CLAY TOWNSHIP,
LANCASTER COUNTY, PENNSYLVANIA

ORDINANCE No. 12122

AN ORDINANCE OF THE TOWNSHIP OF CLAY, COUNTY OF LANCASTER, COMMONWEALTH OF PENNSYLVANIA, REPEALING CURRENT CHAPTER 11 OF THE CODE OF ORDINANCES OF THE TOWNSHIP OF CLAY RELATING TO STORMWATER MANAGEMENT AND SUBSTITUTING COMPREHENSIVE STORMWATER MANAGEMENT AND TREATMENT REGULATIONS THROUGHOUT THE TOWNSHIP IN CONFORMANCE WITH THE PENNSYLVANIA MUNICIPALITIES PLANNING CODE AND ACT 167 AND IN ORDER TO IMPLEMENT THE MANDATED TERMS AND CONDITIONS OF LANCASTER COUNTY'S AGREEMENT WITH THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, THEREBY PROVIDING SUBSTANTIAL STORMWATER MANAGEMENT REGULATIONS, INCLUDING POTENTIAL PENALTIES, FILING FEES, REVIEW FEES, AND ASSESSING CHARGES RELATING TO STORMWATER MANAGEMENT FACILITIES, WHETHER ACCEPTED BY THE TOWNSHIP OR NOT ACCEPTED.

A. The Board of Supervisors of the Township of Clay, pursuant to requirements of the Pennsylvania Department of Environmental Protection and Lancaster County Act 167 Stormwater Management Plan adopted a Stormwater management Ordinance in 2014. The Township is now replacing Chapter 11 of the Code of Ordinances of Clay Township to adopt DEP required updates to the Stormwater Ordinance. Updates include a restatement of the purpose of the stormwater ordinance; revisions to definitions, conditions for minor stormwater plans, loading ratios, requirements for Erosion and Sedimentation Control Plan reviews, procedures for updating forms and fees; adding increased riparian corridor protections and prohibiting residential vehicle washing with soap.

B. Following a review by the Board of Supervisors has determined that a complete replacement of the "Clay Township Stormwater Management Code" (**"Stormwater Ordinance"**) is necessitated.

NOW, THEREFORE, IT IS HEREBY ENACTED AND ORDAINED by the authority of the Clay Township Board of Supervisors that Chapter 11 of the "Code of Ordinances of the Township of Clay" shall be repealed and the following substituted therefor:

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CHAPTER 11
PART 1
GENERAL PROVISIONS

§11-101. Short Title

This Ordinance shall enacted as a substitute for current Chapter 11 of the Code of Ordinances of the Township of Clay and may hereinafter be known and may be cited as the "Clay Township Stormwater Management Ordinance."

§11-102. Statement of Findings

The Board of Supervisors of the Township of Clay 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 Stormwater Management (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 Municipality 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. Clay Township is required to obtain a permit for stormwater discharges from its Municipal Separate Storm Sewer Systems (MS4) 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 and shoreline stability thus decreasing erosion.

F. The use of green infrastructure and low impact development (LID) are intended to address the root cause of water quality impairment by using systems and practices which use or mimic natural processes to: 1) infiltrate and recharge, 2) evapotranspire, and/or 3) harvest and use precipitation near where it falls to earth. Green infrastructure practices and LID contribute to the restoration or maintenance of pre-development hydrology.

§11-103. Purpose

The purpose of this Stormwater Management Ordinance is to promote health, safety, and welfare by minimizing the harms and maximizing the benefits described in Section 11-102 of this Ordinance 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 practicable.

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 Management Best Management Practices (SWM BMPs) that are implemented within the Township.

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 Township's 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.

§11-104. Statutory Authority

A. Primary Authority:

The Township is empowered to regulate these activities by the authority of the Act of October 4, 1978, P.L. 864 (Act 167), 32 P.S. Section 680.1, et seq., as amended, the "Stormwater Management Act" and Act 394 of 1937, as amended, 35 P.S. Section 691.1 et seq. the Pennsylvania Clean Streams Law. The Township also is empowered to regulate land use

activities that affect stormwater impacts by the authority of Article XXVII, Second Class Township Code, 53 P.S. § 67701-67704 et seq.

B. Secondary Authority:

The Township also is empowered to regulate land use activities that affect runoff by the authority of the Act of July 31, 1968, P.L. 805, No. 247, The Pennsylvania Municipalities Planning Code, as amended (hereinafter **"MPC"**). However, in the case of the MPC, administrative and related provisions not specifically referenced in this Chapter shall not be considered adopted by reference. Ordinances adopted pursuant to the MPC, including, but not limited to Chapters 22 and 27 of the Code of Ordinances of the Township of Clay, respectively covering subdivision and land development and zoning, shall continue to apply as amended.

§11-105. Applicability

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

§11-106. Repeals and Continuation of Prior Regulations.

A. Except as hereinafter provided, all of current Chapter 11 of the Code of Ordinances of the Township of Clay shall be repealed on the effective date hereof. Notwithstanding the foregoing, except as otherwise required by law, this Chapter 11 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 Chapter 11 previously enacted by the Board of Supervisors of the Township of Clay, this Chapter shall be considered a restatement and not a repeal of such regulations. It is the specific intent of the Board of Supervisors of the Township of Clay 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 or 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 any prior stormwater regulation or Chapter. In the event any violation has occurred under any prior stormwater regulation, including the Cocalico Creek Act 167 Watershed Plan or Chapter of the Code of Ordinances of the Township of Clay prosecution may be initiated against the alleged offender pursuant to the provisions of said prior stormwater regulation or Chapter, and the provisions and penalties provided in said prior stormwater regulation or Chapter shall remain effective as to said violation.

B. Any Plan (hereinafter defined) pending at the time of the effective date of this Chapter shall be allowed to proceed with revisions, finalization and implementation in accordance with any Ordinance in effect prior hereto. Any Subdivision and Land Development Plan filed pursuant to the provisions of the Pennsylvania Municipalities Planning Code, and pursuant to the law and ordinances in effect in effect at the time of the effective date of this Chapter

may proceed with development in accordance with the filing at the time of the effective date of this Chapter, consistent with Section 508(4) of the MPC.

§11-107. 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.

§11-108. Compatibility with Other Ordinance Requirements

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

§11-109. 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 Township purporting to validate such a violation.

§11-110. Township Liability.

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

B. Nothing contained in this Chapter and no review by the Township or any of its agents or officials shall be construed by any person to be (unless specifically applied for and granted in writing, in advance, by the Board of Supervisors), a waiver of any term or condition of this Chapter.

C. Township shall not be held liable for lack of compliance with the terms and conditions of this Chapter by any person or for the mistakes of any person in complying with or implementing the terms and conditions of this Chapter.

D. All approvals are subject to all other laws, ordinances, rules and regulations then in effect applicable to all applications, which said other rules, ordinances and regulations are adopted herein by reference.

E. All applicants agree to and shall indemnify, defend and save harmless the Township from any and all costs incurred by Township (including its reasonable attorney's fees) arising out of intentional action or negligent action by applicants and/or their agents or employees.

§11-111. 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 are 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.

§11-112. Appendices

Appendices included in this Chapter are only representative of current thought and are not considered a part of the Ordinance and are intended to be revised, as may be in the best interest of the Township from time to time, by Resolution.

Part 2
DEFINITIONS OF TERMS

§11-201. 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 derivative forms.

B. Words in the singular number shall include the plural number, and words 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 words "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. Words not defined herein shall first be defined by definitions contained in the PMPC and then by definitions contained in Chapter 22 of the Code of Ordinances of the Township of Clay known as the "Subdivision and Land Development Ordinance of the Township of Clay" and Chapter 27 of the Code of Ordinances of the Township of Clay known as the "Zoning Ordinance of Clay Township."

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 Board of Supervisors in enacting this Section to incorporate such changes to statutes, regulations, and publications to the extent authorized by 1 Pa. C.S. § 1937.

J. In interpreting and applying the provisions of this Chapter, they shall be held to be the minimum requirements for the promotion of public health, safety, comfort, convenience and general welfare. When the provisions of this Chapter impose greater restrictions than those of any other statute, ordinance or regulations, the provisions of this Chapter shall be controlling. Where the provisions of any statute, other ordinance, or regulations impose greater restrictions than this Chapter, the provisions of such statute or other ordinance or regulations shall be

controlling. This Chapter is not intended to interfere with, abrogate or annul any easement, covenant, or other agreement between private parties. However, where this Chapter imposes greater restrictions than those imposed upon such easement, covenant or agreement, the provisions of this Chapter shall apply. The provisions of this Chapter and those of Chapters 22 and 27 of the Code of Ordinances of the Township of Clay shall be read together, so to give a logical interpretation of the integration of their various requirements.

§11-202. Definitions of Terms

Accelerated Erosion – The removal of the surface of the 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 (including the Township and its desginees), allowing entry for the purpose of inspecting, maintaining and repairing SWM Facilities.

Act 167 Plan – A plan prepared under the authority of Pennsylvania's Stormwater Management Act of October 4, 1978.

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

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

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

Applicant – A Landowner and/or Developer, as hereinafter defined, including his heirs, successors and assigns, who has filed an application (with the written permission of all land owners) to the Township for approval to engage in any regulated activity at a Development Site located within the Township.

As-Built – A post-construction site plan prepared by a property owner or their representatives.

As-Built Survey and Plan – A record survey and plan, including, but not limited to, performing a survey upon completion of the construction of improvements within or adjacent to a development site for the purpose of verifying compliance with the approved stormwater management plan and also sufficient information so that the Township may monitor maintenance of the facilities in the future, including topographic survey of final land contouring, storm sewer facility locations and pipe

grades, and related facilities. As part of the as-built survey and plan, the developer shall be responsible for verifying the adequacy of all stormwater facilities by submitting hydraulic and hydrologic calculations, as necessary, to confirm compliance with the approved design and plan. All plans and calculations must include the seal, date and signature of the qualified registered professional(s) responsible for the as-built survey and plan and calculations.

BMP (Best Management Practice) – Activities, facilities, designs, measures, or procedures used to manage stormwater impacts from regulated activities, to meet state water quality requirements, to promote groundwater recharge, and to otherwise meet the purposes of this Ordinance. Stormwater BMPs are commonly grouped into one of two broad categories or measures: "structural" or "non-structural." In this Ordinance, non-structural BMPs or measures refer to operational and/or behavior-related practices that attempt to minimize the contact of pollutants with stormwater runoff, whereas structural BMPs or measures are those that consist of a physical device or practice that is installed to capture and treat stormwater runoff. Structural BMPs include, but are not limited to, a wide variety of practices and devices, from large-scale retention ponds and constructed wetlands, to small-scale underground treatment systems, infiltration facilities, filter strips, low impact design, bioretention, wet ponds, permeable paving, grassed swales, riparian or forested buffers, sand filters, detention basins, and manufactured devices. All stormwater BMPs are permanent appurtenances to the project site.

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

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

Conservation District – A conservation district, as defined in Section 3(c) of the Conservation District Law (3 P. S. § 851(c)) that has the authority under a delegation agreement executed with DEP to administer and enforce all or a portion of the regulations promulgated under 25 Pa. Code 102.

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

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

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

Culvert – A structure with appurtenant works which can convey a stream under or through an embankment or fill.

DEP also PA DEP or PADEP – The Pennsylvania Department of Environmental Protection or any agency successor to the Pennsylvania Department of Environmental Protection.

Deck – An extension from a building without solid walls or a roof to be used for recreational purposes. Any deck wherein there is at least a one-eighth inch (1/8") gap at least every eight inches (8") between decking material shall not be considered a regulated activity for the purpose of this Chapter, if in fact the surface below the deck is pervious.

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.

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

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

Detention Volume – The volume of runoff that is captured and released and may or may not be released into the waters of the Commonwealth.

Developer – A person who undertakes any Regulated Activity of this Chapter.

Development Site (Site) – The specific area of land where regulated activities in the Township are planned, conducted or maintained.

Disappearing Stream – A stream in an area underlain by limestone or dolomite that flows underground for a portion of its length.

Disconnected Impervious Area (DIA) – An impervious 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, approved in advance by a Township designee and recorded in the Office of the Recorder of Deeds in and for Lancaster County, superior to any lien of record.

E&S – Erosion and Sediment.

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[1].

Environmentally Sensitive Area – slopes greater than 15% percent, shallow bedrock (located within 6 feet of ground surface[2]), wetlands, Natural Heritage Areas and other areas designated as Conservation or Preservation in ***Greenscapes***, the Green Infrastructure Element of the County Comprehensive Plan, where encroachment by land development or land 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" as defined above.

Exemption – Released from meeting planning requirements when project conditions meet the criteria listed in Section 401 as of September 8, 2004.

Existing Conditions – The dominant land cover during the 5-year period immediately preceding a proposed regulated activity.

FEMA – The Federal Emergency Management Agency.

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

Flood Fringe – That portion of the floodplain outside of the floodway[3].

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

Floodplain Management Act – Act of October 4, 1978, P.L. 851, No. 166, as amended 32 P.S.

Section 679.101 et seq.

Floodway – The channel of the watercourse and those portions of the adjoining floodplains which are reasonably required to carry and discharge the 100-year frequency flood. Unless otherwise specified, the boundary of the floodway is as indicated on maps and flood insurance studies provided by FEMA. In an area where no FEMA maps or studies have defined the boundary of the 100-year frequency floodway, it is assumed - absent evidence to the contrary - that the floodway extends from the stream to 50 feet from the top of the bank of the stream[4].

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.

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.

Green Infrastructure – Systems and practices that use or mimic natural processes to infiltrate, evapotranspire, or reuse stormwater on the site where it is generated.

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.

High Tunnel – A structure which meets the following: (1) Is used for the production, processing, keepings, storing, sale or shelter of an agricultural commodity as defined in Section 2 of the act of December 19, 1974 (P.L. 973, No. 319), known as the Pennsylvania Farmland and Forest Land Assessment Act of 1974, or for the storage of agricultural equipment or supplies, (2) Is constructed consistent with all of the following:

(i) Has a metal, wood or plastic frame.
(ii) When covered, has a plastic, woven textile or other flexible covering.
(iii) Has a flood made of soil, crushed stone, matting, pavers or a floating concrete slab.

Hydrologic Soil Group (HSG) – Refers to soils grouped according to their runoff-producing characteristics by NRCS. There are four (4) runoff potential groups ranging from A to D.

1. Group 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).

2. Group 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).

3. Group 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).

4. Group 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 prevent the infiltration or partial infiltration of water into the ground. All structures, buildings, parking areas, driveways, roads, streets, sidewalks, decks, and any areas of concrete, asphalt, packed stone, and compacted soil shall be considered impervious surface if they prevent infiltration. In addition, other surfaces (meeting the general definition of "surfaces" similarly described above) will be classified as "imperious surfaces" where applicable.

Impoundment – A retention or detention facility 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 at www.dcnr.state.pa.us/forestry/plants/invasiveplants/index.htm .

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

Land Development - Any of the following activities:

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

   a. A group of two or more residential or nonresidential buildings, whether proposed initially or cumulatively, or a single nonresidential building on a lot or lots regardless of the number of

occupants or tenure; or

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

2. Any subdivision of land.

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

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

Limiting Zone – A rock formation, other stratum, or soil condition which is so slowly permeable that it effectively limits downward passage of effluent[12]. Season high water tables, whether perched or regional also constitute a limiting zone.

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

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

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 Township's satisfaction that the performance standard is not achievable. The applicant shall take into account the best available technology, cost effectiveness, geographic features, and other competing interests such as protection of human safety and welfare, protection of endangered and threatened resources, and preservation of historic properties in making the assertion that the performance standard cannot be met and that a different means of control is appropriate.[5]

Meadow – A limited, relatively flat area of low vegetation dominated by grasses, either in its natural state or used as pasture or for growing hay.

MPC – The Pennsylvania Municipalities Planning Code, Act of 1968, P.L. 805, No. 247, as reenacted and amended, 53 P.S. Section 10101 et seq.

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, Township, 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).

Municipality – The Township of Clay, Lancaster County, Pennsylvania.

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 – The Pennsylvania Department of Transportation or any agency successor thereto.

Permit – Certificate issued by Township or Clay Township's Designated Agent acknowledging receipt and review of an Application in compliance with the provisions of this Chapter.

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 – The planning commission of the Township of Clay, Lancaster County, Pennsylvania.

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

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

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 surfaces.

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:

- Land Development subject to the requirements of the Township's Subdivision and Land Development Ordinance;
- Removal of ground cover, grading, filling or excavation;
- Construction of new or additional impervious surfaces (driveways, parking lots, etc.), and associated improvements;
- Construction of new buildings or additions to existing buildings;
- Installation or alteration of stormwater management facilities and appurtenances thereto;
- Diversion or piping of any watercourse; and,

- Any other regulated activities where the Township determines that said activities may affect any existing watercourse's stormwater management facilities, or stormwater drainage patterns.

Release Rate – For a specific design storm or list of design storms, the percentage of peak flow rate for existing conditions which may not be exceeded for the proposed conditions.

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.

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

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

Riparian – Pertaining to a stream, river or other watercourse. Also, plant communities occurring in association with any spring, lake, river, stream or creek through which waters flow at least periodically[6].

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[6].

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 a watercourse that is maintained in a natural state or sustainably managed to protect and enhance water quality, stabilize stream channels and banks, and separate land use activities from surface waters.

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

Sediment – Soils or other materials transported by stormwater as a product of erosion[1].

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

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

Sedimentation – The action or process of forming or depositing sediment in Waters of this Commonwealth[1].

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 in a channel.

Small Project – See Stormwater Management Site Plan (SWM Site Plan)

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", Second edition, Technical Release No. 55, SCS, June 1986 (or most current edition).

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, the Clean Streams Law and the Clean Water Act.

Storage – A volume above or below ground that is available to hold stormwater.

Storm event – A storm of a specific duration, intensity, and frequency.[7]

Storm Sewer – A system of pipes and/or open channels designed to convey stormwater.

Stormwater – Drainage runoff from the surface of the land resulting from precipitation or snow or ice melt.

Stormwater Management Act – Act of October 4, 1978, P.L. 864, No. 167, as amended 32 P.S. Section 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 Part VI of this Chapter.

Stormwater Management Site Plan (SWM Site Plan) – The Plan prepared by the Developer or his representative identifying regulated earth disturbance activities and indicating how stormwater runoff will be managed at a particular development site according to this Chapter. Stormwater (SWM) Plans shall be classified and addressed as follows:

A. **Small Project Plan** – Regulated activities on existing lots of record that, measured on a cumulative basis from May 12, 2014, create additional impervious areas of 1,500 sq. ft. or involves an Earth Disturbance Activity such as removal of ground cover, grading, filling or excavation of an area less than 5,000 sq. ft. and do not involve the alteration of stormwater facilities or watercourses.

B. **Minor Stormwater Management (SWM) Plan** – The use of land for any purpose involving:
   (1) Installation of new impervious surface between 2,501 and 5,000 square feet; or
   (2) Removal of ground cover, grading, filling, or excavation between 5,000 square feet and an acre (43,560 square feet), except for the agricultural use of land when operated in accordance with a Farm Conservation Plan approved by the Conservation District.
   (3) Any use involving the diversion or piping of any natural or man-made watercourse or existing drainage pattern.

C. **Major Stormwater Management (SWM) Plan** – The use of land for any purpose involving:
   (1) Installation of new impervious surface that is either in excess of 5,001 square feet; or
   (2) Any use within the floodplain area; or
   (3) Removal of ground cover, grading, filling, or excavation in excess of one (1) acre, except for the agricultural use of land when operated in accordance with a farm Conservation Plan approved by the Conservation District.

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.[8]

Subdivision – The division or re-division of a single Lot, Tract or Parcel of land by any means into two (2) or more Lots, Tracts, Parcels or other divisions of land, including changes in existing Lot Lines for the purpose, whether immediate or future, of lease, partition by the court for distribution

to heirs or devises, transfer of ownership, or Building, or Lot development, or as defined in the MPC.

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

SWM – Stormwater Management

SWM Site Plan – A Stormwater Management Site Plan.

Timber Operations – See Forest Management.

Time of Concentration (Tc) – The time for surface runoff to travel from the hydraulically most distant point (representative of the project) 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 Best Management Practices 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 this 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 sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, ferns, and similar areas.

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

PART 3
STORMWATER MANAGEMENT STANDARDS

§11-301. 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 Section 401 or the activity qualifies as a Small Project.

B. No regulated activities shall commence until the Township issues unconditional written approval of a SWM Site Plan or Stormwater Permit. The Township's approval shall not constitute a warranty by the Township to the owner, developer or any third party that the plan or permit is in conformance with the laws of this Commonwealth or this Chapter.

C. SWM Site Plans approved by the Township, in accordance with Section 406, shall be on site throughout the duration of the regulated activity.

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

E. For all regulated activities, erosion and sediment control and stormwater management BMPs shall be designed, implemented, operated, and maintained to meet the purposes and requirements of this Ordinance and to meet all requirements under Title 25 of the Pennsylvania Code and the Clean Streams Law. Various BMPs and their design standards are listed in the *Erosion and Sediment Pollution Control Program Manual* (E&S Manual)[9], No. 363-2134-008 (March 2012), as amended and updated, the BMP Manual and Section 307 of this Chapter.

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 Clay Township in accordance with 301.B. A Regional Stormwater Management Plan must meet all of the volume and rate control standards required by this Ordinance 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 ordinance and the requirements of the Regional Stormwater Management Plan are met.

G. Unless prohibited by the Clay Township Zoning Ordinance or any Ordinance which regulates construction and development within the areas of the Township 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 more strict provisions of Chapter 27 of the Clay Township Code of Ordinances and 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 development is to take 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.

3. Incorporate methods described in the *Pennsylvania Stormwater Best Management Practices Manual* (BMP Manual[4]).

J. The design of all stormwater management facilities over karst 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.

h. Bedrock pinnacles (surface or subsurface).

2. Stormwater management facilities 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 facilities be located closer than 50 feet from lineaments or fracture traces; nor shall these facilities be located close than 25 feet from surface or identified subsurface pinnacles unless lined with an impermeable liner or equivalent design as signed and sealed by a professional geologist.

3. Stormwater resulting from regulated activities shall not be discharged into sinkholes.

4. It shall be the developer's responsibility to verify if the development is underlain by carbonate geology. The following certificate shall be included on all stormwater 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 to reduce 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 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 suitability of soils and Development Site conditions and shall be constructed on soils that have the following characteristics:

1. A minimum depth of 24 inches between the bottom of the facility and the limiting zone. Modifications will be considered if it is demonstrated to the satisfaction of the Township that the selected BMP has design criteria which allow for a smaller separation.

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

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

b. The stabilized infiltration rate is to be determined as specified in the BMP Manual.

M. The calculation methodology to be used in the analysis of volume and peak rates of discharge shall be as required in Section 305.

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. (See Invasive Plants in Pennsylvania by the Department of Conservation and Natural Resources (DCNR))

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; however, where groups of trees exist, only the tress on the outside edge need to be marked. A 48 inch high snow fence or 48 inch high construction fence mounted on steel posts located 8 feet on center shall be placed along the tree protection boundary. No construction, storage of material, temporary parking, pollution of soil, or re-grading 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 should 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 twenty (20) 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. Easements shall provide for ingress and egress to a public right-of-way.

R. Drainage easements shall be provided 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. The terms of the easement shall prohibit excavation, the placing of fill or structures, and any alterations that may affect adversely the flow of stormwater within any portion of the easement. Also cosmetic and structural maintenance of vegetation within the easement shall be required.

S. The Township 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. Sump pumps shall not be tributary to any subsurface facility. Use of catchment facilities for the purpose of reuse is also permitted. When it is more advantageous to connect directly to streets or storm sewers, roof drains connections to streets or roadside ditches may be permitted on a case-by-case basis by the Township. It shall be the burden of the person seeking to make the connection to demonstrate to the Township that such connection is more advantageous and such connection shall not violate any state or federal statue, rule or regulation. Proposed storm sewer piping may connect to an existing storm sewer piping system provided the existing storm sewer is adequate.

U. Non-structural BMPs shall be utilized for all regulated activities unless proven to be impractical.

V. Where any regulated activity involves the construction of a driveway and/or roadway (public or private) and involves stormwater management facilities the Driveway Ordinance (Chapter 21 Part 1 of Code of Ordinance) as amended, shall apply with respect to stormwater management facilities.

§11-302. 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.

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

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

2. For modeling purposes:

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

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

   c. The maximum loading ratio for volume control facilities in Karst areas shall be 3:1 impervious drainage area to infiltration area and 5:1 total drainage area to infiltration area. The maximum loading ratio for volume control facilities in non-Karst areas shall be 5:1 impervious drainage area to infiltration area and 8:1 total drainage area to infiltration area. A higher ratio may be approved by the Township if 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 (1) inch 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 Section 504.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 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 Section 301.L.

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

F. Volume control storage facilities designed to infiltrate shall avoid the least permeable Hydrologic Soil Group(s) at the Development Site.

§11-303. 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 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.

B. Where the pre-development hydrograph cannot be matched, per the Cocalico Creek Watershed Act 167 Stormwater Management Plan as required in Section 106.A, the post development peak discharge rates shall not exceed 50% of the peak rates of runoff prior to development for the 2, 10, 25, 50 and 100-year storm event*.

   *A 24 hour SCS type II storm or an IDF Curve Rational Method storm. See Table 3-1 in Section 305.

C. Normally dry, open top, storage facilities shall completely drain the rate control storage volume 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 listing 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.

§11-304. Stormwater Management Performance Standards (Sections A-G do not apply to Small Projects)

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[10], 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 certified notification of the adjacent property owner(s) by the developer. Such stormwater flows shall be subject to the requirements of this Township, including the establishment of a drainage easement. Copies of all such notifications shall be included in 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. All stormwater conveyance facilities (excluding detention, retention, and wetland basin outfall structures) shall be designed to convey a 25 year storm event*. All stormwater conveyance facilities (excluding detention, retention, and wetland basin outfall structures) conveying water originating from offsite shall be designed to convey a 50 year storm event*. Safe conveyance of the 100-year runoff event* to appropriate peak rate control BMPs must be demonstrated in the design.

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

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.

I. Roof drains shall not be connected to streets, sanitary or storm sewers or roadside ditches. Roof drains shall discharge to infiltration areas or vegetative BMPs to the maximum extent practicable.

J. Stormwater management facilities which involve a state highway shall be subject to the approval of PennDOT. However, in no instance shall the Township bear ultimate responsibility for

maintenance of any portions of PennDOT approved projects, and the responsibility shall remain with the property owner, pursuant to an agreement to be entered between the property owner and the Township.

K. A concentrated discharge of stormwater to an adjacent property shall be within an existing watercourse or otherwise written and recorded easement approved by the Township Solicitor shall be required.

§11-305. 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 Township. Table 3-1 summarizes acceptable computation methods. It is assumed that all

TABLE 3-1
ACCEPTABLE COMPUTATION METHODOLOGIES FOR STORMWATER MANAGEMENT PLANS

METHOD	METHOD DEVELOPED BY	APPLICABILITY
TR-20 (or commercial computer package based on TR-20)	USDA NRCS	Applicable where use of full hydrology computer model is desirable or necessary.
WinTR-55 (or commercial computer package based on 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 hydrologic computer model is desirable or necessary.
Rational Method (or commercial computer package based on Rational Method)	Emil Kuichling (1889)	For development sites less than 200 acres, Tc<60 min. or as approved by the Township.
EFH2	USDA NRCS	Applicable in rural and undeveloped areas subject to the Program Limits.
Other Methods	Varies	Other methodologies approved by the Township.

methods will be selected by the design professional based on the individual limitations and suitability of each method for a particular Development Site.

