

**CHAPTER 23.  
BOROUGH OF PHOENIXVILLE'S  
STORMWATER MANAGEMENT  
ORDINANCE**

**ORDINANCE NO. [REDACTED] OF 2022**

**BOROUGH OF PHOENIXVILLE, CHESTER COUNTY,  
PENNSYLVANIA**

**Adopted at a Public Meeting held on**

**[REDACTED], 2022**

# TABLE OF CONTENTS

PAGE

PART 1 - GENERAL PROVISIONS.....	
Section 23-101. Short Title.....	
Section 23-102. Statement of Findings .....	
Section 23-103. Purpose .....	
Section 23-104. Statutory Authority .....	
Section 23-105. Applicability .....	
Section 23-106. Exemptions and Modified Requirements .....	
Section 23-107. Repealer .....	
Section 23-108. Severability.....	
Section 23-109. Compatibility with Other Ordinances or Legal Requirements.....	
Section 23-110. Financial Security.....	
Section 23-111. Waivers .....	
Section 23-112. Erroneous Permit .....	
PART 2 - DEFINITIONS.....	
Section 23-201. Interpretation .....	
Section 23-202. Definitions .....	
PART 3 - STORMWATER MANAGEMENT STANDARDS.....	
Section 23-301. General Requirements.....	
Section 23-302. Permit Requirements by Other Governmental Entities.....	
Section 23-303. Erosion and Sediment Control.....	
Section 23-304. Site Design Process .....	
Section 23-305. Water Quality and Runoff Volume Requirements .....	
Section 23-306. Infiltration Requirements.....	
Section 23-307. Stream Channel Protection Requirements.....	
Section 23-308. Stormwater Peak Rate Control Requirements.....	
Section 23-309. Calculation Methodology .....	
Section 23-310. Other Requirements.....	
Section 23-311. Other Conveyance and System Design Standards .....	
PART 4- STORMWATER MANAGEMENT (SWM) SITE PLAN REQUIREMENTS ....	
.....	
Section 23-401. General Requirements .....	
Section 23-402. SWM Site Plan Contents .....	
Section 23-403. SWM Site Plan Submission.....	
Section 23-404. SWM Site Plan Review .....	
Section 23-405. Revision of SWM Site Plans .....	
Section 23-406. Resubmission of Inconsistent or Noncompliant SWM Site Plans .....	

**TABLE OF CONTENTS**  
**(continued)**

**PAGE**

PART 5 - PERFORMANCE AND INSPECTION OF REGULATED ACTIVITIES,  
AND FINAL AS-BUILT PLANS.....

    Section 23-501. Performance and Inspection of Regulated Activities .....

    Section 23-502. Final As-Built Plans.....

PART 6 - FEES AND EXPENSES .....

    Section 23-601. Municipality SWM Site Plan Review and Inspection Fees.....

    Section 23-602. Expenses Covered by Fees .....

PART 7 - OPERATION AND MAINTENANCE (O&M) RESPONSIBILITIES AND  
EASEMENTS.....

    Section 23-701. General Requirements for Protection, Operation and Maintenance of  
        Stormwater BMPs and Conveyances .....

    Section 23-702. Operation and Maintenance Plans.....

    Section 23-703. Operation and Maintenance Agreements. ....

    Section 23-704. Easements and Deed Restrictions.....

    Section 23-705. Other Post-construction Responsibilities .....

    Section 23-706. *Inspection and BMP Operation and Maintenance Requirements*  
        *(Landowner or Owner's Designee)*

PART 8 - PROHIBITIONS. ....

    Section 23-801. Prohibited Discharges .....

    Section 23-802. Prohibited Connections .....

    Section 23-803. Pet Waste.....

    Section 23-803. Roof Drains and Sump Pumps .....

    Section 23-804. Alteration of BMPs .....

PART 9 - ENFORCEMENT AND PENALTIES. ....

    Section 23-901. Public Nuisance .....

    Section 23-902. Right of Entry .....

    Section 23-903. Enforcement .....

    Section 23-904. Suspension and Revocation of Permits and Approvals .....

    Section 23-905. Penalties .....

    Section 23-906. Appeals .....

    Section 23-907. Effective Date .....

**TABLE OF CONTENTS**  
**(continued)**

**PAGE**

**ATTACHMENTS**

Attachment A. Simplified Approach to Stormwater Management for Small Projects .....	
A.1.    Applicability, Submittal and Approval Requirements.....	
A.2.    “ <i>Simplified Approach to Stormwater Management for Small Projects – Handbook</i> ” .....	
Attachment B. Conservation Design and Low Impact Development Site Design Process .....	
Attachment C. Runoff Coefficients and Curve Numbers .....	
Attachment D. West Nile Virus Design Guidance .....	
Attachment E. Phoenixville Borough Watershed Map.....	
Attachment F. “ <i>Stormwater Best Management Practices and Conveyances Operation and Maintenance Agreement</i> ” - Sample Agreement .....	

## **PART 1 – GENERAL PROVISIONS**

### **§23-101. Short Title**

This Chapter shall be known as the “Borough of Phoenixville Stormwater Management Ordinance” and/or “SWMO.”

### **§23-102. Statement of Findings**

The Governing Body of the Borough finds that:

- A. Inadequate management of accelerated stormwater runoff resulting from land disturbance and development throughout a watershed increases flooding, flows and velocities, contributes to erosion and sedimentation, overtaxes the capacity of streams and storm sewers, greatly increases the cost of public facilities to convey and manage stormwater, undermines floodplain management and flood reduction efforts in upstream and downstream communities, reduces infiltration and groundwater recharge, increases nonpoint source pollution to waterways, and threatens public health and safety.
- B. Inadequate planning and management of stormwater runoff resulting from land disturbance and development throughout a watershed can harm surface water resources by changing the natural hydrologic patterns, accelerating stream flows (which increase scour and erosion of stream beds and stream banks, thereby elevating sedimentation), destroying aquatic habitat, and elevating aquatic pollutant concentrations and loadings such as sediments, nutrients, heavy metals, and pathogens. Groundwater resources are also impacted through loss of recharge.
- C. A comprehensive program of stormwater management, including minimization of impacts of New Development, Redevelopment, and other Earth Disturbance Activities causing accelerated runoff and erosion and loss of natural infiltration, is fundamental to the public health, safety, and general welfare of the people of the Municipality and all of the people of the Commonwealth, their resources, and the environment.
- D. Stormwater is an important water resource that provides infiltration and groundwater recharge for water supplies and baseflow of streams, which also protects and maintains surface water quality.
- E. Impacts from stormwater runoff can be minimized by reducing the volume of stormwater generated and by using project designs that maintain the natural hydrologic regime and sustain high water quality, infiltration, stream baseflow, and aquatic ecosystems. Cost-effective and environmentally sensitive stormwater management can be achieved through the use of nonstructural Site design techniques that minimize Impervious Surfaces, reduce disturbance of land and natural resources, avoid sensitive

areas (i.e., riparian buffers, floodplains, steep slopes, wetlands, etc.), and consider topography and soils to maintain the natural hydrologic regime.

- F. Public education on the control of pollution from stormwater is an essential component in successfully addressing stormwater.
- G. Federal and State regulations require the Borough to implement a program of stormwater controls. The Borough is required to obtain a permit and comply with its provisions for stormwater discharges from its Separate Storm Sewer System under the National Pollutant Discharge Elimination System (NPDES).
- H. Non-stormwater discharges to municipal or other storm sewer systems can contribute to pollution of the Waters of the Commonwealth.
- I. The use of green infrastructure, low impact development (LID), and Conservation Design (CD) are intended to address the root cause of water quality impairment by using systems and practices which use or mimic natural processes to: 1) infiltrate and recharge, 2) evapotranspire, and/or 3) harvest and use precipitation near where it falls to earth. Green infrastructure practices, LID, and CD contribute to the restoration or maintenance of pre-development hydrology.

### **§23-103. Purpose**

The purpose of this Chapter is to protect public health, safety and general welfare, property, and water quality by implementing drainage and stormwater management practices, criteria, and provisions included herein for land development, construction, and Earth Disturbance Activities, to achieve the following throughout the Municipality:

- A. Reduce the frequency and magnitude of flooding and stormwater impacts affecting people, property, infrastructure, and public services.
- B. Sustain or improve the natural hydrologic characteristics and water quality of groundwater and surface waters.
- C. Protect natural resources, including riparian and aquatic living resources and habitats.
- D. Maintain the natural hydrologic regime of Land Development Sites and their receiving watersheds.
- E. Minimize land disturbance and protect and incorporate natural hydrologic features, drainage patterns, infiltration, and flow conditions within Land Development Site designs.

- F. Reduce and minimize the volume of stormwater generated and manage and release stormwater as close to the source of runoff as possible.
- G. Provide infiltration and maintain natural groundwater recharge to protect groundwater supplies and stream baseflows, prevent degradation of surface water and groundwater quality, and to otherwise protect water resources.
- H. Reduce stormwater pollutant loads to protect and improve the chemical, physical, and biological quality of ground and surface waters.
- I. Reduce scour, erosion, and sedimentation of stream channels.
- J. Reduce flooding impacts and preserve and restore the natural flood-carrying capacity of streams and their floodplains.
- K. Protect adjacent and downgradient lands from adverse impacts of direct stormwater discharges.
- L. Minimize Impervious Surfaces and connected Impervious Surfaces to promote infiltration and reduce the volume and impacts of stormwater runoff.
- M. Provide proper long-term operation and maintenance of all permanent stormwater management facilities, BMPs and Conveyances that are implemented within the Municipality.
- N. Reduce the impacts of runoff from existing developed land undergoing Redevelopment while encouraging New Development and Redevelopment in urban areas and areas designated for growth.
- O. Implement an illicit discharge detection and elimination program that addresses non-stormwater discharges.
- P. Provide stormwater management performance standards and design criteria on a watershed basis.
- Q. Provide standards to meet certain NPDES stormwater permit requirements.
- R. Meet legal water quality requirements under State law, including regulations at 25 PA Code Chapter 93, to protect, maintain, reclaim, and restore the existing and designated uses of the Waters of the Commonwealth.
- S. Implement the requirements of Total Maximum Daily Load (TMDLs) where applicable to waters within or impacted by the Borough.
- T. Provide review procedures and performance standards for stormwater planning and management.

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

*“(1) Encourage planning and management of storm water runoff in each watershed which is consistent with sound water and land use practices.*

*(2) Authorize a comprehensive program of stormwater management designed to preserve and restore the flood carrying capacity of Commonwealth streams; to preserve to the maximum extent practicable natural stormwater runoff regimes and natural course, current and cross-section of water of the Commonwealth; and to protect and conserve ground waters and ground-water recharge areas.*

*(3) Encourage local administration and management of storm water consistent with the Commonwealth's duty as trustee of natural resources and the people's constitutional right to the preservation of natural, economic, scenic, aesthetic, recreational and historic values of the environment.”*

#### **§23-104. Statutory Authority**

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

- A. Act of October 4, 1978, P.L. 864 (Act 167), 32 P.S. § 680.1 *et seq.*, as amended, the “Storm Water Management Act” (hereinafter referred to as “the Act”);
- B. Pennsylvania Borough Code, 8 Pa.C.S.A. § 101 *et seq.*, as amended;
- C. Act of July 31, 1968, P.L. 805, Act 247, 53 P.S. § 10101, *et seq.*, as amended, the “Pennsylvania Municipalities Planning Code” (hereinafter referred to as the “MPC”).

#### **§23-105. Applicability**

- A. The following activities are regulated by this Chapter:
  - 1. All Regulated Activities as defined in this Chapter including, but not limited to, New Development, Redevelopment, and Earth Disturbance Activities that are located within the Municipality shall be subject to regulation by this Chapter.
  - 2. When a building and/or grading permit is required for any Regulated Activity on an existing parcel or approved lot created by a subdivision and/or improved as a land development project, issuance of the permit shall be conditioned upon adherence to the terms of this Chapter.

3. This Chapter contains the stormwater management performance standards and design criteria that are necessary from a watershed-based perspective. The Municipality's stormwater management conveyance and system design criteria (e.g., inlet spacing, inlet type, collection system design and details, outlet structure design, etc.) shall continue to be regulated by the applicable municipal ordinance(s) and applicable State regulations, and/or as included in Section 23-311 of this Chapter.

#### B. Duty of Persons Engaged in a Regulated Activity

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

#### C. Phased and Incremental Project Requirements

1. Any Regulated Activity (including but not limited to New Development, Redevelopment, or Earth Disturbance) that is to take place incrementally or in phases, or occurs in sequential projects on the same parcel or property, shall be subject to regulation by this Chapter if the Regulated Impervious Surface or Earth Disturbance exceeds the corresponding threshold for exemption (as presented in Table 106.1 "Thresholds for Regulated Activities that are Exempt from the Provisions of this Chapter as Listed Below").
2. The date of adoption of this Chapter shall be the starting point from which to consider tracts as parent tracts relative to future subdivisions, and from which Impervious Surface and Earth Disturbance computations shall be cumulatively considered, unless such requirements have previously been adopted, then the earliest date of the applicable Borough ordinance adoption shall remain as the starting point.

For example:

If, after adoption of this Chapter, an Applicant proposes construction of a four hundred (400) square foot garage, that project would be exempt from the requirements of this Chapter as noted in Table 106.1. If, at a later date, an Applicant proposes to construct a three hundred (300) square foot room addition on the same property, the Applicant would then be required to implement the stormwater management and plan submission requirements of this Chapter for the cumulative

total of seven hundred (700) square feet of additional Impervious Surface added to the property since adoption of this Chapter.

## **§23-106. Exemptions and Modified Requirements**

### **A. Requirements for Exempt Activities**

1. An exemption from any requirement of this Chapter shall not relieve the Applicant from implementing all other applicable requirements of this Chapter or from implementing such measures as are necessary to protect public health, safety, and welfare, property, and water quality.
2. An exemption shall not relieve the Applicant from complying with the requirements for State-designated special protection waters designated by PADEP as high quality (HQ) or exceptional value (EV) waters, or any other current or future State or Borough water quality protection requirements.
3. An exemption under this Chapter shall not relieve the Applicant from complying with all other applicable Borough ordinances or regulations.
4. Additional exemption criteria
  - a. Where drainage problems are documented or known to exist downstream from the proposed activity or are expected to be caused by the proposed activity, the Borough may deny exemptions.
  - b. The Borough may deny exemptions in areas designated as high quality (HQ) or exceptional value (EV) waters and source water protection areas (SWPA). Note that Pickering Creek is designated as a high-quality water as per Title 25, Chapter 93 Water Quality Standards of the PA Code. A map of the Pickering Creek watershed can be found in Attachment E.

### **B. General Exemptions. Regulated Activities that:**

1. Involve less than five hundred (500) square feet of Regulated Impervious Surfaces AND less than five thousand (5,000) square feet of Earth Disturbance; or
2. Are listed in Section 23-106.C,

are exempt from those (and only those) requirements of this Chapter that are included in the Sections and Parts listed in Table 106.1. Exemptions are for the items noted in Table 106.1 only and shall not relieve the Landowner from other applicable requirements of this Chapter. Exemption shall not relieve the Applicant from implementing such measures as are necessary to protect health, safety, and welfare, property, and water quality.

**TABLE 106.1**  
**Thresholds for Regulated Activities that are Exempt from the Provisions of this**  
**Chapter as Listed Below (see Notes below)**

<b>Chapter Part/Section</b>	<b>Activities Listed in Subsection 106.C.</b>	<b>&lt; 500 sq. ft. of Regulated Impervious Surfaces AND &lt; 5,000 sq. ft. of Proposed Earth Disturbance</b>	<b>≥ 1,000 sq. ft. of Regulated Impervious Surfaces OR ≥ 5,000 sq. ft. of Proposed Earth Disturbance</b>
Part 1	Not Exempt	Not Exempt	Not Exempt
Part 2	Not Exempt	Not Exempt	Not Exempt
§§ 23-302, 23-303, and 23-311	Not Exempt	Not Exempt	Not Exempt
§§ 23-301, 23-304, 23-305, 23-306, 23-307, 23-308, 23-309, and 23-310	Exempt	Exempt	Not Exempt
Part 4	Exempt	Exempt	Not Exempt
Part 5	Exempt	Exempt	Not Exempt
Part 6	Exempt	Exempt	Not Exempt
Part 7	Exempt	Exempt	Not Exempt
Part 8	Not Exempt	Not Exempt	Not Exempt
Part 9	Not Exempt	Not Exempt	Not Exempt
Other Erosion, Sediment and Pollution Control Requirements	Must comply with Title 25, Chapter 102 of the PA Code and other applicable State and municipal codes, including the Clean Streams Law.		

**Table 106.1 Notes:**

- Specific activities listed in Subsection 106.C are exempt from the indicated requirements, regardless of size.
- A proposed Regulated Activity must be less than BOTH the Regulated Impervious Surfaces and proposed Earth Disturbance thresholds to be eligible for exemption from the requirements listed in this table.
- “Regulated Impervious Surface” - as defined in this Chapter.
- “Exempt” – Regulated Activities are exempt from the requirements of listed section(s)

only; all other provisions of this Chapter apply. These exemptions have no bearing on other municipal regulations or ordinances.

C. Exemptions for Specific Activities. The following specific Regulated Activities are exempt from the requirements of §§ 23-301, 23-304, 23-305, 23-306, 23-307, 23-308, 23-309, and 23-310, and Parts 4, 5, 6, and 7 of this Chapter (as shown in Table 106.1), unless otherwise noted below. All other conveyance and system design standards established by the Municipality in other codes or ordinances shall be required, and all other provisions of this Chapter shall apply.

1. Emergency Exemption. Emergency maintenance work performed for the protection of public health, safety, and welfare. This exemption is limited to repair of the existing Stormwater Management Facility; upgrades, additions or other improvements are not exempt. A written description of the scope and extent of any emergency work performed shall be submitted to the Municipality within two (2) calendar days of the commencement of the activity. A detailed plan shall be submitted no later than thirty (30) days following commencement of the activity. If the Municipality finds that the work is not an emergency, then the work shall cease immediately, and the requirements of this Chapter shall be addressed as applicable.
2. Maintenance. Any maintenance to an existing Stormwater Management Facility, BMP or Conveyance made in accordance with plans and specifications approved by the Municipal Engineer or Municipality.
3. Existing Landscaping. Use of land for maintenance, replacement, or enhancement of existing landscaping.
4. Gardening. Use of land for gardening for home consumption.
5. Agricultural Related Activities.
  - a. Agricultural Activities (as defined in Part 2), when performed in accordance with the requirements of 25 PA Code Chapter 102.
  - b. Conservation Practices (as defined in Part 2) that do not involve construction of any new or expanded Impervious Surfaces.
  - c. High Tunnels (as defined in Part 2), if:
    - i. The High Tunnel or its flooring does not result in an impervious surface exceeding 25% of all structures located on the Landowner's total contiguous land area; and
    - ii. The High Tunnel meets one of the following:
      - (1) The High Tunnel is located at least 100 feet from any perennial stream or watercourse, public road, or neighboring property line.
      - (2) The High Tunnel is located at least 35 feet from any perennial stream or watercourse, public road or neighboring

property line and located on land with a slope not greater than 7%.

- (3) The High Tunnel is supported with a buffer or diversion system that does not directly drain into a stream or other watercourse by managing stormwater runoff in a manner consistent with the requirements of this Chapter.
6. Forest Management. Forest management operations, which are consistent with a sound forest management plan as filed with the Municipality and which comply with the Pennsylvania Department of Environmental Protection's management practices contained in its publication "Soil Erosion and Sedimentation Control Guidelines for Forestry" (as amended or replaced by subsequent guidance). Such operations are required to have an Erosion and Sedimentation Control Plan, which meets the requirements of 25 PA Code Chapter 102 and meets the erosion and sediment control standards of §23-303 of this Chapter.
  7. Maintenance of Existing Gravel and Paved Surfaces. Replacement of existing gravel and paved surfaces shall meet the erosion and sediment control requirements of 25 PA Code Chapter 102 and §23-303 of this Chapter and is exempt from all other requirements of this Chapter listed in §23-106.C above. Resurfacing of existing gravel and paved surfaces is exempt from the requirements of this Chapter listed above. Paving of existing gravel surfaces is exempt from the requirements of this Chapter listed above. Construction of new or additional Impervious Surfaces shall comply with all requirements of this Chapter as indicated in Table 106.1.
  8. Municipal Roadway Shoulder Improvements. Shoulder improvements conducted within the existing roadway cross-section of municipal owned roadways, unless an NPDES permit is required, in which case the proposed work must comply with all requirements of this Chapter.
  9. In-Place Replacement of Residential Dwelling Unit. The replacement in the exact footprint of an existing one- or two-family dwelling unit.
  10. In-Place Replacement, Repair, or Maintenance of Residential Impervious Surfaces. The replacement of existing residential patios, decks, driveways, pools, garages, and/or sidewalks that are accessory to an existing one- or two-family dwelling unit in the exact footprint of the existing Impervious Surface.
- D. Modified Requirements for Small Projects. Regulated Activities that involve five hundred (500) to two thousand (2,000) square feet of Regulated Impervious Surfaces and less than five thousand (5,000) square feet of propose Earth Disturbance may apply the modified requirements presented in the "Simplified Approach to Stormwater Management for Small Projects" (Simplified Approach) (Attachment A) to comply with the requirements of §§ 23-301, 23-304, 23-305, 23-306, 23-307, 23-308, 23-309, and 23-310, and Parts 4, 5, 6, and 7 of this Chapter (as shown in Table 106.2). The Applicant shall first contact the Municipal Engineer: to confirm that the proposed project is eligible

for use of the Simplified Approach and is not otherwise exempt from these Chapter provisions; to determine what components of the proposed project are to be considered as Impervious Surfaces; and to determine if other known Site or local conditions exist that may preclude the use of any techniques included in the Simplified Approach. Attachment A includes instructions and procedures for preparation, submittal, review, and approval of documents required when using the Simplified Approach and shall be adhered to by the Applicant. Infiltration testing for projects using the Simplified Approach is recommended but is not required by this Chapter. All other provisions of this Chapter shall apply.

**TABLE 106.2**  
**Thresholds for Regulated Activities that are Eligible for “Modified” Requirements**  
**for the Provisions of this Chapter that are Listed Below**

Chapter Part/Section	Activities Listed in § 106.D
Part 1	All Provisions Apply
Part 2	All Provisions Apply
§§ 23-302, 23-303, and 23-311	All Provisions Apply
§§ 23-301, 23-304, 23-305, 23-306, 23-307, 23-308, 23-309, and 23-310	Exempt if Modified Requirements of §23-106.D are Applied
Part 4	Exempt if Modified Requirements of §23-106.D are Applied
Part 5	Exempt if Modified Requirements of §23-106.D are Applied
Part 6	Exempt if Modified Requirements of §23-106.D are Applied
Part 7	Exempt if Modified Requirements of §23-106.D are Applied
Part 8	All Provisions Apply
Part 9	All Provisions Apply
Other Erosion, Sediment and Pollution Control Requirements	Must comply with Title 25, Chapter 102 of the PA Code and other applicable State and municipal codes, including the Clean Streams Law.

**Table 106.2 Notes:**

- “Modified Requirements” – Regulated Activities listed within the Subsections of this Chapter noted in **Table 106.2** are eligible for exemption only from the indicated sections and subsections of this Chapter and only if the modified requirements of §23-106.D are

met to the satisfaction of the Municipality; all other provisions of this Chapter apply.

### **§23-107. Repealer**

Any ordinance or ordinance provision of the Municipality inconsistent with any of the provisions of this Chapter are hereby repealed to the extent of the inconsistency only.

### **§23-108. Severability**

If any sentence, clause, section, or part of this Chapter is for any reason found to be unconstitutional, illegal, or invalid, such unconstitutionality, illegality or invalidity shall not affect or impair any of the remaining provisions, sentences, clauses, sections, or parts of this Chapter. It is hereby declared the intent of the Governing Body of the Municipality that this Chapter would have been adopted had such unconstitutional, illegal, or invalid provision, sentence, clause, section, or part thereof not been included herein.

### **§23-109. Compatibility with Other Ordinances or Legal Requirements**

- A. Approvals issued and actions taken pursuant to this Chapter do not relieve the Applicant of the responsibility to secure and comply with other required permits or approvals for activities regulated by any other applicable code, rule, act, law, regulation, or ordinance.
- B. To the extent that this Chapter imposes more rigorous or stringent requirements for stormwater management than any other code, rule, act, law, regulation or ordinance, the specific requirements contained in this Chapter shall take precedence.
- C. Nothing in this Chapter shall be construed to affect any of the Municipality's requirements regarding stormwater matters that do not conflict with the provisions of this Chapter, such as local stormwater management design criteria (e.g., inlet spacing, inlet type, collection system design and details, outlet structure design, etc.). The requirements of this Chapter shall supersede any conflicting requirements in other municipal ordinances or regulations.

### **§23-110. Financial Security**

For all activities requiring submittal of a Stormwater Management (SWM) Site Plan that involve subdivision or land development, the Applicant shall post financial security to the Municipality for the timely installation and proper construction of all stormwater management facilities as required by the approved SWM Site Plan and this Chapter, and such financial security shall:

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

AND

- B. Be determined, collected, applied, and enforced in accordance with Sections 509-511 of the MPC and the provisions of the Municipality's Subdivision and Land Development Ordinance (SALDO).

### **§23-111. Waivers**

- A. General. The requirements of this Chapter are essential and shall be strictly adhered to. For any Regulated Activity where, after a close evaluation of alternative Site designs, it proves to be impracticable to meet any one or more of the mandatory minimum standards of this Chapter on the Site, the Municipality may approve measures other than those in this Chapter, subject to Sections 23-111.B and 23-111.C.
- B. The Governing Body shall have the authority to waive or modify the requirements of one or more provisions of this Chapter if the literal enforcement will exact undue hardship because of peculiar conditions pertaining to the land in question, provided that such modification will not be contrary to the public interest and that the purpose and intent of the Chapter is observed. Cost or financial burden shall not be considered a hardship. Modification may also be considered if an alternative standard or approach can be demonstrated to provide equal or better achievement of the results intended by the Chapter. A request for modification shall be in writing and accompany the SWM Site Plan submission. The request shall state in full the grounds and facts on which the request is based, the provision or provisions of the Chapter involved and the minimum modification necessary.
- C. PADEP Approval Required. No waiver or modification of any regulated stormwater activity involving Earth Disturbance greater than or equal to one (1) acre may be granted by the Municipality unless that action is approved in advance by PADEP or the Chester County Conservation District.

### **§23-Erroneous Permit**

Any permit or authorization issued or approved based on false, misleading, or erroneous information provided by an Applicant is void without the necessity of any proceedings for revocation. Any work undertaken or use established pursuant to such permit or other authorization is unlawful. No action may be taken by a board, agency, or employee of the Municipality purporting to validate such a violation.

## PART 2 – DEFINITIONS

### §23-201. Interpretation

For the purposes of this Chapter, certain terms and words used herein shall be interpreted as follows:

- A. Words used in the present tense include the future tense; the singular number includes the plural, and the plural number includes the singular; words of masculine gender include feminine gender; and words of feminine gender include masculine gender.
- B. The word “includes” or “including” shall not limit the term to the specific example but is intended to extend its meaning to all other instances of like kind and character.
- C. The word “person” includes an individual, partnership, public or private association or corporation, firm, trust, estate, municipality, governmental unit, public utility, or any other legal entity whatsoever which is recognized by law as the subject of rights and duties. Whenever used in any section prescribing or imposing a penalty, the term “person” shall include the members of a partnership, the officers, members, servants and agents of an association, officers, agents and servants of a corporation, and the officers of a municipality.
- D. The words “shall” and “must” are mandatory; the words “may” and “should” are permissive.
- E. The words “used” or “occupied” include the words “intended, designed, maintained, or arranged to be used, occupied, or maintained.”
- F. The definitions in this Chapter are for the purposes of enforcing the provisions of this Chapter and have no bearing on other municipal regulations or Ordinances.

### §23-202. Definitions

**Agricultural Activity** – Activities associated with agriculture such as agricultural cultivation, agricultural operation, and animal heavy use areas. This includes the work of producing crops including tillage, plowing, disking, harrowing, planting, or harvesting crops; or pasturing and raising of livestock; and installation of conservation measures. Construction of new buildings or impervious area is not considered an Agricultural Activity.

