

Stormwater

MONROE TOWNSHIP

CUMBERLAND COUNTY, PENNSYLVANIA

ORDINANCE NO. 2011-03

AN ORDINANCE AMENDING, CHANGING AND MODIFYING THE MONROE TOWNSHIP STORM WATER MANAGEMENT ORDINANCE OF 1998, ORDINANCE NO. 98-2; CONCERNING THE MANAGEMENT OF STORM WATER RUNOFF WITHIN MONROE TOWNSHIP; STATING PUBLIC PURPOSES AND INTENTIONS; DEFINING TERMS; CREATING RULES, REGULATIONS, AND CRITERIA FOR SUCH MANAGEMENT, INCLUDING THE DEVELOPMENT OF PLANS AND STUDIES; REQUIRING PERMITS AND INSPECTIONS; PRESCRIBING DESIGN STANDARDS; ESTABLISHING ADMINISTRATIVE PROCEDURES; PROVIDING ENFORCEMENT REMEDIES AND PENALTIES.

WHEREAS, the Board of Supervisors of Monroe Township, Cumberland County, Pennsylvania, hereby enacts and ordains as follows:

Table of Contents

Article 1 - General Provisions

Pages

Section 101.	Title	5
Section 102.	Statement of Findings	5
Section 103.	Purpose.....	5
Section 104.	Adoption-Authority-Applicability	6
Section 105.	Applicability	7
Section 106.	Repealer	7

Article 2 – Definitions

Section 201.	General.....	8
Section 202.	General Terms.....	8
Section 203.	Specific Terms	8

Article 3 – Permit Procedures and Requirements

Section 301.	General	14
Section 302.	Application Requirements	15
Section 303.	Application Requirements	15
	303.1 General.....	15
	303.2 Minor Land Disturbance	16
	303.3 Major Land Disturbance	16
Section 304.	Storm Water Management Plan Contents.....	17
	304.1 General.....	17
	304.2 Existing Features.....	17
	304.3 Proposed Features	18
	304.4 Written Report and Calculations.....	19
Section 305.	Modification of Plans.....	20
Section 306.	Waiver and Appeal Procedure	21
	306.1 Application Procedures (Waiver-Appeal).....	21
Section 307.	Expiration of a Storm Water Management Permit	21
Section 308.	Schedule of Inspections	22
Section 309.	Performance Guarantee.....	22

Section 310.	Liability.....	22
Section 311.	Maintenance Guarantee	23
Section 312.	As-Built Plans	23
Section 313.	Prohibited Discharge and Connections	23

Article 4 – Design Standards

Section 401.	General Design Standards.....	25
Section 402.	Design Standards	25
	402.1 Volume Controls.....	25
	402.2 Rate Controls	26
	402.3 Design Storm For Collection Facilities.....	27
	402.4 Coordination with Adjacent Lands	27
	402.5 Storm Water Basins	28
	402.6 Earth Fill Dams	28
	402.7 Capacities.....	29
	402.8 Storm Water Flow Along Street and Access Drives.....	30
	402.9 Manhole Locations.....	30
	402.10 Alignment Requirement.....	30
	402.11 Minimum Pipe Size.....	30
	402.12 Material Specifications	30
	402.13 Surface Flow Characteristics	30
	402.14 Phasing Plans	31
	402.15 Erosion and Sedimentation	31
	402.16 Floodplain	32
	402.17 Easements	32
	402.18 Ownership and Maintenance of Storm Water Management Facilities	32

Article 5 - Administration

Section 501.	Remedies.....	34
	501.1 Enforcement, Suspension, and Revocation.....	34
	501.2 Notification of Suspension or Revocation Of a Storm Water Management Permit	35
	501.3 Civil Remedies.....	35
Section 502.	Penalties	36
Section 503.	Appeal to the Monroe Township Board of Supervisors	36

Section 504.	Right of Entry and Inspection	36
Section 505.	Severability	36
Section 506.	Compatibility With Other Permits and Ordinances	37
Section 507.	Municipal Liability	37

Appendices

Appendix No. 1:	Application for a Storm Water Management Permit- Minor Land Disturbance	40
Appendix No. 2:	Application for a Storm Water Management Permit- Major Land Disturbance	42
Appendix No. 3:	Storm Water Management Plan Certification.....	43
Appendix No. 4:	Storm Water Management Permit- Regulated Activity.....	44
Appendix No. 5:	Cumberland County Release Map & Table	45
Appendix No. 7:	Operation and Maintenance Agreement	51

Section 101. Title

This Ordinance shall be known and may be cited as the “Monroe Township Storm Water Management Ordinance of 2011.”

Section 102. Statement of Findings

The Board of Supervisors of Monroe Township finds that inadequate management of storm water runoff increases downstream flooding, eroding and/or silts stream channels, pollutes water, overloads existing drainage facilities, and reduces the groundwater table.

A comprehensive and reasonable program of storm water management regulations is fundamental to the public health, safety, and welfare and to the protection of the citizenry and environment.

Federal and state regulations require certain municipalities to implement a program of storm water controls. These municipalities are required to obtain a permit for storm water discharges from their separate storm sewer systems under 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 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)¹.
 - 7. Minimize thermal impacts to Waters of the Commonwealth.

Section 104. Adoption-Authority-Applicability

Pursuant to the Pennsylvania Storm Water Management Act, Act of October 4, 1978, P.L. 864, No. 167, and as further amended (32 P.S. Section 680.1, et seq.), the Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805 No. 247, reenacted and amended December 21, 1988, P.L. 1329, No. 170, and as further amended (53 P.S. Section 10101, et seq.), and the Second Class Township Code, Act of May 1, 1933, P.L. 103, No. 69, reenacted and amended July 10, 1947 P.L. 1481, No. 567 and November 9, 1996, P.L. 350, No. 60, and as further amended (53 P.S. Section 65101, et seq.), the Board of Supervisors hereby enacts and ordains this Ordinance as the Monroe Township Storm Water Ordinance. This Ordinance shall apply to all land disturbance activities as defined in this Ordinance. The standards shall apply to conditions both during and upon completion of a land disturbance activity.

Hereafter, all earth disturbance activities and land development within this 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 development, 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 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.

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 this Ordinance):

- (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.

Article 2

Definitions

Section 201. General

Words and phrases shall be presumed to be used in their ordinary context unless such word or phrase is defined or interpreted differently within this section.

Section 202. General Terms

In this Ordinance when not inconsistent with the context:

- A. Words in the present tense imply also the future tense.
- B. The singular includes the plural.
- C. The male gender includes the female gender.
- D. The term “person” includes an individual, partnership, corporation, unincorporated association, estate, or any other legally recognized entity.
- E. The term “shall” or “must” is always mandatory.
- F. The term “may” is permissive.
- G. 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.

Section 203. Specific Terms

The following words and phrases shall have the particular meaning assigned by this section of this Ordinance. Additionally, the words and phrases which are used in this Ordinance and not defined below shall have the meaning assigned by the Monroe Township Subdivision and Land Development Ordinance.

Agriculture – The tilling of the soil, the raising of crops, forestry, horticulture and gardening, including the keeping or raising of livestock, such as cattle, cows, hogs, horses, sheep, goats, poultry, rabbits, birds, fish, bees and other similar animals.

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.

Board of Supervisors - The Board of Supervisors of the Township of Monroe, Cumberland County, Pennsylvania.

Channel - A natural or artificial watercourse with a definite bed and banks which confine and conduct continuously or periodically flowing water.

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.

Culvert - A structure with appurtenant works which carries a watercourse under or through an embankment of fill.

Dedication - The deliberate appropriation of property by its owner for general public use.

DEP - The Pennsylvania Department of Environmental Protection.

Design Storm - The magnitude and temporal distribution of precipitation from a storm event measured in probability of occurrence (e.g. 25-year-storm) and duration (e.g. 24 hour storm), used in computing storm water management control systems.

Detention Basin - A reservoir which temporarily contains storm water runoff and releases it gradually into a watercourse or storm water drainage system.

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.

Developer – Anyone who undertakes Land Disturbance Activities as defined in this Ordinance.

Development Site (Site) - See Project Site.

Drainage Easement – A right granted by a landowner to a grantee, allowing the use of private land for storm water management purposes.

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 - Flood prone area means any land area susceptible to being inundated by water from any source, i.e., 100 year floodplain is area flooded by a storm with a possible frequency or occurring once in a hundred (100) years or one percent chance of occurring a 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.

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.

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.

Land Disturbance Activity - The use of land as defined as a regulated activity.

A. Major Land Disturbance. The use of land involving:

1. Installation of new impervious or semi-impervious surface that is either in excess of five thousand (5,000) square feet of two-thirds (2/3) of the total lot area, or
2. Diversion or piping of any natural or man-made watercourse, or
3. Removal of ground cover, grading, filing, or other excavation in excess of five (5) acres, except for the agricultural use of land when operated in accordance with a farm conservation plan approved by the Cumberland County Conservation District.

B. Minor Land Disturbance. The use of land involving:

1. The installation of new impervious or semi-impervious surface between one thousand (1,000) and five thousand (5,000) square feet, or
2. Removal of ground cover, grading, filing or excavation between one thousand (1,000) square feet and five (5) acres, except for the agricultural use of land when operated in accordance with a farm conservation plan approved by the Cumberland County Conservation District.

