94.40	122.40	0.43	30.07	0.11
Cropland	151	226833.62	1502.20	808.61	5.36	139.13	0.92
Forest	1144	15498.50	13.50	86.60	0.08	10.96	0.01
Wetland	235	1278.68	5.40	54.81	0.23	3.42	0.01
Disturbed	0	0.00	0.00	0.00	0.00	0.00	0.00
Turfgrass	0	0.00	0.00	0.00	0.00	0.00	0.00
Open Land	872	165633.30	189.90	924.84	1.06	97.66	0.11
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	148	3637.63	24.60	84.94	0.57	9.24	0.06
MD Mixed	403	40013.90	99.30	928.61	2.30	103.77	0.26
HD Mixed	1152	114397.87	99.30	2654.78	2.30	296.70	0.26
LD Residential	642	15763.05	24.60	368.13	0.57	40.01	0.06
MD Residential	1853	184130.08	99.40	4272.74	2.31	477.52	0.26
HD Residential	57	5643.83	99.00	131.02	2.30	14.64	0.26
Water	2						
Farm Animals				0.0		0.0	
Tile Drainage		0.0		0.0		0.0	
Stream Bank		3261194.6		1631.4		423.3	
Groundwater				10019.7		218.3	
Point Sources				0.0		0.0	
Septic Systems				4532.9		0.0	
Totals	**6941**	**4060635**		**26621**		**1865**	

Print | Export to JPEG | Exit

Select input data file: C:\MapShed\Runfiles\Goose EWs\Output\GooseEWs-0_ua.csv

Watershed Totals | **Municipality Loads** | Regulated Loads | Unregulated Loads

View loads for municipality: Area1 (00001)

Source	Source Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	0	0.00	0.00	0.00	0.00	0.00	0.00
Cropland	0	0.00	0.00	0.00	0.00	0.00	0.00
Forest	0	0.00	0.00	0.00	0.00	0.00	0.00
Wetland	0	0.00	0.00	0.00	0.00	0.00	0.00
Disturbed	0	0.00	0.00	0.00	0.00	0.00	0.00
Turfgrass	0	0.00	0.00	0.00	0.00	0.00	0.00
Open Land	0	0.00	0.00	0.00	0.00	0.00	0.00
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	0	0.00	0.00	0.00	0.00	0.00	0.00
MD Mixed	0	0.00	0.00	0.00	0.00	0.00	0.00
HD Mixed	44	4369.20	99.30	101.20	2.30	11.40	0.26
LD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
MD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
HD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
Water	0						
							Source Weighting
Farm Animals				0.0		0.0	0.000
Tile Drainage		0.00		0.0		0.0	0.000
Stream Bank		34580.03		17.3		4.5	0.017
Groundwater				90.2		2.0	0.009
Point Sources				0.0		0.0	0.000
Septic Systems				0.0		0.0	0.000
Totals	**44**	**38949.2**		**208.7**		**17.9**	

Print | Export to JPEG | Exit

Select input data file: C:\MapShed\Runfiles\Goose EWs\Output\GooseEWs-0_ua.csv

Watershed Totals | **Municipality Loads** | Regulated Loads | Unregulated Loads

View loads for municipality: Area2 (00002)

Source	Source Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	0	0.00	0.00	0.00	0.00	0.00	0.00
Cropland	0	0.00	0.00	0.00	0.00	0.00	0.00
Forest	0	0.00	0.00	0.00	0.00	0.00	0.00
Wetland	0	0.00	0.00	0.00	0.00	0.00	0.00
Disturbed	0	0.00	0.00	0.00	0.00	0.00	0.00
Turfgrass	0	0.00	0.00	0.00	0.00	0.00	0.00
Open Land	0	0.00	0.00	0.00	0.00	0.00	0.00
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	0	0.00	0.00	0.00	0.00	0.00	0.00
MD Mixed	0	0.00	0.00	0.00	0.00	0.00	0.00
HD Mixed	35	3475.50	99.30	80.50	2.30	9.10	0.26
LD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
MD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
HD Residential	0	0.00	0.00	0.00	0.00	0.00	0.00
Water	0						
							Source Weighting
Farm Animals				0.0		0.0	0.000
Tile Drainage		0.00		0.0		0.0	0.000
Stream Bank		26824.96		13.4		3.5	0.013
Groundwater				70.1		1.5	0.007
Point Sources				0.0		0.0	0.000
Septic Systems				0.0		0.0	0.000
Totals	**35**	**30300.5**		**164.0**		**14.1**	

Print | Export to JPEG | Exit

APPENDIX E







CONTECH®
ENGINEERED SOLUTIONS

Jellyfish® Filter

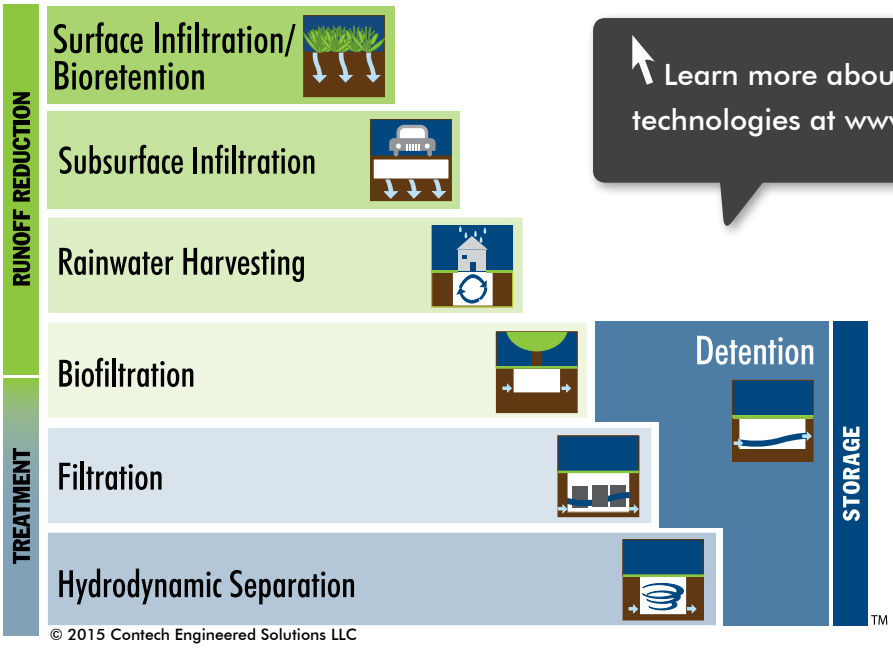
Solutions Guide



UrbanGreen® Stormwater Solutions from Contech

Selecting the Right Stormwater Solution Just Got Easier...

