MS4 Status Report

For

Upper Providence Township

Permit #PAG130108

Prepared for

Upper Providence Township
1286 Black Rock Road
P.O. Box 406
Oaks, PA 19456

Prepared by

Gilmore & Associates, Inc.
184 West Main Street
Suite 300
Trappe, PA 19426

September 20, 2020

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, 2019 TO JUNE 30, 2020

GENERAL INFORMATION			
Permittee Name:	Upper Providence Township	NPDES Permit No.:	PAG-130108
Mailing Address:	1286 Black Rock Road	Effective Date:	June, 2018
City, State, Zip:	Oaks, PA 19456	Expiration Date:	June, 2023
MS4 Contact Person:	Timothy Tieperman	Renewal Due Date:	June, 2023
Title:	Manager	Municipality:	Upper Providence Township
Phone:	610-933-9179	County:	Montgomery
Email:	ttieperman@uprov-montco.org		

Co-Permittees (if applicable):

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?
Donny Brook	TSF,MF	Yes	Siltation	N/A	N/A
Doe Run	TSF,MF	Yes	Siltation	N/A	N/A
Schoolhouse Run	TSF,MF	Yes	Siltation	N/A	N/A
Perkiomen Creek	WWF,MF	Yes	Pathogen	N/A	N/A
Schuylkill River	WWF,MF	Yes	PCB	N/A	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	Manager	Timothy Tieperman	610-933-9179
#2 Public Involvement/Participation	Manager	Timothy Tieperman	610-933-9179
#3 Illicit Discharge Detection and Elimination (IDD&E)	Public Works Director	Thomas Broadbelt	610-933-9179
#4 Construction Site Storm Water Runoff Control	Gilmore & Associates, Inc.	Michael Coyne	610-489-4949
#5 Post-Construction Storm Water Management in New Development and Redevelopment	Gilmore & Associates, Inc.	Michael Coyne	610-489-4949
#6 Pollution Prevention / Good Housekeeping	Public Works Director	Thomas Broadbelt	610-933-9179

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: 4-1-2016 Were updates made? ☐ Yes ☒ No

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

   The goals of the Upper Providence Township Public Education and Outreach Program for the reporting period included continuing the efforts to inform and engage Township residents regarding water quality issues. Upper Providence Township upgraded the information available to Township residents through the Township website. Upgraded information included educational materials and more efficient links to PADEP and EPA websites.

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 goals of the Upper Providence Township Public Education and Outreach Program for the upcoming year include upgrading the annual public education public presentation to be more dynamic and engaging to solicit interest from the average Township resident and make water quality an important issue for the public.

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: 9-1-18 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: Were updates made? ☒ Yes ☐ No

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

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

The Upper Providence Township website contains an entire page dedicated to the MS4 Stormwater Management Program. The information includes a list of potential pollutants, an overview of the illicit discharge and detection program, and links to the PADEP and EPA website pages.

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

Stormwater public education material is displayed on the Upper Providence Township website.

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

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).

Copies of the information was made available for public review and distibution at the Upper Providence Township Building and on the Township website are included in this report.

MCM #1 Comments:

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: 4-1-2016 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:

A Pollutant Reduction Plan was prepared for Upper Providence Township and submitted to the Southcentral PADEP office on September 12, 2017. A draft version of the PRP was made available for public review and comment at an September 6, 2017 Board of Supervisors meeting. The meeting and a copy of the PRP were publicly advertised on August 7, 2017. A revised PRP is currently under review by PADEP.

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

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: October 7, 2019

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.

   Upper Providence Township is in perpetual partnership with the Schuylkill Canal Association and the Perkiomen Watershed Conservancy in providing educational materials and events (stream cleanup, rain garden construction, etc.).

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.

   Members of the community participate in the following efforts:
   Recycling Day - members of the community drop off electronic devices to the Township Public Works facilities for proper disposal.
   Rain Barrel Demonstration - members of the community are instructed on the value and operation of rain barrels.

MCM #2 Comments:

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: 4-1-2018 Were updates made? ☐ Yes ☒ No

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

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

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

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

2. Date of last update or revision to map(s): 8-30-17

3. Total No. of Outfalls in MS4: 274 Total No. of Outfalls Mapped: 274

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

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): 8-30-18

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? 364

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: 0%

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: 2-17-04

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? See attached Good Housekeeping Memo, dated December 1, 2017.

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:

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: 2-17-04

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: 12

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: 55

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: 3

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:

Coordination with Montgomery County Conservation District

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: 2-17-04

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: 8-25-04

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): 20

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	Infiltration Trench	3,000		40°10'12"	75°25'40"	3/15/15		
2	Bioretention Basin	1,700		40°09'10"	75°21'40"	3/22/15		
3	Amended Soils	9,900		40°09'17"	75°19'55"	4/8/15		
4	Vegetative Swale	3,000		40°09'01"	75°19'50"	3/10/15		
5				° ' "	° ' "			
6				° ' "	° ' "			
7				° ' "	° ' "			
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14				° ' "	° ' "			
15				° ' "	° ' "			
16				° ' "	° ' "			

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

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

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

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

   ☒ Yes ☐ No

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

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

MCM #5 Comments:

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? 9-1-18

3. When was it last updated? 9-1-18

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: 9-1-18

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: 9-1-18 Date of latest training:

3. Training topics covered:

   Good housekeeping procedures relating to municipal operations (municipal facilities, vehicle maintenance, etc.).

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

   Tom Broadbelt, Public Works Director

5. Names of training attendees:

   10

MCM #6 Comments:

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)		☐	
Source Inventory		☐	
Investigation of Suspected Sources		☐	
Ordinance/SOP for Controlling Animal Wastes		☐	

PCM Comments:

POLLUTANT REDUCTION PLANS (PRPs) AND TMDL PLANS

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

Type of Plan	Submission Date	DEP Approval Date	Surface Waters Addressed by Plan
☐ Chesapeake Bay PRP (Appendix D)			Chesapeake Bay
☒ Impaired Waters PRP (Appendix E)	9-12-18	N/A	Donny Brook, Doe Run, Schoolhouse Run
☐ TMDL Plan (Appendix F)			
☐ Combined Chesapeake Bay / Impaired Waters PRP			Chesapeake Bay,
☐ Combined PRP / TMDL Plan			

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

Joint Plan Participants:

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

Type of Plan	TSS Load Reduction (lbs/yr)	TP Load Reduction (lbs/yr)	TN Load Reduction (lbs/yr)
☐ Chesapeake Bay PRP (Appendix D)			
☒ Impaired Waters PRP (Appendix E)	52,480		
☐ TMDL Plan (Appendix F)			
☐ Combined Chesapeake Bay / Impaired Waters PRP			
☐ Combined PRP / TMDL Plan			

3. Date Final Report Demonstrating Achievement of Pollutant Load Reductions Due: September, 2023

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.

6. Anticipated activities for next reporting period.

PRP/TMDL Plan Comments:

NEW BMPs FOR PRP/TMDL PLAN IMPLEMENTATION

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

BMP No.	BMP Name	DA (ac)	% Imp.	BMP Extent	Units	Latitude	Longitude	Date Installed or Implemented	Planning Area?	Ch. 102?	Annual Sediment Load Reduction (lbs/yr)
						° ' "	° ' "		☐	☐	
						° ' "	° ' "		☐	☐	
						° ' "	° ' "		☐	☐	
						° ' "	° ' "		☐	☐	
						° ' "	° ' "		☐	☐	

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?
						° ' "	° ' "				☐
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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).

Timothy Tieperman, Manager	
Name of Responsible Official	Signature
610-933-9179	9/23/2020
Telephone No.	Date

Upper Providence Township

MCM#1 - Public Education and Outreach on Stormwater Impacts

Upper Providence Township Public Education and Outreach Program (2 Sheets)

Minutes from Board Of Supervisor Meetings Regarding Stormwater Issues (6 Sheets)

Resolution to Make Municipal Authority Administrator of MS4 Program (2 Sheets)

Examples of Public Education Materials Distributed and Made Available to Upper Providence Township Residents (35 Sheets)

Perkiomen Watershed Conservancy Stormwater Education Materials (4 Sheets)

Perkiomen Watershed Conservancy UPT Stormwater Reduction Stats (1 Sheet)

Rain Barrel Workshop Notification (1 Sheet)

Upper Providence Township
NPDES MS4 Permit PAG130108
2019 Progress Report
Public Education and Outreach Program
May 20, 2019

MCM#1 – Develop, Implement, and Maintain a Written Public Education and Outreach Program (PEOP):

Residents -	The Township organizes events throughout the year. These events include Community Day, held in September of every year. These types of events represent opportunities to emphasize the importance of environmental protection, including stormwater quality measures. The Township annually distributes stormwater educational material. The Township also partners with area organizations, including the Perkiomen Watershed Conservancy and the Schuylkill Canal Association by promoting stream cleanup and community events. The Township website, currently containing educational material and links will continue to be updated to provide the latest in educational resources.
Schools -	The Township is continuing its efforts to recruit local organizations that include school age residents, for participation in waterway cleanup and assorted stormwater quality improvement efforts. These groups include scouts, athletic organizations, and school age participants in Township sponsored summer camps and activity programs.
Businesses -	Information will continue to be distributed to local business organizations during bi-monthly Supervisor meetings. Local businesses are also encouraged to view the Township website for the most up to date stormwater educational materials.
Developers -	Stormwater literature is included in information packages accompanying building permits. This form of distribution appears to be an effective way of reaching the developer portion of the target audience. The Township plans to continue these efforts. The Township enforces a grading permit program that reviews, monitors, and regulates any earth disturbance activities with a disturbed area greater than 1,000 square feet. Review of the permit application includes the location, nature, and operation of all necessary erosion and sedimentation facilities.

Municipal Employees - The posting of stormwater information on employee lounge bulletin boards and periodic inclusion of storm water literature with paycheck distribution appears to be an effective distribution method. The Township plans to continue this distribution process. In addition, the Parks and recreation Director is responsible for distribution of environmental information. Included in this report is a Power Point presentation regarding Pollution Prevention and Good Housekeeping for Municipal Operations and Maintenance that is presented to Public Works employees semi-annually.

further information is received. Chair Higgins said that the next Board of Supervisors Meeting is after the September 1st deadline. Supervisor Pearson asked if the Board could vote on just the tax portion of the amendment. Mr. Bortnichak agreed that they Board could act on one matter and not the other, with the resolution being amended to show that.

Supervisor Barker motioned, seconded by Supervisor Pearson, to adopt an amended Resolution 2019-42 to include only the fee change for tax certifications from $30.00 to $40.00. The motion passed unanimously, 4-0.

9. Authorize distribution of 2019 Volunteer Firefighters' Relief Association funding

Chair Higgins asked if the same formula as past years was used. Mr. Bortnichak confirmed it was the same formula. The Township receives an annual allocation of funding from the Commonwealth which is passed to volunteer firefighters' entities that serve the Township. The formula used consistently in the past has been 30% was based on area the fire company serves, 30% was based on population within that area, and 40% was based on call volume. At this time, the Township has not received the actual amount from the Commonwealth, but estimate an amount of $185,000 is available. Assuming that number, the breakdown would be $20,000 would go to Collegeville Fire Department; $37,000 would go to Trappe Fire Company; Royersford Fire Company would receive $40,000; and Black Rock would receive $87,000. Supervisor Barker questioned if some of the monies could go to the career firefighters. Mr. Bortnichak stated that some amount could go to their pension. He further said that the monies could not be used to buy apparatus or equipment that would be for the sole use of career firefighters. He said that this is because the money is dedicated for volunteer relief associations so it has to all be passed to the volunteers.

Supervisor Vagnozzi motioned, seconded by Supervisor Barker to authorize the distribution of 2019 Volunteer Firefighters' Relief Association funding when it becomes available. The motion passed unanimously, 4-0.

10. Consider enactment of Ordinance 579 regarding Chapter 5 of the UPT Code outlining the duties and responsibilities of the Municipal Authority

Solicitor Bresnan stated that the Sewer Authority is interested in taking on MS4 responsibilities. He said that the ordinance is needed to revise the articles of incorporation. The Municipal Authority has adopted a resolution stating their desire to undertake the responsibilities for MS4 and stormwater management. He said that once the Ordinance is adopted, he will revise the articles of incorporation for the Municipal Authority. Supervisor Barker asked if the Municipal Authority is an advisory board of if they can take action. Solicitor Bresnan said that the Municipal Authority, over time, had taken more of an advisory role, but now they want to start taking a more active role. He said that they have all the powers under the Municipal Authorities Act. He said he can have a joint meeting to layout responsibilities.

Solicitor Bresnan said that the Commonwealth amended 2017 for 2nd Class Townships to allow the Municipal Authority to impose fees. Supervisors Barker voiced concerns about the amount fees and/or taxes residents would receive. Solicitor Bresnan stated that the MS4 program requires a lot of additional work and is the driving reason for fees and credits in other

municipalities. He said that if action was not taken through the Authority, it would have to come from the Board because of the MS4 obligations. Supervisor Barker expressed concern about the Municipal Authority implementing a fee/tax with no direction or oversight by the Board. Supervisor Vagnozzi agreed that the Board should have an operating agreement with the Authority. Supervisor Pearson asked if the Authority is allowed to spend money. Solicitor Bresnan responded yes, but historically they have not. Mr. Bresnan said that the he will discuss with the Board whether they want to take on the responsibility of MS4 requirements. Mr. Tieperman said that staff believes that the Authority with their expertise would take a substantial workload from the Board. Supervisor Vagnozzi said that he would like a check and balance system with the Authority since they are not elected officials. Mr. Bresnan said this could be worked out through an agreement. After discussion, the Board decided to table the ordinance pending additional discussions with the Municipal Authority

11. Consider enactment of Ordinance 580 amending Section 169-43, Schedule IV regarding prohibited turns at intersections

Solicitor Bresnan said that this item must be included in the UPT Code to be enforceable.

Supervisor Barker motioned, seconded by Supervisor Pearson, to enact Ordinance 580 amending Section 169-43, Schedule IV regarding prohibited turns at intersections. The motion passed unanimously, 4-0.

12. Review Zoning Hearing Board Application 19-03 from Anthony and Melissa Cianciulli (6 Ashbridge Court) requesting a variance for an accessory structure

Mr. Grace said that the applicant is not present. He said that this matter has been heard by the Planning Commission and there were no issues with the application. He said that the applicants are looking for a variance of 1.7 feet for a roof height. The roof height was initially measured incorrectly. Supervisor Pearson questioned if the structure would have any plumbing. Mr. Grace advised that the applicant wants a garage for additional storage, that there is no plumbing and it will not be apartment or an in-law suite. Mr. Grace advised that 8 Ashbridge Court sent a letter to the Planning Commission that they have no issues with the garage. No action was taken by the Board.

MANAGER AND DEPARTMENT HEAD REPORTS:

13. Distribution of the remaining 2019 EMS allocation

Mr. Tieperman said that this is a budgeted item of $50,000. The amount is determined by the call volume of the previous year. Monies will be distributed as follows: $4,412.00 to Lower Providence; $13,222.63 to Trappe; $7,364.73 to Friendship. Supervisor Barker clarified that this is the balance of portion of what was budgeted for 2019. The number of call is determined in the previous calendar year.

UPPER PROVIDENCE BOARD OF SUPERVISORS
SPECIAL JOINT MEETING WITH MUNICIPAL AUTHORITY
MONDAY, OCTOBER 7, 2019 – 6:00 P.M.

ATTENDANCE:

Board of Supervisors: Laurie Higgins, Chair; Helene Calci, Vice Chair; Philip Barker, Supervisor; John Pearson, Supervisor; and Albert Vagnozzi, Supervisor.

Municipal Authority: Ken Hughes, Jack Kraft, Dennis Hydrick, Al Hritz

Staff Present: Timothy J. Tieperman, Township Manager; Bryan Bortnichak, Assistant Township Manager; Richard Livergood, Finance Director; Tom Broadbelt, Public Works Director and Cheryll Schinski, Administrative Services Manager.

Consultants Present: Joseph Bresnan, Esquire, Township Solicitor; and William Dingman, Township Engineer.

CALL TO ORDER

Supervisor Higgins called the meeting to order at 6:00 p.m.

PLEDGE OF ALLEGIANCE

Supervisor Higgins started the meeting with the Pledge of Allegiance.

NEW BUSINESS (ACTION/DISCUSSION ITEMS):

1. Introductions

2. Overview of the MS4 mandate and projected compliance costs for the next permit cycle.

    a. 2018 NPDES Permit (5 Year Cycle)
    b. Pollution Reduction Plan (Sediment)
    c. New Capital Program (Sediment Reduction)
    d. Ongoing Permit Compliance
    e. Infrastructure Replacement and Upgrades

3. Review cost neutral options to fund UPT Stormwater Management Program

    a. Stream Protection Fee vs. Dedicated Tax
    b. Fee Structure Based on Impervious S.F. Area
    c. Impact on Average Residential Property
    d. Fee Credit Program to Encourage Best Management Practices

4. Discuss MS4 Implementation and Enforcement Authority

a. Township or Authority?
b. Status of Ordinance amending Municipal Authority's Articles of Incorporation to implement and administer MS4 program.
c. Appeal Mechanism for Residents and Businesses
d. Implementation Timetable

5. Open Discussion

Introductions were made by all parties. Mr. Tieperman discussed the purpose and overview of this meeting. The next permit requirements for stormwater management have grown. Mandatory programs like sediment reduction need to be addressed and will incur some significant costs. The Derry Township Municipal Authority was the first Township in the state that enacted a stormwater management authority and has set an excellent example. The goal for this evening is to discuss the details and information on the MS4 programs.

Mr. Dingman discussed the MS4 (Municipal Separate Storm Sewer System) Program has been around for cities since 1987. In 1999, the federal mandate for townships and smaller municipalities began. In 2003, the Environmental Protection Agency began requiring the NPDES (National Pollution Discharge Elimination System) Permit for stormwater. In 2003, the Township sent their first NPDES Permit to the Pa. Department of Environmental Protection and has renewed it every five years since. The Township is responsible for six Minimum Control Measures (MCMs) – public education, public participation, illicit discharge protection, construction runoff, post construction stormwater management, and pollution prevention good housekeeping. Tom Broadbelt has been overseeing these requirements annually. The 2018 Permit has a new requirement of a pollution/sediment reduction plan involving the Perkiomen Creek. The best option moving forward is to create a new sediment basin at Route 422 and Route 29, the southeast corner. This item will cost approximately $800,000 and needs to be completed by the end of this permit cycle, 2023.

The Township is beginning to have infrastructure failures with the storm sewer system, as evidenced by a recent collapse on Cider Mill Road. The cost to replace this culvert was approximately $130,000. Moving forward, there will be significant repairs and updates that need to be addressed. Replacing failing equipment does not constitute a reduction of sediment. Any reduction requires an improvement/modification from what is currently happening. The ongoing maintenance and annual costs of the program will average approximately one million dollars per year.

The DEP has set an annual requirement of sediment removal of 60,000 pounds for the Township. Inlet cleaning, street sweeping, and other measures accrue towards that amount. The sediment is sent to an approved site, weighed and the Township receives credit based on the amount. The sediment is considered contaminated. The approximate cost per ton is $200.

With the annual recurring cost, the fairest way to approach the revenue source would be to implement ERUs (Equivalent Residential Units), the model used by Derry Township. An ERU is based on an average property's impervious coverage. In 2015, the Delaware Valley Regional Planning Commission put together a map of the Township showing impervious

coverage. The Township has approximately 71.5 million square feet of impervious surface. The MS4 mandate will impact approximately 9,000 Township properties comprising a mixture of residential, business and tax-exempt properties.

A fee would apply to all businesses, residences and tax-exempt organizations; whereas a tax would apply to only certain properties.

Stormwater related expenses projects for the past few years have averaged $750,000 annually.

Solicitor Bresnan commented on the issue of a fee versus a tax. The Second-Class Township Code was amended to allow townships to make improvements and collect for it, just as the Authority can. The only caveat is if you do this as a Township, you can only do the work that is required to meet the regulations. An Authority can make upgrades based on the requirements and for the general public good. Concerns were made as to whether the Authority would be just advisory or morph into something more, which was a factor for having this meeting. The statutes allow the Board to give more authority to the Authority. The UPT Municipal Authority adopted a resolution stating that they are willing to take on more responsibility including the implementation/overseeing of the MS4 Program.

Supervisor Barker stated his concerns about accountability to residents if the Board were to allow the Authority to implement/oversee the MS4 Program. Mr. Hughes stated that the Authority understands their role as an advisory board. The Authority is not seeking to gain additional power or influence in this matter; it just offered its services to alleviate and help the Board with the Township's requirement to implement the mandate. Supervisor Calci asked if there is a middle ground between the Board and the Authority. Solicitor Bresnan stated that there can be an operating agreement between the two entities which would outline the responsibilities for each. Mr. Tieperman stated that costs could be put into a budget document which the Board would have to approve. Mr. Dingman stated there could be a separate district just for the Perkiomen Watershed area, separate from the rest of the Township, as that area is required to implement a pollution reduction plan. Mr. Bortnichak asked if the Board retains this responsibility, the fee/tax collected could only be used for required upgrades, more of a reactionary manner; whereas if the Authority implemented the fee/tax, it could be used for any infrastructure, including future planning. Solicitor Bresnan stated that the Township version requires use of the fee/tax for compliance with a mandate; whereas the Authority has broader leeway. Solicitor Bresnan stated an operating agreement could cover these different issues.

