

BOROUGH OF CONSHOHOCKEN
MONTGOMERY COUNTY, PENNSYLVANIA

ORDINANCE NO. 10-2022

AN ORDINANCE OF THE BOROUGH OF CONSHOHOCKEN, MONTGOMERY COUNTY, PENNSYLVANIA, AMENDING CHAPTER 19 *STORMWATER MANAGEMENT*, OF THE BOROUGH'S CODE OF ORDINANCES BY REPEALING THE CURRENT PROVISIONS IN THEIR ENTIRETY AND REPLACING THEM WITH UPDATED PROVISIONS AMENDED TO BE CONSISTENT WITH THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S MODEL STORMWATER MANAGEMENT ORDINANCE AS PART OF THE SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT PROGRAM; REPEALING ALL PRIOR INCONSISTENT ORDINANCES OR PARTS OF ORDINANCES; PROVIDING A SEVERABILITY CLAUSE; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Borough Code, 8 Pa.C.S. § 101, *et seq.*, grants authority to the Borough Council of the Borough of Conshohocken to enact regulations for the health, safety, and welfare of the Borough, its residents, property owners, visitors, etc.;

WHEREAS, the Borough Council has adopted a stormwater management ordinance at Chapter 19 *Stormwater Management* of the Borough's Code of Ordinances;

WHEREAS, as part of the implementation of the Borough's Small Municipal Separate Storm Sewer System (MS4) the Borough's Engineer has analyzed the Borough's regulations, and proposed a new stormwater management ordinance consistent with the Pennsylvania Department of Environmental Protection's Model Stormwater Management Ordinance (the "Model Ordinance"); and

WHEREAS, the Borough Council of the Borough of Conshohocken has determined it to be in the best interest of the Borough to adopt the ordinance provisions set forth hereinbelow.

NOW THEREFORE, be it **ORDAINED** and **ENACTED**, by the Borough Council of the Borough of Conshohocken as follows:

SECTION 1. The Code of Ordinances of the Borough of Conshohocken, Chapter 19 *Stormwater Management*, is hereby amended by repealing the current provisions in their entirety, and replacing them with the provisions attached hereto as exhibit "A", including appendices "A" and "B" thereto.

SECTION 2. Repealer. Any and all other Ordinances or parts of Ordinances in violation or in conflict with the terms, conditions and provisions of this Ordinance are hereby repealed to the extent of such irreconcilable conflict.

SECTION 3. Severability. The terms, conditions and provisions of this Ordinance are hereby declared to be severable, and, should any portion, part or provision of this Ordinance be found by a court of competent jurisdiction to be invalid, enforceable or unconstitutional, the Council hereby declares its intent that the Ordinance shall have been enacted without regard to the invalid, enforceable, or unconstitutional portion, part or provision of this Ordinance.

SECTION 4. Effective date. This Ordinance shall become effective at the earliest date permitted by Pennsylvania law.

ORDAINED and **ENACTED** an ordinance of the Borough of Conshohocken this 20th day of July, 2022.

BOROUGH OF CONSHOHOCKEN



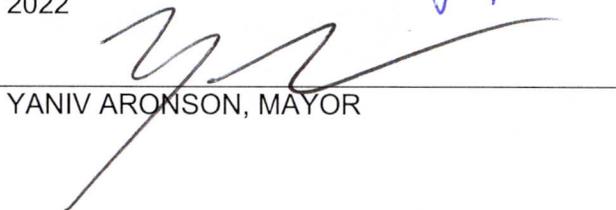
COLLEEN LEONARD, COUNCIL PRESIDENT

ATTEST:



SECRETARY

Approved this 20th day of July, 2022



YANIV ARONSON, MAYOR

EXHIBIT "A"

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ARTICLE I – GENERAL PROVISIONS

Section 19-101. Short Title

This Ordinance shall be known and may be cited as the “Borough of Conshohocken Stormwater Management Ordinance” (a.k.a. “Stormwater Management Ordinance”).

Section 19-102. Statement of Findings

The governing body of the municipality finds that:

- A. 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.
- B. A comprehensive program of stormwater management (SWM), including reasonable regulation of development and activities causing accelerated runoff, is fundamental to the public health, safety, and welfare and the protection of people of the Commonwealth, their resources, and the environment.
- C. Stormwater is an important water resource that provides groundwater recharge for water supplies and supports the base flow of streams.
- D. The use of green infrastructure and low impact development (LID) are intended to address the root cause of water quality impairment by using systems and practices which use or mimic natural processes to: 1) infiltrate and recharge, 2) evapotranspire, and/or 3) harvest and use precipitation near where it falls to earth. Green infrastructure practices and LID contribute to the restoration or maintenance of pre-development hydrology.
- E. Federal and state regulations require the Borough of Conshohocken to implement a program of stormwater controls. The Borough of Conshohocken is required to obtain a permit for stormwater discharges from their separate storm sewer systems under the National Pollutant Discharge Elimination System (NPDES) program.

Section 19-103. Purpose

The purpose of this Ordinance is to promote health, safety, and welfare within the municipality and its watershed by minimizing the harms and maximizing the benefits described in Section 19-102 of this Ordinance, through provisions designed to:

- A. 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.
- B. Preserve natural drainage systems.
- C. Manage stormwater runoff close to the source, reduce runoff volumes and mimic predevelopment hydrology.
- D. Provide procedures and performance standards for stormwater planning and management.
- E. Maintain groundwater recharge to prevent degradation of surface and groundwater quality and to otherwise protect water resources.

- F. Prevent scour and erosion of stream banks and streambeds.
- G. Provide proper operation and maintenance of all stormwater best management practices (BMPs) that are implemented within the Borough.
- H. Provide standards to meet NPDES permit requirements.

Section 19-104. 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.

Section 19-105. Applicability

- A. All regulated activities and all activities that may affect stormwater runoff are subject to regulation by this Ordinance, including:
 - 1. Land development.
 - 2. Subdivision.
 - 3. All sites of 0.5 acres or more.
 - 4. Agricultural operations.
 - 5. Construction of new or additional impervious surfaces.
 - 6. Construction of new buildings or additions to existing buildings.
 - 7. Nursery operations.
 - 8. Redevelopment.
 - 9. Diversion or piping of any natural or man-made stream channel.
 - 10. Installation of stormwater systems or appurtenances thereto.
 - 11. Alteration of the natural hydrologic regime.
 - 12. Nonstructural and structural stormwater management best management practices (BMPs) or appurtenances thereto.
 - 13. Earth Disturbance Activity.
 - 14. Regulated Earth Disturbance Activity.
- B. Additional stormwater management design and construction criteria, including storm sewer system and BMP design criteria, shall be as described in §22-410 Drainage, of Chapter 22, Subdivision and Land Development, of the Code of the Borough of Conshohocken, which is included in these regulations by reference.

Section 19-106. Repealer

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

Section 19-107. Severability

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

Section 19-108. Compatibility with Other Requirements

Approvals issued and actions taken under this Ordinance 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. If more stringent requirements concerning regulation of stormwater or erosion and sediment control are contained in any other code, rule, act or ordinance adopted by the Borough of Conshohocken, the more stringent regulation shall apply.

Section 19-109. Erroneous Permit

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

Section 19-110. Waivers

- A. If the Municipality determines that any requirement under this Ordinance cannot be achieved for a particular regulated activity, the Municipality may, after an evaluation of alternatives, approve measures other than those in this Ordinance, subject to Section 19-110, paragraphs B and C.
- B. Waivers or modifications of the requirements of this Ordinance 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 Ordinance 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 Ordinance. 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 Ordinance involved and the proposed modification.
- C. 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 Montgomery County Conservation District.

ARTICLE II – DEFINITIONS

Section 19-201. Interpretation.

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

- A. Words used in the present tense include the future tense; the singular number includes the plural, and the plural number includes the singular; words of masculine gender include feminine gender; and words of feminine gender include masculine gender.
- B. The word "includes" or "including" shall not limit the term to the specific example but is intended to extend its meaning to all other instances of like kind and character.
- C. The words "shall" and "must" are mandatory; the words "may" and "should" are permissive.
- D. The word "person" includes natural persons, corporations, associations and partnerships. The word "building" includes the word "structure," and both shall always be construed as if followed by the words "or part thereof." The word "occupied" includes the words "arranged, designed or intended to be occupied." The word "used" includes the words "arranged, designed or intended to be used."

Section 19-202. Definitions.