It's simple to choose the right low impact development (LID) solution to achieve your runoff reduction and treatment goals with the Contech UrbanGreen® Staircase. First, select the runoff reduction practices that are most appropriate for your site, paying particular attention to pretreatment needs. If the entire design storm cannot be retained, select a best management practice (BMP) to treat the balance. Finally, select a detention system to address any outstanding downstream erosion.



© 2015 Contech Engineered Solutions LLC

Learn more about all of our stormwater technologies at www.ContechES.com/urbangreen

Learn About the Jellyfish® Filter

Go online and watch our animation to learn how the Jellyfish Filter works. The animation also highlights important features of the Jellyfish Filter including…

- Applications
- Performance test results
- Inspection and maintenance
- Regulatory approvals

To view the Jellyfish Filter animation, visit:
www.conteches.com/jellyfish



Jellyfish® Filter

Filtration as a Stormwater Management Strategy

Stormwater regulations are increasingly calling for more robust treatment levels. In addition to the removal of suspended solids, many regulations now require best management practices to remove significant amounts of nutrients, metals, and other common pollutants found in stormwater runoff. Meeting these regulations often requires the use of a filtration solution.

Low Impact Development (LID) and Green Infrastructure (GI) are complimented by filtration solutions. Benefits of LID and GI systems include retaining runoff and aesthetic appeal. Keeping LID and GI sites free from fine sediments, oils, trash, and debris while functioning as designed can be time consuming and costly.

As a result, the practice of combining LID and GI with filtration is becoming more common. Providing a single point of maintenance promotes proper system functionality and increases the aesthetic appeal by removing unsightly trash and debris.



A Jellyfish Filter Curb Inlet pretreats runoff entering a bioretention system

The Jellyfish® Filter - Setting New Standards in Stormwater Treatment

The Jellyfish Filter is a stormwater quality treatment technology featuring high surface area and high flow rate membrane filtration at low driving head. By incorporating pretreatment with light-weight membrane filtration, the Jellyfish Filter removes floatables, trash, oil, debris, TSS, fine silt-sized particles, and a high percentage of particulate-bound pollutants; including phosphorus and nitrogen, metals and hydrocarbons.

The high surface area membrane cartridges, combined with up flow hydraulics, frequent backwashing, and rinseable/reusable cartridges ensures long-lasting performance.



The Jellyfish Filter.

Jellyfish® Filter Features and Benefits

FEATURES	BENEFITS
1. High surface area, high flow rate membrane filtration	1. Long-lasting and effective stormwater treatment
2. Highest design treatment flow rate per cartridge (up to 80 gpm (5 L/S)	2. Compact system with a small footprint, lower construction cost
3. Low driving head (typically 18 inches or less (457 mm))	3. Design Flexibility, lower construction cost
4. Lightweight cartridges with passive backwash	4. Easy maintenance and low life-cycle cost
5. 3rd party verified field performance per TARP protocol	5. Superior pollutant capture with confidence

Jellyfish® Filter Applications

- Urban development
- Highways, airports, seaports, and military installations
- Commercial and residential development, infill and redevelopment, and stormwater quality retrofit applications
- Pretreatment for Low Impact Development (LID), Green Infrastructure (GI), infiltration, and rainwater harvesting and reuse systems
- Industrial sites



A Jellyfish Filter pretreats a bioretention/ bioswale system at a commercial site in Ontario, Canada.



A catch basin Jellyfish Filter is installed in a commercial development in Virginia.



A Jellyfish Filter provides treatment at an Industrial Park in Lake Tahoe, Nevada.

Jellyfish® Filter Field Performance Test Results

POLLUTANT OF CONCERN	% REMOVAL
Total Trash	99%
Total Suspended Solids (TSS)	89%
Total Phosphorus (TP)	59%
Total Nitrogen (TN)	51%
Total Copper (TCu)	>80%
Total Zinc (TZn)	>50%
Turbidity (NTU)	<15%

Sources:
TARP II Field Study – 2012 JF 4-2-1 Configuration
MRDC Floatables Testing – 2008 JF6-6-1 Configuration



The pleated tentacles of the Jellyfish Filter provide a large surface area for pollutant removal.

Jellyfish® Filter Approvals

The Jellyfish Filter is approved through numerous state and federal verification programs, including:

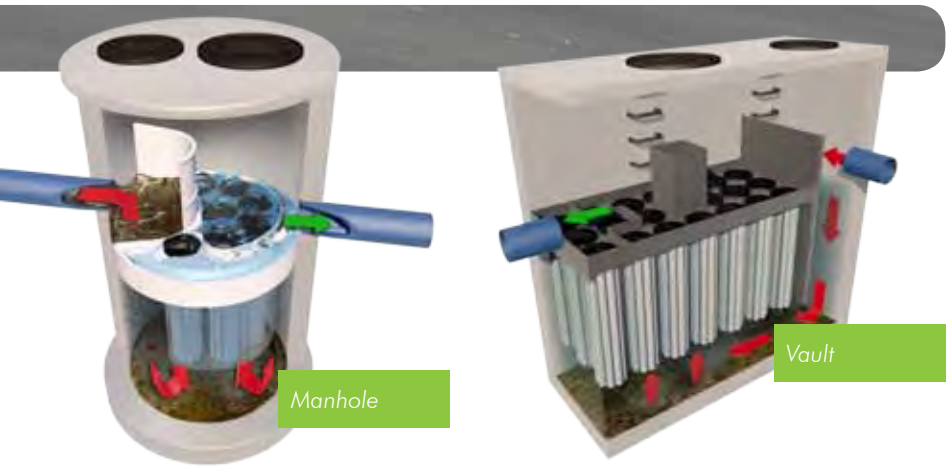
- New Jersey Corporation for Advanced Technology (NJCAT) – Field Performance Verification per TARP Tier II Protocol
- New Jersey Department of Environmental Protection (NJDEP) – Certification
- Washington State Department of Ecology (TAPE – CULD)
- Maryland Department of the Environment (MD DOE)
- Texas Commission on Environmental Quality (TCEQ)
- Virginia Department of Environmental Quality (VA DEQ)
- Ontario Ministry of the Environment – New Environmental Technology Evaluation (NETE) – Certification



