

STORMWATER MANAGEMENT ORDINANCE

ORDINANCE NO. \_\_\_\_\_

MUNICIPALITY OF

BOROUGH OF WORMLEYSBURG

CUMBERLAND COUNTY, PENNSYLVANIA

Adopted at a Public Meeting Held on

\_\_\_\_\_, 2011

Article I - General Provisions

Section 101.	Short Title
Section 102.	Statement of Findings
Section 103.	Purpose
Section 104.	Statutory Authority
Section 105.	Applicability
Section 106.	Repealer
Section 107.	Severability
Section 108.	Compatibility with Other Requirements
Section 109.	Waiver Procedure

Article II - Definitions

Article III - Stormwater Management Standards

Section 301.	General Requirements
Section 302.	Exemptions
Section 303.	Volume Controls
Section 304.	Rate Controls
Section 305.	Additional SWM and Drainage Requirements

Article IV - Stormwater Management Site Plan Requirements

Section 401.	Plan Requirements
Section 402.	Plan Submission
Section 403.	Plan Review
Section 404.	Modification of Plans
Section 405.	Resubmission of Disapproved Stormwater Management Site Plans
Section 406.	Authorization to Construct and Term of Validity
Section 407.	As-Built Plans, Completion Certificate and Final Inspection

Article V - Operation and Maintenance

Section 501.	Responsibilities for Operations and Maintenance of BMP's
Section 502.	Adherence to Approved BMP Operations and Maintenance Plan
Section 503.	Operations and Maintenance Agreement for Privately Owned Stormwater BMP's
Section 504.	Stormwater Management Easements
Section 505.	Recording of Approved BMP Operations and Maintenance Plan and Related Agreements
Section 506.	Borough Stormwater BMP Operations and Maintenance Fund

Article VI - Fees and Expenses

Section 601. General

Article VII - Prohibitions

Section 701. Prohibited Discharges and Connections  
Section 702. Roof Drains and Sump Pumps  
Section 703. Alteration of SWM BMPs

Article VIII - Enforcement and Penalties

Section 801. Right-of-Entry  
Section 802. Inspection  
Section 803. Enforcement  
Section 804. Suspension and Revocation  
Section 805. Penalties  
Section 806. Appeals

Article IX - References

Appendix A: Sample Operation and Maintenance Agreement  
Appendix B: Disconnected Impervious Area (DIA)  
Appendix C: Cumberland County Release Rate Maps

## **ARTICLE I - GENERAL PROVISIONS**

### **Section 101. Short Title**

This Ordinance shall be known and may be cited as the Borough of Wormleysburg Stormwater Management Ordinance.”

### **Section 102. Statement of Findings**

The governing body of the Municipality finds that:

- A. Inadequate management of accelerated runoff of stormwater resulting from development throughout a watershed increases flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of streams and storm sewers, greatly increases the cost of public facilities to carry and control stormwater, undermines flood plain management and flood control efforts in downstream communities, reduces groundwater recharge, threatens public health and safety, and increases non-point source pollution of water resources.
- B. A comprehensive program of stormwater management, including reasonable regulation of development and activities causing accelerated runoff, is fundamental to the public health, safety and welfare and the protection of people of the Commonwealth, their resources and the environment.
- C. Stormwater is an important water resource, which provides groundwater recharge for water supplies and base flow of streams, which also protects and maintains surface water quality.
- D. Federal and state regulations require certain municipalities to implement a program of stormwater controls. These municipalities are required to obtain a permit for stormwater discharges from their separate storm sewer systems under the National Pollutant Discharge Elimination System (NPDES).

### **Section 103. Purpose**

The purpose of this Ordinance is to promote health, safety, and welfare within the Municipality and its watershed by minimizing the harms and maximizing the benefits described in Section 102 of this Ordinance, through provisions designed to:

- A. Meet legal water quality requirements under state law, including regulations at 25 Pa. Code Chapter 93 to protect, maintain, reclaim and restore the existing and designated uses of the waters of this Commonwealth.
- B. Preserve the natural drainage systems as much as possible.
- C. Manage stormwater runoff close to the source.
- D. Provide procedures and performance standards for stormwater planning and management.
- E. Maintain groundwater recharge, to prevent degradation of surface and groundwater quality and to otherwise protect water resources.

- F. Prevent scour and erosion of stream banks and streambeds.
- G. Provide proper operation and maintenance of all permanent Stormwater Management (SWM) Best Management Practices (BMPs) that are implemented within the Municipality.
- H. Provide standards to meet NPDES permit requirements.
- I. Meet general water quality and soil disturbance goals by implementing measures to:
  1. Minimize disturbance to floodplains, wetlands, natural slopes over 15%, and existing native vegetation.
  2. Preserve and maintain trees and woodlands. Maintain or extend riparian buffers and protect existing forested buffer. Provide trees and woodlands adjacent to impervious areas whenever feasible.
  3. Establish and maintain non-erosive flow conditions in natural flow pathways.
  4. Minimize soil disturbance and soil compaction. Over disturbed areas, replace topsoil to a minimum depth equal to the original depth or 4 inches, whichever is greater. Use tracked equipment for grading when feasible.
  5. Disconnect impervious surfaces by directing runoff to pervious areas, wherever possible.
  6. Incorporate the techniques for Low Impact Development Practices described in the most current version of “The Pennsylvania Stormwater Best Management Practices Manual” (SWM Manual)<sup>1</sup>.
  7. Minimize thermal impacts to Waters of the Commonwealth.

**Section 104. Statutory Authority**

A. Primary Authority:

The municipality is empowered to regulate these activities by the authority of the Act of October 4, 1978, P.L. 864 (Act 167), 32 P.S. Section 680.1, et seq., as amended, the “Storm Water Management Act” and the Pennsylvania Borough Code, Act of February 1, 1966 (1965), P.L. 1656, No. 581 as amended.

