

BOROUGH OF MOUNT JOY
Lancaster County, Pennsylvania

ORDINANCE NO. 2-14

THE MOUNT JOY BOROUGH STORMWATER MANAGEMENT ORDINANCE; TO RESTATE AND ESTABLISH STORMWATER MANAGEMENT REGULATIONS WITHIN THE BOROUGH OF MOUNT JOY, LANCASTER COUNTY, PENNSYLVANIA, INCLUDING, BUT NOT LIMITED TO, REGULATIONS FOR STORMWATER MANAGEMENT STANDARDS, INFORMATION TO BE INCLUDED ON OR WITH STORMWATER MANAGEMENT SITE PLANS, APPLICATION/PLAN PROCESSING PROCEDURES, OPERATION AND MAINTENANCE, AND ENFORCEMENT PROVISIONS.

BE AND IT IS HEREBY ORDAINED AND ENACTED by the Borough Council of Mount Joy Borough of Mount Joy, Lancaster County, Pennsylvania, as follows:

Section 1. The Code of Ordinances of Borough of Mount Joy, Chapter 226, Stormwater Management, shall be deleted in its entirety and a new Chapter 226, Stormwater Management, shall be inserted which shall provide as follows:

ARTICLE I. GENERAL PROVISIONS

§ 226-1. Short title.

This chapter shall be known and may be cited as the "Mount Joy Borough Stormwater Management Ordinance."

§ 226-2. Findings.

The Borough Council of Mount Joy Borough finds that:

- A. Inadequate management of accelerated stormwater runoff resulting from development throughout a watershed increases flood flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of existing streams and storm sewers, greatly increases the cost of public facilities to convey and manage stormwater, undermines floodplain management and flood control efforts in downstream communities, reduces groundwater

recharge, threatens public health and safety, and increases nonpoint source pollution of water resources.

- B. A comprehensive program of SWM, including reasonable regulation of development and activities causing accelerated runoff, is fundamental to the public health, safety, welfare, and the protection of the people of the Borough and all the people of the Commonwealth, their resources, and the environment.
- C. Stormwater is an important water resource, which provides groundwater recharge for water supplies and base flow of streams, which also protects and maintains surface water quality.
- D. Federal and state regulations require certain municipalities to implement a program of stormwater controls. These municipalities are required to obtain a permit for stormwater discharges from their Municipal Separate Storm Sewer Systems (MS4s) under the National Pollutant Discharge Elimination System (NPDES).
- E. Riparian forest buffers enhance water quality by filtering pollutants in runoff, providing light control and temperature moderation, processing pollutants, increasing infiltration and providing channel stability thus decreasing erosion (DEP Riparian Forest Buffer Guidance, November 27, 2010).

§ 226-3. Purpose.

The purpose of this chapter is to promote health, safety, and welfare by minimizing the problems and maximizing the benefits described in § 226-2 of this chapter through provisions designed to:

- A. Meet legal water quality requirements under state law, including regulations at 25 Pa. Code Chapter 93 to protect, maintain, reclaim, and restore the existing and designated uses of the waters of this Commonwealth.
- B. Preserve the natural drainage systems as much as possible.
- C. Manage stormwater runoff close to the source.
- D. Provide procedures and performance standards for stormwater planning and management.
- E. Maintain groundwater recharge to prevent degradation of surface and groundwater quality and to otherwise protect water resources.
- F. Prevent scour and erosion of stream banks and streambeds.
- G. Provide proper Operation and Maintenance of all Stormwater Best Management Practices (SWM BMPs) that are implemented within the Borough.
- H. Provide standards to meet NPDES permit requirements.
- I. Promote stormwater runoff prevention through the use of nonstructural Best Management Practices (BMPs).
- J. Provide a regulatory environment that supports the proportion, density and intensity of development called for in the comprehensive plan; allow for creative methods of improving water quality and managing stormwater runoff; and promote a regional approach to water resource management.
- K. Help preserve and protect exceptional natural resources, and conserve and restore natural resource systems.
- L. Promote stormwater management practices that emphasize infiltration, evaporation, and transpiration.

§ 226-4. Legislative authority.

The Borough is empowered to regulate these activities by the authority of the Stormwater Management Act and the Clean Streams Law. The Borough also is empowered to regulate land use activities that affect stormwater impacts by the authority of the Act of February 1, 1966, P.L. (1965) 1656, No. 581, as reenacted and amended by the Act of May17, 2012, P.L. 262, No. 43, as amended, known as the Borough Code.

§ 226-5. Applicability.

The provisions, regulations, limitations, and restrictions of this chapter shall apply to regulated activities, as defined in this chapter.

§ 226-6. Repeals and continuation of prior regulations.

- A. Except as otherwise required by law, this chapter is intended as a continuation of, and not a repeal of, existing regulations governing the subject matter. To the extent that this chapter restates regulations contained in ordinance previously enacted by the Borough Council, this chapter shall be considered a restatement and not a repeal of such regulations. It is the specific intent of the Borough Council that all provisions of this chapter shall be considered in full force and effect as of the date such regulations were initially enacted. All ordinances and parts of ordinances inconsistent with the provisions of this chapter are hereby repealed. It is expressly provided that the provisions of this chapter shall not affect any act done, contract executed or liability incurred prior to its effective date, or affect any suit or prosecution pending or to be instituted to enforce any rights, rule, regulation, or ordinance, or part thereof, or to punish any violation which occurred under and prior stormwater regulation or ordinance. In the event any violation has occurred under any prior stormwater regulation or ordinance of Mount Joy Borough, prosecution may be initiated against the alleged offender pursuant to the provisions of said prior stormwater regulation or ordinance, and the provisions and penalties provided in said prior stormwater regulation or ordinance shall remain effective as to said violation.
- B. Any Plan (hereinafter defined) pending at the time of the effective date of this Ordinance shall be allowed to proceed with revisions, finalization and implementation in accordance with any Ordinance in effect prior hereto.

§ 226-7. Severability.

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

§ 226-8. Compatibility with other ordinance requirements.

Approvals issued pursuant to this chapter do not relieve the Applicant of any responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance.

§ 226-9. 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 Borough purporting to validate such a violation.

§ 226-10. Municipal liability.

Except as specifically provided by the Stormwater Management Act, the making of any administrative decision by the Borough or any of its officials or employees shall not constitute a representation, guarantee or warranty of any kind by the Borough 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 Borough and its officials and employees. Mount Joy Borough, by enacting this chapter, does not waive or limit any immunity granted to the Borough and its officials and employees by the Governmental Immunity Act, 42 Pa. C.S. §8541 et seq., and does not assume any liabilities or obligations.

§ 226-11. Duty of persons engaged in the development of land.

Notwithstanding any provision(s) of this chapter, including exemptions, any landowner or any person engaged in the alteration or development of land which may affect stormwater runoff characteristics shall implement such measures as are reasonably necessary to prevent injury to health, safety, or other property. Such measures also shall include actions as a required to manage the rate, volume, direction, and quality of resulting stormwater runoff in a manner which otherwise adequately protects health, property, and water quality.

§ 226-12. (Reserved)

§ 226-13. (Reserved)

§ 226-14. (Reserved)

§ 226-15. (Reserved)

§ 226-16. (Reserved)

§ 226-17. (Reserved)

§ 226-18. (Reserved)

§ 226-19. (Reserved)

§ 226-20. (Reserved)

ARTICLE II. DEFINITION OF TERMS

§ 226-21. Interpretation and word usage.

The language set forth in the text of this chapter shall be interpreted in accordance with the following rules of construction:

A. Words used or defined in one tense or form shall include other tenses or derivate forms.

- B. Words in the singular number shall include the plural number, and word in the plural number shall include the singular number.
- C. The masculine gender shall include the feminine and neuter. The feminine gender shall include the masculine and neuter. The neuter gender shall include the masculine and feminine.
- D. The word "person" includes individuals, firms, partnerships, joint ventures, trusts, trustees, estates, corporations, associations, and any other similar entities.
- E. The word "Lot" includes the word "plot," "Tract," and "Parcel."
- F. The words "shall," "must" and "will" are mandatory in nature and establish an obligation or duty to comply with the particular provision. The words "may" and "should" are permissive.
- G. 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.
- H. Any words not defined in this chapter or in Section 107 of the MPC shall be construed as defined in standard dictionary usage.
- I. 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 SWM Site Plan is first filed. It is the intent of the Borough Council in enacting this Section to incorporate such changes to statues, regulations, and publications to the extent authorized by 1 Pa. C.S. §1937.

§ 226-22. Definitions of terms.

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

ACCESS EASEMENT - A right granted by a landowner to a grantee, allowing entry for the purpose of inspecting, maintaining and repairing SWM facilities.

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 and/or Developer, as hereinafter defined, including his heirs, successors and assigns, who has filed an application to the Borough for approval to engage in any regulated activity at a Development Site located within the Borough.

BMP (BEST MANAGEMENT PRACTICE) - 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.

BOROUGH - The Borough of Mount Joy, Lancaster County, Pennsylvania.

BOROUGH COUNCIL - The Borough Council of the Borough of Mount Joy, Lancaster County Pennsylvania.

BUILDING — Any enclosed or open structure, other than a boundary wall or fence, occupying more than four (4) square feet of area and/or having a roof supported by columns, piers or walls.

CARBONATE GEOLOGY — Limestone or dolomite bedrock. Carbonate geology is often associated with karst topography.

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

CHAPTER 102 — 25 Pa. Code, Chapter 102, Erosion and Sediment Control.

CHAPTER 105 - 25 Pa. Code, Chapter 105, Dam Safety and Waterway Management.

CHAPTER 106 - 25 Pa. Code, Chapter 106, Floodplain Management.

CISTERN - A reservoir or tank for storing rainwater.

CLEAN STREAMS LAW - The Act of June 22, 1937, P.L. 1987, No. 394, as amended (35 P.S. §691.1 et seq.).

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 PLAN — A plan written by an NRCS certified planner that identifies Conservation Practices and include site specific BMPs for agricultural plowing or tilling activity 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.

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

DCNR — The Pennsylvania Department of Conservation and Natural Resources or any agency successor thereto.

DEP (also PA DEP or PADEP) — The Department of Environmental Protection of the Commonwealth of Pennsylvania or any agency successor thereto.

DESIGN STORM — The magnitude and temporal distribution of precipitation from a storm event measured in probability of occurrence (e.g., a 5-year storm) and duration (e.g., 24-hours), used in the design and evaluation of SWM systems.

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

DEVELOPER — A person that undertakes any Regulated Activity of this chapter.

DEVELOPMENT SITE (SITE) — The specific area of land where regulated activities in the Borough 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.

DISCONNECTED IMPERVIOUS AREA (DIA) — An impervious or impermeable surface that is disconnected from any stormwater drainage or conveyance system and is redirected or directed to a pervious area, which allows for infiltration, filtration, and increased time of concentration.

DISTURBED AREA — A land area where an earth disturbance activity is occurring or has occurred.

DRAINAGE EASEMENT - Rights to occupy and use another person's real property for the installation and operation of stormwater management facilities, or for the maintenance of natural drainageways to preserve and maintain a channel for the flow of stormwater therein, or to safeguard health, safety, property and facilities.

E&S — Erosion and Sediment.

E&S MANUAL — The Erosion and Sedimentation Pollution Control Program Manual, No. 363-2134-008 of March 2012.

E&S PLAN (also EROSION AND SEDIMENT CONTROL 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.

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.

ENFORCEMENT OFFICER - That person designated by the Borough Council of Mount Joy Borough as the official of the Borough designated to administer and enforce the provisions of this chapter.

ENVIRONMENTALLY SENSITIVE AREA — Slopes greater than 15 percent, shallow bedrock (located within six feet of ground surface), wetlands, Natural Heritage Areas and other areas designated as Conservation of Preservation in *Greenscapes*, the Green Infrastructure Element of the Lancaster County Comprehensive Plan, where encroachment by land development or earth disturbance results in degradation of the natural resource.

EROSION — The natural process by which the surface of the land is worn away by water, wind, or chemical action. See also "Accelerated Erosion."

EXEMPTION — A release from meeting ordinance requirements when project conditions meet the criteria listed in § 226-51.B.

EXISTING CONDITIONS — The dominant land cover during the five-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 (FF) — That portion of the floodplain outside of the floodway.

FLOODPLAIN — All those areas of Mount Joy Borough, Lancaster County, Pennsylvania, identified as being subject to the one-hundred-year flood in the Flood Insurance Study (FIS) dated April 19, 2005, and the accompanying maps prepared for Lancaster County by FEMA, or the most recent version thereof. The floodplain consists of the floodway (FW), flood-fringe area (FF), and the approximate floodplain area (FA). **FLOODPLAIN, APPROXIMATE** — Any areas identified as “approximate one-hundred-year floodplain” or “Zone A” (as opposed to Zone A followed by a number) in the Federal Floodplain Study and for which no official one-hundred-year flood elevations have been provided. In such areas, information shall be used from any available federal, state or other qualified studies that area found to be acceptable by the Borough Engineer, such as elevations on a nearby floodplain area that was studied in detail. If no such reliable information is available and if development activity is proposed within such approximate floodplain area, then a detailed floodplain study of the site is required in accordance with Chapter 270, Zoning.

FLOODPLAIN MANAGEMENT ACT — The Act of October 4, 1978, P.L. 851, No. 166, as amended (32 P.S. §679.101 et seq.).

FLOODWAY (FW) — Areas identified as the one-hundred-year floodway in the Federal Floodplain Study along segments of waterways that were analyzed in such study and in other appropriate studies acceptable to the Borough Engineer, including any detailed site-specific study along a segment that was not analyzed in the Federal Floodplain Study. The floodway generally shall be the channel of a stream, plus any adjacent portions of the one-hundred-year floodplain that must be kept free of encroachments on order to prevent the increase of flood levels by more than one foot.

FOREST 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 high-water elevation and the top of a dam, embankment, 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.

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

GROUND COVER — Dense plants, shrubs, grasses, or other vegetation that grow over the surface of the land which prevent accelerated erosion.

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.

HYDROLOGIC SOIL GROUP (HSG) — Refers to soils grouped according to their runoff-producing characteristics by NCRS. There are four (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 (IMPERVIOUS AREA) — Surfaces which prevents 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.

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).

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 (INVASIVES) — Plants which grow quickly and aggressively, spreading, and displacing other plants. Invasives typically are 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 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 activity meeting the definition of land development in Chapter 226, Subdivision and Land Development.

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 pressure of effluent. Seasonal 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.

MANNING'S EQUATION — An equation 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. Manning's Equation assumes steady, gradually varied flow.