Learn more at www.ContechES.com/jellyfish

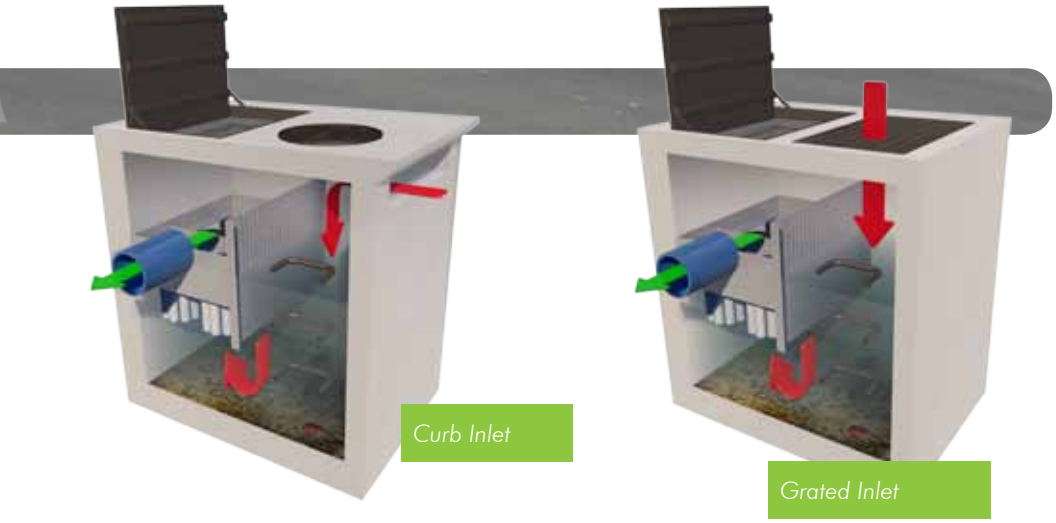
Jellyfish® Filter Configurations

The Jellyfish Filter is available in a variety of configurations. Typically, 18 inches (457 mm) of driving head is designed into the system. For low drop sites, the designed driving head can be less.



Manhole

Vault



Curb Inlet

Grated Inlet

Lightweight Jellyfish Filter Configurations

Custom configurations include Jellyfish Filter tanks made from fiberglass for site specific applications.



A Jellyfish Filter was constructed from fiberglass to reduce the weight of the system, allowing for a suspended installation above an underground parking structure. The reduced weight eliminated the need for structural changes, and suspending the Jellyfish resulted in no loss of parking space, maximizing real-estate value.

Other custom configurations include:

- On-line capability (internal bypass)
- Peak Diversion Vault Configurations

Jellyfish® Filter Maintenance

Inspection and maintenance activities for the Jellyfish Filter typically include:

- Visual inspection of deck, cartridge lids, and maintenance access wall.
- Vacuum extraction of oil, floatable trash/debris, and sediment from manhole sump.
- External rinsing and re-installing of filter cartridges.
- Replacement of filter cartridge tentacles as needed. Cartridge replacement intervals vary by site; typical replacement is anticipated every 2-5 years.



The Jellyfish Filter cartridge is light and easy to clean.

Jellyfish® Filter Inspection and Maintenance Video

Inspecting and maintaining the Jellyfish Filter is easier than you may think. Watch the Jellyfish inspection and maintenance video at **www.ContechES.com/jellyfish**





LEARN MORE

- Access project profiles, photos, videos and more online at **www.ContechES.com/jellyfish**

CONNECT WITH US

- Call us at 800-338-1122
- Contact your local rep at **www.ContechES.com/localresources**

START A PROJECT

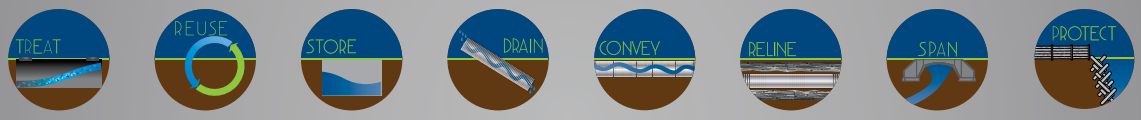
- Submit your system requirements on our product Design Worksheet **www.ContechES.com/start-project**

USE OUR ONLINE TOOLS

- Low Impact Development Site Planner **www.ContechES.com/LIDsiteplanner**

CONTECH® ENGINEERED SOLUTIONS

COMPLETE SITE SOLUTIONS



TREATMENT SOLUTIONS
Helping to satisfy stormwater and wastewater management requirements on land development projects

- Stormwater & Wastewater Treatment
- Detention/Infiltration
- Rainwater Harvesting
- Biofiltration/Bioretention

PIPE SOLUTIONS
Meeting project needs for durability, hydraulics, corrosion resistance, and stiffness

- Corrugated Metal Pipe (CMP)
- Steel Reinforced Polyethylene (SRPE)
- High Density Polyethylene (HDPE)
- Polyvinyl Chloride (PVC)

STRUCTURES SOLUTIONS
Providing innovative options and support for crossings, culverts, and bridges

- Plate, Precast & Truss bridges
- Hard Armor
- Retaining Walls
- Tunnel Liner Plate

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Jellyfish Brochure (5M) PDF Revision 4/15

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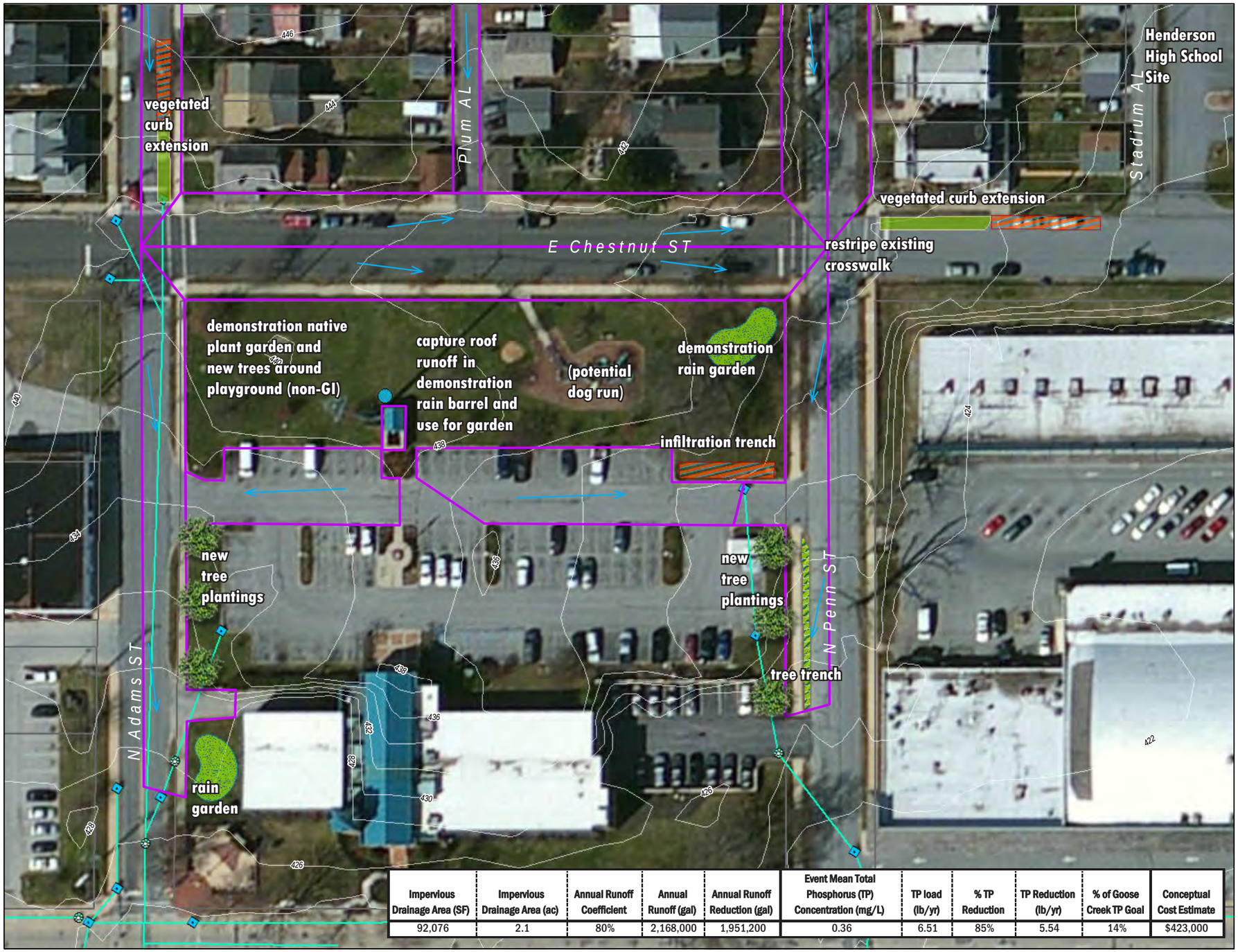
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APPENDIX F

