STORMWATER MANAGEMENT ORDINANCE

ORDINANCE NUMBER ???

ENACTED ??? ??, 2022
EFFECTIVE ??? ??, 2022

SCOTT TOWNSHIP
COLUMBIA COUNTY, PENNSYLVANIA

ORDINANCE NUMBER ???

Scott Township
Columbia County, Pennsylvania

REGULATING, RESTRICTING, AND DETERMINING THE METHOD OF MANAGING STORMWATER RUNOFF RESULTING FROM THE DEVELOPMENT, USE, AND ALTERATION OF LAND; REQUIRING PLANS AND OTHER INFORMATION TO BE SUBMITTED FOR MUNICIPAL REVIEW AND APPROVAL OF SUCH METHODS; PROVIDING FOR THE ADMINISTRATION AND ENFORCEMENT OF THE ORDINANCE.

WHEREAS The Second Class Township Code, and where applicable, Act 167 (The Pennsylvania Stormwater Management Act of October 4, 1978) empower Scott Township to enact a stormwater management ordinance and to provide for its administration, enforcement, and amendment; and

WHEREAS, Scott Township desires to minimize or eliminate future stormwater related problems; and

WHEREAS, Scott Township desires to establish a process for the review and approval of plans to manage stormwater runoff within the Township in compliance with applicable Federal and State requirements; and

NOW, THEREFORE BE IT ENACTED AND ORDAINED, by Scott Township, Columbia County, Pennsylvania as follows:

ARTICLE I
GENERAL PROVISIONS

SECTION 1. **SHORT TITLE:** This Ordinance shall be known, and may be cited, as the "Scott Township Stormwater Management Ordinance."

SECTION 2. **STATUTORY AUTHORITY:** The Second Class Township Code, as amended, empowers Townships of the Second Class to enact stormwater management ordinances; and to regulate activities that affect public health, safety, and welfare. In addition, and where applicable, Act 167 of October 4, 1978, "The Stormwater Management Act," authorizes the regulation of land and water use for flood control and stormwater management purposes, imposing duties and conferring powers on PA DEP, municipalities, and counties.

SECTION 3. **STATEMENT OF FINDINGS:** The Scott Township Board of Supervisors (hereinafter referred to as the Municipality) finds that:

3.1 A program of reasonable regulation of connections and discharges to Stormwater Management Facilities will be beneficial.

3.2 Inadequate management of stormwater runoff from development throughout a watershed increases runoff volumes, flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of streams and storm sewers, greatly increases the cost of public facilities to carry and manage stormwater, undermines flood plain management and flood control efforts in downstream communities, reduces groundwater recharge, threatens public health and safety, and increases non-point source pollution of water resources.

3.3 A comprehensive program of stormwater management, including reasonable regulation of development and other activities that increase runoff, is fundamental to the public health, safety, and welfare and the protection of people of this Commonwealth, their resources, and the environment.

3.4 Stormwater is an important water resource that provides groundwater recharge for water supplies and supports the base flow of streams.

3.5 The use of green infrastructure and Low Impact Development (LID) are intended to address the root cause of water quality impairment by using systems and practices which use or mimic natural processes to infiltrate and recharge, evapotranspire, and/or harvest and use precipitation near

where it falls to earth. Green infrastructure practices and LID contribute to the restoration or maintenance of pre-development hydrology.

3.6 Federal and State regulations require certain municipalities to implement a program of stormwater controls, and these municipalities are required to obtain a permit for stormwater discharges from their separate storm sewer systems under the National Pollutant Discharge Elimination System (NPDES) program.

SECTION 4. PURPOSE: This Ordinance is enacted for the following purposes:

4.1 To manage stormwater runoff problems at their source by regulating activities that cause such problems, to utilize and preserve desirable existing natural drainage systems, to encourage recharge of groundwater, to prevent the deterioration of groundwater quality, to maintain the existing flows and quality of streams and watercourses in the Municipality, to preserve and restore the flood carrying capacity of streams, to reduce stormwater runoff volumes, to reduce accelerated erosion, to reduce scour, to reduce aggradation and degradation, and to provide procedures and standards for proper operation and maintenance of stormwater Best Management Practices (BMPs).

4.2 To provide <u>minimum</u> standards for the design, installation, and maintenance of all Stormwater Management Facilities in the Municipality.

4.3 To assure, at a minimum, that peak rates of runoff (peak discharges) are no greater after development than prior to development within the Municipality.

4.4 To minimize danger to public health and safety, and damages to property by providing for proper management of stormwater runoff.

4.5 Meet legal water quality requirements under State law, including regulations at 25 Pa. Code 93 to protect, maintain, reclaim, and restore the existing and designated uses of the waters of this Commonwealth.

4.6 Provide standards to meet applicable NPDES permit requirements.

SECTION 5. APPLICABILITY: This Ordinance shall apply to:

5.1 All activities involving the alteration or development of land that may impact stormwater runoff characteristics.

5.2 All activities related to the proper operation and maintenance of Stormwater Management Facilities and stormwater BMPs; and permanent erosion and sediment pollution control facilities.

5.3 All activities that may contribute non-stormwater discharges to receiving streams.

5.4 The installation of Stormwater Management Facilities and/or appurtenances thereto.

SECTION 6. 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 7. COMPATIBILITY: Permits and approvals issued pursuant to this Ordinance do not relieve the Applicant/Developer of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance. If more stringent requirements pertaining to the regulation of stormwater are contained in any other act, code, ordinance, or rule, the more stringent requirements shall apply.

SECTION 8. ERRONEOUS APPROVAL/PERMIT: Any approval/permit or authorization issued or approved based on false, misleading, or erroneous information provided by an Applicant/Developer is void without the necessity of any proceedings for revocation. Any work undertaken or use established pursuant to such permit or other authorization is unlawful. No action may be taken by a board, agency or employee of the Municipality purporting to validate such a violation.

SECTION 9. DEFINITIONS: Definitions of terms used in this Article may be found in Article V of this Ordinance.

SECTION 10. REFERENCES: Specific methods and publications indicated in this Ordinance shall, in all cases, refer to the latest available edition and include revisions or amendments thereto.

SECTION 11. MUNICIPAL LIABILITY: The degree of stormwater management sought by this Ordinance is considered reasonable for regulatory purposes. This Ordinance shall not create any liability on the part of the Municipality; any appointed or elected official of the Municipality; or any officer, engineer, or employee thereof for any damage(s) that may result from the application and/or enforcement of this Ordinance.

SECTION 12. FEES AND EXPENSES: Fees payable to the Municipality by an Applicant/Developer shall be established from time to time by Resolution of the Municipality for the following:

12.1 Administrative/clerical processing.

12.2 Escrow deposit(s) for the following:

12.2.1 Review and processing of Stormwater Management Plans (including any supplemental information), and any related documents.

12.2.2 Review by the Municipal Engineer of Stormwater Management Plans (including any supplemental information), and any related documents.

12.2.3 Review by the Municipal Engineer of any and all information concerning the construction of Stormwater Management Facilities.

12.2.4 Any and all consultation with the Municipal Engineer during construction of Stormwater Management Facilities.

12.2.5 Inspections by the Municipal Engineer.

Escrow accounts, when required, shall be fully replenished whenever the remaining escrow account balance falls below twenty-five percent (25%) of the beginning escrow account balance, unless otherwise directed by the Municipality. Only after the prerequisites for the release of financial security in Article II, Subsection 12.2 have been met will any remaining balance in an escrow account be fully refunded to the Applicant/Developer.

SECTION 13. INSPECTIONS: The party responsible (the Responsible Party) for the operation and maintenance of Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities shall perform the following:

13.1 Complete a visual inspection of all Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities at least once every three (3) months, and immediately after storm events. Such a visual inspection shall at least involve an examination of all Stormwater

Management Facilities, and permanent erosion and sediment pollution control facilities for debris deposition (such debris may include, but shall not be limited to aggregate material, leaves, grass clippings, and soil material), settlement, sinkholes, seeps, structural cracking, animal burrows, excessive vegetation, foundation movement, erosion, depressions, water retention times that exceed seventy-two (72) hour, and inadequate hydraulic capacity.

13.2 Remove any accumulation of debris from all Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities; maintain vegetation within any above-ground Stormwater Management Facilities to a height that does not exceed three (3) inches; humanely remove any burrowing animal(s), and backfill animal burrows with soil, and re-vegetate repaired areas in accordance with the specifications contained in the applicable erosion and sediment pollution control plan; and immediately repair any erosion damage by placing topsoil on all areas that experience minor erosion, and seeding and mulching such areas immediately in accordance with the specifications contained in the applicable erosion and sediment pollution control plan.

13.3 Remove plastic trash bags and other similar "litter" from the outlets of Stormwater Management Facilities during periods between storm events.

13.4 Engage a qualified Professional Engineer and/or a qualified Professional Geologist to prepare a corrective action plan for stormwater quality/infiltration facilities that do not drain within seventy-two (72) hours. Said corrective action plan shall be submitted to the Municipal Engineer for review and approval prior to initiating any corrective, repair, and/or reconstruction activities.

13.5 Engage a qualified Professional Engineer to prepare a corrective action plan for stormwater collection and/or conveyance facilities that are designed and/or required to collect and convey stormwater runoff from a 100-year design storm event and that fail in any way to do so. Said corrective action plan shall be submitted to the Municipal Engineer for review and approval prior to initiating any corrective, repair, and/or reconstruction activities.

13.6 At least once per year, engage a qualified Professional Engineer and/or a qualified Professional Geologist to thoroughly inspect and evaluate the operational conditions of all Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities; and provide

a written report regarding the operational conditions of same to the Municipality.

13.7 Maintain a written record of all inspections, repairs, and maintenance activities associated with all Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities.

13.8 Immediately notify the Municipality and the Columbia County Conservation District prior to initiating any "major" repair activities (such as repairs that may be required as a result of settlement, sinkholes, seeps, structural cracking, foundation movement, water retention times that exceed seventy-two hours, and/or inadequate hydraulic capacity within any stormwater management collection and/or conveyance facility). All "major" repairs shall be conducted under the direction and supervision of a qualified Professional Engineer and/or a qualified Professional Geologist.

ARTICLE II
STORMWATER MANAGEMENT PLAN REQUIREMENTS

SECTION 1. **GENERAL REQUIREMENTS:** From and after the date of enactment of this Ordinance, a Stormwater Management Plan, and other information specified herein, shall be submitted to the Municipality for all Regulated Activities (except exempt activities enumerated in Subsection 1.1 of this Article); and no Regulated Activities may commence until the Municipality issues written approval of a Stormwater Management Plan that is compliant with the requirements of this Ordinance.

For all Regulated Activities, Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities 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 and the Clean Streams Law. Various stormwater management BMPs and their design standards are listed in the Pennsylvania Stormwater Best Management Practices Manual (PA DEP). Various erosion and sediment pollution control BMPs and their design standards are listed in the Erosion and Sediment Pollution Control Program Manual (PA DEP).

A Stormwater Management Plan, and other information specified herein, shall be submitted at the same time, and together with the submission of any preliminary and/or final subdivision or land development plan(s), along with a completed checklist supplied by the Municipality indicating the items contained within the submission.

The Applicant/Developer and his/her Registered Professional shall schedule a pre-application meeting that should include representatives from the Municipality, the Municipal Planning Commission, the Municipal Engineer, the Municipal Zoning Officer, the Municipal Building Code Official, the Columbia County Conservation District, and when required, PA DEP and PennDOT. The Applicant/Developer and his/her Registered Professional are encouraged to schedule the pre-application meeting as early in the design phase as practical. Any Stormwater Management Plan(s) submitted to the Municipality prior to a pre-application meeting will be considered administratively incomplete, and will be returned to the Applicant/Developer; and any application fee(s) will be subject to forfeit.

CONCURRENT REVIEWS: Whenever any Regulated Activity is associated with a subdivision or land development, the review of the Stormwater Management Plan for the Regulated Activity shall run concurrently with the review of the subdivision plan/land development plan. Preliminary approval

and/or final approval of a subdivision or land development plan, and/or the issuance of a zoning permit shall be contingent upon the submission of a Stormwater Management Plan and other materials specified herein, and approval of the Stormwater Management Plan in accordance with provisions of this Ordinance.

REVIEW BY MUNICIPAL ENGINEER: All Stormwater Management Plans shall be submitted to the Municipal Engineer for review and comment. Such review shall include a statement by the Municipal Engineer specifying any provisions of this Ordinance that have not been met.

VALIDITY OF APPROVED PLAN: Once a Stormwater Management Plan has been approved, together with a subdivision or land development plan approval, or together with the issuance of a zoning permit, said Stormwater Management Plan shall be valid only for the subdivision or land development plan that was approved by the Municipality, or for the zoning permit that was issued to the Applicant/Developer. Any further development on the lot or lots requiring a revision of the approved Stormwater Management Plan, or other construction or activities, as defined by Municipal zoning regulations, shall require the submission of a new, amended, or revised Stormwater Management Plan, and other information specified herein.

1.1 Exemptions From Plan Preparation: The criteria for exemption applies to the total development proposed, including instances in which the development is proposed to take place in phases. The date of enactment of this Ordinance shall be the starting point from which future development and the respective exemption criteria shall be cumulatively considered and regulated.

Impervious area, as it relates to exemption criteria, shall include, but not be limited to, any roof, parking, or driveway areas; and any new streets and sidewalks. Any areas designed to initially be gravel or crushed stone shall be assumed to be impervious.

The following activities may be exempt from the plan preparation and submission provisions of this Ordinance, but shall remain subject to the minimum design standards and criteria specified in this Ordinance (and any erosion and sediment pollution control requirements):

1.1.1 Non-commercial home gardening.

1.1.2 Agricultural Activity, when operated in accordance with an approved conservation plan, or erosion and sediment pollution control plan.

1.1.3 Regulated Activity(ies) where the total impervious area associated with such activity(ies) will be less than 5,000 square feet.

1.1.4 Regulated Activity(ies) where the Applicant/Developer can satisfactorily demonstrate that downstream property(ies), groundwater, and waters of the Commonwealth will not be harmed if the total impervious area(s) associated with such activity(ies) would exceed 5,000 square feet.

1.1.5 Forest management/timber operations, when conducted in accordance with 25 PA Code, Chapter 102, may be exempt from the plan preparation and submission provisions of this Ordinance; however, a sketch plan showing the location, extent, and description of the proposed forest management/timber operations must be submitted to the Municipality for review, and for a determination regarding the requirement to prepare and submit a Stormwater Management Plan in accordance with this Ordinance. In making a determination regarding the requirement to prepare and submit a Stormwater Management Plan in accordance with this Ordinance, the Municipality will consider, at a minimum, the following factors: proximity of forest management/timber operations to adjacent developed properties and roadways, the type of operations (clear cut versus select cut), the aerial extent of the forest management/timber operations, construction of proposed haul/skid roads and landings, the type of terrain where the forest management/timber operations will occur, the potential for damage to downstream properties and/or structures, and any plans for proposed re-vegetation of cleared/disturbed areas.

Under certain circumstances, the Municipality may allow forest management/timber operations to commence prior to the review of the sketch plan by the Municipality; however, in the event that the Municipality determines that the forest management/timber operations are not exempt from the plan preparation and submission provisions of this Ordinance, then any required Stormwater Management Plan must be submitted to the Municipality for review within thirty (30) calendar days after the

determination date, and the approved Stormwater Management Plan must be fully implemented within thirty (30) calendar days after approval of same by the Municipality.

Forest management/timber operations involving timber harvesting in preparation for future land development are not exempt from the plan preparation and submission provisions of this Ordinance.

The Municipality shall review all Regulated Activities to determine if the activity or activities may be exempt from the plan preparation and submission provisions of this Ordinance.

As previously stated, activities that are deemed by the Municipality to be exempt from the plan preparation and submission provisions of this Ordinance remain subject to the minimum design standards and criteria specified in this Ordinance (and any erosion and sediment pollution control requirements). Therefore, any and all BMPs that may be required to meet the minimum design standards and criteria specified in this Ordinance (and any erosion and sediment pollution control requirements) must be designed by a Registered Professional. Also, a Registered Professional must provide a written certification to the Municipality that any and all required BMPs were installed in accordance with the design of these BMPs.

1.2 All Regulated Activities that do not fall under the exemption criteria referenced above shall submit a Stormwater Management Plan to the Municipality for review.

1.2.1 Stormwater Management Facilities shall be provided in order to permit unimpeded flow along natural watercourses, except as modified by Stormwater Management Facilities or open channels consistent with this Ordinance.

1.2.2 The existing points of concentrated drainage that discharge onto adjacent property shall not be altered without permission of the affected property owner(s), and shall be subject to any applicable discharge criteria specified in this Ordinance.

1.2.3 Areas of existing diffused drainage discharge shall be subject to any applicable discharge criteria in the general direction of the existing discharge, whether proposed to be concentrated or maintained as diffused drainage areas, except as otherwise

provided by this Ordinance. If diffused flow is proposed to be concentrated and discharged onto adjacent property, the Applicant/Developer must document that adequate downstream conveyance facilities exist to safely convey the concentrated discharge, or otherwise prove that no erosion, sedimentation, flooding, or other harm will result from the concentrated discharge.