Municipality - Monroe Township, 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 this Ordinance.

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 Basin - A reservoir designed to retain storm water runoff with its primary release of water being through the infiltration of said water into the ground.

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 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.

Sedimentation Basin - A reservoir designed to retain sediment.

Semi-Impervious Surface – A surface such as stone, rock, or other material which prevents some percolation of water into the ground.

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 Sewer - A system of pipes conduits, swales or other similar structures, including appurtenant works, which carries intercepted runoff, and other drainage, but excludes domestic sewage and industrial waste.

Storm Water - Drainage runoff from the surface of the land resulting from precipitation or snow or ice melt.

Storm Water Management - A program of controls and measures designed to regulate the quantity and quality of storm water runoff from a development while promoting the protection and conservation of groundwater and groundwater recharge.

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

Storm Water Runoff - Drainage runoff from the surface of the land resulting from precipitation or snow and ice melt.

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

Township - Monroe Township, Cumberland County, Pennsylvania.

USDA - United States Department of Agriculture.

Watercourse - A permanent or intermittent stream, river, brook, creek, run, channel, swale, pond, lake, or other body of water, whether natural or man-made, for gathering or carrying surface water.

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 3

Permit Procedures and Requirements

Section 301. General

- A. A Land Disturbance Activity, as defined in this Ordinance, shall not be initiated until a Storm Water Management Permit has been issued.
- B. For all Regulated Activities, unless preparation of a SWM Site Plan is specifically exempted by this Ordinance:
 - 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.
- C. SWM Site Plans approved by the Municipality, in accordance with this Ordinance, shall be on site throughout the duration of the Regulated Activity.
- D. 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.
- E. 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)*, Commonwealth of Pennsylvania, Department of Environmental Protection, No. 363-2134-008 (2000), as amended and updated.
- F. For all Regulated Activities not exempted by Section 302, implementation of the Volume Controls of this Ordinance is required.
- G. 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.
- H. 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. Application Procedure

- A. All applications for a stormwater management permit, associated with a subdivision or land development plan subdivision, shall be submitted after approval or conditional approval of plan and prior to any regulated activity or plans recording.
- B. All applications for a Storm Water Management Permit, the activity for which does not constitute a subdivision or land development, shall conform with the following procedures. An application for a Storm Water Management Permit shall be submitted to the Township Secretary, or designee, at the Monroe Township Municipal Office, on any business day. The Township shall forward the application to the Township Engineer for review. The Township Engineer shall review the application for compliance with this Ordinance. The Township engineer shall mail notice of compliance to the applicant and Township Secretary within fifteen (15) days.
- C. The Township shall, within thirty (30) days from the municipal receipt of an application, issue a permit (see Appendix No. 4) or disapprove the application and transmit the decision in writing to the applicant. Failure of the Township to render a decision and communicate it as prescribed above shall not be deemed an approval.
- D. A notice of disapproval shall cite the reasons for disapproval.

Section 303. Application Requirements

Section 303.1 General

- 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 402.1 and 402.2 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 402.1 and 402.2 of this Ordinance when proof is provided that there will be no adverse impact to downstream property. The date of the municipal ordinance adoption shall be the starting point from which to consider tracts as “parent tracts” in which future subdivision and respective impervious area computations shall be cumulatively considered.
- B. 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

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

- C. Agricultural plowing and tilling are exempt from the SWM Site Plan requirements including Sections 402.1 and 402.2 of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.
- D. Forest management and timber operations are exempt from the rate control and SWM Site Plan preparation requirements of this ordinance provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.

Section 303.2 Minor Land Disturbance

An application for a Storm Water Management Permit for a Minor Land Disturbance, as defined in this Ordinance, shall include one (1) completed copy of the application for a minor land disturbance (see Appendix No. 1) and filing fee in the amounts specified in the fee schedule as established by resolution or ordinance of the Board of Supervisor.

In the event the review of a Minor Land Disturbance Permit application reveals the potential for impacts to downstream properties, the Township may require the Applicant to submit additional information to demonstrate compliance with the requirements of this Ordinance. Such information may include portions or all of the requirements for a Major Land Disturbance Permit application.

Section 303.3 Major Land Disturbance

An application for a Storm Water Management Permit for a land disturbance activity, as defined in this ordinance, shall include the following items:

- A. One (1) completed copy of the application for a Storm Water Management Permit (see Appendix No. 2).
- B. Four (4) copies of the Storm Water Management Plan (see Section 304 for plan contents).
- C. Filing fee in the amount specified in the fee schedule as established by resolution or ordinance of the Board of Supervisors.
- D. Performance bond, when applicable (see Section 309 for specifications).
- E. Liability insurance, when applicable (see Section 310 for specifications).

Section 304. Storm Water Management Plan Contents

Storm water management shall be prepared by professionals registered in the Commonwealth of Pennsylvania to perform such duties. Designs which entail engineering expertise shall be prepared by engineers with appropriate expertise. The plan shall show, be accompanied by, or be prepared in accordance with the following:

Section 304.1 General

- A. The plan shall be clearly and legibly drawn at a scale of ten feet (10'), twenty feet (20'), thirty feet (30'), forty feet (40'), or fifty feet (50') or one hundred feet (100) to the inch. Profile plans shall maintain a ratio of 1:10 vertical to horizontal.
- B. The sheet size shall be twenty four inches by thirty-six inches (24" x 36"). If the plan is prepared in two (2) or more sections, a key map showing the location of the sections shall be placed on each sheet. If more than one (1) sheet is necessary, each sheet shall be numbered to show the relationship to the total number of sheets in the plan (e.g. Sheet 1 of 5).
- C. Plans shall be legible in every detail.
- D. Name and address of landowner, applicant, and individual who prepared the plan.
- E. Plan date and date of latest revision to plan, north point, graphic scale and written scale. All maps shall be drawn at a commonly used engineering scale.
- F. A location map, drawn to scale, relating the property to at least two (2) intersections of existing road centerlines, including the approximate distance to the intersection of the centerlines of the nearest existing street intersection.
- G. Note on plan indicating any area that is proposed to be offered for dedication to the Township. Any storm water management improvement that is subjected to an easement and not be offered for dedication shall be identified. The Township is not responsible for the maintenance of any area not dedicated to and accepted for public use.
- H. Certificate, signed and sealed by an individual registered in the commonwealth of Pennsylvania and qualified to perform such duties, indicating compliance with the provisions of this Ordinance (see Appendix No. 3).

Section 304.2 Existing Features

- A. Tract boundaries showing distances, bearings and curve data, as located by field survey or deed plotting, total acreage of tract, and total acreage of project is less than the entire tract.
- B. Existing contours, at a minimum vertical of two feet (2') for land with average natural slope of four percent (4%) or less and at a minimum vertical interval of five feet (5') for more steeply sloping land. Contours shall be accompanied by the location of the benchmark within or immediately adjacent to the subject tract and a notation indicating the datum used. The United States Geodetic Survey shall be used for benchmark datum.

- C. Names of all owners of all immediately adjacent land, names of all proposed or existing developments immediately adjacent, and location and dimensions of any streets or easements shown thereon.
- D. Names, locations and dimensions of all existing buildings, street right-of-way, railroads, utilities, watercourses, drainage facilities, floodplains, wetland, on-lot sewage disposal facilities, easement, and other significant features located either within and adjacent to the property or tow hundred feet (200') from the property.
- E. The size, slope capacity, and condition of the existing storm water management system and any other facility that may be used to conveys storm flows.
- F. Soil types as designated by the U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of Cumberland County.
- G. Designation of the location of on-site and off-site sub-watersheds.
- H. Designation of the location of the time of concentration for the on-site and off-site sub-watersheds.

Section 304.3 Proposed Features

- A. Proposed land use, total number of lots and dwelling units, and extent of commercial, industrial or other non-residential uses.
- B. Locations and dimensions of all proposed streets, sidewalks, lot lines, building locations, parking compounds, impervious and semi-impervious surfaces, sanitary sewer facilities, storm water management facilities, utilities, and other significant features. This information shall be provided to the detail necessary to construct the facilities.
- C. Proposed changes to land surfaces and vegetative cover including areas to be cut or filled.
- D. Proposed Topographical Data. This information shall be provided by contour lines indicating the existing and proposed grades of the site. Contour lines shall be provided at two foot (2') vertical intervals for slopes of four percent (4%) or less, and at vertical intervals of five feet (5') for more steeply sloping land.
- E. Plans and profiles of proposed storm water management facilities including horizontal and vertical location. Additionally, a detail with all pertinent construction requirement shall be provided for outlet structures. This information shall be of the quality required for the construction of all facilities.
- F. The size, slope, capacity, material, elevation, and condition of the proposed storm water management system and other facility that may be used to convey storm flows. This information shall include invert elevations and top of grate elevations.
- G. Plans and profiles of all erosion and sedimentation control measures, temporary as well as permanent.

- H. Designation of the location of on-site sub-watersheds.
- I. Designation of the location of the time of concentration for the on-site sub-watersheds.
- J. Provisions for permanent access or maintenance easements as determined necessary by the municipality for all physical SWM BMP's, such as ponds and infiltration structures, to implement the operation and maintenance plan.