Supervisor Calci asked about the Derry Township program. Mr. Tieperman stated that Derry Township has a Municipal Authority. Solicitor Bresnan stated Derry has a schematic on their website that lays out how the reached their decision to use an authority. Mr. Dingman stated Derry Township is a full, operational authority, with employees, and separate from the township.

Supervisor Vagnozzi would like to have an agreement with the Authority stating the Board would have to approve any fee/tax to the residents.

Mr. Tieperman discussed the Homeowner's Guide to Stormwater. This entails public

education and projects, like the rain barrel workshop the Township just held.

Supervisor Higgins asked for the definition of impervious square feet. Mr. Dingman stated that this could be outlined in the fee structure. He further stated that any fee structure would have two appeals and credits. Appeals would be done by inspection. Credits would be given for property updates like having a rain barrel collect water from the roof. The fee for impervious coverage is based on the actual square footage and not lot size or amount of property. A tax is based on property value and is not proportional to the impact.

Supervisor Pearson stated that he is fine with the authority handling these issues as the Board has the final say. Solicitor Bresnan stated that this can be handled with the operating agreement. Another meeting would be held to review the operating agreement prior to any change to the Authority's Articles of Incorporation. Mr. Tieperman stated that staff would be responsible for the implementation of any programs. The Authority would be responsible for reporting back to the Board. The Municipal Authority would have their own budget for MS4 improvements for money in and money out.

Mr. Hughes stated the township staff could coordinate the aspects of the working relationship between the Board and the Authority.

ADJOURNMENT

There being no further business, Supervisor Pearson motioned, seconded by Supervisors Calci, to adjourn the meeting at 7:00 p.m. Motion carried 5-0.

Respectfully Submitted,

Timothy J. Tieperman
Township Manager/Secretary

UPPER PROVIDENCE MUNICIPAL AUTHORITY
UPPER PROVIDENCE TOWNSHIP, MONTGOMERY COUNTY, PA

RESOLUTION 2019-01

A RESOLUTION REQUESTING A MODIFICATION OF THE AUTHORITY'S ARTICLES OF INCORPORATION

In accordance with section 5603(b) of the Pennsylvania Municipal Authorities Act, and in realization of the increasing municipal burden to improve the municipal stormwater system, particularly but not exclusively with respect to increasing obligations under the MS4 Stormwater System obligations overseen by the Department of Environmental Protection, the Upper Providence Municipal Authority Board of Directors seeks to have the Authority's Articles of Incorporation amended to specifically authorize the Authority to undertake responsibility in the area of stormwater and stormwater management. Specifically, the Authority by this resolution requests the Upper Providence Township Board of Supervisors to authorize an amendment to the Authority's Articles of Incorporation which reads substantially as follows:

"In addition to being authorized as a body corporate and politic for purposes of financing working capital; acquiring, holding, constructing, financing, improving, maintaining, and operating, owning or leasing, either in the capacity of lessor or lessee, the Township's sanitary sewer system as heretofore, the Authority shall also hold those same powers with respect to stormwater planning, management and implementation as necessary to achieve or maintain compliance with any state or federal stormwater law or regulation, or as needed generally to maintain and improve the stormwater system to preserve the health, safety and welfare of the Township and its residents."

SO RESOLVED this 19th day of June, 2019.

Kenneth B. Hughes

Kenneth Hughes, Board Chairman

Albert Hritz

Attest: Albert Hritz, Secretary

RESOLUTION 2019-29

BE IT RESOLVED, by authority of the Board of Supervisors
(Name of governing body)

of the Upper Providence Township, Montgomery County, and it
(Name of MUNICIPALITY)

is hereby resolved by authority of the same, that the Chair - Board of Supervisors
(designate official title)

of said MUNICIPALITY is authorized and directed to submit the attached Application for Traffic Signal Approval to the Pennsylvania Department of Transportation and to sign this Application on behalf of the MUNICIPALITY.

ATTEST:

Upper Providence Township
(Name of MUNICIPALITY)

_____
(Signature and designation of official title)

By: _____
(Signature and designation of official title)

I, Timothy J. Tieperman, Township Manager/Secretary
(Name) (Official Title)

of the Board of Supervisors/Upper Providence Township, do hereby certify that the foregoing
(Name of governing body and MUNICIPALITY)

is a true and correct copy of the Resolution adopted at a regular meeting of the

Board of Supervisors, held the 15th day of July, 2019.
(Name of governing body)

DATE: _____

_____
(Signature and designation of official title)

A Homeowner's Guide to Stormwater Management

You can make a difference!

Learn what you can do on your property and in your community to improve the health of your watershed.

Prepared by: **Office of Watersheds**
Philadelphia Water Department
Volume 1 • January 2006

The Office of Watersheds would like to thank the following organizations and partners for their assistance and for the use of their materials in this guide:

Center for Watershed Protection

Fairmount Park Commission

Montgomery County Conservation District

NAM Planning & Design, LLC

National Oceanic & Atmospheric Administration (NOAA)

Pennsylvania Department of Environmental Protection (DEP)

Pennsylvania Horticultural Society

Philadelphia Department of Streets

South River Federation

TreeVitalize

University of Wisconsin — Extension

Washington State Puget Sound Action Team

Wisconsin Department of Natural Resources

Wissahickon Valley Watershed Association

Disclaimer

The information contained in this guide is being offered by the City of Philadelphia (City) through its Water Department (PWD) for the use of residents of the City. Please note that the stormwater management projects or Best Management Practices (BMPs) in this guide are voluntary projects recommended strictly for homeowners. They are not designed for professionals required to comply with the City's Stormwater Regulations.

If you plan to install any of the following structural projects on your property in the City, please notify PWD via its e-mail address (WaterShedsPWD@phila.gov): Rain Barrels, Rain Gardens, or Dry Wells. PWD would like to register your project with the City's Department of Licenses & Inspections (L&I). Also, PWD encourages you to take photographs of your project and to send them to PWD via the above e-mail address

If you experience problems with any water or sewer piping on your property, you should contact a registered plumber.

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A Homeowner's Guide to Stormwater Management

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Introduction

The Office of Watersheds of the Philadelphia Water Department has a vision for Philadelphia—"Clean Water—Green City." We want to unite the City with its water environment, creating a green legacy for future generations while incorporating a balance between ecology, economics and equity.

In order to achieve the goal of "Clean Water-Green City," we must work together with our partners, local residents, homeowner associations and municipalities on managing stormwater in a manner that will restore our watersheds. We can all play a part in taking an active role in converting our streams, creeks and surrounding green spaces into healthy systems that local residents, along with native fish and wildlife, can use as amenities, sanctuaries and habitats. As a homeowner, your part can be as simple as maintaining your car properly or building a rain garden on your lawn. This guide provides you with the steps and actions you can take to improve stormwater management on your property or in your community. These stormwater management projects will not only help protect our invaluable drinking water sources, but they will help green the city, restore our waterways and improve quality of life for all residents.

For more information, please visit www.PhillyRiverInfo.org or e-mail WaterShedsPWD@phila.gov.

Vehicle Maintenance

By maintaining your car properly you can prevent oil leaks, heavy metals and toxic materials from traveling from your car onto the street. Rain washes oil and other hazardous chemicals from the street into the nearest storm drain, ultimately draining into the Delaware and Schuylkill Rivers, the source of drinking water for many. Just imagine the number of cars in our region and the amount of oil that finds its way into our local waterways! It has been estimated that each year over 180 million gallons of used oil is disposed of improperly (Alameda CCWP, 1992), and that a single quart of oil can pollute 250,000 gallons of drinking water (NDRC, 1994). Please follow proper automotive maintenance.

Maintaining your Vehicle

- Maintain your car and always recycle used motor oil.
- Check your car or truck for drips and oil leaks regularly and fix them promptly. Keep your vehicle tuned to reduce oil use.
- Use ground cloths or drip pans under your vehicle if you have leaks or if you are doing engine work. Clean up spills immediately and properly dispose of clean up materials.
- Collect all used oil in containers with tight-fitting lids. Old plastic jugs are excellent for this purpose.
- Recycle used motor oil. Many auto supply stores, car care centers, and gas stations will accept used oil. Do not pour liquid waste down floor drains, sinks or storm drains.
- Do not mix waste oil with gasoline, solvents, or other engine fluids. This contaminates the oil which may be reused, increases the volume of the waste, and may form a more hazardous chemical.
- Never dump motor oil, antifreeze, transmission fluid or other engine fluids into road gutters, down the storm drain or catch basin, onto the ground, or into a ditch.
- Many communities have hazardous waste collection days where used oil can be brought in for proper disposal. Find out about your program. Recycling just one gallon of used oil can generate enough electricity to run the average household for almost 24 hours.
- Try to use drain mats to cover drains in case of a spill.
- Store cracked batteries in leak proof secondary containers.

Lawn & Garden Care

When fertilizing lawns and using other common chemicals, such as pesticides and herbicides, remember you're not just spraying the lawn. When it rains, the rain washes the fertilizers, pesticides and herbicides along the curb and into storm drains, which ultimately carry runoff into the Schuylkill and Delaware Rivers, our drinking water source. In addition to degrading the water quality of our streams and rivers, pesticides can kill critters in the stream and fertilizers can cause algal blooms, which rob our waterways of oxygen that fish need to survive. If you have to use fertilizers, pesticides, and herbicides, carefully read all labels and apply these products sparingly.

Many homeowners are unaware of the actual nutrient needs of their lawns. According to surveys conducted by the Center for Watershed Protection, over 50% of lawn owners fertilize their lawns, yet only 10 to 20% of lawn owners take the trouble to perform soil tests to determine whether fertilization is even needed (CWP, 1999). *Organic lawn care practices (no chemical pesticides and fertilizers) can also be a wise environmental choice and will save you money.* Conduct a soil test on your lawn and follow the below practices to reduce the need to fertilize on your lawn and garden.

Caring for your Lawn and Garden

- Use fertilizers sparingly. Lawns and many plants do not need as much fertilizer or need it as often as you might think. Test your soil to be sure!
- Consider using organic fertilizers; they release nutrients more slowly.
- Never fertilize before a rain storm (the pollutants are picked up by stormwater during rain events).
- Keep fertilizer off of paved surfaces—off of sidewalks, driveways, etc. If granular fertilizer gets onto paved surfaces, collect it for later use or sweep it onto the lawn.
- Use commercially available compost or make your own using garden waste. Mixing compost with your soil means your plants will need less chemical fertilizer and puts your waste to good use. Another alternative is to use commercial compost, called Earthmate, which is available for free through PWD. Call 215-685-4065 or visit the website to learn more about Earthmate: www.phila.gov/water/brc/brchow2get.html
- Let your grass clippings lay! Don't bag the grass. Use a mulching lawn mower to cut one-third of the blade length each week and naturally fertilize your lawn in the process.

- Wash your spreader equipment on a pervious (penetrable) vegetated area, like the lawn, to allow for the natural absorption of excess fertilizer.
- Never apply fertilizer to frozen ground or dormant lawns.
- Maintain a buffer strip of unmowed natural vegetation bordering waterways and ponds to trap excess fertilizers and sediment from lawns/gardens.
- Grow an organic garden (no pesticides or fertilizers). Call the Organic Landscape Alliance at 1-866-820-0279 or visit www.organiclandscape.org.

Pet Waste

When animal waste is left on the ground, rainwater or melting snow washes the pet waste into our storm drains or directly into our local creeks. The disease-causing bacteria found in pet waste eventually flows from our local waterways into the Delaware and Schuylkill Rivers, our drinking water source. In addition to contaminating waterways with disease-carrying bacteria, animal waste acts like a fertilizer in the water, just as it does on land. This promotes excessive aquatic plant growth that can choke waterways and promote algae blooms, robbing the water of vital oxygen.

Scooping Up the Poop

- Bag it! When going for dog walks, take a shopping bag or sandwich bag. When doggy makes a deposit, turn the baggie inside out over your hand and use it as a glove to pick up the waste.
- Flush the pet waste down the toilet because then it is treated at a sewage treatment plant.
- If flushing down the toilet is not a viable option, put the pet waste in the trash, but never put waste into storm drains.
- Encourage your neighbors to provide pet waste stations for collection and disposal of waste. Check to see if the parks in your neighborhood have them.
- Dig a small trench in your yard where your pets tend to defecate and toss the waste in the trench, cover with a layer of leaves, grass clippings, and dirt.
- Dispose waste in disposal units called Doggy Loos where they are installed into the ground. Decomposition occurs within the unit.
- At the park, set up a pooch patch which has a pole surrounded by a light scattering of sand around it. Dog owners can introduce their dog to the pole upon entry to the park. Dogs will then return to the patch to defecate and then you can place the pet waste in special bins for disposal.

Vehicle Washing

Car washing is a common routine for residents and a popular way for organizations, such as scout troops, schools, and sports teams to raise funds. However, most of the time, cars are washed in driveways and parking lots which allow wash water (dirty water) to finds its way to the nearest storm drain, ultimately draining into our drinking water sources, the Delaware and Schuylkill Rivers. The wash water often contains pollutants, such as oils and grease, phosphates (from the soap), and heavy metals—all of which are unhealthy for people and fish.

Washing Your Car Properly

- The best action is to take your vehicle to a commercial car wash, especially if you plan to clean the engine or the bottom of the car. Most car washes reuse water several times before sending it for treatment at a sewage treatment plant.

If you still want to wash your car at home...

- Wash your car on gravel, grass or another permeable surface, so the ground can filter the water naturally.
- Use soap sparingly. Try to use non-phosphate detergents. Phosphates are nutrients that can cause problems for nearby waterways.
- Use a hose that is high pressure, low volume. Use a hose with a nozzle that automatically turns off when left unattended or one that has a pistol grip or trigger nozzle to save water. Wash one section of the car at a time and rinse it quickly.
- When you're done, empty your bucket of soapy water down the sink, not the street.
- Block off the storm drain during charity car wash events or use an insert with a vacuum pump to catch wash water and empty it into the sink, not the street.

Tree Planting

If you have any tree planting questions and need to ask an expert, go to www.pennsylvaniahorticulturalsociety.org/garden/ask_gardener

Trees are not only a beautiful addition to the landscape, but they also provide invaluable benefits to cities. They reduce heat by cooling and shading homes during the hot summer months, decreasing the amount of energy required to cool a home and its related electric bills. Mature trees can actually cut summer cooling costs by 40% and tree-lined blocks can even decrease local temperatures. Trees naturally clean the air of pollutants and create a neighborhood noise buffer. Trees also improve stormwater management, reducing the amount of polluted stormwater that normally would go directly into storm drains. Tree roots also allow rainwater to filter back into the soil, recharging the often thirsty water table. A 2005 study by the University of Pennsylvania found that trees can increase property values. Planting a tree within 50 feet of a house can increase its sale price by 10 to 15%. Some studies even indicate that the mere presence of trees can create stronger neighborhood ties and reduce crime.

Planting a Tree

Before getting started, you may be interested in participating in the TreeVitalize rebate program where you may be eligible to receive up to a $25 rebate on the purchase of a tree. Whether you are planting a tree in your yard or hiring a contractor to plant a street tree, you may qualify. For more information, visit www.treevitalize.net and www.pennsylvaniahorticulturalsociety.org/phlgreen/tree-pledge.html.

Also, the Pennsylvania Horticultural Society's Tree Tenders Program offers a basic training course designed to teach general tree-care skills to organized community groups and individuals in Philadelphia. If you are interested in the course or a free copy of the *Tree Tenders Handbook* or *Mini-Guide to Tree Planting,* visit www.pennsylvaniahorticulturalsociety.org/phlgreen/treetenders.

1. Now, if you are ready to get started with your tree planting, select a site appropriate for your tree.
2. Dig the hole at least 1½ to 2 times the width of the root ball (container) to be installed, and no deeper than the height of the root ball so that the root flare (the top of the root mass) is flush with the existing ground. The planting pit should be dug so the walls of the pit are angled like a bowl or sloping outward in heavy soils.
3. Break up the walls of the pit after digging, so that fine roots can penetrate the soil. The soil that you dig out of the hole is what you will use to backfill around the root ball. Soil amendments are not recommended when planting a tree; therefore, no compost, moss, or shredded pine bark should be added to the backfill.

You can also volunteer to plant trees elsewhere in the city—along creeks and streams in Fairmount Park and at local schools. The more trees in Philadelphia, the healthier we will be! Contact Fairmount Park, Greater Philadelphia Cares and UC Green to learn how you can volunteer to plant trees.

4. Remove all debris from the pit and gently tightly pack the loose soil in the bottom of the pit by hand.
5. Cut and remove the rope and burlap from around the trunk and check for root flare. Remove all nails. Drop the burlap down to the bottom of the hole.
6. Do not handle the plant by the branches, leaves or stem. Place the plant straight in the center of the planting pit, carrying the plant by the root ball. Never carry a plant by the trunk or branches.
7. After the tree is in the pit, carefully cut and remove the top third of the wire basket and as much burlap as possible using the least amount of disturbance.
8. Backfill planting pit with existing soil and pack it in there tightly to fill all voids and air pockets. Do not over compact soil. Make sure plant remains straight during backfilling/ packing procedure.
9. The top of the root mass (root flare) of the tree should be flush with the final grade. Do not cover stem with soil. If your tree has soil over the trunk flare (where the trunk cures outward into the root system), it is essential to plant the trunk flare above soil. Remove the soil from the root ball if the flare is buried by it.
10. Water plant thoroughly and slowly, immediately after planting to saturate backfill. For the first year after planting, water the tree with 15 gallons per week. Use your index finger to check the soil moisture under the mulch. If the soil is cool to the touch, do not water. If it is warm and dry, then water. A layer of mulch (i.e. shredded bark, compost) should be placed around the tree, at a depth between 3 to 4 inches and with a radius of approximately 2 to 4 inches from the tree stem. Do not rest the mulch directly against the tree stem. The mulch makes it easier to water the tree and reduces weed competition.
11. Remove all tags, labels, strings and wire form the plant material.

Many homeowners ask how a newly planted tree can affect the sewer, water lines, sidewalk and/or building's foundation? If you choose the correct tree, site, and planting conditions, your tree shouldn't interfere with your sewer, waterline, etc. Most tree roots grow in the soil's top 12 inches and spread well beyond the tree's canopy in search of water and nutrients. They don't "attack" underground mains, unless these are already damaged, providing entrances for developing roots. An adequate and generous tree pit, or long, narrow continuous "tree lawn" will provide the best conditions for establishing and maintaining a "well behaved" tree with the environment needed to survive in the city.

Street Trees

If you do not have a yard, but you would like to have a tree in front of your property —on your sidewalk—you have several options in Philadelphia.

You can get a tree for free and installed at no cost by **Fairmount Park**, however, this may involve being placed on a waiting list

You or a group from your neighborhood can sign up for a **Tree Tenders program** through the Pennsylvania Horticultural Society, where you can get trained to care for your tree, learn how to organize a tree planting project and receive free tree care tools in exchange for your participation.

Lastly, you can **hire a contractor** approved by Fairmount Park to plant a tree in front of your house. However, the contractor you hire must apply for a Street Tree Permit from Fairmount Park before any work can be done. The private planting could cost you up to $500 (not including the price of the tree).

Talk to your neighbors and find out if there is a neighborhood organization or Tree Tenders group organizing a street tree planting project. Some local groups that do tree plantings, include The South of South Neighborhood Organization, UC Green and Citizens Alliance.

Recommended Street Tree List for Philadelphia

The Fairmount Park Commission recommends the below list of approved trees which will thrive in an urban setting, have a good track record, and won't interfere with overhead wires in Philadelphia.

