

## **CHAPTER 23**

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## **ARTICLE I            General Provisions**

### **§101.            *Short Title.***

This Ordinance shall be known and may be cited as the “Sewickley Township Stormwater Management and Land Disturbance Activity Ordinance.”

### **§102.            *Findings. The Sewickley Township Board of Supervisors finds that:***

- A. Stormwater runoff from lands modified by human activities threatens public health and safety by causing decreased infiltration of rainwater and increased runoff flows and velocities, which overtax the carrying capacity of existing streams and storm sewers, causes property damage and risk to public safety, and greatly increases the cost to the public to manage stormwater.
- B. Inadequate planning and management of accelerated stormwater runoff resulting from land development and redevelopment throughout a watershed can also harm surface water resources by changing the natural hydrologic patterns, accelerating stream flows (which increase scour and erosion of stream-beds and stream-banks thereby elevating sedimentation), destroying aquatic habitat and elevating aquatic pollutant concentrations and loadings such as sediments, nutrients, heavy metals and pathogens. Groundwater resources are also impacted through loss of recharge.
- C. The Township is located in the Sewickley Creek Watershed and as such will endeavor to cooperate with other municipalities located in this watershed to address issues of stormwater management, water quality, pollution and flooding.
- D. Non-stormwater discharges to municipal separate storm sewer systems can contribute to pollution of waters of the Commonwealth in the Township.
- E. Stormwater can be an important water resource by providing groundwater recharge for water supplies and base flow of streams, which also protects and maintains surface water quality.
- F. Public education on the control of pollution of stormwater is an essential component in successfully managing stormwater.
- G. A comprehensive program of stormwater management, including reasonable regulation of land development and redevelopment causing loss of natural infiltration, is fundamental to the public health, safety, welfare, and the protection of the people of the Township and all the people of the Commonwealth, their resources, and the environment.
- H. The use of open space conservation, green infrastructure, low impact development (LID) and riparian buffers 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, LID, and riparian buffers contribute to the restoration or maintenance of pre-development hydrology.
- I. Stormwater structures are considered vital infrastructure and can pose a significant hazard. Outlets and waterways which carry stormwater shall be maintained free of obstructions to allow for non-restricted flow of stormwater to avoid impoundment of water.
- J. Occupancy and modification of floodplains shall be avoided wherever there is a practicable alternative to reduce long and short term adverse impacts in order to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains.

- K. Federal and State regulations require certain municipalities to implement a program of stormwater controls. These municipalities are required to obtain a permit for stormwater discharges from their municipal separate storm sewer systems (MS4) under the National Pollutant Discharge Elimination System (NPDES). The Township is subject to MS4 requirements by and through the stormwater and storm sewer facilities owned and operated by the Township.
- L. The Westmoreland Conservation District (WCD) is a recognized regulatory agency with authority in the county and the Township to regulate erosion and sediment controls and stormwater management related to land development activities. Because WCD's authority crosses municipal boundaries they are enabled to oversee environmental issues for the general benefit of all county residents.
- M. The Westmoreland County Integrated Water Resources Plan (2018) addresses all water resources and provides a decision making tool for development and redevelopment with respect to those resources including stormwater and its management. Refer to [www.paiwrp.com](http://www.paiwrp.com) and [www.westmorelandstormwater.org](http://www.westmorelandstormwater.org)

**§103. Purpose.**

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

- A. Manage stormwater runoff impacts at their source by regulating activities that cause the problems, reduce runoff volumes and mimic natural hydrology.
- B. Maintain existing flows and quality of streams and watercourses.
- C. Prevent scour and erosion of streambanks and streambeds.
- D. Utilize and preserve the existing natural drainage systems as much as possible.
- E. Restore and preserve the natural and beneficial values served by streamside and waterbody floodplains.
- F. Focus on infiltration of stormwater, to maintain groundwater recharge, to prevent degradation of surface and groundwater quality and to otherwise protect water resources.
- G. Promote stormwater runoff prevention and emphasize infiltration and evapotranspiration through the protection and conservation of natural resource systems and the use of non-structural BMPs and other creative methods of improving water quality and managing stormwater runoff.
- H. Promote the use of green infrastructure in development and redevelopment where it can also improve stormwater management within the broader watershed in which the project is located.
- I. Meet legal water quality requirements under state law, including regulations at 25 Pa.Code, Chapter 93.4a, to protect and maintain "existing uses" and maintain the level of water quality to support those uses in all streams, and to protect and maintain water quality in "special protection" streams.
- J. Provide review procedures and performance standards for stormwater planning and management.
- K. Provide for proper operations and maintenance of all permanent stormwater management BMPs that are implemented in the Township.
- L. Provide a mechanism to identify controls necessary to meet the NPDES and MS4 permit requirements, and to encourage infrastructure improvements that lead to separation of storm sewer systems from sanitary sewer systems.

- M. Assist in detecting and eliminating illicit stormwater discharges originating within the jurisdiction of the Township and flowing into the Township's separate storm sewer system.

**§104.           *Statutory Authority***

- A. The Sewickley Township is empowered to regulate land use activities that affect stormwater runoff by the authority of the Stormwater Management Act of October 4, 1978, P.L. 864 (Act 167), 32 P.S. Section 680.1, et seq., as amended.
- B. The Sewickley Township is also empowered to regulate land use activities that affect stormwater runoff by the authority of Stormwater Management Act of October 4, 1978, P.L. 864 (Act 167), 32 P.S. Section 680.1, et seq., as amended.