Section 304.4 Written Report and Calculations

- A. Calculations, assumptions, criteria, methodology, and references used in the design of storm water management facilities, the establishment of capacities, and the pre-development and post-development peak discharge. This information shall include data on all sub-watersheds.
- B. For all basins, a plotting or tabulation of the storage volumes and discharge curves with corresponding water surface elevations, inflow hydrographs, and outflow hydrographs.
- C. Soil structures and characteristics shall be provided for all proposed groundwater recharge systems, and detention or retention basins which (a) hold two (2) acre feet or more of water, or (b) have an embankment that is six feet (6') or more in height. Plans and data prepared by a registered professional experienced and educated in soil mechanics shall be submitted. This data shall provide design solutions for frost heave potential, spring-swell potential, soil bearing strength, water infiltration, soil settling characteristics, fill and bank-filling procedures and soil treatment techniques as required to protect the improvement of structures.
- D. The following requirements apply to all proposed groundwater recharge methods of storm water management, such as seepage pits, beds, trenches, leaching wells, and cisterns:
 - 1. Representative percolation tests must be made throughout the proposed area. At least one percolation test must be included in each soil group and at least one percolation test must be conducted for each five lots proposed for development. Testing, in general, should follow the same guidelines as though testing for an on-lot septic system.
 - 2. Attenuation of storm water runoff shall not utilize on site percolation via seepage pits, beds, trenches, etc., for any development of more than five lots.
- E. Description of all erosion and sedimentation control measures, temporary as well as permanent, including the staging of land moving activities, sufficient in detail to clearly indicate their function. All erosion and sedimentation control measures shall conform to the requirements of the Pennsylvania Department of Environmental Protection, Soil Erosions and Sedimentation Control Manual, latest edition.
- F. Description of an ownership and maintenance program, in a form that can be placed on record at the Recorder of Deeds. This form shall clearly set forth the ownership and maintenance responsibilities for all temporary and permanent storm water management facilities which shall include the following.
 - 1. Description of the method and extent of the maintenance requirements.

2. Identification of an individual, corporation, association or other entity responsible for ownership and maintenance.
3. When maintained by a private entity, a copy of the legally binding document which provides that the Township shall have the right to:
 - a. Inspect the facilities at any time.
 - b. Require the private entity to take corrective measures and assign the private entity reasonable time periods for any necessary action.
 - c. Authorize maintenance to be done by Township or an agent or contractor of the Township and the liening of the cost of the work against the properties of the private entity responsible for the maintenance.
4. Establishment of suitable easements for access to storm water management facilities.
 - a. A Pennsylvania Department of Transportation Highway Occupancy Permit for any storm water management facility proposed within the right-of-way of any state road.
 - b. Acknowledgement that a NPDES, DEP permit or other soil erosion and sediment pollution control approval is not required by law, or if such approval is required by law, then a true and correct copy of such approval shall be provided to the Township.
 - c. Notification of approval from the applicable state and federal agencies for any proposed encroachment into flood plain (CLOMR/LOMR) and wetlands.
 - d. A schedule for installation of the control measures and devices. In all cases, the proposed storm water management devices must be completed prior to the construction of additional impervious areas.
 - e. All major land disturbance permits must include an operation and maintenance agreement for storm water management facilities including best management practices as provided in Appendix 6.

Section 305. Modification of Plans

A modification of an approved Storm Water Management Plan shall require a new permit except that the Township Engineer may authorize modification provided that such modifications do not (1) alter the BMP's or storm water management facilities in a manner which significantly affects the discharge of storm water to an adjacent property, or (2) significantly relocates a major BMP or storm water management facility within the project.

Section 306. Waiver and Appeal Procedure

- A. The provisions of this Ordinance are intended as minimum standards for the protection of public health, safety and welfare. The Board of Supervisors may grant a waiver from literal compliance with mandatory provisions of this Ordinance if the applicant can demonstrate either (1) that compliance would cause undue hardship as it applies to a particular property, or (2) that an alternative proposal will allow for equal or better results.
- B. Additionally; the Board of Supervisors may hear and decide appeals where it is alleged that the Township has failed to follow prescribed procedures or has misinterpreted or misapplied any provisions of this Ordinance.
- C. The approval of the waiver or appeal shall not have the effect of making null and void the intent and purposed of this Ordinance. In the approval of a waiver or appeal, the Board of Supervisors may impose such conditions as will, in its judgment, secure substantially the objectives of the standards and requirements of the Ordinance.

306.1 Application Procedures (Waiver-Appeal)

- A. A request for a waiver or appeal shall be submitted to the designated Township representative at the Monroe Township Municipal Office, on any business day. The request shall be made in writing and identify (1) the specific section of the ordinance or decision which is requested for waiver or appeal, (2) the proposed alternative to the requirement, when applicable, and (3) justifications for an approval of the waiver or appeal.
- B. The Township shall (1) schedule the request for consideration by the Board of Supervisors at a public meeting within sixty (60) days of receipt and (2) provide adequate notice to the applicant and any other involved parties of the meeting at which consideration of the request is scheduled.
- C. The Board of Supervisors shall, following the consideration of the request, take such public action as it shall deem advisable and notify all involved parties within twenty (20) days of the action. Such notice shall cite the findings and reasons for the deposition of the waiver or appeal.

Section 307. Expiration of a Storm Water Management Permit

All Storm Water Management Permits shall expire twelve (12) months from the date of issuance unless an extension of time is approved. An extension of an unexpired Storm Water Management Permit shall be issued by the Township Engineer following the submission of a written request if, in the opinion of the Township Engineer, the following characteristics are present: (1) the subject property or affected surrounding area has not been altered in a manner which requires alteration to the Storm Water Management Plan, and (2) in the case where substantial improvements have not been completed, any new standard would not alter the application.

Section 308. Schedule of Inspections

Inspections shall be required prior to the start of construction, during installation of materials and structures, and upon the completion of all improvements. Prior to the initiation of construction, the developer shall arrange a pre-construction meeting with the Township Engineer so that an inspection schedule can be coordinated with the construction schedule. The Township Engineer shall be notified two (2) working dates in advance of any intended date of construction. The provisions stated herein shall not be construed as mandating periodic inspections and the undertaking of periodic inspections shall not be construed as an acceptance of the work during construction or as a final inspection of the construction. The Township shall inspect all phases of the Land Disturbance Activity including, but not limited to, the following:

- A. Prior to the start of any Land Disturbance Activity.
- B. During construction of the permanent storm water management facilities at such times as specified by the Township.
- C. Upon installation of permanent storm water management facilities.
- D. Upon completion of any final grading, vegetative control measures or other site restoration work done in accordance with the permit.

No work shall begin on a subsequent phase until the preceding phase has been inspected and approval has been noted on the permit.

Any portion of the work which does not comply with the approved plan must be corrected by the applicant. No work may proceed on any subsequent until the required corrections have been made.

Section 309. Performance Guarantee

The Township may, prior to issuing a Storm Water Management Permit, require a Performance Guarantee for storm water detention and/or retention basin, erosion control facility, BMP, and other storm water management facilities which may adversely affect adjacent properties, streets, or other public interest.

Where required, the developer shall file with the Board of Supervisors, financial security in an amount sufficient to cover the costs of the BMPs and storm water management facilities. The administration of the financial security shall comply with the financial security provisions of the Monroe Township Subdivision and Land Development ordinance of 1996, as amended.

Section 310. Liability

Neither issuance of the Permit nor compliance with the provisions hereto or any conditions imposed by the municipality shall relieve any person from any responsibility for damages otherwise imposed by law. Nor impose any liability upon Monroe Township or its officers, appointed professionals, and employees for damages to persons or property.

Section 311. Maintenance Guarantee

The Township may, prior to issuing a storm water management permit, require the applicant to submit a maintenance guarantee for the structural integrity as well as function of any storm water management facility or BMP for a term not to exceed eighteen (18) months from the date of acceptance by the Board of Supervisors. Said guarantee shall not exceed fifteen percent (15%) of the actual cost of installation of said improvements and be of the same type of financial security as required in this Article.

Section 312. As-Built Plans

Upon completion of all required improvements and prior to release of the performance bond, the applicant shall submit an "as-built plan", showing actual location, dimensions and elevation of all storm water management facilities. In addition, the plan shall indicate that the resultant grading, drainage structures and/or drainage systems, and erosion and sediment control practices, including vegetative measures, are in substantial conformance with the previously approved drawings and specifications. The applicant's engineer shall certify that the construction of the storm water management facilities were completed in accordance with the plans and specifications as proved by the Township. The plan shall note all deviation from the previously approved drawings. Three (3) paper copies of the plan shall be submitted to the Township, who shall distribute a paper copy to the Township Engineers and retain the remaining copies for the Township files.

Section 313. Prohibited Discharges and Connections

Section 313.1

Any drain or conveyance, whether on the surface or subsurface, which allows any non-storm water 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.

Section 313.2

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 storm water runoff.

Section 313.3

Discharges to Waters of the Commonwealth which are not composed entirely of storm water shall be prohibited, except (1) as provided in section 313.4 below, and (2) discharges allowed under a state or federal permit.