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 distribution shall be used in all areas.

D. If the Rational Method is used, the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 data (see item "B" above) or PennDOT Publication 584 "PennDOT Drainage Manual," 2008 Edition, or latest, 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. (Refer to Appendix B-3)

E. Hydrographs may be obtained from NRCS methods such as TR-55, TR20, 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 length equal to three times the time of concentration (3xTc) and the descending leg shall have a length equal to 7 times the time of concentration (7xTc) to approximate an SCS Type II hydrograph.[11]

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 B-1 and B-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 Tc is provided in Appendix B-5. Times of concentration (Tc) 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 one hundred fifty (150) feet. Flow lengths greater than one hundred (100) feet shall be justified based on the actual conditions at each Development Site. Sheet flow may be determined using the nomograph in Appendix B-4, or the Manning's kinematic solution shown in the Sheet Flow section of Worksheet No. 1 in Appendix B-5.

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 B-6.

c. Open Channel flows: At points where sheet and shallow concentrated flows concentrate in field depressions, swales, gutters, curbs, or pipe collection systems, the travel times to 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 Township 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 Township.

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 offsite runoff is routed through rate control facilities, runoff coefficients for off-site discharges used to design those rate control facilities shall be based on actual land use assuming 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

§11-306. 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 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 ecological context of the site.

D. The Riparian Corridor Easement shall be enforceable by the Township 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 recorded easement shall be superior to all liens of record and the easement shall be on such form as the Township Board of Supervisors may

adopt, from time to time, by Resolution. The easement shall allow for the continued private ownership and shall count toward the minimum lot area as required by Zoning, unless otherwise specified in Chapter 27 of the Code of Ordinances of the Township of Clay.

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 ecological 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.

§11-307. Stormwater Management Facility Design Standards

A. General.

1. For all above ground storage facilities, the bottom of the excavated basin shall be a minimum of two (2) feet or 24 inches above the seasonal high water table or bedrock. Soil sampling, test pits or auger testing must be completed in the proposed location of the facilities in support of the design.

2. Above ground storage facilities without restricted access shall have impoundment areas with side slopes no greater than five horizontal to one vertical. Basins with side slopes steeper than five horizontal to one vertical shall be protected by fencing that will discourage access.

3. Above ground storage facilities with a facility depth greater than eight (8) feet shall not be permitted in residential areas.

4. Above ground storage facilities with a facility depth greater than 15 feet require a dam permit from DEP.

5. All anti-seep collars, when required, shall be designed in accordance with Chapter 7 of the DEP E&S Manual. The material shall consist of concrete or otherwise non-degradable material approved by the Township Engineer around the outfall barrel and shall be watertight.

6. 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.

7. 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 (5) passes of the compaction equipment over the entire surface of each lift is required. Embankment compaction to visible non-movement is also required.

8. 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.

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

10. When required, pretreatment elements shall consist of forebays, filter strips or equivalent alternate approved by the Township Engineer, to keep silt to a smaller portion of the facility for ease of maintenance.

11. 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 Section 301.N and the BMP Manual which is designed to promote infiltration.

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

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

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

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

16. The spillway shall be designed to convey the 100-year peak inflow when required.

17. Freeboard shall be measured from the top of the water surface elevation in the spillway to the top of the embankment.

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

19. Embankment construction.

    a. 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.

    b. 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.

    c. 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.

    d. 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.

    e. 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.

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

    g. The core shall be constructed concurrently with the outer shell of the embankment.

    h. The trench shall be dewatered during backfilling and compaction operations.

B. 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. Refer to Table 3-2.
    a. Above ground storage facility with facility depth of less than two (2) feet
        1) The minimum top of embankment width shall be two (2) feet.
        2) Maximum interior side slope 2:1
        3) Maximum exterior side slope 2:1
        4) Minimum outlet pipe diameter shall be six (6) inches.
        5) Outlet pipe material: PVC, HDPE or RCP
        6) An anti-clogging device is required
        7) Watertight joints shall be provided in karst areas
        8) The spillway freeboard shall be a minimum three (3) inches
        9) The spillway may be used to route the 100-year storm

b. Above ground storage facility with depth of two (2) to eight (8) feet
   1) Embankment minimum top width of five (5) feet
   2) Maximum interior side slope 5:1.
   3) Maximum exterior side slope 3:1.
   4) A key trench and anti-seep collar shall be provided.
   5) Compaction density of the embankment is required.
   6) A dewatering feature is required.
   7) Pretreatment filtering of runoff is required.
   8) Minimum outlet pipe diameter of 12 inches
   9) Outlet pipe material: HDPE or RCP
   10) An anti-clogging device is required.
   11) An antivortex design is required.
   12) Watertight joints shall be provided by Township Engineer.
   13) The spillway freeboard shall be a minimum six (6) inches.
   14) The minimum spillway width is 10 feet.
   15) The maximum spillway width is 50 feet.
   16) The downstream channel into which the spillway discharges shall be checked for adequate capacity and stability.
   17) The spillway shall not be considered to function as part of the primary outlet structure and shall be only for emergency situations.

c. Above-ground storage facility with depth greater than eight (8) feet
   1) Embankment minimum top width of eight (8) feet.
   2) Maximum interior side slope 5:1.
   3) Maximum exterior side slope 3:1.
   4) A key trench and anti-seep collar shall be provided.
   5) Compaction density of the embankment is required.
   6) A dewatering feature is required.
   7) Pretreatment filtering of runoff is required.
   8) Minimum outlet pipe diameter of 15 inches.
   9) Outlet pipe material: RCP.
   10) An anti-clogging device is required.
   11) An antivortex design is required.
   12) Watertight joints shall be provided.
   13) The spillway freeboard shall be a minimum 12 inches.
   14) The minimum spillway width is 20 feet.
   15) The maximum spillway width is 50 feet.
   16) The downstream channel into which the spillway discharges shall be checked for adequate capacity and stability.
   17) The spillway shall not be considered to function as part of the primary outlet structure and shall be only for emergency situations.

d. General Requirements for above-ground storage facilities:
   1) Where practical, the spillway shall be constructed in undisturbed ground.
   2) The effect on the downstream areas if the facility embankment fails shall be considered in the design of all facilities. Where possible the facility shall be designed to minimize the potential damage caused by such failure of the embankment.
   3) For all above ground facilities that do not rely on infiltration to dewater the runoff, a flow path length to width ratio of 2:1 shall be provided to maximize the treatment time between the inflow point and the outlet structure.

Table 3-2. Above ground storage facility design criteria.

Above-ground storage facility design criteria			
	Facility Depth		
	Less than 2 feet	2 feet to 8 feet	Greater than 8 feet
Embankment Geometry			
Top width (minimum)	2 feet	5 feet	8 feet
Interior side slope (maximum)	2 : 1	5 : 1	5 : 1
Exterior side slope (maximum)	2 : 1	3 : 1	3 : 1
Embankment construction			
Key trench	Not required	Required	Required
Anti-seep collar	Not required	Required	Required
Compaction density	Not required	Required	Required
Internal Construction			
Dewatering feature	N/A	Required	Required
Pretreatment elements	Not required	Required	Required
Outlet Structure			
Pipe size (minimum)	6 inches	12 inches	15 inches
Pipe material	HDPE, PVC, RCP	HDPE, RCP	RCP
Anticlogging devices	Required	Required	Required
Antivortex design	Not required	Required	Required
Watertight joints in piping	No**	Yes	Yes
Spillway Requirements			
Spillway freeboard (minimum)	3 inches	6 inches	12 inches
Width (minimum)	Not required	10 feet	20 feet
Width (maximum)	Not required	50 feet	50 feet
Spillway channel design	Not required	Required	Required
Routing of 100 year storm	Permitted	Not Permitted	Not Permitted

**Watertight joints shall be provided in all areas of karst geology.

C. 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 or cisterns.

1. General

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

b. 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 governing municipal road/street or subdivision and land development ordinances. 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.

c. 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.

d. When located under pavement, the top of the subsurface facility shall be a minimum of three (3) inches below the bottom of pavement subbase. 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.

e. Subsurface facilities shall be designed to safely convey and/or bypass flows from storms exceeding the design storm.

f. Infiltration systems shall be located a minimum of 50 from residential wells or 100 feet from community or municipal water supply wells. Separation from basement foundations shall be at least 10 feet down gradient or 100 feet up gradient; and 50 feet from septic systems unless specific circumstances allow for reduced separation distances.

g. Infiltration rates shall not be used in computing the storage volume of the infiltration system.

2. Design Criteria. Refer to Table 3-3.

a. Infiltration and Storage Facility
   1) Maximum Depth from Surface: 2 feet less than limiting zone

2) Loading Ratio: Per December 2006 BMP Manual, as amended. The maximum impervious loading ratio of 5:1 relating impervious drainage area to infiltration area. The maximum total loading ratio of 8:1 relating to total drainage area to infiltration area. In areas of Karst Geology, the maximum impervious drainage area to infiltration area is 3:1 and the maximum total drainage area to infiltration ratio is 5:1.
3) Minimum distribution pipe size shall be four (4) inches. Distribution system piping may be PVC or HDPE.
4) Pretreatment of runoff to the facility is required to provide a method to eliminate solids, sediment, and other debris from entering the subsurface facility.
5) Observation/access ports shall be provided in the facility. 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. 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 Township shall be provided for access to and monitoring of the facility. The number of access points shall be sufficient to flush or otherwise clean out the system.
6) 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 (i.e. distribution pipe).

b. Storage without Infiltration Facility

1) Minimum distribution pipe size shall be four (4) inches. Distribution system piping may be PVC, HDPE, or RCP.
2) Pretreatment of runoff to the facility is required to provide a method to eliminate solids, sediment, and other debris from entering the subsurface facility.
3) Observation/access ports shall be provided in the facility. 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. 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 Clay Township shall be provided for access to and monitoring of the facility. The number of access points shall be sufficient to flush or otherwise clean out the system.

Table 3-3. Subsurface storage facility design criteria:

Subsurface storage facility design criteria		
	Facility Type	
	Infiltration and Storage	Storage without Infiltration
Facility Geometry		
Depth from surface (maximum)	2 feet less than limiting zone	N/A
Loading ratio (maximum)	Per BMP Manual*	N/A
Distribution System Requirements		
Pipe size (minimum)	4 inches	4 inches
Pretreatment	Required	Required
Loading/balancing	Required	Not required
Observation/access ports	Required	Required

*Unless otherwise determined by professional geologic evaluation.

D. 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. General.

a. 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.

b. Conveyance pipes, culverts, manholes, inlets and endwalls which are otherwise subject to vehicular loading shall be designed for the HS-25 loading condition.

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 governing municipal road/street or subdivision and land development ordinances.

d. 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.

e. Access/maintenance ports. An access/maintenance port is required, and may either be an inlet or manhole.

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

g. The street crossing angle shall be measured between the pipe centerline and the street centerline.

h. Elliptical pipe of an equivalent cross-sectional area may be substituted in lieu of circular pipe where cover or utility conflict conditions exist.

i. The roughness coefficient (Manning "n" values) used for conveyance pipe capacity calculations should be determined in accordance with the manufacturer's specifications or with PennDOT Publication 584, PennDOT Drainage Manual (Appendix B-7).

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

k. 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.

l. 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.

m. Inlets in streets shall be located along the curb line.

n. Top units shall be PennDOT Type "C" in areas of curbing. The hood shall be aligned with the adjacent curb height.

o. 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.

p. 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.

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

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

s. Swale capacities and velocities shall be computed using the Manning equation using the following design parameters:
   1. Vegetated swales.
      (a) The first condition shall consider swale stability based upon a low degree of retardance ("n" = 0.03);
      (b) The second condition shall consider swale capacity based upon a higher degree of retardance ("n" = 0.05); and
      (c) All vegetated swales shall have a minimum slope of 1% unless otherwise approved by the Township Engineer.
      (d) The "n" factors to be used for paved or riprap swales or gutters shall be based upon accepted engineering design practices, as approved by the Township Engineer.

t. 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.

u. Headwalls and endwalls shall be constructed of concrete.

v. Flared end sections shall be of the same material as the connecting pipe and be designed for the size of the connecting pipe to provide a watertight joint.

w. Level spreaders:

   1. Shall discharge at existing grade onto undisturbed vegetation.
   2. Discharge at a depth not exceeding 3.0 inches for a 50-year, 24-hour design storm.

x. Energy dissipaters shall be designed in accordance with the requirements in the DEP E&S Manual.

y. 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 Township to prove that the proposed facility has been designed to limit the potential risk to the life, safety or welfare of the general public.

z. 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.

2. Design criteria. Refer to Table 3-4.

a. Within public street right-of-way.
   1) Conveyance system material shall consist of HDPE or RCP pipe.
   2) The minimum pipe slope shall be 0.5%.
   3) A minimum 1 foot of cover to the stone subgrade shall be provided over the conveyance pipes.
   4) The minimum pipe diameter shall be 15 inches.
   5) The minimum street crossing angle for the conveyance system shall be 75° to 90°.
   6) Maximum spacing between access or maintenance ports shall be 400 feet.
   7) Inlets and manholes shall be concrete.
   8) Inlets shall be depressed a minimum of two (2) inches below the surface grade to provide positive flow.
   9) Swales shall be provided with a minimum freeboard of six (6) inches.
   10) The maximum swale velocity shall be determined based on the stability of the channel.
   11) The minimum swale slope shall be one percent (1 %).
   12) Side slopes in residential and non-residential areas shall be a maximum of 4:1.
   13) The bottom width to flow depth ration shall be 12:1.
   14) Pipe entrances/discharges in public street right-of-ways shall be provided with a headwall/endwall treatment.
   15) The pipe discharge locations shall be provided with an energy dissipater designed to handle the anticipated flow conditions in conjunction with Section 304.G.

b. Outside public street right-of-way: vehicular loading
   1) Conveyance system material shall consist of PVC, HDPE or RCP pipe.
   2) The minimum pipe slope shall be 0.5%.
   3) A minimum 1 foot of cover to the stone subgrade shall be provided over the conveyance pipes.
   4) The minimum pipe diameter shall be 15 inches.
   5) Maximum spacing between access or maintenance ports shall be 400 feet.
   6) Inlets and manholes shall be concrete.
   7) Inlets shall be depressed a minimum of two (2) inches below the surface grade to provide positive flow.

c. Outside public street right-of-way: non-vehicular loading
   1) Conveyance system material shall consist of PVC, HDPE or RCP pipe.
   2) The minimum pipe slope shall be 0.5%.
   3) A minimum 1 foot of cover to the surface shall be provided over the conveyance pipes.
   4) The minimum pipe diameter shall be eight (8) inches.
   5) Maximum spacing between access or maintenance ports shall be 600 feet.
   6) Manholes shall be concrete.
   7) Inlets shall be depressed a minimum of one (1) inches below the surface grade to provide positive flow.
   8) Swales shall be provided with a minimum freeboard of six (6) inches.
   9) The maximum swale velocity shall be determined based on the stability of the channel.

10) The minimum swale slope shall be one percent (1 %).
11) Side slopes in residential areas shall be a maximum of 4:1. Side slopes in non-residential areas shall be a maximum of 3:1.
12) The bottom width to flow depth ration shall be 12:1.
13) Pipe entrances/discharges in public street right-of-ways shall be provided with a headwall/endwall or flared end section treatment.
14) The pipe discharge locations shall be provided with an energy dissipater designed to handle the anticipated flow conditions in conjunction with Section 304.G.

Table 3-4. Conveyance facility design criteria:

Conveyance facility design criteria			
Location	**Within public street right-of-way**	**Outside public street right-of-way**	
Loading	**All**	**Vehicular loading**	**Non-vehicular Loading**
Pipe design			
Material	HDPE, RCP	PVC, HDPE, RCP	PVC, HDPE, RCP
Slope (minimum)	0.5%	0.5%	0.5%
Cover	1 foot to stone subgrade	1 foot to stone subgrade	1 foot to surface
Diameter (minimum)	15 inches	15 inches	8 inches
Street crossing angle	75° to 90°	N/A	N/A
Access/maintenance port frequency (maximum)	400 feet	400 feet	600 feet
Inlet design			
Material	Concrete	Concrete	N/A
Grate depression	2 inches	2 inches	1 inch minimum
Manhole design			
Material	Concrete	Concrete	Concrete
Swale design			
Freeboard (minimum)	6 inches	N/A	6 inches
Velocity (maximum)	Stability check	N/A	Stability check
Slope (minimum)	1%	N/A	1%
Side slopes (residential area)	4 : 1 max	N/A	4 : 1 max
Side slopes (non-residential area)	4 : 1 max	N/A	3 : 1 max
Bottom width to flow depth ratio	12 : 1	N/A	12 : 1
Outlet design			
End treatment	Headwall/endwall	N/A	Headwall/ endwall or flared end section
Energy dissipater	Required	N/A	Required

E. Capture and Reuse Facilities.

1. Design Requirements:

a. Calculation of water usage to insure adequate capacity is available for storage of follow-up rainfall events. The property will draw from the cistern on a daily basis; the cistern shall be dewatered in seventy-two (72) hours to maintain the capacity of the storage facility.

b. Verification of conveyance pipe capacity in the roof leader design.

c. The water storage container(s) shall be protected from direct sunlight to minimize algae growth

d. An alternative supply of water shall be available for the property use during dry periods.

e. Water storage containers should be watertight with smooth interior surfaces.

f. The cover (or lid) should have a tight fit to keep out surface water, children, animals, dust and light. The cover or lid opening should be a minimum 24 inches in order to access the facility for maintenance and repair.

g. Cisterns shall be designed to store the runoff volume of a 100-year storm event for the area served by the water storage facility.

h. Every water storage facility (cistern, rain barrel, etc.) shall be provided with an overflow or an emergency spillway. The overflow shall be designed to discharge away from buildings and other structures and towards existing natural or manmade channels, stormwater facilities or vegetated slopes.

i. The plans proposing a water storage facility shall include the following:
   i. All calculations and assumptions used in the design.
   ii. Sufficient detail showing the proposed method of dewatering (i.e. pump).
   iii. Structural details.

j. Maintenance responsibilities for water storage and reuse facilities shall include flushing the storage units to remove any accumulated sediment, the inside surfaces shall be brushed and thoroughly disinfected.

k. The water shall not be allowed to freeze in the devices.

§11-308. Floodplain.

Floodplain areas shall be established and preserved as provided below:

A. A one hundred (100) year floodplain shall be established for all watercourses and shall be delineated by one of the following methods:
   1. A hydrologic report prepared by an individual registered in the Commonwealth of Pennsylvania to perform such duties.

   2. An existing hydrologic report prepared by an agency of the County, State, or U.S. Government (FEMA) that includes detailed study data. Floodplains established by approximate methods are not acceptable and will necessitate compliance with item A.1 above.

B. Whenever a floodplain is located within or along a lot, the Record Plan (where a regulated activity constitutes a subdivision or land development) or Stormwater Management Site Plan (where a regulated activity does not constitute a subdivision or land development) shall include: the boundary of the floodplain, along with the elevation and locational dimensions from the centerline of the watercourse; a plan note that the floodplain shall be kept free of structures, fill, and other encroachments; and a plan note that floor elevations for all structures adjacent to the floodplain shall be two (2) feet above the FEMA and/or calculated 100 year flood elevation.

C. This Section 308 shall not be constructed as a prohibition on uses permitted within the Floodplain Zoning Ordinance.

D. All plans that include floodplain areas must be based on survey benchmarks that correlate to USGS Datum used in any referenced flood study in Item A.2 above.

E. All floodplain uses shall be consistent with Chapter 27 of the Code of Ordinances.

§11-309. Erosion and Sediment Control.

A. The applicant must comply with the erosion control rules and regulations of Title 25 Rules and Regulations, Part I, PADEP, Subpart C, Protection of Natural Resources, Article II, Water Resources, Chapter 102, Erosion Control, as amended.

B. Earth disturbance activities of 5,000 square feet or greater require design, implementation, and maintenance of erosion and sediment control BMPs that control erosion and prevent sediment pollution during the earth disturbance activities.

C. The Conservation District is delegated the authority to issue permits and other approvals by PADEP. Evidence of any necessary permits for the earth disturbance activities from the appropriate PADEP regional office, or the Conservation District if delegated by PADEP, must be provided to the Township for projects over one (1) acre in earth disturbance.

D. A copy of the erosion and sedimentation control plan and any required permit, under Chapter 102 shall be available at the project site at all times.

E. The design plan and construction schedule shall incorporate measures to prevent soil erosion and sedimentation.

F. The method of erosion protection proposed must be supported by design information and/or references.

G. Flow velocities from any storm sewer may not result in a deflection of the receiving channel.

H. Energy dissipaters (outlet protection) shall be placed at the outlets of all storm sewer pipes, culverts, and bridges in keeping with the PADEP March 2012 Erosion and Sedimentation Pollution Control Manual, as amended.

PART 4
PLAN PROCESSING PROCEDURES

§11-401. Exemption from Plan Submission Requirements

A. The following regulated activities are specifically exempt from the SWM Site Plan preparation and submission requirements articulated in Section 301.A and Parts IV and V of this Chapter:

1. An Applicant proposing the cumulative installation of 1,000 square feet or less of Impervious Surface cover may be exempt from the design, plan submittal, and processing requirements of Parts IV and V of this Chapter if the proposal meets the criteria in the Section 401.A.1. No person or activity is exempted from compliance with Section 604, Parts VII, VIII, and IX of this Chapter. 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.

   a. Any Applicant desiring exemption from design, plan submission, and plan processing requirements shall complete an application for exemption in the form set forth in Appendix A-1. and pay any applicable filing fee.

   b. If the proposed activity is located in a High Quality (HQ) or Exceptional Value (EV) watershed, the applicant shall be responsible for compliance with all federal and state requirements. This exemption does not provide relief from any other applicable state or federal requirements (Refer to Appendix E).

   c. No Applicant and no activity shall violate or cause to be violated: the Federal Clean Water Act, Clean Streams Law, or any regulation issued thereunder, an NPDES permit, any recorded Stormwater Management or Operations and Maintenance Agreement, or any requirement applicable to a Municipal Separate Storm Sewer System.

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

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

4. Municipal Utility Maintenance (linear).

B. The Stormwater Exemption Application shall be completed and submitted to the Municipality. Upon receipt of a written approval from the Clay Township the applicant may proceed with the proposed improvements.

C. The Township may deny or revoke any exemption pursuant to this Section at any time for any project that the Township believes may pose a threat to public health, safety, property, the environment or violates any of the provisions of this Chapter.

§11-402. Agricultural Stormwater Exemption

Properties in the Agricultural or Agricultural Transition zoning districts are permitted an additional 10,000 square feet of impervious area when the following conditions are satisfied:

1. Properties located in an Agricultural or Agricultural Transition Zoning District are eligible for a "by right" exemption. Land of 10 acres or more in active agricultural use in other Zoning Districts may be eligible for the exemption subject to approval by the Board of Supervisors.

2. The minimum property area shall be 10 acres.

3. The Total maximum exemption area shall not exceed 10,000 SF, cumulatively, beginning December 12, 2022.

4. Eligibility for the Agricultural Exemption does not supersede the lot coverage limits defined in the Zoning Ordinance.

5. Distance to the nearest downstream perennial stream, watercourse, other water body, public road or neighboring property line shall not be less than 100 feet. If the distance is less than 100 feet, the applicant shall provide verification from a design professional registered in Pennsylvania that the runoff is leaving the site in a manner similar to pre-development runoff characteristics. In any case, the setback shall not be less than the setback requirements provided in the Zoning Ordinance.

6. Average grade (%) of the land surface immediately downstream of proposed impervious area/structure between the proposed impervious area/structure and the downstream perennial stream, watercourse, other water body, public road or neighboring property line shall be noted on the application.

7. The applicant shall include a type of buffer or diversion system to disperse runoff (example: berm, terrace, swale with level spreader, etc., or none), when necessary to return runoff characteristics to existing conditions.

8. A sketch of the property shall be included with the application to the Township showing the dimensioned setbacks, location of all existing structures, structure location and dimensions, approximate slopes, runoff flow direction arrows or grading contours, etc. If the total disturbance related to the project exceeds 5,000 square feet, an erosion and sedimentation pollution control plan shall be prepared and submitted with the application for review and the plan shall be maintained on site for the duration of construction. Refer to Appendix A-7 and 7a. for the minimum information required on the sketch plan.

9. The applicant shall provide evidence of implementation of an approved conservation/conservation E&SPC plan.

§11-403 – High Tunnel Stormwater Exemption

High Tunnel – A structure which meets the following: (1) Is used for the production, processing, keepings, storing, sale or shelter of an agricultural commodity as defined in Section 2 of the act of

December 19, 1974 (P.L. 973, No. 319), known as the Pennsylvania Farmland and Forest Land Assessment Act of 1974, or for the storage of agricultural equipment or supplies, (2) Is constructed consistent with all of the following:

(iv) Has a metal, wood or plastic frame.
(v) When covered, has a plastic, woven textile or other flexible covering.
(vi) Has a flood made of soil, crushed stone, matting, pavers or a floating concrete slab.

§11-404. Small Projects

A. Anyone proposing a Small Project shall submit three (3) copies of the Small Project Application to the Township designee.

B. A complete Small Project Application shall include:

1. Small Project Application Form (Appendix A-4)

2. Small Project Sketch Plan (Appendix A-7) including the following:
   a. Name and address of landowner (and/or) developer, if applicable
   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 land disturbance
   e. Approximate footprint and location of all structures on adjacent properties if located within 50 feet of the proposed impervious area or land 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 (i.e. with arrows)
   i. Scale and north arrow
   j. Approximate location of on-lot sewage systems and wells

3. Filing fee (in accordance with the Township's current fee schedule).

B. The Small Project Application shall be submitted in a format that is clear, concise, legible, neat and well organized.

C. The Small Project Application shall be reviewed by Clay Township's staff or Designee and does not require processing through the Planning Commission or the Board of Supervisors. Upon receipt of a written approval and recording and agreement from the Clay Township the applicant may proceed with the proposed improvements (Appendix A-4).

D. Applicant is responsible for delivering complete application to Township Engineer.

§11-405. Pre-Application Meeting

Applicants are encouraged to schedule a pre-application meeting to review the overall stormwater management concept with Township staff/engineer. The pre-application meeting is not mandatory

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

1) Available geological maps, plans and other available data provided by applicant.

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

3) Results of infiltration tests.

4) Applicable Subdivision and Land Development and/or Zoning ordinance provisions.

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

§11-406. Minor Stormwater Management Site Plan Submission

A. When a Minor Stormwater Management Site Plan is required, the applicant shall submit the following to Clay Township:

   1. Five (5) copies of the SWM Site Plan prepared in accordance with the requirements of Part V of this Chapter.

   2. Two (2) copies of all supplemental data.

   3. A filing fee (in accordance with the Township's current fee schedule).

B. The Minor SWM Site Plan shall be submitted in a format that is clear, concise, legible, neat and well organized.

C. The applicant is responsible for submitting one (1) copy of the plans and all supplemental data to the Township Engineer and one (1) copy of the plans and all supplemental data Township Solicitor.

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 be conditioned upon the applicant obtaining all necessary permits.

E. Incomplete submissions as determined by Township staff or its designee, shall be returned to the Applicant within ten (10) business days, along with a statement that the submission is incomplete, and stating the deficiencies found. Otherwise, the application shall be deemed accepted for filing as of the date of submission. Acceptance of the application shall not, however, constitute an approval of the plan or a waiver of any deficiencies or irregularities. The applicant may appeal Clay Township's decision not to accept a particular application in accordance with Section 1004 of this Ordinance.

F. At its sole discretion and in accordance with this Part, when a SWM Site Plan is found to be deficient, the Township may either disapprove the submission and require a resubmission, or in the case of minor deficiencies, the Township may accept submission of revisions.

