



DELAWARE TOWNSHIP STORMWATER MANAGEMENT ORDINANCE

**ADOPTED NOVEMBER 7, 2022
EFFECTIVE JANUARY 1, 2023**

STORMWATER MANAGEMENT ORDINANCE
for
DELAWARE TOWNSHIP
NORTHUMBERLAND COUNTY, PENNSYLVANIA

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ARTICLE I
GENERAL PROVISIONS

100 LONG TITLE

An Ordinance establishing rules, regulations, and standards for regulating land use activities and associated stormwater runoff within Delaware Township, County of Northumberland, Commonwealth of Pennsylvania; setting forth the powers, duties and procedures to be followed by the Township in administering this Ordinance; and setting forth the penalties for violation thereof.

101 SHORT TITLE

This Ordinance shall be known as and may be referenced and cited as the Delaware Township Stormwater Management Ordinance.

102 AUTHORITY

The Township is empowered to regulate land use activities that affect runoff by the authority of the Act of October 4, 1978, 32 P.S., P.L. 864 (Act 167) Section 680.1 et seq., as amended, the Stormwater Management Act. Stormwater Management is also authorized by the Pennsylvania Municipalities Planning Code, Act 247 of 1968, P.L. 805; P.S. 10101 and by the Second Class Township Code, Act 69 of 1933, P.L. 103; 53 P.S. 65101.

103 STATEMENT OF FINDINGS

The Delaware Township Board of Supervisors finds that:

- A. Inadequate management of accelerated stormwater runoff resulting from development throughout a watershed increases flood flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of existing streams and storm sewers, greatly increases the cost of public facilities to convey and manage stormwater, undermines floodplain management and flood reduction efforts in upstream and downstream communities, reduces groundwater recharge, and threatens public health and safety.
- B. A comprehensive program of stormwater management, including reasonable regulation of development and activities causing accelerated erosion, is fundamental to the public health, safety, welfare, and the protection of the people of the Township and all the people of the Commonwealth, their resources, and the environment.

104 PURPOSE

The purpose of this Ordinance is to promote health, safety and welfare within Delaware Township by minimizing the damages described in Section 103 of this Ordinance through provisions designed to:

- A. Manage accelerated runoff and erosion and sedimentation problems at their source by regulating activities that cause these problems.

- B. Promote the utilization and preservation of existing natural drainage systems.
- C. Encourage groundwater recharge where appropriate and prevent degradation of groundwater quality.
- D. Maintain existing natural flows of streams including quantity, peak flows, flow type and quality.
- E. Preserve and restore flood carrying capacity of streams.
- F. Provide for proper maintenance of all permanent stormwater management facilities constructed in the Township.
- G. Provide for the protection of wellhead areas and community water supplies and protection of downstream properties from impacts resulting from increased development.
- H. Provide performance standards and design criteria for watershed wide stormwater management and planning.

105 APPLICABILITY

This Ordinance shall apply in all watersheds within Delaware Township and shall only apply to permanent stormwater management facilities constructed as part of any regulated activities listed in this Section. This Ordinance contains only the stormwater management performance standards and design criteria that are necessary or desirable from a watershed-wide perspective.

The following activities are defined as “Regulated Activities” and shall be regulated by this Ordinance:

- A. Land development.
- B. Subdivision.
- C. Construction of new or additional impervious or semi-pervious surfaces (driveways, parking lots, etc.).
- D. Construction of new buildings or additions to existing buildings.
- E. Diversion or piping of any natural or man-made stream channel.
- F. Installation of stormwater management facilities or appurtenances thereto.

106 MINOR STORMWATER PLAN OPTION

- A. Any Regulated Activity on parcels generating 5,000 square feet or less of total impervious area may utilize the Minor Stormwater Management Plan design found in Appendix A in place of the Stormwater Management Plan Requirements of Article IV, provided that the design adequately addresses the Appendix A criteria and receives the approval of the Municipal Engineer.

- B. A Regulated Activity on a parcel generating less than 1,000 square feet of total impervious area may be exempt from this option and the Stormwater Management Plan Requirements of Article IV, provided that the activity is not tributary to an existing stormwater problem area as determined by the Municipal Engineer.
- C. A Regulated Activity on a parcel generating between 5,000 and 10,000 square feet of total impervious area may utilize this option if they can demonstrate that effective stormwater management can be achieved as approved by the Municipal Engineer.
- D. This option is not applicable for Regulated Activities as defined in Section 105.E and 105.F of this Ordinance.

107 COMPATIBILITY WITH OTHER ORDINANCES

Approvals issued pursuant to this Ordinance do no relieve the applicant of the responsibility to secure required permits, or approvals for activities regulated by any other applicable act, code, law, ordinance, plan, policy, rule, regulation, or statute.

108 REPEALER

All previous Township stormwater management ordinances are hereby repealed. All other ordinances or sections thereof and resolutions, which are inconsistent with any of the provisions herein, are hereby repealed to the extent of the inconsistency only. Repeal of said Ordinances or resolutions shall not be construed to affect any suit or proceeding now pending in any court or any rights accrued or liability incurred or any cause or causes of action accrued or existing under any Ordinance repealed hereby; nor shall any right or remedy be lost, impaired, or affected by this Ordinance.

109 SEVERABILITY

Should a court of competent jurisdiction declare any section, subsection, or provision of this Ordinance invalid, such decision shall not affect the validity of this Ordinance as a whole, or any other part of the remaining provisions of the Ordinance. The Delaware Township Supervisors hereby declare that it would have enacted the remainder of this Ordinance even without any such part, provision, or application.

110 LIABILITY DISCLAIMER

The granting of approval of a stormwater drainage plan, stormwater management design, or any improvement installed as a condition thereof, shall not constitute a representation, guarantee, or warranty of any kind by Delaware Township, or by any official, employee, or appointee thereof, of the practicality or safety of the proposed use or improvement, and shall create no liability upon or cause of action against the Township, its officials, employees, or appointees for any damage that may result pursuant thereto. The applicant is responsible for ensuring that any development and activities regulated by this Ordinance will not cause injury or damage to other persons or property.

111 REFERENCES

Specific methods and publications referenced in this Ordinance shall, in all cases, refer to the latest available edition and shall include revisions, amendments, and/or replacements thereto.

112 AMENDMENTS

The Delaware Township Supervisors may, from time to time, revise, modify, and amend this Ordinance pursuant to the provisions of the Pennsylvania Stormwater Management Act, Act 167 of October 4, 1978 32 P.S., P.L. 864; the Pennsylvania Municipalities Planning Code, Act 247 of 1968, P.L. 805; P.S. 10101 and by the Second Class Township Code, Act 69 of 1933, P.L. 103; 53 P.S. as from time to time reenacted and amended or other applicable law in effect at the time of said amendment.

113 EFFECTIVE DATE

This Ordinance shall become effective 15 days after being duly enacted and ordained by the Delaware Township Board of Supervisors.

ARTICLE II

DEFINITIONS

200 GENERAL

Unless otherwise expressly stated, the following terms and words used herein shall, for the purposes of this Ordinance, have the meaning indicated in this Section.

201 GENERAL TERMS

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

- A. Words used in the present tense include the future tense; the singular number includes the plural, and the plural number includes the singular; words of masculine gender include feminine gender; and words of feminine gender include masculine gender.
- B. The word “includes” or “including” shall not limit the term to the specific example, but is intended to extend its meaning to all other instances of like kind and character.
- C. The word “person” includes an individual, firm, association, organization, partnership, trust, company, corporation, or any other similar entity.
- D. The words “shall” and “must” are mandatory; the words “may” and “should” are permissive.
- E. The words “used or occupied” include the words “intended, designed, maintained, or arranged to be used, occupied or maintained.”

202 SPECIFIC TERMS

Accelerated Erosion – The removal of the surface of the land through the combined action of man’s activity and the natural processes of a rate greater than would occur because of the natural process alone.

Agricultural Activities – The work of producing crops and raising livestock including tillage, plowing, disking, harrowing, pasturing and installation of conservation measures. Construction of new buildings or impervious area is not considered an agricultural activity.

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; land disturbance.

Applicant – A landowner or developer who has filed an application for approval to engage in any Regulated Activities as defined in Section 105 of this Ordinance.

BMP (Best Management Practice) – Stormwater structures, facilities and techniques to control, maintain or improve the quantity and quality of surface runoff.

Channel Erosion – The widening, deepening, and headward cutting of small channels and waterways, due to erosion caused by moderate to large floods.

Cistern – An underground reservoir or tank for storing rainwater.

Conservation District – The Northumberland County Conservation District.

Culvert – 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 semi fluid, or a refuse bank, fill or structure for highway, railroad or other purposes which does or may impound water or another fluid or semi fluid.

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

Designee – The agent of Delaware Township involved with the administration, review or enforcement of any provisions of this Ordinance by contract or memorandum of understanding.

Detention Basin – An impoundment structure designed to manage stormwater runoff by temporarily storing the runoff and releasing it at a predetermined rate.

Detention District – Those subareas in which some type of detention is required to meet the Plan requirements and the goals of Act 167.

Developer – A person, partnership, association, corporation, or other entity, or any responsible person therein or agent thereof, that undertakes any Regulated Activity of this Ordinance.

Development Site – The specific tract of land for which a Regulated Activity is proposed.

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

Downslope Property Line – That portion of the property line of the lot, tract, or parcels of land being developed located such that all overland or pipe flow from the site would be directed towards it.

Drainage Conveyance Facility – A stormwater management facility designed to transmit stormwater runoff and shall include streams, channels, swales, pipes, conduits, culverts, storm sewers, etc.

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

Drainage Permit – A permit issued by the municipal governing body after the drainage plan has been approved. Said permit is issued prior to or with the final municipal approval.

Earth Disturbance – Any activity including, but not limited to, construction, mining, timber harvesting and grubbing which alters, disturbs, and exposes the existing land surface. The project's area of Earth Disturbance must include the required erosion control facilities and BMPs.