FUGETT PARK/BOROUGH HALL: PROPOSED GREEN INFRASTRUCTURE CONCEPTS



Impervious Drainage Area (SF)	Impervious Drainage Area (ac)	Annual Runoff Coefficient	Annual Runoff (gal)	Annual Runoff Reduction (gal)	Event Mean Total Phosphorus (TP) Concentration (mg/L)	TP load (lb/yr)	% TP Reduction	TP Reduction (lb/yr)	% of Goose Creek TP Goal	Conceptual Cost Estimate
92,076	2.1	80%	2,168,000	1,951,200	0.36	6.51	85%	5.54	14%	$423,000

Fugett Park and West Chester Borough Hall make up a 2.66 acre site near the eastern border of West Chester Borough. The park features new playground equipment and several established mature trees. The site is bordered by E Chestnut Street, N Adams St, E Gay St, and N Penn St. The park is bordered by residential homes to the north and west, the Henderson High School site to the northeast, and commercial properties to the east.

This high-visibility site has frequent visitors (both Borough residents and others) and therefore has the potential to feature numerous "demonstration" green infrastructure technologies and showcase the Borough's commitment to green infrastructure and stormwater solutions. With that vision in mind, the green infrastructure concepts proposed for the site consist of vegetated curb extensions with subsurface infiltration trench components (one on N Adams St and one on E Chestnut St), a demonstration rain garden in the northeast corner of the park, another rain garden on the western side of Borough Hall, a subsurface infiltration trench to capture parking lot runoff, a tree trench along N Penn St, and a demonstration rain barrel to capture roof runoff from the shed to be used in a potential demonstration native plant/backyard wildlife garden. In addition, new tree plantings are proposed on both edges of the parking lot.

Collectively, these GI features would capture and treat runoff from the site and several adjacent streets as shown on the concept plan. During larger storm events, overflow structures would allow excess runoff to flow into existing storm sewers. In addition to reducing and treating stormwater runoff, these GI features have the potential to add aesthetic value to the park, promote traffic calming, and work in harmony with the site's existing active and passive recreational uses such as the existing playground and proposed dog run areas.

- Inlet
- Stormwater MH
- Existing Stormwater Pipes
- 2 ft Contours
- Surface Flow
- Parcels
- Drainage Area

Proposed GI Features

- Infiltration Trench
- Tree Trench
- Rain Barrel
- Rain Garden
- Vegetated Curb Extension

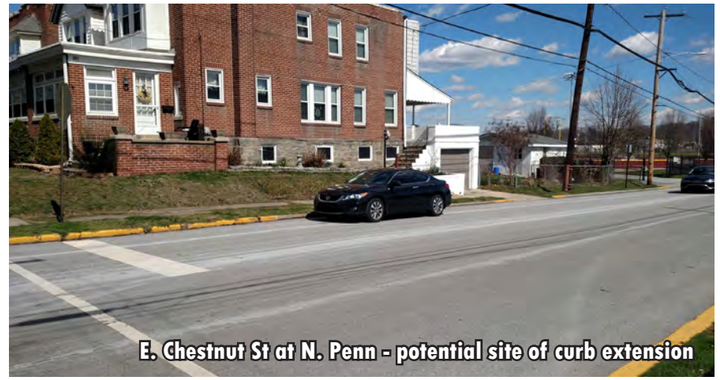
NORTH

0 25 50 Feet

FUGETT PARK/BOROUGH HALL: PROPOSED GREEN INFRASTRUCTURE CONCEPTS


existing view of West Side of Borough Hall


north corner of Fugett Park - potential site of rain garden


E. Chestnut St at N. Penn - potential site of curb extension

Existing Conditions



Proposed Rain Garden on West Side of Borough Hall


rain garden - Syracuse, NY


rain barrel


curb extension - Lancaster, PA

Examples of GI Technology

GREENVIEW ALLEY: PROPOSED GREEN INFRASTRUCTURE CONCEPTS



- Inlet
- Stormwater MH
- Stormwater Outfall (53)
- Existing Stormwater Pipes
- Surface Waterways
- 2 ft Contours
- Surface Flow
- Parcels
- Drainage Area