Hereafter, all earthmoving activities and land development within this Borough/Township, including without limitation, the location, design and construction within the watershed of storm water management systems, obstructions, flood control projects, subdivisions and major land developments, highways and transportation facilities, facilities for the provision of public utility services and facilities owned or financed in whole or in part by funds from the Commonwealth, shall be in full compliance with the requirements of the Cumberland County Storm Water Management Plan and shall be conducted in a manner consistent therewith. Any violation of the Cumberland County Storm Water Management Plan shall be considered a violation of this ordinance.

B. Secondary Authority:

The Municipality also is empowered to regulate land use activities that affect runoff by the authority of the Act of July 31, 1968, P.L. 805, No. 247, The Pennsylvania Municipalities Planning Code, as amended.

**Section 105. Applicability**

All regulated activities and all activities that may affect stormwater runoff, including land development and earth disturbance activity, are subject to regulation by this Ordinance as is reasonably necessary to prevent injury to health, safety or other property. The following activities are defined as “regulated activities” and shall be subject to the provisions of this Ordinance (unless otherwise exempted by Section 302):

- (1) Land development and/or redevelopment
- (2) Subdivision
- (3) Construction of new or additional impervious or semipervious surfaces (driveways, parking lots, etc.)
- (4) Construction of structures or additions to existing structures, as determined by the municipality
- (5) Diversion or piping of any natural or man-made stream channel
- (6) Installation of stormwater management facilities or appurtenances thereto
- (7) Forest management/timber operations that include logging road construction and timber harvesting

**Section 106. Repealer**

Any other ordinance provision(s) or regulation of the Municipality inconsistent with any of the provisions of this Ordinance is hereby repealed to the extent of the inconsistency only.

**Section 107. Severability**

In the event that a court of competent jurisdiction declares any section or provision of this Ordinance invalid, such decision shall not affect the validity of any of the remaining provisions of this Ordinance.

**Section 108. Compatibility with Other Requirements**

Approvals issued and actions taken under this Ordinance do not relieve the Applicant of the responsibility to secure required permits or approvals for activities regulated by any other code, law, regulation or ordinance.

**Section 109. Waiver Procedure**

The provisions of this ordinance are intended as minimum standards for the protection of the public health, safety and welfare. The elected officials may waive any mandatory provision of these regulations to the benefit of the applicant provided the waiver:

1. Is consistent with the purpose of the Ordinance as described in Section 103;

2. Will remove or reduce an unreasonable standard or undue hardship as it applies to the particular property, which is grossly disproportionate to any benefit derived from the standard, or when an alternative standard provides equal or better results.
3. Is consistent with Section 301.C when involving water quality requirements.

It shall be the burden of the applicant to demonstrate compliance with the above conditions.

## ARTICLE II - DEFINITIONS

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

- A. Words used in the present tense include the future tense; the singular number includes the plural, and the plural number includes the singular; words of masculine gender include feminine gender; and words of feminine gender include masculine gender.
- B. The word “includes” or “including” shall not limit the term to the specific example but is intended to extend its meaning to all other instances of like kind and character.
- C. The words “shall” and “must” are mandatory; the words “may” and “should” are permissive.

**Agricultural Activity** - The work of producing crops, including tillage, land clearing, plowing, disking, harrowing, planting, harvesting crops, pasturing and raising of livestock, and installation of conservation measures. Construction of new buildings or impervious area is not considered an Agricultural Activity.

**Applicant** - A landowner, developer or other person who has filed an application to the Municipality for approval to engage in any Regulated Activity at a project site in the Municipality.

**Best Management Practice (BMP)** - Activities, facilities, designs, measures or procedures used to manage stormwater impacts from Regulated Activities, to meet State Water Quality Requirements, to promote groundwater recharge and to otherwise meet the purposes of this Ordinance. Stormwater BMPs are commonly grouped into one of two broad categories or measures: “structural” or “non-structural”. In this ordinance, non-structural BMPs or measures refer to operational and/or behavior-related practices that attempt to minimize the contact of pollutants with stormwater runoff whereas structural BMPs or measures are those that consist of a physical device or practice that is installed to capture and treat stormwater runoff. Structural BMPs include, but are not limited to, a wide variety of practices and devices, from large-scale retention ponds and constructed wetlands, to small-scale underground treatment systems, infiltration facilities, filter strips, low impact design, bioretention, wet ponds, permeable paving, grassed swales, riparian or forested buffers, sand filters, detention basins, and manufactured devices. Structural Stormwater BMPs are permanent appurtenances to the project site.

**Conservation District** - A conservation district, as defined in section 3(c) of the Conservation District Law (3 P. S. § 851(c)), which has the authority under a delegation agreement executed with the Department to administer and enforce all or a portion of the erosion and sediment control program in this Commonwealth.

**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 Volume** - The volume of runoff that is captured and then infiltrated, evaporated, reused, or released into the waters of this Commonwealth at a controlled rate.

**DEP** - The Pennsylvania Department of Environmental Protection.

**Development Site (Site)** - See Project Site.

**Disconnected Impervious Area (DIA)** - An impervious or impermeable surface which has its stormwater runoff disconnected from any stormwater drainage or conveyance system and is redirected or directed to a pervious area which allows for infiltration, filtration, and increased time of concentration as specified in Appendix B, Disconnected Impervious Area.

**Disturbed Area** - An unstabilized land area where an Earth Disturbance Activity is occurring or has occurred.

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

**Erosion** - The natural process by which the surface of the land is worn away by water, wind or chemical action.

**Existing Condition** - The initial condition of a project site prior to the proposed construction.

**FEMA** - Federal Emergency Management Agency.

**Floodplain** - The lowland and relatively flat areas adjoining inland and coastal waters including, at a minimum, that area subject to a one percent or greater chance of flooding in any given year.

**Floodway** - The channel of the watercourse and those portions of the adjoining floodplains that are reasonably required to carry and discharge the 100-year flood. Unless otherwise specified, the boundary of the floodway is as indicated on maps and flood insurance studies provided by FEMA. In an area where no FEMA maps or studies have defined the boundary of the 100-year floodway, it is assumed -- absent evidence to the contrary -- that the floodway extends from the stream to 50 feet from the top of the bank of the stream.

