

**CECIL TOWNSHIP, STORMWATER MANAGEMENT  
ORDINANCE**

Implementing the Requirements of the  
**Washington County Stormwater Management Plan**

ORDINANCE NO. 7 OF 2016

CECIL TOWNSHIP, WASHINGTON COUNTY, PENNSYLVANIA

Adopted at a Public Meeting Held on  
July 5, 2016

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## **ARTICLE I - GENERAL PROVISIONS**

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

This Ordinance shall be known and may be cited as the “Cecil Township Stormwater Management Ordinance.”

### **Section 102. Purpose**

The purpose of this Ordinance is to promote health, safety, and welfare within Cecil Township, Washington County, by minimizing the harms and maximizing the benefits to the citizens of Cecil Township and surrounding communities through provisions intended to:

- A. To the extent practicable, meet legal water quality requirements under state law, including regulations at 25 PA Code Chapter 93 to protect, maintain, reclaim, and restore the existing and designated uses of the Waters of the Commonwealth.
- B. Manage accelerated runoff and erosion and sedimentation problems close to their source, by regulating activities that cause these problems.
- C. Preserve the natural drainage systems as much as possible.
- D. Maintain groundwater recharge, to prevent degradation of surface and groundwater quality, and to otherwise protect water resources.
- E. Maintain existing flows and quality of streams and watercourses.
- F. Preserve and restore the flood-carrying capacity of streams and prevent scour and erosion of stream banks and streambeds.
- G. Manage stormwater impacts close to the runoff source, with a minimum of structures and a maximum use of natural processes.
- H. Provide procedures, performance standards, and design criteria for stormwater planning and management.
- I. Provide proper operations and maintenance of all temporary and permanent stormwater management facilities and Best Management Practices (BMPs) that are constructed and implemented.
- K. Provide standards to meet the NPDES permit requirements.

### **Section 103. Statutory Authority**

Primary Authority: Cecil Township is empowered to regulate these activities by the authority of the Act of October 4, 1978, 32 P.S., P.L. 864 (Act 167), 32 P.S. Section 680.1 et seq., as amended, the "Storm Water Management Act", and the Second Class Township Code, 53 P.S. § 55101 et seq., as amended.

#### **Section 104. Applicability**

In Cecil Township, all regulated activities and all activities that may affect stormwater runoff, including land development and earth disturbance activity, are subject to regulation by this Ordinance.

Earth disturbance activities and associated stormwater management controls are also regulated under existing state law and implementing regulations. This Ordinance shall operate in coordination with those parallel requirements; the requirements of this Ordinance shall be no less restrictive in meeting the purposes of this Ordinance than state law.

"Regulated Activities" are any earth disturbance activities or any activities that involve the alteration or development of land in a manner that may affect stormwater runoff. "Regulated Activities" include, but are not limited to, the following listed items:

- A. Earth Disturbance Activities
- B. Land Development
- C. Subdivision
- D. Construction of new or additional impervious or semi-pervious surfaces
- E. Construction of new buildings or additions to existing buildings
- F. Installation of stormwater management facilities or appurtenances thereto

See Section 302 of this Ordinance for Exemption/Modification Criteria.

#### **Section 105. Repealer**

Any ordinance, ordinance provision(s), or regulation of Cecil Township inconsistent with any of the provision(s) of this Ordinance is hereby repealed to the extent of the inconsistency only.

#### **Section 106. Severability**

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

#### **Section 107. Compatibility with Other Ordinance Requirements**

Approvals issued and actions taken pursuant to this Ordinance do not relieve the Applicant of the responsibility to comply with or to secure required permits or approvals for activities regulated by any other applicable codes, laws, rules, statutes, or ordinances. To the extent that this Ordinance imposes more rigorous or stringent requirements for stormwater management, the specific requirements contained in this Ordinance shall be followed.

### **Section 108. Duty of Persons Engaged in the Development of Land**

Any landowner or any person engaged in the alteration or development of land which may affect stormwater runoff characteristics shall, unless an exemption is granted, implement such measures as are required by this Ordinance to prevent injury to health, safety, or other property. Such measures also shall include actions as are required to manage the rate, volume, direction, and where practicable quality of resulting stormwater runoff in a manner which otherwise adequately protects health, property, and water quality.

### **Section 109. Municipal Liability Disclaimer**

- A. Neither the granting of any approval under this Ordinance, nor the compliance with the provisions of this Ordinance, or with any condition imposed by a municipal official hereunder, shall relieve any person from any responsibility for damage to persons or property resulting there from, or as otherwise imposed by law nor impose any liability upon the Township for damages to persons or property.
- B. The granting of a permit which includes any storm water management facilities shall not constitute a representation, guarantee or warranty of any kind by the Township, or by an official or employee thereof, of the practicability or safety of any structure, use or other plan proposed, and shall create no liability upon or cause of action against such public body, official or employee for any damage that may result pursuant thereto.

### **Section 110. Design Standards**

Design standards and criteria for the construction of certain stormwater management facilities should comply with the specifications of Appendix B, Cecil Township Standard Details – Stormwater Management, attached to this chapter. The Cecil Township Board of Supervisors by resolution may from time to time change the specifications. In their sole discretion, the Township engineer and the zoning officer may approve modifications to the design standards.

### **Section 111. Effective Immediately**

This ordinance shall take effect immediately.

## ARTICLE II – DEFINITIONS

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

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

**Accelerated Erosion** - The removal of the surface of the land through the combined action of human activity and natural processes at a rate greater than would occur because of the natural process alone.

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

**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; changing of surface conditions by causing the surface to be more or less impervious; land disturbance.

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

**Best Management Practices (BMPs)** - 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: "non-structural" or "structural". "Non-structural" BMPs are measures referred to as operational and/or behavior-related practices that attempt to minimize the contact of pollutants with stormwater runoff whereas "structural" BMPs are measures that consist of a physical device or practice that is installed to capture and treat stormwater runoff. "Structural" BMPs include, but are not limited to, a wide variety of practices and devices, from large-scale retention ponds and constructed wetlands, to small-scale underground treatment systems, infiltration facilities, filter strips, low impact design, bioretention, wet ponds, permeable paving, grassed swales, riparian or forested buffers, sand filters, detention basins, and manufactured devices. "Structural" stormwater BMPs are permanent appurtenances to the project site.

**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 used for storing rainwater.

**Conservation District** - The Washington County Conservation District. The Washington County Conservation District has the authority under a delegation agreement executed with the Department of Environmental Protection to administer and enforce all or a portion of the regulations promulgated under 25 PA Code Chapter 102.

**Culvert** - A structure with appurtenant works that carries a stream and/or stormwater runoff 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 which does or may impound water or another fluid or semifluid.

**Design Storm** - The magnitude and temporal distribution of precipitation from a storm event measured in probability of occurrence (e.g., a 25-year storm) and duration (e.g., 24-hours), used in the design and evaluation of stormwater management systems. Also see Return Period.

**Designee** - The agent of this Township and/or agent of the governing body 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 Volume** - The volume of runoff that is captured and released into Waters of the Commonwealth at a controlled rate.

**Developer** - A landowner, agent of such landowner or tenant with permission of such landowner, or any responsible person, who undertakes a subdivision, land development in accordance with Chapter 252 of the Cecil Township Codified Ordinances, or that undertakes any Regulated Activity of this Ordinance.

**Development Site - (Site)** - The specific tract of land for which a Regulated Activity is proposed. Also see Project Site.

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

**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 toward it.

**Drainage Conveyance Facility** - A stormwater management facility designed to convey 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, drainage, or conveyance purposes.

**Drainageway** - Any natural or artificial watercourse, trench, ditch, pipe, swale, channel, or similar depression into which surface water flows.

**Earth Disturbance Activity** - A construction or other human activity which disturbs the surface of the land, including, but not limited to, clearing and grubbing, grading, excavations, embankments, land development, agricultural plowing or tilling, timber harvesting activities, road maintenance activities, mineral extraction, and the moving, depositing, stockpiling, or storing of soil, rock or earth materials.

**Erosion** -The process of breaking down and carrying away of exposed ground surfaces by action of wind, water and temperature change.

**Erosion and Sediment Pollution Control Plan** - A plan which is designed to minimize accelerated erosion and sedimentation.

**Exceptional Value Waters** - Surface waters of high quality, which satisfies PA Code Title 25 Environmental Protection, Chapter 93 Water Quality Standards 93.4b(b) (relating to anti-degradation).

**Existing Conditions** - The initial condition of a project site prior to the proposed construction. If the initial condition of the site is undeveloped land and not forested, the land use shall be considered as "meadow" unless the natural land cover is documented to generate lower Curve Numbers or Rational "C" Coefficient.

**FEMA** - The 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 Fringe** - The remaining portions of the 100-year floodplain outside of the floodway boundary.

**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. Included are lands adjoining a river or stream that have been or may be inundated by a 100-year flood. Also included are areas that comprise Group 13 Soils, as listed in Appendix A of the Pennsylvania Department of Environmental Protection (PADEP) Technical Manual for Sewage Enforcement Officers (as amended or replaced from time to time by PADEP).

**Floodway** - The channel of the watercourse and those portions of the adjoining floodplains that 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 landward 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 tank, 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.

**Groundwater Recharge** - Replenishment of existing natural underground water supplies.

**HEC-HMS Model Calibrated** - (Hydrologic Engineering Center Hydrologic Modeling System) A computer-based hydrologic modeling technique adapted to the watershed(s) in Washington County for the Act 167 Plan. The model has been calibrated by adjusting key model input parameters.

**High Quality Waters** - Surface water having quality, which exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water by satisfying PA Code Title 25 Environmental Protection, Chapter 93 Water Quality Standards 93.4b(a).

**Hydrologic Soil Group (HSG)** - Infiltration rates of soils vary widely and are affected by subsurface permeability as well as surface intake rates. Soils are classified into one of four HSG (A, B, C, and D) according to their minimum infiltration rate, which is obtained for bare soil after prolonged wetting. The Natural Resource Conservation Service (NRCS) of the US Department of Agriculture defines the four groups and provides a list of most of the soils in the United States and their group classification. The soils in the area of interest may be identified from a soil survey report from the local NRCS office or the County Conservation District.

**Impervious Surface (Impervious Area)** - A surface that prevents the infiltration of water into the ground. Impervious surface (or areas) include, but is not limited to: roofs, additional indoor living spaces, patios, garages, storage sheds and similar structures, parking or driveway areas, and any new streets and sidewalks. Any surface areas proposed to initially be gravel or crushed stone shall be assumed to be impervious surfaces.

**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, etc.).

**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.

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

- A. The improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving:
  - (1) A group of two or more residential or nonresidential buildings, whether proposed initially or cumulatively, or a single nonresidential building on a lot or lots, regardless of the number of occupants or tenure; or
  - (2) The division or allocation of land or space, whether initially or cumulatively, between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups or other features.
- B. A subdivision of land.
- C. Developments authorized to be excluded from the regulations of land development under the Cecil Township Unified Development Ordinance.

**Low Impact Development (LID)** - an approach to land development that uses various land planning and design practices and technologies to simultaneously conserve and protect natural resource systems and reduce infrastructure costs. LID still allows land to be developed, but in a cost-effective manner that helps mitigate potential environmental impacts.

**Main Stem (Main Channel)** - Any stream segment or other runoff conveyance facility used as a reach in the Washington County Act 167 watershed hydrologic model(s).

**Manning Equation (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.

**Township** - Cecil Township, Washington County, Pennsylvania.

**National Pollutant Discharge Elimination System (NPDES)** - The federal government's system for issuance of permits under the Clean Water Act, which is delegated to PADEP in Pennsylvania.

**NOAA Atlas 14** - Precipitation-Frequency Atlas of the United States, Atlas 14, Volume 2, US Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland (2004). NOAA's Atlas 14 can be accessed at Internet address <http://hdsc.nws.noaa.gov/hdsc/pfds/>.

**Non-point Source Pollution** - Pollution that enters a water body from diffuse origins in the watershed and does not result from discernible, confined, or discrete conveyances.

**NRCS** - Natural Resource Conservation Service (previously Soil Conservation Service (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 not under pressure.

**Outfall** - (i) Point where water flows from a conduit, stream, or drain; (ii) “Point Source” as described in 40 CFR § 122.2 at the point where the Township’s storm sewer system discharges to surface waters of the Commonwealth.

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

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

**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.

**Person** - An individual, partnership, public or private association or corporation, or a governmental unit, public utility or any other legal entity whatsoever which is recognized by law as the subject of rights and duties.

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

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

**Planning Commission** - The Planning Commission of Cecil Township.

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

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

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

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

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

**Redevelopment** - Earth disturbance activities on land, which has previously been developed.

**Regulated Activities** - Any earth disturbance activities or any activities that involve the alteration or development of land in a manner that may affect stormwater runoff.

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

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

**Release Rate District** - Those subwatershed areas in which post-development flows must be reduced to a certain percentage of pre-development flows as required to meet the plan requirements and the goals of Act 167.

**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.

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

**Return Period** - The average interval, in years, within which a storm event of a given magnitude can be expected to recur. For example, the 25-year return period rainfall would be expected to recur on the average once every twenty-five years; or stated in another way, the probability of a 25-year storm occurring in any one given year is 0.04 (i.e. a 4% chance).

**Riparian Buffer** - A vegetated area bordering perennial and intermittent streams and wetlands, that serves as a protective filter to help protect streams/wetlands from the impacts of adjacent land uses.

**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.

**Road Maintenance** - Earth disturbance activities within the existing road right-of-way, such as grading and repairing existing unpaved road surfaces, cutting road banks, cleaning or clearing drainage ditches, and other similar activities. Road maintenance activities that do not disturb the subbase of a paved road (such as milling and overlays) are not considered earth disturbance activities.

**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.

**Runoff Capture Volume** - The volume of runoff that is captured (retained) and not released into surface Waters of the Commonwealth during or after a storm event.

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

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

**Sediment Pollution** - The placement, discharge, or any other introduction of sediment into Waters of the Commonwealth occurring from the failure to properly 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.

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

**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).

**Spillway (Emergency)** - A depression in the embankment of a pond or basin, or other overflow structure, that is used to pass peak discharges greater than the maximum design storm controlled by the pond or basin.

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

**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 also 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 wastes.

**Stormwater** - Runoff from the surface of the land resulting from precipitation, snow, or ice melt.

**Stormwater Hotspot** - A land use or activity that generates higher concentrations of hydrocarbons, trace metals, or toxicants than are found in typical stormwater runoff.

**Stormwater Management 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 basins, open channels, storm sewers, pipes and infiltration facilities.

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

**Stormwater Management Site Plan (SWM Site Plan)** - The plan prepared by the Applicant or his representative indicating how stormwater runoff will be managed at the project site in accordance with this Ordinance.

