

CHAPTER 28. STORMWATER MANAGEMENT

Part 1. General Provisions

§ 28-101. Short Title.

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

§ 28-102. Statement of Findings.

The Board of Supervisors of Londonderry Township finds that:

1. Inadequate management of accelerated runoff of stormwater resulting from development throughout a watershed increases runoff volumes, flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of streams and storm sewers, greatly increases the cost of public facilities to carry and control stormwater, undermines flood plain management and flood control efforts in downstream communities, reduces groundwater recharge, threatens public health and safety, and increases nonpoint source pollution of water resources.
2. A comprehensive program of stormwater management (SWM), including reasonable regulation of development and activities causing accelerated runoff, is fundamental to the public health, safety, and welfare and the protection of people of the Commonwealth, their resources, and the environment.
3. Stormwater is an important water resource that provides groundwater recharge for water supplies and supports the base flow of streams.
4. 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: (A) infiltrate and recharge, (B) evapotranspire, and/or (C) 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.
5. Federal and state regulations require certain municipalities to implement a program of stormwater controls. These municipalities are required to obtain a permit for stormwater discharges from their separate storm sewer systems under the National Pollutant Discharge Elimination System (NPDES) program.

§ 28-103. Purpose.

The purpose of this Chapter is to promote health, safety, and welfare within the Municipality and its watershed by minimizing the harms and maximizing the benefits described in § 28-102 of this Chapter, through provisions designed to:

1. Meet legal water quality requirements under state law, including regulations at 25 Pa. Code 93 to protect, maintain, reclaim, and restore the existing and designated uses of the waters of this Commonwealth.
2. Preserve natural drainage systems.
3. Manage stormwater runoff close to the source, reduce runoff volumes and mimic predevelopment hydrology.
4. Provide procedures and performance standards for stormwater planning and management.
5. Maintain groundwater recharge to prevent degradation of surface and groundwater quality and to otherwise protect water resources.
6. Prevent scour and erosion of stream banks and streambeds.
7. Provide proper operation and maintenance of all stormwater best management practices (BMPs) that are implemented within the Municipality.
8. Provide standards to meet NPDES permit requirements.
9. Provide standards to meet Dauphin County Act 167 Stormwater Management Plan requirements.

§ 28-104. Statutory Authority.

The Municipality 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*, and/or 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.

§ 28-105. Applicability.

All regulated activities and all activities that may affect stormwater runoff, including land development and earth disturbance activity, are subject to regulation by this Chapter.

§ 28-106. Repealer.

Any other ordinance provision(s) or regulation of the Municipality inconsistent with any of the provisions of this Chapter is hereby repealed to the extent of the inconsistency only.

§ 28-107. Severability.

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

§ 28-108. Compatibility with Other Requirements.

Approvals issued and actions taken under this Chapter 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.

§ 28-109. 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 that was issued or approved based on false, misleading or erroneous information is unlawful. No action may be taken by a board, agency or employee of the Municipality purporting to validate such a violation.

§ 28-110. Waivers.

1. If the Municipality determines that any requirement under this Chapter cannot be achieved for a particular regulated activity, the Municipality may, after an evaluation of alternatives, approve measures other than those in this Chapter, subject to this Section 28-110.
2. Waivers or modifications of the requirements of this Chapter may be approved by the Municipality if enforcement will exact undue hardship because of peculiar conditions pertaining to the land in question, provided that the modifications will not be contrary to the public interest and that the purpose of the Chapter is preserved. Cost or financial burden shall not be considered a hardship. Modification may be considered if an alternative standard or approach will provide equal or better achievement of the purpose of the Chapter. A request for modifications shall be in writing and accompany the Stormwater Management Site Plan submission. The request shall provide the facts on which the request is based, the provision(s) of the Chapter involved and the proposed modification.
3. No waiver or modification of any regulated stormwater activity involving earth disturbance greater than or equal to one acre may be granted by the Municipality unless that action is approved in advance by the Department of Environmental Protection (DEP) or the delegated county conservation district.

Part 2. Definitions

§ 28-201. General.

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

1. Words used in the present tense include the future tense; the singular number includes the plural, and the plural number includes the singular; words of masculine gender include feminine gender; and words of feminine gender include masculine gender.

2. The word “includes” or “including” shall not limit the term to the specific example but is intended to extend its meaning to all other instances of like kind and character.
3. The words “shall” and “must” are mandatory; the words “may” and “should” are permissive.

§ 28-202. Specific Terms.

As used in this Chapter, the following terms shall have the meanings indicated:

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

Applicant - A landowner, developer, or other person who has filed an application to the Municipality for approval to engage in any regulated activity at a project site in the Municipality.

Anti-Seep Collars – An impermeable diaphragm usually of sheet metal or concrete constructed at intervals within the zone of saturation along the conduit of a principal spillway to increase the seepage length along the conduit and thereby prevent piping or seepage along the conduit.

Best Management Practice (BMP) - 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 Chapter. Stormwater BMPs are commonly grouped into one of two broad categories or measures: “structural” or “non-structural.” In this Chapter, 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. Structural stormwater BMPs are permanent appurtenances to the project site.

BMP Manual – Pennsylvania Department of Environmental Protection’s Stormwater Best Management Practices Manual, No. 363-0300-002 (December 2006), as amended.

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.

Conveyance Facility – Any structure or practice that is designed and/or constructed to transmit or otherwise transfer stormwater runoff from one location to another. Typical Conveyance Facilities

include but are not limited to: swales and other open channel facilities; storm sewers; and pipe culverts.

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

Detention Volume - The volume of runoff that is captured and released into the waters of the Commonwealth at a controlled rate.

DEP - The Pennsylvania Department of Environmental Protection.

Development Site (Site) - See Project Site.

Disturbed Area - An unstabilized land area where an earth disturbance activity is occurring or has occurred.

Dumping – the unregulated disposal of waste, including, but not limited to, construction refuse, paint, petrochemicals, domestic solid waste.

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; road maintenance; building construction; and the moving, depositing, stockpiling, or storing of soil, rock, or earth materials.

Erosion - The natural process by which the surface of the land is worn away by water, wind, or chemical action.

Erosion and Sediment Control Facility (ESC Facility)– Any structure or practice that is designed and/or constructed to capture, reduce, prevent, or otherwise mitigate the effects of stormwater runoff and sedimentation. Typical Erosion and Sediment Control Facilities include but are not limited to: erosion control matting, silt fence, silt sock, inlet protection, temporary seeding, and sediment ponds.

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

FEMA - Federal Emergency Management Agency.

Floodplain - Any land area susceptible to inundation by water from any natural source or delineated by applicable FEMA maps and studies as being a special flood hazard area. Also includes areas that comprise Group 13 Soils, as listed in Appendix A of the Pennsylvania DEP Technical Manual for Sewage Enforcement Officers (as amended or replaced from time to time by DEP).

Floodway - The channel of the watercourse and those portions of the adjoining floodplains that are reasonably required to carry and discharge the 100-year 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 floodway, it is assumed--absent evidence to the contrary--that the floodway extends from the stream to 50 feet from the top of the bank of the stream.

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

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

Gutters - A depression that runs parallel to a road and is designed to collect rainwater that flows along the street diverting it into a stormwater conveyance facility.

HEC-RAS - A software that allows the user to perform one-dimensional steady flow, one and two-dimensional unsteady flow calculations, sediment transport/mobile bed computations, and water temperature/water quality modeling.

Hydrologic Soil Group (HSG) - Infiltration rates of soils vary widely and are affected by subsurface permeability as well as surface intake rates. Soils are classified into four HSGs (A, B, C, and D) according to their minimum infiltration rate, which is obtained for bare soil after prolonged wetting. The NRCS defines the four groups and provides a list of most of the soils in the United States and their group classification. The soils in the area of the development site may be identified from a soil survey report that can be obtained from local NRCS offices or conservation district offices. Soils become less pervious as the HSG varies from A to D (NRCS).

Impervious Surface (Impervious Area) - A surface that prevents the infiltration of water into the ground. Impervious surfaces (or areas) shall include, but not be limited to: roofs; additional indoor living spaces, patios, garages, storage sheds and similar structures; and any new streets or sidewalks. Decks, parking areas, and driveway areas are not counted as impervious areas if they do not prevent infiltration.

Karst - A type of topography or landscape characterized by surface depressions, sinkholes, rock pinnacles/uneven bedrock surface, underground drainage, and caves. Karst is formed on carbonate rocks, such as limestone or dolomite.

Land Development (Development) - Inclusive of any or all of the following meanings: (i) the improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving (a) a group of two or more buildings or (b) the division or allocation of land or space between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups, or other features; (ii) any

subdivision of land; (iii) development in accordance with Section 503(1.1) of the PA Municipalities Planning Code.

Low-flow Channel – A channel designed to move water rapidly during small storm events to nearby watercourses.

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 used to calculate open channel flow. It is an empirical equation that applies to uniform flow in open channels and is a function of the channel velocity, flow area and channel slope.

Municipality – Londonderry Township, Dauphin County, Pennsylvania.

Nonpoint Source Pollution – Pollutants carried into waterways such as rivers, streams, lakes, wetlands, and groundwater from rain and snowmelt.

Native Plant – a plant occurring naturally in the south-central Pennsylvania region, ecosystem, or habitat without human introduction.

NRCS - USDA Natural Resources Conservation Service (previously SCS).

Operation and Maintenance (O&M) – Activities to ensure that stormwater practices will continue to function properly and yield expected water quality and environmental benefits, protect public safety, meet legal standards, and protect communities' financial investment.

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

Pervious Area - Any area not defined as impervious.

Project Site - The specific area of land where any regulated activities in the Municipality are planned, conducted, or maintained.

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

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

Regulated Earth Disturbance Activity - Activity involving earth disturbance subject to regulation under 25 Pa. Code 92, 25 Pa. Code 102, or the Clean Streams Law.

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

Return Period - The average interval, in years, within which a storm event of a given magnitude can be expected to 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 Buffer - A permanent area of trees and shrubs located adjacent to streams, lakes, ponds and wetlands.

Runoff - Any part of precipitation that flows over the land.

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

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

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

Stormwater Management Facility (SWM Facility)– Any structure, natural or man-made, that, due to its condition, design, or construction, conveys, stores, or otherwise affects stormwater runoff. Typical stormwater management facilities include but are not limited to: detention and retention basins; rain gardens; and infiltration facilities.

Stormwater Management Permit – The permit issued by the Township in response to an application prepared by an Applicant or its representative that provides necessary details, including but not limited to disturbance area, impervious areas, and other items. **Stormwater Management Permit** will be designated as **SWM Permit** throughout this Chapter, and shall be divided into two categories:

1. **Minor SWM Permit** – Regulated activities that result in: the alteration or development of 1000-4,999 SF of land in a manner that affects stormwater runoff; earth disturbances of 5,000 to 43,559 SF; and/or the cumulative increase of 1,000-4,999 SF of impervious area. “Cumulative” shall include incremental and phased development. (for example: Adding a 1,000 SF patio onto a home will require a Minor SWM Permit).
2. **Major SWM Permit** – Regulated activities that result in: the alteration or development of greater than or equal to 5,000 SF of land in a manner that may affect stormwater runoff; earth disturbances of greater than or equal to 43,560 SF; and/or the cumulative increase of greater than or equal to 5,000 SF of impervious area. Regulated activities taking place on sites: (A) with greater than or equal to 5,000 SF of existing impervious area; (B) that are not controlling the runoff from the existing impervious area in a manner consistent with this Chapter; and (C) whose activities do not qualify for the exemptions listed in Section

28-302, shall also fall under the category of Major SWM Permit. "Cumulative" shall include incremental and phased development (for example: A new home with greater than or equal to 5,000 SF of impervious will require a Major SWM Permit).

Stormwater Management Problem Area – Area where increased runoff due to flow path modifications or decreased perviousness has resulted in one or more of the following: degradation of receiving waters via increased nutrient loading, sediment loading, or destabilization of channels through increased flow velocities; increases in volume and rate of water trespass on downstream properties resulting in surface erosion or subsurface infiltration into structures; or public infrastructure degradation through increased rate and volume.

Stormwater Management Report – The report prepared by the Applicant or their representative documenting the necessary design computations and data in order to demonstrate that the maximum practicable measures have been taken to meet the requirements of this Chapter. **Stormwater Management Report** will be designated as **SWM Report** throughout this Chapter.

Stormwater Management Site Plan - The plan prepared by the developer or his representative indicating how stormwater runoff will be managed at the development site in accordance with this Chapter. Stormwater Management Site Plan will be designated as SWM Site Plan throughout this Chapter.

Swale – Landscaped depression that collects and conveys stormwater.

Subdivision - As defined in The Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247.

Trash Rack – A sturdy cage-like stormwater filtration structure that keeps large debris and trash out of stormwater systems and waterways.

USDA - United States Department of Agriculture.

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 this Commonwealth.

Watershed - Region or area drained by a river, watercourse, or other surface water of this Commonwealth.

Wetland - Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, and similar areas.

Part 3. Stormwater Management Standards And Methodologies

§ 28-301. General Requirements.

1. For all regulated activities, unless preparation of an SWM Site Plan is specifically exempted in § 28-302:
 - A. Preparation and implementation of an approved SWM Site Plan is required.
 - B. No regulated activities shall commence until the Municipality issues written approval of an SWM Site Plan, which demonstrates compliance with the requirements of this Chapter.
2. SWM Site Plans approved by the Municipality, in accordance with Section 28-410, shall be on site throughout the duration of the regulated activity.
3. The Municipality may, after consultation with Dauphin County Conservation District and/or DEP, approve measures for meeting the state water quality requirements other than those in this Chapter, provided that they meet the minimum requirements of, and do not conflict with, state law including, but not limited to, the Clean Streams Law.
4. For all regulated earth disturbance activities, erosion and sediment control BMPs shall be designed, implemented, operated, and maintained during the regulated earth disturbance activities (e.g., during construction) to meet the purposes and requirements of this Chapter and to meet all requirements under Title 25 of the Pennsylvania Code and the Clean Streams Law. Various BMPs and their design standards are listed in the Erosion and Sediment Pollution Control Program Manual (E&S Manual3), No. 363-2134-008, as amended and updated.
5. Impervious areas:
 - A. The measurement of impervious areas shall include all of the impervious areas in the total proposed development even if development is to take place in stages.
 - B. For development taking place in stages, the entire development plan must be used in determining conformance with this Chapter.
 - C. For projects that add impervious area to a parcel, the total impervious area on the parcel is subject to the requirements of this Chapter; except that the volume controls in Section 28-303 and the peak rate controls of Section 28-303 do not need to be retrofitted to existing impervious areas that are not being altered by the proposed regulated activity.
6. Stormwater flows onto adjacent property shall not be created, increased, decreased, relocated, or otherwise altered without written notification to the adjacent property owner(s). Such stormwater flows shall be subject to the requirements of this Chapter.

