ORDINANCE NO. 2014-04

AN ORDINANCE OF THE TOWNSHIP OF EAST COCALICO AMENDING THE CODE OF ORDINANCES OF EAST COCALICO TOWNSHIP, CHAPTER 185, STORMWATER MANAGEMENT, BY ENACTING AN ORDINANCE KNOWN AS THE: "EAST COCALICO TOWNSHIP STORMWATER MANAGEMENT AND EARTH DISTURBANCE ORDINANCE OF 2014".

NOW, THEREFORE, BE IT ORDAINED AND ENACTED by the Supervisors of the Township of East Cocalico, as follows:

ARTICLE I
General Provisions

§ 185-1. Title.

This chapter shall be known as the "East Cocalico Township Stormwater Management and Earth Disturbance Ordinance of 2014."

§ 185-2. Purpose and legislative intent.

A. The purposes of this chapter are to promote the general health, safety, and welfare of the community; regulate the modification of the natural terrain and alterations of existing drainage from earth disturbances, new subdivisions, and new land developments in order to control erosion and sedimentation of soils and preserve stream channels and water quality, and provide design, construction and maintenance, and storm drainage facilities for controlling stormwater, erosion, and sedimentation and maintaining the quality of the watersheds within the Township.

B. In the enactment of this chapter, it is the legislative intent of the Township Board of Supervisors to implement the policies set forth in various statutes of the state and federal governments, including but not limited to the Pennsylvania Clean Streams Law, Act of June 22, 1937, P.L. 1987, as amended, 35 P.S. § 691.1 et seq.; the Pennsylvania Storm Water Management Act, Act of October 4, 1978, P.L. 864, No. 167, as amended, 32 P.S. § 680.1 et seq.; the Pennsylvania Scenic Rivers Act, Act of December 5, 1972, P.L. 1277, No. 283, 32 P.S. § 820.21 et seq.; and the Federal Water Pollution Control Act, commonly known as the "Clean Water Act," 33 U.S.C. § 1251 et seq.

C. In the enactment of this chapter it is the further legislative intent of the Township Board of Supervisors to fulfill its obligations under Section 11(b) of the Pennsylvania Storm Water Management Act to adopt and implement ordinances and regulations as are necessary to regulate development within the Township in a manner consistent with a watershed stormwater management plan approved by the Department of Environmental Protection. The Department of Environmental Protection has approved Act 167 watershed stormwater management plans for the Cocalico Creek and Conestoga River watersheds located within the Township. Any stormwater management plan proposed within the Cocalico Creek watershed, Conestoga River watershed or a future Act 167 watershed shall comply with the respective Act 167 watershed stormwater management plan as may be adopted by the Lancaster County Board of Commissioners and be considered as part of this chapter.[1]

§ 185-3. Enactment; statutory authority; applicability.

The Board of Supervisors of East Cocalico Township pursuant to the Pennsylvania Storm Water Management Act, Act No. 167 of October 4, 1978 (P.L. 864), and the Second Class Township Code, Act of May 1, 1933, P.L. 103, No. 69, as reenacted and amended November 9, 1995, P.L. 350, No. 60, as amended, 53 P.S. § 65101 et seq., hereby enacts and ordains this chapter as the East Cocalico Township Stormwater Management and Earth Disturbance Ordinance of 2014. This chapter shall apply to all regulated activities as defined in § 185-8 of this chapter.

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1. Editor's Note: Amended at time of adoption of Code (see Ch. 1, General Provisions, Art. I).

§ 185-4. Abrogation and greater restrictions.

Within that portion of the Township located in any future Act 167 watershed plan, any ordinance or provision of any ordinance which is inconsistent with the provisions of this chapter is hereby repealed to extent of the inconsistency only. Within the remainder of the Township, this chapter supersedes any provisions currently in effect with respect to stormwater management and erosion control; all other ordinances and regulations shall remain in full force and effect to the extent that those provisions are more restrictive than the provisions of this chapter.

§ 185-5. Waiver of liability.

Except as specifically provided by the Pennsylvania Storm Water Management Act, Act of October 4, 1978, P.L. 864, No. 167, as amended, 32 P.S. § 680.1 et seq., the making of any administrative decision by the Township or any of its officials or employees shall not constitute a representation, guarantee or warranty of any kind by the Township of the practicability or safety of any proposed structure or use with respect to damage from erosion, sedimentation, stormwater runoff, flood, or any other matter, and shall create no liability upon or give rise to any cause of action against the Township and its officials and employees. The Board of Supervisors, by enacting this chapter, does not waive or limit any immunity granted to the Township and its officials and employees by the Governmental Immunity Act, 42 Pa.C.S.A. § 8541 et seq., and does not assume any liabilities or obligations.

§ 185-6. Right of entry.

A. Upon presentation of proper credentials, duly authorized representatives of East Cocalico Township may enter at reasonable times upon any property within the Township to investigate or ascertain the condition of the subject property in regard to any aspect regulated by this chapter.

B. The landowner shall grant to the Township, or its agents, access to the site of the work at all times, while under construction, for the purpose of inspecting or observing the work.

§ 185-7. Severability

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

§ 185-8. Erroneous Permit

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

§ 185-9. Compatibility with other permit and ordinance requirements.

Permits and approvals issued pursuant to this chapter do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act or ordinance. If more stringent requirements concerning regulation of stormwater or erosion and sedimentation control are contained in the other code, rule, act or ordinance, the more stringent regulation shall apply.

ARTICLE II

Definitions

§ 185-10. Definitions and word usage.

A. Unless otherwise stated, the following words shall for the purpose of this chapter have the meaning herein indicated. Words in the present tense include the future tense. Words in singular include the plural and words in the plural include the singular.

B. The masculine gender includes the feminine gender and the neuter. The word “person” includes a partnership, corporation, association, trust, estate, or any other legally recognized entity as well as an individual and the officers of any corporation and the members of any partnership. References to “codes, ordinances, resolutions, plans, maps, governmental bodies, commissions or agencies, or officials” are references to codes, ordinances, resolutions, plans, maps, governmental bodies, commissions or agencies, or officials of East Cocalico Township or the Commonwealth of Pennsylvania as in effect or office from time to time, including amendments thereto or revisions or successors thereof, unless the text indicates another reference is intended.

C. Words not herein defined or in Section 107 of the MPC shall have the meanings given in Webster's Unabridged Dictionary and shall be interpreted so as to give this chapter its most reasonable application.

D. The time, within which any act required by this chapter is to be performed, shall be computed by excluding the first day and including the last day. However, if the last day is a Saturday or Sunday or a holiday declared by the United States Congress or the Pennsylvania General Assembly, it shall also be excluded. The word “day” shall mean a calendar day, unless otherwise indicated.

E. References to officially adopted regulations, standards, or publications of DEP or other governmental agencies shall include the regulation, publication, or standard in effect on the date when a stormwater management site plan is first filed. It is the intent of the Township in enacting this chapter to incorporate such changes to statutes, regulations, and publications to the extent authorized by 1 Pa. C.S. § 1937.

F. As used in this chapter, the following terms shall have the meanings indicated:

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

ACT 167 WATERSHED STORM WATER MANAGEMENT PLAN — A plan prepared under the authority of Pennsylvania's Stormwater Management Act of October 4, 1978.

AGRICULTURAL ACTIVITY — Activities associated with agriculture such as agricultural cultivation, agricultural operation, and animal heavy use areas. This includes the work of producing crops and raising livestock including tillage, land clearing, plowing, disking, harrowing, planting, harvesting crops, or pasturing and raising of livestock and installation of conservation practices. Construction of new buildings or impervious areas is not considered an agricultural activity.

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

ANIMAL HEAVY USE AREAS — A barnyard, feedlot, loafing area, exercise lot, or other similar area on an agricultural operation where due to the concentration of animals, it is not possible to establish and maintain vegetative cover of a density capable of minimizing accelerated erosion and sedimentation by usual planting methods. The term does not include entrances, pathways and walkways between areas where animals are housed or kept in concentration.

APPLICANT — A landowner or developer, as hereinafter defined, including his heirs, successors and assigns, who has filed an application to the Township for approval to engage in a regulated activity and to obtain a stormwater management or earth disturbance permit.

APPLICATION FOR DEVELOPMENT — Every application required to be filed and approved prior to start of construction or development.

BEST MANAGEMENT PRACTICE (BMP) — Activities, facilities, control measures, planning or procedures used to minimize accelerated erosion and sedimentation and manage stormwater to protect, maintain, reclaim, and restore the quality of waters and the existing and designated uses of waters within this commonwealth before, during and after earth disturbance activities. See also "non-structural BMP" and "structural BMP".

BMP MANUAL — The Pennsylvania Stormwater Best Management Practices Manual of December 2006, or most recent version thereof.

BOARD OF SUPERVISORS — The Board of Supervisors of East Cocalico Township, Lancaster County, Pennsylvania.

BUILDING — Any structure, either temporary or permanent, having walls and a roof, designed or used for the shelter of any person, animal or property and occupying more than 100 square feet of area.

CARBONATE GEOLOGY — Limestone or dolomite bedrock.

CERTIFICATE OF COMPLETION — Documentation verifying that all permanent stormwater management facilities have been constructed according to the plans and specifications and approved revisions thereto.

CHANNEL — A natural or artificial watercourse with a definite bed and banks that confine and conduct continuously or periodically flowing water.

CHAPTER 102 — Chapter 102 of the regulations of PADEP, 25 Pa. Code § 102, Erosion and Sediment Control.

CHAPTER 105 — Chapter 105 of the regulations of PADEP, 25 Pa. Code § 105, Dam Safety and Waterway Management.

CHAPTER 106 — Chapter 106 of the regulations of PADEP, 25 Pa. Code § 106, Floodplain Management.

CISTERN — A reservoir or tank for storing stormwater runoff.

CLEAN WATER ACT — The 1972 Amendments to the Federal Water Pollution Control Act, P.L. 92-500 of 1972, 33 U.S.C. §1251 et seq.

CONSERVATION DISTRICT — The Lancaster County Conservation District.

CONSERVATION PLAN — A plan written by an NRCS certified planner that identifies Conservation Practices and includes site specific BMPs for agricultural plowing or tilling activities and Animal Heavy Use Areas.

CONSERVATION PRACTICES — Practices installed on agricultural lands to improve farmland, soil and/or water quality which have been identified in a current Conservation Plan.

CONVEYANCE — (n) Any structure that carries a flow. (v) The ability of a pipe, culvert, swale or similar facility to carry the peak flow from the design storm.

COUNTY PLANNING COMMISSION — The Planning Commission of the County of Lancaster, Commonwealth of Pennsylvania.

CULVERT — A structure with appurtenant works that carries a watercourse 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. The dam falls under the requirements of Chapter 105, Dam Safety and Waterway Management, if the following is true:

(1) The contributory drainage area exceeds 100 acres.

(2) The greatest depth of water measured by upstream toe of the dam at maximum storage elevation exceeds 15 feet.

(3) The impounding capacity at maximum storage elevation exceeds 50 acre-feet.

DEDICATION — The deliberate appropriation of land by its owner for any general and public use.

DESIGN STORM — The magnitude of precipitation from a storm event measured in probability of occurrence (e.g., ten-year storm) and duration (e.g., twenty-four-hour), and used in computing stormwater runoff for the design and evaluation of stormwater management facilities.

DETENTION BASIN —An impoundment structure designed to manage stormwater runoff by temporarily storing the runoff and releasing it at a controlled rate.

DEVELOPER — Any landowner, agent of such landowner, or tenant with the permission of such landowner, who makes or causes to be made a subdivision of land or a land development, or other regulated activities covered by this chapter.

DEVELOPMENT — Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, logging, excavation, or drilling operations.

DEVELOPMENT SITE — The specific area of land where regulated activities in the Township are planned, conducted or maintained.

DISAPPEARING STREAM — A stream in an area underlain by limestone or dolomite that flows underground for a portion of its length.

DRAINAGE CONVEYANCE FACILITY — A stormwater management facility designed to transmit stormwater runoff and shall include streams, channels, swales, pipes, conduits, storm sewers, etc.

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; operation of animal heavy use areas; timber harvesting activities; road maintenance activities; oil and gas activities; well drilling; mineral extraction; building construction; and the moving, depositing, stockpiling, or storing of soil, rock, or earth materials.

EASEMENT — A right-of-way granted for limited use of private land for a public, quasi-public, or private purpose not inconsistent with a general property right of the owner, and within which the owner of the property shall not have the right to use the land in a manner that violates the right of the grantee.

ENERGY DISSIPATER — A device used to slow the velocity of stormwater particularly at points of concentrated discharge such as pipe outlets.

ENFORCEMENT OFFICER — The duly constituted municipal official designated to administer and enforce this chapter. The enforcement officer shall administer this chapter in accordance with its literal terms. The enforcement officer also may be the Building Inspector and/or Zoning Officer of the Township or other designated person, persons or consultant.

ENGINEER, TOWNSHIP — The East Cocalico Township Engineer or any consultant designated by the Board of Supervisors to review an earth disturbance plan and perform the duties of engineer on behalf of the Township.

ENVIRONMENTALLY SENSITIVE AREA — Area with slopes greater than 15%, wetlands, Natural Heritage Areas and other areas designated as Conservation or Preservation in *Greenscapes*, the Green Infrastructure Element of the County Comprehensive Plan, where encroachment by land development or earth disturbance results in degradation of the natural resource.

EPHEMERAL STREAM — A transient stream, one that flows for a relatively short time.

EROSION — The removal of soil particles by the action of water, wind, ice, or other geological agents. See "accelerated erosion."

EROSION AND SEDIMENTATION CONTROL (E&S) PLAN — A site-specific plan consisting of both drawings and a narrative that identifies BMPs to minimize accelerated erosion and sedimentation before, during and after earth disturbance activities.

EXISTING CONDITIONS — The dominant land cover during the 5-year period immediately preceding a proposed regulated activity.

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 this commonwealth.

FLOOD FRINGE — That portion of the floodplain outside of the floodway.

FLOODPLAIN — Any land area susceptible to inundation by water from any natural source or delineated by applicable Department of Housing and Urban Development, Federal Insurance Administration Flood Hazard Boundary - Mapped as being a special flood hazard area. Also, the area of inundation that functions as a storage or holding area for floodwater to a width required to contain a base flood of which there is a 1% chance of occurrence in any given year. The floodplain contains both the floodway and the flood fringe.