**Applicant** – A Landowner, developer, or other person who has filed an application to the Municipality for approval to engage in any Regulated Activity as defined in this Chapter.

**As-Built Plans (Drawings)** – Engineering or Site plans or drawings that document the actual locations, dimensions, and elevations of the improvements, and building components, and changes made to the original design plans. The final version of these documents, or a copy of same, are signed and sealed by a qualified Licensed Professional and submitted to the Municipality at the completion of the project, as per the requirements of Section 23-502 of this Chapter as “Final As-Built Plans”.

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

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

**BMP (Best Management Practice)** – Activities, facilities, designs, measures, or procedures used to manage stormwater impacts from Regulated Activities, to provide water quality treatment, infiltration, volume reduction, and/or peak rate control, to promote groundwater recharge, and to otherwise meet the purposes of this Chapter. Stormwater BMPs are commonly grouped into one (1) of two (2) broad categories or measures: (1) “structural”; or (2) “nonstructural.” In this Chapter, nonstructural BMPs or measures include certain low impact development and conservation design practices used to minimize the contact of pollutants with stormwater runoff. These practices aim to limit the total volume of stormwater runoff and manage stormwater at its source by techniques such as protecting natural systems and incorporating existing landscape features. Nonstructural BMPs include, but are not limited to, the protection of sensitive and special value features such as wetlands and riparian areas, the preservation of open space while clustering and concentrating development, the reduction of impervious cover, and the disconnection of rooftops from storm sewers. Structural BMPs are those that consist of a system that is designed and engineered to capture and treat stormwater runoff. Structural BMPs include, but are not limited to, a wide variety of practices and devices from large-scale retention ponds and constructed wetlands to small-scale underground treatment systems, infiltration facilities, filter strips, bioretention, wet ponds, permeable paving, grassed swales, riparian buffer, sand filters, detention basins, and manufactured devices. Structural and nonstructural stormwater BMPs are permanent appurtenances to the Site.

**Buffer** – See Riparian Buffer.

**Carbonate Geology (or carbonate rock formations)** – See Karst.

**CFS** – Cubic Feet per Second.

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

**CN** – Curve number.

**Commonwealth** – Commonwealth of Pennsylvania.

**Conservation District** – The Chester County Conservation District.

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

**Conservation Plan** – A plan written by a planner certified by NRCS that identifies Conservation Practices and includes site specific BMPs for agricultural plowing or tilling activities and animal heavy use areas.

**Conservation Practices** – Practices installed on agricultural lands to improve farmland, soil and/or water quality which have been identified in a current Conservation Plan.

**Conveyance** – A natural or manmade, existing, or proposed Stormwater Management Facility, feature or channel used for the transportation or transmission of stormwater from one place to another. For the purposes of this Chapter, Conveyance shall include pipes, drainage ditches, channels, and swales (vegetated and other), gutters, stream channels, and like facilities or features.

**Design Storm** – The magnitude and temporal distribution of precipitation from a storm event measured in probability of occurrence (e.g., a 5-year storm) and duration (e.g., 24 hours), used in the design and evaluation of stormwater management systems. Also see Return Period.

**Detention (or To Detain)** – Capture and temporary storage of runoff in a Stormwater Management Facility for release at a controlled rate.

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

**Detention Volume** - The volume of runoff that is captured and released into the Waters of the Commonwealth at a controlled rate.

**Developer** – A person, company, or organization who seeks to undertake any Regulated Activities at a Site with the express written permission of the Landowner in the Municipality.

**Diameter at Breast Height (DBH)** – The outside bark diameter of a tree at breast height which is defined as 4.5 feet above the forest floor on the uphill side of the tree.

**Disturbed Area** – Land area disturbed by or where an Earth Disturbance Activity is occurring or has occurred.

**Drainage Area** - That land area contributing runoff to a single point (including but not limited to the point/line of interest used for hydrologic and hydraulic calculations) and that is enclosed by a natural or man-made ridge line.

**Earth Disturbance (or Earth Disturbance Activity)** – A construction or other human activity which disturbs the surface of the land, including, but not limited to, clearing and grubbing; grading; excavations; embankments; road maintenance; land development; building construction; and the moving, depositing, stockpiling, or storing of soil, rock, or earth materials.

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

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

**Erosion and Sediment (E&S) Control Plan** – A plan required by the Conservation District or the Municipality to minimize accelerated erosion and sedimentation, and that must be prepared and approved per the applicable requirements.

**Evapotranspiration (ET)** – The combined processes of evaporation from the water or soil surface and transpiration of water by plants.

**FEMA** – Federal Emergency Management Agency.

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

**Floodplain** - Any land area susceptible to inundation by water from any natural source or delineated by applicable FEMA maps and studies as being a Special Flood Hazard Area.

**Floodway** - The channel of the watercourse and those portions of the adjoining floodplains that are reasonably required to carry and discharge the one hundred-year flood (also called the base flood or one percent (1%) annual chance flood). Unless otherwise specified, the boundary of the floodway is as indicated on maps and flood insurance studies provided by FEMA. In an area where no FEMA maps or studies have defined the boundary of the one hundred-year floodway, it is assumed, absent evidence to the contrary, that the floodway extends from the centerline of the stream and to 50 feet beyond the top of the bank of the stream on both sides.

**Forest Management/Timber Operations** – Planning and activities necessary for the management of forest lands. These include timber inventory, preparation of forest management plans, silvicultural treatment, cutting budgets, logging road design and construction, timber harvesting, Site preparation, and reforestation.

**Freeboard** – A vertical distance between the design high-water elevation and the elevation of the top of a dam, levee, tank, basin, swale, or diversion berm. The space is required as a safety margin in a pond or basin.

**Geotextile** – A fabric manufactured from synthetic fiber that is used to achieve specific objectives, including infiltration, separation between different types of media (i.e., between soil and stone), or filtration.

**Governing Body** - the Council of the Borough of Phoenixville.

**Grade/Grading** – 1. (noun) A slope, usually of a road, channel, or natural ground, specified in percent and shown on plans as specified herein. 2. (verb) To finish the surface of a roadbed, the top of an embankment, or the bottom of an excavation.

**Green Infrastructure** – Systems and practices that use or mimic natural processes to infiltrate, evapotranspire, or reuse stormwater on the site where it is generated.

**Groundwater** – Water that occurs in the subsurface and fills or saturates the porous openings, fractures and fissures of under-ground soils and rock units.

**Groundwater Recharge** – The replenishment of existing natural groundwater supplies from infiltration of rain or overland flow.

**HEC-1** – The U.S. Army Corps of Engineers, Hydrologic Engineering Center (HEC) hydrologic runoff model.

**HEC-HMS** – The U.S. Army Corps of Engineers, Hydrologic Engineering Center (HEC) - Hydrologic Modeling System (HMS).

**High Tunnel** - A structure which meets the following:

- A. is used for the production, processing, keeping, storing, sale or shelter of an agricultural commodity as defined in section 2 of the Act of December 19, 1974

(P.L. 973, No. 319), known as the “Pennsylvania Farmland and Forest Land Assessment Act of 1974,” or for the storage of agricultural equipment or supplies; and

- B. is constructed with all the following:
1. has a metal, wood, or plastic frame;
  2. when covered, has a plastic, woven textile, or other flexible covering; and
  3. has a floor made of soil, crushed stone, matting, pavers, or a floating concrete slab.

**Hotspots** – Areas where prior or existing land use or activities can potentially generate highly contaminated runoff with concentrations of pollutants in excess of those typically found in stormwater.

**Hydrologic Regime** – The hydrologic system, cycle or balance that sustains the quality and quantity of stormwater, stream baseflow, storage, and groundwater supplies under natural conditions.

**Hydrologic Soil Group (HSG)** – A classification of soils by the Natural Resources Conservation Service (NRCS), into four (4) runoff potential groups. The groups range from A soils, which are very permeable and produce little runoff, to D soils, which are not very permeable and produce much more runoff.

**Impervious Surface** - A surface that has been compacted or covered with a layer of material so that it prevents or is resistant to infiltration of water, including but not limited to: structures such as roofs, buildings, storage sheds; other solid, paved, or concrete areas such as streets, driveways, sidewalks, parking lots, patios, decks, swimming pools, tennis or other paved courts; or athletic playfields comprised of synthetic turf materials. For the purposes of determining compliance with this Chapter, compacted soils or stone surfaces used for vehicle parking and movement shall be considered impervious. Uncompacted gravel areas with no vehicular traffic, such as gardens, walkways, or patios areas, shall be considered pervious per review by the Municipal Engineer. Surfaces that were designed to allow infiltration (i.e., pavers and areas of porous pavement) are not to be considered impervious surface if designed to function as a BMP per review by the Municipal Engineer. Additionally, for the purposes of determining compliance with this Chapter, the total horizontal projection area of all ground-mounted and free-standing solar collectors, including solar photovoltaic cells, panels, and arrays, shall be considered pervious so long as the designs note that natural vegetative cover will be preserved and/or restored underneath the solar photovoltaic cells, panels, and arrays, and the area disturbed is planned as a vegetated pervious surface.

**Infiltration** – Movement of surface water into the soil, where it is absorbed by plant roots, evaporated into the atmosphere, or percolated downward to recharge groundwater.

**Infiltration Facility** – A stormwater BMP designed to collect and discharge runoff into the subsurface in a manner that allows infiltration into underlying soils and groundwater (e.g., French drains, seepage pits, or seepage trenches, etc.).

**Intermittent Stream** – A defined channel in which surface water is absent during a portion of the year, in response to seasonal variations in precipitation or groundwater discharge.

**Invert** – The lowest surface, the floor or bottom of a culvert, pipe, drain, sewer, channel, basin, BMP, or orifice.

**Karst** – A type of topography that is formed over limestone or other carbonate rock formations by dissolving or solution of the rock by water, and that is characterized by closed depressions, sinkholes, caves, a subsurface network of solution conduits and fissures through which groundwater moves, and no perennial surface drainage features.

**Land Development** – Any of the following activities:

- A. The improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving:
  - 1. A group of two or more residential or nonresidential buildings, whether proposed initially or cumulatively, or a single nonresidential building on a lot or lots regardless of the number of occupants or tenure, or
  - 2. The division or allocation of land or space, whether initially or cumulatively, between or among two or more existing or prospective occupants by means of, or for the purpose of, streets, common areas, leaseholds, condominiums, building groups, or other features;
- B. A subdivision or reverse subdivision of land;
- C. Development in accordance with Section 503(1.1) of the Pennsylvania Municipalities Planning Code (as amended);
- D. Development in accordance with the Borough Subdivision and Land Development Ordinance.

**Landowner** – The legal or beneficial owner or owners of land including the holder of an option or contract to purchase (whether or not such option or contract is subject to any condition), a lessee if they are authorized under the lease to exercise the rights of the Landowner, or other person having a proprietary interest in the land.

**Licensed Professional** – A Pennsylvania Registered Professional Engineer, Registered Landscape Architect, Registered Professional Land Surveyor, or Registered Professional Geologist, or any person licensed by the Pennsylvania Department of State or qualified by law to perform the work required by this Chapter within the Commonwealth of Pennsylvania.

**Limiting Zone** – A soil horizon or condition in the soil profile or underlying strata that includes one of the following:

- A. A seasonal high-water table, whether perched or regional, determined by direct observation of the water table or indicated by other subsurface or soil conditions.
- B. A rock with open joints, fracture or solution channels, or masses of loose rock fragments, including gravel, with insufficient fine soil to fill the voids between the fragments.

- C. A rock formation, other stratum, or soil condition that is so slowly permeable that it effectively limits downward passage of water.

**Low Impact Development (LID)** - Site design approaches and small-scale stormwater management practices that promote the use of natural systems for infiltration, evapotranspiration, and reuse of rainwater. LID can be applied to new development, urban retrofits, and revitalization projects. LID utilizes design techniques that infiltrate, filter, provide evapotranspiration and store runoff close to its source. Rather than rely on costly large-scale conveyance and treatment systems, LID addresses stormwater through a variety of small, cost-effective landscape features located on-site.

**MFEMP** – Mushroom Farm Environmental Management Plan.

**MPC** - Act of July 31, 1968, P.L. 805, Act 247, 53 P.S. § 10101, et seq., as amended, the Pennsylvania Municipalities Planning Code.

**MS4** - Municipal Separate Storm Sewer System.

**Maintenance** - The action taken to restore or preserve the as-built functional design of any Stormwater Management Facility or system.

**Municipal Engineer** – A professional engineer licensed as such in the Commonwealth of Pennsylvania, duly appointed as the engineer for a Municipality, planning agency, or joint planning commission.

**Municipality** – Borough of Phoenixville, Chester County, Pennsylvania.

**New Development** – Any Regulated Activity involving placement or construction of new Impervious Surface or grading over existing pervious land areas not classified as Redevelopment as defined in this Chapter.

**NOAA** - National Oceanic and Atmospheric Administration.

**Nonpoint Source Pollution** – Pollution that enters a water body from diffuse origins in the watershed and does not result from discernible, confined, or discrete Conveyances.

**Nonstormwater Discharges** – Water flowing in stormwater collection facilities, such as pipes or swales, which is not the result of a rainfall event or snowmelt.

**Nonstructural Best Management Practice (BMPs)** – See Best Management Practice (BMP).

**NPDES** – National Pollutant Discharge Elimination System, the Federal government’s system for issuance of permits under the Clean Water Act, which is delegated to PADEP in Pennsylvania.

**NRCS** – Natural Resource Conservation Service (previously Soil Conservation Service, SCS), an agency of the U.S. Department of Agriculture.

**PADEP** – Pennsylvania Department of Environmental Protection.

**Parent Tract** – The parcel of land from which a land development or subdivision originates, determined from the date of municipal adoption of this Chapter.

**Peak Discharge** – The maximum rate of stormwater runoff from a specific storm event.

**PennDOT** – Pennsylvania Department of Transportation.

**Pennsylvania Stormwater Best Management Practices Manual** (PA BMP Manual) - Document Number 363-0300-002 (December 2006, and as subsequently amended).

**Pervious Surface (or Pervious Area)** – Any area not defined as Impervious Surface.

**Pet** – A domesticated animal (other than a disability assistance animal) kept for amusement or companionship.

**Planning Commission** – The Planning Commission of the Borough of Phoenixville.

**Point Source** – Any discernible, confined, and discrete Conveyance including, but not limited to, any pipe, ditch, channel, tunnel, or conduit from which stormwater is or may be discharged, as defined in State regulations at 25 Pennsylvania Code § 92.1.

**Post-construction** – Period after construction during which Disturbed Areas are stabilized, stormwater controls are in place and functioning, and all proposed improvements approved by the Municipality are completed.

**Predevelopment** – Ground cover conditions assumed to exist within the proposed Disturbed Area prior to commencement of the Regulated Activity for the purpose of calculating the Predevelopment water quality volume, infiltration volume, and peak flow rates as required in this Chapter.

**Pretreatment** – Techniques employed in stormwater BMPs to provide storage or filtering, or other methods to trap or remove coarse materials and other pollutants before they enter the stormwater system but may not necessarily be designed to meet the entire water quality volume requirements of this Chapter.

**Proposed Impervious Surface** - All new, additional and replacement Impervious Surfaces.

**Rainfall Intensity** - The depth of accumulated rainfall per unit of time.

**Recharge** – The replenishment of groundwater through the infiltration of rainfall, other surface waters, or land application of water or treated wastewater.

**Redevelopment** - Any Regulated Activity that involves demolition, removal, reconstruction, or replacement of existing Impervious Surface(s).

**Regulated Activity** - Any Earth Disturbance Activity(ies) or any activity that involves the alteration or development of land in a manner that may affect stormwater runoff.

**Regulated Earth Disturbance Activity** – Any activity involving Earth Disturbance subject to regulation under 25 Pennsylvania Code Chapter 92.a, Chapter 102, or the Clean Streams Law.

**Regulated Impervious Surface** - Proposed impervious surface as part of a current proposed activity and all existing impervious surfaces installed after September 9, 2014 as part of previous activity.

**Retention or To Retain** – The prevention of direct discharge of stormwater runoff into surface waters or water bodies during or after a storm event by permanent containment in a pond or depression; examples include systems which discharge by percolation to groundwater, exfiltration, and/or evaporation processes and which generally have residence times of less than three days.

**Retention Basin** – An impoundment that is designed to temporarily detain a certain amount of stormwater from a catchment area and which may be designed to permanently retain stormwater runoff from the catchment area; retention basins always contain water.

**Retention Volume/Removed Runoff** – The volume of runoff that is captured and not released directly into the surface Waters of the Commonwealth during or after a storm event.

**Return Period** - The average interval, in years, within which a storm event of a given magnitude can be expected to occur one time. For example, the 25-year return period rainfall would be expected to occur on average once every 25 years; or stated in another way, the probability of a 25-year storm occurring in any one year is four-one hundredths (i.e., a 4% chance).

**Riparian** – Pertaining to anything connected with or immediately adjacent to the banks of a stream or other body of water.

**Riparian Buffer** – An area of land adjacent to a body of water and managed to maintain vegetation to protect the integrity of stream channels and shorelines, to reduce the impact of upland sources of pollution by trapping, filtering, and converting sediments, nutrients, and other chemicals, and to supply food, cover, and thermal protection to fish and other aquatic species and wildlife.

**Runoff** – Any part of precipitation that flows over the land surface.

**SALDO** – See Subdivision and Land Development Ordinance.

**SCS** – Soil Conservation Service, now known as the Natural Resources Conservation Service.

**Sediment** – Soil or other materials transported by, suspended in, or deposited by surface water as a product of erosion.

**Separate Storm Sewer System** – A Conveyance or system of Conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) primarily used for collecting and conveying stormwater runoff.

**Simplified Approach to Stormwater Management for Small Projects** – A document including modified requirements, instructions and procedures which has been included in this Chapter as Attachment A, Simplified Approach to Stormwater Management for Small Projects, and incorporated herein by reference, which may be amended by Borough Council by resolution from time to time.

**Sheet Flow** – A flow process associated with broad, shallow water movement on sloping ground surfaces that is not channelized or concentrated.

**Site** – Total area of land in the Municipality where any proposed Regulated Activity, as defined in this Chapter, is planned, conducted, or maintained or that is otherwise impacted by the Regulated Activity.

**Soil Cover Complex Method** – A method of runoff computation developed by NRCS that is based on relating soil type and land use/cover to a runoff parameter called curve number (CN).

**State Water Quality Requirements** – The regulatory requirements to protect, maintain, reclaim, and restore water quality under Pennsylvania Code Title 25 and the Clean Streams Law.

**Storm Frequency** – See Return Period.

**Stormwater** – Drainage runoff from the surface of the land resulting from precipitation or snow or ice melt.

**Stormwater Control Measure** - Physical features used to effectively control, minimize, and treat stormwater runoff. See Best Management Practice (BMP).

**Stormwater Management Facility** – Any feature, natural or man-made, that, due to its condition, design, or construction, conveys, stores, or otherwise affects stormwater runoff quality, rate, or quantity, including Best Management Practices and Stormwater Control Measures. Typical stormwater management facilities include, but are not limited to,

detention and retention basins, open channels, storm sewers, pipes, and Infiltration Facilities.

**Stormwater Management (SWM) Site Plan** – The plan prepared by the Applicant or its representative, in accordance with the requirements of Part 4 of this Chapter, indicating how stormwater runoff will be managed at a particular Site in accordance with this Chapter, and including all necessary design drawings, calculations, supporting text, and documentation to demonstrate that Chapter requirements have been met, herein referred to as “SWM Site Plan.” All references in this Chapter to “final” or “approved” SWM Site Plans shall incorporate the approved SWM Site Plan and all subsequent approved revisions thereto.

**Stream** – A natural watercourse.

**Structural Best Management Practices** - See BMP (Best Management Practices).

**Subdivision** - The division or re-division of a lot, tract, or parcel of land as defined in The Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247 (as amended).

**Subdivision and Land Development Ordinance** – Subdivision and Land Development ordinance of Borough of Phoenixville, Chester County, PA, as amended.

**Swale** – An artificial or natural waterway or low-lying stretch of land that gathers and conveys stormwater or runoff, and is generally vegetated for soil stabilization, stormwater pollutant removal, and infiltration.

**SWM Site Plan** – See Stormwater Management Site Plan.

**Timber Operations** – See Forest Management.

**Top-of-bank** – Highest point of elevation of the bank of a stream or channel cross-section at which a rising water level just begins to flow out of the channel and into the floodplain.

**USDA** – United States Department of Agriculture.

**Watercourse** – A channel or Conveyance of surface water having a defined bed and banks, whether natural or artificial, with perennial or intermittent flow.

**Water Table** – The upper most level of saturation of pore space or fractures by groundwater. Seasonal high-water table refers to a water table that rises and falls with the seasons due either to natural or man-made causes.

**Waters of the Commonwealth** – Any and all rivers, streams, creeks, rivulets, impoundments, ditches, watercourses, storm sewers, lakes, dammed water, wetlands, ponds, springs, and all other bodies or channels of Conveyance of surface and underground

water, or parts thereof, whether natural or artificial, within or on the boundaries of the Commonwealth.

**Watershed** – Region or area drained by a river, watercourse, or other body of water, whether natural or artificial.

**Wetland** – Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, fens, and similar areas.

**Woods** - Any land area of at least one-quarter (0.25) acre with a natural or naturalized ground cover (excluding manicured turf grass) and that has an average density of two (2) or more viable trees per one thousand five hundred (1,500) square feet with a DBH of six (6) inches or greater *and where such trees existed at any time within three (3) years of the time of land development application submission of the proposed project. The land area to be considered woods shall be measured from the outer driplines of the outer trees.*

## **PART 3 – STORMWATER MANAGEMENT STANDARDS**

### **§23-301. General Requirements**

- A. Applicants proposing Regulated Activities in the Municipality which are not exempt under Section 23-106 shall submit a Stormwater Management Site Plan (SWM Site Plan) to the Municipality for review and approval in accordance with Parts 3 and 4. SWM Site Plans approved by the Municipality shall be on Site throughout the duration of the Regulated Activity.
- B. The stormwater management and runoff control criteria and standards in this Chapter shall apply to the total proposed Regulated Activity, even if it is to take place in stages. The measurement of Impervious Surfaces shall include all of the Impervious Surfaces in the total proposed Regulated Activity even if the development is to take place in stages.
- C. No Regulated Activity within the Municipality shall commence until:
  1. The Municipality issues approval of a SWM Site Plan, which demonstrates compliance with the requirements of this Chapter; and
  2. The Applicant has received a letter of adequacy or approval for the Erosion and Sediment Control Plan review by the Municipality and the Conservation District (if required), and has received all other local, State and Federal permit approvals required for the project involving the Regulated Activity.

- D. Neither submission of a SWM Site Plan under the provisions herein nor compliance with the provisions of this Chapter shall relieve any person from responsibility for damage to any person or property otherwise imposed by law.
- E. The Applicant shall design the Site to minimize disturbances to land, Site hydrology, and natural resources, and to maintain the natural hydrologic regime, drainage patterns and flow conditions. The Applicant shall apply the procedures set forth in Section 23-304 for the overall Site design and for selection, location, and design of features and BMPs to be used to comply with the requirements of this Chapter.
- F. To the maximum extent practicable, Post-construction stormwater shall be discharged within the drainage area of the same stream or water body receiving the runoff prior to construction of the proposed Regulated Activity.
- G. For Regulated Activities with one (1) acre or more of proposed Earth Disturbance, existing, existing drainage peak rate discharges up to and including the 100-year storm and the volume of runoff up to and including the 2-year storm onto or through adjacent property(ies) or downgradient property(ies), including diffuse drainage discharge, shall not be altered in any manner by Regulated Activities under this Chapter without written permission from, and, where applicable as determined by the Municipality, an easement and agreement with the affected Landowner(s) for conveyance of discharges onto or through their property(ies). Altered stormwater discharges shall be subject to any applicable discharge criteria specified in this Chapter.
  - 1. For Regulated Activities with less than one (1) acre of proposed Earth Disturbance, the Applicant shall provide written notification to the affected Landowner(s) describing the proposed Regulated Activity and proposed discharge(s), unless otherwise required by the Municipality.
- H. Areas located outside of the Site (i.e., areas outside of the Regulated Activity) that drain through a proposed Site are not subject to water quality and volume control, infiltration, stream channel protection, or peak flow rate control requirements (as presented in Sections 23-305, 23-306, 23-307, and 23-308). Drainage facilities located on the Site shall be designed to safely convey flows from outside of the Site through the Site.
- I. If Site conditions preclude capture of runoff from limited portions of the Disturbed Area for achieving water quality volume control standards, stream channel protection standards, and the 2-year, 5-year, and 10-year storm event peak runoff rate reduction standards for New Development required by this Chapter, the Applicant shall propose alternate methods to mitigate the bypass of the BMPs, subject to the approval of the Municipal Engineer. In no case shall resulting peak rate be greater than the Pre-development peak rate for the equivalent design storm.
- J. For all Regulated Activities, erosion and sediment control BMPs shall be designed, implemented, operated, and maintained during the Regulated Activities (i.e., during construction) as required to meet the purposes and requirements of this Chapter, to meet

the erosion and sediment control requirements of the Municipality, if applicable, and to meet all requirements under Title 25 of the PA Code and the Clean Streams Law.

- K. For all Regulated Activities, permanent BMPs and Conveyances shall be designed, implemented, operated, and maintained to meet the purposes and requirements of this Chapter and to meet all requirements under Title 25 of the Pennsylvania Code, the Clean Streams Law, and the Storm Water Management Act.
- L. The design of all BMPs and Conveyances shall incorporate sound engineering principles and practices in a manner that does not aggravate existing stormwater problems as identified by the Municipality. The Municipality reserves the right to disapprove any design that would result in construction in an area affected by existing stormwater problem(s) or continuation of an existing stormwater problem(s).
- M. Existing wetlands, either on the Site or on an adjacent property, shall not be used to meet the minimum design requirements for stormwater management or stormwater runoff quality treatment. Stormwater discharges to existing wetlands shall not degrade the quality or hydrologic integrity of the wetland.
- N. Hotspots Runoff Controls. Specific structural or pollution prevention practices may be required, as determined to be necessary by the Municipal Engineer, to pretreat runoff from Hotspots prior to infiltration. Following is a list of examples of Hotspots:
  - 1. Vehicle salvage yards and recycling facilities;
  - 2. Vehicle fueling stations;
  - 3. Vehicle service and maintenance facilities;
  - 4. Vehicle and equipment cleaning facilities;
  - 5. Fleet storage areas (bus, truck, etc.);
  - 6. Industrial sites based on Standard Industrial Classification Codes;
  - 7. Marinas (service and maintenance areas);
  - 8. Outdoor liquid container storage;
  - 9. Outdoor loading/unloading facilities;
  - 10. Public works storage areas;
  - 11. Facilities that generate or store hazardous materials;
  - 12. Commercial container nursery;

13. Contaminated sites/brownfields;
14. Other land uses and activities as designated by the Municipality.
- O. Contaminated and Brownfield Sites. Where BMPs may contribute to the migration of contaminants in groundwater, the water quality and runoff volume, stream channel protection, and peak rate control standards shall be met; however, at the Municipal Engineer's discretion, the minimum infiltration requirement may be reduced or eliminated commensurate with the contaminated area and the required water quality and runoff control measures may be increased to mitigate the reduced infiltration requirement for the contaminated area.
- P. Additional Water Quality Requirements. The Municipality may require additional stormwater control measures for stormwater discharges to special management areas including, but not limited to:
1. Water bodies listed as "impaired" by PADEP.
  2. Any water body or watershed with an approved Total Maximum Daily Load (TMDL).
  3. Areas of known existing flooding problems.
  4. Critical areas with sensitive resources (e.g., State designated special protection waters, cold water fisheries, carbonate geology or other groundwater recharge areas that may be highly vulnerable to contamination, drainage areas to water supply reservoirs, etc.). This section specifically includes Pickering Creek, which is designated as a high-quality water as per Title 25, Chapter 93 Water Quality Standards of the PA Code.
- Q. Applicants shall utilize the *Pennsylvania Stormwater Best Management Practices Manual* (PA BMP Manual), as amended, or other sources acceptable to the Municipal Engineer, for testing and design standards for BMPs, and where there is a conflict with the provisions of this Chapter, the most restrictive applies.
- R. For areas underlain by karst or carbonate geology that may be susceptible to the formation of sinkholes and other karst features, the location, type, and design of infiltration BMPs shall be based on a Site evaluation conducted by a qualified Licensed Professional and based on the PA BMP Manual (as amended) or other design guidance acceptable to the Municipal Engineer.
- S. All Regulated Activities located within a Special Flood Hazard Area designated by the Federal Emergency Management Agency (FEMA) shall comply with the Borough of Phoenixville's Municipal Code, Chapter 8, Floodplains, and shall be designed to maintain the flood carrying capacity of the floodway such that the base flood elevations

are not increased, either upstream or downstream. The natural conveyance characteristics of the Site and the receiving floodplain shall be incorporated into the stormwater management practices proposed for the Site.