7. No stormwater or other discharges shall discharge directly into a public right-of-way or onto paved surfaces intended for vehicular or pedestrian travel (including but not limited to parking lots, public or private roads, sidewalks, shared driveways, etc.)(collectively herein “Public Surfaces”). The term “directly” for the purpose of this Chapter will be dependent upon site conditions, the concentration and volume of the discharge, and intermediary surfaces, but in no case shall a discharge point that is directed toward a Public Surface be closer than 25 feet to the Public Surface.
8. All regulated activities shall limit surface water runoff or stormwater discharges into areas of karst geology or where karst features are observed.
9. All stormwater discharges with pipe sizes greater than or equal to 12” shall be provided with either reinforced concrete endwalls or plastic end sections, and shall also include outlet protection consistent with the latest version of the PADEP Erosion and Sediment Control (E&S) Program Manual.
10. For regulated activities involving the subdivision and/or land development of 6 or more lots or structures, communal SWM and Conveyance Facilities with a single entity responsible for operation and maintenance of all facilities shall be utilized. Stormwater management may not be accomplished by utilizing SWM facilities individually designed for and placed within or on each lot or structure, and the operation and maintenance of facilities shall not be delegated to individual lot owners, tenants, or other multiples of entities within the project.
11. For regulated activities involving the subdivision and/or land development of 6 or more lots or structures, subterranean SWM facilities (such as, but not limited to, infiltration pits, beds, or trenches) are prohibited. Amended soils and similar items incidental to the construction of above-ground SWM Facilities are not included in this prohibition.
12. All regulated activities shall include such measures as necessary to:
 - A. Protect health, safety, and property.
 - B. Meet the water quality goals of this Part by implementing measures to:
 - (1) Minimize disturbance to floodplains, wetlands, natural slopes, existing native vegetation and woodlands.
 - (2) Create, maintain, or extend riparian buffers and protect existing forested buffers.
 - (3) Provide trees and woodlands adjacent to impervious areas whenever feasible.
 - (4) Minimize the creation of impervious surfaces and the degradation of waters of the Commonwealth and promote groundwater recharge.

- (5) Protect natural systems and processes (drainageways, vegetation, soils, and sensitive areas) and maintain, as much as possible, the natural hydrologic regime.
- (6) Incorporate natural site elements (wetlands, stream corridors, mature forests) as design elements.
- (7) Avoid erosive flow conditions in natural flow pathways.
- (8) Minimize soil disturbance and soil compaction.
- (9) Minimize thermal impacts to waters of the Commonwealth.
- (10) Disconnect impervious surfaces by directing runoff to pervious areas wherever possible, and decentralize and manage stormwater at its source.

C. Incorporate methods described in the *Pennsylvania Stormwater Best Management Practices Manual* (BMP Manual). If methods other than green infrastructure and LID methods are proposed to achieve the volume and rate controls required under this Chapter, the SWM Site Plan must include a detailed justification demonstrating that the use of LID and green infrastructure is not practicable.

13. The design of all facilities over karst shall include an evaluation of measures to minimize adverse effects.
14. Infiltration BMPs should 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.
15. Normally dry, open top, storage facilities should completely drain both the volume control and rate control capacities over a period of time not less than 24 and not more than 72 hours from the end of the design storm.
16. The design storm volumes to be used in the analysis of peak rates of discharge should be obtained from the latest version of the Precipitation-Frequency Atlas of the United States, National Oceanic and Atmospheric Administration (NOAA), National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland. Note: NOAA's Atlas 14 can be accessed at: <http://hdsc.nws.noaa.gov/hdsc/pfds/>.
17. For all regulated activities, SWM BMPs shall be designed, implemented, operated, and maintained to meet the purposes and requirements of this Chapter and to meet all requirements under Title 25 of the Pennsylvania Code, the Clean Streams Law, and the Storm Water Management Act.
18. Various BMPs and their design standards are listed in the BMP Manual.
19. Any regulated activities within an existing, known stormwater management problem area, or having the potential to negatively impact an existing, known stormwater management

problem area, may be required by the Municipality to include additional, reasonable measures beyond those listed within this Chapter in order to ensure that any effects of the regulated activity do not exacerbate or further contribute to the issues affecting said problem area. In no case shall the Applicant be required to resolve the existing, known stormwater management problems beyond the obligations so listed.

20. Roof drains shall not be connected to streets, sanitary or storm sewers, or roadside ditches in order to promote overland flow and infiltration/percolation of stormwater where it is advantageous to do so. Except as expressly permitted by the Municipality, roof drains shall not be connected to streets, sanitary or storm sewers or roadside ditches in order to promote overland flow and infiltration/percolation of stormwater.

§ 28-302. Exemptions.

1. Regulated activities that result in any one or more of (1) the alteration or development of less than 1,000 SF of land in a manner that may affect stormwater runoff; (2) earth disturbances of less than 5,000 SF; or (3) the cumulative increase of impervious area less than 1,000 SF since the first regulated instance under this Chapter or the preceding versions of the Londonderry Township stormwater regulations, regardless of whether a permit was properly applied for and received, are exempt from the requirements in Part 4 (except Section 28-411: As-Built Plans, Completion Certificate, and Final Inspections) of this Chapter.
2. If the Applicant provides a completed Site Design Worksheet and applicable Stormwater Facility Calculations for the design of volume controls (see Appendix C), the regulated activities that require a Minor SWM Permit, as defined Part 2 (Definitions) are exempt from the requirements in Section 28-303.11 (Rate Controls) and Sections 28-401 through 48-401 of this Chapter.
3. Agricultural activity is exempt from the SWM Site Plan preparation requirements of this Chapter provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.
4. Forest management and timber operations are exempt from the SWM Site Plan preparation requirements of this Chapter provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.
5. Exemptions from any provisions of this Chapter shall not relieve the applicant from the requirements in Sections 28-301. If any of the requirements in Sections 28-301 are not met, the Municipality at its sole discretion may revoke any exemptions from any provisions of this Chapter without the necessity of any proceedings for revocation, and the Applicant may be required by the Municipality to cease all activities and/or comply with the provisions of this Chapter.
6. The Municipality may deny or revoke any exemption pursuant to this Section at any time for any project that the Municipality believes may pose a threat to state water quality standards and requirements, public health and safety, or the environment.

7. Not eligible for exemption: additions, modifications, or alterations to sites, structures, projects, plans, or any other items that previously required stormwater management, whether in part or in whole (for example: adding a 1,000 SF patio onto a home built as part of a larger subdivision and land development plan that required stormwater management would *not* be an exempt regulated activity).

§ 28-303. Volume Controls and Rate Controls

The green infrastructure and low impact development practices provided in the BMP Manual shall be utilized for all regulated activities wherever possible. Water volume controls shall be implemented using the *Design Storm Method* in Section 28-303.10.B or the *Simplified Method* in Section 28-303.10.C below. For regulated activity areas equal or less than one acre that do not require hydrologic routing to design the stormwater facilities, this Chapter establishes no preference for either methodology; therefore, the applicant may select either methodology on the basis of economic considerations, the intrinsic limitations on applicability of the analytical procedures associated with each methodology and other factors.

For Modeling purposes of both volume and rate controls:

1. Design storm values should be obtained from the following sources depending on methodology, provided that if either source is replaced in its entirety, the latest version of the replacement source shall be utilized:
 - A. TR-20/TR-55 precipitation frequency estimates: the latest version of the Precipitation-Frequency Atlas of the United States, National Oceanic and Atmospheric Administration (NOAA), National Weather Service, for the 24-hour storm. If this method is used for volume and water quality, the 2-year design storm value should be selected for the upper 90% confidence. For rate controls, the 5 through 100-year design storm should be selected from the mean value rainfall depth. For conveyance facilities, the 25-year design storm value should be selected for the upper 90% confidence.
 - B. Rational Method design intensity values: the latest version of PennDOT Publication 584, Chapter 7A, Region 4, for the 1- through 100-year Storm (U.S. Customary)
2. Time of concentration (Tc) shall be calculated utilizing the TR-55 segmental method, with a maximum sheet flow length of 100 feet as follows:
 - A. The minimum Tc for any watershed or sub-watershed shall be 5 minutes.
 - B. Post-development conditions may assume a 5-minute Tc, but may never be greater than the pre-development Tc for any watershed or sub-watershed.
 - C. Pre-development Tc values may not be assumed; pre-development Tc values must be calculated.
 - D. The time of concentration for all inlets shall be the minimum Tc of 5-minutes.

3. Runoff coefficients and curve numbers are listed within Appendix B.
4. Existing (pre-development) non-forested pervious areas must be considered meadow in good condition.
5. 20% of existing impervious area, when present, shall be considered meadow in good condition in the model for existing conditions.
6. For regulated activities requiring a Major SWM Permit due to taking place on sites: 1. with greater than or equal to 5,000 SF of existing impervious area; 2. that are not controlling the runoff from the existing impervious area in a manner consistent with this Chapter; and 3. whose activities do not qualify for the exemptions listed in Section 28-302, 50% of existing impervious area, when present, shall be considered meadow in good condition in the model for existing conditions. This requirement replaces the requirement in Section 28-303.5 above.
7. Meadow may not be used to model proposed (post-development) non-forested pervious areas unless the area being modeled is specifically designed to be and designated/delineated on the plan to remain as a bona fide meadow that may not be removed or altered by the property owner. Specified native plantings and O&M, including but not limited to routine weeding of invasive species, should be included on the plan and in any agreements if this option is chosen.
8. Alternative methods of modeling volume and rate controls may be accepted on a case-by-case basis at the sole discretion of the Municipal Engineer.
9. All redevelopment projects shall evaluate the feasibility of reducing site impervious area by at least 20%. Where project site conditions prevent the reduction of impervious area, then stormwater BMPs shall be evaluated to provide qualitative controls for at least 20% of the site's existing impervious area.
10. Volume Controls
 - A. Volume controls shall be required for all regulated activities requiring a Minor or Major SWM Permit.
 - B. Except as provided in Subsection C, water volume controls shall be implemented using the *Design Storm Method (CG-1 in the BMP Manual)*:
 - (1) Do not increase the post-development total runoff volume for all storms equal to or less than the 2-year 24-hour duration precipitation.
 - (2) For modeling purposes, in addition to the modeling requirements of Section 28-303.1 to 28-303.9 above:

- (a) Volume controls shall be calculated using the NRCS Type-II Curve Number runoff method (SCS), as provided in the National Engineering Handbook Part 630: Hydrology.
- (b) Non-structural and other credits not directly representative of a SWM Facility's physical volume, including but not limited to tree planting, impervious area disconnection, and volume subtraction via infiltration rate, are prohibited from being used in the modeling of volume controls.
- (c) For regulated activities requiring a Major SWM Permit utilizing the rational method, an additional 20% shall be added to the required volume. Alternative water quality methods that achieve equal or greater water quality results may be substituted in place of this additional volume requirement at the sole discretion of the Municipal Engineer.

C. The *Simplified Method (CG-2 in the BMP Manual)* provided below is independent of site conditions, and may only be used for regulated activities requiring only a Minor SWM Permit if the *Design Storm Method* is not followed. For new impervious surfaces:

- (1) Stormwater facilities shall capture at least the first two (2) inches of runoff from all new impervious surfaces.
- (2) At least the first one inch of runoff from new impervious surfaces 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.
- (3) Wherever possible, infiltration facilities should be designed to accommodate infiltration of the entire permanently removed runoff; however, in all cases at least the first 0.5 inch of the permanently removed runoff should be infiltrated.

11. Rate Controls

- A. Rate controls shall be required only for regulated activities requiring a Major SWM Permit; regulated activities that require a Minor SWM Permit are not required to provide rate controls.
- B. For areas within Dauphin County that are not covered by a release rate map from an approved Act 167 Stormwater Management Plan, post-development peak discharge rates shall not exceed the pre-development peak discharge rates for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year, 24-hour storm events. Otherwise, the applicant shall provide additional controls as necessary to satisfy the peak rate of discharge requirement.

- C. For areas within Dauphin County that are covered by a release rate map from an approved Act 167 Stormwater Management Plan, post-development peak discharge rates shall not exceed the pre-development peak discharge rates for the 1-, 50-, and 100-year, 24-hour storm events as listed within the applicable, approved release-rate map. For the 2-, 10-, and 25-year, 24-hour storm events, the post-development peak discharge rates shall be in accordance with the approved release rate map for the individual watershed.
- D. For modeling purposes of rate controls, in addition to the modeling requirements of Section 28-303.1 to 28.303.9 above:
 - (1) Infiltration, exfiltration, evapotranspiration, and/or any other environmentally-dependent discharge rates are prohibited from being used in the modeling of rate controls.
 - (2) For regulated activities under 10 acres in size, Modified Rational Method or TR-55 may be used for the calculation of peak rates; this Chapter shows no preference for either method. For regulated activities above 10 acres in size, TR-55 shall be used.

§ 28-304. Riparian Buffers.

1. For all regulated activities requiring a Major SWM Permit, a Riparian Buffer Easement shall be created and recorded that encompasses an existing or potential Riparian Buffer.
2. Except as required by Chapter 102, the Riparian Buffer Easement shall be measured to be the greater of the limit of the 100 year floodplain or a minimum of 50 feet from the top of the streambank (on each side).
3. When present, provisions for permanent access to Riparian Buffer Easements shall also be granted to the Municipality via a note as listed in Section 28-402.24.J.
4. Minimum Management Requirements for Riparian Buffers.
 - A. Existing native vegetation shall be protected and maintained within the Riparian Buffer Easement.
 - B. Whenever practicable invasive vegetation shall be actively removed and the Riparian Buffer 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.
5. The Riparian Buffer Easement shall be enforceable by the Municipality and shall be recorded in Dauphin County Recorder of Deeds Office, so that it shall run with the land and shall limit the use of the property located therein. The easement shall allow for the continued private ownership and shall count toward the minimum lot area a required by Zoning, unless otherwise specified in the municipal Zoning Ordinance.