FLOOD PLAIN MANAGEMENT ACT — Act of October 4, 1978, P.L. 851, No. 166, as amended, 32 P.S. § 679.101 et seq., and as may be amended in the future.

FLOODWAY — The channel of the watercourse and those portions of the adjoining floodplains that are reasonably required to carry and discharge the one-hundred-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 one-hundred-year-frequency floodway, it is assumed (absent evidence to the contrary) that the floodway extends from the stream to 50 feet from the top of the bank of the stream.

FORESTRY MANAGEMENT/TIMBER OPERATIONS — Planning and activities necessary for the management of forest land. These include conducting a 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 maximum design highwater elevation and the top of a dam, levee, tank, basin, or diversion ridge.

FREQUENCY — The probability or chance that a given storm event/flood will be equaled or exceeded in a given year.

GOVERNING BODY — The Board of Supervisors of East Cocalico Township, Lancaster County, Pennsylvania.

GRADE —

(1) A slope, usually of a road, channel or natural ground specified in percent and shown on plans as specified herein.

(2) (TO) GRADE — To finish the surface of a roadbed, top of embankment or bottom of excavation.

GRASSED WATERWAY — A natural or constructed waterway, usually broad and shallow, covered with erosion-resistant grasses, used to conduct surface water from cropland.

GROUNDWATER — Subsurface water in a zone of saturation.

GROUNDWATER RECHARGE — The process by which water from above the ground surface is added to the saturated zone of an aquifer, either directly or indirectly.

GRUBBING — The clearing of land by digging up roots and stumps.

HOLDING POND — A retention or detention basin.

HYDROLOGIC SOIL GROUP — Refers to soils grouped according to their runoff-producing characteristics by NRCS. There are 4 runoff potential groups ranging from A to D:

A. (Low runoff potential) Soils having high infiltration rates even when thoroughly wetted and consisting chiefly of deep, well to excessively drained sands or gravels. These soils have a high rate of water transmission (greater than 0.30 inches/hour).

B. Soils having moderate infiltration rates when thoroughly wetted and consisting chiefly of moderately deep to deep, moderately well-to-well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission (from 0.15 to 0.30 inches/hour).

C. Soils having slow infiltration rates when thoroughly wetted and consisting chiefly of soils with a layer that impedes downward movement of water, or soils with moderately fine to fine texture. These soils have a slow rate of water transmission (from 0.05 to 0.15 inches/hour).

D. (High runoff potential) Soils having very slow infiltration rates when thoroughly wetted and consisting chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a clay pan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very slow rate of water transmission (from 0 to 0.05 inches/hour).

IMPERVIOUS SURFACE — Surfaces which prevent the infiltration of water into the ground. All structures, buildings, parking areas, driveways, roads, streets, sidewalks, decks, and any areas of concrete, asphalt, packed stone, and compacted soil shall be considered impervious surface if they prevent infiltration. In addition, other areas determined by the Township Engineer to be impervious within the meaning of this definition will also be classed as impervious surfaces.

IMPOUNDMENT — A retention or detention basin designed to retain stormwater runoff and infiltrate it into the ground (in the case of a retention basin) or release it at a controlled rate (in the case of a detention basin).

IMPROVEMENTS — Those physical additions and changes to the land that may be necessary to produce usable and desirable lots.

INFILTRATION STRUCTURES — A structure designed to direct runoff into the ground (e.g. french drains, seepage pits, seepage trench, rain gardens, vegetated swales, pervious paving, infiltration basins, etc.).

INLET — A surface connection to a closed drain. The upstream end of any structure through which water may flow.

INTERMITTENT — A natural, transient body or conveyance of water that exists for a relatively long time, but for weeks or months of the year is below the local water table and obtains its flow from both surface runoff and groundwater discharges.

INVASIVE VEGETATION — Plants which grow quickly and aggressively, spreading, and displacing other plants. Invasive vegetation typically is introduced into a region far from their native habitat. See Invasive Plants in Pennsylvania by the Department of Conservation and Natural Resources.

KARST — A type of topography or landscape characterized by features including but not limited to surface depressions, sinkholes, rock pinnacles/uneven bedrock surface, underground drainage, and caves. Karst is formed on carbonate rocks, such as limestone or dolomite.

LAND DEVELOPMENT — Any of the following activities:

(1) The improvement of one lot or two or more contiguous lots, tracts or parcels of land for any purpose involving:

   (a) A group of two or more residential or nonresidential buildings, whether proposed initially or cumulatively, or a single nonresidential building on a lot or lots regardless of the number of occupants or tenure; or

   (b) The division or allocation of land or space, whether initially or cumulatively, between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups or other features.

(2) Any subdivision of land.

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

LANDOWNER — The legal or beneficial owner or owners of land, including the holder of an option or contract to purchase (whether or not such option or contract is subject to any condition), a lessee if he is authorized under the lease to exercise the rights of the landowner, or other person having a proprietary interest in land.

LIMITING ZONE — A rock formation, other stratum, or soil condition which is so slowly permeable that it effectively limits downward passage of effluent. Season high water tables, whether perched or regional also constitute a limiting zone.

LINEAMENT — A linear feature in a landscape which is an expression of an underlying geological structure such as a fault.

LOT — A designated parcel, tract, or area of land established by a plat or otherwise permitted by law and to be used, developed or built upon as a unit.

MAINTENANCE GUARANTEE — A guarantee by the developer of the structural integrity of improvements dedicated to the Township.

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. Manning’s Equation assumes steady, gradually varied flow.

MAXIMUM EXTENT PRACTICABLE (MEP) — Applies when the applicant demonstrates to the Township’s satisfaction that the performance standard is not achievable. The applicant shall take into account the best available technology, cost effectiveness, geographic features, and other competing interests such as protection of human safety and welfare, protection of endangered and threatened resources, and preservation of historic properties in making the assertion that the performance standard cannot be met and that a different means of control is appropriate.

MEMORANDUM OF UNDERSTANDING — An agreement between East Cocalico Township and the Lancaster County Conservation District to provide for cooperation between the Lancaster County Conservation District and the East Cocalico Township officials, Lancaster County, to include within its ordinances, and to jointly promote conservation of natural resources within East Cocalico Township on lands both public and private, for the purposes of preventing accelerated soil erosion and sedimentation of streams, reducing stormwater damage, and promoting the health, safety and general welfare of the residents of East Cocalico Township.

MPC — The Pennsylvania Municipalities Planning Code, Act of July 1, 1967, P.L. 805, No. 247, as reenacted and amended, 53 P.S. § 10101 et seq., and as may be amended in the future.

MUNICIPAL AUTHORITY USES — Includes wells, well pump houses, water tanks, sewage treatment plants and sewage pump stations, water booster pump stations, water treatment plants, and collection and distribution systems owned by the Township or by an Authority created by the Township or of which the Township is a member municipality. All of the foregoing except sewage treatment plants shall be considered structures and not buildings under this chapter.

MUNICIPALITY — East Cocalico Township, Lancaster County, Pennsylvania.

MUNICIPAL SEPARATE STORM SEWER — A conveyance or system of conveyances (including roads with drainage systems, Township streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains), which is all of the following: (1) owned or operated by a state, city, town, borough, township, county, district, association or other public body (created under state law) having jurisdiction over disposal of sewage, industrial wastes, stormwater or other wastes; (2) designed or used for collecting or conveying stormwater; (3) not a combined sewer; and (4) not part of a Publicly Owned Treatment Works as defined at 40 CFR § 122.2.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) — All separate storm sewers that are defined as "large" or "medium" or "small" municipal separate storm sewer systems pursuant to 40 CFR § 122.26(b)(18), or designated as regulated under 40 CFR § 122.26(a)(1)(v).

MUNICIPAL USES — Includes public uses and semipublic uses, such as schools, parks, recreation centers, fire stations, and municipal buildings and garages.

NATURAL DRAINAGEWAY — An existing channel for water runoff that was formed by natural forces.

NATIVE VEGETATION — Plant species that have evolved or are indigenous to a specific geographical area. These plants are adapted to local soil and weather conditions as well as pests and diseases.

NONPOINT SOURCE POLLUTION — Any source of water pollution that does not meet the legal definition of "point source" in Section 502(14) of the Clean Water Act.

NON-STRUCTURAL BMPs — Planning and design approaches, operational and/or behavior-related practices which minimize stormwater runoff generation resulting from an alteration of the land surface or limit contact of pollutants with stormwater runoff.

NPDES — A permit issued under 25 Pa. Code Chapter 92a (relating to National Pollutant Discharge Elimination System permitting, monitoring and compliance) for the discharge or potential discharge of pollutants from a point source to surface waters.

NRCS — Natural Resources Conservation Service (previously SCS).

ON-SITE STORMWATER MANAGEMENT — The control of runoff to allow water falling on a given site to be absorbed or detained on-site to the extent that after development the peak rate of discharge leaving the site is no greater than if the site had remained undeveloped.

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

OUTFALL — Point where water flows from a conduit, stream, or drain.

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

PADEP — The Pennsylvania Department of Environmental Protection or any agency successor to the Pennsylvania Department of Environmental Protection.

PARENT TRACT — All contiguous land held in single and separate ownership, regardless of whether (i) such land is divided into one or more lots, parcels, purparts or tracts; (ii) such land was acquired by the landowner at different times or by different deeds, devise, partition or otherwise; or (iii) such land is bisected by public or private streets or rights-of-way, which was held by the landowner or his predecessor in title on the effective date of this chapter.

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

PennDOT — The Pennsylvania Department of Transportation or any agency successor thereto.

PERSON — An individual, partnership, association, corporation or other legally recognized entity and the members of such partnership or association and the officers of such corporation.

PERVIOUS AREA — Any material/surface that allows water to pass through at a rate equal to or greater than natural ground cover.

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

PLAN — The stormwater management and erosion and sediment pollution control plans and narratives.

PLANNING COMMISSION — The East Cocalico Township Planning Commission.

PROBABLE MAXIMUM FLOOD (PMF) — The flood that may be expected from the most severe combination of critical meteorologic 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).

PROCESS WASTEWATER — Water that comes in contact with any raw material, product, by-product, or waste during any production or industrial process.

PROJECT SITE — An area of land under earth disturbance or development and within the jurisdiction of this chapter.

PUBLIC GROUNDS — Parks, playgrounds, trails, paths and other recreational areas; sites for schools, sewage treatment, refuse disposal and other publicly owned or operated facilities; publicly owned or operated scenic and historic sites.

QUALIFIED PROFESSIONAL — Any person licensed by the Pennsylvania Department of State or otherwise qualified by law to perform the work required by this chapter.

RATE CONTROL — Stormwater management controls used to manage the peak flows for the purposes of channel protection and flood mitigation.

RATIONAL FORMULA (RATIONAL METHOD) — A rainfall-runoff relation used to estimate peak flow.

RECORD DRAWINGS — Set of prints of the original facilities showing those changes made during the construction process.

REDEVELOPMENT — Any physical improvement to a previously developed lot that involves earthmoving, removal, or addition of impervious surfaces.

REGISTERED PROFESSIONAL — A person duly licensed as a professional engineer, surveyor, geologist, or landscape architect by the Commonwealth of Pennsylvania.

REGULATED ACTIVITIES — Activities, including earth disturbance activities that involve the alteration or development of land in a manner that may affect stormwater runoff. Regulated activities shall include, but not be limited to:

- Land Development subject to the requirements of Chapter 194, Subdivision and Land Development Ordinance;
- Removal of ground cover, grading, filling or excavation;
- Construction of new or additional impervious or semi-impervious surfaces (driveways, parking lots, etc.), and associated improvements;
- Construction of new buildings or additions to existing buildings;
- Installation or alteration of stormwater management facilities and appurtenances thereto;
- Diversion or piping of any watercourse; and,
- Any other regulated activities where the Township determines that said activities may affect any existing watercourse's stormwater management facilities, or stormwater drainage patterns.

RETENTION BASIN — A Stormwater Management Facility that includes a permanent pool for water quality treatment and additional capacity above the permanent pool for temporary runoff storage.

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

RIGHT-OF-WAY — The total width of any land reserved or dedicated as a street, alley, crosswalk or for other public or semipublic purposes.

RIPARIAN — Pertaining to a stream, river or other watercourse. Also, plant communities occurring in association with any spring, lake, river, stream or creek through which waters flow at least periodically.

RIPARIAN BUFFER — A BMP that is an area of permanent vegetation along a watercourse.

RIPARIAN CORRIDOR — A strip of land, centered on a stream or river that includes the floodplain as well as related riparian habitats adjacent to the floodplain.

RIPARIAN CORRIDOR EASEMENT — An easement created for the purpose of protecting and preserving a Riparian Corridor.

RIPARIAN FORREST BUFFER — A type of Riparian Buffer that consists of permanent vegetation that is predominantly native trees, shrubs and forbs along a watercourse that is maintained in a natural state or sustainably managed to protect and enhance water quality, stabilize stream channels and banks, and separate land use activities from surface waters.

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

ROOFTOP DETENTION — Temporary ponding and gradual release of stormwater falling directly onto flat roof surfaces by incorporating controlled-flow roof drains into building designs.

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

SCS — U.S. Department of Agriculture, Soil Conservation Service (now known as "NRCS").

SEDIMENT — Soils or other surficial materials transported by surface water as a product of erosion.

SEDIMENTATION — The action or process of forming or depositing sediment in waters of this commonwealth.

SEDIMENTATION CONTROL — The use of man-made or other methods to minimize accelerated erosion and sedimentation.

SEDIMENT BASIN — A barrier, dam, retention or detention basin located and designed to retain rock, sand, gravel, silt, or other material transported by water.

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

SEEPAGE BED/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.

SEMI-IMPERVIOUS SURFACE — A surface that prevents some percolation of water into the ground.

SHEET FLOW — Runoff which flows over the ground surface as a thin, even layer, not concentrated in a channel.

SMALL PROJECT — Regulated activities that, measured on a cumulative basis from *(August 6, 2003, the adoption date of Ordinance No. 2003-01)*, create new impervious areas of more than 1,000 sq. ft. and less than 2,000 sq. ft. or less or involve earth disturbance activities of, and area less than 5,000 sq. ft. and do not involve the alteration of stormwater facilities or watercourses.

SMALL STORM EVENT — A storm having a frequency of recurrence of once every 2 years or smaller.