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

**Hydrologic Soil Group (HSG)** – Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. Infiltration rates of soils vary widely and are affected by subsurface permeability as well as surface intake rates. Soils are classified into four HSG's (A, B, C, and D) according to their minimum infiltration rate, which is obtained for bare soil after prolonged wetting. The NRCS defines the four groups and provides a list of most of the soils in the United States and their group classification. The soils in the area of the development site may be identified from a soil survey report that can be obtained from local NRCS offices or conservation district offices. Soils become less pervious as the HSG varies from A to D (NRCS <sup>3,4</sup>).

**Impervious Surface (Impervious Area)** - A surface that prevents the infiltration of water into the ground. Impervious surfaces (or areas) shall include, but not be limited to, roofs used to cover indoor living spaces, patios, garages, storage sheds and similar structures, and any new streets or sidewalks.

Decks, parking areas, and driveway areas are not counted as impervious areas if they allow for infiltration.

**Karst** - A type of topography or landscape characterized by surface depressions, sinkholes, rock pinnacles/uneven bedrock surface, underground drainage and caves. Karst is formed on carbonate rocks, such as limestone or dolomite.

**Land Development (Development)** - Inclusive of any of the following activities: (i) the improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving (a) a group of two or more buildings, whether proposed initially or cumulatively, or a single nonresidential building on a lot or lots regardless of the number of occupants or tenure, or (b) 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; (ii) any subdivision of land; (iii) development in accordance with Section 503(1.1) of the PA Municipalities Planning Code.

**Municipality** – Borough of Wormleysburg, Cumberland County, Pennsylvania.

**NRCS** - USDA Natural Resources Conservation Service (previously SCS).

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

**Pervious Area** - Any area not defined as impervious.

**Project Site** - The specific area of land where any Regulated Activities in the Municipality are planned, conducted or maintained.

**Qualified Professional** - Any person licensed by the Pennsylvania Department of State or otherwise qualified by law to perform the work required by the Ordinance.

**Regulated Activities** – Shall include, but not be limited to any Earth Disturbance Activities or any activities that involve the alteration or development of land in a manner that may affect stormwater runoff as specified in Section 105.

**Regulated Earth Disturbance Activity** - Activity involving Earth Disturbance subject to regulation under 25 Pa. Code Chapters 92, Chapter 102, or the Clean Streams Law.

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

**Return Period** - The average interval, in years, within which a storm event of a given magnitude can be expected to occur one time. For example, the 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 0.04 (i.e. a 4% chance).

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

**Sediment** - Soils or other materials transported by surface water as a product of erosion.

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

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

**Stormwater Management Facility** - Any structure, natural or man-made, that, due to its condition, design, or construction, conveys, stores, or otherwise affects stormwater runoff. Typical stormwater management facilities include, but are not limited to, detention and retention basins, open channels, storm sewers, pipes, and infiltration facilities.

**Stormwater Management Plan** - The Cumberland County Stormwater Management Plan for managing stormwater runoff adopted by the County of Cumberland as required by the Act of October 4, 1978, P.L. 864, (Act 167), as amended, and known as the “Storm Water Management Act”.

**Stormwater Management Best Management Practices** - Is abbreviated as **BMPs** or **SWM BMPs** throughout this Ordinance.

**Stormwater Management Site Plan** - The plan prepared by the developer, municipality, or other entity indicating how storm water runoff will be managed at the development site in accordance with this Ordinance. **Stormwater Management Site Plan** will be designated as **SWM Site Plan** throughout this Ordinance.

**Subdivision** - As defined in The Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247.

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

**Waters of this Commonwealth** - Rivers, streams, creeks, rivulets, impoundments, ditches, watercourses, storm sewers, lakes, dammed water, wetlands, ponds, springs and other bodies or channels of conveyance of surface and underground water, or parts thereof, whether natural or artificial, within or on the boundaries of this Commonwealth.

**Watershed** - Region or area drained by a river, watercourse or other surface water of the Commonwealth.

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

## ARTICLE III - STORMWATER MANAGEMENT STANDARDS

### Section 301. General Requirements

- A. For all Regulated Activities, unless preparation of a SWM Site Plan is specifically exempted in Section 302:
  - 1. Preparation and implementation of an approved SWM Site Plan is required.
  - 2. No Regulated Activities shall commence until the municipality issues written approval of an SWM Site Plan, which demonstrates compliance with the requirements of this Ordinance.
- B. SWM Site Plans approved by the Municipality, in accordance with Section 406, shall be on site throughout the duration of the Regulated Activity.
- C. The Municipality, after consultation with DEP, may approve measures for meeting the State Water Quality Requirements other than those in this Ordinance, provided that they meet the minimum requirements of, and do not conflict with, State law including but not limited to the Clean Streams Law.
- D. For all Regulated Earth Disturbance Activities, erosion and sediment control BMPs shall be designed, implemented, operated, and maintained during the Regulated Earth Disturbance Activities (e.g., during construction) to meet the purposes and requirements of this Ordinance and to meet all requirements under the Pennsylvania Code Title 25 and the Clean Streams Law. Various BMPs and their design standards are listed in the *Erosion and Sediment Pollution Control Program Manual* (E&S Manual)<sup>2</sup>, Commonwealth of Pennsylvania, Department of Environmental Protection, No. 363-2134-008 (2000), as amended and updated.
- E. For all Regulated Activities not exempted by Section 302, implementation of the Volume Controls in Section 303 is required.
- F. For all new development projects, the measurement of impervious areas shall include all of the impervious areas in the total proposed development even if development is to take place in stages. Similarly, for new development projects taking place in stages, the entire proposed new development plan must be used in determining conformance with this Ordinance.
- G. Stormwater flows/direct discharges onto adjacent property shall not be created, increased, decreased, relocated, or otherwise altered without written notification to the adjacent property owner(s). Such stormwater flows shall be subject to the requirements of this Ordinance.
- H. The design of all facilities over Karst shall include an evaluation of measures to minimize adverse effects in accordance with the procedures outlined in Section 7.4 (Special Management Areas – Karst Areas) of the most current version of the SWM Manual<sup>1</sup>.
- I. Storage facilities should completely drain both the volume control and rate control capacities within 72 hours from the end of the design storm subject to site conditions.