**Stream Enclosure** - A bridge, culvert, or other structure in excess of 100 feet in length upstream to downstream which encloses a regulated Waters of the Commonwealth.

**Subwatershed Area** - The smallest drainage unit of a watershed for which stormwater management criteria has been established in the Stormwater Management Plan.

**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.

**Timber Operations** - See “Forest Management”.

**Time of Concentration (Tc)** - 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.

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

**Watercourse** – A natural or man-made drainageway, which has a definite channel and flows in a definite direction, whether continuously or intermittently, including streams, rivers, creeks, channels, conduits, canals, drains, gullies, ravines and the like and which is certified by a registered surveyor or engineer as being a natural watercourse.

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

**Watershed** - Area drained by a river, watercourse, or other surface water, whether natural or artificial.

**Wetland** - Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs and similar areas. (The term includes but is not limited to wetland areas listed in the State Water Plan, the United States Forest Service Wetlands Inventory of Pennsylvania and a wetland area designated by a river basin commission. This definition is used by the United States Environmental Protection Agency and the United States Army Corps of Engineers.)

## ARTICLE III - STORMWATER MANAGEMENT STANDARDS

### Section 301. General Requirements

- A. For all Regulated Activities, unless specifically exempted in Section 302:
  - 1. Preparation and implementation of an approved SWM Site Plan is required.
  - 2. No Regulated Activities shall commence until the Township issues written approval of a SWM Site Plan, which demonstrates compliance with the requirements of this Ordinance.
  - 3. The SWM Site Plan shall demonstrate that adequate capacity will be provided to meet the Volume and Rate Control Requirements, as described under Sections 304 and 305 of this Ordinance.
  - 4. The SWM Site Plan approved by the Township, shall be on-site throughout the duration of the Regulated Activities.
  
- B. For all Regulated Earth Disturbance Activities, erosion and sediment control BMPs shall be designed, implemented, operated, and maintained during the Regulated Earth Disturbance Activities (e.g., during construction) to meet the purposes and requirements of this Ordinance and to meet all requirements under Act 167 and the regulations promulgated thereunder (including, but not limited to Chapter Title 25 of the Pennsylvania Code, 102 Erosion and Sediment Control). Various BMPs and their design standards are listed in the Erosion and Sediment Pollution Control Program Manual (E&S Manual), No. 363-2134-008 (April 15, 2000), as amended and updated.
  
- C. For all Regulated Activities, stormwater BMPs shall be designed, installed, implemented, operated, and maintained to meet the purposes and requirements of this Ordinance and to meet all requirements under Act 167 and the regulations promulgated thereunder, conform to the State Water Quality Requirements, meet all requirements under the Storm Water Management Act and any more stringent requirements as determined by the Township.
  
- D. The Township may, after consultation with PADEP and the Conservation District, approve measures for meeting the State Water Quality Requirements other than those in this Ordinance, provided that they meet the minimum requirements of, and do not conflict with state law, including, but not limited to, the Clean Streams Law.
  
- E. All Regulated Activities shall include, to the maximum extent practicable, measures to:
  - 1. Protect health, safety, and property.
  - 2. Meet the requirements of this Ordinance by implementing measures to:
    - a. Minimize disturbance to floodplains, wetlands, natural slopes, existing native vegetation and woodlands.
    - b. Encourage the creation, maintenance and extension of riparian buffers and the protection existing forested buffers.
    - c. Provide trees and woodlands adjacent to impervious areas whenever feasible.

- d. Minimize the creation of impervious surfaces and the degradation of waters of the Commonwealth and promote groundwater recharge.
- e. Protect natural systems and processes (drainageways, vegetation, soils, and sensitive areas) and maintain, as much as possible, the natural hydrologic regime.
- f. Incorporate natural site elements (wetlands, stream corridors, mature forests) as design elements.
- g. Avoid erosive flow conditions in natural flow pathways.
- h. Minimize soil disturbance and soil compaction.
- i. Minimize thermal impacts to waters of the Commonwealth.
- j. Disconnect impervious surfaces by directing runoff to pervious areas, wherever possible and decentralize and manage stormwater at its source.

F. Impervious Areas:

1. The measurement of impervious areas shall include all of the impervious areas in the total proposed development, even if development is to take place in stages.
2. For developments taking place in stages, the entire development plan must be used in determining conformance with this Ordinance.

G. If diffused flow is proposed to be concentrated and discharged onto adjacent property, 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 the concentrated discharge.

1. Applicant must obtain an easement for proposed concentrated flow across adjacent properties to a drainage way or public right-of-way.
2. Such stormwater flows shall be subject to the requirements of this ordinance.

H. Stormwater drainage systems 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.

I. Where watercourses traverse a development site, drainage areas with a minimum width of 20 feet and include the 100-year water surface shall be provided conforming to the line of such watercourses. Excavation, the placing of fill or structures, and any alterations that may adversely affect the flow of stormwater within any portion of the drainage area shall be prohibited. Also, maintenance, including mowing of vegetation within the drainage area may be required, except as approved by the appropriate governing authority.

J. 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 drainage ways shall be subject to approval by PADEP under regulations at 25 PA Code Chapter 105 through the Joint Permit Application process, or, where deemed appropriate by PADEP, through the General Permit process.

- K. Any stormwater management facilities or any facilities that constitute water obstructions (e.g., culverts, bridges, outfalls, or stream enclosures, etc.) that are regulated by this Ordinance, that will be located in or adjacent to Waters of the Commonwealth (including wetlands), shall be subject to approval by PADEP under regulations at 25 PA Code Chapter 105 through the Joint Permit Application process, or, where deemed appropriate by PADEP, the General Permit process. When there is a question whether wetlands may be involved, it is the responsibility of the Applicant 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 PADEP.
- L. Should any stormwater management facility require a dam safety permit under PADEP Chapter 105, the facility shall be designed in accordance with Chapter 105 and meet the regulations of Chapter 105 concerning dam safety.
- M. Any stormwater management facilities regulated by this Ordinance that will be located on, or discharged onto State highway rights-of-ways shall be subject to approval by the Pennsylvania Department of Transportation (PENNDOT).
- N. Minimization of impervious surfaces and infiltration of runoff through seepage beds, infiltration trenches, etc., are encouraged, where soil conditions and geology permit, to reduce the size or eliminate the need for detention facilities.
- O. Infiltration BMPs should be dispersed throughout the site, made as shallow as practicable, and located to maximize use of natural on-site infiltration features while still meeting the other requirements of this Ordinance.
- Q. Roof drains shall not be connected to streets, sanitary or storm sewers, or roadside ditches in order to promote overland flow and infiltration/percolation of stormwater where it is advantageous to do so. When it is more advantageous to connect directly to streets or storm sewers, then the Township shall permit it on a case-by-case basis.
- R. Applicants are encouraged to use Low Impact Development Practices to reduce the costs of complying with the requirements of this Ordinance and the State Water Quality Requirements.
- S. When stormwater management facilities are proposed within 1,000 feet of a downstream Township, the Developer shall notify the downstream Township and provide a copy of the SWM Plan, if requested, for review and comment.

**Section 302. Exemptions/Modifications**

- A. Under no circumstance shall the Applicant be exempt from implementing such measures as necessary to:
  - 1. Protect health, safety, and property.
  - 2. Meet special requirements for High Quality (HQ) and Exceptional Value (EV) watersheds.

- B. The Applicant must demonstrate that the following BMPs are being utilized to the maximum extent practicable to receive consideration for the exemptions:
1. Design around and limit disturbance of Floodplains, Wetlands, Natural Slopes over 15%, existing native vegetation, and other sensitive and special value features.
  2. Maintain riparian and forested buffers.
  3. Limit grading and maintain non-erosive flow conditions in natural flow paths.
  4. Maintain existing tree canopies near impervious areas.
  5. Minimize soil disturbance and reclaim disturbed areas with topsoil and vegetation.
  6. Direct runoff to pervious areas.
- C. The Applicant must demonstrate that the proposed development/additional impervious area will not adversely impact the following:
1. Capacities of existing drainageways and storm sewer systems.
  2. Velocities and erosion.
  3. Quality of runoff if direct discharge is proposed.
  4. Existing known problem areas.
  5. Safe conveyance of the additional runoff.
  6. Downstream property owners.
- D. An Applicant proposing Regulated Activities may be eligible for exemption from Rate Control, Volume Control, or Stormwater Management Site Plan requirements in this Ordinance according to the following table:

**Table 302.1 – Exemptions and Submission Requirements**

New Impervious Area <sup>1, 2</sup> (square footage)	Applicant Must Provide
0 < 2,500	No submission is required
2,500 < 5,000	Documentation of new impervious surfaces <sup>3</sup>
5,000 and greater	Rate Controls, Volume Controls & SWM Site Plan

NOTES:

1. New Impervious Area since the date of Adoption of this Ordinance.
2. Gravel in existing condition shall be considered pervious and gravel in proposed condition shall be considered impervious.
3. The Small Project Stormwater Management Application included in Appendix E shall be used to document new impervious surfaces.

- E. Single Family Residential activities are exempt from these requirements provided the construction:
1. Comply with Sections 301.G, 302.A, 302.B, 302.C, and
  2. Driveways:
    - a. Runoff must discharge onto pervious surface with a gravel strip or other spreading device.
    - b. No more than 1,000 square feet of paved surface may discharge to any one point.

- c. The length of flow on the pervious must exceed the length of the paved surface flow.
  - 3. The Township can require more information or require mitigation of certain impacts through installation of stormwater management BMP's if there is a threat to property, health, or safety.
- F. An Applicant proposing Regulated Activities, after demonstrating compliance with Sections 302.A, 302.B, and 302.C, may be exempted from various requirements of this Ordinance if documentation can be provided that a downstream man-made water body (i.e., reservoir, lake, or man-made wetlands) has been designed or modified to address the potential stormwater flooding impacts of the proposed development.
- G. The purpose this section is to ensure consistency of stormwater management planning between local ordinances and NPDES permitting (when required) and to ensure that the Applicant has a single and clear set of stormwater management standards to which the Applicant is subject. The Township may accept alternative stormwater management controls under this section provided that:
  - 1. The Township , in consultation with the PADEP (or Delegated Authority), determines that meeting the Volume Control requirements (See Section 304) is not possible or places an undue hardship on the Applicant.
  - 2. The alternative controls are documented to be acceptable to PADEP (or Delegated Authority), for NPDES requirements pertaining to post construction stormwater management requirements.
  - 3. The alternative controls are in compliance with all other sections of this ordinance, including but not limited to Sections 301.D and 302.A-C.
- H. Agricultural activities are exempt from the rate control and SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 PA Code Chapter 102.
- I. Forest management and timber operations are exempt from the Rate and Volume Control requirement and SWM Site Plan preparation requirement of this Ordinance provided the activities are performed according to the requirements of 25 PA Code Chapter 102. It should be noted that temporary roadways are not exempt. [???
- J. The Township may deny or revoke any exemption pursuant to this Section at any time for any project that the Township believes may pose a threat to public health, safety, property or the environment.

### **Section 303. Waivers**

- A. The provisions of this Ordinance are the minimum standards for the protection of the public welfare.
- B. All waiver requests must meet the provisions of Section 303.G. and H. Waivers shall not be issued from implementing such measures as necessary to:

1. Protect health, safety, and property.
2. Meet special requirements for High Quality (HQ) and Exceptional Value (EV) watersheds.

Municipalities will then consider waivers in accordance with Section 301.D.

- C. If an Applicant demonstrates to the satisfaction of the governing body of the Township that any mandatory provision of this Ordinance is unreasonable or causes unique or undue unreasonableness or hardship as it applies to the proposed Project, or that an alternate design may result in a superior result within the context of Section 102 and 103 of this Ordinance, the governing body of the Township upon obtaining the comments and recommendations of the Municipal Engineer may grant a waiver or relief so that substantial justice may be done and the public interest is secured; provided that such waiver will not have the effect of nullifying the intent and purpose of this Ordinance.
- D. The Applicant shall submit all requests for waivers in writing and shall include such requests as a part of the plan review and approval process. The Applicant shall state in full the facts of unreasonableness or hardship on which the request is based, the provision or provisions of the Ordinance that are involved, and the minimum waiver or relief that is necessary. The Applicant shall state how the requested waiver and how the Applicant's proposal shall result in an equal or better means of complying with the intent or Purpose and general principles of this Ordinance.
- E. The Township shall keep a written record of all actions on waiver requests.
- F. All waiver requests must be accompanied by a fee set by resolution by Cecil Township; the fee being designed to cover the administrative costs of reviewing the waiver request. The Township may charge a fee for each waiver request, which shall be used to offset the administrative costs of reviewing the waiver request. The Applicant shall also agree to reimburse the Township for reasonable and necessary fees that may be incurred by the Municipal Engineer and Solicitor in any review of a waiver request.
- G. In granting waivers, the Township may impose reasonable conditions that will, in its judgment, secure substantially the objectives of the standards or requirements that are to be modified.
- H. The Township may grant applications for waivers when the following findings are made, as relevant:
  1. That the waiver shall result in an equal or better means of complying with the intent of this Ordinance.
  2. That the waiver is the minimum necessary to provide relief.
  3. That the applicant is not requesting a waiver based on cost considerations.
  4. That existing down gradient stormwater problems will not be exacerbated.
  5. That increased flooding or ponding on off-site properties or roadways will not occur.
  6. That potential icing conditions will not occur.
  7. That increase of peak flow or volume from the site will not occur.

8. That erosive conditions due to increased peak flows or volume will not occur.
9. That adverse impact to water quality will not result.
10. That increased 100-Year Floodplain levels will not result.
11. That increased or unusual municipal maintenance expenses will not result from the waiver.
12. That infiltration of runoff throughout the proposed site has been provided where practicable and pre-development ground water recharge protected.
13. That peak flow attenuation of runoff has been provided.
14. That long term operation and maintenance activities are established.
15. That the receiving streams and/or water bodies will not be adversely impacted in flood carrying capacity, aquatic habitat, channel stability and erosion and sedimentation.