SOIL-COVER COMPLEX METHOD — A method of runoff computation developed by the SCS (now NRCS) that is based on relating soil type and land use/cover to a runoff parameter called Curve Number (CN). For more information, see "Urban Hydrology for Small WATERSHEDS", Second edition, Technical Release No. 55, SCS, June 1986 (or most current edition).

SOIL GROUP, HYDROLOGIC — See "Hydrologic Soil Group".

SPILLWAY — A depression in the embankment of a pond or basin, which is used to pass a postdevelopment one-hundred-year storm peak flow rate.

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

STORM EVENT — A storm of a specific duration, intensity, and frequency.

STORM FREQUENCY —The number of times that a given storm event occurs or is exceeded on the average in a stated period of years. See "return period".

STORM SEWER — A system of pipes, conduits, swales, or other similar structures including appurtenant works which carries intercepted runoff, and other drainage, but excludes domestic sewage and industrial wastes.

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

STORMWATER MANAGEMENT — A program of controls and measures, including BMPs, designed to regulate the quantity and quality of stormwater runoff from a development while promoting the protection and conservation of groundwaters and groundwater recharge.

STORM WATER MANAGEMENT ACT — The Pennsylvania Storm Water Management Act, Act of October 4, 1978, P.L. 864, No. 167, as amended, 32 P.S. § 680.1 et seq.

STORMWATER MANAGEMENT BEST MANAGEMENT PRACTICES (SWM BMP) — See "BMP".

STORMWATER MANAGEMENT FACILITIES — Any structure, natural or man-made, that, due to its condition, design, or construction, conveys, stores, infiltrates/evaporates/transpires, cleans or otherwise affects stormwater runoff. Typical SWM facilities include, but are not limited to, detention and retention basins, open channels, watercourses, road gutters, swales, storm sewers, pipes, BMPs, and infiltration structures.

STORMWATER MANAGEMENT OPERATION AND MAINTENANCE PLAN (O&M PLAN) — A plan, including a narrative, to ensure proper functioning of the SWM facilities in accordance with § 185-31 of this chapter.

STORMWATER MANAGEMENT PERMIT — A permit issued by the Township after the stormwater management site plan has been approved. Said permit is issued prior to or with the final municipal approval.

STORMWATER MANAGEMENT SITE PLAN — The plan prepared by the developer or his representative indicating how stormwater runoff will be managed at a particular site according to this chapter.

STREAM ENCLOSURE — A bridge, culvert or other structure in excess of 100 feet in length upstream to downstream which encloses a regulated water of this commonwealth.

STREET — A strip of land, including the entire right-of-way (i.e., not limited to the cartway) intended to be used by vehicular traffic or pedestrians. The word "street" includes street, avenue, boulevard, road, highway, freeway, parkway, lane, alley, viaduct and other ways used or intended to be used by vehicular traffic or pedestrians whether public or private.

STRUCTURAL BMPs — Physical devices and practices that capture and treat stormwater runoff. Structural stormwater BMPs are permanent appurtenances to the Development Site.

STRUCTURE — Any man-made object having an ascertainable stationary location on or in land or water, whether or not affixed to the land.

SUBDIVIDER — Any landowner, agent of such landowner, or tenant with the permission of such landowner, who makes or causes to be made a subdivision or a land development.

SUBDIVISION — As defined in the MPC.

SUPERVISORS — The East Cocalico Township Board of Supervisors.

SWALE — A natural channel or other low-lying stretch of land that collects or carries surface water runoff.

SWM — Stormwater Management.

TILE FIELD (TILING) — The installation of subsurface drainage facilities (i.e., pipe, etc.) to drain areas otherwise affected by high groundwater levels.

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.

TOP OF STREAMBANK — First substantial break in slope between the edge of the bed of the stream and the surrounding terrain. The top of streambank can either be a natural or constructed (that is, road or railroad grade) feature, lying generally parallel to the watercourse.

TOWNSHIP — East Cocalico Township, Lancaster County, Pennsylvania.

TOWNSHIP ENGINEER — See "Engineer, Township".

VOLUME CONTROL — SWM controls, or BMPs, used to remove a predetermined amount of runoff or the increase in volume between the predevelopment and postdevelopment design storm.

WATERCOURSE — A perennial or intermittent stream, river, brook, creek, run, channel, swale, pond, lake, or their body of surface water, carrying or holding surface water, whether natural or man-made, for gathering or carrying surface water from stormwater runoff and/or from groundwater that has reached the surface of land.

WATERCOURSE, EXCEPTIONAL VALUE — A watercourse that has been designated as containing exceptional value waters.

WATERCOURSE, INTERMITTENT — A watercourse that alternately contains and is empty of water.

WATERCOURSE, MAN-MADE — Any watercourse designed and constructed as a land development improvement, including stormwater drainage swales, retention basins, detention basins, farm ponds, canals, aqueducts, or other similar constructions.

WATERCOURSE, PERENNIAL — A watercourse that contains water throughout all seasons of the year.

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

WETLAND DELINEATION — The defined boundary between a wetland and an upland, in accordance with the Federal Manual for Identifying and Delineating Jurisdictional Wetlands, 1987.

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

WOODLAND — Land predominantly covered with trees and shrubs. Without limiting the foregoing, Woodlands include all land areas of 10,000 square feet or greater, supporting at least 100 trees per acre, so that either (i) at least 50 trees are two inches or greater in [diameter at breast height] [(DBH)], or (ii) 50 trees are at least 12 feet in height.

ARTICLE III
Plan Requirements

§ 185-11. General requirements.

A. In accordance with § 185-3 of this chapter, all regulated activities activity, as defined in § 185-10 of this chapter, shall not be initiated until unconditional Stormwater Management Plan approval is obtained and a stormwater management permit has been issued, unless preparation and submission of Stormwater Management Plan is specifically exempted or the activity qualifies as a small project.

B. Stormwater Management Site Plans approved by the Township, in accordance with this chapter, shall be on site throughout the duration of the regulated activity.

C. The Township may, after consultation with DEP, approve measures for meeting the state water quality requirements other than those in this chapter, provided that they meet the minimum requirements of, and do not conflict with, state law including, but not limited to, the Clean Streams Law. The Township shall maintain a record of consultations with DEP pursuant to this paragraph. Where an NPDES permit for stormwater discharges associated with construction activities is required, issuance of an NPDES permit shall constitute satisfaction of consultation with DEP.

D. Plans prepared for all regulated activities shall include such measures as necessary to:

(1) Protect health, safety, and property;

(2) Meet the water quality goals of this chapter by implementing measures to:

a) Protect and/or improve the function of floodplains, wetlands, and wooded areas.

b) Protect and/or improve native plant communities including those within the riparian corridor.

c) Protect and/or improve natural drainageways from erosion.

d) Minimize thermal impacts to waters of this commonwealth.

e) Disconnect impervious surfaces by directing runoff to pervious areas, wherever possible.

§ 185-12. Exemptions.

A. The following regulated activities are specifically exempt from the stormwater management site plan preparation and submission requirements of this chapter:

(1) Agricultural activity provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.

(2) Forest management and timber operations provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.

(3) Conservation practices being installed as part of the implementation of a conservation plan written by an NRCS certified planner.

(4) The installation of 1,000 square foot of impervious surface coverage proposed after August 6, 2003, the adoption date of Ordinance No. 2003-01; provided that the activities meet the criteria of the Subsection C below and are conducted in accordance with the requirements of this chapter.

(5) Domestic landscaping and/or vegetable gardening.

B. 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.

C. An applicant proposing the cumulative installation of 1,000 square feet or less of impervious surface coverage may be exempt from the design, plan submittal, and processing requirements of this chapter if the proposal meets the criteria in the this Subsection C. No person or activity is exempted from compliance with the maintenance, fees and expenses and enforcement and penalties sections of this chapter.

(1) Any applicant desiring exemption from design, plan submission, and plan processing requirements shall complete an Exemption & Small Projects Application on file at the Township and pay any applicable filing fee.

(2) The applicant for exemption under this Subsection C shall provide the Township with all information necessary for the Township to determine that:

(a) There shall be no disturbance of land within floodplains, wetlands, environmentally sensitive areas, riparian forest buffers, or slopes greater than 15%.

(b) No impervious surface coverage shall be installed and no grading or excavation shall be conducted within any existing drainage or stormwater easement created by or shown on any recorded plan or document.

(c) The applicant shall minimize soil disturbance, take steps to minimize erosion during construction activity, and promptly reclaim and stabilize all disturbed areas with topsoil and vegetation.

(d) The applicant shall take steps that runoff be directed to pervious areas on the subject property and maximize isolation distances to downstream properties. No runoff shall be directed onto an abutting street or neighboring property in a manner inconsistent with the pre-development condition.

(e) The proposed impervious surface shall not adversely impact any existing known problem areas or downstream property owners or the quality of runoff entering any municipal separate storm sewer system.

(f) The proposed impervious surface shall not create erosion.

(3) If the proposed activity does not meet all of the criteria set forth in Subsection C above, but meets the small projects criteria, the applicant shall follow the small project processing procedure in § 185-13 of this chapter.

(4) No applicant and no activity is exempt from complying with any state or federal requirements applicable if the subject property is located in a high quality (HQ) or exceptional value (EV) watershed.

(5) No applicant and no activity shall violate or cause to be violated: the Federal Clean Water Act or any regulation issued thereunder, an NPDES permit, any recorded stormwater management or operations and maintenance agreement, or any requirement applicable to a municipal separate storm sewer system.

§ 185-13. Alternate Processing of Applications for Small Projects.

An application may be processed as a small project if it meets the standards found in this section, does not involve the alteration of stormwater facilities or watercourses, and proposes regulated activities that, measured on a cumulative basis from the date of enactment of this ordinance, create new impervious areas of less than 2,000 sq. ft. or involve earth disturbance activity of an area less than 5,000 sq. ft. An application that is not eligible for exemption pursuant to § 185-12 may be processed under this section, subject to all applicable standards found herein.

A. An application for a small project shall consist of the following:

(1) Completed Exemption Small Project Application (on file at the Township).

(2) Completed Small Project Stormwater management Worksheet (on file at the Township).

(3) Completed Owner Acknowledgement for Minor Stormwater Site Plan (on file at the Township).

(4) Minor stormwater site plan, in accordance with applicable standards with supporting information including related standard details (on file at the Township) and applicable soil testing information.

(5) Filing fee (in accordance with the Township Fee Resolution or Ordinance).

(6) Prior to issuance of any permit a completed Stormwater Management Agreement and Declaration of Easement must be signed, notarized and submitted for recording.

B. There shall be a 5 foot minimum setback between any structural BMP and any property boundary.

C. No application is exempt from complying with any state or federal requirements applicable if the subject property is located in a High Quality (HQ) or Exceptional Value (EV) watershed.

D. No applicant and no activity shall violate or cause to be violated the Federal Clean Water Act or any regulation issued thereunder, an NPDES permit, any recorded Stormwater Management or Operations and Maintenance Agreement, or any requirement applicable to a municipal separate storm sewer system.

§ 185-14. Plan contents.

The following items shall be included as part of the earth disturbance and stormwater management plan:

A. The following general information:

(1) Proposed name or identifying title of the project.

(2) Name and address of the landowner and developer of the project site and the individual or firm preparing the plan.

(3) Total acreage of the project site and the tract of land on which the project site is located and corresponding deed and tax parcel references.

(4) Plan date, date of latest revision, North point, graphic scale, and written scale. All plans shall be drawn at a common engineering scale.

(5) A location map, for the purpose of locating the project site to be developed, at a minimum scale of 2,000 feet to the inch, showing the relation of the tract to adjoining property and to all streets and Township boundaries existing within 1,000 feet of any part of the tract of land on which the project site is proposed to be developed.

(6) A note on the plan indicating any area that is not to be offered for dedication along with a statement that the Township is not responsible for maintenance of any area not dedicated to and accepted for public use, and that no alteration to facilities, swales, basins, BMPs or placement of structures shall be permitted within easements unless approved by the Township.

(7) Certificate, signed and sealed by an individual registered in the Commonwealth of Pennsylvania and qualified to perform such duties, indicating compliance with the provisions of this chapter. See form of certificate in Appendix No. 2.

(8) The following certificates when the application is not in conjunction with the submittal of a subdivision and/or land development plan:

(a) Certificate for approval by the Township Board of Supervisors. See form of certificate in Appendix No. 1.

(9) Stormwater management facility designs shall be prepared in accordance with the requirements of applicable Act 167 watershed stormwater management plan relevant to the proposed site, unless the standards within this chapter are more restrictive.

(10) In areas of carbonate geology, a geologic evaluation prepared by a registered geologist shall be provided. This report shall include but not be limited to the following: contain remedies to address the formation of sinkholes and closed depressions in the earth disturbance area.

(a) The location of the following karst features;

[1] sinkholes

[2] closed depressions

[3] lineaments in carbonate areas

[4] fracture traces

[5] caverns

[6] intermittent lakes

[7] ephemeral disappearing streams

[8] bedrock pinnacles (surface or subsurface)

(b) An evaluation and identification of necessary measures to minimize potential adverse effects from stormwater management facilities designed over karst geology.

(c) A plan for remediation of any identified karst features and remedies to address the formation of sinkholes and closed depressions in the earth disturbance area. If stormwater management facilities are to be lined specific design specification shall be identified related to the installation of the liner material.

(d) Impacts of stormwater management facilities on adjacent karst features, and impacts of karst features on adjacent stormwater management facilities.

B. The following existing features:

(1) Tract boundaries showing distances, bearings, and curve data, as located by field survey or by deed plotting. All coordinates as depicted on the plan shall be based on the PA South Zone State Plane Coordinate System (NAD83 for horizontal). (2) Existing topographical data. This information shall be provided by field survey of contour lines. Contour lines shall be provided at one foot vertical intervals for slopes of 5% or less, and at vertical intervals of two feet for more steeply sloping land. Supplemental spot elevations shall be provided at all critical grade breaks, controlling features or areas of existing and/or proposed discharge or tie-in. Additionally, the benchmark and the datum used shall also be indicated and based on the PA South Zone State Plane Coordinate System (NAVD88 for vertical).

(2) The names of all owners of all immediately adjacent land, the names of all proposed or existing developments immediately adjacent, and the locations and dimensions of any streets or easements shown thereon. Recording information shall be provided for all easements and pertinent prior recorded subdivision and land development plans impacting the subject property and immediately adjacent lands.