6. Any permitted use within the Riparian Buffer 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.
7. Specific Prohibitions within Riparian Buffer Easements:
 - A. Septic drain fields and sewage disposal systems, regulated under the Pennsylvania Sewage Facilities Act (35 P.S. §§ 750.1 – 750.20a.);
 - B. Livestock grazing and access, except areas specifically necessary for livestock crossing of waterways.
8. Specific Requirements for Uses within Riparian Buffer Easements:
 - A. All uses shall comply with the ordinances, provisions, and regulations of the Municipality and any other applicable entities.
 - B. All uses shall limit vegetative clearing to the minimum extent necessary for the execution of the use; general clearing of the Riparian Buffer Easement is not permitted.
 - C. Trails shall be for non-motorized use only.
 - D. Docks, boat ramps, and other similar improvements shall be comprised of stable, non-erosive material(s).
 - E. Trails shall be designed to have the least impact on native plant species and other sensitive environmental features.

§ 28-305. SWM Facilities Standards and Methodologies

SWM Facilities shall comply with the below standards as applicable to the proposed facility:

1. Infiltration facilities 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.
2. Low-flow channels are prohibited.
3. Trash racks shall be provided for all orifices equivalent to 12 inches or smaller in diameter.
4. Anti-seep collars shall be provided on all outflow culverts in accordance with the methodology in the E&S Manual. An increase in seepage length of 15 percent must be used in accordance with the requirements for permanent anti-seep collars.
5. Embankment/berm tops in the SWM Facility shall not be planted with trees, unless duly authorized. Only vegetation that is 5 feet or lesser in mature height and tolerant to the conditions of embankment planting (for example: lack of water retainage in the soil) may

be planted on berm tops. When this requirement is in conflict with other ordinances or regulations (for example: buffer screenings), relief may be granted from this requirement at the sole discretion of the Board of Supervisors.

6. Embankment/berm side slopes shall be no steeper than 3:1.
7. Embankment/berm soils shall have low erodibility factors as per the E&S Manual and be identified on the SWM Site Plan.
8. Embankments/berms greater than or equal to 3 feet in height shall:
 - A. Have a cross-sectional top width of at least 5 feet.
 - B. Have emergency spillways capable of providing non-erosive release of the post-development 100-year design storm with at least 1 foot of freeboard when the primary outflow structure is blocked.
 - C. Have cutoff/key trenches of impervious material.
 - D. The primary outflow structure must be designed to pass all design storms (up to and including the one-hundred-year event) without discharging through the emergency spillway.
 - E. If a development of a property requires a Major Permit, all SWM Facilities shall be designed to meet the requirements in Section 28-305.8 regardless of the SWM Facility depth.
9. All facilities shall drain over a period of time not less than 24 hours and not more than 72 hours from the end of the SWM Facility's inflow hydrograph.
10. Maximum water depth in any open SWM Facility shall be no greater than 6 feet when functioning through the primary outlet structure.
11. When deemed a public safety hazard at the sole discretion of the Municipality, any SWM Facility may be required to be fenced with a minimum 4-foot high fence of material and design acceptable to the Municipality. The fence shall not have an opening or gap larger than 2 inches, and shall be provided with a self-closing and self-latching gate with a minimum opening of 10 feet.
12. Floodplains:
 - A. SWM Facilities and their points of discharge shall not be located within the 100-year floodplain as determined by FEMA, HEC-RAS, or similar analysis. If no floodplain is defined, the floodplain is assumed to extend 50' from the top of stream bank in both directions.

- B. Facility bottom elevations must be greater than 100-year floodplain elevations. If no floodplain is defined, the floodplain is assumed to extend 50' from the top of stream bank in both directions.
 - C. Novel approaches to stormwater management that require placement within the floodplain, including but not limited to floodplain restorations, may be exempted from the requirements in Sections 28-305.12.A and 28-305.12.B above at the sole discretion of the Municipal Engineer.
13. SWM Facilities shall not be placed within 15 feet of a property line, public right-of-way, or structure as measured from the nearest point of the facility that may provide water storage.
 14. The bottom elevation of all SWM Facilities shall be located a minimum of 2 feet above the seasonal high groundwater table or other soil limiting zone.
 15. The type, location, and number of landscaping and planting specification shall be provided for all stormwater management facilities and be specific for each type of facility.
 16. SWM Facilities excavated to carbonate rock must either be fitted with an impervious clay liner or over-excavated four feet and refilled with a suitable material mix. Suitable backfill material is subject to approval from the Municipal Engineer.

§ 28-306. Conveyance Facilities Standards and Methodologies

Conveyance Facilities shall:

1. Safely convey the 25-year design storm utilizing Manning's equation.
2. Be prohibited from connecting to or discharging into existing downstream conveyance or storage systems, whether manmade or natural, without verification of the adequacy of downstream hydraulic capacity.
3. In the case of storm sewers:
 - A. Completely contain flows with no surface discharges.
 - B. Be constructed with watertight joints. If Conveyance Facilities are proposed that require watertight joints, provide a note as listed in Section 28-402.24.G.
 - C. Be designed and constructed without "knocking out" any inlet or structure corners. If inlets or structures are proposed, provide a note as listed in Section 28-402.24.H.
 - D. Have inlets, manholes, or similar structures at all horizontal and/or vertical directional changes. Tee joints, elbows, wyes, and similar structures are prohibited.

- E. Include inlets set 0.2 feet below the final paving elevation on both sides of the low point of a curbed street.
 - F. Not have inlets placed in front of or within 3 feet of a driveway.
 - G. Not have inlets spaced more than 600 feet apart.
 - H. Not have manholes spaced more than 600 feet apart without an inlet in between.
 - I. Have all upstream pipe crown elevations be greater than or equal to all downstream pipe crown elevations.
 - J. Have flow velocities greater than or equal to 2.5 feet per second.
 - K. Have slopes equal to or greater than or equal to 0.35%.
4. In the case of gutters:
- A. Not allow flow to encroach into adjacent roadway lanes more than one-half of the lane width, exceed 3 inches in depth, or exceed 1.5 inches in depth across driveways.
 - B. Not allow flow to cross intersections or street centerlines.
5. In the case of swales:
- A. Provide 6 inches of freeboard to the top of the swale.
 - B. Have side slopes no steeper than 3:1.
 - C. Be designed for stability using velocity (slopes less than 10%) or shear (all slopes) criteria.
 - D. Multiply velocities or shear stresses by the following factors when swale bends occur:
 - (1) 1.75 when the bend is 30 to 60 degrees.
 - (2) 2.00 when the bend is 60 to 90 degrees.
 - (3) 2.5 when the bend is 90 degrees or greater.
 - E. Be designed for both temporary and permanent conditions.
6. Any conveyance facility that is part of a SWM Facilities drainage area shall be sized appropriately to safely convey the 100-year design storm to the SWM Facility. In the event that conveyance facilities can not be reasonably designed to convey the 100-year design

storm, other methods should be incorporated to ensure the 100-year design storm is directed to the appropriate SWM Facility.

Part 4. Stormwater Management (SWM) Site Plan and Report Submission Requirements

§ 28-401. Minor SWM Site Plan Requirements.

The following items shall be included in the SWM Site Plan as provided in Appendix C – Minor SWM Permit Site Design Worksheet:

1. Project information:
 - A. Project name
 - B. Project address
 - C. Name, address, telephone number, and email address of Applicant and, if separate from Applicant, property owner
 - D. Name, address, telephone number, and email address of the qualified professional responsible for project design, if applicable.
2. Date of submission, and the dates of all revisions
3. North arrow
4. Location of all existing and proposed on-site improvements
5. Approximate location of all existing and proposed utilities and utility easements, including but not limited to on-lot wastewater facilities, water supply wells, sanitary sewers, water lines, gas lines, and electric lines
6. Location and clear identification of the type of proposed permanent SWM Facilities
7. Proposed limit of disturbance line(s) and disturbed acres
8. An erosion and sediment control plan. Note that further review by the county conservation district/reviewing authority may be required per Section 28-301.
9. SWM Conservation Easements for all physical SWM Facilities, Conveyance Facilities, areas downstream of discharges and spillways, and designated meadows. When present, provisions for permanent access to SWM Conservation Easements shall also be granted to the Municipality via a note as listed in Section 28-402.24.J below.
10. Easements shall be a minimum of 20' in width, and must extend at least 5' beyond the edge of any SWM facility.

11. Where possible, easements should be centered on the facilities within the easement.
12. Nothing shall be placed, stored, erected, constructed over, planted, or otherwise located within an easement other than the SWM facilities within the easement. If SWM conservation easements are required on the site, provide a note stating such as listed in 28-402.24 below.
13. Easements shall be identified with metes and bounds. In the case of conveyance facilities such as pipes and swales, and if desired by the Applicant, a note as listed in Section 28-402.24.L below may be added to the plan in lieu of metes and bounds stating that easements are to be located and offset from the center of the installed conveyance facility. Subterranean facilities utilizing this alternative easement identification method shall use metal marking tape – or other methods that provide simple identification from the surface as reviewed and accepted by the Municipal Engineer – in order to mark the location of said facilities; subsurface conveyance facilities shall add the identification method to the note required above, and the identification method shall be added to relevant construction details. The site plan shall also show approximate distances from the property boundaries. The site plan shall be attached and recorded with the O&M agreement.
14. Roof leader manifolds and discharges shall also require SWM conservation easements, but may be sized less than 20' in width, and are exempt from the requirements in Section 28-402.20.E above so long as the items above the manifolds and/or discharges do not negatively affect their function.
15. If stormwater BMP(s) described in Appendix C are proposed, the applicable worksheet(s) from Appendix C shall be submitted with the Minor SWM Site plan. If a BMP type not described in Appendix C, a SWM Report conforming to the requirements of Section 28-403 shall be submitted with the Minor SWM Site Plan.

§ 28-402. Major SWM Site Plan Requirements.

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

1. Project information:
 - A. Project name
 - B. Project address
 - C. Name, address, telephone number, and email address of Applicant and, if separate from Applicant, property owner
 - D. Name, address, telephone number, and email address of the qualified professional responsible for project design
2. Date of submission, and the dates of all revisions

3. Graphical and written scale on all drawings, maps, details, profiles, and other items as necessary
4. North arrow
5. Location map at a minimum scale of 1 inch equals 1,000 feet
6. Metes and bounds of the entire tract perimeter
7. Existing and proposed contours at intervals of 1 or 2 feet
8. A determination of site conditions in accordance with the BMP Manual. A detailed site evaluation shall be completed for projects proposed in environmentally sensitive areas such as brownfields.
9. Soil names, boundaries, and hydrologic soil group classification
10. Location of all existing and proposed on-site improvements
11. Location of improvements outside of the property boundary that may be affected by the project
12. Location of all existing and proposed utilities and utility easements, including but not limited to on-lot wastewater facilities, water supply wells, sanitary sewers, water lines, gas lines, and electric lines
13. Location of all sensitive natural features, including waterways, wetlands, floodplains, significant karst features (including but not limited to sinkholes, rock pinnacles, and closed depressions), and natural slopes over 25%. If no sensitive natural features are present on the site, provide a note as listed in Section 28-402.24 below, and provide evidence of their absence. See Section 28-404.3 below for further requirements on the identification of wetlands.
14. Location and clear identification of the type of permanent SWM Facilities
15. Proposed limit of disturbance line(s) and disturbed acres
16. Construction details and material schedules including data necessary for proper construction
17. Plan and profile drawings of all ESC, SWM, and Conveyance Facilities, including but not limited to basins, drainage structures, pipes, open channels, sediment traps, and swales.
 - A. Plans and profiles for the same facilities shall be displayed together on the same sheet.

- B. All facilities shall be clearly labeled, with labels matching calculations and designations within the SWM Report.
 - C. All plans and profiles shall provide clear labels of applicable data necessary for proper construction, including but not limited to inverts, top of grate elevations, pipe slopes, materials, spillway elevations and widths, outlet structure elevations, orifice sizes and elevations, basin bottom elevations, etc.
 - D. Plan and profile drawings may take the place of, supplement, or be combined with construction details where desired so long as the above standards and overall design clarity are maintained
18. An erosion and sediment control plan. Note that further review by the county conservation district/reviewing authority may be required under Section 28-301.
19. An O&M plan for all existing and proposed physical stormwater management facilities. This plan shall address short-term and long-term responsibilities for O&M as well as schedules for O&M activities.
20. SWM Conservation Easements for all physical SWM Facilities, Conveyance Facilities, areas downstream of discharges and spillways, and designated meadows. When present, provisions for permanent access to SWM Conservation Easements shall also be granted to the Municipality via a note as listed in Section 28-402.24.J below.
- A. Easements shall be a minimum of 20' in width, and must extend at least 5' beyond the edge of any SWM Facility.
 - B. Where possible, easements should be centered on the facilities within the easement.
 - C. Nothing shall be placed, stored, erected, constructed over, planted, or otherwise located within an easement other than the SWM facilities within the easement. If SWM conservation easements are required on the site, provide a note stating such as listed in Section 28-402.24.K below.
 - D. Easements shall be identified with metes and bounds. In the case of conveyance facilities such as pipes and swales, and if desired by the Applicant, a note as listed in Section 28-402.24.L below may be added to the plan in lieu of metes and bounds stating that easements are to be located and offset from the center of the installed conveyance facility. Subterranean facilities utilizing this alternative easement identification method shall use metal marking tape – or other methods that provide simple identification from the surface as reviewed and accepted by the Municipal Engineer – in order to mark the location of said facilities; subsurface conveyance facilities shall add the identification method to the note required above, and the identification method shall be added to relevant construction details.

- E. Roof leader manifolds and discharges shall also require SWM conservation easements, but may be sized less than 20' in width, and are exempt from the requirements in Section 28-402.20.E above so long as the items above the manifolds and/or discharges do not negatively affect their function.
21. For SWM Site Plans involving two (2) or more lots, an assignment of impervious area to each individual lot that may not be exceeded at the time of construction and is accounted for in the SWM Report.
22. A list of any permits or authorizations related to stormwater management, erosion and sediment control, waterways and wetlands, or other relevant plan authorizations/permits other than those required by the Municipality, including but not limited to Conservation District adequacy letters; NPDES permits; PADEP/ACOE water obstruction and encroachments permits; FEMA CLOMR/LOMRs; PNDI clearances; PennDOT HOP approvals when the proposed project encroaches into or impacts a PennDOT right-of-way; and other appropriate permits as determined by the Municipality. The reviewing authority for each permit shall also be included in this list. If no outside permits are required, provide a note as listed in Section 28-402.24.M below.
23. Reasonable and appropriate plan and drafting requirements from the Municipality's Subdivision and Land Development Ordinance and Zoning Ordinance shall be followed in preparing the SWM Site Plan.
24. Notes, signature blocks, and certifications:
- A. "(Municipal Engineer or Municipal designee), on this date, (signature date), has reviewed and hereby certifies that the SWM Site Plan appears to meet all design standards and criteria of the stormwater management ordinance. Strict compliance with the stormwater management ordinance, however, is the responsibility of the Applicant."
- B. "(Applicant or owner), on this date, (signature date), acknowledges that SWM and Conveyance Facilities are permanent fixtures and may not be modified, removed, filled, landscaped, or otherwise altered without written approval of Londonderry Township."
- C. "Qualified professional responsible for project design), on this date, (signature date), certifies that this plan complies with the ordinances, provisions, and regulations of the Municipality and any other applicable entities." A seal and dated signature shall accompany this statement.
- D. "Londonderry Township is not responsible for the maintenance of any area not dedicated to and accepted for public use."