Emergency Spillway – A depression in the embankment of a pond or basin that is used to pass peak discharge greater than the maximum design storm controlled by the pond.

Erosion – The movement of soil particles by the action of water, wind, ice, or other natural forces.

Erosion and Sediment Pollution Control Plan – A plan that is designed to minimize accelerated erosion and sedimentation.

Existing Conditions – The initial condition of a project site prior to the proposed construction. If the initial condition of the site is undeveloped land, the land use shall be considered as “meadow” in good condition unless the natural land cover is proven to generate lower curve numbers or Rational “C” value, such as forested lands.

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 this Commonwealth.

Floodplain – Any land area susceptible to inundation by water from any natural source or delineated by applicable Department of Housing and Urban Development, Federal Insurance Administration Flood Hazard Boundary mapped as being a special flood hazard area. Also included are areas that comprise Group 13 Soils, as listed in Appendix A of the Pennsylvania Department of Environmental Protection (PA DEP) Technical Manual for Sewage Enforcement Officers (as amended or replaced from time to time by PA DEP).

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

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

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

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.

Grassed Waterway – A natural or constructed waterway, usually broad and shallow, covered with erosion-resistant grasses.

Groundwater Recharge – Replenishment of existing natural underground water supplies.

HEC-HMS (Hydrologic Engineering Center Hydrologic Modeling System) – The computer-based hydrologic modeling technique adapted to a particular watershed as part of an official Act 167 Watershed Plan and calibrated to reflect actual recorded flow values by adjoining key model input parameters.

Impervious Surface – A surface that prevents the percolation of water into the ground. For the purposes of this Ordinance impervious surface may include, but not be limited to, the following: concrete, asphalt, building coverage, water impoundments, gravel and crushed stone areas, highly compacted soil, etc.

Impoundment – A retention or detention basin designed to retain stormwater runoff and release it at a controlled rate.

Infiltration Structures – A structure designed to direct runoff into the ground (e.g., French drains, seepage pits, seepage trench).

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 – (i) the improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving (a) a group of two or more buildings, or (b) the division or allocation of land or space between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, buildings groups, or other features; (ii) any subdivision of land; (iii) development in accordance with Section 503(1.1) of the PA Municipalities Planning Code.

Land Earth Disturbance – Any activity involving grading, tilling, digging, or filling of ground or stripping of vegetation or any other activity that causes an alteration to the natural condition of the land.

Limestone – A rock that is chiefly formed by the accumulation of organic remains, consisting mainly of calcium carbonate.

Main Stem (Main Channel) – Any stream segment or other runoff conveyance facility used as a reach in any Act 167 Watershed Plan hydrologic model runs.

Manning Equation in (Manning Formula) – A method for calculation of velocity of flow (e.g., feet per second) and flow rate (e.g., cubic feet per second) in open channels based upon channel shape, roughness, depth of flow and slope. “Open channels” may include closed conduits so long as the flow is not under pressure.

Municipality – Delaware Township, Northumberland County, Pennsylvania.

Municipal Engineer – A professional engineer licensed as such in the Commonwealth of Pennsylvania, duly appointed or retained as the engineer for Delaware Township.

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

Non-Structural BMP's – Stormwater runoff treatment techniques which use natural measures to reduce pollution levels, do not require extensive construction efforts and/or promote pollutant reduction by eliminating the pollutant source. Acceptable non-structural BMPs are identified in the Pennsylvania Handbook of Best Management Practices for Developing Areas.

NRCS – Natural Resource 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 drainage ways, swales, streams, ditches, canals, and pipes flowing partly full.

Overbank and Extreme Event Flood Protection Volume – See Release Rates.

Outfall – Point where water flows from a conduit, stream, or drain.

Outlet – Points of water disposal from a stream, river, lake, tidewater or artificial drain.

Parking Lot Storage – Involves the use of impervious parking areas as temporary impoundments with controlled release rates during rainstorms.

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

Penn State Runoff Model (PSRM) – The computer-based hydrologic modeling technique adapted to a particular watershed as part of an official Act 167 Watershed Plan and calibrated to reflect actual recorded flow values by adjoining key model input parameters.

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

Planning Commission – Delaware Township Planning Commission

PMF – Probable Maximum Flood – The flood that may be expected from the most severe combination of critical meteorological and hydrological conditions that is reasonably possible in any area. The PMF is derived from the probable maximum precipitation (PMP) as determined based on data obtained from the National Oceanographic and Atmospheric Administration (NOAA).

Rational Formula – A rainfall-runoff relation used to estimate peak flow.

Recharge Volume (RE_v) – The volume of stormwater runoff from a site that must be infiltrated into the soil to promote the maintenance of groundwater recharge rates that existed prior to development.

Regulated Activities – Actions or proposed actions that have an impact on stormwater runoff and that are specified in Section 105 of this Ordinance.

Release Rate – The percentage of pre-development peak rate of runoff from a site or subarea to which the post development peak rate of runoff must be reduced to protect downstream areas.

Retention Basin – An impoundment in which stormwater is stored and not released during the storm event. Stored water may be released from the basin at some time after the end of the storm.

Return Period – The average interval, in years, within which a storm event of a given magnitude can be expected to recur. For example, the 25-year return period rainfall would be expected to recur on the average of once every twenty-five years.

Riser – A vertical pipe extending from the bottom of a pond that is used to control the discharge rate from the pond for a specified design storm.

Rooftop Detention – Temporary ponding and gradual release of stormwater falling directly onto flat roof surfaces by incorporating controlled-flow roof drains into building designs.

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

Sediment Basin – A barrier, dam, retention or detention basin located and designed to retain rock, sand, gravel, silt, or other material transported by water.

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 – Runoff that flows over the ground surface as a thin, even layer, not concentrated in a channel.

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

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

Storage Indication Method – A reservoir routing procedure based on solution of the continuity equation (inflow minus outflow equals the change in storage) with outflow defined as a function of storage volume and depth.

Storm Frequency – The number of times that a given storm “event” occurs or is exceeded on the average in a stated period of years. See “Return Period.”

Storm Sewer – A system of pipes and/or open channels that convey intercepted runoff and stormwater from other sources, but excludes domestic sewage and industrial waste.

Stormwater Management Credits – Incentive based non-structural stormwater management applications that can be incorporated into the site design process to promote water quality, groundwater recharge, volume control, and other stormwater objectives. These include conservation of natural areas, disconnection of rooftop runoff, disconnection of non-rooftop runoff, sheet flow to buffers, grass channels and environmentally sensitive or low impact development.

Stormwater – The total amount of precipitation reaching the ground surface.

Stormwater Hotspot – A land use or activity that generates higher concentrations of hydrocarbons, trace metals, or toxicants than are found in typical stormwater runoff, based on monitoring studies. Typical stormwater hotspots are listed in Section 302 of this Ordinance.

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

Stormwater Management Plan – The plans for managing stormwater runoff from the proposed subdivision or land development, or other regulated activity prepared by the developer in accordance with the standards of this Ordinance.

Stream Enclosure – A bridge, culvert or other structure in excess of 100 feet in length upstream to downstream which encloses a regulated water of this Commonwealth.

Subdivision – The division or re-division 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 dwellings, shall be exempt.

Swale – A low-lying stretch of land that gathers or carries surface water runoff.

Technical Release 20 (TR-20) – Project Formulation-Hydrology, Computer Program. NRCS.

Technical Release 55 (TR-55) – Urban Unit Hydrology for Small Watersheds. NRCS.

Timber Operations – See Forest Management.

Time-of-Concentration (T_c) – 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 pipes or channels, if any.

Watercourse – A stream of water, river, brook, creek, or a channel or ditch for water, whether natural or man-made.

Waters of the Commonwealth – Any and all rivers, streams, creeks, rivulets, 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 this 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 and similar areas.

ARTICLE III

STORMWATER MANAGEMENT

301 GENERAL REQUIREMENTS

- A. The management of stormwater on the site, both during and upon the completion of construction, and the design of any temporary or permanent facilities or structures and the utilization of a natural drainage system shall be in full compliance with this section.
- B. Site designs shall minimize impervious surfaces and shall promote the infiltration of runoff through seepage beds, infiltration trenches, etc. where soil conditions permit.
- C. Stormwater runoff generated from development discharged directly into a wetland or other waters of the Commonwealth shall be done in accordance with Federal and State regulatory requirements and shall be adequately treated to prevent degradation. Written evidence of compliance shall be furnished to the Township.
- D. Applicants may select runoff control techniques, or a combination of techniques, which are most suitable to control stormwater runoff from the development site. Applicants are urged to consult the Pennsylvania Handbook of Best Management Practices for Developing Areas and with the Municipal Engineer and the County Conservation District. All stormwater designs are subject to the approval of the Municipal Engineer. The Township may request specific information on design and/or operating features of the proposed stormwater controls in order to determine their suitability and adequacy in terms of the standards of this Ordinance.
- E. All stormwater management facilities including detention basins, BMP's, culverts and all conveyance facilities shall be designed by a licensed professional qualified and/or experienced in their design. These qualifications should be listed in the stormwater narrative.
- F. The anticipated peak rate of stormwater runoff from the site during and after full development shall not exceed the peak rate of runoff from the site prior to development activities, measured in accordance with the standards and criteria of this Ordinance.
- G. Roof drains shall not be connected to streets, sanitary or storm sewers or roadside ditches but shall be allowed to drain to the land surface to promote overland flow and infiltration of stormwater.
- H. 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.
- I. If existing diffused stormwater flow is proposed to be concentrated the applicant must document that adequate downstream conveyance facilities exist to safely transport the concentrated discharge, or otherwise prove that no erosion, sedimentation, flooding or other harm will result from concentrated discharge.