**§105.           *Applicability.***

- A. All regulated activities as defined by this ordinance are subject to regulation by this Ordinance.
- B. This Ordinance applies to any land development or regulated earth disturbance activities within the Township, and all stormwater runoff entering into the Township's separate or combined storm sewer system servicing the Township from lands within the boundaries of the Township.
- C. Earth disturbance activities and associated stormwater management controls are also regulated under existing State law and implementing regulations. This Ordinance shall operate in coordination with those parallel requirements; the requirements of this Ordinance shall be no less restrictive in meeting the purposes of this Ordinance than State law.

**§106.           *Repealer***

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

**§107.           *Severability***

If any word, phrase, section, sentence, clause or part of this Ordinance is for any reason found to be unconstitutional, illegal or invalid, such unconstitutionality, invalidity or illegality by a court of competent jurisdiction, shall not affect or impair any of the remaining words, phrases, sections, sentences, clauses or parts of this Ordinance. It is hereby declared to be the intent of the Sewickley Township Board of Supervisors that this Ordinance would have been adopted had such unconstitutional, illegal or invalid word, phrase, section, sentence, clause or part thereof not been included herein.

**§108.           *Compatibility with Other Requirements.***

- A. 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. To the extent that this Ordinance imposes more rigorous or stringent requirements for stormwater management, the specific requirements contained in this Ordinance shall be followed.
- B. Conflicting provisions in other municipality ordinances or regulations shall be construed to retain the requirements of this Ordinance addressing state water quality requirements.

**§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 Township purporting to validate such a violation.

**§110.           Prohibitions**

Shall be consistent with PAG-13 NPDES General Permit for stormwater discharges from MS4 communities and as listed here.

**A. Prohibited discharges**

1. No person in the Township shall introduce, permit or allow, or cause to introduce, permit or allow, stormwater discharges into the Township separate storm sewer system which are not composed entirely of stormwater, except as permitted by this Ordinance, or
  - a. as provided in Subsection 2. below, or
  - b. discharges as authorized under a State or Federal permit.
2. Permissible discharges, based on a finding by the Township that the discharge(s) do not significantly contribute to pollution to surface waters of the Commonwealth, are recommended to be discharged safely to a vegetated area or infiltration BMP, but can also be discharged to a storm sewer system, include but are not limited to:
  - a. Discharges from firefighting activities.
  - b. Potable water sources including dechlorinated water line and fire hydrant flushings.
  - c. Non-contaminated irrigation drainage from agricultural practices.
  - d. Routine external building washdown (which does not use detergents or other compounds).
  - e. Non-contaminated Air conditioning condensate.
  - f. Water from individual residential car, boat or other residential vehicle washing that does not use detergents or other compounds.
  - g. Springs.
  - h. Non-contaminated Water from basement or crawl space sump pumps.
  - i. Non-contaminated water from foundation or from footing drains.
  - j. Flows from riparian habitats and wetlands.
  - k. Lawn watering.
  - l. Pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) and where detergents are not used.
  - m. Splash pad (recreational spray patio with no standing water) discharges.
  - n. Non-contaminated groundwater.
3. In the event that the Township determines that any of the discharges identified in paragraph 2 above significantly contributes to pollution of waters of the Commonwealth, or is so notified by DEP, the Township will notify the landowner and/or the responsible person to cease the discharge.
4. Upon notice provided by the Township under Subsection 3 above, the discharger will have a reasonable period of time as determined by the Township, to cease the discharge consistent with the degree of pollution caused by the discharge.

5. Nothing in this Section shall affect, limit or alleviate a discharger's responsibilities under State or Federal law.

**B. Prohibited connections.**

The following sources, activities or connections are prohibited, except as provided in subsections A.(1) and A.(2) above:

1. Any drain or conveyance, whether on the surface or subsurface, which allows any non-storm water discharge including but not limited to, sewage, process wastewater and wash water, to enter the separate storm sewer system, and any connections to the storm drain system from indoor drains and sinks.
2. Any drain or conveyance connected from a commercial, industrial or other non-residential land use to the separate storm sewer system which has not been documented in plans, maps, or equivalent records, and approved by the Township.
3. Drains carrying stormwater or groundwater shall not be connected to or discharge to any public or private sanitary sewer system or facility.

**C. Prohibited activities:**

1. A landowner may not alter the natural flow of surface water on their property by concentrating it in an artificial channel and discharging it upon lower land of his neighbor even though no more water is thereby collected than would naturally have flowed upon the neighbor's land in a diffused [shallow broad path or sheet flow] condition.
2. A landowner may not alter any BMPs, facilities or structures that were installed under the ordinance without written approval of the Township.

**D. Roof Drains and Sump Pumps**

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

**§111. Liability Disclaimer.**

- A. Neither the granting of any approval under the stormwater management provisions of this Ordinance, nor the compliance with the provisions of this Ordinance, or with any condition imposed by any public body of the Township or by a Township official, employee or consultant hereunder, shall relieve any person from any responsibility for damage to person or property resulting therefrom, or as otherwise imposed by law, nor impose any liability upon the Township for damages to persons or property.