- E. "The Operation and Maintenance Agreement is a part of the plan. If the Owner fails to adhere to the terms of the agreement, the Municipality may perform the services required and charge the owner appropriate fees."
- F. "All design and construction shall comply with the latest edition of the Londonderry Township Municipal Code."
- G. If Conveyance Facilities are proposed that require watertight joints, "All stormwater conveyance facilities shall be constructed with watertight joints."
- H. If inlets or other structures are proposed, "The knocking out of inlet or other structure corners is prohibited."
- I. If no sensitive natural features are present on the site per Section 28-402.13 above, "Qualified professional responsible for project design), on this date, (signature date), certifies that there are no sensitive natural features on the project site, including waterways, wetlands, floodplains, significant karst features, and natural slopes over 25%."
- J. If SWM Conservation Easements and/or Riparian Buffer Easements are required on the site per Section 28-304.3 and/or Section 28-402.20, "The Landowner hereby grants permission to the Municipality, its authorized agents, and employees access to any and all SWM Conservation Easements and Riparian Buffer Easements on the property."
- K. If SWM Conservation Easements are required on the site per Section 28-402.20, "Nothing shall be placed, stored, erected, constructed over, planted, or otherwise located within an easement other than the SWM Facilities within the easement."
- L. If any easements on the site are to be located based upon the location of conveyance facilities per Section 28-402.20, "SWM conservation easements for conveyance facilities shall be located and offset from the center of the respective conveyance facility as installed." If the conveyance facilities are subterranean, also add, "Underground conveyance facilities can be identified from the surface via (identification method)."
- M. If no outside permits are required per Section 28-402.22, "Qualified professional responsible for project design), on this date, (signature date), certifies that no stormwater management, erosion and sediment control, waterways and wetlands, and/or other relevant plan authorizations/permits are required other than those of the Municipality."
- N. "The SWM Report is a part of the plan."

- O. If an as-built plan is required per Section 28-411 below, “A copy of the recorded As-Built Plan will be provided to the Municipality prior to occupancy and/or the release of financial security.”
- P. 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 Chapter.

§ 28-403. SWM Report Requirements.

The following items shall be included in the SWM Report:

1. Project information:
 - A. Project name
 - B. Project address
 - C. Name, address, telephone number, and email address of Applicant and, if separate from Applicant, property owner
 - D. Name, address, telephone number, email address, seal, and dated signature of the qualified professional responsible for project design
2. A narrative describing the pre-development conditions, post-development conditions, and philosophy of SWM design.
3. Stormwater runoff design computations and documentation demonstrating that the requirements of this Chapter have been met for all watersheds and sub-watersheds, including but not limited to the recommendations, standards, and calculation methodologies specified in Part 3. This information shall also include but not be limited to the following:
 - A. Summary tables of existing and proposed peak rates, and, where required, relevant Act 167 stormwater release rate reductions.
 - B. For applicable SWM Facilities, a plotting and tabulation of the storage volumes and discharge curves with corresponding water surface elevations, inflow hydrographs, and outflow hydrographs.
 - C. For applicable Conveyance Facilities, a tabulation of open or closed channel flow data, including but not limited to shear stress, erosion, provided freeboard, Manning’s N values, etc. (open channel conveyance), and hydraulic grade lines, top of grate elevations, pipe sizes, crown and invert elevations, materials, etc. (closed channel flow).

- D. Breakouts of Tc calculation segments and input data for each segment, including but not limited to slope, length, Manning's N values, etc.
 - E. Summary tables of curve number (CN) or runoff coefficient (C) calculation averages for all watersheds and/or sub-watersheds.
 - F. A plotting or tabulation of the rainfall depths or intensities used in modeling.
 - G. Supporting calculations as necessary for any ESC Facilities.
 - H. The Municipality has the authority to require that any calculations or modeling be reconciled with field observations, conditions, and site history.
4. Watershed/sub-watershed maps, which shall include:
- A. All points of interests being used in modeling
 - B. Existing and proposed watersheds and sub-watersheds, including labeling that matches calculations and designations within the SWM Report.
 - C. Time of concentration (Tc) paths
 - D. Inlet drainage areas with labels corresponding to receiving inlets
 - E. Facility labeling that matches calculations and designations within the SWM Site Plan and SWM Report

§ 28-404. Special SWM Site Plan and Report Submission Requirements.

1. Carbonate Assessment

- A. For regulated activities requiring Major SWM Permits, a carbonate assessment report shall be submitted including recommendations on SWM BMP types, whether infiltration is allowed as a SWM method, and/or an evaluation of measures to minimize adverse effects of stormwater management – shall be required.
- B. For regulated activities requiring Minor SWM Permits, detailed evidence provided as part of the SWM Report describing the carbonate conditions on site – including recommendations on SWM Facility types, whether infiltration is allowed as a SWM method, and/or an evaluation of measures to minimize adverse effects of stormwater management – shall be required. Acceptable evidence includes soil surveys and other desktop-level resources. A statement per Section 28-402.24 shall be added to the plan indemnifying the Municipality from any damages that may result from carbonate site conditions.

2. Infiltration Testing

- A. For regulated activities proposing to use infiltration SWM Facilities and requiring Major SWM Permits, infiltration testing shall be required.
- B. For regulated activities proposing to use infiltration SWM Facilities and requiring Minor SWM Permits, other information – such as soil survey data – supporting the use of infiltration SWM Facilities shall be required as part of the SWM Report. A statement per Section 28-402.24 shall be added to the plan indemnifying the Municipality any damages that may result from the utilization of infiltration SWM BMPs.

3. Wetland Delineation Report

- A. For regulated activities requiring Major SWM Permits, a wetland delineation report shall be required. National Wetlands Inventory searches or other similar database queries are not valid methods for determining the presence of wetlands.
- B. For regulated activities requiring Minor SWM Permits, other information – such as the National Wetlands Inventory or soil survey data displaying no hydric soils are present on the project site – showing that no wetland impacts are expected shall be required as part of the SWM Report.

§ 28-405. Plan Submission.

1. Major SWM Permit Plan

Five copies of the SWM Site Plan shall be submitted as follows:

- A. Two copies to Londonderry Township.
- B. One electronic copy to the municipal engineer.
- C. Electronic copy to Dauphin County Planning Commission.
- D. Additional copies shall be submitted as requested by the municipality, Tri-County Regional Planning Commission, Dauphin County Conservation District or PADEP
- E. The submission shall also include the following components:
 - (1) SWM Permit application with applicable review fees.
 - (2) Operation and Maintenance (O&M) Agreement in accordance with Part 5 of this Chapter.
 - (3) Financial security and guarantee for all improvements in accordance with the standards of the Subdivision and Land Development Ordinance and this Chapter.

- (4) Waiver requests in compliance with Section 28-110 of this Chapter, as applicable.
- (5) Carbonate assessment report, as applicable.
- (6) Infiltration testing results, as applicable.
- (7) Wetland delineation report, as applicable.
- (8) Stormwater Pollution and Prevention Plan, as applicable.
- (9) Copies of any permit or authorization related to stormwater management, erosion and sediment control, waterways and wetlands, or other relevant plan clearances, other than those required by the Municipality, including but not limited to county conservation district adequacy letters, NPDES permits, PADEP/ACOE water obstruction and encroachments permits, FEMA CLOMR/LOMRs, PNDI clearances, PennDOT HOP approvals when the proposed project encroaches into or impacts a PennDOT right-of-way, and other appropriate permits as determined by the Municipality.

2. Minor SWM Permit Plan

- A. Refer to Appendix C – Minor SWM Permit Site Design Worksheet.
- B. Two copies to Londonderry Township.
- C. One electronic copy to the municipal engineer.
- D. As applicable, electronic copy to Dauphin County Planning Commission.
- E. As applicable, additional copies shall be submitted as requested by the municipality, Tri-County Regional Planning Commission, Dauphin County Conservation District or PADEP
- F. The submission shall also include the following components:
 - (1) SWM Permit application with applicable review fees.
 - (2) Operation and Maintenance (O&M) Agreement in accordance with Part 5 of this Chapter.
 - (3) Financial security and guarantee for all improvements equal to ten percent of the estimated total project cost as listed in Appendix F – Stormwater Permit Application.
 - (4) Waiver requests in compliance with Section 28-110 of this Chapter, as applicable.

- (5) Carbonate assessment report, as applicable.
- (6) Infiltration testing results, as applicable
- (7) Wetland delineation report, as applicable.
- (8) Stormwater Pollution and Prevention Plan, as applicable.
- (9) A copy of any permit or authorization related to stormwater management, erosion and sediment control, waterways and wetlands, or other relevant plan clearances other than those required by the Municipality, including but not limited to county conservation district adequacy letters, NPDES permits, PADEP/ACOE water obstruction and encroachments permits, FEMA CLOMR/LOMRs, PNDI clearances, PennDOT HOP approvals when the proposed project encroaches into or impacts a PennDOT right-of-way, and other appropriate permits as determined by the Municipality.

§ 28-406. Submission Review & SWM Site Plan Approval.

1. SWM Site Plans shall be reviewed by the Municipality for consistency with the provisions of this Chapter.
2. The Municipality shall notify the applicant in writing within 45 days whether the SWM Site Plan is approved or disapproved. If the SWM Site Plan involves a Subdivision and Land Development Plan, the notification shall occur within the time period allowed by the Municipalities Planning Code (90 days). If a longer notification period is provided by other statute, regulation, or ordinance, the applicant will be so notified by the Municipality.
3. The Municipality shall not approve any SWM Site Plan that is deficient in meeting the requirements of this Chapter or has not received all other permits/authorizations. At its sole discretion, when a Submission is found to be deficient, the Municipality may either disapprove the SWM Site Plan and require a resubmission per Section 28-408 below, or in the case of minor deficiencies, the Municipality may accept submission of modifications per Section 28-407 below.
4. If the Municipality disapproves the SWM Site Plan, the Municipality will state the reasons for the disapproval in writing. The Municipality may also approve the SWM Site Plan with conditions and, if so, shall provide the acceptable conditions for approval in writing.
5. If the Municipality approves the SWM Site Plan, or all the conditions of an approval per Section 28-406.4 above are met, the Municipality shall promptly issue a SWM Permit to the Applicant.
6. For any SWM Site Plan that proposes to use any BMPs other than green infrastructure and LID practices to achieve the volume and rate controls required under this Chapter, the Municipality will not approve the SWM Site Plan unless it determines that green infrastructure and LID practices are not practicable.

§ 28-407. Modification of Submissions with Minor Deficiencies.

A modification to a Submission with minor deficiencies shall require a resubmission of the modified SWM Site Plan and Report in full in accordance with this Article. If modifications require updates to other components of the Submission as determined by the Municipality, including but not limited to the O&M agreement or further waiver requests, said components shall also be submitted. Any modifications shall renew the review timeline as listed in Section 28-406.2 above.

§ 28-408. Resubmission of Disapproved SWM Site Plans.

A disapproved SWM Site Plan may be resubmitted, with the revisions addressing the Municipality's concerns, to the Municipality in accordance with this Article. The applicable review fee must accompany a resubmission of a disapproved SWM Site Plan.

§ 28-409. Modification of Approved SWM Site Plans.

A request for modification to a SWM Site Plan that has already been approved shall be in writing. The written request shall provide specific details on what portions of the SWM Site Plan are being proposed for modification, and shall be accompanied by Submission components showing the proposed modifications as required by the Municipality. Any modifications within the updated Submission not matching the written request are considered void.

Requests for modification shall follow the Submission review process per Section 28-406 above, including the payment of applicable fees. Modifications may not alter stormwater management facilities in a manner which significantly affects the discharge of stormwater to an adjacent property and/or significantly relocates a stormwater management facility within the project site; requests for modifications of this nature shall be treated as new Submissions in accordance with this Article.

The Municipality reserves the sole right to deny requests for modification and require new Submissions in accordance with this Article upon review of the extent of the requested modifications.

§ 28-410. Authorization to Construct and Term of Validity.

The Municipality's approval of an SWM Site Plan authorizes the regulated activities contained in the SWM Site Plan for a maximum term of validity of 5 years following the date of approval. The Municipality may specify a term of validity shorter than 5 years in the approval for any specific SWM Site Plan. Terms of validity shall commence on the date the Municipality signs the approval for an SWM Site Plan. If an approved SWM Site Plan is not completed according to Section 28-411 within the term of validity, then the Municipality may consider the SWM Site Plan disapproved and may revoke any and all permits. SWM Site Plans that are considered disapproved by the Municipality shall be resubmitted in accordance with Section 28-408 of this Chapter.

§ 28-411. As-Built Plans, Completion Certificate, and Final Inspection.

- A. After completing the improvements listed in the SWM Site Plan, confirming the site has achieved permanent stabilization, and removing or retrofitting any ESC Facilities, the Applicant shall notify the Municipality in writing that the work is complete.
- B. In the case of Minor SWM Permits:
 - A. After receipt of the written notification of completion, the Municipality shall conduct a final inspection for the purposes of determining the extent of project completion.
 - B. If any deficiencies are noted by the Municipality, they shall be delivered to the Applicant in writing.
 - C. Upon the correction of any deficiencies and determination of final completion, the Municipality shall notify the Applicant of said determination in writing.
- C. In the case of Major SWM Permits:
 - A. The Applicant shall also submit to the Municipality with the written notification of completion and As-Built Plan for review. The As-Built Plan shall be submitted as a physical and digital copy. The As-Built Plan shall include the following items:
 - B. Depiction of all items required in the original SWM Site Plan per Section 28-402, including but not limited to profiles and construction details of improvements
 - C. Clear identification of all discrepancies alongside their original design criteria, dimensions, specifications, etc.
 - D. Latitude and longitude coordinates at the central location of all permanent SWM BMPs
 - E. A note stating, “Qualified professional responsible for as-built plan composition, on this date, (signature date), certifies that all SWM and Conveyance Facilities have been constructed according to the approved plans and specifications.”
 - F. A narrative explanation of any discrepancies with the approved SWM Site Plan
- 2. After receipt of the written notification of completion and As-Built Plan, the Municipality shall: 1. conduct a final inspection for the purposes of determining the extent of project completion and the amount of release of financial security; and 2. review the As-Built Plan for acceptability and accuracy.
- 3. If any deficiencies with either the work or the As-Built Plan are noted by the Municipality, they shall be delivered to the Applicant in writing.