#### **Section 304. Volume Controls**

- A. The Low Impact Development Practices provided in the BMP Manual and in Appendix B of this Ordinance shall be utilized for all Regulated Activities to the maximum extent practicable.
- B. Stormwater runoff Volume Controls shall be implemented using the Design Storm Method or the Simplified Method as defined below. For Regulated Activity areas equal or less than one (1) acre that do not require hydrologic routing to design the stormwater facilities, this Ordinance establishes no preference for either method; therefore, the Applicant may select either method on the basis of economic considerations, the intrinsic limitations on applicability of the analytical procedures associated with each methodology, and other factors.
  1. The Design Storm Method (CG-1 in the BMP Manual) is applicable to any sized Regulated Activity. This method requires detailed modeling based on site conditions.
    - a. Do not increase the post-development total runoff volume when compared to the pre-development total runoff volume for the 2-year/24-hour storm event.
    - b. For hydrologic modeling purposes:
      - i. Existing non-forested pervious areas must be considered meadow (good condition) for pre-development hydrologic calculations.
      - ii. Twenty (20) percent of existing impervious area, when present within the proposed project site, shall be considered meadow (good condition) for pre-development hydrologic calculations for re-development.
  2. The Simplified Method (CG-2 in the BMP Manual) 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 1 acre or for projects that require detailed design of stormwater storage facilities. For new impervious surfaces:

- a. Stormwater facilities shall capture at least the first 2 inches of runoff from all new impervious surfaces.
  - b. At least the first 1 inch of runoff from new impervious surfaces shall be permanently removed from the runoff flow, i.e. it shall not be released into surface waters of the Commonwealth. Removal options include reuse, evaporation, transpiration, and infiltration.
  - c. Wherever possible, infiltration facilities should be designed to accommodate infiltration of the entire permanently removed runoff; however, in all cases at least the first 0.5 inch of the permanently removed runoff should be infiltrated.
  - d. Actual field infiltration tests at the location of the proposed elevation of the stormwater BMPs are required. Infiltration test shall be conducted in accordance with the BMP Manual. Notification of the Township shall be provided to allow witnessing of the testing.
3. In cases where it is not possible or desirable to use infiltration-based best management practices to partially fulfill the requirements in either Section 304.B.1 or 304.B.2, the Applicant shall be required to obtain an NPDES permit from the Pennsylvania Department of Environment Protection.
- C. The applicable Worksheets from the BMP Manual must be used in calculations to establish Volume Control.

### **Section 305. Rate Controls**

- A. Lands contained within Washington County that have not had release rates established under an approved Act 167 Stormwater Management Plan:
1. Post-development discharge rates shall not exceed the pre-development discharge rates for the 1-, 2-, 10-, 25-, 50-, and 100-year storms.
- B. Lands contained within Washington County that have had release rates established under an approved Act 167 Stormwater Management Plan:
1. Chartiers Creek Watershed: The post-development peak discharge rates shall be in accordance with the approved release rate map for the individual watershed. Release rates include 50%, 70% and 100% for the 10-, 25-, 50- and 100-year storms.

### **Section 306. Sensitive Areas and Stormwater Hotspots**

- A. Sensitive areas and water quality sensitive developments as defined below which require special consideration with regard to stormwater management.
1. Sensitive areas are defined as those areas that, if developed, have the potential to endanger a water supply. These areas consist of the delineated 1-year zone of contribution and direct upslope areas tributary to the water supply wells. Cecil

Township may update the sensitive area boundaries based on new research or studies as required.

2. Stormwater Hotspots are defined as a land development project that has a high potential to endanger local water quality, and could potentially threaten ground water reservoirs. The Municipal Engineer will determine what constitutes these classifications on a case-by-case basis. The PADEP wellhead protection contaminant source list shall be used as a guide in these determinations. Industrial manufacturing site and hazardous material storage areas must provide NPDES SIC codes.

B. Performance Standards

1. The location of the boundaries of sensitive areas is set by drainage areas tributary to any public water supply. The exact location of these boundaries as they apply to a given development site, shall be determined using mapping at a scale which accurately defines the limits of the sensitive area. If the project site is within the sensitive area (in whole or in part), 2-foot contour interval mapping shall be provided to define the limits of the sensitive area. If the project site is adjacent to but within 500 linear feet of a defined Sensitive Area, a 5-foot contour interval map defining the limits of the Sensitive Area shall be included in the Stormwater Management Plan to document the site's location relative to the sensitive area.
2. Stormwater Hotspots may be required to prepare and implement a stormwater pollution prevention plan and file notice of intent as required under the provision of the EPA Industrial Stormwater NPDES Permit Requirements.
3. Stormwater Hotspots must use an acceptable pre-treatment BMP prior to volume control and/or rate control BMPs. Acceptable pre-treatment BMPs for these developments include those based on filtering, settling, or chemical reaction processes such as coagulation.

## ARTICLE IV - E&S STANDARDS

### Section 401. Erosion and Sedimentation Requirements During Earth Disturbance Activities

- A. The applicant shall meet requirements as contained in 25 PA Code, Chapters 92 and 102 as required and applicable as follows:
  - 1. The implementation and maintenance of erosion and sediment control BMPs.
  - 2. Development of written plans.
  - 3. Submission of plans for approval.
  - 4. Obtaining Erosion and Sediment Control and NPDES permits.
  - 5. Maintaining plans and permits on site.
- B. Evidence of any necessary plan or permit approval for Earth Disturbance activities from PADEP or the Washington County Conservation District must be provided to the Township.
- C. A copy of the approved Erosion and Sediment Control Plan and any other permit, as required by PADEP or the Washington County Conservation District, shall be available at the project site at all times if required under Chapter 102.
- D. Construction of temporary roadways (e.g., for utility construction, timber harvesting, etc.) shall comply with all applicable standards for erosion and sedimentation control and stream crossing regulations under 25 PA Code, Chapters 102 and 105. The Erosion and Sedimentation Control Plan shall be submitted to the Washington County Conservation District for approval and shall address the following, as applicable:
  - 1. Design of the roadway system, including haul roads, skid roads, landing areas, trails, and storage and staging areas.
  - 2. Runoff control structures (e.g., diversions, culverts, detention ponds, etc.).
  - 3. Stream crossings for both perennial and intermittent streams.
  - 4. Access to public roadways, including design of rock construction entrance for mud and debris control.
  - 5. A remediation plan for restoring the disturbed area through re-grading, topsoil placement, reseeding, and other stabilization techniques, as required.

## **ARTICLE V – PROTECTED WATERSHED STANDARDS**

### **Section 501. Protected Watershed Requirements**

For any Regulated Activity within a protected watershed (High Quality or Exceptional Value), the applicant shall meet requirements as contained in 25 PA Code, Chapters 93 as required and applicable.

## **ARTICLE VI – RIPARIAN BUFFER STANDARDS**

### **Section 601. Riparian Buffer Generally**

Cecil Township strongly encourages Developers and other persons engaged in Regulated Activities to provide Riparian Buffers for the protection of watersheds and to promote the health, safety and public welfare.

### **Section 602. Required Buffers**

For any Regulated Activity, the minimum Riparian Buffer shall be as follows with the buffer being measured perpendicularly from the top of the stream bank landward.:

- A. For all watersheds other than High Quality or Exceptional Value Watersheds or Impaired Watersheds - a minimum of 50 feet; or
- B. As determined by a stream corridor study approved by PADEP and the Township.

### **Section 603. Strongly Recommended Riparian Buffers**

- A. For any Regulated Activity, the minimum Riparian Buffer should be as follows with the buffer being measured perpendicularly from the top of the stream bank landward.
  - 1. High Quality or Exceptional Value Watersheds – a minimum of 150 feet;
  - 2. For Impaired Watersheds – a minimum of 150 feet
- B. Developers are encouraged to have a riparian buffer located on both sides of all perennial and intermittent streams. The perennial and intermittent streams and the proposed riparian buffer boundaries, if any, should be shown on all applications for Building Permits, subdivision, or land development. Existing uses within the buffer are permitted to continue but it is encouraged that they not be expanded.
- C. The buffer should be undisturbed forest consisting of appropriate native species.
- D. Where wetlands are located partially or entirely within a buffer, the buffer should be extended to encompass the wetland and shall be widened by a distance sufficient to provide a 25 foot forested buffer measured perpendicularly from the wetland boundary.
- E. The following uses shall be permitted in the buffer:
  - 1. Footpaths, trails and bike paths provided that:
    - a. Width is limited to 5 feet;
    - b. Width may be increased provided a corresponding increase in the buffer is provided;
    - c. Construction shall have minimal impact to the buffer.

2. Stream crossings, provided the crossing is designed and constructed in such a manner as to minimize the impact to the buffer. The Riparian Buffer should be restored to its original condition, to the maximum extent practical, upon completion of construction.
  3. Utility lines, provided that the crossing is designed and constructed in such a manner as to minimize the impact to the inner buffer and provided that there is no practical alternative to locating the utility line within the buffer. The Riparian Buffer should be restored to its original condition, to the maximum extent practical, upon completion of construction.
  4. Maintenance and restoration of the Riparian Buffer.
  5. Projects conducted with the objective of improvement, stabilization, restoration, or enhancement of the stream bank, stream channel, floodplain, watershed hydrology, riparian buffers, or aquatic habitat and maintenance activities associated with such projects. These projects include, but are not limited to agricultural and stormwater management best management practices. Such projects must receive appropriate permits and approvals from PADEP prior to starting the project.
  6. Minor private recreational uses for the property owner. Such uses include benches, fire rings, and similar uses. Such uses do not include structures such as cabins, sheds, pavilions, garages, dwellings or similar structures.
- F. Disturbance of the Riparian Buffer should be limited to the area necessary to perform an allowable use.
- G. Where possible and practical, disturbances should be phased with each phase restored prior to beginning the next phase.
- H. Allowable activities should not cause stormwater flow to concentrate.
- I. Any vegetation removed for an allowable activity should be replaced immediately upon completion of the activity. Where mature trees are removed, such trees should be replaced with the largest practical tree of acceptable native species.
- J. Erosion and sediment pollution control shall be installed and maintained during construction. Evidence of an approved Erosion and Sediment Control Plan, NPDES Permit or other PADEP permit, where required, shall be submitted prior to issuance of local permits.
- K. Riparian buffers should be maintained in a manner consistent with sound forest management practices. In the absence of a site specific management plan, the following maintenance guidelines apply:

1. Buffers should be inspected periodically for evidence of excessive sediment deposition, erosion or concentrated flow channels. Prompt action should be taken to correct these problems and prevent future occurrence.
2. Trees presenting an unusual hazard of creating downstream obstructions should be removed. Such material should be removed from the floodplain or the riparian buffer (whichever is widest); or cut into sections small enough so as to prevent the possibility of creating obstructions downstream. Wherever possible, large stable debris should be conserved.
3. Vegetation should be inspected periodically to ensure diverse vegetative cover and vigorous plant growth consistent with buffering objectives.
  - a. Remove invasive plant species that may threaten the integrity of the buffer.
  - b. Periodic cutting of trees may be necessary to promote vigorous growth and encourage regeneration.
4. Excessive use of fertilizers, pesticides, herbicides, and other chemicals should be avoided. These products should be used only when absolutely necessary to maintain buffer vegetation.

## ARTICLE VII - DESIGN CRITERIA

### Section 701. Design Criteria for Stormwater Management & Drainage Facilities

#### A. General Design Guidelines:

1. Stormwater shall not be transferred from one watershed to another, unless (1) the watersheds are sub-watersheds of a common watershed which join together within the perimeter of the property; (2) the effect of the transfer does not alter the peak rate discharge onto adjacent lands; or (3) easements from the affected landowner(s) are provided.
2. Consideration shall be given to the relationship of the subject property to the drainage pattern of the watershed. A concentrated discharge of stormwater to an adjacent property shall be within an existing watercourse or confined in an easement or returned to a pre-development flow type condition.
3. Innovative stormwater BMPs and recharge facilities are encouraged (e.g., rooftop storage, drywells, cisterns, recreation area ponding, diversion structures, porous pavements, holding tanks, infiltration systems, in-line storage in storm sewers, and grading patterns). They shall be located, designed, and constructed in accordance with the latest technical guidance published by PADEP, provided they are accompanied by detailed engineering plans and performance capabilities and supporting site specific soils, geology, runoff and groundwater and infiltration rate data to verify proposed designs. Additional guidance from other sources may be accepted at the discretion of the Municipal Engineer (a pre-application meeting is suggested).
4. All existing and natural watercourses, channels, drainage systems and areas of surface water concentration shall be maintained in their existing condition unless an alteration is approved by the appropriate regulatory agency.
5. 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 continuation or exacerbation of a documented adverse hydrologic or hydraulic condition within the watershed, as identified in the Plan.
6. The design and construction of multiple use stormwater detention facilities are strongly encouraged. In addition to stormwater management, facilities should, where appropriate, allow for recreational uses including ball fields, play areas, picnic grounds, etc. Consultation with the Township, and prior approval are required before design. Provision for permanent wet ponds with stormwater management capabilities may also be appropriate.
  - a. Multiple use basins should be constructed so that potentially dangerous conditions are not created.

b. Water quality basins or recharge basins that are designed for a slow release of water or other extended detention ponds are not permitted for recreational uses, unless the ponded areas are clearly separated and secure.

7. Should any stormwater management facility require a dam safety permit under PADEP Chapter 105, the facility shall be designed in accordance with Chapter 105 and meet the regulations of Chapter 105 concerning dam safety.

B. Stormwater Management Facility Design Considerations:

All stormwater management facilities shall meet the following design requirements:

1. All areas of a subdivision, land development plan or mobile home park to be developed with streets, residential lots or sites, recreation areas or other uses shall be graded to assure positive drainage.

2. Storm sewers, culverts and related installations shall be provided to ensure the controlled flow of natural watercourses and to guarantee the drainage of all low points along the curb or gutter lines, as well as at intervals related to slope, of all streets in or adjacent to the plan. Where driveways cross gutter, line or passage via a pipe below the driveway entrance of the type and size required by the Cecil Township Engineer.

3. In designing the storm drainage system, the developer shall use as his guide the Publication "Urban Hydrology for Small Watersheds," Technical Release No. 55, U.S.

4. Department of Agriculture, Soil Conservation Service, June 1986, and as amended.

a. The predevelopment condition of the parcel to be developed, as determined by the Township Engineer, shall be considered the state of the land surface on the date that the developer entered into an agreement to purchase the property. If the property has been partially or completely developed at the time of purchase, the Board of Supervisors may, at its option, require the new owner, if he proposes to redevelop or further develop the property, to take remedial action for compliance with the requirements of this subsection. If remedial action is required, regardless of the condition of the surface, the design runoff shall not exceed curve number 75 applied to class C "good meadow" soils (see Tables 2-1 and 2-2 of T.R. 55). The developer may pass through stormwater originating upstream of his property, but if he elects to control it, bypass devices he installs shall be capable of handling the one-hundred-year twenty-four-hour peak flow, and he may trade off, as compensation for such installations, control measures that would normally be required on his property, provided that the total control system results in equal or better protection for downstream properties. If a property is to be laid out in lots, no reduction in lot size shall be permitted to accommodate storm drainage detention structures.