Small Trees—Under 30 feet

Acer buergeranum—Trident Maple

Acer campestre—Hedge Maple

Acer ginnala—Amur Maple

Acer tataricum—Tartarian Maple

Crataegus crus-galli 'Inermis'—Thornless Hawthorn, tree form

Crataegus laevigata 'Superba'—Crimson Cloud Hawthorn tree form

Crataegus phaenopyrum—Washington Hawthorn, tree form

Crataegus viridis—Winter King Hawthorne

Prunus triloba—Flowering Plum

Malus (selected varieties)—Crabapple

Syringa reticulata—Japanese Tree Lilac

Medium Trees 30-46 feet

Aesculus x carnea 'Briotii'—Ruby Red Horsechestnut

Cercidiphyllum japonica—Katsura tree

Cladrastis lutea—Yellowwood

Crataegus lavallei—Lavalle Hawthorn

Koelreuteria paniculata—Golden Rain Tree

Malus (selected varieties)—Crabapple

Ostrya virginiana—Hop Hornbeam

Phellodendron amurense—Amur Cork Tree

Prunus x yedoensis—Yoshino Cherry

Ulmus parvifolia—Chinese Elm

Quercus acutissima—Sawtooth Oak

Large Trees Over 47 feet

Acer rubrum (selected cultivars)—Red Maple

Celtis occidentalis—Hackberry

Corylus colurna—Turkish Filbert

Fraxinus pennsylvanica 'Patmore'—Patmore Green Ash

Gleditsia triacanthos (selected cultivars)—Honey Locust, a) Halka, b) Moraine, c) Shademaster

Ginkgo biloba (male selections only)—Ginkgo

Liquidambar styraciflua—Sweetgum

Quercus rubra—Red Oak

Quercus macrocarpa—Bur Oak

Quercus palustris—Pin Oak

Sophora japonica—Japanese Pagoda Tree

Tilia cordata—Little Leaf Linden

Zelkova serrata (selected cultivars)—Japanese Zelkova—a) Green Vase, b) Village Green

Columnar Trees for Narrow Streets

Acer rubrum 'Armstrong'—Armstrong Columnar Red Maple

Carpinus betulus fastigiata—Pyramidal European Hornbeam

Ginkgo biloba 'Princeton Sentry'—Princeton Sentry Ginkgo Grafted Male Variety

Prunus sargentii 'Columnaris'—Columnar Sargent Cherry

Quercus robur 'Rose Hill'—Rose Hill English Oak

Backyard Stream

Establish a streamside (riparian) buffer—a vegetated area along the edge of the stream that protects it from pollution and erosion. This buffer zone absorbs pollutants and nutrients that would otherwise end up running directly into the stream. Plant material slows runoff and filters out pollutants and sediments. Well-planted streamside buffers are also a great low-cost way to control erosion. While plants slow runoff, filter pollutants, and help control erosion, trees cast shade on the stream, cooling the water, reducing algae growth and improving fish habitat. A buffer with trees and shrubs also becomes a home to birds, butterflies and other creatures. Trees and plants that grow in the buffer play a critical role in keeping streams healthy.

Caring for Your Stream

- Begin with a "no mow" or "no graze" zone along your stream banks. Make your buffer as wide as possible.
- Plant trees and shrubs in your buffer zone. They provide many long-lasting benefits and can be quite inexpensive to establish and maintain.
- Using shrubs will give your buffer a quick start; many reach full size in just a few years.
- Set your mower blades at least three inches high. Taller grass slows runoff, resists drought and needs less fertilizer
- Use hay bales or a special silt fence to prevent soil from washing off your site and into the stream while establishing your stream buffer.
- Cover piles of soil with tarps to protect them from rain.
- Use good farm practices by not cultivating the soil and planting winter cover crops to conserve soil.
- Contact your local DEP office or county conservation district if you see soil runoff in the stream from a nearby construction site.
- Limit your overall use of pesticides and herbicides, and use extreme caution when using them near streams.
- Keep grazing and other farm animals out of and away from the stream. Contact your county conservation district or the U.S. Fish and Wildlife Service to find out about farm fencing programs.
- Compost yard waste. Don't bag lawn trimmings or throw them into the stream; leave them in place for effective recycling of nutrients.
- Store firewood, trash and other materials well away from streams.

Winter De-icing

As snow piles up in the winter, we oftentimes turn to salt to melt snow and ice. Salt, however, causes adverse environmental impacts, especially on our streams and rivers, our drinking water source in Philadelphia. Excess salt can saturate and destroy a soil's natural structure and result in more erosion to our waterways. High concentrations of salt can damage and kill vegetation. Salt poses the greatest danger to fresh water ecosystems and fish. Studies in New York have shown that as salt concentrations increase in a stream, bio-diversity decreases. Excess salt can seep into groundwater and stormwater runoff. Effective ice control can help prevent excess salt runoff to our waterways.

De-icing in the Winter

There are many alternatives to salt including potassium chloride, calcium chloride and magnesium chloride, corn processing byproducts, and calcium magnesium acetate (CMA). Most can be found in your local hardware stores under various trade names, so check the labels for chemical content. While these alternatives can be spread in a dry form or sprayed as a liquid, their best use occurs when they are used with salt. They tend to increase the efficiency of salt thereby reducing the amount that needs to be applied. When over-applied, all chloride compounds can be harmful to the environment. Non-chloride corn byproducts recycled from mills and breweries have been shown to be effective de-icers as well. While they are often advertised as organic or natural, they can have extremely high phosphorus content, a major water pollutant. Numerous studies have shown calcium magnesium acetate (CMA) to be the most environmentally benign de-icer. Many northern states use CMA on roads in sensitive areas (wetlands, endangered species' habitat, drinking water supply, etc.). A couple of disadvantages with CMA however, is that it does not work well below 25° Fahrenheit and it is the most expensive de-icer. Because all de-icers can be harmful to the environment when applied in excess, the best strategy is to reduce the use of these chemicals as much as possible.

- The first line of defense should simply be to shovel sidewalks and pathways to keep them clear and to prevent ice from forming. Also, consider that salt and de-icers are not effective when more than 3 inches of snow have accumulated.
- Consider the temperature. Salt and calcium magnesium acetate (CMA) have a much slower effect on melting snow and ice at temperatures below 25° Fahrenheit.

Winter De-icing

- Track winter weather and only use salt and de-icers when a storm is about to come through. If a winter storm does not occur, sweep up any unused material, store, and reuse for the next big storm.
- Apply de-icing products discriminately, focusing on high-use areas and slopes where traction is critical. Apply the least amount necessary to get the job done. This will save money in product costs and will also help minimize property damage to paved surfaces, vehicles, and vegetation.
- Reduce salt and other chemicals by adding sand for traction.
- Become familiar with various de-icing products and wetting agents such as magnesium chloride and calcium chloride, which can improve the effectiveness of salt and reduce the amount needed.
- If you observe ongoing issues of ineffective ice management or examples of poor application, such as excess piles of road salt left to disperse, share your concerns with the property manager of your residence or business, or with the City of Philadelphia Streets Department. The Streets Department Hotline is 215-686-5560 and their website is www.phila.gov/streets.
- Plant native vegetation that is salt tolerant in stormwater drainage swales and ponds that may receive salt-laden runoff. Not only will these native species have a greater chance for survival, but they will continue to act as an effective buffer for our local waterways.
- Store salt and other products on an impervious (impenetrable) surface, such as a basement floor, to prevent ground contamination. Also store products in a dry, covered area to prevent stormwater runoff.

Planters (Container Gardens)

*These are just a few of the websites PWD came across during our research. These particular companies are not endorsed by PWD, nor can PWD verify any information on these companies.

Planters reduce impervious cover (impenetrable surfaces, such as concrete sidewalks, parking lots, etc.) by retaining stormwater runoff rather than allowing it to directly drain into nearby sewers and creeks. Planters offer "green space" in tightly confined urban areas by providing a soil/plant mixture suitable for stormwater capture and treatment. They can be used on sidewalks, parking areas, back yards, rooftops and other impervious areas.

Contained Planters

Contained planters are used for planting trees, shrubs, and ground cover. The planter is either prefabricated or permanently constructed and has a variety of shapes and sizes. Planters may range from large concrete planters to potted plants arranged on an impervious surface like the roof garden shown in the bottom photos to left. Planters can be placed on impervious surfaces like sidewalks, back yards, rooftops, or along the perimeter of a building in order to catch stormwater runoff from the roof. Contained planters may drain onto impervious surfaces through holes in their base or by an overflow structure so the plants do not drown during larger rain events.

Plants should be hardy and self-sustaining native species with little need for fertilizers or pesticides. Planters can be made of stone, concrete, brick, wood, or any other suitable material. However, treated wood should be avoided if it leaches any toxic chemicals.

Planters can be permanently fixed in place or easily moved around to enable you to change the look of the planter garden that you have created. Numerous manufactured pots and planters are available at your local hardware or landscaping store. You can create a "do-it-yourself" planter or use recycled items to create planters. Homemade planters may be constructed by stacking and fastening wood beams or laying and mortaring stones. There are many websites with detailed instructions to help with this type of project, such as www.taunton.com, www.hgtv.com, www.diynetwork.com.*

Creating a Contained Planter

- Purchase planters at the local hardware or landscaping store, if you are not building your own planter box.
- Drill holes in the bottom of the planter if they are not already there.
- Fill the planter with soil and leave a 12 inch area from the soil to the top of the planter.
- Choose native drought and saturation tolerant plants and trees to plant in the planter.
- Occasionally turn or till the soil to improve infiltration.

Rain Barrels

Please read the Disclaimer on the inside cover, if you are interested in installing this project.

A rain barrel collects and stores stormwater runoff from rooftops. By detaining (temporarily holding) the stormwater runoff during a rain event, you can help add capacity to the city's sewer system and reduce sewer overflows to our creeks and rivers, our drinking water source. Also, the collected rain water can be reused for irrigation to water lawns, gardens, window boxes or street trees.

Rain barrels can be purchased on-line or they can be built. If you would like to purchase a rain barrel on-line, view the list of retailers we came across in our research.*

Whether you buy or build a rain barrel, the most important thing to remember is that they are only effective at stormwater management when the stored water is emptied in between storms, making room in the barrel for the next storm.

Building a Rain Barrel

- Rain barrels help lower water costs when the stored water is recycled for lawn irrigation, for example.
- Rain barrels help reduce water pollution by reducing stormwater runoff, which oftentimes picks up pollutants in its path, such as oil, grease and animal waste, and transports these pollutants to the nearest creek, river or stormdrain.
- Storing rainwater for garden and lawn use helps recharge groundwater naturally.

Materials Needed for Building a Rain Barrel

- One 55 gallon drum
- One 5 foot section vinyl garden hose
- One 4 foot diameter atrium grate (basket used in garden ponds and pool skimmers)
- One ½ inch PVC male adapter
- One ¾ inch x ½ inch PVC male adapter
- One 5 foot section of drain hose, drain line, or sump pump line (1¼ inch)
- One 1¼ inch female barbed fitting and
- One 1¼ inch male threaded coupling
- One vinyl gutter elbow
- Drill (or a hole saw)
- Router, jig saw or coping saw
- Measuring tape

Optional:

- Waterproof sealant (silicone caulk, PVC glue)
- Teflon tape
- Fiberglass window screen material or mosquito netting
- Cinder blocks or wooden crate

***Rain Barrel Distributors**

Clean Air Gardening
Composters.com
Day's Garden
ENVIRO ENERGY International Inc.
Gardener's Supply Company
GARDENWARe
Green Culture
Green Venture
Jerry Baker
Lee Valley Tools
Midwest Internet Sales
New England Rain Barrel and Composter Company
RainCatcher 4000
Plow&Hearth
Rain King
Rainsaver USA
Real Goods
Riversides
The Rain King
Spruce Creek Rainsaver
The Rain Pail
Urban Garden Center

This is not a comprehensive list of rain barrel distributors or suppliers. This is a list of rain barrel distributors that PWD came across during our rain barrel research. The particular companies are not endorsed by PWD, nor can PWD verify any information on these companies.

Instructions for Building a Rain Barrel

Step 1. Cut Holes in Rain Barrel:

- Cut lower drain hole: Measure about 1 inch above the bottom of the barrel (55 gallon drum) where the barrel side begins to rise toward the top. Using a ¾ inch bit (or hole saw), drill a hole through the barrel.
- Cut upper drain hole: Mark the upper drain hole according to where you want the overflow to be in the upper region of the barrel and in relationship to the lower drain. Use a 1⅝ inch hole saw to cut out the overflow hole.
- Cut top hole for atrium grate (filter): Using the atrium grate as a template for size, mark a circle at the center of the top of the drum (locating the rainwater inlet in the center of the barrel lets you pivot the barrel without moving the downspout). Drill a ½ inch hole inside of the marked circle. Use a router, jigsaw or coping saw to cut until the hole is large enough to accommodate the atrium grate, which filters out large debris. Don't make the hole too big—you want the rim of the atrium grate to fit securely on the top of the barrel without falling in.
- Cut notch to hold hose: Using a ½ inch bit or hole saw, cut out a notch at the top of the barrel rim (aligned so that it is above the lower drain hole). The notch should be large enough so that the end of the hose with the adapter will firmly snap into place.

Step 2. Set Up Barrel and Modify Downspout:

- Set up barrel: Since water will only flow from the garden hose when the hose is below the barrel, place the barrel on high ground or up on cinder blocks or a sturdy wooden crate underneath your downspout, making sure the barrel is level.
- Modify your downspout: Cut your existing downspout using a saw so that the downspout's end can be placed over the top of your rain barrel. Use a vinyl downspout elbow that fits the size of your downspout (usually 3 inch or 4 inch) to aim the stormwater into the rain barrel or just simply place the barrel right under the downspout.

Step 3. Assemble Parts:

- Attach garden hose to lower drain hole: Screw in the ½ inch PVC male adapter to the lower drain hole. The hard PVC threads cut matching grooves into the soft plastic of the barrel. Unscrew the ½ inch PVC male adapter from the hole. Wrap threads tightly with teflon tape (optional). Coat the threads of the coupler with waterproof sealant (optional). Screw the coated adapter back into the hole and let it sit and dry for 24 hours (optional). Attach 5 foot garden hose to the PVC male adapter. Attach the ¾ inch x ½ inch PVC

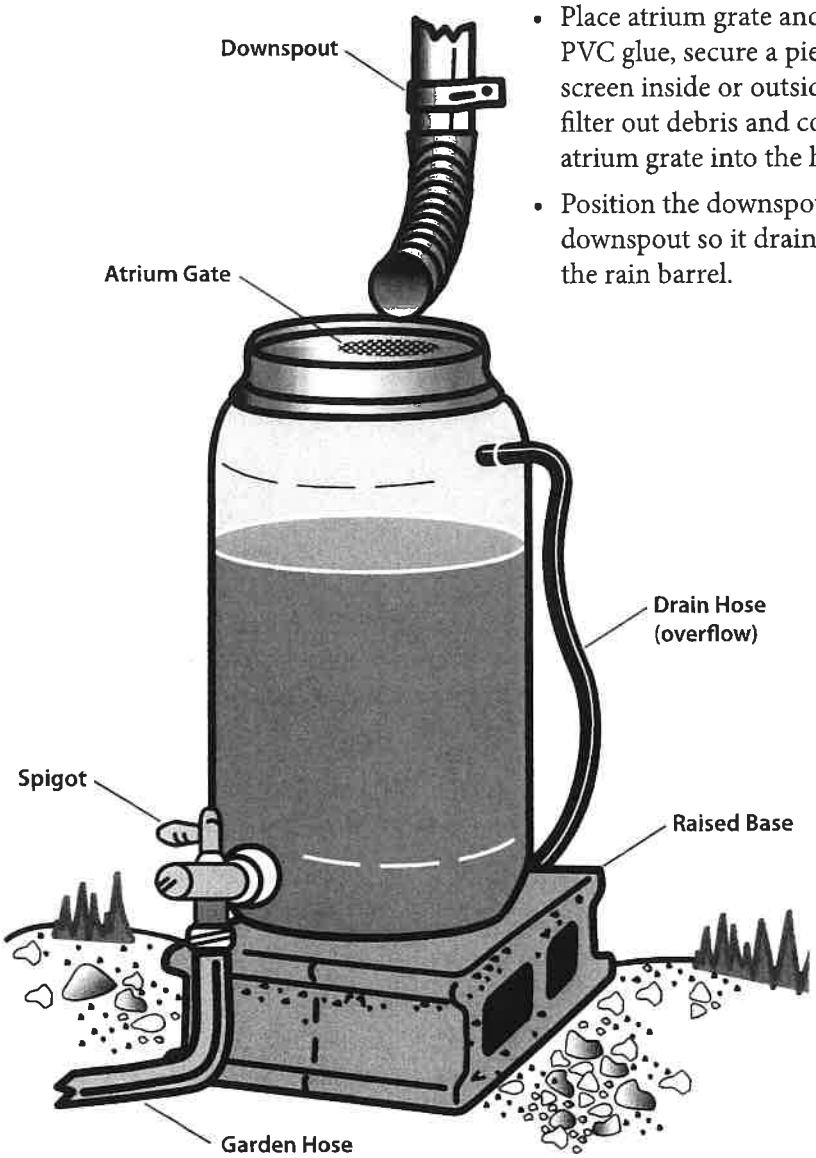
Don't forget to empty your rain barrel after the storm!

male adapter to the other end of the hose (this can be readily adapted to fit a standard garden hose).

- Attach drain hose (overflow hose) to upper drain hole: Put the 1¼ inch male threaded coupling inside the barrel with the threads through the hole. From the outside, screw the 1¼ inch female barbed fitting onto the threaded coupling. Use silicone on the threads (optional). Attach 5 foot section of drain hose to upper fitting and connect it to where the original downspout was connected (sewer riser) in order to transport the overflow into the sewer.

  The overflow must be conveyed safely away from your property and your neighbor's property. If your downspout was not originally connected to the sewer, place a splash pad on the ground under the overflow hose to direct the flow away from the foundation of your home.

- Place atrium grate and screen in top hole: Using PVC glue, secure a piece of fine mesh window screen inside or outside of the atrium grate to filter out debris and control mosquitoes. Place the atrium grate into the hole (basket down).
- Position the downspout: Position the end of your downspout so it drains onto the atrium grate on the rain barrel.



Rain Gardens

Please read the Disclaimer on the inside cover, if you are interested in installing this project.

A rain garden uses native plants and landscaping to soak up rain water (stormwater) that flows from downspouts or simply flows over land during a rain event. The center of the rain garden holds several inches of water, allowing the stormwater to slowly seep into the ground instead of flow directly from your roof, yard or driveway into the nearest storm drain, creek or river.

Creating a Rain Garden

- A rain garden allows 30% more water to seep into the ground than a conventional lawn (South River Federation & Center for Watershed Protection, 2002). This increase helps replenish the groundwater supply (important during a drought!), and also helps hold back stormwater from contributing to the stormwater and sewage overflows into nearby creeks and rivers.
- A rain garden reduces the amount of water pollution that would otherwise eventually reach the streams and rivers through stormwater runoff. Scientific studies have demonstrated that the first inch of rainfall is responsible for the bulk of the pollutants in stormwater runoff. A rain garden is designed to temporarily hold this one-inch of rainfall and slowly filter out many of the common pollutants in the water, such as oil, grease, and animal waste, that would otherwise flow into the waterways via the nearest stormdrain or stormwater runoff.
- The native plants used in rain gardens require less water and less fertilizer than conventional lawns. They also require less maintenance and provide habitat for birds and other wildlife.

Materials

- Plants for the garden (see plant list)
- Hose, rope or string
- Level
- Shovel or spade
- Measuring tape
- Humus or other soil amendments (optional)
- Downspout extension (also optional).

Instructions

Before starting this project, please conduct an Infiltration Test (pages 26–27) to determine if your soil conditions are adequate for a rain garden.

Step 1. Size and Locate your Rain Garden:

- First, measure the footprint of your house by getting the area (length x width) of your house and then determine how much of your rooftop area drains to the downspout you are disconnecting to your garden (for gutters with a downspout at

Sizing Example

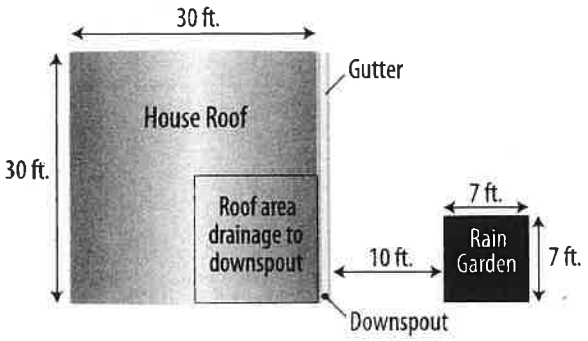
If the area of the house is 30 ft. x 30 ft. and ¼ of this area drains to one downspout:

15 ft. x 15 ft. = 225 ft.^{2}

20% of 225 ft.^{2} = 45 ft.^{2}

30% of 225 ft.^{2} = 67.5 ft.^{2}

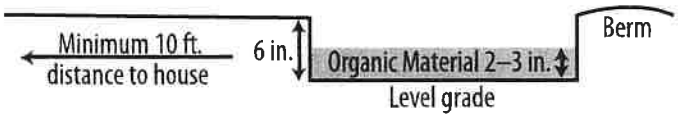
The rain garden area should be between 45 and 67.5 square feet, depending on soil type (use 20% for sandier soils).



each end, assume that half the water goes to each downspout). Refer to the sizing example for guidance. Be sure you measure the house footprint only, but include the area of any driveway or patio areas that will drain to the rain garden (do not take the roof slope into account). The surface area of your rain garden should be between 20% and 30% of the roof area that will drain into the rain garden.