MAXIMUM EXTENT PRACTICABLE (MEP) — Applies when the applicant demonstrates to the Borough'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 level of control is appropriate.

MUNICIPAL SEPARATE STORM SEWER — A conveyance or system of conveyances (including roads with drainage systems, municipal 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).

MUNICIPALITIES PLANNING CODE (MPC) — The Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247, as amended and reenacted, 53 P.S. § 10101 et seq.

NRCS — Natural Resources Conservation Service (previously Soil Conservation Service or SCS).

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (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.

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.

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

NATURAL GROUND COVER — Ground cover which mimics the infiltration characteristics of predominant hydrologic soil group found at the site.

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.

OPEN CHANNEL — A drainage element in which stormwater flows with an open surface. Open channels include, but shall not be limited to, natural and man-made drainage ways, swales, streams, ditches, canals, and pipes flowing partly full. Open channels may include closed conduits so long as the flow is not under pressure.

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

PEAK DISCHARGE — The maximum rate of stormwater runoff from a specific storm event.

PENNDOT — Pennsylvania Department of Transportation or any agency successor thereto.

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.

PLANS — The SWM and erosion and sediment control plans and narratives.

PLANNING COMMISSION — Mount Joy Borough Planning Commission.

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

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

RATE CONTROL — SWM 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.

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

REGIONAL STORMWATER MANAGEMENT PLAN — A plan to manage stormwater runoff from an area larger than a single Development Site. A Regional Stormwater Management Plan could include two adjacent parcels, an entire watershed, or some defined area in between. Regional Stormwater Management Plans can be prepared for new development, or as a retrofit to manage runoff from already developed areas.

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:

- A. Land Development subject to the requirements of Chapter 119, Subdivision and Land Development;
- B. Removal of ground cover, grading, filling or excavation;
- C. Construction of new or additional impervious or semi-impervious surfaces (driveways, parking lots, etc.), and associated improvements;
- D. Construction of new buildings or additions to existing buildings;
- E. Installation or alteration of stormwater management facilities and appurtenances thereto;
- F. Diversion or piping of any watercourse; and

G. Any other regulated activities where the Borough determines that said activities may affect any existing watercourse's stormwater management facilities or 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.

RIPARIAN — Pertaining to a stream or 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 narrow 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 FOREST BUFFER — A type of Riparian Buffer that consists of permanent vegetation that is predominantly native trees, shrubs and forbs along surface waters 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.

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

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

SCS — USDA Soil Conservation Service (now known as NRCS).

SEDIMENT — Soils or other materials transportation by stormwater as a product of erosion.

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

SEDIMENT POLLUTION — The placement, discharge or any other introduction of sediment into 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.

SEDIMENTATION — The action of process of forming or depositing sediment in Waters of this Commonwealth.

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

SEMI-IMPERVIOUS/SEMI-PERVIOUS SURFACE — A surface which prevents some infiltration of water into the ground.

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

SMALL PROJECT — Regulated activities that, measured on a cumulative basis from April 7, 2014, create new impervious areas of more than 1,000 sq. ft. and less than 5,000 sq. ft. or involve Earth Disturbance Activity of an 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 two (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," Technical Release No. 55, SCS, June 1986.

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

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

STORAGE — A volume above or below ground that is available to hold stormwater.

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

STORM SEWER — A system of pipes and/or open channels that is designed to convey intercepted stormwater.

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

STORMWATER EASEMENT — Right-of-way granted for the limited use of private land for 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. The easement shall be placed around stormwater management facilities and/or BMP facilities. The easement shall be described with metes and bounds at the time of the approved plan recording or on the as-built plans.

STORMWATER 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 BMPs.

STORMWATER MANAGEMENT FACILITY (SWM FACILITY) — 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 Article VI of this chapter.

STORMWATER MANAGEMENT SITE PLAN (SWM SITE PLAN) — The Plan prepared by the Developer or his representative indicating how stormwater runoff will be managed at a particular development site according to this chapter.

STREAM — A watercourse.

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.

SUBDIVISION — Any activity meeting the definition of subdivision in the MPC.

SWALE – A wide shallow ditch which carries surface water runoff.

SWM – Stormwater Management.

SWM SITE PLAN – See Stormwater Management Site Plan.

TIMBER OPERATIONS – See Forest Management.

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

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.

TREATMENT TRAIN — The sequencing of structural BMPs to achieve optimal flow management and pollutant removal from urban stormwater.

USDA — United States Department of Agriculture.

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

WATERCOURSE — A channel or conveyance of surface water having defined bed and banks, whether natural or artificial, with perennial or intermittent flow.

WATERSHED — The entire region or area drained by a watercourse.

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

WETLAND — Those areas that are inundated or saturated by surface or ground water at a frequency and duration 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 sq. ft. 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.

§ 226-23. (Reserved)

§ 226-24. (Reserved)

§ 226-25. (Reserved)

§ 226-26. (Reserved)

§ 226-27. (Reserved)

§ 226-28. (Reserved)

§ 226-29. (Reserved)

§ 226-30. (Reserved)

ARTICLE III. STORMWATER MANAGEMENT STANDARDS

§ 226-31. General requirements.

- A. Preparation of a SWM Site Plan is required for all regulated activities, unless preparation and submission of the SWM Site Plan is specifically exempted according to § 226-51. Bor the activity qualifies as a Small Project.
- B. No regulated activities shall commence until the Borough issues unconditional written approval of a SWM Site Plan or Stormwater Permit.
- C. SWM Site Plans approved by the Borough, in accordance with § 226-54, shall be on site throughout the duration of the regulated activity.
- D. The Borough 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 Borough 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.
- E. For all regulated activities, erosion and sediment control BMPs shall be designed, implemented, operated, and maintained to meet the purposes and requirements of this chapter and to meet all requirements under Title 25 of the Pennsylvania Code and the Clean Streams Law. Various BMPs and their design standards are listed in the E&S Manual and the BMP Manual.
- F. 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 Borough in accordance with § 226-31.D. 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.
- G. Notwithstanding any provisions of Chapter 270, Zoning, Chapter 240, Subdivision and Land Development, any Ordinance which regulates construction and development within the areas of Mount Joy Borough subject to flooding, and any other applicable requirements of the Floodplain Management Act, stormwater management facilities located in the floodplain are permitted when designed and constructed in accordance with the provisions of the BMP Manual, regulatory requirements and the requirements of this chapter.
- H. Impervious areas:
 - (1) The measurement of impervious area shall include all of the impervious areas in the total proposed development even if the development is taking place in stages or phases.
 - (2) For development taking place in stages or phases, the entire development plan must be used in determining conformance with this chapter.

- (3) Any areas designed to initially be gravel or crushed stone shall be assumed to be impervious.
- I. 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.
 - J. The design of all stormwater management facilities over karst areas shall include an evaluation of measures to minimize adverse effects and to certify the following
 - (1) No stormwater facilities shall be placed in, over or immediately adjacent to the following features:
 - (a) Sinkholes;
 - (b) Closed depressions;
 - (c) Lineaments in carbonate areas;
 - (d) Fracture traces;
 - (e) Caverns;
 - (f) Intermittent lakes;
 - (g) Ephemeral streams; or
 - (h) Bedrock pinnacles (surface or subsurface).
 - (2) Stormwater management basins shall not be located closer than 100 feet from the rim of sinkholes or closed depressions, nor within 100 feet from disappearing streams; nor shall these basins be located closer than 50 feet from lineaments or fracture traces; nor shall these basins be located closer than 25 feet from surface or identified subsurface pinnacles.
 - (3) Stormwater resulting from regulated activities shall not be discharged into sinkholes.
 - (4) It shall be the applicant's responsibility to verify if the development site is underlain by carbonate geology. The following certificate shall be included on all SWM Site Plans and shall be signed and sealed by the developer's professional geologist: "I, _____, certify that the proposed stormwater/BMP facility (circle one) is/is not underlain by carbonate geology."
 - (5) Whenever a stormwater facility will be located in an area underlain by carbonate geology, a geological evaluation of the proposed location by a registered professional geologist shall be conducted to determine susceptibility to sinkhole formation. The evaluation may include the use of impermeable liners or eliminate the separation distances listed in Subsection J.1 and J.2.

- K. Infiltration BMPs shall be spread out, made as shallow as practicable, and located to maximize the 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.
- L. Infiltration BMPs intended to receive runoff from developed areas shall be selected based on the suitability of soils and the 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 borough 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.
- M. The calculation methodology to be used in the analysis of volume and peak rates of discharge shall be as required in §226-35.
- N. A planting plan is required for all vegetated stormwater BMPs.
 - (1) 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.
 - (2) Invasive vegetation may not be included in any planting schedule.
 - (3) The limit of existing, native vegetation to remain shall be delineated on the plan along with proposed construction protection measures.
 - (4) 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. A 48 inch high snow fence of 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.
 - (5) 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.
 - (a) Planting designs are encouraged to share planting space for optimal root growth whenever possible.
 - (b) 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.
- O. 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 shall consider this protection.
- P. Infiltration BMPs shall not be constructed nor receive runoff from disturbed areas until the entire contributory drainage area to the infiltration BMP has achieved final stabilization.

- Q. A minimum thirty (30) foot wide access easement shall be provided for all stormwater facilities with tributary areas equal or greater than 1000 sq. ft. and not located within a public right-of-way. Access easements shall provide for ingress and egress to a public right-of-way.
- R. Drainage easements shall be reserved where the conveyance, treatment, or storage of stormwater, either existing or proposed, is identified on the SWM Site Plan. Drainage easements shall be provided to contain and convey the 100-year frequency flood.
- S. The Borough may require additional stormwater control measures for stormwater discharges to special management areas including but not limited to:
 - (1) Water bodies listed as "impaired" on Pennsylvania's Clean Water Act 303(d)/305(b) Integrated List.
 - (2) Any water body or watershed with an approved Total Maximum Daily Load (TMDL).
 - (3) Critical areas with sensitive resources (e.g., state designated special protection waters, cold water fisheries, carbonate or other groundwater recharge areas highly vulnerable to contamination, drainage areas to water supply reservoirs, source water protection zones, etc.).
- T. Roof drains and sump pumps shall be tributary to infiltration or vegetative BMPs. Use of catchment facilities for the purpose of reuse is also permitted.
- U. Non-structural BMPs shall be utilized for all regulated activities unless proven to be impractical.

§ 226-32. Volume controls.

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 section. 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) Volume control BMPs shall be designed so the postdevelopment total runoff volume for all storms equal to or less than the 2-year 24-hour storm event shall not be increased from the predevelopment total runoff.
 - (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, twenty percent (20%) of existing impervious area 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 Borough if justification 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. At least the first one inch (1") 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 §226-45.A 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 all 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 § 226-31.
 - (2) The volume control storage which will be used for rate control is that storage which is available within 24 hours based on the stabilized infiltration rate and/or the evapotranspiration rate.
- F. Volume control storage provided at the Development Site shall avoid the least permeable Hydrologic Soil Group(s) at the Development Site.

§ 226-33. Rate controls.

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

- A. Match Pre-development Hydrograph. Applicants shall provide infiltration facilities or utilize other techniques which will allow the post-development 100-year hydrograph to match the pre-development 100-year hydrograph, along all parts of the hydrograph, for the Development Site. To match the pre-development hydrograph, the post-development peak rate must be less than or equal to the pre-development peak rate, and the post-development runoff volume must be less than or equal to the pre-development volume for the same storm event. A shift in hydrograph peak time of up to five minutes and a rate variation of up to 5% at a given time may be allowable to account for the timing effect of BMPs used to manage the peak rate and runoff volume. Volume Control volumes as given in §226-32 above may be used as part of this option.
- B. Where the pre-development hydrograph cannot be matched, post development discharge rates shall not exceed the predevelopment discharge rates for the 2, 10, 25, 50, and 100-year 24-hour storm events (A 24-hour SCS Type II storm or an IDF Curve Rational Method storm. See Table III-1). If it is shown that the peak rates of discharge indicated by the post-development analysis are less than or equal to the peak rates of discharge indicated by the pre-development analysis for 2, 10, 25, 50, and 100-year, 24-hour storms, then the requirements of this section have been met. Otherwise, the applicant shall provide additional controls as necessary to satisfy the peak rate of discharge requirement.

- C. 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.
- D. A variety of BMPs should be employed and tailored to suit the Development Site. The following is a partial list of BMPs which can be utilized in SWM 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.
- E. Small Projects are not required to provide for Rate Control.

§ 226-34. 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 runoff from a Development Site to an adjacent property shall flow directly into a natural drainageway, watercourse, or into an existing storm sewer system, or onto adjacent properties in a manner similar to the runoff characteristics of the pre-development flow.
- C. Stormwater flows onto adjacent property shall not be created, increased, decreased, relocated, or otherwise altered without written notification of the adjacent property owner(s) by the developer. Such stormwater flows shall be subject to the requirements of this chapter, including the establishment of a drainage easement. Copies of all such notifications shall be included in the SWM Site Plan submissions.
- D. Existing on-site natural and man-made SWM facilities shall be used to the maximum extent practicable.
- E. Stormwater runoff shall not be transferred from one sub-watershed to another unless they are sub-watersheds of a common watershed that join together within the perimeter of the Development Site and the effect of the transfer does not alter the peak discharge onto adjacent lands.

- F. 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 two (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 shall be submitted for approval.
- G. Design storm. The following storm events (a 24-hour SCS type II storm or an IDF Curve Rational Method storm) shall be used for the design of SWM facilities:
 - (1) All stormwater conveyance facilities (excluding detention, retention, and wetland basin outfall structures) shall be designed for a 25-year storm event.
 - (2) All stormwater conveyance facilities (excluding detention, retention, and wetland basin outfall structures) conveying water originating from off-site shall be designed for a 50-year storm event.
 - (3) Safe conveyance of the 100-year runoff event to appropriate peak rate control BMPs must be provided in the design.
- H. Erosion protection shall be provided along all open channels, and at all points of discharge. Flow velocities from any storm sewer may not result in erosion of the receiving channel.

§ 226-35. Calculation methodology.

- A. Any stormwater runoff calculations involving drainage areas greater than 200 acres and time of concentration (Tc) greater than 60 minutes, including on- and off-site areas, shall use generally accepted calculation techniques based on the NRCS soil-cover complex method.
- B. Stormwater runoff from all Development Sites shall be calculated using either the modified rational method, a soil-cover-complex methodology, or other method acceptable to the Borough Engineer. Table III-1 summarizes acceptable computation methods. It is assumed that all methods will be selected by the design professional based on the individual limitations and suitability of each method for a particular Development Site.