- b. The developer shall consult with the Washington County office of the Soil Conservation Service before developing his storm drainage plans. The township and others reviewing a stormwater control plan will use discretion in considering unusual conditions, such as drainage from several basins on the same property under development.
5. The stormwater drainage plan of a subdivision, land development plan or mobile home park shall be designed to assure that, after development, stormwater does not leave the property at a greater velocity or volume per second than before development commenced.
- a.. The difference between the pre-development and post development condition for all storms up to the one-hundred-year storm shall be stored on the property for gradual release at pre-development rate.
  - b. Outlet works shall be designed so as to store water and control runoff for all storms of frequency up to and including the one-hundred-year storm.
  - c. Vertical riser pipes with trash racks and anti-vortex devices shall be provided in detention basins, unless an alternate design is approved by the township.
  - d. Detention basins shall be designed to drain completely in a period not less than six hours.
  - e. No outlet structure from a stormwater management facility, or swale, shall discharge directly onto a Municipal or State roadway without approval from the Township or PennDOT.
6. Detention areas, where required to impede runoff, shall be designed to meet or exceed the following standards:
- a. Except where a permanent pond is approved by the Township Commissioners, detention areas shall be designed to drain completely.
  - b. The height of the impoundment dam shall be not more than 10 feet measured between the top of the dam and the toe of the slope on the downstream side of the dam. The level of water within the impoundment shall not exceed 10 feet measured between the lowest point in the impoundment area behind the dam and the top of the emergency spillway.
  - c. The area to be occupied by the dam shall be cleared of all topsoil and organic materials prior to construction. The dam shall be built up in layers not to exceed six inches in depth with equipment providing 95% compaction at optimum moisture conditions. The top of the dam shall be constructed 10% higher than its designed height to allow for settlement.

- d. The core trench stabilizing the dam shall extend the full length under the dam and full height each side of the dam and shall be designed after a soil investigation at the dam site carried to at least 10 feet below the level of the toe of the dam or to bedrock. The core trench shall be not less than three feet in depth, not less than three feet in width at its bottom, and its sides shall slope not less than one foot vertical rise to each one foot of horizontal run (1 to 1).
- e. The settled elevation of the top of the dam at its lowest point shall be not less than one foot above the maximum water level to be impounded behind the dam and not less than two feet above the elevation of the emergency spillway.
- f. The surfaces of the dam shall be planted in a mixture of perennial quick-catching grasses and crown vetch.
- g. The faces of the dam shall not slope on either face less than one foot vertical rise for each two feet of horizontal run and not more than a total on both faces of one foot vertical rise for each five feet of horizontal run.
- h. The horizontal drain pipe passing through the dam shall be smooth steel, schedule 40 or heavier, or corrugated steel or reinforced concrete pipe with equivalent strength and hydraulic characteristics. Anti-seepage collars shall be placed not less than 28 feet apart along the length of the pipe. Each collar shall be fabricated of not less than one-fourth-inch steel plate, shall extend not less than two feet in all directions at right angles from the outer face of the pipe, shall be welded in place all around and shall be completely enclosed within the dam fill.
- i. The top of the riser pipe to drain the pond shall be not less than three feet in height above the invert elevation of the horizontal pipe, shall be not less than four inches in diameter and shall be fitted with an anti-vortex device and a trash rack.
- j. The emergency spillway shall be capable of passing the flow created by a storm producing 10-1/2 inches of rainfall over a six-hour period. Whether “probable maximum precipitation” will be required in the design of any detention structure will depend on the location and size of the individual structure, existing and potential development downstream, the maximum volume of water to be retained and the cross section design of the spillway. The township and the reviewing agencies will use discretion in evaluating detention structure designs.
- k. The low edge of a parking area, curbed or not, may serve the purpose of an emergency spillway to pass the overflow from a stormwater detention area, provided that the embankment below the edge is well stabilized with planting materials and the angle of the slope will not encourage erosion,

in the opinion of the township and other reviewing agencies. Parking areas shall not be used to store stormwater.

1. Stone low flow channels with underdrains shall be installed in all aboveground earthen detention facilities. Side slopes and channel slopes within the basin shall be 2% minimum.
7. The invert of all stormwater management facilities and underground infiltration/storage facilities shall be located a minimum of 2 feet above the seasonal high groundwater table. The invert of stormwater facilities may be lowered if adequate sub-surface drainage is provided. Flows from underdrains need not be accounted for in Volume or Rate Control calculations.
8. Exterior slopes of compacted soil shall not exceed 3:1, and may be further reduced if the soil has unstable characteristics.
9. Interior slopes of the basin shall not exceed 3:1.
10. Unless specifically designed as a volume control facility, all stormwater management facilities shall have a minimum slope of 2% extending radially out from the principal outlet structure. Facilities designed as water quality / infiltration BMPs may have a bottom slope of zero.
11. Landscaping and planting specifications must be provided for all stormwater management basins and be specific for each type of basin.
  - a. Minimal maintenance, saturation tolerant vegetation must be provided in basins designed as water quality / infiltration BMPs.
12. Written design reports and calculations shall be submitted for review and approval by the township. Routing calculations using modified PULS methodology shall be included to assure outflow rates are in conformance with the requirements of this chapter. Calculations for storm pipe sizing shall also be included using the rational method and Manning's formula for a twenty-five-year storm using PennDOT intensity duration frequency curves from the Engineering Design Manual (latest edition).
13. The owner or developer shall enter into a legal agreement approved by the Township Solicitor which shall hold the township harmless from any and all liability relating to storm drainage collection and its discharge during construction of the system and thereafter. The owner or developer shall secure, where necessary, off-site easements for storm drainage.
14. The costs of review and inspection by the Township Engineer of the stormwater management system as proposed by the developer shall be borne by the developer, whether or not the plan is ultimately approved. The Engineer shall review such changes as the developer may make in his plan for compliance with the Engineer's recommendations and shall advise the Board of Supervisors whether the revised

plan is in compliance or not. The Board shall direct the Engineer to inspect an approved dam during its various stages of construction and to point out to the contractor, the developer and Board any deviations from the design as approved.

15. Catch basins shall meet the Township standards and shall have inverts poured to allow self-cleaning. Catch basins shall be located no further apart than 400 feet, measured between catch basins on the same side of the street.
16. Graded areas shall be stabilized with erosion-resisting plantings placed immediately after the completion of grading. Graded slopes produced by placing fill earth over the preexisting surface shall be keyed in accordance with sound geotechnical practices.
17. All persons, partnerships or corporations intending to excavate, fill or grade land in the Township shall be required to apply for a grading permit under the terms of the Township Unified Development Ordinance as amended, and shall have a valid grading permit in their possession prior to the start of any grading work. Work shall be undertaken in conformance with the requirements of this chapter and applicable regulations of Washington County Conservation District.

**Section 702. Calculation Methodology**

- A. All calculations shall be consistent with the guidelines set forth in the BMP Manual, as amended herein.
- B. Stormwater runoff from all development sites shall be calculated using either the Rational Method or the NRCS Rainfall-Runoff Methodology. Other methods shall be selected by the design professional based on the individual limitations and suitability of each method for a particular site and approved by the Municipal Engineer.
- C. Rainfall Values:
  1. Rational Method – The Pennsylvania Department of Transportation Drainage Manual, Intensity-Duration-Frequency Curves, Publication 584, Chapter 7A, latest edition, shall be used in conjunction with the appropriate time of concentration and return period.
  2. NRCS Rainfall-Runoff Method – The Soil Conservation Service Type II, 24-hour rainfall distribution shall be used in conjunction with rainfall depths from NOAA Atlas 14 or be consistent with the following table:

Return Interval (Year)	24-hour Rainfall Total (inches)
1	1.99
2	2.38
10	3.35
25	3.96
50	4.46
100	4.99

D. Runoff Volume:

1. Rational Method – Not to be used to calculate runoff volume.
2. NRCS Rainfall-Runoff Method – This method shall be used to estimate the change in volume due to Regulated Activities. Combining Curve Numbers for land areas proposed for development with Curve Numbers for areas unaffected by the proposed development into a single weighted curve number is NOT acceptable.

E. Peak Flow Rates:

1. Rational Method – This method may be used for design of conveyance facilities only. Extreme caution should be used by the design professional if the watershed has more than one main drainage channel, if the watershed is divided so that hydrologic properties are significantly different in one versus the other, if the time of concentration exceeds 60 minutes, or if stormwater runoff volume is an important factor. The combination of Rational Method hydrographs based on timing shall be prohibited.
2. NRCS Rainfall-Runoff Method – This method is recommended for design of stormwater management facilities and where stormwater runoff volume must be taken into consideration. The following provides guidance on the model applicability:
  - a. NRCS's TR-55 – limited to 100 acres in size
  - b. NRCS's TR-20, WinTR-20, WinTR-55, HEC-HMS – no watershed size limitations
  - c. Other models as pre-approved by the Municipal Engineer

The NRCS antecedent runoff condition II (ARC II, previously AMC II) must be used for all simulations. The use of continuous simulation models that vary the ARC are not permitted for stormwater management purposes.

3. For comparison of peak flow rates, flows shall be rounded to a tenth of a cubic foot per second (cfs).

F. Runoff Coefficients:

1. Rational Method – Use Table C-1 (Appendix C).
2. NRCS Rainfall-Runoff Method – Use Table C-2 (Appendix C). Curve Numbers (CN) should be rounded to tenths for use in hydrologic models as they are a design tool with statistical variability. For large sites, CN's should realistically be rounded to the nearest whole number.

3. For the purposes of pre-development peak flow rate and volume determination, existing non-forested pervious areas conditions shall be considered as meadow (good condition).
4. For the purposes of pre-development peak flow rate and volume determination, 20 percent of existing impervious area, when present, shall be considered meadow (good condition).

G. Design Storm:

1. All stormwater management facilities shall be verified by routing the proposed 1-year, 2-year, 10-year, 25-year, 50-year, and 100-year hydrographs through the facility using the storage indication method or modified puls method. The design storm hydrograph shall be computed using a calculation method that produces a full hydrograph.
2. The stormwater management and drainage system shall be designed to safely convey the post development 100-year storm event to stormwater detention facilities, for the purpose of meeting peak rate control.
3. All structures (culvert or bridges) proposed to convey runoff under a Municipal road shall be designed to pass the 50-year design storm with a minimum 1 foot of freeboard measured below the lowest point along the top of the roadway.

H. Time of Concentration:

1. The Time of Concentration is to represent the average condition that best reflects the hydrologic response of the area. The following Time of Concentration (Tc) computational methodologies shall be used unless another method is pre-approved by the Municipal Engineer:

- a. Pre-development – NRCS’s Lag Equation:

Time of Concentration = Tc = [(Tlag/.6) \* 60] (minutes)

$$T_{lag} = L^{0.8} \frac{(S + 1)^{0.7}}{1900\sqrt{Y}}$$

Where:

Tlag = Lag time (hours)

L = Hydraulic length of watershed (feet)

Y = Average overland slope of watershed (percent)

S = Maximum retention in watershed as defined by:  $S = [(1000/CN) - 10]$

CN = NRCS Curve Number for watershed

- b. Post-development; commercial, industrial, or other areas with large impervious areas (>20% impervious area) – NRCS Segmental Method. The length of sheet flow shall be limited to 100 feet. Tc for channel and pipe flow shall be computed using Manning’s equation.
  - c. Post-development; residential, cluster, or other low impact designs less than or equal to 20% impervious area – NRCS Lag Equation or NRCS Segmental Method.
- 2. Additionally, the following provisions shall apply to calculations for Time of Concentration:
  - a. The post-development Tc shall never be greater than the pre-development Tc for any watershed or sub-watershed. This includes when the designer has specifically used swales to reduce flow velocities. In the event that the designer believes that the post-development Tc is greater, it will still be set by default equal to the pre-development Tc for modeling purposes.
  - b. The minimum Tc for any watershed shall be 5 minutes.
  - c. The designer may choose to assume a 5 minute Tc for any post development watershed or subwatershed without providing any computations.
  - d. The designer must provide computations for all pre-development Tc paths. A 5 minute Tc cannot be assumed for pre-development.
  - e. Undetained fringe areas (areas that are not tributary to a stormwater facility but where a reasonable effort has been made to convey runoff from all new impervious coverage to best management practices) may be assumed to represent the pre-development conditions for purpose of Tc calculation.
- J. Where uniform flow is anticipated, the Manning’s equation shall be used for hydraulic computations and to determine the capacity of open channels, pipes, and storm sewers. The Manning’s equation should not be used for analysis of pipes under pressure flow or for analysis of culverts. Manning’s “n” values shall be obtained from PENNDOT’s Drainage Manual, Publication 584. Inlet control shall be checked at all inlet boxes to ensure the headwater depth during the 10-year design event is contained below the top of grate for each inlet box.
- K. The Township has the authority to require that computed existing runoff rates be reconciled with field observations, conditions and site history. If the designer can substantiate, through actual physical calibration, that more appropriate runoff and time of concentration values should be utilized at a particular site, then appropriate variations may be made upon review and recommendation of the Township.

## ARTICLE VIII - SWM SITE PLAN & REPORT REQUIREMENTS

### Section 801. General Requirements

For any of the activities regulated by this Ordinance and not eligible for the exemptions provided in Section 302, the final approval of subdivision and/or land development plans, the issuance of any building or occupancy permit, or the commencement of any land disturbance activity, may not proceed until the Applicant has received written approval of a SWM Site Plan from the Township.

### Section 802. SWM Site Plan & Report Contents

The SWM Site Plan & SWM Site Report shall consist of all applicable calculations, maps, and plans. All SWM Site Plan materials shall be submitted to the Township in a format that is clear, concise, legible, neat and well organized; otherwise, the SWM Site Plan shall be rejected.

Appropriate sections from the Municipal Subdivision and Land Development Ordinance, and other applicable local ordinances, shall be followed in preparing the SWM Site Plan.