(3) All physical features including flood hazard boundaries, wetlands, sinkholes, streams, lakes, ponds and other waterbodies, existing drainage courses, karst features, areas of native vegetation including trees greater than 6 inch diameter at breast height, woodlands, other environmentally sensitive areas and man-made features within 200 feet of the development site. Man-made features shall include the size and location of all utilities (including on lot disposal systems and wells) sanitary sewers, and water lines and associated easements.

(4) Overlay of soil types as designated by the USDA SCS Soil Survey of Lancaster County.

(5) Designation of limits of on-site watershed areas, including a map that shows the off-site watershed areas that contribute to any part of the development site.

(6) Boundaries of watersheds as identified in a relevant Act 167 watershed stormwater management plan.

(7) Riparian buffer zones (Zones 1, 2, and 3) per Chapter 220, Zoning.

C. The following proposed features:

(1) The proposed land use(s), the number of lots and dwelling units and the extent of commercial, industrial, or other nonresidential uses.

(2) The locations and dimensions of all proposed streets, parks, playgrounds, and other public areas; sewer and water facilities, including proposed on-lot disposal systems, replacement disposal areas, water supply wells, utilities and associated easements; lot lines and structures, building locations, and parking compounds and other impervious and semipervious surfaces.

(3) The proposed changes to land surface and vegetative cover including areas to be cut or filled.

(4) Proposed topographical data. This information shall be provided contour lines with supplemental spot elevations at all critical grade breaks, controlling features or areas of existing and/or proposed discharge or tie-in. Proposed contour lines shall be provided at one foot vertical intervals for slopes of 5% or less, and at vertical intervals of two feet for more steeply sloping land.

(5) Plans, profiles and details of all proposed stormwater conveyance facilities, stormwater management facilities and stormwater BMPs, including vertical and horizontal alignment, size, and type of material. This information shall be of the quality and detail required to ensure the proper construction of all facilities.

(6) For all basins which hold two acre-feet or more of water and have an embankment that is six feet or more in height, soil structure and characteristics shall be provided. Plans and data shall be prepared by a registered professional engineer. These submissions shall provide design solutions for frost-heave potential, shrink-swell potential, soil bearing strength, water infiltration, soil settling characteristics, fill and backfilling procedures, and soil treatment techniques as required to protect the improvements for adjacent structures.

(7) The type, location, and extent of all temporary and permanent erosion and sedimentation control measures shall be shown on an erosion and sedimentation control plan that conforms to the requirements of the most current version of the Soil Erosion and Sedimentation Control Manual of the Pennsylvania Department of Environmental Protection and which shall be submitted to the Lancaster County Conservation District for review and approval.

(8) Data concerning subsoil and rock foundation conditions and the physical properties of the materials entering into the construction of all BMPs. The plans shall provide cross-sections that depict the relationship of proposed BMPs to limiting zones and infiltration testing depths.

(9) A planting plan shall be provided for all vegetated BMP's in accordance with the following:

(a) Native or naturalized/non-invasive vegetation suitable to the soil and hydrologic conditions of the development site shall be used unless otherwise specified in the BMP Manual.

(b) Invasive vegetation may not be included in any planting schedule. (See Invasive Plants in Pennsylvania by the Department of Conservation and Natural Resources (DCNR))

(c) The limit of existing, native vegetation to remain shall be delineated on the plan along with proposed construction protection measures.

(d) Prior to construction, a tree protection zone shall be delineated at the dripline of the tree canopy. All trees scheduled to remain during construction shall be marked; however, where groups of trees exist, only the trees on the outside edge need to be marked. A 48 inch high snow fence or 48 inch high construction fence mounted on steel posts located 8 feet on center shall be placed along the tree protection boundary. No construction, storage of material, temporary parking, pollution of soil, or regrading shall occur within the tree protection zone.

(e) All planting shall be performed in conformance with good nursery and landscape practice. Plant materials shall conform to the standards recommended by the American Association of Nurseryman, Inc. in the American Standard of Nursery Stock.

[1] Planting designs are encouraged to share planting space for optimal root growth whenever possible.

[2] No staking or wiring of trees shall be allowed without a maintenance note for the stake and/or wire removal within one year of planting.

(10) Riparian buffer zones (Zones 1, 2, and 3) per Chapter 220, Zoning and required easements created and recorded as part of any subdivision and land development to run with the land and shall limit the use of the property located therein.

(11) All existing and proposed easements, including drainage easements, access easements and riparian corridor easements.

D. Written hydrologic and hydraulic narrative report and structural computations for all stormwater facilities, and an erosion and sedimentation narrative/report including or prepared in accordance with the following:

(1) A stormwater management plan narrative, including a description of the permanent technics, non-structural BMPs to be employed and construction specifications for structural facilities and a description of how the facilities are intended to function individually and as a treatment system. The report shall include stormwater runoff calculations for both predevelopment and postdevelopment conditions for rate control, volume control and pollutant removal.

(2) An erosion and sedimentation control plan narrative that conforms to the requirements of the Soil Erosion and Sedimentation Control Manual of the Pennsylvania Department of Environmental Protection and provides a description of all erosion and sedimentation control measures, temporary as well as permanent, including the staging of earthmoving activities, sufficient in detail to clearly indicate their function.

(3) Ownership and maintenance plan in accordance with the requirements of this chapter.

(4) For all proposed detention basins and retention basins, and temporary sedimentation basins, the documentation shall include a plotting or tabulation of storage volumes with corresponding water surface elevations and the outflow rates for those water surfaces.

(5) For all proposed BMP's, detention basins and retention basins, and temporary sediment basins, documentation shall set forth the design hydrology, and the shortcut routing method or a method of equal caliber acceptable to the Township Engineer or Township Board of Supervisors utilized to determine the function of the basin.

(6) A Pennsylvania Department of Transportation highway occupancy permit for any stormwater management facility proposed within the right-of-way of a state road or adjacent to a state road right-of-way and deemed to impact the roadway or roadway drainage system.

(7) For any activities that require a DEP Joint Permit Application and are regulated under Chapter 105 or Chapter 106 or require any other permit under applicable state or federal regulations, the permit(s) shall be part of the stormwater management site plan and must be obtained prior to unconditional final plan approval.

(8) An E&S Control Plan, including all approvals, as required by 25 Pa. Code Chapter 102, shall be provided to the Township prior to unconditional final plan approval.

§ 185-15. Application and plan processing procedure.

A. Applicants are encouraged to schedule a pre-application meeting to review the overall stormwater management concept with Township staff/engineer. The pre-application meeting is

not mandatory and shall not constitute formal filing of a plan with the Township. Topics discussed may include the following;

(1) Available geological maps, plans and other available data.

(2) Findings of the site analysis including identification of any environmentally sensitive areas, wellhead protection areas, riparian corridors, hydrologic soil groups, existing natural drainageways, karst features, areas conducive to infiltration to be utilized for volume control, etc.

(3) Results of infiltration tests.

(4) Applicable Township regulations as outline in Chapter 194, Subdivision and Land Development, and/or Chapter 220, Zoning.

(5) The conceptual project layout, including proposed structural and non-structural BMPs.

B. An application for a stormwater management permit may be submitted to the Township on any business day. In the event that a question arises as to whether a proposed activity requires a stormwater management permit, the landowner or developer shall furnish the Township with such information as the Township Engineer may deem necessary to determine whether the proposed activity constitutes an earth disturbance activity. A decision by the authorized Township representative may be appealed to the Board of Supervisors in accordance with § 185-37 herein.

C. Incomplete submissions as determined by the Board of Supervisors or its designee shall be returned to the applicant within 7 days, along with a statement that the submission is incomplete, and stating the deficiencies found. Otherwise, the application shall be deemed accepted for filing as of the date of submission. Acceptance of the application shall not, however, constitute an approval of the plan or a waiver of any deficiencies or irregularities. The applicant may appeal the Township's decision not to accept a particular application in accordance with this chapter.

D. At its sole discretion and in accordance with this Article, when a stormwater management site plan is found to be deficient, the Township may either disapprove the submission and require a resubmission, or in the case of minor deficiencies, the Township may accept submission of revisions.

E. The applicant is responsible for submitting plans to any other agencies such as the Lancaster County Conservation District, PennDOT, DEP, etc. when permits from these agencies are required. Copies of all information submitted to these agencies shall be provided to the Township including plans, calculations, worksheets, etc. Final approval shall be conditioned upon the applicant obtaining all necessary permits.

F. If an application for a stormwater management permit is submitted in conjunction with an application for subdivision and/or land development approval submitted to the Township in accordance with the requirements of Chapter 194, Subdivision and Land Development, the landowner shall submit the required number of copies and follow all other procedural

requirements as set forth in Chapter 194, Subdivision and Land Development. The application for a stormwater management permit shall be considered a part of the application for subdivision and/or land development approval, and the Township shall act upon that application at the time it acts upon the application for subdivision and/or land development approval.

G. Applications for a stormwater management permit which are not submitted to the Township in conjunction with an application for subdivision and/or land development approval shall adhere to the procedures in this Subsection G.

(1) The Township staff may review the application with the Township Engineer, Township Solicitor, the Lancaster County Conservation District, and other municipal officials or agencies in order to make recommendations to the Board of Supervisors whether to approve, conditionally approve, or disapprove the application.

(2) The Township Board of Supervisors shall, within 90 days from the first regular meeting of the governing body following receipt of a complete application, issue a permit or disapprove the application and transmit the decision in writing to the applicant. Failure of the Township to render a decision and communicate it as prescribed above shall be deemed an approval unless the time period is extended by the applicant.

(3) A notice of disapproval shall cite the reasons for disapproval.

H. Township approval of an application for a stormwater management permit shall not be considered as an indication that the application complies with the standards of any agency of the commonwealth or meets the requirements of any other Township ordinance or regulation. The Township may approve a stormwater management permit subject to the condition that the landowner obtain other required permits and approvals, in which case the landowner shall not be entitled to commence development authorized by such conditional stormwater management permit until presenting the Township with evidence that the landowner has obtained such other required permits or approvals.

§ 185-16. Application requirements for earth disturbance activity and stormwater management permit.

An application for a stormwater management permit for an earth disturbance activity, as defined in § 185-10 of this chapter, shall include the following items:

A. One completed copy of the application for a stormwater management permit (on file at the Township).

B. Three copies of the stormwater management plan or earth disturbance plan and calculations and supporting information prepared in accordance with this chapter. All plans and supporting information shall be submitted in a format that is clear, concise, legible, neat and well organized.

C. Filing fee and/or permit fee as established by resolution or ordinance from time to time.

§ 185-17. Waiver and appeal procedure.

A. The provisions of this chapter not relating to water quality are intended as minimum standards for the protection of the public health, safety, and welfare. The Township reserves the right to modify or to extend them conditionally in individual cases as may be necessary in the public interest; provided, however, that such variation shall not have the effect of nullifying the intent and purpose of this chapter. The Board of Supervisors may grant a waiver or modification from literal compliance with mandatory provisions of the chapter not related to water quality if the applicant can demonstrate either:

(1) That compliance is unreasonable, or would cause undue hardship as it applies to a particular property; or

(2) That an alternative proposal will allow for equal or better results and secure substantially the objectives of the standard requirements of this chapter.

B. The list of all waivers or modifications, along with an explanation of and justification for each modification, shall be included on the plan. This section does not apply during an enforcement action.

C. Additionally, the Board of Supervisors may hear and decide appeals, in accordance with § 185-37, where it is alleged that the authorized Township representative has failed to follow prescribed procedures or has misinterpreted or misapplied any provisions of the chapter.

D. The approval of the waiver or appeal shall not have the effect of making null and void the intent and purpose of the chapter. In the approval of a waiver or appeal, the Board of Supervisors may impose such conditions as will, in its judgment, secure substantially the objectives of the standards and requirements of the chapter.

E. Application procedures (waiver). All requests for waivers shall be processed in accordance with the following:

(1) A request for a waiver shall be submitted to the Township. The request shall be made in writing and identify:

(a) The specific section of the chapter or decision which is requested for waiver or appeal;

(b) The proposed alternative to the requirement, when applicable; and

(c) Justifications for an approval of the waiver or appeal.

(2) The Township Secretary shall:

(a) Schedule the request for consideration by the Board of Supervisors at a public meeting within 45 days of receipt; and

(b) Provide adequate notice to the applicant and any other involved parties of the meeting at which consideration of the request is scheduled.

(3) The Board of Supervisors shall, following the consideration of the request, take such public action as it shall deem advisable and notify all parties involved of the action. Such notice shall cite the findings and reasons for the deposition of the waiver or appeal. Failure of the Board of Supervisors to render a decision and communicate it as prescribed above shall be deemed an approval unless the time period is extended by the applicant.

§ 185-18. Expiration of stormwater management permit.

A. All stormwater management permits shall expire 12 months from the date of issuance unless an extension of time is approved. An extension of an unexpired stormwater management permit shall be issued by the Board of Supervisors following the submission of a written request from the applicant if, in the opinion of the Board of Supervisors, the subject property or affected surrounding area has not been altered in a manner which requires alteration to the earth disturbance plan.

B. The refusal of an extension of time shall cite the reasons for such refusal. The applicant may refile the request for extension of a stormwater management permit after the reasons for refusal are addressed.

C. A stormwater management permit shall not expire while a request for an extension is pending.

D. If a certificate of completion as required by this chapter has not been submitted within the specified time period, then the Township may consider the stormwater management site plan disapproved and may revoke any and all permits issued by the Township. Stormwater management plans that are considered disapproved by the Township may be resubmitted in accordance with this chapter.

§ 185-19. Financial security.

A. The Township shall, prior to issuing a stormwater management or earth disturbance permit, require financial security to be posted for all stormwater management facilities, including erosion and sedimentation measures and BMP’s as required by the approved plan.

B. Where required, the developer shall file with the Township financial security in an amount sufficient to cover the costs and installation of the stormwater management facilities, including any inspection fees reasonably expected to be incurred by the Township. Federal or commonwealth chartered lending institution irrevocable letters of credit and escrow accounts shall be deemed acceptable financial security. Letters of credit shall be posted with a federal or commonwealth chartered lending institution chosen by the developer, provided said lending institution is authorized to conduct such business within the commonwealth. Escrow accounts shall be established in such financial institutions as may be designated by the Township.

(1) Such security shall provide for, and secure to the public, completion of the stormwater management facilities within one year of the date fixed on the permit for such facilities. The amount of financial security shall be equal to 110% of the cost of the required facilities for which financial security is to be posted.