Proposed GI Features

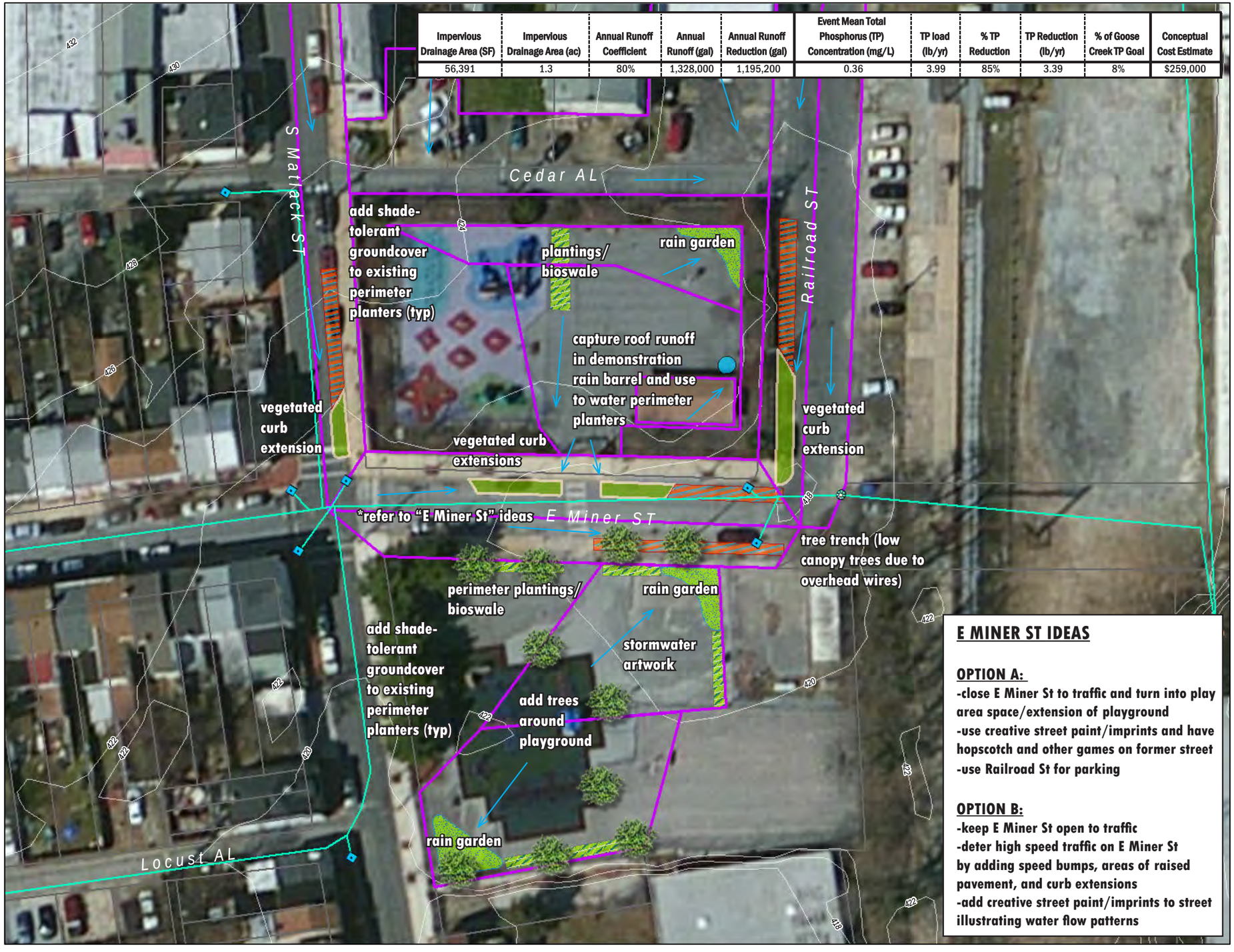
- Infiltration Trench
- Bioswale

NORTH

0 25 50 Feet

JOHN O. GREEN MEMORIAL PARK: PROPOSED GREEN INFRASTRUCTURE CONCEPTS

Impervious Drainage Area (SF)	Impervious Drainage Area (ac)	Annual Runoff Coefficient	Annual Runoff (gal)	Annual Runoff Reduction (gal)	Event Mean Total Phosphorus (TP) Concentration (mg/L)	TP load (lb/yr)	% TP Reduction	TP Reduction (lb/yr)	% of Goose Creek TP Goal	Conceptual Cost Estimate
56,391	1.3	80%	1,328,000	1,195,200	0.36	3.99	85%	3.39	8%	$259,000



E MINER ST IDEAS

OPTION A:

-close E Miner St to traffic and turn into play area space/extension of playground

-use creative street paint/imprints and have hopscotch and other games on former street

-use Railroad St for parking

OPTION B:

-keep E Miner St open to traffic

-deter high speed traffic on E Miner St by adding speed bumps, areas of raised pavement, and curb extensions

-add creative street paint/imprints to street illustrating water flow patterns

John O. Green Memorial Park is a 1.24 acre park in southeast West Chester that features a variety of community amenities such as playgrounds, a full-size basketball court, a spray ground, pavilion with tables, and open areas for free play. This well-used neighborhood park is bordered by S Matlack Street, Cedar Alley, and Railroad Street with E Miner Street dividing the park into two discrete sections. The park is bordered by residential homes to the west and south and is adjacent to the West Chester railroad and parking lot to the east. Formerly a manufactured gas plant owned by PECO, the site was cleaned up and turned over to the Borough in 1998.

The green infrastructure (GI) concepts proposed for the site consist of vegetated curb extensions with subsurface infiltration trench components (one on S Matlack St, one on Railroad St, and two at the northern park entrance on E Miner St), a tree trench on E Miner St, rain gardens in several corners of the park on both parcels, a demonstration rain barrel to capture roof runoff from the pavilion, and overall recommendations for planters, additional groundcover, and new trees to further "green" the park and provide shade to play areas.

Collectively, these GI features would capture and treat runoff from the park property and several adjacent streets as shown on the concept plan. During larger storm events, overflow structures would allow excess runoff to flow into existing storm sewers. In addition to reducing and treating stormwater runoff, these GI features have the potential to add aesthetic value to the park, promote traffic calming, and work in harmony with the park's existing active and passive recreational uses.