G. Failure of the Township to meet any of the foresaid dates shall not constitute a deemed approval under the MPC.

§11-407. Major Stormwater Management Site Plan Submission

A. When a Major Stormwater Management Site Plan is required, the applicant shall submit the following to Clay Township:

1. Four (4) copies of the SWM Site Plan prepared in accordance with the requirements of Part V of this Ordinance.

2. Two (2) copies of all supplemental data.

3. A filing fee (in accordance with Clay Township's current fee schedule).

B. The SWM Site Plan shall be submitted in a format that is clear, concise, legible, neat and well organized.

C. The applicant is responsible for submitting one (1) copy of the plans and all supplemental data to the Township Engineer and one (1) copy of the plans and all supplemental data Township Solicitor.

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 be conditioned upon the applicant obtaining all necessary permits.

E. Incomplete submissions as determined by the Board of Supervisors or its designee, shall be returned to the Applicant within fifteen (15) days, along with a statement that the submission is incomplete, and stating the deficiencies found. Otherwise, the application shall be deemed accepted for filing as of the date of submission. Acceptance of the application shall not, however, constitute an approval of the plan or a waiver of any deficiencies or irregularities. The applicant may appeal the Township's decision not to accept a particular application in accordance with Section 1004 of this Ordinance.

F. At its sole discretion and in accordance with this Article, when a SWM Site Plan is found to be deficient, the Township may either disapprove the submission and require a resubmission, or in the case of minor deficiencies, the Township may accept submission of revisions.

G. Failure of the Township to meet any foresaid dates shall not constitute a deemed approval under the MPC.

H. The applicant is responsible for providing completed application to the Township Engineer.

§11-408. Municipal Review

A. An application for a stormwater management permit may be submitted to the Township on any business day. In the event that a question arises as to whether a proposed activity requires a stormwater management permit, the landowner or developer shall furnish the Township with such information as the Township's Engineer may deem necessary to determine whether the proposed activity constitutes a regulated activity. A decision by the authorized Township designee may be appealed to the Board of Supervisors in accordance with Section 1004.

B. When the regulated activity constitutes a Subdivision or Land Development as defined in Chapter 22 of the Code of Ordinances of the Township of Clay, the SWM Site Plan and Subdivision/Land Development Plan shall be processed concurrently according to the plan processing procedure outlined in Chapter 22.

C. When the regulated activity constitutes a Small Project, the Township shall review and take action on the Small Project Application within 30 calendar days of filing.

D. When the regulated activity does not constitute a Subdivision or Land Development, Exemption or Small Project the Township Engineer shall review the SWM Site Plan for conformance with the provisions of this Chapter.

E. Following receipt of the Township Engineer's report and within ninety (90) days following the date of the first regular meeting of the Board of Supervisors after the date the application is filed, the Board of Supervisors will schedule the SWM Site Plan application for action at a regularly scheduled Public Meeting.

F. Within fifteen (15) days of the meeting at which the SWM Site Plan application is acted upon by the Board of Supervisors written notice of the Board of Supervisor's action shall be sent to the following individuals:
   1. Landowner or his agent.
   2. Applicant.
   3. Firm that prepared the Plan.

G. If the Township disapproves the SWM Site Plan, the Township will state the reasons for the disapproval in writing. The Township also may approve the SWM Site Plan with conditions and, if so, shall provide the acceptable conditions for approval in writing. Such conditional approval shall be contingent upon the applicant's written acceptance of the conditions.

H. Failure of the Township to meet any foresaid dates shall not constitute a deemed approval under the MPC.

I. The applicant is responsible for providing completed application to the Township Engineer.

§11-409. Modification Procedure

A. The provisions of this Chapter not relating to water quality are intended as minimum standards for the protection of the public health, safety, and welfare. The Township reserves the right to

modify or to extend them conditionally in individual cases as may be necessary in the public interest; provided, however, that such variation shall not have the effect of nullifying the intent and purpose of this Chapter, and that the applicant shows that to the satisfaction of the Township 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. The Board of Supervisors may grant a waiver or modification from the literal compliance with mandatory provisions of this Chapter if the applicant can demonstrate either:

i. That compliance will cause undue hardship as it applies to a particular property;

And

ii. That an alternative proposal will allow for equal or better results.

C. The approval of the waiver/modification shall not have the effect of making null and void the intent and purpose of this Chapter. In the approval of a waiver/modification, the Board of Supervisors may impose such conditions, as will, in its judgment, secure substantially the objectives of the standards and requirements of this Chapter.

D. Application procedures (waiver/modification). All requests for waiver/modifications shall be processed in accordance with the following:

1. A request for a waiver/modification shall be submitted to the Township with the required fee for an appeal or waiver. The request shall be made in writing and identify:
   (a) The specific section of this Chapter or decision which is requested for waiver;
   (b) The proposed alternative to the requirement, when applicable; and
   (c) Justifications for an approval of the waiver/modification.

2. The Township shall:
   (a) Schedule the request for consideration by the Board of Supervisors at a public meeting within 45 days of receipt; and
   (b) Provide adequate notice to the applicant and any other involved parties of the meeting at which consideration of the request is scheduled.

3. The Board of Supervisors shall, following consideration of the request, take such public action as it shall deem advisable and notify all parties involved of the action. Such notice shall cite the findings and reasons for the deposition of the waiver/modification.

E. Waivers or modifications of Section 302 relating to water quality and volume control, require processing and approval by the regional office of PADEP. Any waivers or modifications of Section 302 for projects over one (1) acre shall be provided in writing to the Township for review and comment prior to being submitted to DEP.

§11-410. Revision of Plans

A. Revisions to a SWM Site Plan after submission but before Township action shall require a re-submission of the modified SWM Site Plan consistent with Section 406 and 407 of this Chapter and be subject to review as specified in Section 408 of this Chapter.

B. For the purposes of review deadlines, each resubmission required under Section 408.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 Township, accompanied by the applicable Review Fee.

§11-411. Financial security for Minor and Major Stormwater Permits

A. A financial security (bond, restricted account or letter of credit) for stormwater related improvements shall be supplied by the Developer or Owner in conjunction with the subdivision/land development approval, or in conjunction with the SWM Site Plan approval if no subdivision/land development plan is required.

B. The applicant shall provide a financial security to the Township 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.

C. An improvement security (bond or letter of credit) for stormwater related improvements may be supplied by the Developer or Owner in conjunction with any subdivision or land development plan approval.

An applicant for subdivision or land development plan approval shall provide an improvement security to the Township for the timely installation and proper construction of all stormwater management facilities as required by the approved Stormwater Management Plan and this Chapter equal to 110% of the construction cost of the required controls.

The amount of financial security must be established based on the Township's review and approval of an "Opinion of Probable Cost" of the required improvements submitted by the developer's engineer. The Opinion shall be signed, sealed, and dated by the Registered Professional Engineer responsible for the Opinion.

D. In the event that any SWM Facilities which may be required have not been installed as provided in the approved SWM Site Plan the Board of Supervisors of the Township is hereby granted the power to enforce any corporate bond, or other security by appropriate legal and equitable remedies. If proceeds of such bond, or other security are insufficient to pay the cost of installing or making repairs or corrections to all the SWM Facilities covered by said security, the Board of Supervisors of the Township may, at its option, install part of such SWM Facilities and may institute appropriate legal or equitable action to recover the monies necessary to complete the remainder of the SWM Facilities. All of the proceeds, whether resulting from the security or

from any legal or equitable action brought against the Developer, or both, shall be used solely for the installation of the SWM Facilities covered by such security, and not for any other Municipal purpose.

E. Upon the failure of the property Owners to act in accordance with that agreement, the Township may pursue the property Owners for all of the Township's costs and expenses relating to that failure and the installation of the facilities, including but not limited to, the ability to place a lien on the property, and sue either before Magisterial District Justice or the Court of Common Pleas of Lancaster County, together with the collection of all costs, including attorneys' fees, related thereto. All property owners where a Small Project is located on the property, following completion of the SWMO improvements, shall record an Agreement as described in Section 602 hereof.

§11-412 Administration of Security.

A. Except as otherwise specifically herein provided, all issues associated with improvement security, shall be governed by the provisions of §§509, 510, and 511 of the PMPC, as amended 53. P.S. §§10509, 10510, 10511, which provisions, to the extent applicable, are adopted herein by reference.

B. If an irrevocable letter of credit from a financial institution is submitted as security, it shall not expire without the Township being notified at least 60 days in advance.

§11-413. Authorization to Construct and Term of Validity

Approval of a SWM Site Plan shall be valid for a period of one (1) year unless extended by the Township. Any time extensions shall not exceed four (4) additional for a total of five (5) years. This time period shall commence on the date that the Township approves the SWM Site Plan. If a Certificate of Completion as required by Section 413 of this Ordinance has not been submitted within the specified time period, then the Township may consider the SWM Site Plan disapproved and may revoke any and all permits issued by Clay Township. SWM Site Plans that are considered disapproved by Clay Township may be resubmitted in accordance with Section 406 and 407 of this Chapter.

§11-414 Certificate of Completion

A. Except in the use of Small Projects, at the completion of the project, and as prerequisite for the release of the Financial Security, the applicant shall provide Certification of Completion (Appendix A-8) 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 Township shall conduct a final inspection to certify compliance with this Chapter.

§11-414. Plan Recordation

A. Upon completion of the plan improvements and prior to the release of financial security, the applicant shall submit an As-Built Plan to the Township. The As-Built Plan must show the final design specifications for all SWM Facilities, grading and site improvements and be sealed by a registered professional engineer or surveyor. As-Built Plans shall include all applicable information identified on the Checklist included in Appendix A-7.

B. Review by Township Engineer.

(1) The As-Built Plan shall be reviewed by the Township Engineer to verify the plan includes all of the SWM Facilities on the subject property and the facilities are shown at the correct location.

(2) The Township Engineer shall either approve the As-Built Plan or identify corrections required.

(3) If the Township Engineer identifies corrections required to the As-Built Plan, the Applicant shall submit a revised As-Built Plan to the Township addressing the corrections.

C. Following approval of the As-Built Plan by the Township Engineer, the Applicant shall submit the SWM Site Plan for recordation in the Office of the Recorder of Deeds. Recording fees will be the responsibility of the Applicant/Developer.

D. Upon completion of recording, a digital copy of the As-Built Plan, the SWM Site Plan signed and sealed with the recording information and calculations, waiver requests and other documents shall be submitted to the Township along with one (1) paper copy of the recorded plan.

(1) The digital inventory shall be in an electronic format acceptable to the Township Engineer.

(2) 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).

E. The as-built submission shall include a certification of completion signed by a qualified professional verifying that all permanent SWM BMPs have been constructed according to the approved plans and specifications. The latitude and longitude coordinates for all permanent SWM BMPs must also be submitted, at the central location of the BMPs. If any licensed qualified professionals contributed to the construction plans, then a licensed qualified professional must sign the completion certificate.

F. After receipt of the completion certification by the Township, the Township may conduct a final inspection.

PART 5
INFORMATION TO BE INCLUDED ON OR WITH STORMWATER MANAGEMENT SITE PLANS

§11-501. 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 and design calculations shall be signed and sealed by the qualified professional responsible for the design.

D. Where the regulated activity constitutes subdivision or land development as hereinabove defined, the SWM Site Plan shall be submitted with and form an integral part of the plans required under Chapter 22 of the Code of Ordinances of the Township of Clay.

§11-502. Minor Stormwater Management Plan

A. Drafting Standards.

1. The Plan should be clearly and legibly drawn.

2. 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.

3. Each sheet shall be numbered to show the relationship to the total number of sheets in the Plan (e.g. Sheet 1 of 5).

4. 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-inch x 36-inch sheets.

5. SWM Site Plans shall be prepared in a form that meets the requirements for recording for the Office of the Recorder of Deeds of Lancaster County.

6. The total Development Site boundary and size with distances marked to the nearest foot and bearings to the nearest degree.

7. The proposed name or identifying title of the plan.

B. SWM Site Plan Information.

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

1. The date of the SWM Site Plan and latest revision, graphic scale, written scale and North arrow.

2. 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.

3. The file or project number assigned by the firm that prepared the Plan.

4. A statement, signed by all landowner, acknowledging the SWM Facilities to be permanent fixtures that cannot be altered or removed unless a revised Plan is approved by Clay Township. The Stormwater Facility Permanence statement shall be included on a plan sheet intended for recording.

5. For SWM facilities located off-site:

   a. 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.

   b. All off-site SWM Facilities shall meet the performance standards specified in this Ordinance.

6. A note informing the owner that Clay Township shall have the right of entry for the purposes of inspecting all stormwater conveyance, treatment, or storage facilities.

7. A location map, drawn to a scale of a minimum of one inch equals two thousand feet (1" = 2,000'), relating the Plan to municipal boundaries, at least two (2) intersections of road centerline or other identifiable landmarks.

8. A note on the plan indicating any area that is not to be offered for dedication along with the statement that Clay Township is not responsible for maintenance of any area not dedicated to and accepted for public use, and that no alteration to swales, or basins, or placement of structures shall be permitted within easements.

9. Certificate, signed and sealed by a qualified professional registered in the Commonwealth of Pennsylvania and qualified to perform such duties. See form of certificate in Appendix A-6.

10. The names of all owners of all immediately adjacent lands, including those properties located across street rights-of-way.

11. Existing Features.

    a. In areas within the limit of disturbance field survey is required with one (1) foot contour intervals. In areas of moderate slopes ranging from eight (8) to 15 percent two (2) foot intervals may be used. In areas of steep slopes (greater than 15 percent) five-foot contour intervals may be used. Available GIS information may be used for areas outside of the limit of disturbance.

b. The locations of all existing utilities (including on lot disposal systems and wells), sanitary sewers, and water lines and associated easements within 100 feet of the Development site boundary.

c. 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 within 100 feet of the Development site boundary.

d. An overlay showing soil names and boundaries.

e. All existing man-made features within 100 feet of the Development Site boundary.

12. Proposed Features.

a. Changes to the land surface and vegetative cover, including final proposed contours within the areas of the limit of disturbance shall be provided at one (1) foot contour intervals. In areas of moderate slopes ranging from eight (8) to 15 percent two (2) foot intervals may be used. In areas of steep slopes (greater than 15 percent) five-foot contour intervals may be used.

b. Proposed structures, roads, paved areas, buildings and other impervious and semi-impervious areas.

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

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

e. Plan and profile drawings of all proposed SWM facilities, including BMPs, drainage structures, pipes, open channels, and swales. This information shall be of the quality required for construction of all facilities.

f. Where pervious pavement is to be installed, pavement material and construction specifications shall be included.

g. The location of all existing and proposed easements, including drainage easements, access easements and riparian corridor easements.

h. A planting plan shall be provided for all vegetated BMPs in accordance with Section 301.N.

13. The location of all E&S control facilities and the Sequence of Construction.

14. The plan shall include a note identifying the number of square feet of impervious coverage for which the stormwater management facilities have been designed to accommodate.

C. Additional Information.

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

2. 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 of 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.

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

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

5. Expected project time schedule.

§11-503. Major Stormwater Management Plan

A. Drafting Standards.

1. The Plan should be clearly and legibly drawn.

2. 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.

3. Each sheet shall be numbered to show the relationship to the total number of sheets in the Plan (e.g. Sheet 1 of 5).

4. 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-inch x 36-inch sheets.

5. SWM Site Plans shall be prepared in a form that meets the requirements for recording for the Office of the Recorder of Deeds of Lancaster County.

6. The total Development Site boundary and size with distances marked to the nearest foot and bearings to the nearest degree.

7. The Proposed name or identifying title of the plan.

8. The plan sheets or sheet index shall clearly indicate which sheets are to be recorded as part of the project.

B. SWM Site Plan Information.

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

1. The date of the SWM Site Plan and latest revision, graphic scale, written scale and North arrow.

2. 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.

3. The file or project number assigned by the firm that prepared the Plan.

4. 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 Clay Township. The Stormwater Facility Permanence statement shall be included on a plan sheet intended for recording.

5. For SWM facilities located off-site:

   a. 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.

   b. All off-site SWM Facilities shall meet the performance standards specified in this Ordinance.

6. A note informing the owner that Clay Township or its designee shall have the right of entry for the purposes of inspecting all stormwater conveyance, treatment, or storage facilities.

7. The Clay Township SWM Plan Approval Certificate (Appendix A-6) shall be included on the plan.

8. A location map, drawn to a scale of a minimum of one inch equals two thousand feet (1" = 2,000'), relating the Plan to municipal boundaries, at least two (2) intersections of road centerline or other identifiable landmarks.

9. A note on the plan indicating any area that is not to be offered for dedication along with the statement that Clay Township is not responsible for maintenance of any area not dedicated to and accepted for public use, and that no alteration to swales, or basins, or placement of structures shall be permitted within easements.

10. Certificate, signed and sealed by a qualified professional registered in the Commonwealth of Pennsylvania and qualified to perform such duties. See form of certificate in Appendix A-6.

11. The names of all owners of all immediately adjacent lands, including those properties located across street rights-of-way.

12. Existing Features:

a. In areas within the limit of disturbance field survey is required with one (1) foot contour intervals. In areas of moderate slopes ranging from eight (8) to 15 percent two (2) foot intervals may be used. In areas of steep slopes (greater than 15 percent) five-foot contour intervals may be used. Available GIS information may be used for areas outside of the limit of disturbance

b. The locations of all existing utilities (including on lot disposal systems and wells), sanitary sewers, and water lines and associated easements within 200 feet of the Development site boundary.

c. 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 within 200 feet of the Development site boundary.

d. An overlay showing soil names and boundaries.

e. All existing man-made features within 200 feet of the Development Site boundary.

13. Proposed Features

a. Changes to the land surface and vegetative cover, including final proposed contours within the areas of the limit of disturbance shall be provided at one (1) foot contour intervals. In areas of moderate slopes ranging from eight (8) to 15 percent two (2) foot intervals may be used. In areas of steep slopes (greater than 15 percent) five-foot contour intervals may be used.

b. Proposed structures, roads, paved areas, buildings and other impervious and semi-impervious areas.

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

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

e. Plan and profile drawings of all proposed SWM facilities, including BMPs, drainage structures, pipes, open channels, and swales. This information shall be of the quality required for construction of all facilities.

f. Where pervious pavement is to be installed, pavement material and construction specifications shall be included.

g. The location of all existing and proposed easements, including drainage easements, access easements and riparian corridor easements.

h. A planting plan shall be provided for all vegetated BMPs in accordance with Section 301.N.

14. The location of all E&S control facilities and the Sequence of Construction.

15. The Plan shall include a note identifying the number of square feet of impervious coverage for which the Stormwater Management Facilities have been designed to accommodate.

C. Additional Information

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

2. 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 of 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.

3. 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.

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

5. Expected project time schedule.

§11-504. 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 if applicable, as required by 25 Pa. Code Chapter 102, shall be provided to Clay Township prior to unconditional final plan approval.

C. Evidence of review and approval of the NPDES permit by appropriate agencies shall be provided to the Township if the project disturbance is greater than one (1) acre.

D. For any activities that require a DEP Joint Permit Application and are regulated under Chapter 105 or Chapter 106, require a Penn DOT 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 final plan approval.

E. An Operation and Maintenance (O&M) Plan that addresses the requirements of Section 603.

F. A declaration of adequacy/highway occupancy permit from PennDOT when PennDOT stormwater facilities are proposed to be utilized.

G. An analysis of the effect of the project (in terms of runoff volumes and peak flows) on adjacent properties and on any existing municipal stormwater collection systems that may receive runoff from the development site.

H. For stormwater management facilities that would be located off-site, a note on the plan referencing a recorded Stormwater Maintenance Agreement which indicates the location and responsibility for maintenance of the off-site facilities. All off-site facilities shall meet the performance standards and design criteria specified in this chapter.

I. If wetlands are located onsite, a wetlands impact report by a qualified professional shall be provided to the Township verifying the limits of any wetlands located within the site or project boundary. Orange construction fence or an approved equivalent shall be posted around any wetlands areas found onsite during construction.

J. A justification must be included in the SWM Site Plan if BMPs other than green infrastructure methods and LID practices are proposed to achieve the volume, rate and water quality controls under this Ordinance.

PART 6
OPERATION AND MAINTENANCE (O&M)

§11-601. 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 approved O & M Plan.

B. The Landowner shall convey to the Township recorded easements to assure access for inspections and maintenance.

C. The Landowner shall keep on file with the Township 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 Township within ten (10) days of the change.

D. Enumerate permanent SWM facilities as permanent real estate appurtenances and record as deed restrictions or easements that run with the land.

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 C, 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.

§11-602. Operation and Maintenance Agreements

A. The Operation and Maintenance Agreement shall be subject to the review and approval of the Township Solicitor and Board of Supervisors.

B. The Township is exempt from the requirement to sign and record an O&M agreement.

C. All owners shall record in the Office of the Recorder of Deeds an Agreement (in a form to be adopted from time to time by Resolution of the Board of Supervisors of the Township of Clay) reflecting this Part 6, which shall be superior to all liens of record at the time of recordation. Applicant shall provide proof to the Township of the recording and the superiority of liens of record in the form of an Attorney's Opinion or title insurance policy.

§11-603. 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:

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 Township for dedicated and owned facilities), according to the following minimum frequencies:

   i. Annually for the first 5 years.
   ii. Once every 3 years thereafter.
   iii. During or immediately after the cessation of a 10-year or greater storm.
   iv. As specified in the O&M Agreement pursuant to Section 602.

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 Township.

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.

5. The SWM Site Plan shall include an O&M Plan for all existing and proposed physical stormwater management facilities. This plan shall address long-term ownership and responsibilities for O&M as well as schedules and costs for O&M activities.

§11-604. Maintenance of Existing Facilities / BMPs

SWM Facilities existing on the effective date of this Chapter, which have not been accepted by the Township 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 Section 603.B. If the Township 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 Township 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 Township 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 Township may file a municipal claim against the property upon which the work was performed in accordance with the applicable laws. The Township shall have the right to choose among the remedies and may use one or more remedies concurrently.

§11-605. Permanence of Stormwater Management/BMP facilities.

No person shall modify, remove, fill, landscape or alter stormwater management facilities and/or BMP facilities which may have been installed on a property unless a stormwater management permit has been obtained to permit such modification, removal, filling, landscaping or alteration. No person shall place any structure, fill, landscaping or vegetation into a stormwater management facility, a BMP facility or within a drainage easement that will limit or diminish the functioning of the facility in any manner.

PART 7
FEES AND EXPENSES

§11-701. General

The Township may, by Resolution from time to time, establish review, filing fees, and escrows associated with the same, consistent with law.

§11-702. Expenses Covered by Fees

A. The Township shall be entitled to set a filing fee, from time to time by Resolution of the Board, which shall cover the initial administrative costs of receiving and processing the paperwork from the Applicant. No application shall be deemed complete without payment of such filing fee.

B. The Township shall also be entitled to set review fees, from time to time by Resolution of Board of Supervisors. The review fee shall be established by the Township by separate resolution (meeting all requirements of the MPC and administered consistent with the MPC) to defray review costs incurred directly or indirectly by the Township and the Township Designee.

C. All review and filing fees shall be paid by the applicant prior to the issuance of any building permits or any site improvements. No application shall be deemed complete without payment of such fees.

D. The fees required by this Chapter shall at a minimum cover:

(1) The review of the stormwater management plan by the Township and its Designees.

(2) The development site inspection.

(3) The inspection of stormwater management facilities and drainage improvements during construction.

(4) The final inspection upon completion of the stormwater management facilities and drainage improvements presented in the stormwater management plan, and review of the as-built plans and calculations for compliance.

(5) Any additional work required to enforce any permit provisions regulated by this Chapter, correct violations, and assure proper completion of stipulated remedial actions.

(6) Defray administration and clerical costs.

E. The Township may set, from time to time by Resolution, an escrow deposit schedule based upon the estimated cost of fees described in subparagraphs B and D above. Such escrow deposit shall be deposited with the Township in advance of review of any filing. No application shall be deemed complete without payment of such escrow deposit.

F. The Township Designee, from time to time, may require replenishment of the escrow to insure that it is not exhausted by reasonably estimated current and future costs and fees as described herein.

§11-703. Clay Township Stormwater Management Inspection Fund

A. Persons (other than the Township) installing any new stormwater management storage facilities or BMPs under a minor or major Stormwater plan shall be required to pay a specified amount to the Clay Township Stormwater Management Inspection Fund to help defray costs of periodic inspection expenses.

B. The amount of the fee shall be determined as follows:

i. If the storage facility is to be privately owned and maintained, the deposit shall cover the cost of periodic inspections performed by the Township.

ii. The Township's Engineer will establish the estimated costs utilizing information submitted by the applicant. If the applicant is not satisfied with costs prepared by the Township Engineer, the applicant can appeal the same pursuant to Section 1004.

C. All interest earned shall become the property of the Township to be further used for inspection.

D. Nothing contained in herein in Section 703 shall constitute a waiver of any duty of any private owner to maintain its SWM storage facilities at its sole expense.

E. At a minimum, the Township may inspect the Stormwater and BMP facilities:

~~1.~~ Annually for the first five (5) years.

2. Once every three (3) years thereafter.

3. During or immediately after the cessation of a 10-year or greater storm, resulting in rainfall event of 4.57 inches.

F. The Township shall prepare a report of the site inspection for its file. The written inspection report shall contain the date and time of the inspection, the individual(s) who completed the inspection, the location of the BMP, facility or structure inspected, observations on performance, and recommendations for improving performance, if applicable. If deficiencies are found or the owner is in violation of this Chapter or any recorded operations and maintenance agreement, the Township shall issue a notice of violation to the property owner. The notice shall identify the deficiencies in maintenance or the violations of this Chapter or recorded operations and maintenance agreement and set forth the timeframe in which all such issues shall be addressed. The property owner shall reimburse the Township for legal, engineering and administrative costs of enforcement if the violations are not remedied within the timeframe indicated.

G. The purpose of the funds required pursuant to this §11-703. is to insure a pool of resources to be used in the event of the default of a property owner's obligations as set forth elsewhere herein. The use of such resources by the Township shall not be limited to the respective deposit of each property owner. In the event the Township uses any of said sums, the property owner shall be fully obligated to reimburse the Township for its expenditures and for all costs to collect thereof, including the Township's reasonable legal fees.

PART 8
INSPECTIONS

§11-801. Schedule of Construction Inspections

A. The Township or its designee, shall inspect all phases of the installation of any temporary or permanent stormwater management facilities.

B. A schedule of required inspections shall be determined through a pre-construction meeting with Township staff.

C. Required inspections shall be scheduled through the Township a minimum of forty-eight (48) hours prior to the time the inspection is requested.

D. During any stage of work, if the Township or its designee determines that any temporary or permanent stormwater management facilities are not being installed in accordance with the approved stormwater management site plan, the Township shall revoke any existing permits until a revised stormwater management site plan is submitted and approved, as specified in this Chapter.

PART 9
PROHIBITIONS

§11-901. Prohibited Discharges and Connections

A. The following connections are prohibited, except as provided in Section 901.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 municipal separate storm sewer or 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 municipal separate storm sewer (if applicable) which has not been documented in plans, maps, or equivalent records, and approved by the Township.

B. No person shall allow, or cause to allow, discharges into surface waters of this Commonwealth which are not composed entirely of stormwater, except (1) as provided in Section 901.D below and (2) discharges allowed under a 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 to the waters of this Commonwealth:

- Discharges from firefighting activities
- Discharges from potable water sources including water line flushing and fire hydrant flushing, if such discharges do not contain detectable concentrations of Total Residual Chlorine (TRC).
- Non-contaminated irrigation water, water from lawn maintenance, landscape drainage and flows from riparian habitats and wetlands.
- Diverted stream flows and springs.
- Non-contaminated pumped ground water and water from foundation and footing drains and crawl space pumps.
- Non-contaminated HVAC condensation and water from geothermal systems.
- Residential (i.e. not commercial) vehicle wash water where cleaning agents are not utilized.
- Non-contaminated hydrostatic test water discharges, if such discharges do not contain detectable concentrations of TRC.