- J. All natural streams, channels, swales, drainage systems and/or areas of surface water concentration shall be maintained in their existing conditions unless an alteration is approved by the Township due to topographic conditions.
- K. Easements shall be provided conforming to the line of all natural streams, channels, swales, and drainage systems and other stormwater infrastructure installed to comply with this Ordinance. The terms of such easements shall prohibit excavation, the placement of fill or structures and any other alterations, including the growth of stiff or woody vegetation that may adversely affect the flow of stormwater.
- L. All stream encroachment activities, including work in and adjacent to water of the Commonwealth or wetlands, shall comply with applicable PA DEP requirements.
- M. Any stormwater facility located on a state highway right-of-way shall be subject to the approval of the Pennsylvania Department of Transportation and any facility located on a Township road or street right-of-way shall be subject to the approval of Delaware Township.
- N. Off-site areas that drain through a proposed development site are not subject to release rate criteria when determining allowable peak runoff rates; however, on-site drainage facilities shall be designed to safely convey off-site flows through the development site.
- O. The design of all stormwater management facilities shall incorporate sound engineering principles and practices. The Township shall reserve the right to disapprove any design that would result in the occupancy or continuation of an adverse hydrologic or hydraulic condition.

302 WATER QUALITY REQUIREMENTS FOR STORMWATER HOTSPOTS

- A. Stormwater Hotspots – If a site is designated as a stormwater hotspot as per Table 302-1 it has important implications for how stormwater is managed.
 - 1. A greater level of stormwater treatment is required at hotspot sites to prevent pollutant wash off after construction.
 - 2. For areas designated as hotspots a Stormwater Pollution Prevention Plan may be required to be designed and implemented that contains operation practices at the site to reduce the generation of pollutants by preventing contact with rainfall.
 - 3. Stormwater Pollution Prevention Plans shall follow the requirements of the U.S. EPA NPDES stormwater program.
 - 4. The following land uses and activities are not normally considered hotspots:

Residential streets and rural highways, residential development, institutional development, commercial and office developments, non-industrial rooftops, pervious areas except for golf courses and nurseries. Large highways and retail gasoline outlet facilities are not designated as hotspots although it is important to ensure that stormwater plans for these facilities adequately protect groundwater.

TABLE 302-1: Stormwater Hotspots

Vehicle Salvage Yards and Recycling Facilities*
Vehicle Service and Maintenance Facilities
Vehicle and Equipment Cleaning Facilities*
Fleet Storage Areas (bus, truck, etc.)*
Industrial Sites
Marinas (service and maintenance)*
Outdoor Liquid Container Storage
Outdoor Loading/Unloading Facilities
Public Works Storage Areas
Facilities that Generate or Store Hazardous Materials*
Commercial Container Nursery
Golf Courses
Other land uses and activities as designated.

*Stormwater Pollution Plan implementation may be required for these land uses or activities under the U.S. EPA NPDES stormwater program

303 GROUNDWATER RECHARGE REQUIREMENTS

- A. Design of the infiltration/recharge stormwater management facilities shall give consideration to providing groundwater recharge to compensate for the reduction in the percolation that occurs when the ground surface is paved and roofed over. These measures are encouraged, particularly in hydrologic soil groups A and B and shall be utilized wherever feasible.
- B. Recharge/infiltration facilities may be used in conjunction with other innovative or traditional BMPs, stormwater control facilities, and nonstructural stormwater management alternatives.
- C. Soils Evaluation
 - 1. Infiltration testing shall be performed based on the Pennsylvania Handbook of Best Management Practices for Developing Areas.
 - 2. **Extreme caution shall be exercised where infiltration is proposed in geologically susceptible areas such as strip mine or limestone areas.** Extreme caution shall also be exercised where salt or chloride would be a pollutant since soils do little to filter this pollutant and it may contaminate the groundwater. It is also extremely important that the design professional evaluates the possibility of groundwater contamination from the proposed infiltration/recharge facility and recommends a hydrogeologic justification study be performed if necessary. Whenever a basin will be located in an area underlain by limestone, a geological evaluation of the proposed location may be required 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 formations.
 - 3. The Township may require the installation of an impermeable liner in detention basins underlain by limestone or in areas of karst topography. The Township may require a detailed hydrogeologic investigation. The developer may also be required to provide

safeguards against groundwater contamination for uses that may cause groundwater contamination, should there be an accident or spill.

- D. All recharge/infiltration facilities shall be designed to completely drain within 72 hours of reaching maximum capacity.

304 RATE CONTROL REQUIREMENTS

For a site located within two or more districts the peak discharge rate from any sub-area shall be the pre-development peak discharge for that sub-area. The calculated peak discharges shall apply regardless of whether the grading plan changes the drainage area by sub-area. Pre-development and post-development runoff for specific sites shall be computed using an approved method as defined in this ordinance for the 2-, 10-, 25-, and 100-year storm.

- A. **All Delaware Township Watersheds** – Until such time as an Act 167 Plan is duly adopted the post-development rate of runoff shall not exceed 100% of the pre-development rate of runoff for the 2-, 10-, 25-, and 100 year storm events.

305 DESIGN CONSIDERATIONS

- A. All storm sewers and manmade channels (i.e., swales) shall be able to convey the post-development runoff from a 10-year design storm without surcharging inlets and shall be constructed using Penn DOT Form 408 Specifications, Standard Details unless otherwise permitted by the Municipal Engineer.
- B. Stormwater roof drains shall not discharge into any municipal sanitary sewer line or over a sidewalk.
- C. Inlets shall be placed at the curb line where a curbed section is installed. Inlets required for parallel or cross drainage without a curbed section shall be set at the flow line of the ditch.
- D. Drainage inlets along Township roads shall be in accordance with PennDOT Standards. Brick or block structures shall not be permitted.
- E. All water obstructions (bridges, culverts, outfalls or stream enclosures) shall have ample waterway opening to carry expected flows, based on a minimum post development peak storm frequency of twenty-five (25) years without damage to the drainage structure or roadway.
- F. Construction of water obstructions shall be in accordance with the Pennsylvania Department of Transportation specifications and shall meet the requirements of the Pennsylvania Department of Environmental Protection (PA DEP). Any work involving wetlands shall be designed in accordance with the specification of the PA DEP and United States Army Corps of Engineers.
- G. Roadway crossings located within designated floodplain areas shall be able to convey runoff from a 100-year design storm.
- H. Whenever the vegetation and topography are to be disturbed, such activity must be in conformance with Chapter 102, Title 25, Rules and Regulations, Part I, Commonwealth of Pennsylvania, Department of Environmental Protection, Subpart C, Protection of Natural Resources, Article II, Water Resources, Chapter 102, “Erosion Control,” and in accordance with the Northumberland County Conservation District. The developer shall provide a letter from the

Conservation District or DEP stating that the proposed E&S Plan is adequate to satisfy the Chapter 102 regulations.

- I. Any stormwater management facility designed to store runoff and requiring an earthen berm or embankment shall be designed to provide an emergency spillway to handle flow up to and including the 100-year post-development conditions. The height of the embankment must be set as to provide a minimum of one (1) foot of freeboard above the maximum pool elevation computed when the facility functions for the 100-year post-development inflow.
- J. Stormwater management facilities that require a dam safety permit under PA DEP Chapter 105 shall meet the applicable dam safety requirements that may require the facility to pass storms larger than the 100-year event.
- K. Adequate erosion protection shall be provided along all open channels and at all points of discharge.
- L. Additional erosion and sedimentation control design standards and criteria that must be or are recommended to be applied where infiltration BMPs are proposed shall include the following:
 - 1. Areas proposed for infiltration BMPs shall be protected from sedimentation and compaction during the construction phase, so as to maintain their maximum infiltration capacity.
 - 2. Constructed infiltration BMPs shall be protected from receiving sediment-laden runoff.
- M. Detention basins for stormwater peak discharge storage shall comply with the following criteria:
 - 1. Basins shall be installed prior to any earthmoving or land disturbance that they will serve. The phasing of their construction shall be noted in a narrative and on the plan.
 - 2. Basins located in an area underlain by limestone may require a geologic evaluation of the proposed location 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. The Township may require basins located over limestone to have an impermeable liner.
 - 3. Soils used for the construction of basins shall have low erodibility factors ("K factors"). See the Pennsylvania Handbook of Best Management Practices for Developing Areas manual for suitable soils for basins.
 - 4. Exterior slopes of compacted soil shall not exceed one foot (1') vertical per three feet (3') horizontal and may be further reduced in soils of unstable characteristics.
 - 5. Interior slopes of the basin shall not exceed one foot (1') vertical per three feet (3') horizontal except with the approval of the Municipal Engineer. Where concrete, stone, or brick walls are used for steeper interior slopes, the basin shall be fenced with a permanent wire fence at least forty-two (42") in height and a

ramp of durable, non-slip materials for maintenance vehicles shall be provided for basin access.

6. Outlet structures within basins which will control peak discharge flows and distribute the flows by pipes to discharge areas shall be constructed of concrete, polymer-coated steel or aluminum and shall have childproof, non-clogging trash racks over all design openings exceeding twelve (12") inches in diameter, except those openings used to carry perennial stream flows.
7. Concrete outlet aprons, if proposed, shall be designed as level spreaders and shall extend at a minimum to the toe of the basin slope. The incorporation of any large stone found on the site into the concrete apron to provide a more natural appearance is encouraged.
8. Inlet and outlet structures shall be located at maximum distance from each other. The Township may require a rock filter berm or rock-filled gabions between inlet and outlet areas when the distance is deemed insufficient for sediment trappings.

306 CALCULATION METHODOLOGY

- A. Stormwater calculations to determine runoff, peak flow rates, peak discharge, hydrographs and to design stormwater runoff rate reduction facilities shall use a generally accepted calculation technique that is based on the Natural Resource Conservation Service (NRCS) Soil-Cover Complex method.
- B. Use the following assumptions when establishing the watershed conditions for calculating stormwater runoff prior to development:
 - 1) Woodland (in good condition) or meadow shall be used for all undeveloped areas.
 - 2) Average antecedent moisture conditions as defined by the Natural Resource Conservation Service shall be used for all areas.
 - 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.
- C. *Hydrologic Methods*. All plans and designs for stormwater management facilities shall be reviewed by the Municipal Engineer. Plans for facilities other than storm sewers should determine stormwater peak discharge and stormwater runoff by the use of 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) Permissible curve numbers for TR-55 and TR-20 are identified in the Appendix.