- A. SWM Site Plan shall include, but not be limited to:
1. Plans shall be of one size and in a form that meets the requirements for recording in the Office of the Recorder of Deeds of Washington County.
    - a. Plans for tracts of less than 20 acres shall be drawn at a scale of one inch equals no more than 50 ft.;
    - b. Plans for tracts of 20 acres or more, plans shall be drawn at a scale of one inch equals no more than 100 ft;
    - c. Lettering shall be drawn to a size to be legible if the plans are reduced to ½ size.
  2. The name of the development; name and location address of the property site; name, address, and telephone number of the Applicant/Owner of the property; and name, address, telephone number, email address, and engineering seal of the individual preparing the SWM Site Plan.
  3. The date of submission and dates of all revisions.
  4. A graphical and written scale on all drawings and maps.
  5. A north arrow on all drawings and maps.
  6. A location map at a minimum scale of one (1) inch equals one-thousand (1,000) feet and illustrates the project relative to highways, municipalities or other identifiable landmarks.
  7. Metes and bounds description of the entire tract perimeter.
  8. Existing and final contours at intervals:
    - a. Slopes less than 5%: no greater than one (1) foot;

- b. Slopes between 5 and 15%: no greater than two (2) feet;
  - c. Steep slopes (greater than 15%), 5-foot contour intervals may be used.
9. Perimeters of existing waterbodies within the project area including stream banks, lakes, ponds, springs, field delineated wetlands or other bodies of water, sinkholes, flood hazard boundaries (FEMA delineated floodplains and floodways), areas of natural vegetation to be preserved, the total extent of the upstream area draining through the site, and overland drainage paths. In Addition, any areas necessary to determine downstream impacts, where required for proposed stormwater management facilities must be shown.
  10. The location of all existing and proposed utilities, on-lot wastewater facilities, water supply wells, sanitary sewers, and water lines on and within fifty (50) feet of property lines including inlets, manholes, valves, meters, poles, chambers, junction boxes, and other utility system components.
  11. A key map showing all existing man-made features beyond the property boundary that may be affected by the project.
  12. Soil names and boundaries with identification of the Hydraulic Soil Group classification including rock outcroppings.
  13. Proposed impervious surfaces (structures, roads, paved areas, and buildings), including plans and profiles of roads and paved areas and floor elevations of buildings.
  14. Existing and proposed land use(s).
  15. Horizontal alignment, vertical profiles, and cross sections of all open channels, pipes, swales and other BMPs where required by the Township Engineer.
  16. The location and clear identification of the nature of permanent stormwater BMPs.
  17. The location of all erosion and sedimentation control facilities, shown on a separate from the SWM Site Plan (typically an E&S Plan).
  18. A minimum twenty (20) foot wide access easement around all stormwater management facilities along with a (20) foot ingress to and egress from a public right-of-way.
  19. Construction details for all drainage and stormwater BMPs.
  20. Construction sequence.
  21. Identification of short-term and long-term ownership, operations, and maintenance responsibilities.

22. Notes and Statements:

- a. A statement, signed by the landowner, acknowledging that the stormwater BMPs are fixtures that cannot be altered or removed without prior approval by the Township.
- b. A statement referencing the Operation and Maintenance (O&M) Agreement and stating that the O&M Agreement is part of the SWM Site Plan.
- c. At the discretion of the Township Engineer, a note indicating that Record Drawings will be provided for all stormwater facilities prior to occupancy, or the release of the surety bond.
- d. The following 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 Cecil Township Stormwater Management Ordinance."

- e. The following signature block for the Municipal Engineer reviewing the Stormwater Management Plan:

"I, \_\_\_\_\_, have reviewed this Stormwater Management Plan in accordance with the Design Standards and Criteria of the Cecil Township Stormwater Management Ordinance."

B. SWM Site Report shall include (but not limited to):

1. General data including:
  - a. Project Name
  - b. Project location - address of the property site
  - c. Name, address, and telephone number of the Applicant/Owner of the property;
  - d. Name, address, telephone number, email address, and engineering seal of the individual preparing the SWM Site Report;
  - e. Date of submission and revisions.
2. Project description narrative that clearly discusses the project and provides the following information, where applicable:
  - a. Narrative
    - i. Statement of the regulated activity describing what is being proposed. Overall stormwater management concept with description of permanent stormwater management techniques,

- including construction specifications and materials to be used for stormwater management facilities.
  - ii. Expected project schedule
  - iii. Location map showing the project site and its location relative to release rate districts.
  - iv. Detailed description of the existing site conditions including a site evaluation completed for projects proposed in areas of carbonate geology or karst topography, and other environmentally sensitive areas such as brownfields.
  - v. Total site area – pre and post, which must be equal or have an explanation as to why it is not
  - vi. Total site impervious area
  - vii. Total off-site areas
  - viii. Number and description of stormwater management facilities
  - ix. Type of development
  - x. Pre-development land use
  - xi. Whether site is a water quality sensitive (WQS) development
  - xii. Whether site is in a defined sensitive area
  - xiii. Types of water quality and recharge systems used, if applicable
  - xiv. Complete hydrologic, hydraulic, and structural computations for all stormwater management facilities.
  - xv. A written maintenance plan for all stormwater features including detention facilities and other stormwater management elements.
  - xvi. Identification of ownership and maintenance responsibility for all permanent stormwater management facilities.
  - xvii. Other pertinent information, as required.
- b. Summary Tables
- i. Pre-development Hydrologic soil group (HSG) assumptions, curve numbers (CN), Computation of average slope, hydraulic length, computed time of concentration
  - ii. Existing conditions runoff volume & peak rate of runoff
  - iii. Post-development runoff volume & peak rate of runoff
  - iv. Undetained areas, areas to ponds
  - v. Land use for each subarea
  - vi. Hydrologic soil group (HSG) assumptions, curve numbers (CN)
  - vii. Time of concentration computed for each subarea
  - viii. Post-development peak rate of runoff routed to ponds and out
  - ix. Pond maximum return period design data including: maximum water surface elevation, berm elevation, and emergency spillway elevation
  - x. Water quality depth and volume requirements
- c. Calculations
- i. Complete hydrologic, hydraulic and structural computations, calculations, assumptions, and criteria for the design of all stormwater BMPs.

- ii. Details of the berm embankment and outlet structure indicating the embankment top elevation, embankment side slopes, top width of embankment, emergency spillway elevation, perforated riser dimensions, pipe barrel dimensions and dimensions and spacing of antiseep collars.
      - iii. Design computations for the control structures (pipe barrel and riser, etc).
      - iv. A plot or table of the stage-storage (volume vs. elevation) and all supporting computations.
      - v. Routing computations.
    - d. Drawings
      - i. Drainage area maps for all watersheds and inlets depicting the time of concentration path for both existing conditions and post developed condition.
      - ii. All stormwater management facilities must be located on a plan and described in detail including easements and buffers boundaries.
  - 3. Reports that do not clearly indicate the above information may be rejected for review by the Township and will be returned to the applicant.
  - 4. Description of, justification, and actual field results for infiltration testing with respect to the type of test and test location for the design of infiltration BMPs.
  - 5. The effect of the project (in terms of runoff volumes, water quality, and peak flows) on surrounding properties and aquatic features and on any existing municipal stormwater collection system that may receive runoff from the project site.
  - 6. Description of the proposed changes to the land surface and vegetative cover including the type and amount of impervious area to be added.
  - 7. Identification of short-term and long-term ownership, operation, and maintenance responsibilities as well as schedules and costs for inspection and maintenance activities for each permanent stormwater or drainage BMP, including provisions for permanent access or maintenance easements.
- C. Supplemental information to be provided prior to recording of the SWM Site Plan, as requested by the Township:
- 1. Signed and executed Operations and Maintenance Agreement (Appendix A).
  - 2. Signed and executed easements, as required for all on-site and off-site work.
  - 3. An Erosion and Sedimentation Control Plan & approval letter from the Washington County Conservation District.

4. A NPDES Permit.
5. Permits from PADEP and ACOE.
6. Geologic Assessment.
7. Soils investigation report, including boring logs, compaction requirements, and recommendations for construction of detention basins.
8. A Highway Occupancy Permit from PENNDOT when utilization of a PENNDOT storm drainage system is proposed or when proposed facilities would encroach onto a PENNDOT right-of-way.

### **Section 803. SWM Site Plan & Report Submission**

- A. The Applicant shall submit the SWM Site Plan & Report for the Regulated Activity.
- B. Five (5) copies of the SWM Site Plan & Report shall be submitted and be distributed as follows:
  1. Two (2) copies to the Township accompanied by the requisite executed Review Fee Reimbursement Agreement, as specified in this Ordinance
  2. One (1) copy to the Municipal Engineer
- C. Additional copies shall be submitted as requested by the Township or PADEP.

### **Section 804. SWM Site Plan & Report Review**

- A. The Township may require receipt of a complete SWM Site Plan & Report as specified in this Ordinance. The Township shall review the SWM Site Plan & Report for consistency with the purposes, requirements, and intent of this Ordinance.
- B. The Township shall not approve any SWM Site Plan & Report that is deficient in meeting the requirements of this Ordinance. At its sole discretion and in accordance with this Article, when a SWM Site Plan & Report is found to be deficient, the Township may disapprove the submission and require a resubmission, or in the case of minor deficiencies, the Township may accept submission of modifications.
- C. The Township shall notify the Applicant in writing within forty-five (45) calendar days whether the SWM Site Plan & Report is approved or disapproved if the SWM Site Plan & Report is not part of a Subdivision or Land Development Plan. If the SWM Site Plan & Report involves a Subdivision or Land Development Plan, the timing shall following the Subdivision and Land Development process according to the Municipalities Planning Code.
- D. The Municipal Building Permit Office shall not issue a building permit for any Regulated Activity if the SWM Site Plan & Report has been found to be inconsistent with this Ordinance, as determined by the Township. All required permits from PADEP must be obtained prior to issuance of a building permit.

### **Section 805. Modification of Plans**

A modification to a submitted SWM Site Plan & Report 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 SWM Site Plan as determined by the Township, may require a resubmission of the modified SWM Site Plan in accordance with this Ordinance.

### **Section 806. Resubmission of Disapproved SWM Site Plan & Report**

A disapproved SWM Site Plan & Report may be resubmitted with the revisions addressing the Township's concerns documented in writing, to the Township in accordance with this Ordinance. The applicable Municipal Review Fee must accompany a resubmission of a disapproved SWM Site Plan & Report.

### **Section 807. Authorization to Construct and Term of Validity**

The Township's approval of a SWM Site Plan & Report authorizes the Regulated Activities contained in the SWM Site Plan for a maximum term of validity of five (5) years following the date of approval. The Township may specify a term of validity shorter than five (5) years in the approval for any specific SWM Site Plan. Terms of validity shall commence on the date the Township signs the approval for a SWM Site Plan. If stormwater management facilities included in the approved SWM Site Plan have not been constructed, or if a Record Drawing of these facilities has not been approved within this time, then the Township may consider the SWM Site Plan disapproved and may revoke any and all permits or approvals.

### **Section 808. Record Drawings, Completion Certificate and Final Inspection**

- A. At the discretion of the Township Engineer, the Applicant may be required to provide Record Drawings of all stormwater BMPs included in the approved SWM Site Plan. The Record Drawing and an explanation of any discrepancies with the approved SWM Site Plan shall be submitted to the Township as a prerequisite for the release of the guarantee or issuance of an occupancy permit.
- B. The Record Drawing shall include a certification of completion signed by a Qualified Professional verifying that all permanent stormwater BMPs have been constructed according to the approved SWM Site Plan & Report.
  1. Drawings shall show all approved revisions and elevations and inverts to all manholes, inlets, pipes, and stormwater control facilities.
  2. Submission shall include a comparison of the constructed stage-storage (volume vs. elevation) of all above ground and below ground stormwater storage facilities to the approved design.

- C. After receipt of the Record Drawing and certification of completion by the Township, the Township may conduct a final inspection.
  
- D. As-Built Drawings  
Upon completion of the construction within a land development or construction of improvements in a subdivision, the applicant shall furnish the Township with an electronic file in PDF format of the plan.

Such “as-built” drawings shall include the following items where applicable:

- 1. Scale, north arrow and date;
- 2. Tract boundary and lot lines;
- 3. Road access, public and private internal roads and walks;
- 4. Plan view and vertical profiles of new public streets;
- 5. Stormwater management to include:
  - a. Location of detention facilities including measurements as required to verify as-built volume
  - b. Location of outflow structures including measurements of controls
  - c. Location and size of emergency spillways
  - d. Location of all Best Management Practice (BMPs) including but not limited to sumps, vegetative swales, bioswales, ditches and sediment forebays;
- 6. Locations of drainage structures and pipes, including type and profiles;
- 7. Utility easements, including sanitary sewer;
- 8. Parking area and number of spaces;
- 9. Location of all buildings;
- 10. Statement to the effect that all utilities are located within the proper rights-of-way for roads to be considered for acceptance by the Township;
- 11. Landscaping;
- 12. Lighting; and
- 13. Location of trash facilities.

## ARTICLE IX - EASEMENTS

### Section 901. Easements

- A. Easements shall be established to accommodate the existence of drainageways.
- B. Where a tract is traversed by a watercourse, drainage-way, channel or stream, there shall be provided an easement paralleling the line of such watercourse, drainage-way, channel or stream with a width adequate to preserve the unimpeded flow of natural drainage in the 100-year floodplain.
- C. Easements shall be established for all on-site stormwater management or drainage facilities (except where the single family residential exemption applies), including but not limited to: detention facilities (above or below ground), infiltration facilities, all stormwater BMPs, drainage swales, and drainage facilities (inlets, manholes, pipes, etc.).
- D. Easements are required for all areas used for off-site stormwater control.
- E. All easements shall be a minimum of 20 feet wide and shall encompass the 100-year surface elevation of the proposed stormwater facility.
- F. Easements shall provide ingress to, and egress from, a public right-of-way. In lieu of providing an easement to the public right-of-way, a note may be added to the plan granting the Municipality or their designees access to all easements via the nearest public right-of-way able for vehicle ingress and egress on grades of less than 10% for carrying out inspection or maintenance activities.
- G. Where possible, easements shall be centered on side and/or rear lot lines.
- H. Nothing shall be planted or placed within the easement which would adversely affect the function of the easement, or conflict with any conditions associated with such easement.
- I. All easements shall be shown on the subdivision plan, as applicable. Applicable subdivision plans shall be recorded prior to any land development occurring.
- J. All easement agreements shall be recorded with a reference to the recorded easement indicated on the site plan. The format and content of the easement agreement shall be reviewed and approved by the Municipal Engineer and Solicitor.

## ARTICLE X - MAINTENANCE RESPONSIBILITIES

### Section 1001. Maintenance Responsibilities for Developer or Owner Retained Facilities

- A. The SWM Site Plan & Report for the project site shall describe the future operation and maintenance responsibilities of the stormwater facilities. The operation and maintenance description shall outline required routine maintenance actions and schedules necessary to ensure proper operation of the stormwater control facilities.
- B. The SWM Site Plan & Report for the project site shall establish responsibilities for the continuing operating and maintenance of all proposed stormwater control facilities, consistent with the following principals:
  - 1. If a development consists of structures or lots that are to be separately owned with no homeowners' association, and in which streets, sewers, and other public improvements are to be dedicated to the Township, stormwater control facilities/BMPs may also be dedicated to and maintained by the Township provided that Section 903 of this Ordinances is complied with.
  - 2. If a development site is to be maintained in a single ownership (e.g. a commercial development) or if sewers and other public improvements are to be privately owned and maintained, then the ownership and maintenance of stormwater control facilities/BMPs shall be the responsibility of the owner or private management entity.
  - 3. The Township may take enforcement actions against an Applicant for failure to satisfy any provision of this Ordinance.
- C. The Township, upon recommendation of the Municipal Engineer, shall make the final determination on the continuing maintenance responsibilities prior to final approval of the SWM Site Plan & Report. The Township may request the dedication of such facilities as part of the approval of the SWM Site Plan. The Township reserves the right to accept or reject the ownership and operating responsibility for any portion of the stormwater management controls.
- D. It shall be unlawful to alter or remove any permanent stormwater BMP required by an approved SWM Site Plan, or to allow the property to remain in a condition, which does not conform to an approved SWM Site Plan, unless the Township grants an exception in writing.