1.2.4 Where a site is traversed by watercourses, drainage easements shall be provided conforming to the line of such watercourses. The terms of the easement shall prohibit excavation, the placing of fill or structures, and any alterations that may adversely affect the flow of stormwater within any portion of the easement. Maintenance, including mowing of vegetation within the easement, shall be required, unless exempted by the Municipality.

1.2.5 When it can be shown that, due to topographic conditions, natural drainageways on the site cannot adequately provide for drainage, open channels may be constructed conforming substantially to the line and grade of such natural drainageways. Work within natural drainageways shall be subject to approval by PA DEP through the Joint Permit Application process, or, where deemed appropriate by PA DEP, through a General Permit or Small Projects Permit.

1.2.6 Any Stormwater Management Facilities regulated by this Ordinance that would be located within or adjacent to wetlands or other waters of the Commonwealth shall be subject to approval by PA DEP through the Joint Permit Application process, or, where deemed appropriate by PA DEP, the General Permit process. When there is a question whether wetlands may be involved, it is the responsibility of the Applicant/Developer, or his agent, to show that the land in question cannot be classified as wetlands, otherwise approval to work in the area must be obtained from PA DEP.

1.2.7 Any Stormwater Management Facilities regulated by this Ordinance that would be located within State highway rights-of-way shall be subject to approval by the PennDOT.

1.2.8 Minimization of impervious surfaces, and infiltration of stormwater runoff through stormwater infiltration facilities are

encouraged where soil conditions permit in order to reduce the size, or eliminate the need for stormwater detention facilities.

1.2.9 In order to promote overland flow and infiltration, roof drains should not discharge directly to streets or storm sewers. Roof drains may discharge directly to streets or storm sewers when deemed necessary by the Municipality and its Engineer. Under no circumstances shall roof drains discharge directly to sanitary sewer systems.

1.3 Waivers

1.3.1 A. If the Municipality determines that any requirement under this Ordinance cannot be achieved for a particular Regulated Activity, the Municipality may, after an evaluation of alternatives, approve measures other than those in this Ordinance, subject to Subsections 1.3.2 and 1.3.3 of this Article.

1.3.2 Waivers or modifications of the requirements of this Ordinance may be approved by the Municipality if enforcement will exact undue hardship because of peculiar conditions pertaining to the land in question, provided that the modifications will not be contrary to the public interest and that the purpose of the Ordinance is preserved. Cost or financial burden shall not be considered a hardship. Modification may be considered if an alternative standard or approach will provide equal or better achievement of the purpose of the Ordinance. A request for modifications shall be in writing and accompany the Stormwater Management Plan submission. The request shall provide the facts on which the request is based, the provision(s) of the Ordinance involved, and the proposed modification.

1.3.3 No waiver or modification of any Regulated Activity involving any Earth Disturbance Activity greater than or equal to one acre may be granted by the Municipality, unless that action is approved in advance by PA DEP or the Columbia County Conservation District.

SECTION 2. **PLAN CONTENT:** The content of the Stormwater Management Plan shall, at a minimum, consist of annotated maps, drawings, engineering plans, and construction details. The Stormwater Management Plan shall be prepared by a Professional Engineer, Professional Land Surveyor, or a Registered Landscape Architect with said preparer's seal and registration number affixed to the

Stormwater Management Plan. For tracts of less than twenty (20) acres, Stormwater Management Plan drawings shall be drawn at a scale of one inch equals no more than fifty (50) feet; for tracts of twenty (20) acres or more, Stormwater Management Plan drawings shall be drawn at a scale of one inch equals no more than one hundred (100) feet. Stormwater Management Plan drawings shall be submitted on 24-inch by 36-inch sheets. All lettering shall be legible if the sheets are reduced to half size. All sheets comprising a submission shall be on one size.

The following minimum information, unless specifically exempted in writing by the Municipality, must be shown on the Stormwater Management Plan drawings, and prepared in a form that meets the requirements for recording in the Office of the Register and Recorder of Columbia County, Pennsylvania:

2.1 The name of the proposed development, the name and address of the owner of the property and source of title, and the individual or firm preparing the Stormwater Management Plan.

2.2 Date(s) of submission and revision(s).

2.3 Graphic scale.

2.4 North point.

2.5 Total tract boundary with distances marked to the nearest foot, bearings to the nearest degree, and total acreage of the tract.

2.6 Key map showing all existing natural and man-made features beyond the property boundary affected by the project, and the extent of the watershed that drains through the project site.

2.7 Topographic contours at intervals not greater than five (5) feet for existing and proposed conditions. Topographic contours at intervals less than five (5) feet may be required for sites where the average natural ground slope is four (4) percent or less, to depict certain existing and future stormwater management features, and where required by the Municipal Engineer. The reference datum used to develop topographic contours shall be NAVD 1988.

2.8 Drainage areas and drainage subareas affecting the site, including areas necessary to determine downstream impacts analysis, where required, for proposed Stormwater Management Facilities. Hydrologic soil group

(HSG) boundaries with accompanying labels shall be depicted on drainage area and drainage subarea maps.

2.9 Existing and proposed use(s), including the total area of impervious surfaces after construction.

2.10 Existing soil types, hydrologic soil groups, karst formations, floodplain boundaries (as shown on the most current Flood Insurance Rate Map for the Municipality), sinkholes, undrained depressions, rock outcrops, streams, drainage courses, wetlands based on existing sources and references, and vegetation.

2.11 A complete and detailed design for all of the Stormwater Management Facilities for the site, including details for construction. All existing drainage features that are to be incorporated in the design shall be so identified. If the site is to be developed in stages, a general drainage plan for the entire site shall be presented with the first stage, and appropriate development stages for construction of the Stormwater Management Facilities for the site shall be indicated.

2.12 Location(s) of, and selected plant material(s) used for any vegetative filter paths to sinkholes that may be required pursuant to Subsection 5.2 of this Article; and the location of all notices that may be required to be posted at sinkholes pursuant to Subsection 5.4 of this Article.

2.13 If Stormwater Management Facilities are off-site, a note must be placed on the Stormwater Management Plan referring to the location of the off-site facility or facilities. Said note must identify the entity or entities that will be responsible for the conveyance to, and the operation and maintenance of the off-site facility or facilities. All such off-site facilities shall meet the minimum design standards and criteria specified in Article III of this Ordinance, and details of the facilities shall be included with the Stormwater Management Plan.

2.14 Proposed easement locations, including drainage, maintenance, and access easements in conformance with Section 4 of this Article.

2.15 The following statement by the Applicant/Developer: "I/we hereby acknowledge that I/we and/or my/our assignees/grantees shall be responsible for the operation and maintenance of the stormwater management system shown hereon, in accordance with the approved stormwater management facility operation and maintenance plan for this project, and that such stormwater system shall remain as a permanent

fixture that cannot be altered, replaced, or removed without prior written approval from Scott Township."

2.16 The location of the permanent watercourse that will receive stormwater runoff from the project site.

2.17 Complete erosion and sediment pollution control facilities, including details for construction, in accordance with Section 6 of this Article.

2.18 Horizontal and vertical profiles of any existing and proposed channels, culverts, drainageways, storm sewers, streams, or watercourses.

2.19 A note indicating that Record (As-Built) drawings will be submitted by the Applicant's/Developer's professional engineer or professional land surveyor for all stormwater facilities prior to occupancy, or the release of financial security. The Municipality reserves the right to authorize the Municipal Engineer to review said Record Drawing.

2.20 A sequence of construction for all proposed Stormwater Management Facilities and site improvements. The Municipality reserves the right to authorize the Municipal Engineer to review the sequence of construction.

2.21 The following Stormwater Management Design Certification signature block for the Registered Professional preparing the Stormwater Management Plan:

"I,_____, hereby certify that the Stormwater Management Plan meets all design standards and criteria of the Scott Township Stormwater Management Ordinance."

SECTION 3. SUPPLEMENTAL INFORMATION: In addition to the plan information enumerated in Section 2 of this Article, the following minimum information shall be submitted:

3.1 A written description of:

3.1.1 The overall project concept.

3.1.2 Stormwater runoff computations as specified in Article III of this Ordinance, and in accordance with criteria contained in Appendix A of this Ordinance.

3.1.3 Hydrologic and hydraulic computations for all existing and proposed Stormwater Management Facilities.

3.1.4 Stormwater management both during and after development.

3.1.5 Expected project time schedule.

3.2 The effect of the project on stormwater runoff volume, time to peak flow, and rate of flow on adjacent property, and upon an existing Municipal stormwater drainage system when such will be utilized.

3.3 Description of all watercourses, impoundments, and wetlands on or adjacent to the site, or into which stormwater flows.

3.4 Soils investigation report, including boring logs, compaction requirements, and recommendations for construction of Stormwater Management Facilities, when requested by the Municipality or its Engineer.

3.5 Karst features identification and analysis reports, and a hydrogeologic assessment of the effects of any Regulated Activity on sinkholes, as specified in Section 5 of this Article.

3.6 A soil erosion and sediment pollution control plan, including all reviews and approvals, as required, by PA DEP and/or the Columbia County Conservation District.

3.7 All easements, deed restrictions, covenants, and operation and maintenance measures of the Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities shall be described in an Ownership, Operation, and Maintenance Program in accordance with Sections 4 and 7 of this Article.

In situations where the Applicant/Developer offers to dedicate Stormwater Management Facilities to the Municipality, as a condition of Municipal acceptance of Stormwater Management Facilities, and in accordance with Section 509 of the Pennsylvania Municipalities Planning Code (current edition), the Applicant/Developer shall provide financial security to secure structural integrity of said dedicated Stormwater Management Facilities as well as the functioning of said Stormwater Management Facilities in accordance with the design and specifications as depicted on the approved Stormwater Management Plan for a term not to exceed eighteen (18)

months after the date of acceptance of said Stormwater Management Facilities.

3.8 Copies of all permits required by PA DEP (including, but not limited to General Permits, Small Projects Permits, Joint Permits, and NPDES permits), PennDOT (including, but not limited to Highway Occupancy Permits), USACE, FEMA (including, but not limited to Letters of Map Amendment [LOMA], Letters of Map Revision [LOMR], and Conditional Letters of Map Revision [CLOMR]), and other regulatory agencies.

3.9 Financial security for all proposed Stormwater Management Facilities shall be a prerequisite for the approval of any Stormwater Management Plan, in accordance with Sections 509 and 510 (as applicable) of the Pennsylvania Municipalities Planning Code (current edition).

SECTION 4. EASEMENTS

4.1 Stormwater Management Facilities located outside of an existing or proposed public right-of-way shall be located within and accessible by easements as follows:

4.1.1 Drainage Easements: Where a tract is traversed by a watercourse, drainageway, channel, or stream, a drainage easement shall be provided that parallels the line of such watercourse, drainageway, channel, or stream. The width of the drainage easement shall be adequate to preserve the unimpeded flow of natural drainage in the watercourse, drainageway, channel, or stream, in accordance with computed top widths for water surface elevations determined under Article III, Subsection 1.1 of this Ordinance.

Drainage easements shall provide for maintenance, and for the purpose of widening, deepening, improving, or protecting Stormwater Management Facilities.

Metes and bounds for any drainage easement(s) must appear on the Stormwater Management Plan drawings.

4.1.2 Access Easements: Where proposed Stormwater Management Facilities will not be adjacent to an existing or proposed public right-of-way, or where they will not be accessible due to physical constraints, a twenty (20) feet wide passable access easement specifying rights of entry shall be provided. Access easements

shall provide for vehicle ingress and egress on grades of less than ten (10) percent for carrying out inspection or maintenance activities.

Metes and bounds for any access easement(s) must appear on the Stormwater Management Plan drawings.

4.1.3 Maintenance Easements: A maintenance easement shall be provided that encompasses the Stormwater Management Facility and appurtenances, and provides for access for maintenance purposes. The maintenance easement must be located at least twenty (20) feet outside of the Stormwater Management Facility and its appurtenances.

Metes and bounds for any maintenance easement(s) must appear on the Stormwater Management Plan drawings.

4.1.4 Easements shall stipulate that no trees, shrubs, structures, excavation, or fill be placed, and no regrading be performed within the area of the easement without written approval from the Municipality upon review by the Municipal Engineer. Upon approval of the Municipalit, such landscaping may be placed in maintenance easements, provided it does not impede access.

4.1.5 Whenever practicable, easements shall be parallel with, and linked to property lines.

4.1.6 "Blanket easements" for access and maintenance may be provided to satisfy Subsections 4.1.2 and 4.1.3 of this Article. A note must be provided on the Stormwater Management Plan drawings stating that the property is subject to a blanket easement for ingress egress, and regress by Scott Township personnel for inspection of all permanent Stormwater Management Facilities, and maintenance of same in the event that the Owner/Developer fails to properly maintain any or all of the Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities.

4.1.7 Agreements for access easements and/or maintenance easements (except where "blanket easements" for access and maintenance are provided), and drainage easements shall be recorded with a reference to the recorded easement indicated on the Stormwater Management Plan drawings. The format and content of the

easement agreement shall be reviewed and recommended for approval by the Municipal Engineer and the Solicitor.

SECTION 5. SINKHOLE PROTECTION:

5.1 Stormwater from roadways, parking lots, storm sewers, roof drains, or other concentrated stormwater runoff paths shall not be discharged directly into sinkholes.

5.2 The Municipality and its Engineer may require the diversion of runoff away from a sinkhole; or the planting and perpetual maintenance of a dense filter path of suitable vegetative material in such manner and location to disperse and slow runoff to a sheet flow condition, and to promote, to the maximum extent practical, the filtration of impurities. The design of any required diversion and/or filter path shall be submitted to the Municipality and its Engineer for review and approval.

5.3 The Municipality and its Engineer may require a hydrogeologic assessment by a Professional Geologist of the risk of increased sinkhole activity due to any Regulated Activity(ies).

5.4 As required by the Municipality and its Engineer, sinkholes shall be posted by permanent notices that are clearly visible at the sinkhole prohibiting any disposal of refuse, rubbish, hazardous wastes, organic matter, and soil; and prohibiting stormwater discharges listed in Section 5.1 of this Article into the sinkhole. Upon the recommendation of a Professional Geologist, clean rock may be permitted in the sinkhole to prevent the disposal of refuse, rubbish, hazardous wastes, organic matter, and soil into the sinkhole.

5.5 To reduce the risk of increased sinkhole activity, the Municipality and its Engineer may require basins to contain an impervious liner. The design of any recommended/required impervious liner shall be prepared by a Professional Geologist.

SECTION 6. EROSION AND SEDIMENT CONTROL:

All plans for erosion and sediment pollution control (E&SPC) shall meet the requirements of The Clean Streams Law, Act of June 22, 1937, P.L. 1987 as amended, 35 P.S. §691.1, et.seq. & 25 PA Code 102.1 et.seq. Erosion Control.

The Columbia County Conservation District has been delegated the authority by PA DEP to administer the Erosion & Sediment Pollution Control Program in

Columbia County. It shall be the responsibility of the Applicant/Developer to submit the E&SPC Plan, Application, and other necessary material to the Conservation District. A copy of the transmittal letter shall be provided to the Municipality. Comments shall be received, and E&SPC Plan approval obtained from the Conservation District prior to Stormwater Management Plan approval.

SECTION 7. OPERATION AND MAINTENANCE:

7.1 Stormwater Management Plans shall contain provisions that clearly set forth the operation and maintenance responsibilities for all Stormwater Management Facilities, and all permanent erosion and sediment pollution control facilities, including the following items:

7.1.1 Description of operation and maintenance requirements.

7.1.2 An agreement by the Applicant/Developer that visual inspections of all Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities will be conducted at least once every three (3) months, and immediately after storm events. Such a visual inspection shall at least involve an examination of all Stormwater Management Facilities for debris deposition (such debris may include, but shall not be limited to aggregate material, leaves, grass clippings, and soil material), settlement, sinkholes, seeps, structural cracking, animal burrows, excessive vegetation, foundation movement, erosion, depressions, water retention times in detention facilities that exceed forty-eight (48) hours, and water retention times in infiltration facilities that exceed seventy-two (72) hours.

7.1.3 Identification of the Responsible Party for operation and maintenance of Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities.

Stormwater Management Facilities within subdivisions may be part of an individual lot (or lots) where the respective lot owner (or owners) will own the Stormwater Management Facility; however, operation and maintenance shall be the responsibility of a homeowner's association, or similar entity. A description of the Stormwater Management Facilities, and the terms of the required operation and maintenance of same shall appear on the Stormwater Management Plan, and shall be incorporated into the deed to the property. All Stormwater Management Plans shall be recorded with the approved subdivision plan in the Columbia

County Register and Recorders office. In addition, the approved subdivision plan, and any deed written from said plan for a lot or lots that will contain Stormwater Management Facilities shall contain a condition stating that it shall be mandatory for the owner (or owners) of said lot (or lots) to be members of said home owners association.