- J. The design storm precipitation depth estimates to be used in the analysis of peak rates of discharge should be obtained from the Precipitation-Frequency Atlas of the United States, Atlas 14, Volume 2, U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland, 20910. NOAA’s Atlas 14<sup>5</sup> can be accessed at Internet address: <http://hdsc.nws.noaa.gov/hdsc/pfds/>.
- K. For all Regulated Activities, SWM BMPs shall be designed, implemented, operated, and maintained to meet the purposes and requirements of this Ordinance and to meet all requirements under Title 25 of the Pennsylvania Code, the Clean Streams Law, and the Storm Water Management Act.

**Section 302. Exemptions**

- A. Regulated Activities resulting in less than or equal to 1,000 square feet of new impervious surface are exempt from Article IV SWM Site Plan preparation requirements including Sections 303 and 304 of this Ordinance. Regulated Activities greater than 1,000 square feet and less than or equal to 5,000 square feet of new impervious area may be exempt from the SWM Site Plan preparation requirements including Sections 303 and 304 of this Ordinance when justification is provided that stormwater impact is minimal.
- B. Regulated Activities that create new Disconnected Impervious Areas greater than 1,000 square feet and less than or equal to 5,000 square feet that are proven to meet the 75-foot minimum pervious flow path requirement outlined in Appendix B are exempt from the SWM Site Plan preparation requirements including Sections 303 and 304 of this Ordinance.
- C. Regulated Activities meeting the following parcel size and square footage requirements are exempt from the peak rate control requirements, but not the volume control or SWM Site Plan preparation requirements of this Ordinance. These criteria shall apply to the total proposed development even if development is to take place in phases. The date of the municipal ordinance adoption shall be the starting point from which to consider tracts as “parent tracts” in which future subdivisions and respective impervious area computations shall be cumulatively considered.

**New Impervious Area Exemption Criteria for Peak Rate Control**

<b>Total Parcel Size (acres)</b>	<b>Total Parcel Size (square feet)</b>	<b>New Impervious Area Exemption (square feet)</b>
<b>&lt;0.25</b>	<b>&lt;10,890</b>	<b>1,500</b>
<b>0.25 – 0.5</b>	<b>10,890 - 21,780</b>	<b>2,500</b>
<b>&gt;0.5</b>	<b>&gt;21,780</b>	<b>5,000</b>

- D. The Municipality has, at its discretion, the ability to deny exemption from any requirements of this ordinance. Exemption from any requirements of this ordinance does not convey exemption from any requirements of any other applicable local codes or ordinances (i.e., local building permit requirements).

### Section 303. Volume Controls

Water volume controls shall be implemented using the *Design Storm Method* in Subsection 1 or the *Simplified Method* in Subsection 2 below for all Regulated Activities not otherwise exempted by Section 302. For Regulated Activity areas equal or less than one (1) acre that do not require hydrologic routing to design the stormwater facilities, this Ordinance establishes no preference for either methodology; therefore, the applicant may select either methodology on the basis of economic considerations, the intrinsic limitations on applicability of the analytical procedures associated with each methodology, and other factors.

1. *The Design Storm Method* (see Section 8.7 of the most current version of the SWM Manual<sup>1</sup>) is applicable to any size of Regulated Activity. This method requires detailed modeling based on site conditions.
  - a. Do not increase the post-development total runoff volume for all storms equal to or less than the 2-year 24-hour duration precipitation.
  - b. For modeling purposes:
    - i. Calculate existing (pre-development) stormwater runoff and infiltration volumes based on existing site conditions, as verified through design phase soil infiltration testing.
2. *The Simplified Method* (see Section 8.7 of the most current version of the SWM Manual<sup>1</sup>) provided below is independent of site conditions and should be used if the Design Storm Method is not followed. This method is not applicable to Regulated Activities greater than one (1) acre or for projects that require design of stormwater detention or rate control facilities. For new impervious surfaces:
  - a. Stormwater facilities shall be sized to capture at least the first two inches (2") of runoff from all new impervious surfaces.
  - b. At least the first one inch (1.0") of runoff from new impervious surfaces shall be permanently removed from the runoff flow -- i.e. it shall not be released into the surface waters of this Commonwealth. Removal options include reuse, evaporation, transpiration, and infiltration.
  - c. Infiltration facilities should be designed to accommodate infiltration of the entire permanently removed runoff; however, in all cases at least the first one-half inch (0.5") of the permanently removed runoff should be infiltrated.
  - d. The second one inch (1.0") of runoff from new impervious surfaces should be detained using structural and non-structural BMPs (as outlined in the most current version of the SWM Manual) and released at a controlled rate.
  - e. Regulated Activities eligible under this method are exempt from the requirements of Section 304, Rate Controls.

**Section 304. Rate Controls (see Section 8.3 of the most current version of the SWM Manual<sup>1</sup>)**

- A. Areas not covered by a Release Rate Map from an approved Act 167 Stormwater Management Plan:

Post-development discharge rates shall not exceed the predevelopment discharge rates for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year storms. If it is shown that the peak rates of discharge indicated by the post-development analysis are less than or equal to the peak rates of discharge indicated by the pre-development analysis for 1-, 2-, 5-, 10-, 25-, 50-, and 100-year, 24-hour storms, then the requirements of this section have been met. Otherwise, the applicant shall provide additional controls as necessary to satisfy the peak rate of discharge requirement.

- B. Areas covered by a Release Rate Map from an approved Act 167 Stormwater Management Plan (see Appendix C):

For the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year storms, the post-development peak discharge rates will follow the applicable approved release rate maps (see Appendix C). For any areas not shown on the release rate maps, the post-development discharge rates shall not exceed the predevelopment discharge rates.