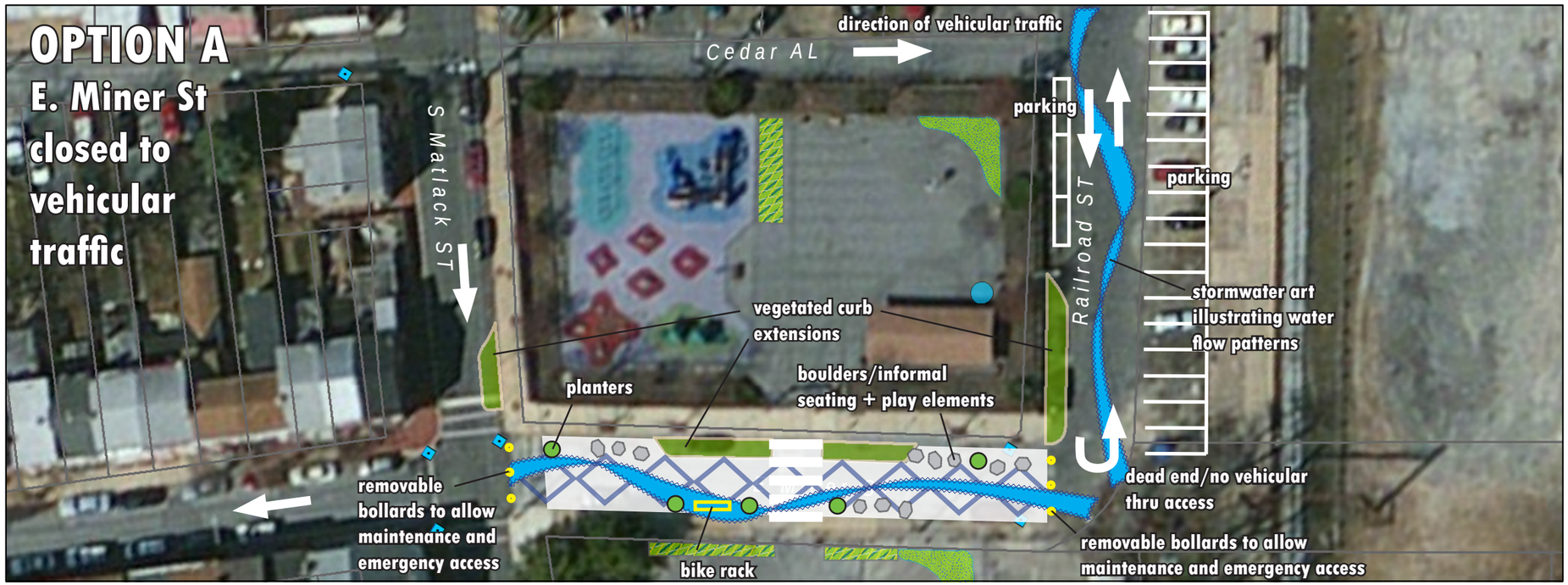
- Inlet
- Stormwater MH
- Stormwater Outfall (53)
- Existing Stormwater Pipes
- 2 ft Contours
- Surface Flow
- Parcels
- Drainage Area

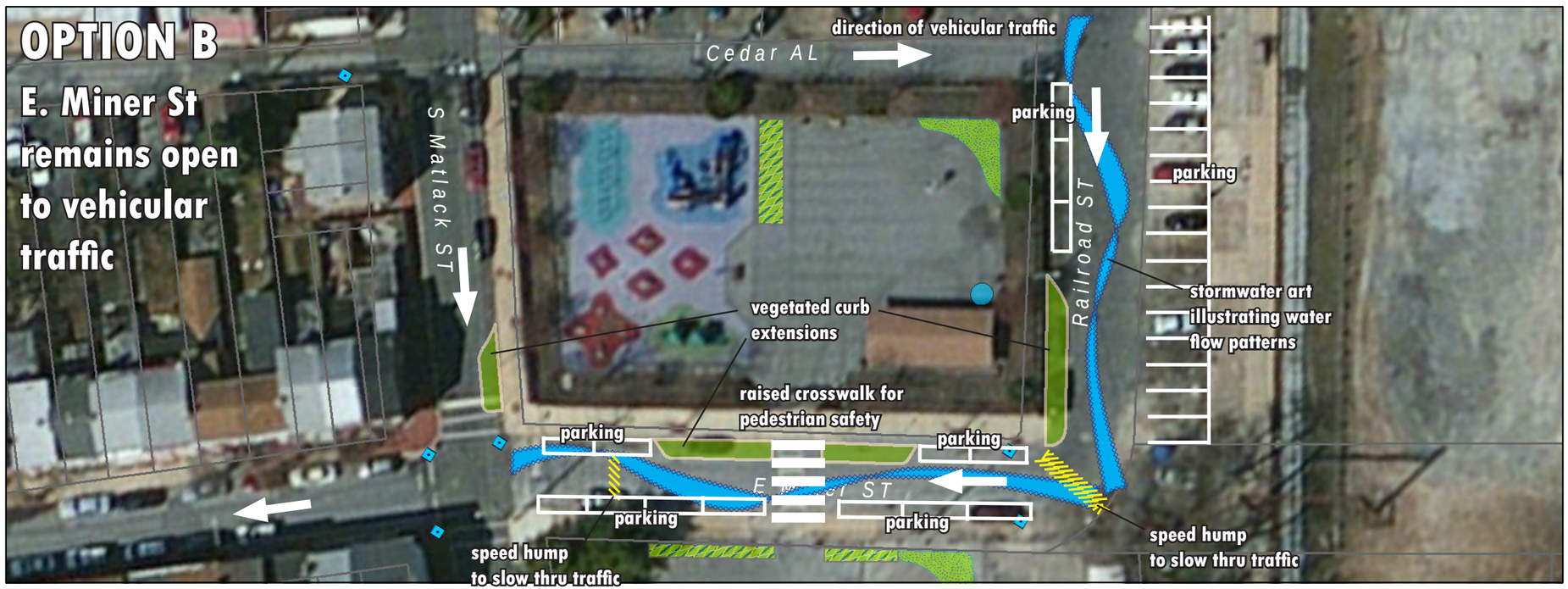
Proposed GI Features

- Bioswale/Plantings
- Infiltration Trench
- Rain Barrel
- Rain Garden
- Vegetated Curb Extension

NORTH 0 20 40 Feet

JOHN O. GREEN MEMORIAL PARK: PROPOSED GREEN INFRASTRUCTURE CONCEPTS





In addition to the proposed green infrastructure elements for John O. Green Memorial Park, there are several potential options for addressing vehicular traffic, pedestrian safety, and parking on the block of E. Miner Street between the two park parcels.

Option A would close E. Miner Street between Railroad Street and S. Matlack Street to vehicular thru-traffic. This portion of E. Miner Street would become a car-free zone and a safe place for pedestrians to sit, children to play, and park-goers to freely move between the north and south park areas. Removable bollards would be placed at either ends of the closed block to enable occasional access for emergency and maintenance vehicles. Parking would not be allowed on E. Miner Street, rather all parking would be directed to Railroad Street.

Option A Pros
-maximizes pedestrian and park-goer safety
-maintains emergency vehicular access
-creates a car-free play zone between the park areas

Option A Cons
-removes parking on E. Miner Street
-removes vehicular thru-way

Option B would keep E. Miner Street between Railroad Street and S. Matlack Street open to vehicular thru-traffic. Parallel parking would be permitted on both sides of the street. Speed humps and a raised crosswalk would be strategically placed to slow vehicular traffic and increase park-user and pedestrian safety.