For Stormwater Management Facilities that are proposed as part of a subdivision or land development plan, the Applicant/Developer will be required to execute a developer agreement, and an operation and maintenance agreement with the Municipality for the construction, operation, and maintenance of the Stormwater Management Facilities prior to approval of the final subdivision or land development plan. Access for inspection by the Municipality of all Stormwater Management Facilities deemed critical to the public welfare at any reasonable time shall be provided.

In the event that the above priorities cannot be achieved, or where it is required, Stormwater Management Facilities may be dedicated to the Municipality in accordance with this Ordinance. As a condition of Municipal acceptance of Stormwater Management Facilities, and in accordance with Section 509 of the Pennsylvania Municipalities Planning Code (current edition), the Applicant/Developer shall provide financial security to secure structural integrity of said dedicated Stormwater Management Facilities as well as the functioning of said Stormwater Management Facilities in accordance with the design and specifications as depicted on the approved Stormwater Management Plan for a term not to exceed eighteen (18) months after the date of acceptance of said Stormwater Management Facilities.

7.1.4 Establishment of suitable easements for access to all Stormwater Management Facilities, and all permanent erosion and sediment pollution control facilities, in accordance with Subsection 4.1.2 of this Article.

SECTION 8. PLAN SUBMISSION

Copies of an administratively complete Stormwater Management Plan (including supplemental information) shall be submitted as follows:

Municipality:
One (1) copy

Municipal Engineer:
One (1) copy

Columbia County Conservation District:
For Regulated Activities that require an NPDES permit for discharges of stormwater associated with construction activities, three (3) copies are to be submitted to the Conservation District. For Regulated Activities that do not require an NPDES permit for discharges of stormwater associated with construction activities, no copies are to be submitted to the Conservation District.

In order to be considered administratively complete, a Stormwater Management Plan must include all of the items enumerated in Sections 2 and 3 of this Article.

Any Stormwater Management Plan that is considered to be administratively incomplete will automatically be deemed to be disapproved by the Municipality

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SECTION 9. PLAN REVIEW

Administratively complete Stormwater Management Plans (including supplemental information) shall be reviewed for consistency with the provisions of this Ordinance as follows:

9.1 Within ninety (90) calendar days after the date that the Municipal Engineer receives an administratively complete Stormwater Management Plan (including supplemental information) from the Applicant/Developer, the Municipal Engineer shall:

9.1.1 Complete a review of the Stormwater Management Plan (including supplemental information),

9.1.2 Submit written review comments to the Municipality and to the Applicant/Developer (at the Applicant's/Developer's last know address).

9.2 At their next regular meeting following the receipt of written review comments from the Municipal Engineer, the Municipality shall:

9.2.1 Act to either approve or disapprove the Stormwater Management Plan based on review comments received from the Municipal Engineer.

9.2.2 Notify the Applicant/Developer (at the Applicant's/Developer's last know address) in writing of the Municipality's action on the Stormwater Management Plan within fifteen (15) calendar days after said action by the Municipality.

9.2.3 Specify (in writing) the reason(s) for any disapproval action.

9.2.4 Reserve the right to approve the Stormwater Management Plan with conditions and, if so, specify (in writing) the condition(s) for approval.

SECTION 10. MODIFICATION OF PLANS

Any modification to a submitted Stormwater Management Plan that involves a change in any Stormwater Management Facility, or that involves the relocation or redesign of any Stormwater Management Facility, or that is necessary because soil or other site conditions are not as stated on the submitted Stormwater Management Plan shall require submission of a revised Stormwater Management Plan in accordance with this Article.

SECTION 11. RESUBMISSION OF DISAPPROVED STORMWATER MANAGEMENT PLAN

A disapproved Stormwater Management Plan may be resubmitted to the Municipality, with revisions addressing the reason(s) for disapproval, in accordance with this Article. Any applicable review fee must accompany the resubmission of a disapproved Stormwater Management Plan.

SECTION 12. AUTHORIZATION TO CONSTRUCT AND TIME FOR COMPLETION

12.1 The Municipality's approval of a Stormwater Management Plan authorizes the Applicant/Developer to construct the Stormwater Management Facilities that appear on the approved Stormwater Management Plan. All of the Stormwater Management Facilities that appear on the approved Stormwater Management Plan must be constructed, and must be fully operational within five (5) years after the date that the Stormwater Management Plan was approved by the Municipality.

In the event that the Municipality acted to conditionally approve a Stormwater Management Plan, all of the Stormwater Management Facilities that appear on the conditionally-approved Stormwater Management Plan must be constructed, and must be fully operational

within five (5) years after the date that all of the conditions for approval were met.

12.2 At the completion of the project, and as a prerequisite for the release of any financial security and/or issuance of an occupancy permit, the Applicant/Developer shall:

12.2.1 Provide a certification of completion from a Professional Engineer or Professional Land Surveyor verifying that all of the Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities were constructed according to the approved Stormwater Management Plan, and any approved revisions thereto.

12.2.2 Provide Record Drawings for review by the Municipal Engineer. Record Drawings must be sealed and signed by a Professional Engineer or Professional Land Surveyor.

12.3 After receipt of the certification of completion, a final inspection may be conducted by the Municipality, or its designee, to certify compliance with this Ordinance.

12.4 If the Applicant/Developer fails to construct all of the Stormwater Management Facilities that appear on the approved (or conditionally-approved) Stormwater Management Plan within the prescribed five-year term; and/or if all of the Stormwater Management Facilities that appear on the approved (or conditionally-approved) Stormwater Management Plan are not fully operational within the prescribed five-year term, then the Municipality reserves the right to act as follows:

12.4.1 To deem the Stormwater Management Plan to be disapproved. Any Stormwater Management Plan deemed to be disapproved by the Municipality shall be resubmitted in accordance with Section 11 of this Article.

12.4.2 To effect completion of the Stormwater Management Facilities that appear on the approved (or conditionally-approved) Stormwater Management Plan in accordance with Section 511 of the Pennsylvania Municipalities Planning Code (current edition).

ARTICLE III
DESIGN STANDARDS AND CRITERIA

SECTION 1. DESIGN STANDARDS: The design of all Regulated Activities shall conform to the following minimum standards:

1.1 Post-development peak discharge rates for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year recurrence interval design storms from project sites that are not within the Susquehanna River Tributaries Watershed (as delineated on Plates B-1 and B-2 in Appendix B of this Ordinance) shall not exceed the respective pre-development peak discharge rates.

Post-development peak discharge rates for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year recurrence interval design storms from project sites (or portion of project sites) that are within the Susquehanna River Tributaries Watershed (as delineated on Plates B-1 and B-2 in Appendix B of this Ordinance) shall be subject to the allowable release rates that are tabulated in Tables C-1 and C-2 in Appendix C of this Ordinance.

Stormwater runoff shall be managed so that no downstream increases in flood damages or impairment of streets and other public facilities occur. The Municipal Engineer may require that downstream impacts be evaluated at critical locations such as dams, tributaries, existing developments, undersized culverts, and floodprone areas. The Municipality and its Engineer shall make the final determination with respect to the degree of management required for any site. The Applicant/Developer shall evaluate the effects of the proposed Stormwater Management Plan on such critical locations by providing computed water surface elevations (WSEL) for the 10- and 100-year recurrence interval design storms. Methods of computation shall have prior approval of the Municipal Engineer. At such downstream critical locations, stormwater management may be exercised by:

1.1.1 Providing off-site improvements to downstream conveyances in order to contain flow increases.

1.1.2 Providing downstream drainage easements with sufficient widths to contain the flood limits.

1.2 Stormwater management plans for all Regulated Activities must include infiltration and stormwater quality BMPs. For Regulated Activities that do not require an NPDES construction permit, the design of infiltration and stormwater quality BMPs shall be in accordance with Appendix A,

Section IV of this Ordinance. Otherwise, the design of infiltration and stormwater quality BMPs shall be in accordance with the NPDES construction permit.

The Municipality and its Engineer may impose stormwater quality measures in accordance with the Pennsylvania Stormwater Best Management Practices Manual (PA DEP) to protect against ground or surface water pollution where the type of business or the nature of the stormwater runoff and soils underlying Stormwater Management Facilities would constitute a substantial risk of contamination.

1.3 In establishing the watershed conditions for calculating stormwater runoff prior to development, the following assumptions shall apply:

1.3.1 Woodland (in good condition) or meadow shall be used for all undeveloped areas.

1.3.2 Average antecedent moisture conditions as defined by the Natural Resource Conservation Service shall be used for all areas.

1.3.3 Drainage area reductions equal to the area of undrained depressions or pond factor adjustments in accordance with the Urban Hydrology for Small Watersheds, Technical Release No. 55 (TR-55, USDA, NRCS) procedure shall be applied in determining pre-development peak discharges from karst geologic areas.

1.4 **Hydrologic Methods:** All Stormwater Management Plans shall be reviewed by the Municipal Engineer. Stormwater peak discharges and stormwater runoff volumes for all Stormwater Management Facilities shall be computed using the Soil-Cover-Complex Method as set forth in Technical Release No. 55 (TR-55, USDA, NRCS) and Technical Release No. 20 (TR-20, USDA, NRCS), with specific attention given to antecedent moisture conditions, flood routing, and peak discharge specifications included therein, and in the National Engineering Handbook, Part 630 - Hydrology (USDA, NRCS, current edition).

1.4.1 Permissible runoff curve numbers for use in TR-55 and TR-20 and are identified in Table A-1 of Appendix A of this Ordinance. Composite runoff curve numbers shall be rounded to the nearest whole number.

1.4.2 The use of the Rational Method is strictly prohibited.

1.4.3 Any approved use of regression-based hydrologic methods shall be limited to computing design flows for bridges and other stream crossings.

1.4.4 Design rainfall amounts for the specified recurrence intervals shall be determined using the Precipitation-Frequency Atlas of the United States (NOAA Atlas 14, Volume 2). Rainfall duration for the design of all Stormwater Management Facilities shall not be less than twenty-four (24) hours, unless waived in writing by the Municipal Engineer. All hydrologic computations utilizing the Soil-Cover-Complex Method shall use a rainfall duration of not less than twenty-four (24) hours, unless waived in writing by the Municipal Engineer. Rainfall distribution shall be SCS Type II, unless waived in writing by the Municipal Engineer.

1.4.5 Time of concentration shall be determined in accordance with methods presented in Chapter 15 of the National Engineering Handbook, Part 630 - Hydrology (USDA, NRCS, current edition). When using the Velocity Method to compute time of concentration, the maximum length for the sheet flow segment shall not exceed one-hundred (100) feet.

1.4.6 Designs for Stormwater Management Facilities that will be used to reduce stormwater runoff volumes shall be submitted to the Municipal Engineer for review. Infiltration facilities shall only be used in areas where soils, geologic, and water table conditions permit. Performance criteria pertaining to the location, design, construction, operation, and maintenance of volume reduction facilities are contained in Article III, Section 3, and in Appendix A, Section IV of this Ordinance.

1.4.7 Infiltration/exfiltration shall not be included in any modified Puls routing computations.

1.5 Stormwater Management Facilities and related installations shall be provided:

1.5.1 To permit unimpeded flow of natural watercourses. Such flow may be redirected as required, subject to the approval of PA DEP and the Municipality.

1.5.2 To insure adequate drainage of all low points along the curb line of streets.

1.5.3 To intercept stormwater runoff along streets at intervals reasonably related to the extent and grade of the area drained, and to prevent substantial flow of water across intersections or flooded intersections during storms, in accordance with the procedures contained in the Design Manual Part 2 - Highway Design, Publication 13M (PennDOT), Chapter 10.

1.5.4 To insure adequate and unimpeded flow of stormwater under driveways in, near, or across natural watercourses or drainage swales. Suitable pipes or other waterways shall be provided as necessary.

1.5.5 To properly drain stormwater runoff from all project sites. All lot and open areas shall be designed to drain to the nearest practical street or drainage system, existing or proposed, as defined by the Municipal Engineer, with no impact on adjoining properties, unless an area specifically designed for stormwater detention is provided.

1.6 Storm sewers and related installations:

1.6.1 Storm sewers, where required by zoning and land use densities, shall be placed under or immediately adjacent to the edge of the roadway, or as directed by the Municipality and its Engineer, when parallel to the street within the right-of-way.

When located in undedicated land, they shall be placed within a drainage easement not less than twenty (20) feet wide, as approved by the Municipal Engineer.

The use of properly designed, graded, and turfed drainage swales is encouraged in lieu of storm sewers in commercial and industrial areas, and where approved by the Municipal Engineer, in residential areas. Such swales shall be designed not only to carry the required discharge without excessive erosion, but also to increase the time of concentration, reduce the peak discharge and velocity, and permit the water to percolate into the soil, where appropriate. Criteria related to the use and design of drainage swales are contained in Appendix A, Section II of this Ordinance.

1.6.2 The design capacity of storm sewers shall be determined in accordance with Urban Drainage Design Manual, Hydraulic Engineering Circular Number 22 (US DOT, FHA). Any computer software used to compute the hydraulic grade line (HGL) within storm sewers shall be approved in advance by the Municipal Engineer. Storm sewers shall be designed to convey stormwater runoff to a stormwater detention/retention/infiltration facility without surcharging inlets. To avoid surcharging inlets, and to ensure that inlets will receive stormwater runoff, the HGL at any inlet(s) shall be at least six (6) inches below the elevation of the top of the inlet grate. Where site grading will direct stormwater all runoff to a detention/retention/infiltration facility, then the stormwater conveyance system may be designed for the 10-year recurrence interval design storm. Where site grading will not direct stormwater runoff to a detention/retention/infiltration facility, then the stormwater conveyance system shall be designed for the 100-year recurrence interval design storm; and the hydrologic method used for the design of said detention/retention/infiltration facility shall also be used for the design of the stormwater conveyance system. Conveyance of storms to a detention/retention/infiltration facility, up to and including the 100-year recurrence interval design storm, shall be provided so as not to endanger life or damage property.

1.6.3 Storm inlet types and inlet assemblies shall conform to the Standards for Roadway Construction, Publication 72M (PennDOT) and the following criteria:

1.6.3.1 Inlets shall, at a minimum, be located at the lowest point of street intersections to intercept the stormwater before it reaches pedestrian crossings; or at sag points of vertical curves in the street alignment that provide a natural point of ponding of surface stormwater.

1.6.3.2. Where the Municipality and its Engineer deem it necessary because of special land requirements, special inlets may be required.

1.6.3.3 The interval between inlets collecting stormwater runoff shall be determined in accordance with the Design Manual Part 2 - Highway Design, Publication

13M (PennDOT), Chapter 10, Section 5, "Capacity of Waterway Areas," or Urban Drainage Design Manual (HEC-22, US DOT, FHA).

1.6.3.4 In curbed sections, the maximum encroachment of water on the roadway pavement shall not exceed half of a through traffic lane or one (1) inch less than the depth of curb during the 10-year recurrence interval design storm. Inlets shall be provided to limit the encroachment of water on the pavement. When inlets are used in a storm sewer system within the right-of-way limits of a roadway in lieu of manholes, the spacing of such inlets shall not exceed the maximum distance of four hundred fifty (450) feet.

1.6.3.5 The design of storm inlets shall be in accordance with Drainage of Highway Pavements, Hydraulic Engineering Circular Number 12, (US DOT, FHA).

1.6.3.6 The designer shall evaluate the potential for clogging of storm inlets, and where the potential for clogging exists, the designer shall design storm inlets using clogging factors that have been approved in advance by the Municipal Engineer.

1.6.4 Accessible drainage structures shall be located on a continuous storm sewer system at all vertical dislocations, at all locations where a transition in storm sewer pipe sizing is required, at all vertical and horizontal angle points exceeding five (5) degrees, and at all points of convergence of two or more influent storm sewers.

1.6.5 When evidence available to the Municipality and its Engineer indicates that existing storm sewers have sufficient capacity, as determined by hydrograph summation, and where such existing storm sewers are accessible, proposed Stormwater Management Facilities may connect to these existing storm sewers as long as the peak discharge does not exceed the amount permitted by Subsection 1.1 of this Article.

1.7 Bridges and culverts shall have ample waterway to carry expected flows, based on the following minimum design storms: 10-year recurrence interval for driveways; 25-year recurrence interval for local streets; 50-

year recurrence interval for collector streets; and 100-year recurrence interval for arterials; or as otherwise required by the Municipality and its Engineer.

Bridge and/or culvert construction shall be in accordance with PennDOT specifications.

1.7.1 The design criteria contained in this Article are intended for use in conjunction with the Chapter 105 Regulations of PA DEP entitled, "Water Obstructions and Encroachments." All information and regulations contained in Chapter 105 shall be considered to be incorporated into this Article as if reproduced in full.

A PA DEP permit in accordance with Chapter 105 shall be required for any obstruction or encroachment in regulated waters of the Commonwealth, prior to the approval of the Stormwater Management Plan. All areas of the Municipality shall be classified as rural, suburban, or urban, as determined by the Municipality and its Engineer (See PA DEP Section 105.161 for bridge and culvert designs). In the event any question or conflict arises between this Article and the PA DEP Chapter 105 Regulations, the design criteria contained in the PA DEP regulations shall govern.