These definitions do not necessarily reflect the definitions contained in pertinent regulations or statutes, and are intended for this Ordinance only. As used in this Ordinance, 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, builder, and/or other persons, including his/her heirs, successors, agents and assigns, who has filed an application to the municipality for approval to engage in any regulated activity at a project site in the municipality.

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 Ordinance. Stormwater BMPs are commonly grouped into one of two broad categories or measures: "structural" or "non-structural." In this Ordinance, non-structural BMPs or measures refer to operational and/or behavior-related practices that attempt to minimize the contact of pollutants with stormwater runoff, whereas structural BMPs or measures are those that consist of a physical device or practice that is installed to capture and treat stormwater runoff. Structural BMPs include, but are not limited to, a wide variety of practices and devices, from large-scale retention ponds and constructed wetlands, to small-scale underground treatment systems, infiltration facilities, filter strips, low impact design, bioretention, wet ponds, permeable paving, grassed swales, riparian or forested buffers, sand filters, detention basins, and manufactured devices. Structural stormwater BMPs are permanent appurtenances to the project site.

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.

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.

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.

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 partial or complete inundation during a 100-year flood, or any area subject to the unusual and rapid accumulation of surface water from any source, as 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). Also referred to as flood-prone area.

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.

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^{1,2}).

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 all buildings; and all forms of impervious paving materials used for roads, driveways, parking, loading, walks, courts, patio, etc. Non-permanent, aboveground swimming pools are exempt from this definition, provided that there is a minimum of two feet between the pool and any property line or other structure on the property.

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) –

A. Any of the following activities:

- (1) The conversion of any existing building or site that involves a change of land use, except as noted below in subsection (B)(1).
- (2) Development as herein defined.
- (3) The improvement of one lot or two or more contiguous lots, tracts or parcels of land for any purposed involving:
 - (a) A group of two or more residential or nonresidential buildings, whether proposed initially or cumulatively, or single nonresidential building on lot or lots regardless of the number of occupants or tenure.
 - (b) The division or allocation of land or space, whether initially or cumulatively, between or among two or more existing or prospective occupants by means of, or for the purpose of, streets, common areas, leaseholds, condominiums, building groups, or other features.
- (4) A subdivision of land.

B. [https://ecode360.com/14297637 - 14297637](https://ecode360.com/14297637-14297637) Except that the following activities shall not be considered land developments:

- (1) The conversion of an existing single-family detached dwelling or single-family semidetached dwelling into not more than three residential units, unless such units are intended to be a condominium.
- (2) The addition of an accessory building, on a lot or lots subordinate to an existing principal building.

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.

Municipality – Borough of Conshohocken, Montgomery County, Pennsylvania.

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

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 parcel(s) 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 Ordinance.

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 – Any structure, natural or man-made, that, due to its condition, design, or construction, conveys, stores, or otherwise affects stormwater runoff. Typical stormwater management facilities include, but are not limited to: detention and retention basins; open channels; storm sewers; pipes; and infiltration facilities.

Stormwater Management Site Plan (SWM Site Plan) – The plan prepared by the applicant or his representative indicating how stormwater runoff will be managed at the development site in accordance with this Ordinance. **Stormwater Management Site Plan** will be designated as **SWM Site Plan** throughout this Ordinance.

Subdivision – The division or re-division of a lot, tract, or parcel of land by any means into two or more lots, tracts, parcels, or other divisions of land, including changes in existing lot lines for the purpose, whether immediate or future, of lease, partition by the court for distribution to heirs or devisees, transfer of ownership, or building or lot development; provided, however, that the subdivision by lease of land for agricultural purposes into parcels of more than 10 acres, not involving any new street or easement of access or any residential dwelling shall be exempted.

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. Development in wetlands is regulated by the U.S. Army Corps of Engineers and the Pennsylvania Department of Environmental Resources. Identification of wetlands should be based upon the Federal Manual for Identifying and Delineating Wetlands, an interagency publication of the Corps of Engineers, EPA, Fish and Wildlife Service, and Soil Conservation Service, dated January 1989.

ARTICLE III – STORMWATER MANAGEMENT STANDARDS

Section 19-301. General Requirements

- A. For all regulated activities, unless preparation of an SWM Site Plan is specifically exempted in Section 19-302:
1. Preparation and implementation of an approved SWM Site Plan is required.
 2. No regulated activities shall commence until the municipality issues written approval of an SWM Site Plan, which demonstrates compliance with the requirements of this Ordinance.
- B. SWM Site Plans approved by the municipality, in accordance with Section 19-406, shall be on site throughout the duration of the regulated activity.
- C. The municipality may, after consultation with DEP, approve measures for meeting the state water quality requirements other than those in this Ordinance, provided that they meet the minimum requirements of, and do not conflict with, state law including, but not limited to, the Clean Streams Law.
- D. Erosion and Sediment Controls:
1. For all regulated earth disturbance activities, erosion and sediment control BMPs shall be designed, implemented, operated, and maintained during the regulated earth disturbance activities (e.g., during construction) to meet the purposes and requirements of this Ordinance and to meet all requirements under 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.
 2. No regulated earth disturbance activities within the Borough shall commence until approval by the Borough of an Erosion and Sediment Control Plan for construction activities. Evidence of any necessary permit(s) for regulated earth disturbance activities from the DEP or Montgomery County Conservation District must be provided to the Borough prior to commencement of the regulated earth disturbance activities.
 3. The DEP has regulations that require an Erosion and Sediment Control Plan for any earth disturbance activity of 5,000 square feet or more, under 25 Pa. Code § 102.4(b). The applicant is required to meet these regulations. In addition, under 25 Pa. Code Chapter 92, a DEP “NPDES Construction Activities” permit is required for any earth disturbance one acre or more with a point source discharge to surface waters or the Borough’s storm sewer system, or five acres or more regardless of the planned runoff. This includes earth disturbance on any portion of, part of or during any stage of, a larger common plan of development.
 4. A copy of the Erosion and Sediment Control plan and any required permit from the DEP or Montgomery County Conservation District shall be available at the project site at all times.
- E. Impervious areas:
1. The measurement of impervious areas shall include all of the impervious areas in the total proposed development even if development is to take place in stages.
 2. For development taking place in stages, the entire development plan must be used in determining conformance with this Ordinance.
 3. For projects that add impervious area to a parcel, the total impervious area on the parcel is subject to the requirements of this Ordinance; except that the volume controls in Section 19-303 and the

peak rate controls of Section 19-304 do not need to be retrofitted to existing impervious areas that are not being altered by the proposed regulated activity.

4. The date of the municipal adoption of this chapter shall be the starting point from which to consider tracts as "parent tracts" in which future subdivisions and respective impervious area computations shall be cumulatively considered.
- F. Stormwater flows onto adjacent property shall not be created, increased, decreased, relocated, or otherwise altered without written approval of the impacted adjacent property owner(s). Such stormwater flows shall be subject to the requirements of this Ordinance.
 - G. All regulated activities shall include such measures as necessary to:
 1. Protect health, safety, and property.
 2. Meet the water quality goals of this Ordinance by implementing measures to:
 - a. Minimize disturbance to floodplains, wetlands, and wooded areas.
 - b. Maintain or extend riparian buffers.
 - c. Avoid erosive flow conditions in natural flow pathways.
 - d. Minimize thermal, physical, chemical, and biological impacts to waters of this Commonwealth.
 - e. Disconnect impervious surfaces by directing runoff to pervious areas, wherever possible.
 - f. Protect and maintain existing uses (e.g., drinking water use; cold water fishery use) and maintain the level of water quality necessary to protect those uses in all streams, and to protect and maintain water quality in "Special Protection" streams, as required by statewide regulations at 25 Pa. Code Chapter 93.
 3. Incorporate methods described in the *Pennsylvania Stormwater Best Management Practices Manual* (BMP Manual⁴).
 - H. The design of all facilities over karst shall include an evaluation of measures to minimize adverse effects.
 - I. 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 Ordinance.
 - J. Normally dry, open top, storage facilities shall 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.
 - K. The design storm volumes to be used in the analysis of peak rates of discharge shall 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.

NOAA's Atlas 14⁵ can be accessed at: <http://hdsc.nws.noaa.gov/hdsc/pfds/>.
 - L. For all regulated activities, SWM BMPs shall be designed, implemented, operated, and maintained to meet the purposes and requirements of this Ordinance and to meet all requirements under Title 25 of the Pennsylvania Code, the Clean Streams Law, and the Storm Water Management Act.