- T. Standard for requirements of a riparian buffer for the French Creek are noted in the Borough of Phoenixville's Municipal Code, Chapter 27, Zoning, Section 27-501, Riparian Buffer.

### **§23-302. Permit Requirements by Other Governmental Entities**

The following permit or other regulatory requirements may apply to certain Regulated Activities and shall be met prior to (or as a condition of) final approval by the Municipality of the SWM Site Plan and prior to commencement of any Regulated Activities, as applicable:

- A. All Regulated Activities subject to permit or regulatory requirements by PADEP under regulations at Title 25 Pennsylvania Code Chapter 102, or erosion and sediment control requirements of the Municipality.
- B. Work within natural drainage ways subject to permit by PADEP under Title 25 Pennsylvania Code Chapter 105.
- C. Any BMP or Conveyance that would be located in or adjacent to surface Waters of the Commonwealth, including wetlands, subject to permit by PADEP under Title 25 Pennsylvania Code Chapter 105.
- D. Any BMP or Conveyance that would be located on or discharge to a State highway right-of-way or require access to or from a State highway and be subject to approval by PennDOT.
- E. Culverts, bridges, storm sewers, or any other facilities which must pass or convey flows from the tributary area and any facility which may constitute a dam subject to permit by PADEP under Title 25 Pennsylvania Code Chapter 105.

### **§23-303. Erosion and Sediment Control**

- A. No Regulated Activity within the Municipality shall commence until:
  - 1. The Municipality receives documentation that the Applicant has received:
    - a. A "letter of adequacy" from the Conservation District or other approval from PADEP in compliance with Title 25 Chapter 102 of the Pennsylvania Code of an Erosion and Sediment Control Plan for construction activities for projects where the area of disturbance exceeds one (1) acre, where pond dredging is

involved, when the disturbance is associated with activities described under Title 25 Chapter 105 of the Pennsylvania Code permits, or when determined to be necessary by the Municipal Engineer;

- b. A PADEP NPDES Permit for Stormwater Discharges Associated with Construction Activities as required under Title 25 Pennsylvania Code Chapter 92.a, if applicable;
  - c. Evidence of any other permit(s) or approvals required for the Regulated Activities; and
  - d. An Erosion and Sediment Control Plan has been approved by the Municipality, if required.
- B. A copy of the Erosion and Sediment Control Plan and any required permit(s), as required by PADEP regulations, shall be available on the Site at all times.
- C. Additional erosion and sediment control measures shall be applied where infiltration BMPs are proposed, at a minimum including those required in Section 23-306.L. of this Chapter.

#### **§23-304. Site Design Process**

The Applicant shall design the Site to minimize the disturbances to land, Site hydrology, and natural resources, and to maintain the natural hydrologic regime, drainage patterns and flow conditions. For Regulated Activities with two thousand (2,000) or more square feet of Regulated Impervious Surfaces OR five thousand (5,000) or more square feet of proposed Earth Disturbance, the Applicant shall demonstrate in its SWM Site Plan (as required in Section 23-402.C of this Chapter) that the design sequence, objectives, and techniques described below were applied to the maximum extent practicable in the Site design of the Regulated Activity while complying with all other requirements of this Chapter. The Site design shall:

- A. First, identify and delineate all existing natural resources and natural and man-made hydrologic features listed in Section 23-402.B.8 of this Chapter that are located within the Site, or receive discharge from, or may be impacted by the proposed Regulated Activity.
- B. Second, provide a prioritized listing of these resources and features to identify:
  - 1. Those to be incorporated into the Site design in a manner that provides protection from any disturbance or impact from the proposed Regulated Activity;
  - 2. Those to be protected from further disturbance or impact but for which the proposed Regulated Activity will provide improvement to existing conditions;

3. Those that can be incorporated into and utilized as components of the overall Site design in a manner that protects or improves their existing conditions while utilizing their hydrologic function within the limits of their available capacity (e.g., for infiltration, evapotranspiration, or reducing pollutant loads, runoff volume or peak discharge rates, etc.) to reduce the need for or size of constructed BMPs; and
4. Those that may be considered for alteration, disturbance, or removal.

C. Third, develop the Site design to achieve the following:

1. Recognize and incorporate the priorities identified in Section 23-304.B of this Chapter as the basis for the proposed Site layout, grading, construction, and permanent ground cover design;
2. Minimize Earth Disturbance (both surface and subsurface);
3. Maximize protection of or improvement to natural resources and special management areas;
4. Minimize the disturbance of natural Site hydrology, in particular natural drainage features and patterns, discharge points and flow characteristics, natural infiltration patterns and characteristics, and natural channel and floodplain conveyance capacity;
5. Incorporate natural hydrologic features and functions identified in Section 23-304.B into the Site design to protect and utilize those features and their hydrologic functions to reduce the need for or size of constructed BMPs;
6. Maximize infiltration and the use of natural Site infiltration features, patterns and conditions, and evapotranspiration features;
7. Apply selective grading design methods to provide final grading patterns or preserve existing topography in order to evenly distribute runoff and minimize concentrated flows;
8. Minimize the cumulative area to be covered by Impervious Surfaces and:
  - a. Minimize the size of individual Impervious Surfaces,
  - b. Separate large Impervious Surfaces into smaller components,
  - c. Disconnect runoff from one Impervious Surface to another, and
  - d. Utilize porous materials in place of impervious wherever practicable;

9. Minimize the volume and peak discharge rates of stormwater generated;
  10. Avoid or minimize stormwater runoff pollutant loads and receiving stream channel erosion;
  11. Locate infiltration and other BMPs:
    - a. At or as near to the source of generation as possible, and
    - b. At depths that are as shallow as possible;
  12. Prioritize the selection and design of BMPs as follows:
    - a. Nonstructural and vegetation BMPs, then
    - b. Structural (surface and subsurface) BMPs;
  13. For flow volumes requiring conveyance from the source of generation to a BMP for management, give preference to open channel conveyance techniques that provide infiltration and water quality benefits, and landscaped-based management in common open space areas, where practicable; and
  14. Consider additional guidance for incorporating natural hydrology into the Site and BMP designs, methods and techniques that support the objectives of Sections 23-304.B and 23-304.C. Attachment B presents additional discussion of “Conservation Design” and “Low Impact Development”.
- D. The procedures set forth above shall be utilized to the maximum extent practicable for the overall Site design and selection, location, and design of features and BMPs to be used to comply with the requirements of Sections 23-305, 23-306, 23-307, and 23-308.

### **§23-305. Water Quality and Runoff Volume Requirements**

To control Post-construction stormwater impacts from Regulated Activities and meet State water quality requirements, BMPs shall be provided in the Site design that replicate Predevelopment stormwater infiltration and runoff conditions, such that Post-construction stormwater discharges do not degrade the physical, chemical, or biological characteristics of the receiving waters. The green infrastructure and Low Impact Development (LID) practices provided in the PA BMP Manual, as well as the guidance on green infrastructure, LID and Conservation Design (CD) provided in Attachment B, shall be utilized for all regulated activities wherever possible. The Applicant shall comply with the following water quality and runoff volume requirements for all Regulated Activities, including all New Development and Redevelopment activities:

- A. The Post-construction total runoff volume shall not exceed the Predevelopment total runoff volume for all storms equal to or less than the two (2)-year, twenty-four (24)-hour duration precipitation (design storm). The water quality and runoff volume to be managed shall consist of any runoff volume generated by the proposed Regulated Activity over and above the Predevelopment total runoff volume and shall be captured and permanently retained or infiltrated on the Site. Permanent retention options may include, but are not limited to, reuse, evaporation, transpiration, and infiltration.
- B. For modeling purposes, the Predevelopment ground cover conditions shall be determined using the corresponding ground cover assumptions presented in Section 23-309.D of this Chapter.
- C. The design of the Stormwater Management Facility outlet shall provide for protection from clogging and unwanted sedimentation.
- D. BMPs that moderate the temperature of stormwater shall be used to protect the temperature of receiving waters. The Applicant shall fulfill the requirements of the PADEP “Thermal Impact Analysis” for the “PAG-02 Stormwater Discharges Associated with Construction Activities, NOI for Coverage under General or Individual Permit” if they cannot meet the volume control requirements
- E. Water quality improvement shall be achieved in conjunction with achieving the infiltration requirements of §23-306. The infiltration volume required under §23-306 may be included as a component of the water quality volume. If the calculated water quality and runoff volume is greater than the volume infiltrated, then the difference between the two (2) volumes shall be managed for water quality and runoff volume control through other techniques or practices but shall not be discharged from the Site.
- F. Runoff from the Disturbed Area shall be treated for water quality prior to entering existing waterways or water bodies. If a stormwater management practice does not provide water quality treatment, then water quality BMPs shall be utilized to provide pre-treatment prior to the runoff entering the stormwater management practice.
- G. The Municipality may require additional water quality and runoff control measures for stormwater discharging to special management areas such as those listed in Section 23-301.P.
- H. When the Regulated Activity contains or is divided by multiple drainage areas, the water quality and runoff volume shall be separately addressed for each drainage area.
- I. Weighted averaging of runoff coefficients shall not be used for manual computations or input data for water quality and runoff volume calculations.
- J. Areas located outside of the Site (i.e., areas outside of the Regulated Activity) may be excluded from the calculation of the water quality and runoff volume requirements.

- K. Water quality and volume control practices shall be selected and designed to meet the criteria of Subsection 23-304.C that apply to water quality and volume control.
- L. Evapotranspiration may be quantified and credited towards meeting volume requirements according to the PADEP Post Construction Stormwater Management (PCSM) Spreadsheet and Instructions (December 2020) or the most recent guidance from PADEP.

### **§23-306. Infiltration Requirements**

Providing for infiltration consistent with the natural hydrologic regime is required to compensate for the reduction in the recharge that occurs when the ground surface is disturbed, or Impervious Surface is created or expanded. The Applicant shall achieve the following infiltration requirements:

- A. For Regulated Activities involving both New Development and Redevelopment, infiltration should be designed to accommodate the entire water quality and runoff volume required in Section 23-305 of this Chapter. Infiltration BMPs should be consistent with the design and infiltration period guidelines included in the PA BMP Manual or other PA DEP design guidance. If the runoff volume required by Section 23-305 cannot be infiltrated, then alternative methods consistent with the PA BMP Manual (as amended) or other PA DEP guidance, such as the Managed Release Concept, may be used to manage this volume with approval from the Municipal Engineer.
- B. For Regulated Activities involving both New Development and Redevelopment, the volume of a minimum of one (1)-inch of runoff from all Regulated Impervious Surfaces shall be infiltrated.
- C. If the requirements of Sections 23-306.A or 23-306.B of this Chapter cannot be physically accomplished, then the Applicant shall be responsible for demonstrating with data or calculations to the satisfaction of the Municipal Engineer why this infiltration volume cannot be physically accomplished on the Site (e.g., shallow depth to bedrock or limiting zone, open voids, steep slopes, etc.) and what alternative volume can be infiltrated.
- D. Only if a minimum infiltration of the first one-half (0.5) inch of runoff volume cannot be physically accomplished on the Site, shall a waiver from Section 23-306 be considered by the Municipality, in accordance with Section 23-111 of this Chapter.
- E. If Site conditions preclude capture of runoff from portions of the Impervious Surfaces, the infiltration volume for the remaining area shall be increased an equivalent amount to offset the loss.

- F. When a project contains or is divided by multiple watersheds, the infiltration volume shall be separately addressed for each watershed.
- G. Existing Impervious Surfaces located in areas outside of the Site (i.e., outside of the Regulated Activity) may be excluded from the calculation of the required infiltration volume.
- H. A detailed soils evaluation of the Site shall be conducted by a qualified professional and at a minimum shall address soil permeability, depth to bedrock or other Limiting Zone, and subgrade stability. The general process for designing the infiltration BMP shall be conducted by a qualified Licensed Professional and shall be consistent with the PA BMP Manual (as amended) (or other guidance acceptable to the Municipal Engineer) and in general shall:
  - 1. Analyze hydrologic soil groups as well as natural and man-made features within the Site to determine general areas of suitability for infiltration practices. In areas where development on fill material is under consideration, conduct geotechnical investigations of sub-grade stability; infiltration may not be ruled out without conducting these tests.
  - 2. Provide field tests such as double ring infiltrometer or other hydraulic conductivity tests (at the elevation of the proposed infiltration surface) to determine the appropriate hydraulic conductivity rate. Standard septic/sewage percolation tests are not acceptable for design purposes.
  - 3. Design the Infiltration Facility for the required retention (infiltration) volume based on field-determined infiltration capacity (and apply safety factor as per applicable design guidelines) at the elevation of the proposed infiltration surface.
  - 4. On-lot infiltration features are encouraged; however, it shall be demonstrated to the Municipal Engineer that the soils are conducive to infiltration on the identified lots.
- I. Infiltration BMPs shall be selected based on suitability of soils and Site conditions and shall be constructed on soils that have the following characteristics:
  - 1. A minimum depth of twenty-four (24) inches between the bottom of the BMP and the top of the Limiting Zone. Additional depth may be required in areas underlain by karst or carbonate geology (see Section 23-306.M).
  - 2. An infiltration rate sufficient to accept the additional stormwater volume and drain completely as determined by field tests conducted by the Applicant.
  - 3. The Infiltration Facility shall completely drain the retention (infiltration) volume within three (3) days (seventy-two (72) hours) from the end of the design storm.
- J. All infiltration practices shall:

1. Be selected and designed to meet the criteria of Section 23-304.C that are applicable to infiltration;
  2. Be set back at least 25 feet from all buildings and features with sub-grade elements (e.g., basements, foundation walls, etc.), unless otherwise approved by the Municipal Engineer. Any infiltration practice within 25 feet of a building or other feature with sub-grade elements shall incorporate vertical impermeable barriers for protection. Any infiltration practice within 10 feet of a building or other feature with sub-grade elements shall require certification from a Licensed Professional indicating that the foundations are adequately designed for this condition.
  3. For any infiltration practice that collects runoff from shared or multiple features and that is located within 50 feet of a building or feature with sub-grade elements (e.g., basements, foundation walls, etc.), the bottom elevation shall be set below the elevation of the sub-grade element.
- K. Infiltration Facilities shall, to the maximum extent practicable, be located to avoid introducing contaminants to groundwater:
1. When a Hotspot is located in the area draining to a proposed Infiltration Facility, an evaluation of the potential of groundwater contamination from the proposed Infiltration Facility shall be performed, including a hydrogeologic investigation (if necessary) by a qualified Licensed Professional to determine what, if any, pre-treatment, or additional design considerations are needed to protect groundwater quality.
  2. When located within a “well head protection area” of a public water supply well, infiltration practices shall be in conformance with the applicable approved source water protection assessment or source water protection plan.
  3. The Applicant shall provide appropriate safeguards against groundwater contamination for land uses that may cause groundwater contamination should there be a mishap or spill.
- L. During Site construction, all infiltration practice components shall be protected from compaction due to heavy equipment operation or storage of fill or construction material. Infiltration areas shall also be protected from sedimentation. Areas that are accidentally compacted or graded shall be remediated to restore soil composition and porosity. Adequate documentation to this effect shall be submitted to the Municipal Engineer for review. All areas designated for infiltration shall not receive runoff until the contributory drainage area has achieved final stabilization.
- M. Where sediment transport in the stormwater runoff is anticipated to reach the infiltration system, appropriate permanent measures to prevent or collect sediment shall be installed prior to discharge to the infiltration system.

- N. Where roof drains are designed to discharge to infiltration practices, they shall have appropriate measures to prevent clogging by unwanted debris (for example, silt, leaves and vegetation). Such measures shall include but are not limited to leaf traps, gutter guards, and cleanouts.
- O. All infiltration practices shall have appropriate positive overflow controls.
- P. No sand, salt or other particulate matter may be applied to a porous surface material for winter ice conditions.
- Q. The following procedures and materials shall be required during the construction of all subsurface facilities:
  - 1. Excavation for the Infiltration Facility shall be performed with equipment that will not compact the bottom of the seepage bed/trench or like facility.
  - 2. The bottom of the bed and/or trench shall be scarified prior to the placement of aggregate.
  - 3. Only clean aggregate with documented porosity, free of fines, shall be allowed.
  - 4. The tops, bottoms and sides of all seepage beds, trenches, or like facilities shall be covered with drainage fabric, unless otherwise approved by the Municipal Engineer. Fabric shall be non-woven fabric acceptable to the Municipal Engineer.
  - 5. Stormwater shall be distributed throughout the entire seepage bed/trench or like facility and provisions for the collection of debris shall be provided in all facilities.

### **§23-307. Stream Channel Protection Requirements**

For Regulated Activities involving New Development with one (1) or more acres of Earth Disturbance, the Applicant shall comply with the following stream channel protection requirements to minimize stream channel erosion and associated water quality impacts to the receiving waters:

- A. The peak flow rate of the Post-construction 2-year, 24-hour design storm shall be reduced to the Predevelopment peak flow rate of the 1-year, 24-hour duration precipitation, using the SCS Type II distribution.
- B. To the maximum extent practicable, and unless otherwise approved by the Municipal Engineer, the Post-construction 1-year, 24-hour storm flow shall be detained for a minimum of 24 hours and a maximum not to exceed 72 hours from a point in time when the maximum volume of water from the 1-year, 24-hour storm is stored in a proposed BMP (i.e., when the maximum water surface elevation is achieved in the

facility). Release of water can begin at the start of the storm (i.e., the invert of the orifice is at the invert of the proposed BMP).

- C. For modeling purposes, the Predevelopment ground cover conditions shall be determined using the corresponding ground cover assumptions presented in Section 23-309.D of this Chapter.
- D. The minimum orifice size in the outlet structure to the BMP shall be three inches in diameter unless otherwise approved by the Municipal Engineer, and a trash rack shall be installed to prevent clogging. For Sites with small drainage areas contributing to the BMP that do not provide enough runoff volume to allow a twenty-four (24) hour attenuation with the three (3)-inch orifice, the calculations shall be submitted showing this condition.
- E. When the calculated orifice size is below three (3) inches, gravel filters (or other methods) are recommended to discharge low-flow rates subject to the Municipal Engineer's satisfaction. When filters are utilized, maintenance provisions shall be provided to ensure filters meet the design function.
- F. All proposed Stormwater Management Facilities shall make use of measures to extend the flow path and increase the travel time of flows in the facility.
- G. When a Regulated Activity contains or is divided by multiple drainage areas, the peak flow rate control shall be separately addressed for each drainage area.

### **§23-308. Stormwater Peak Rate Control Requirements**

The Applicant shall comply with the following peak flow rate control requirements for all Regulated Activities including those that involve New Development and Redevelopment.

- A. Post-construction peak flow rates from any Regulated Activity shall not exceed the Predevelopment peak flow rates as shown for each of the design storms specified in Table 308.1.

**TABLE 308.1  
Peak Rate Control Standards**

**(Peak Flow Rate of the Post-construction Design Storm  
Shall be Reduced to the Peak Flow Rate of the Corresponding Predevelopment  
Design Storm Shown in the Table)**

POST-CONSTRUCTION DESIGN STORM FREQUENCY (24-Hour Duration)	PREDEVELOPMENT DESIGN STORM	
	New Development Regulated Activities	Redevelopment Regulated Activities
2-Year	1-Year	2-Year
5-Year	2-Year	5-Year
10-Year	2-Year	10-Year
25-Year	25-Year	25-Year
50-Year	50-Year	50-Year
100-Year	100-Year	100-Year

- B. For modeling purposes, the Predevelopment ground cover conditions shall be determined using the corresponding ground cover assumptions presented in Section 23-309.D of this Chapter.
- C. For Regulated Activities involving only Redevelopment, no peak flow rate controls are required when and only if the total Regulated Impervious Surface area is at least 20% less than the total existing Impervious Surface area to be disturbed by the Regulated Activity. In all cases where this requirement is not met, the Redevelopment Regulated Activity shall achieve the peak flow rate controls presented in Table 308.1, using the Redevelopment Ground Cover Assumptions presented in Section 23-309.D. This design criterion for Redevelopment is only permitted with approval of Municipal Engineer. It shall result in no impact on downstream properties.
- D. Only the area of the proposed Regulated Activity shall be subject to the peak flow rate control standards of this Chapter. Undisturbed areas for which the discharge point has not changed are not subject to the peak flow rate control standards.
- E. Areas located outside of the Site (i.e., areas outside of the Regulated Activity) that drain through a proposed Site are not subject to peak flow rate control requirements. Drainage facilities located on the Site shall be designed to safely convey flows from outside of the Site through the Site.
- F. When a Regulated Activity contains or is divided by multiple drainage areas, the peak flow rate controls shall be separately addressed for each drainage area.

G. The effect of structural and non-structural stormwater management practices implemented as part of the overall Site design may be taken into consideration when calculating total storage volume and peak flow rates.

**§23-309. Calculation Methodology**

A. Stormwater runoff from all Regulated Activity Sites with a drainage area of greater than 5-acres shall be calculated using a generally accepted calculation technique(s) that is based on the NRCS Soil Cover Complex Method. Table 309.1 summarizes acceptable computation methods. The method selected for use shall be based on the individual limitations and suitability of each method for a particular Site. The use of the Rational Method to estimate peak discharges for drainage areas greater than five (5) acres shall be permitted only upon approval by the Municipal Engineer.

**TABLE 309.1**

**ACCEPTABLE COMPUTATION METHODOLOGIES FOR  
SWM SITE PLAN**

<b>METHOD</b>	<b>DEVELOPED BY</b>	<b>APPLICABILITY</b>
TR-20 (or commercial computer package based on TR-20)	USDA NRCS	Applicable where use of full hydrology computer model is desirable or necessary.
TR-55 (or commercial computer package based on TR-55)	USDA NRCS	Applicable for land development plans where limitations described in TR-55 are met.
HEC-1/ HEC-HMS	US Army Corps of Engineers	Applicable where use of a full hydrologic computer model is desirable or necessary.
Rational Method (or commercial computer package based on Rational Method)	Emil Kuichling (1889)	For Sites up to 5 acres, or as approved by the Municipality.
Other Methods	Varies	Other computation methodologies approved by the Municipality.

B. All calculations using the Soil Cover Complex Method shall use the appropriate design rainfall depths for the various return period storms consistent with this Chapter.

Rainfall depths used shall be obtained from the latest version of the Precipitation-Frequency Atlas of the United States, National Oceanic and Atmospheric Administration (NOAA), National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland (NOAA Atlas 14) values consistent with a partial duration series. When stormwater calculations are performed for routing procedures or infiltration, water quality and runoff volume functions, the duration of rainfall shall be 24 hours.

- C. All calculations using the Rational Method shall use rainfall intensities consistent with appropriate times-of-concentration (duration) and storm events with rainfall intensities obtained from NOAA Atlas 14 partial duration series estimates, or the latest version of the PennDOT Drainage Manual (PDM Publication 584). Times-of-concentration shall be calculated based on the methodology recommended in the respective model used. Times of concentration for channel and pipe flow shall be computed using Manning's equation.
- D. The Applicant shall utilize the following ground cover assumptions for all Predevelopment water quality and runoff volume, infiltration volume and peak flow rate calculations:
  - 1. For Regulated Activities involving New Development, the following ground cover assumptions shall be used:
    - a. For areas that are Woods (as defined in Part 2 of this Chapter), Predevelopment calculations shall assume ground cover of "Woods in good condition".
    - b. For all other areas (including all Impervious Surfaces), Predevelopment calculations shall assume ground cover of "meadow".
  - 2. For Regulated Activities involving Redevelopment, the following ground cover assumptions shall be used:
    - a. For areas that are Woods (as defined in Part 2 of this Chapter), Predevelopment calculations shall assume ground cover of "Woods in good condition".
    - b. For areas that are not Woods or not Impervious Surfaces, Predevelopment calculations shall assume ground cover of "meadow".
    - c. For areas that are Impervious Surfaces, Predevelopment calculations shall assume at least 20% of the existing Impervious Surface area to be disturbed as "meadow" ground cover.
  - 3. The Applicant shall determine which stormwater standards apply to the proposed Regulated Activity as follows:
    - a. Stormwater standards for New Development shall apply to all proposed

Regulated Activities that involve only New Development activities as defined in this Chapter.

- b. Stormwater standards for Redevelopment shall apply to all proposed Regulated Activities that involve only Redevelopment activities as defined in this Chapter.
- c. At the discretion of the Municipal Engineer, Regulated Activities that involve a combination of both New Development and Redevelopment activities, as defined in this Chapter, may either:
  - i. Apply the stormwater standards (Redevelopment or New Development) that are associated with the activity that involves the greatest amount of land area; or
  - ii. Apply the Redevelopment and New Development stormwater standards to the corresponding Redevelopment and New Development portions of the proposed Regulated Activity.
- E. Runoff curve numbers (CN) for both Predevelopment and proposed (Post-construction) conditions to be used in the Soil Cover Complex Method shall be obtained from Table C-1 in Attachment C of this Chapter.
- F. Runoff coefficients (C) for both Predevelopment and proposed (Post-construction) conditions for use in the Rational Method shall be obtained from Table C-2 in Attachment C of this Chapter.
- G. Weighted averaging of runoff coefficients shall not be used for manual computations or input data for water quality and runoff volume calculations.
- H. Hydraulic computations to determine the capacity of pipes, culverts, and storm sewers shall be consistent with methods and computations contained in the Federal Highway Administration Hydraulic Design Series Number 5 (Publication No. FHWA-NHI-01-020 HDS No. 5, as amended). Hydraulic computations to determine the capacity of open channels shall be consistent with methods and computations contained in the Federal Highway Administration Hydraulic Engineering Circular Number 15 (Publication No. FHWA-NHI-05-114 HEC 15, as amended). Values for Manning's roughness coefficient (n) shall be consistent with Table C-3 in Attachment C of this Chapter.
- I. Runoff calculations shall include the following assumptions:
  - 1. Average antecedent moisture conditions (for the Soil Cover Complex Method only for example, TR-55, TR-20).
  - 2. A type II distribution storm (for the Soil Cover Complex Method only for example, TR-55, TR-20).

### **§23-310. Other Requirements**

- A. Any BMP intended to hold standing water for 4 days or longer shall be designed to incorporate biologic controls consistent with the West Nile Guidance found in Attachment D, PADEP document 363-0300-001 “Design Criteria – Wetlands Replacement/Monitoring” (as amended), (or contact the Pennsylvania State Cooperative Wetland Center or the Penn State Cooperative Extension Office for design information.)
- B. Any stormwater basin required or regulated by this Chapter designed to store runoff and requiring a berm or earthen embankment shall be designed to provide an emergency spillway to safely convey flow up to and including the 100-year proposed conditions. The height of embankment shall provide a minimum 1-foot of Freeboard above the maximum pool elevation computed when the facility functions for the one hundred (100)-year proposed conditions inflow. Should any BMP require a dam safety permit under PA Chapter 105 regulations, the facility shall be designed in accordance with and meet the regulations of PA Chapter 105 concerning dam safety. PA Chapter 105 may require the safe conveyance of storms larger than 100-year event.
- C. Any drainage Conveyance facility and/or channel not governed by PA Chapter 105 regulations shall be designed to convey, without damage to the drainage facility or roadway, runoff from the 25-year storm event. Larger storm events (50-year and 100-year storms) shall also be safely conveyed in the direction of natural flow without creating additional damage to any drainage facilities, nearby structures, or roadways.
- D. Conveyance facilities to or exiting from stormwater management facilities (i.e., detention basins) shall be designed to convey the design flow to or from the facility.
- E. Roadway crossings or structures located within designated floodplain areas shall be able to convey runoff from a 100-year design storm consistent with Federal Emergency Management Agency National Flood Insurance Program – Floodplain Management Requirements.
- F. Any Stormwater Management Facility located within a PennDOT right-of-way shall comply with PennDOT minimum design standards and permit submission and approval requirements.
- G. Adequate erosion protection and energy dissipation shall be provided along all open channels and at all points of discharge. Design methods shall be consistent with the Federal Highway Administration Hydraulic Engineering Circular Number 11 (Publication No. FHWA-IP-89-016, as amended) and the PADEP Erosion and Sediment Pollution Control Program Manual (Publication No. 363-2134-008, as amended), or other design guidance acceptable to the Municipal Engineer.