1.7.2 Refer to Appendix A, Section II of this Ordinance for additional design criteria.

1.8 Detention, retention, or infiltration facilities for the management of stormwater peak discharges shall meet the following requirements:

1.8.1 Facilities shall be installed prior to, or concurrent with any Earth Disturbance Activity. The phasing of their construction shall be noted on the Stormwater Management Plan.

1.8.2 The design of all facilities over limestone formations shall include measures, designed by a Professional Geologist, to prevent groundwater contamination, and where required, sinkhole formation. Soils used for the construction of basins shall have moderate to low erodibility factors (i.e. "K" factors of 0.32 or less).

1.8.3 Energy dissipaters and/or level spreaders shall be installed at points where pipes or drainageways discharge to or from facilities.

1.8.4 Outlet structures within above-ground facilities shall incorporate childproof, non-clogging trash racks or grates over all horizontally oriented openings. All vertically oriented openings over twelve (12) inches or larger in any dimension where entry by a child could cause injury or death should be covered with childproof, non-clogging trash racks, except where such openings carry perennial stream flows. Design openings less than six (6) inches in any dimension should be covered with a pipe screen (e.g. Neenah R-7512 or equivalent). Measures to completely drain facilities in the event of clogging of the primary design opening(s) shall be incorporated into the design of outlet structures. Outlet pipes should have a minimum inside diameter of fifteen (15) inches (or a cross-sectional area of 176 square inches), except that pipes under twenty-five (25) feet or greater fill should not be less than twenty-four (24) inches (or a cross-sectional area of 453 square inches), and should be reinforced concrete pipe.

Outlet aprons shall be designed and shall extend, at a minimum, to the toe of slope within an above-ground facility. Where spillways will be used to manage peak discharges in excess of the 10-year recurrence interval design storm, such spillways shall be constructed to withstand the pressures of impounded waters, and convey flows at computed outlet velocities without erosion.

Stormwater Management Facilities shall be designed to release their total volume within the following maximum time periods:

Roofs and Parking Lots - 24 hours.
Detention Facility - 48 hours.
Infiltration Facilities - 72 hours.

1.8.5 When PA DEP requires facilities to be permitted, the designer shall submit all information to the PA DEP Regional Office, and obtain all necessary approvals and permits pursuant to Pennsylvania Code, Title 25, Chapter 105, Dam Safety and Encroachment Act.

1.8.6 Downstream Analysis:

1.8.6.1 Where deemed necessary by the Municipality and its Engineer, the Applicant/Developer shall submit an analysis of the impacts of detained stormwater flows on downstream areas within the watershed. The analysis shall include hydrologic and hydraulic calculations necessary to determine the impact of peak discharge modifications on critical locations such as dams, tributaries, existing developments, undersized culverts, and floodprone areas.

1.8.6.2 Review and comment of the analysis by the engineer of a downstream municipality shall be obtained as deemed necessary by The Municipality.

1.8.7 Stormwater detention/retention/infiltration facilities may be waived by the Municipality at sites in close proximity to large receiving streams, depending on the hydrology of the watershed. It shall be incumbent upon the Applicant/Developer to demonstrate that no downstream increase in stream flooding or channel erosion will result, in accordance with Subsection 1.8.6 of this Article, and that no increases in peak discharge within the receiving stream will occur, as outlined under Subsection 1.1 of this Article.

1.8.8 Multiple-Use Facilities: The design and construction of multiple-use above-ground Stormwater Management Facilities are strongly encouraged. In addition to stormwater management, multiple-use facilities, where appropriate, allow for recreational uses including: ballfields, play areas, picnic grounds, etc. Provisions for parking facilities within above-ground Stormwater Management Facilities basins may also be appropriate. The Applicant/Developer shall consult with the Municipality and its Engineer prior to designing multiple-use facilities. Multiple-use facilities should be constructed so that potentially dangerous conditions are not created.

1.8.9 Multiple Development Facilities: Stormwater detention/retention/infiltration facilities designed to serve more than one property or development in the same watershed are encouraged. The Applicant/Developer shall consult with the

Municipality and its Engineer prior to designing multiple-development facilities.

1.8.10 Alternative Facilities: Alternative stormwater detention/retention/infiltration facilities including roof top storage, subsurface basins or tanks and in-pipe detention storage, or other approved alternative designs that may be permitted by the Municipality and its Engineer are encouraged.

1.8.11 Specific criteria related to the design of stormwater detention/retention/infiltration facilities is contained in Appendix A, Section III of this Ordinance.

1.9 All calculations shall be submitted to the Municipal Engineer on computation sheets for approval. If the Municipal Engineer determines through review and independent computation that the size(s) of any Stormwater Management Facility/Facilities is/are insufficient, the Municipality and its Engineer may require the Applicant/Developer to increase the size(s) of said Stormwater Management Facility/Facilities.

If the design of the Stormwater Management Facilities is completed using computer software, sufficient supporting data shall be provided to allow comprehensive review by the Municipal Engineer.

1.10 When the elevation of any existing or proposed entrance to a structure, including windows, is lower than the elevation of the public cartway serving that site, a grading plan shall be submitted to the Municipality for review and approval as part of the zoning permit process for the proposed structure.

1.11 Natural drainageways shall be utilized to the maximum extent possible in carrying stormwater runoff, provided such use remains consistent with the purpose of this Ordinance specified in Article I, Section 4.

SECTION 2. ADDITIONAL GENERAL CRITERIA: Compliance with the provisions of this Ordinance shall be in accordance with the following additional general criteria:

2.1 All materials, workmanship, and methods of work shall comply with the current edition of PennDOT Publication 408 Specifications, as accepted and commonly used by the Municipality, and shall be considered to be incorporated into this Article as if copied in full. In the event a conflict arises between the requirements of this Article and the current edition of

the PennDOT Publication 408 Specifications, the Municipal Engineer shall resolve the difference, and his/her opinion shall be binding.

2.2 Supplemental minimum standards and criteria contained in the technical reference materials listed in Appendix D of this Ordinance are hereby incorporated into this Ordinance to govern the hydrologic and hydraulic design provisions contained herein.

SECTION 3. VOLUME CONTROLS

Green infrastructure and low impact development practices shall be utilized for all Regulated Activities wherever possible. Water volume controls shall be implemented using the Design Storm Method in Subsection 3.1 of this Article, or the Simplified Method in Subsection 3.2 of this Article. For any Regulated Activity that will involve an Earth Disturbance Activity of one acre or less that do not require hydrologic routing to design the Stormwater Management Facilities, this Ordinance establishes no preference for either methodology; therefore, the Applicant/Developer 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.

3.1 The Design Storm Method [CG-1 in the Erosion and Sediment Pollution Control Program Manual (PA DEP)] is applicable to any size of Regulated Activity. This method requires detailed modeling based on site conditions.

3.1.1 Do not increase the post-development total runoff volume for all Design Storms equal to or less than the 2-year, 24-hour duration Design Storm event.

3.1.2 For modeling purposes:

3.1.2.1 Existing (pre-development) non-forested pervious areas must be considered as meadow in good condition.

3.1.2.2 No less than twenty percent (20%), and up to one-hundred percent (100%) of existing impervious area, when present, shall be considered meadow in good condition in the model for existing conditions.

3.2 The Simplified Method [CG-2 in the Erosion and Sediment Pollution Control Program Manual (PA DEP)] 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 acre, or for Regulated Activities that require design of Stormwater Management Facilities. For new impervious surfaces:

3.2.1 Stormwater Management Facilities shall capture at least the first two (2) inches of runoff from all new impervious surfaces.

3.2.2 At least the first one (1) inch 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.

3.2.3 Wherever possible, infiltration facilities should be designed to accommodate infiltration of the entire permanently removed runoff; however, in all cases at least the first one-half (½) inch of the permanently removed runoff should be infiltrated.

SECTION 4. PROHIBITED AND AUTHORIZED DISCHARGES:

4.1 All Regulated Activities shall prohibit the discharges that appear in Section I of Appendix E of this Ordinance. The prohibited discharges that appear in Section I of Appendix E of this Ordinance shall be listed on the Stormwater Management Plan drawing(s).

4.2 Authorized discharges from Regulated Activities appear in Section II of Appendix E of this Ordinance. The authorized discharges that appear in Section II of Appendix E of this Ordinance shall be listed on the Stormwater Management Plan drawing(s).

ARTICLE IV
ENFORCEMENT AND PENALTIES

SECTION 1. **RIGHT-OF-ENTRY:** Upon presentation of proper credentials, duly authorized representatives of the Municipality may enter at reasonable times upon any property within the Municipality to inspect the condition of any Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities in regard to any aspect regulated by this Ordinance.

SECTION 2. **MUNICIPAL INSPECTIONS:** The Municipality may inspect Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities to ensure that such Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities are being operated and maintained as designed. These inspections should occur at least once annually for five (5) years after the installation of said Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities; and then at least once every three (3) years thereafter. The Municipality shall may also inspect Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities after any storm event.

If the Municipality determines at any time that any Stormwater Management Facility/Facilities, and/or any permanent erosion and sediment pollution control facilities has/have been eliminated, altered, or improperly operated or maintained, the Municipality will notify the party (or parties) responsible for the operation and maintenance of Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities that required corrective measures must be implemented, and will provide said party (or parties) with a specific time frame to implement the required corrective measures. If such action is not undertaken by the party (or parties) responsible for the operation and maintenance of Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities, the Municipality may take any action it deems necessary to effect completion of the requisite corrective measures, and backcharge all costs for same to the party (or parties) responsible for the operation and maintenance of Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities in accordance with this Article.

SECTION 3. **NOTIFICATION:** In the event that any person (as defined in the Storm Water Management Act, Act of October 4, 1978, P.L. 864 Number 167, 32 P.S. §680.1 et seq. [as amended]) fails to comply with the requirements of this Ordinance, or fails to conform to the requirements of any approval or authorization issued hereunder, the Municipality shall provide said person with written notification of the violation. Such notification shall set forth the nature of the violation(s), and establish a time limit for correction of these violations(s). Failure to comply

within the time specified shall subject such person to the penalty provision of this Ordinance. All such penalties shall be deemed cumulative. It shall be the responsibility of the owner of the real property on which any Regulated Activity is proposed to occur, is occurring, or has occurred, to comply with the terms and conditions of this Ordinance.

SECTION 4. ENFORCEMENT: The Municipality is hereby authorized and directed to enforce all of the provisions of this Ordinance. All inspections regarding compliance with the approved Stormwater Management Plan shall be the responsibility of the Municipal Engineer, or other qualified persons designated by the Municipality.

4.1 At least one (1) copy of the Stormwater Management Plan that was approved by the Municipality shall be on file at the construction site throughout the duration of the construction activity. Periodic inspections during construction may be made by the Municipal Engineer, or other qualified persons designated by the Municipality.

4.2 It shall be unlawful for any person (as defined in the Storm Water Management Act, Act of October 4, 1978, P.L. 864 Number 167, 32 P.S. §680.1 et seq. [as amended]) to undertake any activity regulated by this Ordinance on any property except as provided for in the approved Stormwater Management Plan, and pursuant to the requirements of this Ordinance. It shall be unlawful to (a) alter or remove any Stormwater Management Facility required by the approved Stormwater Management Plan pursuant to this Ordinance, (b) to allow the property to remain in a condition that does not conform to the approved Stormwater Management Plan, and/or (c) to fail to strictly implement the sequence of construction that was approved by The Municipality.

4.3 Suspension and Revocation of Approvals

Prior to the revocation or suspension of any approval issued under this Ordinance, the Municipality will schedule a hearing to discuss the non-compliance if there is no immediate danger to life, public health, or property.

4.3.1 Any approval issued under this Ordinance may be suspended or revoked by the Municipality for the following reasons:

4.3.1.1 Non-compliance with, or failure to implement any provision of the approval.

4.3.1.2 A violation of any provision of this Ordinance or any other applicable law, ordinance, rule or regulation relating to the project.

4.3.1.3 The creation of any condition, or the commission of any act during construction or development that constitutes or creates a hazard or nuisance, pollution, or that endangers the life or property of others.

4.3.1.4 Non-compliance with, or failure to strictly implement the sequence of construction that was approved by The Municipality.

4.3.2 A suspended approval shall be reinstated by the Municipality after the following occur:

4.3.2.1 The Municipal Engineer has inspected and approved the corrections to the Stormwater Management Facilities, and permanent erosion and sediment pollution control facilities, or the elimination of the hazard or nuisance.

4.3.2.2 The Municipality is satisfied that the violation of the ordinance, law, or rule and regulation has been corrected.

Any approval revoked by the Municipality cannot be reinstated; however, the Applicant/Developer may submit a new Stormwater Management Plan under the procedures outlined in this Ordinance.

4.4 Occupancy Permit: An Occupancy Permit shall not be issued unless the Applicant/Developer has complied with the provisions of this Ordinance.

SECTION 5. PENALTIES FOR FAILURE TO COMPLY: As this Ordinance involves public health, safety, and welfare, any person (as defined in the Storm Water Management Act, Act of October 4, 1978, P.L. 864 Number 167, 32 P.S. §680.1 et seq. [as amended]) who violates this Ordinance commits a summary offense under the Second Class Township Code and shall be issued a citation to appear before the District Justice. The Municipality hereby provides for the enforcement of this Ordinance by action brought before a district justice in the same manner provided for the enforcement of summary offenses under the Pennsylvania Rules of Criminal Procedure. The Solicitor may assume charge of the prosecution

without the consent of the District Attorney as required under Pa.R.Crim.P. No. 83(c) (relating to trial in summary cases). The criminal fines for violation of this Ordinance shall not exceed one thousand dollars ($1,000) per violation. Each and every day of continued violation, and of each specific violation shall constitute a separate violation.

5.1 In the event that the owner, developer, occupant, applicant, property manager, or other person responsible for the operation and maintenance of any Stormwater Management Facility/Facilities, and permanent erosion and sediment pollution control facilities fails to comply with the terms of this Ordinance within the time specified by the Municipality, the Municipality may take any actions necessary to remove the public nuisance. The costs associated with the removal of the violation shall be in addition to any penalties for failure to comply.

5.2 In addition, the Municipality, through its Solicitor, may institute injunctive, mandamus, or any other appropriate action or proceeding at law or in equity for the enforcement of this Ordinance. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus, or other appropriate forms of remedy or relief.

5.3 The cost of removal, fine, and penalties hereinabove mentioned may be entered by the Municipality as a lien against such property, or properties of individual members of a home owners association, in accordance with existing provisions of law.

SECTION 6. **APPEALS:** Appeals from a determination of the Municipal Engineer in the administration of this Ordinance relative to subdivision, land development, and planned residential development shall be brought before the Scott Township Board of Supervisors for a hearing and final adjudication. Appeals from a determination of the Municipal Engineer in the administration of this Ordinance not relative to subdivision, land development, or planned residential development shall be brought before the Scott Township Zoning Hearing Board for a hearing and final adjudication. Appeals shall be filed within thirty (30) days after a notice of determination by the Municipal Engineer is issued.

Appeals from a determination of the Scott Township Board of Supervisors or the Scott Township Zoning Hearing Board shall be brought before the Columbia County Court of Common Pleas for a hearing and final adjudication. Appeals shall be filed within thirty (30) days after a notice of determination by the Scott Township Board of Supervisors or the Scott Township Zoning Hearing Board is issued.

Nothing contained in this Section shall be construed to deny any appellant the right to proceed directly to court where appropriate, pursuant to the Pennsylvania Rules of Civil Procedure Number 1091.

ARTICLE V
DEFINITIONS

SECTION 1. LANGUAGE INTERPRETATIONS: For the purposes of this Ordinance, certain terms and words used herein shall be interpreted as follows:

1.1 Words used in the present tense include the future tense; the singular number includes the plural, and the plural number includes the singular; words of masculine gender include feminine gender, and words of feminine gender include masculine gender.

1.2 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.

1.3 The word "person" shall include an individual, partnership, public or private association or corporation, firm, trust, estate, municipality, governmental unit, public utility, or any other legal entity whatsoever which is recognized by law as the subject of rights and duties.

1.4 The words "shall" and "must" are mandatory. The words "may" and "should" are permissive.

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

SECTION 2. DEFINITIONS: The following words and phrases, when used in this Ordinance, shall have, unless the context clearly indicates otherwise, the meanings given to them in this section. All words and terms not defined herein shall be used with a meaning of standard usage.

AASHTO: American Association of State Highway and Transportation Officials.

AGRICULTURAL ACTIVITY (ACTIVITIES) - the work of producing crops including tillage, land clearing, plowing, disking, harrowing, planting, harvesting crops, or pasturing and raising of livestock; and installation of non-structural conservation measures. Construction of any new building(s) and/or the creation of any new impervious area(s) are Regulated Activities and are not Agricultural Activities.

ACCELERATED EROSION: The removal of the surface of the land through the combined action of man's activity and natural processes at a rate greater than would occur because of the natural process alone.

ALTERATION: As applied to land, a change in topography as a result of the moving of soil and rock from one location or position to another; also the changing of surface conditions by causing the surface to be more or less impervious; any Earth Disturbance Activity.

APPLICANT: A landowner or Developer who undertakes any Regulated Activity.