- Locate the garden at least 10 feet away from your house and your neighbor's house (to prevent water leakage), and create the garden in the lowest point of this section of your lawn, maintaining a minimum 1% slope from the house down to the rain garden. If your yard drain is also located in this section of the lawn, you can build the rain garden around the drain. The bottom of the rain garden would be a few inches lower than the drain and the overflow would actually be in the middle of the rain garden.
- If you build the rain garden around your yard drain, when it fills up with water, the water that overflows from the garden will be conveyed safely to the yard drain. If you are not building around the yard drain, it is imperative that the overflow is safely conveyed to a drain nearby to prevent it from flowing into your neighbor's property.
  Make sure the drain is in a suitable location in relation to the rain garden in order to effectively manage the garden's overflow.

Garden Cross Section



- When finding the right spot for your rain garden, keep in mind that you will want to create a shallow ditch or swale that carries the stormwater runoff from the disconnected downspout to the rain garden. The swale will help slow the runoff before it reaches the rain garden.
- Finally, lay out the boundary of the garden with a rope.

Step 2. Dig the Rain Garden:

- To enable the rain garden to hold several inches of water during a storm, you'll have to dig a hole 3 to 4 inches deep across the entire surface of the rain garden. If the soil lacks organic material, you can improve it by digging the hole 5 to 6 inches deep, and adding 2 to 3 inches of humus or other organic material. Make sure the bottom is level, but gently slopes from the bottom to the ground level around the edges. If the drop at the edge is too steep, you might get some erosion around the edges.

- Next, test how the garden will hold water during a storm by letting water flow into the rain garden from a hose placed at the downspout. Based on this test, make any necessary adjustments (e.g., create a berm on the lower side of the garden using the diggings—the soil that was excavated).

Step 3. Add Plants to the Rain Garden:

- Choose native plants that won't require much watering, but make sure they can withstand wet soils for up to 24 hours. (Refer to the list of native plants below.)
- Also, take into account how much sun your garden receives. It's often helpful to draw out a planting plan before you start, and mark planting areas within the garden with string. After planting, weeding may be required until the plants become established. You may also need to periodically prune some of the plants to let others grow. In the winter, leave dead or dormant plants standing and cut back in the spring.
- Your garden may need a bit more maintenance than a lawn in the beginning, but in the long run it will be easier to care for and provide many added benefits!

Native Plants Recommended by Fairmount Park for Rain Gardens

Perennials

Bee-balm—*Monarda didyma*
Black-eyed Susan—*Rudbeckia hirta*
Blazing star—*Liatris spicata*
Blue flag iris—*Iris versicolor*
Boneset—*Eupatorium perfoliatum*
Butterfly weed—*Asclepias tuberosa*
Cardinal flower—*Lobelia cardinalis*
Early goldenrod—*Solidago bicolor*
Golden alexander—*Zizia aurea*
Joe-pye weed—*Eupatorium purpureum*
New England aster—*Aster novae-angliae*
New York ironweed—*Veronia novaborescensis*
Obedient plant—*Physostegia virginiana*
Ox-eye—Heliopsis helianthoides
Solomon's seal—*Polygonatum biflorum*
White snakeroot—*Eupatorium rugosum*

Grasses and Grass-like plants

Big bluestem—*Andropogon gerardii*
Bottle brush grass—*Elymus hystrix*
Canada wild rye—*Elymus canadensis*
Path rush—*Juncus tenuis*
Purple-top—*Tridens flavus*
Soft rush—*Juncus effusus*
Switch-grass—*Panicum virgatum*
Virginia wild rye—*Elymus virginicus*

Ferns

Christmas fern—*Polystichum acrostichoides*
Hay-scented fern—*Dennstaedtia punctilobula*
Rattlesnake fern—*Botrychium virginianum*
Sensitive fern—*Onoclea sensibilis*

Shrubs

Gray dogwood—*Cornus racemosa*
Highbush blueberry—*Vaccinium corymbosm*
Mountain laurel—*Kalmia latifolia**
Ninebark—*Physocarpus opulifolius*
Pasture rose—*Rosa carolina*
Red osier dogwood—*Cornus sericea*
Spicebush—*Lindera benzoin*
Sweet pepperbush—*Clethra alnifolia*

*Pennsylvania's state flower

When purchasing plants, pay close attention to the scientific names to ensure the correct species are selected.

Wildflower Meadow

Wildflower meadows present excellent opportunities for stormwater management, promoting groundwater infiltration, water quality treatment, and even flood control. Also, when using native plants in a meadow you are not only providing an aesthetically pleasing landscape, but preserving native species and biodiversity, and creating habitat for wildlife. Meadows allow you to spend less time mowing, less time applying fertilizers and lawn chemicals, and less time watering in the summer months. This low maintenance structure helps protect our nearby local streams from pollutants and other chemicals, in addition to flooding conditions, thereby helping to protect the Delaware and Schuylkill Rivers, the source of our drinking water in Philadelphia.

Creating a Wildflower Meadow

Step 1. Site Selection: First, you need to choose a suitable location, preferably an open sunny site that gets at least six hours of sun every day. It should have good air movement. This helps keep diseases down, and the movement caused by wind will make plants sturdier, and stems stronger. The site should have few weeds. An already cultivated site such as a field or garden plot is ideal. A lawn can work too. The hardest is an overgrown garden bed, or old field full of aggressive weeds and grasses. A site next to such an area to transform is also difficult, due to weed seeds blowing in. A site next to a formal landscape may also be a hard sell. In such formal areas, an informal transition area may be necessary.

Step 2. Plant Selection: Plant selection is important for long bloom, as noted already, but more importantly for species that will last under your conditions. Soil type is not as important as whether the site is dry or moist. A dry site is best. The key is to have a diversity of species, as found in nature, with a mix of graminoides (grasses and grass-like plants) and forbs (flowering meadow wildflowers). If you don't create your own mixture, buy a good quality seed mix from a reputable supplier. When it comes to these seeds, you truly get what you pay for. Inexpensive mixes often contain mainly annuals which are gone after the first year, contain non-native species, seeds that have poor germination, potential weedy species, or just a lot of seed debris. Another consideration under species selection, whether you buy a mix or make your own mixture, is whether you want a short term (1 to 5 years) or longer term meadow. In the former you may have more annuals for color up front, but keep in mind that they may be out competed with weeds after a few years. A long term meadow may have mainly perennials which may take several years to begin a good display, but will last and out compete many weeds.

Wildflower Meadow

The number of plants of any one type will depend on how you will be viewing the meadow. If seeing it from a distance, you'll want to use larger numbers of each plant type, and place them in sweeping masses. If creating a small area, or one viewed at close range, you may have few of any one type plant, and have them all mixed.

Step 3. Site Preparation: This is the step often overlooked, yet the key to success or failure. Since these wildflowers are usually less competitive than weeds, the site should contain no weeds or weed seeds. Unless the site has been cultivated already, with few to no weeds, there are several methods you may use.

You may smother vegetation with black plastic for a whole growing season. You may also smother existing growth with thick layers of leaves, grass clippings, or newspapers. Another method is to plant a summer buckwheat crop, cut and tilled in before going to seed, followed by fall planting of winter wheat, cut and tilled in late winter. You may need to repeat this a second season. Or you may repeat deep soil tillage every three weeks for a full growing season. If it's a lawn with no weeds, remove the sod using a sod-cutter that can be rented from equipment rental firms. Many use a systemic herbicide, but avoid those that are residual (last in the soil).

Step 4. Sowing or Planting: You may sow in spring or early summer, which favors grasses over the forbs. Keep the spring-sown meadow watered as you would a newly seeded lawn, often for a month or two. Sowing in early fall favors the forbs, as some grass seeds rot then. Since many seeds will either not germinate until the following spring, or germinate and not grow until then, you should also use annual rye as a winter cover crop with fall sowings. Avoid sowing in mid to late summer when there may be droughts or seeds drying out before germinating. For sowing, aim for about 80 seeds per square foot. In several years this will result in one or two plants in this space. Of this number per square foot, for spring sowing use about 60 forb and 20 grass seeds. This is about 9 lbs. and 3 lbs. per acre. For fall sowing, use a higher proportion of grass seeds.

For small areas (for instance under 1000 square feet), consider using already-germinated small plants you can buy in trays as "plugs." These are more costly than seeds, but will establish more quickly. You can find these at specialty suppliers, either local, mail-order, or online.

Step 5. Post-planting management: In the first two years, seeds of annual and biennial weeds still in the soil or blown in will grow faster than your perennial wildflowers. Don't allow such weeds the first year to get above one foot tall before cutting back to four to six inches high. The wildflowers will, for the most part, remain short and below this height. The second year, cut back to about one foot high since plants will be larger. A weed or string trimmer works well for this. Don't pull weeds, as this may also disturb wildflower seedlings. Don't use herbicides as these may drift, killing large patches of both weeds and wildflowers!

In the third and future years, mow it close to the ground. This should be done in late fall or early spring, removing the debris from mowing. This exposes the soil to the rapid warmth from the sun in spring, encouraging your wildflowers over cool-season weeds. Learn your wildflowers, and over the years you can selectively weed out any weeds or woody plant seedlings.

Dry Well

Please read the Disclaimer on the inside cover, if you are interested in installing this project.

Materials

- Measuring tape
- Shovel
- Saw
- Wheelbarrow
- Vinyl downspout elbow to fit your downspout (typically 3 in. or 4 in.)
- Landscape non-woven geotextile fabric
  - Make sure the fabric is porous enough to allow water to pass through it.
- Crushed stone
  - Use stone that is approximately 1–1½ in. diameter.
  - Wash the stone to make sure that it is clean. You can use a sieve to remove fine material if the stone seems to have a lot of small particles.
  - It is important that the stone is washed (no dust or particles) and that the stone is uniformly the same size.
  - The stone does not have to be very large; it just has to be roughly of a similar size to get the maximum amount of void space in the stone while maintaining the structure of the well.

Dry wells are small, excavated pits, filled with stone or gravel that temporarily stores stormwater runoff until it infiltrates (soaks) into the surrounding soil. The stormwater can come straight off of the roof of your house via a downspout that either indirectly or directly connects to the dry well. It can travel indirectly to the dry well through a grassy swale or it can travel directly into the well through a pipe. This design guide describes how you can disconnect your downspout to a swale and dry well that is sized based on the included sizing table (noted below). Dry wells help protect our rivers and streams in combined and separate sewered areas. They help add capacity to Philadelphia's sewer system during heavy rainfalls by helping prevent the stormwater runoff from reaching the system and instead allowing the runoff to soak into the surrounding soil. In separate sewered areas, the impact of stormwater runoff on neighborhood streams, is reduced. By infiltrating the stormwater runoff on land, the combined (sewage and stormwater) sewer overflows into the Delaware and Schuylkill Rivers are reduced, thereby decreasing pollution in our streams, lessening flooding impacts and improving water quality in our rivers, our drinking water source. Dry wells also recharge groundwater through infiltration, which leads to more flow in streams during dry weather (when it is not raining) and less streambank erosion during wet weather (when it is raining).

Building a Dry Well

Site Preparation

- Conduct an Infiltration Test (see pages 24–25) to determine if your soil conditions are suitable for a dry well.
- Make sure buried electrical, telephone, and TV cables and gas piping are not going to be a problem in the area that you will be digging your dry well. If you don't know where they are located, call PA One Call at 1-800-242-1776 at least three days before you dig.
- Install leaf guards to prevent leaves and other plant material from entering the downspout and clogging the dry well.
- Determine the size of the well. Read through the Dry Well Sizing section of this fact sheet.
- Determine the volume of crushed stone you will need.
  Volume of Stone = Dry Well Area x 1½ feet
  For example: 33 square feet x 1½ feet = 49.5 cubic feet of stone.

Dry Well

Dry Well Sizing

- Refer to the sizing table. Decide what size storm you would like to store and infiltrate in your dry well. Find the closest number in Column A. About one-third of storms in the Philadelphia area are 0.25 inches or less, 60% are 0.5 inches or less, and 85% are 1.0 inch or less.
- Estimate the roof area draining to the dry well (length [ft.] x width [ft.] = area in square feet). Find the closest value in Column B for the storm depth you have chosen. At this point, you have narrowed your choice down to just one line of the table.
- Find the area required for your dry well in Column D. When you multiply your dry well length and width, the resulting number (area) needs to be at least as great as the number in Column D. Columns E and F show examples of lengths and widths that will work.
- Determine whether your yard and budget will allow you to build a dry well of this size with a safe overflow. If not, choose a smaller storm and repeat the steps. Storing a larger storm provides a greater benefit, but also requires more space and costs more. Storing even the smallest storm in the table will provide benefits.
- **The dry well should have a safe overflow**, such as an overflow to your yard drain. In larger storms, your dry well will fill up, and you need to make sure that the overflow doesn't damage your property or your neighbors' properties. Keep in mind that the yard drain has to be slightly downhill from the dry well.
- **The dry well should be at least 10 feet from your house** and any other buildings that are level with yours. It should be at least 25 feet from buildings that are downhill from the dry well.

Example

Storm Depth =
0.5 inches (Lines 4-6, Column A)

Roof Area =
250 square feet (Line 5, Column B)

Dry Well Area =
19 square feet (Line 5, Column D)

Possible Dimensions:
7 feet long by 3 feet wide =
21 square feet
(Line 5, Columns E and F)

4 feet long by 5 feet wide =
20 square feet

6 feet long by 3.5 feet wide =
21 square feet

	A Storm Depth (in.)	B Roof Area Draining to Dry Well (sq. ft.)	Dry Well Dimensions			
			C Depth (ft.)	D Area (sq. ft.)	E Example Length (ft.)	F Example Width (ft.)
1	0.25	100	1.5	3.8	2	3
2	0.25	250	1.5	9.4	4	3
3	0.25	500	1.5	19	7	3
4	0.5	100	1.5	7.5	3	3
5	0.5	250	1.5	19	7	3
6	0.5	500	1.5	38	13	3
7	1.0	100	1.5	15.1	6	3
8	1.0	250	1.5	38	13	3
9	1.0	500	1.5	75	26	3

Dry Well

Step 1. Modify your downspout. Cut your existing downspout close to the ground using a saw so that a vinyl downspout elbow can fit over the disconnected downspout (usually 3 or 4 inches). The elbow should aim the stormwater runoff into the swale

Step 2. Dig a swale—a small channel or ditch starting from the point below the disconnected downspout to the dry well location. The swale should be just a few inches deep and wide. The swale should slope downward from the downspout to the dry well. The runoff draining from the disconnected downspout through the swale should drain readily toward the dry well.

Step 3. After preparing the site and determining the size of your well, shape the well, using the Dry Well Sizing Table.

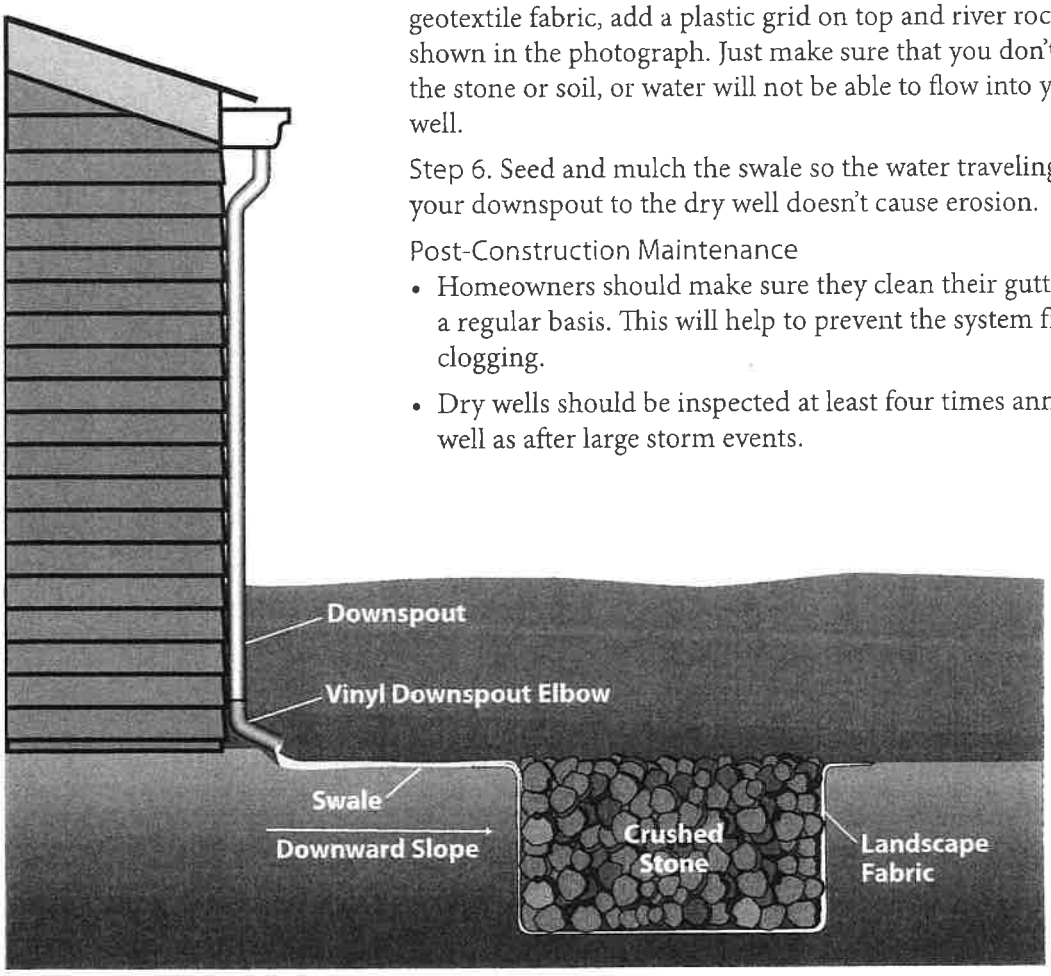
Step 4. Line the well with landscape fabric (non-woven geotextile fabric or filter cloth). Make sure it is porous enough to allow water to pass through it. Also, excess fabric should be folded over the edges of the well. The fabric prevents surrounding soil from getting into the system and clogging it up.

Step 5. Fill the well with the crushed stone. You can either a) fill the well with stones all of the way to the top until flush with the surrounding soil, b) fill the well with stones just a few inches from the top of the well, add a layer of geotextile fabric and backfill over the well with soil to plant in it (make sure the layer of fabric is between the stone and soil), or c) fill the well with stones just a few inches from the top of the well, add a layer of geotextile fabric, add a plastic grid on top and river rocks, as shown in the photograph. Just make sure that you don't mound the stone or soil, or water will not be able to flow into your dry well.

Step 6. Seed and mulch the swale so the water traveling from your downspout to the dry well doesn't cause erosion.

Post-Construction Maintenance

- Homeowners should make sure they clean their gutters on a regular basis. This will help to prevent the system from clogging.
- Dry wells should be inspected at least four times annually as well as after large storm events.



Infiltration Test

It is important that water infiltrate well even during saturated conditions. Conduct your infiltration test after a rain storm.

An infiltration test will help you determine if the soil on your property is suitable for certain types of stormwater management measures, such as a dry well or rain garden. An infiltration test measures how quickly water can soak in and flow through the soil. It is important to know how your soil infiltrates water before building a dry well, rain garden or any other stormwater management structure.

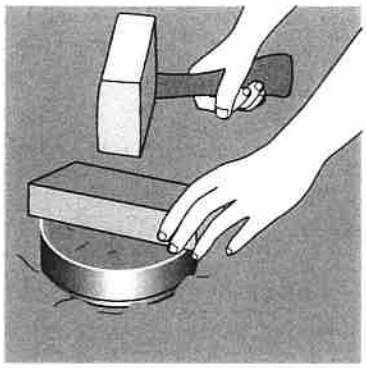
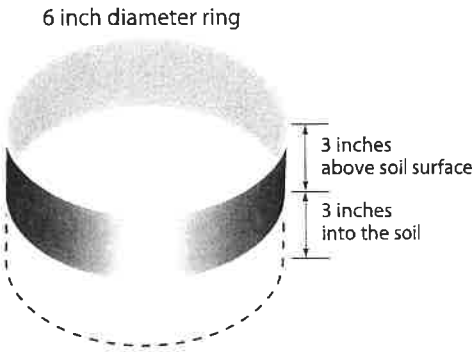


Figure 1
Using the hand sledge and block of wood, drive the 6 inch diameter ring, beveled edge down, to a depth of three inches.

Materials

- 6 inch diameter ring
- Hand sledge and wood block
- Plastic wrap
- 500 mL plastic bottle or graduated cylinder
- Water
- Stopwatch or timer
- Pen and paper



Step 1. Drive Ring into Soil:

- Clear the sampling area of surface residue, etc. If the site is covered with vegetation, trim it as close to the soil surface as possible.
- Using the hand sledge and block of wood, drive the 6 inch diameter ring, beveled edge down, to a depth of three inches (see Figure 1).
- If the soil contains rock fragments, and the ring cannot be inserted to the depth, gently push the ring into the soil until it hits a rock fragment.

Step 2. Firm Soil:

- With the 6 inch diameter ring in place, use your finger to gently firm the soil surface only around the inside edges of the ring to prevent extra seepage. Minimize disturbance to the rest of the soil surface inside the ring.