- M. All SWM BMPs used to meet the requirements of this Ordinance shall be in accordance with the BMP Manual⁴ and §22-410.5. The more stringent requirements shall apply.

Section 19-302. Exemptions

- A. Regulated activities that result in 600 square feet or less of additional impervious area may be exempt from the requirements in Section 19-303, Section 19-304, and Article IV of this Ordinance. Regulated activities that result in 601 square feet to 1,000 square feet of additional impervious area may use the Simplified Approach to Stormwater Management for Small Projects included in Appendix B to be exempted from the requirements in Section 19-303, Section 19-304, and Article IV of this Ordinance and §22-410.3 & 5 of Chapter 22 *Subdivision and Land Development*. The first 1,000 square feet of additional impervious will not be exempted from projects which exceed 1,000 square feet in cumulative additional impervious except as permitted in Sections 19-302.B. and 19-302.C. All Applicants seeking an exemption shall submit documentation as deemed necessary by the Borough of Conshohocken to determine compliance with the exemption criteria.
- B. Agricultural activity is exempt from the SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.
- C. Forest management and timber operations are exempt from the SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.
- D. Exemptions from any provisions of this Ordinance shall not relieve the applicant from the requirements in Sections 19-301.D through K, from implementing such measures as are necessary to protect health, safety, and property, or from the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act or ordinance.
- E. 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 public health and safety or the environment.
- F. Any and all exemptions shall be at the discretion of the municipality, as recommended by the Municipal Engineer, upon review of site conditions, topography, soils, and other factors as desired.

Section 19-303. Volume Controls

Volume controls will mitigate increased runoff impacts, protect stream channel morphology, maintain groundwater recharge, and contribute to water quality improvements. Stormwater runoff volume control methods are based on the net change in runoff volume for the two-year storm event.

The green infrastructure and low impact development practices provided in the BMP Manual⁴ shall be utilized for all regulated activities wherever possible.

Water volume controls shall be implemented using the *Design Storm Method* in Subsection A or the *Simplified Method* in Subsection B below. For regulated activity areas equal or less than one acre that do not require hydrologic routing to design the stormwater facilities, this Ordinance 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. All regulated activities greater than one acre and those that require hydrologic routing to design the stormwater storage facilities must use the *Design Storm Method*.

- A. The *Design Storm Method* (CG-1 in the BMP Manual⁴) is applicable to any size of regulated activity. This method requires detailed modeling based on site conditions.
1. Do not increase the post-development total runoff volume for all storms equal to or less than the 2-year 24-hour duration precipitation.

2. For modeling purposes:
 - a. Existing (predevelopment) non-forested pervious areas must be considered meadow in good condition.
 - b. 20% of existing impervious area, when present, shall be considered meadow in good condition in the model for existing conditions.
 - c. Runoff volume must be calculated for each land use type and soil. The use of a weighted CN value for volume calculations is not acceptable.
3. The calculated volume shall be either reused, evapotranspired, or infiltrated through structural or non-structural means.
4. To calculate the runoff volume (cubic feet) for existing site conditions (pre-development) and for the proposed developed site conditions (post-development), use the Soil Cover Complex Method:

Soil Cover Complex Method:

Step 1: Runoff (in) = Q = $(P - 0.2 S^2) / (P + 0.8 S)$

Where:

P	=	Two-year rainfall (inches)
S	=	$(1,000/CN) - 10$; the potential maximum retention (including initial abstraction, Ia)

Step 2: Runoff Volume (cubic feet) = Q x Area x 1/12

Where:

Q	=	Runoff (inches)
Area	=	Stormwater management area (square feet)

B. The *Simplified Method* (CG-2 in the BMP Manual⁴) provided below is independent of site conditions and should be used if the *Design Storm Method* is not followed. This method is not applicable to regulated activities greater than one acre or for projects that require design of stormwater storage facilities. For new impervious surfaces:

1. Stormwater facilities shall capture at least the first two (2) inches of runoff from all new impervious surfaces.

$$\text{Volume (cubic feet)} = (2 \text{ inches runoff} / 12 \text{ inches}) * \text{impervious surface (square feet)}$$

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. Runoff removal options include reuse, evaporation, transpiration, and infiltration.

$$\text{Volume (cubic feet)} = (1 \text{ inch runoff} / 12 \text{ inches}) * \text{impervious surface (square feet)}$$

3. Wherever possible, infiltration facilities should be designed to accommodate infiltration of the entire permanently removed runoff; however, in all cases where soils are suitable for infiltration based on the criteria of §22-410.5.C.(i), at least the first 0.5 inch of the permanently removed runoff shall be infiltrated.

- C. The applicant shall demonstrate how the required volume is controlled through SWM BMPs, which shall provide the means necessary to capture, reuse, evaporate, transpire or infiltrate the required volume.

Section 19-304. Rate Controls

- A. Post-development discharge rates shall not exceed the pre-development discharge rates for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year, 24-hour storm events. If it is shown that the peak rates of discharge indicated by the post-development analysis are less than or equal to the peak rates of discharge indicated by the pre-development analysis for 1-, 2-, 5-, 10-, 25-, 50-, and 100-year, 24-hour storms for each point of interest, then the requirements of this section have been met. Otherwise, the applicant shall provide additional controls as necessary to satisfy the peak rate of discharge requirement.
- B. Stormwater runoff peak discharges from all drainage areas greater than one acre shall be calculated using the NRCS Soil-Cover Complex Method. The Borough may allow the use of the Rational or Dekalb Rational Method (Q=CIA) to estimate peak discharges from drainage areas that contain one acre or less, with the support of the Borough Engineer. The method selected by the design professional shall be based on the individual limitations and suitability of each method for a particular site.
 - 1. All calculations using the NRCS Soil-Cover Complex Method shall use the appropriate design rainfall depths for the various return period storms obtained from the latest version of the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 rain data corresponding to the Conshohocken station for the precipitation depth data using the upper bound of the ninety-percent confidence interval for the various return period storms. If a hydrologic computer model is used for stormwater runoff calculations, then the duration of rainfall shall be 24 hours. This data may also be directly retrieved from the NOAA Atlas 14 website: http://hdsc.nws.noaa.gov/hdsc/pfds/orb/pa_pfds.html
 - a. Runoff curve numbers (CN) for both existing and proposed conditions to be used in the Soil-Cover Complex Method shall be based on Urban Hydrology for Small Watersheds, NRCS, TR-55 (as amended from time to time by NRCS).
 - 2. All calculations using the Rational Methods shall use rainfall intensities consistent with appropriate times-of-concentration for overland flow and return periods obtained from the latest version of the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 rain data corresponding to the Conshohocken station for the precipitation intensity using the upper bound of the ninety-percent confidence interval for the various return period storms. If a hydrologic computer model is used for stormwater runoff calculations, then the duration of rainfall shall be 24 hours. This data may also be directly retrieved from the NOAA Atlas 14 website: http://hdsc.nws.noaa.gov/hdsc/pfds/orb/pa_pfds.html
 - a. Runoff coefficients (c) for both existing and proposed conditions for use in the Rational Method shall be consistent with Table 1 in Appendix A.
 - b. Times of concentration for overland flow shall be calculated using the methodology presented in Chapter 3 of Urban Hydrology for Small Watersheds, NRCS, TR-55 (as amended from time to time by NRCS). Roughness coefficients shall be consistent with Table 2 in Appendix A.
 - 3. The Borough has the authority to require that computed existing runoff rates be reconciled with field observations and conditions.
 - 4. The design of any SWM BMP intended to meet the rate control requirements shall be verified by routing the design storm hydrographs through the proposed facility.