Section 313.4

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)

Section 313.5

In the event that the Municipality or DEP determines that any of the discharges identified in section 313.4 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 313.6

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

Section 313.7

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

Section 401. General Design Standards

- A. In the interest of reducing the total area of impervious surface, preserving existing features which are critical to storm water management, and reducing the concentration of storm water flow, the designer should consider imaginative design concepts and the flexibility provided by the waiver process.
- B. Maximum use should be made of the existing on-site natural and man-made storm water management facilities.
- C. The management of storm water, both during and upon completion of the disturbance associated with a land disturbance activity, shall be accomplished in accordance with the standards of this Ordinance.
- D. Stormwater flows/direct discharges on to adjacent property shall not be created, increased, decreased, relocated, or otherwise altered without notification of the adjacent property owner(s). Such stormwater flows shall be subject to the requirements of this Ordinance.
- E. The design of all facilities over Karst Areas shall include an evaluation of measures to minimize adverse effects in accordance with the procedures outline in Section 7.4 (Special Management Areas-Kart Areas) of the most current version of the SWM Manual.

Section 402. Design Standards

The management of storm water, both during and upon completion of the disturbance associated with a land disturbance activity, shall be accomplished in accordance with the standards of this Ordinance.

Section 402.1 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 the Ordinance. 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.

- A. **The Design Storm Method** (see Section 8.7 of the most current version of the SWM Manual) is applicable to any size of Regulated Activity. This method requires detailed modeling based on site conditions.
 - 1. Do not increase the post-development total runoff volume for all storms equal to or less than the type II, 24-hour duration precipitation.

2. For pre-development computations, all runoff coefficients within the project shall be based on minimum of meadow use. Forested sites will use existing conditions of forested. Off-site land use conditions used to determine storm flows for designing storm facilities shall be based on existing land uses.

B. **The Simplified Method** (see Section 8.7 of the most current version of the SWM Manual) 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:

1. Stormwater facilities shall be sized to capture at least the first two inches (2") of runoff from all new impervious surfaces.
2. 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.
3. 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.
4. 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.
5. Regulated Activities eligible under this method are exempt from the requirements of Rate Controls.

Section 402.2 Rate Controls (see Section 8.3 of the most current version of the SWM Manual)

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

1. Pre-Development vs. Post-Development- The peak discharge of the calculated post-development runoff to an adjacent property shall be designed so that the peak discharge of the calculated post-development runoff to an adjacent property does not exceed the peak discharge of the calculated pre-development runoff for a Type II storm event. The twenty-four (24) hour rainfall values are as follows:

<u>Frequency</u>	<u>Rainfall</u>
2	2.9"
5	3.7"
10	4.2"
25	5.2"
50	6.2"
100	7.5"

2. Runoff calculations for the pre- and post-development comparison shall be based upon the peak flow from a two (2), five (5), ten (10), twenty-five (25), fifty (50), and one hundred (100) year storm frequency. The peak discharged and volumes of runoff shall be determined by using the Rational Method for watersheds less than fifteen (15) acres, and for larger watersheds, the latest version of Technical Release No. 55, Urban Hydrology for Small Watersheds, or an acceptable engineering method, subject to Township approval.
3. For pre-development computations, all runoff coefficients within the project shall be based on minimum of "meadow use." Forested sites will use existing conditions of "forest use." Off-site land use conditions used to determine storm flows for designing storm facilities shall be based on existing land uses.

B. Areas covered by a Release Rate Map from an approved Act 167 Stormwater Management Plan (see Appendix 5):

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 5).

Section 402.3 Design for Collection Facilities

The design of storm water management collection facilities that service drainage areas within the site shall be based upon the peak flow from a fifty (50) year storm frequency event.

All developments shall include design provisions that allow for the overland conveyance of the post development one hundred (100) year peak flows through the site without damage to any private or public property

Section 402.4 Coordination with Adjacent Lands

Consideration shall be given to the relationship of the subject property to the drainage pattern of the watershed. The proposed storm water discharge at the perimeter of the site shall not be beyond the capacity of any existing, immediately contiguous, storm water management facility into which it flows, unless the existing flow at the perimeter of the site already exceeds the capacity of the existing facilities into which it flows and the discharge does not alter the calculated per-development discharge characteristics.

Storm water shall not be transferred from one watershed to another, unless (1) the watershed are sub-watersheds of a common watershed which join together within the perimeter of the property, (2) the effect of the transfer does not alter the peak discharge one to adjacent lands, or (3) easements from the affected downstream landowners are provided.

Storm water runoff from the subject property shall flow directly into a natural watercourse or into an existing storm sewer system, or onto adjacent properties in a manner similar to the runoff characteristics of the pre-development flow.

Section 402.5 Storm Water Basins

- A. Retention basins and detention basins shall be designed with a minimum one foot (1') freeboard above the design elevation of the one hundred (100) year water surface at the emergency spillway. Additionally, basins shall be designed to safely discharge the full 100-year peak discharge of a post development storm event through an emergency spillway in a manner which will not damage the integrity of the basin.
- B. Basins shall not be located over any existing or proposed utility line.
- C. The Modified PULS Method of Calculating routing or an acceptable engineering design method, subject to Township approval, shall be used for detention basins.
- D. Basins shall be constructed and maintained to ensure the design capacity after sedimentation has taken place.
- E. Basin discharge outlets shall be designed to release runoff in a condition which reflects pre-development characteristics.
- F. Basins which are not designed to release all storm water shall be specifically identified as retention basins or permanent pond basins. All other basins shall have provisions for dewatering, particularly the bottom, and shall not create swampy and/or unmaintainable conditions. Discharge structures shall be designed to eliminate the possibility of blockage during operation.
- G. Basins which are located in or adjacent to a residential zone and viewed by the Township as a potential hazard to the public safety shall be completely surrounded by a fence or wall of not less than four feet (4') in height. The fence or wall shall not have an opening or gap larger than two inches (2") and be provided with a self-closing and self-latching gate.
- H. 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.

Section 402.6 Earth Fill Dams

Basins which are designed with earth fill dams shall be designed by a registered professional engineer with experience in earth-filled dams and shall incorporate the following minimum standards:

- A. The maximum water depth (measured from the base to the crest of the emergency spillway) shall not exceed six feet (6'), unless approved by waiver of the Township.
- B. The minimum top width of all dams shall be five feet (5'), unless approved by waiver of the Township.
- C. The side slopes of earth fill dams shall not be steeper than three (3') horizontal to one (1) vertical on both sides of the embankment.

- D. Basins without restricted access shall have impoundment areas with side slopes no greater than five (5) horizontal to one (1) vertical.
- E. A cutoff trench of impervious material shall be provided under all dams.
- F. All pipes and culverts through dams shall be reinforced concrete and have properly spaced concrete cutoff collars.
- G. All riser pipes shall be reinforced cement concrete.
- H. Minimum floor elevations for all structures that would be affected by a basin, other temporary impoundment, or open conveyance systems where ponding may occur shall be two feet (2') above the 100-year water surface and/or one foot (1') above the 500 year water surface. If basement or underground facilities are proposed, detailed calculations addressing the effects of storm water ponding on the structure and water-proofing and/or flood-proofing design information shall be submitted for approval.

The Township may, upon recommendation of the Township Engineer, impose additional requirements on earth fill dam for the safety and welfare of the Township.

Section 402.7 Capacities

The capacities of the pipes, gutters, inlets, culverts, outlet structures, and swales shall consider all possible hydraulic conditions. The following are minimum design standards:

- A. Grass swales and roadside gutters shall consider both the channel velocity and stability.
- B. The "n" factors to be used for paved or rip-rap swales or gutters shall be based on the latest edition of the Pennsylvania Department of Transportation's Design Manual, Part 2, Highway Design, Chapter 10.
- C. The "n" factors for corrugated metal pipe shall be based upon the manufacturer's standard.
- D. The velocity to be used in the design of any piped storm water conveyance system shall be a minimum of two and one-half (2.5') feet per second.
- E. Inlets, culverts, and basin discharge systems shall be designed for the worst case condition. Inlet capacity shall be based on design standards provided by the latest edition of the Pennsylvania Department of Transportation's Design Manual, Part 2, Highway Design, Chapter 10. If acceptable information is not available, inlets in non-ponding areas shall be designed for a maximum capacity of (5) cubic feet per second. Where ponding occurs, inlet capacity shall be based on accepted engineering design practices. Culvert design shall consider either inlet/outlet control or a combination of hydraulic losses through the system, whichever is greater. Basin discharge systems shall be designed to the same standards as culverts. If it cannot be readily determined which hydraulic condition controls, the basin discharge rate shall be based on the highest possible discharge rating curve with the basin capacity sized to store the excessive storm runoff based on the lowest possible discharge rating curve.

Section 402.8 Storm Water Flow Along Streets and Access Drives

Inlets shall be along curb line and are not permitted along the curb radius at an intersection. When possible inlets shall be located around the side lot property line to avoid conflicts with driveways. For the purpose of inlet placement, curb, gutter, or roadside swale, flow depths for a ten (10) year storm frequency with a five (5) minute duration shall not exceed three inches (3") in a swale condition, two inches (2") in a gutter condition and one-half inch (1/2") across intersections and travel lanes. In no case shall inlets be spaced more than six hundred feet (600") apart and function at less than sixty-five percent (65%) efficiency based on the criteria in the PennDOT Design Manual.