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 "nonstructural." In this Ordinance, nonstructural 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, stormwater detention facilities, and manufactured devices. Structural stormwater BMPs are permanent appurtenances to the project site.

CARBONATE: A sediment formed by the organic or inorganic precipitation of mineral compounds characterized by the fundamental chemical ion CO_3. The principle element in limestone and dolomite strata.

CHANNEL: A perceptible natural or artificial waterway that periodically or continuously contains moving water having a defined bed and banks that confine the water.

CHANNEL EROSION: The widening, deepening, and headward cutting of small channels and waterways.

CISTERN: An underground reservoir or tank for storing rainwater.

COMMONWEALTH: The Commonwealth of Pennsylvania.

CONSERVATION DISTRICT: The Columbia County Conservation District.

CULVERT: A structure with appurtenant works that carries a stream under or through an embankment or fill.

DAM: An artificial barrier, together with its appurtenant works, constructed for the purpose of impounding or storing water or another fluid or semifluid; or a refuse bank, fill or structure for highway, railroad, or other purposes that does or may impound water or another fluid or semifluid.

DESIGN STORM: The magnitude of precipitation from a storm event of a specified recurrence interval (e.g. 100-year recurrence interval) and duration (e.g. 24 hours), and used in designing Stormwater Management Facilities.

DETENTION FACILITY (FACILITIES): A Stormwater Management Facility designed to retard stormwater runoff by temporarily storing the stormwater runoff and releasing it at a predetermined rate. A detention facility may be designed to drain completely after a storm event (dry pond), or it may be designed to contain a permanent pool of water (wet pond).

DEVELOPER: An individual, public or private association or corporation, partnership, association, municipality or political subdivision of the Commonwealth of Pennsylvania, public utility, institution, authority, firm, trust, estate, receiver, guardian, personal representative, successor, joint venture, joint stock company, fiduciary; Department, agency or instrumentality of State, Federal or local government, or an agent or employee thereof; or any other legal entity who undertakes a Regulated Activity.

DEVELOPMENT: See Regulated Activity.

DEVELOPMENT SITE: The specific tract of land for which a Regulated Activity is proposed.

DRAINAGE EASEMENT: A right granted by a landowner to a grantee, allowing the use of private land for stormwater management purposes.

DRAINAGE PLAN: The documentation of the Stormwater Management Facilities, if any, to be used for a given development site, the contents of which are established in Article II of this Ordinance.

EARTH DISTURBANCE ACTIVITY: A construction or other human activity that disturbs the surface of the land, including, but not limited to: clearing and grubbing; grading; tilling; digging; filling; excavations; embankments; road maintenance; building construction; stripping of vegetation; the moving, depositing, stockpiling, or storing of soil, rock, or earth materials; or any activity

that causes land to be exposed to erosion and/or impacts stormwater runoff characteristics.

EASEMENT: A recorded agreement of right-of-way granted, but not dedicated, for limited use of private land for a public or quasi-public purpose, identified on plan drawings, and within which the owner of the property shall not erect any permanent structures, but shall have the right to any other use of the land that is not inconsistent with the rights of the grantee.

EROSION: The removal of soil, stone, and other surface materials by the action of natural elements.

EROSION AND SEDIMENT POLLUTION CONTROL PLAN: A plan designed to minimize accelerated erosion and sedimentation.

FEMA: Federal Emergency Management Agency.

FLOOD: A general but temporary condition of partial or complete inundation of normally dry land areas from the overflow of streams, rivers, and other waters of the Commonwealth.

FLOOD INSURANCE RATE MAP (FIRM): The official map on which FEMA has delineated both the Special Flood Hazard Areas (SFHAs) and the risk premium zones applicable to the Municipality.

FLOODPLAIN: Any land area susceptible to inundation by water from any natural source or delineated by applicable FEMA maps and studies as being a Special Flood Hazard Area (SFHA). Also includes areas that comprise Group 13 Soils, as listed in Appendix A of the Pennsylvania DEP Technical Manual for Sewage Enforcement Officers (as amended or replaced from time to time by DEP).

FOREST MANAGEMENT: Planning and activities necessary for the management of forest land. These include timber inventory and preparation of forest management plans, silvicultural treatment, cutting budgets, logging road design and construction, timber harvesting, site preparation, and reforestation. Timber harvesting that is in preparation for future land development is not considered forest management under this Ordinance.

GRADE: A slope, usually of a road, channel, or natural ground specified in percent, and shown on plans as specified herein. (To) Grade - to finish the surface of a roadbed, top of embankment, or bottom of excavation.

GRADING: The act the excavating and/or filling land for the purpose of changing natural slope.

GROUNDWATER RECHARGE: The replenishment of existing natural underground water supplies.

IMPERVIOUS AREA: Impermeable surfaces, such as pavement or rooftops, that limit the infiltration of water into the soil.

IMPERVIOUS SURFACE: A surface that limits the penetration of water into the ground.

IMPOUNDMENT: A stormwater retention or stormwater detention facility designed to retain stormwater runoff and release it at a specified rate.

INFILTRATION FACILITY (FACILITIES): A Stormwater Management Facility that temporarily stores, and then percolates stormwater runoff into the underlying soil.

INLET: A surface connection to a closed drain. A structure at the diversion end of a conduit. The upstream end of any structure through which water may flow.

KARST: A type of topography that is formed over limestone, dolomite, or gypsum by bedrock solution, and that is characterized by closed depressions or sinkholes, caves, and underground drainage (from AGI, Glossary of Geology, 1972).

LAND DEVELOPMENT: Any of the following activities:

1. 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 residential or nonresidential buildings, whether proposed initially or cumulatively, or a single nonresidential building on a lot or lots regardless of the number of occupants or tenure; or

    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;

2. A subdivision of land.

3. Development in accordance with section 503(1.1) of the Pennsylvania Municipalities Planning Code (current edition).

LEVEL SPREADER: A device used to spread out stormwater runoff uniformly over the ground surface as sheet flow (i.e., not through channels). The purpose of level spreaders is to prevent concentrated, erosive flows from occurring, and to enhance infiltration.

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

MS4 (MUNICIPAL SEPARATE STORM SEWER SYSTEM): A conveyance or system of conveyances that is:

- owned by a state, city, town, village, or other public entity that discharges to waters of the U.S.;
- designed or used to collect or convey stormwater (e.g., storm drains, pipes, ditches);
- not a combined sewer; and
- not part of a sewage treatment plant, or publicly owned treatment works.

MUNICIPAL ENGINEER: A registered Professional Engineer engaged by Scott Township to provide Municipal engineering services.

MUNICIPALITY: Scott Township, Columbia County, Pennsylvania.

NPDES: National Pollutant Discharge Elimination System.

NRCS: USDA, Natural Resources Conservation Service (previously SCS).

OPEN CHANNEL: A drainage element in which stormwater flows with an open surface. Open channels include, but shall not be limited to, natural and man-made drainageways, swales, streams, ditches, canals, and pipes flowing partly full.

OUTLET: Points of water disposal from a stream, river, lake, tidewater, or artificial drain.

PA DEP: The Pennsylvania Department of Environmental Protection.

PennDOT: The Pennsylvania Department of Transportation.

PEAK DISCHARGE: The maximum rate of flow of water at a given point and time resulting from a storm event.

PENNSYLVANIA MUNICIPALITIES PLANNING CODE: Act of 1968, July 31, P.L. 805, as amended (53 P.S. 10101 et seq.).

PIPE: A culvert, closed conduit, or similar structure (including appurtenances) that conveys stormwater.

PLANNED RESIDENTIAL DEVELOPMENT: An area of land, controlled by a landowner, to be developed as a single entity for a number of dwelling units, or combination of residential and nonresidential uses, the development plan for which does not correspond in lot size, bulk, type of dwelling, or use, density, or intensity, lot coverage and required open space to the regulations established in any one district created, from time to time, under the provisions of a municipal zoning ordinance.

PROFESSIONAL ENGINEER: An individual actively licensed and registered under the laws of Pennsylvania to engage in the "Practice of Engineering" (as defined by Commonwealth of Pennsylvania Act of May 23, 1945, P.L. 913, No. 367 CI. 63, and as amended). For the purposes of this Ordinance, said individual must be trained and experienced in the design of Stormwater Management Facilities.

PROFESSIONAL GEOLOGIST: An individual actively licensed and registered under the laws of Pennsylvania to engage in the "Practice of Geology" (as defined by Commonwealth of Pennsylvania Act of May 23, 1945, P.L. 913, No. 367 CI. 63, and as amended).

PROFESSIONAL LAND SURVEYOR: An individual actively licensed and registered under the laws of Pennsylvania to engage in the "Practice of Land Surveying" (as defined by Commonwealth of Pennsylvania Act of May 23, 1945,

P.L. 913, No. 367 CI. 63, and as amended). For the purposes of this Ordinance, said individual must be trained and experienced in the design of Stormwater Management Facilities.

RATIONAL METHOD: A rainfall-runoff relation used to estimate peak flow.

RECORD DRAWING: A drawing prepared by a Registered Professional that depicts the constructed (as-built) improvements associated with a Regulated Activity. Such improvements include (but are not limited to buildings, driveways, grading, parking areas, Stormwater Management Facilities, streets, etc.). The Record Drawing shall show both design and as-built data for improvements associated with a Regulated Activity.

REGISTERED LANDSCAPE ARCHITECT: A person actively licensed and registered under the laws of Pennsylvania who engages or offers to engage in the "Practice of Landscape Architecture" (as defined by Commonwealth of Pennsylvania Act of January 24, [1966] 1965, P.L. 1527, No. 535 CI 63, and as amended). For the purposes of this Ordinance, said person must be trained and experienced in the design of Stormwater Management Facilities.

REGISTERED PROFESSIONAL: See Professional Engineer, Professional Geologist, Professional Land Surveyor, and Registered Landscape Architect.

REGULATED ACTIVITY (ACTIVITIES): Action(s) or proposed action(s) that impact stormwater runoff in any manner, including, but not limited to, any Earth Disturbance Activity, forest management, land development, subdivision, and any activities that may contribute non-stormwater discharges to any receiving stream(s).

RESPONSIBLE PARTY: A "Person" as defined in the Storm Water Management Act, Act of October 4, 1978, P.L. 864 Number 167, 32 P.S. §680.1 et seq. (as amended).

RETENTION FACILITY (FACILITIES): A Stormwater Management Facility in which stormwater runoff from a given flood event is stored and is not discharged into the downstream drainage system during a storm event.

RECURRENCE INTERVAL: The average interval, in years, within which a rainfall event of a given magnitude and duration can be expected to recur. For example, a 25-year recurrence interval event would be expected to recur on the average once every twenty-five years.

RIPRAP: A combination of large stone, cobbles, and boulders used to line channels, stabilize banks, and reduce stormwater runoff velocities.

RISER: A vertical structure, extending from the bottom of a detention facility, that is used to limit the discharge rate from the detention facility for a specified design storm.

RUNOFF: Any part of precipitation that flows over the land surface.

SCS: USDA, Soil Conservation Service (now NRCS).

SEDIMENT POLLUTION: The placement, discharge, or any other introduction of sediment into the waters of the Commonwealth occurring from the failure to design, construct, implement, or maintain control measures and control facilities in accordance with the requirements of this Ordinance.

SEDIMENTATION: The process by which mineral or organic matter is accumulated or deposited by the movement of water.

SEEPAGE PIT/SEEPAGE TRENCH: An area of excavated earth filled with loose stone or similar coarse material, into which surface water is directed for infiltration into the ground.

SHEET FLOW: Stormwater runoff that flows over the ground surface as a thin, even layer, not concentrated in a channel. Flow depth is generally 0.1 ft. or less.

SINKHOLE: A localized, gradual or rapid sinking of the land surface to a variable depth, occurring in areas of carbonate bedrock; generally characterized by a roughly circular outline, a distant breaking of the ground surface and downward movement of soil into bedrock voids.

SOIL-COVER COMPLEX METHOD: A method of computing stormwater runoff developed by NRCS, and found in its publication National Engineering Handbook, Part 630 - Hydrology (USDA, NRCS).

SPILLWAY: A depression in the embankment of a detention facility that is used to pass peak discharge greater than the maximum design storm that said detention facility was designed for.

STATE WATER QUALITY REQUIREMENTS: The regulatory requirements to protect, maintain, reclaim, and restore water quality under Title 25 of the Pennsylvania Code and the Clean Stream Law.

STORM SEWER: A system of pipes or other conduits that carry intercepted surface stormwater runoff, street water, and other water or drainage, excluding domestic sewage and industrial wastes.

STORMWATER: Drainage runoff from the surface of the land resulting from precipitation, or snow or ice melt.

STORMWATER MANAGEMENT FACILITY (FACILITIES): 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 facilities, open channels, storm sewers, pipes, and infiltration structures.

STRATA: Tabular or sheet-like mass, distinct layers of homogenous or gradational sedimentary material (consolidated rock or unconsolidated earth) of any thickness, visually separable from other layers above and below by a discrete change in the character of the material deposited, or by a sharp physical break, deposition, or both.

SUBAREA: The smallest drainage unit of a watershed for which stormwater management criteria have been established in the Stormwater Management Plan.

SUBDIVISION: The division or redivision of a lot, tract or parcel of land by any means into two or more lots, tracts, parcels or other divisions of land including changes in existing lot lines for the purpose, whether immediate or future, of lease, partition by the court for distribution to heirs or devisees, transfer of ownership or building or lot development: Provided, however, That the subdivision by lease of land for agricultural purposes into parcels of more than ten acres, not involving any new street or easement of access or any residential dwelling, shall be exempted.

SWALE: A low-lying stretch of land or wide shallow ditch, usually grassed or paved, that gathers or carries stormwater runoff.

TIMBER OPERATIONS: See Forest Management.

TIME OF CONCENTRATION: The time for surface runoff to travel from the hydraulically most distant point of the watershed to a point of interest within the watershed. This time is the combined total of overland flow time and flow time in any pipes or channels.

TOPOGRAPHY: The general configuration of a land surface or any part of the earth's surface, including its relief and position of its natural and man-made

features. The natural or physical surface features of a region, considered collectively as to its form.

U.S.: United States

USACE: United States Army Corps of Engineers

USDA: United States Department of Agriculture

WATERCOURSE: A stream of water, river, brook, creek, or a channel or ditch for water, whether natural or manmade.

WATERSHED: The entire region or area drained by a river or other body of water, whether natural or artificial; a drainage basin or sub-basin.

WATERS OF THE COMMONWEALTH: Any and all rivers, streams, creeks, rivulets, impoundments, ditches, watercourses, storm sewers, lakes, dammed water, wetlands, ponds, springs, and all other bodies or channels of conveyance of surface and underground water, or parts thereof, whether natural or artificial, within or on the boundaries of the Commonwealth.

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, ferns, and similar areas.

ARTICLE VI
FEES AND EXPENSES

SECTION 1. **GENERAL:** The fee required by this Ordinance is a Review Fee. The Municipality may include all costs incurred in the Review Fee. The Applicant/Developer shall pay all Review Fees.

SECTION 2. **EXPENSES COVERED BY REVIEW FEE:** The Review Fee shall, at a minimum, cover the following:

2.1 Municipal and/or Municipal Engineer administrative/clerical work.

2.2 Review of the Stormwater Management Plan and supplemental information by the Municipality and/or the Municipal Engineer.

2.3 Meetings (including requisite pre-application meetings) attended by the Municipality and/or the Municipal Engineer.

2.4 Inspections conducted by the Municipality and/or the Municipal Engineer, including, but not limited to, pre-design and pre-construction inspections, inspections during construction, and post-construction inspections.

2.5 Any and all work by the Municipality and/or the Municipal Engineer to enforce any provision(s) of this Ordinance, correct violations, and assure proper completion of stipulated remedial action(s).

2.6 Any other reasonable and necessary charges that the Municipality may incur relative to the administration and enforcement of this Ordinance.

ARTICLE VII
ENACTMENT

SECTION 1. **REPEALER:** This Ordinance repeals and replaces Scott Township Ordinance Number 3-18-15A in its entirety. All other ordinances or parts of ordinances of Scott Township that are contrary to the provisions of this Ordinance are hereby repealed to the extent necessary to give this Ordinance full force and effect.

SECTION 2. **EFFECTIVE DATE:** This Ordinance, enacted on ??? ??, 2022, shall become effective on ??? ??, 2022.

SECTION 3. Appendix A, Appendix B, Appendix C, Appendix D, and Appendix E of this Ordinance may be amended, as necessary, by a resolution of Scott Township.

Scott Township Board of Supervisors

By: _____
Chairman

_____
Vice Chairman

_____
Supervisor

_____
Supervisor

_____
Supervisor

ATTESTATION:

I, Brittany Bacon, Secretary for the Township of Scott, do hereby attest and certify that the above ordinance was duly advertised according to law and was approved by a majority vote of the Scott Township Board of Supervisors at their regular meeting held on ??? ??, 2022.