E. In the event that the Township or DEP determines that any of the discharges identified in Section 901.D above significantly contribute to pollution of the waters of this Commonwealth, the Township or DEP will notify the responsible person(s) to cease the discharge.

PART 10
ENFORCEMENT AND PENALTIES

§11-1001. Right-of-Entry

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

§11-1002. Enforcement

The Board of Supervisors or its Designee is hereby authorized and directed to enforce all of the provisions of this ordinance.

A. Any permit or approval issued by the Township pursuant to this Chapter may be suspended by the Township 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, Chapter, 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 may be reinstated by the Township when:

   1) The Township has inspected and approved the corrections to the violation that caused the suspension;

   2) The Township is satisfied that the violation has been corrected.

C. It shall be unlawful for any person, firm, or corporation to undertake any activity under this Chapter on any property except as provided for in the approved stormwater management plan and pursuant to the requirements of this Chapter. It shall be unlawful to alter or remove any control structure required by the stormwater management plan pursuant to this Chapter or to allow the property to remain in a condition which does not conform to the approved stormwater management plan.

D. An occupancy permit shall not be issued unless satisfactory inspection has been secured. The occupancy permit shall be required for each lot owner and/or developer for all subdivisions and land development in the Township.

E. It shall also be a violation of this Chapter to commit any of the following acts.

1) To commence land disturbance activities for which an approved stormwater management plan is required prior to approval of said plan.

2) To install, repair, modify or alter stormwater management facilities prior to obtaining an approved stormwater management plan.

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

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

5) To place false information on or omit relevant information from a stormwater management plan or application.

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

§11-1003. Penalties

A. Any person who or which has violated any provisions of this Chapter, shall, upon a judicial determination thereof, be subject to civil judgment for each such violation of not less than One Hundred and 00/100 dollars ($100.00), or more than Six Hundred and 00/100 dollars ($600.00), for each violation, recoverable with costs and the reasonable attorney's fees, expenses and costs incurred by the Township investigating and prosecuting violations under this Section. Each day (or part thereof) that a violation occurs shall constitute a separate offense. All moneys shall be paid to Clay Township.

B. In addition, the Township may institute injunctive, mandamus or any other appropriate action or proceeding at law or in equity for the enforcement of this Chapter, and may request any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus or other appropriate forms of remedy or relief, and the Township may recover its reasonable attorney's fees and costs for such suit in the event it is successful.

§11-1004. Appeals

A. Any person aggrieved by any administrative action of the Township may appeal to the Clay Township Board of Supervisors within 30 days of that action. Any such appeal shall be governed by the procedures of Article V of the Local Agency Law, 2 Pa. C.S.A. 401 et seq.

B. Any person aggrieved by any decision of the Clay Township Board of Supervisors may appeal to the Lancaster County Court of Common Pleas, in accordance with Article VII of Local Agency Law, 2 Pa. C.S.A. 701 et seq. the Local Agency Law, within 30 days of that decision.

PART 11
REFERENCES

1. 25 Pennsylvania Code, Chapter 102 Erosion and Sediment Control

2. Minnesota Pollution Control Agency

3. Code of Federal Regulations – Title 44: Emergency Management and Assistance, §9.4 Definitions

4. *25 Pa.Code Chapter 105*

5. Based on definition in Wisconsin Department of Natural Resources Administrative Rule NR 151.006.

6. Pennsylvania Department of Environmental Protection. No. 363-0300-002 (December 2006), as amended and updated. *Pennsylvania Stormwater Best Management Practices Manual.* Harrisburg, PA.

7. City of Jacksonville website, http://www3.coj.net/Departments/CityFees/Glossary.aspx

8. Lancaster County Model Subdivision and Land Development Ordinance.

9. Pennsylvania Department of Environmental Protection. No. 363-2134-008 (March 2012), as amended and updated. *Erosion and Sediment Pollution Control Program Manual.* Harrisburg, PA.

10. CSN Technical Bulletin No. 5, Stormwater Design for High Intensity Redevelopment Projects in the Chesapeake Bay Watershed, version 2.0. Chesapeake Stormwater Network, January 5, 2011 – page 43.

11. "Penn State Urban Hydrology Model User Manual" by Thomas A. Seybert, PE, David F. Kibler, PE, and Clay I. White, PE, August 1993 page 70 and VT/PSUHM help screen.

12. 25 Pa. Code, Chapter 71 Administration of Sewage Facilities Planning Program, § 71.1

ENACTED and ORDAINED at a regular meeting of the Clay Township Board of Supervisors on the 12th day of December, 2022. This Ordinance shall take effect immediately.

Chairman
[Name], [Title]

Vice Chairman
[Name], [Title]

Secretary
[Name], [Title]

ATTEST:

Asst. Secretary
[Name], Secretary (type or print)

APPENDIX A

STORMWATER MANAGEMENT AND BMP PLAN APPLICATIONS

APPENDIX A-1.
STORMWATER MANAGEMENT EXEMPTION APPLICATION

TOWNSHIP FILE NO._____
DATE OF RECEIPT/FILING _____
(FOR TOWNSHIP USE ONLY)
PROPERTY NO.: 070-_____

The undersigned hereby applies for an exemption under the Clay Township Code, Chapter 11, Stormwater Management for the proposed improvement(s) outlined in the application submitted herewith and described below:

1. Name of Property Owner(s): _____
2. Address: _____
3. Phone No.: Home: _____ Cell: _____
4. Email Address: _____
5. Application Date: _____
6. Total Property Acreage: _____
7. Description of Proposed Improvements: _____

   _____

   _____
8. Total Impervious Added (maximum 1000 Sq. Ft) since September 8, 2004: _____
9. The improvements proposed under this exemption application are subject to the following conditions:

   a) No disturbance of land within floodplains, wetlands, environmentally sensitive areas, riparian forest buffers and slopes greater than 15%.
   b) No Impervious Surface coverage shall be installed, and no Earth Disturbance Activity shall be conducted within any existing drainage or Stormwater easement created by or shown on any recorded plan.
   c) The Applicant shall minimize soil disturbance, take steps to minimize Erosion and Sedimentation during construction activity, and promptly reclaim all disturbed areas within topsoil and vegetation.
   d) The Applicant shall take steps that Runoff be directed to Pervious Areas on the subject property. No Runoff shall be directed onto an abutting street or neighboring property.
   e) The proposed Impervious Surface shall not adversely impact any existing known problem areas or downstream property owners or the quality of Runoff entering any municipal separate Storm Sewer System.

f) If the proposed activity does not meet all of the criteria set forth in Section 401.A.1, the Applicant shall follow the Small Project processing procedure in Section 402 and Appendix A-4 Small Project Application.
g) If the proposed activity is located in a High Quality (HQ) or Value (EV) watershed, the applicant shall be responsible for compliance with all federal and state requirements. This exemption does not provide relief form any other applicable state or federal requirements. EMAPS website at PADEP http://www.emappa.dep.state.pa.us\emappa/viewer.htm
h) No Applicant and no activity shall violate or cause to be violated: The Federal Clean Water Act, Clean Streams Law, or any regulation issued thereunder, an NPDES permit, any recorded Stormwater Management or Operations and Maintenance Agreement, or any requirement applicable to a Municipal Separate Storm Sewer System.

The undersigned hereby represents that, to the best of his/her knowledge and belief, all information listed above and on the land disturbance plan herewith submitted is true, correct, and complete. No part of the proposed construction is located within an existing easement or wetland area.

_____ _____
Signature of Applicant (*All owners must sign) Date

_____ _____
Signature of Applicant (*All owners must sign) Date

Attach Sketch of Project Site and Proposed Improvements to the application. Refer to Appendix A-7 for information to be included in site sketch.

APPENDIX A-2.
APPLICATION FOR AGRICULTURAL STORMWATER EXEMPTION

Clay Township
Lancaster County, Pennsylvania

Township Use Only
File No._____
Date Received_____
Property: _____

Application is hereby made to Clay Township for the issuance of a general Agricultural Stormwater Exemption Permit pursuant to the specifications herewith submitted.

10. Name of Property Owner(s):_____

    Address: _____

    Phone: Home: _____ Cell: _____

    Email Address: _____

11. Project Location:_____

12. Zoning District (circle one): Agricultural Agricultural Transition
    (Note: only properties in Agricultural and Agricultural Transition Zones are eligible for a "by right" exemption. Land of 10 acres or more in active agricultural use in other Zoning Districts may be eligible for the exemption subject to approval by the Board of Supervisors.)

13. Property Area :_____
    (Note: property area shall not be less than 10 acres)

14. Total area (square footage) of proposed structure and/or impervious surface area: _____
    (Note: Total maximum exemption area shall not exceed 10,000 SF, cumulatively, beginning after December 12, 2022)

15. Total area (square footage) of all existing structures and/or impervious surface area on the property:_____(Note: Eligibility for the Agricultural Exemption does not supersede the lot coverage limits defined in the Zoning Ordinance.)

16. Distance from new impervious area to downstream perennial stream, watercourse, other water body, public road or neighboring property line:_____
    (Note: Distance shall not be less than 100 feet. If the distance is less than 100 feet, the applicant shall provide verification from a design professional registered in Pennsylvania that the runoff is leaving the site in a manner similar to pre-development runoff characteristics. In any case, the setback shall not be less than the setback requirements provided in the Zoning Ordinance.)

17. Average grade (%) of the land surface immediately downstream of proposed impervious area/structure between the proposed impervious area/structure and the downstream perennial stream, watercourse, other water body, public road or neighboring property line:_____

18. Type of buffer or diversion system to disperse runoff (example: berm, terrace, swale with level spreader, etc., or none): _____

19. A sketch of the property shall be included with the application to the Township showing the dimensioned setbacks, location of all existing structures, structure location and dimensions, approximate slopes, runoff flow direction arrows or grading contours, etc. If the total disturbance related to the project exceeds 5,000 square feet, an erosion and sedimentation pollution control plan shall be prepared and submitted with the application for review and the plan shall be maintained on site for the duration of construction.

20. The applicant shall provide evidence of implementation of an approved conservation/conservation E&SPC plan.

21. _____ _____
Signature(s) of Owner(s) Date

_____

22. Name of applicant (if other than owner): _____

Address:_____

Phone_____

The undersigned hereby represents that, to the best of his/her knowledge and belief, all information listed above and on the application form, herewith submitted, is true, correct, and complete. The undersigned further hereby represents that the property owner has specifically authorized the named applicant to make this application on behalf of the property owner.

_____ _____
Signature(s) of Applicant(s) Date

_____

Clay Township Review

Returned for Corrections, if applicable (date):_____

Approval Date:_____

Reviewed by (print):_____

Signature:_____

APPENDIX A-3.
APPLICATION FOR A HIGH TUNNEL STORMWATER EXEMPTION

Clay Township
Lancaster County, Pennsylvania

File No._____
Date Received_____
Property: _____

Application is hereby made to Leacock Township for the issuance of a High Tunnel Stormwater Exemption Permit pursuant to the specifications herewith submitted.

1. Name of Property Owner(s):_____

   Address: _____

   Phone: Home: _____ Cell: _____

   Email Address: _____

2. Project Location:_____

3. Proposed use of Hight Tunnel:_____

4. What is the high tunnel constructed of (circle one):

   a. Type of frame: (metal wood plastic)

   b. Type of cover: (plastic woven textile other flexible covering)_____

   c. Type of floor: (soil crushed stone matting pavers floating concrete slab)

5. Total Amount (square footage) of all existing structures on the property:_____

6. Proposed Impervious area from high tunnel or floor (max 25% of Total Existing Structure area):
   _____

7. Minimum High Tunnel Requirements:

   a. Distance from downstream perennial stream, watercourse, public road or neighboring property line: _____

   b. Slope of land immediately downstream of proposed High Tunnel:
      _____

c. Type of buffer or diversion system to disperse runoff (example: berm, swale with level spreader, etc., or none): _____

8. A sketch of the property shall be included with the application to the Township showing the dimensioned setbacks, location of all structures, proposed high tunnel location, etc. Refer to Appendix A-7 for list of information to include on the sketch or aerial map of property.

9. Name of applicant (if other than owner): _____

Address: _____

Phone _____

The undersigned hereby represents that, to the best of his knowledge and belief, all information listed above and, on the application, form herewith submitted is true, correct, and complete.

_____ _____
Signature of Applicant(s) Date

_____ _____
Signature of Applicant(s) Date

APPENDIX A-4.
STORMWATER MANAGEMENT
SMALL PROJECT DESIGN/APPLICATION

Clay Township, Lancaster County, Pennsylvania

This application pertains to projects that qualify as a Small Project (1,500 square feet of impervious area (cumulative per property)). If a formal Stormwater Management Plan is required in accordance with the Clay Township Stormwater Management Ordinance, **please consult a qualified professional (ex. Engineer, Surveyor, Landscape Architect).**

Property Owner's Name _____

Address of Property _____

Parcel ID 070-_____

Phone Number: Home:_____ Cell: _____

Email Address: _____

1000 SF Exemption Used since September 8, 2004: _____ No_____ Yes: how much:_____

New Impervious Area Associated with this Project _____

Lot Size (Sq. Ft.) _____

Existing Impervious Coverage (Sq. Ft.) _____

Total New Impervious Area since Adoption of SWM Ordinance_____

Acknowledgement - I declare that I am the property owner, or representative of the owner, and that the information provided is accurate to the best of my knowledge. I understand that stormwater may not adversely affect adjacent properties or be directed onto another property without written permission. I also declare that the proposed construction is not within an existing easement or wetland area. I also understand that false information may result in a stop work order or revocation of permits. Township representatives are also granted reasonable access to the property for review and/or inspection of this project if necessary.

Signature _____ Date _____

*All owners must sign

Small Project Plan – Regulated activities on existing lots of record that, measured on a cumulative basis from May 12, 2014 create additional impervious areas of 1,500 sq. ft. or involves an Earth

Disturbance Activity such as removal of ground cover, grading, filling or excavation of an area less than 5,000 sq. ft. and do not involve the alteration of SWM Facilities or watercourses.

- Small projects are not required to provide for Rate Control.
- Small projects are required to address at least the first one (1) inch 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.

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.

Step 1: Determine the amount of new impervious surface area created by the proposed project. This includes any new impervious surface area that prevents or decreases infiltration of stormwater into the ground. New stone and gravel areas are considered impervious. Impervious surface areas existing before May 12, 2014 are not included in this calculation. Use additional sheets if necessary.

Calculate new impervious area by completing this table.

Surface	Length (ft)	x	Width (ft)	=	Impervious Area (ft^2)
Buildings		x		=	
Driveway		x		=	
Parking Areas		x		=	
Other		x		=	
Existing Impervious Area to be Removed (if applicable)					
Surface	Length (ft)	x	Width (ft)	=	Impervious Area (ft^2)
		x		=	
Total Proposed Impervious Surface Area (Sum of all new impervious areas – all existing impervious area to be removed)					

- Continue to Step 2.

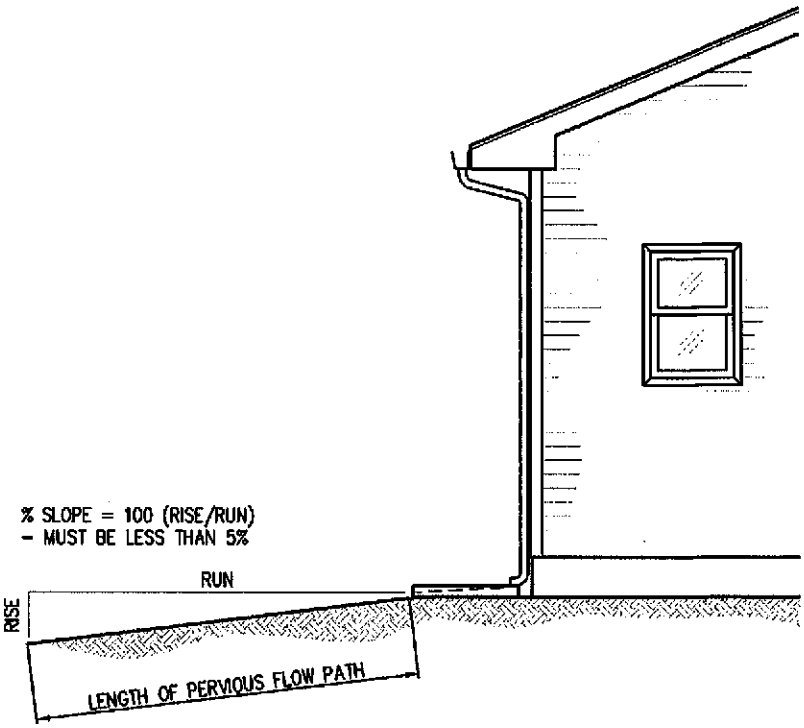
Partial Rooftop Disconnection

Step 2: Determine Disconnected Impervious Area (DIA). All or parts of new impervious surfaces may qualify as Disconnected Impervious Area if runoff is directed to a pervious area that allows for infiltration, filtration, and increased time of concentration. The volume of stormwater that needs to be managed could be reduced through use of DIAs.

Length of Pervious Flow Path (ft.)	DIA Credit Factor
75 or more	0
60 – 74	0.2
45 – 59	0.4
30 – 44	0.6
15 – 29	0.8
0 - 14	1.0
Pervious flow path must be at least 15 feet from any impervious surface	

Rooftop Disconnection Criteria

- Overland flow path from the discharge area or impervious area has a positive slope of 5% or less.
- Runoff is not directed towards dwellings or other occupied structures.
- Soils are not classified as hydrologic soil group "D".
- The receiving pervious area shall not include another person's property unless written permission has been obtained and a copy is provided to the Township from the affected property owner.



Disconnected Impervious Area - Rooftop Disconnection
NOT TO SCALE

Paved Disconnection Criteria: Other impervious surfaces (driveways, walkways, swimming pools, porches, decks with porous ground surface, etc. to be confirmed by Township Engineer or Zoning officer) and gravel can be considered disconnected if it meets the criteria above, and:

- Runoff does not flow over impervious area for more than 75 feet.
- The length of overland flow is greater than or equal to the contributing flow path.
- The slope of the contributing impervious areas is 5% or less.
- If discharge is concentrated at one or more discrete points, no more than 1,000 ft² may discharge to any one point. Non-concentrated discharges along the entire edge of paved surface must include provisions for the establishment of vegetation along the paved edge and temporary stabilization of the area until the vegetation is established.
- If these criteria can be met, the DIA credit = 0.

Using the calculations from Step 1, complete the table below. This will determine the impervious area that may be excluded from the area that needs to be managed through stormwater BMPs. If the total impervious area to be managed = 0, the area can be considered entirely disconnected.

Surface	Proposed Impervious Area	x	DIA Credit	=	Impervious Area (ft^2) to be Managed
Buildings (area to each downspout)		x		=	
Driveway		x		=	
Parking Areas		x		=	
Patios/ walkways		x		=	
Other		x		=	
Total Proposed Impervious Surface Area to be managed (Sum of all impervious areas)					

- If the total new impervious surface area can be entirely disconnected, sign Acknowledgement and file worksheets with the Township.
- If the total new impervious surface area cannot be entirely disconnected, continue to Step 3.

Step 3: Calculate the volume of stormwater runoff created by new impervious surfaces. Use the following chart to determine this volume.

Impervious Area (ft^2) to be Managed (Sum of Step 2)	X	1.0 in/12 in = 0.083	=	Volume of Stormwater to be Managed (ft^3)
	X	0.083	=	

Step 4: Determine the techniques to be used to manage the stormwater volume calculated in Step 3. Use the following information to determine the BMPs to be used to manage the proposed stormwater volume.

Where permitted by Clay Township, planting of new trees may be used to manage a portion of the proposed stormwater volume. First, calculate the cubic feet of stormwater that can be managed by planting new trees. If the criteria below can be met, planting of new trees can be used to manage a portion of the proposed stormwater volume:

Deciduous Trees = 6 ft^3 per tree Evergreen Trees = 10 ft^3 per tree

Criteria:

- Trees must be PA native species (See PA Stormwater BMP Manual for a list)
- Trees shall be a minimum 1" caliper tree
- Trees shall be adequately protected during construction
- **No more than 25% of the required capture volume can be mitigated through the use of trees**

- Dead trees shall be replaced by the property owner within 12 months
- Please consider the specifications for each tree species when determining location and spacing

Volume of Stormwater to be Managed (ft^3) (Sum of Step 3)	-	Tree Planting Credit (ft^3)	=	Volume of Stormwater to be Managed (ft^3)
	-		=	

Second, subtract the stormwater volume that can be managed by tree planting from the overall stormwater volume calculated in Step 3. The remaining cubic feet of stormwater must be managed through the installation of properly sized Stormwater BMPs. Select BMPs and size according to the volume of stormwater that needs to be managed.

Alternatively, stormwater BMPs may be sized using the following Simple BMP Sizing table.

BMP Type		Simple BMP Sizing - Amount New Impervious Area to be Managed (ft^2)											
		250	500	750	1000	1500	2000	2500	3000	3500	4000	4500	5000
Bioretention	Ex. Rain garden, Veg-etated swale	21 ft^3 or	42 ft^3 or	62 ft^3 or	83 ft^3 or	125 ft^3 or	166 ft^3 or	208 ft^3 or	249 ft^3 or	291 ft^3 or	332 ft^3 or	374 ft^3 or	415 ft^3 or
Infiltration	Ex. Dry (40% well, Infiltration trench	53 ft^3	105 ft^3	155 ft^3	208 ft^3	313 ft^3	415 ft^3	520 ft^3	623 ft^3	728 ft^3	830 ft^3	935 ft^3	1,038 ft^3

(Source: Lycoming County Planning Department)

The Simple BMP Sizing table is used as follows. After subtracting the stormwater volume that can be managed through the planting of new trees (if desired), match the remaining stormwater volume to the "Amount of New Impervious Area to be Managed" in white boxes in the table (rounding up to the next value if the number is between two values). Then look in the light grey box to determine the required size of the type of Stormwater BMP (bioretention or infiltration) being considered. For example, 1,000 square foot of new impervious surface area could be accommodated by an 83 cubic foot bioretention system.

Infiltration Trench/Bed Criteria:

- Stone bed shall not be located within 10 feet of any On-lot Sewage Disposal Systems.
- Stone used in the infiltration trenches shall be "clean" stone, i.e. #67, #57, #5 or clean 2B stone for the smaller facilities, and #1 or #3 ballast or R-3 for larger deeper facilities. Copies of the receipt(s) shall be provided to the Township for their records. NO MODIFIED STONE MIXES SHALL BE UTILITZED FOR INFILTRATION.
- The standard void ratio for stone is 0.40 (40% storage for each CF) if calculating by hand or follow the BMP sizing table above.
- It is recommended that the property owner verify that the ground will infiltrate water, this can be accomplished by excavating the trench or pit and placing a large amount of water into the pit to see how long it take to infiltrate.

Once the sizing of necessary stormwater BMPs has been determined, prepare the required information and submit to the Township for review and approval. Bring the worksheets, BMP information (size, location, etc.), Owner Acknowledgement, and BMP Facilities and Maintenance Agreement (if applicable) to the Township.

If an area greater than 5,000 square feet of earth is disturbed, the project qualifies as a Minor Stormwater Management Plan and shall be prepared as outlined in the Township's Code of Ordinances.

OWNER ACKNOWLEDGMENT

- Development activities shall begin only after Clay Township approves the Small Project.
- The installed Stormwater BMPs will not adversely affect any property, septic systems, or drinking water wells on this or any other property.
- The landowner shall keep on file with the Township the name, address and telephone number of the person or company responsible for maintenance activities; in the event of a change, new information shall be submitted to the Township within 10 days of the change.
- If, after approval of the Small Project by the Township, the applicant wishes to pursue alternative stormwater management measures in support of the project, the applicant will submit revised Small Project information and worksheets to Clay Township for approval. If a site requires a more complex system or if problems arise, the applicant may need the assistance of a licensed professional engineer, landscape architect or surveyor.
- The applicant acknowledges that the proposed Disconnected Impervious Area and/or Stormwater BMPs will be a permanent fixture of the property that cannot be altered or removed without approval by Clay Township.

I (we) _____, hereby acknowledge the above statements and agree to assume full responsibility for the implementation, construction, operation, and maintenance of the proposed stormwater management facilities. Furthermore, I (we) also acknowledge that the steps, assumptions, and guidelines provided in this submission, including but not limited to Clay Township Stormwater Worksheet, and the Stormwater Management / BMP Facilities and Maintenance Agreement (if applicable) will be adhered to.

Applicant Acknowledgement of Submission

Signature:_____ Date: _____

* All owners must sign

Signature:_____ Date: _____

* All owners must sign

Clay Township Acknowledgement of Receipt

Signature:_____ Date: _____

Prepared By and
Return To:
Mejia Law Group
1390 W. Main Street
Ephrata, PA 17522
717-733-8604

STORMWATER MANAGEMENT AGREEMENT
AND DECLARATION OF EASEMENT

THIS AGREEMENT AND DECLARATION OF EASEMENT made as of this _____ day of _____, 20__, by and between _____, with offices or residence located at _____ (hereinafter referred to as the **"Grantor"**); and the **TOWNSHIP OF CLAY**, Lancaster County, Pennsylvania, a Township duly organized under the laws of the Commonwealth of Pennsylvania, with its municipal offices located at 870 Durlach Road, Stevens, Pennsylvania 17578 (hereinafter referred to as the **"Township"**).

BACKGROUND.

Grantor is the legal and/or beneficial owner of premises located at _____ _____, in the Township of Clay, Lancaster County, Pennsylvania, known as _____, as more specifically described in a deed recorded at Document No. _____ in the Office of the Recorder of Deeds in and for Lancaster County, Pennsylvania, and as shown in the _____, prepared by _____, Project No. _____ dated _____, 200_, last revised _____, 200_, (hereinafter referred to as the "Premises").

Prior to the commencement of any development, Grantor is required under Chapter 11 of the Clay Township Code of Ordinances, known as the Clay Township Stormwater Ordinance (the **"Ordinance"**), to submit a stormwater management plan to the Township for approval. Chapter 11 requires that the Grantor make provision for the ownership of, and the method of administering and maintaining, all permanent stormwater management facilities, drainage courses, swales, grassed waterways, stormwater inlets, pipes, conduits, detention basins, retention basins, infiltration structures, and other stormwater management facilities, including Best Management Practices facilities (**"BMPs"**), which shall be included under the term "stormwater 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 stormwater management facilities which will be installed on the Premises and to impose the ownership and maintenance responsibilities upon Grantor, its successors and assigns, and upon successor owners of the Premises.

NOW, THEREFORE, intending to be legally bound hereby and in consideration of receiving approval of its Stormwater Management Plan (hereinafter referred to as the **"Plan"**) from Clay Township Board of Supervisors, and/or in consideration of receiving permits from the Township to develop the Premises, Grantor, for Grantor and the heirs, executors, assigns and successors of Grantor, covenants and declares as follows:

1. The stormwater facilities will be owned by Grantor, its successors and assigns.

2. All drainage courses, swales, stormwater inlets, pipes, conduits, manholes, detention basins, BMPs, and other stormwater management facilities shall be installed, constructed and maintained by Grantor, its successors and assigns, in a first-class condition in conformance with the Plan, as approved, and in a manner sufficient to meet or exceed the design standards and specifications set forth on the Plan. These responsibilities shall include, but not be limited to, the following:

(A) Liming, fertilizing, seeding and mulching of vegetated channels and all other unstabilized soils or areas according to the specifications in the "Erosion and Sedimentation Control Program Manual" (Pennsylvania Code Title 25, Chapter 102), latest revision.