Step 3. Line Ring with Plastic Wrap:

- Line the soil surface inside the ring with a sheet of plastic wrap to completely cover the soil and ring as shown in Figure 2. This procedure prevents disturbance to the soil surface when adding water.

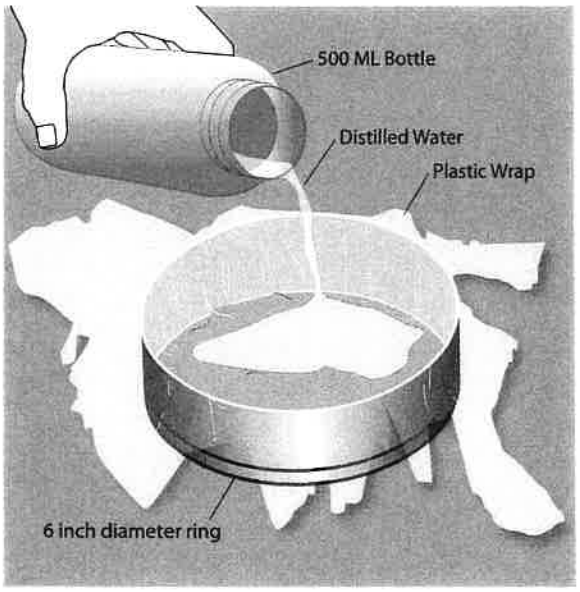


Figure 2
Pour the 444 mL of water (1 inch of water) into the ring lined with plastic wrap.

Infiltration Test

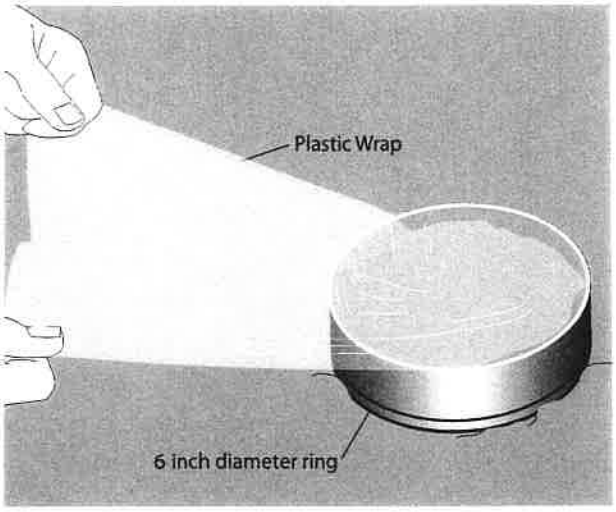


Figure 3
Remove the plastic wrap by gently pulling it out, leaving the water in the ring.

Step 4. Add Water:

- Fill the plastic bottle or graduated cylinder to the 444 mL (1 inch) mark with water. Pour the 444 mL of water (1 inch of water) into the ring lined with plastic wrap as shown in Figure 2.

Step 5. Remove Wrap and Record Time:

- Remove the plastic wrap by gently pulling it out, leaving the water in the ring (Figure 3). Note the time. Record the amount of time (in minutes) it takes for the 1 inch of water to infiltrate the soil. Stop timing when the surface is just glistening. If the soil surface is uneven inside the ring, count the time until half of the surface is exposed and just glistening. Record the time.

Step 6. Repeat Infiltration Test:

- In the same ring, perform Steps 3, 4, & 5 with a second inch of water. Record the number of minutes elapsed for the second infiltration measurement. Repeat the test (Steps 3, 4, & 5) a few more times. All of the tests should be conducted consecutively. If the test continues to yield the same results, you will have a good idea of the saturated infiltration rate. If the soil infiltrates the water under 1 hour, your soil is ready for a dry well, rain garden or any of the other structural projects in this manual.

Photo Credits

Vehicle Maintenance
Washington State Puget Sound Action Team

Lawn & Garden Care
Washington State Puget Sound Action Team

Pet Waste
Washington State Puget Sound Action Team

Vehicle Washing
Washington State Puget Sound Action Team

Tree Planting
page 8 – TreeVitalize

Backyard Stream
NAM Planning & Design

Winter De-Icing
Chuck Leonard

Planter Boxes
Multiple planters – Miriam Manon
Single planter – Clint Bautz

Rain Barrels
page 15 – Three Rivers Wet Weather Demonstration Program
page 16 – Michael Pickel

Rain Gardens
page 19-20 – Roger Bannerman, Wisconsin Department of Natural Resources

Creating a Wildflower Meadow
Robin Sasek, CDM

Dry Wells
Wissahickon Valley Watershed Association

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TreeVitalize

A partnership to restore tree cover in Southeast PA

To stop your rain from going down the drain, plant more trees. Trees catch rainfall on leaves, branches and trunks. A single London Plane tree will intercept over 130 gallons during a minor (1/4 inch) rainstorm.

Plus, trees help conserve water.

For more info on TreeVitalize planting projects, Tree Tender education classes and homeowner rebates go to **www.treevitalize.net.**

TreeVitalize Partners

TreeVitalize — A partnership to restore tree cover in Southeast PA

The Pennsylvania Horticultural Society

AQUA Pennsylvania

DCNR

DEP

Eagles

Fairmount Park — Philadelphia's Park System

Morris Arboretum of the University of Pennsylvania

PECO — An Exelon Company

PLNA — Pennsylvania Landscape & Nursery Association

PennState — College of Agricultural Sciences

Forest Service — U.S. Department of Agriculture

William Penn Foundation

Printed on recycled paper

Living Streamside

Guide to Designing your Property and Protecting our Watershed

BACKYARD BUFFER PROGRAM

No-Mow Zone

Tip Sheet #1

Description:

- A stream buffer where mowing does not occur and Pennsylvania native plants are grown.
- You decide the width (5 feet, 10 feet or more). The wider the buffer, the greater the services and functions provided.

Functions/Benefits:

- Improves water quality reaching the stream
- Low growing dense grasses and wildflowers trap pollutants
- Creates wildlife habitat
- Reduces area of mowed lawn. Reduced mowing saves gas and money and protects the atmosphere
- Shrubs and trees provide shade to cool the stream
- Stabilizes soil and reduces bank erosion
- Slows stormwater runoff and increases infiltration

Photo 1

Photo 2

Photo Credits: 1) Western Michigan University, Environmental Safety and Emergency Management, 2) Sustainable Walworth, Walworth County Wisconsin

For more information, contact:
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215-685-4945
Jeanne.waldowski@phila.gov
http://www.phillywatersheds.org/public

Living Streamside

Guide to Designing your Property and Protecting our Watershed

BACKYARD BUFFER PROGRAM

No-Mow Zone

Tip Sheet #1

General Installation:

1. Remove existing sod/turf from top of bank by a) renting a sod cutter to remove or b) smothering with black plastic or newspaper (for a growing season).
2. Till soil and add/mix in amendments (topsoil, compost or other organics).
3. Seed with native mix of wildflowers and grasses (suppliers can help recommend specific mixes based on your site conditions).
4. Install 100% biodegradable fiber fabric mat or erosion control blanket over seeded area.
5. Plant container plants (trees, shrubs and/or perennials). Cut an "X" in biodegradable fabric mat/blanket and dig a hole for the plant to be installed.
6. Water until vegetation becomes established.
7. For meadow mix, mow once/year (early spring) to 6 inches in height (don't mow any shorter).

Sources:

100% biodegradable fiber fabric mat/erosion control blankets (weed and seed free):

- Pennington Seed Starter Mat® (available at local home/hardware stores)
- Curlex® erosion control blanket (available at www.benmeadows.com)

Seed mixes/packets:

- Bowman's Hill Wildflower Preserve (packets only) web: www.bhwp.org, phone: (215) 862-2924
- Ernst Conservation Seed (retail/$25min order), web: www.ernstseed.com, phone: (800) 873-3321
- Pinelands Nursery & Supply (bulk orders, 5 lb min), web: www.pinelandsnursery.com , phone: (800) 291-9486

Cost Estimates:

100% biodegradable fiber fabric mat/erosion control blankets (weed and seed free):

Pennington Seed Starter Mat® - size/cost: 39" x 20' $15/roll

Curlex® erosion control blanket- size/cost: 1' x 101' $45/roll

Seed Mixes:

Riparian Buffer Mix (similar to Basin Bottom Mix) from suppliers: 1/2 to 1/3 lb per 1,000 Sq Ft ($40-75 per lb)

Bowman's Hill Wildflower Preserve Seed Packets: $2-3/packet, yield 8-10 pots of plants

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- List of native plant nurseries: Pennsylvania Native Plant Society (www.pawildflower.org)
- Adopt-a-buffer Toolkit, Delaware Riverkeeper Network (www.delawareriverkeeper.org/pdf/Toolkit-Final.pdf)

Note: PWD does not endorse any products or suppliers identified nor can they verify any information/claims these sources provide. Design and installation of a project is site specific and the responsibility of the property owner.

For more information, contact:
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Philadelphia Water Department (Office of Watersheds)
215-685-4945
Jeanne.waldowski@phila.gov
http://www.phillywatersheds.org/public

Rain Gardens: Gardens With Benefits!

Whether we get our drinking water from groundwater or our creeks and rivers, rainwater keeps it all flowing. It makes sense (as well as cents) to capture, protect, and conserve rainwater as naturally as possible.

Rain comes from nature, but stormwater runoff is manmade. During a common rain or snow storm, our roofs, sidewalks, and driveways create thousands of gallons of runoff that cause flooding and soil erosion. Stormwater runoff also carries pollution such as motor fluids, trash, lawn chemicals and bacteria into local waterways.

In southeastern Pennsylvania, southwestern New Jersey, and most of Delaware, creeks flow to the Delaware River and Bay. The health of these vitally important waterways depends upon how we conserve and protect water resources far upstream.

Other Ways to Slow the Flow and Reduce Stormwater Pollution

- **Grass-cycle**
  No need to chemically fertilize your lawn when you allow grass clippings to remain on the ground and compost naturally. Bonus — no raking required!
- **Use a rain barrel**
  They come in all shapes and sizes, and they help save money on your water bill! Water collected in rain barrels can be used to water gardens, potted plants, and wash down outdoor surfaces and vehicles!
- **Choose alternative pavements and pavers**
  Driveways, sidewalks, parking areas and pathways can be created with paving materials that allow water to soak through them and into the ground below.
- **Service your car and fuel with care**
  Oils and other engine fluids are extremely toxic. Regular maintenance of vehicles and being careful at the gas pump can prevent this pollution from leaking into our waterways.
- **Pick up the Poo**
  Pet waste is not a good natural fertilizer, but it is a great source of bacterial pollution when it gets washed into storm drains and local waterways. Flush it down the toilet or pick it up with a biodegradable bag and place it in the trashcan.
- **Keep litter off your sidewalks and streets**
  Trash in creeks and rivers gets there from someone throwing it on the ground. Rain carries it to the waterways.
  Clean streets = clean streams!
- **Choose less toxic products**
  Switching out toxic household cleaners, pesticides, etc. for more natural alternatives reduces household hazardous wastes and creates a healthier environment in and outside of your home.
- **Conserve energy**
  Turning down your thermostat in the winter, hanging laundry outside to dry, and using energy efficient light bulbs can help protect and conserve water because power production often requires water use.

The Partnership for the Delaware Estuary, a National Estuary Program, leads science-based and collaborative efforts to improve the tidal Delaware River and Bay, which spans Delaware, New Jersey, and Pennsylvania.

Partnership for the Delaware Estuary, Inc.
110 South Poplar Street, Suite 202
Wilmington, DE 19801
1-800-445-4935
www.DelawareEstuary.org

Printed on Recycled Paper

Some Rain Garden Examples:

Visit ***www.raingardensforthebays.org*** to learn more about rain garden installation and care, and view local garden photos.

RAIN GARDENS CAN:

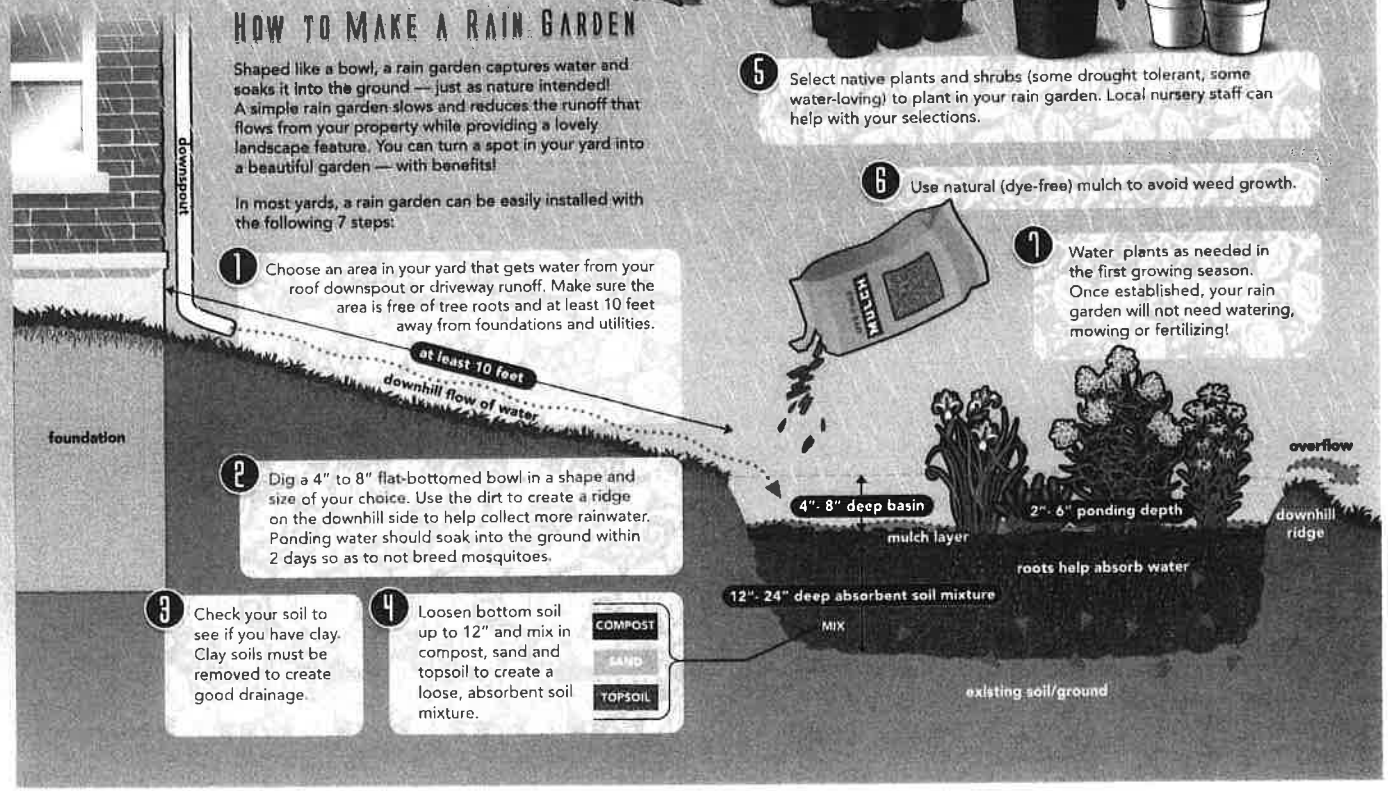
- Reduce flooding in our communities.
- Filter pollution out of rainwater & melting snow.
- Protect and replenish drinking water supplies.
- Provide important food and shelter for wildlife.
- Replace wet areas with a lovely garden feature!

How to Make a Rain Garden

Shaped like a bowl, a rain garden captures water and soaks it into the ground — just as nature intended! A simple rain garden slows and reduces the runoff that flows from your property while providing a lovely landscape feature. You can turn a spot in your yard into a beautiful garden — with benefits!

In most yards, a rain garden can be easily installed with the following 7 steps:

1. Choose an area in your yard that gets water from your roof downspout or driveway runoff. Make sure the area is free of tree roots and at least 10 feet away from foundations and utilities.
2. Dig a 4" to 8" flat-bottomed bowl in a shape and size of your choice. Use the dirt to create a ridge on the downhill side to help collect more rainwater. Ponding water should soak into the ground within 2 days so as to not breed mosquitoes.
3. Check your soil to see if you have clay. Clay soils must be removed to create good drainage.
4. Loosen bottom soil up to 12" and mix in compost, sand and topsoil to create a loose, absorbent soil mixture.
5. Select native plants and shrubs (some drought tolerant, some water-loving) to plant in your rain garden. Local nursery staff can help with your selections.
6. Use natural (dye-free) mulch to avoid weed growth.
7. Water plants as needed in the first growing season. Once established, your rain garden will not need watering, mowing or fertilizing!



Native
Pennsylvania Plants

(listed flowers & shrubs also attract butterflies)

Plant	Form	Sun/ Shade	Moisture	Color	Height
Butterfly weed *Asclepias tuberosa*	Flower	FS/PS	dry to moist	orange	1-3 ft
Swamp milkweed *Asclepias incarnata*	Flower	FS/PS	moist to wet	pink	4-6 ft
Cardinal Flower *Lobelia cardinalis*	Flower	FS/PS	moist to wet	red	2-4 ft
Great blue Lobelia *Lobelia siphilitica*	Flower	FS/PS/S	moist to wet	blue	1-5 ft
Bee balm *Monarda didyma*	Flower	FS/PS	moist to wet	red	2-5 ft
Blazing star *Liatris spicata*	Flower	FS/PS	dry to moist	purple	1-6.5 ft
Blue flag *Iris versicolor*	Flower	FS/PS	moist to wet	purple	3 ft
Tussock sedge *Carex stricta*	Sedge	FS	moist to wet	green	1-3.5 ft
Black chokeberry *Pholinia melanocarpa*	Shrub	FS/PS	dry to wet	white flower/ black fruit	3-6 ft
Spicebush *Lindera benzoin*	Shrub	PS/S	moist to wet	red fruit/ yellow-fall	6.5-16 ft

FS - full sun
PS - partial shade
S - shade

For More Information Contact:
Paul Racette, Watershed Programs Manager
Pennsylvania Environmental Council
Phone: 215.592.7020 ext. 112
pracette@pecpa.org

Please send photos of your rain garden!

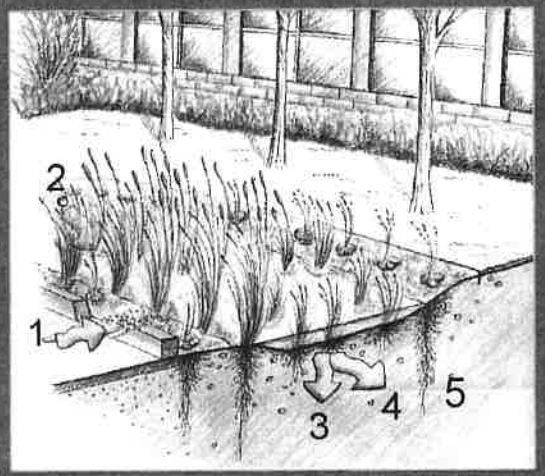
Sponsored by:

Schuylkill Action Network

Philadelphia PWD Water Department

pennsylvania environmental council

How Do Rain Gardens Work?



1) Rain Runoff from Parking Lot Enters Garden
2) Runoff from Roof Downspout Enters Garden
3) Rain Soaks Into Ground
4) Runoff Slowed & Reduced
5) Deep Roots Loosen Soil

Prepared by:

URS

Pennsylvania

Provided by:

Wissahickon Watershed Partnership

Visit:
www.phillyriverinfo.org

What Is A Rain Garden?

A rain garden is a planted shallow depression designed to catch and filter rainfall runoff. The garden captures rain from a downspout or a driveway. The water sinks into the ground, aided by deep rooted plants that like wet and dry conditions.

A residential rain garden should dry out between rains and should only hold water for one day (24 hrs). This timeframe prevents standing water that could create mosquito habitat.

Why Build a Rain Garden?

- Slow down stormwater runoff and filter pollution
- Protect rivers and streams
- Create habitat for birds and butterflies

Step 1 – Find the Right Location

- Locate garden near downspouts and/or in a low spot where water collects.
- Keep away from septic field.
- Locate garden at least 30' from a house with a basement and 10' if there is no basement.
- Avoid utilities. Call PA One-Call before you dig (800-242-1776) to determine utility locations.

Step 2 – Size the Rain Garden

- The goal is to:1) capture and recharge into the ground 1" of rain falling on your garden's drainage area (i.e. the roof top or paved area that feeds the garden), and 2) have the garden drain in 24 hrs.
- Size is not a critical factor for a residential rain garden. Capturing any rain water that would otherwise drain onto our streets, down our pipes and out to our creeks is helping the environment. Rain gardens are typically 100 square-feet or less in size and 6-8" deep.
- Perform an infiltration test (see Photo 1) to determine depth of rain garden: 1) dig a hole (8" deep and 8" wide), 2) fill it with water and put a popsicle stick at the top level of the water. 3) Measure how far it drains down after a few hours (ideally 4 hours). 4) Calculate the depth of water that will drain out over 24 hrs. This is how deep your rain garden should be.