(2) The amount of financial security required shall be based upon an estimate of the cost of completion of the required improvements, submitted by an applicant or developer and prepared by a professional engineer licensed as such in this commonwealth and certified by such engineer to be a fair and reasonable estimate of such cost. The Board of Supervisors, upon the recommendation of the Township Engineer, may refuse to accept such estimate for good cause shown. If the applicant or developer and the Township Engineer are unable to agree upon an estimate, then the estimate shall be recalculated and recertified by another professional engineer licensed as such in this commonwealth and chosen mutually by the Board of Supervisors and applicant or developer. The estimate certified by the third engineer shall be presumed fair and reasonable and shall be the final estimate. In the event that a third engineer is so chosen, fees for the services of said engineer shall be paid equally by the Township and the applicant or developer.

§ 185-20. Record drawings.

A. At the completion of the project, and as a prerequisite for the release of the financial security, the developer or his representative shall provide a certificate of completion from a registered engineer, architect, surveyor, or other qualified person verifying that all permanent stormwater facilities and related improvements have been constructed according to the approved plans and specifications and approved revisions thereto. Certification shall be provided on a set of record drawings. When a digital submission of an as-built plan is required, all coordinates as depicted on the plan shall be based on the PA South Zone State Plane Coordinate System (NAD83 for horizontal and NAVD88 for vertical).

B. After receipt of the record drawing with certification of completion, a final inspection shall be conducted by the Township Engineer or other person designated by the Township to certify compliance with this chapter.

ARTICLE IV

Act 167 Watershed Stormwater Management Plans

§ 185-21. Stormwater management districts.

The Township shall comply with the applicable provisions of any future adopted Act 167 watershed stormwater management plan. If the provisions of this chapter are sufficient to regulate development within the Township in a manner consistent with the governing watershed stormwater management plan, this chapter shall be deemed to satisfy the requirements of Section 11(b) of Act 167 without the necessity of reenactment.

ARTICLE V

Design Criteria

§ 185-22. General criteria.

The following general standards shall be followed to protect health, safety and property and meet water quality, volume and rate control goals:

A. All stormwater management plans shall be designed and certified by individuals registered in the Commonwealth of Pennsylvania and qualified to perform such duties.

B. All stormwater management facilities shall employ best management practices (BMP), as defined in this chapter.

C. Where applicable, stormwater management facilities shall comply with the requirements of Chapter 105 (Water Obstructions and Encroachments) of Title 25, Rules and Regulations of the Pennsylvania Department of Environmental Protection.

D. Stormwater management facilities that involve a state highway shall be subject to the approval of the Pennsylvania Department of Transportation.

E. Stormwater runoff from a development site to an adjacent property shall flow directly into a natural watercourse, into an existing storm sewer system, or onto adjacent properties in a manner similar to the runoff characteristics of the predevelopment flow.

F. Stormwater runoff shall not be transferred from one watershed to another, unless the watersheds are subwatersheds of a common watershed, which join together within the perimeter of the property and the effect of the transfer does not alter the peak discharge onto adjacent lands, or drainage easements from the affected landowners are provided. Transfer between watersheds as written in Act 167 is prohibited.

G. All stormwater runoff flowing over the project site shall be considered in the design of the stormwater management facilities.

H. Areas proposed for infiltration BMPs shall be protected from sedimentation and compaction during the construction phase to maintain maximum infiltration capacity. Staging of earthmoving activities and selection of construction equipment should consider this protection.

I. Developers have the option to propose a regional stormwater management plan or participate in a regional stormwater management plan developed by others. A regional stormwater management plan may include offsite volume and rate control, as appropriate and supported by a detailed design approved by the Township in accordance with § 185-11.C. a regional stormwater management plan must meet all of the volume and rate control standards required by this chapter for the area defined by the regional stormwater management plan, but not necessarily for each individual development site. Appropriate agreements must be established to ensure the requirements of this chapter and the requirements of the regional stormwater management plan are met.

J. Prohibited discharges.

(1) No person in the Township shall allow or cause to allow stormwater discharges into surface waters of this commonwealth or into the Township's separate storm sewer system which are not composed entirely of stormwater, except discharges allowed under a state or federal permit.

(2) The following discharges may be allowed unless they are determined to be significant contributors to pollution to waters of the commonwealth. The following discharges are authorized unless they are determined to be significant contributors to pollution to the waters of this commonwealth:

Water line flushing	Discharges from potable sources
Landscape irrigation	Uncontaminated discharges from foundation drains or footings
Diverted stream flows	Air-conditioning condensation
Rising groundwaters	Irrigation waters
Lawn watering	Flows from riparian habitats and wetlands
Street wash water where spills or leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) and where detergents are not used	Uncontaminated groundwater
Springs	Water from crawl space pumps
Individual residential car washing	Routine external building wash down (which does not use detergents or other compounds)
Dechlorinated swimming pool discharges	Discharges from fire-fighting activities, including training

(3) In the event that the Township or DEP determines that any of the discharges identified in Subsection J(2) significantly contribute to pollution of waters of the commonwealth, the Township or DEP will notify the responsible person to cease the discharge.

(4) Upon notice provided by the Township the discharger will have a reasonable time to cease the discharge consistent with the degree of pollution caused by the discharge.

K. The following connections to the Township storm sewers or stormwater drainage systems are prohibited:

(1) Any drain or conveyance, whether on the surface or subsurface, which allows any non-stormwater discharge including sewage, process wastewater, and wash water to enter the separate storm sewer system, or waters of the commonwealth, and any connections to the storm drain system from indoor drains and sinks.

(2) Any drain or conveyance from a commercial or industrial land use to the separate storm sewer system which has not been documented in plans, maps, or equivalent records, and approved by the Township.

(3) This prohibition expressly includes, without limitation, connections made in the past, regardless of whether the connection, drain or conveyance was previously allowed, permitted, or approved by a government agency, or otherwise permissible under law or practices applicable or prevailing at the time of connection.

(4) Roof drains shall not be connected to streets, sanitary or storm sewers or roadside ditches, except as provided in Subsection K(5).

(5) When it is more advantageous to connect directly to streets or storm sewers, connections of roof drains to streets or roadside ditches may be permitted on a case-by-case basis by the Township. It shall be the burden of the person seeking to make the connection to demonstrate to the Township that such connection is more advantageous and such connection shall not violate any state or federal statute, rule or regulation.

(6) Roof drains and sump pumps shall discharge to infiltration areas or vegetative BMPs to the maximum extent possible.

L. Waste disposal prohibitions. No person shall throw, deposit, leave, maintain, keep or permit to be thrown, deposited, left, or maintained in or upon any public or private property, driveway, parking area, street, alley, sidewalk, or other component of the Township's separate storm sewer system, any refuse, rubbish, garbage, litter, or other discarded or abandoned objects, articles, and accumulations, so that the same may cause or contribute to pollution. Wastes deposited in streets in proper waste receptacles for the purpose of collection are exempted from this prohibition.

§ 185-23. Volume Control.

Volume control BMPs are intended to maintain existing hydrologic conditions for small storm events by promoting groundwater recharge and/or evapotranspiration as described in this chapter. Runoff volume controls shall be implemented using the Design Storm Method described in Subsection A below, or through continuous modeling approaches or other means as described in the BMP Manual. Small projects may use the method described in Subsection B to design volume control BMPs.

A. The Design Storm Method is applicable to any size of regulated activity. This method requires detailed modeling based on site conditions.

(1) Do not increase the postdevelopment total runoff volume for all storms equal to or less than the 2-year 24-hour storm event.

(2) For modeling purposes:

(a) Existing (predevelopment) non-forested pervious areas must be considered meadow in good condition.

(b) When the existing project site contains impervious area, 20% of existing impervious area to be disturbed shall be considered meadow in good condition in the model for existing conditions.

(c) The maximum loading ratio for volume control facilities in Karst areas shall be 3:1 impervious drainage area to infiltration area and 5:1 total drainage area to infiltration area. The maximum loading ratio for volume control facilities in non-Karst areas shall be 5:1 impervious drainage area to infiltration area and 8:1 total drainage area to infiltration area. A higher ratio may be approved by the Township if professional justification deemed satisfactory to the Township is provided. Hydraulic depth may be used as an alternative to an area based loading ratio if the design hydraulic depth is shown to be less than the depth that could result from the maximum area loading ratio.

B. Volume Control for Small Projects.

(1) At least the first 3 inches of runoff from new impervious surfaces or an equivalent volume shall be permanently removed from the runoff flow – i.e. it shall not be released into the surface waters of this commonwealth. Removal options include reuse, evaporation, transpiration and infiltration.

C. A detailed geologic evaluation of the Development Site shall be performed in areas of carbonate geology to determine the design parameters of recharge facilities. A report shall be prepared in accordance with § 185-14.A.(10) of this chapter.

D. Storage facilities, including normally dry, open top facilities, shall completely drain the volume control storage over a period of time not less than 24 hours and not more than 72 hours from the end of the design storm. Any designed infiltration at such facilities is exempt from the minimum 24 hour standard, i.e. may infiltrate in a shorter period of time, provided that none of this water will be discharged into waters of this commonwealth.

E. Any portion of the volume control storage that meets the following criteria may also be used as rate control storage.

(1) Volume control storage that depends on infiltration is designed according to the infiltration standards in this chapter.

(2) The volume control storage which will be used for rate control is that storage which is available within 24 hours from the end of the design storm based on the stabilized infiltration rate and/or the evapo-transpiration rate.

F. Volume control storage facilities designed to infiltrate shall avoid the least permeable hydrologic soil group(s) at the development site.

G. The developer may use stormwater credits for Non-Structural BMPs in accordance with the BMP Manual. The allowable reduction will be determined by the Township Engineer.

§ 185-24. Rate Control.

Rate control for large storms, up to the 100-year event, is essential to protect against immediate downstream erosion and flooding.

A. Match Predevelopment Hydrograph - Applicants shall provide infiltration facilities or utilize other techniques which will allow the postdevelopment 100 year hydrograph to match the predevelopment 100 year hydrograph, along all parts of the hydrograph, for the development site. To match the predevelopment hydrograph, the postdevelopment peak rate must be less than or equal to the predevelopment peak rate, and the postdevelopment runoff volume must be less than or equal to the predevelopment volume for the same storm event. A shift in hydrograph peak time of up to five minutes may be allowable. "Volume Control" volumes as given in § 185-23. above may be used as part of this option.

B. In all other cases the postdevelopment peak discharge on to adjacent property shall be 50% of the predevelopment peak rate of runoff. Runoff calculations for the predevelopment and postdevelopment comparison shall be provided for the two-, ten-, twenty-five-, fifty-, and one-hundred-year storm events. The 50% peak rate reduction is consistent with the approved Cocalico Creek Act 167 Plan and Conestoga River Act 167 Plan and associated release rate maps. A 24 hour SCS type II storm or an IDF Curve Modified Rational Method storm evaluation shall be performed as outlined within this chapter.

C. Peak rate control is not required for off-site runoff. Off-site runoff may be by-passed around the site provided all other discharge requirements are met. If offsite runoff is routed through rate control facilities, runoff coefficients for off-site discharges used to design those rate control facilities shall be based on actual land use assuming summer conditions in the predevelopment and winter or poor land conditions in the postdevelopment.

D. Normally dry, open top, storage facilities shall completely drain the rate control storage over a period of time less than or equal to 24 hours from the peak 100 year water surface design elevation.

E. A variety of BMPs should be employed and tailored to suit the development site. The following is a partial listing of BMPs which can be utilized in stormwater management systems for rate control where appropriate:

(1) Decreased impervious surface coverage
(2) Routed flow over grass
(3) Grassed channels and vegetated strips.
(4) Bio-retention areas (rain gardens)
(5) Concrete lattice block or permeable surfaces
(6) Seepage pits, seepage trenches or other infiltration structures
(7) Rooftop detention
(8) Parking lot detention
(9) Cisterns and underground reservoirs
(10) Amended soils
(11) Retention basins
(12) Detention basins
(13) Other methods as may be found in the BMP Manual.

F. Small projects are not required to provide for rate control.

§ 185-25. Methods of calculations.

The methods to calculate runoff shall be as follows:

A. The USDA Soil Conservation Service soil-cover-complex method.

(1) The USDA Soil Conservation Service soil-cover-complex method, as set forth in the latest edition of Urban Hydrology for Small Watersheds, Technical Release No. 55, as published by SCS, shall be used where the drainage area is greater than 20 acres; or the time of concentration is greater than one hour; or, the calculated runoff to a point of interest requires the combination of multiple hydrographs from multiple subwatersheds of the study area.

(2) If the SCS method is used, Antecedent Moisture Condition 1 is to be used in areas of carbonate geology when required by the Township Engineer, and Antecedent Moisture Condition 2 is to be used in all other areas. A type II distribution shall be used in all areas.

B. Rational Method.

(1) The Rational Method of Q = CIA, where "Q" is the peak discharge of the watershed in cubic feet per second, "C" is the coefficient of runoff, "I" is the intensity of rainfall in inches per hour, "A" is the area of the watershed in acres.

(2) The modified Rational Method shall be used where the drainage area is less than 20 acres; and the calculated runoff to a point of interest does not require the combination of multiple hydrographs from multiple subwatersheds of the study area.

(3) The modified Rational Method shall be used where the drainage area is less than 20 acres; and the calculated runoff to a point of interest does not require the combination of multiple hydrographs from multiple subwatersheds of the study area.

C. If "modified" or "unit hydrograph" rational methods are used to develop hydrographs, the ascending leg of the hydrograph shall have a length equal to three times the time of concentration (3xTc) and the descending leg shall have a length equal to 7 times the time of concentration (7xTc) to approximate an SCS Type II hydrograph.

D. Runoff calculations shall include a hydrologic and hydraulic analysis indicating volume and velocities of flow and the grades, sizes and capacities of water-carrying structures, sediment basins, retention and detention structures, and sufficient design information to construct such facilities. The capacities of the pipes, gutters, inlets, culverts, outlet structures, and swales shall consider all possible hydraulic conditions. Runoff calculations shall also indicate both predevelopment and postdevelopment rates for peak discharge of stormwater runoff from all discharge points.

E. For the purpose of calculating predevelopment on-site peak discharges, all on-site runoff coefficients shall be based on actual land use assuming summer or good land cover conditions. Postdevelopment runoff coefficients for off-site discharges used to design conveyance facilities

shall be based on actual land use assuming winter or poor land conditions. Any areas designed to initially be gravel or crushed stone shall be assumed to be impervious.