4. After the correction of any deficiencies and determination of final completion, the Municipality shall notify the Applicant of said determination in writing.
 5. After receipt of the written notification of determination of final completion, the Applicant shall record the As-Built Plan in full within 90 days of receipt of said determination. Evidence of recording and a copy of the recorded As-Built Plan shall be provided by the Applicant to the Municipality.
 6. After receipt of the evidence of recording of the As-Built Plan and a copy of the recorded As-Built Plan itself, the Municipality shall release to the Applicant any remaining financial security. Occupancy and/or the release of financial security are prohibited until receipt of a copy of the recorded As-Built Plan is received, and a note per Section 28-402.24 shall be provided on the plan stating such.
- D. If the SWM Site Plan was submitted as part of a Subdivision and Land Development Plan, the requirements of the Stormwater Ordinance shall be followed in addition to the project closeout and process requirements provided in the Subdivision and Land Development Ordinance. The entirety of the SWM Site Plan and Report including but not limited to grading plan, profiles, details, and calculations shall be recorded with the Subdivision and Land Development plan.
- A. For Major SWM Permits, an As-Built Plan as required above shall still be required or incorporated with the Subdivision and Land Development Plan's closeout process and shall be recorded in full or incorporated in full with the Subdivision and Land Development As-Built Plan.
 - B. For Major SWM Permits, an As-Built SWM Report meeting the requirements of Section 28-403 shall also be provided with the As-Built Plan, which shall be reviewed by the Township Engineer for conformance with the original design, and recorded once reviewed.

Part 5. Operation and Maintenance

§ 28-501. Responsibilities of Developers and Landowners.

1. The Municipality shall make the final determination on the continuing maintenance responsibilities prior to final approval of the SWM Site Plan. The Municipality may require a dedication of such facilities as part of the requirements for approval of the SWM Site Plan. Such a requirement is not an indication that the municipality will accept the facilities. The Municipality reserves the right to accept or reject the ownership and operating responsibility for any portion of the stormwater management controls.
2. Facilities, areas, or structures used as SWM BMPs shall be enumerated as permanent real estate appurtenances and recorded as deed restrictions or conservation easements that run with the land.

3. The Operations and Maintenance Plan (O&M Plan) shall be recorded as a restrictive deed covenant that runs with the land.
4. The Municipality may take enforcement actions against an owner for any failure to satisfy the provisions of this Article.

§ 28-502. Operation and Maintenance Agreements.

1. Prior to final approval of the SWM Site Plan, the property owner shall sign and record the appropriate Operation and Maintenance Agreement (O&M Agreement) (see Appendix A) covering all stormwater control facilities which are to be privately owned.
 - A. Prior to recording, the O&M Agreement shall be submitted to the Municipality for review and approval.
 - B. The owner, successor and assigns shall maintain all facilities in accordance with the approved maintenance schedule in the O&M Agreement.
 - C. The owner shall convey to the Municipality conservation easements to assure access for periodic inspections by the Municipality and maintenance, as necessary.
 - D. The owner shall keep on file with the Municipality 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 by the owner to the Municipality within ten (10) working days of the change.
2. Other items may be included in the O&M Agreement when necessary to guarantee the satisfactory operation and maintenance of all SWM facilities. The owner is responsible for operation and maintenance (O&M) of the SWM BMPs. If the owner fails to adhere to the O&M Agreement, the Municipality may perform the services required and charge the owner appropriate fees. Nonpayment of fees may result in a lien against the property.
3. For Stormwater Permits or SWM Site Plans that involve subdivision and land development, the applicant shall provide a financial guarantee to the Municipality for the timely installation and proper construction of all stormwater management controls as required by the approved SWM Site Plan and this Chapter in accordance with the provisions of Sections 509, 510, and 511 of the Pennsylvania Municipalities Planning Code.

Part 6. Fees and Expenses

§ 28-601. General.

The Municipality may include all costs incurred in the review fee charged to an applicant. The review fee may include, but not be limited to, costs for the following:

1. Administrative/clerical processing.
2. Review of the SWM Site Plan.

3. Attendance at meetings.
4. Inspections.

If costs exceed the review fee, the Municipality may charge the owner appropriate fees for the balance.

Part 7. Prohibitions

§ 28-701. Prohibited Discharges and Connections.

1. Any drain or conveyance, whether on the surface or subsurface, that allows any non-stormwater discharge including sewage, process wastewater, and wash water to enter a regulated small MS4 or to enter the surface waters of this Commonwealth is prohibited.
2. No person shall allow, or cause to allow, discharges into a regulated small MS4, or discharges into waters of this Commonwealth, which are not composed entirely of stormwater, except (1) as provided Section 28-701.3, below, and (2) discharges authorized under a state or federal permit.
3. The following discharges are authorized unless they are determined to be significant contributors to pollution a regulated small MS4 or to the waters of this Commonwealth:
 - A. Discharges or flows from firefighting activities.
 - B. 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).
 - C. Non-contaminated irrigation water, water from lawn maintenance, landscape drainage and flows from riparian habitats and wetlands.
 - D. Diverted stream flows and springs.
 - E. Non-contaminated pumped ground water and water from foundation and footing drains and crawl space pumps.
 - F. Non-contaminated HVAC condensation and water from geothermal systems.
 - G. Residential (i.e., not commercial) vehicle wash water where cleaning agents are not utilized.
 - H. Non-contaminated hydrostatic test water discharges, if such discharges do not contain detectable concentrations of TRC.
4. In the event that the Municipality or DEP determines that any of the discharges identified in Section 28-701.3 significantly contribute pollutants to a regulated small MS4 or to the waters of this Commonwealth, the municipality or DEP will notify the responsible person(s) to cease the discharge.

§ 28-702. Roof Drains and Sump Pumps.

Roof drains and sump pumps shall discharge to infiltration or vegetative BMPs wherever feasible.

§ 28-703. Alteration of SWM BMPs.

No person shall modify, remove, fill, landscape, or alter any SWM BMPs, facilities, areas, or structures that were installed as a requirement of this Chapter without the written approval of the Municipality. A note shall be provided on the SWM Site Plan stating as such as listed in Section 28-402.24.

§ 28-704. Dumping.

- (d) Dumping is prohibited in the Municipality. The activity of dumping does not need to directly drain into a concentrated discharge or collection system to be prohibited.
- (e) Dumping prohibitions do not include:
 - i. Composting of yard waste as long as it is not placed in a waterway or drains directly to a waterway/collection system.
 - ii. Incidental, short-term, temporary storage of soon-to-be-used materials that pose a low risk for stormwater runoff pollution (e.g., mulch piles for domestic gardening, stone piles for driveway sub-base, brick pallets for home construction, etc.).
 - iii. Agricultural activity or forest management and timber operations provided that the activities are performed according to the requirements of 25 Pa. Code Chapter 102.

§ 28-705. Open Storage.

Open storage of pollutants that may negatively impact water quality and aquatic life, including but not limited to uncapped barrels, leaking containers, chemical tank drainage, etc., is prohibited. The activity of openly storing pollutants does not need to directly drain into a concentrated stormwater discharge or stormwater collection system to be prohibited. Open storage prohibitions do not include agricultural activity or forest management and timber operations provided that the activities are performed according to the requirements of 25 Pa. Code Chapter 102.

Part 8. Enforcement and Penalties

§ 28-801. Right-of-Entry.

Upon presentation of proper credentials, the Municipality or its designated agent may enter at reasonable times upon any property within the Municipality to inspect the condition of the stormwater structures and facilities in regard to any aspect regulated by this Chapter.

§ 28-802. Inspection.

The landowner or the owner's designee (including the Municipality for dedicated and owned facilities) shall inspect SWM BMPs, facilities and/or structures installed under this Chapter

according to the following frequencies, at a minimum, to ensure the BMPs, facilities and/or structures continue to function as intended:

1. Annually for NPDES permittees (even if terminated), and for the first 5 years for all others as set forth in the Stormwater Permit.
2. Once every 3 years thereafter
3. During or immediately after the cessation of a 10-year or greater storm.

Inspections should be conducted during or immediately following precipitation events. A written inspection report shall be created to document each inspection. The 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. Inspection reports shall be submitted to the Municipality within 30 days following completion of the inspection. A template inspection report is available from the municipality and is attached in Appendix D.

§ 28-803. Enforcement.

1. It shall be unlawful for a person to undertake any regulated activity except as provided in an approved SWM Site Plan, unless specifically exempted in Section 28-302.
2. Violations of this Chapter and shall be subject to penalty as listed in Section 28-805.
3. Inspections regarding compliance with the SWM Site Plan are a responsibility of the Municipality and may not be unreasonably denied.

§ 28-804. Suspension and Revocation.

1. Any approval or permit issued by the Municipality pursuant to this Chapter may be suspended or revoked for:
 - A. Non-compliance with or failure to implement any provision of the approved SWM Site Plan or O&M Agreement.
 - B. A violation of any provision of this Chapter or any other applicable law, ordinance, rule, or regulation relating to the Regulated Activity.
 - C. The creation of any condition or the commission of any act during the Regulated Activity which constitutes or creates a hazard, nuisance, pollution, or endangers the life or property of others.
2. A suspended approval may be reinstated by the Municipality when:
 - A. The Municipality has inspected and approved the corrections to the violations that caused the suspension.

- B. The Municipality is satisfied that the violation has been corrected.
3. An approval that has been revoked by the Municipality cannot be reinstated. The applicant may apply for a new approval under the provisions of this Chapter.
 4. If a violation causes no immediate danger to life, public health, or property, at its sole discretion, the Municipality may provide a limited time period for the owner to correct the violation. In these cases, the Municipality will provide the owner, or the owner's designee, with a written notice of the violation and the time period allowed for the owner to correct the violation. If the owner does not correct the violation within the allowed time period, the Municipality may revoke or suspend any, or all, applicable approvals and permits pertaining to any provision of this Chapter.

§ 28-805. Penalties.

1. Anyone violating the provisions of this Chapter shall be guilty of a summary offense, and upon conviction, shall be subject to a fine of not more than \$1,000.00 for each violation, recoverable with costs and the reasonable attorneys' fees of the Township. Each day that the violation continues shall be a separate offense and penalties shall be cumulative.
2. In addition, the Municipality may institute injunctive, mandamus, or any other appropriate action or proceeding at law or in equity for the enforcement of this Chapter. 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.

§ 806. Appeals.

1. Any person aggrieved by any action of the Municipality or its designee, relevant to the provisions of this Chapter, may appeal to the Municipality within 30 days of that action.
2. Any person aggrieved by any decision of the Municipality, relevant to the provisions of this Chapter, may appeal to the Court of Common Pleas in and for Dauphin County within 30 days of the Municipality's decision.

Part 9. Reference Materials

§ 901. Reference Materials

The following address the manuals and handbooks referenced throughout this chapter which are incorporated herein by reference:

1. U.S. Department of Agriculture, National Resources Conservation Service (NRCS). *National Engineering Handbook*. Part 630: Hydrology, 1969-2001. Originally published as the *National Engineering Handbook*, Section 4: Hydrology. Available from the NRCS online at: <http://www.nrcs.usda.gov/>.

2. U.S. Department of Agriculture, Natural Resources Conservation Service. 1986. Technical Release 55: *Urban Hydrology for Small Watersheds*, 2nd Edition. Washington, D.C.
3. Pennsylvania Department of Environmental Protection. No. 363-0300-002 (December 2006), as amended and updated. *Pennsylvania Stormwater Best Management Practices Manual*. Harrisburg, PA.
4. Pennsylvania Department of Environmental Protection. No. 363-2134-008 (March 31, 2012), as amended and updated. *Erosion and Sediment Pollution Control Program Manual*. Harrisburg, PA.
5. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, Hydrometeorological Design Studies Center. 2004-2006. *Precipitation-Frequency Atlas of the United States, Atlas 14*, Volume 2, Version 3.0, Silver Spring, Maryland. Internet address: <http://hdsc.nws.noaa.gov/hdsc/pfds/>.

APPENDIX A

Appendix A-1 (Individual Owner)

**Township of Londonderry
Operation and Maintenance (O&M) Agreement
Stormwater Management Best Management Practices (SWM BMPs)**

Tax Map Parcel ___-___-___

THIS AGREEMENT, made and entered into this ___ day of _____, 20 __, by and between _____, (hereinafter the "Landowner"), and Londonderry Township, Dauphin County, Pennsylvania, (hereinafter "municipality");

WITNESSETH

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

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

WHEREAS, the SWM site plan approved by the municipality (hereinafter referred to as the "Plan") for the property identified herein, which is attached hereto as Appendix A and made part hereof, as approved by the municipality, provides for management of stormwater within the confines of the Property through the use of BMPs; and

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

WHEREAS, the municipality requires, through the implementation of the SWM site plan, that stormwater BMPs as required by said Plan and the Municipal Stormwater Management Ordinance be constructed and adequately operated and maintained by the Landowner, successors and assigns.

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

1. The Landowner shall construct the BMPs in accordance with the plans and specifications identified in the SWM site plan.
2. The Landowner shall operate and maintain the BMPs as shown on the Plan in good working order in accordance with the specific maintenance requirements noted on the approved SWM site plan.
3. The Landowner hereby grants permission to the municipality, its authorized agents, and employees, to enter upon the property, at reasonable times and upon presentation of proper credentials, to inspect the BMPs whenever necessary. Whenever possible, the municipality shall notify the Landowner prior to entering the property.

4. In the event the Landowner fails to operate and maintain the BMPs per paragraph 2, the municipality or its representatives may enter upon the property and take whatever action is deemed necessary to maintain said BMPs. It is expressly understood and agreed that the municipality is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the municipality. The Landowner may be subjected to the Penalties Section of the applicable Ordinance.
5. In the event the municipality, pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Landowner shall reimburse the municipality for all expenses (direct and indirect) incurred within 10 days of receipt of invoice from the municipality.
6. The intent and purpose of this Agreement is to ensure the proper maintenance of the onsite BMPs by the Landowner; provided, however, that this Agreement shall not be deemed to create or effect any additional liability of any party for damage alleged to result from or be caused by stormwater runoff.
7. The Landowner, its executors, administrators, assigns, and other successors in interests, shall release the municipality from all damages, accidents, casualties, occurrences or claims which might arise or be asserted against said employees and representatives from the construction, presence, existence, or maintenance of the BMPs by the Landowner or municipality.
8. The municipality may inspect the BMPs whenever necessary to ensure their continued functioning.