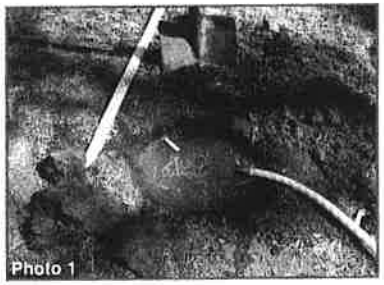


Photo 1

- Measure your drainage area (roof top, paved area, lawn). See Photo 2 example of rooftop area that drains to a downspout connection a rain garden.
- Divide the drainage area by the depth of the rain garden to estimate the surface area of the garden.

Photo 2

Step 2 Example:
Infiltration test determined 6" of water drained out of a hole in 24 hrs. So 6" is the depth of the rain garden. The roof top area that we are using to feed our rain garden is 10' x 50' = 500 sq-feet. To infiltrate a 1" storm event, we divide the drainage area by 6:

500 / 6 = 83 square-feet

The rain garden should be about 80-85 sq-ft in size and 6" deep.

Step 3 – Prepare the Garden Bed

- Dig out and level the bottom of the bed to the depth you determined in Step 2.
- Use the excess soil to build a berm (mound) at the low end of the garden (see Photo 3).
- If you have clay or compacted soil, over-dig the garden 12" below the calculated rain garden depth, removing some soil and replace with a mix of sand and compost. Till the mix back in to native soil.
- Run a path from the downspout to the garden using a grass swale, gravel, or plastic pipe/extension. Arrange stone decoratively at the inlet of water to the garden to slow the flow and prevent erosion.

Step 4 – Plant Selection

- Choose native plants that are attractive to you. Be creative! For example, you may want to select plants to attract birds and butterflies.
- A Plant List is provided, giving a small sample of the species you can choose.
- Identify your soil type (sand, silt, loam or clay) and how much sun your site gets for plant selection.
- Talk to your local nursery and encourage them to stock native Pennsylvania plant species.
- Place taller plants in the middle or back of the garden. Space them according to the mature size of the specific plant.
- Place drier species on the berm and perimeter of the garden, and place species that like it moist to wet in the interior of the garden.

Step 5 – Care & Maintenance

- Water plants regularly until they become established.
- Mulch with hardwood (do not use Cypress).
- Prune and remove dead vegetation in spring.
- Weed as you would any garden.
- Do not be afraid to move plants around if you think they would do better in drier or wetter part of the garden.

Preparing the planting area next to a roof drain downspout creating a berm.

Photo 3

Photo 4

Water heading from downspout to a newly planted rain garden.

Photo 5

Rain garden with curbside drainage.

Photo/Illustration Credits - Front Cover: adapted from Illustration by Dan DiLollo, Native Plant Society of N.J. Rain Garden Manual (www.npsnj.org); Inside Photos 3 & 4 University of Wisconsin-Extension and the Wisconsin Department of Natural Resources (www.clean-water.uwex.edu). Photo 5 Rice Creek Watershed District; Back Cover Illustration: Rusty Schmidt, URS Corporation

Caring for your Yard this Fall

Tips for reducing stormwater pollution on your property

1) **Let your grass clippings lay.** Not only does this reduce waste, the clippings will act as a natural fertilizer for your lawn, releasing nutrients and water into the soil.

2) **Use fertilizers sparingly and never before rain.** When applying fertilizers, avoid spreading them in paved areas where they can easily wash into a stormdrain.

3) **Plant a native tree!** Trees have deep roots that absorb rain water and reduce erosion. Some natives, like the paw paw tree, produce an edible fruit for you to harvest and enjoy!

4) **Install a rain garden**. Rain gardens are bowl shaped gardens, planted with native vegetation, that will filter and use stormwater. Plant them in a naturally wet area in your yard to reduce flooding!

Perkiomen Watershed Conservancy

Spring Stormwater Management

Ways to reduce stormwater runoff while improving wildlife habitat

Remove these invasive species:

Japanese Barberry

- Shrub that spreads quickly and crowds out native plants
- Presence of Lyme disease carrying ticks is increased in areas where barberry is prevalent

Bradford Pear

- Fast growing tree that out competes natives for light and nutrients
- Branch structure makes it susceptible to breakage and splitting

Day Lily

- Quickly spreads from yards into natural areas where it forms dense patches that displace native plants
- Thick tubers make control and removal difficult

Plant these natives species instead:

Common Ninebark

- Fast growing shrub that is drought tolerant, disease and insect resistant
- Attracts bees and birds
- Produces white flowers in early summer

Eastern Redbud

- Deer resistant tree that does well in shady locations
- Attracts bees and birds
- Produces fragrant pink flowers in early spring

Butterfly Milkweed

- Deer and drought resistant perennial
- Attracts butterflies and hummingbirds. Larval host for monarchs
- Produces long lasting, showy, orange flowers throughout the summer

Perkiomen Watershed Conservancy

Summer Water Conservation

Tips for managing stormwater pollution on your property

1) **Install a rain barrel.** Rain barrels are containers that attach to your downspout and collect rainwater from your roof. They provide free water for you to use to water your plants!

2) **Start composting!** Pre-made compost tumblers are a great option for a small yard. Not only does composting reduce waste, but adding compost to your soil helps with stormwater infiltration.

3) **Install permeable pavers instead of traditional concrete or asphalt.** Permeable pavers are designed to allow rain water to seep back into the ground before it can become runoff.

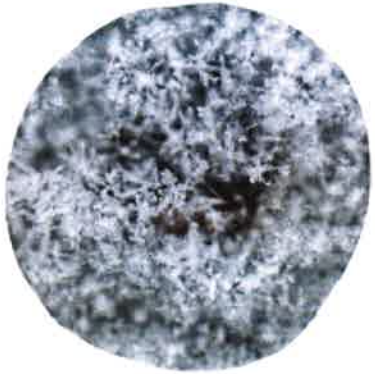
4) **Wash your car at a car wash.** Most car washes reuse the wash water before sending it to a treatment plant. If you want to wash your car at home, wash it on gravel or grass.

Perkiomen Watershed Conservancy

Reducing Pollution This Winter

What you can do to prevent stormwater pollution on your property

1) **Shovel as soon as possible after a snowstorm.** As a result, less ice will form and you won't need to use as much salt or de-icer.



2) **Use safe and effective alternatives to salt.** Remember that salt is not effective below 15 degrees Fahrenheit. Sand or kitty litter will give you traction when it's too cold for salt.

3) **Plant native species, that are salt tolerant, near paved areas.** Not only will these species be able to survive despite the road salt, they will also act as a protective buffer for local waterways.

4) **Make sure the storm drains closest to your property are clear of snow and other debris.** Do not shovel snow into storm drains since they empty directly into local creeks.

Perkiomen Watershed Conservancy

Perkiomen Watershed Conservancy

1 Skippack Pike, Schwenksville, PA
19473
Phone 610.287.9383
Fax 610.287.9237
www.perkiomenwatershed.org

2020 Benefactor Benefits Received

Access to the following educational articles:

- Fall Flyer
  - Caring your Yard this Fall
- Winter Flyer
  - Reducing Pollution this Winter
- Spring Flyer
  - Spring Stormwater Management
- Summer Flyer
  - Summer Water Conservation
- Stream Clean-up Flyer
  - Information about the Conservancy's annual Stream Clean-up

The opportunity to schedule the following workshop for your residents:

- Rain Barrel Building Workshop- Residents were given the opportunity to build their own rain barrel to be installed in their backyard during this interactive stormwater workshop.

The opportunity to schedule the following workshop for your municipal staff:

- Preventing Stormwater in Your Municipality- Workshop topics included stormwater pollution, the MS4 program, consequences of polluting our waterways, steps your municipality is taking to reduce pollution, MCMs, BMPs, IDD&E, and Preventing stormwater pollution from municipal operations.

The opportunity to apply for grant funding to install BMPs within your municipality. Potential projects for this grant included rain gardens, stormwater basin naturalizations, riparian buffer plantings, etc.

Please Contact Jessie (jkemper@perkiomenwatershed.org) if you need copies any benefits listed above

Perkiomen Watershed Conservancy

1 Skippack Pike, Schwenksville, PA
19473
Phone 610.287.9383
Fax 610.287.9237
www.perkiomenwatershed.org

Environmental Education *Watershed Stewardship* *Conservation Programs*

Upper Providence Township Stormwater Reduction Statistics Package

The chart below shows the statistics for your municipality during your 2020 membership year:

Conservation Project	Site(s)	Number Municipal Volunteers	Municipal Volunteer Hours	Amount
Tree Plantings	0	0	0	0 trees planted
Stream Clean-up	5	70	210	Estimated 150 bags of trash removed
Water Chestnut Removal	0	0	0	0 bags of EWC removed
Rain Garden Installations	0	0	0	0 water chestnuts removed
Rain Barrel Workshops	0	0	0	0 rain barrels made
TOTALS	**5**	**70**	**210**	**150**

The chart below shows the statistics for the entire Perkiomen Watershed during your 2020 membership year:

Conservation Project	Site(s)	Total Number of Volunteers	Total Volunteer Hours	Total Amount
Tree Plantings	3	110	550	220 trees planted
Stream Clean-up	108	1,244	3,732	1,500 bags of trash removed
Water Chestnut Removal	8	88	264	200 bags of EWC removed
Rain Garden Installations	1	20	100	5,000 native perennials installed
Rain Barrel Workshops	2	20	20	20 rain barrels made
TOTALS	**122**	**1,482**	**4,666**	**6,940**

RAIN BARREL BENEFITS:

- **Helps to mitigate the problem of stormwater runoff.**
- **Reduces flooding on your property.**
- **Saves money spent on household water use.**
- **Provides plants with soft water, free of chlorine, lime or calcium.**
- **Conserves water for use during droughts.**

Black Rock Park

1286 Black Rock Rd, Oaks PA 19456

The workshop will be held in the pavilion at Black Rock Park.

Registration Info

Workshop Registration **$50.00**

*All of the
supplies for making the rain barrel will be provided. Our staff will lead you through the process of putting your barrel together. And the best part...your barrel is ready to take home and install at the end of the workshop!

Register

See Who Already Signed Up

Space is limited, so register today!

ALL COMMENTS DONORS

Back to top

Upper Providence Township

MCM#2 - Public Involvement / Participation

Public Involvement / Participation Program (1 Sheet)

Township Website Link to Perkiomen Watershed Conservancy (1 Sheet)

Perkiomen Watershed Conservancy Public Event Calendar Page (1 Sheet)

Township Website Link to Schuylkill Canal Association (1 Sheet)

Schuylkill Canal Association Public Event Calendar Page (7 Sheets)

Upper Providence Township
NPDES MS4 Permit PAG130108
2019 Progress Report
Public Involvement / Participation Program
May 20, 2019

MCM#2 – Develop, Implement, and Maintain a Written Public Involvement and Participation Program (PIPP):

The Township organizes events throughout the year. These events include Community Day held in September of every year. These types of events represent opportunities to emphasize the importance of environmental protection, including stormwater quality measures. The Township annually distributes stormwater educational material. Last year, the Township distributed seventy (70) examples of stormwater educational materials.

The Township also partners with area organizations, including the Perkiomen Watershed Conservancy and the Schuylkill Canal Association by promoting stream cleanup and community events.

The Perkiomen Watershed Conservancy sponsors community events, such as stream cleanups, rain barrel construction demonstrations, Out and About Explorations, etc. By partnering with the Conservancy, Upper Providence Township is advocating participation in the programs provided by the conservancy.

The Schuylkill Canal Association sponsors community events, such as Earth Day Cleanup, Schuylkill River Trail Weekend, Canal Day, etc. By partnering with the Association, Upper Providence Township is advocating participation in the programs provided by the association.

STORMWATER MANAGEMENT

After stormwater flows across lawns, down driveways and streets, and into storm drains in Upper Providence Township, it eventually makes its way into the Schuylkill Canal, the Schuylkill River, the Perkiomen Creek, and other waterways used for drinking, swimming, and fishing. Before entering our water supply, stormwater picks up dirt, debris, and chemicals.

Here are some ways residents can protect our water supply by helping reduce the contaminants in our stormwater:

- Use the Waste System Authority of Eastern Montgomery County's Household Hazardous Waste Collection Program to dispose of hazardous household substances, such as used motor oil, cleaning supplies, and paint.
- Use pesticides, fertilizers, and herbicides properly to prevent excess runoff.
- Pick up after pets and dispose of their waste properly. If left in your yard or at the park, pet waste can be carried into the storm sewer system or a stream by stormwater runoff.
- Instead of washing your car in your driveway, take it to a commercial car wash, where the water is treated and recycled.
- Plant drought-tolerant, native plants and grasses in your garden. They often require less water, fertilizer, and pesticides.

Quick Links

- After the Storm Brochure (PDF)
- Keep Winter Wonderful (PDF)
- Department of Environmental Protection Stormwater Management
- Pennsylvania Department of Environmental Protection
- Perkiomen Watershed Conservancy
- Protecting Water Quality from Urban Runoff (PDF)
- Rain Drain Brochure (PDF)
- Schuylkill Canal Association
- Solution to Pollution (PDF)
- Stormwater and Construction Industry (PDF)
- Water Conservation Throughout the Home
- Water-Efficient Landscaping (PDF)

View All

LEARN
LEARNING CENTER (/LEARNING-CENTER)
PRESCHOOL SCIENCE FOR YOUNG LEARNERS (/PRE-SCHOOL-SCIENCE-YOUNG-LEARNERS)
SCHOOLS AND ORGANIZED GROUPS (/FOR-SCHOOLS-AND-ORGANIZED-GROUPS)
SUMMER SCIENCE ACADEMY (/SUMMER-SCIENCE-ACADEMY-CAMP)
WORKSHOPS, WALKS AND TALKS (/OUT-AND-ABOUT-EXPLORATION-SERIES)
YOUTH CONSERVATION CORPS (/PERKIOMEN-WATERSHED-CONSERVATION-CORPS)
PROTECT
CONSERVATION INTERNSHIPS (/INTERNS)
EUROPEAN WATER CHESTNUT REMOVAL (/WATER-CHESTNUT-REMOVAL-PROJECT)
HOMEOWNER DIY SOLUTIONS (/HOMEOWNER-DIY-SOLUTIONS)
MUNICIPALITY - MS4 PROGRAM (/FOR-MUNICIPALITIES)
NATIVE PLANT PROJECT (/NATIVE-PLANT-PROJECT)
PLANT-A-THON (/PLANT-A-THON)
STREAM CLEAN-UP (/STREAM-CLEAN-UP)
TRASHSPOT APP (/TRASHSPOT-APP-INTRO)
EXPERIENCE
CALENDAR (/CALENDAR)
A NIGHT FOR CONSERVATION BENEFIT (/A-NIGHT-FOR-CONSERVATION)
LENAPE CHALLENGE (/LENAPE-SURVIVAL-CHALLENGE)
NATIVE PLANT SALE (/NATIVE-PLANT-SALE)
PERK TO PARK (/PERK-TO-PARK)
PERKIOMEN CREEK SOJOURN (/PERKIOMEN-CREEK-SOJOURN)
PERKIOMEN CREEK WATER TRAIL (/PERKIOMEN-CREEK-WATER-TRAIL)
PLANT-A-THON (/PLANT-A-THON)
STREAM CLEAN-UP (/STREAM-CLEAN-UP)
WINTER RACE SERIES (/WINTER-RACE)
WORKSHOPS, WALKS AND TALKS (/OUT-AND-ABOUT-EXPLORATION-SERIES)
SUPPORT
BECOME A MEMBER (HTTPS://WWW.CLASSY.ORG/CAMPAIGN/BECOME-A-MEMBER/C170716)
WAYS TO GIVE (/WAYS-TO-GIVE)
OPPORTUNITIES FOR BUSINESSES (/FORBUSINESSES)
SPONSOR AN EVENT (/BE-AN-EVENT-SPONSOR)
SUPPORT OUR BUSINESS PARTNERS (/SUPPORT-OUR-BUSINESS-PARTNERS)
VOLUNTEER (/VOLUNTEER)

Conservation, PWC Education, Signature Conservancy Events, Volunteer

Aug 2020 (Eastern Time - New York)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	28 Exploring the East	29	30 10am - Kiddie	31 11am - Goddard 12pm - Goddard	1
2	3 9:30am - Summer	4 9:30am - Summer	5 9:30am - Summer	6 9:30am - Summer	7 9:30am - Summer	8
9	10 9:30am - Summer	11 9:30am - Summer 10am - SEI Family 6:30pm -	12 9:30am - Summer	13 9:30am - Summer 6:30pm -	14 9:30am - Summer	15
16	17 10am - Goddard	18 10am - Magnolia	19	20 9:30am - Exploring	21 9:30am - Exploring	22
23	24	25 9am - Goddard 10am -	26	27	28	29
30	31	1	2	3	4	5

Welcome to the Schuylkill Canal Association

A recreation area known locally as the Schuylkill Canal Park

Connect with Facebook

Visit and Hike
our many trails. . .

"Every Day is Canal Day" T-Shirt CONTEST!!!!!

We're opening the design of the "Every Day is Canal Day" to you, to show what the Schuylkill Canal Park means to the community. Please email designs with the words "Every Day is Canal Day" and your favorite park images **no later than 8/8** to info@schuylkillcanal.com. Selected design will **win $100 cash and $100 Sly Fox Gift Card.**

SCA Fund Raiser

The COVID-19 Pandemic has dramatically increased public use as one of the few opportunities for people to enjoy time outside their home. As you've no doubt noticed in your visits to the park, heavy storms have dropped trees, causing damage to the canal water trail and other land trails. It has also prevented us from having our major fundraiser, Canal Day. To raise money for our educational

Schuylkill Canal Association

MONT CLARE AND PORT PROVIDENCE, PA

Spotted Lanternfly

Control Activities:

programs and the maintenance of the park, canal, lock, and trails in partnership with Montgomery County please consider donating--

http://www.schuylkillcanal.org/page-269164

and purchasing our "Every Day is Canal Day t shirt with one of your wonderful designs when announced.

2020 Every Day is Canal Day

We regret to inform you that ***we will not be hosting our traditional Canal Day event on the last Sunday in June 2020.*** We all know the reason why.

Canal Day is our biggest annual fundraiser and the proceeds usually enable us to maintain the area, keep the land and water trails open, host our other events, and partner with other great organizations. We are starting to plan a smaller event for late summer or early fall and we will keep you updated.

Now that you know that we are canceling our annual event this year, we'll let you in on a little secret. Canal Day is every day! Lock 60, the towpath, and land and water trails are more popular than ever and we need to remind everyone that it is a shared space that a variety of people use for a variety of reasons. We ask that you respect trail closures, area property owners, and others when visiting our great area.

We know it is not the best time to fundraiser but we have to do it if we want to stick around. We hope to come up with a few creative ways

Lock 60 has been selected for Spotted Lanternfly control activities in partnership with the Montgomery County Conservation District, in an effort to combat this destructive invasive pest. Ailanthus altissima, invasive "Tree-of-Heaven," is the preferred host of the Spotted Lanternfly (SLF). A qualified licensed contractor will be killing the invasive Tree-of-Heaven throughout the selected parks and treating select trees with systemic insecticide, through establishment of "trap trees," to kill the Spotted Lanternfly which feed on these trees. This work presents no harm to humans, animals or the environment and work is being carried out in accordance with PA state protocols and standards.

For general information about the Spotted Lanternfly, visit Penn State Extension's website:

https://extension.psu.edu/spotted-lanternfly

2019 SCA Newsletter

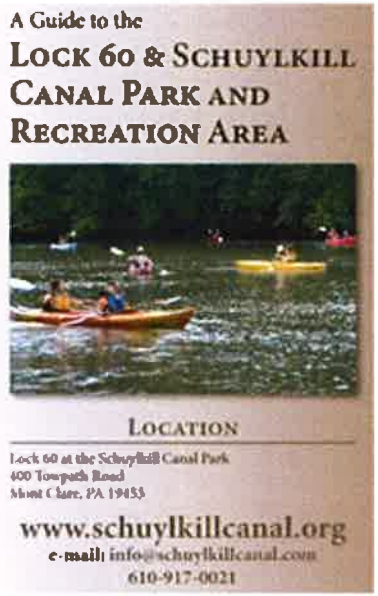
Article - The Building of the Schuylkill Navigation System, 1815-1828

by Edward J. Gibbons, Siena College

to encourage you to support us in 2020. Which is a better t-shirt? No Canal Day 2020 or 2020 Every Day is Canal Day?