The granting of a permit which includes any stormwater management does not constitute a representation, guarantee or warranty of any kind by the Township or WCD, or by an official or employee thereof, of the practicability or safety of any structure, use or other plan proposed and shall create no liability upon or cause of action against such public body, official or employee for any damage that may result pursuant thereto.

**ARTICLE II Definitions.**

**§201. Interpretations and word usage:**

For the purposes of this Ordinance, the 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.

**§202. Definition of terms:**

**Act 167**– the Stormwater Management Act, Act of October 4, 1978, P. L. 864, No. 167, as amended by the Act of May 24, 1984, No. 63, 32 P.S. §§680.1 *et seq.* The Township is empowered to regulate land use activities that affect runoff and surface and groundwater quality and quantity by the authority of the Act, the “Storm Water Management Act.”

**Accelerated erosion** – the removal of the surface of the land through the combined action of human activities and the natural processes at a rate greater than would occur because of the natural process alone.

**Agricultural Activity** – Activities associated with agriculture such as agricultural cultivation, agricultural operation, and animal heavy use areas. This includes the work of producing crops and raising livestock including tillage, land clearing, plowing, disking, harrowing, planting, harvesting crops, or pasturing and raising of livestock and installation of Conservation Practices. Except for high tunnels that are exempt pursuant to the provisions of Act 15 of 2018, construction of new buildings or impervious areas is not considered an agricultural activity.

**Applicant** – a landowner, developer or other person who has filed an application for development or for approval to engage in any regulated earth disturbance activity at a project site in the Township.

**Animal Concentration (heavy use) Areas** – A barnyard, feedlot, loafing area, exercise lots, or other similar animal confinement areas that will not maintain a growing crop, or where deposited manure nitrogen is in excess of crop needs, but excluding areas managed as pastures or other cropland, and pasture access ways, if they do not cause direct flow of nutrients to surface water or groundwater.

**BMP (best management practice)** – activities, facilities, designs, measures or procedures used to manage stormwater impacts from regulated development activities, to meet State water quality requirements, to promote groundwater recharge and to otherwise meet the purposes of this Ordinance. BMPs include, but are not limited to, infiltration, filter strips, low impact design, bioretention, wet ponds, permeable paving, grassed swales, forested buffers, sand filters and detention basins.



**Channel** – a perceptible natural or artificial waterway which periodically or continuously contains moving water or which forms a connecting link between two bodies of water. It has a definite bed and banks which confine the water.

**Chapter 102** – Title 25 Pa Code Chapter 102 Erosion and Sedimentation Control.

**Chapter 105** – Title 25 Pa Code Chapter 105 Dam Safety and Waterway Management.

**Combined sewer system** – A sewer system designed to serve as both sanitary sewer and storm sewer.

**CSO, Combined sewer overflow** – An intermittent flow or other untreated discharge from a municipal combined sewer system (including domestic, industrial and commercial wastewater and stormwater) which results from a flow in excess of the dry weather carrying capacity of the system.

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

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

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

**Conveyance** –

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

**Culvert** – a closed conduit for the free passage of surface drainage under a highway, railroad, canal or other embankment.

**DEP** – the Pennsylvania Department of Environmental Protection.

**Demonstrated equivalency** – A stormwater management project on an alternative site(s) within the same watershed as the proposed development that will provide equal or better achievement of the purpose of the Ordinance and will not substantially or permanently impair the appropriate use or development of adjacent property. Examples include streambank stabilization, creation or enhancement of riparian buffers, removal of existing impervious surfaces and establishment of ‘green’ easements, installation of stormwater management and water quality facilities, etc.

**Design criteria** –

- (a) Engineering guidelines specifying construction details and materials.
- (b) Objectives, results or limits which must be met by a facility, structure or process in performance of its intended functions.

**Design storm** – see “storm frequency.”

**Detention** – the slowing, dampening or attenuating of runoff flows entering the natural drainage pattern or storm drainage system by temporarily holding water on a surface area in a detention basin or within the drainage system.

**Detention basin** – a pond, basin, reservoir or underground system constructed to impound or retard surface runoff temporarily.

**Developer** – a person that seeks to undertake or undertakes the activities associated with changes in land use or seeks to undertake or undertakes any regulated earth disturbance activities at a project site in the Township. The term “developer” includes, but is not limited to, the term subdivider, owner, builder or another person with a similar interest in the project, even though the person involved in successive stages of a project may change or vary.

**Development** – an “earth disturbance activity,” as herein defined and any activity, construction, alteration, change in land use or practice that affects stormwater runoff characteristics. The term also includes redevelopment.

**Development site** – the specific tract of land where any development or earth disturbance activities in the Township are planned, conducted, undertaken or maintained.

**Discharge** – the flow or rate of flow from a canal, conduit, channel or other hydraulic structure.

**Disturbed Area** – A land area where an earth disturbance activity is occurring or has occurred.

**Drainage** – in general, the removal of surface water from a given area commonly applied to surface water and ground water.

**Drainage area** – any of the following activities:

- (a) The area of a drainage basin or watershed, expressed in acres, square miles or other unit of area (also called “catchment area,” “watershed,” “river basin”).
- (b) The area served by a sewer system receiving storm and surface water, or by a watercourse.