### Section 1002. Maintenance Agreement for Developer or Owner Retained Stormwater Facilities

- A. Prior to final approval of the SWM Site Plan & Report, the Applicant shall sign the Operation and Maintenance (O&M) Agreement (Appendix A), or similar agreement, covering all stormwater control facilities that are to be privately owned. The Operation and Maintenance (O&M) Agreement shall be recorded with the SWM Site Plan and made a part hereto.

- B. Other items may be included in the Operation and Maintenance (O&M) Agreement where determined necessary to guarantee the satisfactory operation and maintenance of all BMP facilities. The Operation and Maintenance (O&M) Agreement shall be subject to the review and approval of the Township and the Municipal Solicitor.
  
- C. The owner is responsible for operation and maintenance of the stormwater BMPs. If the owner fails to adhere to the Operation and Maintenance (O&M) Agreement, the Township may perform the services required and charge the owner appropriate fees. Non-payment of fees may result in a lien against the property.

## **ARTICLE XI - INSPECTIONS**

### **Section 1101. Schedule of Inspections**

- A. PADEP or its designees normally ensure compliance with any permits issued, including those for stormwater management. In addition to PADEP compliance programs, the Township or their municipal assignee may inspect all phases of the installation of temporary or permanent stormwater management facilities.
- B. During any stage of Earth Disturbance Activities, if the Township determines that the stormwater management facilities are not being installed in accordance with the approved SWM Site Plan, the Township shall revoke any existing permits or approvals until a revised SWM Site Plan is submitted and approved as specified in this Ordinance.
- C. If required by Cecil Township, Stormwater BMPs shall be inspected by a professional engineer registered in Pennsylvania according to the inspection schedule described on the SWM Site Plan for each BMP.
  - 1. The Township may require copies of the inspection reports, in a form as stipulated by the Township.
  - 2. If such inspections are not conducted or inspection reports not submitted as scheduled, the Township, or their designee, may conduct such inspections and charge the owner appropriate fees. Non-payment of fees may result in a lien against the property.
    - a. Prior to conducting such inspections, the Township shall inform the owner of its intent to conduct such inspections. The owner shall be given thirty (30) days to conduct required inspections and submit the required inspection reports to the Township.

### **Section 1102. Right-of-Entry**

- A. 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 implementation, condition, or operations and maintenance of the stormwater BMPs in regard to any aspect governed by this Ordinance.
- B. Stormwater BMP owners and operators shall allow persons working on behalf of the Township ready access to all parts of the premises for the purposes of determining compliance with this Ordinance.
- C. Persons working on behalf of the Township shall have the right to temporarily locate on any stormwater BMP in the Township such devices, as are necessary, to conduct monitoring and/or sampling of the discharges from such stormwater BMP.
- D. Unreasonable delay in allowing the Township access to a stormwater BMP is a violation of this Ordinance.

## ARTICLE XII - ENFORCEMENT AND PENALTIES

### Section 1201. Notification

- A. In the event that a person fails to comply with the requirements of this Ordinance, an approved SWM Site Plan, or fails to conform to the requirements of any permit or approval 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).
- B. Failure to comply within the time specified shall subject such person to enforcement as set forth in this Ordinance. 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 1202. Enforcement

- A. The approved SWM Site Plan shall be on file at the project site throughout the duration of the construction activity. The Township or their designee may make periodic inspections during construction.
- B. Adherence to Approved SWM Site Plan
  - 1. It shall be unlawful for any person, firm, or corporation to undertake any Regulated Activity on any property except as provided for by an approved SWM Site Plan and pursuant to the requirements of this Ordinance.
  - 2. It shall be unlawful to alter or remove any control structure required by the SWM Site Plan pursuant to this Ordinance.
  - 3. It shall be unlawful to allow a property to remain in a condition that does not conform to an approved SWM Site Plan.

### Section 1203. Public Nuisance

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

### Section 1204. Suspension and Revocation

- A. Any approval or permit issued by the Township may be suspended or revoked for:
  - 1. Non-compliance with or failure to implement any provision of the approved SWM Site Plan or Operation & Maintenance (O&M) Agreement.
  - 2. A violation of any provision of this Ordinance or any other applicable law, Ordinance, rule or regulation relating to the Regulated Activity.

3. The creation of any condition or the commission of any act, during the Regulated Activity which constitutes or creates a hazard or nuisance, pollution, or which endangers the life or property of others.
- B. A suspended approval or permit may be reinstated by the Township when:
1. The Township or their designee has inspected and approved the corrections to the violation(s) that caused the suspension.
  2. The Township is satisfied that the violation(s) has been corrected.
- C. The Applicant may apply for a new approval under the provisions of this Ordinance if compliance has occurred within one (1) year of the original application filing date.

### **Section 1205. Penalties**

Where a violation of this Ordinance has occurred and remains uncured after notice from the Township or its designee, the Township may institute a legal action against the violator to restrain, prevent, abate, or enjoin the violation of this Ordinance or any Stormwater Management Plan together with expenses and costs of suit, including attorney fees.

### **Section 1206. Appeals**

Any person aggrieved by any action of the Township or its designee, relevant to the provisions of this Ordinance, may appeal to the Court of Common Pleas of Washington County, Pennsylvania within thirty (30) days of that action.

## ARTICLE XIII - PROHIBITIONS

### Section 1301. Prohibited Discharges and Connections

- A. Any drain (including indoor drains and sinks), or conveyance whether on the surface or underground, that allows any non-stormwater discharge including sewage, process wastewater, and wash water to enter the Township 's separate storm sewer system or Waters of the Commonwealth is prohibited.
- B. Any drain or conveyance connected from a commercial or industrial land use to the Township's separate storm sewer system, which has not been documented in plans, maps, or equivalent records, and approved by the Township is prohibited.
- C. No person shall allow, or cause to allow, discharges into the Township 's separate storm sewer system or into surface Waters of the Commonwealth, which are not composed entirely of stormwater, except: (1) as provided in subsection 1301.D below, and (2) discharges allowed under a state or federal permit.
- D. The following discharges are authorized unless they are determined to be significant contributors to pollution to the Waters of the Commonwealth:
- |  |   |
|--|---|
| -Discharges from firefighting activities   | -Flows from riparian habitats and wetlands                    |
| -Potable water sources including dechlorinated water line and fire hydrant flushings   | -Uncontaminated water from foundations or from footing drains |
| -Irrigation drainage   | -Lawn watering  |
| -Air conditioning condensate   | -Swimming pool discharges                                     |
| -Springs   | -Uncontaminated groundwater                                   |
| -Water from crawl space pumps  | -Water from individual residential car washing                |
| -Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) | -Routine external building washdown                           |
- E. In the event that the Township or PADEP determines that any of the discharges identified in subsection 1301.D, significantly contribute to pollution of Waters of the Commonwealth, or is so notified by PADEP, the Township will notify the responsible person(s) to cease the discharge.
- F. Upon notice provided by the Township or PADEP under subsection 1301.E, the discharger will have a reasonable time, as determined by the Township or PADEP, to cease the discharge, consistent with the degree of pollution caused by the discharge.
- G. Nothing in this Section shall affect a discharger's responsibilities under Commonwealth Law.

### **Section 1302. Roof Drains**

Roof drains and sump pumps shall discharge to infiltration areas, vegetative BMPs, or pervious areas where reasonably practicable; otherwise to the public storm sewer system.

### **Section 1303. Alteration of BMPs**

- A. No person shall modify, remove, fill, landscape, or alter any existing stormwater BMP, facilities, areas, or structures unless it is part of an approved maintenance program, without the written approval of the Township .
- B. No person shall place any structure, fill, landscaping, or vegetation into a stormwater BMP, facilities, areas, structures, or within a drainage easement which would limit or alter the functioning of the BMP without the written approval of the Township.

## **ARTICLE XIV - FEES AND EXPENSES**

### **Section 1401. General**

The fee required by this Ordinance is the Municipal Review Fee. The Municipal Review Fee shall be established by the Township from time to time by resolution of the Board of Supervisors to defray review costs incurred by the Township and the Municipal Engineer. The Applicant shall pay all fees.

### **Section 1402. Expenses Covered by Fees**

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

- A. Administrative and Clerical Costs.
- B. Review of the SWM Site Plan & Report by the Township.
- C. Pre-construction meetings.
- D. Inspection of stormwater management facilities/BMPs and drainage improvements during construction.
- E. Final inspection upon completion of the stormwater management facilities/BMPs and drainage improvements presented in the SWM Site 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.

### **Section 1403. Recording of Approved SWM Site Plan and Related Agreements**

- A. The owner of any land upon which permanent BMPs will be placed, constructed, or implemented, as described in the SWM Site Plan, shall record the following documents in the Office of the Recorder of Deeds of Washington County, within ninety (90) days of approval of the SWM Site Plan by the Township:
  - 1. The SWM Site Plan.
  - 2. Operations and Maintenance (O&M) Agreement (Appendix A).
  - 3. Easements under Section 901.
  - 4. Riparian buffers under Section 602.
- B. The Township may suspend or revoke any approvals granted for the project site upon discovery of the failure of the owner to comply with this Section.

ENACTED and ORDAINED at a regular meeting of the Board of Supervisors of Cecil Township on this \_\_\_\_\_ day of \_\_\_\_\_, 2016.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ATTEST:

\_\_\_\_\_  
Secretary

I hereby certify that the foregoing Ordinance was advertised in the Washington Observer on \_\_\_\_\_, 2016, a newspaper of general circulation in Cecil Township and was duly enacted and approved as set forth at a regular meeting of the Board of Supervisors of Cecil Township held on \_\_\_\_\_, 2016.

\_\_\_\_\_  
Secretary

**APPENDIX A - OPERATION AND MAINTENANCE AGREEMENT**

**OPERATION AND MAINTENANCE (O&M) AGREEMENT  
STORMWATER MANAGEMENT BEST MANAGEMENT PRACTICES (SWM BMPs) \***

**THIS AGREEMENT**, made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_, by and between \_\_\_\_\_, having an address of \_\_\_\_\_ (the "Landowner"), and Cecil Township, Washington County, Pennsylvania, (the "Township");

**WITNESSETH:**

WHEREAS, the Landowner is the owner of certain real property as recorded by instrument in the Recorder of Deeds Office of Washington County, Pennsylvania, at Instrument No. \_\_\_\_\_, (the "Property").

WHEREAS, the Landowner has applied for and received approval from the Township to commence a Land Development on the Property; and

WHEREAS, the SWM Site Plan, as defined in Cecil Township Ordinance No. \_\_\_\_\_, codified in the Code of Cecil Township at Chapter \_\_\_\_\_ (the "Ordinance") approved by the Township (hereinafter referred to as the "Plan") for the property identified herein, which is attached hereto as Appendix A and made part hereof, as approved by the Township, provides for management of stormwater within the confines of the Property through the use of BMPs (as defined in the Ordinance); and

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

WHEREAS, the Township requires, through the implementation of the SWM Site Plan, that stormwater BMPs as required by said Plan and the Ordinance be constructed and adequately operated and maintained by the Landowner, successors and assigns, so long as the property is developed pursuant to the Landowner's Land Development Plan.

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

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

5. 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, the Landowner shall reimburse the Township for all expenses (direct and indirect) incurred within ten (10) days of receipt of invoice from the Township .

6. The intent and purpose of this Agreement is to ensure the proper maintenance of the onsite BMPs by the Landowner; provided, however, that this Agreement shall not be deemed to create or effect any additional liability of any party for damage alleged to result from or be caused by stormwater runoff.

7. The Landowner, its executors, administrators, assigns, and other successors in interests, shall release the Township from all damages, accidents, casualties, occurrences or claims which might arise or be asserted against said employees and representatives from the construction, presence, existence, or maintenance of the BMPs by the Landowner or Township .

8. The Township may inspect the BMPs periodically to ensure their continued functioning.

This Agreement shall be recorded at the Office of the Recorder of Deeds of Washington 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, so long as the Property is developed pursuant to the Landowners Land Development Plan.