(2) The rational method may be used in lieu of the soil-cover-complex method to compute design flows for the sizing of stormwater conveyance features, such as drainage pipes, inlets, and swales. Methods approved by the Pennsylvania Department of Transportation and/or the Pennsylvania Department of Environmental Protection may be used to design the waterway areas of bridges.

(3) 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, or latest revision). Rainfall duration for the design of stormwater detention basins shall not be less than 24 hours, unless waived in writing by the Municipality and its Engineer. All hydrologic computations utilizing the soil-cover-complex method shall use a rainfall duration of not less than 24 hours, unless waived in writing by the Municipality and its Engineer. Rainfall distribution shall be SCS Type II, unless waived in writing by the Municipality and its Engineer.

The Municipal Engineer may permit the use of the modified rational method or other methods for calculation of the storage capacity of a stormwater management facility for drainage areas of 5 acres or less.

- D. All calculations using the Rational Method shall use rainfall intensities consistent with appropriate times of concentration for overland flow and return periods from the PA Department of Transportation “PennDot Drainage Manual”, Publication 584, latest edition. Times of concentration for overland flow shall be calculated using the methodology presented in Chapter 3 of Urban Hydrology for Small Watersheds, NRCS, TR-55 (as amended or replaced from time to time by NRCS). Times of concentration for channel and pipe flow shall be computed using Manning’s Equation.
- E. Runoff coefficients (c) for both existing and proposed conditions for use in the Rational Method shall be obtained from the table in Appendix B of this Ordinance.
- F. Where uniform flow is anticipated the Manning Equation shall be used for hydraulic computations and to determine the capacity of open channels, pipes, and storm sewers. Manning’s Equation should not be used for analysis of pipes under pressure flow or for culvert analysis. Values for Manning’s roughness coefficient (n) shall be consistent with Appendix C of this Ordinance.
- G. When existing storm sewers, streets, roadside ditches or drainage swales are accessible; the applicant shall not connect the stormwater drainage system to the existing facilities without the approval of the Municipal Engineer and the facility owner.
- H. Routing of hydrographs through detention/retention facilities for the purposes of designing those facilities shall be accomplished using the Storage-Indication method or other recognized routing method subject to approval of the Municipal Engineer. For drainage areas greater than 200 acres in size, the design storm hydrograph shall be computed using a calculation method that produces a full hydrograph. The Municipal Engineer may approve the use of any generally accepted full hydrograph approximation technique that shall use a total runoff volume that is consistent with the volume from a method that produces a full hydrograph.

ARTICLE IV

STORMWATER MANAGEMENT PLAN REQUIREMENTS

400 STORMWATER MANAGEMENT PLAN REQUIREMENTS

The Stormwater Management Plan shall consist of all applicable calculations, drawings, maps, and plans. All Stormwater Management Plan materials shall be submitted to the Township in a format that is clear, concise, legible, neat, and well organized; otherwise, the Stormwater Management Plan shall be disapproved and returned to the Applicant. The following items shall be included in the Stormwater Management Plan:

A. General

1. General description of project.
2. General description of permanent stormwater management techniques, including construction specifications of the materials to be used for stormwater management facilities.
3. Complete hydrologic, hydraulic, and structural computations for all stormwater management facilities.
4. Stormwater Management Plans shall be prepared by a professional with demonstrated competency in stormwater management and design.
5. Stormwater Management Plans and related documentation shall contain the seal and signature of the professional that prepared the plans.

B. Drawing(s), maps and plans of the project area shall be submitted on 24-inch x 36-inch sheets and shall be prepared in a form that meets the requirements for recording at the offices of the Recorder of Deeds of Northumberland County. The contents of the map(s) shall include, but not be limited to:

1. The location of the project relative to highways, municipalities or other identifiable landmarks.
2. Existing contours at intervals no greater than two foot. In areas of steep slopes (greater than 15 percent), five-foot contour intervals may be used.
3. Existing streams, lakes, ponds, field delineated wetlands, or other bodies of water within the project area.
4. Other physical features including flood hazard boundaries, sinkholes, streams, existing drainage courses, areas of natural vegetation to be preserved, and the total extent of the upstream area draining through the site.
5. The locations of all existing and proposed utilities, sanitary sewers, and water lines within 50 feet of property lines.

6. Soil names and boundaries.
7. Proposed changes to the land surface and vegetative cover, including the type and amount of impervious area that would be added.
8. Proposed structures, roads, paved areas, and buildings.
9. Final contours at intervals of no greater than two foot. In areas of steep slopes (greater than 15 percent), five-foot contour intervals may be used.
10. The name of the development, the name and address of the owner of the property, and the name of the individual or firm preparing the plan.
11. The date of submission.
12. A graphic and written scale of one (1) inch equals no more than fifty (50) feet; for tracts of twenty (20) acres or more, the scale shall be one (1) inch equals no more than one hundred (100) feet.
13. A North arrow.
14. The total tract boundary and size with distances marked to the nearest foot and bearings to the nearest degree.
15. Existing and proposed land use(s).
16. A key map showing all existing man-made features beyond the property boundary that would be affected by the project.
17. Typical Sections and Profiles of all existing and proposed open channels, culverts, drainageways, storm sewers, streams, or watercourses.
18. A minimum fifteen-foot wide access easement around all stormwater management facilities that would provide ingress to and egress from a public right-of-way.
19. A note on the plan indicating the location and responsibility for maintenance of stormwater management facilities that would be located off-site. All off-site facilities shall meet the performance standards and design criteria specified in this Ordinance.
20. A construction detail of any improvements made to sinkholes.
21. The following signed statement by the landowner: "I/we, _____, hereby acknowledge that I/we and/or my/our assignees/grantees shall be responsible for maintenance of the stormwater management system shown hereon, in accordance with the executed stormwater management ownership and maintenance agreement and the approved plan for this project, that such stormwater system shall remain as a permanent fixture that cannot be altered, replaced, or removed without prior written approval from Delaware Township and 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 the surety bond."

Delaware Township reserves the right to authorize the Municipal Engineer to review said Record Drawing.

22. The location of all erosion and sedimentation control facilities.
23. 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.
24. Sinkhole Protection: It shall be the applicant's responsibility to verify if the site is underlain with limestone, or karst geology.

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

To protect sensitive karst areas, the Municipality and its Engineer may require basins to contain an impervious liner. The liner may be of the impervious membrane type, placed in accordance with the manufacturer's recommendations, or an approved alternative as approved by the Municipality and its Engineer.

25. 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 Delaware Township Stormwater Management Ordinance."

C. Supplemental Information

1. A written description of the following information shall be submitted:
 - a. The overall stormwater management concept for the project.
 - b. Stormwater runoff computations as specified in this Ordinance.
 - c. Existing and proposed drainage area maps. Show the path used for the time of concentration, and clearly label them.
 - d. Stormwater management techniques to be applied both during and after development.
 - e. Expected project time schedule.
2. A soil erosion and sedimentation control plan, where applicable, including all reviews and approvals, as required by PA DEP.
3. A geologic assessment of the effects of runoff on sinkholes as specified in this Ordinance.
4. The effect of the project (in terms of runoff volumes and peak flows) on adjacent properties and on any existing municipal stormwater collection system that may receive runoff from the project site.
5. A Declaration of Adequacy and Highway Occupancy Permit from the PENNDOT District Office when utilization of a PENNDOT storm drainage system is proposed.

D. Stormwater Management Facilities

1. All stormwater management facilities must be located on a plan and described in detail.
2. When groundwater recharge methods such as seepage pits, beds or trenches are used, the locations of existing and proposed septic tank infiltration areas and wells must be shown.
3. All calculations, assumptions, and criteria used in the design of the stormwater management facilities must be shown.

401 PLAN SUBMISSION

- A. The Stormwater Management Plan shall be submitted by the developer as part of a Preliminary and/or Final Plan application for subdivision and land development activity or separately if the activity regulated by this Ordinance is not being conducted in conjunction with a subdivision or land development.
- B. Four (4) copies of the Stormwater Management Plan and all supplemental materials shall be submitted to the Township.

402 STORMWATER MANAGEMENT PLAN REVIEW

- A. The Municipal Engineer shall review the Stormwater Management Plan for consistency with this Ordinance and applicable Act 167 Stormwater Management Plans. The Township shall require receipt of a complete plan, as specified in this Ordinance.
- B. For activities regulated by this Ordinance, the Municipal Engineer shall notify the Township in writing, whether the Stormwater Management Plan is consistent with this Ordinance. Should the Stormwater Management Plan be determined to be consistent with this Ordinance, the Municipal Engineer will forward an approval letter to the Township Secretary.
- C. Should the Stormwater Management Plan be determined to be inconsistent with this Ordinance the Municipal Engineer will forward a disapproval letter to the Municipal Secretary citing the specific sections of the Ordinance and reason(s) for the disapproval.
- D. The Municipal Secretary shall forward a copy of the Municipal Engineer's review of the Stormwater Management Plan to the applicant and the Township Building Permit Officer, Zoning Officer, and Township Planning Commission.
- E. For Regulated Activities requiring a PA DEP Joint Permit Application, the Municipal Engineer shall notify PA DEP whether the Stormwater Management Plan is or is not consistent with this Ordinance and the Act 167 Stormwater Management Plan and forward a copy of the review letter to the Municipality and the developer. PA DEP may consider the Municipal Engineer's review comments in determining whether to issue a permit.
- F. The Township shall not approve any subdivision, land development, zoning or building permits for Regulated Activities specified in Section 105 of this Ordinance if the Stormwater Management Plan has been found to be inconsistent with this Ordinance or the Act 167 Stormwater Management Plan, as determined by the Municipal Engineer.