Section 402.9 Manhole Locations

Manholes shall not be spaced more than five hundred feet (500') apart. Additionally, manholes shall be placed at points of changes in the horizontal or vertical direction of storm sewers. Inlets may be substituted for manholes where they will serve a useful purpose.

Section 402.10 Alignment Requirements

If less than a forty-eight inch (48') diameter, curves in pipes or box culverts, without an inlet or manhole are prohibited. Tee joints, elbows, and wyes are always prohibited.

Section 402.11 Minimum Pipe Size

Storm water management pipe collection and conveyance systems shall have a minimum diameter of fifteen inches (15").

Section 402.12 Material Specifications

All material and installations must comply with the latest edition of PennDOT Manual Form 408. Pipe collection and conveyance systems shall be reinforced concrete pipe, corrugated exterior-smooth bore interior HDPE pipe, or corrugated galvanized metal pipe. Structural calculations that address the actual design requirements may be required.

Section 402.13 Surface Flow Characteristics

- A. The maximum swale, gutter, or curb velocity of storm water runoff shall be maintained at levels which results in a stable condition both during and after construction. The following are considered characteristics of a stable condition.
1. It neither aggrades nor degrades beyond tolerable limits.
 2. The channel banks do not erode to the extent that the channel cross section is changed appreciably.
 3. Sediment bars do not develop.
 4. Erosion does not occur around culverts and bridges or elsewhere.

5. Gullies do not form or enlarge due to the entry of uncontrolled storm water runoff.
- B. Grass-lined channels shall be considered stable if the calculated velocity does not exceed the allowable velocities shown below:
1. Three feet (3') per second where only sparse vegetation can be established and maintained because of shade or soil condition.
 2. Four feet (4') per second where normal growing conditions exist and vegetation is to be established by seeding.
 3. Five feet (5') per second where a dense, vigorous sod can be quickly established or where water can be temporarily diverted during establishment of vegetation. Netting and mulch or other equivalent methods for establishing vegetation shall be used.
 4. Six feet (6') per second where there exists a well established sod of good quality.
 5. Where swale bends occur, the allowable velocities listed above shall be divided by the following factors:

<u>Degree of Bend</u>	<u>Velocity</u>
0 to 30	1.50
30 to 60	1.75
60 to 90	2.00
90 and over	2.50

The above grass-lined channel flows may be exceeded if the designer can provide acceptable supportive design criteria as proof of erosion prevention.

6. Where the velocity of storm water runoff exceeds the allowable velocity, erosion protection must be provided. The method of erosion protection proposed must be supported by the appropriate design information and/or references.

Section 402.14 Phasing Plans

When applications are submitted in phases, and if temporary facilities are required for construction of a phase, such facilities shall be included in the submitted plans. All phases of development must comply with the provisions of this Ordinance. In the event temporary measures cannot adequately handle the storm water runoff; the main outfall line shall be included as part of the construction of the proposed phase.

Section 402.15 Erosion and Sedimentation

All land disturbance facilities shall conform to the requirements of the Pennsylvania Department of Environmental Protection Soil Erosion and Sedimentation Control Manual. The following principles shall be applied to the design plan and construction schedule to minimize soil erosion and sedimentation:

- A. Stripping of vegetation, grading, or other soil disturbance shall be done in a manner which will minimize soil erosion.
- B. Whenever feasible, natural vegetation shall be retained and protected.
- C. The extent of the disturbed area and the duration of its exposure shall be kept to a minimum, within practical limits.
- D. Either temporary seeding, mulching, or other suitable stabilization measures shall be used to protect exposed critical areas during construction.
- E. Drainage provisions shall accommodate the storm water runoff both during and after construction.
- F. Soil erosion and sedimentation facilities shall be installed prior to any on-site grading.
- G. The design plan and construction schedule shall incorporate measures to minimize soil erosion and sedimentation.
- H. Retention and/or detention basins, and water carrying facilities shall be stabilized in accordance with current engineering and soil conservation services practices.

Section 402.16 Floodplain

All storm water management plans shall conform with the floodplain standards specified in the Monroe Township Zoning Ordinance, as amended.

Section 402.17 Easements

Easements shall be provided where storm water surface water drainage facilities are existing or proposed, whether located within or beyond the boundaries of the property. Easements for maintenance of pipes and culverts shall run from outlet to inlet with pipe or swale centered of easement. Normal lot grading will not require easements. Swales which receive runoff from more than one other lot must be provided with an easement. Easements shall have a minimum width of twenty feet (20') for open swale and thirty feet (30') for piping shall be adequately designed to provide area for (a) the collection and discharge of water, (b) the maintenance, repair, and reconstruction of the drainage facilities, and (c) the passage of machinery for such work. Easements shall include a description of an ownership and maintenance program, in a recordable form, that clearly sets forth responsibility for all temporary and permanent storm water management facilities.

Section 402.18 Ownership and Maintenance of Storm Water Management Facilities

- A. The intent of these regulations is to provide private ownership and maintenance of storm water management facilities, erosion and sedimentation control facilities and floodplain control facilities. Under no circumstances does the Township intend to accept dedication of erosion control and sedimentation basins. The Township does not encourage the dedication of storm water management facilities that are located outside public street rights-of-way.

B. Maintenance of all storm water management facilities during development shall be the sole responsibility of the developer and shall include, but not be limited to:

1. Removal of silt from all basins, traps or other structures or measures when thirty percent (30%) of capacity is filled with silt.
2. Periodic maintenance of temporary control facilities as described in the soil erosion and sedimentation control plan as such replacement of silt fencing, straw filters or similar measures.
3. Establishment or re-establishment of vegetation by seeding and mulching or sodding of scoured areas or areas where vegetation has not successfully been established.
4. Installation of necessary controls to correct unforeseen problems caused by storm events within designed frequencies.
5. Removal of all temporary measures and installation of permanent measures upon completion of the project.
6. Requirements of the Pennsylvania Department of Environmental Protection, Chapter 102 Regulations.

Ownership of all storm water management facilities after construction shall be the sole responsibility of the developer or the private landowner as set forth in the plan. The only storm water management facilities which are to be controlled by the Township shall be those facilities which have been offered for dedication and accepted for dedication by the Township. Future offers for dedication can only be made for facilities which meet current Township specifications.

Section 501. Remedies

Any person, partnership or corporation who being the owner of land on which a Land Disturbance Activity, as defined in this Ordinance, has occurred or is engaged in shall comply with the provision of this Ordinance and the Storm Water Management Permit. Any Land Disturbance conducted in violation of this Ordinance or the Storm Water Management Permit is hereby declared a public nuisance.

Section 501.1 Enforcement, Suspension, and Revocation

A. Enforcement

1. It shall be unlawful for a person to undertake any Regulated Activity except as provided in an approved SWM Site Plan, unless specifically exempted by this Ordinance.
2. Inspections regarding compliance with the SWM Site Plan during project construction are a responsibility of the Municipality.

B. Suspension of a Storm Water Management Permit

1. Any permit issued under this Ordinance may be suspended by the Township based upon:
 - a. The noncompliance with or failure to implement any provision of the Storm Water Management Plan, or
 - b. A violation of any provision of the Ordinance relating to the project, or
 - c. The creation of any condition or the commission of any act during construction which constitutes or creates a hazard or nuisance or which endangers the life or property of others.
2. Under the suspension of a permit, only such work as the Township so authorized may proceed. This work shall be limited to that which is necessary to correct the violation. A suspended permit shall be reinstated by the Township when:
 - a. The Township has inspected and approved the corrections to the storm water management facilities or the elimination of the hazard or nuisance, and,
 - b. The Township is satisfied that the violation of the Ordinances has been corrected.
 - c. A permit will not expire while under suspension or noncompliance exists with the permit

C. Revoke a Storm Water Management Permit

1. Based upon a report from the Township Engineer that the existing site condition or further construction is likely to endanger property or create hazardous conditions, the Township may:
 - a. Revoke a permit.
 - b. Require protective measures to be taken and assign a reasonable time period for the necessary action.
 - c. Authorize protective measures to be done and lien all cost of the work against the property on which work is required
 2. A permit which has been revoked cannot be reinstated. The applicant may apply for a new permit in accordance with 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 allowance time period, the Municipality may revoke or suspend any, or all, applicable approvals and permits pertaining to any provision of this Ordinance.

Section 501.2 Notifications of Suspension or Revocation of a Storm Water Management Permit

In the event of supervision or revocation of a Storm Water Management Permit, the Township shall provide written notification of the violation to the landowner and/or applicant at his known address. Such notification shall:

- A. Cite the specific violation, describe the requirements which have not been met, and cite the provisions of the Ordinance relied upon.
- B. Identify the specific protective measures to be taken.
- C. Assign a reasonable time period necessary for action or in the case of revocation, identify if the Township has authorized protective measures to be performed at cost to the landowner.
- D. Identify the right to request a hearing before the Board of Supervisors if aggrieved by the suspension or revocation.