ARTICLE IV – STORMWATER MANAGEMENT (SWM) SITE PLAN REQUIREMENTS

Section 19-401. Plan Requirements

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

- A. Requirements from §22-410 of the Subdivision and Land Development Ordinance, and other applicable ordinances, shall be followed in preparing the SWM Site Plans.
- B. The Municipality shall not approve any SWM Site Plan that is deficient in meeting the requirements of this Ordinance. At its sole discretion and in accordance with this Article, when a SWM Site Plan is found to be deficient, the municipality shall disapprove the submission and require a resubmission.
- C. Provisions for permanent access or maintenance easements for all physical SWM BMPs as necessary to implement the Operation and Maintenance (O&M) Plan discussed in Section 19-401.E.9 below.
- D. The following signature blocks:
 1. "(Municipal official or designee), on this date (Signature date), has reviewed and hereby certifies that the SWM Site Plan meets all design standards and criteria of the Municipal Ordinance No. (number assigned to ordinance)."
 2. Certificate, signed and sealed by a Qualified Professional, indicating compliance with the provisions of this Ordinance: "(Design Engineer), on this date (Signature date), has reviewed and hereby certified that the SWM Site Plan meets all design standards and criteria of the Borough of Conshohocken Stormwater Management Ordinance.
 3. "(Owner), on this date (Signature date), acknowledges the stormwater BMPs and management facilities to be a permanent fixture that can be altered or removed only after approval by the Borough of Conshohocken of a revised plan, which shall be applicable to all future landowners.
- E. The SWM Site Plan shall provide the following information:
 1. The overall stormwater management concept for the project.
 2. A determination of site conditions in accordance with the BMP Manual⁴. A detailed site evaluation, prepared by a qualified professional, shall be submitted for projects proposed in areas of carbonate geology or karst topography, and other environmentally sensitive areas, such as brownfields.
 3. Stormwater runoff design computations and documentation as specified in this Ordinance, or as otherwise necessary to demonstrate that the maximum practicable measures have been taken to meet the requirements of this Ordinance, including the general requirements in Section 19-301.
 4. Expected project time schedule.
 5. A soil erosion and sediment control plan, where applicable, as prepared for and submitted to the approval authority.
 6. The effect of the project (in terms of runoff volumes, water quality, and peak flows) on surrounding properties and aquatic features and on any existing stormwater conveyance system that may be affected by the project.
 7. Plan and profile drawings of all SWM BMPs, including drainage structures, pipes, open channels, and swales. Profiles shall be plotted along with the existing grade, proposed grade, and the hydraulic grade line information for the system. Profiles shall also include the pipe size, material,

and slope, and the width of the channel or swale bottom, side slopes, bottom slope, and lining material.

8. Locations of existing and proposed on-lot wastewater facilities and water supply wells.
9. The SWM Site Plan shall include an O&M Plan for all existing and proposed physical stormwater management facilities. This plan shall address long-term ownership and responsibilities for O&M as well as schedules and costs for O&M activities.
10. Additional information as required by §22-410.3

Section 19-402. Plan Submission

The following copies of the SWM Site Plan shall be submitted to the Borough of Conshohocken as follows for all submissions and resubmissions:

1. Two paper copies for the municipality.
2. One paper copy for the municipal engineer.
3. One electronic copy, in both PDF and CAD formats.

The applicant shall be responsible for distributing plans, fees, and application form to the other appropriate agencies having jurisdiction, including but not limited to the Montgomery County Conservation District, Montgomery County Planning Commission, PADEP, U.S. Army Corps of Engineers, and PennDOT.

Section 19-403 . Plan Review

- A. SWM Site Plans shall be reviewed by the municipality for consistency with the provisions of this Ordinance.
- B. 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) or as otherwise waived by the applicant. If a longer notification period is provided by other statute, regulation, or ordinance, the applicant will be so notified by the municipality.
- C. If the Municipality disapproves the SWM Site Plan, the Municipality will state the reasons for the disapproval in writing. The Municipality also may approve the SWM Site Plan with conditions and, if so, shall provide the acceptable conditions for approval in writing.

Section 19-404. Modification of Plans

A modification to a submitted SWM Site Plan that involves a change in SWM BMPs or techniques, or that involves the relocation or redesign of SWM BMPs, or that is necessary because soil or other conditions are not as stated on the SWM Site Plan as determined by the Municipality shall require a resubmission of the modified SWM Site Plan in accordance with this Article.

Section 19-405. 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.

Section 19-406 . 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 3 years following the date of approval. The Municipality may specify a term of validity shorter than 3 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 19-407 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 19-405 of this Ordinance.

Section 19-407 . As-Built Plans, Completion Certificate, and Final Inspection

- A. The developer shall be responsible for providing as-built plans of all SWM BMPs included in the approved SWM Site Plan. The as-built plans and an explanation of any discrepancies with the construction plans shall be submitted to the Municipality.
- B. At a minimum, the as-built plans shall include: general lot layout, including location of all structures, other impervious surfaces, and final grading; plans and profiles showing all pipes with finished grades; location, length, material, and slope of all storm sewer systems, wastewater, water, and gas mains; location of all wastewater laterals and water services; final grading plan for SWM BMPs with design and as-built volume calculations; invert and top elevations for all sanitary manholes, storm manholes, inlets, and endwalls; and location and depth of all public utilities and services, etc. The as-built plans shall be certified as to their correctness by the preparing surveyor or engineer. All plans shall be sealed by a surveyor or engineer licensed in the Commonwealth of Pennsylvania and labeled "AS-BUILT DRAWINGS" and include the date of preparation and firm name. The as-built submission shall also include electronic files in PDF and CAD format. The as-built plans shall be approved by the Borough of Conshohocken prior to the Borough accepting the improvements and processing the completion certificate.
- C. The as-built submission shall include a certification of completion signed by a qualified professional verifying that all permanent SWM BMPs have been constructed according to the approved plans and specifications. The latitude and longitude coordinates for all permanent SWM BMPs must also be submitted, at the central location of the BMPs. If any licensed qualified professionals contributed to the construction plans, then a licensed qualified professional must sign the completion certificate.
- D. After receipt of the completion certification by the Municipality, the Municipality will review the as-built plans and may conduct a final inspection.

ARTICLE V – OPERATION AND MAINTENANCE

Section 19-501 . Responsibilities of Developers and Landowners

- A. 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.
- B. 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.
- C. The O&M Plan shall be recorded as a restrictive deed covenant that runs with the land.
- D. The Municipality may take enforcement actions against an owner for any failure to satisfy the provisions of this Article.

Section 19-502. Operation and Maintenance Agreements

- A. Prior to final approval of the SWM Site Plan, the property owner shall sign and record an Operation and Maintenance (O&M) Agreement in a form acceptable to the Borough Solicitor covering all stormwater control facilities which are to be privately owned.
 - 1. The owner, successor and assigns shall maintain all facilities in accordance with the approved maintenance schedule in the O&M Agreement.
 - 2. The owner shall convey to the Municipality conservation easements to assure access for periodic inspections by the Municipality and maintenance, as necessary.
 - 3. 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.
- B. 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.

Section 19-503 . Performance Guarantee

- A. For 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 Ordinance in accordance with the provisions of Sections 509, 510, and 511 of the Pennsylvania Municipalities Planning Code.
- B. For all other regulated activities, the Municipality shall require a financial guarantee from the applicant in an amount to be reviewed and approved by the Municipal Engineer.

ARTICLE VI – FEES AND EXPENSES

Section 19-001 . General

Fees shall be established by the Borough of Conshohocken to cover plan review and inspection costs incurred by the Borough of Conshohocken. All fees shall be paid by the applicant at the time of the SWM Site Plan submission. No permit to begin any work on the project shall be issued until the requisite fees have been paid. A fee schedule shall be established by resolution of the Council of the Borough of Conshohocken based on the whether the property is residential/owner occupied or a commercial or rental property. The Borough of Conshohocken shall periodically update the fee schedule to ensure that its costs are adequately reimbursed. The Borough of Conshohocken 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:

- A. Administrative/clerical processing.
- B. Review of the SWM Site Plan.
- C. Attendance at meetings.
- D. Review of the Operation and Maintenance responsibilities and agreements, including financial guarantees.
- E. Inspections during construction and at the completion of construction including, but not limited to, preliminary site preparation, rough grading, stormwater management facilities, BMPs, and appurtenances, establishment of ground covers, and all restoration work.
 - 1. The applicant shall notify the Borough Engineer a minimum of 48 hours in advance of commencing of each of these phases. The Borough Engineer, upon such notification, shall make field inspections on the site to determine if work in progress and the completed operations have been performed in accordance with the SWM Site Plan.
 - 2. Any portion of the work which does not comply with the approved SWM Site Plan must be corrected by the Applicant within 10 days. No work may proceed on any subsequent phases of the SWM Site Plan until the required corrections have been made.
- F. Review of the as-built plans.
- G. Any additional work required to enforce any permit provisions regulated by this Ordinance, correct violations, and assure proper completion of stipulated remedial actions.