**WITNESS** the following signatures and seals:

ATTEST:

CECIL TOWNSHIP

\_\_\_\_\_  
Secretary

\_\_\_\_\_

WITNESS:

LANDOWNER

\_\_\_\_\_  
COMMONWEALTH OF PENNSYLVANIA

\_\_\_\_\_

COUNTY OF WASHINGTON

:  
: ss.  
:



**APPENDIX B – STANDARD DETAILS -STORMWATER MANAGEMENT**

**APPENDIX C - STORMWATER MANAGEMENT DESIGN CRITERIA**

**TABLE C-1 - RATIONAL METHOD RUNOFF COEFFICIENTS**

Hydraulic Soil Group	Storm	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 Land	<25yr	0.08	0.13	0.16	0.11	0.15	0.21	0.14	0.19	0.26	0.18	0.23	0.31
	≥25yr	0.14	0.08	0.22	0.16	0.21	0.28	0.2	0.25	0.34	0.24	0.29	0.41
Pasture	<25yr	0.12	0.2	0.3	0.18	0.28	0.37	0.24	0.34	0.44	0.3	0.4	0.5
	≥25yr	0.15	0.25	0.37	0.23	0.34	0.45	0.3	0.42	0.52	0.37	0.5	0.62
Meadow	<25yr	0.10	0.16	0.25	0.14	0.22	0.3	0.2	0.28	0.36	0.24	0.3	0.4
	≥25yr	0.14	0.22	0.3	0.2	0.28	0.37	0.26	0.35	0.44	0.3	0.4	0.5
Forest	<25yr	0.05	0.08	0.11	0.08	0.11	0.14	0.1	0.13	0.16	0.12	0.16	0.2
	≥25yr	0.08	0.11	0.14	0.1	0.14	0.18	0.12	0.16	0.2	0.15	0.2	0.25
Residential													
1/8 Acre	<25yr	0.25	0.28	0.31	0.27	0.3	0.35	0.3	0.33	0.38	0.33	0.36	0.42
	≥25yr	0.33	0.37	0.4	0.35	0.39	0.44	0.38	0.42	0.49	0.41	0.45	0.54
1/4 Acre	<25yr	0.22	0.26	0.29	0.24	0.29	0.33	0.27	0.31	0.36	0.3	0.34	0.4
	≥25yr	0.3	0.34	0.37	0.33	0.37	0.42	0.36	0.4	0.47	0.38	0.42	0.52
1/3 Acre	<25yr	0.19	0.23	0.26	0.22	0.26	0.3	0.25	0.29	0.34	0.28	0.32	0.39
	≥25yr	0.28	0.32	0.35	0.3	0.35	0.39	0.33	0.38	0.45	0.36	0.4	0.5
1/2 Acre	<25yr	0.16	0.2	0.24	0.19	0.23	0.28	0.22	0.27	0.32	0.26	0.3	0.37
	≥25yr	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	<25yr	0.14	0.19	0.22	0.17	0.21	0.26	0.2	0.25	0.31	0.24	0.29	0.35
	≥25yr	0.22	0.26	0.29	0.24	0.28	0.34	0.28	0.32	0.4	0.31	0.35	0.46
Industrial	<25yr	0.67	0.68	0.68	0.68	0.68	0.69	0.68	0.69	0.69	0.69	0.69	0.7
	≥25yr	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	<25yr	0.71	0.71	0.72	0.71	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
	≥25yr	0.88	0.88	0.89	0.89	0.89	0.89	0.89	0.89	0.9	0.89	0.89	0.9
Streets	<25yr	0.7	0.71	0.72	0.71	0.72	0.74	0.72	0.73	0.76	0.73	0.75	0.78
	≥25yr	0.76	0.77	0.79	0.8	0.82	0.84	0.84	0.85	0.89	0.89	0.91	0.95
Open Space	<25yr	0.05	0.1	0.14	0.08	0.13	0.19	0.12	0.17	0.24	0.16	0.21	0.28
	≥25yr	0.11	0.16	0.2	0.14	0.19	0.26	0.18	0.23	0.32	0.22	0.27	0.39
Parking or Impervious	<25yr	0.85	0.86	0.87	0.85	0.86	0.87	0.85	0.86	0.87	0.85	0.86	0.87
	≥25yr	0.95	0.96	0.97	0.95	0.96	0.97	0.95	0.96	0.97	0.95	0.96	0.97

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.

For simplification, a designer may use 0.3 for all pervious areas and 0.95 for all impervious areas.

**TABLE C-2 - RUNOFF CURVE NUMBERS (FROM NRCS (SCS) TR-55)**

Runoff Curve Numbers for Urban Areas		Curve Numbers for Hydrologic Soil Groups			
Cover Description		A	B	C	D
Cover Type and Hydrologic Condition	Average Percent Impervious Area				
Fully Developed Urban Areas (Vegetation Established)					
Open Space (lawns, parks, golf courses, etc):					
Poor Condition (grass cover < 50%)		68	79	86	89
Fair Condition (grass cover 50% to 75%)		49	69	79	84
Good Condition (grass cover > 75%)		39	61	74	80
Impervious Areas:					
Paved Parking Lots, Roofs, Driveways, etc.		98	98	98	98
Streets and Roads:					
Paved: Curbed and Storm Sewers		98	98	98	98
Paved: Open Ditches		83	89	92	93
Gravel		76	85	89	91
Dirt		72	82	87	89
Urban Districts:					
Commercial and Business	85%	89	92	94	95
Industrial	72%	81	88	91	93
Residential Districts by Average Lot Size:					
1/8 Acres or less	65%	77	85	90	92
1/4 Acre	38%	61	75	83	87
1/3 Acre	30%	57	72	81	86
1/2 Acre	25%	54	70	80	85
1 Acre	20%	51	68	79	84
2 Acres	12%	46	65	77	82

Runoff Curve Numbers for Cultivated Agricultural Lands						
Cover Description			Curve Numbers			
Cover Type	Treatment	Hydrologic Condition	A	B	C	D
Fallow	Bare Soil	--	77	86	91	94
	Crop Residue Cover (CR)	Poor	76	85	90	93
		Good	74	83	88	90
Row Crops	Straight Row (SR)	Poor	72	81	88	91
		Good	67	78	85	89
	SR + CR	Poor	71	80	87	90
		Good	64	75	82	85
	Contoured (C)	Poor	70	79	84	88
		Good	65	75	82	86
	C + CR	Poor	69	78	83	87
		Good	64	74	81	85
	Contoured & Terraced (C & T)	Poor	66	74	80	82
		Good	62	71	78	81
	C & T + CR	Poor	65	73	79	81
		Good	61	70	77	80
Small Grain	SR	Poor	65	76	84	88
		Good	63	75	83	87
	SR + CR	Poor	64	75	83	86
		Good	60	72	80	84
	C	Poor	63	74	82	85
		Good	61	73	81	84
	C + CR	Poor	62	73	81	84
		Good	60	72	80	83
	C & T	Poor	61	72	79	82
		Good	59	70	78	81
	C & T + CR	Poor	60	71	78	81
		Good	58	69	77	80
Close Seeded or Broadcast Legumes Or Rotation Meadow	SR	Poor	66	77	85	89
		Good	58	72	81	85
	C	Poor	64	75	83	85
		Good	55	69	78	83
	C & T	Poor	63	73	80	83
		Good	51	67	76	80
Runoff Curve Numbers for Other Agricultural Lands						
Pasture, Grassland, or Range – Continuous Forage for Grazing		Poor	68	79	86	89
		Fair	49	69	79	84
		Good	39	61	74	80
Meadow – Continuous Grass, Protected from Grazing and Generally Mowed for Hay		--	30	58	71	78
Woods – Grass Combination (orchard or tree farm)		Poor	57	73	82	86
		Fair	43	65	76	82

	Good	32	58	72	79
Woods	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30	55	70	77
Farmsteads – Buildings, Lanes, Driveways and Surrounding Lots.	--	59	74	82	86

**APPENDIX E – SMALL PROJECT SWM APPLICATION**

**Cecil Township  
Small Project Stormwater Management Application**

Per Cecil Township’s Act 167 Stormwater Management Ordinance, an Applicant is required to submit this Small Project Application whenever Regulated Activities involving the creation of new impervious surfaces equal to, or greater than 2,500 square feet and less than 5,000 square feet. Impervious surfaces are areas that prevent the infiltration of water into the ground and shall include, but not be limited to, roofs, patios, garages, storage sheds and similar structures, and any new streets or sidewalks.

To Calculate Impervious Surfaces Please Complete This Table					
Surface Type	Length (feet)	X	Width (feet)	=	Proposed Impervious Area
Building (area per downspout)		x		=	
		x		=	
		x		=	
		x		=	
Driveway		x		=	
		x		=	
		x		=	
Parking Areas		x		=	
		x		=	
		x		=	
Patios/Walks		x		=	
		x		=	
		x		=	
		x		=	
Other		x		=	
		x		=	
		x		=	
<b>Total Impervious Surface Area to be managed (sum of all areas)</b>					

For all Regulated Activities that involve creation of new impervious surface areas EQUAL TO or GREATER than 5,000 square feet, the Applicant MUST submit a Stormwater Management Site Plan and Report as defined in Article VIII of the Ordinance and implement volume and rate controls.

If the Total Impervious Surface Area is LESS THAN 5,000 square feet, or the proposed development is a Single Family Residential Activity implementing the minimum measures in Section 302.E. read, acknowledge and sign below.

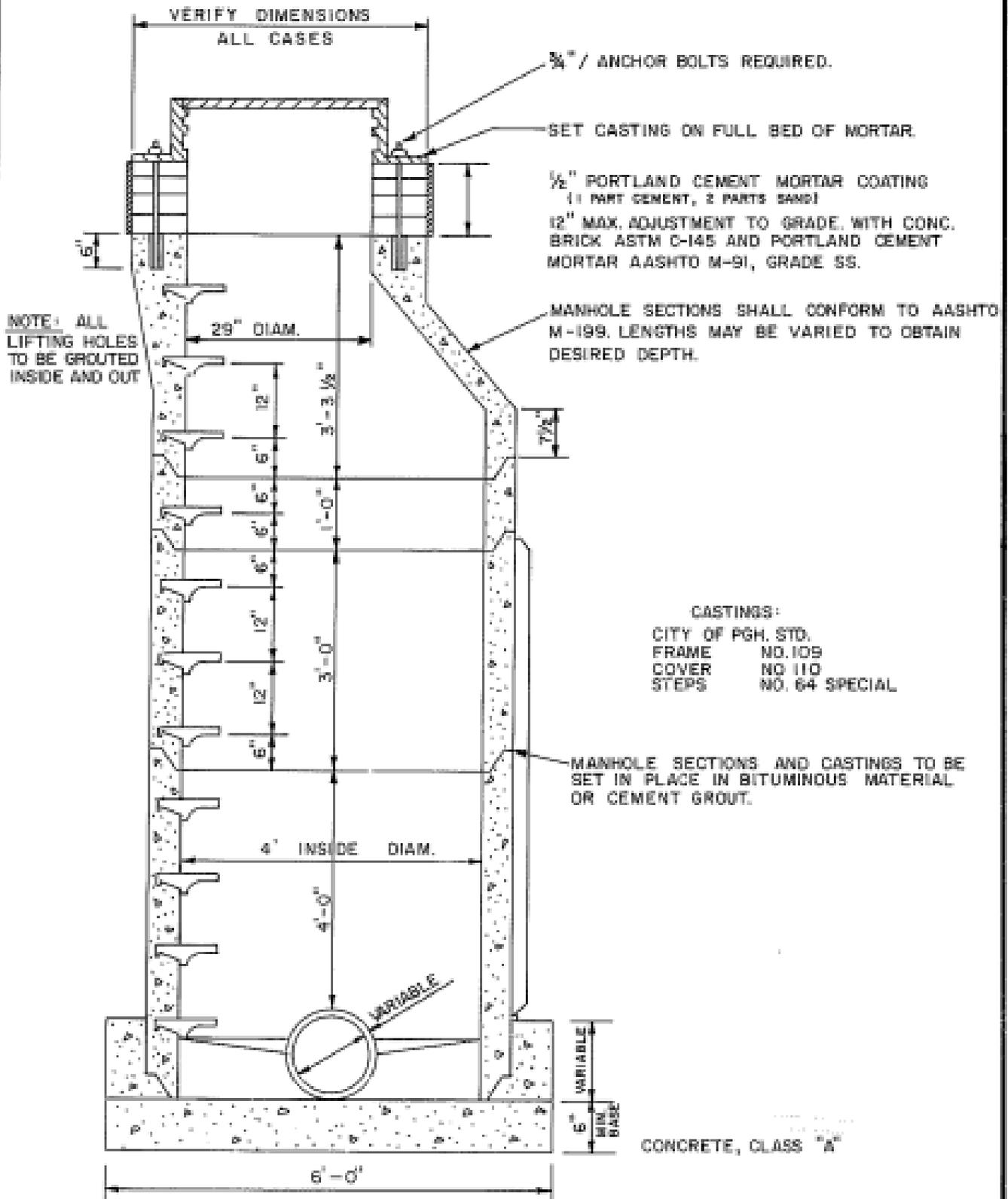
Based upon information you have provided, a Stormwater Management Site Plan and Report IS NOT required for this Regulated Activity. Cecil Township may request additional information and/or a SWM Site Plan for any reason.

Applicant or Property Owner certifies that Sections 302.A., 302.B., and 302.C. have been adequately addressed and acknowledges that submission of inaccurate information may result in a stop work order or permit revocation. Acknowledgement of such is by signature below. I declare that I am the Owner or Owner's legal representative. I further acknowledge that the information provided is accurate and employees of Cecil Township are granted access to the above described property for review and inspection as they deem necessary.

Owner: \_\_\_\_\_

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

**APPENDIX F – CECIL TOWNSHIP STANDARDS OF CONSTRUCTION**



1989

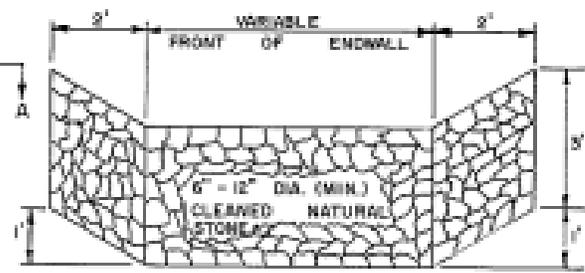
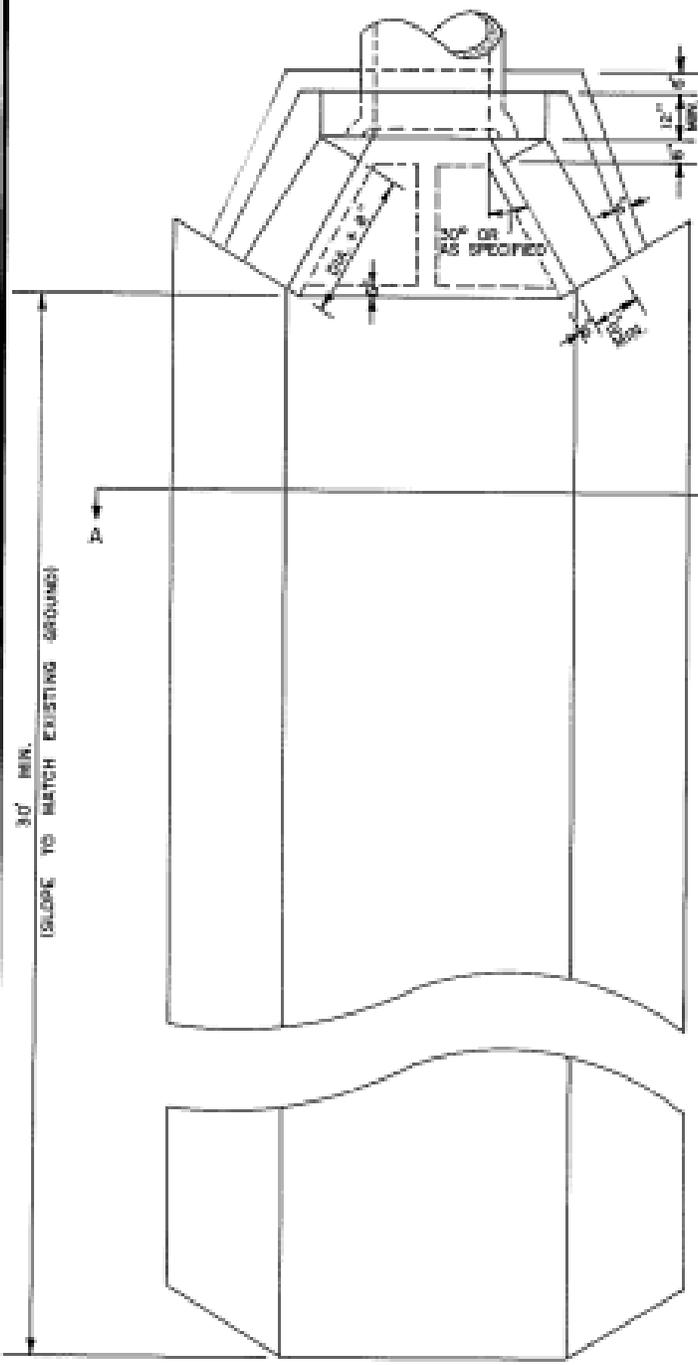
REVISIONS:

**PRECAST CONCRETE MANHOLE DETAIL FOR PIPES UNDER 48" IN DIAMETER**

CECIL TOWNSHIP  
WASHINGTON COUNTY, PA.