Section 501.3 Civil Remedies

Suits to restrain, prevent, or abate a violation of this Ordinance may be instituted in equity or at law by the Township. Such proceedings in equity or law may be initiated before any court of competent jurisdiction. In cases of emergency where, in the opinion of the court, the circumstances of the case require immediate abatement of the unlawful conduct, the court may, in its decree, fix a reasonable time during which the person responsible for the unlawful conduct

shall correct or abate the same. The expense of such proceedings shall be recoverable from the violator in such manner as may now or hereafter be provided by law.

Section 502. Penalties

Any person who shall violate any of the provisions of this Ordinance, or who shall fail to comply with any written notice from Monroe Township which describes a condition of non-compliance, shall be guilty of a summary offense, and upon conviction thereof, shall be subject to a fine payable to Monroe Township of not more than one thousand (\$1,000) dollars for each violation, plus all court costs. In default of payment of the fine, such person shall be liable to imprisonment for not more than thirty (30) days. A new and separate violation shall be deemed to be committed for each day after receipt of the aforesaid notice that such violation exists.

In addition, the Township may institute injunctive, or any appropriate action or proceeding of 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, writs, or other appropriate forms of remedy or relief.

Section 503. Appeal to the Monroe Township Board of Supervisors

Any persons aggrieved by any action of the Township may appeal to the Board of Supervisors within twenty (20) days of that action.

Section 504. Right of Entry and Inspection

- A. 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.
- B. Inspection- SWM BMP's 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 505. Severability

Should any section or provision of this Ordinance be declared invalid by a court of competent jurisdiction, such decision shall not affect the validity of any of the remaining provisions of this Ordinance.

Section 506. Compatibility With Other Permits and Ordinances

Permits issued pursuant to this Ordinance do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act or ordinance of another governing body. Any provision of any other statute, code, ordinance or regulation which provide greater protection shall control in the event of conflicting regulations.

Section 507. Municipal Liability

The degree of storm water management sought by the provisions of this Ordinance is considered reasonable for regulatory purposes. This issuance of permits by Monroe Township, its officers, or employees, shall not be deemed to relieve the developer of responsibility, if any such responsibility exists, to those adversely affected by the drainage of water. Further, the municipality through the issuance of a permit assumes no responsibility to either the developer or the adjoining property owner affected by the drainage of water.

ENACTED AND ORDAINED this 13 day of October, 2011.

ATTEST:

MONROE TOWNSHIP
BOARD OF SUPERVISORS

Maipine E. Metzger

Samuel M. Simmons III
SAMUEL M. SIMMONS, III, CHAIRMAN

John B. Dwyer, Sr.
JOHN B. DWYER, SR., VICE-CHAIRMAN

A. W. Castle, III
A. W. CASTLE, III, MEMBER

APPENDICES

Appendix No. 1

APPLICATION FOR A STORM WATER MANAGEMENT PERMIT MINOR LAND DISTURBANCE

MONROE TOWNSHIP
Cumberland County, Pennsylvania

Application is hereby made to Monroe Township for the issuance of a Storm Water Management Permit pursuant to the specifications herewith submitted.	
1. Name of Property Owner(s):	
Address:	
Fax No.	Telephone No.:
2. Name of Applicant (if other than owner):	
Address:	
Fax No.	Telephone No.:
3. Project Location:	
4. If the property is the subject of a subdivision or land development, provide recording instrument number or Township identification number.	

5. Brief Description of Work to be Performed: _____	

A general plan of the lot configuration, building location, grading, and storm water management facilities may be shown on the attached page or separate sheets.	
6. Storm Water Management Plan Prepared By:	
Address:	
Fax No.	Telephone No.:
The undersigned hereby represents that to the best of their knowledge and belief, all information listed above and on the reverse side of this page is true, correct, and complete.	
Date:	Signature of Applicant
File No.	For Township Use Only Date of Receipt/Filing

Appendix No. 2

APPLICATION FOR A STORM WATER MANAGEMENT PERMIT MAJOR LAND DISTURBANCE

MONROE TOWNSHIP Cumberland County, Pennsylvania

Application is hereby made to Monroe Township for the issuance of a Storm Water Management Permit pursuant to the specifications herewith submitted.	
1. Name of Property Owner(s):	
Address:	

Fax No.	Telephone No.:
2. Name of Applicant (if other than owner):	
Address:	

Fax No.	Telephone No.:
3. Project Location:	

4. Type of Regulated Activity:	
A. New Impervious or semi-impervious surface _____ (sq. ft./ac.)	
B. Diversion or piping of natural or man-made watercourse _____ (linear ft.)	
C. Installation of the following:	
Culvert _____	Retention Basin _____
Detention Basin _____	Sediment Basin _____
D. Removal of ground cover, grading, filling, or excavation _____ (sq. ft./ac.)	
E. Other:	

5. If the property is the subject of a subdivision or land development, provide plan book record number or Township identification number.	

6. Storm Water Management Plan Prepared By:	
Address:	

Fax No.	Telephone No.:
The undersigned hereby represents that to the best of their knowledge and belief, all information listed above and on the reverse side of this page is true, correct, and complete.	
Date:	Signature of Applicant
File No:	For Township Use Only Date of Receipt/Filing

Appendix No. 3

STORM WATER MANAGEMENT PLAN CERTIFICATION

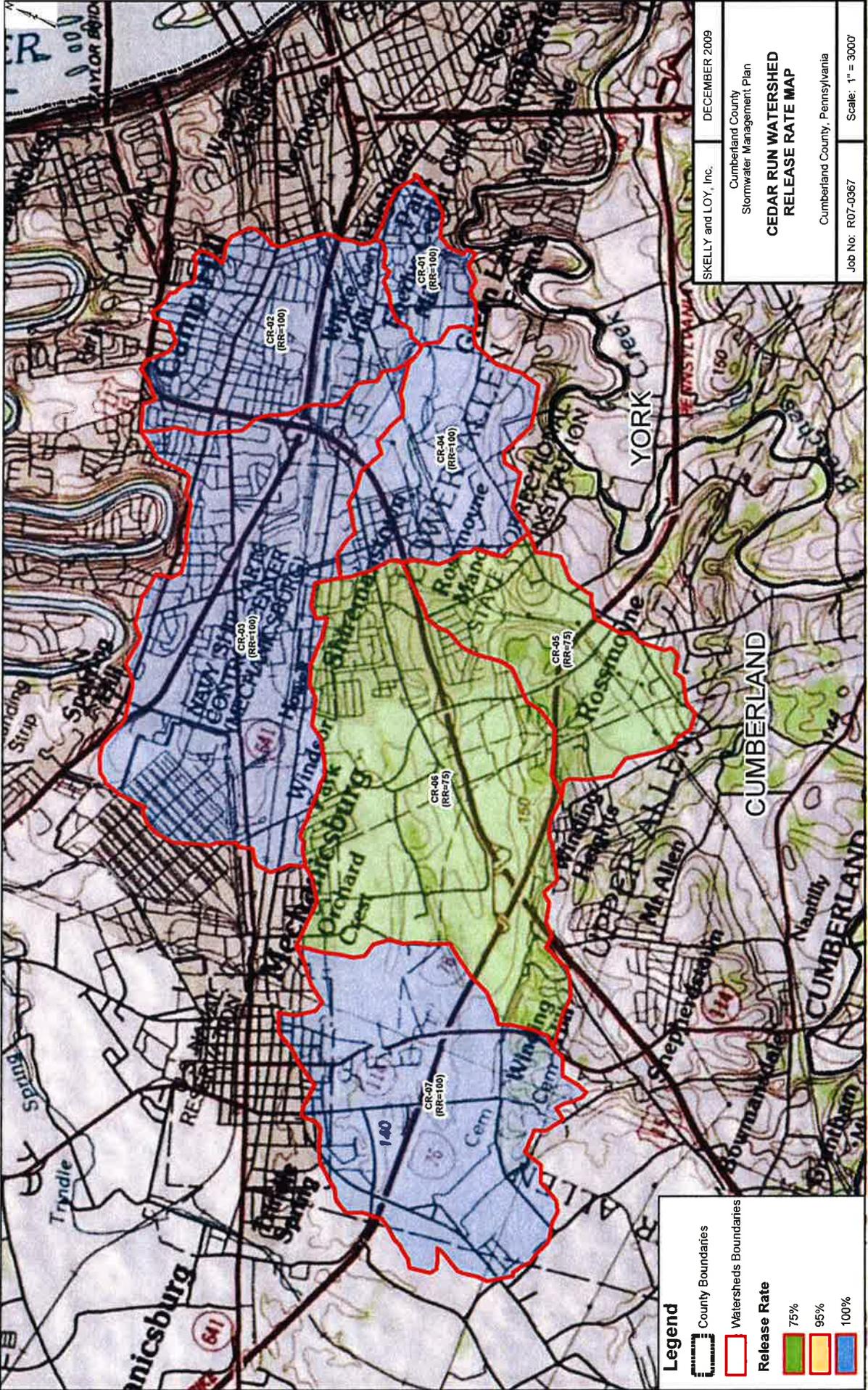
I hereby certify that, to the best of my knowledge and information, the storm water management facilities shown and described hereon are designed in conformance with the Monroe Township Storm Water Management Ordinance.