(B) Reestablishment of vegetation by seeding, mulching and use of erosion matting 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 Township.

(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) Regular inspection of the areas in question to assure proper maintenance and care, including but not limited to proper implementation of BMPs.

(F) All pipes, swales and detention facilities shall be kept free of any debris or other obstruction.

3. Grantor shall be responsible for performing the foregoing maintenance and for implementing and maintaining BMP facilities as required by the Ordinance and to submit all applications and pay all fees and expenses required by Chapter 11 of the Clay Township Code of Ordinances, as amended.

4. Grantor agrees that the failure to maintain all drainage courses, swales, stormwater inlets, pipes, conduits, detention basins, BMPs, and other stormwater management facilities in a first-class condition in conformance with this Agreement, the Plan, and Chapter 11, as amended, shall constitute a nuisance and shall be abatable by the Township as such.

5. Grantor authorizes the Township, at any time and from time to time, by its authorized representatives, to enter upon the Premises to inspect the stormwater management facilities.

6. The Township may require that Grantor, or any future owner or occupier of the Premises, or any part thereof, take such corrective measures as the Township may deem reasonably necessary to bring the Premises into compliance with this Agreement, the Plan, and Chapter 11, as amended.

7. Upon the failure of the owner or occupier of the Premises to comply with the terms of this Stormwater Management Agreement or to take corrective measures, following thirty (30) days' notice from the Township, the Township, through its authorized representatives, may take such corrective measures as it deems reasonably necessary to bring the Premises into compliance with this Agreement, the Plan, and Chapter 11, as amended, 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 or any owner of the Premises and, in default of such payment, may cause a municipal lien to be imposed upon the Premises or any part thereof or to sue in Court for the recovery thereof, together with reasonable attorneys fees and costs.

8. [OPTIONAL] If ownership or maintenance responsibility of the stormwater management facilities is assigned to a homeowners' association, condominium unit owners' association, or similar entity, the Township shall be notified. In the event such an association or

entity has already been formed, the association or entity shall consent to and join in this Agreement. If such association or entity fails to properly maintain the stormwater management facilities, the Township shall have the same rights granted to municipalities with reference to maintenance of common open space under Section 705 of the Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247, or any future amendment thereof, to maintain the stormwater management facilities. Any association or entity hereinafter formed shall enter into an agreement with the Township recognizing its duties and the Township's rights under this Agreement.

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

10. Grantor shall include a specific reference to this Stormwater Management Agreement and Declaration of Easement and the obligations thereunder in any deed of conveyance for the Premises or any part thereof.

11. Grantor agrees to indemnify the Township and all of its elected and appointed officials, agents and employees (hereinafter 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 stormwater management facilities.

12. The Township may, in addition to the remedies prescribed herein, proceed with any action at law or in equity to bring about compliance with the Chapter 11 and this Agreement.

13. (A) Grantor's personal liability under this Agreement shall cease at such time as (a) all stormwater management facilities have been constructed in accordance with the specifications of Chapter 11, the Clay Township Subdivision and Land Development Ordinance and the approved plans; (b) the stormwater management facilities have been inspected and approved by the Township; (c) all financial security, including any maintenance security, posted by Grantor has been released by the Township; and (d) Grantor has transferred all lots to be created from the Premises to third parties.

(B) 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 stormwater management facilities were not completed, inspected or approved as set forth herein.

14. 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 or Chapter 11 which occurred during the period in which an owner held title.

15. This Agreement and Declaration of Easement shall be binding upon Grantor, the heirs, executors, 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, or any part thereof, of their duties and responsibilities with respect to the stormwater management facilities.

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 Township.

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

TOWNSHIP OF CLAY

Attest:_____ By:_____

(Assistant) Secretary Board of Supervisors, Chair

[TOWNSHIP SEAL]

GRANTOR

Witness:

_____

By:_____

____(SEAL)

(TOWNSHIP ACKNOWLEDGMENT)

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF LANCASTER)

On this _____ day of _____, 20__, before me, the undersigned officer, a notary public in and for the aforesaid Commonwealth and County, personally appeared _____, who acknowledged _____self to be Chair of the Board of Supervisors of the Township of Clay, Lancaster County, Pennsylvania, and that he/she, as such officer, being authorized to do so, executed the foregoing Stormwater Management Agreement and Declaration of Easement, for the purposes therein contained, by signing the name of such Township by ___self as such officer.

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

_____
Notary Public

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF LANCASTER)

On this _____ day of _____, 20__, before me, a notary public, the undersigned officer, personally appeared _____, who acknowledged him/herself to be the authorized _____, and as such, he being authorized to do so, executed the foregoing instrument for the purposes therein contained.

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

_____
Notary Public

JOINDER BY MORTGAGEE

_____("Mortgagee") as holder of a certain mortgage on the within-described Premises, which mortgage, in the amount of $_____, is dated _____, 20__, 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 approves 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 by 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]

(MORTGAGEE ACKNOWLEDGMENT)

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF LANCASTER)

On this, the _____ day of _____, 20__, before me, a notary public, the undersigned officer, personally appeared _____, who acknowledged ____self to be the _____ of _____ _____, a corporation, and that as such officer being authorized to do so, acknowledged the foregoing instrument for the purpose therein contained by signing the name of the Bank by _____self as _____.

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

_____
Notary Public

APPENDIX A-5.

APPLICATION FOR A STORMWATER MANAGEMENT PERMIT
MINOR STORMWATER MANAGEMENT PLAN

Clay Township
Lancaster County, Pennsylvania

File No._____
Date Received_____
Property:_____

Application is hereby made to Clay Township for the issuance of a Minor Stormwater Management Permit pursuant to the specifications herewith submitted.

1. Name of Property Owner(s):_____

   Address: _____

   Phone _____Cell: _____

   Email Address: _____

2. Project Location:_____

3. Type of Earth Disturbance Activity:

   A. New impervious or semi-impervious surface_____(sq. ft./ac.)
   B. Diversion or piping of natural or man-made watercourse_____(linear ft.)
   C. Installation of the following:

      Culvert _____
      Detention basin _____
      Retention basin _____
      Sediment basin _____
      Other _____

   D. Removal of ground cover, grading, filling, or excavation _____ (sq. ft./ac.)

4. Plan prepared by:

   Name: _____

   Address:_____Phone_____

5. Name of applicant (if other than owner): _____

Address:_____

Phone_____

The undersigned hereby represents that, to the best of his knowledge and belief, all information listed above and on the land disturbance plan herewith submitted is true, correct, and complete.

_____ _____

Signature of Applicant (* All owners must sign) Date

APPENDIX A-6.

APPLICATION FOR A STORMWATER MANAGEMENT PERMIT MAJOR STORMWATER MANAGEMENT PLAN

Clay Township
Lancaster County, Pennsylvania

File No._____
Date Received_____
Property: _____

Application is hereby made to Clay Township for the issuance of a Major Stormwater Management Permit pursuant to the specifications herewith submitted.

1. Name of Property Owner(s):_____

2. Address:_____

3. Phone _____ Cell: _____

4. Email Address: _____

5. Project Location:_____

6. Type of Earth Disturbance Activity:

   A. New impervious or semi-impervious surface_____(sq. ft./ac.)
   B. Diversion or piping of natural or man-made watercourse_____(linear ft.)
   C. Installation of the following:

      Culvert _____
      Detention basin _____
      Retention basin _____
      Sediment basin _____
      Other _____

   D. Removal of ground cover, grading, filling, or excavation _____ (sq. ft./ac.)

7. Plan prepared by:

   Name: _____

   Address:_____Phone_____

8. Name of applicant (if other than owner): _____

Address:_____Phone_____

The undersigned hereby represents that, to the best of his knowledge and belief, all information listed above and on the land disturbance plan herewith submitted is true, correct, and complete.

_____ _____

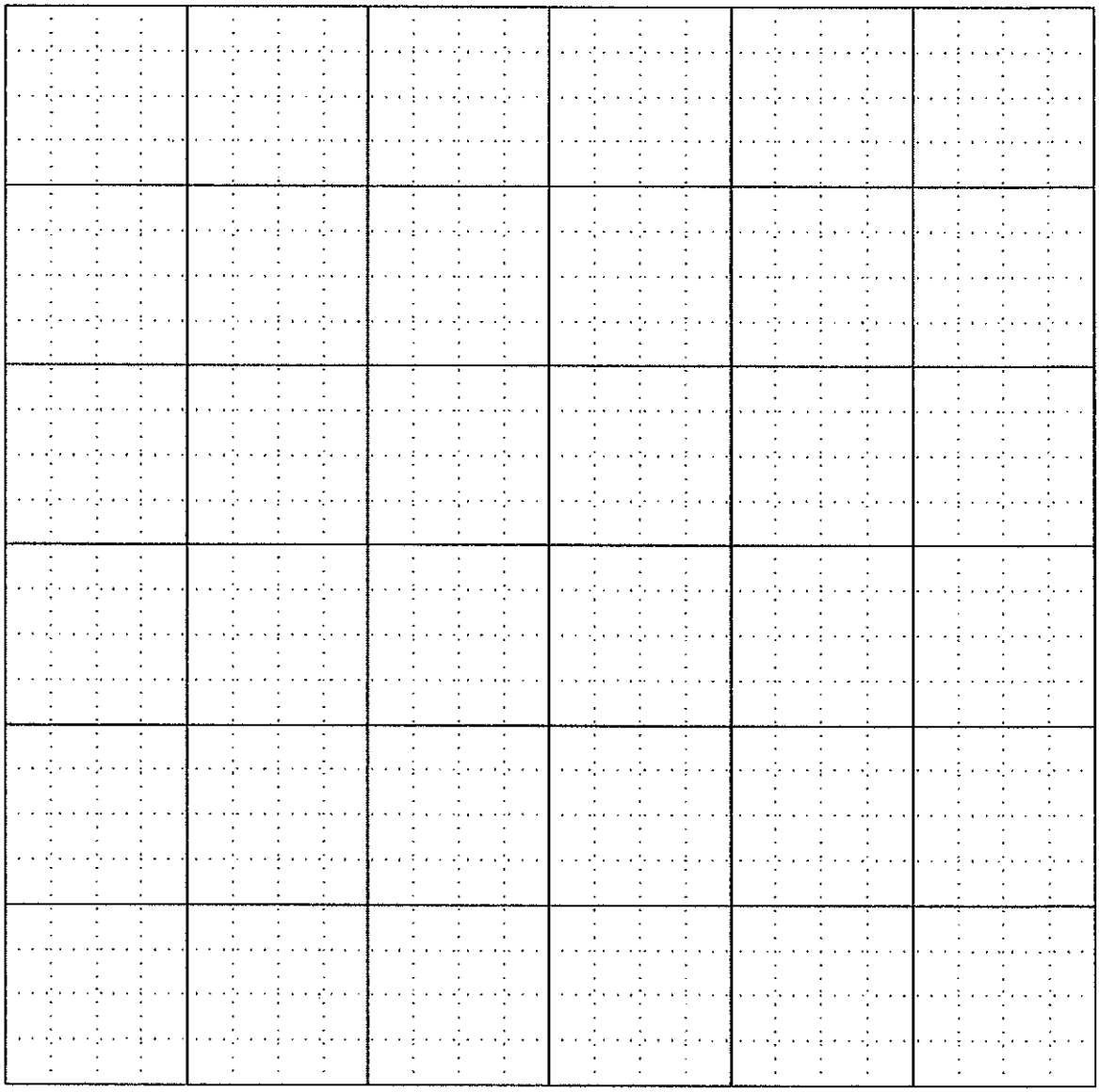
Signature of Applicant (*All owners must sign) Date

APPENDIX A-7.

SITE PLAN FOR EXEMPTIONS OR SMALL PROJECTS

Property Owner: _____ Date:_____

Address: _____



Scale: 1" = _____(4 squares per inch)

The following shall be shown on the Plan:

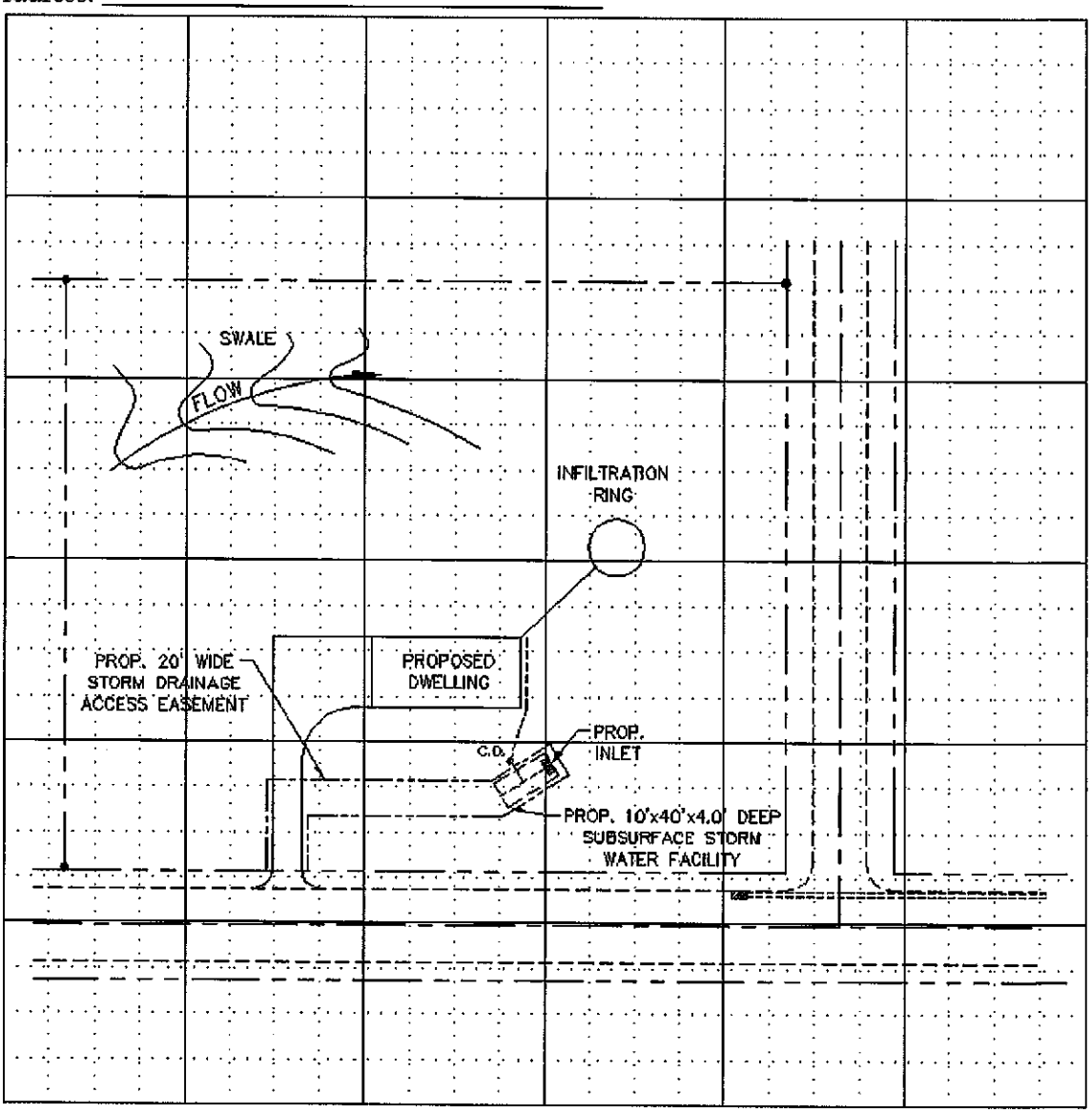
Lot Configuration	Berms	Infiltration System
Building Location	Terraces	Swales
Contours or Flow Arrows	Bridges Watercourses	
Storm Sewers	Dams	Floodplains
Detention Basins	Retention Basins	Inlets
Cisterns	Seepage Beds	Leach Rings
Sidewalks	Driveways	Patios

APPENDIX A-7a.

SITE PLAN FOR EXEMPTIONS OR SMALL PROJECTS (EXAMPLE)

Property Owner: _____ Date: _____

Address: _____



Scale: 1" = _____(4 squares per inch)

The following shall be shown on the Plan:

Lot Configuration	Berms	Infiltration System
Building Location	Terraces	Swales
Contours or Flow Arrows	Bridges Watercourses	
Storm Sewers	Dams	Floodplains
Detention Basins	Retention Basins	Inlets
Cisterns	Seepage Beds	Leach Rings
Sidewalks	Driveways	Patio

APPENDIX A-8.

CERTIFICATE OF APPROVAL BY BOARD OF SUPERVISORS

At a meeting on _____, 20___, the Board of Supervisors accepted this project. This acceptance includes a complete set of plans and information that are filed with Clay Township in File No. _____. Acceptance does not guarantee efficacy of any parts of the design or the implementation thereof and applicants and property owners shall, in all events, even with such acceptance, comply now and in implementation with all laws and Ordinances in effect in the Township.

_____ _____

Board of Supervisors Signature Board of Supervisors Signature

---

CERTIFICATE FOR REVIEW BY THE PLANNING COMMISSION

Reviewed by the Clay Township Planning Commission this _____ day of _____, 20____

_____

STORMWATER MANAGEMENT CERTIFICATION

I hereby certify that, to the best of my knowledge, the stormwater management facilities shown and described hereon are designed in conformance with the Clay Township Stormwater Management Ordinance.

_____, 20____

**

** Signature and seal of the qualified professional responsible for the preparation of the plan.

APPENDIX A-9.

AS-BUILT PLAN REQUIREMENT CHECKLIST – CLAY TOWNSHIP

This checklist is compiled as a minimum list of information to be included on the required stormwater management as-built plans submitted to the Township under this Chapter.

YES NO (n/a)

GENERAL REQUIREMENTS

_____ _____ 1. Name of the project (consistent with approved plan)
_____ _____ 2. Name of the municipality
_____ _____ 3. Plan Status - Identify as "AS BUILT PLAN"
_____ _____ 4. North point on each sheet
_____ _____ 5. Written and graphic scale to match original approved plan submission
_____ _____ 6. Date of plan and any subsequent revision dates
_____ _____ 7. Name and address of record owner and developer
_____ _____ 8. Name, address, seal, signature, and certification of the registered surveyor responsible for plan
_____ _____ 9. Design engineer's name, project number, date, etc., (if different from as-built preparer)
_____ _____ 10. Names, book, and page numbers of any abutting subdivision or land development, or abutting property owners
_____ _____ 11. Key Map if more than one sheet is needed
_____ _____ 12. Tract boundary lines with bearings and distances
_____ _____ 13. Right-of-way lines, lot lines, and easement lines with bearings, distances, actual dimensions (width, radius, distance from centerline) and descriptive labels (road names, type of easement or right-of-way)
_____ _____ 14. Location and elevation of any actual monuments and pin locations
_____ _____ 15. Tract and lot areas
_____ _____ 16. Location and elevation of the benchmark which all site elevations tie into.

STREET REQUIREMENTS

_____ _____ 1. Streets and other paved areas (cartway width, pavement markings, spot elevations as needed to show positive drainage).
_____ _____ 2. Sidewalk and other concrete areas.

STORM DRAINAGE

_____ _____ 1. Any field changes that were not shown on the approved plan/permit.
_____ _____ 2. Stormwater Management easement boundaries.
_____ _____ 3. Storm sewer system - type of structure with top and invert elevations
-type of pipe, size, length, and slope
-riprap location, actual swale contours and cross sections.
_____ _____ 4. Floodplain by elevation and location from property line and any lot restrictions associated with the floodplain.
_____ _____ 5. Seepage Bed location, dimensions and pipe connections, cleanouts.
_____ _____ 6. Level spreader grading or structures.
_____ _____ 7. Detention basins -Outlet structure information, top elevation, orifice size and invert, outfall culvert type, size, slope, and invert elevation.
-As-built contours and volume
-Spillway type and location, dimensions, and invert
-Verification of anti-seep collar and clay core installation
-Low flow channel, width, slope and cross section
-Fencing around basin
-Underdrain pipe and cleanouts

OTHER SITE FEATURES

_____ _____ 1. Landscaping within 10 feet of any stormwater facility - Document single trees and planted areas showing compliance with approved landscape plan
-Screen fencing
_____ _____ 2. Buildings -first floor elevations, roof drains/leaders

When located within 25 feet of any stormwater facilities:

_____ _____ 3. Gas Line -valves, service, approx. depth =+-0.5'
_____ _____ 4. Electric Lines -electric transformer boxes, poles, manholes, approx. line location.

_____ _____ 5. Telephone, TV Cable -junction boxes, poles, manholes, approx. line location

ADDITIONAL PLAN REQUIREMENTS

_____ _____ 1. Sheet number located in the bottom right-hand corner of the drawings
_____ _____ 2. Manhole numbers
_____ _____ 3. Matchline information (if applicable)
_____ _____ 4. When located within 25 feet of any stormwater management facilities, any water and sewer lateral information station, size, length, material, depth) within a box on the corresponding lot; alternatively, a chart can be used to show this information

PLAN NOTES TO BE INCLUDED ON AS-BUILT PLANS

_____ _____ 1. All required post-construction maintenance notes and property owner inspection schedule.
_____ _____ 2. Note stating the amount of impervious coverage the stormwater facilities onsite have been designed for.

ADDITIONAL SUBMISSION REQUIREMENTS

_____ _____ 1. Provide two sets of prints initially; upon approval of plans, provide one (1) electronic copy, two (2) set of prints, and two (2) sets of half-size prints.
_____ _____ 2. Pipe material, diameter, slope, length, encasement location and dimensions
_____ _____ 3. Provide individual Plot Plans and legal descriptions for each lot impacted for all water and sanitary sewer rights-of-way/easements for processing of right-of-way agreements (not required on as-built drawing sheets).
_____ _____ 4. Drawings need to be readable when reduced to half size.

The Township Engineer and Township staff will review the plans for accuracy and completeness.

Appendix A-10.

Certificate of Completion

I, _____, certify that all permanent SWM Facilities have been constructed according to the plans, specification and revisions as approved for the property located at _____.

_____

(Signature and seal of qualified person)

APPENDIX B

STORMWATER MANAGEMENT AND BMP CALCULATION COEFFICIENTS

APPENDIX NO. B-1.

RUNOFF COEFFICIENTS "C" FOR
RATIONAL FORMULA

RUNOFF COEFFICIENTS "C" FOR
RATIONAL FORMULA

Runoff Coefficients "C" for Rational Formula												
Soil Group	A			B			C			D		
Slope	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+
Land Use												
Cultivated Land												
winter conditions	.14	.23	.34	.21	.32	.41	.27	.37	.48	.34	.45	.56
summer conditions	.10	.16	.22	.14	.20	.28	.19	.26	.33	.23	.29	.38
Fallowed Fields												
poor conditions	.12	.19	.28	.17	.25	.34	.23	.33	.40	.27	.35	.45
good conditions	.08	.13	.16	.11	.15	.21	.14	.19	.26	.18	.23	.31
Forest/Woodland	.08	.11	.14	.10	.14	.18	.12	.16	.20	.15	.20	.25
Grass Areas												
good conditions	.10	.16	.20	.14	.19	.26	.18	.22	.30	.21	.25	.35
average conditions	.12	.18	.22	.16	.21	.28	.20	.25	.34	.24	.29	.41
poor conditions	.14	.21	.30	.18	.28	.37	.25	.35	.44	.30	.40	.50
Impervious Areas	.90	.91	.92	.91	.92	.93	.92	.93	.94	.93	.94	.95
Weighted Residential												
lot size ⅛ acre	.29	.33	.30	.31	.35	.40	.34	.38	.44	.36	.41	.48
lot size ¼ acre	.26	.30	.34	.29	.33	.38	.32	.36	.42	.34	.38	.46
lot size ⅓ acre	.24	.28	.31	.26	.32	.35	.29	.35	.40	.32	.36	.45
lot size ½ acre	.21	.25	.28	.24	.27	.32	.27	.31	.37	.30	.34	.43
lot size 1 acre	.18	.23	.26	.21	.24	.30	.24	.29	.36	.28	.32	.41

APPENDIX NO. B-2.

RUNOFF CURVE NUMBERS "CN" FOR SCS METHOD*

Runoff Curve Numbers "CN" for SCS Method												
Soil Group	A			B			C			D		
Slope / Land Use	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+
Cultivated Land												
winter conditions	48	60	75	62	73	82	68	78	90	77	88	95
summer conditions	35	51	58	48	55	65	57	65	73	64	69	79
Fallowed Fields												
poor conditions	45	54	65	56	63	73	64	74	81	69	77	87
good conditions	30	44	48	43	48	55	48	54	63	56	60	68
Forest/Woodland	30	40	43	42	46	50	45	50	53	50	56	61
Grass Areas												
good conditions	35	51	53	48	54	63	56	59	73	62	63	79
average conditions	45	53	58	52	55	65	60	63	75	65	69	82
poor conditions	48	55	67	56	67	77	66	74	85	73	81	90
Impervious Areas	96	97	98	96	97	98	96	97	98	96	97	98
Weighted Residential										C		
Lot size 1/8 acre	71	75	78	74	76	82	78	80	87	81	83	90
Lot size 1/4 acre	62	67	71	66	69	76	67	69	76	75	78	88
Lot size 1/3 acre	59	65	69	64	66	74	65	66	75	74	77	87
Lot size 1/2 acre	57	63	68	62	64	73	63	65	73	72	76	86
Lot size 1 acre	55	62	67	61	63	72	61	64	72	71	75	85

APPENDIX NO. B-3.