Table III-1 Acceptable Computation Methodologies for Stormwater Management Plans		
Method	Method Developed By	Applicability
TR-20*	USDA NRCS	Applicable where use of full hydrology computer model is desirable or necessary.
Win TR-55*	USDA NRCS	Applicable for land development plans within limitations described in TR-55.
HEC-1/HEC-HMS	US Army Corps of Engineers	Applicable where use of full hydrology computer model is desirable or necessary.
Rational Method*	Emil Kuichling (1889)	For development sites less than 200 acres, Tc<60 min. or as approved by the Borough.
EFH2	USDA NRCS	Applicable in rural and undeveloped areas subject to the Program Limits.
Other Methods	Varies	Other methodologies as approved by the Borough.

*Includes commercial computer packages based on the model.

- C. If the SCS method is used, Antecedent Moisture Condition 1 is to be used in areas of carbonate geology, and Antecedent Moisture Condition 2 is to be used in all other areas. A type II rainfall distribution shall be used in all areas.
- D. If the Rational Method is used, the NOAA Atlas 14 data or PennDOT Publication 584, *PennDOT Drainage Manual*, shall be used to determine the rainfall intensity in inches per hour based on the information for the 5 through 60 minute duration storm events.
- E. Hydrographs may be obtained from NRCS methods such as TR-55, TR-20, or from use of the "modified" or "unit hydrograph" rational methods. If "modified" or "unit hydrograph" rational methods are used, the ascending leg of the hydrograph shall have a time of three times the time of concentration ($3 \times T_c$) and the descending leg shall have a time of 7 times the time of concentration ($7 \times T_c$) to approximate an SCS Type II hydrograph.
- F. 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. Runoff calculations shall also indicate both pre-development and post-development rates for peak discharge of stormwater runoff from all discharge points.
- G. For the purpose of calculating pre-development peak discharges, all runoff coefficients, both on-site and off-site, shall be based on actual land use assuming summer or good land conditions. Post-development runoff coefficients for off-site discharges used to design conveyance facilities shall be based on actual land use assuming winter or poor land conditions.
- H. Criteria and assumptions to be used in the determination of stormwater runoff and design of management facilities are as follows:
 - (1) Runoff coefficients shall be based on the information contained in Appendix 1 and 2 if the actual land use is listed in those Appendices. If the actual land use is not listed in these Appendices, runoff coefficients shall be chosen from other published documentation, and a copy of said documentation shall be submitted with the SWM Site Plan.
 - (2) A sample worksheet for calculating T_c is provided in Appendix 3. Times of concentration (T_c) 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. Flow lengths greater than 100 feet shall be justified based on the actual conditions at each Development Site. Sheet flow may be determined using the nomograph in Appendix 4, or the Manning's kinematic solution shown in the Sheet Flow section of Appendix 3.
 - (b) Shallow concentrated flow. Travel time for shallow concentrated flow shall be determined using Figure 3-1 from TR-55, *Urban Hydrology for Small Watersheds*, as shown in Appendix 5.
 - (c) Open channel flow. 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 Development Site between these design points shall be based upon Manning's Equation and/or acceptable engineering design standards as determined by the Borough Engineer.
 - (3) The developer may use stormwater credits for Non-Structural BMPs in accordance with the BMP Manual. The allowable reduction will be determined by the borough.

- (4) 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 off-site 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 winter or poor land conditions.
- I. Times of Concentration shall be calculated based on the methodology recommended in the respective model used. Times of Concentration for channel and pipe flow shall be computed using Manning's equation. Supporting documentation and calculations must be submitted for review and approval.
- J. Disconnected Impervious Areas (DIA). When impervious surfaces such as rooftops and paved areas are directed to a pervious area that allows for infiltration, filtration, and increased time of concentration, the impervious surface may qualify to be treated as a Disconnected Impervious Area (DIA). For small project applications only, the volume of stormwater that must be managed may be reduced through use of DIAs pursuant to the requirements of this §226-35.J.
- (1) Rooftop Disconnection. A rooftop is considered to be completely disconnected, with a DIA credit factor of 0.0, if it meets the requirements listed below:
- (a) The overland flow path from roof runoff discharge point has a positive slope of 5% or less.
 - (b) The length of the overland flow path is greater than 75 feet.
 - (c) Soils along the overland flow path are not classified as hydrologic group "D" (i.e. infiltration is at least 1 inch per 24-hour day).
 - (d) The receiving pervious area shall not include another person's property, unless the area is part of a recorded easement and permission has been secured from the affected property owner.
- (2) Partial Rooftop Disconnection. If the available length of the flow path is less than 75 feet, a portion of the area can be treated as disconnected in accordance with the following table:

Length of Pervious Flow Path* (feet)	Roof Area Treated as Disconnected	DIA Credit Factor
Less than 15 feet	0%	1.0
15 feet to less than 30 feet	20%	0.8
30 feet to less than 45 feet	40%	0.6
45 feet to less than 60 feet	60%	0.4
60 feet to less than 75 feet	80%	0.2
75 feet or more	100%	0

*Pervious flow must be at least 15 feet from any impervious surface and cannot include impervious surfaces.

- (3) Other Impervious Surface Disconnection. When runoff from other impervious surfaces is directed to a pervious area that allows for infiltration, filtration, and increased time of concentration, the contributing impervious surface may qualify as disconnected. Other impervious surfaces include all non-rooftop surfaces, including but not limited to driveways, parking areas, walkways, porches, and decks. With regard to driveways, parking areas, and walkways, this analysis applies only to small or narrow facilities. Features such as commercial parking lots or commercial entrance/circulation drives shall not be included in this analysis. Other impervious surfaces can be considered disconnected,

with a DIA credit factor of 0.0, if they, or the adjacent areas, meet the following requirements:

- (a) The contributing flow path over the impervious area is not more than 75 feet.
 - (b) The length of overland flow is greater than or equal to the maximum length of flow over the impervious area.
 - (c) The slope of the contributing impervious area is 5% or less.
 - (d) The slope of the overland flow path is 5% or less.
 - (e) If discharge is concentrated at one or more discrete points, no more than 1,000 square feet may discharge to any one point. In addition, a gravel strip or other spreading device is required for concentrated discharges. For non-concentrated discharges along the entire edge of paved surface, a level spreader is not required; however, there must be provisions for establishment of vegetation along the paved edge and temporary stabilization of the area until the vegetation is established.
- (4) DIA credit factor application.
- (a) The DIA credit factor shall be determined from subsections (a) through (c) above.
 - (b) The impervious area to be managed through stormwater BMPs for small projects shall be calculated by multiplying the proposed impervious area by the DIA credit factor. No DIA credit factor may be applied to any regulated activity other than a small project as defined in this chapter.

§ 226-36. Riparian corridors.

- A. In order to protect and improve water quality, a Riparian Corridor Easement shall be created and recorded as part of any subdivision or land development that encompasses a Riparian Corridor.
- B. Except as otherwise required by Chapter 102, the Riparian Corridor Easement shall be measured to be the greater of the limit of the 100-year floodplain or 35 feet from the top of the streambank (on each side).
- C. Minimum Management Requirements for Riparian Corridors.
 - (1) Existing native vegetation shall be protected and maintained within the Riparian Corridor Easement.
 - (2) Whenever practicable, invasive vegetation shall be actively removed and the Riparian Corridor Easement shall be planted with native trees, shrubs and other vegetation to create a diverse native plant community appropriate to the intended ecologic context of the site.
- D. The Riparian Corridor Easement shall be enforceable by the Borough and shall be recorded in the Lancaster County Recorder of Deeds Office, so that it shall run with the land and shall limit the use of the property located therein. The easement shall allow for the continued private ownership and shall count toward the minimum lot area as required by Chapter 270, Zoning.
- E. Any permitted use within the Riparian Corridor Easement shall be conducted in a manner that will maintain the extent of the existing 100-year floodplain, improve or maintain the stream stability, and preserve and protect the ecologic function of the floodplain.
- F. The following conditions shall apply when public and/or private recreation trails are permitted within Riparian Corridors:

- (1) Trails shall be for non-motorized use only.
- (2) Trails shall be designed to have the least impact on native plant species and other sensitive environmental features.
- G. Septic drainfields and sewage disposal systems shall not be permitted within the Riparian Corridor Easement and shall comply with setback requirements established under 25 Pa. Code Chapter 73.

§ 226-37. Stormwater management 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)	2 : 1	3 : 1	5 : 1
[3] Exterior side slope (maximum)	2 : 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] Anticlogging devices	Required	Required	Required
[4] Antivortex design	Not required	Required	Required
[5] Watertight joints in piping?	No	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

*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 eight feet (8 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 shall provide a minimum trench depth of two (2) feet below existing grade, minimum width of four (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 six (6) inches below the emergency spillway elevation, whichever is lower.
 - [c] The core shall extend four (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.
 - (b) Pipe collars. All pipe collars, when required, shall be designed in accordance with Chapter 7 of the E&S Manual. The material shall consist of concrete or otherwise non-degradable material around the outfall barrel and shall be watertight.
 - (c) Embankment fill material. The embankment fill material shall be taken from an appropriate borrow area which shall be free of roots, stumps, wood, rubbish, stones greater than 6 inches, frozen or other objectionable materials.
 - (d) Embankment compaction. When required, embankments shall be compacted by sheepsfoot or pad roller. The loose lift thickness shall be nine (9) inches or less, depending on roller size, and the maximum particle size is six (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.
- (4) Internal construction.
- (a) Bottom slope. The minimum bottom slope of facilities not designed for infiltration shall be one percent (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 Borough 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 Borough 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 § 226-31.N and the BMP Manual which is designed to promote infiltration.

(5) Outlet configuration.

- (a) For facilities with a depth of two (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 two (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.
- (d) When required, freeboard shall be measured from the top of the water surface elevation for emergency use.

(7) Breach analysis. The Borough 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 Borough.

B. 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

Subsurface storage facility design criteria		
	Facility Type	
	Infiltration and Storage	Storage without Infiltration
(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

*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 five (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 five (5) feet or more below the average grade of the ground surface, a manhole or other means acceptable to the Borough 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 Borough). 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 232, Streets and Sidewalks or Chapter 240, Subdivision and Land Development. 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 three (3) inches below the bottom of pavement subbase.
- (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.
- (5) Subsurface facilities shall be designed to safely convey and/or bypass flows from storms exceeding the design storm.
- C. Conveyance Facilities. 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	Outside public street right-of-way	
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

Conveyance facility design criteria			
Location	Within public street right-of-way	Outside public street right-of-way	
Loading	All	Vehicular loading	Non-vehicular loading
(e) Outlet design			
[1] End treatment	Headwall/endwall	N/A	Headwall/ endwall or flared end section
[2] Energy dissipater	Required	N/A	Required

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 within the public street right-of-way or proposed for dedication shall conform to the requirements of PennDOT Standards for Roadway Construction, Publication No. 72M. 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. 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 232, Streets and Sidewalks or Chapter 240, Subdivision and Land Development.
 - (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.
 - (c) Access/maintenance ports. An access/maintenance port is required 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.
 - (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 three inches (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 seven feet (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 one and one-half inches (1 ½ inches) based on the 25-year storm.
 - (d) Curbed streets.
 - [1] Inlets in streets shall be located along the curb line.
 - [2] Top units shall be PennDOT Type "C". The hood shall be aligned with the adjacent curb height.
 - (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 five feet (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 Borough 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 Borough 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 Borough 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. In addition to the material requirements in this section, culverts designed to convey Waters of the Commonwealth may be constructed with either a corrugated metal arch or a precast concrete culvert.
- (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 E&S Manual.
- (9) End treatments.
 - (a) Where the connecting pipe has a diameter 18 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 shall be of the same material as the connecting pipe and be designed for the size of the connecting pipe.
- D. SWM Facilities which qualify as a dam per DEP regulations or facilities deemed a potential threat to the life, safety or welfare of the general public shall be subject to the following requirements:
 - (1) Facilities which qualify as a dam per DEP regulation shall obtain the required permit through DEP and design the facility in accordance with DEP standards.
 - (2) Additional requirements and analysis may be required by the Borough to prove that the proposed facility has been designed to limit the potential risk to the life, safety or welfare of the general public.

§ 226-38. Capture and Reuse Facilities.

- A. Capture and reuse facilities include those SWM facilities which capture stormwater within a site and store the water for reuse through rainwater harvesting, which includes, but is not limited to, irrigation reuse, potable water reuse, and toilet flushing reuse. Water storage facilities for use with capture and reuse facilities include, but are not limited to, cisterns and rain barrels.
- B. Design requirements. Capture and reuse facilities shall meet all of the following design standards:
 - (1) Calculations shall be provided for all of the following:
 - (a) Reuse of water to insure adequate capacity is available for storage of follow-up rainfall events.
 - (b) Verification of conveyance pipe capacity for water to enter the facility, including roof leaders.
 - (c) The water storage facility shall be designed to store the runoff volume of a 100-year storm event for the area which it serves.
 - (2) The reuse of water shall require not less than five percent (5%) of the total storage volume to be drawn out of the tank on a daily basis. The applicant shall specifically identify the use and/or the method for withdrawal of the stored volume and shall provide the estimated volume of water which will be used by the proposed method.
 - (3) The water storage container shall be protected from direct sunlight to minimize algae growth.
 - (4) Water storage containers shall be watertight with smooth interior surfaces.

- (5) Every water storage facility shall be provided with an overflow or emergency spillway. The overflow shall be designed to discharge away from buildings and other structures and toward existing nature or manmade channels, other stormwater facilities or vegetated slopes.
- (6) Plans proposing a water storage facility shall include the following:
 - (a) All calculations and assumptions used in the design;
 - (b) Sufficient detail showing the proposed method of dewatering (i.e. pump); and
 - (c) Structural details.
- (7) Maintenance responsibilities for water storage and reuse facilities shall include flushing the storage units to remove any accumulated sediment, and the inside surfaces shall be brushed and thoroughly disinfected.
- (8) Water shall not be allowed to freeze in the devices.

§ 226-39. Other Design Requirements.

- A. Amended soils. Any areas with amended soils shall be located within a stormwater or drainage easement identified on a recorded plan to ensure future owners are aware of the restrictions.

§ 226-40. (Reserved)

ARTICLE IV. INFORMATION TO BE INCLUDED ON OR WITH STORMWATER MANAGEMENT SITE PLANS

§ 226-41. General plan requirements.

- A. The SWM Site Plan shall consist of a narrative and all applicable calculations, maps, plans, and supplemental information necessary to demonstrate compliance with this chapter.
- B. All landowners of land included in the SWM Site Plan shall be required to execute all applications and final documents.
- C. All SWM Site Plans shall be prepared by a Qualified Person.
- D. Where the regulated activity constitutes a subdivision or land development plan, the SWM Site Plan shall be submitted with and form an integral part of the plans required under Chapter 240, Subdivision and Land Development.