**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, land development, building construction, oil and gas activities, well drilling, mineral extraction, and the moving, depositing, stockpiling, or storing of soil, rock or earth materials.

**Encroachment** – any structure or activity which in any manner changes, expands or diminishes, the course, current or cross-section of any watercourse, floodway or body of water.

**Erosion** – the process by which land, including channels, is worn away by water, wind, or chemical action.

**Erosion control** – the application of measures to reduce erosion of land surfaces.

**Erosion and sediment control plan** – a plan for a project site which identifies BMPs to minimize accelerated erosion and sedimentation of land.

**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, silvi-cultural 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.

**Ground cover** – materials and/or vegetation covering the ground surface.

**Ground water** – subsurface water occupying the saturation zone, from which wells and springs are fed.

**Groundwater recharge** – replenishment of existing natural underground water supplies.

**High Tunnel** – A structure which meets the following:

- (1) Is used for the production, processing, keeping, storing, sale or shelter of an agricultural commodity as defined in section 2 of the act of December 19, 1974 (P.L.973, No.319), known as the Pennsylvania Farmland and Forestland Assessment Act of 1974, or for the storage of agricultural equipment and supplies.
- (2) Is constructed consistent with all of the following:
  - i. Has metal, wood or plastic frame
  - ii. When covered, has plastic, woven textile or other flexible covering
  - iii. Has a floor made of soil, crushed stone, matting, pavers or a floating concrete slab

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

**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 permeable as the HSG varies from A to D (NRCS1,2).

**Impervious surface** – 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, gravel areas, and driveway areas are counted as impervious areas if they directly prevent infiltration.

**Infiltration** – any of the following activities:

- (a) The flow or movement of water through the interstices or pores of a soil or other porous medium.
- (b) The absorption of liquid by the soil.

**Land development** – any of the following activities:

- (a) The improvement of one lot or two or more contiguous lots, tracts or parcels of land for any purpose involving:
  - i A group of two or more residential or nonresidential buildings, whether proposed initially or cumulatively, or a single nonresidential building on a lot or lots regardless of the number of occupants or tenure.
  - ii 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.
- (b) A subdivision of land.

**Land disturbance** – any activity involving the changing, grading, transportation, fill and any other activity which causes land to be exposed to the danger of erosion.

**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.

**Maintenance** – the upkeep necessary for efficient operation of physical properties.

**MS4** (municipal separate storm sewer system) - A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

- (a) Owned or operated by a State, city, town, Township, county, parish, district, association, authority or other public body (created by or pursuant to State law), including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the Clean Water Act that discharges into waters of the United States.
- (b) Designed or used for collecting or conveying stormwater;
- (c) Which is not a combined sewer; and
- (d) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.”

**Municipalities Planning Code** – Act 247 of 1968, as amended by Act 170 of 1988, 53 P.S. §10101 *et seq.*

**Municipality** – Sewickley Township, Westmoreland County, Pennsylvania.

**Native Vegetation** – Plant species that have historically grown in Pennsylvania and are not invasive species, controlled plants or noxious weeds as defined by PA DCNR, or PA Department of Agriculture.

**Natural stormwater runoff regime** – a watershed where natural surface configurations, runoff characteristics and defined drainage conveyances have attained the conditions of equilibrium.

**NPDES** – National Pollutant Discharge Elimination System, the Federal government's system for issuance of permits under the Clean Water Act, which is delegated to DEP in Pennsylvania.

**NRCS** – Natural Resources Conservation Service (previously Soil Conservation Service).

**Outfall** – “point source” as described in 40 CFR §122.2 at the point where the Township storm sewer system discharges to surface waters of the Commonwealth. Also, the point, location or structure where drainage discharges from a sewer, drain or other conduit as well as the conduit leading to the ultimate discharge point.

**Outlet control structure** – the means of controlling the relationship between the head water elevation and the discharge, placed at the outlet or downstream end of any structure through which water may flow.

**Overland flooding** – flooding that occurs for a variety of reasons all stemming from excessive stormwater runoff including too much rain in too little time, added impervious development, change in land use, malfunction or clogging of existing stormwater systems.

**Peak discharge** – The maximum rate of stormwater runoff from a specific storm event.

**Peak flow** – maximum flow.

**Pervious Area** – Any material or surface that allows water to pass through at a rate equal to or greater than natural ground cover.

**Pennsylvania DEP** – Pennsylvania Department of Environmental Protection.

**Performance standard** – a standard which establishes an end result or outcome which is to be achieved but does not prescribe specific means for achieving it.

**Person** – an individual, partnership, public or private association or corporation, firm, trust, estate, municipality, governmental unit, public utility or any other legal entity whatsoever which is recognized by law as the subject of rights and duties. Whenever used in any section prescribing or imposing a penalty, the term “person” shall include the members of a partnership, the officers, members, servants and agents of an association, officers, agents and servants of a corporation, and the officers of a municipality or county, but shall exclude any department, board, bureau or agency of the Commonwealth.

**Point source** – any discernible, confined and discrete conveyance including, but not limited to, any pipe, ditch, channel, tunnel, or conduit from which stormwater is or may be discharged, as defined in State regulations at 25 Pa.Code §92.1.

**Project site** – the specific area of land where any development or regulated earth disturbance activities in the Township are planned, conducted, undertaken or maintained.