## **§23-311. Other Conveyance and System Design Standards**

- A. Stormwater conveyances shall meet the following minimum standards:
1. All storm pipe shall be dual wall High Density Polyethylene Pipe (HDPE) or Reinforced Concrete Pipe (RCP), unless otherwise approved by the Municipal Engineer. Joints for storm pipes shall be soil tight. If storm pipe will be installed at or below the water table, joints for storm pipes shall be water-tight.
  2. The minimum size of storm pipe receiving flow from any storm inlet shall be 15-inches for circular pipe (or equivalent size elliptical pipe).
  3. The minimum slope of storm pipe shall be 0.50%.
  4. Stormwater conveyances shall be designed to convey the 10-year storm frequency with open channel hydraulics (without pressure flow). For vertical sag locations on roadways, stormwater conveyances shall be designed to convey the 50-year storm frequency.
- B. Drainage structures (e.g. storm inlets, storm manholes, endwalls, etc.) shall meet the following minimum standards:
1. All drainage structures shall be pre-cast concrete.
  2. All storm inlets shall have “drains to waterway” lettering cast into the top unit.
  3. All storm manholes shall be installed with “storm” lettering cast into the cover.
  4. All drainage structures shall be installed with concrete flow channels for a smooth invert, except when a sump is included as part of a structural BMP.
  5. At all drainage structures, the crown elevation of the effluent stormwater conveyance must be at the same elevation or lower than any influent stormwater conveyances.
- C. Basins.
1. All basins with a maximum pool depth in excess of 24 inches shall be surrounded with a fence or equivalent barrier, minimum 42 inches in height. Fencing type may be split rail with wire fabric, unless a different fencing type is required by the SALDO.
  2. Provide suitable means of accessing basins for inspection and maintenance purposes. Where basins are fenced, provide a gate suitable for inspection and maintenance access.

3. All basins with underground storage chambers or media shall have inspection ports.

D. Other design standards

1. Stormwater conveyance and system design shall be in accordance with the following design standards:
  - a. Commonwealth of Pennsylvania Department of Transportation Publication No. 584 “PennDOT Drainage Manual.”
  - b. Pennsylvania Stormwater Best Management Practices Manual.
  - c. Borough Standard Construction Details.

## **PART 4 – STORMWATER MANAGEMENT (SWM) SITE PLAN REQUIREMENTS**

### **§23-401. General Requirements**

For any Regulated Activity, unless exempt per the provisions of Section 23-106 of this Chapter:

- A. Preparation and implementation of an approved SWM Site Plan is required.
- B. No Regulated Activity shall commence until the Municipality issues written approval of a SWM Site Plan, which demonstrates compliance with the requirements of this Chapter and, if required, a letter of adequacy has been issued by the Conservation District for an Erosion and Sediment Control Plan. Coverage under an NPDES general permit is required for regulated activities with greater than 1-acre of earth disturbance.
- C. The preliminary or final approval of subdivision and/or land development plans, and the issuance of any building or occupancy permit shall not proceed until the Applicant has received written approval of a SWM Site Plan from the Municipality.
- D. The SWM Site Plan approved by the Municipality shall be on Site throughout the duration of the Regulated Activity.

### **§23-402. SWM Site Plan Contents**

The SWM Site Plan shall consist of a general description of the project including items described in Section 23-304, calculations, maps, and plans. A note on the maps shall refer

to the associated computations and Erosion and Sediment Control Plan by title and date. The cover sheet of the computations and Erosion and Sediment Control Plan shall refer to the associated maps by title and date. All SWM Site Plan materials shall be submitted to the Municipality in a format that is clear, concise, legible, neat, and well organized; otherwise, the SWM Site Plan shall not be accepted for review and shall be returned to the Applicant.

The following items shall be included in the SWM Site Plan:

A. General

1. A general description of the proposed project;
2. A listing of all regulatory approvals required for the proposed project and the status of the review and approval process for each. Final approval or adequacy letters must be submitted to the Municipality prior to (or as a condition of) the Municipality's issuing final approval of the SWM Site Plan. Proof of application or documentation of required permit(s) or approvals for the programs listed below shall be part of the SWM Site Plan, if applicable:
  - a. NPDES Permit for Stormwater Discharges associated with Construction Activities;
  - b. PADEP permits as needed:
    - i. PADEP Joint Permit Application,
    - ii. Chapter 105 (Dam Safety and Waterway Management),
    - iii. Chapter 106 (Floodplain Management);
  - c. PennDOT Highway Occupancy Permit;
  - d. Erosion and Sediment Control Plan letter of adequacy; and
  - e. Any other permit under applicable State or Federal regulations.
3. A statement, signed by the Applicant, acknowledging that any revision to the approved SWM Site Plan shall be submitted to and approved by the Municipality, and that a revised Erosion and Sediment Control Plan shall be submitted to, and approved by, the Conservation District or Municipality (as applicable) for a determination of adequacy prior to construction of the revised features.
4. The following signature block signed and sealed by the qualified Licensed Professional responsible for the preparation of the SWM Site Plan:

“I, (name), on this date (date of signature), hereby certify to the best of my knowledge that the SWM Site Plan meets all design standards and criteria of the Borough of Phoenixville Ordinance No. [REDACTED], Borough of Phoenixville’s Stormwater Management Ordinance.” *[Note: include signature, name, discipline of professional license, and license stamp or seal here]*

5. The following signature block for the Municipality:

“I, (name), the Borough Engineer for the Borough of Phoenixville, on this date (date of signature), have reviewed and hereby certify to the best of my knowledge that the SWM Site Plan meets all design standards and criteria of the Borough of Phoenixville Ordinance No. [REDACTED], Borough of Phoenixville’s Stormwater Management Ordinance.” *[Note: include signature, name]*

B. Maps or Plan Sheets

Map(s) or plan sheets of the Site shall be submitted on minimum 24 inch by 36 inch sheets and shall be prepared in a form that meets the requirements for recording at the Chester County Office of the Recorder of Deeds and the requirements of the Operation and Maintenance (O&M) Plan and O&M Agreement (Part 7). If the SALDO has additional or more stringent criteria than this Chapter, then the SALDO criteria shall also apply. Unless otherwise approved by the Municipal Engineer, the contents of the maps or plan sheets shall include, but not be limited to:

1. A location map, with a scale of 1 inch equals 2,000 feet or greater, showing the Site location relative to highways, municipal boundaries, or other identifiable landmarks.
2. The name of the project, tax parcel number(s), and the names, addresses and phone numbers of the owner of the property, the Applicant, and firm preparing the plan.
3. Signature and seal of the qualified Licensed Professional(s) responsible for preparation of the maps and plan sheets.
4. The date of SWM Site Plan submission and revision dates, as applicable.
5. A graphic and written scale of 1 inch equals no more than 50 feet.
6. A North arrow.
7. Legal property boundaries, including:
  - a. The total project property boundary and size with distances marked to the nearest foot and bearings to the nearest degree.

- b. Boundaries, size, and description of purpose of all existing easements and deed-restricted areas of the project property, with distances marked to the nearest foot and bearings to the nearest degree.
8. Existing natural resources and natural or man-made hydrologic features that are located within the Site or receiving discharge from, or that may otherwise be impacted by, the proposed Regulated Activity, including but not limited to:
- a. All existing natural resources, hydrologic features and drainage patterns including natural waterways, water bodies, wetlands, streams (intermittent and perennial), ponds, lakes, vernal pools, etc., natural infiltration areas and patterns, areas of significant natural evapotranspiration, and other water features and aquatic resources.
  - b. Any existing man-made drainage features, BMPs, Conveyances, facilities, open channels, swales, drainage patterns, or other flood, stormwater, or drainage control features.
  - c. For the Site, discharge points and locations of concentrated flows and their drainage areas.
  - d. For named waters, show names and their watershed boundaries within the Site.
  - e. Special management areas (as per Section 23-301.Q).
  - f. For the water bodies, streams and wetlands identified in Section 23-402.B.8.a, label or otherwise show the following attributes, if applicable:
    - i. The Designated Use as determined by PADEP (25 PA Code Chapter 93);
    - ii. Impairments listed on the PADEP “Integrated List” (as updated) and the listed source and cause of impairment;
    - iii. Name, date, and target pollutant(s) for any approved Total Maximum Daily Load (TMDL); and
    - iv. Drainages to water supply reservoirs.
  - g. Areas that are part of the Pennsylvania Natural Diversity Inventory (PNDI) and a list of potential impacts and clearances received (for Regulated Activities involving one (1) acre or more proposed Earth Disturbance).
  - h. Woods, vegetated riparian buffers and other areas of natural vegetation.

- i. Topography using contours (with elevations based on established benchmarks) at intervals of two (2) feet. In areas of slopes greater than 15%, five (5)-foot contour intervals may be used. The datum used and the location, elevation and datum of any benchmarks used shall be shown.
  - j. Areas classified by the Municipality as steep slopes.
  - k. Soil names and boundaries, general type of soils with Hydrologic Soil Group noted, and in particular note areas most conducive to infiltration BMPs, such as groups A and B, etc., estimated permeabilities in inches per hour, and location and other results of all soil tests and borings.
  - l. If present, areas with underlying carbonate geologic units, existing sinkholes, subsidence or other karst features, and any associated groundwater recharge areas with increased vulnerability to contamination.
  - m. Any contaminated surface or subsurface areas of the Site.
  - n. Water supply wells:
    - i. Location of existing well(s) on the project property and delineation of their recharge area(s), if known, or a 50-foot diameter assumed recharge area;
    - ii. Location of existing well(s) within 50 feet beyond the project property boundary (if public water supply is proposed for the Regulated Activity); and
  - o. Current FEMA 100-year floodplain boundaries, elevations, and Floodway boundaries for any Special Flood Hazard Areas on or within 100 feet of the property.
  - p. Boundaries of riparian buffer(s) as required by Phoenixville Borough's Chapter 27, Zoning, Section 27-501, Riparian Buffer.
9. Location of the proposed Regulated Activity, limits of Earth Disturbance (Disturbed Area), and BMPs and Conveyances relative to the location of existing natural resources and hydrologic features and special management areas resulting from the Site design process of Section 23-304.
10. Description of existing and proposed ground cover and land use including the type and total area.
11. Existing and proposed man-made features including roads, paved areas, buildings, and other Impervious and Pervious Surfaces on the project property (or an appropriate portion of the property as determined in consultation with the

Municipal Engineer) and within the proposed Disturbed Area, and including the type and total area of the following:

- a. Existing Impervious Surfaces [must differentiate Existing Impervious Surfaces installed after 9/9/2014];
  - b. Existing Impervious Surfaces proposed to be replaced;
  - c. Existing Impervious Surfaces to be permanently removed and replaced with pervious ground cover;
  - d. New or additional Impervious Surfaces; and
  - e. Percent of the Site covered by Impervious Surfaces for both the existing and proposed Post-construction conditions.
12. The total extent of the upstream area draining through the Site.
13. All BMPs, Conveyances and other stormwater management facilities shall be located on the plan sheets, including design drawings, profile drawings, construction details, materials to be used, description of function, etc.
14. Complete delineation of the flow paths used for calculating the time of concentration for the Predevelopment and Post-construction conditions shall be included.
15. The locations of all existing and proposed utilities, sanitary sewers, on-lot wastewater facilities (including subsurface tanks and leach fields), and water supply lines within the Site and within 50 feet beyond the proposed limits of Earth Disturbance.
16. A grading plan, including all areas of proposed Earth Disturbance and the proposed Regulated Activity and delineating the boundary or limits of Earth Disturbance of the Site. The total Disturbed Area of the Site shall be noted in square feet and acres.
17. Proposed final grade elevations and contours at intervals of two (2) feet. In areas of steep slopes (greater than 15%), 5-foot contour intervals may be used.
18. For each proposed BMP and Conveyance included in the SWM Site Plan (including any to be located on any property other than the property being developed by the Applicant), the following shall be included on the SWM Site Plan map or plan sheets:
- a. Identification of the person responsible for ongoing inspections, operation, repair, and maintenance of the BMP or Conveyance after completion of construction.

- b. Delineation of the land area, structures, Impervious Surfaces, and Conveyances draining to and from the BMP or Conveyance. The tributary drainage area shall be noted in square feet. The detention and retention volumes shall be noted in cubic feet or acre-feet.
- c. Easements, as per the requirements of Part 7 of this Chapter, that shall include:
  - i. Boundaries labeled with distances shown in feet and bearings to the nearest degree;
  - ii. Notes or other documentation, as needed, to grant the Municipality the right of access to all BMPs and Conveyances for the purposes of inspection and enforcement of the requirements of this Chapter, and any applicable O&M Plans and O&M Agreements;
  - iii. Notes or other documentation, as needed, to grant the Municipality the right of access to all roadways necessary to access all BMPs and Conveyances, where roadways are not to be dedicated to the Municipality;
  - iv. Notes or other documentation as needed to grant the owner of any BMP or Conveyance the right of access for the purpose of inspection, operation, maintenance, and repair of the BMP or Conveyance that is to be owned, operated, and maintained by a person other than the Municipality, and other than the owner of the property on which the BMP or Conveyance is located;
  - v. A minimum 10-foot wide perimeter (or other width as determined in consultation with the Municipal Engineer) around all BMPs and Conveyances;
  - vi. Sufficient vehicular ingress to and egress from a public right-of-way or roadway, as determined in consultation with the Municipal Engineer; and
  - vii. Accompanying notes or other documentation as needed, and in accordance with Part 7 describing the type, purpose, and total area of easements, who the easement is granted to, and the rights, duties, and obligations of the parties with respect to every BMP or Conveyance.
- d. Boundaries of land areas (if any) for which deed restrictions are required for the purpose of protecting and prohibiting disturbance to a BMP or Conveyance,

indicating the area to which the restriction applies with distances shown in feet and bearings to the nearest degree, and a written description of the type, purpose, and nature of the restriction.

- e. Other items that may be needed to comply with all other requirements of Part 7 of this Chapter.
- C. A written description of the following information shall be included in the SWM Site Plan:
- 1. Existing features, conditions, natural resources, hydrologic features, and special management areas (as listed in Section 23-402.B.8);
  - 2. How the Site design achieves the requirements of Section 23-304 of this Chapter, and if applicable, where they could not be achieved and why;
  - 3. The overall stormwater management design concept for the project and how the Site design achieves the requirements of Sections 23-301 through 23-311 of this Chapter;
  - 4. Proposed features and conditions, proposed erosion, and sediment control features, proposed BMPs, Conveyances, and any other stormwater facilities;
  - 5. A description of the effect of the project (in terms of flow alteration and runoff volumes, water quality and peak flows, etc.) on existing natural resources, hydrologic features and special management areas, adjacent and downgradient properties, and any existing municipal or other stormwater Conveyance system(s), that may be affected by or receive runoff from the Regulated Activity (whether located within or outside of the area of the Regulated Activity), and specifics of how erosion, water quality and flow impacts will be avoided or otherwise mitigated;
  - 6. Proposed nonpoint source pollution controls and justification and confirmation that the proposed project will not result in any increased pollutant loadings to any existing stream or stream impairment identified by PADEP, or to any receiving water body;
  - 7. Expected project time schedule; and
  - 8. Description of construction stages or project phases, if so proposed.
  - 9. A detailed justification must be included in the SWM Site Plan if BMPs other than green infrastructure methods, LID practices, or CD are proposed to achieve the volume, rate, and water quality controls under this Chapter.
- D. A detailed Site evaluation conducted by a qualified Licensed Professional for projects proposed in areas of carbonate geology or karst topography, and other environmentally

sensitive areas, such as contaminated sites and brownfields, as described in Sections 23-301.O and 23-301.R of this Chapter.

E. Stormwater runoff design computations and documentation, such as hydrologic, hydraulic, and structural computations, assumptions, BMP loading ratios, etc., consistent with the guidelines and criteria presented in the PA BMP Manual (as amended) or other guidance acceptable to the Municipal Engineer, and used in the design of the BMPs, Conveyances and other features proposed to be utilized for stormwater management, or as otherwise necessary to demonstrate that the requirements of this Chapter have been met, specifically including the requirements in Sections §23-301 and 23-304 through 23-309 of this Chapter.

F. Inspections, Operation and Maintenance Requirements

The following documents shall be prepared and submitted to the Municipality for review and approval as part of the SWM Site Plan, in accordance with the requirements of Part 7 of this Chapter, for each BMP and Conveyance included in the SWM Site Plan (including any to be located on any property other than the property being developed by the Applicant):

1. An O&M Plan;
2. An O&M Agreement;
3. Any easement agreements that are needed to ensure access, inspection, maintenance, operation, repair and permanent protection of any permanent BMP(s) and Conveyances associated with the Regulated Activity;
4. Any written deed, deed amendment or equivalent document (if needed) to be recorded against a subject property, as shown on the SWM Site Plan maps or plan sheets, or recorded plan sheets for the purpose of protecting and prohibiting disturbance to a BMP or Conveyance; and
5. Written approval, easement agreements, or other documentation for discharges to adjacent or downgradient properties when required to comply with Section 23-301.G and Part 7 of this Chapter.

G. An Erosion and Sediment Control Plan, where applicable, as prepared for and submitted to the Conservation District and/or Municipality. A letter of adequacy from the Conservation District, if applicable, must be submitted to the Municipality prior to (or as a condition of) the Municipality's final approval of the SWM Site Plan.

H. A Highway Occupancy Permit from the Pennsylvania Department of Transportation (PennDOT) District Office must be submitted to the Municipality prior to (or as a condition of) the Municipality's final approval of the SWM Site Plan when utilization of a PennDOT storm drainage system is proposed.

### **§23-403. SWM Site Plan Submission**

A complete SWM Site Plan that complies with all applicable provisions of Section 23-402 shall be submitted to the Municipality for review and approval, as follows:

- A. The SWM Site Plan shall be coordinated with the applicable State and Federal permit process and the Municipal SALDO review process. All permit approvals or letters of adequacy not yet received by the Applicant at the time of submittal of the SWM Site Plan to the Municipality must be submitted to the Municipality prior to (or as a condition of) the Municipality's final approval of the SWM Site Plan.
- B. For projects that require SALDO approval, the SWM Site Plan shall be submitted by the Applicant as part of the preliminary plan submission where applicable for the Regulated Activity.
- C. For Regulated Activities that do not require SALDO approval, the SWM Site Plan shall be submitted by the Applicant for review in accordance with instructions from the Municipality.
- D. The number of copies of the SWM Site Plan to be submitted by the Applicant for review shall be in accordance with instructions from the Municipality.
- E. The corresponding review fee shall be submitted to the Municipality simultaneously with the SWM Site Plan, per the Municipality's fee schedule.
- F. Any submissions to the Municipality that are found to be incomplete shall not be accepted for review and shall be returned to the Applicant within 14 days with a notification in writing of the specific manner in which the submission is incomplete.
- G. Financial security, per the requirements of Section 23-110 of this Chapter, shall be submitted to the Municipality prior to approval of the SWM Site Plan.

### **§23-404. SWM Site Plan Review**

- A. The SWM Site Plan shall be submitted to the Municipality for review by the Municipal Engineer for consistency with this Chapter and the respective PA Act 167 Stormwater Management Plan(s). The Municipal Engineer will review the SWM Site Plan for any subdivision or land development for compliance with this Chapter and the Municipal SALDO provisions not otherwise superseded by this Chapter.
- B. If applicable, the Applicant shall have received a "letter of adequacy" from the Conservation District or other PADEP approval for the proposed Regulated Activity prior to (or as a condition of) final approval by the Municipality.

- C. The Municipal Engineer will notify the Applicant and the Municipality in writing, within 45 calendar days, whether the SWM Site Plan is consistent with the requirements of this Chapter. If the SWM Site Plan involves a subdivision and land development plan, as that term is defined in the Municipal SALDO, the notification shall occur within the time period allowed by the MPC (as amended). If a longer notification period is provided by other statute, regulation, or ordinance, the Applicant will be so notified by the Municipality.
1. If the Municipal Engineer determines that the SWM Site Plan is consistent with this Chapter, the Municipal Engineer shall forward a letter of consistency to the Municipality, who shall then forward a copy to the Applicant.
  2. The Municipality may approve the SWM Site Plan with conditions reasonably defined to make the SWM Site Plan compliant with the terms of this Chapter, and, if so, shall provide the conditions for approval in writing.
  3. If the Municipal Engineer determines that the SWM Site Plan is inconsistent or noncompliant with this Chapter, the Municipal Engineer will forward a letter to the Municipality, with a copy to the Applicant citing the reason(s) and specific Chapter sections for the inconsistency or noncompliance. Inconsistency or noncompliance may be due to inadequate information to make a reasonable judgment as to compliance with this Chapter. Any SWM Site Plans that are inconsistent or noncompliant may be revised by the Applicant and resubmitted in accordance with Section 23-406 of this Chapter when consistent with this Chapter. Resubmission will commence a new municipal review and notification time period.
- D. The Municipality will not grant final approval to any proposed subdivision, land development, or Regulated Activity specified in this Chapter if the SWM Site Plan has been found to be inconsistent with this Chapter.
- E. All required permits from PADEP shall be obtained and submitted to the Municipality prior to (or as a condition of) final approval of any proposed subdivision, land development, or other Regulated Activity by the Municipality.
- F. No building permits for any Regulated Activity will be approved by the Municipality if the SWM Site Plan has been found to be inconsistent with this Chapter, as determined by the Municipal Engineer. All required permits from PADEP shall be obtained prior to issuance of a building permit.
- G. The Municipality's approval of a SWM Site Plan shall be valid for a period not to exceed 5 years commencing on the date that the Municipality approved the SWM Site Plan. If stormwater management facilities included in the approved SWM Site Plan have not been constructed, or if constructed, As-Built Plans of these facilities have not been approved within this 5-year time period, then the Applicant may seek reinstatement of approval of the expired SWM Site Plan. If the Municipality

determines that the expired SWM Site Plan is consistent and compliant with current regulations and requirements, then the expired SWM Site Plan will be reinstated; otherwise, it will be rejected. The Applicant will be prohibited from conducting any Regulated Activity until a reinstated or newly approved SWM Site Plan is obtained in accordance with Section 23-406 of this Chapter.

- H. All or portions of the final approved SWM Site Plan shall be recorded (as “recorded plans”) per the instructions of the Municipality.
- I. Upon completion of construction, the Applicant shall be responsible for completing final As-Built Plans of all BMPs, Conveyances, or other stormwater management facilities included in the approved SWM Site Plan as per the requirements of Section 23-502 of this Chapter.
- J. For any SWM Site Plan that proposes to use any BMPs other than green infrastructure, LID practices, or CD to achieve the volume and rate controls required under this Chapter, the Municipality will not approve the SWM Site Plan unless it determines that green infrastructure, LID practices, and CD are not practicable.

#### **§23-405. Revision of SWM Site Plans**

- A. A submitted SWM Site Plan under review by the Municipality shall be revised and resubmitted for any of the following reasons:
  - 1. A change in stormwater management BMPs, Conveyances, facilities, or techniques;
  - 2. Relocation or redesign of stormwater management BMPs, Conveyances, or facilities; or
  - 3. Soil or other Site conditions are not as stated on the SWM Site Plan as determined by the Municipal Engineer, and the new conditions necessitate design changes.

The revised SWM Site Plan shall be resubmitted in accordance with Section 23-403 and subject to review as specified in Section 23-404 of this Chapter.

- B. A revision to an approved SWM Site Plan shall be submitted to the Municipality, accompanied by the applicable municipal review fee.

#### **§23-406. Resubmission of Inconsistent or Noncompliant SWM Site Plans**

Any SWM Site Plan deemed inconsistent or noncompliant may be revised and resubmitted with the revisions addressing the Municipal Engineer’s concerns documented in writing. The submission shall be addressed to the Municipality in accordance with Section 23-403

of this Chapter, distributed accordingly, and be subject to review as specified in Section 23-404 of this Chapter. The applicable municipal review fee shall accompany a resubmission of a SWM Site Plan previously determined to be inconsistent or noncompliant.

## **PART 5 – PERFORMANCE AND INSPECTION OF REGULATED ACTIVITIES, AND FINAL AS-BUILT PLANS**

### **§23-501. Performance and Inspection of Regulated Activities**

- A. All Regulated Activities shall be conducted, operated, and maintained in accordance with the requirements set forth in Parts 3, 7, and 8 of this Chapter. When a SWM Site Plan is required by this Chapter, all Regulated Activities shall be performed in accordance with the requirements of the final approved SWM Site Plan.
- B. The Municipal Engineer or other municipal designee shall be provided access to the Site to inspect all phases of the erosion and sediment control measures and installation of the permanent BMPs and Conveyances at such times as deemed appropriate by the Municipal Engineer or other municipal designee.
- C. Periodic inspections may be made by the Municipal Engineer or other designee during construction. A set of design plans approved by the Municipality shall be on file and available for viewing at the Site throughout the duration of the construction activity.
- D. Inspections, including but not limited to a final inspection, of all constructed BMPs, Conveyances, or other stormwater facilities, and related improvements may be conducted by the Municipal Engineer or other designee to confirm compliance with this Chapter and with the final approved SWM Site Plan prior to the issuance of any occupancy permit, use permit, or other form of final approval of the project by the Municipality.
- E. If an NPDES Permit for Stormwater Discharges Associated with Construction Activities is/was required for the Regulated Activity, a Notice of Termination (NOT) approval must be obtained upon completion of construction prior to final approval of the project by the Municipality or as a condition thereof, as determined in the sole discretion of the Governing Body of the Municipality upon the recommendation of the Municipal Engineer.
- F. Upon completion of construction, every permanent stormwater BMP, Conveyance, or other Stormwater Management Facility constructed or used as part of the Regulated Activity shall be operated, maintained, and inspected by the Landowner, or other designated person, in accordance with the O&M Plan and O&M Agreement approved by the Municipality.

- G. The Municipality or its designee may periodically inspect any permanent stormwater BMP, Conveyance or Stormwater Management Facility for compliance with this Chapter, an approved O&M Plan, or an approved O&M Agreement, per the provisions of Part 9 of this Chapter. The Municipality may inspect at any time it has reason to believe a violation exists. The Municipality may pursue enforcement for violations consistent with the provisions of Part 9.

### **§23-502. Final As-Built Plans**

- A. The Applicant shall provide to the Municipality final As-Built Plans (signed and sealed by a qualified Licensed Professional) of all BMPs, Conveyances, other stormwater facilities, and related improvements shown in the final approved SWM Site Plan.
- B. For any land development or Regulated Activity with one (1) acre or more of Earth Disturbance or tract area or where the Municipal Engineer has determined that significant changes have occurred since approval of the SWM Site Plan, As-Built Plans satisfactory to the Borough Engineer shall be provided in a digital Geographic Information System (GIS) format, along with all metadata, using the Pennsylvania South State Plane Coordinate System format and the North American Datum 1983 (NAD83) datum in U.S. Survey Feet. As-Built Plans shall contain data for all Regulated Activities, and any other data deemed necessary by the Municipal Engineer.
- C. The final As-Built Plans shall include the following for all BMPs, Conveyances, other stormwater facilities and related improvements:
  - 1. The location, elevations, dimensions, and as-built conditions of all BMPs, Conveyances, other stormwater facilities, and related improvements including topographic contours and all typical details for storm drainage and conveyance systems, stormwater management facilities and Impervious Surfaces (existing, proposed, or constructed) included in the approved SWM Site Plan. The latitude and longitude coordinates for all permanent SWM BMPs must also be submitted at the central location of the BMPs; and
  - 2. Explanation of any discrepancies or variations from the final approved SWM Site Plan, other related approved construction plans, calculations, and specifications (and approved revisions thereto).
- D. The final As-Built Plans shall include a certification of completion signed and sealed by a qualified Licensed Professional verifying that all permanent BMPs and Conveyances have been constructed according to the final approved SWM Site Plan and related approved construction plans, calculations, and specifications.
- E. All areas of the Regulated Activity draining to BMPs must be stabilized prior to submittal of the As-Built Plans.