Option B Pros
-maximizes parking on E. Miner Street
-maintains vehicular thru-way

Option B Cons
-less benefits for pedestrian and park-goer safety
-does not create a car-free play zone

Inlet
Parcels
Proposed GI Features
Bioswale/Plantings
Rain Barrel
Rain Garden
Vegetated Curb Extension

NORTH
0 20 40 Feet

JOHN O. GREEN MEMORIAL PARK: PROPOSED GREEN INFRASTRUCTURE CONCEPTS


existing paved play area


existing park entrance on Miner St


existing stormwater runoff conditions


existing playground and basketball court

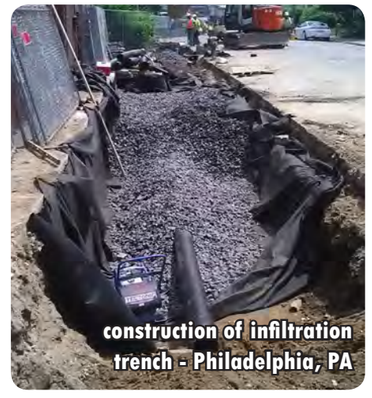
Existing Conditions



Proposed Rain Garden and Planting Beds


rain garden - Lancaster, PA


curb extension - Lancaster, PA


construction of infiltration trench - Philadelphia, PA

Examples of GI Features

APPENDIX G

MS4 Name	NPDES ID	Individual Permit Required?	Reason	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)	Other Cause(s) of Impairment
Chester County						
WEST BRANDYWINE TWP	PAI130544	Yes	TMDL Plan, SP, IP	West Branch Brandywine Creek	Appendix C-PCB (4a), Appendix E-Siltation (4a)	Water/Flow Variability (4c)
				Beaver Creek		Cause Unknown (4a), Other Habitat Alterations, Water/Flow Variability (4c)
				Christina River Basin Nutrients	TMDL Plan-Nutrients, Organic Enrichment/Low D.O. (4a)	
				Culbertson Run	Appendix E-Siltation (4a)	Other Habitat Alterations (4c)
				East Branch Brandywine Creek		Cause Unknown (4a), Other Habitat Alterations, Water/Flow Variability (4c)
				Unnamed Tributaries to West Branch Brandywine Creek		Cause Unknown (4a)
WEST CALN TWP	PAG130145	Yes	TMDL Plan, SP	Christina River Basin Nutrients	TMDL Plan-Nutrients, Organic Enrichment/Low D.O. (4a)	
				Christina River Basin Sediment	TMDL Plan-Siltation, Suspended Solids (4a)	
				Indian Spring Run	Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation (4a)	
				Pequea Creek	Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation (4a)	
				West Branch Brandywine Creek	Appendix C-PCB (4a)	Water/Flow Variability (4c)
				Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	
WEST CHESTER BORO	PAG130002	Yes	TMDL Plan	Blackhorse Run	Appendix E-Siltation (4a)	Other Habitat Alterations, Water/Flow Variability (4c)
				Brandywine Creek	Appendix E-Siltation (4a)	
				Chester Creek	Appendix B-Pathogens (5), Appendix E-Siltation (5)	Cause Unknown (5), Flow Alterations, Water/Flow Variability (4c)
				Goose Creek TMDL	TMDL Plan-Nutrients (4a)	Cause Unknown (4a)
				Plum Run	Appendix E-Siltation (4a)	Water/Flow Variability (4c)
				Taylor Run	Appendix E-Siltation (4a)	Cause Unknown (4a), Other Habitat Alterations (4c)
WEST GOSHEN TWP	PAI130532	Yes	TMDL Plan, SP, IP	Broad Run		Water/Flow Variability (4c)
				Taylor Run		Cause Unknown (4a), Other Habitat Alterations (4c)
				Plum Run		Water/Flow Variability (4c)
				John Smedley Run		Water/Flow Variability (4c)
				Goose Creek TMDL	TMDL Plan-Nutrients (4a)	Cause Unknown (4a)
				East Branch Chester Creek	Appendix E-Siltation (5)	Cause Unknown (5), Other Habitat Alterations, Water/Flow Variability (4c)
				East Branch Brandywine Creek		Cause Unknown (4a), Water/Flow Variability (4c)
				Chester Creek	Appendix B-Pathogens (5), Appendix E-Siltation (5)	Cause Unknown (5), Flow Alterations, Water/Flow Variability (4c)
				Christina River Basin Sediment	TMDL Plan-Siltation, Suspended Solids (4a)	

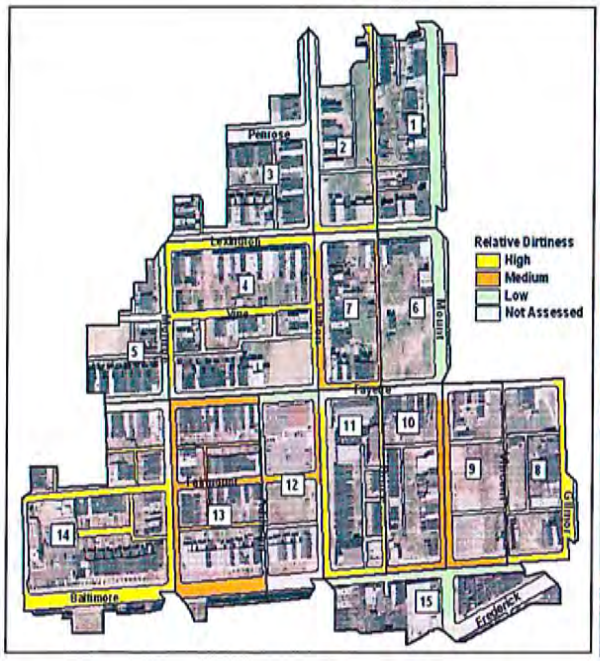
APPENDIX H

Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices

Sebastian Donner, Bill Frost, Norm Goulet, Marty Hurd, Neely Law, Thomas Maguire, Bill Selbig, Justin Shafer, Steve Stewart and Jenny Tribo

FINAL REPORT

Approved by CBP Management Board





May 19, 2016

Prepared by:

Tom Schueler, Chesapeake Stormwater Network

Table 3. Summary of Street Cleaning Implementation, 2009-2013, as reported and credited in annual progress runs (acres and lbs)

YEAR	DC	DE	PA	WV	VA
2009	1 ac			218,000 lbs	632 ac
2010	1,631 ac			227,000 lbs	
2011	1,540 ac		619 ac		75,385,792 lbs
2012	1,539 ac		413 ac		
2013	1,526 ac	79,541 lbs	3,240,489 lbs	190,000 lbs	218,677 lbs
2014	1,531 ac	413,367 lbs	3,367,040 lbs	700,000 lbs	426,671 lbs

3.4 How the CBWM Simulates Loads From Streets

The Phase 5.3.2 Chesapeake Bay Watershed Model simulates two types of urban land: pervious and impervious cover. These two cover types are used to simulate the full range of urban land use categories (industrial, commercial, residential, institutional and transport). This means that different street types (e.g., highways, arterials, residential streets) are lumped in with other impervious surfaces (e.g., driveways, sidewalks, rooftops, parking lots), and are currently represented as a single impervious layer. As a result, streets and roads do not load differently and are not counted separately in the current version of the CBWM. Table 4 portrays the average annual nutrient and sediment loadings associated with urban impervious cover in the current model.