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

**Record drawings** – Drawings showing the stormwater management system of a site as built, created after the completion of construction and intended for use as a permanent record of the stormwater management system.

**Redevelopment** – earth disturbance activities on land which has previously been disturbed or developed.

**Regulated development activity** – Any earth disturbance activities or any activities that involve the change of land cover, alteration or development of land in a manner that may affect stormwater runoff as listed in the Regulated Development Activity table. This includes earth disturbance on any portion of, part, or during any stage of, a larger common plan of development. With regard to road maintenance activities the term only includes activities involving one (1) acre or more of earth disturbance. Refer to the Regulated Development Activity Table in Article III of this ordinance.

**Release Rate** – The percentage of existing conditions peak rate of runoff from a site or subarea to which the proposed conditions peak rate of runoff must be reduced to protect downstream areas.

**Release rate percentage** – the watershed factor determined by comparing the maximum rate of runoff from a subbasin to the contributing rate of runoff to the watershed peak rate at specific points of interest.

**Resource extraction** – any activity that involves withdrawing materials from the natural environment.

**Retention basin** – a pond, basin, usually enclosed by artificial dikes, that is used to retard stormwater runoff by temporarily storing the runoff and releasing it at a predetermined rate.

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

**Return period** – the average interval in years over which an event of a given magnitude can be expected to recur.

**Riparian Buffer** – A permanent area of native vegetation including herbaceous material, shrubs and/or trees located adjacent to streams, lakes, ponds and wetlands.

**Road maintenance** – earth disturbance activities within the existing road cross-section, such as grading and repairing existing unpaved road surfaces, cutting road banks, cleaning or clearing drainage ditches and other similar activities.

**Runoff** – that part of precipitation which flows over the land.

**Runoff characteristics** – the surface components of any watershed which affect the rate, amount and direction of stormwater runoff. These may include, but are not limited to, vegetation, soils, slopes and manmade landscape alterations.

**Rural Area** – All population, housing and territory not included within an urban, or urbanized, area as determined from the latest US Census Bureau data.

**SALDO** – Subdivision and land development ordinance

**Sediment** – mineral or organic solid material that is being transported or has been moved from its site of origin by air, water or ice and has come to rest.

**Sedimentation** – the process by which mineral or organic matter is accumulated or deposited by moving water, wind or gravity.

**Separate storm sewer system** – a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains) primarily used for collecting and conveying stormwater runoff. Refer to MS4.

**Small project** – Regulated development activities that, measured on a cumulative basis from five (5) years prior to the application, create additional impervious areas of more than 1,000 square feet and less than 3,000 square feet or involve earth disturbance activity of an area less than 5,000 square feet and do not involve the alteration of stormwater facilities or water courses.

**State water quality requirements** – as defined under State regulations– protection of designated and existing uses (See 25 Pa.Code, Chapters 93 and 96)–including:

- (a) Each stream segment in Pennsylvania has a “designated use,” such as “cold water fishery” or “potable water supply,” which are listed in 25 Pa.Code, Chapter 93. These uses must be protected and maintained, under State regulations.
- (b) “Existing uses” are those attained as of November 1975, regardless whether they have been designated in 25 Pa.Code, Chapter 93. Regulated earth disturbance activities must be designed to protect and maintain existing uses 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.
- (c) Water quality involves the chemical, biological and physical characteristics of surface water bodies. After regulated earth disturbance activities are complete, these characteristics can be impacted by addition of pollutants such as sediment, and changes in habitat through increased flow volumes and/or rates as a result of changes in land surface area from those activities. Therefore, permanent discharges to surface waters must be managed to protect the stream bank, streambed and structural integrity of the waterway, to prevent these impacts.

**Storage facility** – Any surface or sub-surface facility that stores stormwater runoff, see “detention basin” and “retention basin.”

**Storm frequency** – the average interval in years over which a storm event of a given precipitation volume can be expected to occur. 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.

**Storm sewer** – a sewer that carries intercepted surface runoff, street water and other drainage but excludes domestic sewage and industrial waste.

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

**Stormwater collection systems** – natural or manmade structures that collect and transport stormwater through or from a drainage area to the point of final outlet including, but not limited to, any of the following conduits and appurtenant features, canals, channels, ditches, streams, culverts, streets and pumping stations.

**Stormwater management facility** – a constructed measure for detention, retention, infiltration and water quality treatment of stormwater runoff.

**Stormwater management plan** – the plan for managing stormwater runoff rate, volume and water quality as required by the Stormwater Management Act, 32 P.S. §680.1 *et seq.*

**Stormwater Management Performance District** – an area designated by the Watershed Stormwater Performance District Map which includes standards for stormwater rate, volume and water quality. Refer to Appendix A.

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

**Swale** – a low-lying stretch of land which gathers or carries surface water runoff.



**Urban or Urbanized Area** – Area that is densely populated and/or is significantly built upon with buildings, pavement, and other man-made features. Urban (or Urbanized) areas are defined in the latest US Census Bureau data.

**USDA** – United States Department of Agriculture.

**Watercourse** – a channel or conveyance of surface water, such as a run, stream or creek, having defined bed and banks, whether natural or artificial, with perennial or intermittent flow.