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

WITNESS the following signatures and seals:

For the INDIVIDUAL Landowner:

Witness

Landowner Signature

Print Name: _____

Commonwealth of Pennsylvania, County of _____

On this, the ____ day of _____, 20__, before me, a Notary Public, the undersigned officer, personally appeared _____, known to me, (or satisfactorily proven) to be the person(s) whose name(s) is/are subscribed to the within instrument, and acknowledged that he/she executed the same for the purposes therein contained.

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

My Commission Expires:

NOTARY PUBLIC (SEAL)

WITNESS the following signatures and seals:

For the Municipality:

WITNESS/ATTEST:

	By: _____
Witness	Print Name: _____
	Title: _____

Commonwealth of Pennsylvania, County of Dauphin

On this, the _____ day of _____, 20__, before me, a Notary Public, the undersigned officer, personally appeared _____, who acknowledged himself to be the _____ of Londonderry Township, and that he as such _____, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of Londonderry Township by himself/herself as _____.

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

My Commission Expires:

_____(SEAL)
NOTARY PUBLIC

Appendix A-2 (LLC Owner)

Township of Londonderry

**Operation and Maintenance (O&M) Agreement
Stormwater Management Best Management Practices (SWM BMPs)**

Tax Map Parcel ___-___-_____

THIS AGREEMENT, made and entered into this ___ day of _____, 20 __, by and between _____, (hereinafter the "Landowner"), and Londonderry Township, Dauphin County, Pennsylvania, (hereinafter "municipality");

WITNESSETH

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

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

WHEREAS, the SWM site plan approved by the municipality (hereinafter referred to as the "Plan") for the property identified herein, which is attached hereto as Appendix A and made part hereof, as approved by the municipality, provides for management of stormwater within the confines of the Property through the use of BMPs; and

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

WHEREAS, the municipality requires, through the implementation of the SWM site plan, that stormwater BMPs as required by said Plan and the Municipal Stormwater Management Ordinance be constructed and adequately operated and maintained by the Landowner, successors and assigns.

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

1. The Landowner shall construct the BMPs in accordance with the plans and specifications identified in the SWM site plan.
2. The Landowner shall operate and maintain the BMPs as shown on the Plan in good working order in accordance with the specific maintenance requirements noted on the approved SWM site plan.
3. The Landowner hereby grants permission to the municipality, its authorized agents, and employees, to enter upon the property, at reasonable times and upon presentation of proper credentials, to inspect the BMPs whenever necessary. Whenever possible, the municipality shall notify the Landowner prior to entering the property.

4. In the event the Landowner fails to operate and maintain the BMPs per paragraph 2, the municipality or its representatives may enter upon the property and take whatever action is deemed necessary to maintain said BMPs. It is expressly understood and agreed that the municipality is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the municipality. The Landowner may be subjected to the Penalties Section of the applicable Ordinance.
5. In the event the municipality, pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Landowner shall reimburse the municipality for all expenses (direct and indirect) incurred within 10 days of receipt of invoice from the municipality.
6. The intent and purpose of this Agreement is to ensure the proper maintenance of the onsite BMPs by the Landowner; provided, however, that this Agreement shall not be deemed to create or effect any additional liability of any party for damage alleged to result from or be caused by stormwater runoff.
7. The Landowner, its executors, administrators, assigns, and other successors in interests, shall release the municipality from all damages, accidents, casualties, occurrences or claims which might arise or be asserted against said employees and representatives from the construction, presence, existence, or maintenance of the BMPs by the Landowner or municipality.
8. The municipality may inspect the BMPs whenever necessary to ensure their continued functioning.

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

WITNESS the following signatures and seals:

For member of a Limited Liability Company (LLC) Landowner:

Witness

Signature (LLC Member) Landowner (SEAL)

Print Name: _____

Title: _____

Commonwealth of Pennsylvania, County of _____

On this, the _____ day of _____ A.D., 20____, this record was
acknowledged before me, the undersigned officer, by _____,
Member, of _____
(LLC)

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

My Commission Expires:

NOTARY PUBLIC (SEAL)

WITNESS the following signatures and seals:

For the Municipality:

WITNESS/ATTEST:

Witness

By: _____

Print Name: _____

Title: _____

Commonwealth of Pennsylvania, County of Dauphin

On this, the _____ day of _____, 20__, before me, a Notary Public, the undersigned officer, personally appeared _____, who acknowledged himself to be the _____ of Londonderry Township, and that he as such _____, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of Londonderry Township by himself/herself as _____.

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

My Commission Expires:

_____(SEAL)
NOTARY PUBLIC

Appendix A-3 (Corporation Owner)

Township of Londonderry

**Operation and Maintenance (O&M) Agreement
Stormwater Management Best Management Practices (SWM BMPs)**

Tax Map Parcel ___ - ___ - ___

THIS AGREEMENT, made and entered into this ___ day of _____, 20 __, by and between _____, (hereinafter the "Landowner"), and Londonderry Township, Dauphin County, Pennsylvania, (hereinafter "municipality");

WITNESSETH

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

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

WHEREAS, the SWM site plan approved by the municipality (hereinafter referred to as the "Plan") for the property identified herein, which is attached hereto as Appendix A and made part hereof, as approved by the municipality, provides for management of stormwater within the confines of the Property through the use of BMPs; and

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

WHEREAS, the municipality requires, through the implementation of the SWM site plan, that stormwater BMPs as required by said Plan and the Municipal Stormwater Management Ordinance be constructed and adequately operated and maintained by the Landowner, successors and assigns.

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

1. The Landowner shall construct the BMPs in accordance with the plans and specifications identified in the SWM site plan.
2. The Landowner shall operate and maintain the BMPs as shown on the Plan in good working order in accordance with the specific maintenance requirements noted on the approved SWM site plan.
3. The Landowner hereby grants permission to the municipality, its authorized agents, and employees, to enter upon the property, at reasonable times and upon presentation of proper credentials, to inspect the BMPs whenever necessary. Whenever possible, the municipality shall notify the Landowner prior to entering the property.

4. In the event the Landowner fails to operate and maintain the BMPs per paragraph 2, the municipality or its representatives may enter upon the property and take whatever action is deemed necessary to maintain said BMPs. It is expressly understood and agreed that the municipality is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the municipality. The Landowner may be subjected to the Penalties Section of the applicable Ordinance.
5. In the event the municipality, pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Landowner shall reimburse the municipality for all expenses (direct and indirect) incurred within 10 days of receipt of invoice from the municipality.
6. The intent and purpose of this Agreement is to ensure the proper maintenance of the onsite BMPs by the Landowner; provided, however, that this Agreement shall not be deemed to create or effect any additional liability of any party for damage alleged to result from or be caused by stormwater runoff.
7. The Landowner, its executors, administrators, assigns, and other successors in interests, shall release the municipality from all damages, accidents, casualties, occurrences or claims which might arise or be asserted against said employees and representatives from the construction, presence, existence, or maintenance of the BMPs by the Landowner or municipality.
8. The municipality may inspect the BMPs whenever necessary to ensure their continued functioning.

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

WITNESS the following signatures and seals:

For the CORPORATE Landowner:

Witness

Signature CORPORATE Landowner

Print Name: _____

Title: _____

Commonwealth of Pennsylvania, County of _____

On this, the _____ day of _____ A.D., 20____, before me, the undersigned officer, personally appeared _____, known to me, (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged himself to be the _____ of _____, a corporation, and that he, as such officer, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the corporation by himself as such officer.

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

My Commission Expires:

NOTARY PUBLIC (SEAL)

WITNESS the following signatures and seals:

For the Municipality:

WITNESS/ATTEST:

Witness

By: _____

Print Name: _____

Title: _____

Commonwealth of Pennsylvania, County of Dauphin

On this, the _____ day of _____, 20__, before me, a Notary Public, the undersigned officer, personally appeared _____, who acknowledged himself to be the _____ of Londonderry Township, and that he as such _____, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of Londonderry Township by himself/herself as _____.

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

My Commission Expires:

NOTARY PUBLIC (SEAL)

APPENDIX B

APPENDIX B

RATIONAL METHOD 'C' VALUES

	Min	Max	Percent Impervious
Construction Sites			
Bare Packed Soil, smooth	0.30	0.60	0
Bare Packed Soil, rough	0.20	0.50	0
Wooded Areas			
Heavy Ground Litter	0.10	0.20	0
Light Ground Litter	0.15	0.30	0
Steep Rocky Slopes	0.20	0.50	0
Reverting Farmland/Meadow			
100% Vegetative Cover	0.10	0.20	0
80% Vegetative Cover	0.15	0.30	0
50% Vegetative Cover	0.25	0.60	0
Rural Homes			
1 home per 10 acres	0.15	0.30	1
Residential			
1-acre lots	0.15	0.40	20
½-acre lots	0.25	0.50	25
¼-acre lots	0.40	0.60	36
Multi-units (attached)	0.60	0.75	65
Industrial Area			
Light to Medium Density	0.50	0.80	
High Density	0.60	0.95	
Streets and Parking Lots			
Asphalt	0.70	0.95	
Concrete	0.80	0.95	
Gravel	0.45	0.60	
Open Space, parks, golf courses	0.15	0.30	
Meadow	0.10	0.20	
Cultivated Land	0.10	0.40	
Pasture	0.15	0.50	

Minimum values to be used for flatter slopes and soils with better drainage characteristics.

Maximum values to be used for steeper slopes and soils with worse drainage characteristics.

TR-55 RUNOFF COEFFICIENTS

Cover Type	Avg. Percent Impervious Area	HYDROLOGIC SOIL CLASSIFICATION			
		A	B	C	D
Open Space (Lawns, parks, golf courses, cemeteries, etc.)					
Poor Condition (grass cover <50%)		68	79	86	89
Fair Condition (grass cover 50 to 75%)		49	69	79	84
Good Condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc.		98	98	98	98
Streets and Roads:					
Paved; curbs and storm sewers (excl. right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Urban Districts					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential Areas by average lot size					
1/8-acre or less (townhouses)	65	77	85	90	92
1/4-acre	38	61	75	83	87
1/3-acre	30	57	72	81	86
1/2-acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Pasture, grassland, or range					
	Poor (<50%)	68	79	86	89
	Fair (50%-75%)	49	69	79	84
	Good (>75%)	39	61	74	80
Meadow		30	58	71	78
Brush (brush-weed-grass mixture with brush as the major component)					
	Poor (<50%)	48	67	77	83
	Fair (50%-75%)	35	56	70	77
	Good (>75%)	30	48	65	73
Woods-grass combination (orchard or tree farm)					
	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods					
	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30	55	70	77

Poor – forest litter, small trees, and brush are destroyed by heavy grazing or regular burning

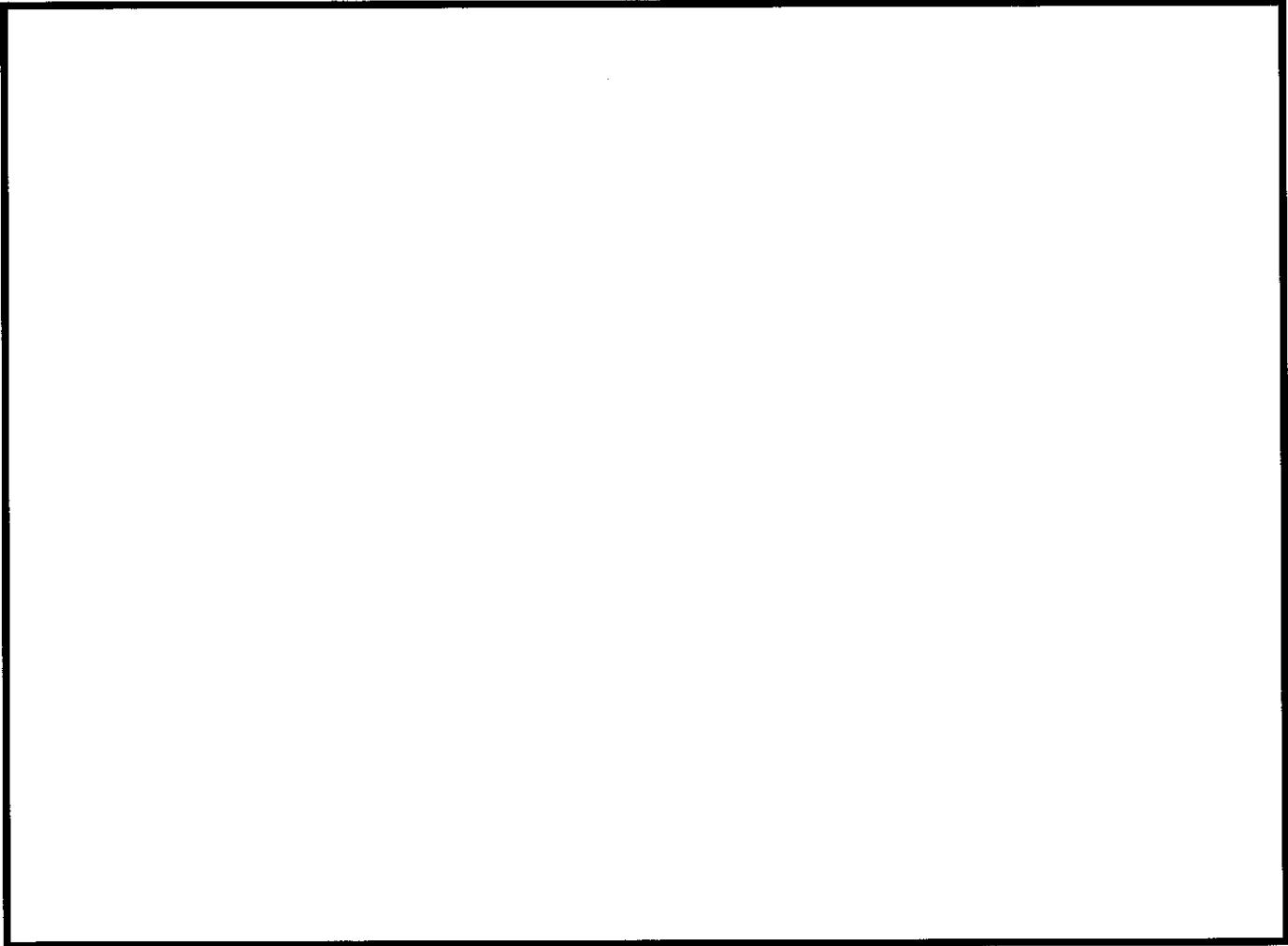
Fair – woods are grazed but not burned, and some forest litter covers the soil