_____

APPENDIX A

I. STORMWATER MANAGEMENT COMPUTATIONAL VALUES

A. TR 55 Runoff Curve Numbers: See Table A-1 (page A-2)

II. DESIGN CRITERIA FOR ROADSIDE SWALES, PERENNIAL STREAMS, CULVERTS, AND DRAINAGE CHANNELS

A. DRAINAGE SWALES:

1. Where vegetated roadside swales are used in lieu of, or in addition to storm sewers, they shall be designed to carry, at a minimum, the 10-year recurrence interval peak discharge without erosion, and also to increase the time of concentration, reduce the peak discharge and velocity, and permit water to percolate into the soil.

   Several acceptable sources outline design procedures for roadside swales with flexible linings, including the following:

   - Design of Roadside Channels with Flexible Linings
     Hydraulic Engineering Circular No. 15
     U.S. Department of Transportation
     Federal Highway Administration

   - Stability Design of Grass-Lined Open Channels
     Agriculture Handbook Number 667
     U.S. Department of Agriculture
     Agriculture Research Service

   The maximum velocities and/or shear stresses permitted for all roadside swales shall be in accordance with the methods presented in the Erosion and Sediment Pollution Control Program Manual (PA DEP).

2. The maximum encroachment of water on the roadway pavement along roadside swales in cut areas shall not exceed half of a through traffic lane during a 10-year recurrence interval design storm. Frequent and/or sustained flooding of the subbase shall be avoided. Inlets shall be provided to limit the shoulder encroachment and water velocity.

TABLE A-1

TR-55 RUNOFF CURVE NUMBERS AND AVERAGE IMPERVIOUSNESS FOR VARIOUS LAND USES BY HYDROLOGIC SOIL GROUP

COVER DESCRIPTION LAND USE/COVER TYPE	AVERAGE IMPERVIOUSNESS (PERCENT)	RUNOFF CURVE NUMBERS BY HYDROLOGIC SOIL GROUP			
		A	B	C	D
Open Space (e.g. lawns, parks, golf courses, cemeteries, etc.) in good condition (grass cover greater than seventy-five percent)	N/A	39	61	74	80
Impervious Areas	N/A	98	98	98	98
Gravel Areas	N/A	76	85	89	91
Commercial Land Uses	85	89	92	94	95
Industrial Land Uses	72	81	88	91	93
1/8 Acre Residential Lot(s)	65	77	85	90	92
1/4 Acre Residential Lot(s)	38	61	75	83	87
1/3 Acre Residential Lot(s)	30	57	72	81	86
1/2 Acre Residential Lot(s)	25	54	70	80	85
1 Acre Residential Lot(s)	20	51	68	79	84
2 Acres Residential Lot(s)	12	46	65	77	82
Woodland (in good condition)	N/A	30	55	70	77
Brush	N/A	35	56	70	77
Meadow	N/A	30	58	71	78

Source: U.S. Department of Agriculture, Soil Conservation Service, Engineering Division, 1986, "Urban Hydrology for Small Watersheds," Technical Release 55, Washington, D.C.

3. Roadside swales shall be designed in accordance with Design of Roadside Channels with Flexible Linings, Hydraulic Engineering Circular No. 15 (US DOT, FHA). Acceptable Manning's "n" values for various swales appear in Table 5-6 of "Open Channel Hydraulics" by Ven T. Chow (McGraw Hill, New York, 1959).

4. The side slope for any vegetated roadside swale requiring mowing of the vegetation shall have a maximum grade of three (3) horizontal to one (1) vertical on those areas to be mowed.

5. All roadside swales shall be designed to prevent the erosion of the bed and bank areas. Suitable temporary and/or permanent stabilization during vegetative cover establishment shall be provided to prevent erosion.

6. Roadside swales shall discharge to a detention/retention/infiltration facility to reduce the volume and peak discharge of stormwater runoff, except as otherwise provided in the Stormwater Management Plan.

7. Because of the critical nature of vegetated roadside swales, the design of all vegetated swales shall, at a minimum, conform to the design procedures outlined in the Erosion and Sediment Pollution Control Program Manual (PA DEP). Other sources of design information for vegetated swales are provided in Appendix A, Section II, Subsection B.2 of this Ordinance.

8. Deed restrictions may be required on property(ies) containing roadside swales. When required, these deed restrictions shall specify that no property owner obstruct or alter any roadside swale identified in the Stormwater Management Plan.

B. CULVERTS AND DRAINAGE CHANNELS:

1. Culverts and drainage channels shall be designed to carry flow rates specified in this Ordinance, and in accordance with Pennsylvania Code Title 25, Chapter 105 (as amended).

2. The capacity of all pipe culverts shall, at a minimum, provide the required carrying capacity as determined by the following sources:

   - Hydraulic Charts for the Selection of Highway Culverts
     Hydraulic Engineering Circular No. 5
     United States Department of Commerce
     Bureau of Public Roads

- Capacity Charts for the Hydraulic Design of Highway Culverts
  Hydraulic Engineering Circular No. 10
  United States Department of Commerce
  Bureau of Public Roads

- Hydraulic Design of Improved Inlets for Culverts
  Hydraulic Engineering Circular No. 13
  Federal Highway Administration

Acceptable Manning's "n" values for various culvert pipes appear in Design Manual Part 2 - Highway Design, Publication 13M (PennDOT), Chapter 10.

Reference to publications and source documents in this Section shall be deemed to include any amendments and/or revisions thereto.

3. All storm drain culvert pipes should be designed to maintain a minimum grade of one-half (½) percent. All storm pipes should have a minimum inside diameter of fifteen (15) inches, or a cross-sectional area of one hundred seventy-six (176) square inches, except that pipes under a twenty-five feet or greater fill should have a minimum diameter of twenty-four (24) inches, or a cross-sectional area of four hundred fifty-three (453) square inches, and should consist of reinforced concrete.

4. Where storm sewers discharge into existing drainage channels at an angle greater than thirty (30) degrees from parallel with the downstream channel flow, the far side bank shall be stabilized by the use of riprap or masonry, and/or concrete walls, and the stabilization shall be designed to prevent erosion and frost heave under and behind the stabilizing media.

5. Where headroom is restricted, equivalent pipe arches may be used in lieu of circular pipe.

6. Several acceptable sources outline design procedures for drainage channels with flexible linings, including the following:

   - Design of Roadside Channels with Flexible Linings
     Hydraulic Engineering Circular No. 15
     U.S. Department of Transportation
     Federal Highway Administration

- Stability Design of Grass-Lined Open Channels
  Agriculture Handbook Number 667
  U.S. Department of Agriculture
  Agriculture Research Service

Acceptable Manning's "n" values for various channels appear in Table 5-6 of "Open Channel Hydraulics" by Ven T. Chow (McGraw Hill, New York, 1959).

7. All drainage channels shall be designed to prevent the erosion of the bed and bank areas. Suitable bank stabilization shall be provided, where required, to prevent erosion of the drainage channels as follows:

   a. The maximum velocities and/or shear stresses permitted for all drainage channels shall be in accordance with the methods presented in the Erosion and Sediment Pollution Control Program Manual (PA DEP).

   b. A minimum grade of one (1) percent is desirable for all drainage channels.

8. Deed restrictions may be required on property(ies) containing culverts, drainage channels, and/or perennial streams. When required, these deed restrictions shall specify that no property owner obstruct or alter any drainage channel or perennial stream identified in the Stormwater Management Plan.

III. DESIGN CRITERIA FOR DETENTION/RETENTION/INFILTRATION FACILITIES

A. DESIGN OF DETENTION/RETENTION/INFILTRATION FACILITIES:

All detention/retention/infiltration facility storage shall be designed by hydrograph routings. Hydrographs shall be developed using methods outlined in Article III, Subsection 1.4. Hydrographs shall be routed through the detention/retention/infiltration facility using the modified Puls method, or other appropriate routing method approved by the Municipal Engineer.

In addition to the following criteria, the design criteria contained in Article III of this Ordinance shall be used in the design of all detention/retention/infiltration facilities in the Municipality:

1. Where a riser outlet structure is to be provided, the riser shall be constructed of metal or concrete as approved by the Municipality and its Engineer. All

metal risers, where approved for use, shall be suitably coated to prevent corrosion. A trash rack, or similar appurtenance, shall be provided to prevent debris from entering the riser; and shall be suitably coated to prevent corrosion, and shall be attached to the riser structure with hot-dipped galvanized or stainless steel fasteners. All metal risers shall have a concrete base attached with a watertight connection, and such base shall be of sufficient weight to prevent flotation of the riser, and to prevent movement due to frost. Concrete risers shall have a footer to prevent movement due to frost. An anti-vortex device, consisting of a thin vertical plate normal to the basin berm, may be required on the top of all metal risers. Suitable perforated metal riser designs are outlined in the Pennsylvania Erosion and Sediment Pollution Control Program Manual (PA DEP).

2. Overflow spillways shall be incorporated into the design of all above-ground detention/retention/infiltration facilities, and shall be constructed of reinforced concrete, vegetated earth, or riprap in accordance with generally accepted engineering practices. The minimum capacity of all overflow spillways shall be the peak rate of flow to the above-ground detention/retention/infiltration facility from the 100-year recurrence interval design storm. Overflow spillways shall not discharge over un-compacted earthen fill and/or easily erodible material. The Municipality and its Engineer may require the use of open concrete lattice blocks, riprap, or concrete spillways when spillway velocities might exceed Natural Resource Conservation Service standards for the particular soils involved.

   Where overflow spillways are not practical, then an overflow structure (e.g. riser structure with pipe outlet) shall be provided. All overflow structures shall be sized to convey the peak rate of flow to the detention/retention/infiltration facility from the 100-year recurrence interval design storm. The Municipality and its Engineer may approve the use of other sizing criteria for overflow spillways/structures that cannot practically be designed to convey the 100-year recurrence interval peak design flow.

3. Anti-seep collars shall be installed around the principal pipe barrel within the normal saturation zone of all detention/retention/infiltration facilities, and shall project a minimum of two (2) feet in all directions around the pipe barrel. The anti-seep collars and their connections to the principal pipe barrel shall be watertight. Anti-seep collars shall be designed in accordance with anti-seep collar design criteria in Erosion and Sediment Pollution Control Program Manual (PA DEP); and Appendix B.1 of NRCS-MD Code Number 378, Pond Standards/Specifications.

4. Freeboard is the difference between the design flow elevation in the overflow spillway/overflow structure and the top of the detention/retention/infiltration facility. The minimum freeboard shall be one (1) foot.

5. The toe of any fill slope, and the top of any cut slope shall be located a minimum of ten (10) feet from any property line. Whenever possible, the side slopes and shape of any above-ground detention/retention/infiltration facility/facilities shall be amenable to the natural topography. Above-ground detention/retention/infiltration facilities with vertical sides and rectangular shapes shall be avoided whenever possible. Exterior slopes of compacted soil shall not exceed three (3) feet horizontal to one (1) foot vertical, and may be further reduced if the soil has unstable characteristics. Interior slopes of any above-ground detention/retention/infiltration facility/facilities shall not exceed three (3) feet horizontal to one (1) foot vertical, except with approval of the Municipality and its Engineer. A permanent wire fence forty-two (42) inches in height; and a ramp, constructed of durable, non-slip material to a grade of less than ten (10) percent for maintenance vehicle access shall be provided for all above-ground detention/retention/infiltration facility/facilities with vertical sides.

6. The minimum top width of berms for all above-ground detention/retention/infiltration facility/facilities shall be ten (10) feet.

7. Energy dissipating devices (riprap, end sills, etc.) shall be placed at all stormwater discharge points.

8. The distance from the highest free water surface of any above-ground detention/retention/infiltration facility/facilities to a dwelling unit should be a minimum of fifty (50) feet.

9. All grading and landscaping standards particularly applicable to detention/retention/infiltration facilities are included in Appendix A, Section V of this Ordinance.

10. A quality control program is critical for embankment fills. Therefore, wherever embankment fill material in excess of three (3) feet is to be used, each layer of compacted fill should be tested to determine its density per ASTM D 1556, ASTM D 2922, or ASTM D 3017. The density of each layer shall be ninety-eight (98) percent of a standard Proctor analysis per ASTM D698. The depth of each fill layer (measured loose) should not exceed six inches. Fill material containing particles ranging from small gravel or coarse sand to fine sand and clay, in the desired proportion, is acceptable. Fill material should contain approximately twenty (20) percent clay particles by

weight. Using the unified soil classification system, SC (clayey sand), GC (clayey gravel), and CL ("low liquid limit" clay) are among the preferred types of embankment soils. The area on which the fill material will be placed shall be scarified prior to the placement of fill materials.

Compaction test reports shall be kept on file at the site, and be shall be subject to review at all times with copies being forwarded to the Municipality and its Engineer.

When rock is encountered during the excavation of an above-ground detention/retention/infiltration facility/facilities, it should be removed to an elevation of at least twelve (12) inches below the bottom of the above-ground detention/retention/infiltration facility/facilities if the detention/retention/infiltration facility will function to enhance stormwater quality.

Temporary and permanent grasses or stabilization measures shall be established on the sides and base of all above-ground earthen detention/retention/infiltration facilities immediately after final grading of same is complete.

11. Bedding and backfill aggregate for subsurface Stormwater Management Facilities shall be clean (i.e. no sand or soil particles, and nothing other than a fine coating of limestone dust) AASHTO Number 57 coarse limestone whenever the storage volume of the bedding and backfill aggregate will be included in the subsurface Stormwater Management Facility routing computations.

12. As part of the Stormwater Management Plan and Report, all design information shall be submitted including, but not limited to, the following:

    a. General description of proposed Stormwater Management Facilities and the operation and maintenance of the stormwater management measures.

    b. All stormwater runoff computations before and after construction, including all supporting material.

    c. The Stormwater Management Plan must include a discussion of how Stormwater Management Facilities will function during construction, and include supporting documentation.

d. Detailed design and construction drawings of all Stormwater Management Facilities, including, but not limited to, outlet structure details, facility top and bottom elevations, embankment side slopes, top width of embankments, overflow spillway details, riser details, orifice details, principal pipe barrel details, and antiseep collar details.

e. Design computations for any riser structure and principal pipe barrel.

f. A plot or table of the stage versus storage and all supporting computations.

g. Modified Puls routing computations.

h. Construction details for any trash rack(s) and anti-vortex device(s).

i. A plan, at a scale of one (1) inch equals fifty (50) feet (or larger), showing the grading, landscaping, and fencing around any above-ground detention/retention/infiltration facility/facilities.

j. Soils Investigation Report, as required and outlined in Article II, Section 3, Subsection 3.4 of this Ordinance.

13. The Engineering Field Manual for Conservation Practices - Part 1 of 2 (USDA, NRCS), and the Urban Drainage Design Manual (HEC-22, US DOT, FHA) contain design, construction, and maintenance guidelines that are applicable to detention facilities.

14. As a component of the Stormwater Management Plan, the design engineer should include a safety plan related to the depth of water in any above-ground detention/retention/infiltration facility/facilities.

15. Within sensitive karst areas, the Municipality and its Engineer may require an impervious liner. The liner may be of the impervious membrane type, placed in accordance with the manufacturer's recommendations, or an improved alternative, as approved by the Municipality and its Engineer. Alternatively, the Municipality and its Engineer may require details for repairing sinkholes in lieu of an impervious liner. Such sinkhole repair details shall be mentioned in a Stormwater Management Facility operation and maintenance plan.

16. Inspections may be conducted by the Municipality and its Engineer during construction of the Stormwater Management Facilities. Such inspections do not constitute approval of construction methods and materials.

IV. DESIGN CRITERIA FOR INFILTRATION AND STORMWATER QUALITY BMPs

A. INFILTRATION BMPS

1. The ability to retain and maximize the infiltration capacity of the area being developed is required. The design of stormwater management facilities shall incorporate infiltration BMPs to compensate for the reduction in the percolation that occurs when pervious areas are converted to impervious surfaces. A geologic evaluation of the project site shall be performed to determine the suitability of infiltration BMPs. The evaluation shall be performed by a qualified professional, and at a minimum, shall address soil permeability, depth to bedrock, susceptibility to sinkhole formation, and subgrade stability. Where pervious pavement is permitted for parking lots, recreational facilities, non-dedicated streets, or other areas, pavement construction specifications shall be noted on the plan drawings.

2. Infiltration BMPs shall meet the following minimum requirements:

    a. When possible, infiltration BMPs should be located on soils having the most permeable Hydrologic Soil Group designation.

    b. A minimum depth of forty-eight (48) inches between the bottom of the infiltration BMP and the seasonal high water table and/or bedrock (limiting zones).

    c. An infiltration and/or percolation rate sufficient to accept the additional stormwater load and drain completely, as determined by the Applicant's/Developer's Registered Professional.

    d. Infiltration BMPs receiving only roof runoff may be placed in soils having a minimum depth of twenty-four (24) inches between the bottom of the infiltration BMP and the limiting zone.

    e. Infiltration BMPs shall be located a minimum of ten (10) feet away from the foundation wall of any building.

    f. Infiltration BMPs shall be capable of completely infiltrating impounded water within forty-eight (48) hours.

g. At a minimum, shall be designed to temporarily store a volume of runoff from a 24-hour, 2-year recurrence interval design storm.