Date

Signature and Seal of the
Registered Professional Responsible
for the Preparation of the Plan

APPENDIX 5

CUMBERLAND COUNTY RELEASE RATE MAPS



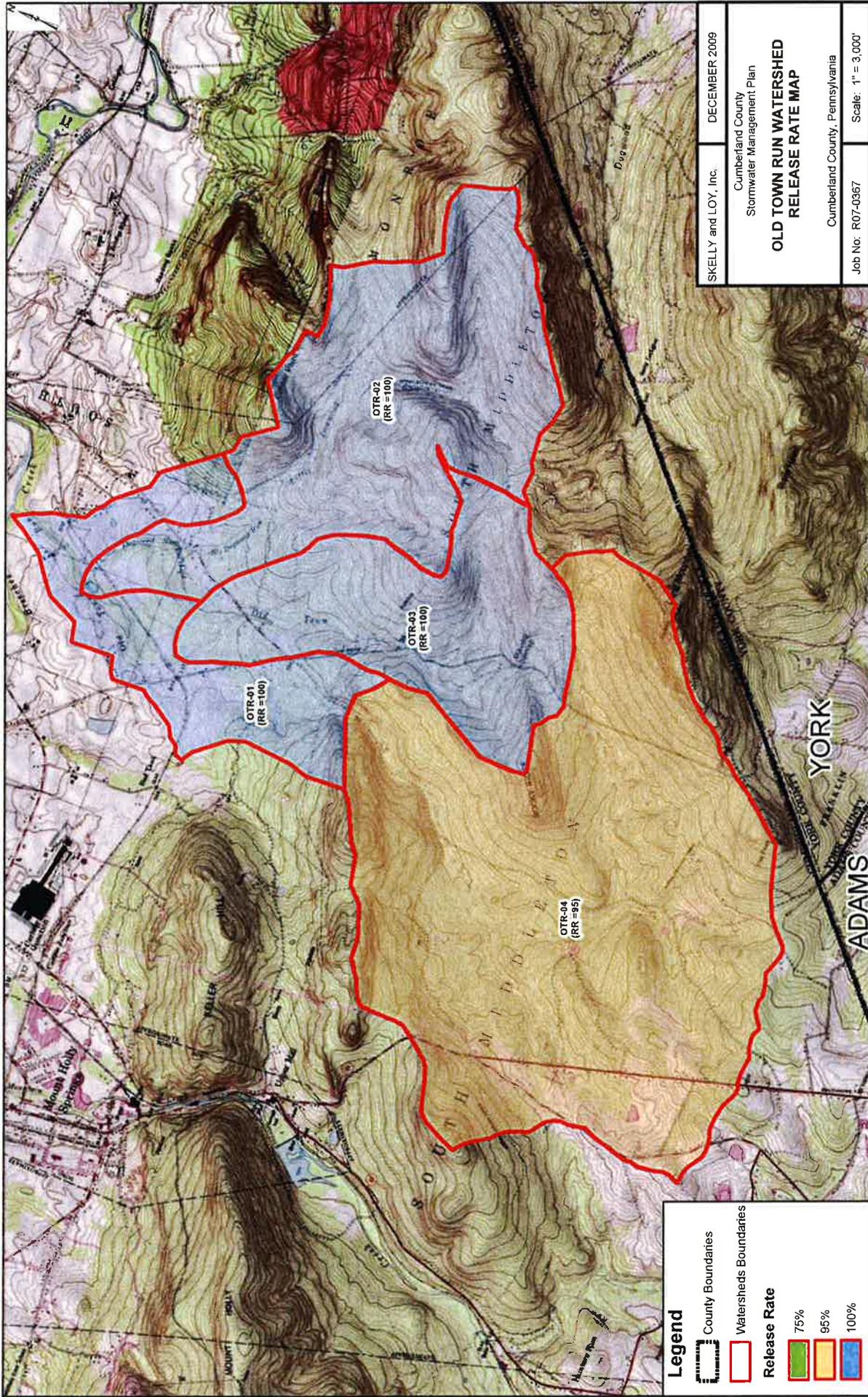
SKELLY and LOY, Inc. DECEMBER 2009
 Cumberland County
 Stormwater Management Plan
**CEDAR RUN WATERSHED
 RELEASE RATE MAP**
 Cumberland County, Pennsylvania
 Job No. R07-0367 Scale: 1" = 3000'

Legend

- County Boundaries
- Watersheds Boundaries

Release Rate

- 75%
- 95%
- 100%



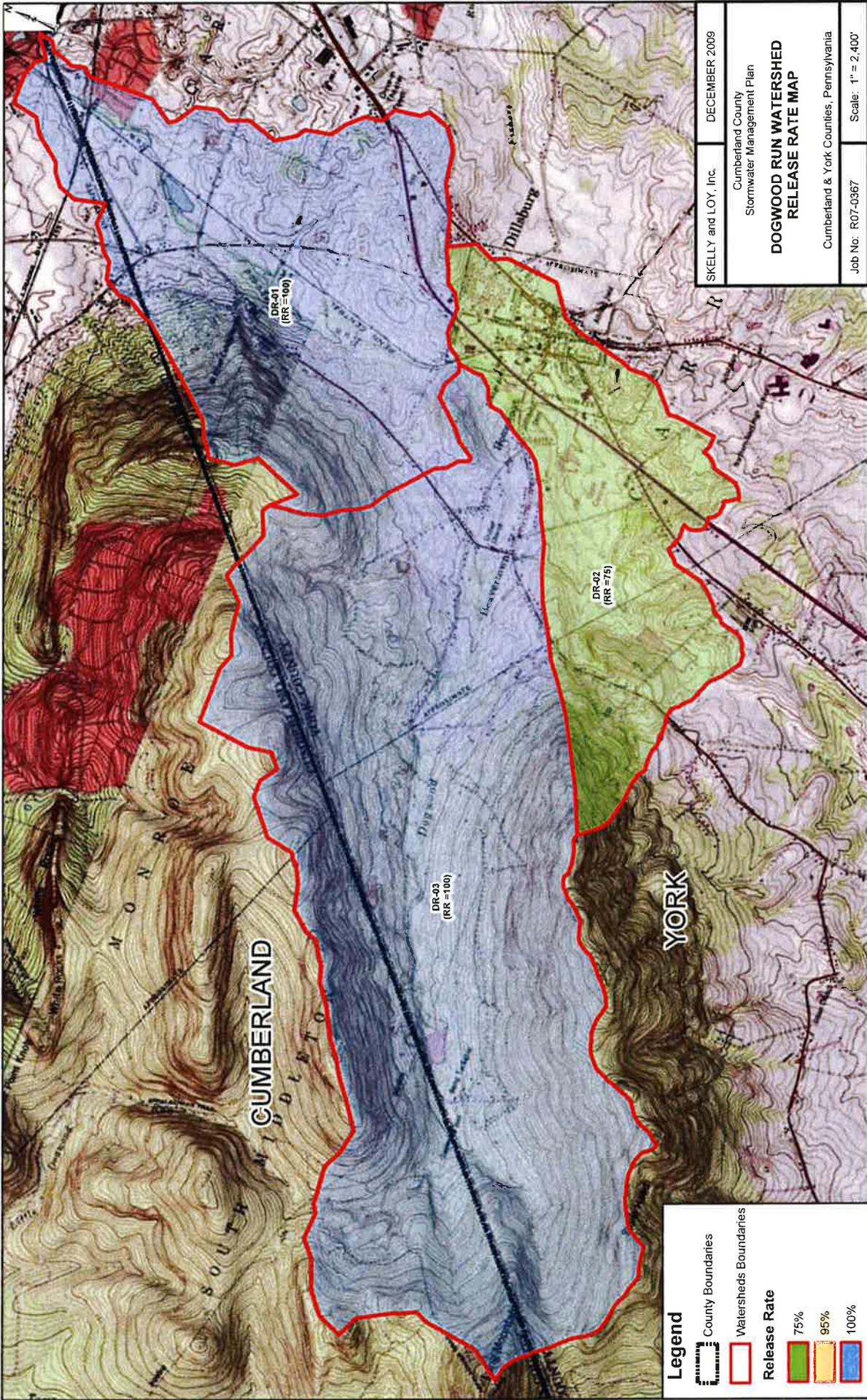
SKELLY and LOY, Inc. DECEMBER 2009
 Cumberland County
 Stormwater Management Plan
**OLD TOWN RUN WATERSHED
 RELEASE RATE MAP**
 Cumberland County, Pennsylvania
 Job No: R07-0367 Scale: 1" = 3,000'