- G. No Zoning or Building Permits shall be issued until the Township approves the Stormwater Management Plan in writing.
- H. The applicant shall be responsible for completing record drawings of all stormwater management facilities included in the approved Stormwater Management Plan. The record drawings and an explanation of any discrepancies with the design plans shall be submitted to the Municipal Engineer for final approval. In no case shall the Township approve the record drawings until a copy of an approved Declaration of Adequacy; Highway Occupancy Permit is received from the PENNDOT District Office, and any applicable permits from PA DEP.
- I. The approval of a Stormwater Management Plan shall be valid for a period not to exceed five (5) years. This 5-year time period shall commence on the date that the Township signs the approved Stormwater Management Plan. If stormwater management facilities included in the approved Stormwater Management Plan have not been constructed, or if constructed, and record drawing of these facilities have not been approved within this 5-year time period, then the Township may consider the Stormwater Management Plan disapproved and may revoke any and all approvals and/or permits. Stormwater Management Plans that are considered disapproved by the Township shall be resubmitted in accordance with this Ordinance.

403 MODIFICATION OF PLANS

A modification to a submitted Stormwater Management Plan for a development site that involves a change in stormwater management facilities or techniques, or that involves the relocation or re-design of stormwater management facilities, or that is necessary because soil or other conditions are not as stated on the Stormwater Management Plan as determined by the Municipal Engineer, shall require a resubmission of the modified Stormwater Management Plan and a review consistent with this Ordinance.

A modification to an already approved or disapproved Stormwater Management Plan shall be submitted to the Township, accompanied by the applicable review fee. A modification to a Stormwater Management Plan for which the Township has not taken a formal action shall be submitted to the Township.

404 RESUBMISSION OF DISAPPROVED STORMWATER MANAGEMENT PLANS

A disapproved Stormwater Management Plan may be resubmitted, with the revisions addressing the Municipal Engineer's concerns documented in writing, to the Township Secretary in accordance with this Ordinance and distributed accordingly and is subject to review as specified in this Ordinance.

ARTICLE V

FEES AND EXPENSES

500 GENERAL

Applicants are responsible for paying all applicable costs incurred by the Township in reviewing Stormwater Management Plans.

501 MUNICIPALITY STORMWATER MANAGEMENT PLAN REVIEW FEE

The Township shall establish a Review Fee Schedule by resolution of the Township Board of Supervisors.

502 EXPENSES COVERED BY FEES

The fees required by this Ordinance shall at a minimum cover:

- A. Administrative costs.
- B. The review of the Stormwater Management Plan by the Municipality and the Municipal Engineer.
- C. The site inspections.
- D. The inspection of stormwater management facilities and drainage improvements during construction.
- E. The final inspection upon completion of the stormwater management facilities and drainage improvements presented in the Stormwater Management Plan.
- F. Any additional work required to enforce any permit provisions regulated by this Ordinance, correct violations, and assure proper completion of stipulated remedial actions.

ARTICLE VI

FINANCIAL GUARANTEE & MAINTENANCE RESPONSIBILITIES

600 IMPROVEMENT GUARANTEE

The applicant shall provide a financial guarantee to the Municipality for the timely installation and proper construction of all stormwater management controls as required by the approved Stormwater Management plan and this Ordinance equal to 110% of the construction cost of the required stormwater controls estimated as of 90 days following the date scheduled for completion by the developer. The improvement guarantee shall follow the procedures and requirements specified for financial guarantees in

the Township Subdivision and Land Development Ordinance and the Pennsylvania Municipalities Planning Code, Act 247 of 1968, P.L. 805, 53 P.S. 10101.

601 SCHEDULE OF INSPECTIONS

- A. The Municipal Engineer shall inspect all phases of the installation of the permanent stormwater management facilities as deemed appropriate by the Municipal Engineer.
- B. During any stage of the work, if the Municipal Engineer determines that the permanent stormwater management facilities are not being installed in accordance with the approved Drainage Plan, the Municipality shall revoke any existing approvals and/or permits and issue a cease and desist stop work order until the problem is corrected by the applicant or until a revised Drainage Plan is submitted and approved, as specified in this Ordinance.
- C. At the completion of the project, and as a prerequisite for the release of the improvement guarantee, the owner or his representative shall:
 - 1. Provide a certification of completion from an engineer, architect, surveyor or other qualified person verifying that all permanent facilities have been constructed according to the plans and specifications and approved revisions thereto.
 - 2. Provide a set of as-built (record) drawings.
- D. After receipt of the certification by the Township, a final inspection shall be conducted by the Municipal Engineer or designated representative to certify compliance with this Ordinance.

602 MAINTENANCE RESPONSIBILITIES

- A. The Stormwater Management Plan for the development site shall contain an operation and maintenance plan prepared by the developer and approved by the Municipal Engineer. The operation and maintenance plan shall outline required routine maintenance actions and schedules necessary to insure proper operation of the facility(ies).
- B. The Stormwater Management Plan for the development site shall establish responsibilities for the continued operation and maintenance of all proposed stormwater control facilities, consistent with the following principles:
 - 1. If a development consists of structures or lots which are to be separately owned and in which streets, sewers and other public improvements are to be dedicated to the Township, stormwater control facilities may also be offered for dedication to the Township (the Township is not obligated to accept ownership).
 - 2. If a development site is to be maintained in a single ownership or if sewers and other public improvements are to be privately owned and maintained, then the ownership and maintenance of stormwater control facilities shall be the responsibility of the owner or private management entity.
- C. The governing body, upon recommendation of the Municipal Engineer, shall make the final determination on the continuing maintenance responsibilities prior to final approval of the

drainage plan. The governing body reserves the right to accept or reject the ownership and operating responsibility for any or all of the stormwater management controls.

603 MAINTENANCE AGREEMENT FOR STORMWATER FACILITIES

- A. Prior to final approval of the site's Stormwater Management plan, the property owner shall execute a maintenance agreement suitable for recording in the Northumberland County Recorder of Deeds Office, an example of which is contained in Appendix D, covering all stormwater control facilities that are to be privately owned.
- B. Other items may be included in the agreement where determined necessary to guarantee the satisfactory maintenance of all facilities. The maintenance agreement shall be subject to the review and approval of the Township.

ARTICLE VII

ENFORCEMENT AND PENALTIES

700 RIGHT-OF-ENTRY

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

701 NOTIFICATION

In the event that a person fails to comply with the requirements of this Ordinance, or fails to conform to the requirements of any approvals issued hereunder, the Township shall provide 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 violation(s). Failure to comply within the time specified shall subject such person to the penalty provisions of this Ordinance. All such penalties shall be deemed cumulative and resort by the Township from pursuing any and all remedies. 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.

702 ENFORCEMENT

The Township Board of Supervisors is hereby authorized and directed to enforce all of the provisions of this Ordinance. All inspections regarding compliance with the drainage plan shall be the responsibility of the Municipal Engineer or other qualified persons designated by the Township.

- A. A set of design plans approved by the Township shall be on file at the site throughout the duration of the construction activity. Periodic inspections may be made during construction.
- B. It shall be unlawful for any person, firm or corporation to undertake any Regulated Activity under Section 105 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 alter or remove any control structure required by the Stormwater Management Plan pursuant to this Ordinance or to allow the property to remain in a condition that does not conform to the approved Stormwater Management Plan.
- C. Suspension and Revocation of Approvals and/or Permits
 - 1. Any approval or permit issued under this Ordinance may be suspended or revoked by the governing body for:
 - a. Non-compliance with or failure to implement any provision of the permit.
 - b. A violation of any provision of this Ordinance or any other applicable law, ordinance, rule or regulation relating to the project.

- c. The creation of any condition or the commission of any act during construction or development which constitutes or creates a hazard or nuisance, pollution or which endangers the life or property of others.
- 2. A suspended approval or permit shall be reinstated by the governing body when:
 - a. The Municipal Engineer or his designee has inspected and approved the corrections to the stormwater management and erosion and sediment pollution control measure(s), or the elimination of the hazard or nuisance, and/or;
 - b. The governing body is satisfied that the violation of the Ordinance, law, or rule and regulation has been corrected.
 - c. A permit that has been revoked by the governing body cannot be reinstated. The Applicant may apply for a new permit under the procedures outlined in this Ordinance.

D. Occupancy Permits

An occupancy permit shall not be issued unless the certification of completion pursuant to Sections 601.C and 601.D has been secured. The occupancy permit shall be required for each lot owner and/or developer for all subdivisions and land development in the Municipality.

703 PUBLIC NUISANCE

- A. The violation of any provision of this Ordinance is hereby deemed a Public Nuisance.
- B. Each day that a violation continues shall constitute a separate offense.

704 PENALTIES

- A. Anyone violating the provisions of this Ordinance shall be guilty of a misdemeanor, and upon conviction shall be subject to a fine of not more than \$500.00 for each violation, recoverable with costs. Each day that the violation continues shall be a separate offense.
- B. In addition, the Township, 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 or remedy or relief.

705 APPEALS

- A. Any person aggrieved by any action of the Township or its designee may appeal to the Township Board of Supervisors or Zoning Hearing Board within thirty (30) days of that action.
- B. Any person aggrieved by any decision of the Township Board of Supervisors or the Zoning Hearing Board may appeal to the Northumberland County Court of Common Pleas within thirty (30) days of the municipal decision.

This Ordinance shall take effect as of January 1, 2023. Ordained and enacted this 7th day of November, 2022.

[SEAL]

DELAWARE TOWNSHIP

/s/ _____,
_____, Chairman

/s/ _____,
_____, Vice Chairman

/s/ _____,
_____, Supervisor

APPENDICES

APPENDIX A – Minor Plan Procedure for Disconnected Stormwater Management Facilities

APPENDIX B – Runoff Coefficients for the Rational Method

Source: Rawls, W.J., S.L. Long, and R.H. McCuen, 1981, Comparison of Urban Flood Frequency Procedures. Preliminary Draft Report prepared for the Soil Conservation Service, Beltsville, Maryland.