**Waters of the Commonwealth** – any and all rivers, streams, creeks, rivulets, impoundments, ditches, watercourses, storm sewers, lakes, dammed water, wetlands, ponds, springs, and all other bodies or channels of conveyance of surface water, or parts thereof, whether natural or artificial, within or on the boundaries of this Commonwealth.

**Watershed** – the entire region or area drained by a river or other body of water whether natural or artificial. A “designated watershed” is an area delineated by the Pennsylvania DEP and approved by the Environmental Quality Board for which Counties are required to develop watershed stormwater management plans.

**Watershed stormwater management plan** – the plan for managing stormwater runoff throughout a designated watershed as required by the Pennsylvania Stormwater Management Act (Act 167), 32 P.S. §680.1 *et seq.*

**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.

### **ARTICLE III            Stormwater Management Performance Standards.**

#### **§301. Stormwater Management Performance Districts.**

For purposes of stormwater management, the Township is located in the Sewickley Creek Watershed, which includes the Stormwater Management Performance Districts shown on the Westmoreland County Integrated Water Resources Plan interactive watershed resource map, which is hereby adopted as a portion of the Ordinance. The stormwater release rates for real property located within the Township shall be as set forth on the Performance District Maps. For areas not covered by a stormwater performance district, the release rate shall be 80% of the pre-development peak flow as set by the municipality. For more information, refer to [www.westmorelandstormwater.org](http://www.westmorelandstormwater.org) and the Westmoreland County Conservation District’s interactive watershed resource map.

#### **§302. General Requirements.**

- A. Preparation and implementation of a stormwater management site plan is required for all regulated activities, unless preparation of a SWM site plan is specifically exempted.
- B. **Projects that propose greater than one (1) acre of earth disturbance are subject to NPDES Permit requirements and will require a Stormwater Management Plan.**

C. No regulated activities, unless exempted, shall commence until the Township issues written approval of an SWM Site Plan, which demonstrates compliance with the requirements of this Ordinance.

D. Regulated Development Activities shall be as follows:

**REGULATED DEVELOPMENT ACTIVITY TABLE**

| <b>SWM Plan Requirement</b>                                   | <b>New Impervious Area for New and Redevelopment</b>  | <b>Disturbed Area*</b>                 | <b>Next Steps</b>   |
|---|---|--|---|
| Exempt  | 0   | Less than 1 acre                       | Comply with <b>Exemption</b> section of this ordinance  |
| Waiver / Modification / Demonstrated Equivalency              | Less than one half (1/2) acre, subject to municipal approval  | Less than 1 acre                       | Comply with <b>Waiver / Modification / Demonstrated Equivalency</b> section of this ordinance |
| Small Project (per definition), refer to Appendix C           | 1,000 square feet to 3,000 square feet  | 3,000 square feet to 5,000 square feet | Submit <b>Small Project Site Plan</b> complete with all attachments                           |
| Stormwater Management Plan meeting the Ordinance requirements | Greater than 3,000 square feet if Exempt, Waiver / Modification / Demonstrated Equivalence and Small Project criteria are not met | Greater than 5,000 square feet         | Consult a qualified professional  |

\*The above Table is only applicable for projects with earth disturbance less than 1 acre and that have not had cumulative impacts, within five (5) years preceding the permit application date, that are in excess of the square foot limits.

**§303.                *Exemption from performance standards.***

A. The following regulated activities are specifically **exempt** from the Stormwater Management Plan preparation and submission requirements articulated in this Ordinance:

1. Agricultural activity limited to plowing or tilling activities, for animal concentrated (heavy) use areas provided the activities are performed according to the requirements of Chapter 102, or Conservation Practices being installed as part of the implementation of a Conservation Plan written by an NRCS or SCS-certified planner. This exemption does not include any other type of earth disturbance subject to NPDES permit requirements such as earth disturbance equal to or greater than one (1) acre.
2. A high tunnel, if proof is provided that the high tunnel is exempt pursuant to the provisions of Act 15 of 2018. Such an exemption does not exempt high

- tunnels from other requirements applicable under Federal, State or municipal laws.
3. Forest management and timber operations, provided the activities are performed according to the requirements of Chapter 102.
  4. Resource extraction activities, provided they are done in accordance with applicable PA DEP regulations.
  5. Roadway resurfacing and maintenance projects, which do not increase impervious area, and underground infrastructure projects are exempt from the provisions of this ordinance, provided the activities meet the requirements of all other municipal, state and federal requirements,
  6. Domestic landscaping and/or vegetable gardening.
  7. Voluntary Green Infrastructure (GI) or the retrofit of stormwater management infrastructure as conversion to green infrastructure BMPs to correct existing problems, that are solely intended to better manage runoff from existing development, are not part of new development or redevelopment, and that do not fall under the requirements of this or other development ordinances.
- B. The Township may deny or revoke any exemption pursuant to this Section at any time for any project that the Township believes may pose a threat to public health, safety, property or the environment.