3. A detailed soils evaluation of the project site shall be performed to determine the suitability for installation of infiltration BMPs. The evaluation shall be performed by the Applicant's/Developer's Registered Professional, and at a minimum, shall address soil permeability, depth to bedrock, depth to seasonal high water table, susceptibility to sinkhole formation, and subgrade stability. The general process for designing the infiltration BMP shall be:

   a. Analyze hydrologic soil groups as well as natural and man-made features within the watershed and at the development site to identify areas that may be suitable for infiltration practices.

   b. Conduct field tests to determine appropriate percolation rate and/or soil hydraulic conductivity at the design invert elevation of the proposed infiltration BMP.

   c. Determine seasonal high water table at the location of the proposed infiltration BMP.

   d. Design infiltration BMP for the required storm volume based upon field conditions and field testing.

4. Whenever a basin will be located in an area underlain by limestone, a geological evaluation of the proposed location shall be conducted to determine susceptibility to sinkhole formations. The design of all facilities over limestone formations shall include measures to prevent ground water contamination and, where necessary, sinkhole formation.

5. Infiltration volume shall be computed using the following equation:

   Infiltration Volume (I_v) in cubic feet = $[(S + 0.05) \times PI \times A]/12$

   Where:

   S = pre-development infiltration value
   PI = post-development percent impervious cover as a decimal
   A = area of development site in square feet
   12 = conversion factor for inches to feet

Values for S based upon Hydrologic Soil Group

Hydrologic Soil Group	S (Inches)
A	0.32
B	0.22
C	0.11
D	0.05

6. Suggested guidelines and design criteria for infiltration BMPs are outlined in the following publications: Controlling Urban Runoff - A Practice Manual for Planning and Designing Urban BMPs (Metropolitan Washington Council of Governments), Standards and Specifications for Infiltration Practices (MD DNR), and the Pennsylvania Stormwater Best Management Practices Manual (PA DEP). All design methods and selected alternates shall have prior approval of the Municipality and its Engineer.

B. STORMWATER QUALITY REQUIREMENTS

1. Provisions shall be made so that the water quality volume storm takes a minimum of twenty-four (24) hours to drain from the facility from a point where the maximum volume of water from the design storm is captured. (i.e., the maximum water surface elevation is achieved in the facility). Release of water can begin at the start of the storm (i.e. the invert of the water quality orifice is at the invert of the facility). The design of the facility shall consider and minimize the chances of clogging and sedimentation potential.

   The water quality treatment volume shall be computed using the following equation:

   Water Quality Treatment Volume WQ_v in cubic feet = $(1.95 \times PI \times A)/12$

   Where:

   1.95 = depth (in inches) of runoff from an impervious area
   PI = post-development percent impervious cover as a decimal
   A = drainage area in square feet
   12 = conversion factor for inches to feet

2. The design of water quality BMPs shall be submitted to the Municipal Engineer for review and approval. Such designs may achieve the water quality objectives through a combination of BMPs.

3. In selecting the appropriate BMPs (or combinations thereof), the following shall be considered:

    a. Total contributing area

    b. Permeability and infiltration rate of the site soils

    c. Slope

    d. Depth to bedrock

    e. Seasonal high water table

    f. Proximity to building foundations and well heads

    g. Erodibility of soils

    h. Land availability and configuration of the topography

4. The following additional factors should be considered when evaluating the suitability of BMPs used to control water quality at a given development site:

    a. Peak discharge and required volume control

    b. Stream bank erosion

    c. Efficiency of the BMP's to mitigate potential water quality problems

    d. The volume of runoff that will be effectively treated

    e. The nature of the pollutant being removed

    f. Maintenance requirements

    g. Creation/protection of aquatic and wildlife habitat

    h. Recreational value

    i. Enhancement of aesthetic and property value

5. Suggested guidelines and design criteria for infiltration BMPs are outlined in the following publications: Controlling Urban Runoff - A Practice Manual for Planning and Designing Urban BMPs (Metropolitan Washington Council

of Governments) and the Pennsylvania Stormwater Best Management Practices Manual (PA DEP). All design methods and selected alternates shall have prior approval of the Municipality and its Engineer.

V. GRADING AND LANDSCAPING

A. CUTS:

No excavation should be made with a cut face steeper than three (3) feet horizontal to one (1) foot vertical, except under the conditions that the material in which the excavation is made is sufficiently stable to sustain a slope of steeper than three (3) feet horizontal to one (1) foot vertical; or as otherwise approved by the Municipality and its Engineer. Earth retaining structures will be required if a stable slope cannot be maintained. Any earth retaining structure design must be reviewed and approved by the Municipality and its Engineer. The top of the slope of any cut must be located a minimum of ten (10) feet from property lines.

B. FILLS:

No fill shall be made that creates any exposed surface steeper in slope than three (3) feet horizontal to one (1) foot vertical, except where the fill is located so that settlement, sliding, or erosion will not result in property damage; or be a hazard to adjoining property, streets, or buildings; or as otherwise approved by the Municipality and its Engineer. For an exposed surface steeper than 3:1 to be permitted, the Applicant/Developer must provide documentation that the 3:1 slope is not a safety concern.

C. RETAINING WALLS:

A concrete or stone masonry wall designed and constructed in accordance with these specifications and standards may be required to support the face of the cut or fill where the above-specified slopes are exceeded. All retaining walls shall be designed in accordance with all applicable Municipal building codes and zoning requirements.

D. PLANTING:

1. Grassed or Grass/Ground Cover Combinations:

   All such areas specified on any proposed or approved Stormwater Management Plan shall be prepared, installed, and maintained in accordance with the approved erosion and sediment pollution control plan for the project, the Erosion and Sediment Pollution Control Program Manual (PA DEP), or the current edition of PennDOT Publication 408 Specifications.

2. Open Space and Vegetated Stormwater Management Facilities:

a. All areas proposed for recreational use, whether active or passive, shall be planted to effectively naturalize the areas to become an integral and harmonious element in the natural landscape.

b. All vegetated Stormwater Management Facilities, whether existing or proposed, shall be graded and planted to effectively naturalize area(s) so as to become an integral and harmonious part of the landscape by contour and type of plant material employed.

c. To work properly, any filter strip(s) must be equipped with some sort of level spreading device; densely vegetated with a mix of erosion resistant plant species that effectively bind the soil; graded to a uniform, even, and relatively low slope; be at least as long as the contributing area; and topsoil within the vegetative filter path be 12 inches to 18 inches deep.

A dense cover of erosion resistant grass suitable to existing site conditions shall be established, including Kentucky 31 Tall Fescue where drought resistance is required, or Reed Canary grass where water tolerance is required.

d. A minimum of six (6) inches of topsoil material should be placed on all vegetated areas. The material must meet the requirements of the current edition of PennDOT Publication 408 Specifications.

e. Detention facilities may not be seeded with crown vetch if, in the opinion of the Municipality and its Engineer, a crown vetch covering would reduce the use of the detention facility for recreational purposes or would be unsightly.

f. A fence or suitable vegetative screening may be provided, as required by the Municipality and its Engineer, around all above-ground detention/retention/infiltration facilities. All fencing should be at least three and one-half (3½) feet in height as approved by the Municipality and its Engineer. A vegetative screening of suitable landscaping plant material in or around a detention/retention/infiltration facility may also be required. Vegetative screenings should generally provide a barrier to prevent entrance to, and effectively naturalize the appearance of, the detention/retention/infiltration facility.

g. Combinations of grassed areas and densely planted shrub areas consisting of species suited to use in the highway environment are encouraged.

E. BUILDING SITE EXCAVATION AND SURFACE STORMWATER RUNOFF:

1. If temporary or permanent diversion channels or berms have not been established during general site preparation, diversion channels or berms shall be installed whenever slopes exceed ten (10) percent above or below proposed excavation areas.

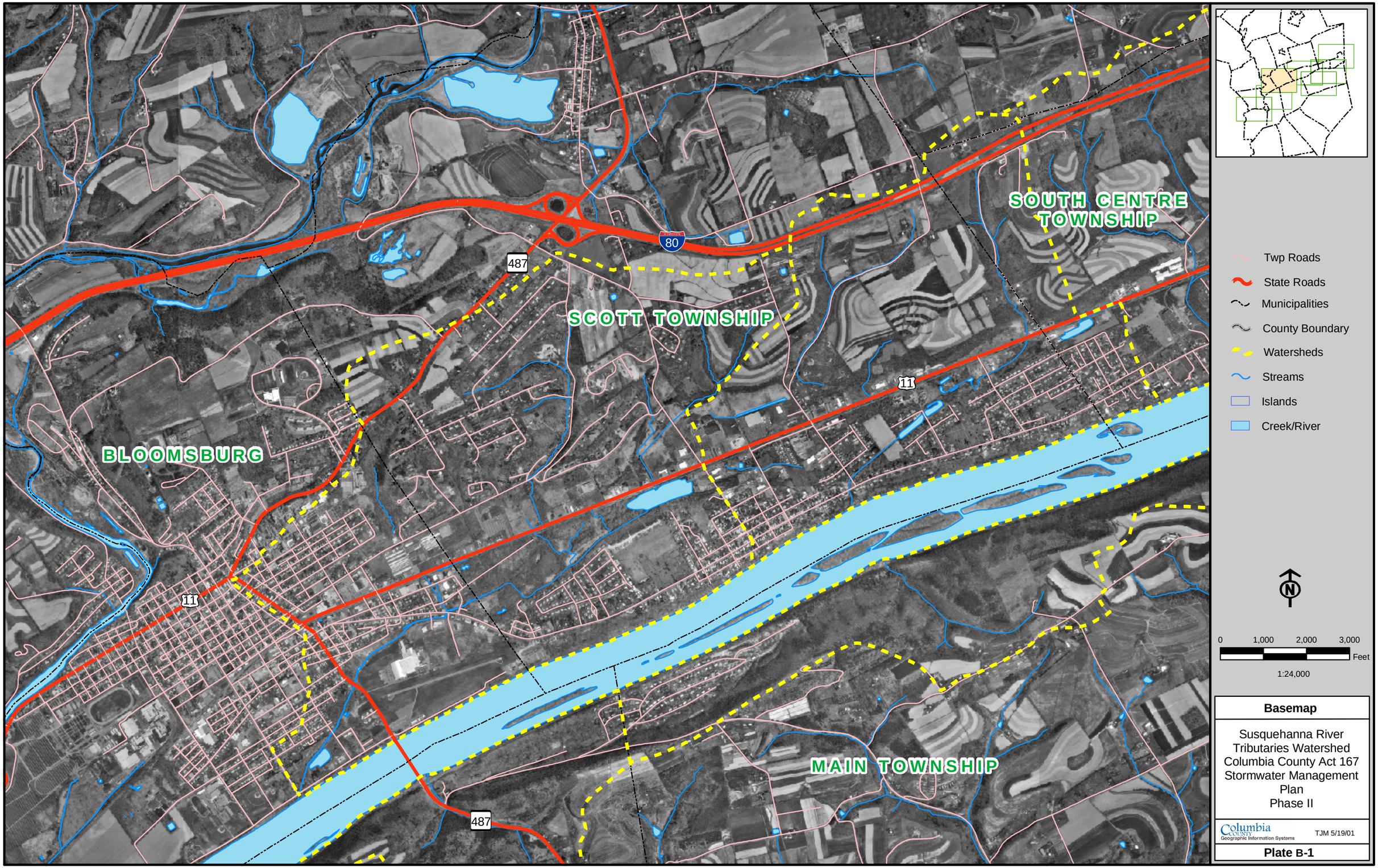
   Installation shall occur prior to, or concurrent with, excavations or any other Earth Disturbance Activity on the uphill or downhill sides of the building location, and any other areas to be disturbed. This requirement may be waived if it would result in the destruction of trees and shrubs. In all cases, hay bales, silt fence(s), or silt sock(s) shall be installed and maintained downhill of all excavations until the diversion channels or berms required by the Municipality and its Engineer have been stabilized.

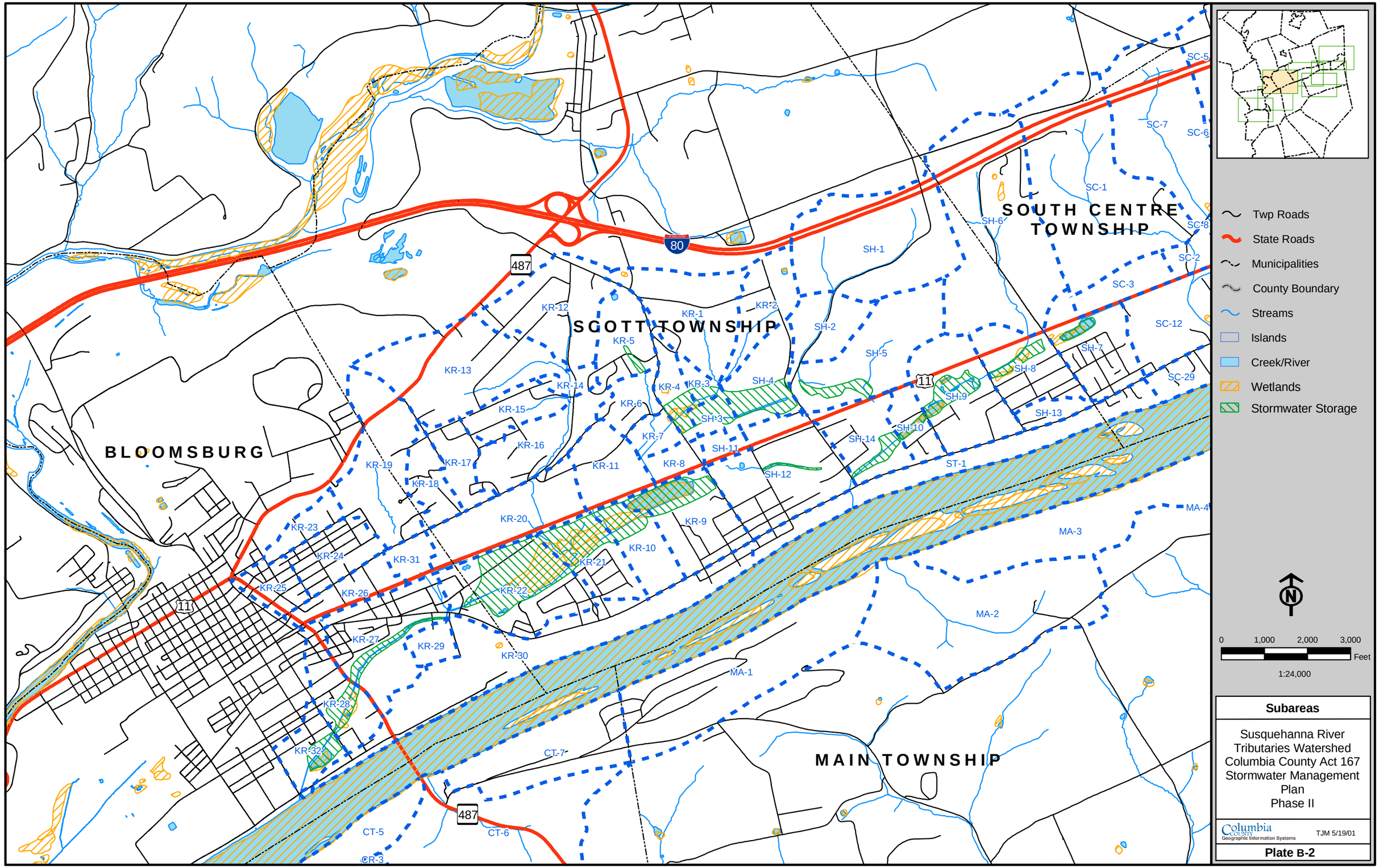
2. All exposed earth shall be stabilized with appropriate grasses or other materials immediately upon the completion of final grading.

3. Earth excavated for foundations or other reasons should be used, where possible, for the construction of Stormwater Management Facilities.

APPENDIX B
SUSQUEHANNA RIVER TRIBUTARIES WATERSHED
ACT 167 BASEMAP AND SUBAREAS

The source of the Plates that appear in this Appendix is Susquehanna River Tributaries Watershed Act 167 Stormwater Management Plan, Columbia County, Pennsylvania.


SOUTH CENTRE TOWNSHIP
SCOTT TOWNSHIP
BLOOMSBURG
MAIN TOWNSHIP
80
487
11
11
487
Twp Roads
State Roads
Municipalities
County Boundary
Watersheds
Streams
Islands
Creek/River
N
0
1,000
2,000
3,000
Feet
1:24,000
Basemap
Susquehanna River Tributaries Watershed Columbia County Act 167 Stormwater Management Plan Phase II
Columbia County Geographic Information Systems
TJM 5/19/01
Plate B-1


BLOOMSBURG
SCOTT TOWNSHIP
SOUTH CENTRE TOWNSHIP
MAIN TOWNSHIP
80
487
11
KR-1
KR-2
KR-3
KR-4
KR-5
KR-6
KR-7
KR-8
KR-9
KR-10
KR-11
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SH-5
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SH-7
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SH-10
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SH-12
SH-13
SH-14
SC-1
SC-2
SC-3
SC-5
SC-6
SC-7
SC-8
SC-12
SC-29
ST-1
MA-1
MA-2
MA-3
MA-4
CT-5
CT-6
CT-7
CR-3
Twp Roads
State Roads
Municipalities
County Boundary
Streams
Islands
Creek/River
Wetlands
Stormwater Storage
N
0
1,000
2,000
3,000
Feet
1:24,000
Subareas
Susquehanna River Tributaries Watershed Columbia County Act 167 Stormwater Management Plan Phase II
Columbia County Geographic Information Systems
TJM 5/19/01
Plate B-2

APPENDIX C
SUSQUEHANNA RIVER TRIBUTARIES WATERSHED
ACT 167 RELEASE RATES

The source of the Tables that appear in this Appendix is Susquehanna River Tributaries Watershed Act 167 Stormwater Management Plan, Columbia County, Pennsylvania.