APPENDIX C – Manning Roughness Coefficients

Roughness Coefficients (Manning's "n") For Overland / Sheet Flow
(From U.S. Army Corps of Engineers & NRCS TR-55)

APPENDIX D – Stormwater Facilities Maintenance Agreement

APPENDIX A

Minor Stormwater Management Plan - Application

Property Owner's Name: _____

Mailing Address: _____

Phone: _____ Email: _____

Address of Development: _____

Approved Use: _____

Tax parcel Number: _____

Municipality: _____

Existing Structures on Property: _____

Describe Proposed Development: _____

By signing this application, I acknowledge that I have read the municipal Stormwater Management Ordinance, and I have selected the Stormwater Management System(s) for the proposed development. I agree to construct the Stormwater Management System(s) in accordance with the construction details provided in the Stormwater Management Ordinance, and made part of this application.

I will construct the following Stormwater Management Systems(s) for the proposed development:

☐	Disconnected Impervious Area
☐	Typical Rain Garden/Bioretention area
☐	Dry well

I acknowledge that I and/or my assignees/grantees shall be responsible for maintenance of the Stormwater Management System(s) selected, and that said Stormwater Management System(s) shall remain as a permanent fixture that cannot be altered, replaced, or removed without prior written approval from the municipality.

I acknowledge that upon completion of the construction of the selected Stormwater Management System(s), I will contact the municipality for an inspection.

Signature of Property Owner

Date

Printed Name

APPROVED

Printed Name/Title

Date

Once this Application is approved by the Municipality, it is the applicant's responsibility to record an approved/signed copy within 90 days of the approval date at the county courthouse.

APPENDIX A

Disconnected Impervious Area (DIA) Self-Certification Form

Property Owner's Name: _____

Mailing Address: _____

Phone: _____ Email: _____

Address of Development: _____

Tax parcel Number: _____

Municipality: _____

Rooftop Disconnection qualifies as a DIA by meeting all of the following requirements:

- ☐ Each Rooftop DIA receives 500 square feet or less of rooftop drainage.
- ☐ The soils in proximity of the discharge area are not designated as hydrologic soil group "D" (or equivalent) according to the USDA Natural Resources Conservation Service or county soil survey.
- ☐ The pervious (vegetated) area that receives the discharge from the rooftop DIA has a slope of 5% or less.
- ☐ The length of the pervious (vegetated) flow path is 75 feet or longer, and the flow path does not include any impervious surfaces, and it is at least 15 feet from any impervious surface.

Pavement* Disconnection qualifies as a DIA by meeting all of the following requirements: (*Pavement is used broadly to refer to any impervious surface that is not a rooftop)

- ☐ Each Pavement DIA is 1,000 square feet or less. (Multiple pavement DIAs are permissible)
- ☐ The slope of the contributing impervious area (pavement) is 75 feet or less.
- ☐ The soils in proximity of the discharge area are not designated as hydrologic soil group "D" (or equivalent) according to the USDA Natural Resources Conservation Service or county soil survey.
- ☐ The pervious (vegetated) area that receives the discharge from the rooftop DIA has a slope of 5% or less.
- ☐ The length of the overland flow of the pervious (vegetated) area is greater than or equal to the contributing length of the impervious area.
- ☐ The slope of the impervious (pavement) area has a slope of 5% or less.

This form must be returned with the stormwater application if you are claiming a Disconnected Impervious Area (DIA).

APPENDIX A

Stormwater - Rain Garden/Bioretention Area Self-Certification Form

Property Owner's Name: _____

Mailing Address: _____

Phone: _____ Email: _____

Address of Development: _____

Tax parcel Number: _____

Municipality: _____

The proposed rain garden/bioretention area(s) meet(s) the following requirements:

- ☐ The surface ponding depth will be approximately 1 foot or less.
- ☐ The rain garden/bioretention area will be constructed after the soils in the surrounding area are stabilized to avoid clogging with sediments.
- ☐ Native vegetation that can tolerate dry and wet weather will be planted in the proposed rain garden/bioretention area.
- ☐ Overflow from the rain garden/bioretention will flow to a pervious (vegetated) area, and will not have potential to harm downstream property.
- ☐ Maximum side slopes of the rain garden/bioretention area shall be 3:1 (horizontal:vertical) ratio, or flatter.
- ☐ The soil/planting mix depth will be between 1.5 feet to 6 feet deep.
- ☐ The rain garden/bioretention area will include a minimum of 8 cubic feet (cf) for each 100 square feet of impervious surface (roof, pavement, gravel, etc.) that drains to it. (80 cf of soil planting mix provides 8 cf of stormwater storage.)
- ☐ The rain garden/bioretention area will be constructed in accordance with the details provided in the stormwater ordinance.

This form must be returned with the stormwater application if you are constructing a Rain Garden/Bioretention Area.

APPENDIX A

Dry Well/Seepage Pit Self-Certification Form

Property Owner's Name: _____
Mailing Address: _____

Phone: _____ Email: _____
Address of Development: _____

Tax parcel Number: _____
Municipality: _____

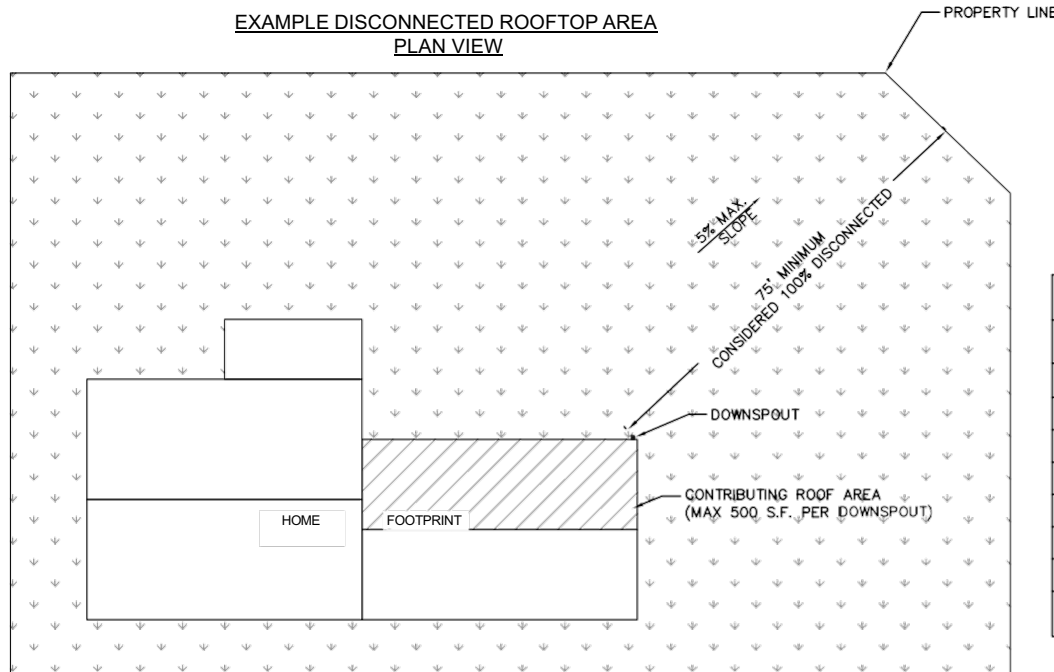
The proposed Dry Well/Seepage Pit(s) meet(s) the following requirements:

- ☐ The Dry Well will be located at least 10 feet from all building foundations.
- ☐ The Dry Well will be constructed after the soils in the surrounding area are stabilized to avoid clogging with sediments.
- ☐ Gravel fill will consist of clean/washed gravel w/ average size of 1" to 3" , and will be wrapped in nonwoven geotextile to separate it from the surrounding soil.
- ☐ At least 12" of soil will be placed on top of the gravel fill.
- ☐ A cleanout or inspection port will be provided.
- ☐ Infiltration testing was performed to ensure positive infiltration.
- ☐ A sump will be installed between the downspout and the Dry Well to collect debris and sediment.
- ☐ The Dry Well will include a minimum of 20 cubic feet (cf) for each 100 square feet of impervious surface (roof, pavement, gravel, etc.) that drains to it. (20 cf of stone provides 8 cf of stormwater storage.)
- ☐ The outlet pipe will provide drainage away from the Dry Well to daylight.
- ☐ An emergency surcharge outlet will be provided and directed in a safe direction to a pervious (vegetated) area.

This form must be returned with the stormwater application if you are constructing a Rain Garden/Bioretentention Area.

APPENDIX A

**EXAMPLE DISCONNECTED ROOFTOP AREA
PLAN VIEW**



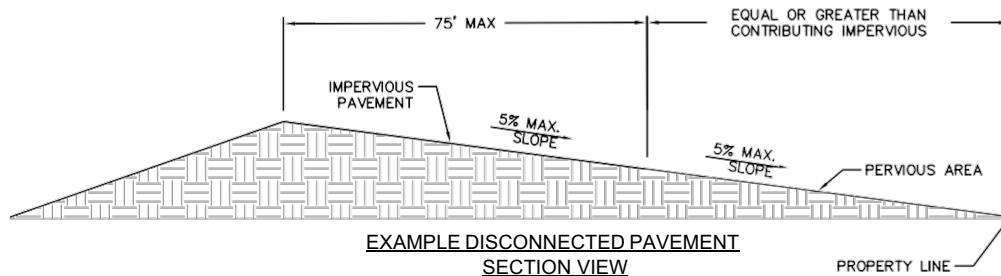
ROOFTOP DISCONNECTION REQUIREMENTS

1. THE CONTRIBUTING AREA OF ROOFTOP TO EACH DISCONNECTED DISCHARGE IS 500 SQUARE FEET OR LESS
2. THE SOIL IN PROXIMITY OF THE ROOF WATER DISCHARGE AREA IS CLASSIFIED AS USDA SOIL GROUP TYPE A, B OR C.
3. THE OVERLAND FLOW PATH FROM ROOF DISCHARGE AREA HAS A POSITIVE SLOPE OF 5% OR LESS.
4. PARTIAL CREDIT CAN BE TAKEN FOR FLOW PATH LENGTHS LESS THAN 75 FEET (SEE TABLE BELOW)