§ 226-42. Drafting standards.

- A. The Plan should be clearly and legibly drawn.
- B. If the Plan is prepared in two (2) or more drawing sheets, a key map showing the location of the sheets and a match line shall be placed on each sheet.
- C. Each Plan sheet shall be numbered to show the relationship to the total number of sheets in the Plan (e.g. Sheet 1 of 5). For projects which are also required to prepare and submit a Land Development Plan in accordance with Chapter 240, Subdivision and Land Development, the SWM Site Plan may be incorporated into the Land Development Plan.

- D. Drawings or maps of the project area shall be drawn at 1" = 50' or larger scale (i.e., 1"=40', 1"=30', etc.) and shall be submitted on 24"x36" sheets.
- E. SWM Site Plans shall be prepared in a form that meets the requirements for recording for the Office of the Recorder of Deeds for Lancaster County.
- F. The total Development Site boundary and size with distances marked to the nearest foot and bearings to the nearest degree.

§ 226-43. SWM site plan information

The following items shall be included in the SWM Site Plan:

- A. The date of the SWM Site Plan and latest revision, graphic scale, written scale, and North arrow.
- B. The name of the development, the name and address of the owner of the property, and the name of the individual or firm preparing the Plan.
- C. The file or project number assigned by the firm that prepared by the Plan.
- D. A statement, signed by the landowner, acknowledging the SWM Facilities to be permanent fixtures that cannot be altered or removed unless a revised Plan is approved by the Borough.
- E. A signature block for the Borough in accordance with Appendix 6.
- F. For SWM facilities located off-site:
 - (1) A note on the Plan referencing a recorded Stormwater Operation and Maintenance (O&M) Agreement that indicates the location and responsibility for maintenance of the off-site facilities.
 - (2) All off-site SWM Facilities shall meet the performance standards specified in this chapter.
- G. A note informing the owner that the Borough shall have the right of entry for the purposes of inspecting all stormwater conveyance, treatment, or storage facilities.
- H. A location map, drawn to a scale of a minimum of one inch equals two thousand feet (1"=2000'), relating the Plan to municipal boundaries, at least two (2) intersections of road centerline or other identifiable landmarks.
- I. Existing Features.
 - (1) In areas of proposed earth disturbance, contours at intervals of one (1) foot. In areas of steep slopes (greater than 15 percent) and areas undisturbed, five-foot contour intervals may be used.
 - (2) The locations of all existing utilities (including sanitary sewers, water lines, on lot disposal systems and wells) and associated easements.
 - (3) 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" diameter at breast height, woodlands, other environmentally sensitive areas and the total extent of the upstream area draining through the Development Site.
 - (4) Soil names and boundaries.
 - (5) All existing man-made features within 200 feet of the Development Site boundary.

(6) All existing stormwater management facilities on the site and a note identifying any recorded stormwater management agreements affecting the subject property.

J. Proposed Features.

(1) Changes to the land surface and vegetative cover, including final proposed contours at intervals of one (1) or two (2) feet in areas of disturbance. In areas of steep slopes (greater than 15 percent) and areas undisturbed, five-foot contour intervals may be used.

(2) Proposed structures, roads, paved areas, building and other impervious and semi-impervious areas.

(3) The location of any proposed on-lot disposal systems, replacement drainfield easements, and water supply wells.

(4) A note indicating existing and proposed land use(s).

(5) Plan and profile drawings of all proposed SWM facilities, including BMPs, drainage structures, pipes, open channels, and swales.

(6) Where pervious pavement is to be installed, pavement material and construction specifications shall be included.

(7) The location of all existing and proposed easements, including drainage easements, access easements and riparian corridor easements.

(8) A planting plan shall be provided for all vegetated BMPs in accordance with §226-31.N.

K. The location of all E&S control facilities.

§ 226-44. Additional Information.

A. General description of the Development Site, including a description of existing natural and hydrologic features and any environmentally sensitive areas.

B. General description of the overall SWM concept for the project, including a description of permanent SWM techniques, non-structural BMPs to be employed and construction specifications for the materials to be used for structural SWM facilities. The narrative shall include a description of any treatment trains and how the facilities are meant to function with each other to manage stormwater runoff.

C. The effect of the project (in terms of runoff volumes, water quality and peak flows) on adjacent properties and on any existing municipal stormwater management facilities that may receive runoff from the Development Site.

D. Complete hydrologic, hydraulic, and structural computations for all SWM facilities.

E. Expected project time schedule.

F. The recorded subdivision plan shall include a note indicating the amount of impervious coverage on each lot, measured in square feet, for which the SWM facilities have been designed. For lots intended for development of a single residential dwelling unit, the maximum permitted impervious coverage used for the design shall be the maximum permitted impervious coverage for the zoning district in accordance with Chapter 270 Zoning.

§ 226-45. Supplemental information.

- A. In areas of carbonate geology, a detailed geologic evaluation prepared by a registered Professional Geologist (PG) must be submitted as part of the SWM Site Plan. The report shall include, but not limited to the following:
 - (1) The location of the following karst features:
 - (a) Sinkholes
 - (b) Closed depressions
 - (c) Lineaments in carbonate areas
 - (d) Fracture traces
 - (e) Caverns
 - (f) Intermittent lakes
 - (g) Ephemeral disappearing streams
 - (h) Bedrock pinnacles (surface or subsurface)
 - (2) A plan for remediation of any identified karst features.
 - (3) Impacts of stormwater management facilities on adjacent karst features, and impacts of karst features on adjacent stormwater management facilities.
- B. An E&S Plan, including all approvals, as required by Chapter 102 shall be provided to the Borough prior to unconditional SWM Site Plan approval.
- C. For any activities that required a DEP Joint Permit Application and are regulated under Chapter 105, require a PennDOT Highway Occupancy Permit, or require any other permit under applicable state or federal regulations, the permit(s) shall be part of the SWM Site Plan and must be obtained prior to unconditional SWM Site Plan approval.
- D. An Operation and Maintenance (O&M) Plan that addresses the requirements of §226-63.

§ 226-46. (Reserved)

§ 226-47. (Reserved)

§ 226-48. (Reserved)

§ 226-49. (Reserved)

§ 226-50. (Reserved)

ARTICLE V. APPLICATION/PLAN PROCESSING PROCEDURES

§ 226-51. Permit required; exemptions.

- A. In accordance with §226-5 of this chapter, any regulated activity as defined in §226-22 of this chapter shall not be initiated until a stormwater management permit has been issued or unconditional approval of a SWM Site Plan has been granted, unless specifically exempted by Subsection B below.

B. Exemption from permit requirements.

- (1) The following regulated activities are specifically exempt from the stormwater management permit and SWM Site Plan preparation and submission requirements articulated in § 226-31 and Article IV and Article V of this chapter:
 - (a) Agricultural activity (see definitions in § 226-22) provided the activities are performed according to the requirements of Chapter 102.
 - (b) Forest management and timber operations (see definitions in § 226-22) provided the activities are performed according to the requirements of Chapter 102.
 - (c) Conservation Practices being installed as part of the implementation of a Conservation Plan written by an NRCS certified planner.
 - (d) The installation of 1,000 or fewer square feet of Impervious Surface coverage proposed after April 7, 2014; provided that the activities meet the criteria of § 226-51.B(3) and are conducted in accordance with all the requirements of this chapter.
 - (e) The installation of Impervious Surface coverage within an area for which a prior SWM Site Plan has been approved that includes SWM Facilities which were specifically designed to manage the proposed Impervious Surface Coverage; provided that the regulated activities are conducted in accordance with all of the requirements of this chapter, Chapter 102 and any NPDES permit requirements. Any applicant seeking an exemption under this §226-51.B(1)(e) shall complete an application form supplied by the Borough Secretary, shall identify the previously approved SWM Site Plan which approved the existing SWM Facilities, and shall pay all applicable fees before commencing any regulated activities.
 - (f) Domestic landscape and/or vegetable gardening.
- (2) The Borough may deny or revoke any exemption pursuant to this Section at any time for any project that the Borough believes may pose a threat to public health, safety, property or the environment.
- (3) An Applicant proposing the cumulative installation of 1,000 square feet or less of Impervious Surface coverage after April 7, 2014, may be exempt from the design, plan submittal, and processing requirements of Articles III, IV, and V of this chapter if such Applicant complies with all provisions of this §226-51.B(3). No person or activity is exempted from compliance with § 226-65 and Articles VII, VIII, and IX of this Ordinance. The applicant shall comply with the erosion and sediment control requirements of Chapter 102. Exemptions do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other code, law, regulation, or ordinance. Exemption shall not relieve an applicant from implementing such measures as necessary to meet compliance with any NPDES Permit requirements. Any exemption 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.
 - (a) Any Applicant desiring exemption from design, plan submission, and plan processing requirements shall complete an application form supplied by the Borough Secretary and pay all applicable fees before commencing any regulated activities.

§ 226-52. Small projects.

- A. Anyone proposing a Small Project shall submit one copy of the Small Project Application to the Borough.
- B. A complete Small Project Application shall include:
 - (1) Small Project Application Form (form supplied by Borough Secretary).
 - (2) Small Project Sketch plan including the following:
 - (a) Name and address of landowner and/or developer.
 - (b) Date of Small Project Application submission.
 - (c) Name of individual and/or firm that prepared the sketch if different than the landowner and/or developer.
 - (d) Location and square footage of proposed impervious area or earth disturbance.
 - (e) Approximate footprint and location of all structures on adjacent properties if located within 50 feet of the proposed impervious area or earth disturbance.
 - (f) Approximate location of existing stormwater management facilities if present.
 - (g) Location and description of proposed stormwater management facilities.
 - (h) Direction of proposed stormwater discharge (e.g. with arrows).
 - (i) Scale and north arrow.
 - (3) Filing fee (in accordance with the Borough's current fee schedule).
- C. The Small Project Application shall be submitted in a format that is clear, concise, legible, neat and well organized.
- D. The enforcement officer shall review and take action on the Small Project Application within 30 days of filing.

§ 226-53. Pre-application meeting.

- A. Applicants are encouraged to schedule a pre-application meeting to review the overall stormwater management concept with the Borough staff/engineer. The pre-application meeting is not mandatory and shall not constitute formal filing of a plan with the Borough. Topics discussed may include the following:
 - (1) Available geologic 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 Borough Subdivision and Land Development and/or Zoning ordinance provisions.
 - (5) The conceptual project layout, including proposed structural and non-structural BMPs.
- B. Applicants requesting a pre-application meeting shall pay any applicable fees.

§ 226-54. Stormwater management permit submission.

A. Regulated activities in connection with a subdivision or land development.

- (1) When regulated activities are undertaken in connection with a subdivision or land development, the Borough Council shall review and render its decisions in accordance with the provisions of Chapter 240, Subdivision and Land Development. Approval of a subdivision or land development plan by the Borough Council shall be considered an approval of the SWM Site Plan and issuance of a stormwater management permit.
- (2) The Applicant shall submit the following to the Borough:
 - (a) Stormwater Management Permit Application Form (form supplied by Borough Secretary)
 - (b) SWM Site Plan prepared in accordance with the requirements of Article IV of this chapter. The SWM Site Plan may be incorporated into the subdivision or land development plan set as long as the requirements of Article IV are met.
 - (c) A copy of the narrative and supporting calculations in accordance with § 226-44.
 - (d) All supplemental data required by § 226-45.
 - (e) The filing fee (in accordance with the Borough's current fee schedule).
 - (f) The number of copies of plans, reports, and supplemental data to be submitted shall be in accordance with the number of copies required for subdivision or land development plans as indicated in Chapter 240, Subdivision and Land Development.

B. Regulated activities not in connection with a subdivision or land development.

- (1) When regulated activities are not undertaken in connection with a subdivision or land development, application shall be made to the Borough Secretary.
- (2) The Borough Secretary or other person designated by Borough Council shall forward the application to the Borough Planning Commission, the Borough Engineer and the Lancaster County Conservation District for their respective reviews and recommendations.
- (3) All applications for approval of a SWM Site Plan shall be acted upon by Borough Council, which shall render its decision and communicate it to the developer not later than 90 days following the date the application is filed.
 - (a) The decision of the Borough Council shall be in writing and shall be communicated to the developer personally or mailed to him at his last known address not later than 15 days following the decision.
 - (b) When the application is not approved in terms as filed, the decision shall specify the defects found in the application and describe the requirements which have not been met and shall, in each case, cite the provisions of this chapter relied upon.
 - (c) Approval of a stormwater management plan by the Borough shall not be construed as an indication that the plan complies with the standards of any agency of the commonwealth.
 - (d) Unconditional approval of a SWM Site Plan by the Borough shall be obtained by a developer prior to the issuance of a building permit by the Borough.
- (4) The Applicant shall submit the following to the Borough Secretary:

- (a) Two copies of the SWM Site Plan prepared in accordance with the requirements of Article IV of this chapter.
 - (b) Two copies of the narrative and supporting calculations in accordance with § 226-44.
 - (c) Two copies of all supplemental data required by § 226-45.
 - (d) The filing fee (in accordance with the Borough's current fee schedule).
 - (e) An electronic copy of all plans, reports, and supplemental data. All plans and reports shall be provided in PDF format.
- C. The SWM Site Plan, narrative and supporting calculations shall be submitted in a format that is clear, concise, legible, neat and well organized.
 - D. 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. Final approval shall not be granted until applicable permits have been obtained.
 - E. Incomplete submissions as determined by the enforcement officer, shall be returned to the Applicant within seven (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 submission shall not, however, constitute an approval of the plan or a waiver of any deficiencies or irregularities. The applicant may appeal the Borough's decision not to accept a particular application in accordance with § 226-95 of this chapter.
 - F. At its sole discretion and in accordance with this Article, when a SWM Site Plan is found to be deficient, Mount Joy Borough may either disapprove the submission and require a resubmission, or in the case of minor deficiencies, Mount Joy Borough may accept submission of revisions.

§ 226-55. Revision of plans.

- A. Revisions to a SWM Site Plan after submission but before action by Borough Council shall require a resubmission of the modified SWM Site Plan consistent with § 226-54 and be subject to review by the enforcement officer and the Borough Engineer.
- B. For the purposes of review deadlines, each resubmission required under §226-55.A (after submission but before approval) shall constitute a new submission for the purposes of time limits as set forth in the MPC and this chapter.
- C. Any substantial revisions to a SWM Site Plan after approval shall be submitted as a new plan to the Borough, accompanied by the applicable review fee.