Legend

- County Boundaries
- Watersheds Boundaries

Release Rate

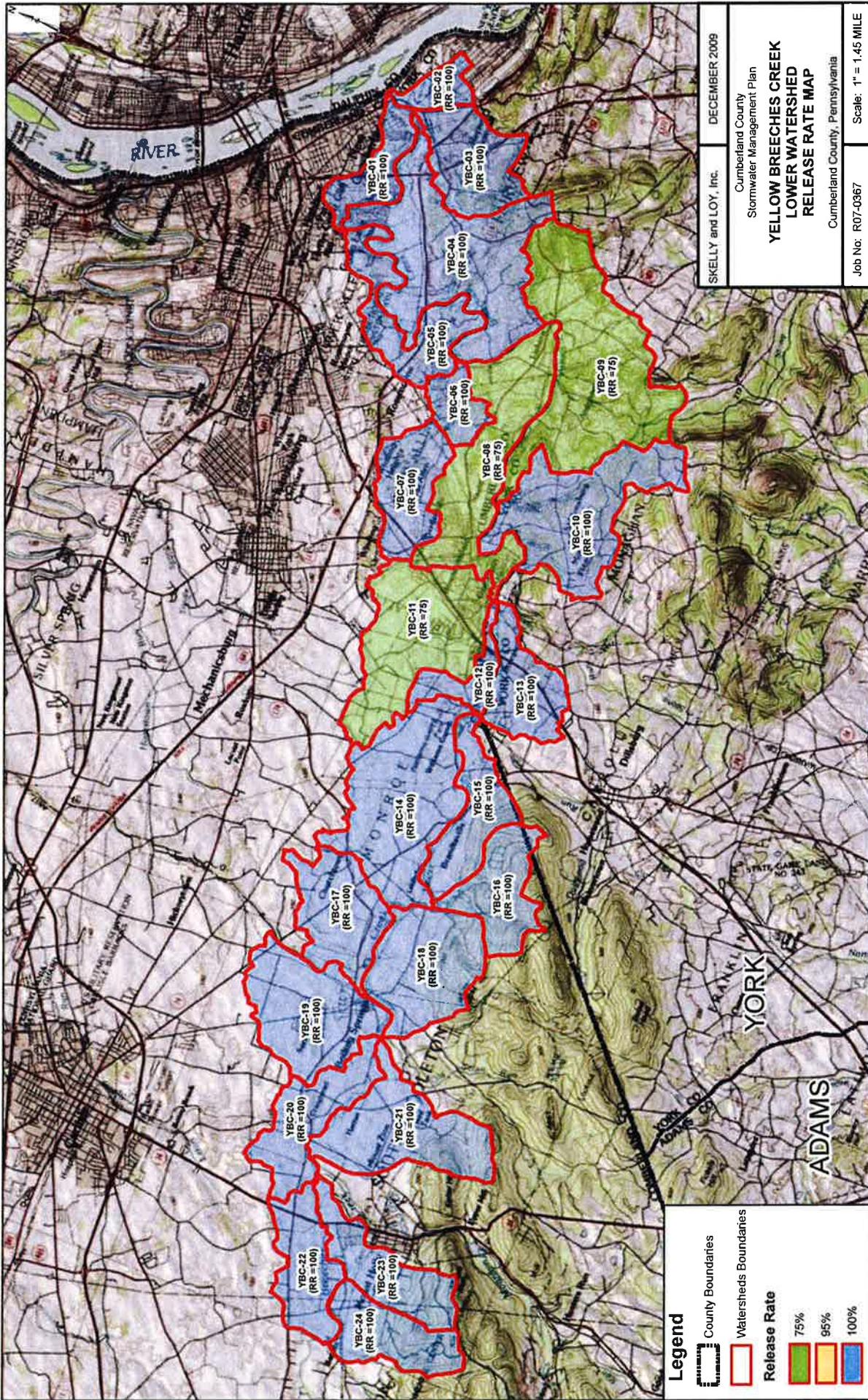
- 75%
- 95%
- 100%



SKELLY and LOY, Inc. DECEMBER 2009
 Cumberland County
 Stormwater Management Plan
**DOGWOOD RUN WATERSHED
 RELEASE RATE MAP**
 Cumberland & York Counties, Pennsylvania
 Job No: R07-0367 Scale: 1" = 2,400'

Legend

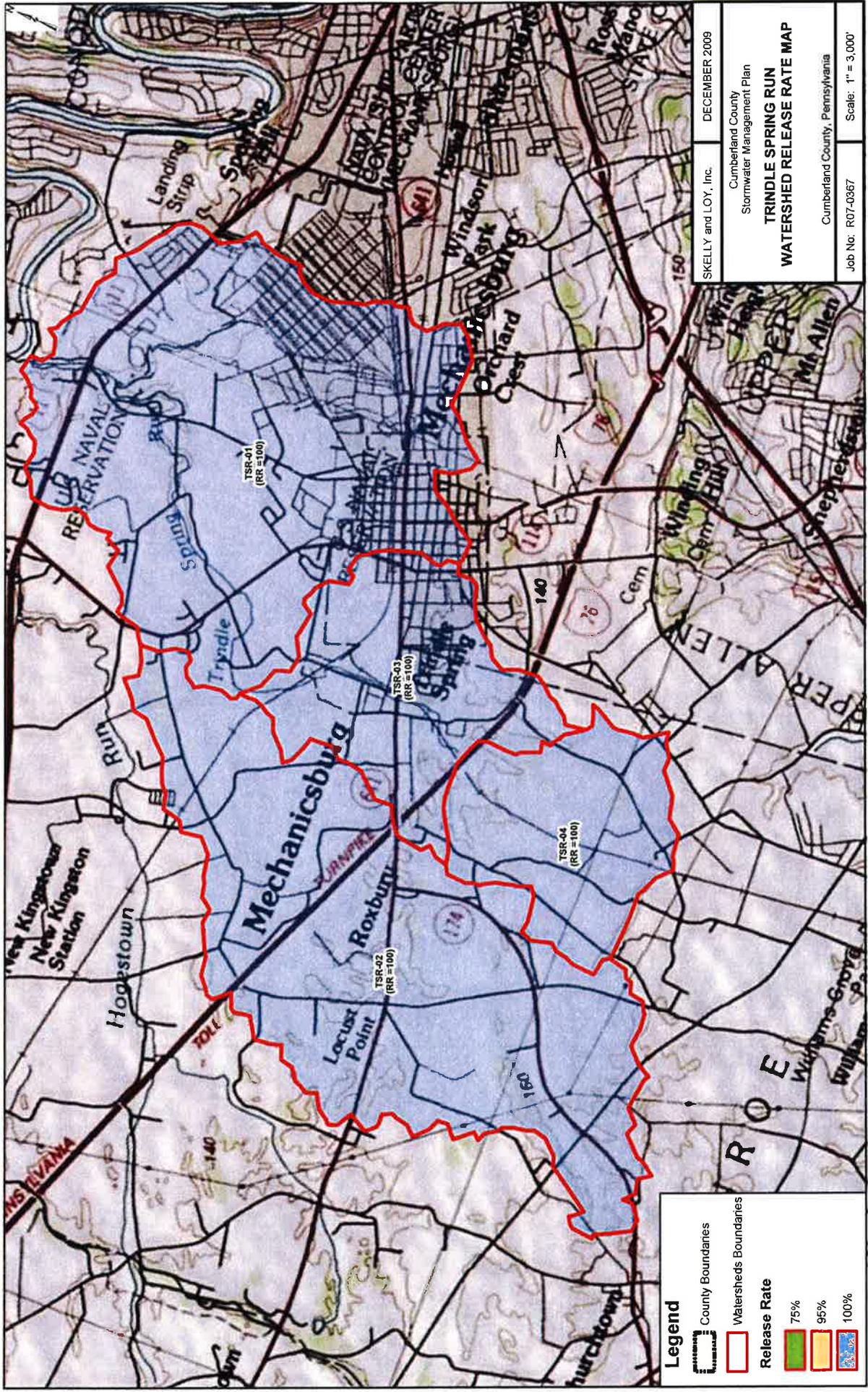
- County Boundaries
- Watersheds Boundaries
- Release Rate**
 - 75%
 - 95%
 - 100%



SKELLY and LOY, Inc. DECEMBER 2009
 Cumberland County
 Stormwater Management Plan
**YELLOW BREECHES CREEK
 LOWER WATERSHED
 RELEASE RATE MAP**
 Cumberland County, Pennsylvania
 Job No: R07-0367 Scale: 1" = 1.45 MILE

Legend

- County Boundaries
- Watersheds Boundaries
- Release Rate
 - 75%
 - 95%
 - 100%



SKELLY and LOY, Inc. DECEMBER 2009
 Cumberland County
 Stormwater Management Plan
**TRINDLE SPRING RUN
 WATERSHED RELEASE RATE MAP**
 Cumberland County, Pennsylvania
 Job No. R07-0367 Scale: 1" = 3,000'

Legend

- County Boundaries
- Watersheds Boundaries
- Release Rate
 - 75%
 - 95%
 - 100%



CERTIFICATE

I, the undersigned, Secretary of the Township of Monroe, Cumberland County, Pennsylvania (the "Township"), certify that: the foregoing is a true and correct copy of an Ordinance of the Board of Supervisors of the Township (the "Board"), which duly was enacted by affirmative vote of a majority of the members of the Board at a meeting held on October 13, 2011; said Ordinance duly has been recorded in the Ordinance Book of the Township; said Ordinance duly has been published as required by law; and said Ordinance remains in effect, unaltered and unamended, as of the date of this Certificate.

IN WITNESS WHEREOF, I set my hand and affix the official seal of the Township, this 13 day of October, 2011.

Marjorie E. Metzger
Secretary

(SEAL)

APPENDIX 6

**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 Monroe _____, 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 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 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 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)