NOAA Atlas 14, Volume 2, Version 3
Location name: Clay Twp, Pennsylvania, USA*
Latitude: 40.2342°, Longitude: -76.2512°
Elevation: 493.07 ft**
*source: ESRI Maps
**source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.330 (0.299-0.366)	0.393 (0.355-0.436)	0.461 (0.417-0.511)	0.510 (0.460-0.565)	0.568 (0.510-0.627)	0.608 (0.544-0.671)	0.648 (0.577-0.715)	0.684 (0.606-0.758)	0.730 (0.642-0.807)	0.762 (0.667-0.844)
10-min	0.526 (0.476-0.583)	0.627 (0.567-0.696)	0.736 (0.665-0.817)	0.814 (0.733-0.901)	0.902 (0.810-0.996)	0.965 (0.863-1.07)	1.03 (0.915-1.13)	1.08 (0.958-1.19)	1.15 (1.01-1.27)	1.19 (1.04-1.32)
15-min	0.657 (0.594-0.728)	0.787 (0.712-0.874)	0.931 (0.841-1.03)	1.03 (0.927-1.14)	1.14 (1.02-1.26)	1.22 (1.09-1.35)	1.30 (1.16-1.43)	1.37 (1.21-1.51)	1.44 (1.27-1.60)	1.50 (1.31-1.66)
30-min	0.899 (0.813-0.998)	1.09 (0.982-1.20)	1.32 (1.19-1.46)	1.49 (1.34-1.65)	1.69 (1.52-1.86)	1.83 (1.64-2.02)	1.98 (1.76-2.19)	2.11 (1.87-2.34)	2.29 (2.01-2.53)	2.41 (2.11-2.67)
60-min	1.12 (1.01-1.24)	1.36 (1.23-1.51)	1.69 (1.53-1.87)	1.93 (1.74-2.14)	2.24 (2.01-2.48)	2.48 (2.22-2.74)	2.72 (2.43-3.01)	2.96 (2.62-3.27)	3.27 (2.88-3.62)	3.51 (3.07-3.89)
2-hr	1.33 (1.19-1.48)	1.61 (1.45-1.79)	2.02 (1.81-2.25)	2.34 (2.10-2.61)	2.79 (2.49-3.10)	3.15 (2.80-3.50)	3.54 (3.13-3.93)	3.94 (3.48-4.38)	4.51 (3.92-5.02)	4.97 (4.28-5.54)
3-hr	1.45 (1.30-1.62)	1.75 (1.58-1.97)	2.21 (1.98-2.47)	2.56 (2.29-2.86)	3.06 (2.72-3.41)	3.46 (3.06-3.85)	3.89 (3.42-4.32)	4.33 (3.79-4.82)	4.98 (4.29-5.53)	5.47 (4.69-6.11)
6-hr	1.60 (1.61-2.02)	2.17 (1.95-2.44)	2.73 (2.44-3.08)	3.18 (2.84-3.57)	3.83 (3.40-4.28)	4.38 (3.86-4.88)	4.97 (4.34-5.53)	5.61 (4.86-6.24)	6.54 (5.59-7.27)	7.31 (6.17-8.14)
12-hr	2.21 (1.98-2.50)	2.67 (2.39-3.01)	3.36 (3.01-3.79)	3.95 (3.52-4.44)	4.83 (4.26-5.40)	5.56 (4.88-6.21)	6.41 (5.55-7.14)	7.33 (6.27-8.14)	8.71 (7.32-9.88)	9.90 (8.20-11.0)
24-hr	2.55 (2.34-2.80)	3.08 (2.83-3.38)	3.89 (3.57-4.26)	4.57 (4.18-5.00)	5.59 (5.07-6.10)	6.46 (5.83-7.04)	7.42 (6.64-8.08)	8.47 (7.50-9.19)	10.0 (8.77-10.9)	11.4 (9.81-12.3)
2-day	2.96 (2.72-3.25)	3.58 (3.29-3.93)	4.52 (4.15-4.98)	5.30 (4.86-5.80)	6.44 (5.86-7.02)	7.39 (6.69-8.05)	8.42 (7.57-9.16)	9.54 (8.50-10.4)	11.2 (9.83-12.1)	12.5 (10.9-13.6)
3-day	3.14 (2.89-3.43)	3.78 (3.49-4.14)	4.77 (4.38-5.21)	5.58 (5.12-6.09)	6.76 (6.17-7.36)	7.75 (7.03-8.43)	8.83 (7.98-9.58)	9.99 (8.93-10.8)	11.7 (10.3-12.7)	13.1 (11.5-14.2)
4-day	3.31 (3.05-3.61)	3.99 (3.68-4.36)	5.01 (4.61-5.46)	5.86 (5.38-6.37)	7.08 (6.47-7.69)	8.12 (7.38-8.80)	9.23 (8.34-9.99)	10.4 (9.37-11.3)	12.2 (10.8-13.2)	13.7 (12.0-14.8)
7-day	3.89 (3.60-4.23)	4.68 (4.32-5.09)	5.79 (5.36-6.30)	6.74 (6.22-7.32)	8.11 (7.44-8.79)	9.26 (8.46-10.0)	10.5 (9.54-11.4)	11.9 (10.7-12.8)	13.8 (12.3-14.9)	15.4 (13.6-16.7)
10-day	4.45 (4.14-4.82)	5.32 (4.95-5.76)	6.53 (6.07-7.06)	7.51 (6.99-8.12)	8.91 (8.22-9.61)	10.1 (9.24-10.8)	11.3 (10.3-12.1)	12.5 (11.4-13.5)	14.3 (12.9-15.5)	15.8 (14.1-17.1)
20-day	6.04 (5.68-6.45)	7.17 (6.74-7.68)	8.57 (8.05-9.15)	9.69 (9.08-10.3)	11.2 (10.5-12.0)	12.4 (11.6-13.3)	13.7 (12.7-14.6)	15.0 (13.8-15.9)	16.7 (15.3-17.8)	18.0 (16.5-19.3)
30-day	7.51 (7.08-7.97)	8.86 (8.36-9.40)	10.4 (9.78-11.0)	11.6 (10.9-12.3)	13.2 (12.4-14.0)	14.4 (13.5-15.3)	15.6 (14.6-16.6)	16.9 (15.7-18.0)	18.5 (17.2-19.7)	19.8 (18.3-21.1)
45-day	9.48 (8.99-10.0)	11.1 (10.6-11.7)	12.8 (12.2-13.5)	14.1 (13.4-14.9)	15.8 (15.0-16.7)	17.1 (16.1-18.0)	18.3 (17.2-19.3)	19.4 (18.3-20.5)	20.9 (19.6-22.1)	22.0 (20.6-23.2)
60-day	11.4 (10.8-11.9)	13.3 (12.7-14.0)	15.2 (14.5-16.0)	16.6 (15.8-17.5)	18.5 (17.5-19.4)	19.8 (18.8-20.8)	21.1 (19.9-22.2)	22.3 (21.0-23.4)	23.8 (22.4-25.0)	24.8 (23.3-26.2)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

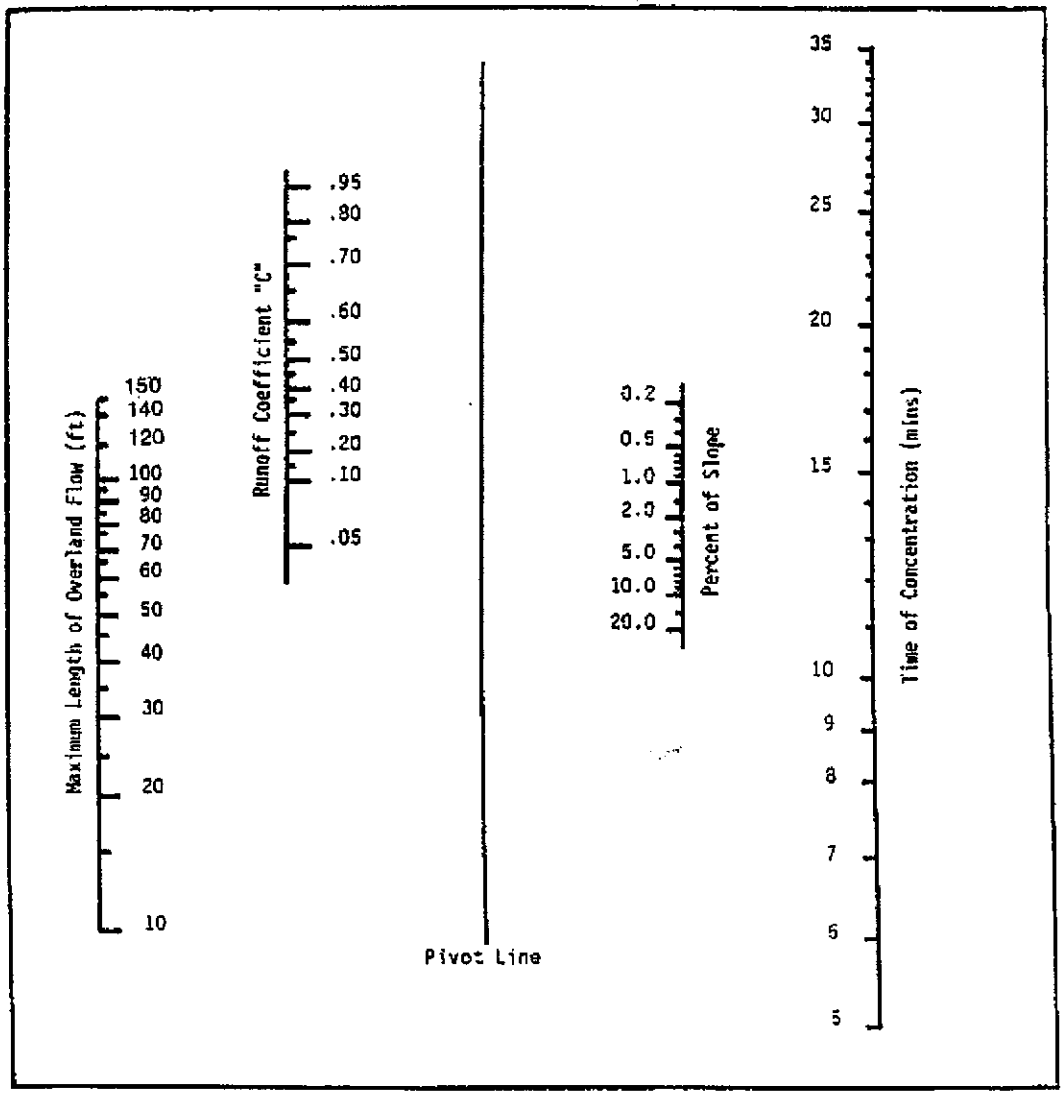
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

APPENDIX NO. B-4.

NOMOGRAPH FOR DETERMINING SHEET FLOW

(for use with the Rational Method)



APPENDIX NO. B-5.

Worksheet #1: Time of concentration (T_c) or travel time (T_t)

Project _____ By _____ Date _____

Location _____ Checked _____ Date _____

Circle one: Present Developed _____

Circle 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 coeff., n (table 3-1)				
3. Flow length, L (total L ≤ **150 ft) ft				
4. Two-yr 24-hr rainfall, P_2 in				
5. Land slope, s ft/ft				
6. $T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$ 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 coeff., n				
17. $V = \frac{1.49\,r^{\frac{2}{3}}\,s^{\frac{1}{2}}}{n}$ Compute V ft/s				
18. Flow length, L ft				
19. $T_t = \frac{L}{3600V}$ Compute T_t hr		+		=
20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr				

*Table 3-1 per latest TR-55, Urban Hydrology for Small Watershed
**150' sheet flow length per latest TR-55 revision

APPENDIX NO. B-6.

AVERAGE VELOCITIES FOR ESTIMATING TRAVEL TIME FOR SHALLOW CONCENTRATED FLOW

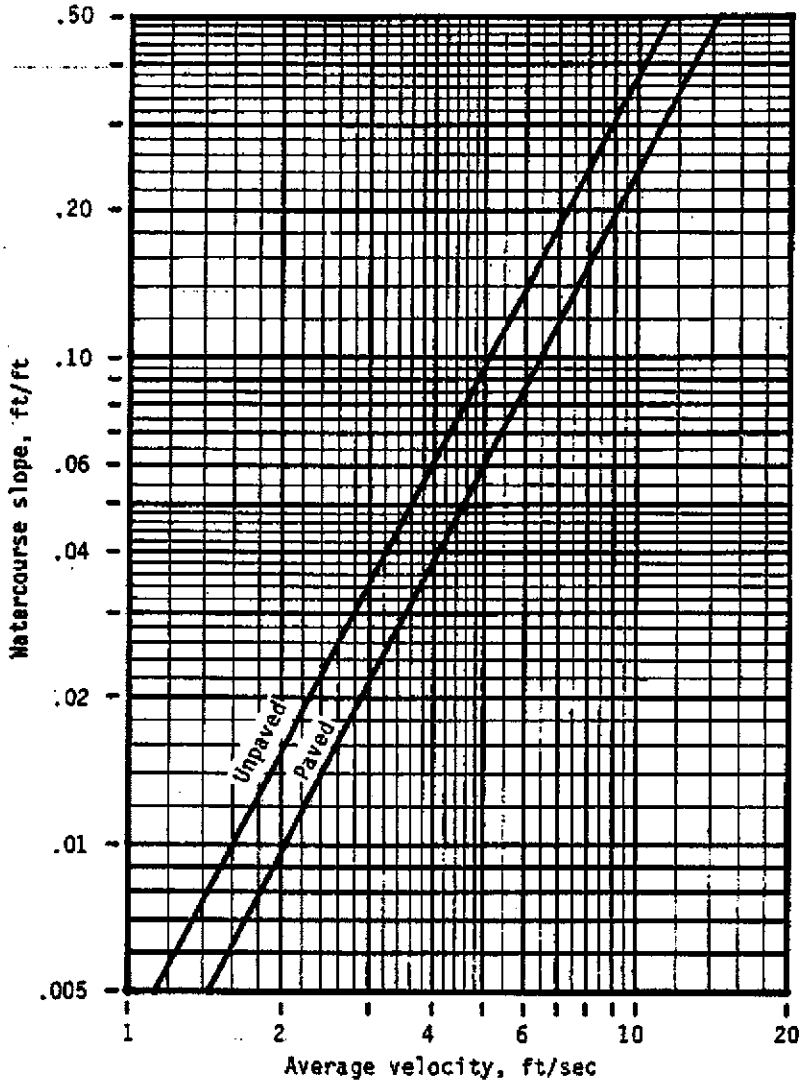


Figure 3-1.—Average velocities for estimating travel time for shallow concentrated flow.

APPENDIX NO. B-7.

Roughness Coefficients n-values for Manning's Equation (Pipes and Pavements)

Description	Manning's n-value
Polyvinyl Chloride (PVC) with smooth Inner Walls	0.010
Corrugated High-Density Polyethylene (HDPE) with Smooth Inner Walls	0.012
Corrugated High-Density Polyethylene (HDPE) with Corrugated Inner Walls	0.015
Concrete Pipe	0.012
Smooth-lined Corrugated Metal Pipe	0.012
Corrugated Plastic Pipe	0.024
Annular Corrugated Steel And Aluminum Alloy Pipe (Plain or polymer coated)	
68 mm × 13 mm (2 2/3 in × 1/2 in) Corrugations	0.024
75 mm × 25 mm (3 in × 1 in) Corrugations	0.027
125 mm × 25 mm (5 in × 1 in) Corrugations	0.025
150 mm × 50 mm (6 in × 2 in) Corrugations	0.033
Helically Corrugated Steel And Aluminum Alloy Pipe (Plain or polymer coated) 75 mm × 25 mm (3 in × 1 in), 125 mm × 25 mm (5 in × 1 in), or 150 mm × 50 mm (6 in × 2 in) Corrugations	0.024
Helically Corrugated Steel And Aluminum Alloy Pipe (Plain or polymer coated) 68 mm × 13 mm (2 2/3 in × 1/2 in) Corrugations	
a. Lower Coefficients*	
450 mm (18 in) Diameter	0.014
600 mm (24 in) Diameter	0.016
900 mm (36 in) Diameter	0.019
1200 mm (48 in) Diameter	0.020
1500 mm (60 in) Diameter or larger	0.021
b. Higher Coefficients**	0.024
Annular or Helically Corrugated Steel or Aluminum Alloy Pipe Arches or Other Non-Circular Metal Conduit (Plain or Polymer coated)	0.024
Vitrified Clay Pipe	0.012
Ductile Iron Pipe	0.013
Asphalt Pavement	0.015
Concrete Pavement	0.014
Grass Medians	0.050
Grass – Residential	0.030
Earth	0.020
Gravel	0.030
Rock	0.035
Cultivated Areas	0.030 - 0.050
Dense Brush	0.070 - 0.140
Heavy Timber (Little undergrowth)	0.100 - 0.150
Heavy Timber (with underbrush)	0.40
Streams:	
a. Some Grass And Weeds (Little or no brush)	0.030 - 0.035
b. Dense Growth of Weeds	0.035 - 0.050
c. Some Weeds (Heavy brush on banks)	0.050 - 0.070

Notes: * Use the lower coefficient if any one of the following conditions apply:

a. A storm pipe longer than 20 diameters, which directly or indirectly connects to an inlet or manhole, located in swales adjacent to shoulders in cut areas, shoulders in cut areas or depressed medians.

b. A storm pipe which is specially designed to perform under pressure.

** Use the higher coefficient if any one of the following conditions apply:

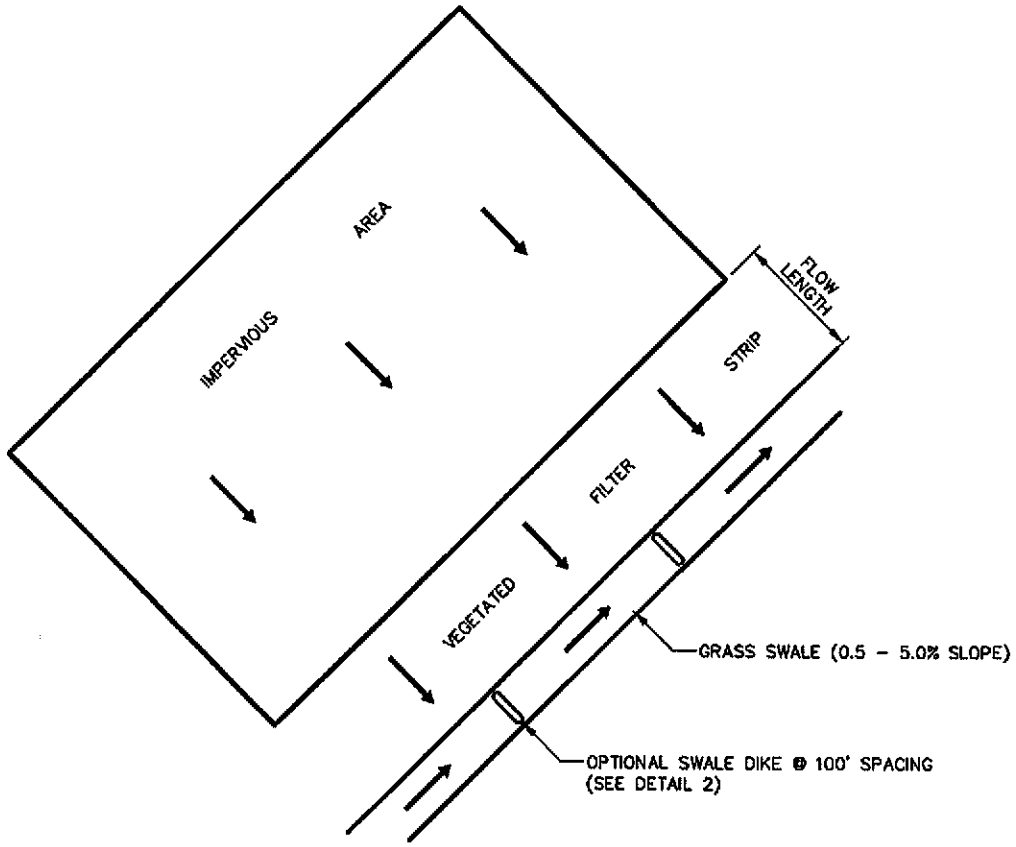
a. A storm pipe which directly or indirectly connects to an inlet or manhole located in highway pavement sections or adjacent to curb or concrete median barrier.

b. A storm pipe which is shorter than 20 diameters long.

c. A storm pipe which is partly lined helically corrugated metal pipe.

APPENDIX C

STORMWATER MANAGEMENT AND BMP CONSTRUCTION DETAILS



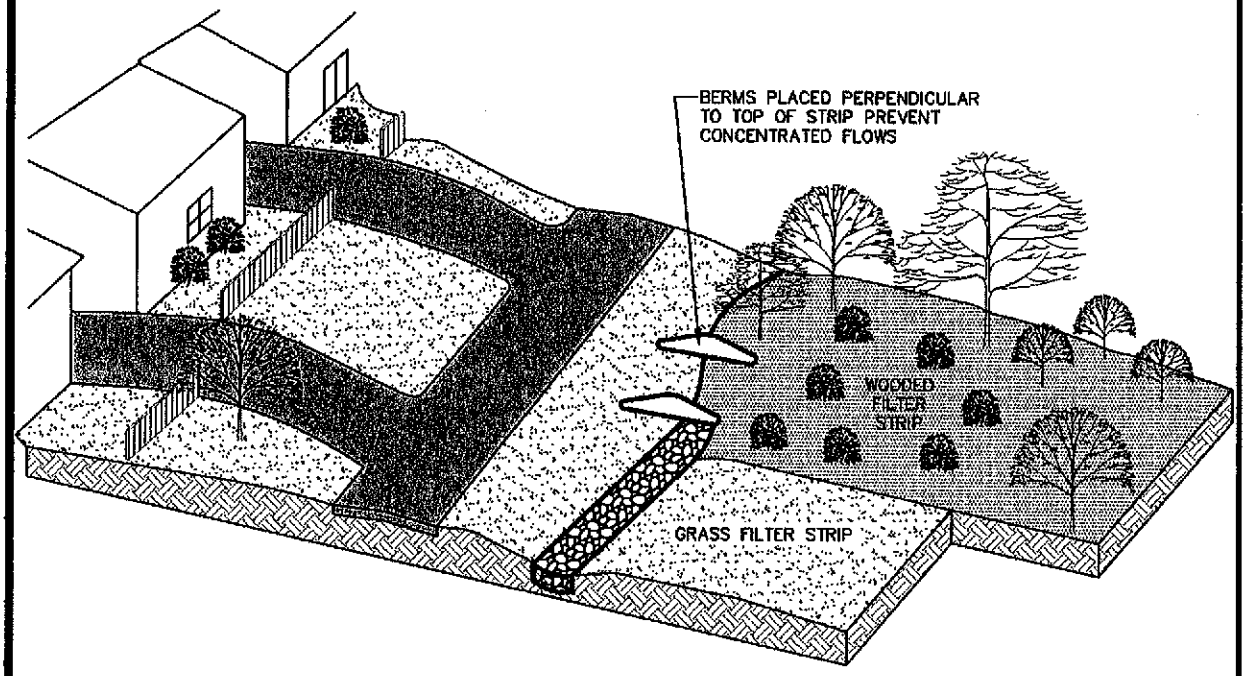
NOTE:
FILTER STRIP MUST BE CONTIGUOUS TO IMPERVIOUS AREA. RUNOFF ACROSS IMPERVIOUS AREA SHALL ALSO BE IN SHEET FLOW.

FILTER STRIP/GRASS SWALE

STANDARD SWM SPECIFICATIONS

Hanover
Engineering Associates Inc
20 C Snyder Lane Ephrata, PA 17522-9101
717.721.7444 Fax 717.721.7447

DRAWN BY:	DES
CHECKED BY:	JAP/RJL
DATE:	JUNE 2013
SCALE:	NOT TO SCALE
SHEET NO.	1

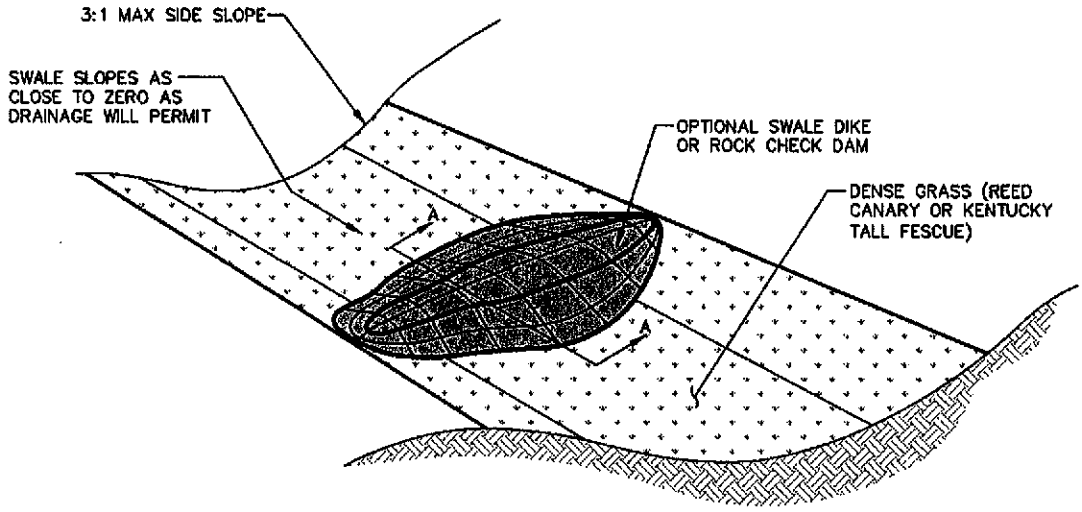


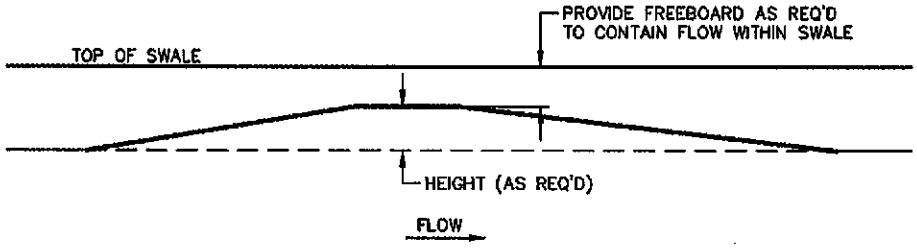
FILTER STRIP

STANDARD SWM SPECIFICATIONS

Hanover
Engineering Associates Inc
20 C Snyder Lane Ephrata, PA 17522-9101
717.721.7444 Fax 717.721.7447

DRAWN BY:	DES
CHECKED BY:	JAP/RJL
DATE:	JUNE 2013
SCALE:	NOT TO SCALE
SHEET NO.	2





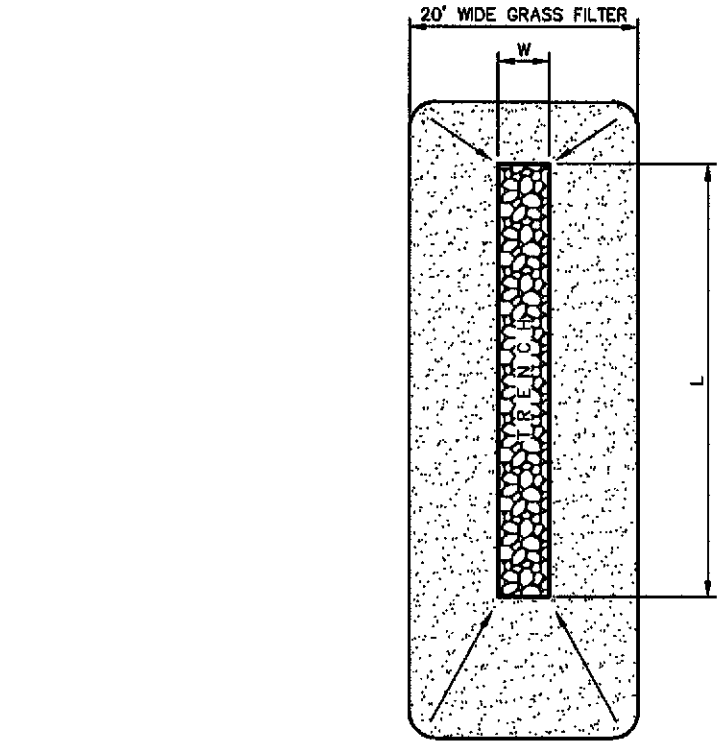
SECTION A–A

GRASS SWALE

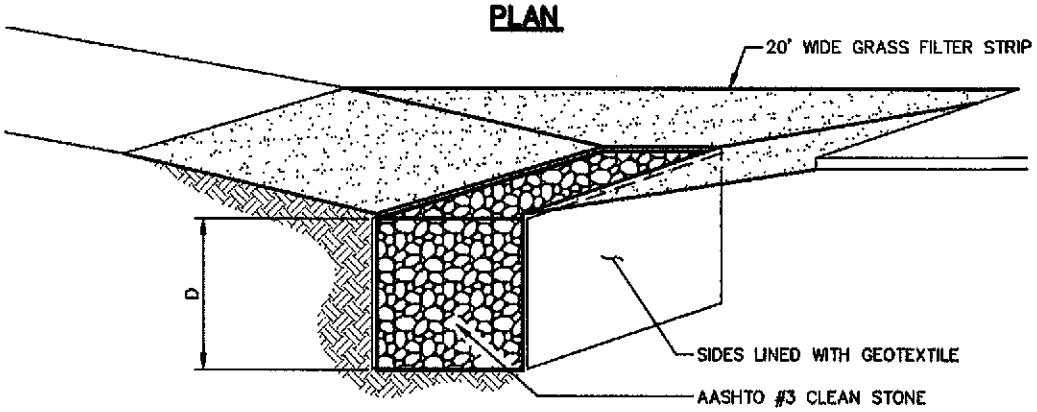
STANDARD SWM SPECIFICATIONS

Hanover
Engineering Associates Inc
20 C Snyder Lane Ephrata, PA 17522-9101
717.721.7444 Fax 717.721.7447