**§304.           RESERVED**

**§305.           *Waivers / Modifications / Demonstrated Equivalency***

- A. If the Township, in conjunction with the Township engineer, WCD, or DEP as applicable, determines that any requirement under this Ordinance cannot be achieved for a particular regulated activity, the Township may, after an evaluation of alternatives, approve measures other than those in this Ordinance, subject to this Section paragraphs B, C and D *and in compliance with all Commonwealth laws and regulations*. The request for a waiver, modification, or demonstrated equivalency shall originate with the Landowner, shall be in writing, include a study of downstream effects, and accompany the Stormwater Management Plan submission to the Township. The request shall provide the facts on which the request is based, the provision(s) of the Ordinance involved and the proposed modification or demonstrated equivalency. The Township engineer and WCD shall review the request to determine if it meets the requirements of the Ordinance including this Section, paragraphs B, C and D. If acceptable to the Township and WCD and the regulated stormwater activity involving earth disturbance is less than one (1) acre and new impervious surface is less than one-half (1/2) acre, the Township may grant the waiver or modification. If the regulated stormwater activity involves new impervious surface of more than one-half (1/2) acre, then a stormwater management plan meeting the full requirements of this ordinance is required. If the regulated stormwater activity involving earth disturbance is equal to or greater than one (1) acre, the plan will be subject to the NPDES requirements of DEP, regardless of the amount of new impervious area.
- B. Waivers, modifications, or demonstrated equivalency of the requirements of this Ordinance may be approved by the Township if enforcement will exact undue hardship because of unique physical circumstances or pre-existing site conditions peculiar to the land in question, provided that the modifications or demonstrated equivalency will not be contrary or

detrimental to the public interest and shall achieve the intended outcome, and that the purpose of the Ordinance is preserved. Hardship must be due to such unique physical circumstances or pre-existing site conditions and not the circumstances or conditions generally created by the provisions of the Stormwater Management Ordinance; and there is no possibility that the property can be developed in strict conformity with the provisions of the Stormwater Management Ordinance. Cost or financial burden shall not be considered a hardship. Hardship cannot have been created by the landowner or developer. Modification or demonstrated equivalency shall not substantially or permanently impair the appropriate use or development of adjacent property(s) not under the Landowner's control. Modification or demonstrated equivalency may be considered if an alternative standard or approach will provide equal or better achievement of the purpose of the Ordinance.

- C. No waiver, modification or demonstrated equivalency of any regulated stormwater activity involving earth disturbance greater than or equal to one (1) acre may be granted by the Township unless that action is approved in advance by the Department of Environmental Protection (DEP) or the Westmoreland Conservation District (WCD).
- D. Applicants may request approval of a demonstrated equivalent stormwater activity for their project in lieu of performing traditional stormwater management. Demonstrated equivalent stormwater activity requests will be evaluated by the Township engineer and the WCD on a case-by-case basis. Prior approval of a demonstrated equivalent stormwater activity on a site does not set a precedent for future approval of the same or other alternative activities on any site. The approval of a demonstrated equivalent stormwater activity does not excuse the applicant from following standard E&S and SWM practices as applicable on the original site.
  - 1. Demonstrated equivalent stormwater activities shall only be approved when the following criteria are met:
    - a) Traditional stormwater management activities on the site are precluded by a particular site limitation, such as contaminated soil, steep slopes, existing buildings/infrastructure, combined sewer;
    - b) Construction of traditional stormwater management activities on the site would require extra permits or lead to excessive permitting activities and delays;
    - c) The site in question does not already have a stormwater management problem; and
    - d) The site in question is not already contributing to water quality problems in the receiving stream.
  - 2. Approvable demonstrated equivalent stormwater activities may include the following:
    - a) Restoration of an existing degraded wetland, stream channel, floodplain, or riparian buffer, including daylighting of a stream.
    - b) Restoration, retrofit or upgrade an existing stormwater management feature (inadequate detention pond, for example).
    - c) Creation of new stormwater management features, especially green infrastructure, for a previously unmanaged site
    - d) Provide a water-based benefit to the public other than stormwater management (for example, extend a public sewer to an area not already served).
    - e) Treatment of abandoned mine drainage.

3. The proposal for demonstrated equivalency shall be accompanied by documentation or methodology quantifying the equivalency of the proposed project to what would have been originally required. Acceptable documentation or methodology may include use of the Worksheets and Checklist found in PA DEP NPDES permit application, Appendix D or approved method showing the proposed equivalency:
  - a) Controls approximately the same amount of runoff volume as what would originally have been proposed
  - b) Improves approximately the same amount of runoff quality as would have been originally proposed
  - c) Is located within an impaired watershed or stream segment which will benefit from the proposed project. Impairment may include stream impairment, reduced stream buffer, and pollutant loading. Refer to the Westmoreland County Integrated Water Resources Plan at [www.westmorelandstormwater.org](http://www.westmorelandstormwater.org).
4. The demonstrated equivalent stormwater activity shall:
  - a) Be constructed concurrently with the project for which it is being applied;
  - b) Be constructed according to plans approved by the Township and the WCD including any erosion control and stormwater management practices as applicable;
  - c) Obtain all necessary permits;
  - d) Be located on land owned by or controlled by the applicant or by a cooperating public or private entity(s) (school, church, club, Township, etc.);
  - e) Be protected by a perpetual easement or deed restriction, or landowner agreement;
  - f) Be located in the same general watershed as the project for which it is being applied; and
  - g) Have an Operation and Maintenance Plan (O&M) specifying who is responsible for what tasks.