C-102





SECTION "AA"

PLAN VIEW

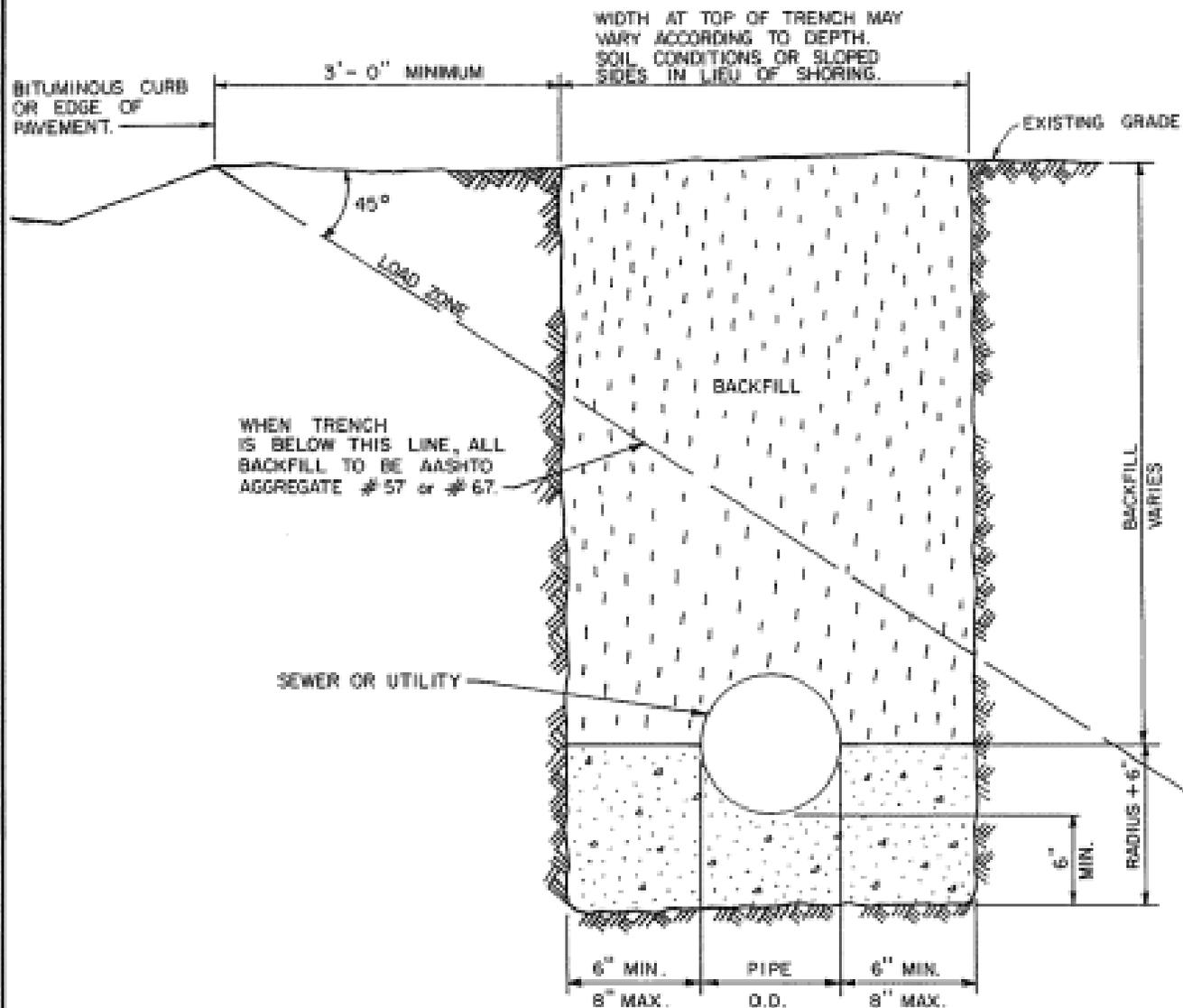
1989

REVISIONS:

**ENERGY DISSIPATION TRENCH**

CECIL TOWNSHIP  
WASHINGTON COUNTY, PA.

C-107



**BEDDING:** THE BEDDING SHALL HAVE A MINIMUM DEPTH OF (6) SIX INCHES BELOW ALL PIPE AND SHALL BE BACKFILLED WITH AASHTO AGGREGATE # 57 OR # 67 ((12) TWELVE INCHES BELOW ALL PIPE IN ROCK) THEN EXTENDED UP THE HAUNCHES TO THE SPRINGLINE OF THE PIPE.

**BACKFILL:** ALL STREET AND PARKING AREA CROSSING SHALL BE BACKFILLED TO SUBGRADE WITH AASHTO AGGREGATE # 57 OR # 67.

IN ALL OTHER TRENCH AREAS BACKFILL FROM THE SPRINGLINE TO (1) ONE FOOT ABOVE THE TOP OF PIPE; TO BE SELECTED MATERIAL (SELECTED MATERIAL IS FINELY DIVIDED MATERIAL FREE OF DEBRIS, ORGANIC MATERIAL AND STONES), TAMPED IN (4) FOUR INCH LAYERS; THEN THE REMAINING BACKFILL FROM THE TRENCH MAY BE PLACED.

REVISION:  
FEBRUARY, 1993

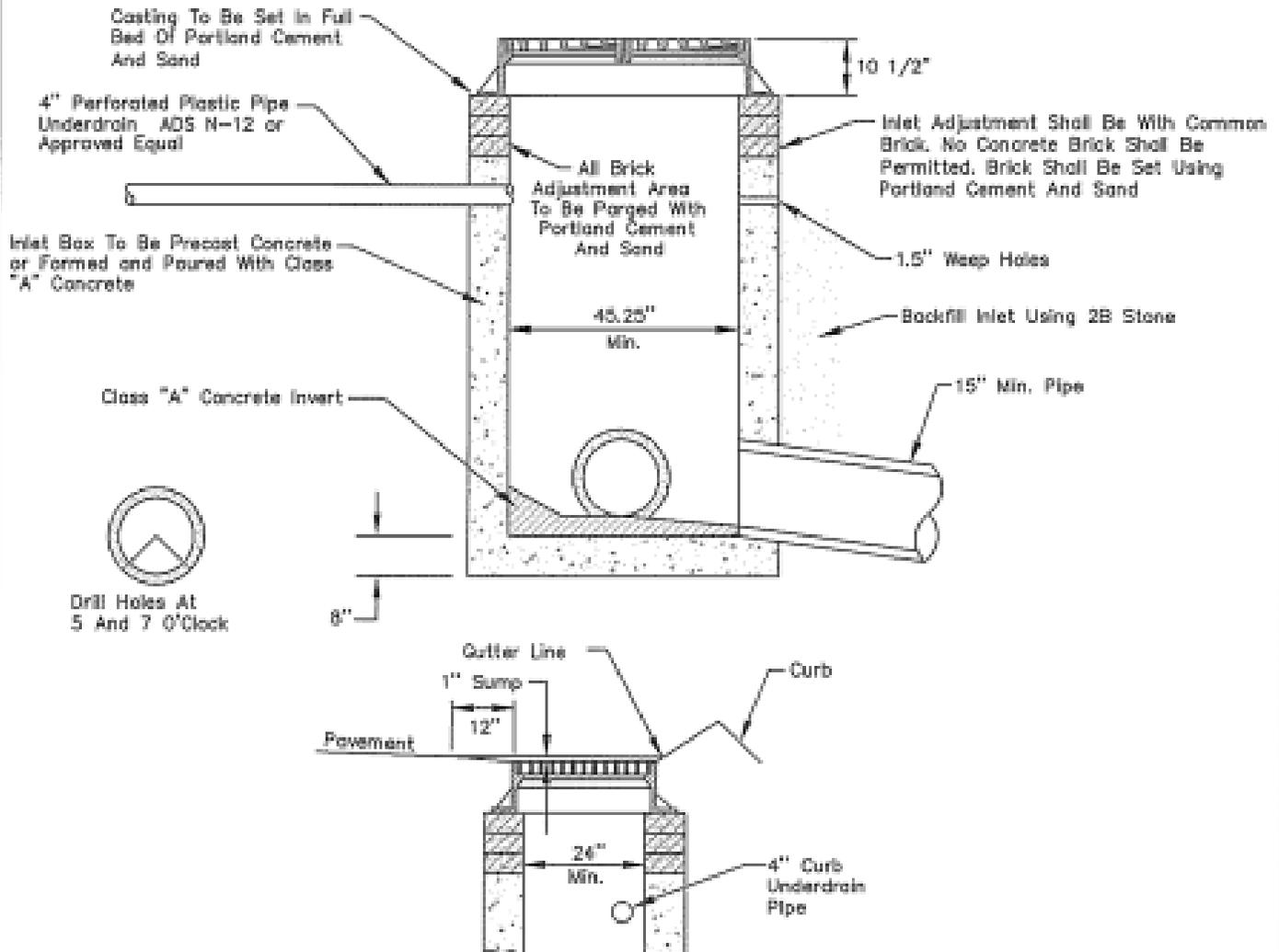
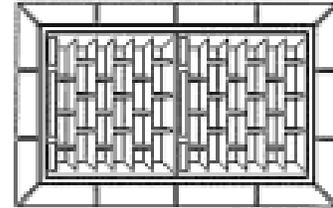
## PIPE TRENCHING AND BEDDING DETAIL

CECIL TOWNSHIP  
WASHINGTON COUNTY, PA

C-108

Component No's:

NEENAH FOUNDRY COMPANY OR APPROVED EQUAL  
Frame 3572-0001; Grate R-3573 Type "L"  
Material: Cast Gray Iron ASTM A-48, Class 35B  
Finish: Not Painted  
Weight: Frame - 691 Lbs.; Grate - 185 Lbs. / Each



Construct Inlet In Accordance With These Specifications And Penn D.O.T. Publication 408, Section 606, For Cast-In-Place Units And Section 713.2 For Precast Concrete Units.

Inlet Adjustment For 6" Or Greater Shall Be With Precast Concrete Rings.

Inlet Frames And Grates To Be Either Gray, Malleable Or Ductile Iron.

All Inlets Are To Be A Minimum Of 4' Deep. Manhole Steps Required In All Inlets Over 5' Deep.

The Interior Of All Inlets To Be Painted With Linseed Oil To Protect The Concrete From Road Salt.

REVISIONS:

AUGUST 13, 2001

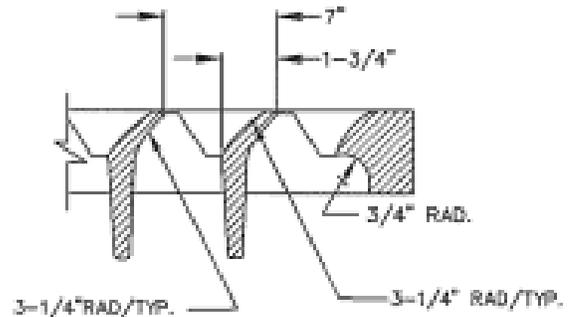
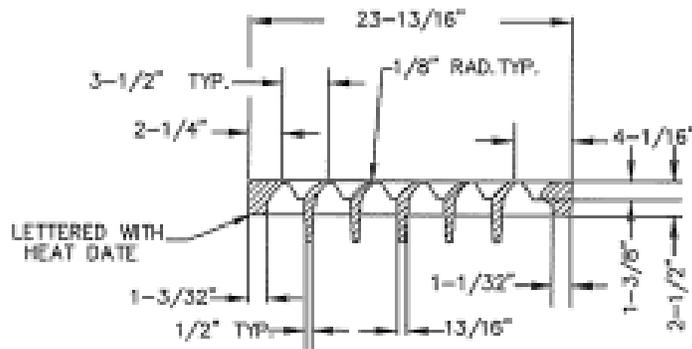
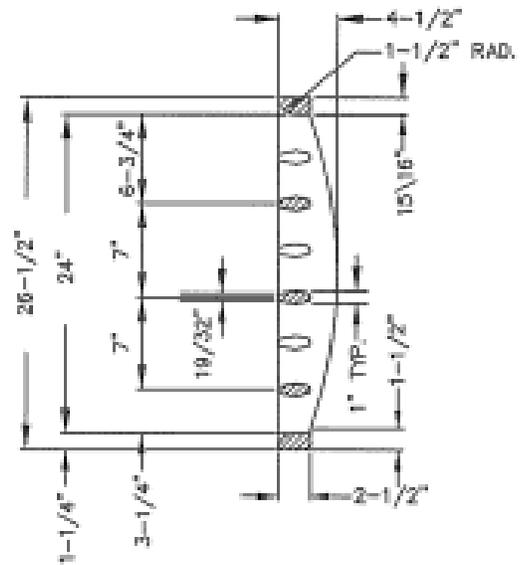
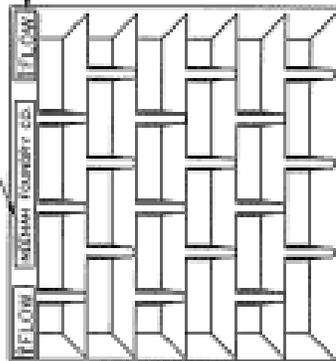
# STORM INLET DETAIL

CECIL TOWNSHIP  
WASHINGTON COUNTY, PA

SHEET 1 OF 2

DIRECTION OF FLOW ARROW

3/4" HIGH LETTERS  
RAISED FLUSH



NOTE:  
 ALL DRAFT ANGLES ARE 5°, UNLESS OTHERWISE NOTED  
 SUITABLE FOR HS-25 LOADING  
 FREE OPEN AREA: 339 SQUARE INCHES  
 MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 30B  
 FINISH: NOT PAINTED  
 WEIGHT: APPROX. 185#

DETAIL OF SECTION

REVISIONS:  
 AUGUST 13, 2001

# STORM INLET DETAIL

CECIL TOWNSHIP  
 WASHINGTON COUNTY, PA