§ 226-56. Authorization to construct and term of validity.

- A. Approval of a regulated activity shall be considered any of the following:
 - (1) Issuance of a stormwater management permit by the enforcement officer for small projects.
 - (2) For regulated activities associated with a subdivision or land development plan, approval of the SWM Site Plan by the Borough Council with signature of the certificate in Appendix 6 by the Borough Council, and recording of the plan.

- (3) For regulated activities which are not associated with a subdivision or land development plan, approval of the SWM Site Plan and signature of the certificate in Appendix 6 by the Borough Council.
- B. Approval of a SWM Site Plan or a Small Project shall be valid for a period not to exceed one (1) year unless an extension of time is approved in writing by the enforcement officer. This time period shall commence on the date the final subdivision or land development plan is recorded, the date that Borough Council approved the SWM Site Plan if the regulated activity is not connected with a subdivision or land development plan, or the date the enforcement officer issued the stormwater management permit in the case of Small Projects. If a Certificate of Completion as required by § 226-57 of this chapter has not been submitted within the specified time period, then the Borough may consider the SWM Site Plan disapproved and may revoke any and all permits issued by the Borough. SWM Site Plans that are considered disapproved by the Borough may be resubmitted in accordance with § 226-54 of this chapter.
- C. A written extension of an unexpired approval granted under this chapter shall be issued by the enforcement officer following the submission of a written request if, in the opinion of the enforcement officer, the subject property or affected surrounding area has not be altered in a manner which requires alteration to the SWM Site Plan.
 - (1) The refusal of an extension of time shall cite the reasons for the refusal.
 - (2) An approval of a SWM Site Plan or a Small Project shall not expire while a request for an extension is pending.

§ 226-57. Certificate of completion.

- A. At the completion of the project, and as a prerequisite for the release of the Financial Security, the applicant shall provide Certificate of Completion from an Engineer, Landscape Architect, Surveyor or other qualified person verifying that all permanent SWM facilities have been constructed according to the Plans and specifications and approved revisions thereto.
- B. Upon receipt of the Certificate of Completion, and prior to release of the remaining Financial Security, the Borough shall conduct a final inspection to certify compliance with this chapter.

§ 226-58. As-built records.

- A. Upon completion of the plan improvements and prior to the release of financial security, the applicant shall submit as As-Built Plan to the Borough. The As-Built Plan must show the final design specifications for all stormwater management facilities and be sealed by a registered professional engineer.
- B. Review by Borough Engineer.
 - (1) The As-Built Plan shall be reviewed by the Borough Engineer to verify the plan includes all of the stormwater management facilities on the subject property and the facilities are shown at the correct location.
 - (2) The Borough Engineer shall either approve the As-Built Plan or identify corrections required.
 - (3) If the Borough Engineer identifies corrections required to the As-Built Plan, the applicant shall submit a revised As-Built Plan to the Borough addressing the corrections.
- C. Following approval of the As-Built Plan by the Borough Engineer, the applicant shall submit the SWM Site Plan for recordation in the Office of the Recorder of Deeds.

D. Digital inventory.

- (1) When required. A digital inventory shall be submitted following approval of the As-Built Plan by the Borough Engineer if the project includes any of the following:
 - (a) SWM Facilities which are offered for dedication to the Borough.
 - (b) SWM Facilities which connect to or alter any portion of the Borough's MS4.
 - (c) BMPs included on a NPDES permit for which the Borough is required to keep an inventory under the Borough's MS4 permit.
- (2) Digital inventory requirements.
 - (a) The digital inventory shall be in an electronic format acceptable to the Borough Engineer.
 - (b) The digital inventory shall include all information included and shown on the approved As-Built Plan.
 - (c) All coordinates as depicted on the plan shall be based on the PA South Zone State Plan Coordinate System (NAD83 for horizontal and NAVD88 for vertical).

§ 226-59. Schedule of inspections.

- A. The enforcement officer shall inspect all phases of the regulated activity, including but not limited to the following phases:
 - (1) The completion of preliminary site preparation, including stripping of vegetation, stockpiling of topsoil and construction of temporary stormwater management facilities.
 - (2) The completion of rough grading, but prior to placement of topsoil, permanent drainage or other site-development improvements and ground covers.
 - (3) During the construction of the permanent stormwater management facilities at such times as specified by the enforcement officer.
 - (4) The completion of permanent stormwater management facilities, including establishment of ground covers and plantings.
 - (5) The completion of any final grading, vegetative control measures or other site restoration work done in accordance with the permit.
- B. No work shall begin on a subsequent phase (as identified in Subsection A) until the preceding phase has been inspected and approval has been noted on the permit.
- C. In order to avoid delays for inspections, it is the responsibility of the developer to notify the enforcement officer 48 hours in advance of the completion of each identified phase of development.
- D. Any portion of the work which does not comply with the approved plan must be corrected by the developer. No work may proceed on any subsequent phase until the required corrections have been made.

§ 226-60. Financial security.

- A. Borough Council shall, prior to unconditionally approving a SWM Site Plan, require financial security for the timely installation and proper construction of all SWM Facilities, including E&S

BMPs, as required by the approved SWM Site Plan and this chapter, and, as applicable, in accordance with the provisions of Sections 509, 510, and 511 of the MPC.

- B. Where required, the developer shall file with Borough Council security in an amount sufficient to cover the costs of the stormwater management facilities. Without limitation as to other types of financial security which Borough Council may approve, the Borough Council shall approve irrevocable unconditional letters of credit and restrictive or escrow accounts with or issued by federal- or commonwealth-chartered lending institution. Such financial security shall be posted with a bonding company or federal- or commonwealth-chartered lending institution chosen by the developer, provided that the bonding company or lending institution is authorized to conduct business within the commonwealth and first approved by Borough Council or its designated nominee. The bond or other security shall provide for and secure to the public completion of the stormwater management facilities within one (1) year of the date fixed on the permit for the facilities. The amount of financial security shall be equal to one hundred ten percent (110%) of the cost of the required facilities for which financial security is to be posted. The cost of the facilities shall be established by submission to Borough Council of a bona fide bid or bids from the contractor or contractors chosen by the developer to complete the facilities, or, in the absence of bona fide bids, the cost shall be established by estimate approved by the Borough Engineer. If the developer requires more than one (1) year from the date of posting of the financial security to complete the required facilities, the amount of financial security may be increased by an additional ten percent (10%) for each one-year period or portion thereof beyond the first anniversary date from the posting of financial security or to an amount not exceeding one hundred ten percent (110%) of the cost of completing the required facilities as reestablished on or about the expiration of the preceding one-year period by using the above bidding process.
- C. As the work of installing the required stormwater management facilities proceeds, the developer may request Borough Council to release or authorize the release, from time to time, of portions of the financial security necessary to pay the contractor or contractors performing the work. All such requests shall be in writing addressed to Borough Council, which shall have forty-five (45) days from receipt of the request to allow the Borough Engineer to certify, in writing, to Borough Council that such portion of the work upon the facilities has been completed in accordance with the permit. Upon such certification, Borough Council shall authorize release by the bonding company or lending institution of an amount as estimated by the Borough Engineer to fairly represent the value of the facilities completed, or, if Borough Council fails to act within the forty-five-day period, Borough Council shall be deemed to have approved the release of funds as requested.
- D. Prior to the release of the final escrow estimate, the developer shall post a maintenance bond with the Borough in the amount of fifteen percent (15%) of the performance bond. The maintenance bond shall be held for a one-year period commencing with the date of acceptance of the stormwater facilities by the Borough. Prior to the expiration of the maintenance bond, Borough Council shall be presented with a written recommendation by the Borough Engineer on the suitability of the bonded facilities.
- E. Prior to the release of the final escrow estimate, the developer shall provide the Borough with as-built records in accordance with § 226-58.

ARTICLE VI. OPERATION AND MAINTENANCE (O&M)

§ 226-61. Responsibilities of developers and landowners.

- A. The Landowner, successor and assigns shall maintain all Stormwater Management Facilities in good working order in accordance with the approve O&M Plan.
- B. The Landowner shall convey to the Borough easements to ensure access for inspections and maintenance, if required.
- C. The Landowner shall keep on file with the Borough the name, address and telephone number of the person or company responsible for maintenance activities; in the event of a change, new information will be submitted to the Borough within ten (10) days of the change.
- D. Enumerate permanent SWM facilities as permanent real estate appurtenances and record as easements that run with the land. The easement area shall include all areas with amended soils.
- E. The record owner of the Development Site shall sign and record an Operation and Maintenance (O&M) Agreement covering all Stormwater Management Facilities, including riparian buffers and riparian forest buffers, which are to be privately owned. Said agreement, designated as Appendix 7, is attached and made part hereto. The O&M Plan and Agreement shall be recorded as a restrictive covenant agreement that runs with the land.
- F. The Borough may take enforcement actions against a landowner for any failure to satisfy the provisions of this Article.

§ 226-62. Operation and maintenance agreements.

- A. The Operation and Maintenance Agreement shall be subject to the review and approval of the Borough Solicitor and Borough Council.
- B. The Borough is exempt from the requirement to sign and record an O&M agreement.

§ 226-63. Operation and maintenance (O&M) plan contents.

- A. 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.
- B. The following shall be addressed in the O&M Plan:
 - (1) Description of maintenance requirements, including, but not limited to, the following:
 - (a) Regular inspection of the SWM facilities to assure proper implementation of BMPs, maintenance and care. SWM BMPs should be inspected by a qualified person, which may include the landowner, or the owner's designee (including the Borough for dedicated and owned facilities), according to the following minimum frequencies:
 - [1] Annually for the first 5 years.
 - [2] Once every 3 years thereafter.
 - [3] During or immediately after the cessation of a 10-year or greater storm.
 - [4] As specified in the O&M Agreement pursuant to §226-62.
 - (b) All pipes, swales and detention facilities shall be kept free of any debris or other obstruction and in original design condition.

- (c) 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.
 - (d) 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 Borough.
- (2) Riparian forest buffer management plan prepared in accordance with 25 Pa. Code Chapter 102 §14(b)(4) if required.
 - (3) Identification of a responsible individual, corporation, association or other entity for ownership and maintenance of both temporary and permanent stormwater management and erosion and sedimentation control facilities.
 - (4) Establishment of suitable easements for access to all facilities in accordance with §226-31.Q.
 - (5) Identification of the amount of impervious coverage on each lot, measured in square feet, for which the SWM facilities have been designed. For lots intended for development of a single residential dwelling unit, the maximum permitted impervious coverage used for the design shall be the maximum permitted impervious coverage for the zoning district in accordance with Chapter 270, Zoning.

§ 226-64. Maintenance of facilities accepted by the Borough.

- A. The Borough reserves the right to accept or reject the ownership and operating responsibility of any SWM facilities.
- B. If SWM facilities are accepted by the Borough for dedication, the landowner/developer shall be required to pay a specified amount to the Borough to defray costs of periodic inspections and maintenance expenses. This fee shall be provided to the Borough prior to unconditional plan approval. The amount of the deposit shall be determined as follows subject to the approval of Borough Council:
 - (1) The deposit shall cover the estimated costs for maintenance and inspections for 25 years. The Borough will establish the estimated costs according to the O&M requirements outlined in the approved O&M plan.
 - (2) The amount of the deposit to the fund shall be converted to present worth of the annual series values.
 - (3) If a storage facility is proposed that also serves as a recreation facility (e.g. ballfield, lake), the Borough may reduce or waive the amount of the maintenance fund deposit based upon the value of the land for public recreation purpose.
- C. If at any time a dedicated storage facility is eliminated due to the installation of storm sewers or other storage facility such as a regional detention facility, the unused portion of the maintenance fund deposit will be applied to the cost of abandoning the facility and connecting to the storm sewer system or other facility. Any amount of the deposit remaining after the costs of abandonment are paid will be returned to the depositor.
- D. Maintenance shall be conducted as necessary to provide for the continued functioning of the facility. Costs of inspections, maintenance and repairs are recoverable from the deposit made pursuant to subsection B above.

§ 226-65. Maintenance of existing facilities/BMPs

SWM facilities existing on the effective date of this chapter, which have not been accepted by the Borough or for which maintenance responsibility has not been assumed by a private entity such as a homeowners' association shall be maintained by the individual Landowners. Such maintenance shall include at a minimum those items set forth in § 226-63.B(1) above. If the Borough determines at any time that any permanent SWM facility has been eliminated, altered, blocked through the erection of structures or the deposit of materials, or improperly maintained, the condition constitutes a nuisance and the Borough shall notify the Landowner of corrective measures that are required, and provide for a reasonable period of time, not to exceed 30 days, within which the property owner shall take such corrective action. If the Landowner does not take the required corrective action, the Borough may either perform the work or contract for the performance of the work and bill the Landowner for the cost of the work plus a penalty of 10% of the cost of the work. If such bill is not paid by the property owner within 30 days, the Borough may file a municipal claim against the property upon which the work was performed in accordance with the applicable laws. The Borough shall have the right to choose among the remedies and may use one or more remedies concurrently.

§ 226-66. (Reserved)

§ 226-67. (Reserved)

§ 226-68. (Reserved)

§ 226-69. (Reserved)

§ 226-70. (Reserved)

ARTICLE VII. FEES AND EXPENSES

§ 226-71. General.

The Borough may include all costs incurred in the fees charged to an applicant. The fees shall be established by resolution of Borough Council.

§ 226-72. Expenses covered by fees.

The fees may include, but not be limited to, costs for the following:

- A. Administrative and clerical costs.
- B. Review of the SWM Site Plan.
- C. Review of the Stormwater Operation and Maintenance Plan and Stormwater Agreement by the Borough Solicitor/Staff.
- D. Inspections.
- E. Any additional work required to enforce any provisions of this chapter, correct violations, and assure proper completion of stipulated remedial actions.

§ 226-73. (Reserved)

- § 226-74. (Reserved)
- § 226-75. (Reserved)
- § 226-76. (Reserved)
- § 226-77. (Reserved)
- § 226-78. (Reserved)
- § 226-79. (Reserved)
- § 226-80. (Reserved)

ARTICLE VIII. PROHIBITIONS

§ 226-81. Prohibited discharges and connections.