ARTICLE VII – PROHIBITIONS

Section 19-701 . Prohibited Discharges and Connections

- A. 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.
- B. Any drain or conveyance connected from a commercial or industrial land use to the regulated small MS4 which has not been documented in plans, maps, or equivalent records and approved by the Borough.
- C. 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 in paragraph D below and (2) discharges authorized under a state or federal permit.
- D. 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:
 - 1. Discharges or flows from firefighting activities.
 - 2. 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).
 - 3. Non-contaminated irrigation water, water from lawn maintenance, landscape drainage and flows from riparian habitats and wetlands.
 - 4. Diverted stream flows and springs.
 - 5. Non-contaminated pumped ground water and water from foundation and footing drains and crawl space pumps.
 - 6. Non-contaminated HVAC condensation and water from geothermal systems.
 - 7. Residential (i.e., not commercial) vehicle wash water where cleaning agents are not utilized.
 - 8. Non-contaminated hydrostatic test water discharges, if such discharges do not contain detectable concentrations of TRC.
- E. In the event that the municipality or DEP determines that any of the discharges identified in Subsection D significantly contribute pollutants to the Borough's separate storm sewer system or to the waters of this Commonwealth, the municipality or DEP will notify the responsible person(s) to cease the discharge.

Section 19-702. Roof Drains and Sump Pumps

- A. Roof drains and sump pumps shall discharge to infiltration or vegetative BMPs wherever feasible. Where it is more advantageous to connect directly to streets or storm sewers, connections may be permitted on a case-by-case basis as determined by the Borough.
- B. Roof drain and sump pump pipes shall not discharge water over a sidewalk but shall extend under the sidewalk to the gutter.
- C. A solid lid cleanout shall be provided for all roof drains and sump pumps, located within the lot between the contributing building or structure and the right-of-way.

Section 19-703 . 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 Ordinance without the written approval of the Municipality. Anyone violating this requirement shall be subject to the Enforcement and Penalties of Article VIII.

ARTICLE VIII – ENFORCEMENT AND PENALTIES

Section 19-801 . 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 Ordinance.

Section 19-802. Inspection

- A. 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 Ordinance in accordance with the O&M Agreement, but not less than the following frequencies, to ensure the BMPs, facilities and/or structures continue to function as intended:
1. Annually for the first 5 years.
 2. Once every 3 years thereafter.
 3. During or immediately after the cessation of a 10-year or greater storm.
- B. 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.

Section 19-803 . Enforcement

- A. 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 19-302.
- B. It shall be unlawful to violate Section 19-703 of this Ordinance.
- C. Inspections regarding compliance with the SWM Site Plan are a responsibility of the Municipality.

Section 19-804. Suspension and Revocation

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

2. The Municipality is satisfied that the violation has been corrected.
- C. 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 Ordinance.
- D. 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 Ordinance. Such notice may require without limitation:
1. The performance of monitoring, analyses, and reporting;
 2. The elimination of prohibited discharges;
 3. Cessation of any violating discharges, practices, or operations;
 4. The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property;
 5. Payment of a fine to cover administrative and remediation costs;
 6. The implementation of stormwater BMPs; and
 7. Operation and maintenance of stormwater BMPs.

Section 19-80 5. Penalties

- A. Anyone violating the provisions of this Ordinance shall be guilty of a summary offense, and upon conviction, shall be subject to a fine of not more than \$1,000 for each violation, recoverable with costs. Each day that the violation continues shall be a separate offense and penalties shall be cumulative. Penalties shall not prevent the Borough from pursuing any and all other remedies available in law or equity.
- B. In addition, the municipality, through its Solicitor, may institute injunctive, mandamus, or any other appropriate action or proceeding at law or in equity for the enforcement of this Ordinance. 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.

Section 19-806 . Appeals

- A. Any person aggrieved by any action of the Municipality or its designee, relevant to the provisions of this Ordinance, may appeal to the Municipality within 30 days of that action.
- B. Any person aggrieved by any decision of the Municipality, relevant to the provisions of this Ordinance, may appeal to the Montgomery County Court of Common Pleas within 30 days of the Municipality's decision.

ARTICLE IX – REFERENCES

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/>.

_____ (Ordinance Name) _____

_____ (Ordinance Number) _____

ENACTED and **ORDAINED** at a regular meeting of the

on this _____ day of _____, 20____.

This Ordinance shall take effect immediately.

(Name) (Title)

(Name) (Title)

(Name) (Title)

ATTEST:

Secretary

APPENDIX A

STORMWATER COEFFICIENTS

Table 1
Rational Runoff Coefficients
By Hydrologic Soils Group and Overland Slope (%)

Land Use	A			B			C			D		
	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+
Cultivated land	0.08 _a	0.13	0.16	0.11	0.15	0.21	0.14	0.19	0.26	0.18	0.23	0.31
	0.14 _b	0.18	0.22	0.16	0.21	0.28	0.20	0.25	0.34	0.24	0.29	0.41
Pasture	0.12	0.20	0.30	0.18	0.28	0.37	0.24	0.34	0.44	0.30	0.40	0.50
	0.15	0.25	0.37	0.23	0.34	0.45	0.30	0.42	0.52	0.37	0.50	0.62
Meadow	0.10	0.16	0.25	0.14	0.22	0.30	0.20	0.28	0.36	0.24	0.30	0.40
	0.14	0.22	0.30	0.30	0.38	0.37	0.26	0.35	0.44	0.30	0.40	0.50
Forest	0.05	0.08	0.11	0.08	0.11	0.14	0.10	0.13	0.16	0.12	0.16	0.20
	0.08	0.11	0.14	0.10	0.14	0.18	0.12	0.16	0.20	0.15	0.20	0.25
Residential:												
Lot size 1/8 acre	0.25	0.28	0.31	0.27	0.30	0.25	0.30	0.33	0.38	0.33	0.36	0.42
	0.33	0.37	0.40	0.35	0.39	0.44	0.38	0.42	0.49	0.41	0.45	0.54
Lot size 1/4 acre	0.22	0.26	0.29	0.24	0.29	0.33	0.27	0.31	0.36	0.30	0.34	0.40
	0.30	0.34	0.37	0.33	0.37	0.42	0.36	0.40	0.47	0.38	0.42	0.52
Lot size 1/3 acre	0.19	0.23	0.26	0.22	0.26	0.30	0.25	0.29	0.34	0.28	0.32	0.39
	0.28	0.32	0.35	0.30	0.35	0.39	0.33	0.38	0.45	0.36	0.40	0.50
Lot size 1/2 acre	0.16	0.20	0.24	0.19	0.23	0.28	0.22	0.27	0.32	0.26	0.30	0.37
	0.25	0.29	0.32	0.28	0.32	0.36	0.31	0.35	0.42	0.34	0.38	0.48
Lot size 1 acre	0.14	0.19	0.22	0.17	0.21	0.26	0.20	0.25	0.31	0.24	0.29	0.35
	0.22	0.26	0.29	0.24	0.28	0.34	0.28	0.32	0.40	0.31	0.35	0.46
Industrial	0.67	0.68	0.68	0.68	0.68	0.69	0.68	0.69	0.69	0.69	0.69	0.70
	0.85	0.85	0.86	0.85	0.86	0.86	0.86	0.86	0.87	0.86	0.86	0.88
Commercial	0.71	0.71	0.72	0.71	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
	0.88	0.88	0.89	0.89	0.89	0.89	0.89	0.89	0.90	0.89	0.89	0.90
Streets	0.70	0.71	0.71	0.71	0.72	0.74	0.72	0.73	0.76	0.73	0.75	0.78
	0.76	0.77	0.79	0.80	0.82	0.84	0.84	0.85	0.89	0.89	0.91	0.95
Open space	0.05	0.10	0.14	0.08	0.13	0.19	0.12	0.17	0.24	0.16	0.21	0.28
	0.11	0.16	0.20	0.14	0.19	0.26	0.18	0.23	0.32	0.22	0.27	0.39
Parking	0.85	0.86	0.87	0.85	0.86	0.87	0.85	0.86	0.87	0.85	0.86	0.87
	0.95	0.96	0.97	0.95	0.96	0.97	0.95	0.96	0.97	0.95	0.96	0.97

NOTES:

- _a Runoff coefficients for storm recurrence intervals less than 25 years.
- _b Runoff coefficients for stream recurrence intervals of 25 years or more.