- F. After receipt of the As-Built Plans by the Municipality, the Municipality or its designee may review the As-Built Plans for consistency with this Chapter, the final approved SWM Site Plan, other related approved construction plans, and subsequent approved revisions thereto, as well as actual conditions at the Site, and the Municipality may conduct a final inspection, as per Section 23-501.D of this Chapter.
- G. The As-Built Plans must be received, reviewed, and determined to be acceptable by the Municipality prior to:
  - 1. Close out of the stormwater permit or other close out of the project by the Municipality;
  - 2. Release of the financial security or other performance guarantee; and
  - 3. Dedication of the stormwater facilities to the Municipality, or conveyance to a homeowners association, or other person responsible for operation, maintenance, and repair.
- H. Final occupancy permit(s) or Use Permit or other final approval to use or operate the constructed improvement may not be issued by the Municipality until the final As-Built Plans have been accepted.
- I. Upon final acceptance of the final As-Built Plans by the Municipality, the Applicant shall review and, if required by the Municipality, revise and re-record the O&M Plan and the O&M Agreement to reflect the final as-built conditions and information for each permanent BMP or Conveyance, in accordance with the requirements of Part 7.
- J. All or portions of the final As-Built Plans shall be recorded if required by the Municipality.

## **PART 6 – FEES AND EXPENSES**

### **§23-601. Municipality SWM Site Plan Review and Inspection Fees**

- A. Fees have been established by the Municipality as adopted by resolution or as otherwise allowed by law to defray plan review and construction inspection costs incurred by the Municipality. All fees and costs associated with the performance of the items listed in Section 23-602.A shall be paid by the Applicant at the time of SWM Site Plan submission.
- B. A review and inspection fee schedule has been established by resolution of the municipal Governing Body based on the size of the Regulated Activity and based on the Municipality's costs for reviewing SWM Site Plans, O&M Plans and Agreements and As-Built Plans, and conducting inspections pursuant to Section 23-501 of this

Chapter. The Municipality shall periodically update the review and inspection fee schedule to ensure that review costs are adequately reimbursed. SWM Site Plan review and inspection fees are listed within the Phoenixville Borough Master Schedule of Fees for each calendar year.

**§23-602. Expenses Covered by Fees**

- A. The fees required of the Applicant by this Chapter shall at a minimum cover:
1. Administrative costs;
  2. The review of the SWM Site Plan by the Municipality, the Municipal Engineer and other municipal consultants;
  3. Legal costs associated with easement agreements, operation and maintenance agreements, and any other legal fees incurred by the Municipality related to the SWM Site Plan review and approval process;
  4. Coordination and meetings with the Applicant;
  5. The inspection of erosion and sediment control measures, BMPs, Conveyances and other related improvements during construction;
  6. Review of project communications, reports, and additional supporting information;
  7. Other Site inspections;
  8. The final inspection upon completion of the BMPs, Conveyances, and other stormwater management facilities and related improvements presented in the SWM Site Plan; and
  9. Review of final As-Built Plan submission and revised calculations, and inspections as needed.
- B. The Applicant shall also reimburse all expenses incurred by the Municipality for any additional work or municipal consultant fees required to enforce any permit provisions regulated by this Chapter, correct violations, and ensure proper completion of remedial actions.

## **PART 7 – OPERATION AND MAINTENANCE (O&M) RESPONSIBILITIES AND EASEMENTS**

### **§23-701. General Requirements for Protection, Operation and Maintenance of Stormwater BMPs and Conveyances**

The following shall apply to all Regulated Activities in accordance with the requirements of the subsequent sections of this Part 7.

- A. Continuing operations and maintenance responsibilities of all permanent BMPs, Conveyances, or other stormwater management facilities shall be reviewed and approved by the Municipality along with the SWM Site Plan. The Municipality may require an offer of a dedication of such facilities as part of the requirements for approval of the SWM Site Plan. Such a requirement is not an indication that the Municipality will accept the facilities. The Municipality reserves the right to accept or reject the operations and maintenance responsibility for any portion of or all of the BMPs, Conveyances or other stormwater controls and facilities.
- B. An Operation and Maintenance (O&M) Plan shall be submitted to the Municipality for review and approval for all existing and proposed permanent BMPs and man-made Conveyances or other stormwater facilities identified in the SWM Site Plan. Multiple BMPs or Conveyances may be addressed by a combined O&M Plan where all such facilities are similar in O&M requirements and ownership.
- C. The O&M Plan(s) and O&M Agreement(s) shall name the person identified in the SWM Site Plan who shall be the owner of and be responsible for ongoing inspections, operation, repair, and maintenance of each BMP or Conveyance following completion of construction.
- D. For any BMP or man-made Conveyance (including any to be located on any property other than the property being developed by the Applicant) to be owned by a person other than the Municipality:
  - 1. An O&M Agreement shall be submitted to the Municipality for review and approval; and
  - 2. The O&M Plan shall be attached to, incorporated within, and recorded as a public record along with a fully executed O&M Agreement, all of which shall be recorded as a restrictive covenant that runs with the land and shall be binding upon the Landowner and any heirs, administrators, successors in interest or assigns of the Landowner.
- E. The following shall be provided for all BMPs and Conveyances (including any to be located on any property other than the property being developed by the Applicant) by

an O&M or other agreement or by otherwise establishing covenants, easements, deed restrictions, or by dedication to the Municipality:

1. Permanent protection of the BMP or Conveyance from disturbance or alteration;
2. Right of entry and access for the Municipality for inspection and enforcement of this Chapter (including Section 23-903.G) and any applicable O&M Plan or O&M Agreement; and
3. Right of entry and access for the person owning the BMP or Conveyance and responsible for fulfilling the O&M requirements when that person is not the Municipality and is different from the owner of the property on which the BMP or Conveyance is located (such as may be applicable for Section 23-301.G of this Chapter).

F. All O&M and other agreements, covenants, easements, and deed restrictions shall:

1. Be submitted to the Municipality for review and approval;
2. Be recorded as a public record, upon approval, against each parcel(s) which is part of the SWM Site Plan or otherwise contains any BMP or Conveyance comprising part of the Regulated Activity which is the subject of an O&M Agreement; and
3. Run with the land and be binding upon the Landowner, its heirs, administrators, successors in interest, and assigns.

G. The materials, documents and content required by this Part 7 may be prepared in conjunction with and incorporated with similar materials, documents and content required for other permit or approval applications, such as those required by PADEP for the Post Construction Stormwater Management Plan.

### **§23-702. Operation and Maintenance Plans**

The following items shall be included in the O&M Plan, unless otherwise approved by the Municipal Engineer:

- A. A plan sheet(s) or map(s) showing each BMP and man-made Conveyance and which shall include, but not be limited to:
  1. Property(ies) identification (owner name and address; and property address and/or lot and/or tax parcel number, etc.), property boundaries and tax parcel number of the land parcel on which the BMP or Conveyance is located.

2. Name, address, phone number, date prepared, signature and seal of the Licensed Professional responsible for preparation of the plan sheet or map.
3. Clear identification of the location, dimensions, and function of each BMP or Conveyance covered by the O&M Plan.
4. The location of each BMP and Conveyance relative to roadways, property boundaries, or other identifiable landmarks and existing natural drainage features such as streams, lakes, ponds, or other bodies of water within the immediate vicinity of, or receiving discharge from, the BMP or Conveyance.
5. Delineation of the land area, structures, Impervious Surfaces and Conveyances draining to and from the BMP.
6. Representative elevations and/or topographic contours at intervals of 2 feet, or other as acceptable to the Municipal Engineer.
7. Other features including FEMA floodplain and floodway boundaries, sinkholes, etc. located within the immediate proximity of each BMP and Conveyance.
8. Locations of areas of vegetation to be managed or preserved that function as a BMP or Conveyance.
9. The locations of all surface and subsurface utilities, on-lot wastewater facilities, sanitary sewers, and water lines within 20 feet of each BMP or Conveyance.
10. The following as it pertains to any easements, covenants and deed restrictions established for each applicable BMP or Conveyance:
  - a. Boundaries delineated with bearings and distances shown that encompass the BMP or Conveyance and that includes a ten (10)-foot perimeter area surrounding these features and sufficient vehicular ingress to and egress from a public right-of-way and roadway;
  - b. Labels specifying the type and purpose of the easement, covenant, or deed restriction and who it benefits; and
  - c. Labels with reference to any corresponding easement agreement, covenant, deed restriction or other document to be recorded.
11. The plan sheet or map shall be prepared at sufficient scale for municipal review, and ultimately for the use by the person responsible for operation and maintenance, and shall also be prepared at a legible scale that meets the requirements for recordation along with (and as an attachment to) the O&M Agreement and O&M Plan at the Chester County Office of the Recorder of Deeds.

B. The following information shall be included in the O&M Plan and written in a manner consistent with the knowledge and understanding of the person who will be responsible for the maintenance activities:

1. The name and address of the following:
  - a. Property(ies) on which each BMP or Conveyance is located;
  - b. Owner of the property;
  - c. Owner of each stormwater BMP or Conveyance who is responsible for implementation of the O&M Plan;
  - d. Person responsible for maintaining adequate liability insurance and payment of taxes; and
  - e. Person preparing the O&M Plan.
2. A description of each BMP and Conveyance and how the BMPs and Conveyances are intended to function.
3. A description of actions necessary to operate, inspect, and maintain each BMP or Conveyance, including but not limited to:
  - a. Lawn care, vegetation maintenance, landscaping, and planting;
  - b. Clean out of accumulated debris and sediment (including from grates, trash racks, inlets, etc.); and
  - c. Other anticipated periodic maintenance and repair.
4. The following statement shall be included:

*“The Landowner acknowledges that, per the provisions of the Municipality’s Stormwater Management Ordinance, it is unlawful to modify, remove, fill, landscape, alter or impair the effectiveness of, or place any structure, other vegetation, yard waste, brush cuttings, or other waste or debris into any permanent stormwater management BMP or Conveyance described in this O&M Plan or to allow the BMP or Conveyance to exist in a condition which does not conform to this O&M Plan, without written approval from the Municipality.”*

5. Inspection and maintenance schedules.

6. Explanation of the purpose and limitations of any easements, covenants, or deed restrictions associated with any BMP or Conveyance that are to be recorded against the property.
- C. A statement that no BMP or man-made Conveyance may be used by the owner or others for any purpose other than its intended stormwater control function, or, if approved by the Municipal Engineer, a statement of specific allowable uses of the BMP (i.e., recreational benefits that maybe associated with certain BMPs owned by a homeowners association, or allowable uses by an individual residential Landowner).
  - D. A statement that establishes a reasonable time frame for remedy of deficiencies found by the owner during their inspections.
  - E. Language needed to fulfill the requirements of Sections 23-705.B, 23-705.C, and 23-705.D of this Chapter.

### **§23-703. Operation and Maintenance Agreements**

- A. An O&M Agreement shall be required for any BMP or man-made Conveyance to be owned by a person other than the Municipality, and the Agreement shall:
  1. Be between the owner of the BMP or Conveyance and the Municipality, and shall be substantially the same as the O&M Agreement in Attachment F;
  2. Incorporate the approved O&M Plan(s) for all BMPs or Conveyances to be covered by the O&M Agreement;
  3. Set forth the rights, duties, and obligations of the owner of the BMP or Conveyance and the Municipality, and be consistent with the approved O&M Plan(s);
  4. Be recorded as a deed restriction or restrictive covenant that runs with the land and shall be binding upon the Landowner, its heirs, administrators, successors in interest, and assigns;
  5. Be submitted to the Municipality for review prior to approval of the SWM Site Plan;
  6. Upon approval by the Municipality, be signed by the designated owner of the BMP or Conveyance and submitted for signature by the Municipality; and
  7. When fully executed, be recorded by the Landowner at the Chester County Office of the Recorder of Deeds following municipal approval of the O&M Plan and prior to the start of construction.

- B. Other items or conditions may be required by the Municipality to be included in the O&M Agreement where determined necessary by the Municipality to guarantee the satisfactory operation and maintenance of all permanent BMPs and Conveyances.
- C. After approval of the final As-Built Plans per the requirements of Part 5 of this Chapter, the Applicant shall review and, if necessary and if required by the Municipality, revise and re-record the O&M Plan and O&M Agreement to reflect the final as-built conditions of each BMP and Conveyance if different from the information included in the original recorded documents.

### **§23-704. Easements and Deed Restrictions**

- A. Easements shall be established in connection with any Regulated Activity for all permanent BMPs and Conveyances that will not be dedicated to or otherwise owned by the Municipality, (including any to be located on any property other than the property being developed by the Applicant), and shall:
  - 1. Include all land area occupied by each BMP or Conveyance;
  - 2. Include a ten (10)-foot wide perimeter (or other width as determined in consultation with the Municipal Engineer) surrounding the feature(s);
  - 3. Provide sufficient vehicular ingress and egress from a public right-of-way and roadway;
  - 4. Permanently protect every BMP and Conveyance from disturbance or alteration where not otherwise protected by a recorded O&M Agreement, covenant, deed restriction or other means;
  - 5. Grant the Municipality the right, but not the duty, to access every BMP and Conveyance from a public right-of-way or public roadway to conduct periodic inspections and to undertake other actions that may be necessary to enforce the requirements of this Chapter, or of any applicable O&M Plan or O&M Agreement; where roadways will not be dedicated to the Municipality, the Municipality shall be granted access to the private roadways as necessary to access every BMP and Conveyance;
  - 6. Grant the owner of each BMP and Conveyance the right to access, inspect, operate, maintain, and repair the BMP or Conveyance when the feature is to be owned, operated, and maintained by a person other than the Municipality and other than the owner of the parcel on which it is located;
  - 7. Be shown, with bearings and distances noted, on the SWM Site Plan map/plan sheets, O&M Plan map/plan sheets, final As-Built Plans, and be signed and sealed by a qualified Licensed Professional;

8. Include language legally sufficient to ensure that the easement shall run with the land and bind the Landowner granting the easement, its heirs, administrators, successors in interest and assigns, into perpetuity; and
  9. Be recorded at the Chester County Office of the Recorder of Deeds following municipal approval and prior to the start of construction.
- B. For any BMP or Conveyance to be owned by a person other than the Municipality or the Landowner owning the parcel upon which a BMP or Conveyance is located, an easement agreement shall be prepared and executed between the Landowner and the owner of the BMP or Conveyance which shall:
1. Describe the ownership interests of all parties to the easement agreement, including the ownership of the BMP or Conveyance;
  2. Include a written legal (metes and bounds) description of the easement area, with reference to a recorded plan sheet showing the legal boundaries of the easement area (or an accompanying plan sheet/map), signed, and sealed by a qualified Licensed Professional;
  3. Grant an easement from the Landowner to the owner of each BMP and Conveyance, establishing the right and obligation to occupy, access, inspect, operate, maintain, and repair the BMP or Conveyance;
  4. Include a description of the purpose of the easement and the responsibilities of the parties involved;
  5. Incorporate by reference or be recorded with, the corresponding O&M Plan and O&M Agreement;
  6. Restrict the Landowner's use of the easement area of the parcel on which the BMP or Conveyance is located, consistent with the rights granted to the owner of the BMP or Conveyance;
  7. Be submitted to the Municipality for review and approval prior to approval of the SWM Site Plan;
  8. Upon approval by the Municipality, be signed by the owner of the BMP(s) or Conveyance(s) and the Landowner and submitted for signature by the Municipality;
  9. Include language legally sufficient to ensure that the easement will run with the land affected by the easement and that the easement agreement is binding upon the parties to the easement agreement, their heirs, administrators, successors in interest and assigns, into perpetuity;

10. Contain additional provisions or information as required by the Municipality; and
  11. When fully executed, be recorded by the Landowner at the Chester County Office of the Recorder of Deeds against all parcels affected by the terms of the easement agreement, within 30 calendar days of the Municipality's approval of the corresponding O&M Plan.
- C. For any BMP or Conveyance which is designed to receive runoff from another parcel or parcels and which is owned by the Landowner of the parcel upon which the BMP or Conveyance is located, in addition to any easement or easement agreement required pursuant to Subsections 23-704 A. or B., an easement agreement shall be prepared and executed between the Landowner of the parcel or parcels draining to the BMP or Conveyance and the owner of the BMP or Conveyance. This easement agreement shall:
1. Describe the ownership interests of all parties to the easement agreement, including the ownership of all affected parcels and of the BMP or Conveyance;
  2. Provide for the grant of a drainage easement from the owner of the BMP or Conveyance to the Landowner of the parcel(s) draining to the BMP, which shall extend from the shared parcel boundary(ies) to the receiving BMP and shall include the connecting flow path(s) or Conveyance;
  3. Include a written legal (metes and bounds) description of the easement area, with reference to a recorded plan sheet showing the legal boundaries of the easement area (or an accompanying plan sheet/map), signed, and sealed by a Licensed Professional.
  4. Incorporate by reference or be recorded with the corresponding O&M Plan and O&M Agreement;
  5. State that the purpose of the easement agreement is to ensure the continuous right of the discharging parcel to discharge onto the parcel containing the BMP and into the BMP or Conveyance;
  6. Restrict the BMP or Conveyance owner's use of the easement area of the parcel upon which the BMP or Conveyance is located, consistent with the purpose of the easement granted;
  7. Establish the duty and responsibility of the Landowner of the parcel or parcels draining to the BMP or Conveyance to maintain the existing drainages on the discharging parcel or parcels as designed and constructed to discharge to the receiving BMP;

8. Include language legally sufficient to ensure that the easement will run with the land and will bind all parties to the easement agreement, their heirs, administrators, successors in interest and assigns, into perpetuity;
  9. Be submitted to the Municipality for review and approval prior to approval of the SWM Site Plan;
  10. Contain all additional provisions or information as the Municipality may require upon review; and
  11. Be executed by the parties to the easement agreement and recorded at the Chester County Recorder of Deeds Office against the draining parcel(s) and the parcel upon which the BMP or Conveyance is located within 30 calendar days of the Municipality's approval of the corresponding O&M Plan.
- D. For any area(s) shown on the SWM Site Plan maps/plan sheets or As-Built Plan sheets as requiring, or area(s) that is otherwise determined to require, deed restriction(s) for the purpose of protecting and prohibiting disturbance to a BMP or Conveyance, such deed restrictions will be incorporated into a written deed, restrictive covenant, or equivalent document. The deed or other document shall:
1. Include a clear and understandable description of the purpose, terms and conditions of the restricted use;
  2. Include the written legal description (metes and bounds description) of the area to which the restrictions apply that is consistent with the boundary shown on the O&M plan sheets and SWM Site Plan maps/plan sheets;
  3. Make reference to any corresponding O&M Plan(s) and O&M Agreement(s);
  4. Include language legally sufficient to ensure that the terms of the restriction run with the land and shall be binding upon the Landowner, its heirs, administrators, successors in interest, and assigns;
  5. Be submitted to the Municipality for review and approval prior to approval of the SWM Site Plan;
  6. Upon approval by the Municipality, be signed by the Landowner and owner of the BMP or Conveyance and submitted to the Municipality; and
  7. Be fully executed and recorded at the Chester County Office of the Recorder of Deeds within 30 calendar days of the Municipality's approval of the O&M Plan.

### **§23-705. Other Post-construction Responsibilities**

- A. The provisions of Section 23-804 of this Chapter shall apply to any permanent BMP or Conveyance that is constructed as part of an approved SWM Site Plan or covered by an approved O&M Plan.
- B. The person responsible for the operation and maintenance of a BMP or Conveyance shall make records of the installation and of all maintenance and repairs, and shall retain the records for at least ten (10) years. These records shall be submitted to the Municipality.
- C. Upon final inspection, the Municipality shall inform the person responsible for the operation and maintenance whether the submission of periodic (annual or other frequency) inspection and maintenance reports will be required.
- D. The owner of each BMP and Conveyance shall keep on file with the Municipality the name, address, and telephone number of the person responsible for maintenance activities and implementation of the O&M Plan. In the event of a change, new information shall be submitted by the BMP or Conveyance owner to the Municipality within 30 calendar days of the change.

### **§23-706. Municipal Stormwater Control and BMP Operation and Maintenance Fund**

- A. The municipality shall inspect SWM BMPs, facilities and/or structures installed under this Chapter according to the following frequencies, at a minimum, to ensure the BMPs, facilities and /or structures continue to function as intended. Persons installing stormwater controls or BMPs shall be required to pay a specified amount to the Municipal Stormwater Control and BMP Operation and Maintenance Fund to help cover the costs of periodic inspections and maintenance expenses. This is to be paid in a manner specified by the Municipality. The amount of the deposit shall be determined as follows:
  - 1. If the BMP or Conveyance is to be privately owned and maintained, the deposit shall cover the cost of periodic inspections performed by the Municipality, as estimated by the Municipal Engineer, for a period of ten (10) years, at the following minimum frequencies:
    - a. Annually for the first five (5) years.
    - b. Once every three (3) years thereafter.
    - c. During or immediately after the cessation of a 25-year or greater storm, as determined by the Municipal Engineer.
    - d. The Municipal Engineer may request the landowner or landowner's designee to submit an inspection report after the cessation of a ten (10)-year or greater storm event if there is reason to believe that a BMP has sustained

damage that impacts its ability to function as designed and if the BMP's failure would result in damage to downgradient properties.

2. If the BMP or Conveyance is to be owned and maintained by the Municipality, the deposit shall cover the estimated costs for maintenance and inspections for ten (10) years. The Municipality will establish the estimated costs utilizing information submitted by the Applicant. Inspections shall be conducted at the minimum frequencies listed in above referenced section.
  3. The above referenced inspections shall be conducted during or immediately following precipitation events or in dry weather conditions if the BMP design parameters include dewatering within a specified period of time. A written inspection report shall be created to document each inspection. The inspection report shall contain the date and time of the inspection, the individual(s) who completed the inspection, the location of the BMP, Stormwater Management Facility or structure inspected, observations on performance, and recommendations for improving performance, if applicable.
  4. The amount of the deposit to the fund shall be converted to present worth of the annual series values. The Municipality shall determine the present worth equivalents, which shall be subject to the approval of the Governing Body.
- B. If a BMP or Conveyance is proposed that also serves as a recreational facility (e.g., ball field or lake), the Municipality may reduce or waive the amount of the maintenance fund deposit based upon the value of the land for public recreational purpose.
- C. If at some future time, a BMP or Conveyance (whether publicly or privately owned) is eliminated due to the installation of storm sewers or other storage facility, the unused portion of the maintenance fund deposit will be applied to the cost of abandoning or demolishing the facility and connecting to the storm sewer system or other facility. Any amount of the deposit remaining after the costs of abandonment or demolition will be used for inspection, maintenance, and operation of the receiving stormwater management system.
- D. If a BMP or Conveyance is accepted by the Municipality for dedication, the Municipality may require persons installing the BMP or Conveyance to pay a specified amount to the Municipal Stormwater Control and BMP Operation and Maintenance Fund to help cover the costs of operations and maintenance activities. The amount may be determined as follows:
1. The amount shall cover the estimated costs for operations and maintenance for ten (10) years, as determined by the Municipality, and
  2. The amount shall then be converted to present worth of the annual series values.

- E. The Municipality may require Applicants to pay a fee to the Municipal Stormwater Control and BMP Operation and Maintenance Fund to cover:
  - 1. Inspections
  - 2. Long-term maintenance of BMP(s) or Conveyance(s), and
  - 3. Stormwater-related problems which may arise from the land development and Earth Disturbance.

## **PART 8 – PROHIBITIONS**

### **§23-801. Prohibited Discharges**

- A. Any drain or Conveyance, whether on the surface or subsurface, that allows any non-stormwater discharge including sewage, process wastewater, and wash water to enter the Municipality’s separate storm sewer system, Riparian Buffers, wetlands, or other Waters of the Commonwealth is prohibited.
- B. No person shall allow, or cause to allow, discharges into the Municipality’s separate storm sewer system or the Waters of the Commonwealth that are not composed entirely of stormwater, except:
  - 1. As provided in Section 23-801.C below; and
  - 2. Discharges allowed under a State or Federal permit.
- C. The following discharges are authorized unless they are determined by the Municipality to be significant contributors to pollution to the Municipality’s separate storm sewer system or to the Waters of the Commonwealth:
  - 1. Discharges from firefighting activities;
  - 2. Potable water sources including water line and fire hydrant flushings, if such discharges do not contain detectable concentrations of Total Residual Chlorine (TRC);
  - 3. Non-contaminated irrigation drainage water;
  - 4. Non-contaminated HVAC condensation and water from geothermal systems;
  - 5. Springs;
  - 6. Water from crawl space pumps;

7. Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) and where detergents are not used;
  8. Diverted stream flows;
  9. Flows from riparian habitats and wetlands;
  10. Uncontaminated water from foundations or from footing drains;
  11. Lawn watering;
  12. Uncontaminated groundwater;
  13. Residential (i.e., not commercial) vehicle wash water where cleaning agents are not utilized;
  14. Routine external building washdown (which does not use detergents or other compounds); and
  15. Non-contaminated hydrostatic test water discharges, if such discharges do not contain detectable concentrations of TRC.
- D. In the event that the Municipality determines that any of the discharges identified in Section 23-801.C significantly contribute pollutants to the Municipality's separate storm sewer system or to the Waters of the Commonwealth, or is notified of such significant contribution of pollution by PADEP, the Municipality will notify the responsible person to cease the discharge.
- E. Upon notice provided by the Municipality under Section 23-801.D, the discharger shall, within a reasonable time period, as determined by the Municipality consistent with the degree of pollution caused by the discharge, cease the discharge.

**F.** Nothing in this section shall affect a discharger's responsibilities under State law.

### **§23-802. Prohibited Connections**

The following connections are prohibited, except as provided in Section 23-801.C above:

- A. Any drain or Conveyance, whether on the surface or subsurface, that allows any non-stormwater discharge, including sewage, process wastewater, and wash water to enter a separate storm sewer system, and any connections to the separate storm sewer system from indoor drains and sinks. Any drain or Conveyance that delivers non-stormwater

discharges directly into wetlands, Riparian Buffers, or other Waters of the Commonwealth is prohibited.

- B. Any drain or Conveyance connected from a commercial or industrial land use to a separate storm sewer system, which has not been documented in plans, maps, or equivalent records and approved by the Municipality.

### **§23-803. Pet Waste**

- A. All pet owners and keepers are required to immediately and properly dispose of their pet's solid waste deposited on any property, public or private, not owned or possessed by that person.
- B. Any owner or keeper who requires the use of a disability assistance animal shall be exempt from this requirement while such animal is being used for that purpose.
- C. Any person(s) found to be in violation of these provisions of this Chapter shall be subject to enforcement and penalties as specified under Part 9 of this Chapter.

### **Section 804. Roof Drains and Sump Pumps**

- A. Roof drains and sump pump discharges shall not be connected to sanitary sewers.
- B. Roof drain discharges:
  - 1. To the maximum extent practicable, shall discharge to infiltration or vegetative BMPs, or directed to vegetated surface areas with adequate erosion protection, positive drainage and adequate capacity; or
  - 2. Where the above discharge options are not feasible, may be directly connected to storm sewers, roadside ditches, or other Conveyance facilities only if determined necessary or acceptable by the Municipal Engineer on a case-by-case basis; or
  - 3. Where the above discharge options are not feasible, may be directly connected to streets through the curb only if determined necessary or acceptable by the Municipal Engineer; and
  - 4. Shall be considered in stormwater management calculations to demonstrate that receiving BMPs and Conveyance facilities have adequate capacity.
- C. Sump pump, foundation, and footing drain discharges:
  - 1. To the maximum extent practicable, shall discharge to infiltration or vegetative BMPs with bypass valves, or directed to vegetated or other surface areas with adequate erosion protection, positive drainage and adequate capacity; or

2. Where the above discharge options are not feasible, may be directly connected to storm sewers, roadside ditches, or other Conveyance facilities only if determined necessary or acceptable by the Municipal Engineer on a case-by-case basis; or
3. Where the above discharge options are not feasible, may be directly connected to streets through the curb only if determined necessary or acceptable by the Municipal Engineer; and
4. Shall be considered in stormwater management calculations to demonstrate that Conveyance and receiving facilities have adequate capacity. BMPs receiving discharges from sump pumps, foundation, and footing drains must be designed with a bypass valve to allow dewatering of the BMP.