- A. The following connections are prohibited, except as provided in §226-81.D below:
 - (1) Any drain or conveyance, whether on the surface or subsurface, that allows any non-stormwater discharge including sewage, process wastewater, and wash water to enter a regulated small MS4 or to enter waters of this Commonwealth, and any connections to the storm sewer from indoor drains and sinks; and
 - (2) Any drain or conveyance connected from a commercial or industrial land use to the MS4 which has not been documented in plans, maps, or equivalent records, and approved by the Borough.
- B. No person shall allow, or cause to allow, discharges into a regulated small MS4, or discharges into surface waters of this Commonwealth, which are not composed entirely of stormwater, except (1) as provided in §226-81.D below and (2) discharged allowed under state or federal permit.
- C. No person shall place any structure, fill, landscaping or vegetation into a SWM facility or within a drainage easement that will limit or diminish the functioning of the facility in any manner.
- D. The following discharges are authorized unless they are determined to be significant contributors to pollution of a regulated small MS4 or to the waters of this Commonwealth:
 - (1) Discharges from firefighting activities
 - (2) Potable water sources including water line flushing
 - (3) Irrigation drainage
 - (4) Air conditioning condensate
 - (5) Springs
 - (6) Water from crawl space pumps
 - (7) Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) and where detergents are not used
 - (8) Flows from riparian habitats and wetlands

- (9) Uncontaminated water from foundations or from footing drains
 - (10) Lawn watering
 - (11) De-chlorinated swimming pool discharges
 - (12) Uncontaminated groundwater
 - (13) Water from individual residential car washing
 - (14) Routing external building wash down (which does not use detergents or other compounds)
 - (15) Diverted stream flows
 - (16) Rising ground waters
- E. In the event that the Borough or DEP determines that any of the discharges identified in § 226-81.D above significantly contribute to pollution of the waters of this Commonwealth, the Borough or DEP will notify the responsible person(s) to cease the discharge.

§ 226-82. Alteration of SWM BMPs.

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

§ 226-83. (Reserved)

§ 226-84. (Reserved)

§ 226-85. (Reserved)

§ 226-86. (Reserved)

§ 226-87. (Reserved)

§ 226-88. (Reserved)

§ 226-89. (Reserved)

§ 226-90. (Reserved)

ARTICLE IX. ENFORCEMENT AND PENALTIES

§ 226-91. Right-of-entry.

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

§ 226-92. Enforcement.

Borough Council is hereby authorized and directed to enforce the provisions of this chapter.

- A. Any permit or approval issued by the Borough pursuant to this chapter may be suspended or revoked by the Borough for:

- (1) Noncompliance with or failure to implement any provision of the approved SWM Site Plan or O&M Agreement.
 - (2) A violation of any provisions of this chapter or any other applicable law, ordinance, rule, or regulation relating to the regulated activity.
 - (3) The creation of any condition or the commission of any act during construction or development that constitutes or creates a hazard, nuisance, pollution or endangers the life or property of others.
- B. A suspended permit or other approval granted under this chapter may be reinstated by the Borough when:
- (1) The Borough has inspected and approved the corrections to the violation that caused the suspension; and
 - (2) The Borough is satisfied that the violation has been corrected.
- C. An approval that has been revoked by the Borough cannot be reinstated. The applicant may apply for a new approval under the provisions of this chapter.
- D. Notification of suspension or revocation of a stormwater management permit. In the event of a suspension of a stormwater management permit, the Borough shall provide written notification, by certified mail, of the violation to the landowner at his last known address. Such notification shall:
- (1) Cite the specific violation, describe the requirements which have not been met and cite the provisions of the chapter relied upon.
 - (2) Identify the specific protective measures to be taken.
 - (3) Assign a reasonable time period necessary for action or, in the case of revocation, identify if the Borough has authorized protective measures to be performed at the cost to the landowner.
 - (4) Identify the right of the landowner to request a hearing before the Borough Council if aggrieved by the suspension.

§ 226-93. Violations, Penalties, and Remedies.

- A. It shall be a violation of this chapter to commit or permit any other person to commit any of the follow acts:
- (1) To commence Regulated Activities prior to obtaining unconditional approval of a SWM Site Plan or in violation of the terms or conditions of a SWM Site Plan approved under this chapter.
 - (2) To install, repair, modify or alter SWM Facilities prior to obtaining approvals under this chapter, or, in a manner which violates the terms and conditions of any Approval issued under this chapter.
 - (3) To misuse or fail to maintain any SWM 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 SWM Facility.
 - (5) To place false information on, or, omit relevant information from an application for Approval under this chapter.

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

- B. For each violation of the provisions of this chapter, the owner, agent, lessee, or contractor or any other person who commits, takes part in, or assists in any such violation shall be liable upon conviction thereof in a summary proceeding to pay a fine of not less than \$200.00 nor more than \$1,000.00 for each offense, together with the costs of prosecution. In accordance with Section 3321(6) of the Borough Code, any person found guilty of violating this Ordinance may be assessed reasonable attorney's fees incurred by the Borough in the enforcement proceeding. Each day or portion thereof in which a violation exists shall be considered a separate violation of this Ordinance, and each Section of this Ordinance which is violated shall be considered a separate violation.
- C. The Borough may also institute suits to restrain, prevent, or abate a violation of this Ordinance in equity or at law. Such proceedings in equity or at law may be initiated before any court of competent jurisdiction. In cases of emergency where, in the opinion of the court, the circumstances of the case require immediate abatement of the unlawful conduct, the court may, in its decree, fix a reasonable time during which the person responsible for the unlawful conduct shall correct or abate the same. The expense of such proceedings shall be recoverable from the violator in such manner as may now or hereafter be provided by law. In accordance with Section 3321(6) of the Borough Code, any person found guilty of violating this Ordinance may be assessed reasonable attorney's fees incurred by the Borough in the enforcement proceeding.
- D. Borough Council may also take actions relating to suspension or revocation of permits set forth in §226-92.
- E. Borough Council may, by resolution, appoint a code enforcement officer to enforce this Ordinance and may authorize such code officer to institute summary criminal proceedings without prior action by Borough Council.

§ 226-94. Violations considered a nuisance.

Any person, partnership or corporation engaged in a regulated activity, as defined in § 226-22 of this chapter, shall implement the measures required by the stormwater management permit and this chapter. Any regulated activity conducted in violation of this chapter or the stormwater management permit is hereby declared a public nuisance.

§ 226-95. Appeals.

- A. Any person, partnership, corporation or organization aggrieved by any action of the Borough may appeal to Borough Council within 30 days from the date of the action appealed from. Any such appeal shall be governed by the procedures of Article V of the Local Agency Law, 2 Pa. C.S. §501 et seq.
- B. Any person, partnership, corporation or organization aggrieved by any action of Borough Council may appeal to the Lancaster County Court of Common Pleas, in accordance with Article II of the Local Agency Law, 2 Pa. C.S. §701 et seq., within 30 days of that decision.

§ 226-96. Modification of ordinance provisions.

- 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 Borough 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, and that the applicant shows that to the satisfaction of the Borough that the applicable regulation is unreasonable, or will cause undue hardship, or that an alternative proposal will allow for equal or better results. The list of such 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.

- B. In granting waivers/modifications for provisions of this chapter not relating to water quality, the Borough may impose such conditions as will, in its judgment, secure substantially the objectives and standards and requirements of this chapter.
- C. Authority to grant waivers/modifications. The Mount Joy Borough Planning Commission shall make recommendations on requests for modifications/waivers and Borough Council shall have the power to grant a waiver/modification in accordance with this Section.
- D. Application procedures for requests for waivers.
 - (1) To the extent that regulated activities are part of a subdivision or land development, all power and authority to grant waivers shall be requested and acted upon in accordance with Chapter 240, Subdivision and Land Development.
 - (2) To the extent that regulated activities for which a permit is required are not part of a subdivision or land development, applications for waivers/modifications shall be processed in accordance with the provisions herein:
 - (a) A request for a waiver/modification shall be submitted to the Borough Secretary. The request shall be made in writing and shall identify the specific section of this chapter which is requested to be waived, the proposed alternative to the requirements, when applicable, and the justifications for the waiver.
 - (b) The Borough shall schedule the request for consideration by the Mount Joy Planning Commission at a public meeting within 60 days of receipt and provide adequate notice to the applicant, the enforcement officer and any other parties of the meeting at which consideration of the request is scheduled. The Borough Council shall, following consideration of the request, take such public action as it shall deem advisable and notify all parties within 30 days of the action. Such notice shall cite the findings and reasons for the disposition of the waiver. Failure of Borough Council to render a decision and communicate it as prescribed above shall be deemed an approval unless the time period is extended by the applicant in writing.

§ 226-97. Applicability.

The provisions, regulations, limitations and restrictions of this chapter shall apply to regulated activities as defined by this Ordinance.

Section 2. **Effective Date.** This ordinance shall become effective after enactment by the Council of the Borough of Mount Joy as provided by law.

DULY ORDAINED AND ENACTED this 27th day of April, 2014, by the Council of the Borough of Mount Joy, Lancaster County, Pennsylvania, in the lawful session duly assembled.

BOROUGH OF MOUNT JOY
Lancaster County, Pennsylvania

Attest: [Signature]
(Assistant) Secretary

By: [Signature]
~~(Vice)~~ President
Council

[BOROUGH SEAL]

Examined and approved as an Ordinance this 27th day of April, 2014.

By: [Signature]
Mayor

Appendix No. 1 Runoff Coefficients "C" for Rational Formula

Runoff coefficients for storm recurrence intervals less than 25 years.

LAND USE	A Soils ¹			B Soils ¹			C Soils ¹			D Soils ¹		
	< 2%	2-6%	>6%	< 2%	2-6%	>6%	< 2%	2-6%	>6%	< 2%	2-6%	>6%
Cultivated land	0.08	0.13	0.16	0.11	0.15	0.21	0.14	0.19	0.26	0.18	0.23	0.31
Pasture	0.12	0.20	0.30	0.18	0.28	0.37	0.24	0.34	0.44	0.30	0.40	0.50
Meadow	0.10	0.16	0.25	0.14	0.22	0.30	0.20	0.28	0.36	0.24	0.30	0.40
Forest	0.05	0.08	0.11	0.08	0.11	0.14	0.10	0.13	0.16	0.12	0.16	0.20
Residential lot size 1/8 acre	0.25	0.28	0.31	0.27	0.30	0.35	0.30	0.33	0.38	0.33	0.36	0.42
Residential lot size 1/4 acre	0.22	0.26	0.29	0.24	0.29	0.33	0.27	0.31	0.36	0.30	0.34	0.40
Residential lot size 1/3 acre	0.19	0.23	0.26	0.22	0.26	0.30	0.25	0.29	0.34	0.28	0.32	0.39
Residential lot size 1/2 acre	0.16	0.20	0.24	0.19	0.23	0.28	0.22	0.27	0.32	0.26	0.30	0.37
Residential lot size 1 acre	0.14	0.19	0.22	0.17	0.21	0.26	0.20	0.25	0.31	0.24	0.29	0.35
Industrial	0.67	0.68	0.68	0.68	0.68	0.69	0.68	0.68	0.69	0.69	0.69	0.70
Commercial	0.71	0.71	0.72	0.71	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Streets	0.70	0.71	0.72	0.71	0.72	0.74	0.72	0.73	0.76	0.73	0.75	0.78
Open Space	0.05	0.10	0.14	0.08	0.13	0.19	0.12	0.17	0.24	0.15	0.21	0.28
Parking	0.85	0.86	0.87	0.85	0.86	0.87	0.85	0.86	0.87	0.85	0.86	0.87
Construction Sites - Bare packed soil, smooth	0.30	0.35	0.40	0.35	0.40	0.45	0.40	0.45	0.50	0.50	0.55	0.60
Construction Sites - Bare packed soil, rough	0.20	0.25	0.30	0.25	0.30	0.35	0.30	0.35	0.40	0.40	0.45	0.50

1. According to the USDA NRCS Hydrologic Soils Classification System
Source: E&S Manual; Adapted from McCuen, R.H., Hydrologic Analysis and Design (2004)

Appendix No. 2 Runoff Curve Numbers "CN" for SCS Method

Table 2.1 Runoff curve numbers for urban areas¹

Cover description	Average percent impervious area ²	Curve numbers for hydrologic soil group			
		A	B	C	D
<i>Fully developed urban areas (vegetation established)</i>					
Open space (lawns, parks, golf courses, cemeteries, etc.) ³ :					
Poor condition (grass cover < 50%)		68	79	80	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		30	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) ⁴		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	76	83	87
1/3 acre	30	57	72	81	86
1/2 acre	26	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
<i>Developing urban areas</i>					
Newly graded areas					
(pervious areas only, no vegetation) ⁵		77	86	94	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

¹ Average runoff condition, and $I_a = 0.2S$.

² The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

³ CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

⁴ Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

⁵ Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2.2 Runoff curve numbers for cultivated agricultural lands¹

Cover description			Curve numbers for hydrologic soil group			
Cover type	Treatment #	Hydrologic condition #	A	B	C	D
Fallow	Bare soil	—	77	86	91	94
	Crop residue cover (CR)	Poor	76	85	90	93
		Good	74	83	88	90
Row crops	Straight row (SR)	Poor	72	81	88	91
		Good	67	78	85	89
	SR + CR	Poor	71	80	87	90
		Good	64	75	82	85
	Contoured (C)	Poor	70	79	84	88
		Good	65	75	82	86
	C + CR	Poor	69	78	83	87
		Good	64	74	81	85
	Contoured & terraced (C&T)	Poor	66	74	80	82
		Good	62	71	78	81
C&T+ CR	Poor	65	73	79	81	
	Good	61	70	77	80	
Small grain	SR	Poor	65	76	84	88
		Good	63	75	83	87
	SR + CR	Poor	64	75	83	86
		Good	60	72	80	84
	C	Poor	63	74	82	85
		Good	61	73	81	84
	C + CR	Poor	62	73	81	84
		Good	60	72	80	83
	C&T	Poor	61	72	79	82
		Good	59	70	78	81
C&T+ CR	Poor	60	71	78	81	
	Good	58	69	77	80	
Close-seeded or broadcast legumes or rotation meadow	SR	Poor	66	77	85	89
		Good	58	72	81	85
	C	Poor	64	75	83	86
		Good	55	69	78	83
	C&T	Poor	63	73	80	83
Good	51	67	76	80		

¹ Average runoff condition, and $I_a=0.25$

² Crop residue cover applies only if residue is on at least 5% of the surface throughout the year.

³ Hydraulic condition is based on combination factors that affect infiltration and runoff, including (a) density and canopy of vegetative areas, (b) amount of year-round cover, (c) amount of grass or close-seeded legumes, (d) percent of residue cover on the land surface (good $\geq 20\%$), and (e) degree of surface roughness.

Poor: Factors impair infiltration and tend to increase runoff.

Good: Factors encourage average and better than average infiltration and tend to decrease runoff.