PARTIAL CREDIT FOR ROOFTOP DISCONNECTION

PERVIOUS FLOW PATH LENGTH (FT)	ROOF AREA TREATED AS DISCONNECTED (% OF CONTRIBUTING AREA)
0-14	0
15-29	20
30-44	40
45-59	60
60-74	80
75 OR MORE	100

* FLOW PATH CANNOT INCLUDE IMPERVIOUS SURFACES AND MUST BE AT LEAST 15 FEET FROM ANY IMPERVIOUS SURFACES



**EXAMPLE DISCONNECTED PAVEMENT
SECTION VIEW**

PAVEMENT DISCONNECTION REQUIREMENTS

1. THIS APPLIES GENERALLY ONLY TO SMALL OR NARROW PAVEMENT STRUCTURES SUCH AS DRIVEWAYS AND NARROW PATHWAYS THROUGH OTHERWISE PERVIOUS AREAS. THE TERM IMPERVIOUS PAVEMENT IS USED BROADLY TO REFER TO ANY IMPERVIOUS MATERIAL INCLUDING ASPHALT PAVEMENT, GRAVEL, CONCRETE, ETC.
2. THE CONTRIBUTING FLOW PATH OVER IMPERVIOUS AREA IS NOT MORE THAN 75 FEET.
3. THE LENGTH OF OVERLAND FLOW IS GREATER THAN OR EQUAL TO THE CONTRIBUTING LENGTH.
4. THE SOIL IN PROXIMITY OF THE PAVEMENT WATER DISCHARGE AREA IS CLASSIFIED AS USDA SOIL GROUP TYPES A, B OR C.
5. THE SLOPE OF THE CONTRIBUTING IMPERVIOUS AREA IS 5% OR LESS.
6. THE SLOPE OF THE OVERLAND FLOW PATH IS 5% OR LESS.

TYPICAL DISCONNECTED IMPERVIOUS AREA DETAILS

NOT TO SCALE

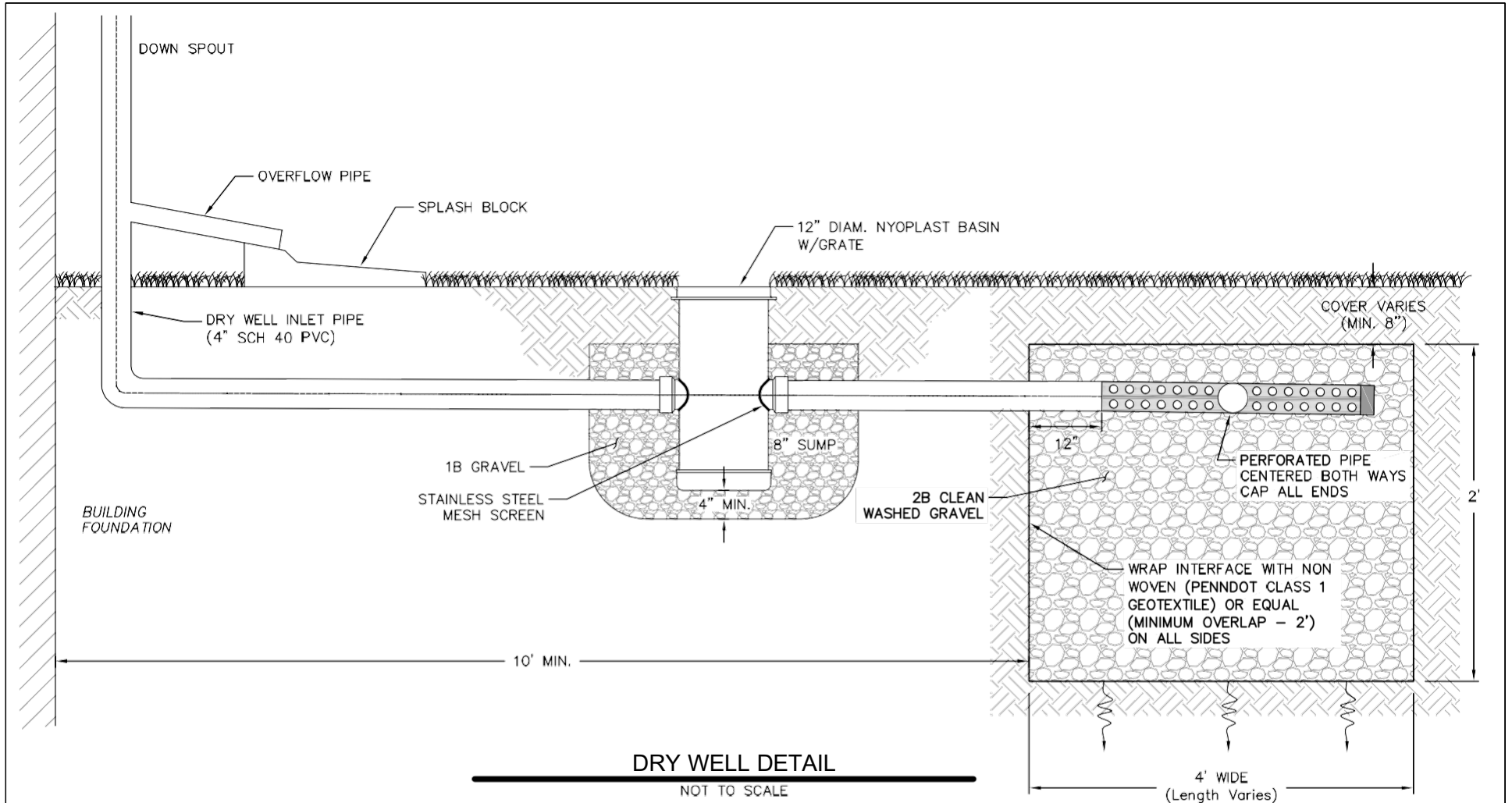
R. K. Webster, LLC

Civil Engineering Consultants
513 Jordan Avenue
Montoursville, PA 17754
Ph (570) 435-3489

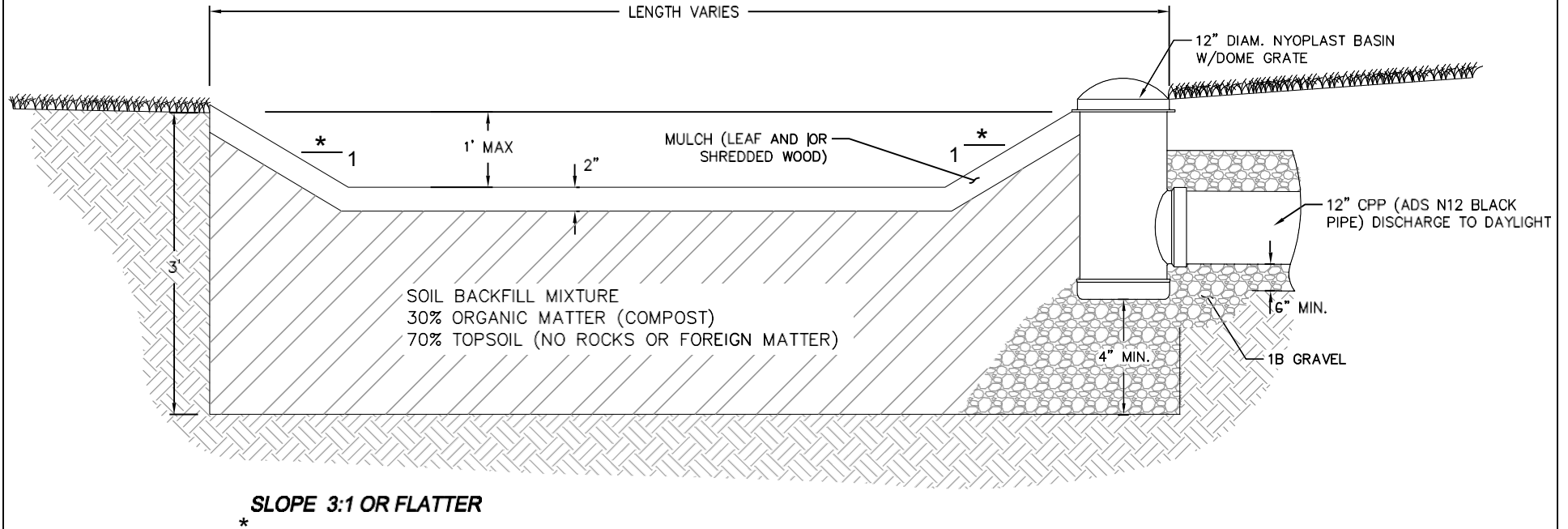
STORMWATER MANAGEMENT DETAIL- DISCONNECTED IMPERVIOUS AREA

BASED UPON PA DEP STORMWATER BMP MANUAL

APPENDIX A



APPENDIX A



RAIN GARDEN DETAIL

NOTE:

1. EXCAVATE RAIN GARDEN AREA TO DEPTH OF 3'-2" AND SCARIFY EXISTING SOIL SURFACES. DO NOT COMPACT SOILS.
2. BACKFILL RAIN GARDEN WITH SOIL MIXTURE, OVERFILL TO ALLOW FOR SETTLEMENT. LIGHT HAND TAMPING IS ACCEPTABLE IF NECESSARY.
3. PRESOAK SOIL TO AID IN SETTLEMENT, THEN COMPLETE GRADING TO SPECIFIED DEPTH AND ADD A LAYER OF MULCH.
4. RAIN GARDEN AREA SHALL BE VEGETATED WITH NATIVE FLOODPLAIN PLANT SPECIES.