#### **§23-804. Alteration of BMPs**

- A. No person shall modify, remove, fill, landscape, alter, or impair the effectiveness of any stormwater BMPs, Conveyances, Stormwater Management Facilities, areas or structures unless the activity is part of an approved maintenance program, without the written approval of the Municipality.
- B. No person shall place any structure, fill, landscaping, additional vegetation, yard waste, brush cuttings, or other waste or debris into a BMP or Conveyance, or within a stormwater easement, that would limit or alter the functioning of the stormwater BMP or Conveyance, without the written approval of the Municipality.

## **PART 9 – ENFORCEMENT AND PENALTIES**

#### **§23-901. Public Nuisance**

- A. Any Regulated Activity conducted in the violation of any provision of this Chapter is hereby deemed a public nuisance.
- B. Each day that a violation continues shall constitute a separate violation.
- C. A separate violation will be found to exist for each section of this Chapter found to have been violated.
- D. To the extent that the Municipality does not enforce any provision of this Chapter, such action or inaction shall not constitute a waiver by the Municipality of its rights of future enforcement hereunder.

### **§23-902. Right of Entry**

- A. Upon presentation of proper credentials, duly authorized officers or agents of the Municipality may enter at reasonable times upon any property within the Municipality to inspect the implementation, condition, or operation and maintenance of all erosion and sediment controls and permanent stormwater BMPs, Conveyances, or other Stormwater Management Facilities both during and after completion of a Regulated Activity, or for compliance with any requirement of this Chapter.
- B. Persons working on behalf of the Municipality shall have the right to temporarily locate on or in any BMP, Conveyance, or other Stormwater Management Facility in the Municipality such devices as are necessary to conduct monitoring and/or sampling of the discharges from such BMP or Conveyance, or other stormwater facilities.
- C. Failure of the Landowner or representative to grant access to the Municipality within 24 hours of notification, verbal or written, is a violation of this Chapter.

### **§23-903. Enforcement**

- A. The Municipal Engineer or other designee is hereby authorized and directed to enforce all the provisions of this Chapter. The Municipal Governing Body may delegate enforcement duties, including the initial determination of Chapter violation and service of notice, if notice is given, to such other officers or agents as the Municipality shall deem qualified for that purpose.
- B. It shall be the responsibility of the Landowner of the real property on which any Regulated Activity is proposed to occur, is occurring, or has occurred to comply with the applicable terms and conditions of this Chapter.
- C. All municipal inspections for compliance with the approved SWM Site Plan shall be the responsibility of the Municipality or its designee.
- D. During any stage of the work of any Regulated Activity, if the Municipal Engineer or other designee determines that the erosion and sediment control measures, permanent BMPs, Conveyances or other stormwater facilities are not being installed or maintained in accordance with the approved SWM Site Plan, the Municipality may suspend or revoke any existing permits or other approvals until the deficiencies are corrected or until a revised SWM Site Plan is submitted and approved, if and as determined to be necessary by the Municipal Engineer or other designee.
- E. In the event that the Municipal Engineer or other designee finds that a person has violated a provision of this Chapter, or fails to conform to the requirements of any permit or approval issued by the Municipality, or any O&M Plan or O&M Agreement

approved by the Municipality, the Municipality may order compliance by written notice of the violation to the Landowner.

- F. Such notice may, without limitation, require the following remedies:
1. Performance of monitoring, analyses, and reporting;
  2. Elimination of prohibited connections or discharges;
  3. Cessation of any violating discharges, practices, or operations;
  4. Abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property;
  5. Payment of a fine to cover administrative and remediation costs and/or forfeiture of financial security;
  6. Implementation of stormwater controls, BMPs, and Conveyances; and
  7. Operation, maintenance or repair of BMPs, Conveyances or other stormwater facilities.
- G. Such notice shall set forth the nature of the violation(s), citing the specific sections of this Chapter which have not been met, and establish a time limit for commencement of correction and completion of correction of the violations(s). The notice shall provide for a right of the Landowner's appeal to the Municipal Governing Body in accordance with Section 23-906 of this Chapter. Said notice shall further advise that, if applicable, should the violator fail to take the required action within the established deadline, possible sanctions, clearly described, may be imposed, or the work may be done by the Municipality or designee, and the expense thereof shall be charged to the violator.
- H. Failure to comply within the time specified in such notice shall also subject such person to the penalty provisions of this Chapter. All such penalties shall be deemed cumulative and shall not prevent the Municipality from pursuing any and all other remedies available in law or equity.
- I. In the event that the Landowner fails or refuses to perform/comply with the required remedies identified in the notice issued under this Section within 30 days for the issuance thereof, or immediately in the case of an emergency, the Municipality may, in its sole discretion, perform such remedial actions and bill the Landowner for the fees and costs associated therewith along with any and all attorneys fees and court costs associated with the collection of the same. Should the Landowner fail to reimburse the Municipality within 30 days from the receipt of a written notice requesting the reimbursement of the fees and costs, the Municipality may place a lien on the property or pursue other remedies available to it in equity or law.

#### **§23-904. Suspension and Revocation of Permits and Approvals**

- A. Any building, land development, or other permit or approval issued by the Municipality may be suspended or revoked by the Municipality for:
  - 1. Noncompliance with or failure to implement any provision of the permit or approved SWM Site Plan or O&M Agreement;
  - 2. A violation of any provision of this Chapter or any other law or regulation applicable to the Regulated Activity;
  - 3. The creation of any condition or the commission of any act during the Regulated Activity that constitutes or creates a hazard or nuisance, or endangers the life, health, safety, or property of others; or
  - 4. Failure to correct a violation within the allowed time period allowed per notice given by the Municipality.
- B. Prior to revocation or suspension of a permit, unless there is immediate danger or threat of such danger to life, public health or property, at the request of the Applicant, the Municipality's Governing Body shall schedule a hearing on the violation and proposed revocation or suspension, pursuant to public notice. The expense of a hearing shall be the Applicant's responsibility.
- C. A suspended permit or approval may be reinstated by the Municipality when:
  - 1. The Municipal Engineer or other designee has inspected and approved the corrections to the BMPs, Conveyances or other Stormwater Management Facilities, or the elimination of the hazard or nuisance; and
  - 2. The Municipality is satisfied that the violation has been corrected.
- D. A permit or approval that has been revoked by the Municipality cannot be reinstated. The Applicant may apply for a new permit or approval in accordance with this Chapter.

#### **§23-905. Penalties**

- A. Any person violating or permitting the violation of the provisions of this Chapter shall be subject to a fine of not more than \$600 for each violation per day, recoverable with costs. The establishment of a violation for purposes of setting fines or penalties for such violation shall be in accordance with a citation to a magisterial district judge with jurisdiction and venue over the location of the violation and such an action will be subject to the procedures provided for the enforcement of summary offenses under the Pennsylvania Rules of Criminal Procedure. A separate offense shall arise for each day

or portion thereof a violation is found to exist and may be determined for each section of this Chapter which is found to have been violated.

- B. In addition, the Municipality may, through its solicitor, institute injunctive, mandamus, or any other appropriate action or proceeding at law or in equity for the enforcement of this Chapter. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus, or other legal or equitable forms of remedy or relief. Such relief may include costs, fees, and charges, including the Municipality's attorney's fees (charged at the hourly rate approved by the Governing Body of the Municipality) and costs, as may be permitted by law.
- C. Notwithstanding any other provision of this Chapter, the Municipality shall have the right at any or all times deemed necessary by the Municipal Engineer or designee to enter upon any property within the Municipality to inspect and, upon determination of a violation of this Chapter, to correct the violation, with all expenses associated with correcting the violation to be charged to the property owner responsible for the violation.

#### **§23-906. Appeals**

- A. Any person aggrieved by any action of the Municipal Engineer or other designee relative to the provisions of this Chapter may appeal to the Municipality's Governing Body within thirty (30) days of that action.
- B. Any person aggrieved by any decision of the Municipality's Governing Body relative to the provisions of this Chapter may appeal to the County Court of Common Pleas in the County where the activity has taken place within thirty (30) days of the Municipal Governing Body's decision.

#### **§23-907. Effective Date**

This Ordinance shall take effect on .

**ORDINANCE ATTACHMENT A**

**SIMPLIFIED APPROACH TO  
STORMWATER MANAGEMENT  
FOR SMALL PROJECTS**

**Attachment A**  
**Simplified Approach to Stormwater  
Management for Small Projects**

**Attachment A.1 –  
Applicability, Submittal and Approval Requirements**

**Attachment A.2 –  
*“Simplified Approach to Stormwater Management for Small  
Projects – Handbook”***

**Attachment A.1**  
**Applicability, Submittal and Approval**  
**Requirements**

**Borough of Phoenixville**  
**Chester County, Pennsylvania**

## **Applicability:**

1. Small projects with less than two thousand (2,000) square feet of Regulated Impervious Surfaces (as defined in the Borough of Phoenixville Stormwater Management Ordinance) and with less than five thousand (5,000) square feet of proposed Earth Disturbance (as defined in the Borough of Phoenixville Stormwater Management Ordinance) may apply the “Simplified Approach to Stormwater Management for Small Projects” (Simplified Approach).
2. Only projects that meet the above size thresholds as specified in the Borough of Phoenixville Stormwater Management Ordinance may use this Simplified Approach and are then not required to submit a fully engineered Stormwater Management Site Plan to the Borough of Phoenixville (Borough). However, these projects are still required to address water quality and infiltration requirements as outlined in the *Simplified Approach to Stormwater Management for Small Projects – Handbook* (Handbook). This Handbook is intended to aid applicants in addressing these requirements through the installation of a properly sized underground infiltration trench.
3. Any project with more than two thousand (2,000) square feet of Regulated Impervious Surface or more than five thousand (5,000) square feet of proposed Earth Disturbance cannot apply the Simplified Approach.
4. The Applicant should first review the planned project with the Borough Engineer prior to initiating the Simplified Approach to confirm the following:
  - That the proposed project is not otherwise exempt from the stormwater management control and the engineered Stormwater Management Site Plan requirements of the Borough of Phoenixville Stormwater Management Ordinance;
  - That the proposed project is eligible to use the Simplified Approach;
  - Which components of the proposed project must be included in the calculation of “impervious surfaces (areas)”;
  - Whether any local conditions are known to the Borough Engineer that would preclude the use of any of the techniques included in the Simplified Approach.

## **Submittal and Approval Requirements:**

Use of the Simplified Approach requires:

1. The Applicant shall submit the following to the Borough for review and approval prior to beginning construction per the Handbook:
  - Simplified Approach – Stormwater Management Application
  - Simplified Approach – Stormwater Management Checklist
  - Simplified Approach Stormwater Management Site Plan (i.e., sketch plan)

- A completed, signed, and notarized “Stormwater Best Management Practices (BMPs) and Conveyances Operation, Maintenance and Easement Agreement”.
- 2. The Applicant shall record the “Stormwater Best Management Practices (BMPs) and Conveyances Operation, Maintenance and Easement Agreement ” at the Chester County Office of the Recorder of Deeds after signature by the Borough.
- 3. A final inspection conducted by the Borough after completion of construction.

**Attachment A.2**

**Simplified Approach to Stormwater Management  
for Small Projects - Handbook**

# **Simplified Approach to Stormwater Management for Small Projects Handbook**

Prepared for the

## **Borough of Phoenixville**

as part of the County-wide Act 167 Stormwater Management Plan for Chester County, PA.

Revised Date: 11/17/2022

Prepared by:

**Cedarville Engineering Group, LLC (CEG)**

159 E. High Street, Suite 500

Pottstown, PA 19464

Revised by:

**Remington & Vernick Engineers (RVE)**

555 Croton Road, Suite 401

King of Prussia, PA 19406

All revisions made by RVE were completed without consultation with CEG and were completed at the sole discretion of RVE.

## Table of Contents

1.0	Introduction.....	4
2.0	Project Eligibility for the Simplified Approach.....	4
3.0	Simplified Approach Design Procedure .....	5
	STEP 1 – PREPARE THE SIMPLIFIED APPROACH STORMWATER MANAGEMENT SITE PLAN.....	6
	STEP 2 – DETERMINE PROPOSED IMPERVIOUS SURFACES .....	7
	STEP 3 – DETERMINE SIZE OF THE UNDERGROUND INFILTRATION TRENCH.....	8
	STEP 4 – SUBMISSION TO MUNICIPALITY .....	9
4.0	Frequently Asked Questions .....	10
5.0	Simplified Approach Stormwater Management Plan Application Packet.....	14
	Simplified Approach – Stormwater Management Worksheet.....	15
	Simplified Approach – Stormwater Management Checklist .....	16
6.0	Example Simplified Approach Stormwater Management Site Plans .....	21

## **1.0 Introduction**

Pennsylvania's Storm Water Management Act (PA Act 167) was enacted in 1978 in response to the impacts of the accelerated stormwater runoff resulting from land development in the state. PA Act 167 requires counties to prepare and adopt watershed-based stormwater management plans. Municipalities are also required to adopt and implement ordinances to regulate development consistent with these plans. The purpose of these regulations is to protect public health, safety and general welfare, property values, and water quality and quantity by implementing drainage and Stormwater Management practices, criteria, and provisions for land development, construction, and Earth Disturbance Activities.

PA Act 167 gave Pennsylvania Municipalities the power to regulate activities affecting flooding, streambank erosion, stormwater runoff, and surface and groundwater quality and quantity. The Borough of Phoenixville Stormwater Management Ordinance (Ordinance) was prepared to comply with the provisions included in PA Act 167. This Ordinance also includes provisions allowing this Simplified Approach to Stormwater Management for Small Projects (Simplified Approach) to be used for small projects.

This Handbook has been developed to allow homeowners or applicants for small projects to comply with stormwater management requirements of the Stormwater Management Ordinance of the Borough of Phoenixville (Borough), including sizing, designing, locating, and installing on-lot measures, referred to herein as "Best Management Practices" (BMPs). Only projects that meet the size thresholds specified in the Borough of Phoenixville Stormwater Management Ordinance may use the Simplified Approach and are then not required to submit a formal fully engineered Stormwater Management Site plan to the Borough. However, these projects are still required to address certain requirements, such as stormwater quality, infiltration, rate, and volume management goals as outlined in this Handbook. This Handbook is intended to aid applicants in addressing these requirements through the installation of a properly sized underground infiltration trench.

The purpose of requiring effective stormwater management from small projects is to help reduce stormwater runoff in the community, to maintain groundwater recharge, to prevent degradation of surface and groundwater quality, and to otherwise protect water resources and for public safety.

## **2.0 Project Eligibility for the Simplified Approach**

To be eligible for the Simplified Approach, projects must meet the threshold, roof area, and BMP type requirements described below. It is recommended that prior to submission of an application utilizing the Simplified Approach, a meeting should be scheduled with the Borough Engineer to confirm eligibility and review the application process. It shall be noted that the plan approval shall not be considered at this meeting.

### Threshold

Small projects with five hundred (500) to two thousand (2,000) square feet of Regulated Impervious Surface (as defined in the Borough of Phoenixville Stormwater Management Ordinance) and/or with less than five thousand (5,000) square feet of proposed Earth Disturbance (as defined in the Borough of Phoenixville Stormwater Management Ordinance) may apply the Simplified Approach. Regulated Impervious Surface includes Proposed Impervious Surface as part of a current proposed project and all existing Impervious Surfaces installed after 9/9/2014.

Only projects that meet the above size thresholds as specified may use the Simplified Approach and are then not required to submit a formal Stormwater Management Site Plan to the Borough. However, these projects are still required to address water quality and infiltration requirements as outlined in this Attachment A.

Any project with more than two thousand (2,000) square feet of Regulated Impervious Surface or more than five thousand (5,000) square feet of proposed Earth Disturbance cannot apply the Simplified Approach.

Starting on 9/9/2014, projects and Impervious Surfaces are measured cumulatively. If an Applicant completes a project this year that qualifies for the Simplified Approach, but then proposes to complete a second project next year, and the total Impervious Surface for the two projects exceeds the applicable threshold for the Simplified Approach, a fully engineered Stormwater Management Plan for the entirety of the two projects will be required.

### Roof Area

For a project to be considered for utilizing the Simplified Approach, sufficient roof area must be available, either existing or proposed, so that the roof area being conveyed to the stormwater BMP (i.e., underground infiltration trench) is of equivalent or greater area than the Regulated Impervious Surface proposed, including existing Impervious Surface(s) installed after 9/9/2014. Impervious Surface is defined in §23-202 of the Borough of Phoenixville Stormwater Management Ordinance. Plans proposing capturing and conveyance of overland flow will not be considered. Sizing of the bed shall be in accordance with the Infiltration Trench Notes (Sheet 3A and/or 3B of 4) of the Simplified Approach Stormwater Management Plan Packet (Section 5.0 below) and shall be based upon the actual roof area being conveyed to the bed, not the Regulated Impervious Surface.

### BMP Type

The only stormwater BMP allowable under the Simplified Approach is the underground infiltration trench referenced in the Simplified Approach Stormwater Management Plan Application Packet. Refer to Section 5.0 below for the application packet and Section 6.0 for Example Simplified Approach Stormwater Management Site Plans. BMPs other than specifically referenced above shall require fully engineered plans prepared in accordance with the provisions of the stormwater ordinance.

## **3.0 Simplified Approach Design Procedure**

All Regulated Impervious Surfaces, which include Proposed Impervious Surfaces and existing Impervious Surfaces constructed after 9/9/2014 (as defined in §23-202) must be included in the

determination of the amount of Proposed Impervious Surfaces and the size of proposed underground infiltration trench needed to control stormwater. Proposed Impervious Surfaces on an individual residential lot may include, but are not limited to: roof area, pavement, sidewalks, driveways, patios, porches, parking areas, decks, or pools. Refer to the definitions provided in Part 2 of the Ordinance and contact the Borough Engineer to confirm what features of the proposed project must be included in the calculation of Regulated Impervious Surface area.

Sufficient roof area shall be available and diverted via downspout(s) to the proposed infiltration trench(es). The downspouts shall have appropriate measures to prevent clogging by unwanted debris (e.g., silt, leaves, and vegetation). Such measures shall include but are not limited to leaf traps, gutter guards, and cleanouts. Alternative designs, or alternative stormwater structures, shall be reviewed by the Borough Engineer and shall be subject to the requirements of the Borough of Phoenixville Stormwater Management Ordinance.

Below are the steps that must be undertaken to meet the Ordinance requirements. The size and description of the proposed construction as well as important aspects related to the design of the BMP(s) must be documented in the Simplified Approach - Stormwater Management Worksheet. All individuals planning on using the Simplified Approach are encouraged to review the planned project with the Borough Engineer prior to initiating the Simplified Approach to confirm the following, as the Borough Engineer will be responsible for determining eligibility to use the Simplified Approach:

1. That the proposed project is not otherwise exempt from the stormwater management control and fully engineered Stormwater Management Site Plan requirements of the Borough of Phoenixville Stormwater Management Ordinance;
2. That the proposed project size is within the range eligible to use the Simplified Approach;
3. That sufficient roof area is available to manage and is equal to or greater than the Regulated Impervious Surface;
4. Which components of the proposed project must be included in the calculation of “Impervious Surfaces”; and
5. Whether any local conditions are known to the Borough Engineer that would preclude the use of any of the techniques included in the Simplified Approach.

**STEP 1 – PREPARE THE SIMPLIFIED APPROACH STORMWATER MANAGEMENT SITE PLAN THAT INCLUDES:**

1. Name and address of the owner of the property.
2. Name and address of the individual preparing the plan (if different).
3. Date of plan preparation.
4. North arrow.
5. Location of all existing features within 50 feet of the property, including (if present):
  - Buildings;
  - Driveways;
  - Roads;
  - Easements;
  - Septic Systems;

- Streams;
  - Wetlands;
  - Floodplains; and
  - Existing Stormwater Facilities.
6. Show water supply wells within 50 feet of the proposed facility or add a note that no wells are present within 50 feet of the proposed facility.
  7. Location and approximate size of the roof area to be captured and diverted to the proposed BMP.
  8. Location and approximate size in square feet of proposed:
    - a. Structures;
    - b. Driveways; and
    - c. Other Impervious Surfaces.
  9. Location, orientation, and dimensions of the proposed underground infiltration trench(es). Length, width, and depth must be included on the plan.
  10. Distance from the proposed underground infiltration trench(es) to any existing surface water features, such as: streams, lakes, ponds, wetlands, or other natural waterbodies (must be greater than 50 feet from surface water features or outside of an existing legally prescribed buffer (i.e., deed, covenants, easement, etc.), whichever is greater).
  11. Distance from the proposed underground infiltration trench(es) to any existing septic system, public sewer line, or service lateral (must be greater than 50 feet unless otherwise approved by Borough Engineer).
  12. Distance from the proposed underground infiltration trench(es) to any existing wells or water service lines (must be greater than 50 feet unless otherwise approved by Municipal Engineer).
  13. Distance from the proposed underground infiltration trench(es) to nearest property line (must be > 5 feet).
  14. Distance from the proposed underground infiltration trench(es) to all buildings and features with subgrade elements (e.g., basements, foundation walls, etc.) must be > 25 feet, unless otherwise approved by the Borough Engineer.
  15. Show distance from at least two existing fixed features to the proposed underground infiltration trench(es). Fixed features include, but are not limited to, corners of existing buildings, driveways, septic system cleanout pipes, and mailboxes.
  16. PA ONE CALL (8-1-1 OR 1-800-242-1776) Identification Number received by calling the PA One Call system.

**STEP 2 – DETERMINE PROPOSED IMPERVIOUS SURFACES:**

1. Determine the total area of all Proposed Impervious Surfaces that will need to drain to one or more infiltration trench(es).
2. Determine the total area of Earth Disturbance needed to complete the project and install the infiltration trench(es).
3. Determine locations where the infiltration trench(es) need to be placed so runoff from all the Proposed Impervious Surfaces can be captured.

**Example:**

Garage Roof (Front): 33 feet (ft) x 25 ft	=	825 square feet (sf)
Driveway: 10 ft x 26 ft	=	260 sf
Total Proposed Impervious Surface: 825 sf + 260 sf	=	1,085 sf
Total proposed Earth Disturbance area:	=	2,500 square feet (estimated)

**STEP 3 – DETERMINE SIZE OF THE UNDERGROUND INFILTRATION TRENCH:**

1. Select the appropriate value of Proposed Impervious Surface in the first column of the table below.
2. Select the width of the trench(es) to be utilized to determine the required length of the trench(es).
3. When appropriate, and when approved by the Borough Engineer prior to submission, minimum trench length can be achieved through the use of more than one trench.

Note: Trench(es) to be constructed to dimensions indicated below. Modifications of the dimensions are not permitted if utilizing the Simplified Approach. This table is based on an overall trench depth of at least four feet, containing a minimum cover of one foot of soil cover, and three feet of stone with filter fabric, installed in accordance with the diagram included with the Simplified Approach Stormwater Management Plan Application Packet. Infiltration testing is not required when using the Simplified Approach.

**Table 1.1 – Underground Infiltration Trench Sizing Table for <1,000 ft<sup>2</sup> of Regulated Impervious Surface**

Regulated Impervious Surface (square feet)	4-foot wide Trench	5-foot wide Trench	6-foot wide Trench	7-foot wide Trench	8-foot wide Trench
	Length of trench (feet)				
451-500	23.00	18.25	15.25	13.25	11.50
501-550	25.25	20.25	16.75	14.50	12.75
551-600	27.50	22.00	18.25	15.75	13.75
601-650	29.75	23.75	20.00	17.00	15.00
651-700	32.00	25.75	21.50	18.25	16.00
701-750	34.25	27.50	23.00	19.75	17.25
751-800	36.50	29.25	24.50	21.00	18.25
801-850	39.00	31.25	26.00	22.25	19.50
851-900	41.25	33.00	27.50	23.50	20.75
901-950	43.50	34.75	29.00	25.00	21.75
951-999	45.75	36.50	30.50	26.25	23.00

**Table 1.2 – Underground Infiltration Trench Sizing Table for 1,000-2,000 ft<sup>2</sup> of Regulated Impervious Surface**

Regulated Impervious Surface (square feet)	4-foot wide Trench	5-foot wide Trench	6-foot wide Trench	7-foot wide Trench	8-foot wide Trench
	Length of trench (feet)				
1,000	45.75	36.50	30.50	26.25	23.00
1,001 to 1,050	46.75	37.50	31.25	26.75	23.50
1,051 to 1,100	48.00	38.50	32.00	27.50	24.00
1,101 to 1,150	49.25	39.25	32.75	28.25	24.75
1,151 to 1,200	50.25	40.25	33.50	28.75	25.25
1,201 to 1,250	54.75	44.00	36.50	31.50	27.50
1,251 to 1,300	59.50	47.50	39.75	34.00	29.75
1,301 to 1,350	61.75	49.25	41.25	35.25	31.00
1,351 to 1,400	64.00	51.25	42.75	36.50	32.00
1,401 to 1,450	66.25	53.00	44.25	38.00	33.25
1,451 to 1,500	68.50	54.75	45.75	39.25	34.25
1,501 to 1,550	70.75	56.75	47.25	40.50	35.50
1,551 to 1,600	73.00	58.50	48.75	41.75	36.50
1,601 to 1,650	75.25	60.25	50.25	43.00	37.75
1,651 to 1,700	77.75	62.25	51.75	44.50	39.00
1,701 to 1,750	80.00	64.00	53.25	45.75	40.00
1,751 to 1,800	82.25	65.75	54.75	47.00	41.25
1,801 to 1,850	84.50	67.50	56.25	48.25	42.25
1,851 to 1,900	86.75	69.50	58.00	49.75	43.50
1,901 to 1,950	89.00	71.25	59.50	51.00	44.50
1,951 to 1,999	91.25	73.00	61.00	52.75	45.75

**STEP 4 – SUBMISSION TO MUNICIPALITY:**

1. Prepare the Simplified Approach Stormwater Management Site Plan, which consists of 4 sheets:
  - a. **Simplified Site Plan (1 of 4)**
  - b. **Infiltration Trench Detail (2 of 4)**
  - c. **Infiltration Trench Notes (3A and/or 3B of 4)**
  - d. **Infiltration Trench Operation & Maintenance Notes (4 of 4)**
2. Complete the **Simplified Approach – Stormwater Management Worksheet**.
3. Complete the **Simplified Approach – Stormwater Management Checklist** to ensure all required information is completed.
4. Submit the completed forms and plan to the Borough for review and approval prior to beginning construction.
5. After the Borough has approved the submission, a signed Stormwater Best Management Practices (BMPs) and Conveyances Operation, Maintenance and Easement Agreement (SWM O&M Agreement) will be provided to the Applicant.

6. Record the SWM O&M Agreement at the County's Office of Recorder of Deeds.
7. Construction can begin only after the Borough has issued its approval of the proposed project to the applicant and the SWM O&M Agreement has been recorded.
8. Notify the Borough two (2) business days prior to the start of any construction and schedule any needed inspections.
9. If the Applicant is using a contractor to construct the project, the approved application including the worksheet and plan must be shared with the contractor to ensure the underground infiltration trench(es) are properly installed.

Note: Property owners building underground infiltration trenches per the Simplified Approach will need to record a SWM O&M Agreement at the Chester County Recorder of Deeds. The SWM O&M Agreement is prepared by Borough staff (or the Borough staff may require that the Applicant or its consulting engineer prepare the SWM O&M Agreement subject to review by the Borough staff or the Borough Engineer) using the template shown in **Attachment F**. A SWM O&M Agreement is needed to ensure access, inspection, maintenance, operation, repair, and permanent protection for these stormwater management facilities.

#### **4.0 Frequently Asked Questions**

Frequently Asked Questions (FAQs) regarding the Simplified Approach and Stormwater Management are located below.

##### **4.1 What is Stormwater Management?**

Stormwater Management is the practice of managing surface water runoff from precipitation events. Stormwater Management is a way to reduce the impacts of decreasing infiltration that results from altering the land from natural conditions. The goal of stormwater management is to reduce the volume of stormwater runoff through practices that capture, infiltrate, detain, or evaporate stormwater. These practices help to improve water quality, restore groundwater recharge, and improve stream habitat. Examples of residential Stormwater Management are rain gardens, rain barrels, porous pavers, drywells, and infiltration trenches.