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

For additional cover types not listed, see appropriate table in TR-55

APPENDIX C

APPENDIX C
MINOR SWM PERMIT SITE DESIGN WORKSHEET



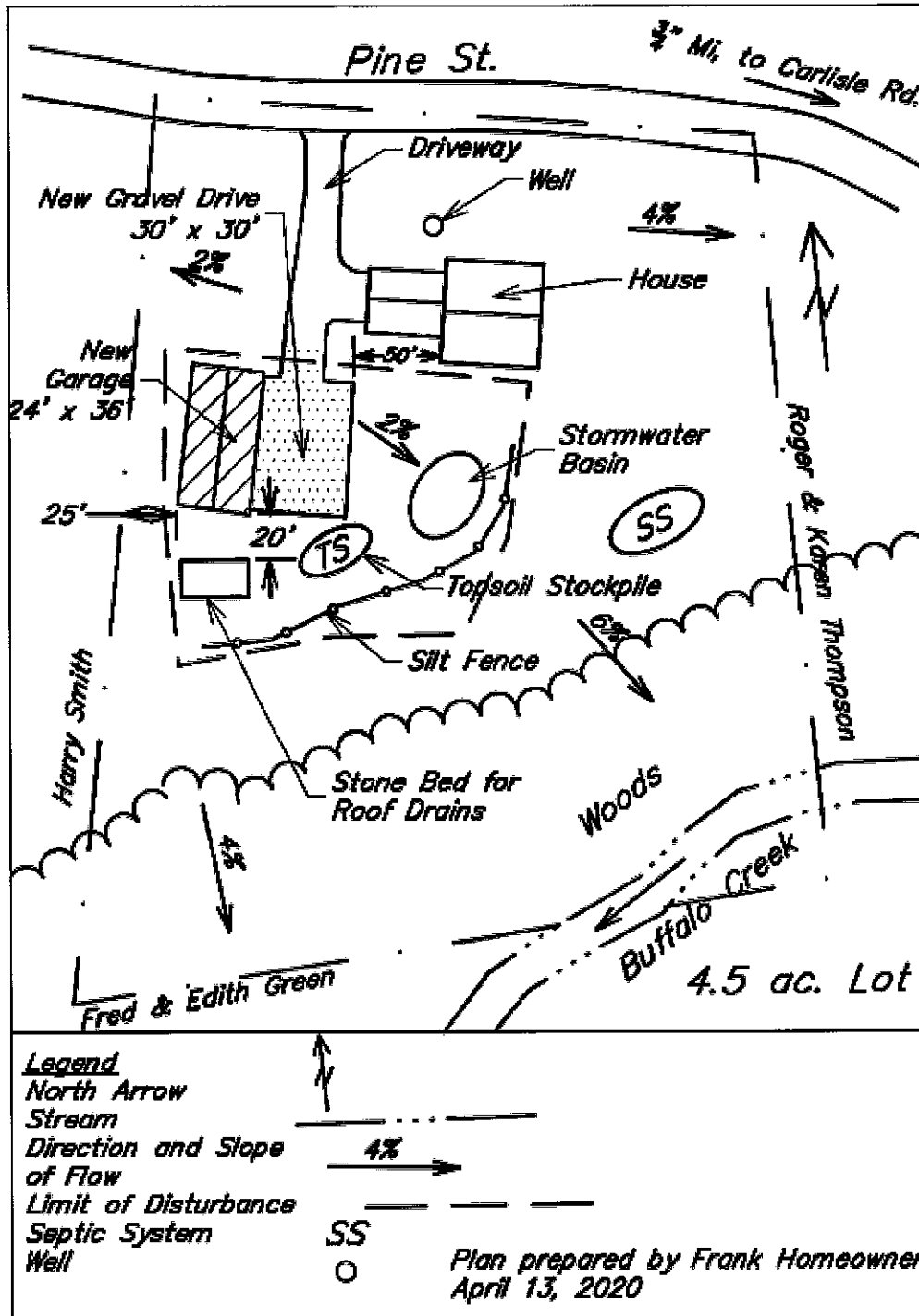
Draw a general site plan including the following: 1. The general layout of the property, including approximate lot lines and existing improvements; 2. All proposed improvements; 3. Flow arrows showing the direction of runoff; 4. The location of the proposed stormwater facilities. An example site plan is available on the following page.

By submitting this worksheet, the Applicant agrees:

1. To submit a Minor SWM Permit for Municipal approval with this Site Design Worksheet.
2. To direct all runoff from proposed impervious areas to the proposed stormwater facilities.
3. To construct the stormwater facilities in conformance with the details and calculations within this worksheet.
4. That the proposed regulated activity conforms to the requirements of the Londonderry Township Stormwater Management Ordinance, including but not limited to the provision of a 15 foot setback for stormwater facilities, and an O&M agreement.
5. That stormwater flows onto adjacent properties shall not be created, increased, relocated, significantly concentrated, or otherwise detrimentally altered without written approval from the affected property owner(s).
6. That stormwater management facilities are permanent fixtures and may not be modified, removed, filled, landscaped, have improvements placed within them, or otherwise be altered without written approval of Londonderry Township.
7. To provide Londonderry Township or its representatives access to the property for the purposes of inspecting SWM and ESC facilities.
8. That all construction shall follow the PADEP BMP Manual and E&S Manual, and that an E&S plan will be sent to the Dauphin County Conservation District for review of adequacy if earth disturbance is equal to or greater than 5,000 square feet.
9. That identification of sensitive natural features, such as wetlands or karst features, is the Applicant's responsibility, and that sensitive natural features on the site will not be encroached upon without proper permitting and/or Municipal approval.
10. That Londonderry Township and its representatives bear no design responsibility for the proposed improvements, including proposed SWM facilities. All design responsibility is borne by the Applicant, and the Applicant should consult with a professional if desired.
11. That the designs produced by utilizing this worksheet are likely conservative in nature.
12. To indemnify Londonderry Township and its representatives from any damage that may result from the proposed improvements, including stormwater management facilities.

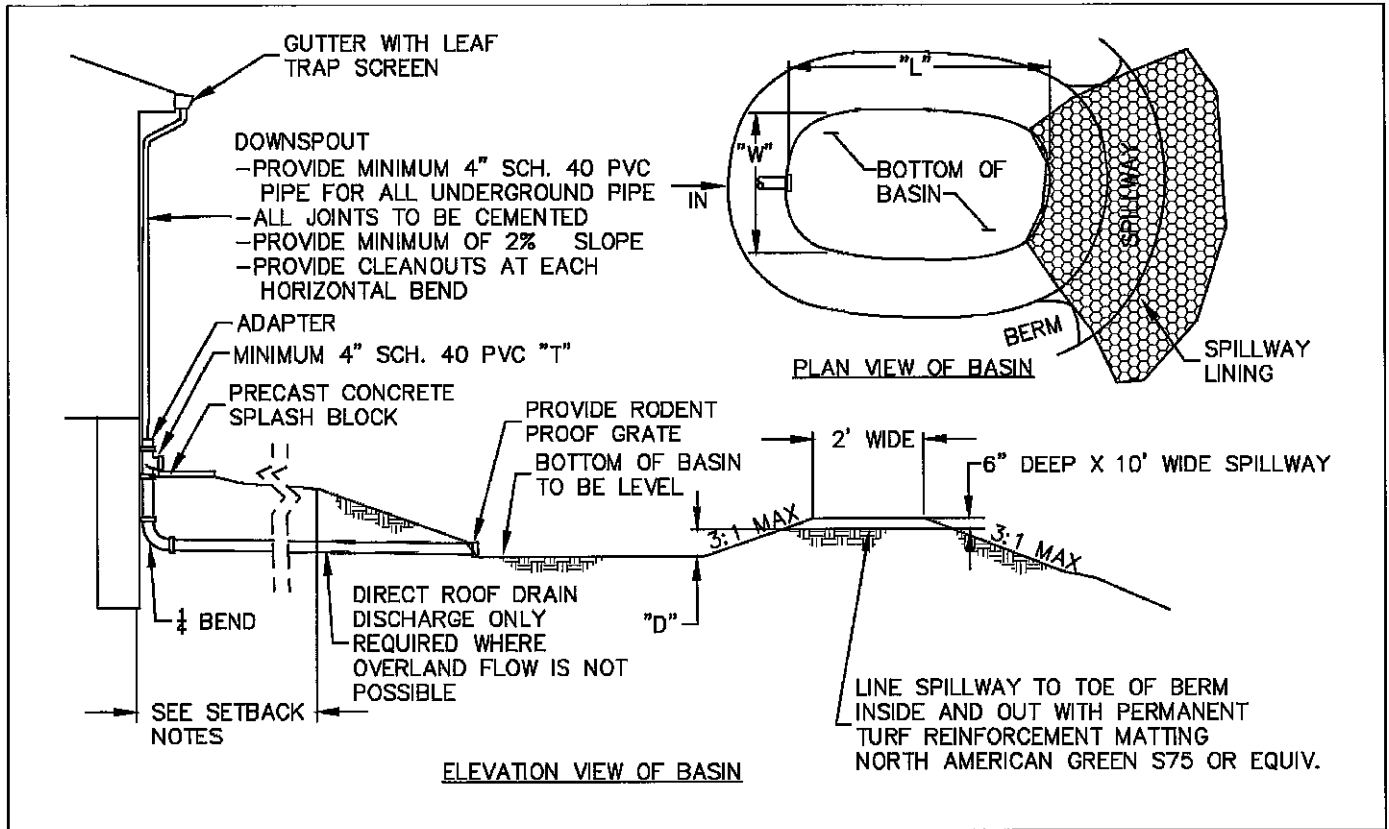
Signature of Applicant: _____ Date: _____

Example Minor SWM Permit Site Plan



Stormwater Facility Standard Details

Rain Garden



Notes

NOTE 1: Infiltration trenches may only be used for structures; infiltration basins may be used for all surfaces, including structures.

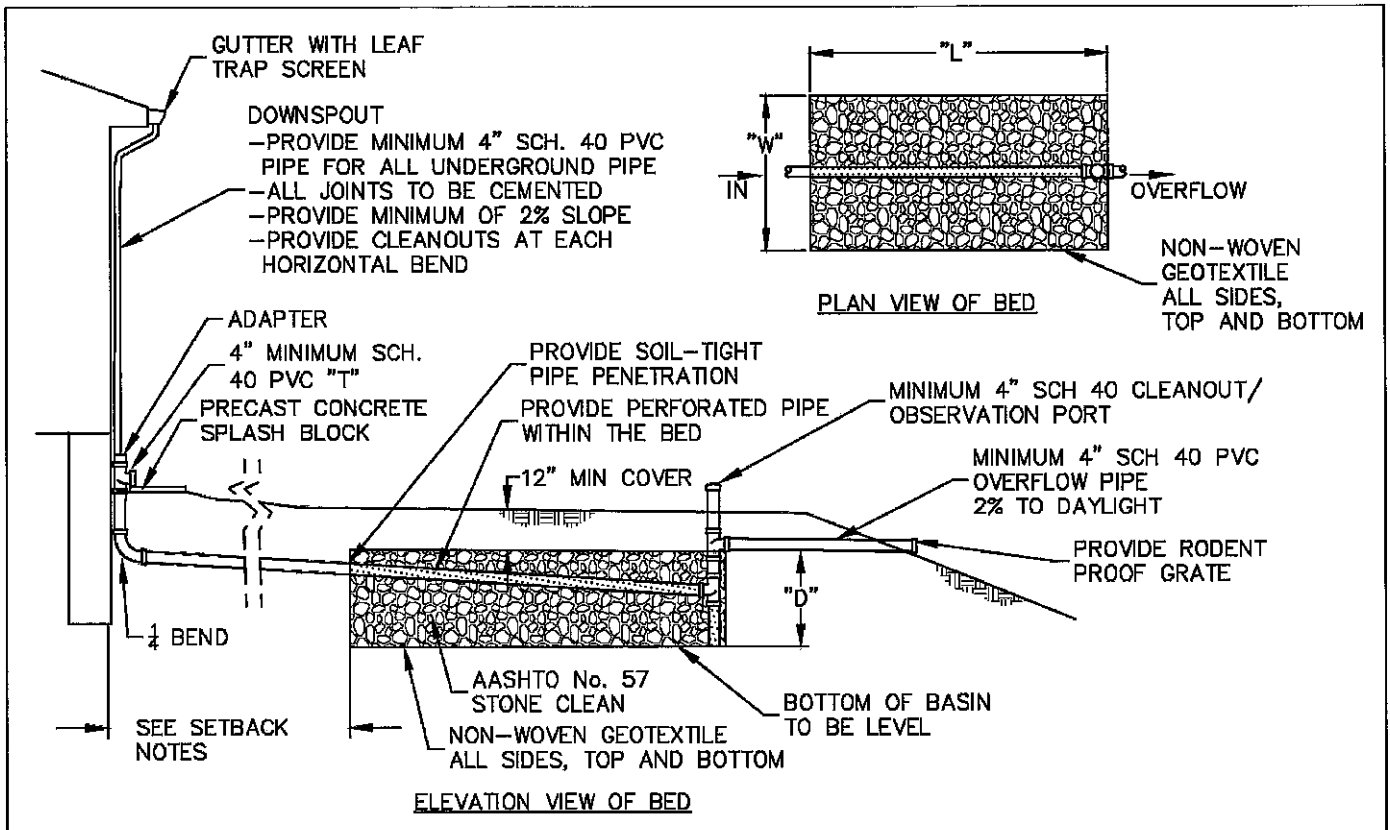
NOTE 2: Infiltration basins deeper than 3 feet may be required to be fenced upon guidance from the Township.

NOTE 3: No stormwater facility may be deeper than 6 feet.

NOTE 4: Any infiltration facilities located within HSG D, Applicant shall provide infiltration testing results that show adequate infiltration rates. See Appendix E for HSG map.

Stormwater Facility Standard Details

Infiltration Trench



NOTE 1: Infiltration trenches may only be used for structures; infiltration basins may be used for all surfaces, including structures.

NOTE 2: Infiltration basins deeper than 3 feet may be required to be fenced upon guidance from the Township.

NOTE 3: No stormwater facility may be deeper than 6 feet.

NOTE 4: Any infiltration facilities located within HSG D, Applicant shall provide infiltration testing results that show adequate infiltration rates (minimum 0.5 inches per hour). See Appendix E for HSG map.