Table 2
Roughness Coefficients (Manning's "n")

Surface Description	n
Dense growth	0.4 to 0.5
Pasture	0.3 to 0.4
Lawns	0.2 to 0.3
Bluegrass sod	0.2 to 0.5
Short grass prairie	0.1 to 0.2
Sparse vegetation	0.05 to 0.13
Bare clay-loam soil (eroded)	0.01 to 0.03
Concrete/asphalt	
Very shallow depths (less than 1/4 inch)	0.10 to 0.15
Small depths (1/4 inch to several inches)	0.05 to 0.10

Reach Description	n
Natural stream, clean, straight, no rifts or pools	0.03
Natural stream, clean, winding, some pools or shoals	0.04
Natural stream, winding, pools, shoals, stony with some weeds	0.05
Natural stream, sluggish deep pools and weeds	0.07
Natural stream or swale, very weedy or with timber underbrush	0.10
Concrete pipe, culvert or channel	0.012
Corrugated metal pipe	0.012 to 0.027 ⁽¹⁾
High Density Polyethylene (HDPE) Pipe	
Corrugated	0.021 to 0.029 ⁽²⁾
Smooth lined	0.012 to 0.020 ⁽²⁾

NOTES:

⁽¹⁾ Depending upon type, coating and diameter.

⁽²⁾ Values recommended by the American Concrete Pipe Association, check Manufacturer's recommended value.

APPENDIX B

SIMPLIFIED APPROACH TO STORMWATER MANAGEMENT FOR SMALL PROJECTS

Introduction

As required by federal and state law, the Borough of Conshohocken has adopted regulations that impact stormwater runoff and surface and groundwater quantity and quality. The purpose of the regulations is to help reduce stormwater runoff in the community, maintain groundwater recharge, prevent degradation of surface and groundwater quality, and otherwise protect water resources and public safety.

Every project constructing, reconstructing or adding over 600 square feet of impervious surface (see definition below) is required to comply with the regulations of the Borough's Stormwater Management Ordinance. However, projects that involve construction, reconstruction, or addition of up to 1,000 of impervious area may follow the simplified approach as outlined in this document. This approach includes sizing, designing, locating and installing structures, referred to as Best Management Practices, or BMPs, that will capture the first 1 inch of rainfall runoff from those impervious surfaces. BMPs may include infiltration trenches, rain gardens, dry wells, or tree planting.

This document describes requirements and a simplified method for designing a suitable BMP, or multiple BMPs, if desired, and a description of what needs to be included on the Site Plan. Detailed descriptions of each BMP option that may be considered for on-lot stormwater management are included, as are requirements for on-going operation and maintenance of the installed BMPs.

Upon completion, the Simplified Method Worksheet and Simplified Method Site Plan shall be submitted to the Borough, along with the Stormwater Management Plan application and any applicable fees.

Definitions

Best Management Practice (BMP) - Activities, facilities, designs, measures, or procedures used to manage stormwater impacts from regulated activities, to protect and maintain water quality and groundwater recharge and to otherwise meet the purposes of the Stormwater Management Ordinance, including but not limited to infiltration trenches, rain gardens, dry wells, and tree planting.

Capture - Collecting runoff to be stored for reuse or allowed to slowly infiltrate into the ground.

Geotextile - A fabric manufactured from synthetic fiber that is used to achieve specific objectives, including infiltration, separation between different types of media (i.e., between soil and stone), or filtration.

Hotspot - Areas where land use or activities generate highly contaminated runoff, with concentrations of pollutants that are higher than those that are typically found in stormwater (e.g., vehicle salvage yards and recycling facilities, vehicle fueling stations, fleet storage areas, vehicle equipment and cleaning facilities, and vehicle service and maintenance facilities).

Impervious Surface (Impervious Area) - A surface that prevents the infiltration of water into the ground. Impervious surfaces (or areas) include, but are not limited to all buildings; and all forms of impervious paving materials used for roads, driveways, parking, loading, walks, courts, patio, etc. Non-permanent, aboveground swimming pools are exempt from this definition, provided that there is a minimum of two feet between the pool and any property line or other structure on the property.

Infiltration - Movement of surface water into the soil, where it is absorbed by plant roots, evaporated into the atmosphere, or percolated downward to recharge groundwater.

Pervious Surface - Any area not defined as impervious.

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

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

Void Ratio - The ratio of the volume of void space to the volume of solid substance in any material.

Description of BMPs

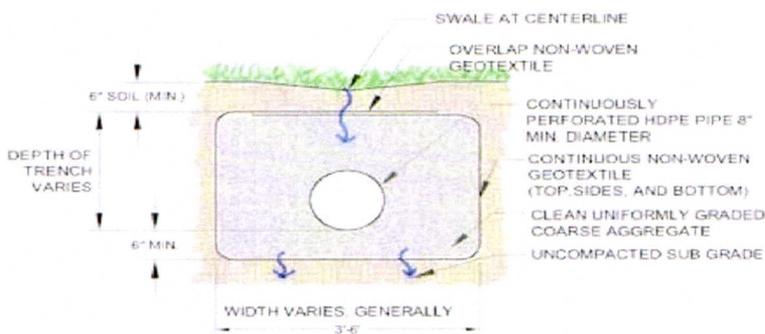
The following is a description of several types of BMPs that may be implemented in the simplified approach to stormwater management for small projects. The requirements of each BMP as described below are taken from the PA BMP Manual, which can be found on the PA Department of Environmental Protection's website.

Infiltration Trench

An infiltration trench is a long, narrow, rock-filled trench with or without a perforated pipe that receives stormwater runoff. Runoff is stored in the void space between the stones and in the pipe and infiltrates through the bottom and into the underlying soil. Infiltration trenches perform well for removal of fine sediment and associated pollutants. A typical infiltration trench configuration is shown below. Infiltration trenches shall incorporate or make provisions for the following elements:

- When incorporated, set the perforated pipe level.
- Provide a width between 3 and 8 feet with a depth range from 2 to 5 feet.
- Wrap the trench in non-woven geotextile (see definition above) on the top, sides, and bottom.
- Provide a positive overflow to allow excess flow from large storms to travel to other substantial infiltration areas or pervious areas and would not cause harm to property.
- Locate the infiltration trench at least 50 feet from individual water supply wells, 100 feet from community or municipal water supply wells, and 50 feet from any septic system component. It shall not be located near hotspots (see definition above).
- Locate the infiltration trench a minimum of ten (10) feet from any building foundation to avoid foundation seepage problems. Infiltration trenches are not recommended if their installation would create a risk for basement flooding.
- Protect infiltration areas from compaction during and after construction.
- The ratio of the collected area to the footprint of the infiltration trench should be as small as possible with a ratio of less than 5:1 preferred.
- Roof downspouts may be connected to infiltration trenches but shall contain a cleanout to collect sediment and debris before entering the infiltration area.
- Infiltration testing is recommended to ensure that the soil is capable of infiltrating stormwater. A description of how an infiltration test is performed is found in Appendix C of the PA BMP Manual.
- It is recommended that there be a 2 foot clearance between the bottom of the aggregate and the regularly occurring seasonal high water table and bedrock.

Typical Infiltration Trench



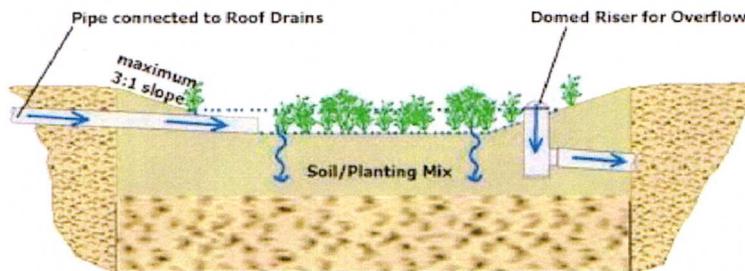
Source: Pennsylvania Stormwater BMP Manual (2006)

Rain Garden

A rain garden is an excavated depression area on the surface of the land in which native vegetation is planted to filter and use stormwater runoff. Runoff ponds on top of the surface of the rain garden and then infiltrates into an enhanced soil below the surface where plants can use the water to grow. Rain gardens also improve water quality, vegetation filters the water, and the root systems encourage or promote infiltration. A typical rain garden is shown below. Key elements of a rain garden shall include:

- Ponding depths of 1 foot or less recommended but no greater than 2.5 feet.
- Plant with native vegetation that can tolerate dry and wet weather.
- Provide a positive overflow that allows stormwater that cannot be stored or infiltrated to be discharged into a nearby vegetated area and would not cause harm to property; or
- Provide an overflow such as a domed riser to allow excess flow from large storms to travel to other substantial infiltration areas or pervious areas and would not cause harm to property.
- Provide maximum 3:1 side slopes.
- Provide a soil/planting mix depth between 2 feet and 6 feet deep.