Table 2.3 Runoff curve numbers for other agricultural lands¹

Cover description	Hydrologic condition	Curve numbers for hydrologic soil group			
		A	B	C	D
Pasture, grassland, or range—continuous forage for grazing. ²	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush—brush-wood-grass mixture with brush the major element. ³	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30 ⁴	48	65	73
Woods—grass combination (orchard or tree farm). ⁵	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods. ⁶	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30 ⁴	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	55	74	82	86

¹ Average runoff condition, and $I_a = 0.2S$.

² *Poor*: <50% ground cover or heavily grazed with no mulch.

Fair: 50 to 75% ground cover and not heavily grazed.

Good: > 75% ground cover and lightly or only occasionally grazed.

³ *Poor*: <50% ground cover.

Fair: 50 to 75% ground cover.

Good: >75% ground cover.

⁴ Actual curve number is less than 30; use CN = 30 for runoff computations.

⁵ CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

⁶ *Poor*: Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.

Fair: Woods are grazed but not burned, and some forest litter covers the soil.

Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

Table 2.4 Runoff curve numbers for arid and semiarid rangelands¹

Cover description	Hydrologic condition ^{2/}	Curve numbers for hydrologic soil group			
		A ^{3/}	B	C	D
Cover type					
Herbaceous—mixture of grass, weeds, and low-growing brush, with brush the minor element.	Poor		80	87	93
	Fair		71	81	89
	Good		62	74	85
Oak-aspen—mountain brush mixture of oak brush, aspen, mountain mahogany, bitter brush, maple, and other brush.	Poor		66	74	79
	Fair		48	57	63
	Good		30	41	48
Pinyon-juniper—pinyon, juniper, or both; grass understory.	Poor		75	85	89
	Fair		58	73	80
	Good		44	61	71
Sagebrush with grass understory.	Poor		67	80	85
	Fair		51	63	70
	Good		35	47	55
Desert shrub—major plants include saltbush, greasewood, creosotebush, blackbrush, bursage, palo verde, mesquite, and cactus.	Poor	63	77	85	88
	Fair	55	72	81	86
	Good	40	68	79	84

¹ Average runoff condition, and $L_n = 0.2S$. For range in humid regions, use table 2-2c.

² Poor: <30% ground cover (litter, grass, and brush overstory)

Fair: 30 to 70% ground cover.

Good: > 70% ground cover.

³ Curve numbers for group A have been developed only for desert shrub.

Appendix No. 3 Time of Concentration (Tc) worksheet

Project	By	Date
Location	Checked	Date

Check one: Present Developed

Check one: T_C T_t through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet. Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_C only)

	Segment ID	
1. Surface description (table 3-1)		
2. Manning's roughness coefficient, n (table 3-1)		
3. Flow length, L (total L + 300 ft) ft		
4. Two-year 24-hour rainfall, P ₂ in		
5. Land slope, s ft/ft		
6. $T_t = \frac{0.007 (nL)^{0.9}}{P_2^{0.5 \text{ to } 0.4}}$ Compute T _t hr	+	=

Shallow concentrated flow

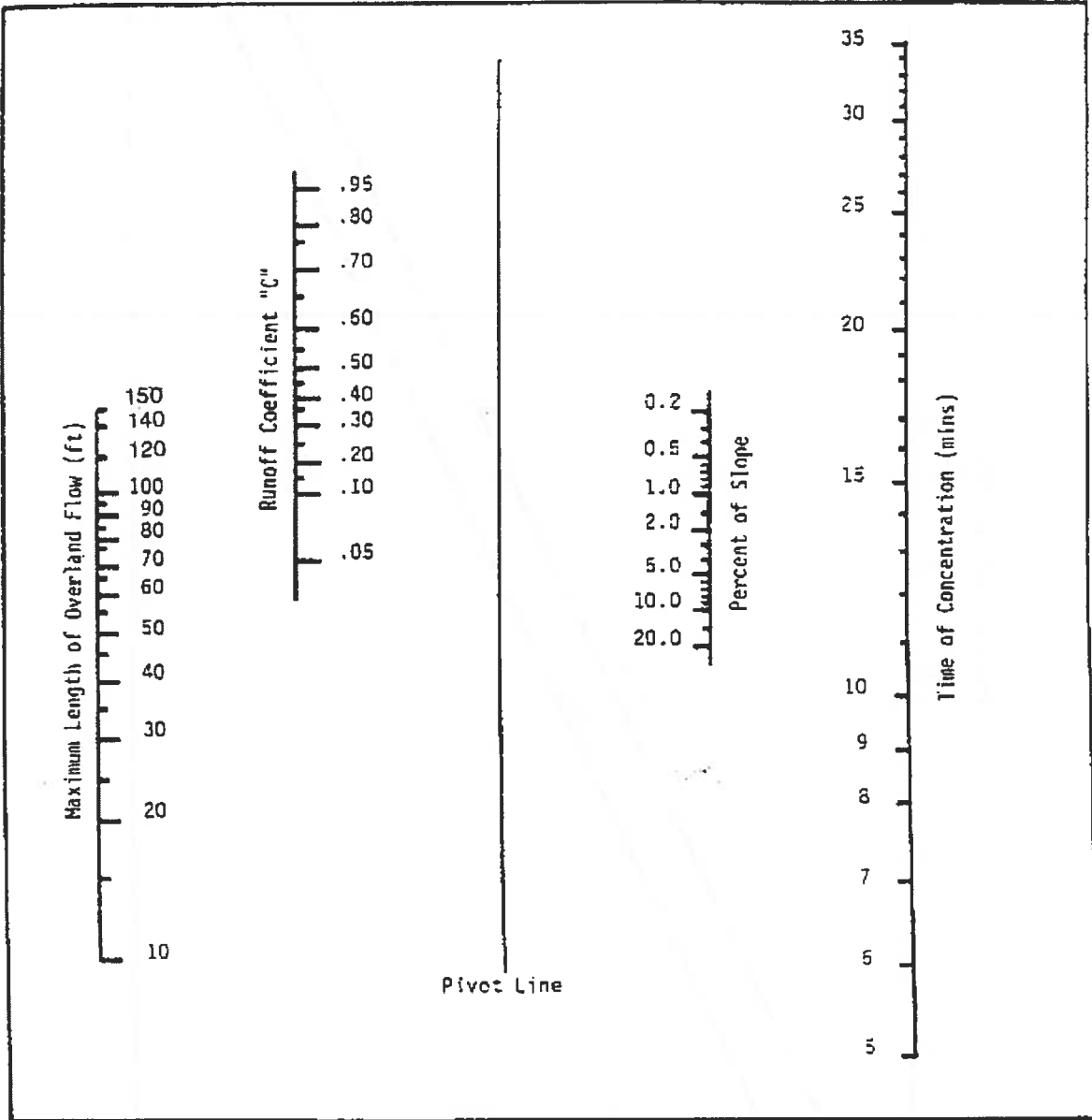
	Segment ID	
7. Surface description (paved or unpaved)		
8. Flow length, L ft		
9. Watercourse slope, s ft/ft		
10. Average velocity, V (figure 3-1) ft/s		
11. $T_t = \frac{L}{3600 V}$ Compute T _t hr	+	=

Channel flow

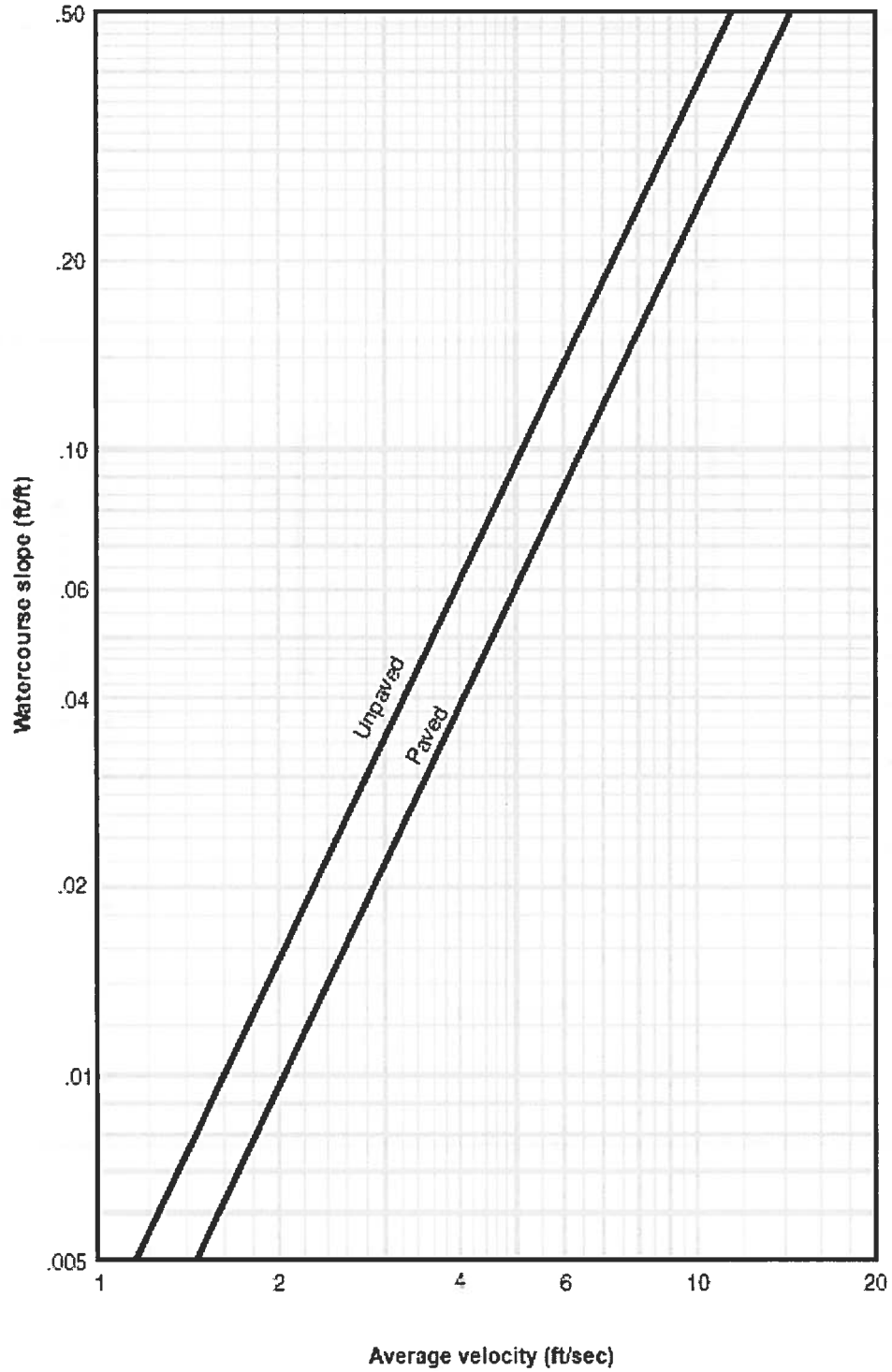
	Segment ID	
12. Cross sectional flow area, a ft ²		
13. Wetted perimeter, p _w ft		
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r ft		
15. Channel slope, s ft/ft		
16. Manning's roughness coefficient, n		
17. $V = \frac{1.49 r^{2/3} s^{1/2}}{n}$ Compute V ft/s		
18. Flow length, L ft		
19. $T_t = \frac{L}{3600 V}$ Compute T _t hr	+	=
20. Watershed or subarea T _C or T _t (add T _t in steps 6, 11, and 19) Hr		

Appendix No. 4 Nomograph for determining sheet flow

(for use with the Rational Method)



Appendix No. 5 Average velocities for estimating travel time for shallow concentrated flow



Appendix No. 6 Mount Joy Borough SWM Site Plan Approval Certification

At a meeting on _____, 20__, the Mount Joy Borough Council approved this project, and all conditions have been met. This approval includes the complete set of plans and information which are filed with the Borough File No. _____, based upon its conformity with the standards of Chapter 226, Stormwater Management.

* _____ *

* Signatures of the President and Secretary or their designees.

Appendix No. 7 Operation and Maintenance (O&M) Agreement – Stormwater Management Facilities

Prepared By: _____

Return To: Same
Parcel ID # _____

**STORM WATER MANAGEMENT AGREEMENT
AND DECLARATION OF EASEMENT**

THIS AGREEMENT AND DECLARATION OF EASEMENT made this ____ day of _____, 20____, by and between _____, a _____ with a mailing address at _____ (hereinafter whether singular or plural referred to as the "Grantor"), and **MOUNT JOY BOROUGH**, Lancaster County, Pennsylvania, a municipal corporation duly organized under the laws of the Commonwealth of Pennsylvania, with its municipal office located at 21 East Main Street, Mount Joy, Pennsylvania (hereinafter referred to as the "Borough").

BACKGROUND

Grantor is the owner of premises located _____, in the Borough of Mount Joy, Lancaster County, Pennsylvania, as more specifically described in a deed recorded in Deed or Record Book _____, Volume _____, Page _____, or at Document No. _____ in the Office of the Recorder of Deeds in and for Lancaster County, Pennsylvania, and as shown on the NAME OF PLAN _____, prepared by _____, Drawing No. _____, dated _____, last revised _____ (hereinafter referred to as the "Premises").

Prior to beginning construction on any subdivision or land development or regulated activity, Grantor is required, under the Mount Joy Borough Subdivision and Land Development Ordinance and the Mount Joy Borough Storm Water Management Ordinance (collectively referred to as the "Ordinance"), to file a plan with Mount Joy Borough Council. Pursuant to the Ordinance,

Grantor must include storm water management data in its subdivision and/or land development application. The Ordinance requires that Grantor's plan reflect and/or be accompanied with supporting documentation which identifies the ownership of, and the method of administering and maintaining, all permanent storm water management facilities. Drainage courses, swales, grassed waterways, storm water inlets, pipes, conduits, detention basins, retention basins, infiltration structures, and other storm water management facilities, including Best Management Practices facilities ("BMPs"), shall be included under the term "storm water management facilities" in this Agreement and Declaration of Easement.

The purpose of this Agreement and Declaration of Easement is to describe the ownership and maintenance responsibilities for the storm water facilities which will be installed on the Premises and to impose the ownership and maintenance responsibilities upon Grantor, his heirs, personal representatives and assigns and upon successor owners of the Premises, and set forth the rights of the Borough.