**Section 305. Additional SWM and Drainage Requirements**

- A. Techniques for Low Impact Development. The techniques for Low Impact Development described in Appendix D of this Ordinance are encouraged. These techniques reduce the cost of complying with the requirements of this Ordinance and other state water quality laws and regulations.

- B. Permit Requirements by Other Government Entities. The following permit requirements may apply to certain Regulated Activities and must be met prior to commencement of Regulated Activities as applicable.

- (1) All Regulated Activities subject to permit requirements by DEP under regulations at 25 Pa. Code Chapter 102.
- (2) Work within natural drainageways subject to permit by DEP under 25 Pa. Code Chapter 105.
- (3) Any stormwater management facility that must be located in or adjacent to surface waters of the Commonwealth, including wetlands, subject to permit by DEP under 25 Pa. code Chapter 10005.
- (4) Any stormwater management facility that would be located on a state highway right-of-way, or require access from a state highway, shall be subject to approval by the Pennsylvania Department of Transportation.
- (5) 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 DEP under 25 Pa. Code Chapter 105.

## ARTICLE IV - STORMWATER MANAGEMENT (SWM) SITE PLAN REQUIREMENTS

### Section 401. Plan Requirements

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

- A. Appropriate sections from the Municipal Subdivision and Land Development Ordinance, and other applicable local ordinances, shall be followed in preparing the SWM Site Plans.
- B. The Municipality shall not approve any SWM Site Plan that is deficient in meeting the requirements of this Ordinance. At its sole discretion and in accordance with this Article, when a SWM Site Plan is found to be deficient, the Municipality may either disapprove the submission and require a resubmission, or in the case of minor deficiencies the Municipality may accept submission of modifications.
- C. Provisions for permanent access or maintenance easements as determined necessary by the municipality for all physical SWM BMPs, such as ponds and infiltration structures, to implement the operation and maintenance plan discussed in item E.9 below.
- D. The SWM Site Plan shall provide the following information:
  - 1. The overall stormwater management concept for the project.
  - 2. A determination of Site Conditions in accordance with the Site Assessment procedures outlined in Chapter 4 of the most current version of the SWM Manual<sup>1</sup>. A site assessment shall be completed for projects proposed in areas of carbonate geology or karst topography.
  - 3. Stormwater runoff design computations and documentation as specified in this Ordinance, or as otherwise necessary to demonstrate that measures have been taken to meet the requirements of this Ordinance, including the recommendations and general requirements in Section 301.
  - 4. Expected project time schedule.
  - 5. A soil erosion and sediment control plan, where applicable, as prepared for and submitted to the approval authority.
  - 6. The effect of the project (in terms of runoff volumes, water quality, and peak flows) on surrounding properties and adjacent aquatic features and on any existing stormwater conveyance system that may be affected by the project.
  - 7. Plan and profile drawings of all SWM BMPs including drainage structures, pipes, open channels, and swales.
  - 8. SWM Site Plan shall show the locations of existing and proposed on-lot wastewater facilities and water supply wells.

9. The SWM Site Plan shall include an operation and maintenance (O&M) plan for all proposed physical stormwater management facilities (see Appendix A). This plan shall address long-term ownership and responsibilities for operation and maintenance as well as schedules for O&M activities.

#### **Section 402. Plan Submission**

- A. \_\_\_\_ Four (4) copies of the SWM Site Plan shall be submitted as follows:
  1. \_\_\_\_ Two (2) copies to the Municipality.
  2. \_\_\_\_ One (1) copy to the Municipal Engineer (when applicable).
  3. \_\_\_\_ One (1) final copy to the County Conservation District.
- B. Additional copies shall be submitted as requested by the Municipality.

#### **Section 403. Plan Review**

- A. The SWM Site Plan shall be reviewed by a Qualified Professional for the Municipality for consistency with the provisions of this ordinance. After review, the Qualified Professional shall provide a written recommendation for the municipality to approve or disapprove the SWM Site Plan. If it is recommended to disapprove the SWM Site Plan, the Qualified Professional shall state the reasons for the disapproval in writing. The Qualified Professional also may recommend approval of the SWM Site Plan with conditions and, if so, shall provide the acceptable conditions for approval in writing. The SWM Site Plan review and recommendations shall be completed within the time allowed by the Municipalities Planning Code for reviewing subdivision plans.
- B. For SWM Site Plans that do not require subdivision and land development approval, the Municipality shall notify the applicant in writing within 45 calendar days whether the SWM Site Plan is approved or disapproved. If the SWM Plan involves a Subdivision and Land Development Plan, the notification period is 90 days. If a longer notification period is provided by other statute, regulation, or ordinance, the applicant will be so notified by the Municipality. If the Municipality disapproves the SWM Plan, the Municipality shall cite the reasons for disapproval in writing.

#### **Section 404. Modification of Plans**

A modification to a submitted SWM Site Plan that involves a change in SWM BMPs or techniques, or that involves the relocation or redesign of SWM BMPs, or that is necessary because soil or other conditions are not as stated on the SWM Site Plan as determined by the Municipality, shall require a resubmission of the modified SWM Site Plan in accordance with this Article.

#### **Section 405. Resubmission of Disapproved Storm Water Management Site Plans**

A disapproved SWM Site Plan may be resubmitted, with the revisions addressing the Municipality's concerns, to the Municipality in accordance with this Article. The applicable review fee must accompany a resubmission of a disapproved SWM Site Plan.

#### **Section 406. Authorization to Construct and Term of Validity**

The Municipality's approval of an SWM Site Plan authorizes the Regulated Activities contained in the SWM Site Plan for a maximum term of validity of five years following the date of approval. Terms of validity shall commence on the date the Municipality signs the approval for an SWM Site Plan. If an approved SWM Site Plan is not completed according to Section 407 within the term of validity, then the Municipality may consider the SWM Site Plan disapproved and may revoke any and all permits issued by the Municipality. SWM Site Plans that are considered disapproved by the Municipality shall be resubmitted in accordance with Section 405 of this Ordinance.