Typical Rain Garden/Bioretention Area



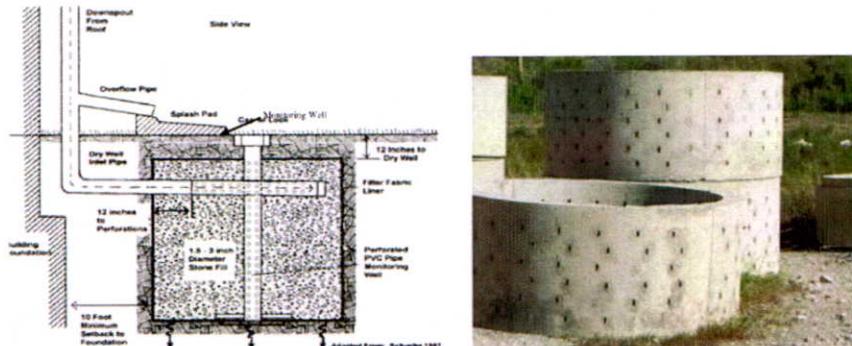
Source: Pennsylvania Stormwater BMP Manual (2006)

Dry Wells

A dry well, also referred to as a seepage pit, is a subsurface storage facility that temporarily stores and infiltrates runoff from the roofs of buildings or other impervious surfaces. A dry well can be either an excavated pit filled with stone fill (Dry Well #1) or a structural prefabricated chamber with no stone bed (Dry Well #2). Dry wells discharge the stored runoff via infiltration into the surrounding or underlying soils. A typical dry well configuration with stone fill and a typical prefabricated dry well are shown below. The following elements shall be incorporated into all dry well designs:

- Locate the dry well a minimum of ten (10) feet from any building foundation to avoid foundation seepage problems. Dry wells are not recommended if their installation would create a risk for basement flooding.
- Construct a dry well after surface soils in all other areas of the site are stabilized to avoid clogging.
- Protect infiltration areas from compaction during and after construction.
- Provide a depth range of 1.5 to 4 feet.
- Provide AASHTO #3 gradation stone fill wrapped in a non-woven geotextile (see definition above) on the top, sides, and bottom.
- Place at least 1 foot of soil over the top of a dry well.
- Provide an overflow pipe to allow excess flow from large storms to travel to other substantial infiltration areas or pervious areas and would not cause harm to property.
- Provide at least one monitoring well for each dry well.
- Infiltration testing is recommended to ensure that the soil is capable of infiltrating stormwater. A description of how an infiltration test is performed is found in Appendix C of the PA BMP Manual.
- It is recommended that there be a 2 foot clearance between the bottom of the aggregate and the regularly occurring seasonal high water table and bedrock.

Typical Dry Well Configuration filled with Stone Fill (DRY WELL #1) (Left) and Structural Prefabricated Chamber with no Stone Fill (DRY WELL #2) (Right)



Source (for picture on left): <http://www.seagrant.sunysb.edu/pages/BMPsForMarinas.htm>
 Source (for picture on right): <http://www.copelandconcreteinc.net/1800652.html>

Tree Planting

Trees reduce stormwater runoff by capturing and storing rainfall in the canopy and releasing water into the atmosphere through evapotranspiration. Tree roots and leaf litter also create soil conditions that promote the infiltration of rainwater into the soil. In addition, trees reduce pollutants by taking up nutrients and other pollutants from soils and water through their root systems. A site can reduce runoff volume by planting new trees.

To receive credit for planting trees to address stormwater management for a small project, the following criteria must be met:

- Plant 2 deciduous trees or 1 evergreen tree to address between 0 and 500 square feet.
- Plant 4 deciduous trees, 2 evergreen trees, or 2 deciduous trees and 1 evergreen tree to address between 501 and 1,000 square feet on impervious surface.
- Trees must be native species; non-native species will not count towards addressing the stormwater management requirement. See https://elibrary.dcnr.pa.gov/GetDocument?docId=1742582&DocName=sf-Native_Plants_Landscaping-brochure.pdf for some examples of native plants.
- Tree shall be a minimum 2 inches caliper for deciduous trees and minimum 6 feet high for evergreen trees at the time of planting.

- Trees shall be located on the project site and adequately protected during construction.
- Trees to be credited for stormwater management shall be clearly labeled on the Site Plan.
- Trees shall be maintained and protected for a minimum of 50 years or until redevelopment occurs. Dead trees shall be replaced within 6 months.
- Previously installed trees, shrubs, perennials, grasses, etc. will not count towards addressing the stormwater management requirement.

Determining Volume Requirements for BMPs

All proposed new and reconstructed impervious areas must be included when calculating the volume requirements for proposed BMPs needed to control stormwater. Proposed impervious areas must be constructed so that runoff is conveyed to a BMP; no runoff can be directed to storm sewers, inlets, or other impervious areas (e.g. street).

Listed below are the steps to be used in order to meet the Borough’s Stormwater Management Ordinance requirements for projects following the simplified approach. Begin with Step 1, and then follow the other steps for each BMP to be used in the stormwater plan. The results obtained for each step should be included in the Simplified Method Worksheet (included) and shown on the Site Plan (example included). Tree planting will be credited as a subtraction of the impervious surface area as noted above, based on the number and type of planted trees; no partial crediting for planting fewer than the indicated number of trees will be considered.

STEP 1 – Establish the total area of all proposed impervious surfaces that need to drain to one or more BMPs. Determine locations where BMPs should be placed so that runoff from all of the proposed impervious surfaces can be captured. Any arrangement of BMPs is allowed, as long as all impervious surfaces are infiltrated. It is permissible to install a BMP that collects water draining from an adjacent site, other than the site where the new or reconstructed impervious cover is located, so long as the same amount of area is infiltrated and would not cause harm to property.

Example: Joe Homeowner wants to build a 600 square foot addition to his home and increase his driveway by 350 square feet to reach the new addition. Because the total amount of impervious cover is less than 1,000 square feet, he is able to use the simplified method. He decides to infiltrate the front of the addition to a dry well, the rear to a rain garden, and the driveway to an infiltration trench.

Addition (Front) (10 ft. x 20 ft.)	200 square ft.	BMP 1	Dry Well #2
Addition (Rear) (20 ft. x 20 ft.)	400 square ft.	BMP 2	Rain Garden
Driveway (35 ft. x 10 ft.)	350 square ft.	BMP 3	Infiltration Trench
Total Proposed Impervious Surface	950 square ft.		

Next, calculate the required storage volume and surface area needed for each of the proposed BMPs from the appropriate heading below. Results shall be included on the Simplified Method Worksheet.

For Rain Garden or Dry Well #2 (prefabricated, no stone fill)

STEP 2 – Determine Amount of Water to be Infiltrated (Infiltration Volume)

Example: Joe Homeowner is infiltrating 400 square feet from the rear of his addition to a rain garden.

1.0 inches x 400 square feet = 33 cubic feet = infiltration volume

12

STEP 3 – Size the Rain Garden or Dry Well #2

Infiltration volume = Depth (D) x Width (W) x Length (L)

Example: Joe would like the rain garden to occupy an area 4 feet wide and 6 feet long. To determine how deep the base (soil/planting mix) of the rain garden needs to be, Joe does the following calculation:

$$33 \text{ cubic feet} = D \times 4 \text{ feet (W)} \times 6 \text{ feet (L)}$$
$$D = 1.375 \text{ feet}$$

Example: Joe Homeowner decided to round up the depth to 2 feet.

STEP 4 - Fill in the "Rain Garden or Dry Well #2" section of the Simplified Method Worksheet and include it on the Simplified Site Plan.