F. Criteria and assumptions to be used in the determination of stormwater runoff and design of management facilities are as follows:

(1) Runoff coefficients should be based on the following table. If the land use is not listed, runoff coefficients shall be chosen from other published documentation, and a copy of said documentation shall be submitted with the stormwater management report. Higher coefficients may be required by the Township Engineer due to local soil conditions.

RUN-OFF COEFFICIENTS "C" FOR RATIONAL FORMULA												
Soil Group	**A**			**B**			**C**			**D**		
Slope	**0-2%**	**2-6%**	**6%+**	**0-2%**	**2-6%**	**6%+**	**0-2%**	**2-6%**	**6%+**	**0-2%**	**2-6%**	**6%**
Land Use												
Cultivated land												
Winter conditions	.14	.23	.34	.21	.32	.41	.27	.37	.48	.34	.45	.56
Summer conditions	.10	.16	.22	.14	.20	.28	.19	.26	.33	.23	.29	.38
Fallowed fields												
Poor conditions	.12	.19	.28	.17	.25	.34	.23	.33	.40	.27	.35	.45
Good conditions	.08	.13	.16	.11	.15	.21	.14	.19	.26	.18	.23	.31
Forest/woodland	.08	.11	.14	.10	.14	.18	.12	.16	.20	.15	.20	.25
Grass areas												
Good conditions	.10	.16	.20	.14	.19	.26	.18	.22	.30	.21	.25	.35
Average conditions	.12	.18	.22	.16	.21	.28	.20	.25	.34	.24	.29	.41
Poor conditions	.14	.21	.30	.18	.28	.37	.25	.35	.44	.30	.40	.50
Impervious areas	.90	.91	.92	.91	.92	.93	.92	.93	.94	.93	.94	.95
Weighted residential												
Lot size 1/8 acre	.29	.33	.36	.31	.35	.40	.34	.38	.44	.36	.41	.48
Lot size 1/4 acre	.26	.30	.34	.29	.33	.38	.32	.36	.42	.34	.38	.46
Lot size 1/3 acre	.24	.28	.31	.26	.32	.35	.29	.35	.40	.32	.36	.45
Lot size 1/2 acre	.21	.25	.28	.24	.27	.32	.27	.31	.37	.30	.34	.43
Lot size 1 acre	.18	.23	.26	.21	.24	.30	.24	.29	.36	.28	.32	.41

RUN-OFF CURVE NUMBERS "CN" FOR SCS METHOD												
Soil Group	**A**			**B**			**C**			**D**		
Slope	**0-2%**	**2-6%**	**6%+**	**0-2%**	**2-6%**	**6%+**	**0-2%**	**2-6%**	**6%+**	**0-2%**	**2-6%**	**6%+**
Land Use												
Cultivated land												
Winter conditions	48	60	65	62	73	73	68	78	79	77	88	81
Summer conditions	35	51	61	48	55	70	57	65	77	64	69	80
Fallowed fields												
Poor conditions	45	54	76	56	63	85	64	74	90	69	77	93
Good conditions	30	44	74	43	48	83	48	54	88	56	60	90
Forest/woodland	30	40	30	42	46	55	45	50	70	50	56	77
Grass areas												
Good conditions	35	51	39	48	54	61	56	59	74	62	63	80
Average conditions	45	53	49	52	55	69	60	63	79	65	69	84
Poor conditions	48	55	68	56	67	79	66	74	86	73	81	89
Impervious areas	96	97	98	96	97	98	96	97	98	96	97	98
Weighted residential												
Lot size 1/8 acre	71	75	77	74	76	85	78	80	90	81	83	92
Lot size 1/4 acre	62	67	61	66	69	75	67	69	83	75	78	87
Lot size 1/3 acre	59	65	57	64	66	72	65	66	81	74	77	86
Lot size 1/2 acre	57	63	54	62	64	70	63	65	80	72	76	85
Lot size 1 acre	55	62	51	61	63	68	61	64	79	71	75	84

(2) Times of concentration shall be based on the following design parameters:

(a) Sheet flow. The maximum length for each reach of sheet, or overland flow before shallow concentrated or open channel flow develops, is 150 feet. Sheet flow shall be determined using Worksheet 3 from the latest edition of Urban Hydrology for Small Watersheds, Technical Release No. 55, as published by SCS.

(b) Shallow concentrated flow. Travel time for shallow concentrated flow shall be determined using Figure 3-1 from the latest edition of Urban Hydrology for Small Watersheds, Technical Release No. 55, as published by SCS.

(c) Open channel flows. At points where sheet and shallow concentrated flows concentrate in field depressions, swales, gutters, curbs, or pipe collection systems, the travel times and downstream end of the site between these design points shall be based upon Manning's equation and/or acceptable engineering design standards, as determined by the Township Engineer. Supporting documentation and calculations must be submitted for review and approval.

§ 185-26. Hydrographs.

A. Predevelopment hydrograph is required at the site discharge point for the required twenty-four-hour design storm.

B. Postdevelopment hydrograph is required at the site discharge point incorporating any "nondetention" techniques, such as pervious areas, swales, infiltration trenches, etc.

§ 185-27. Stormwater conveyance facility design standards.

A. Conveyance facilities consist of all stormwater facilities which carry flow, which may be located either above or below the finished grade. Conveyance facilities do not include stormwater management facilities which store, infiltrate/evaporate/transpire, or clean stormwater runoff.

(1) Design criteria. Conveyance facilities shall comply with the design criteria in the following table:

CONVEYANCE FACILITY DESIGN CRITERIA			
Location	**Within Public Street Right-of-Way or Dedicated Land**	**Outside Public Street Right-of-Way or Within Non-Dedicated Areas**	
Loading	**All**	**Vehicular Loading**	**Non-Vehicular Loading**
(a) Pipe design			
[1] Material	SLHDPE, RCP	PVC, SLHDPE, RCP	PVC, SLHDPE, RCP
[2] Slope (minimum)	0.5%	0.5%	0.5%
[3] Cover	1 foot to stone subgrade	1 foot to stone subgrade	1 foot to surface
[4] Diameter (minimum)	15 inches	15 inches	8 inches
[5] Street crossing angle	75° to 90°	N/A	N/A
[6] Access/maintenance port frequency (maximum)	400 feet	400 feet	600 feet
(b) Inlet design			
[1] Material	Concrete	Concrete	N/A
[2] Grate depression	2 inches	2 inches	1 inch minimum
(c) Manhole design			
[1] Material	Concrete	Concrete	Concrete
(d) Swale design			
[1] Freeboard (minimum)	6 inches	N/A	6 inches
[2] Velocity (maximum)	Stability check	N/A	Stability check
[3] Slope (minimum)	1%	N/A	1%
[4] Side slopes (residential area)	4 : 1 max	N/A	4 : 1 max
[5] Side slopes (non-residential area)	4 : 1 max	N/A	3 : 1 max
[6] Bottom width to flow depth ratio	12 : 1	N/A	12 : 1
(e) Outlet design			
[1] End treatment	Headwall/endwall	N/A	Headwall/endwall or flared end section
[2] Energy dissipater	Required	N/A	Required

Abbreviations: N/A = Not applicable or no criteria specified; SLHDPE = Smooth lined high density polyethylene pipe; PVC = Polyvinyl chloride; RCP = Reinforced concrete pipe.

(2) Conveyance pipes, culverts, manholes, inlets and endwalls and other appurtenance shall conform to the requirements of PennDOT Standards for Roadway Construction, Publication No. 72M in effect at the time the design is submitted, as modified by the adopted Township construction standards. Conveyance pipes, culverts, manholes, inlets and endwalls which are otherwise subject to vehicular loading shall be designed for the HS-25 loading condition.

(3) Conveyance pipes.

(a) Backfill requirements. Material consistency and placement depths for backfill shall be (at a minimum) per all applicable pipe manufacturer's recommendations, further providing it should be free of large (not exceeding 6 inches in any dimension) objectionable or detritus material. Select non-aggregate material should be indigenous to the surrounding soil material for non-vehicular areas. Backfill within vehicular areas shall comply with this section unless otherwise specified in Chapter 194, Subdivision and Land development, or other governing Township road/street or ordinances.

(b) Inlets or manholes shall be placed at all points of changes in the horizontal or vertical directions of conveyance pipes. Curved pipe sections are prohibited unless specifically authorized by the Township Engineer.

(c) Access/maintenance port. An access/maintenance port is required and may either be an inlet or manhole.

(d) Watertight joints shall be provided where pipe sections are joined, except for perforated pipe installed as pavement base drain.

(e) The street crossing angle shall be measured between the pipe centerline and the street centerline.

(f) Elliptical pipe of an equivalent cross-sectional area may be substituted in lieu of circular pipe where cover or utility conflict conditions exist. No double pipe can be used for conveyance.

(g) The roughness coefficient (Manning "n" values) used for conveyance pipe capacity calculations should be determined in accordance with PennDOT Publication 584, PennDOT Drainage Manual, or per the manufacturer's specifications.

(4) Inlets.

(a) All pipes must enter inlets completely through one of the sides. No corner entry of pipes is permitted.

(b) Within the public street right-of-way, the gutter spread based on the 25-year storm shall be no greater than one half of the travel lane and have a maximum depth of 3

inches at the curb line. A parking lane shall not be considered as part of the travel lane. In the absence of pavement markings separating a travel lane from the parking lane, the parking lane shall be assumed to be 7 feet wide if parking is permitted on the street.

(c) Flow depth within intersections. Within intersections of streets, the maximum depth of flow shall be 1½ inches based on the 25-year storm.

(d) Curbed streets.

[1] Inlets in streets shall be located along the curb line at low points and as required to comply with maximum allowable gutter flow depths. The Township may require redundant inlets upslope and in proximity to roadway low points as deemed necessary to provide secondary relieve under potential obstructed conditions.

[2] Top units shall be PennDOT Type "C". The hood shall be aligned with the adjacent curb height and normally placed outside or radii.

(e) All inlets placed in paved areas shall have heavy duty bicycle-safe grating consistent with PennDOT Publication 72M, latest edition. A note to this effect shall be added to the SWM Site Plan or inlet details therein.

(f) Inlets, junction boxes, or manholes greater than 5 feet in depth shall be equipped with ladder rungs and shall be detailed on the SWM site plan.

(5) Swales.

(a) A swale shall be considered as any man-made ditch designed to convey stormwater directly to another stormwater management facility or surface waters.

(b) Inlets within swales shall have PennDOT Type "M" top units or equivalent approved by the Township Engineer.

(c) Swale capacities and velocities shall be computed using the Manning equation using the following design parameters:

[1] Vegetated swales

[a] The first condition shall consider swale stability based upon a low degree of retardance ("n" = 0.03);

[b] The second condition shall consider swale capacity based upon a higher degree of retardance ("n" = 0.05); and

[c] All vegetated swales shall have a minimum slope of 1% unless otherwise approved by the Township Engineer.

[2] The “n” factors to be used for paved or riprap swales or gutters shall be based upon accepted engineering design practices, as approved by the Township Engineer.

(d) All swales shall be designed to maximize infiltration and concentrate low flows to minimize siltation and meandering, unless geotechnical conditions do not permit infiltration.

(6) Culverts.

(a) In addition to the material requirements in this section, culverts designed to convey waters of the commonwealth shall be constructed with either SLHDPE pipe, RCP, reinforced precast concrete or reinforced cast in place concrete with headwalls/endwalls and cutoff walls extending three feet below channel flow line. The culvert shall include fish channels, as required by the Pennsylvania Department of Environmental Protection or other governing agencies.

(b) Protective parapets shall be provided when required by Township based on roadway configuration and embankment slopes.

(c) All culvert structures shall require submission of certified construction drawings, to assure compliance and PennDOT standards and HS-25 loading.

(7) Level spreaders.

(a) Shall discharge at existing grade onto undisturbed vegetation.

(b) Discharge at a depth not exceeding 3.0 inches for a 50-year, 24-hour design storm.

(8) Energy dissipaters. Energy dissipaters shall be designed in accordance with the requirements in the Soil Erosion and Sedimentation Control Manual of the Pennsylvania Department of Environmental Protection.

(9) End treatments.

(a) Where the connecting pipe has a diameter 15 inches or greater, headwalls and endwalls shall be provided with a protective barrier device to prevent entry of the storm sewer pipe by unauthorized persons. Such protection devices shall be designed to be removable for cleaning.

(b) Headwalls and endwalls shall be constructed of concrete.

(c) Flared end sections, when authorized, shall be of the same material as the connecting pipe and be designed for the size of the connecting pipe.

§ 185-28. Above ground stormwater management storage facility design standards.

A. Above ground storage facilities. Above ground storage facilities consist of all stormwater facilities which store, infiltrate/evaporate/transpire, clean or otherwise affect stormwater runoff and the top of which is exposed to the natural environment. Above ground storage facilities are located above the finished ground elevation. Above ground storage facilities do not include stormwater management facilities designed for conveyance or cisterns.

(1) Design criteria. Above ground storage facilities shall comply with the design criteria in the following table:

ABOVE-GROUND STORAGE FACILITY DESIGN CRITERIA			
	Facility Depth		
	Less than 2 feet	**2 feet to 8 feet**	**Greater than 8 feet**
(a) Embankment Geometry			
[1] Top width (minimum)	2 feet	5 feet	8 feet
[2] Interior side slope (maximum)	3 : 1	3 : 1	5 : 1
[3] Exterior side slope (maximum)	3 : 1	3 : 1	3 : 1
(b) Embankment construction			
[1] Key trench	Not required	Required	Required
[2] Pipe collar	Not required	Required	Required
[3] Compaction density	Not required	Required	Required
(c) Internal Construction			
[1] Dewatering feature	N/A	Required	Required
[2] Pretreatment elements	Not required*	Required	Required
(d) Outlet Structure			
[1] Pipe size (minimum)	6 inches	12 inches	15 inches
[2] Pipe material	SLHDPE, PVC, RCP	SLHDPE, RCP	RCP
[3] Anti-clogging device/trash rack	Required	Required	Required
[4] Anti-vortex design	Not required	Required	Required
[5] Watertight joints in piping	Yes	Yes	Yes
(e) Spillway Requirements			
[1] Spillway freeboard (minimum)	Not required	3 inches	6 inches
[2] Width (minimum)	Not required	10 feet	20 feet
[3] Width (maximum)	Not required	50 feet	50 feet
[4] Spillway channel design	Not required	Required	Required
[5] Routing of 100 year storm	Permitted	Permitted	Permitted

Note: In certain situations 2:1 side slopes may be authorized by Township on embankment berms of less than 2 feet when appropriately landscaped and mulched.