#### **Section 407. As-Built Plans, Completion Certificate and Final Inspection**

- A. The Applicant shall be responsible for providing as-built plans of all SWM BMPs included in the approved SWM Site Plan. The as-built plans and an explanation of any discrepancies with the construction plans shall be submitted to the Municipality.
- B. The as-built submission shall include a certification of completion signed by a Qualified Professional verifying that all permanent SWM BMPs have been constructed according to the approved plans and specifications. If any licensed Qualified Professionals contributed to the construction plans, then a licensed Qualified Professional must sign the completion certificate.
- C. After receipt of the as-built plan, the Municipality may conduct a final inspection.

## **ARTICLE V - OPERATION AND MAINTENANCE**

### **Section 501. Responsibilities for Operations and Maintenance of BMP's**

- A. The BMP Operations and Maintenance Plan for the project site shall establish responsibilities for the continuing operation and maintenance of all permanent stormwater BMP's as follows:
  - 1. If a plan includes structures or lots which are to be separately owned and in which streets, sewers, and other public improvements are to be dedicated to the Borough, stormwater BMP's may also be dedicated and maintained by the Borough.
  - 2. If a plan includes operations and maintenance by a single ownership, or if sewers and other public improvements are to be privately owned and maintained, then the operation and maintenance of stormwater BMP's shall be the responsibility of the owner or private management entity.
- B. The Borough shall make the final determination on the continuing operations and maintenance responsibilities. The Borough reserves the right to accept or reject the operations and maintenance responsibility for any or all of the stormwater BMP's.

### **Section 502. Adherence to Approved BMP Operations and Maintenance Plan**

It shall be unlawful to alter or remove any permanent stormwater BMP required by an approved BMP Operations and Maintenance Plan, or to allow the property to remain in a condition which does not conform to an approved BMP Operations and Maintenance Plan unless an exception is granted in writing by the Borough.

### **Section 503. Operations and Maintenance Agreement for Privately Owned Stormwater BMP's**

- A. The property owner shall sign an operations and maintenance agreement with the Borough covering all stormwater BMP's that are to be privately owned. The agreement shall be substantially the same as the agreement in Appendix E of this Ordinance.
- B. Other items may be included in the agreement where determined necessary to guarantee the satisfactory operation and maintenance of all permanent stormwater BMP's. The agreement shall be subject to the review and approval of the Borough.

### **Section 504. Stormwater Management Easements**

- A. Stormwater management easements are required for all areas used for off-site stormwater control unless a waiver is granted by the Borough Engineer.
- B. Stormwater management easements shall be provided by the property owner if necessary for:
  - (1) access for inspections and maintenance; or
  - (2) preservation of stormwater runoff conveyance, infiltration, and detention areas and other BMP's by persons other than the property owner.The purpose of the easement shall be specified in any agreement under Section 503.

**Section 505. Recording of Approved BMP Operations and Maintenance Plan and Related Agreements**

- A. The owner of any land upon which permanent BMP's will be placed, constructed, or implemented, as described in the BMP Operations and Maintenance Plan, shall record the following documents in the Office of the Recorder of Deeds for Cumberland County, within 15 days of approval of the BMP Operations and Maintenance Plan by the Borough:
  - 1. The Operations and Maintenance Plan or a summary thereof,
  - 2. Operations and Maintenance Agreements under Section 503, and
  - 3. Easements under Section 504.
- B. The Borough may suspend or revoke any approvals granted for the project site upon discovery of the failure of the owner to comply with this section.

**Section 506. Borough Stormwater BMP Operations and Maintenance Fund**

- A. If stormwater BMP's are accepted by the Borough Engineer for dedication, the Borough may require persons installing BMP's to pay a specified amount to the Borough Stormwater BMP Operation and Maintenance Fund to help defray costs of operation and maintenance activities. The amount may be determined as follows:
  - 1. If the BMP is to be owned and maintained by the Borough, the amount shall cover the estimated costs for operations and maintenance for ten (10) years as determined by the Borough.
  - 2. The amount shall then be converted to present worth of the annual sales values.
- B. If a BMP is proposed that also serves as a recreation facility (e.g. ball field or lake), the Borough may adjust the amount accordingly.

## **ARTICLE VI - FEES AND EXPENSES**

### **Section 601. General**

The Municipality may include all costs incurred in the review fee charged to an applicant.

The review fee may include but not be limited to costs for the following:

- A. Administrative/clerical processing.
- B. Review of the SWM Site Plan.
- C. Attendance at meetings.
- D. Inspections.

## ARTICLE VII - PROHIBITIONS

### Section 701. Prohibited Discharges and Connections

- A. Any drain or conveyance, whether on the surface or subsurface, which allows any non-stormwater discharge including, but not limited to, sewage, process wastewater, wash water, ammonia, chlorine, petroleum products (gasoline, fuel oil, etc.) pesticides, pollutants and other hazardous materials to enter the waters of the Commonwealth is prohibited.

Handling and disposal of all materials and wastes shall comply with all Federal and State requirements. Structural and non-structural BMPs, in accordance with Chapters 5 and 6 of the most current version of the SWM Manual, shall be implemented where necessary to preserve the quality of stormwater runoff.

- B. Discharges to Waters of the Commonwealth which are not composed entirely of stormwater shall be prohibited, except (1) as provided in subsection C below, and (2) discharges allowed under a state or federal permit.
- C. The following discharges are authorized unless they are determined to be significant contributors to pollution to the waters of this Commonwealth:

- Discharges from fire fighting activities	- Flows from riparian habitats and wetlands
- Potable water sources including water line flushing	- Uncontaminated water from foundations or from footing drains
- Irrigation drainage	- Lawn watering
- Air conditioning condensate	- Dechlorinated swimming pool discharges
- Springs	- Uncontaminated groundwater
- Water from crawl space pumps	- Water from individual residential car washing
- 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	- Routine external building wash down (which does not use detergents or other compounds)

- D. In the event that the Municipality or DEP determines that any of the discharges identified in Subsection C, significantly contribute to pollution of the waters of this Commonwealth, the Municipality or DEP will notify the responsible person(s) to cease the discharge.