Table 4. Loading Rates Associated with Urban Impervious Cover in the Chesapeake Bay Watershed Model, Version 5.3.2.

Acres in Watershed [1]	1,269,030
Average TN Load [2]	15.5 lbs/ac/yr
Average TP Load [2]	1.93 lbs/ac/yr
Average TSS Load [2]	0.65 t/ac/yr
Key Inputs	Air Deposition, Build-up/Wash-off, No Groundwater Interaction, No Direct Interaction with Pervious Cover

[1] Acres, as reported in most recent CBWM version 5.3.2
[2] Average values, as reported in Tetra Tech (2014), although actual values are regionally variable across the watershed.

It should be noted that not all of the sediment load generated from urban impervious cover actually reaches the Chesapeake Bay. The sediment loads at the edge of pavement are adjusted downward by a sediment delivery factor in the current version of the CBWM. For a more thorough discussion of the sediment delivery factor, please consult the discussion in SR EP (2014).

The Panel elected to not to use WINSLAMM to explicitly simulate nutrients, and instead estimated them based on empirical nutrient enrichment ratios for street solids (see Section 4.4).

Table 15. Adapting the WINSLAMM Model for the Chesapeake Bay Watershed

Bay rainfall data. The model used the calibration period from 1995 through 2005 using Washington National Airport Station event-based rainfall data. The rainfall data was processed assuming the minimum number of hours between events is 6 hours and the minimum rainfall event depth is 0.01 inch.

East Coast input data files were prepared to represent street conditions across the Chesapeake Bay watershed. The particle size distribution and peak-to-average flow ratio files were set to the program default average pavement and flow ratio files

Four different street types were simulated to represent in different land uses that had curb and gutter drainage systems:

Single-family residential: Approximately 0.25-acre lots, with cul-de-sacs connecting to two-lane residential feeder roads with parallel parking on one side; light traffic; and 25 mile-per-hour (mph) speed limit. Approximately 33 houses in a 10-acre area. The driveways are simulated as draining onto the roads.

Commercial (80 percent impervious): Big box stores and parking lots. Feeder roads (two travel lanes and center turn lane) with no on-street parking, 35 mph speed limit, and heavy traffic.

Ultra-urban downtown (95 percent impervious): Multistory buildings. Two-lane urban roads with parallel parking on both sides of the street, sidewalks, and 25 mph speed limit.

Arterial highway: A four-lane divided road with median with barrier; high-speed traffic with turn lanes; and no on-street parking. Assumed to be commercial land use

Three different sweeping start/stop dates to reflect regional differences in climate across the watershed:

Sweeping occurs over the entire year
Sweeping suspended December 1, restarts March 15
Sweeping suspended December 15, restarts February 15

Six different fixed sweeping schedules

2PW = 2 passes per week	1P4W = 1 pass every 4 weeks
1PW = 1 pass every week	1P8W = 1 pass every 8 weeks
1P2W = 1 pass every 2 weeks	1P12W = 1 pass every 12 weeks

Four seasonal sweeping schedules (more intensive in Spring or Fall)

S1: Spring – One pass every week from March to April. Monthly otherwise
S2: Spring – One pass every other week from March to April. Monthly otherwise
S3: Spring and fall – One pass every week (March to April, October to November). Monthly otherwise
S4: Spring and fall – One pass every other week during the season. Monthly otherwise

Two Levels of Sweeper Technology

MBC = Mechanical broom cleaning	VAC = Vacuum assisted cleaning

Four Options for Street Parking Density and No Parking Enforcement

For more details, consult the technical memo (Tetra Tech, Inc., 2015)

each street cleaning scenario, and subtracting the resulting nutrient load from the unit area nutrient load for impervious cover calculated by the watershed model.

The standard street cleaning unit are curb miles swept. In general, one impervious acre is equivalent to one curb-lane mile swept, assuming they are swept on one-side only. Credit is also provided for cleaning municipal and commercial parking lots (in this case, the acres of parking lot swept are reported, and converted to lane miles using the one acre = one curb lane mile rule of thumb.

The panel elected to consolidate the model results to show specific removal rates for eleven different street cleaning practices, primarily involving the use of advanced street cleaning technology at different frequencies (Table 17).

Table 17. Pollutant Reductions Associated with Different Street Cleaning Practices

Practice #	Description [1]	Approx Passes/Yr [2]	TSS Removal (%)	TN Removal (%)	TP Removal (%)
SCP-1	AST- 2 PW	~100	21	4	10
SCP-2	AST- 1 PW	~50	16	3	8
SCP-3	AST- 1 P2W	~25	11	2	5
SCP-4	AST- 1 P4W	~10	6	1	3
SCP-5	AST- 1 P8W	~6	4	0.7	2
SCP-6	AST- 1 P12W	~4	2	0	1
SCP-7	AST- S1 or S2	~15	7	1	4
SCP-8	AST- S3 or S4	~20	10	2	5
SCP-9	MBT- 2PW	~100	1.0	0	0
SCP-10	MBT- 1 PW	~50	0.5	0	0
SCP-11	MBT- 1 P4W	~10	0.1	0	0

AST: Advanced Sweeping Technology MBT: Mechanical Broom Technology

[1] See Table 15 for the codes used to define street cleaning frequency

[2] Depending on the length of the winter shutdown, the number of passes/yr may be lower than shown

Chapter 37. Animals

Article IV. Curbing of Dogs

§ 37-9. Defiling on property prohibited.

No person owning, harboring, keeping or in charge of any dog shall cause, suffer or allow such dog to defile or defecate on any common thoroughfare, sidewalk, pathway, bypath, play area, park or any place where people congregate or walk or on any public property whatsoever or on any private property without the permission of the owner of said property.

§ 37-10. Use of land between curblines.

The restriction set forth in § **37-9** shall not apply to that portion of the street lying between the curblines, which shall be used by dogs to defecate under the condition that the person who owns, harbors, keeps or is in charge of such dog shall immediately remove and dispose of all feces deposited by such animal by sanitary and reasonable means.