Abbreviations: *Pretreatment required for infiltration BMPs unless shown to be unnecessary; N/A = Not applicable; SLHDPE = Smooth lined high density polyethylene pipe; PVC = Polyvinyl chloride; RCP = Reinforced concrete pipe.

(2) Facility depth.

(a) For the purposes of the design criteria, the facility depth is defined to be the depth between the bottom invert of the lowest orifice and the invert of the spillway. If there is no spillway, the top of the berm shall be used. For basins with no orifices or outlet structure, the bottom elevation of the basin shall be used.

(b) Facilities with a facility depth greater than 6 feet shall not be permitted in residential areas.

(c) Facilities with a facility depth greater than 15 feet require a dam permit from DEP.

(3) Embankment construction.

(a) Impervious core/key trench. An impervious core/key trench, when required, shall consist of a cutoff trench (below existing grade) and a core trench (above existing grade). A key trench may not be required wherever it can be shown that another design feature, such as the use of an impermeable liner, accomplishes the same purpose.

[1] Materials. Materials used for the core shall conform to the Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the No. 200 sieve.

[2] Dimensions.

[a] The dimensions of the core/key trench shall provide a minimum trench depth of 2 feet below existing grade, minimum width of 4 feet and side slope of 1H:1V or flatter.

[b] The core should extend up both abutments to the 10 year water surface elevation or 6 inches below the emergency spillway elevation, whichever is lower.

[c] The core shall extend 4 feet below any pipe penetrations through the impervious core. The core shall be installed along or parallel to the centerline of the embankment.

[3] Compaction.

[a] Compaction requirements shall be the same as those for the embankment to assure maximum density and minimum permeability.

[b] The core shall be constructed concurrently with the outer shell of the embankment.

[c] The trench shall be dewatered during backfilling and compaction operations.

(d) Pipe collars. All pipe collars, when required, shall be designed in accordance with Chapter 7 of the DEP E&S Manual. The material shall consist of concrete or otherwise non-degradable material around the outfall barrel and shall be watertight.

(e) Embankment fill material. The embankment fill material shall be taken from an appropriate borrow area or imported fill which shall be free of roots, stumps, wood, rubbish, stones greater than 6 inches, frozen or other objectionable materials.

(f) Embankment compaction. When required, embankments shall be compacted by sheepsfoot or pad roller. The loose lift thickness shall be 9 inches or less, depending on roller size, and the maximum particle size is 6 inches or less (two-thirds of the lift thickness). Five passes of the compaction equipment over the entire surface of each lift is required. Embankment compaction to visible non-movement is also required. The embankment shall be structurally sound under all probable conditions of operation.

(4) Internal construction.

(a) Bottom slope. The minimum bottom slope of facilities not designed for infiltration shall be 1%. A flatter slope may be used if an equivalent dewatering mechanism is provided.

(b) Dewatering features. When required, dewatering shall be provided through the use of underdrain, surface device, or alternate approved by the Township Engineer. If the facility is to be used for infiltration, the dewatering device should be capable of being disconnected and only be made operational if the basin is not dewatering within the required timeframe.

(c) Pretreatment elements. When required, pretreatment elements shall consist of forebays, or alternate approved by the Township Engineer, to keep silt to a smaller portion of the facility for ease of maintenance.

(d) Infiltration basins. Within basins designed for infiltration, existing native vegetation shall be preserved, if possible. For existing unvegetated areas or for infiltration basins that require excavation, a planting plan shall be prepared in accordance with § 185-14.C.(9) of this chapter and the BMP Manual which is designed to promote infiltration.

(5) Outlet configuration.

(a) For facilities with a depth of 2 feet or greater, a type D-W endwall or riser box outlet structure shall be provided.

(b) For facilities with a depth less than 2 feet, no outlet structure is required.

(c) All discharge control devices with appurtenances shall be made of reinforced concrete and stainless steel. Bolts/fasteners shall be stainless steel.

(6) Spillway.

(a) Material. The spillway shall be designed to provide a non-erosive, stable condition when the project is completed.

(b) Non-emergency use. Use of the spillway to convey flows greater than the 50-year design storm is permitted.

(c) Emergency use. The spillway shall be designed to convey the 100-year peak inflow in a manner which will not damage the integrity of the facility or the downstream drainage areas.

(d) When required, freeboard shall be measured from the top of the water surface elevation for emergency use.

(7) Breach analysis. The Township may require a breach analysis based on site-specific conditions and concern of threat for downstream property. When required, the breach analysis shall be conducted in accordance with the NRCS methodology, the US Army Corps of Engineers methodology (HEC-1) or other methodologies as approved by the Township.

(8) Fencing. Fencing, or other acceptable devices that adequately restricts access, shall be provided for basins with slopes greater than five horizontal to one vertical when the water surface area is greater than one acre, and/or more than five feet deep during a one-hundred-year storm event. However, the Township, based upon the type and proximity of adjacent land use, may require the access restrictions to avoid a hazardous condition.

(9) Wetponds. Basins which are not designed to release all stormwater shall be specifically identified wet pond basins and designed in accordance with the BMP Manual to create bio-diversity, ensure long-term viability and provide appropriate shoreline protection and buffering.

§ 185-29. Subsurface stormwater management storage facility design standards.

A. Subsurface storage facilities. Subsurface storage facilities consist of all stormwater facilities which store, infiltrate/evaporate/transpire, clean or otherwise affect stormwater runoff and the top of which is not exposed to the natural environment. Subsurface facilities are located below the finished ground elevation. Subsurface facilities do not include stormwater management facilities designed for conveyance.

(1) Design criteria. Subsurface storage facilities shall comply with the design criteria in the following table:

SUBSURFACE STORAGE FACILITY DESIGN CRITERIA		
	Facility Type	
	Infiltration and Storage	**Storage without Infiltration**
(a) Facility Geometry		
[1] Depth from surface (maximum)	2 feet less than limiting zone	N/A
[2] Loading ratio (maximum)	Per BMP Manual*	N/A
(b) Distribution System Requirements		
[1] Pipe size (minimum)	4 inches	4 inches
[2] Pretreatment	Required	Required
[3] Loading/balancing	Required	Not required
[4] Observation/access ports	Required	Required

Abbreviations: *Unless otherwise determined by professional geologic evaluation.

(2) Distribution system requirements.

(a) Pretreatment requirements. The facility shall be designed to provide a method to eliminate solids, sediment, and other debris from entering the subsurface facility.

(b) Loading/balancing. The facility shall be designed to provide a means of evenly balancing the flow across the surface of the facility to be used for infiltration.

(c) Observation/access ports.

[1] For facilities with the bottom less than 5 feet below the average grade of the ground surface, a clean-out shall be an acceptable observation port.

[2] For facilities with the bottom 5 feet or more below the average grade of the ground surface, a manhole or other means acceptable to the Township shall be provided for access to and monitoring of the facility.

[3] The number of access points shall be sufficient to flush or otherwise clean out the system.

(3) Materials.

(a) Pipe material. Distribution system piping may be PVC, SLHDPE, or RCP.

(b) Stone for infiltration beds. The stone used for infiltration beds shall be clean washed, uniformly graded coarse aggregate (AASHTO No. 3 or equivalent approved by the Township). The void ratio for design shall be assumed to be 0.4.

(c) Backfill material. Material consistency and placement depths for backfill shall be (at a minimum) per all applicable pipe manufacturer's recommendations, further providing it should be free of large (not exceeding 6 inches in any dimension) objectionable or detritus material. Select non-aggregate material should be indigenous to the surrounding soil material for non-vehicular areas. Backfill within vehicular areas shall comply with this section unless otherwise specified in Chapter 194, Subdivision and land Development or any other Township ordinance or regulation. Furthermore, if the design concept includes the migration of runoff through the backfill to reach the infiltration facility, the material shall be well drained, free of excess clay or clay like materials and generally uniform in gradation.

(d) Lining material. Non-woven geotextiles shall be placed on the sides and top of subsurface infiltration facilities. No geotextiles shall be placed on the bottom of subsurface infiltration facilities.

(4) Cover.

(a) When located under pavement, the top of the subsurface facility shall be a minimum of 3 inches below the bottom of pavement sub-base.

(b) Where located under vegetative cover, the top of the subsurface facility shall be a minimum of 12 inches below the surface elevation or as required to establish vegetation.

(c) Subsurface facilities shall be isolated from property lines by a minimum of 5′ and separated from dwellings with basements, sewer disposal facilities, wells, etc. as outlined in the BMP Manual.

(d) Subsurface facilities shall be designed to safely convey and/or bypass flows from storms exceeding the design storm. Overflow locations shall be identified isolated from downstream property lines to the maximum extent possible and positioned to minimize potential for adverse downstream conditions.

§ 185-30. Phasing plans.

When applications are submitted in phases, and if temporary facilities are required for construction of a phase, such facilities shall be included in the submitted plans and secured with an improvement guarantee. All phases of development must comply with the provisions of this chapter. In the event temporary measures cannot adequately handle the stormwater runoff, the additional facilities shall be included as part of the construction of the proposed phase. An expected project time schedule shall be outlined on the plans.

§ 185-31. Stormwater management performance standards.

A. Runoff from impervious areas shall be drained to pervious areas within the Development Site, unless the site has 85% or more impervious cover and is a Redevelopment, in which case the portion of the site that discharges to pervious areas shall be maximized.

B. Stormwater flows onto adjacent property shall be conveyed in a manner consistent with pre-development runoff characteristics and shall not be altered without written notification of the adjacent property owner(s) by the developer. Based on the size and nature of the stormwater facilities proposed, the Township may require written notification of the adjacent property owner(s) by the developer. Altered stormwater flows shall be subject to the requirements of this chapter, including the establishment of a drainage easement. Copies of all such notifications and/or easements shall be included in SWM site plan submissions.

C. Existing on-site natural and man-made stormwater management facilities shall be used and enhanced to the maximum extent practicable. All existing and natural watercourses, channels, drainage systems, and areas of surface water concentrate shall be maintained in their existing condition, unless the Township approves an alteration or improvements are necessary to resolve eroded conditions.

D. Minimum floor elevations for all structures that would be affected by a basin, other temporary impoundments, or open conveyance systems where ponding may occur shall be 2 feet above the 100-year water surface elevation. If basement or underground facilities are proposed, detailed calculations addressing the effects of stormwater ponding on the structure and water-proofing

and/or flood-proofing design information consistent with the floodplain standards in Chapter 220, Zoning, shall be submitted for approval.

E. All stormwater conveyance facilities (excluding detention, retention, and wetland basin outfall structures) shall be designed to convey a 25 year storm event.* All stormwater conveyance facilities (excluding detention, retention, and wetland basin outfall structures) conveying water originating from offsite shall be designed to convey a 50 year storm event*. Safe conveyance of the 100-year runoff event* to appropriate peak rate control BMPs must be demonstrated in the design.

F. Erosion protection shall be provided along all open channels, and at all points of discharge including spillways. Flow velocities from any storm sewer may not result in erosion of the receiving channel.

G. Infiltration BMPs shall be spread out, made as shallow as practicable, and located to maximize use of natural on-site infiltration features while still meeting the other requirements of this chapter. Infiltration BMPs shall include pretreatment BMPs unless shown to be unnecessary.

H. Infiltration BMPs intended to receive runoff from developed areas shall be selected based on suitability of soils and Development Site conditions and shall be constructed on soils that have the following characteristics:

(1) A minimum depth of 24 inches between the bottom of the facility and the limiting zone, unless it is demonstrated to the satisfaction of the Township that the selected BMP has design criteria which allow for a smaller separation.

(2) A stabilized infiltration rate sufficient to accept the additional stormwater load and drain completely as determined by field tests conducted by the applicant's professional designer.

(a) The stabilized infiltration rate is to be determined in the same location and within the same soil horizon as the bottom of the infiltration facility.

(b) The stabilized infiltration rate is to be determined as specified in the BMP Manual with appropriate safety factors.

I. Infiltration systems and BMP's may not receive runoff until the entire contributory drainage area to the infiltration system has received final stabilization. Delay final construction of infiltration systems and BMPs until all other land disturbing activities are complete to minimize the potential for clogging and maintenance or remedial action.

§ 185-32. Soil erosion and sedimentation control.

The following principles shall be applied to the design plan and construction schedule to minimize soil erosion and sedimentation:

***A 24 hour SCS Type II storm or an IDF Curve Rational Method storm.**

A. Stripping of vegetation, grading or other soil disturbance shall be done in a manner which will minimize soil erosion.

B. Natural wooded cover and vegetation shall be retained and protected, whenever feasible.

C. The extent of the disturbed area and the duration of its exposure shall be kept to a minimum, within practical limits.

D. Either temporary seeding, mulching or other suitable stabilization measures shall be used to protect exposed critical areas during construction.

E. Drainage provisions shall accommodate the stormwater runoff, both during and after construction.

F. Soil erosion and sedimentation facilities shall be installed before any on-site grading.

G. All earthmoving activities shall be conducted in such a way as to minimize accelerated erosion and resulting sedimentation. Measures to control erosion and sedimentation shall, at a minimum, meet the standards of the Lancaster County Conservation District and Chapter 102 (Erosion Control) of Title 25, Rules and Regulations of the Pennsylvania Department of Environmental Protection.

H. The erosion and sedimentation control plan must be available at all times at the project site. When required, a permit allowing earthmoving activity shall be obtained by the developer before any construction on the project site shall begin.

I. Approval of an erosion and sedimentation control plan by the Township shall not be construed as an indication that the plan complies with the standards of any agency of the commonwealth.

J. The erosion and sedimentation control plan shall be submitted to the Lancaster County Conservation District for its review and approval. Copies of all information submitted to the Lancaster County Conservation District including worksheets and calculations shall be provided to the Township. Building permits will not be issued and construction shall not start until an NPDES permit, where required, is received.

§ 185-33. Easements.

A. Easements shall be provided where stormwater or surface water drainage facilities are proposed, whether located within or beyond the boundaries of the property. Although normal lot grading does not require easements, swales which receive runoff from more than one other lot or from more than 1/2 acre must be provided with an easement.