DRAWN BY:	DES
CHECKED BY:	JAP/RJL
DATE:	MAR 2009
SCALE:	NOT TO SCALE
SHEET NO.	3



PLAN



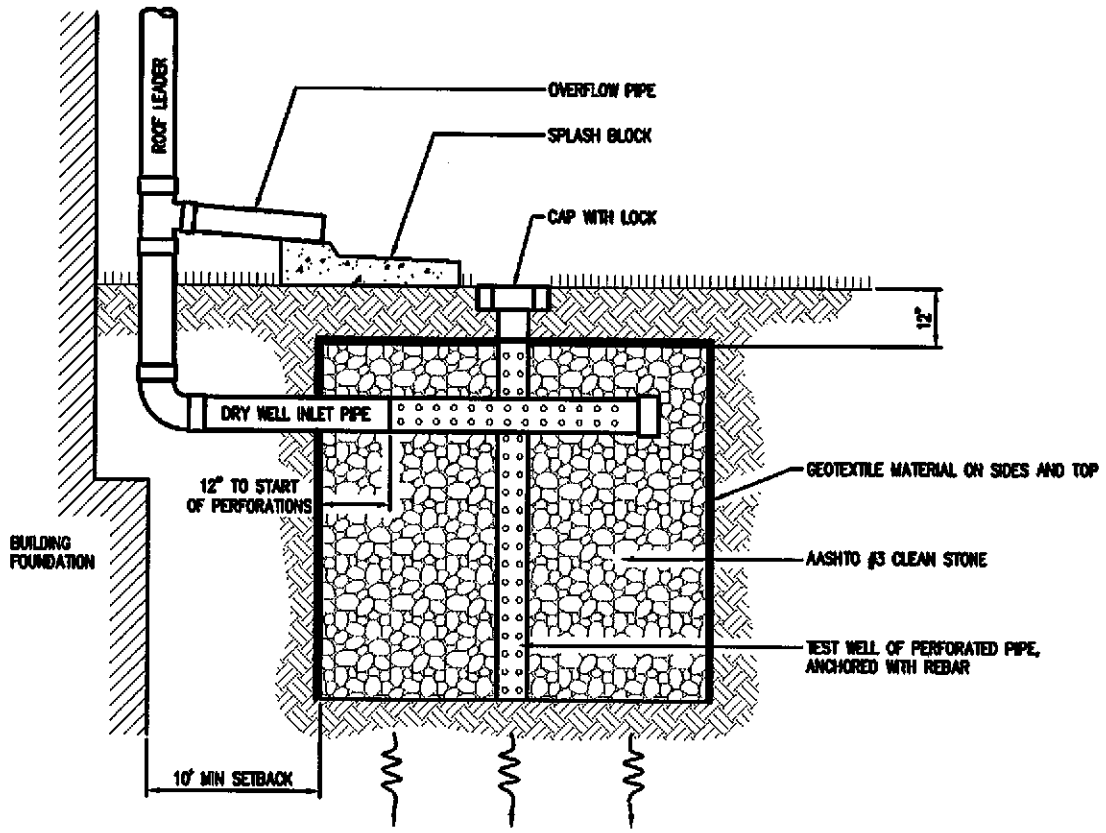
ISOMETRIC SECTION

INFILTRATION TRENCH

STANDARD SWM SPECIFICATIONS

Hanover
Engineering Associates Inc
20 C Snyder Lane Ephrata, PA 17522-9101
717.721.7444 Fax 717.721.7447

DRAWN BY:	DES
CHECKED BY:	JAP/RJL
DATE:	MAR 2009
SCALE:	NOT TO SCALE
SHEET NO.	4



DRY WELL

STANDARD SWM SPECIFICATIONS

Hanover
Engineering Associates Inc
20 C Snyder Lane Ephrata, PA 17522-9101
717.721.7444 Fax 717.721.7447

DRAWN BY:	DES
CHECKED BY:	JAP/RJL
DATE:	DEC 2013
SCALE:	NOT TO SCALE
SHEET NO.	5

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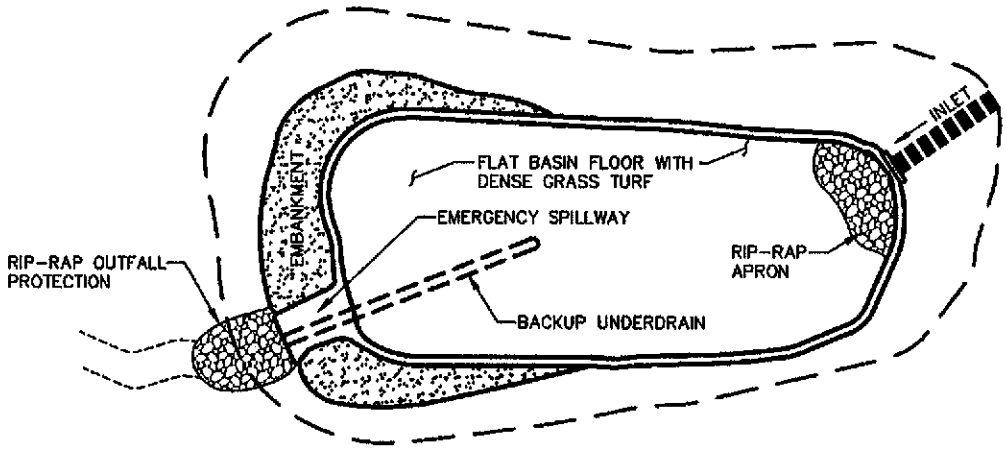
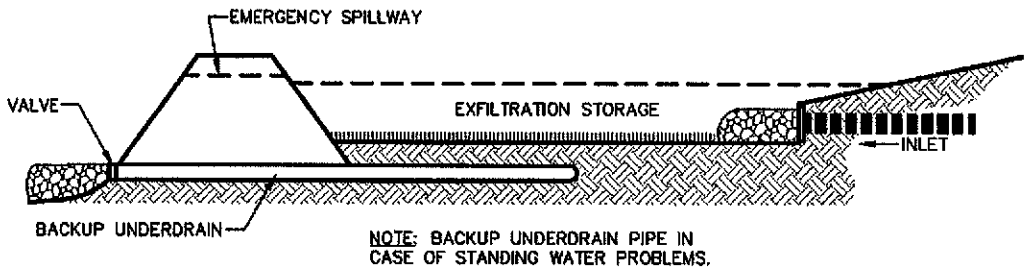


PLAN VIEW



NOTE: BACKUP UNDERDRAIN PIPE IN CASE OF STANDING WATER PROBLEMS.

SECTION VIEW

INFILTRATION BASIN

STANDARD SWM SPECIFICATIONS

Hanover
Engineering Associates Inc
20 C Snyder Lane Ephrata, PA 17522-9101
717.721.7444 Fax 717.721.7447

DRAWN BY:	DES
CHECKED BY:	JAP/RJL
DATE:	MAR 2009
SCALE:	NOT TO SCALE
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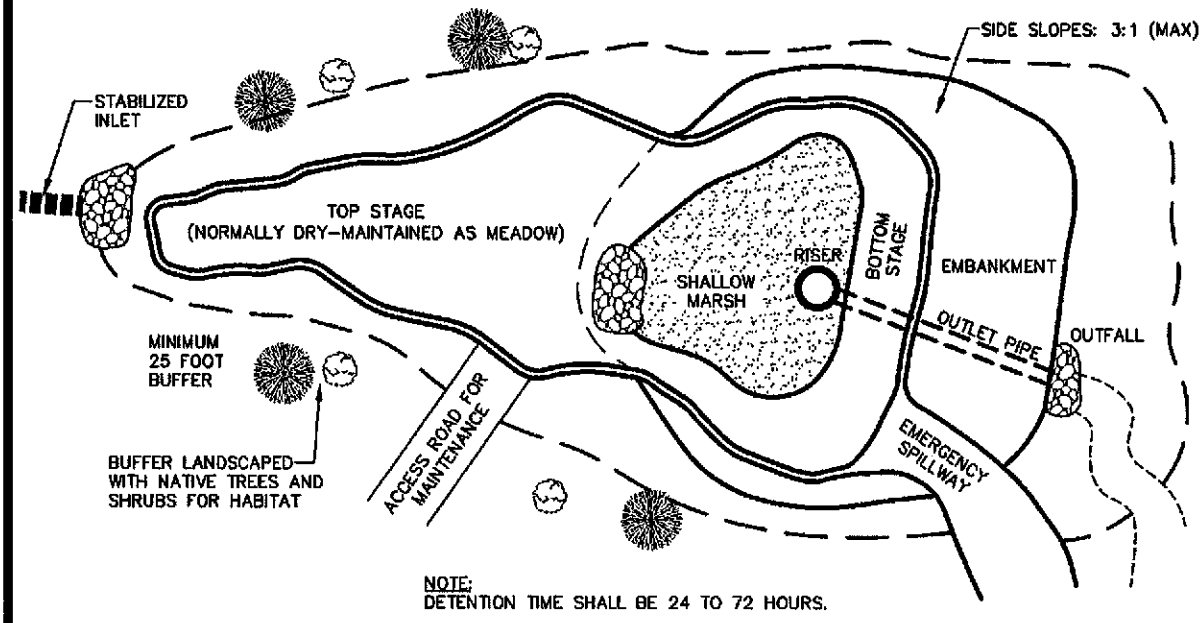
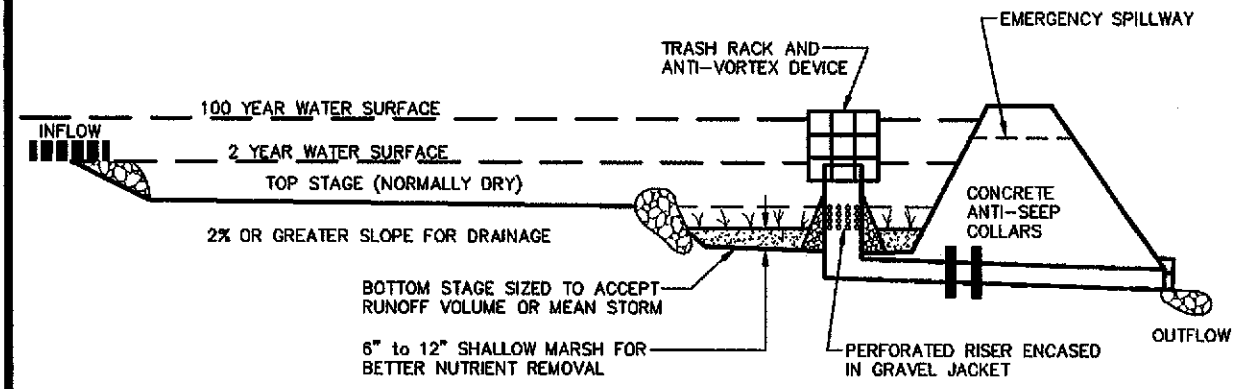


PLAN VIEW



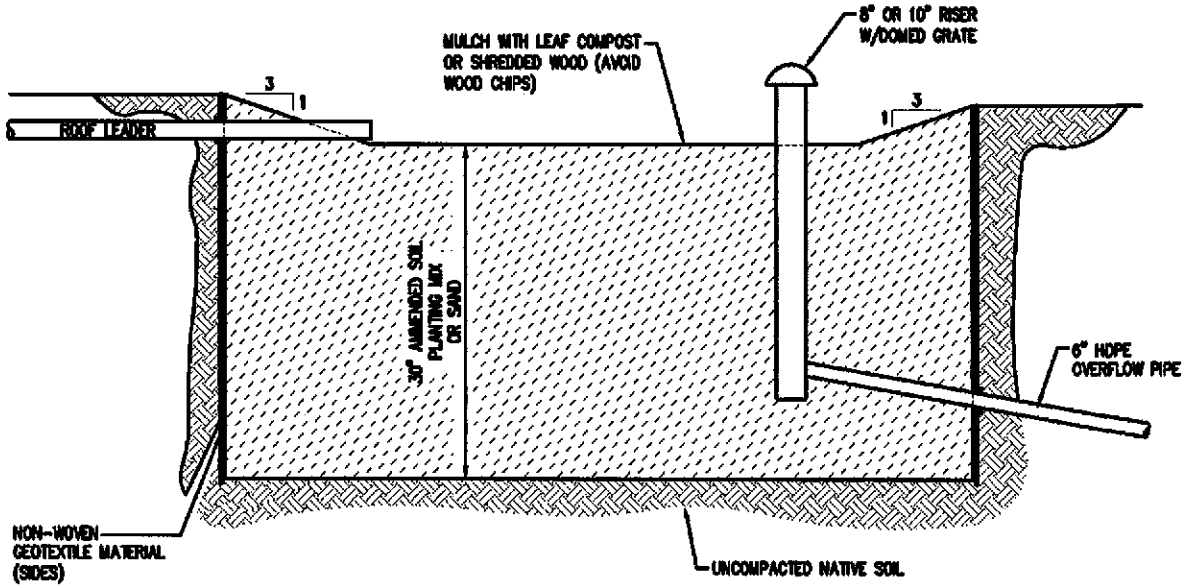
SECTION VIEW

EXTENDED DRY DETENTION POND

STANDARD SWM SPECIFICATIONS

Hanover
Engineering Associates Inc
20 C Snyder Lane Ephrata, PA 17522-9101
717.721.7444 Fax 717.721.7447

DRAWN BY:	DES
CHECKED BY:	JAP/RJL
DATE:	MAR 2009
SCALE:	NOT TO SCALE
SHEET NO.	7



NOTES:

1. MOISTURE-TOLERANT PLANT MATERIAL SHALL BE USED AT BOTTOM EDGE. PLANT MATERIAL SHALL BE TOLERANT OF FLUCTUATING WATER CONDITIONS.
2. SOIL BENEATH RAIN GARDEN SHALL REMAIN UNCOMPACTED.
3. AS AN ALTERNATIVE, SAND OR GRAVEL CAN BE USED AS BEDDING FOR THE RAIN GARDEN.
4. IF SAND IS TO BE USED, ADDITIONAL DESIGN ELEMENTS AND VEGETATION PLANTINGS WILL NEED TO BE USED.

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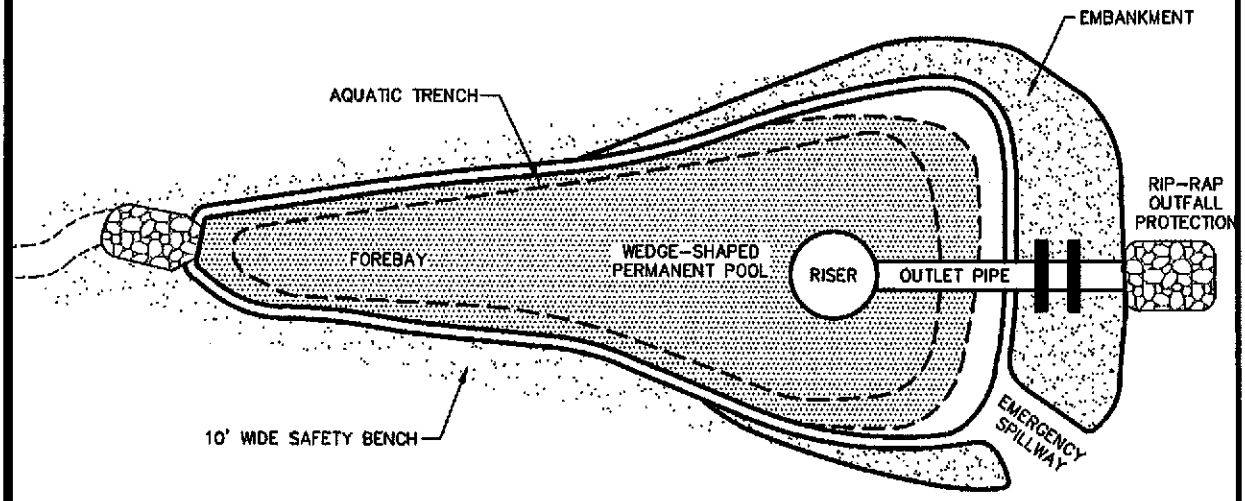
RAIN GARDEN

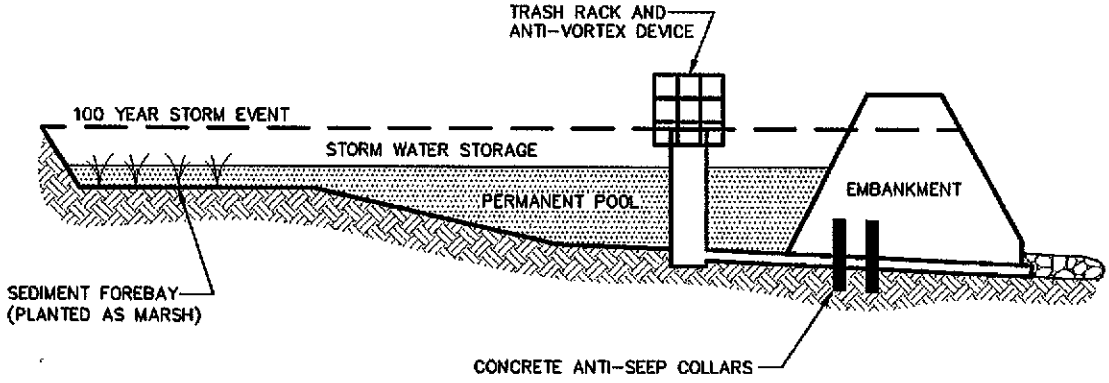
STANDARD SWM SPECIFICATIONS

Hanover
Engineering Associates Inc
20 C Snyder Lane Ephrata, PA 17522-9101
717.721.7444 Fax 717.721.7447

DRAWN BY:	DES
CHECKED BY:	JAP/RJL
DATE:	DEC 2013
SCALE:	NOT TO SCALE
SHEET NO.	8



PLAN VIEW



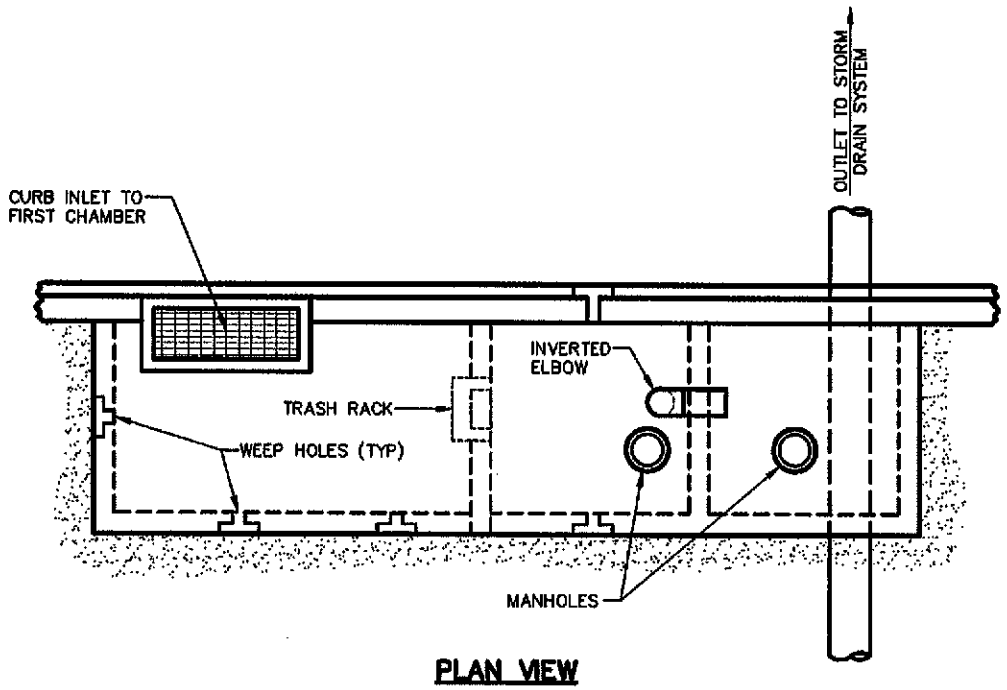
SECTION VIEW

WET POND

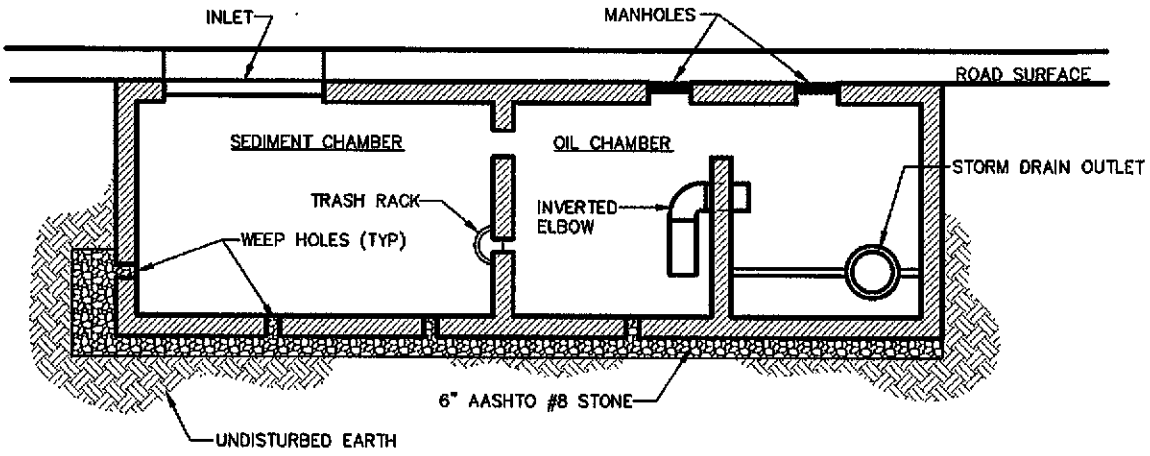
STANDARD SWM SPECIFICATIONS

Hanover
Engineering Associates Inc
20 C Snyder Lane Ephrata, PA 17522-9101
717.721.7444 Fax 717.721.7447

DRAWN BY:	DES
CHECKED BY:	JAP/RJL
DATE:	MAR 2009
SCALE:	NOT TO SCALE
SHEET NO.	9



PLAN VIEW



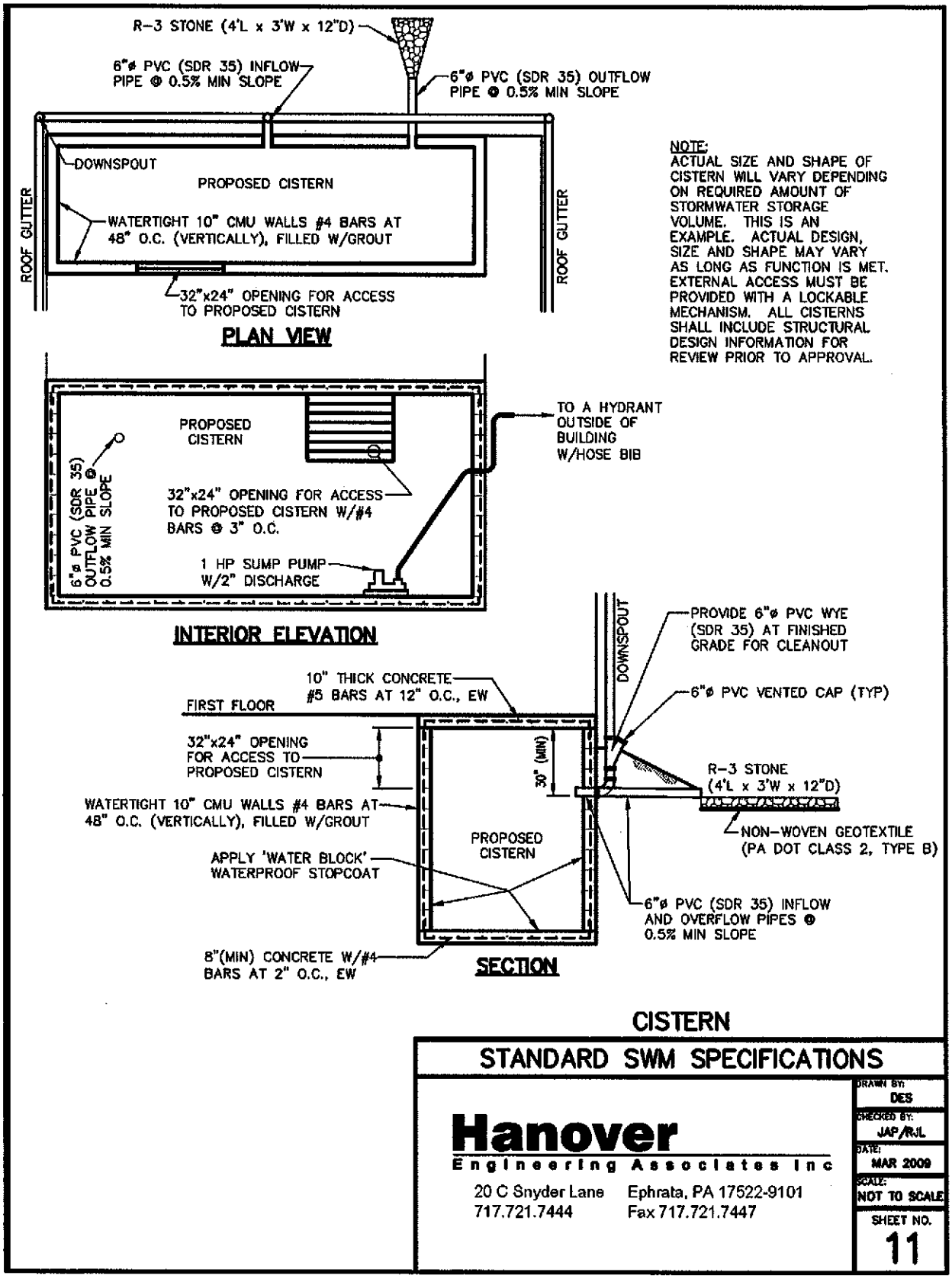
SECTION VIEW

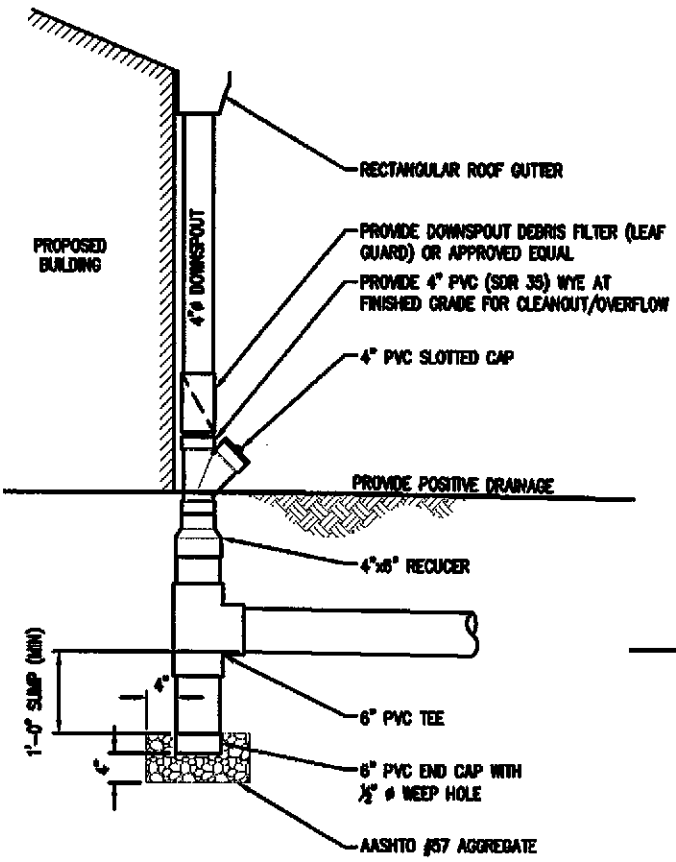
WATER QUALITY INLET

STANDARD SWM SPECIFICATIONS

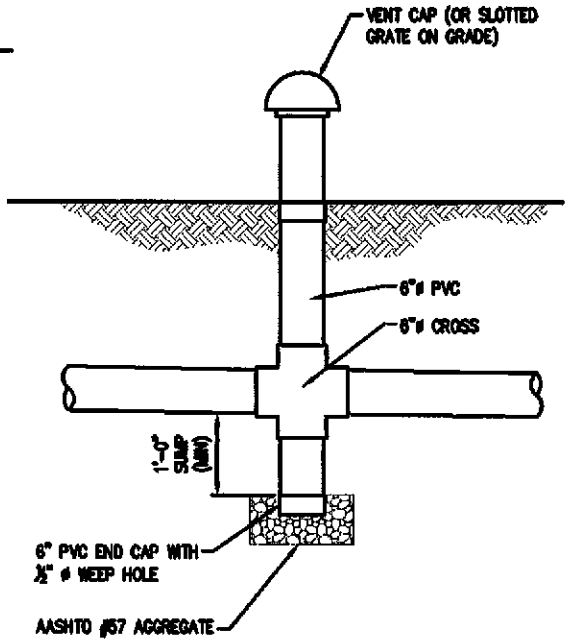
Hanover
Engineering Associates Inc
20 C Snyder Lane Ephrata, PA 17522-9101
717.721.7444 Fax 717.721.7447