NOW, THEREFORE, intending to be legally bound hereby and in consideration of receiving approval of its Subdivision and/or Land Development Plan or its Storm Water Management Plan (hereinafter referred to as the "Final Plan") from Borough Council, and in consideration of receiving permits from the Borough to develop the Premises, Grantor, for Grantor and the heirs, personal representatives and assigns of Grantor, covenant and declare as follows:

1. The storm water facilities will be owned by Grantor, his heirs, personal representatives, successors and assigns.

2. All drainage courses, swales, storm water inlets, pipes, conduits, detention basins BMPs, and other storm water facilities shall be installed, constructed and maintained by Grantor, his heirs, personal representatives, successors and assigns, in a first-class condition in conformance with the approved Final Plan, including any accompanying storm water management plans and information, and as recorded in the Office of the Recorder of Deeds in and for Lancaster County, and in a manner sufficient to meet or exceed the performance standards and specifications set forth on the approved Final Plan, including any accompanying storm water management plans and information, and as recorded in the Office of the Recorder of Deeds in and for Lancaster County. These responsibilities shall include, but not be limited to, the following:

(a) Liming, fertilizing, seeding and mulching of vegetated channels and all other unstablized soils or areas according to the specifications in the "Erosion and Sediment

Pollution Control Manual" published by the Pennsylvania Department of Environmental Protection, the Penn State Agronomy Guide, or such similar accepted standard.

(b) Reestablishment of vegetation by seeding and mulching or sodding of scoured areas or areas where vegetation has not been successfully established.

(c) Mowing as necessary to maintain adequate stands of grass and to control weeds. Chemical weed control may be used if federal, state and local laws and regulations are met. Selection of seed mixtures shall be subject to approval by the Borough.

(d) 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, BMPs, and/or other facilities and thus reducing their capacity.

(e) Removal of silt from all permanent drainage structures, in particular BMPs, in order to maintain the design storage volumes. Regular programs shall be established and maintained.

(f) Regular inspection of the areas in question to assure proper maintenance and care, including but not limited to proper implementation of BMPs. **ADD ANY SPECIFIC INSPECTION REQUIREMENTS IN THE PCSM PLAN.**

(g) Regular maintenance to insure that all pipes, swales and detention facilities shall be kept free of any debris or other obstruction. **ADD ANY SPECIFIC MAINTENANCE REQUIREMENTS IN THE PCSM PLAN.**

(h) Regular maintenance of all facilities designed to improve water quality to insure that such facility function in accordance with their design. **ADD ANY SPECIFIC MAINTENANCE REQUIREMENTS IN THE PCSM PLAN SUCH AS IF APPLICABLE:** Maintenance of the infiltration bed and infiltration system by mowing grass regularly over the infiltration bed; keeping the yard drains and roof drains free of debris in good repair at all times; flushing the infiltration system using a water hose at the cleanouts once every 90 days to insure the infiltration system is clear of debris; keeping the sumps in the yard inlets and downspout sumps free of debris; and inspecting the infiltration bed four times per year or after each rain event exceeding one inch.

(i) Repair of any subsidence, including subsidence caused by sinkholes.

(j) **IF APPLICABLE:** Replacement of displaced riprap within the outlet energy dissipater immediately after it is displaced, particularly after major storm discharge events.

(k) **IF APPLICABLE:** Vacuum sweeping of areas of porous paving to keep surface free of sediment as needed, typically three to four times per year and maintaining all areas of porous paving free from sealing, surfacing or re-paving with non-porous materials.

(l) **IF APPLICABLE:** Aerate areas of amended soils annually. No impervious surfaces may be placed or installed on any area of amended soils.

(m) Removal of trash and debris on a regular basis.

Include a statement that the approved Operations and Maintenance (O&M) Plan is attached as an exhibit if there are any requirements in addition to those in Paragraph 2. Paragraph 2 may be revised to simply incorporate an exhibit if all post construction inspection, operations, and maintenance requirements are included on the exhibit.

Grantor, his heirs, personal representatives, successors and assigns, shall be responsible for performing the foregoing maintenance.

3. Grantor, his heirs, personal representatives, successors and assigns, shall be responsible for maintaining records of all inspections of and maintenance to BMPs and other storm water management facilities. Grantor, his heirs, personal representatives, successors and assigns, shall be responsible to prepare all annual BMP and post construction storm water management facility reports detailing the actual inspection and maintenance activities performed which are required by the terms of any NPDES permit or other state or federal regulation or requirement and submit such reports to the Borough on or before DATE of each calendar year, together with any fee which the Borough may impose for the review and processing of such report. It is the responsibility of Grantor to inform successors owners of the Premises or any lot created from the Premises of this reporting requirement. The failure to submit an annual report is a violation of this Agreement. The Borough may prepare any required report and recover all costs required to prepare such report from the then-owner of the Premises or any lot created from the Premises, plus a penalty of ten (10%) percent of such costs and may file a municipal claim to secure payment of such costs.

4. Grantor, for himself, his heirs, personal representatives, successors and assigns, agrees that the failure to maintain all drainage courses, swales, storm water inlets, pipes, conduits, detention basins, BMPs, and other storm water management facilities in a first-class condition in

conformance with this Agreement and approved Final Plan, including any accompanying storm water management plans and information, and as recorded in the Office of the Recorder of Deeds in and for Lancaster County, shall constitute a nuisance and shall be abatable by the Borough as such.

5. Grantor, for himself, his heirs, personal representatives, successors and assigns, authorizes the Borough, at any time and from time to time, by its authorized representatives, to enter upon the Premises to inspect the storm water facilities.

6. The Borough may require that Grantor, and assigns or any future owner or occupier of the Premises or any part thereof, take such corrective measures as the Borough may deem reasonably necessary to bring the Premises into compliance with this Agreement and with the approved Final Plan, including any accompanying storm water management plans and information, and as recorded in the Office of the Recorder of Deeds in and for Lancaster County.

7. Upon the failure of the owner or occupier of the Premises or any part thereof to comply with the terms of this Storm Water Management Agreement or to take corrective measures following reasonable notice from the Borough, the Borough, through its authorized representatives, may take such corrective measures as it deems reasonably necessary to bring the Premises into compliance with this Agreement and with the approved Final Plan, including any accompanying storm water management plans and information, and as recorded in the Office of the Recorder of Deeds in and for Lancaster County, including, but not limited to, the removal of any blockage or obstruction from drainage pipes, swales, detention basins, and BMPs, and may charge the cost thereof to Grantor, his heirs, personal representatives, successors and assigns, or any owner of the Premises or any part thereof and, in default of such payment, may cause a municipal lien to be imposed upon the Premises or any part thereof. Any municipal lien filed pursuant to this Agreement shall be in the amount of all costs incurred by the Borough, plus a penalty of ten (10%) of such costs, plus the Borough's reasonable attorneys' fees.

8. The storm water management facilities have been designed to allow a maximum impervious surface coverage

(a) [if a single lot] of ___ square feet. Any proposal to add additional impervious surface coverage to the Premises will require the submission of a storm water management plan meeting all requirements of applicable regulations in effect at the time such application is filed.

(b) [if multiple lots with the same coverage] of ___ square feet for each lot to be created from the Premises. If the owner of any lot to be created from the Premises desires to install additional impervious surface coverage, such lot owner must submit an application under the Storm Water Management Ordinance in effect at such time as the application is filed and meet all applicable storm water management regulations.

(c) [if multiple lots with different coverage limits] as set forth in Exhibit A attached hereto and incorporated herein. If the owner of any lot to be created from the Premises desires to install additional impervious surface coverage beyond that allocated to such lot in Exhibit A, such lot owner must submit an application under the Storm Water Management Ordinance in effect at such time as the application is filed and meet all applicable storm water management regulations.

9. If ownership or maintenance responsibility of the storm water management facilities is assigned to a home owners' association, condominium unit owners' association, or similar entity, the Borough shall be notified. If such association fails to properly maintain the storm water management facilities, the Borough shall have the same rights granted to municipalities under Section 705 of the Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247, with reference to maintenance of common open space, to maintain the storm water management facilities. Any association so formed shall enter into an agreement with the Borough recognizing its duties and the Borough's rights under this Agreement.

10. Grantor hereby imposes upon the Premises for the benefit of all present and future owners of the Premises or part of the Premises, the Borough, and all other property owners affected by the storm water facilities, the perpetual right, privilege and easement for the draining of storm water in and through the drainage courses, swales, storm water inlets, pipes, conduits, detention basins, BMPs, and other storm water facilities depicted on the plan or plans submitted to the Borough or hereafter made of record and now or hereafter installed on or constructed upon the Premises and, in addition, easements of access to the storm water facilities.

11. Grantor agrees to indemnify the Borough and all of its elected and appointed officials, agents and employees (hereafter collectively referred to as the "Indemnitees") against and hold Indemnitees harmless from any and all liability, loss or damage, including attorneys' fees and costs of investigation and defense, as a result of claims, demands, costs or judgments against Indemnitees which arise as a result of the design, installation, construction or maintenance of the storm water facilities.

12. Grantor's personal liability under this Agreement shall cease at such time as (a) all storm water management facilities have been constructed in accordance with the specifications of the Borough Subdivision and Land Development Ordinance, the Borough Storm Water Management Ordinance and the approved plans; (b) the storm water management facilities have been inspected and approved by the Borough Engineer; (c) all financial security, including any maintenance security, posted by Grantor has been released by the Borough; and (d) Grantor has transferred all lots to be created from the Premises to third parties. Notwithstanding the foregoing, Grantor's personal liability shall continue for any violations of this Agreement and Declaration of Easement which occurred during the time that Grantor owned the Premises or any lot created from the Premises or in the event the storm water management facilities were not completed, inspected or approved as set forth in (a) through (c) herein.

13. It is the intent of the parties to this Agreement that personal liability and maintenance obligations shall pass to subsequent title owners upon change in ownership of the Premises or any lot created from the Premises, and such subsequent owners shall assume all personal liability and maintenance obligations for the time period during which they hold title. Personal liability shall remain for any violations of this Agreement and Declaration of Easement which occurred during the period in which an owner held title.

14. The Borough may, in addition to the remedies prescribed herein, proceed with any action at law or in equity to bring about compliance with the Borough Storm Water Management Ordinance, the Borough Subdivision and Land Development Ordinance and this Agreement.

15. This Agreement and Declaration of Easement shall be binding upon the Grantor, the successors and assigns of Grantor, and all present and future owners of the Premises or any part thereof and is intended to be recorded in order to give notice to future owners of the Premises of their duties and responsibilities with respect to the storm water facilities. Grantor shall include a specific reference to this Agreement in any deed of conveyance for the Premises or any part thereof.

16. This Agreement and Declaration of Easement may be amended only by written instrument signed on behalf of all owners of the Premises and the Borough.

17. When the sense so requires, words of any gender used in this Agreement and Declaration of Easement shall be held to include any other gender, and the words in the singular number shall be held to include the plural, and vice versa.

IN WITNESS WHEREOF, the undersigned have caused this Agreement and Declaration to be executed on the day and year first above written.

MOUNT JOY BOROUGH
Lancaster County, Pennsylvania

Attest: _____

(Assistant) Secretary

By: _____

(Vice) President

Borough Council

[MUNICIPALITY SEAL]

(Individual or Husband and Wife Developer)

Witness:

(Signature of Individual)

(Signature of Spouse if Husband and
Wife are Co-Developers)

IF APPLICABLE:

Trading and doing business as:

(Partnership Developer*)

(Name of Partnership)

Witness:

By: _____ (SEAL)

Partner

By: _____ (SEAL)

Partner

By: _____ (SEAL)

Partner

*All Partners must execute this Agreement

(Corporation Developer)

(Name of Corporation)

ATTEST:

By: _____

By: _____

(Assistant) Secretary

(Vice) President

[CORPORATE SEAL]

(INDIVIDUAL OR HUSBAND AND WIFE DEVELOPER ACKNOWLEDGEMENT)
COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF LANCASTER)

On this _____ day of _____, 20____, before me, the subscriber, a notary public in and for the aforesaid Commonwealth and County, came the above-named _____, known to me, (or satisfactorily proven) to be the person(s) whose name(s) is/are subscribed on the within instrument and acknowledged the foregoing Stormwater Management Agreement and Declaration of Easement to be _____ act and deed and desired to be recorded as such.

Witness my hand and notarial seal.

Notary Public

My commission expires:

(PARTNERSHIP DEVELOPER ACKNOWLEDGEMENT)
COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF LANCASTER)

On this _____ day of _____, 20____, before me, a notary public, the undersigned officer, personally appeared _____
_____, who acknowledged themselves to be all of the partners of _____, a _____ partnership, and that they, as partners, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the partnership by themselves as such partners.

IN WITNESS WHEREOF, I set hereunto set my hand and notarial seal.

Notary Public

My commission expires:

(LIMITED LIABILITY COMPANY LANDOWNER ACKNOWLEDGEMENT)

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF LANCASTER)

On this _____ day of _____, 20____, before me, the undersigned officer,
personally _____ appeared _____
_____, who acknowledged themselves to be all of
_____, a _____ limited liability company,, and that they as
such members, being authorized to do so, executed the foregoing instrument for the purposes
therein contained by signing the name of said limited liability company by themselves as such
members.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Notary Public

My commission expires:

JOINDER BY MORTGAGEE

_____ (“Mortgagee”), as holder of a certain mortgage on the premises of _____ within Mount Joy Borough, Lancaster County, Pennsylvania, described in the deed recorded in/at _____, in the Office of the Recorder of Deeds in and for Lancaster County, Pennsylvania, which mortgage, in the amount of \$_____, is dated _____, _____, and is recorded or is about to be recorded in the Recorder of Deeds Office in and for Lancaster County, Pennsylvania, as well as any other mortgages which Mortgagee may now or hereafter hold on the Premises (all such mortgages hereinafter collectively referred to as the “Mortgages”), joins in, consents to, and expressly approved the grant of easements and other rights and privileges described in the attached Stormwater Management Agreement and Declaration of Easement (the “Agreement”).

The Mortgagee, for itself, its successors and assigns (which shall include any assignee of the Mortgages and any purchaser of the Premises at a sale in foreclosure of the Mortgages or otherwise), hereby covenants and agrees that the rights and privileges herein granted with respect to the Premises shall not be terminated or disturbed by reason of any foreclosure or other action which may be instituted by the Mortgagee, its successors and assigns, as a result of any default under the Mortgages or the debt instruments that such Mortgages secure. Mortgagee by consenting to the Agreement shall not be virtue of its interest as Mortgagee be deemed to have undertaken any of the obligations of the Grantor under the Agreement, including but not limited to construction, maintenance, inspection or indemnification.

IN WITNESS WHEREOF, Mortgagee hereby joins in the execution of the Agreement as of this _____ day of _____, 20____.

(Name of Mortgagee)

ATTEST: _____

By: _____

[SEAL]