B. Easements shall have a minimum width of 10 feet from each side of the watercourse, waterbody, or drainage structure and shall be adequately designed to provide area for:

(1) Collection and discharge of water;

(2) Maintenance, repair and reconstruction of the drainage facilities with increased width required for deep facilities or facilities in close proximity to dwellings, structures or similar features that result in restrictive working conditions; and

(3) Passage of machinery for such work.

C. Easements shall include a description of an ownership and maintenance program, in a recordable form, that clearly sets forth responsibility for all temporary and permanent stormwater management facilities.

D. Easements that are not described along a property line shall be located by a center line bearing and distance from a known point.

§ 185-34. Maintenance of stormwater management facilities.

A. Maintenance during development. Maintenance of stormwater management facilities during development of a project site shall be the responsibility of the developer and the landowner. Maintenance shall include, but not be limited to:

(1) Removal of silt and debris from basins, traps or other structures and all programs stated in the approved erosion and sediment control plan. When required, cleanout shall restore the original design volume to the basin or other structure. The elevation corresponding to the maximum allowable sediment level shall be determined and stated in the design data as a distance below the top of the riser. The elevation shall be clearly marked on the riser to enable proper maintenance.

(2) Periodic maintenance of temporary control facilities, such as replacement of silt fence, filter socks, stone filters, silt sacks or similar measures.

(3) Establishment or restoration of vegetation by seeding, mulching or sodding of scoured areas, or areas where vegetation has not been successfully established.

(4) Installation of necessary controls to correct unforeseen problems caused by storm events within design frequencies.

(5) Removal of all temporary stormwater management control facilities upon installation of permanent stormwater management facilities at the completion of the development.

B. Maintenance of facilities not dedicated or accepted by Township.

(1) The Township shall not become responsible for maintenance of stormwater management facilities, unless such facilities are within a street right-of-way dedicated to, and accepted by, the Township, or unless the Township specifically grants an exception to this standard. Maintenance of stormwater facilities shall be the responsibility of the developer and may be assigned to a private entity (e.g., property owner, homeowners' association, and condominium association), when deemed acceptable to the Township.

(2) When possible, stormwater management facilities shall be owned and maintained by one entity. Stormwater management facilities shall be designed with consideration for facilities that can be effectively accommodated within the property of one responsible private entity, and reasonably maintained by the private entity.

(3) When maintenance of stormwater management facilities are assigned to the developer and/or private entity, a legally binding Operation and Maintenance Agreement between the responsible parties and Township shall be recorded. Such agreement shall provide the Township with the rights established in Section 705 of the Pennsylvania Municipalities Planning Code, relating to the maintenance of common open space when a private entity fails to adequately maintain the facility. A deed restriction shall be recorded stating responsibilities of the property owner or private entity for the maintenance, as may be necessary to maintain the stormwater management facility in accordance with the terms of this chapter the Operation and Maintenance Agreement and the O&M Plan. The O&M Plan shall clearly establish the operation and maintenance necessary to ensure the proper functioning of all temporary and permanent stormwater management facilities and erosion and sedimentation control facilities and address the following:

(a) Description of maintenance requirements, including, but not limited to, the following:

[1] Regular inspection of the stormwater management facilities. To assure proper implementation of BMPs, maintenance and care stormwater management facility BMPs should be inspected by a qualified person, which may include the landowner, or the owner's designee (including the Township for dedicated and owned facilities), according to the following minimum frequencies:

[a] Annually for the first 5 years.

[b] Once every 3 years thereafter.

[c] Immediately after the cessation of a 10-year or greater storm.

[d] As specified in the O&M Agreement pursuant to § 185-34 of this chapter.

[2] All pipes, swales and detention facilities shall be kept free of any debris or other obstruction and in original design condition.

[3] Removal of silt from all permanent structures which trap silt or sediment in order to keep the material from building up in grass waterways, pipes, detention or retention basins, infiltration structures, or BMPs, and thus reducing their capacity to convey or store water.

[4] Re-establishment of vegetation of scoured areas or areas where vegetation has not been successfully established. Selection of seed mixtures shall be subject to approval by the Township.

(4) Deed restrictions shall also include notice that, in the event that the private entity fails to comply with the terms of this chapter, the Township shall have the authority to carry out those duties imposed upon the private entity.

(a) The Township may, after giving notice to the private entity of improper maintenance, and providing a reasonable time for compliance, enter upon said property and take such actions as may be required to bring the area into compliance with this chapter.

(b) The Township shall further have the right to file a municipal lien against such property for the cost of maintenance work carried out under this section, plus a penalty of 10% of the costs of such work. The Township may, in addition to the filing of a municipal lien, pursue any other remedies provided by law against any private entity that should fail to comply with the terms of this chapter.

C. Maintenance of existing facilities. No person shall modify, remove, fill, landscape, or alter stormwater management BMPs, facilities, areas, or structures unless a stormwater management plan has been approved or written approval is provided by the Township, which authorizes such modification, removal, filling, landscaping, or alteration. No person shall place any structure, fill, landscaping, or vegetation into a permanent stormwater management facility or within a drainage easement or improperly maintain the stormwater facilities that limit, diminish or alter the functioning of the facility or easement in any manner or condition that constitutes a nuisance.

(1) The Township may, after giving notice to the private entity of the improper condition and required corrective measures, and providing a reasonable time for compliance, not to exceed 30 days, enter upon said property or contract for performance of the work and take such actions as may be required to bring the area into compliance with this chapter.

(2) The Township shall further have the right to file a municipal lien against such property for the cost of maintenance work carried out under this section, plus a penalty of 10% of the costs of such work. The Township may, in addition to the filing of a municipal lien, pursue any other remedies provided by law against any private entity that should fail to comply with the terms of this chapter.

D. Maintenance guarantee. When the Township accepts dedication of stormwater management facilities, the applicant shall post a financial security for the structural integrity and function of said facilities, in accordance with the approved design and specifications. The financial security shall extend for a term not to exceed 18 months from the date of acceptance of dedication. The financial security shall be the same type as required in § 185-19. The amount of the financial security shall not exceed 15% of the actual cost of installation of said facilities.

ARTICLE VI

Administration

§ 185-35. Enforcement remedies.

A. Any person, partnership, or corporation engaged in an earth disturbance activity, as defined in this chapter, shall implement such measures consistent with the stormwater management permit and this chapter. Any earth disturbance activity conducted in violation of this chapter or the stormwater management permit is hereby declared a public nuisance.

B. In the event of a violation, the Township may initiate the following actions:

(1) Suspension of stormwater management permit: Any permit issued under this chapter may be suspended by the Township based upon:

(a) The noncompliance with or failure to implement any provision of the earth disturbance plan; or

(b) A violation of any provision of this chapter relating to the project; or

(c) The creation of any condition or the commission of any act during construction which constitutes or creates a hazard or nuisance or which endangers the life or property of others.

(2) Under the suspension of a permit, only such work as the Township so authorized may proceed. This work shall be limited to that which is necessary to correct the violation. A suspended permit shall be reinstated by the Township when:

(a) The enforcement officer and the Township Engineer have inspected and approved the corrections to the stormwater management facilities or the elimination of the hazard or nuisance; and

(b) The enforcement officer and the Township Engineer are satisfied that the violation of the chapter has been corrected.

(3) Revocation of a stormwater management permit.

(a) Based upon a report from the Township Engineer that the existing site condition or further construction is likely to endanger property or create hazardous conditions, the Township may:

[1] Revoke a permit.

[2] Require protective measures to be taken and assign a reasonable time period for the necessary action.

[3] Authorize protective measures to be done and lien all cost of the work against the property on which work is required.

(b) A permit which has been revoked cannot be reinstated. The applicant may apply for a new permit in accordance with the processing procedures in Article III.

(4) Notification of suspension or revocation of a stormwater management permit. In the event of a suspension or revocation of a stormwater management permit, the Township shall provide written notification, by certified mail, of the violation to the landowner at the landowner's last known address. Such notification shall:

(a) Cite the specific violation, describe the requirements which have not been met, and cite the provisions of the chapter relied upon.

(b) Identify the specific protective measures to be taken.

(c) Assign a reasonable time period necessary for action or, in the case of revocation, identify if the Township has authorized protective measures to be performed at cost to the landowner.

(d) Identify the right of the landowner to request a hearing before the Board of Supervisors if aggrieved by the suspension or revocation.

(5) Abatement of nuisance conditions. The failure to complete site work in accordance with an approved earth disturbance plan, stormwater management plan or in a manner which violates the approved earth disturbance plan may result in harm to the water quality and other natural resources of the Township or may result in danger to the health, safety and welfare of the residents of the Township and, therefore, may constitute a nuisance. Where the Township determines that such conditions constitute a nuisance, they shall be abatable as such in accordance with the provisions of the Second Class Township Code, Act of May 1, 1933, P.L. 103, as reenacted and amended, § 1529, 53 P.S. § 66529. The Township shall, in the notice of violation of approved plan forwarded in accordance with § 185-13 or § 185-15 herein, state whether the violations of the approved earth disturbance plan constitute a nuisance. The Township shall have the right to file its actual expenses in the abatement of such nuisances plus an additional 25% of such expenses shall be filed as a municipal claim against the property.

(6) Civil remedies.

(a) The Township may institute any appropriate action at law or in equity for the enforcement of this chapter and to compel compliance with the requirements of this chapter.

(b) The Township may revoke its approval of a stormwater management permit if such stormwater management permit has been issued in error or if the issuance was based on any misrepresentations or errors contained in the application or otherwise made

by the applicant. The Township may also revoke approval of a stormwater management permit if the use and/or structure proposed by such stormwater management permit violates any applicable Township, county, state or federal law or regulation, including but not limited to Chapter 220, Zoning.

(7) Concurrent remedies. The exercise of any remedy or imposition of any penalty under this chapter shall not prevent the Township from exercising any other remedy or penalty provided for by this chapter or available at law or in equity.

§ 185-36. Violations and penalties.

A. It shall be a violation of this chapter to commit or to permit any other person to commit any of the following acts:

(1) To commence earth disturbance activities for which this chapter requires a permit prior to obtaining a permit or in violation of the terms or conditions of any permit issued under this chapter.

(2) To install, repair, modify, or alter stormwater management facilities prior to obtaining a permit under this chapter or in a manner which violates the terms and conditions of any permit issued under this chapter.

(3) To misuse or fail to maintain any stormwater management facility installed upon a property.

(4) To construct any improvements upon, grade, fill, or take any other action which will impair the proper functioning of any stormwater management facility.

(5) To place intentionally false information on or intentionally omit information from an application for a permit under this chapter.

(6) To fail to comply with any other provisions of this chapter.

B. If the Township determines that a person has committed or permitted the commission of a violation of this chapter, the Township shall inform such person in writing of the violation, shall notify such person to cease the violation of this chapter and shall inform such person that, upon conviction in a summary proceeding brought before a Magisterial District Judge under the Pennsylvania Rules of Criminal Procedure, he or she shall be guilty of a summary offense and shall be punishable by a fine of not less than $100 nor more than $1,000, plus costs of prosecution. In default of payment thereof, the defendant may be sentenced to imprisonment for a term not exceeding 90 days. Each day or portion thereof that such violation continues or is permitted to continue shall constitute a separate offense, and each section of this chapter that is violated shall also constitute a separate offense.

§ 185-37. Appeals.

Appeals from any action of the enforcement officer under this chapter shall be made in writing to the Township within 15 days from the date of the written determination of the enforcement officer. All appeals shall be accompanied by the appeal fee established by resolution or ordinance of the Board of Supervisors.

A. The written appeal shall specify the precise action from which the appeal is taken and shall set forth in concise terms the reason for the appeal and any legal authorities supporting the appeal period.

B. If the appellant desires a hearing before the Board of Supervisors, the appellant must request a hearing in writing.

C. If a hearing is requested in writing, the Board of Supervisors shall conduct the hearing at a regular or special public meeting which occurs not less than 14 days after receipt of the written appeal. The hearing shall be conducted in accordance with the provisions of the Local Agency Law, 2 Pa.C.S.A. § 551 et seq.

D. The Board of Supervisors shall render a decision on the appeal in accordance with the provisions of the Local Agency Law.

§ 185-38. Fees and costs.

A. The applicant shall agree in writing to reimburse the Township for all costs of administration and review of the application by the Township Engineer, Township Solicitor or Consultant. At the time of application the applicant shall pay the required filing fee (in accordance with the Township Fee Resolution or Ordinance).

B. Excluding fixed administrative costs, the applicant shall be charged only for time and materials actually expended and detailed in bills from the Township Engineer, Township Solicitor or consultant. Any unexpended balance of the deposit portion of the filing fee for plan review shall be returned to the applicant following approval of the earth disturbance or stormwater management plan.

C. If actual time required of the Township Engineer or consultant will exceed the deposited amount, the Township shall render to the applicant a preliminary statement of time and materials expended and an additional amount must be deposited with the Township prior to plan approval.

D. Fees covering the cost of inspections shall be paid by the applicant to the Township prior to plan approval. The amounts of these inspection fees shall be fixed by resolution of the Board of Supervisors. If problems arise requiring more extensive involvement of the Township Engineer or consultant during the inspection process, any resulting costs, including legal costs, that exceed the initial fees will be assessed to the applicant.

§ 185-39. Effect on other provisions.

Nothing in this chapter shall be construed to affect any suit or proceeding pending in any court, or any rights acquired or liability incurred, or any permit issued, or any cause or causes of action existing under Chapter 220, Zoning, or Chapter 194, Subdivision and Land Development, prior to the enactment of this chapter.

§ 185-40. **Effective Date**. This Ordinance shall become effective 5 days after its enactment.

ENACTED and ORDAINED this 1st day of May , 2014.

EAST COCALICO TOWNSHIP
BOARD OF SUPERVISORS

Douglas B. Mackley, Chairman

Alan R. Fry, Vice Chairman

Noelle B. Fortna, Secretary

APPENDIX NO. 1

CERTIFICATE FOR APPROVAL BY THE BOARD OF SUPERVISORS

Approved by the East Cocalico Township Board of Supervisors this _____ day of _____ , 20___ .

APPENDIX NO. 2

STORM WATER MANAGEMENT CERTIFICATION

I hereby certify that, to the best of my knowledge, the storm water management facilities shown and described hereon are designed in conformance with the East Cocalico Township Storm Water Management and Earth Disturbance Ordinance of 2014.

_____ , 20____ *

*Signature of the registered professional responsible for the preparation of the plan.

SEAL OF THE INDIVIDUAL