##### **4.2 Why do I have to do Stormwater Management for my small project?**

The new Borough regulations, derived from Federal and State mandates, require that all property owners be responsible for managing stormwater runoff from Impervious Surfaces. All projects requiring a Zoning or Building Permit will be reviewed by the Borough for stormwater considerations.

##### **4.3 How does the Municipality determine if a stormwater permit is required?**

Starting on 9/9/2014, projects and Impervious Surfaces were measured cumulatively. If the project, or combination of projects since 9/9/2014, will result in five hundred (500) square feet of total Regulated Impervious Surface, including Proposed Impervious Surface(s) and existing Impervious Surface(s) installed after the above referenced date, or disturbs five thousand (5,000) square feet, a stormwater permit and fully engineered Stormwater Management Plan will be required. Impervious Surface is

defined in §23-202 of the Borough of Phoenixville Stormwater Management Ordinance.

**4.4 Is the square footage of the BMP included in the Earth Disturbance calculation?**

Yes. All disturbed soils are to be included in the calculation for Earth Disturbance.

**4.5 What if I am removing and replacing existing Impervious Surface, such as a driveway or shed?**

The net change in the land cover is what will be considered for the permit. The replacement in the exact footprint replacement of an existing one- or two-family dwelling unit or existing Impervious Surface such as patios, driveways, garages, sidewalks, decks, or pools that are accessory to an existing one- or two-family dwelling unit in the exact footprint of the existing Impervious Surface are exempt from the requirements of §§ 23-301, 23-304, 23-305, 23-306, 23-307, 23-308, 23-309, and 23-310, and Parts 4, 5, 6, and 7 of the Borough of Phoenixville Stormwater Management Ordinance.

**4.6 What is the penalty if I do not apply for or follow the application process or maintenance obligations?**

The Borough has legal enforcement action defined in the Borough's Code which may include the right to deny occupancy permits and assess fines as needed for enforcement.

**4.7 Are professional engineering services necessary to meet these requirements?**

This Attachment has been developed to assist the landowner in meeting the water quality and groundwater recharge goals of the Borough of Phoenixville Stormwater Management Ordinance. If the guidelines are followed, the landowner may not be required to utilize professional engineering services to comply with these water quality and groundwater recharge goals.

**4.8 What needs to be submitted to the Borough?**

Even though an engineered Stormwater Management Plan is not required for individual lot owners opting for the Simplified Approach, a brief description of the proposed underground infiltration trench, including types of material to be used, total Impervious Surfaces and volume calculations, and a Simplified Approach Stormwater Management Site Plan shall be submitted to the Borough prior to construction. The following information shall be submitted to the Borough: (1) Simplified Approach – Stormwater Management Worksheet; and (2) Simplified Approach Stormwater Management Site Plan, which consists of 4 sheets.

**4.9 What is an underground infiltration trench?**

An underground infiltration trench is a rock-filled trench with no outlet that receives stormwater runoff. Runoff is stored in the void space between the stones and infiltrates through the bottom and into the soil matrix. Infiltration trenches perform well for removal of fine sediment and associated pollutants. Infiltration testing is recommended

to ensure soil is capable of infiltrating stormwater. Underground infiltration trenches shall incorporate or make provisions for the following elements:

1. Shall be constructed after all Earth Disturbance associated with the project or site is stabilized to avoid clogging.
2. Perforated pipe is to be set level.
3. The width is limited to between four feet to eight feet with a fixed stone depth of three feet.
4. Trench(es) shall be wrapped in nonwoven geotextile (top, bottom, and sides).
5. There shall be a positive overflow that allows stormwater that cannot be stored or infiltrated to be discharged into a nearby vegetated area (clean-out or pop-up emitter).
6. It is recommended that there be a two-foot clearance above the regularly occurring seasonal high-water table and have a minimum depth to bedrock of two feet.
7. The underground infiltration trench shall be at least 25 feet from buildings, unless otherwise approved by the Borough Engineer, 5 feet from property lines, 50 feet from individual water supply wells, and 100 feet from community or Borough water supply wells. If no well is present within 50 feet of the underground infiltration trench, a note stating such must be put on the plan.
8. The underground infiltration trench shall be at least 50 feet from any septic system absorption area and 50 feet from community or Borough Sewer lines and laterals, or as otherwise approved by the Borough Engineer.
9. The underground infiltration trench shall not be located near hotspots which are areas where land use or activities generate highly contaminated runoff, with concentrations of pollutants that are higher than those that are typically found in stormwater.
10. The underground infiltration trench shall be located a minimum of 10 feet from subsurface structures such as building foundations and basements so that it does not threaten their structural integrity.
11. Infiltration areas must be protected from compaction by heavy equipment during and after construction. The ratio of the collected area to the footprint of the facility shall be as small as possible with a ratio of less than 5:1 preferred.
12. Where roof drains are designed to discharge to the underground infiltration trench(es), the roof drains shall have appropriate measures to prevent clogging by unwanted debris (for example, silt, leaves and vegetation). Such measures may include but are not limited to leaf traps, gutter guards, or cleanouts.

#### **4.10 How is an underground infiltration trench constructed?**

Refer to the standard construction sequence for an underground infiltration trench as required by the Simplified Approach.

1. Contact PA ONE CALL 8-1-1 or 1-800-242-1776.
2. Protect infiltration areas from compaction by heavy equipment during and after construction.
3. Silt sock or silt fence should be installed upslope of the proposed infiltration trench and downslope of all proposed Earth Disturbance and shown on the Plan.

4. Construction of the underground infiltration trench shall only be started after all Earth Disturbance associated with the project or site is stabilized to avoid clogging.
5. Excavate the underground infiltration trench to a minimum depth of four feet. The excavated trench bottom must have uniform, level, uncompacted subgrade free from rocks and debris. Scarify the bottom of the trench, so not to compact the subgrade.
6. Place nonwoven geotextile along all the sides of the trench. Where separate pieces of geotextile meet, they shall overlap by a minimum of 18 inches. Fold back and secure excess geotextile during stone placement.
7. Place clean stone (e.g., PennDOT No. 2B, AASHTO #57, or three-quarter-inch clean stone) in the trench.
8. Install the continuously perforated pipe and cleanouts within the trench.
9. If a downspout will be connected to the system, install the piping from the downspout to the perforated trench piping. Install appropriate measures to prevent clogging by unwanted debris such as leaf traps, gutter guards, and cleanouts.
10. Backfill with clean stone to establish an overall stone depth of three feet. Fold and secure the nonwoven geotextile over the top of underground infiltration trench with an eighteen-inch overlap.
11. Place a minimum of 12 inches of topsoil over geotextile. Grading shall direct surface runoff toward the center of the trench (The Borough will consider surface materials on a project-by-project basis).
12. Stabilize the topsoil with seed and straw mulch.

#### **4.11 What are the maintenance requirements for an underground infiltration trench?**

Vegetation along the surface of an underground infiltration trench shall be maintained in good condition, and any bare spots shall be revegetated as soon as possible. Vehicles may not be parked or driven on any underground infiltration trench, and care shall be taken to avoid excessive compaction by mowers. Any debris such as leaves blocking flow from reaching an underground infiltration trench shall be routinely moved.

#### **4.12 What if my roof area is larger than the Regulated Impervious Surface I am proposing?**

In order to utilize the Simplified Approach, the Applicant must size the proposed infiltration trench for the amount of roof area directed into it, even if it is larger than the amount of Regulated Impervious Surface being proposed. This additional roof area may be “credited” toward future Proposed Impervious Surface. If the Applicant were to propose additional Impervious Surface in the future and the total Regulated Impervious Surface is still less than the roof area that the infiltration trench was sized for, additional stormwater management requirements may not be applicable if all other requirements of the Ordinance are met.

## **5.0 Simplified Approach Stormwater Management Plan Application Packet**

The pages below include the following required elements of a Simplified Approach Stormwater Management Plan Application Packet:

1. Simplified Approach – Stormwater Management Worksheet
2. Simplified Approach – Stormwater Management Checklist
3. Simplified Site Plan (1 of 4)
4. Infiltration Trench Detail (2 of 4)
5. Infiltration Trench Notes (3A and/or 3B of 4)
6. Infiltration Trench Operation and Maintenance Notes (4 of 4)
7. Stormwater Best Management Practices (BMPs) and Conveyances Operation, Maintenance and Easement Agreement\*

\*Contact the Borough of Phoenixville for the current template agreement.

### Simplified Approach – Stormwater Management Worksheet

Name of Property Owner(s):		Date:
Name of Applicant (If different than Owner)*: <i>*If Applicant is different than Owner, then proof of written permission of Owner is required.</i>		
Contact Phone #:	Email Address:	
Address of Project:		
Description of Project:		
Distance from Earth Disturbance to nearest surface water feature (stream, pond, wetland, etc.): <input type="checkbox"/> 50 feet or less <input type="checkbox"/> More than 50 feet		
<b>REGULATED IMPERVIOUS SURFACES</b>		
Proposed Impervious Surface (New, Add'l & Replacement)	Dimensions (length x width)	Area (square feet)
A. Total Proposed Impervious Surface Area (square feet)*: <i>*If less than 500 feet<sup>2</sup>, Stormwater Management is not required. If more than 2,000 feet<sup>2</sup>, the Simplified Approach cannot be used.</i>		
B. Existing impervious surface area installed after 9/9/2014 (square feet):		
C. Regulated Impervious Surface Area (A + B = C) (square feet):		
D. Total Proposed Earth Disturbance Area (square feet)**: <i>**If more than 5,000 feet<sup>2</sup>, the Simplified Approach cannot be used.</i>		
<b>PROPOSED UNDERGROUND INFILTRATION TRENCH SIZING</b>		
Proposed Impervious Surface to Infiltration Trench (square feet)	Proposed Dimensions (length x width)	
1.		
2.		
Does the project involve new roof area? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, the downspout must be connected to the proposed Underground Infiltration Trench and must have measures to prevent clogging by unwanted debris. Indicate the measure proposed: <input type="checkbox"/> Leaf trap <input type="checkbox"/> Gutter guards <input type="checkbox"/> Cleanout <input type="checkbox"/> Other: _____		

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_

### Simplified Approach – Stormwater Management Checklist

Complete the checklist below to verify all required information is shown on the plan:

Yes	No	Not Applicable	Required Information
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Name and address of the owner of the property.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Name and address of individual preparing the plan (if different).
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Date of plan preparation.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	North arrow.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Location of all existing features within 50 feet of the property, including (if present): <ul style="list-style-type: none"> <li>• Buildings;</li> <li>• Driveways;</li> <li>• Roads;</li> <li>• Water Lines/Wells (or a note that no wells are present within 50 feet of the proposed facility);</li> <li>• Septic Systems/Sewer Mains and Laterals;</li> <li>• Streams, Wetlands, and Floodplains</li> <li>• Existing Stormwater Facilities; and</li> <li>• Easements.</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Location and approximate size in square feet of existing roof area to be captured and diverted to the BMP.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Location and approximate size in square feet of proposed: <ul style="list-style-type: none"> <li>• Structures;</li> <li>• Driveways; and</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Location, orientation, and dimensions of the proposed Underground Infiltration Trench(es). Length and width must be included on the plan.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Distance from the proposed Underground Infiltration Trench(es) to any existing surface water features, such as: streams, lakes, ponds, wetlands, or other natural waterbodies. Must be >50 feet from surface water features or outside of an existing legally described buffer (i.e., deed, covenants, easement, etc.) whichever is greater. Contact the Borough if this is not possible.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Distance from the proposed Underground Infiltration Trench(es) to any existing septic system, public sewer line, or lateral.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Distance from the proposed Underground Infiltration Trench(es) to any existing wells or waterlines.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Distance from the proposed Underground Infiltration Trench(es) to any existing wells or waterlines.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Show distance from at least two existing fixed features (e.g., house, shed, driveway) to the proposed Underground Infiltration Trench(es).
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PA One Call Serial Number (Dial 8-1-1 or 1-800-242-1776) to receive.

	NORTH ARROW
	DATE



UNDERGROUND SERVICE  
 ALERT CALL: TOLL FREE  
 1-800-242-1776  
 THREE WORKING DAYS  
 BEFORE YOU DIG

PROPERTY OWNER  
 NAME:  
 ADDRESS:

PLAN PREPARER  
 NAME:  
 ADDRESS:

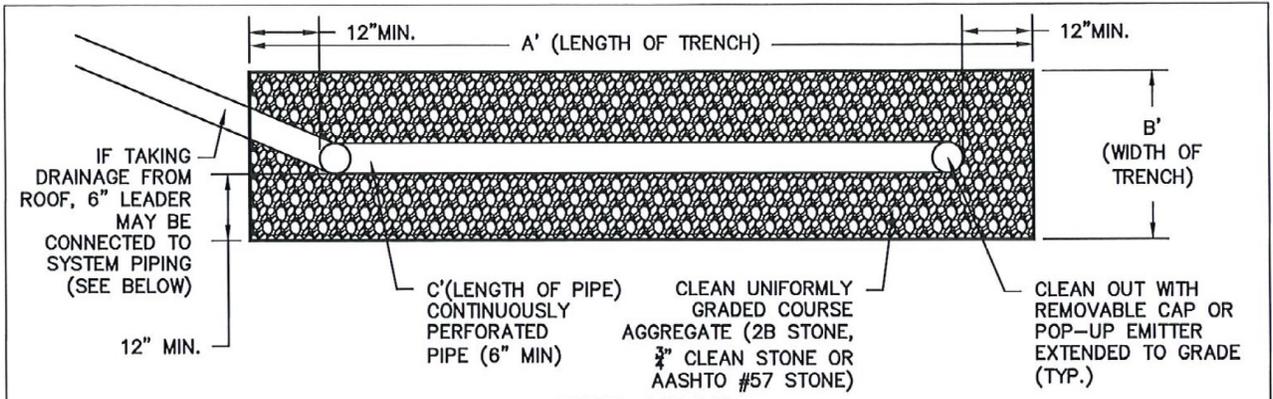
FOR USE BY MUNICIPAL ENGINEER

CHESTER COUNTY PENNSYLVANIA

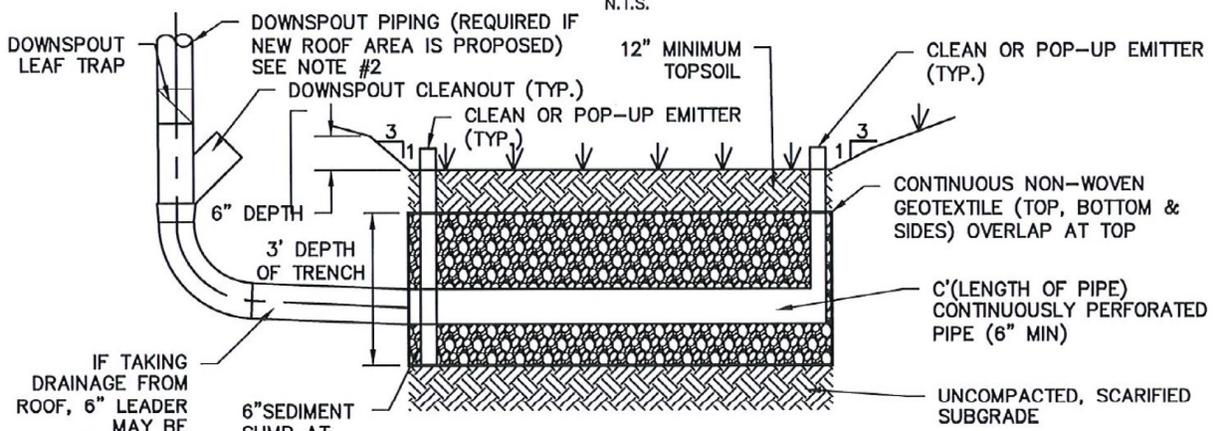
SHEET NO.

**SIMPLIFIED  
 SITE PLAN**

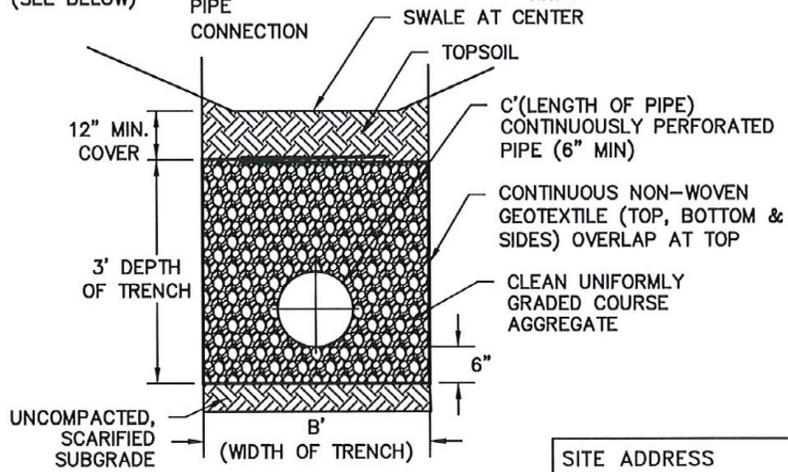
1 OF 4



**TOP VIEW**  
N.T.S.



**SIDE VIEW**  
N.T.S.



**CROSS-SECTION VIEW**  
N.T.S.

- DIMENSIONS**
- A: LENGTH OF TRENCH  
\_\_\_ FEET
  - B: WIDTH OF TRENCH  
\_\_\_ FEET
  - C: LENGTH OF PIPE  
\_\_\_ FEET  
(A-2'=C)

SITE ADDRESS

DATE:  
  
SCALE:  
NOT TO SCALE

**RVE**  
1991  
**REMINGTON & VERNICK**  
ENGINEERS  
Croton Road Corporate Center 555 Croton  
Road, Suite 401 King of Prussia, PA 19406  
(610) 940-1050, FAX (610) 940-1161  
*Excellence • Innovation • Service*

CHESTER COUNTY PENNSYLVANIA

**INFILTRATION  
TRENCH DETAIL**

SHEET NO.  
  
2 OF 4

## NOTES

§345-306.M: DURING SITE CONSTRUCTION, ALL INFILTRATION PRACTICE COMPONENTS SHALL BE PROTECTED FROM COMPACTION DUE TO HEAVY EQUIPMENT OPERATION OR STORAGE OF FILL OR CONSTRUCTION MATERIAL. INFILTRATION AREAS SHALL ALSO BE PROTECTED FROM SEDIMENTATION. AREAS THAT ARE ACCIDENTALLY COMPACTED OR GRADED SHALL BE REMEDIATED TO RESTORE SOIL COMPOSITION AND POROSITY. ADEQUATE DOCUMENTATION TO THIS EFFECT SHALL BE SUBMITTED TO THE MUNICIPAL ENGINEER FOR REVIEW. ALL AREAS DESIGNATED FOR INFILTRATION SHALL NOT RECEIVE RUNOFF UNTIL THE CONTRIBUTORY DRAINAGE AREA HAS ACHIEVED FINAL STABILIZATION.

§345-306.M: WHERE SEDIMENT TRANSPORT IN THE STORMWATER RUNOFF IS ANTICIPATED TO REACH THE INFILTRATION SYSTEM, APPROPRIATE PERMANENT MEASURES TO PREVENT OR COLLECT SEDIMENT SHALL BE INSTALLED PRIOR TO DISCHARGE TO THE INFILTRATION SYSTEM.

§345-306.N: WHERE ROOF DRAINS ARE DESIGNED TO DISCHARGE TO INFILTRATION PRACTICES, THEY SHALL HAVE APPROPRIATE MEASURES TO PREVENT CLOGGING BY UNWANTED DEBRIS (FOR EXAMPLE, SILT, LEAVES AND VEGETATION). SUCH MEASURES SHALL INCLUDE BUT ARE NOT LIMITED TO LEAF TRAPS, GUTTER GUARDS AND CLEANOUTS.

§345-306.Q: THE FOLLOWING PROCEDURES AND MATERIALS SHALL BE REQUIRED DURING THE CONSTRUCTION OF ALL INFILTRATION TRENCHES:

- (1) EXCAVATION FOR THE INFILTRATION TRENCH SHALL BE PERFORMED WITH EQUIPMENT THAT WILL NOT COMPACT THE BOTTOM OF THE INFILTRATION TRENCH.
- (2) THE BOTTOM OF THE INFILTRATION TRENCH SHALL BE SCARIFIED PRIOR TO THE PLACEMENT OF AGGREGATE.
- (3) ONLY CLEAN AGGREGATE WITH DOCUMENTED POROSITY, FREE OF FINES, SHALL BE ALLOWED.
- (4) THE TOPS AND SIDES OF ALL INFILTRATION TRENCH SHALL BE COVERED WITH DRAINAGE FABRIC. FABRIC SHALL BE NON-WOVEN FABRIC ACCEPTABLE TO THE TOWNSHIP ENGINEER.
- (5) STORMWATER SHALL BE DISTRIBUTED THROUGHOUT THE ENTIRE SEEPAGE BED/TRENCH OR LIKE FACILITY AND PROVISIONS FOR THE COLLECTION OF DEBRIS SHALL BE PROVIDED IN ALL FACILITIES.
- (6) PA ONECALL IS REQUIRED BEFORE ANY CONSTRUCTION ACTIVITIES COMMENCE.

### TRENCH LENGTH ( < 1000 SQUARE FEET OF REGULATED IMPERVIOUS SURFACE)

IMPERVIOUS SURFACE (sq ft)	4' WIDE TRENCH	5' WIDE TRENCH	6' WIDE TRENCH	7' WIDE TRENCH	8' WIDE TRENCH
	LENGTH OF TRENCH (ft)				
451-500	23.00	18.25	15.25	13.25	11.50
501-550	25.25	20.25	16.75	14.50	12.75
551-600	27.50	22.00	18.25	15.75	13.75
601-650	29.75	23.75	20.00	17.00	15.00
651-700	32.00	25.75	21.50	18.25	16.00
701-750	34.25	27.50	23.00	19.75	17.25
751-800	36.50	29.25	24.50	21.00	18.25
801-850	39.00	31.25	26.00	22.25	19.50
851-900	41.25	33.00	27.50	23.50	20.75
901-950	43.50	34.75	29.00	25.00	21.75
951-999	45.75	36.50	30.50	26.25	23.00

\* DIMENSIONS IN THIS TABLE HAVE BEEN DETERMINED FOR MANAGING THE DIFFERENCE BETWEEN THE PRE-DEVELOPMENT AND POST-DEVELOPMENT, 2-YEAR FREQUENCY, 24-HOUR DURATION RAINFALL RUNOFF VOLUME.

\* TRENCH SHOULD BE SIZED BASED ON SQUARE FEET OF ROOF AREA DIRECTED TO THE PROPOSED TRENCH, WHICH MAY NOT EQUAL THE REGULATED IMPERVIOUS SURFACE PROPOSED.

SITE ADDRESS

DATE:



**REMINGTON & VERNICK  
ENGINEERS**

Croton Road Corporate Center 555 Croton  
Road, Suite 401 King of Prussia, PA 19406  
(610) 940-1050, FAX (610) 940-1161  
*Excellence • Innovation • Service*

CHESTER COUNTY PENNSYLVANIA

**INFILTRATION  
TRENCH NOTES**

SHEET NO.

3A OF 4

SCALE:

NOT TO SCALE

**NOTES**

§345-306.M: DURING SITE CONSTRUCTION, ALL INFILTRATION PRACTICE COMPONENTS SHALL BE PROTECTED FROM COMPACTION DUE TO HEAVY EQUIPMENT OPERATION OR STORAGE OF FILL OR CONSTRUCTION MATERIAL. INFILTRATION AREAS SHALL ALSO BE PROTECTED FROM SEDIMENTATION. AREAS THAT ARE ACCIDENTALLY COMPACTED OR GRADED SHALL BE REMEDIATED TO RESTORE SOIL COMPOSITION AND POROSITY. ADEQUATE DOCUMENTATION TO THIS EFFECT SHALL BE SUBMITTED TO THE MUNICIPAL ENGINEER FOR REVIEW. ALL AREAS DESIGNATED FOR INFILTRATION SHALL NOT RECEIVE RUNOFF UNTIL THE CONTRIBUTORY DRAINAGE AREA HAS ACHIEVED FINAL STABILIZATION.

§345-306.M: WHERE SEDIMENT TRANSPORT IN THE STORMWATER RUNOFF IS ANTICIPATED TO REACH THE INFILTRATION SYSTEM, APPROPRIATE PERMANENT MEASURES TO PREVENT OR COLLECT SEDIMENT SHALL BE INSTALLED PRIOR TO DISCHARGE TO THE INFILTRATION SYSTEM.

§345-306.N: WHERE ROOF DRAINS ARE DESIGNED TO DISCHARGE TO INFILTRATION PRACTICES, THEY SHALL HAVE APPROPRIATE MEASURES TO PREVENT CLOGGING BY UNWANTED DEBRIS (FOR EXAMPLE, SILT, LEAVES AND VEGETATION). SUCH MEASURES SHALL INCLUDE BUT ARE NOT LIMITED TO LEAF TRAPS, GUTTER GUARDS AND CLEANOUTS.

§345-306.Q: THE FOLLOWING PROCEDURES AND MATERIALS SHALL BE REQUIRED DURING THE CONSTRUCTION OF ALL INFILTRATION TRENCHES:

- (1) EXCAVATION FOR THE INFILTRATION TRENCH SHALL BE PERFORMED WITH EQUIPMENT THAT WILL NOT COMPACT THE BOTTOM OF THE INFILTRATION TRENCH.
- (2) THE BOTTOM OF THE INFILTRATION TRENCH SHALL BE SCARIFIED PRIOR TO THE PLACEMENT OF AGGREGATE.
- (3) ONLY CLEAN AGGREGATE WITH DOCUMENTED POROSITY, FREE OF FINES, SHALL BE ALLOWED.
- (4) THE TOPS AND SIDES OF ALL INFILTRATION TRENCH SHALL BE COVERED WITH DRAINAGE FABRIC. FABRIC SHALL BE NON-WOVEN FABRIC ACCEPTABLE TO THE MUNICIPAL ENGINEER.
- (5) STORMWATER SHALL BE DISTRIBUTED THROUGHOUT THE ENTIRE SEEPAGE BED/TRENCH OR LIKE FACILITY AND PROVISIONS FOR THE COLLECTION OF DEBRIS SHALL BE PROVIDED IN ALL FACILITIES.
- (6) PA ONECALL IS REQUIRED BEFORE ANY CONSTRUCTION ACTIVITIES COMMENCE.

**TRENCH LENGTH (1000-2000 SQUARE FEET OF REGULATED IMPERVIOUS SURFACE)**

IMPERVIOUS SURFACE (sq ft)	4' WIDE TRENCH LENGTH OF TRENCH(ft)	5' WIDE TRENCH LENGTH OF TRENCH(ft)	6' WIDE TRENCH LENGTH OF TRENCH(ft)	7' WIDE TRENCH LENGTH OF TRENCH(ft)	8' WIDE TRENCH LENGTH OF TRENCH(ft)
1000	45.75	36.50	30.50	26.25	23.00
1001-1050	46.75	37.50	31.25	26.75	23.50
1050-1100	48.00	38.50	32.00	27.50	24.00
1100-1150	49.25	39.25	32.75	28.25	24.75
1151-1200	50.25	40.25	33.50	28.75	25.25
1201-1250	54.75	44.00	36.50	31.50	27.50
1250-1300	59.50	47.50	39.75	34.00	29.75
1301-1350	61.75	49.25	41.25	35.25	31.00
1351-1400	64.00	51.25	42.75	36.50	32.00
1401-1450	66.25	53.00	44.25	38.00	33.25
1451-1500	68.50	54.75	45.75	39.25	34.25
1501-1550	70.75	56.75	47.25	40.50	35.50
1551-1600	73.00	58.50	48.75	41.75	36.50
1601-1650	75.25	60.25	50.25	43.00	37.75
1651-1700	77.75	62.25	51.75	44.50	39.00
1701-1750	80.00	64.00	53.25	45.75	40.00
1751-1800	82.25	65.75	54.75	47.00	41.25
1801-1850	84.50	67.50	56.25	48.25	42.25
1851-1900	86.75	69.50	58.00	49.75	43.50
1901-1950	89.00	71.25	59.50	51.00	44.50
1951-1999	91.25	73.00	61.00	52.75	45.75

\* DIMENSIONS IN THIS TABLE HAVE BEEN DETERMINED FOR MANAGING THE DIFFERENCE BETWEEN THE PRE-DEVELOPMENT AND POST-DEVELOPMENT, 2-YEAR FREQUENCY, 24-HOUR DURATION RAINFALL RUNOFF VOLUME

\* TRENCH SHOULD BE SIZED BASED ON SQUARE FEET OF ROOF AREA DIRECTED TO THE PROPOSED TRENCH, WHICH MAY NOT EQUAL THE REGULATED IMPERVIOUS SURFACE PROPOSED.