See you soon,

SCA



This Event has been Rescheduled

Due Recent Events

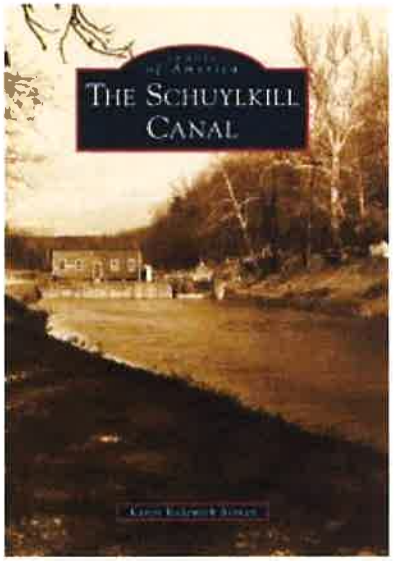
Lock Opening the third Sunday of Every Month at 3:00 Weather Permitting

2020 EVENTS

Message Regarding 2017 Water

Lettuce Clean Up

Video of the 2016 Joust from Canal Day



Available at bookstores and during Open House Third Sunday of Month

This Event has been Rescheduled Due Recent Events

OLD DATE
Saturday, April 18th, 8 AM – 12 PM

Spreekend

NEW DATE Saturday, October 31

Lock 60 and Schuylkill Canal Park, 610-917-0021

Join the Schuylkill Canal Association for our spring clean-up at Lock 60 and the Schuylkill Spree celebrating the Schuylkill River Trail. The Schuylkill Spree Weekend includes kayaking, cycling, running or hiking along the trail, volunteering at various points along the River for spring clean-ups, and a party at St. Michael's Park in Mont Clare with Live music. The spree is sponsored by the Sly Fox Brewing Company and more information can be found at:
http://slyfoxbeer.com/srt-spree

THANK YOU TO ALL WHO MADE CANAL DAY A SUCCESS!

Visit and Hike
our many trails. . .

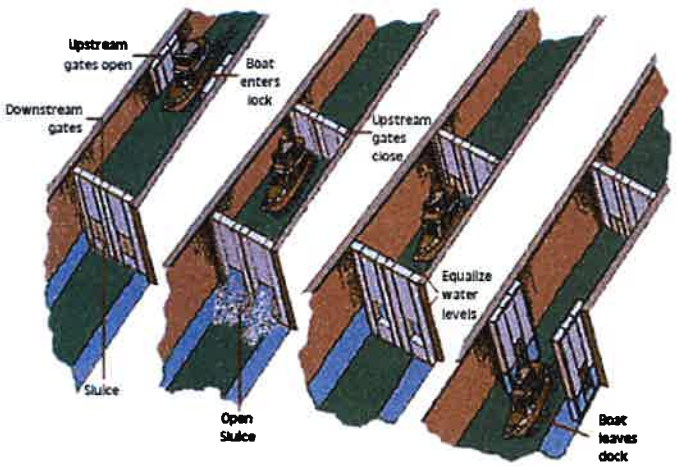
This Event has been Rescheduled Due Recent Events

OLD DATE

Sunday, May 17th from 1 to 3 pm

NEW DATE Saturday, October 31

Rise and Fall of the Schuylkill Navigation System



Lock 60 at Schuylkill Canal Park, 610-917-0021

Join the Schuylkill Canal Association for a discussion on the history of the Schuylkill Canal from it birth to its present day. The discussion will be followed by the opening of Lock 60 at 3:00. Ages 8 and up with an adult; pre-registration requested, meet at Locktender's House.

MONTGOMERY COUNTY PENNSYLVANIA

This Event has been Canceled Due Recent Events

Sunday, June 28th, 8:30 AM to 4 PM

39th Annual Canal Day

Lock 60 at Schuylkill Canal Park, 400 Towpath Rd., Mont Clare, Pa, 610-917-8030

The SCA invites the community to its 36th annual event. At Lock 60 and St. Michael's Park in Mont Clare, PA (right across the river from Phoenixville).

This day full of family-oriented fun along the Schuylkill Canal Park includes food, music, kids' games & crafts, competitive activities such as the Canoe/Kayak 5-Mile Water Trail Race, and the and world renowned International Canal Joust.

The Canal Day $5/person donation will be accepted upon entering the access road from St. Michael's Park to Lock 60, children 12 and under are free.

Please be advised, Towpath Road will be closed to vehicular traffic, starting at 8:30 AM until 4:00 PM,

A handicap-accessible shuttle bus will bring people back and forth, free-of-charge, from the parking area all day.

SCA Photo Gallery

visit Canal photo fun now online !

SCHUYLKILL CANAL
PORT PROVIDENCE LOCK 60

P.O.Box 966, Oaks, PA 19456 info@schuylkillcanal.com Ph. (610) 917-0021 Fax (610) 917-8030

Upper Providence Township

MCM#3 – Illicit Discharge Detection and Elimination

MS4 IDD&E Checklist (2 Sheets)

Illicit Discharge Detection and Elimination Program (1 Sheet)

Illicit Discharge Inspection Quarterly Summary Report (1 Sheet)

Typical Outfall Inspection Form (FOF-4854) (1 Sheet)
Copies of All Outfall Inspection Forms Available Upon Request

General Report for Investigation of Observed Illicit Discharges (5 Sheets)

Street Sweeping Certifications (6 Sheets)

Storm Sewer / Inlet Repairs (12 Sheets)

UPT MS4 Outfall Map 2018 Annual Report Copy, 24 x 36 (1 Sheet)

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.	☒

Upper Providence Township
NPDES MS4 Permit PAG130108
2019 Progress Report
Illicit Discharge Detection and Elimination
May 20, 2019

MCM#3 – Develop, Implement, and Maintain a Written Program for the Detection, Elimination, and Prevention of Illicit Discharges into a Regulated MS4 (IDD&E):

The Township conducts dry weather outfall screening in accordance with the requirements of the IDD&E program. Township Public Works employees monitor outfalls two (2) times per year. The number of outfalls monitored each reporting period exceeds the minimum requirement of 20% of the system per year. Copies of the outfall screening forms are available upon request.

A GIS based map has been developed, maintained, and updated yearly. The map shows the location of all outfalls and the locations and names of all surface waters of the commonwealth that receive discharges from those outfalls. The database provides the capability of tracing an illicit discharge to a specific area with property owner information associated with affected properties.

Illicit Discharge Inspection Quarterly Summary Report

Municipality: Upper Providence Township

Contact Name: Tim Tieperman, Manager, Upper Providence Township

Reporting Period: July 1, 2019 thru June 30, 2020

Year: 2019

I. Field Activities

1. *Describe field surveys.*

	Industrial Areas	Commercial Areas	Residential Areas	Other (describe)
Number of screening points	5	37	81	
Channel Miles				

2. *List how many discharges were identified by the following methods.* Include only discharges that could have been prevented by BMPs. Do not include fluid releases associated with minor traffic accidents.

a. During field surveys at defined screening points:

1 identified by maintenance crews

___ identified by illicit discharge inspectors

b. Calls from:

_____ maintenance crews

_____ other agencies

_____ public

3. *List the number of times the following materials were identified.*

0 Paint

0 Concrete

0 Construction Debris

0 Medical Wastes

0 Food Wastes

0 Industrial Wastes (solvents, metals, corrosives, cooling tower blowdown, etc.)

1 Other (describe): Road salt storage with no containment

0 Concrete Cutting Slurry/Washwaters

0 Vehicle Cleaning Washwaters

0 Building/Sidewalk Washwaters

0 Other Washwaters

0 Sewage

0 Automotive Fluids (antifreeze, used motor oil, fuels, etc.)

II. Follow-up Activities

1. *Describe whether sources of discharges were identified.*

0 Number of sources that were identified

0 Number of incidents when source of discharge was not identified

2. *Describe whether discharges were abated.*

0 Number of discharge incidents that were abated.

0 Number of new discharge incidents where discharge is continuing, as of the end of the reporting period. (ATTACH INSPECTION REPORT)

0 Number of continuing discharges that have already been reported in previous quarter(s).

3. *Describe enforcement activities conducted.*

0 Verbal Notice

0 Administrative Action

0 Legal Notice

0 Warning Notice

0 Administrative Action w/ Penalty and/or Fine

This form was modified from *Municipal Urban Runoff Program: A How-To Guide For Developing Urban Runoff Programs for Small Municipalities*, by the City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, and Central Coast Regional Water Quality Control Board, 1998.

Upper Providence Township
Storm Water Report Data for Structure FOF-078

Site Description

Location:
Structure Type:
Stream Name:
Dominant Watershed Land Uses:
Closest Street

General Data

Structure #: FOF-078
Date: 2/27/2019
Date Cleaned:
Inspection Team: Ethan
Drainage Area:
Date Repaired:
Time: 09:10 AM
Time Since Last Rain: < 72 hours
Quantity of Last Rain: ? 0.1 inches

Flow Estimation

Was Flow Observed: Yes
Width of Water Surface:
(feet)
Approx. Depth of Water:
(feet)
Approx. Flow Velocity:
(feet per sec.)
Flow Rate:
(cubic feet per sec., a x b x c =)

Visual Observations

Was a Photo Taken?: No
Color: Clear
Floatables: None
Vegetation Condition: Normal
Biological: None
Other:
Odor: None
Clarity: Clear
Deposits/Stains: None
Structural Condition: Normal

Field Analysis

Water Temp. : °F
pH:
Phenol: mg/l
Was a Laboratory Sample Collected?: NO
Comments:
Chlorine: mg/l (total)
Copper: mg/l
Detergents: mg/l

Condition

Depth:
Length:
General Condition:
Recommended Repairs:
Width:
Basin Is:

Comments

PHONE: 610 489 5146 FAX: 610 489 2855

R&S Sweeping, Co. LLC

110 N. Township Line Rd. • Royersford, PA 19468

Date 6-2-2020

Contractor Upper Providence Twp

Job Location

Job Description Street Sweeping

Truck No. B-6

Driver Nick Bardman

Time Started 5:30am Time Finished 1:00pm

Total Hours 7.5 hr. Job No.

Comments S. Mueller

Authorized Signature

PHONE: 610 489 5146 FAX: 610 489 2855

R&S Sweeping, Co. LLC

110 N. Township Line Rd. • Royersford, PA 19468

Date 6-1-2020

Contractor Upper Providence Twp

Job Location

Job Description Street Sweeping

Truck No. B-6

Driver Nick Bardman

Time Started 5:30am Time Finished 1:00pm

Total Hours 7.5 hr Job No.

Comments

Sam Mueller

Authorized Signature

PHONE: 610 489 5146 FAX: 610 489 2855

R&S Sweeping, Co. LLC

110 N. Township Line Rd. • Royersford, PA 19468

Date 6-3-2020

Contractor Upper Providence Twp

Job Location

Job Description Street Sweeping

Truck No. B-6

Driver Nick Bardman

Time Started 5 am Time Finished 12:30

Total Hours 7 hr. Job No.

Comments Sam Martin

Authorized Signature

PHONE: 610 489 5146 FAX: 610 489 2855

R&S Sweeping, Co. LLC

110 N. Township Line Rd. • Royersford, PA 19468

Date 6-4-2020

Contractor Upper Providence Twp.

Job Location

Job Description Street Sweeping

Truck No. B-6

Driver Nick Bardman

Time Started 5:30am Time Finished 1:00pm

Total Hours 7.5 hr. Job No.

Comments

S. Martin

Authorized Signature

PHONE: 610 489 5146 FAX: 610 489 2855

R&S Sweeping, Co. LLC

110 N. Township Line Rd. • Royersford, PA 19468

Date 6-5-2-20

Contractor Upper Providence Twp

Job Location

Job Description Street Sweeping

Truck No. B-6

Driver Nick Bardman

Time Started 5:30 am Time Finished 1:00 pm

Total Hours 7.5 Job No.

Comments

Authorized Signature

PHONE: 610 489 5146 FAX: 610 489 2855

R&S Sweeping, Co. LLC

110 N. Township Line Rd. • Royersford, PA 19468

Date ~~7~~ 6-23-2020

Contractor Upper Providence Twp

Job Location

Job Description Street Sweeping

Truck No. B-13

Driver Nick Bardman

Time Started 5:30am Time Finished 3:30pm

Total Hours 10hrs Job No.

Comments

Authorized Signature

PHONE: 610 489 5146 FAX: 610 489 2855

R&S Sweeping, Co. LLC

110 N. Township Line Rd. • Royersford, PA 19468

Date 6-25-2020

Contractor Upper Providence Twp

Job Location

Job Description Street Sweeping

Truck No. B-17

Driver Nick Bordman

Time Started 5:30am Time Finished 3:30pm

Total Hours 10 hrs Job No.

Comments

S Merkle

Authorized Signature

PHONE: 610 489 5146 FAX: 610 489 2855

R&S Sweeping, Co. LLC

110 N. Township Line Rd. • Royersford, PA 19468

Date 6-24-2020

Contractor Upper Providence Twp

Job Location

Job Description Street Sweeping

Truck No. B-13

Driver Nick Bordman

Time Started 5:30am Time Finished 3:30

Total Hours 10 hrs Job No.

Comments

Ben Merkle

Authorized Signature

PHONE: 610 489 5146 FAX: 610 489 2855

R&S Sweeping, Co. LLC

110 N. Township Line Rd. • Royersford, PA 19468

Date 6-25

Contractor Upper Providence

Job Location Upper Providence Twp

Job Description Street Sweeping

Truck No. B-12

Driver [illegible]

Time Started 10:30 Time Finished 3:00

Total Hours 4½ Job No.

Comments

Authorized Signature

PHONE: 610 489 5146 FAX: 610 489 2855

R&S Sweeping, Co. LLC

110 N. Township Line Rd. • Royersford, PA 19468

Date 6-26-2020

Contractor Upper Providence Twp

Job Location

Job Description Street Sweeping

Truck No. B-13

Driver Nick Bardman

Time Started 5:30am Time Finished 11:00am

Total Hours 5.5hr Job No.

Comments

S. Mutlu

Authorized Signature

Barnside Farm Composting Facility

991 Haldeman Road
Schwenksville, PA 19473
610-287-8880

Date 6-3-20

Customer Name Upper Providence Twp.

Address 1286 Blackrock rd Phoenixville Pa. 19460

Product Street Sweepings

Collected from City / Twp. U.P.T.

Driver Sean Mullen

Weigher

ELECTRONIC SCALE TICKET

Gross 36,290
Tare 25,500
Net 10,790
5.39 Tons

Barnside Farm Composting Facility

991 Haldeman Road
Schwenksville, PA 19473
610-287-8880

Date 6-5-20

Customer Name Upper Providence Twp.

Address 1286 Blackrock rd Phoenixville Pa. 19460

Product Street Sweepings

Collected from City / Twp. U.P.T.

Driver Sean Mullen

Weigher A. M.

ELECTRONIC SCALE TICKET

Gross 33,800
Tare 25,420
Net 7,380
3.69 Tons

Barnside Farm Composting Facility

991 Haldeman Road
Schwenksville, PA 19473
610-287-8880

Date 6-18-20

Customer Name Upper Providence Twp.

Address 1286 Blackrock rd Phoenixville Pa 19460

Product Street Sweepings

Collected from City / Twp. U.P.T.

Driver Sean Mullen

Weigher A. Mullen

ELECTRONIC SCALE TICKET

Barnside Farm Composting Facility

991 Haldeman Road
Schwenksville, PA 19473
610-287-8880

Date _____

Customer Name _____

Address _____

Product _____

Collected from City / Twp. _____

Driver _____

Weigher _____

ELECTRONIC SCALE TICKET

Barnside Farm Composting Facility

991 Haldeman Road
Schwenksville, PA 19473
610-287-8880

Gross 34,340
Tare 25,340
Net 9,000
4.35 Ton

Date 6-26-20

Customer Name Upper Providence Twp.

Address 1286 Black rock rd Phoenixville Pa. 19460

Product Street Sweepings

Collected from City / Twp. U.P.T.

Driver Sean Martin

Weigher S. M.

ELECTRONIC SCALE TICKET

2020 Storm Inlet Repair
JUNE

Date	Type Of Work	Location
6/11/2020	clean out sedimet in deletion basin	sprouse cir
6/12/2020	seed & erossion matting in swale	sprouse cir
6/16/2020	dig out inlet	port prov, rd
6/17/2020	replace inlet	port prov, rd
6/18/2020	replace inlet	port prov, rd
6/19/2020	backfill & black top inlet	port prov, rd
6/26/2020	saw cut inlets	longford rd , amellia st , crosshill rd

2020 Storm Inlet Repair
February

Date	Type Of Work	Location
2/4/2020	CLEAN INLETS	TOWNSHIP WIDE (TOTAL 121)
2/5/2020	WIDEN SHOULDERS	DREIBELBIS RD
2/7/2019	REPLACE DAMAGED GRATES	FIELDCREST DR .
2/11/2020	REPAIR STORM GRATES	WELD BROKEN STORM GRATES

2020 Storm Inlet Repair

~~November~~
January

Date	Type Of Work	Location
1/2/2020	Check outfalls	Q - 4
1/3/2020	Check outfalls	Q - 4
1/7/2020	Check outfalls	Q - 4
1/8/2020	Mark inlets for road repairs	Township road projects
1/9/2020	Vac leaves from swales	Groff cir. , Arcola rd.
1/10/2020	Vac leaves from swales	
1/15/2020	Vac leaves (CURBS)	Tara dr , scholl ln , schoolside ct.
1/24/2020	REMOVE TREES IN OUTFALL	MINGO RD @ GEORGE TOWN CROSSING

2019 Storm Inlet Repair
DECEMBER

Date	Type Of Work	Location
12/5/2019	DIRT AROUND INLET , PLUG HOLE IN PIPE	BIRCHLEAF LN.
12/6/2019	CLEAN INLETS	WALNUT ST. (TOTAL 2)
12/11/2019	CLEAN INLETS	VARIOUS LOCATIONS (TOTAL 24)
12/18/2019	CLEAN UP PIPE	S . MENNONITE RD.
12/19/2019	R-5 STONE AROUND PIPE	S . MENNONITE RD.
12/24/2019	REPLACE BROKEN STORM GRATE	CAROLINE DR

2019 Storm Inlet Repair
November

Date	Type Of Work	Location
11/6/2019	DIG OUT & REPAIR PIPE & SWALE	UPPER INDIANHEAD RD @ BLACKROCK RD.
11/7/2019	BLACK TOP PIPE	UPPER INDIANHEAD RD @ BLACKROCK RD.
11/7/2019	CLEAN INLETS	VARIOUS LOCATIONS (TOTAL OF 30)
11/15/2019	SAW CUT INLET	KNOLL DR.
11/21/2019	DIG OUT INLET, PLACE RISER REINSTALL C-TOP	KNOLL DR.
11/22/2019	POUR CURB & BACK FILL INLET	KNOLL DR.
11/26/2019	CHECK OUTFALLS	MS-4
11/27/2019	CHECK OUTFALLS	MS-4
11/27/2019	BLACK TOP INLET	KNOLL DR.

2019 Storm Inlet Repair
October

Date	Type Of Work	Location
10/8/2019	CLEAN INLETS	TOWNSHIP WIDE (76 TOTAL)
10/10/2019	dig out & REBRICK INLET	3 JASPER LN
10/11/2019	BACKFILL INLET	3 JASPER LN
10/23/2019	DIG OUT INLETS , PULL C - TOPS	BIRTCHLEAF DR (2 INLETS)
10/24/2019	BRICK & SET C-TOPS ,POUR CURB ,BACFILL	BIRTCHLEAF DR (2 INLETS)
10/25/2019	BLACK TOP INLETS	BIRTCHLEAF DR , JASPER LN.
10/28/2019	PLACE R - 5 IN WASH OUTS	CIDERMILL RD , YEAGER RD.