DRAWN BY:	DES
CHECKED BY:	JAP/RJL
DATE:	MAR 2009
SCALE:	NOT TO SCALE
SHEET NO.	10


R-3 STONE (4'L x 3'W x 12"D)
6"ø PVC (SDR 35) INFLOW PIPE @ 0.5% MIN SLOPE
6"ø PVC (SDR 35) OUTFLOW PIPE @ 0.5% MIN SLOPE
DOWNSPOUT
PROPOSED CISTERN
WATERTIGHT 10" CMU WALLS #4 BARS AT 48" O.C. (VERTICALLY), FILLED W/GROUT
ROOF GUTTER
ROOF GUTTER
32"x24" OPENING FOR ACCESS TO PROPOSED CISTERN
PLAN VIEW
NOTE:
ACTUAL SIZE AND SHAPE OF CISTERN WILL VARY DEPENDING ON REQUIRED AMOUNT OF STORMWATER STORAGE VOLUME. THIS IS AN EXAMPLE. ACTUAL DESIGN, SIZE AND SHAPE MAY VARY AS LONG AS FUNCTION IS MET. EXTERNAL ACCESS MUST BE PROVIDED WITH A LOCKABLE MECHANISM. ALL CISTERNS SHALL INCLUDE STRUCTURAL DESIGN INFORMATION FOR REVIEW PRIOR TO APPROVAL.
PROPOSED CISTERN
TO A HYDRANT OUTSIDE OF BUILDING W/HOSE BIB
6"ø PVC (SDR 35) OUTFLOW PIPE @ 0.5% MIN SLOPE
32"x24" OPENING FOR ACCESS TO PROPOSED CISTERN W/#4 BARS @ 3" O.C.
1 HP SUMP PUMP W/2" DISCHARGE
INTERIOR ELEVATION
10" THICK CONCRETE #5 BARS AT 12" O.C., EW
FIRST FLOOR
DOWNSPOUT
PROVIDE 6"ø PVC WYE (SDR 35) AT FINISHED GRADE FOR CLEANOUT
6"ø PVC VENTED CAP (TYP)
32"x24" OPENING FOR ACCESS TO PROPOSED CISTERN
30" (MIN)
R-3 STONE (4'L x 3'W x 12"D)
WATERTIGHT 10" CMU WALLS #4 BARS AT 48" O.C. (VERTICALLY), FILLED W/GROUT
PROPOSED CISTERN
NON-WOVEN GEOTEXTILE (PA DOT CLASS 2, TYPE B)
APPLY 'WATER BLOCK' WATERPROOF STOPCOAT
6"ø PVC (SDR 35) INFLOW AND OVERFLOW PIPES @ 0.5% MIN SLOPE
8"(MIN) CONCRETE W/#4 BARS AT 2" O.C., EW
SECTION
CISTERN
STANDARD SWM SPECIFICATIONS
Hanover
Engineering Associates Inc
20 C Snyder Lane Ephrata, PA 17522-9101
717.721.7444 Fax 717.721.7447
DRAWN BY: DES
CHECKED BY: JAP/RJL
DATE: MAR 2009
SCALE: NOT TO SCALE
SHEET NO. 11



ROOF DRAIN LATERAL/CLEANOUT DETAIL



IN-LINE CLEANOUT DETAIL

ROOF DRAIN & IN-LINE LATERAL/CLEANOUT

STANDARD SWM SPECIFICATIONS

Hanover
Engineering Associates Inc
20 C Snyder Lane, Ephrata, PA 17522-9101
717.721.7444 Fax 717.721.7447

DRAWN BY:	DES
CHECKED BY:	JAP/RJL
DATE:	DEC 2013
SCALE:	NOT TO SCALE
SHEET NO.	12

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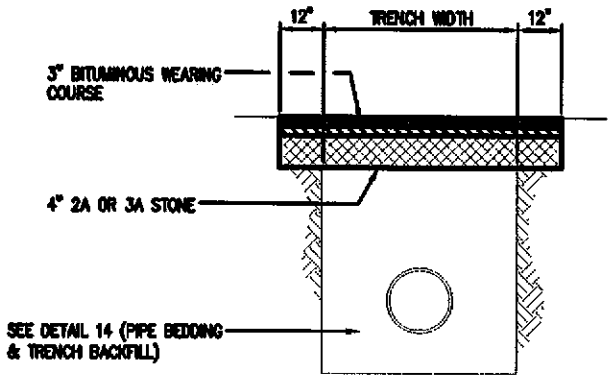
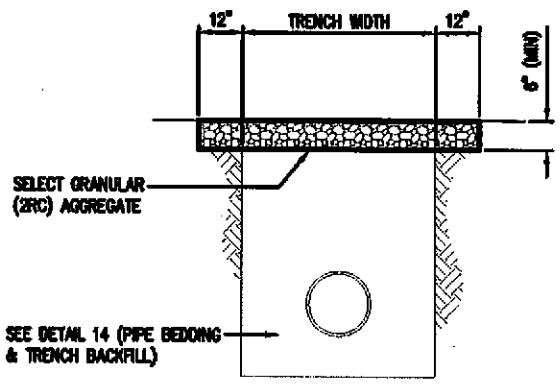


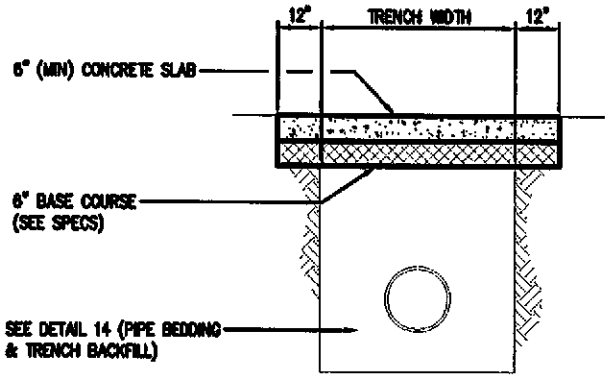
NOTE: MATCH EXISTING WIDTH OF DRIVEWAY

PAVED DRIVEWAY RESTORATION



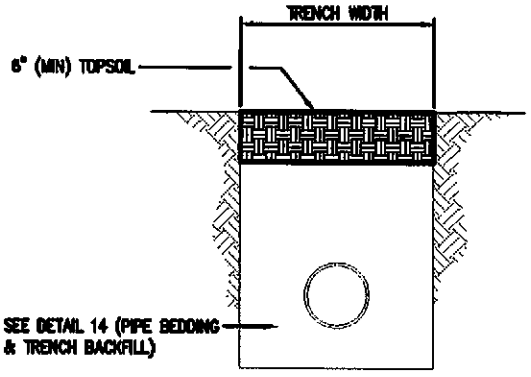
NOTE: MATCH EXISTING WIDTH OF DRIVEWAY

STONE DRIVEWAY RESTORATION



NOTE: MATCH EXISTING WIDTH OF DRIVEWAY

CONCRETE DRIVEWAY RESTORATION



NOTE: MATCH EXISTING WIDTH OF DRIVEWAY

LAWN RESTORATION

PERMANENT RESTORATION FOR AREAS OTHER THAN ROADWAYS

STANDARD SWM SPECIFICATIONS

Hanover
Engineering Associates Inc
20 C Snyder Lane Ephrata, PA 17522-9101
717.721.7444 Fax 717.721.7447

DRAWN BY:	DES
CHECKED BY:	JAP/RJL
DATE:	DEC 2013
SCALE:	NOT TO SCALE
SHEET NO.	13

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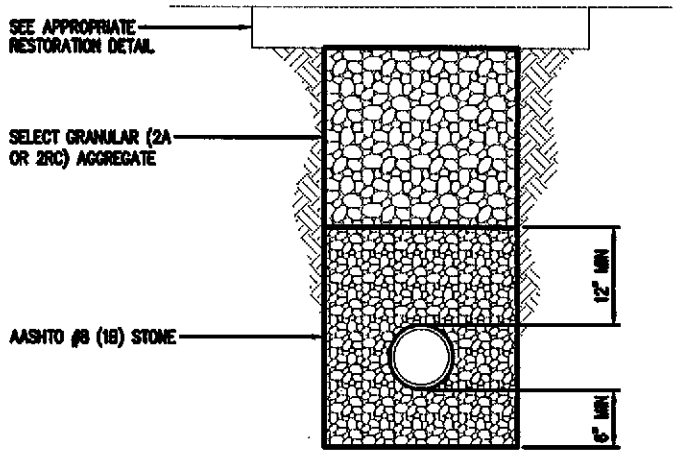
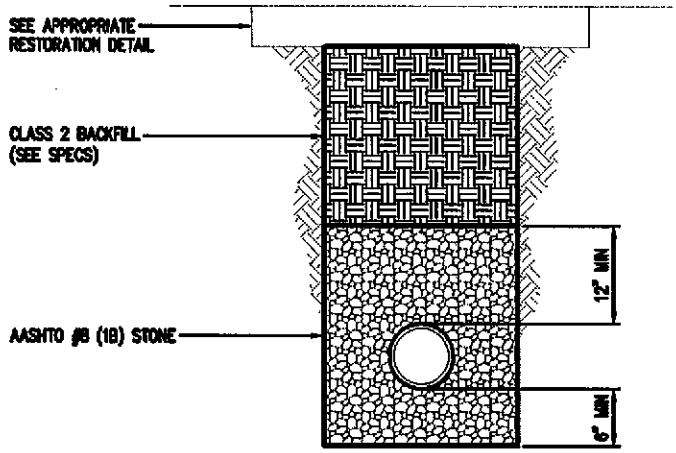


ROADWAYS & SHOULDERS



OTHER THAN ROADWAYS & SHOULDERS

PIPE BEDDING AND TRENCH BACKFILL

STANDARD SWM SPECIFICATIONS

NOTES:

1. BACKFILL MATERIAL SHALL BE PLACED IN 12" (MAX) LIFTS. THOROUGHLY COMPACT EACH LIFT WITH MECHANICAL TAMPERS OR BY OTHER ACCEPTABLE METHODS FOR THE FULL TRENCH WIDTH. COMPACT TO NOT LESS THAN 100% OF THE DETERMINED DRY WEIGHT DENSITY OF THE BACKFILL MATERIAL.

Hanover
Engineering Associates Inc
20 C Snyder Lane Ephrata, PA 17522-9101
717.721.7444 Fax 717.721.7447

DRAWN BY:	DES
CHECKED BY:	JAP/R.L.
DATE:	DEC 2013
SCALE:	NOT TO SCALE
SHEET NO.	14

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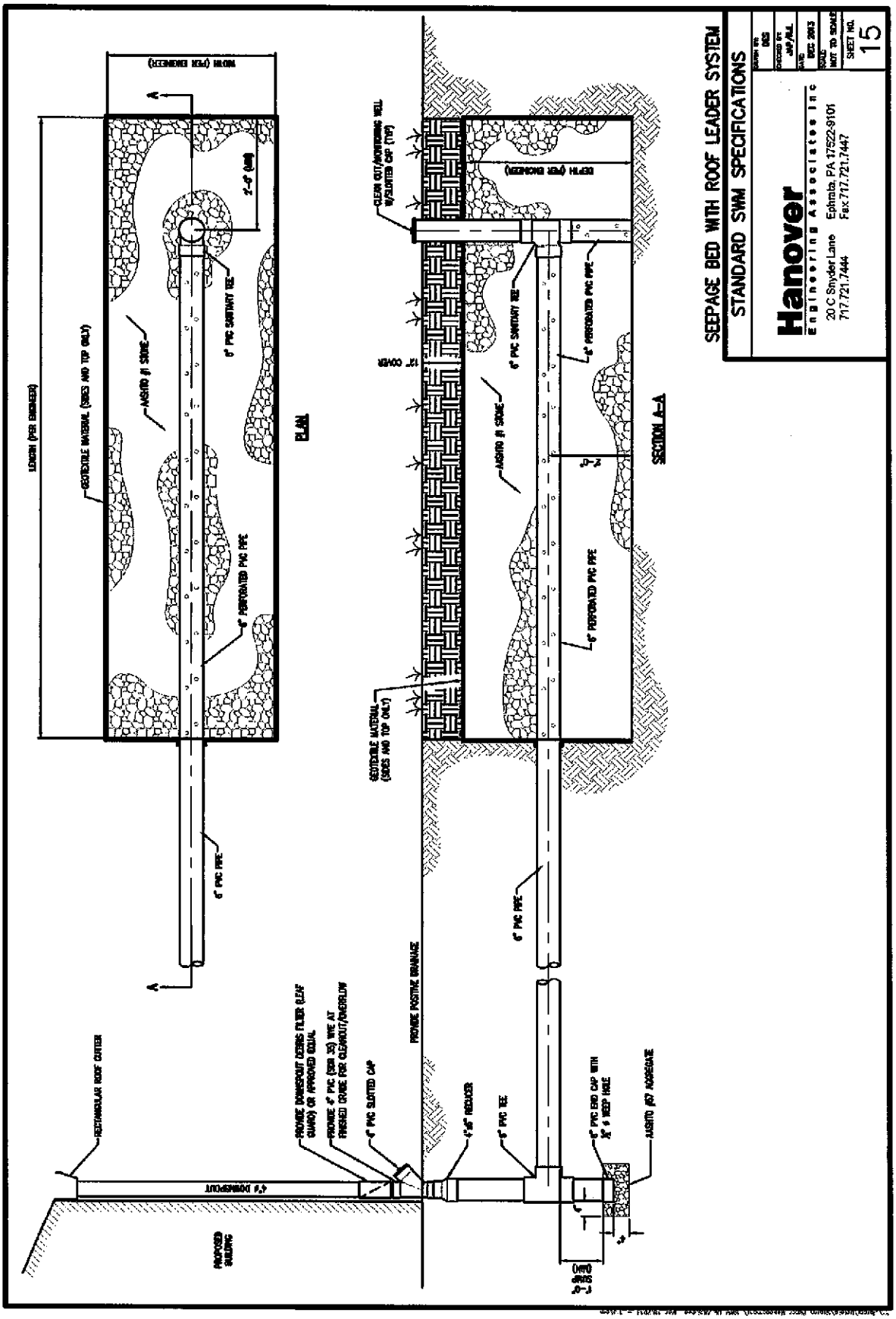
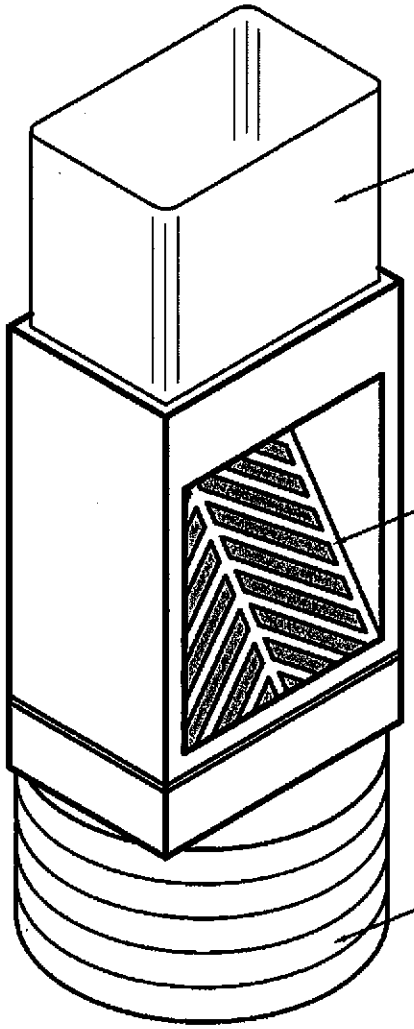

SEEPAGE BED WITH ROOF LEADER SYSTEM
STANDARD SWM SPECIFICATIONS
SHEET NO. 15
Hanover
Engineering Associates Inc
20 C Snyder Lane Ephrata, PA 17522-9101
717.721.7444 Fax 717.721.7447
PLAN
SECTION A-A
AASHTO #1 STONE
6" PVC SANITARY TEE
6" PERFORATED PVC PIPE
6" PVC PIPE
GEOTEXTILE MATERIAL (SIDES AND TOP ONLY)
CLEAN OUT/MONITORING WELL W/SLOTTED CAP (TYP)
PROVIDE POSITIVE DRAINAGE
RECTANGULAR ROOF GUTTER
PROVIDE DOWNSPOUT DEBRIS FILTER LEAF GUARD OR APPROVED EQUAL
PROVIDE 4" PVC (SCH 35) WYE AT FINISHED GRADE FOR CLEANOUT/OVERFLOW
4" PVC SLOTTED CAP
4"x6" REDUCER
6" PVC TEE
6" PVC END CAP WITH 1/4" ø WEEP HOLE
AASHTO #57 AGGREGATE
PROPOSED BUILDING



NOTE:
USE DOWNSPOUT DEBRIS FILTER
OR APPROVED EQUAL.

WATERPROOF.COM LLC
1253 HALLMARK CT.
N. OAKDALE, MN 55128
(651) 644-2000

DOWNSPOUT DEBRIS FILTER

STANDARD SWM SPECIFICATIONS

Hanover
Engineering Associates Inc
20 C Snyder Lane Ephrata, PA 17522-9101
717.721.7444 Fax 717.721.7447

DRAWN BY:	RLS
CHECKED BY:	JAP/RJL
DATE:	DEC 2013
SCALE:	NOT TO SCALE
SHEET NO.	16

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APPENDIX D.

CLAY TOWNSHIP KNOWN KARST FEATURES MAP

(Insert Clay Township Karst Map Here)

APPENDIX E.
Clay Township High Quality and Exceptional Value Stream Drainage Map

(Insert Clay Township High Quality and Exceptional Value Stream Drainage Map)

APPENDIX F.
STORMWATER MANAGEMENT AGREEMENT AND DECLARATION OF EASEMENT

Prepared By and
Return To:
Mejia Law Group
1390 W. Main Street
Ephrata, PA 17522
717-733-8604

STORMWATER MANAGEMENT AGREEMENT
AND DECLARATION OF EASEMENT

THIS AGREEMENT AND DECLARATION OF EASEMENT made as of this _____ day of _____, 20__, by and between _____, with offices or residence located at _____ (hereinafter referred to as the **"Grantor"**); and the **TOWNSHIP OF CLAY**, Lancaster County, Pennsylvania, a Township duly organized under the laws of the Commonwealth of Pennsylvania, with its municipal offices located at 870 Durlach Road, Stevens, Pennsylvania 17578 (hereinafter referred to as the **"Township"**).

BACKGROUND.

Grantor is the legal and/or beneficial owner of premises located at _____ _____, in the Township of Clay, Lancaster County, Pennsylvania, known as _____, as more specifically described in a deed recorded at Document No. _____ in the Office of the Recorder of Deeds in and for Lancaster County, Pennsylvania, and as shown in the _____, prepared by _____, Project No. _____ dated _____, 20__, last revised _____, 20__, (hereinafter referred to as the "Premises").

Prior to the commencement of any development, Grantor is required under Chapter 11 of the Clay Township Code of Ordinances, known as the Clay Township Stormwater Ordinance (the **"Ordinance"**), to submit a stormwater management plan to the Township for approval. Chapter 11 requires that the Grantor make provision for the ownership of, and the method of administering and maintaining, all permanent stormwater management facilities, drainage courses, swales, grassed waterways, stormwater inlets, pipes, conduits, detention basins, retention basins, infiltration structures, and other stormwater management facilities, including Best Management Practices facilities (**"BMPs"**), which shall be included under the term "stormwater 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 stormwater management facilities which will be installed on the Premises and to impose the ownership and maintenance responsibilities upon Grantor, its successors and assigns, and upon successor owners of the Premises.

NOW, THEREFORE, intending to be legally bound hereby and in consideration of receiving approval of its Stormwater Management Plan (hereinafter referred to as the **"Plan"**) from Clay Township Board of Supervisors, and/or in consideration of receiving permits from the Township to develop the Premises, Grantor, for Grantor and the heirs, executors, assigns and successors of Grantor, covenants and declares as follows:

1. The stormwater facilities will be owned by Grantor, its successors and assigns.

2. All drainage courses, swales, stormwater inlets, pipes, conduits, manholes, detention basins, BMPs, and other stormwater management facilities shall be installed, constructed and maintained by Grantor, its successors and assigns, in a first-class condition in conformance with the Plan, as approved, and in a manner sufficient to meet or exceed the design standards and specifications set forth on the Plan. These responsibilities shall include, but not be limited to, the following:

(A) Liming, fertilizing, seeding and mulching of vegetated channels and all other unstabilized soils or areas according to the specifications in the "Erosion and Sedimentation Control Program Manual" (Pennsylvania Code Title 25, Chapter 102), latest revision.

(B) Reestablishment of vegetation by seeding, mulching and use of erosion matting 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 Township.

(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) Regular inspection of the areas in question to assure proper maintenance and care, including but not limited to proper implementation of BMPs.

(F) All pipes, swales and detention facilities shall be kept free of any debris or other obstruction.

3. Grantor shall be responsible for performing the foregoing maintenance and for implementing and maintaining BMP facilities as required by the Ordinance and to submit all applications and pay all fees and expenses required by Chapter 11 of the Clay Township Code of Ordinances, as amended.

4. Grantor agrees that the failure to maintain all drainage courses, swales, stormwater inlets, pipes, conduits, detention basins, BMPs, and other stormwater management facilities in a first-class condition in conformance with this Agreement, the Plan, and Chapter 11, as amended, shall constitute a nuisance and shall be abatable by the Township as such.

5. Grantor authorizes the Township, at any time and from time to time, by its authorized representatives, to enter upon the Premises to inspect the stormwater management facilities.

6. The Township may require that Grantor, or any future owner or occupier of the Premises, or any part thereof, take such corrective measures as the Township may deem reasonably necessary to bring the Premises into compliance with this Agreement, the Plan, and Chapter 11, as amended.

7. Upon the failure of the owner or occupier of the Premises to comply with the terms of this Stormwater Management Agreement or to take corrective measures, following thirty (30) days' notice from the Township, the Township, through its authorized representatives, may take such corrective measures as it deems reasonably necessary to bring the Premises into compliance with this Agreement, the Plan, and Chapter 11, as amended, 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 or any owner of the Premises and, in default of such payment, may cause a municipal lien to be imposed upon the Premises or any part thereof or to sue in Court for the recovery thereof, together with reasonable attorney's fees and costs.

8. [OPTIONAL] If ownership or maintenance responsibility of the stormwater management facilities is assigned to a homeowners' association, condominium unit owners' association, or similar entity, the Township shall be notified. In the event such an association or entity has already been formed, the association or entity shall consent to and join in this Agreement. If such association or entity fails to properly maintain the stormwater management facilities, the Township shall have the same rights granted to municipalities with reference to maintenance of common open space under Section 705 of the Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247, or any future amendment thereof, to maintain the stormwater management facilities. Any association or entity hereinafter formed shall enter into an agreement with the Township recognizing its duties and the Township's rights under this Agreement.

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

10. Grantor shall include a specific reference to this Stormwater Management Agreement and Declaration of Easement and the obligations thereunder in any deed of conveyance for the Premises or any part thereof.

11. Grantor agrees to indemnify the Township and all of its elected and appointed officials, agents and employees (hereinafter 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 stormwater management facilities.

12. The Township may, in addition to the remedies prescribed herein, proceed with any action at law or in equity to bring about compliance with the Chapter 11 and this Agreement.

13. (A) Grantor's personal liability under this Agreement shall cease at such time as (a) all stormwater management facilities have been constructed in accordance with the specifications of Chapter 11, the Clay Township Subdivision and Land Development Ordinance and the approved plans; (b) the stormwater management facilities have been inspected and approved by the Township; (c) all financial security, including any maintenance security, posted by Grantor has been released by the Township; and (d) Grantor has transferred all lots to be created from the Premises to third parties.

(B) 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 stormwater management facilities were not completed, inspected or approved as set forth herein.

14. 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 or Chapter 11 which occurred during the period in which an owner held title.

15. This Agreement and Declaration of Easement shall be binding upon Grantor, the heirs, executors, 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, or any part thereof, of their duties and responsibilities with respect to the stormwater management facilities.

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 Township.

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

TOWNSHIP OF CLAY

Attest:_____ By:_____

(Assistant) Secretary Board of Supervisors, Chair

[TOWNSHIP SEAL]

GRANTOR

Witness:

_____

By:_____

____(SEAL)

(TOWNSHIP ACKNOWLEDGMENT)

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF LANCASTER)

On this _____ day of _____, 20__, before me, the undersigned officer, a notary public in and for the aforesaid Commonwealth and County, personally appeared _____, who acknowledged _____self to be Chair of the Board of Supervisors of the Township of Clay, Lancaster County, Pennsylvania, and that he/she, as such officer, being authorized to do so, executed the foregoing Stormwater Management Agreement and Declaration of Easement, for the purposes therein contained, by signing the name of such Township by ___self as such officer.

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

_____
Notary Public

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF LANCASTER)

On this _____ day of _____, 20__, before me, a notary public, the undersigned officer, personally appeared _____, who acknowledged him/herself to be the authorized _____, and as such, he being authorized to do so, executed the foregoing instrument for the purposes therein contained.

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

_____
Notary Public

JOINDER BY MORTGAGEE

_____("Mortgagee") as holder of a certain mortgage on the within-described Premises, which mortgage, in the amount of $_____ , is dated _____, 20__, 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 approves 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 by 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]

(MORTGAGEE ACKNOWLEDGMENT)

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF LANCASTER)

On this, the _____ day of _____, 20__, before me, a notary public, the undersigned officer, personally appeared _____, who acknowledged ____self to be the _____ of _____ _____, a corporation, and that as such officer being authorized to do so, acknowledged the foregoing instrument for the purpose therein contained by signing the name of the Bank by _____self as _____.

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

_____
Notary Public