### Section 702. Roof Drains and Sump Pumps

Roof drains and sump pumps shall not discharge to any impervious area, if site conditions permit.

### Section 703. Alteration of SWM BMPs

No person shall modify, remove, fill, landscape, or alter any SWM BMPs, facilities, areas, or structures, without the written approval of the Municipality.

## **ARTICLE VIII - ENFORCEMENT AND PENALTIES**

### **Section 801. Right-of-Entry**

Upon presentation of proper credentials, the Municipality may enter at reasonable times upon any property within the Municipality to inspect the condition of the stormwater structures and facilities in regard to any aspect regulated by this Ordinance.

### **Section 802. Inspection**

SWM BMPs must be inspected by the landowner, or the owner's designee (including the Municipality for dedicated and owned facilities) according to the following list of minimum frequencies or as otherwise specified by the municipality. All inspection reports shall be submitted to the municipality.

1. Annually for the first 5 years.
2. Once every 3 years thereafter.

### **Section 803. Enforcement**

- A. It shall be unlawful for a person to undertake any Regulated Activity except as provided in an approved SWM Site Plan, unless specifically exempted in Section 302.
- B. Inspections regarding compliance with the SWM Site Plan during project construction are a responsibility of the Municipality.

### **Section 804. Suspension and Revocation**

- A. Any approval or permit issued by the Municipality may be suspended or revoked for:
  1. Non-compliance with or failure to implement any provision of the approved SWM Site Plan or Operation and Maintenance Agreement.
  2. A violation of any provision of this Ordinance or any other applicable law, Ordinance, rule or regulation relating to the Regulated Activity.
  3. The creation of any condition or the commission of any act during the Regulated Activity which constitutes or creates a hazard or nuisance, pollution, or which endangers the life or property of others.
- B. A suspended approval may be reinstated by the Municipality when:
  1. The Municipality has inspected and approved the corrections to the violations that caused the suspension.
  2. The Municipality is satisfied that the violation has been corrected.
- C. An approval that has been revoked by the Municipality cannot be reinstated. The applicant may apply for a new approval under the provisions of this Ordinance.

- D. If a violation causes no immediate danger to life, public health, or property, at its sole discretion, the Municipality may provide a limited time period for the owner to correct the violation. In these cases, the Municipality will provide the owner, or the owner's designee, with a written notice of the violation and the time period allowed for the owner to correct the violation. If the owner does not correct the violation within the allowed time period, the Municipality may revoke or suspend any, or all, applicable approvals and permits pertaining to any provision of this Ordinance.

**Section 805. Penalties**

- A. Anyone violating the provisions of this Ordinance shall be guilty of a summary offense, and upon conviction shall be subject to a fine of not more than **\$1,000** for each violation, recoverable with costs. Each day that the violation continues shall be a separate offense and penalties shall be cumulative.
- B. In addition, the Municipality, may institute injunctive, mandamus or any other appropriate action or proceeding at law or in equity for the enforcement of this Ordinance. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus or other appropriate forms of remedy or relief.

**Section 806. Appeals**

- A. Any person aggrieved by any action of the Municipality or its designee, relevant to the provisions of this Ordinance, may appeal to the Municipality within thirty (30) days of that action.
- B. Any person aggrieved by any decision of the Municipality, relevant to the above appeal of this Ordinance, may appeal to the Cumberland County Court Of Common Pleas within thirty (30) days of the Municipality's decision.

## ARTICLE IX - REFERENCES

1. Pennsylvania Department of Environmental Protection (DEP). No. 363-0300-002 (2006), as amended and updated. *Pennsylvania Stormwater Best Management Practices Manual*. Harrisburg, PA.
2. The Pennsylvania Department of Environmental Protection (DEP). 363-2134-008 (2000), as amended and updated. *Erosion and Sediment Pollution Control Program Manual*. Harrisburg, PA.
3. United States Department of Agriculture (USDA), National Resources Conservation Service (NRCS). *National Engineering Handbook*. Part 630: Hydrology, 1969-2001. Originally published as the *National Engineering Handbook*, Section 4: Hydrology. Available online at: <http://www.wcc.nrcs.usda.gov/hydro/hydro-techref-neh-630.html>.
4. United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 1986. *Technical Release 55: Urban Hydrology for Small Watersheds*, 2nd Edition. Washington, D.C.
5. US Department of Commerce (USDC), National Oceanic and Atmospheric Administration (NOAA), National Weather Service (NWS), Hydrometeorological Design Studies Center. 2004-2006. *Precipitation-Frequency Atlas of the United States, Atlas 14, Volume 2*, Silver Spring, Maryland, 20910. Internet address: <http://hdsc.nws.noaa.gov/hdsc/pfds/>.

\_\_\_\_\_  
(Ordinance Name)

\_\_\_\_\_  
(Ordinance Number)

**ENACTED and ORDAINED** at a regular meeting of the

\_\_\_\_\_  
on this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

This Ordinance shall take effect immediately.

\_\_\_\_\_  
(Name) (Title)

\_\_\_\_\_  
(Name) (Title)

\_\_\_\_\_  
(Name) (Title)

ATTEST:

\_\_\_\_\_  
Secretary

**APPENDIX A**

**SAMPLE OPERATION AND MAINTENANCE AGREEMENT  
STORMWATER MANAGEMENT BEST MANAGEMENT PRACTICES (SWM BMPs)**

**THIS AGREEMENT**, made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by and between \_\_\_\_\_, (hereinafter the “Landowner”), and \_\_\_\_\_, Cumberland County, Pennsylvania, (hereinafter “Municipality”);

**WITNESSETH**

**WHEREAS**, the Landowner is the owner of certain real property as recorded by deed in the land records of Cumberland County, Pennsylvania, Deed Book \_\_\_\_\_ at Page \_\_\_\_\_, (hereinafter “Property”).