SITE ADDRESS

DATE:	 <b>REMINGTON &amp; VERNICK ENGINEERS</b> Croton Road Corporate Center 555 Croton Road, Suite 401 King of Prussia, PA 19406 (610) 940-1050, FAX (610) 940-1161 <i>Excellence • Innovation • Service</i>	CHESTER COUNTY PENNSYLVANIA	SHEET NO.
SCALE: NOT TO SCALE		<b>INFILTRATION TRENCH NOTES</b>	3B OF 4

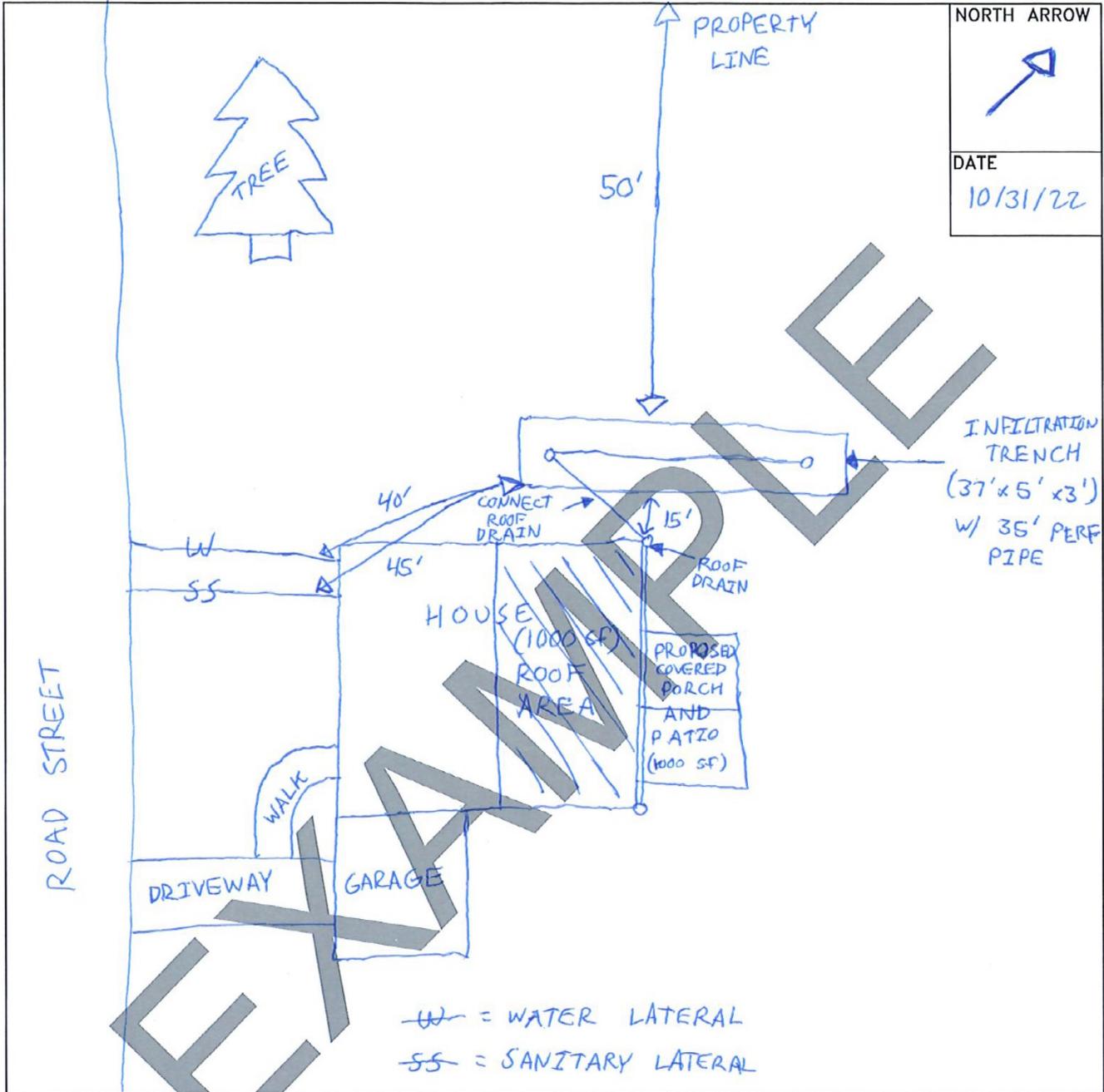
## STORMWATER FACILITIES OPERATIONS AND MAINTENANCE PLAN

THE PROPERTY OWNER WILL BE RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF ALL STORMWATER BEST MANAGEMENT PRACTICES AND CONVEYANCE FACILITIES. THE FACILITIES WILL INCLUDE THE INFILTRATION TRENCH ON THE PROPERTY AS WELL AS ANY YARD OR ROOF DRAINS, PIPING, POP-UP EMMITERS OR CLEAN-OUTS SHOWN ON THIS PLAN.

MAINTENANCE AND OPERATION WILL BE AS FOLLOWS:

1. THE INFILTRATION TRENCH AND CONVEYANCES DESCRIBED IN THIS PLAN SHALL BE INSPECTED ANNUALLY OR AS NEEDED FOLLOWING SIGNIFICANT PRECIPITATION EVENTS TO ASCERTAIN IF ANY SEDIMENT IS ENTERING THE FACILITIES. THE INFILTRATION TRENCH AND CONVEYANCES DESCRIBED IN THIS PLAN SHALL BE CLEANED IF NECESSARY. CLEANING WILL CONSIST OF REMOVING THE ACCUMULATED SILT, DEBRIS OR SEDIMENT.
2. THE OVERLYING VEGETATION ON THE INFILTRATION TRENCH SHALL BE MAINTAINED IN GOOD CONDITION, AND ANY BARE SPOTS RE-VEGETATED AS SOON AS POSSIBLE.
3. VEHICULAR ACCESS ON THE INFILTRATION TRENCH SHOULD BE PROHIBITED, AND CARE SHOULD BE TAKEN TO AVOID EXCESSIVE COMPACTION BY MOWERS.
4. REPAIR ALL DAMAGED PIPING, CLEAN-OUTS, AND POP-UP EMITTERS PROMPTLY TO PREVENT SEDIMENT FROM ENTERING THE SYSTEM. SPECIAL CARE SHOULD BE TAKEN TO AVOID DAMAGING EXPOSED ELEMENTS WITH MOWERS AND/OR STRING TRIMMERS.
5. GRASSES OVER THE INFILTRATION TRENCH SHALL BE MOWED AT LEAST TWICE EACH YEAR. TREES AND SHRUBS SHOULD NOT BE PERMITTED TO GROW ABOVE THE INFILTRATION TRENCH.

		SITE ADDRESS	
DATE:	 <b>REMINGTON &amp; VERNICK</b> <b>ENGINEERS</b> Croton Road Corporate Center 555 Croton Road, Suite 401 King of Prussia, PA 19406 (610) 940-1050, FAX (610) 940-1161 <i>Excellence • Innovation • Service</i>	CHESTER COUNTY      PENNSYLVANIA  <b>INFILTRATION TRENCH                  OPERATION &amp;                  MAINTENANCE NOTES</b>	SHEET NO.  4 OF 4
SCALE: NOT TO SCALE			



UNDERGROUND SERVICE  
ALERT CALL: TOLL FREE  
1-800-242-1776  
THREE WORKING DAYS  
BEFORE YOU DIG

PROPERTY OWNER

NAME: JOHN SMITH

ADDRESS: 123 ROAD STREET, TOWN PA 07134

PLAN PREPARER

NAME:

ADDRESS: SAME AS ABOVE

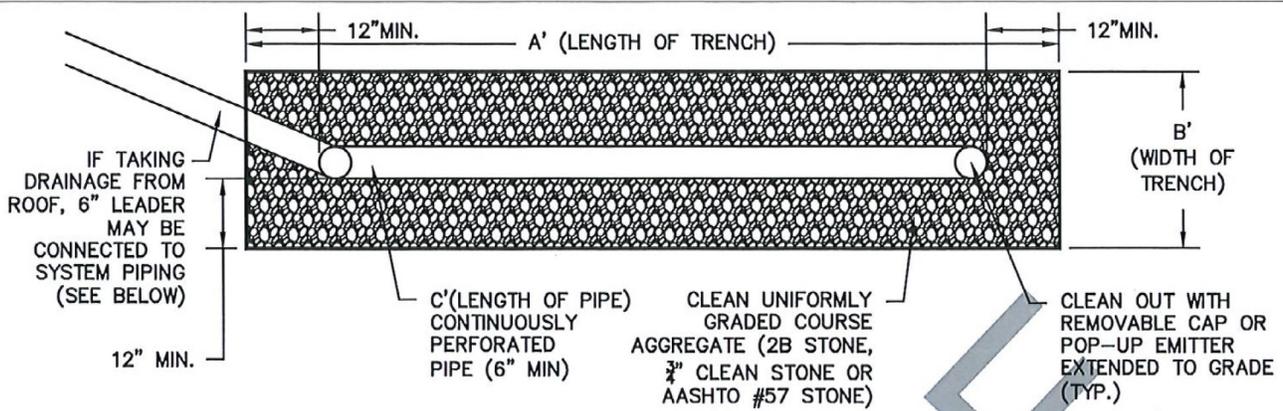
FOR USE BY MUNICIPAL ENGINEER

CHESTER COUNTY PENNSYLVANIA

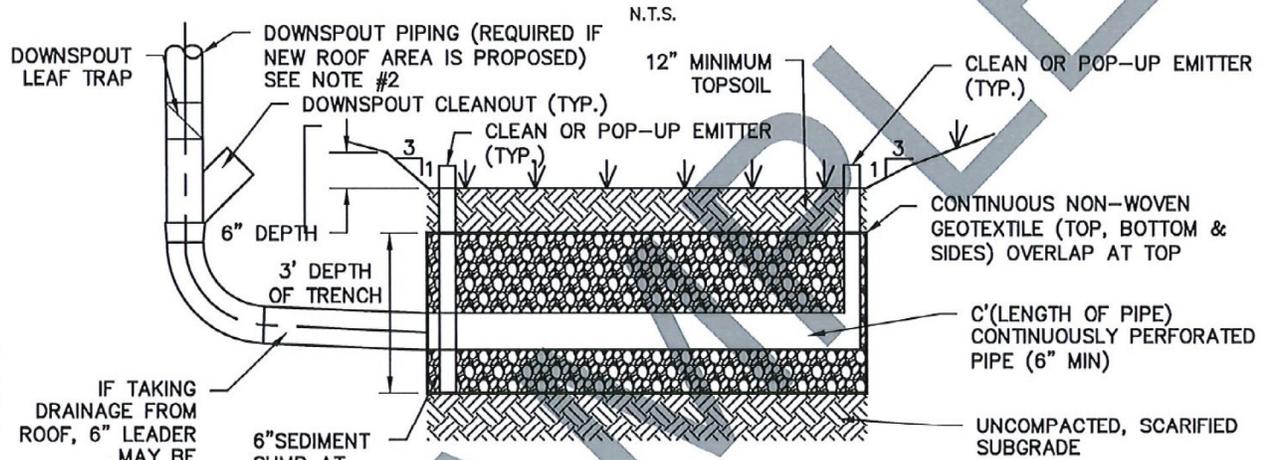
SHEET NO.

SIMPLIFIED  
SITE PLAN

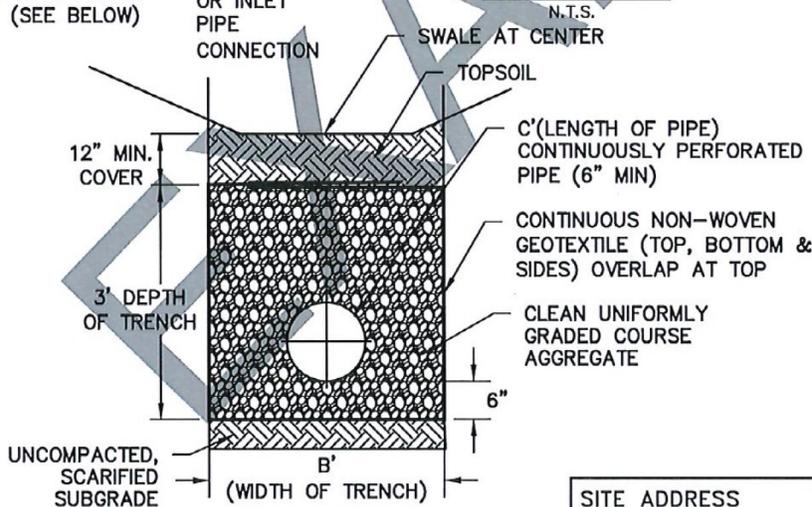
1 OF 4



TOP VIEW



SIDE VIEW



CROSS-SECTION VIEW

- DIMENSIONS**
- A: LENGTH OF TRENCH  
37 FEET
  - B: WIDTH OF TRENCH  
5 FEET
  - C: LENGTH OF PIPE  
35 FEET  
(A-2'=C)

SITE ADDRESS  
123 ROAD STREET, TOWN PA 07734

DATE:  
10/31/22

SCALE:  
NOT TO SCALE

**RVE**  
1901  
REMINGTON & VERNICK  
ENGINEERS  
Croton Road Corporate Center 555 Croton  
Road, Suite 401 King of Prussia, PA 19406  
(610) 940-1050, FAX (610) 940-1161  
Excellence • Innovation • Service

CHESTER COUNTY PENNSYLVANIA

**INFILTRATION  
TRENCH DETAIL**

SHEET NO.  
2 OF 4

## NOTES

§345-306.M: DURING SITE CONSTRUCTION, ALL INFILTRATION PRACTICE COMPONENTS SHALL BE PROTECTED FROM COMPACTION DUE TO HEAVY EQUIPMENT OPERATION OR STORAGE OF FILL OR CONSTRUCTION MATERIAL. INFILTRATION AREAS SHALL ALSO BE PROTECTED FROM SEDIMENTATION. AREAS THAT ARE ACCIDENTALLY COMPACTED OR GRADED SHALL BE REMEDIATED TO RESTORE SOIL COMPOSITION AND POROSITY. ADEQUATE DOCUMENTATION TO THIS EFFECT SHALL BE SUBMITTED TO THE MUNICIPAL ENGINEER FOR REVIEW. ALL AREAS DESIGNATED FOR INFILTRATION SHALL NOT RECEIVE RUNOFF UNTIL THE CONTRIBUTORY DRAINAGE AREA HAS ACHIEVED FINAL STABILIZATION.

§345-306.M: WHERE SEDIMENT TRANSPORT IN THE STORMWATER RUNOFF IS ANTICIPATED TO REACH THE INFILTRATION SYSTEM, APPROPRIATE PERMANENT MEASURES TO PREVENT OR COLLECT SEDIMENT SHALL BE INSTALLED PRIOR TO DISCHARGE TO THE INFILTRATION SYSTEM.

§345-306.N: WHERE ROOF DRAINS ARE DESIGNED TO DISCHARGE TO INFILTRATION PRACTICES, THEY SHALL HAVE APPROPRIATE MEASURES TO PREVENT CLOGGING BY UNWANTED DEBRIS (FOR EXAMPLE, SILT, LEAVES AND VEGETATION). SUCH MEASURES SHALL INCLUDE BUT ARE NOT LIMITED TO LEAF TRAPS, GUTTER GUARDS AND CLEANOUTS.

§345-306.Q: THE FOLLOWING PROCEDURES AND MATERIALS SHALL BE REQUIRED DURING THE CONSTRUCTION OF ALL INFILTRATION TRENCHES:

- (1) EXCAVATION FOR THE INFILTRATION TRENCH SHALL BE PERFORMED WITH EQUIPMENT THAT WILL NOT COMPACT THE BOTTOM OF THE INFILTRATION TRENCH.
- (2) THE BOTTOM OF THE INFILTRATION TRENCH SHALL BE SCARIFIED PRIOR TO THE PLACEMENT OF AGGREGATE.
- (3) ONLY CLEAN AGGREGATE WITH DOCUMENTED POROSITY, FREE OF FINES, SHALL BE ALLOWED.
- (4) THE TOPS AND SIDES OF ALL INFILTRATION TRENCH SHALL BE COVERED WITH DRAINAGE FABRIC. FABRIC SHALL BE NON-WOVEN FABRIC ACCEPTABLE TO THE TOWNSHIP ENGINEER.
- (5) STORMWATER SHALL BE DISTRIBUTED THROUGHOUT THE ENTIRE SEEPAGE BED/TRENCH OR LIKE FACILITY AND PROVISIONS FOR THE COLLECTION OF DEBRIS SHALL BE PROVIDED IN ALL FACILITIES.
- (6) PA ONECALL IS REQUIRED BEFORE ANY CONSTRUCTION ACTIVITIES COMMENCE.

### TRENCH LENGTH ( < 1000 SQUARE FEET OF REGULATED IMPERVIOUS SURFACE)

IMPERVIOUS SURFACE (sq ft)	4' WIDE TRENCH	5' WIDE TRENCH	6' WIDE TRENCH	7' WIDE TRENCH	8' WIDE TRENCH
	LENGTH OF TRENCH (ft)				
451-500	23.00	18.25	15.25	13.25	11.50
501-550	25.25	20.25	16.75	14.50	12.75
551-600	27.50	22.00	18.25	15.75	13.75
601-650	29.75	23.75	20.00	17.00	15.00
651-700	32.00	25.75	21.50	18.25	16.00
701-750	34.25	27.50	23.00	19.75	17.25
751-800	36.50	29.25	24.50	21.00	18.25
801-850	39.00	31.25	26.00	22.25	19.50
851-900	41.25	33.00	27.50	23.50	20.75
901-950	43.50	34.75	29.00	25.00	21.75
951-999	45.75	36.50	30.50	26.25	23.00

\* DIMENSIONS IN THIS TABLE HAVE BEEN DETERMINED FOR MANAGING THE DIFFERENCE BETWEEN THE PRE-DEVELOPMENT AND POST-DEVELOPMENT, 2-YEAR FREQUENCY, 24-HOUR DURATION RAINFALL RUNOFF VOLUME.

\* TRENCH SHOULD BE SIZED BASED ON SQUARE FEET OF ROOF AREA DIRECTED TO THE PROPOSED TRENCH, WHICH MAY NOT EQUAL THE REGULATED IMPERVIOUS SURFACE PROPOSED.

SITE ADDRESS

123 ROAD STREET, TOWN PA 07734

DATE:

10/31/22



**REMINGTON & VERNICK  
ENGINEERS**

Croton Road Corporate Center 555 Croton  
Road, Suite 401 King of Prussia, PA 19406  
(610) 940-1050, FAX (610) 940-1161  
*Excellence • Innovation • Service*

CHESTER COUNTY PENNSYLVANIA

**INFILTRATION  
TRENCH NOTES**

SHEET NO.

3A OF 4.

SCALE:

NOT TO SCALE

## NOTES

§345-306.M: DURING SITE CONSTRUCTION, ALL INFILTRATION PRACTICE COMPONENTS SHALL BE PROTECTED FROM COMPACTION DUE TO HEAVY EQUIPMENT OPERATION OR STORAGE OF FILL OR CONSTRUCTION MATERIAL. INFILTRATION AREAS SHALL ALSO BE PROTECTED FROM SEDIMENTATION. AREAS THAT ARE ACCIDENTALLY COMPACTED OR GRADED SHALL BE REMEDIATED TO RESTORE SOIL COMPOSITION AND POROSITY. ADEQUATE DOCUMENTATION TO THIS EFFECT SHALL BE SUBMITTED TO THE MUNICIPAL ENGINEER FOR REVIEW. ALL AREAS DESIGNATED FOR INFILTRATION SHALL NOT RECEIVE RUNOFF UNTIL THE CONTRIBUTORY DRAINAGE AREA HAS ACHIEVED FINAL STABILIZATION.

§345-306.M: WHERE SEDIMENT TRANSPORT IN THE STORMWATER RUNOFF IS ANTICIPATED TO REACH THE INFILTRATION SYSTEM, APPROPRIATE PERMANENT MEASURES TO PREVENT OR COLLECT SEDIMENT SHALL BE INSTALLED PRIOR TO DISCHARGE TO THE INFILTRATION SYSTEM.

§345-306.N: WHERE ROOF DRAINS ARE DESIGNED TO DISCHARGE TO INFILTRATION PRACTICES, THEY SHALL HAVE APPROPRIATE MEASURES TO PREVENT CLOGGING BY UNWANTED DEBRIS (FOR EXAMPLE, SILT, LEAVES AND VEGETATION). SUCH MEASURES SHALL INCLUDE BUT ARE NOT LIMITED TO LEAF TRAPS, GUTTER GUARDS AND CLEANOUTS.

§345-306.Q: THE FOLLOWING PROCEDURES AND MATERIALS SHALL BE REQUIRED DURING THE CONSTRUCTION OF ALL INFILTRATION TRENCHES:

- (1) EXCAVATION FOR THE INFILTRATION TRENCH SHALL BE PERFORMED WITH EQUIPMENT THAT WILL NOT COMPACT THE BOTTOM OF THE INFILTRATION TRENCH.
- (2) THE BOTTOM OF THE INFILTRATION TRENCH SHALL BE SCARIFIED PRIOR TO THE PLACEMENT OF AGGREGATE.
- (3) ONLY CLEAN AGGREGATE WITH DOCUMENTED POROSITY, FREE OF FINES, SHALL BE ALLOWED.
- (4) THE TOPS AND SIDES OF ALL INFILTRATION TRENCH SHALL BE COVERED WITH DRAINAGE FABRIC. FABRIC SHALL BE NON-WOVEN FABRIC ACCEPTABLE TO THE MUNICIPAL ENGINEER.
- (5) STORMWATER SHALL BE DISTRIBUTED THROUGHOUT THE ENTIRE SEEPAGE BED/TRENCH OR LIKE FACILITY AND PROVISIONS FOR THE COLLECTION OF DEBRIS SHALL BE PROVIDED IN ALL FACILITIES.
- (6) PA ONECALL IS REQUIRED BEFORE ANY CONSTRUCTION ACTIVITIES COMMENCE.

### TRENCH LENGTH (1000-2000 SQUARE FEET OF REGULATED IMPERVIOUS SURFACE)

IMPERVIOUS SURFACE (sq ft)	4' WIDE TRENCH LENGTH OF TRENCH(ft)	5' WIDE TRENCH LENGTH OF TRENCH(ft)	6' WIDE TRENCH LENGTH OF TRENCH(ft)	7' WIDE TRENCH LENGTH OF TRENCH(ft)	8' WIDE TRENCH LENGTH OF TRENCH(ft)
1000	45.75	36.50	30.50	26.25	23.00
1001-1050	46.75	37.50	31.25	26.75	23.50
1050-1100	48.00	38.50	32.00	27.50	24.00
1100-1150	49.25	39.25	32.75	28.25	24.75
1151-1200	50.25	40.25	33.50	28.75	25.25
1201-1250	54.75	44.00	36.50	31.50	27.50
1250-1300	59.50	47.50	39.75	34.00	29.75
1301-1350	61.75	49.25	41.25	35.25	31.00
1351-1400	64.00	51.25	42.75	36.50	32.00
1401-1450	66.25	53.00	44.25	38.00	33.25
1451-1500	68.50	54.75	45.75	39.25	34.25
1501-1550	70.75	56.75	47.25	40.50	35.50
1551-1600	73.00	58.50	48.75	41.75	36.50
1601-1650	75.25	60.25	50.25	43.00	37.75
1651-1700	77.75	62.25	51.75	44.50	39.00
1701-1750	80.00	64.00	53.25	45.75	40.00
1751-1800	82.25	65.75	54.75	47.00	41.25
1801-1850	84.50	67.50	56.25	48.25	42.25
1851-1900	86.75	69.50	58.00	49.75	43.50
1901-1950	89.00	71.25	59.50	51.00	44.50
1951-1999	91.25	73.00	61.00	52.75	45.75

\* DIMENSIONS IN THIS TABLE HAVE BEEN DETERMINED FOR MANAGING THE DIFFERENCE BETWEEN THE PRE-DEVELOPMENT AND POST-DEVELOPMENT, 2-YEAR FREQUENCY, 24-HOUR DURATION RAINFALL RUNOFF VOLUME

\* TRENCH SHOULD BE SIZED BASED ON SQUARE FEET OF ROOF AREA DIRECTED TO THE PROPOSED TRENCH, WHICH MAY NOT EQUAL THE REGULATED IMPERVIOUS SURFACE PROPOSED.

SITE ADDRESS

123 ROAD STREET, TOWN PA 07734

DATE:

10/31/22



REMINGTON & VERNICK ENGINEERS

Croton Road Corporate Center 555 Croton Road, Suite 401 King of Prussia, PA 19406  
(610) 940-1050, FAX (610) 940-1161  
*Excellence • Innovation • Service*

CHESTER COUNTY PENNSYLVANIA

INFILTRATION TRENCH NOTES

SHEET NO.

3B OF 4

SCALE:

NOT TO SCALE

**STORMWATER FACILITIES OPERATIONS AND MAINTENANCE PLAN**

THE PROPERTY OWNER WILL BE RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF ALL STORMWATER BEST MANAGEMENT PRACTICES AND CONVEYANCE FACILITIES. THE FACILITIES WILL INCLUDE THE INFILTRATION TRENCH ON THE PROPERTY AS WELL AS ANY YARD OR ROOF DRAINS, PIPING, POP-UP EMMITERS OR CLEAN-OUTS SHOWN ON THIS PLAN.

MAINTENANCE AND OPERATION WILL BE AS FOLLOWS:

1. THE INFILTRATION TRENCH AND CONVEYANCES DESCRIBED IN THIS PLAN SHALL BE INSPECTED ANNUALLY OR AS NEEDED FOLLOWING SIGNIFICANT PRECIPITATION EVENTS TO ASCERTAIN IF ANY SEDIMENT IS ENTERING THE FACILITIES. THE INFILTRATION TRENCH AND CONVEYANCES DESCRIBED IN THIS PLAN SHALL BE CLEANED IF NECESSARY. CLEANING WILL CONSIST OF REMOVING THE ACCUMULATED SILT, DEBRIS OR SEDIMENT.
2. THE OVERLYING VEGETATION ON THE INFILTRATION TRENCH SHALL BE MAINTAINED IN GOOD CONDITION, AND ANY BARE SPOTS RE-VEGETATED AS SOON AS POSSIBLE.
3. VEHICULAR ACCESS ON THE INFILTRATION TRENCH SHOULD BE PROHIBITED, AND CARE SHOULD BE TAKEN TO AVOID EXCESSIVE COMPACTION BY MOWERS.
4. REPAIR ALL DAMAGED PIPING, CLEAN-OUTS, AND POP-UP EMITTERS PROMPTLY TO PREVENT SEDIMENT FROM ENTERING THE SYSTEM. SPECIAL CARE SHOULD BE TAKEN TO AVOID DAMAGING EXPOSED ELEMENTS WITH MOWERS AND/OR STRING TRIMMERS.
5. GRASSES OVER THE INFILTRATION TRENCH SHALL BE MOWED AT LEAST TWICE EACH YEAR. TREES AND SHRUBS SHOULD NOT BE PERMITTED TO GROW ABOVE THE INFILTRATION TRENCH.

EXAMPLE

		SITE ADDRESS 123 ROAD STREET, TOWN PA 07734	
DATE: 10/31/22	 <b>REMINGTON &amp; VERNICK ENGINEERS</b> Croton Road Corporate Center 555 Croton Road, Suite 401 King of Prussia, PA 19406 (610) 940-1050, FAX (610) 940-1161 <i>Excellence • Innovation • Service</i>	CHESTER COUNTY      PENNSYLVANIA	SHEET NO.  4 OF 4
SCALE: NOT TO SCALE	<b>INFILTRATION TRENCH OPERATION &amp; MAINTENANCE NOTES</b>		