Disconnected Impervious Area (DIA)

When rooftop or pavement runoff is directed to a pervious area that allows for infiltration, filtration, and increased time of concentration, the contributing rooftop or pavement area may qualify as a Disconnected Impervious Area (DIA). A rooftop or pavement area is considered to be a DIA if it meets the requirements listed below:

- The soil in proximity of the discharge area, is not designated as hydrologic soil group "D" or equivalent (see Appendix E – Hydrologic Soil Group Map).
- The overland flow path (pervious area serving as BMP) from discharge area has a positive slope of 10% or less.
- The length of overland flow path (pervious area serving as BMP) is greater than or equal to the contributing rooftop or pavement length.
- The length of overland flow path (pervious area serving as BMP) is greater than 25 feet.

If the discharge is concentrated at one or more discrete points, no more than 1,000 square feet of impervious area may discharge to any one point. In addition, a gravel strip or other spreading device is required for concentrated discharges. For non-concentrated discharges along the edge of pavement, this requirement is waived; however, there must be a provision for the establishment of vegetation along the pavement edge and temporary stabilization of the area until vegetation becomes stabilized.

If rainspouts are discharged underground to provide infiltration, the portion of the impervious area draining to those rainspouts is waived from the DIA discharge requirements. Rainspouts discharged underground which are directly connected to a storm sewer system are not waived from the DIA requirements.

See Attached Disconnected Impervious Area worksheet.

Disconnected Impervious Area (DIA) Worksheet

Applicant Address:	Brief Description of Project:				
Nearest Waterbody:	No more than 1,000 sq. ft can discharge to one point on the surface. Number of discharge points required:				
Total Proposed Impervious Area(A):	Discharge Point 1	Discharge Point 2	Discharge Point 3	Discharge Point 4	Discharge Point 5
Total Earth Disturbance:	Area:	Area:	Area:	Area:	Area:
Are rainspouts discharged underground? (Y/N)	Impervious Path Length:	Impervious Path Length:	Impervious Path Length:	Impervious Path Length:	Impervious Path Length:
If yes, contributing impervious area (B):	Pervious Path Length:	Pervious Path Length:	Pervious Path Length:	Pervious Path Length:	Pervious Path Length:
Total Impervious Area Discharged on Surface (A) – (B)	Pervious Path Slope <10%? (Y/N)	Pervious Path Slope <10%? (Y/N)	Pervious Path Slope <10%? (Y/N)	Pervious Path Slope <10%? (Y/N)	Pervious Path Slope <10%? (Y/N)
HSG Soil Group from Appendix E – Hydrologic Soils Group Map (Cannot be “D” Soils):					
Project Sketch: Only show discharge points, slopes, and pervious flow path lengths:					

Stormwater Facility Calculations

(The following worksheets is only applicable to Minor SWM Permits)

How to calculate the size of your stormwater facility

1. Determine the area of your property available for the installation of stormwater facilities in terms of length and width (in feet). If large areas of your property are available, determine how much you would like to dedicate to the installation of stormwater facilities in terms of length and width.
2. Enter the length and width chosen into #1: (Facility Area) in the table below, and multiply them together. This will tell you the area (in square feet) that your stormwater facility will take up.
3. Determine the area of impervious surfaces you are proposing to construct that will discharge into the stormwater facility. For example, a 30 foot x 40 foot garage would be 1200 square feet. For surfaces that are not simple geometric shapes, you may need to get the area of impervious surfaces from your contractor.
4. Enter the area of impervious surfaces into #2: (Runoff Volume) in the table below, and multiply this by 0.2. This will tell you the volume of stormwater runoff the impervious surfaces are generating (in cubic feet).
5. Enter the runoff volume (#2 below) and the stormwater facility area (#1 below) into #3: (Facility Depth) in the table below. Divide #2 by #1. This will tell you how deep (in feet) your stormwater facility will need to be if it is an infiltration basin. **If you are proposing to construct an infiltration basin, skip step 6 and proceed to step 7.**
6. **If you are proposing to construct an infiltration trench**, enter the facility depth (#3 below) into #4: (Depth w/ Stone) in the table below, and divide by 0.4. This will tell you how deep (in feet) your stormwater facility will need to be since it is using stone. Stone takes up approximately 60% of the volume within an infiltration trench, so only 40% of the volume of the infiltration trench is available to actually store stormwater. Dividing by 0.4 compensates for this loss of runoff storage.
7. If your stormwater facility depth is greater than 6 feet, you will need to expand the area for the stormwater facility determined in #1 above, and repeat the above process until the depth is equal to or lesser than 6 feet.

Facility Name or #	1: Facility Area	_____ (L) x _____ (W)	SF
	2: Runoff Volume	_____ (Imp. Area to Facility) x 0.2	CF
	3: Facility Depth	_____ (#2) / _____ (#1)	F
	4: Depth w/ Stone	(TRENCHES ONLY) _____ (#3) / 0.4	F

NOTE: Extra tables provided below for repeat calculations or for extra facilities.

Facility Name or #	1: Facility Area	_____ (L) x _____ (W)	SF
	2: Runoff Volume	_____ (Imp. Area to Facility) x 0.2	CF
	3: Facility Depth	_____ (#2) / _____ (#1)	F
	4: Depth w/ Stone	(TRENCHES ONLY) _____ (#3) / 0.4	F

Facility Name or #	1: Facility Area	_____ (L) x _____ (W)	SF
	2: Runoff Volume	_____ (Imp. Area to Facility) x 0.2	CF
	3: Facility Depth	_____ (#2) / _____ (#1)	F
	4: Depth w/ Stone	(TRENCHES ONLY) _____ (#3) / 0.4	F

Facility Name or #	1: Facility Area	_____ (L) x _____ (W)	SF
	2: Runoff Volume	_____ (Imp. Area to Facility) x 0.2	CF
	3: Facility Depth	_____ (#2) / _____ (#1)	F
	4: Depth w/ Stone	(TRENCHES ONLY) _____ (#3) / 0.4	F

APPENDIX D



Appendix D
LONDONDERRY TOWNSHIP
POST CONSTRUCTION BMP INSPECTION REPORT

Date: _____

Owner Information

1. Name: _____ 2. Account Number: _____
 3. Email: _____ 4. Phone: _____
 5. Address: _____

Inspector Information (If Different from Owner)

1. Name: _____ 2. Phone: _____
 3. Email: _____
 4. Address: _____

BMP Information

1. Address _____
 2. Property Type (Circle One): Residential Commercial Industrial Institutional Other
 If Other, Please Describe: _____
 3. Installation Date: _____
 4. Type of BMP, If More Than One BMP Please Provide Information on All BMPs

 5. Is Maintenance Needed at This Time (Circle One)? Yes No
 6. Comments/Notes: _____

 7. Attach Maintenance Documentation and Photographs of BMP (Required)

FOLLOW-UP AND ENFORCEMENT ACTIONS (FOR INTERNAL USE ONLY)

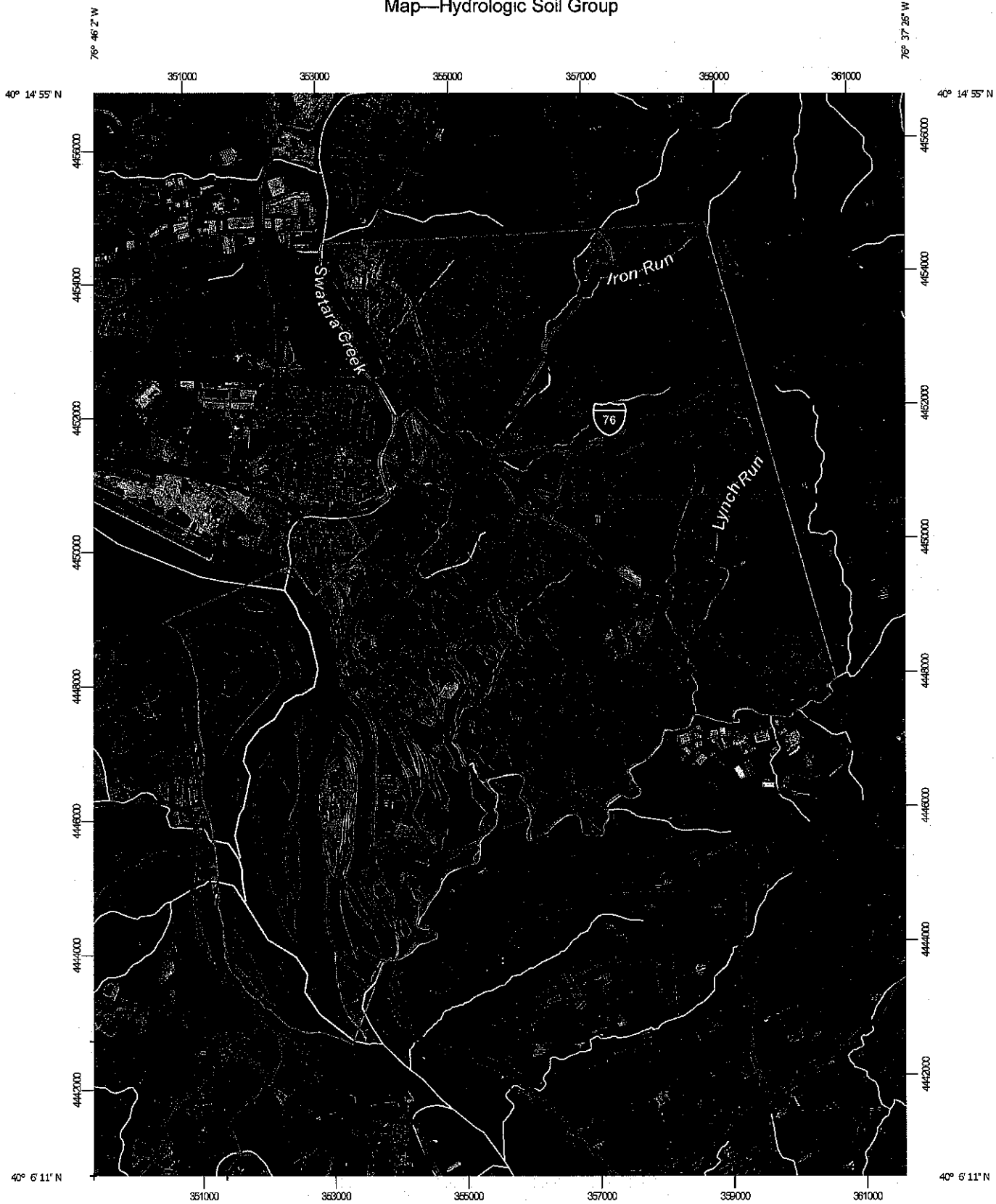
1. Describe corrective actions needed: _____

 2. Describe Enforcement Action: _____
 3. Follow-up required? Yes No
 Comments: _____
 4. Return inspection needed? Yes No
 Comments: _____
 5. Required Compliance Date: _____ 6. Date Corrected: _____

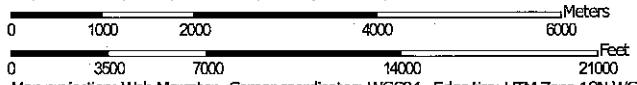
Representative: _____

APPENDIX E

Appendix E
Custom Soil Resource Report
Map—Hydrologic Soil Group






































Map Scale: 1:78,700 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

 Area of Interest (AOI)	 C
 Area of Interest (AOI)	 C/D
 Soils	 D
 Soil Rating Polygons	 Not rated or not available
 A	Water Features
 A/D	 Streams and Canals
 B	Transportation
 B/D	 Rails
 C	 Interstate Highways
 C/D	 US Routes
 D	 Major Roads
 Not rated or not available	 Local Roads
Soil Rating Lines	Background
 A	 Aerial Photography
 A/D	
 B	
 B/D	
 C	
 C/D	
 D	
 Not rated or not available	
Soil Rating Points	
 A	
 A/D	
 B	
 B/D	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:15,800 to 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dauphin County, Pennsylvania
 Survey Area Data: Version 19, Sep 6, 2022

Soil Survey Area: Lancaster County, Pennsylvania
 Survey Area Data: Version 21, Sep 6, 2022

Soil Survey Area: York County, Pennsylvania
 Survey Area Data: Version 17, Sep 7, 2022

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 6, 2020—Nov 7, 2020

APPENDIX F

APPENDIX F
STORMWATER MANAGEMENT PERMIT APPLICATION

The Pennsylvania Department of Environmental Protection (PADEP) requires all municipalities enact a Stormwater Management Ordinance (SWMO) meeting PADEP's requirements. Londonderry Township's full SWMO can be reviewed on the Township's website (www.londonderrypa.org), under Zoning, Codes & Resolutions.

This guidance is intended to assist you in determining what level of stormwater management will be required for your project in accordance with the Township's SWMO. If there are any conflicts between this Guidance and the SWMO, the provisions of the SWMO will govern.

Applicant:

Name:

Project Address:

Tax Map Reference:

Mailing Address:

Phone #:

Email Address:

**Assisting Professional (Professional Engineer, Landscaper, Builder, Pool Company, etc.)
(If Applicable)**

Name:

Mailing Address:

Phone #:

Email Address:

Description of Project:

Estimated Total Project Cost:

Is a Stormwater Management Permit required?

Proposed Impervious Area on Your Project:

- | | |
|--|---------------|
| 1. Previous impervious surface installed since 12/19/2010 | _____ sq. ft. |
| 2. Proposed new pavement (parking, driveway, etc.) | _____ sq. ft. |
| 3. Proposed Building (new building, addition, garage, shed, etc.) | _____ sq. ft. |
| 4. <u>Proposed sidewalk or patio (gravel, concrete, brick, pavers, etc.)</u> | _____ sq. ft. |
| 5. TOTAL ADDED IMPERVIOUS AREA (1+2+3+4-5) | _____ sq. ft. |

Impervious Square Footage Stormwater Permit Tiers:

- If the Total Added Impervious is between 0-999 sq. ft, a Stormwater Permit is not required.
- If the Total Added Impervious is between 1,000-4,999 sq. ft., a Minor Stormwater Permit is required.
- If the Total Added Impervious is 5,000 sq. ft. or greater, a Major Stormwater Permit is required.

***Refer to Londonderry Townships SWMO for additional disturbances that would require a Stormwater Permit.**

As applicable, provide latitude and longitude of proposed Stormwater Management Facilities:

-
-
-
-

Stormwater Management Permit Options:

- Exemption – Refer to Section 28-302 of the SWMO
- Minor SWM Permit – Refer to Section 28-401 of the SWMO
- Major SWM Permit – Refer to Section 28-402 of the SWMO