TABLE C-1
RELEASE RATE DISTRICT CONTROL CRITERIA
FOR POST DEVELOPMENT DISCHARGE AS A PERCENTAGE
OF PRE-DEVELOPMENT DISCHARGE

District	Post Development	Reduced To Percentage of Pre-development Discharge (1)
A	2-year	75% of 2-year / 24-hour
	5-year	75% of 5-year/ 24-hour
	10-year	75% of 10-year/ 24-hour
	25-year	75% of 25-year/ 24-hour
	50-year	75% of 50-year/ 24-hour
	100-year	75% of 100-year/ 24-hour
B	2-year	90% of 2-year/ 24-hour
	5-year	90% of 5-year/ 24-hour
	10-year	90% of 10-year/ 24-hour
	25-year	90% of 25-year/ 24-hour
	50-year	90% of 50-year/ 24-hour
	100-year	90% of 100-year/ 24-hour
C	2-year	100% of 2-year/ 24-hour
	5-year	100% of 5-year/ 24-hour
	10-year	100% of 10-year/ 24-hour
	25-year	100% of 25-year/ 24-hour
	50-year	100% of 50-year/ 24-hour
	100-year	100% of 100-year/ 24-hour

(1) Infiltration and Water Quality volumes are included in determining after development discharges and the need for or size of detention structures.

TABLE C-2
Present Versus Future Peak Flows
Without Stormwater Management and Release Rate Requirements
100-Year 24-Hour Storm

Note: The computed flow values were derived for watershed planning purposes and should not be considered regulatory values for permitting purposes. While they may be used for comparison or checking purposes, additional hydrologic computations may be needed for the design of bridges, culverts and dams.

	100-Year Existing	100-Year Projected Future (1)	Storm Water Control Districts	Allowable Release Rate (2)
Sub area No.	Peak Q (cfs)	Peak Q (cfs)	Sub area	Percent %
C-1	714	828	B	90
C-2	466	508	C	100
MC-1	588	717	B	90
MC-2	569	679	C	100
M-1	433	502	C	100
M-2	531	504	C	100
M-3	515	566	C	100
M-4	790	885	B	90
M-5	372	402	C	100
M-6	181	185	C	100
M-7	231	267	C	100
M-8	104	99	C	100
M-9	304	326	C	100
M-10	(3)	(3)	C	100
F-1	258	277	C	100
F-2	199	169	C	100
F-3	146	133	C	100
F-4	373	366	C	100
F-5	162	161	C	100
F-6	77	122	C	100
F-7	417	368	C	100
F-8	295	270	C	100
F-9	310	317	C	100
F-10	151	160	C	100
F-11	247	276	A	75
F-12	190	188	B	90
F-13	120	149	A	75
F-14	358	448	A	75
F-15	73	79	B	90
F-16	504	613	A	75
F-17	211	229	B	90
F-18	305	286	B	90
F-19	701	784	B	90

Sub area No.	100-Year Existing Peak Q (cfs)	100-Year Projected Future (1) Peak Q (cfs)	Storm Water Control Districts Sub area	Allowable Release Rate (2) Percent %
F-20	422	492	B	90
F-21	741	838	C	100
CB-1	42	73	C	100
CT-1	176	308	C	100
CT-2	253	278	C	100
CT-3	112	126	C	100
CT-4	107	98	C	100
CT-5	403	491	C	100
CT-6	784	894	C	100
CT-7	277	317	C	100
CR-1	447	508	B	90
CR-2	123	134	B	90
CR-3	538	556	B	90
CR-4	317	367	B	90
CR-5	343	394	B	90
CR-6	223	248	B	90
CR-7	329	344	B	90
CR-8	407	456	B	90
CR-9	377	434	B	90
CR-10	215	234	B	90
CR-11	385	416	B	90
CR-12	611	631	B	90
CR-13	351	395	B	90
CR-14	37	65	C	100
MA-1	894	894	C	100
MA-2	588	660	C	100
MA-3	438	474	C	100
MA-4	377	352	C	100
MA-5	233	234	C	100
MA-6	371	357	C	100
KR-1	237	297	A	75
KR-2	141	156	A	75
KR-3	19	19	A	75
KR-4	55	55	C	75
KR-5	207	239	A	75
KR-6	119	119	C	100
KR-7	43	43	C	100
KR-8	80	90	C	100
KR-9	158	198	A	75
KR-10	40	40	C	100
KR-11	164	164	C	100
KR-12	349	437	A	75
KR-13	236	301	A	75
KR-14	55	55	C	100
KR-15	150	150	C	100
KR-16	296	296	C	100
KR-17	118	118	C	100

Sub area No.	100-Year Existing Peak Q (cfs)	100-Year Projected Future (1) Peak Q (cfs)	Storm Water Control Districts Sub area	Allowable Release Rate (2) Percent %
KR-18	111	111	C	100
KR-19	332	394	A	75
KR-20	367	446	A	75
KR-21	82	82	C	100
KR-22	119	119	C	100
KR-23	123	123	C	100
KR-24	238	238	C	100
KR-25	149	149	C	100
KR-26	238	266	C	100
KR-27	462	462	C	100
KR-28	101	101	C	100
KR-29	54	79	C	100
KR-30	(3)	(3)	C	100
KR-31	115	115	C	100
KR-32	85	85	C	100
SH-1	348	430	A	75
SH-2	163	163	C	100
SH-3	30	42	A	75
SH-4	130	149	A	75
SH-5	332	331	C	100
SH-6	552	567	B	90
SH-7	114	119	B	90
SH-8	117	126	C	100
SH-9	138	138	C	100
SH-10	93	93	C	100
SH-11	77	77	C	100
SH-12	276	276	C	100
SH-13	(3)	(3)	C	100
SH-14	115	120	C	100
ST-1	(3)	(3)	C	100
SC-1	505	590	B	90
SC-2	72	85	B	90
SC-3	111	134	B	90
SC-4	380	424	A	75
SC-5	170	200	A	75
SC-6	117	161	B	90
SC-7	334	359	B	90
SC-8	164	205	B	90
SC-9	344	374	A	75
SC-10	126	154	B	90
SC-11	131	154	B	90
SC-12	205	297	C	100
SC-13	307	358	B	90
SC-14	400	579	B	90
SC-15	272	272	C	100
SC-16	458	471	B	90
SC-17	290	338	B	90
SC-18	254	270	B	90

Sub area No.	100-Year Existing Peak Q (cfs)	100-Year Projected Future (1) Peak Q (cfs)	Storm Water Control Districts Sub area	Allowable Release Rate (2) Percent %
SC-19	13	19	B	90
SC-20	302	365	B	90
SC-21	304	370	C	100
SC-22	177	192	B	90
SC-23	188	218	A	75
SC-24	292	372	C	100
SC-25	47	53	B	90
SC-26	26	63	B	90
SC-27	153	179	C	100
SC-28	589	604	C	100
SC-29	(3)	(3)	C	100
NC-1	586	657	B	90
BCB-1	128	126	C	100
BCB-2	70	77	C	100
BCB-3	116	104	C	100
BCB-4	167	183	B	90
BCB-5	70	96	(4)	60 (4)
BCB-6	(3)	(3)	C	100
TM-1	621	645	B	90
TM-2	468	485	C	100
TM-3	386	357	B	90
TM-4	427	427	C	100
TM-5	101	101	C	100
TM-6	226	239	A	75
TM-7	322	322	B	90
TM-8	166	184	B	90
TM-9	354	412	C	100
TM-10	444	512	B	90
TM-11	434	480	B	90
TM-12	299	299	C	100
TM-13	273	329	B	90
TM-14	484	484	C	100
TM-15	517	596	A	75
TM-16	619	636	B	90
TM-17	295	304	B	90
TM-18	769	958	C	100
TM-19	395	454	C	100
TM-20	781	912	B	90
TM-21	685	725	A	75
TM-22	567	615	A	75
TM-23	586	827	A	75
TM-24	331	385	C	100
TM-25	244	288	C	100
TM-26	332	398	C	100
TM-27	338	426	A	75
MI-1	109	109	C	100
MI-2	234	289	C	100
MI-3	174	174	C	100

Sub area No.	100-Year Existing Peak Q (cfs)	100-Year Projected Future (1) Peak Q (cfs)	Storm Water Control Districts Sub area	Allowable Release Rate (2) Percent %
MI-4	489	587	B	90
MI-5	334	397	B	90
MI-6	311	358	B	90
MI-7	226	226	C	100
MI-8	199	199	C	100
MI-9	428	507	B	90
MI-10	453	562	A	75
MI-11	370	427	B	90
MI-12	144	151	B	90
MI-13	282	285	B	90
MI-14	364	433	C	100
MI-15	307	296	C	100
MI-16	513	513	C	100
MI-17	57	57	C	100
MI-18	530	548	C	100
MI-19	123	118	C	100
MI-20	320	475	A	75
MI-21	457	519	B	90
MI-22	443	472	B	90
MI-23	311	336	B	90
MI-24	248	282	B	90
MI-25	382	356	C	100
MI-26	181	189	C	100
MI-27	292	306	C	100
MI-28	254	237	C	100
MI-29	120	111	C	100
MI-30	415	404	C	100
MI-31	383	402	C	100
MI-32	531	645	C	100
MI-33	248	272	C	100
MI-34	264	261	B	90
MI-35	246	288	B	90
MI-36	173	220	B	90
MI-37	332	415	B	90
MI-38	281	363	B	90
MI-39	96	161	B	90
MI-40	186	219	B	90
MI-41	187	231	C	100
MI-42	58	77	C	100
MI-43	231	257	C	100
MI-44	509	528	C	100
MI-45	267	267	C	100
TR-1	478	561	A	75
TR-2	121	166	B	90
TR-3	409	462	A	75
TR-4	445	524	A	75
TR-5	357	421	A	75
TR-6	57	86	C	100

Sub area No.	100-Year Existing Peak Q (cfs)	100-Year Projected Future (1) Peak Q (cfs)	Storm Water Control Districts Sub area	Allowable Release Rate (2) Percent %
TR-7	61	92	C	100
TR-8	18	49	C	100
TR-9	115	115	C	100
TR-10	99	102	C	100
TR-11	42	42	C	100

(1) 100-Year projected future discharge value is with no stormwater detention.
(2) Allowable percentage of existing condition discharge
(3) Long area along river that drains to river through many small drainage ways. Discharge computation for this area is meaningless.
(4) Special Release Rate Subwatershed due to unusual watershed and obstruction conditions.

APPENDIX D

SUPPLEMENTAL STANDARDS AND CRITERIA

The following technical reference materials (including any amendments and/or revisions thereto) are hereby incorporated into this Ordinance for information purposes, and to govern the hydrologic and hydraulic design provisions contained herein:

Controlling Urban Runoff - A Practice for Planning and Designing Urban Best Management Practices, Metropolitan Washington, Council of Governments, July 1987.

Specifications, Publication 408, Commonwealth of Pennsylvania, Department of Transportation (current edition).

Design and Construction of Urban Stormwater Management Systems, American Society of Civil Engineers and The Water Environment Federation, 1992.

Design of Roadside Channels with Flexible Linings (Hydraulic Engineering Circular No. 15), United States Department of Transportation, Federal Highway Administration, April 1988.

Design Manual Part 2 - Highway Design, Publication 13M, Commonwealth of Pennsylvania, Pennsylvania Department of Transportation, Bureau of Design (current edition).

Drainage of Highway Pavements (Hydraulic Engineering Circular No. 12), United States Department of Transportation, Federal Highway Administration, March 1984.

Engineering Field Manual for Conservation Practices - Part 1 of 2, United States Department of Agriculture, Natural Resource Conservation Service, July 1984.

Engineering Standard and Specifications, United States Department of Agriculture, Natural Resource Conservation Service, May 1977.

Erosion and Sediment Pollution Control Program Manual, Pennsylvania Department of Environmental Protection (current edition).

Guidelines for Erosion and Sediment Control Planning and Implementation, United States Government Printing Office, Washington, DC, EPA-R2-72-015, August 1972.

Maryland Standards and Specifications for Soil Erosion and Sediment Control, Maryland Department of the Environment, Soil Conservation Service, State Soil Conservation Committee (current edition).

National Engineering Handbook, Part 630 - Hydrology, United States Department of Agriculture, Natural Resource Conservation Service (current edition).

NOAA Atlas 14, Precipitation-Frequency Atlas of the United States, Volume 2, Version 3, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, 2004, Revised 2006.

Open Channel Hydraulics, Ven T. Chow, McGraw-Hill, New York, 1959.

Pennsylvania Municipalities Planning Code, Act of 1968, P.L.805, No.247, as reenacted and amended, Commonwealth of Pennsylvania (current edition).

Pennsylvania Stormwater Best Management Practices Manual, Pennsylvania Department of Environmental Protection, December 2006.

Practices in Detention of Urban Stormwater Runoff, Special Report No. 43, American Public Works Association, June 1974.

Soil Survey of Columbia County, Pennsylvania, United States Department of Agriculture, Soil Conservation Service (current edition).

Stability Design of Grass-Lined Open Channels, Agriculture Handbook Number 667, United States Department of Agriculture, Agriculture Research Service, September 1987.

Standards for Roadway Construction, Series RC-0M to 100M, Publication 72M, Commonwealth of Pennsylvania, Department of Transportation (current edition).

Standards and Specifications for Infiltration Practices, Maryland Department of Natural Resources, Water Resources Administration, 1984.

Susquehanna River Tributaries Watershed Act 167 Stormwater Management Plan, Columbia County, Pennsylvania, October 2001.

Title 25 Rules and Regulations, Chapter 105, Dam Safety and Waterway Management; Commonwealth of Pennsylvania, Department of Environmental Protection (current edition).

Urban Drainage Design Manual, Hydraulic Engineering Circular Number 22, United States Department of Transportation, Federal Highway Administration, November 1996.

Urban Hydrology for Small Watersheds, Technical Release No. 55, United States Department of Agriculture, Natural Resource Conservation Service, June 1986.

Urban Stormwater Management, American Public Works Association, 1981.

APPENDIX E

PROHIBITED AND AUTHORIZED DISCHARGES AND CONNECTIONS

I. PROHIBITED DISCHARGES AND CONNECTIONS

No person (as defined in the Storm Water Management Act, Act of October 4, 1978, P.L. 864 Number 167, 32 P.S. §680.1 et seq. [as amended]) shall allow, or cause to allow:

- Any drain or conveyance, whether on the surface or subsurface, that allows any non-stormwater discharge including sewage, process wastewater, and wash water to enter a regulated small MS4, or to enter the surface waters of this Commonwealth.

- Discharges into a regulated small MS4, or discharges into waters of this Commonwealth, which are not composed entirely of stormwater, except discharges authorized under a State or Federal permit and the authorized discharges listed below.

II. AUTHORIZED DISCHARGE AND CONNECTIONS

The following discharges and connections are authorized unless they are determined to significantly contribute pollutants to a regulated small MS4 or to waters of this Commonwealth:

- Discharges or flows from firefighting activities.

- Discharges from potable water sources including water line flushing and fire hydrant flushing, if such discharges do not contain detectable concentrations of Total Residual Chlorine (TRC).

- Non-contaminated irrigation water, water from lawn maintenance, landscape drainage and flows from riparian habitats and wetlands.

- Diverted stream flows and springs.

- Non-contaminated pumped ground water and water from foundation and footing drains and crawl space pumps.

- Non-contaminated HVAC condensation and water from geothermal systems.

- Residential (i.e., not commercial) vehicle wash water where cleaning agents are not utilized.

- Non-contaminated hydrostatic test water discharges, if such discharges do not contain detectable concentrations of TRC.

In the event that the Municipality and/or PA DEP determine that any of the authorized discharges listed above significantly contribute pollutants to a regulated small MS4 or to waters of this Commonwealth, the Responsible Party will be notified by the Municipality and/or PA DEP to cease the discharge.

III. ROOF DRAINS AND SUMP PUMPS

Roof drains and sump pumps shall discharge to infiltration or vegetative BMPs wherever feasible.

IV. ALTERATION OF STORMWATER BMPs

No Person (as defined in the Storm Water Management Act, Act of October 4, 1978, P.L. 864 Number 167, 32 P.S. §680.1 et seq. [as amended]) shall modify, remove, fill, landscape, or alter any stormwater BMP(s), Stormwater Management Facility or Facilities, area(s), or structure(s) that were installed as a requirement of this Ordinance without the written approval of the Municipality.