For Infiltration Trench or Dry Well # 1 (excavated pit filled with stone)

STEP 2 – Determine Amount of Water to be Infiltrated (Infiltration Volume)

Example: Joe Homeowner is infiltrating 350 square feet from his driveway addition.

$$\frac{1.0 \text{ inches} \times 350 \text{ square feet}}{12} = 29 \text{ cubic feet}$$

$$\frac{29 \text{ cubic feet}}{0.4^*} = 73 \text{ cubic feet} = \text{infiltration volume}$$

(* 0.4 is to account for 40% void ratio in stone fill used in the trench or dry well)

STEP 3 – Size the Infiltration Trench

Infiltration volume = Depth (D) x Width (W) x Length (L)

Example: Joe would like to place the infiltration trench along the edge of his driveway but doesn't know how long it has to be. He figures he'll dig down about 2 feet, and he knows the minimum width required for the trench is 3 feet. To determine the length of the trench, Joe does the following calculation:

$$73 \text{ cubic feet} = 2 \text{ feet (D)} \times 3 \text{ feet (W)} \times (\text{L})$$
$$\text{Length} = 12 \text{ feet}$$

Final trench dimensions = 2 feet (D) x 3 feet (W) x 12 feet (L)

STEP 4 - Fill in the "Infiltration Trench or Dry Well #1" section of the Simplified Method Worksheet and include it on the Simplified Site Plan.

Completing the Simplified Site Plan

Sketch a Simplified Site Plan such as the sample shown in Figure 1. The Simplified Site Plan should include:

- Name and address of the owner of the property, and or name and address of the individual preparing the plan, along with the date of submission.
- Location of proposed structures, driveways, or other impervious areas with approximate size in square feet.

- Location, orientation, and dimensions of all existing and proposed BMPs, roof drains, and sump pumps. For all constructed BMPs, the length, width, and depth must be included on the plan. For tree planting, the type and size of tree at the time of planting must be included on the plan.
- Location of any existing waterbodies, such as streams, lakes, ponds, wetlands, or other waters of the Commonwealth, within fifty (50) feet of the project site and the distance to the project site and/or BMPs. The BMPs must be located at least than fifty (50) feet away from a waterbody. If an existing buffer is legally prescribed (e.g. deed, covenant, easement, etc.) and it exceeds the requirements of this Ordinance, the existing buffer shall be maintained.
- Location of existing and proposed utilities, including service laterals.
- Arrows indicating the existing and proposed general drainage patterns on the site.

Post-Installation Operation and Maintenance Requirements

It is the property owner's responsibility to properly maintain BMPs in accordance with the following maintenance requirements. It is also the property owner's responsibility to inform any future buyers of the function, operation, and maintenance needed for any BMPs on the property prior to the purchase of the property.

Infiltration Trench

- Maintain vegetation along the surface of an infiltration trench in good condition and revegetate any bare spots as soon as possible.
- Do not park or drive vehicles on an infiltration trench. Take care to avoid excessive compaction by mowers.
- Routinely remove any debris, such as leaves, blocking flow from reaching an infiltration trench.

Rain Garden

- Perform routine pruning and weeding of a rain garden.
- Re-spread mulch in a rain garden when erosion is evident. Once every two to three years or after major storms, the entire area may require mulch replacement.
- Routinely water the rain garden as necessary to support plant growth. Additional watering may be required during periods of extended drought.
- Routinely remove any debris, such as leaves, blocking flow from reaching a rain garden.
- At least twice a year and after major storms, inspect the rain garden for sediment build-up and vegetative conditions.
- Inspect trees and shrubs in a rain garden at least twice per year to evaluate their health. Replace any plantings that are in poor health within 6 months.

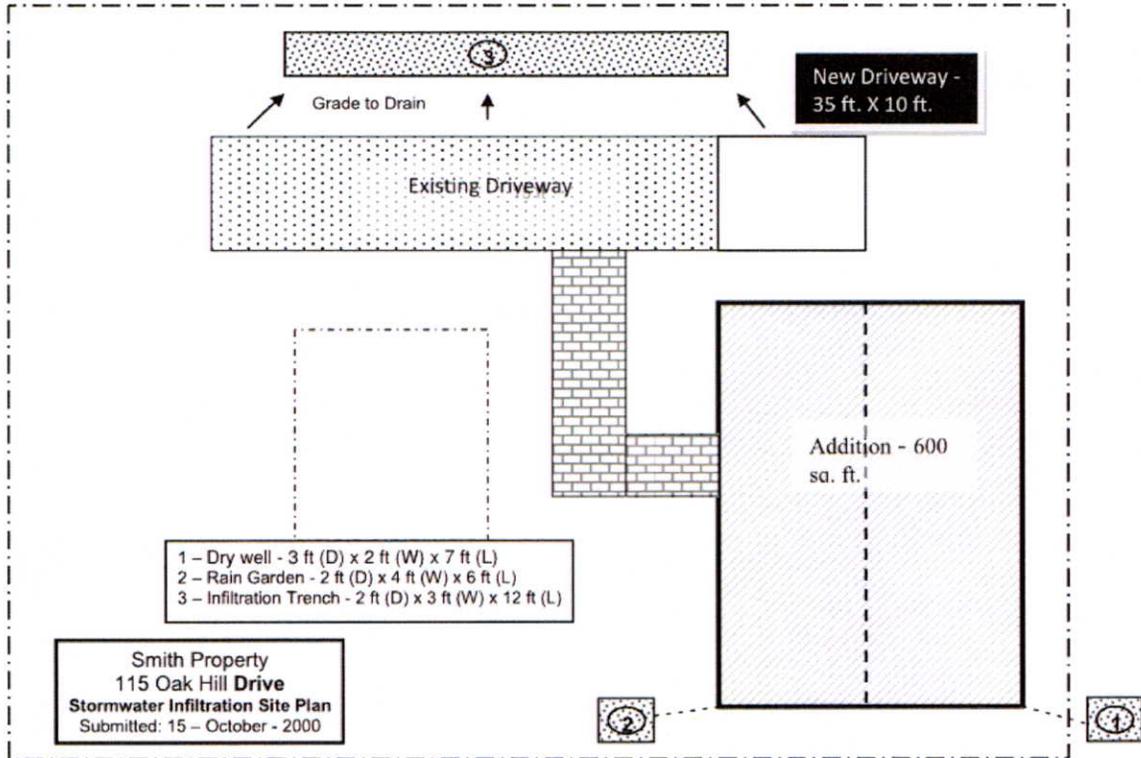
Dry Wells

- At least four times a year and after major storms, inspect the dry well for debris/trash, sediment, and any other waste material that needs to be removed. Dispose of any removed materials at suitable disposal/recycling sites and in compliance with local, state, and federal waste regulations.
- Routinely clean out gutters, maintain proper connections, and replace any filter screen that intercepts roof runoff before reaching the dry well to facilitate the effectiveness of the dry well.

Tree Planting

- Maintain and protect trees for a minimum of 50 years or until redevelopment occurs. Replace any dead trees within 6 months.
- Water, mulch, fertilize, and prune planted trees as appropriate for the planted species.

SAMPLE SITE PLAN



Simplified Method Worksheet

STEP 1

Proposed Impervious Surface for BMP #1	Proposed Impervious Surface for BMP #2	Proposed Impervious Surface for BMP #3

STEP 2

Rain Garden or Dry Well #2

Proposed Impervious Surface	Volume of BMP	Area of BMP	Depth of BMP	Types of Material to Be Used

Infiltration Trench or Dry Well #1

Proposed Impervious Surface	Volume of BMP	Area of BMP	Depth of BMP	Types of Material to Be Used

Tree Planting

Proposed Impervious Surface	Number of Deciduous Trees to be Planted	Deciduous Tree Species	Number of Evergreen Trees to be Planted	Evergreen Tree Species

* For additional BMPs, please use additional sheets

Simplified Method Worksheet (filled in from example)

STEP 1	STEP 2
Proposed Impervious Surface for BMP #1	Proposed Impervious Surface for BMP #3
400 sq. ft.	350 sq. ft.

STEP 2

Proposed Impervious Surface	Volume of BMP	Area of BMP	Depth of BMP	Types of Material to Be Used
200 square feet	17 cubic feet	2 ft. x 7 ft.	3 ft.	AASHTO #3 stone, perforated HDPE 8" pipe, non-woven geotextile, grass on top
400 square feet	33 cubic feet	4 ft. x 6 ft.	2 ft.	Soil/planting mix full depth, native vegetation

Rain Garden or Dry Well #2

Proposed Impervious Surface	Volume of BMP	Area of BMP	Depth of BMP	Types of Material to Be Used
350 square feet	73 cubic feet	3 ft. x 12 ft.	2 ft.	AASHTO #3 stone, perforated HDPE 8" pipe, non-woven geotextile, grass on top

Infiltration Trench or Dry Well #1

Proposed Impervious Surface	Number of Deciduous Trees to be Planted	Deciduous Tree Species	Number of Evergreen Trees to be Planted	Evergreen Tree Species

Tree Planting

* For additional BMPs, please use additional sheets