**WHEREAS**, the Landowner is proceeding to build and develop the Property; and

**WHEREAS**, the SWM BMP Operation and Maintenance Plan approved by the Municipality (hereinafter referred to as the “Plan”) for the property identified herein, which is attached hereto as Appendix A and made part hereof, as approved by the Municipality, provides for management of stormwater within the confines of the Property through the use of BMPs; and

**WHEREAS**, the Municipality, and the Landowner, his successors and assigns, agree that the health, safety, and welfare of the residents of the Municipality and the protection and maintenance of water quality require that on-site SWM BMPs be constructed and maintained on the Property; and

**WHEREAS**, the Municipality requires, through the implementation of the SWM Site Plan, that SWM BMPs as required by said Plan and the Municipal Stormwater Management Ordinance be constructed and adequately operated and maintained by the Landowner, successors and assigns.

**NOW, THEREFORE**, in consideration of the foregoing promises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. The Landowner shall construct the BMPs in accordance with the plans and specifications identified in the SWM Site Plan.
2. The Landowner shall operate and maintain the BMPs as shown on the Plan in good working order in accordance with the specific maintenance requirements noted on the approved SWM Site Plan.
3. The Landowner hereby grants permission to the Municipality, its authorized agents and employees, to enter upon the property, at reasonable times and upon presentation of proper credentials, to inspect the BMPs whenever necessary. Whenever possible, the Municipality shall notify the Landowner prior to entering the property.
4. In the event the Landowner fails to operate and maintain the BMPs per paragraph 2, the Municipality or its representatives may enter upon the Property and take whatever action is deemed necessary to maintain said BMP(s). It is expressly understood and agreed that the

Municipality is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the Municipality.

5. In the event the Municipality, pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Landowner shall reimburse the Municipality for all expenses (direct and indirect) incurred within 10 days of receipt of invoice from the Municipality.
6. The intent and purpose of this Agreement is to ensure the proper maintenance of the onsite BMPs by the Landowner; provided, however, that this Agreement shall not be deemed to create or effect any additional liability of any party for damage alleged to result from or be caused by stormwater runoff.
7. The Landowner, its executors, administrators, assigns, and other successors in interests, shall release the Municipality from all damages, accidents, casualties, occurrences or claims which might arise or be asserted against said employees and representatives from the construction, presence, existence, or maintenance of the BMP(s) by the Landowner or Municipality.
8. The Municipality shall inspect the BMPs at a minimum of once every (\_\_\_\_\_) years to ensure their continued functioning.

This Agreement shall be recorded at the Office of the Recorder of Deeds of Cumberland County, Pennsylvania, and shall constitute a covenant running with the Property and/or equitable servitude, and shall be binding on the Landowner, his administrators, executors, assigns, heirs and any other successors in interests, in perpetuity.

ATTEST:

WITNESS the following signatures and seals:

(SEAL)

For the Municipality:

\_\_\_\_\_

For the Landowner:

\_\_\_\_\_

ATTEST:

\_\_\_\_\_ (City, Borough, Township)

County of Cumberland, Pennsylvania

I, \_\_\_\_\_, a Notary Public in and for the County and State aforesaid, whose commission expires on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, do hereby certify that \_\_\_\_\_ whose name(s) is/are signed to the foregoing Agreement bearing date of the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, has acknowledged the same before me in my said County and State.

**GIVEN UNDER MY HAND THIS** \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
**NOTARY PUBLIC**

\_\_\_\_\_  
**(SEAL)**

## APPENDIX B

### DISCONNECTED IMPERVIOUS AREA (DIA)

#### B.1. Rooftop Disconnection

When rooftop downspouts are directed to a pervious area that allows for infiltration, filtration, and increased time of concentration, the rooftop may qualify as completely or partially Disconnected Impervious Area (DIA) and a portion of the impervious rooftop area may be excluded from the calculation of total impervious area.

A rooftop is considered to be completely or partially disconnected if it meets the requirements listed below:

- The contributing area of rooftop to each disconnected discharge is 500 square feet or less, and
- The soil, in proximity of the roof water discharge area, is not designated as hydrologic soil group “D” or equivalent, and
- The overland flow path from roof water discharge area has a positive slope of 5% or less.

For designs that meet these requirements, the portion of the roof that may be considered disconnected depends on the length of the overland path as designated in Table B.1.

<b>Length of Pervious Flow Path *</b> (ft)	<b>Roof Area Treated as Disconnected</b> (% of contributing area)
0 – 14	0
15 – 29	20
30 – 44	40
45 – 59	60
60 – 74	80
75 or more	100

\* Flow path cannot include impervious surfaces and must be at least 15 feet from any impervious surfaces.

#### B.2. Pavement Disconnection

When pavement runoff is directed to a pervious area that allows for infiltration, filtration, and increased time of concentration, the contributing pavement area may qualify as a DIA that may be excluded from the calculation of total impervious area. This applies generally only to small or narrow pavement structures such as driveways and narrow pathways through otherwise pervious areas (e.g. a walkway or bike path through a park).

Pavement is disconnected if the pavement, or area adjacent to the pavement, meets the requirements below:

- The contributing flow path over impervious area is not more than 75 feet, and
- The length of overland flow is greater than or equal to the contributing length, and
- The soil is not designated as hydrologic soil group “D” or equivalent, and

- The slope of the contributing impervious area is 5% or less, and
- The slope of the overland flow path is 5% or less.

If the discharge is concentrated at one or more discrete points, no more than 1,000 square feet may discharge to any one point. In addition, a gravel strip or other spreading device is required for concentrated discharges. For non-concentrated discharges along the edge of the pavement, this requirement is waived; however, there must be a provision for the establishment of vegetation along the pavement edge and temporary stabilization of the area until vegetation becomes stabilized.

#### REFERENCE

Philadelphia Water Department. 2006. *Stormwater Management Guidance Manual*. Section 4.2.2: *Integrated Site Design*. Philadelphia, PA.

**APPENDIX C**

**CUMBERLAND COUNTY RELEASE RATE MAPS**