R. K. Webster, LLC

Civil Engineering Consultants

513 Jordan Avenue
Montoursville, PA 17754
Ph (570) 435-3489

STORMWATER MANAGEMENT DETAIL- RAIN GARDEN

BASED UPON PA DEP STORMWATER BMP MANUAL

APPENDIX B

Runoff Coefficients for the Rational Method

APPENDIX B

APPENDIX B

Runoff Coefficients For The Rational Method

Source: Rawls, W.J., S.L. Long, and R.H. McCuen, 1981. Comparison of Urban Flood Frequency Procedures. Preliminary Draft Report prepared for the Soil Conservation Service, Beltsville, Maryland.

Land Use	A			B			C			D		
	0-2%	2-6%	6+%	0-2%	2-6%	6+%	0-2%	2-6%	6+%	0-2%	2-6%	6+%
Cultivated	0.08 ^a	0.13	0.16	0.11	0.15	0.21	0.14	0.19	0.26	0.18	0.23	0.31
Land	0.14 ^b	0.08	0.22	0.16	0.21	0.28	0.20	0.25	0.34	0.24	0.29	0.41
Pasture	0.12	0.20	0.30	0.18	0.28	0.37	0.24	0.34	0.44	0.30	0.40	0.50
	0.15	0.25	0.37	0.23	0.34	0.45	0.30	0.42	0.52	0.37	0.50	0.62
Meadow	0.10	0.16	0.25	0.14	0.22	0.30	0.20	0.28	0.36	0.24	0.30	0.40
	0.14	0.22	0.30	0.20	0.28	0.37	0.26	0.35	0.44	0.30	0.40	0.50
Forest	0.05	0.08	0.11	0.08	0.11	0.14	0.10	0.13	0.16	0.12	0.16	0.20
	0.08	0.11	0.14	0.10	0.14	0.18	0.12	0.16	0.20	0.15	0.20	0.25
Residential	0.25	0.28	0.31	0.27	0.30	0.35	0.30	0.33	0.38	0.33	0.36	0.42
1/8 Acre	0.33	0.37	0.40	0.35	0.39	0.44	0.38	0.42	0.49	0.41	0.45	0.54
1/4 Acre	0.22	0.26	0.29	0.24	0.29	0.33	0.27	0.31	0.36	0.30	0.34	0.40
	0.30	0.34	0.37	0.33	0.37	0.42	0.36	0.40	0.47	0.38	0.42	0.52
1/3 Acre	0.19	0.23	0.26	0.22	0.26	0.30	0.25	0.29	0.34	0.28	0.32	0.39
	0.28	0.32	0.35	0.30	0.35	0.39	0.33	0.38	0.45	0.36	0.40	0.50
1/2 Acre	0.16	0.20	0.24	0.19	0.23	0.28	0.22	0.27	0.32	0.26	0.30	0.37
	0.25	0.29	0.32	0.28	0.32	0.36	0.31	0.35	0.42	0.34	0.38	0.48
1 Acre	0.14	0.19	0.22	0.17	0.21	0.26	0.20	0.25	0.31	0.24	0.29	0.35
	0.22	0.26	0.29	0.24	0.28	0.34	0.28	0.32	0.40	0.31	0.35	0.46
Industrial	0.67	0.68	0.68	0.68	0.68	0.69	0.68	0.69	0.69	0.69	0.69	0.70
	0.85	0.85	0.86	0.85	0.86	0.86	0.86	0.86	0.87	0.86	0.86	0.88
Commercial	0.71	0.71	0.72	0.71	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
	0.88	0.88	0.89	0.89	0.89	0.89	0.89	0.89	0.90	0.89	0.89	0.90
Streets	0.70	0.71	0.72	0.71	0.72	0.74	0.72	0.73	0.76	0.73	0.75	0.78
	0.76	0.77	0.79	0.80	0.82	0.84	0.84	0.85	0.89	0.89	0.91	0.95
Open Space	0.05	0.10	0.14	0.08	0.13	0.19	0.12	0.17	0.24	0.16	0.21	0.28
	0.11	0.16	0.20	0.14	0.19	0.26	0.18	0.23	0.32	0.22	0.27	0.39
Parking or	0.85	0.86	0.87	0.85	0.86	0.87	0.85	0.86	0.87	0.85	0.86	0.87
Impervious	0.95	0.96	0.97	0.95	0.96	0.97	0.95	0.96	0.97	0.95	0.96	0.97

a = Runoff coefficients for storm recurrence intervals less than 25 years

b = Runoff coefficients for storm recurrence intervals of 25 years or more

APPENDIX C

Manning Roughness Coefficients

APPENDIX C

APPENDIX C

Manning Roughness Coefficients

Roughness Coefficients (Manning's "n") For Overland/Sheet Flow
(From U.S. Army Corps of Engineers & NRCS TR-55)

Surface Description	n
Dense Growth	0.4 – 0.5
Pasture	0.3 – 0.4
Lawns	0.2 – 0.3
Bluegrass Sod	0.2 – 0.5
Short Grass Prairie	0.1 – 0.2
Sparse Vegetation	0.05 – 0.13
Bare Clay – Loam Soil (eroded)	0.01 – 0.03
Concrete/Asphalt – very shallow depths	
(less than 1/4 inch)	0.10 – 0.15
- small depths	
(1/4 inch to several inches)	0.05 – 0.10
Fallow (no residue)	0.05
Cultivated Soils	
Residue Cover Less Than or = 20%	0.06
Residue Cover Greater Than 20%	0.17
Grass	
Dense Grasses	0.24
Bermuda Grass	0.41
Range (natural)	0.13
Woods (Light Underbrush)	0.40

APPENDIX D

Stormwater Facilities Maintenance Agreement

APPENDIX D

APPENDIX D

Standard Stormwater Facilities Maintenance And Monitoring Agreement

THIS AGREEMENT, made and entered into this _____ day of _____, 20__, by and between _____, (hereinafter the “Landowner”), and Delaware Township, Northumberland County, Pennsylvania, (hereinafter “Township”);

WITNESSETH

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

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

WHEREAS, the Subdivision/Land Development Plan and/or Drainage Plan (hereinafter “Plan”) for the _____ Subdivision/Land Development which is expressly made a part hereof, as approved or to be approved by the Township, provides for detention or retention of stormwater within the confines of the Property; and

WHEREAS, the Township and the Landowner, his successors and assigns agree that the health, safety, and welfare of the residents of the Municipality require that on-site stormwater management facilities be constructed and maintained on the Property; and

WHEREAS, the Township requires, through the implementation of the _____ Watershed Stormwater Management Plan, that stormwater management facilities as shown on the Plan be constructed and adequately maintained by the Landowner, his successors and assigns.

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

1. The on-site stormwater management facilities shall be constructed by the Landowner, his successors and assigns, in accordance with the terms, conditions and specifications identified in the Plan.
2. The Landowner, his successors and assigns, shall maintain the stormwater management facilities in good working condition, acceptable to the Township so that they are performing their design functions.
3. The Landowner, his successors and assigns, hereby grants permission to the Township, his authorized agents and employees, upon presentation of proper identification, to enter upon the Property at reasonable times, and to inspect the stormwater management facilities whenever the Township deems necessary. The purpose of the inspection is to assure safe and proper functioning of the facilities. The inspection shall cover the entire facilities, berms, outlet structures, pond areas, access roads, etc. When inspections are conducted, the Township shall give the Landowner, his successors and assigns, copies of the inspection report with findings and evaluations. At a minimum, maintenance inspections shall be performed in accordance with the following schedule:

- Annually for the first 5 years after the construction of the stormwater facilities,
 - Once every 2 years thereafter, or
 - During or immediately upon the cessation of a precipitation event resulting in a depth of six inches or greater in a 24-hour period.
4. All reasonable cost for said inspections shall be borne by the Landowner and payable to the Township.
 5. The owner shall convey to the Township easements and/or rights-of-way to assure access for periodic inspections by the Township and maintenance, if required.
 6. In the event the Landowner, his successors and assigns, fails to maintain the stormwater management facilities in good working condition acceptable to the Township, the Township may enter upon the Property and take such necessary and prudent action to maintain said stormwater management facilities and to charge the costs of the maintenance and/or repairs to the Landowner, his successors and assigns. This provision shall not be construed as to allow the Township to erect any structure of a permanent nature on the land of the Landowner, outside of any easement belonging to the Township. It is expressly understood and agreed that the Township is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the Township.
 7. The Landowner, his successors and assigns, will perform maintenance in accordance with the maintenance schedule for the stormwater management facilities including sediment removal as outlined on the approved schedule, Subdivision/Land Development Plan and/or Drainage Plan.
 8. In the event the Township, pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like on account of the Landowner's or his successors' and assigns' failure to perform such work, the Landowner, his successors and assigns, shall reimburse the Township upon demand, within 30 days of receipt of invoice thereof, for all costs incurred by the Township hereunder. If not paid within said 30-day period, the Township may enter a lien against the property in the amount of such costs, or may proceed to recover his costs through proceedings in equity or at law as authorized under the provisions of the _____ Code.
 9. The Landowner, his successors and assigns, shall indemnify the Township and his agents and employees against any and all damages, accidents, casualties, occurrences or claims which might arise or be asserted against the Township for the construction, presence, existence or maintenance of the stormwater management facilities by the Landowner, his successors and assigns.
 10. In the event a claim is asserted against the Township, his agents or employees, the Township shall promptly notify the Landowner, his successors and assigns, and they shall defend, at their own expense, any suit based on such claim. If any judgment or claims against the Township, his agents or employees shall be allowed, the Landowner, his successors and assigns shall pay all costs and expenses in connection therewith.

11. In the advent of an emergency or the occurrence of special or unusual circumstances or situations, the Township may enter the Property, if the Landowner is not immediately available, without notification or identification, to inspect and perform necessary maintenance and repairs, if needed, when the health, safety or welfare of the citizens is at jeopardy. However, the Township shall notify the Landowner of any inspection, maintenance, or repair undertaken within 5 days of the activity. The Landowner shall reimburse the Township for his costs.

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

ATTEST:

WITNESS the following signatures and seals:

(SEAL)

For the Township:

(SEAL)

For the Landowner:

ATTEST:

_____(City, Borough, Township/Borough)

County of Northumberland , Pennsylvania