2019 Storm Inlet Repair
September

Date	Type Of Work	Location
9/5/2019	DIRT WORK ,MORTAR INLETS	MORGAN LN , HENRY DR , OLDMILL RD.
9/6/`19	CLEAN INLETS	HAFNER , CANAL , WALNUT, JACOB, KNOLL (TOTAL 17)
9/18/2019	DIG OUT SINK HOLES	CAROLINE , MEREDITH ,DERBY , BENNINGTON
9/19/2019	BLACK TOP SINK HOLES	CAROLINE , MEREDITH ,DERBY , BENNINGTON
9/20/2019	POUR RISER	STOCK

2019 Storm Inlet Repair
August

Date	Type Of Work	Location
8/1/2019	DIGOUT SINK HOLE @ INLET	CROSSHILL RD
8/2/2019	REBRICK PIPES IN INLET	CROSSHILL RD
8/6/2019	REBRICK PIPES IN INLET	CROSSHILL RD
8/6/2019	CLEAN INLETS	VARIOUS LOCATIONS (TOTAL 29)
8/7/2019	BACKFILL INLET	CROSSHILL RD
8/7/2019	DIGOUT , PULL C-TOP , CLEAN BRICK	OLD MILL RD
8/8/2019	PLACE RISER , INSTALL C -TOP	OLD MILL RD
8/8/2019	DIGOUT INLET , CLEAN BRICKS	BUCKWALTER RD.
8/9/`19	PLACE RISER , REBRICK	BUCKWALTER RD.
8/9/2019	BACKFILL INLET ,POUR CURB	OLD MILL RD
8/13/2019	PLACE C-TOP & BACKFILL INLET	OLD MILL RD
8/13/2019	DIGOUT INLET , PLACE RISER	HENRY DR
8/14/2019	BRICK & PLACE C-TOP	HENRY DR
8/15/2019	BACKFILL ,POUR CURB & AROUND PIPE	OLD MILL RD , HENRY DR , BUCKWALTER RD
8/16/2019	BLACK TOP INLETS	CROSSHILL RD , OLD MILL RD
8/20/2019	DIG OUT SWALE	OLD MILL RD
8/21/2019	DIGOUT & REPLACE C-TOP	KEOKUK
8/21/2019	DIGOUT INLET	MORGAN LN
Aug-19	REMOVE & RELACE C-TOP	MORGAN LN
8/23/2019	BACKFILL & BLACK TOP INLETS	MORGAN LN , KEKUK RD.
8/28/2019	BLACK TOP INLETS	BUCKWALTER RD. , HENRY DR
8/29/2019	FORM & POUR INLET RISER	STOCK

2019 Storm Inlet Repair
July

Date	Type Of Work	Location
7/23/2019	REPLACE 12 INCH GALV. PIPE	LOVERS LN.
7/24/2019	REPLACE 12 INCH GALV. PIPE	LOVERS LN.
7/30/2019	SAW CUT INLETS	OLD MILL , HENRY ,BUCKWALTER ,MORGAN

Upper Providence Township

MCM#4 Construction Site Storm Water Runoff Control

Construction Site Stormwater Runoff Control Program (1 Sheet)

Stormwater Ordinance Compliance Letter (1 Sheet)

Site Inspection Field Reports (3 Sheets)

Upper Providence Township
NPDES MS4 Permit PAG130108
2019 Progress Report
Construction Site Stormwater Runoff Control
May 20, 2019

MCM#4 – Develop, Implement, and Maintain a Program for Construction Stormwater Permitting, Construction Inspection and Enforcement of Installation and Maintenance of Necessary E&S Control Measures:

The Township is relying on the Pennsylvania state wide program for stormwater associated with construction activities to satisfy this MCM. The Montgomery County Conservation District is responsible for implementation and enforcement of NPDES permits and earth disturbances.

The Township Engineer conducts routine erosion and sedimentation control inspections in accordance with the Stormwater Management Ordinance (Chapter 150) and approved Developer's Agreements. When e&s control measure deficiencies are observed, they are noted and the developer's representative is notified and directed to take appropriate action to correct the deficiencies in a timely manner. If efforts to remedy erosion control deficiencies are not successful, the Montgomery County Conservation District is contacted to perform a site inspection and enforce the terms of the earth disturbance permit.

Provisions for enforcement of control of other types of construction related pollutants, such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste are included in the Upper Providence Engineering Construction Standards and Improvement Procedures. Site review by the Township Engineer on-site representative includes monitoring of various types of potential sources of pollution.

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

September 21, 2020

Department of Environmental Protection
Clean Water Program
Southeast Regional Office
2 E. Main Street | Norristown, PA 19401

Reference: Upper Providence Township
Ordinance Compliance Letter

To Whom it may Concern:

Please accept this letter verifying Upper Providence Township has enacted and implements Stormwater Ordinance, Chapter 150, which meets the requirements of the MS4's General Permit prohibiting non-stormwater discharges and regulating Post Construction Stormwater Management Activities.

If you have any questions, feel free to contact me.

Sincerely,

William K. Dingman, P.E.
Senior Municipal Engineer
Gilmore & Associates, Inc.

Submit by Email | Print Form

GILMORE & ASSOCIATES, INC.

ENGINEERING & CONSULTING SERVICES

Daily Field Report

☐ 65 E. Butler Avenue, Suite 100
New Britain, PA 18901
Phone: 215-345-4330
Fax: 215-345-8606

☒ 184 W. Main Street, Suite 300
Trappe, PA 19426
Phone: 610-489-4949
Fax: 610-489-8447

☐ 415 McFarlan Road, Suite 213
Kennett Square, PA 19348
Phone: 610-444-9006
Fax: 610-444-7292

☐ 5100 Tilghman St., Suite 150
Allentown, PA 18104
Phone: 610-366-8064
Fax: 610-366-0433

OWNER: SEI

PROJECT: SEI - Off Site

JOB NUMBER: 17-08009T

CONTRACT NO.:

PRESENT AT SITE:

CONTRACTOR: H&K

OBSERVER: Jeffry Hunsicker

TIME IN: 1:00 pm

TEMP: 52

TIME OUT: 1:30 pm

TEMP: 52

WORK PERFORMED: Safety and Erosion and Sedimentation Control

WEATHER: Sunny

ITEM	QUANTITY	LOCATION	STATION #s

ADDITIONAL NOTES:

Performed an inspection of the erosion and sedimentation controls and safety around the perimeter of the SEI active site following a rain event.

PAGE 1 OF 1

DATE: Thursday, 3/26/2020

COPY TO: Coyne

SIGNATURE: Jeffry Hunsicker

Submit by Email | Print Form

GILMORE & ASSOCIATES, INC.

ENGINEERING & CONSULTING SERVICES

Daily Field Report

☐ 65 E. Butler Avenue, Suite 100
New Britain, PA 18901
Phone: 215-345-4330
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☒ 184 W. Main Street, Suite 300
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Fax: 610-489-8447

☐ 415 McFarlan Road, Suite 213
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Phone: 610-444-9006
Fax: 610-444-7292

☐ 5100 Tilghman St., Suite 150
Allentown, PA 18104
Phone: 610-366-8064
Fax: 610-366-0433

OWNER: SEI

PROJECT: SEI - Off Site

JOB NUMBER: 17-08009T

CONTRACT NO.:

PRESENT AT SITE:

CONTRACTOR: H&K

OBSERVER: Jeffry Hunsicker

TIME IN: 10:00 am

TEMP: 48

TIME OUT: 11:00 pm

TEMP: 52

WORK PERFORMED: Safety and Erosion and Sedimentation Control

WEATHER: Partly Sunny

ITEM	QUANTITY	LOCATION	STATION #s

ADDITIONAL NOTES:

Performed an inspection of the erosion and sedimentation controls and safety around the perimeter of the SEI active site following a rain event.

PAGE 1 OF 1

DATE: Tuesday, 4/14/2020

COPY TO: Coyne

SIGNATURE: Jeffry Hunsicker

Submit by Email | Print Form

GILMORE & ASSOCIATES, INC.

ENGINEERING & CONSULTING SERVICES

Daily Field Report

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☐ 5100 Tilghman St., Suite 150
Allentown, PA 18104
Phone: 610-366-8064
Fax: 610-366-0433

OWNER: SEI

PROJECT: SEI - Off Site

JOB NUMBER: 17-08009T

CONTRACT NO.:

PRESENT AT SITE:

CONTRACTOR: H&K

OBSERVER: Jeffry Hunsicker

TIME IN: 11:30 am

TEMP: 46

TIME OUT: 12:30 pm

TEMP: 46

WORK PERFORMED: Safety and Erosion and Sedimentation Control

WEATHER: Cloudy

ITEM	QUANTITY	LOCATION	STATION #s

ADDITIONAL NOTES:

Performed an inspection of the erosion and sedimentation controls and safety around the perimeter of the SEI active site following.

PAGE 1 OF 1

DATE: Friday, 4/24/2020

COPY TO: Coyne

SIGNATURE: Jeffry Hunsicker

Upper Providence Township

MCM#5 – Post Construction Management in New Development and Redevelopment

Construction Site Stormwater Control Program (1 Sheet)

Upper Providence Township
NPDES MS4 Permit PAG130108
2019 Progress Report
Construction Site Stormwater Runoff Control
May 20, 2019

MCM#4 – Develop, Implement, and Maintain a Program for Construction Stormwater Permitting, Construction Inspection and Enforcement of Installation and Maintenance of Necessary E&S Control Measures:

The Township is relying on the Pennsylvania state wide program for stormwater associated with construction activities to satisfy this MCM. The Montgomery County Conservation District is responsible for implementation and enforcement of NPDES permits and earth disturbances.

The Township Engineer conducts routine erosion and sedimentation control inspections in accordance with the Stormwater Management Ordinance (Chapter 150) and approved Developer's Agreements. When e&s control measure deficiencies are observed, they are noted and the developer's representative is notified and directed to take appropriate action to correct the deficiencies in a timely manner. If efforts to remedy erosion control deficiencies are not successful, the Montgomery County Conservation District is contacted to perform a site inspection and enforce the terms of the earth disturbance permit.

Provisions for enforcement of control of other types of construction related pollutants, such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste are included in the Upper Providence Engineering Construction Standards and Improvement Procedures. Site review by the Township Engineer on-site representative includes monitoring of various types of potential sources of pollution.

Upper Providence Township

MCM#6 Pollution Prevention – Good Housekeeping

Pollution Prevention – Good Housekeeping Program (1 Sheet)

Good Housekeeping Training Memo, Dated November 30, 2017 (1 Sheet)

Upper Providence Township O&M Program for Municipal Vehicles (2 Sheets)

MS4 Stormwater Management Program Protocol (15 Sheets)

Upper Providence Township
NPDES MS4 Permit PAG130108
Pollution Prevention – Good Housekeeping Program
2018 Progress Report
September 1, 2018

MCM#6 - Pollution Prevention – Good Housekeeping

1. Public Works facility floor drains connected to the sanitary sewer system.

2. Routine maintenance of equipment and vehicles is performed inside facilities (i.e. brake repairs, oil changes, etc.).

3. Bulk deicing salt is stored in a covered facility with doors to eliminate runoff.

4. Fueling stations are signed "Do Not Top Off Tank" to minimize spillage.

5. Upper Providence Township Public Works eliminated the use of anti-skid deicing materials to reduce pollution.

6. Upper Providence Township parks maintain riparian corridors on Township owned properties.

7. Upper Providence Township parks provide "Pet Pick Up" stations to reduce pollution. These facilities provide the necessary materials for the pickup of pet and wildlife waste to prevent these materials from entering adjacent waterways and ground water.

8. Upper Providence Township parks utilize "Integrated pest Management" to reduce pesticides usage.

9. Upper Providence Township performs annual street sweeping to remove accumulated debris from Township roads. In the reporting period, approximately 85 tons of grit was removed from the roadways via mechanical street sweeper. The grit is delivered to a local disposal site for disposal in accordance with PADEP standards.

10. Upper Providence Township performs annual inlet cleaning to remove debris. In the reporting period, 465 inlet boxes were cleaned of debris and potential pollutants. The trash removed from the inlets is picked up by a Township contracted waste disposal company.

11. Weekly inspections of basins are preformed to remove floatables.

12. All new inlets are required to include the "No Dumping, Drains to Waterways" label.

13. No spills or impacts to the storm system from the operation, maintenance, fueling, or washing of Township vehicles was noted in the reporting period.

14. Township consultants attended three (3) seminars regarding stormwater quality and pollution prevention during the reporting period.

Thomas Broadbelt

Upper Providence Township
NPDES MS4 Permit PAG130108
2019 Progress Report
Operation and Maintenance Program for Municipal Vehicles
May 20, 2019

MCM#6 – Develop, Implement, and Maintain Written Operation and Maintenance Program for Municipal Vehicle Operations :

The MS4 Permit requires the development and implementation of a pollution prevention based Operation and maintenance program for all municipal vehicle operations. The goal of this program is to reduce or prevent pollutant runoff from municipal operations from adversely impacting the storm sewer system or the environment. The following is the program for Upper Providence Township.

Municipal Vehicle Operations:

- All municipal vehicles will be operated in a manner that reduces the potential for pollution to the municipal storm sewer system or to the environment. This includes obeying all traffic rules and being alert at all times.
- In the event of a vehicle pollution incident involving either vehicle fluids or cargo, all attempts will be made to prevent the spilled material(s) from entering the storm system or nearby waterways. This could include diking, damming, absorbing, or removing the material from the affected area. All recovered material will be properly disposed of in accordance with all applicable state and federal waste disposal regulations. Appropriate spill containment and recovery equipment will be maintained at the public works facility. For any spill beyond the township's ability to address, local contractors will be contacted to provide assistance. An up to date list of appropriate contractors will be maintained and readily available. All other entities will be contacted (PADEP, PA Fish & Boat Commission, water users / intakes, etc.) will also be contacted.

Municipal Vehicle Maintenance:

- All vehicle maintenance will be performed indoors to reduce the potential for leaks or spills to impact the storm water system.
- Products of maintenance activities, such as greasy rags, oil filters, air filters, batteries, degreasers, used oil and coolant, etc. will be placed in appropriately labeled containers for proper disposal or recycling. If these containers cannot be stored under roof, they will be placed in secure areas with provisions to prevent releases to the environment. Areas containing spillage or contaminants will not be washed so the runoff could enter the storm sewer system. Dry cleanup methods will be utilized as much as possible.
- Drip pans or containers will be used for all leaking vehicles. Outdoor vehicle storage areas will be periodically inspected to check for evidence of leakage.

- Indoor floor drains will not be connected to any part of the storm sewer system and will not allow the discharge of pollutants to the environment.
- Non-hazardous cleaners and solvents will be used whenever possible.
- Vehicle storage and maintenance areas will be routinely inspected to determine the effectiveness of the pollution prevention program. Inspection records will be maintained and any deficiencies will be promptly addressed.

Municipal Vehicle Fueling:

- All vehicle fueling operations will be monitored to prevent or react to spillages.
- All underground storage tanks will be operated and maintained according to all applicable local, state, and federal requirements. This could include the use of overfill prevention equipment, corrosion prevention equipment, and spill detection equipment.
- Above ground storage tanks will be supplied with suitable secondary containment.
- "Topping off" of vehicle fuel tanks will be discouraged through training and signage.
- Spillage from fueling activities will be controlled and cleaned up.
- Appropriate clean up materials, such as oil dry or absorbent pads will be maintained at the fueling area and will be used to prevent spillage from entering the storm sewer system. Water will not be used to clean up any spillage.

Municipal Vehicle / Equipment Washing:

- Municipal vehicles will be washed at commercial car washes whenever possible.
- If commercial car washes are not viable, designated washing areas will be established, preferably indoors where wash water can be recycled or directed to treatment.
- If outdoor washing occurs, it will be conducted on gravel, grass, or other permeable surfaces so that the runoff will not enter the storm sewer system.
- Phosphate-free biodegradable detergents will be used whenever possible.
- If needed, vehicle / equipment wash water will be collected and discharged to the sanitary sewer system.
- The waste water generated from any power washing or stream cleaning activities will not be allowed to enter the storm sewer system.

MS-4 Stormwater Management Program Protocol

Pollution Prevention and Good Housekeeping for Municipal Operations and Maintenance

What is MS4?

- Municipal Separate Storm Sewer System
- Federal regulations require a permit for each municipality's stormwater discharge
- PA DEP created a state permitting program to meet federal regulations
- Phase II is for urban areas with < 100,000 population and became effective in 2003

What is required?

- Requires NPDES (National Pollution Discharge Elimination System) permit for storm water
- PA DEP incorporates Protocol in General Permit
- The Protocol outlines six minimum control measures as part of program

Six Minimum Control Measures

- Public Education and Outreach
- Public Participation and Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Runoff Control
- Post-Construction Stormwater Management (New and Redevelopment)
- Pollution Prevention and Good Housekeeping for Municipal Operations and Maintenance

Pollution Prevention Program for Municipal Operations

- 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 presentation satisfies the requirement for the training portion.

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

Don't Forget New Regulations!

Pay Attention

to the material you are using;
where it is stored,
how it is handled
and how you dispose of it.

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.

Fueling

- Place overfill prevention equipment on underground storage tanks. Watch transfer constantly to prevent overfilling and spilling.
- Discourage topping off of fuel tanks through training and posting signs
- Avoid cleaning fuel areas with running water. Consider using damp cloth on pumps and a damp mop on paving rather than a hose.
- Control spills immediately. Small spills can be cleaned up with rags and larger spills can be cleaned with dry absorbent material such as kitty litter, straw or sawdust. Do not wash petroleum spills into the storm drain.

Washing

- If possible utilize commercial car washes. They typically recycle wash water and direct it to a wastewater treatment plant. Or, convert to use phosphate-free biodegradable detergents.
- Create and use designated cleaning areas, preferably indoors where wash water can be recycled or directed to treatment. If indoor washing is not possible create specific areas to wash the vehicles on gravel, grass or other permeable surfaces.
- Block off storm drains while washing or use an insert to catch wash water. Make inserts and dams available.
- On-site washing to drains discharging to WWTP, if permitted.

Alternative to Road Salt

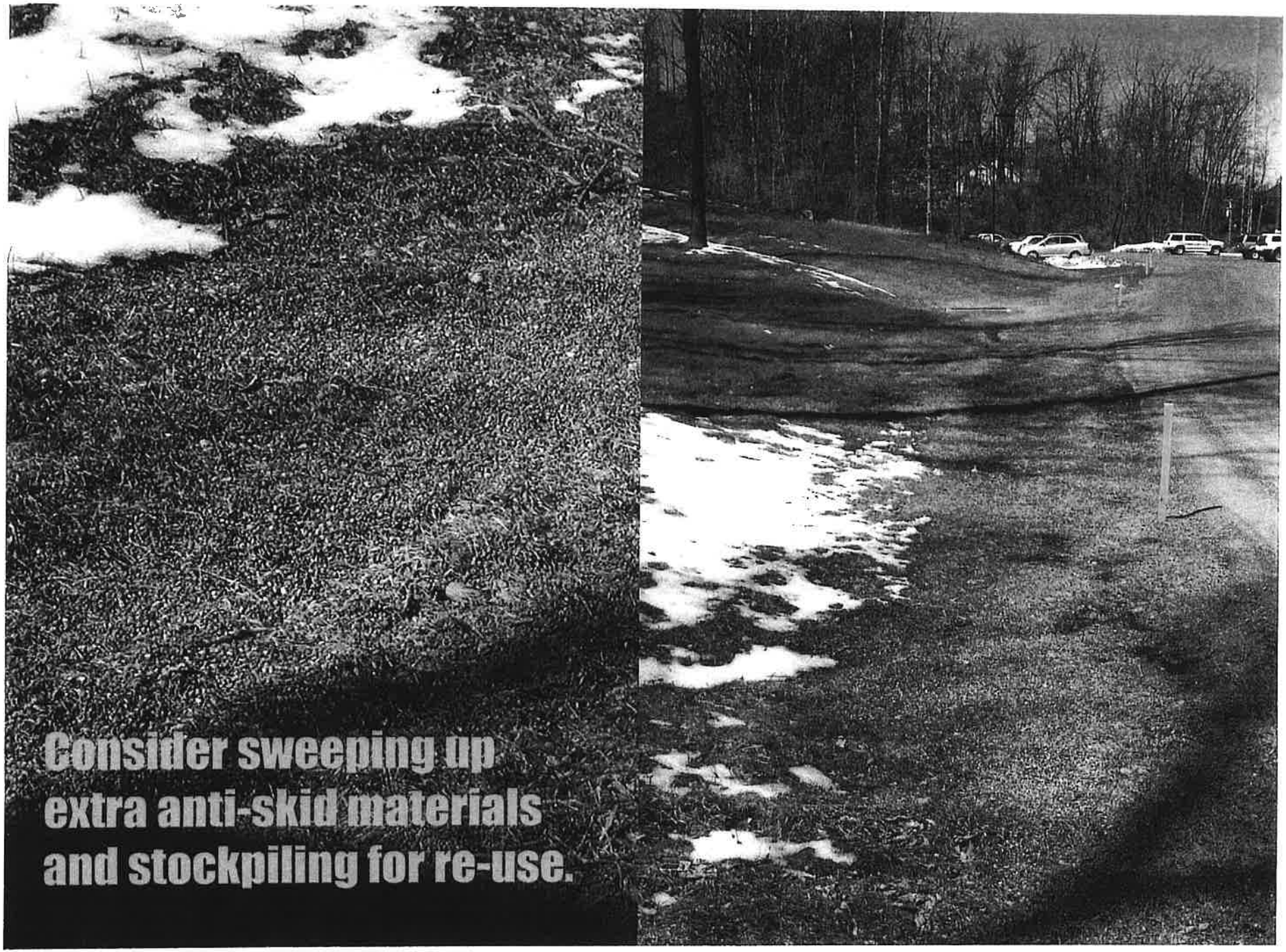
- Use of deicing materials other than salt in areas that drain to environmentally sensitive areas should be considered. Sources of alternatives can be found through a technical release – HITEC Releases ICE Ban (registration trademark) Evaluation Report.
- LTAP assists municipalities in training for the winter road maintenance.
- Request attendance at scheduled training sessions.

Salt and Deicing Storage Areas

- Locate all salt and deicing areas outside the 100-year floodplain.
- Cover all salt and deicing material storage piles with tarps, hard shelters or within dikes or berms.

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.


Consider sweeping up
extra anti-skid materials
and stockpiling for 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.