**§306. *Small Project***

- A. When a regulated development activity (refer to Table in Section 302 of this ordinance) creates impervious area between 1,000 and 3,000 square feet, or total earth disturbance between 3,000 and 5,000 square feet, the stormwater management requirements are as follows. Refer also to Appendix C.
- B. For new impervious surfaces, the first one (1) inch of runoff shall be permanently removed from the runoff flow, and shall not be released to waters of the Commonwealth. Removal options include reuse, evaporation, transpiration and infiltration.
- C. Facilities, to the greatest extent possible and subject to Township approval, shall be designed to drain the permanently removed runoff volume in a period no greater than 72 hours. Runoff volumes in excess of one (1) inch shall be safely conveyed to a stable vegetated area, natural watercourse, the curb or gutter line of roadway or existing storm collection/conveyance/control system as applicable.
- D. This method is exempt from the requirements of Section 402 of this ordinance.
- E. A Small Project Stormwater Management Plan must be submitted to the Township and the WCD and shall consist of the following items and related support material needed to determine compliance with Sections 307 to 312 of this ordinance. The applicant can also use protocols listed in Appendix C.

1. Narrative: General description of proposed stormwater management techniques, including calculations, assumptions and criteria used in the design of the stormwater management facilities and BMPs, and construction specifications of the materials to be used for stormwater management facilities and BMPs.
2. Stormwater Management Plan: Showing locations of all stormwater management facilities and BMPs, especially green infrastructure, limits of disturbance, including the type and amount of proposed impervious area, structures, roads, paved areas and buildings;
3. Small Project Stormwater Management Worksheet;
4. Signed agreement page for operation and maintenance of stormwater facilities and BMPs (Refer to Appendix B); and
5. Erosion and Sediment Control Plan: including all reviews and letters of adequacy from the Conservation District.

**§307. General Standards.**

- A. Proposed land development must consider avoiding, minimizing, and mitigating impacts to the site that may increase stormwater runoff from the proposed project. Applied sequentially, these three low impact development strategies should be an overall guide as a project is planned and carried out.
- B. The Westmoreland County Integrated Water Resources Plan provides an online decision making tool to assist developers, designers, property owners in addressing all water resources during development and redevelopment and should be consulted. Refer to [www.paiwrp.com](http://www.paiwrp.com) and [www.westmorelandstormwater.org](http://www.westmorelandstormwater.org).
- C. The following provisions shall be considered the overriding performance standards against which all proposed stormwater control measures shall be evaluated and shall apply throughout the Township.
  1. Any landowner and any person engaged in the alteration or development of land which may affect stormwater runoff characteristics shall implement such measures as are reasonably necessary to prevent injury to health, safety or other property. For alteration or development taking place in stages, the cumulative development must be used in determining conformance with this ordinance. Such measures shall include such actions as are required:
    - a. To assure that the maximum rate of stormwater runoff is no greater after development than prior to development activities for the 1-, 2-, 5-, 10-, 25-, 50-, 100- year storms having rainfall durations of twenty-four (24) hours. Rainfall data shall be obtained from NOAA Atlas 14 or other source approved by the Township.
    - b. To manage the water quality, rate and volume and direction of resulting stormwater runoff in a manner which otherwise adequately protects health and property from possible injury.
    - c. To notify adjacent property owners or owners of affected properties of any alteration or increase of stormwater flows.
  2. Runoff treatment BMPs must be employed where necessary to ensure the water quality, rate and volume requirements are met.
  3. Volume control BMPs shall be used to maintain existing hydrologic conditions for small storm events by promoting groundwater recharge and/or evapotranspiration.

Runoff volume controls shall be implemented using the PA DEP Stormwater BMP Manual 2006 or other approved method such as those listed in the following chart:

**Acceptable Computation Methodologies for Stormwater Management Plans:**

| <b>METHOD:</b>   | <b>DEVELOPED BY:</b>       | <b>APPLICABILITY:</b>  |
|--|----------------------------|--|
| Win TR-20 (or commercial computer package based on TR-20)              | USDA NRCS                  | Applicable where use of full hydrologic computer model is desirable or necessary.  |
| Win TR-55 (or commercial computer package based on TR-55 ie. VT/PSUHM) | USDA NRCS                  | Applicable for land development plans within limitations described in TR-55  |
| HEC-1, HEC-HMS   | US Army Corps of Engineers | Applicable where use of full hydrologic computer model is desirable or necessary.  |
| PennDOT 584 (based on rational method)                                 | PennDOT                    | Applicable under standards established by PennDOT. <u>NOT</u> to be used for runoff volume and pond sizing computations. |
| EFH2   | USDA NRCS                  | Applicable in agricultural areas subject to the program limits.  |
| SWMM   | EPA                        | Applicable in urban and suburban areas subject to limits established by EPA  |
| PA DEP BMP Manual 2006   | PA DEP                     | Applicable under standards established by PA DEP   |
| Other Methods  | Varies                     | Other methodologies approved by the Township   |

- D. The project plan shall specify permanent stormwater BMPs to be implemented, operated and maintained to meet legal water quality, rate and volume requirements. If methods other than low impact development (LID) and green infrastructure methods are proposed to achieve the volume and rate controls required under this ordinance, the SWM Site Plan must include a detailed justification demonstrating that the use of LID and green infrastructure is not practicable.
- E. In order to protect and maintain water quality, additional stormwater runoff created by the development project must be captured, stored and treated. In addition, post construction stormwater infiltration of runoff must replicate preconstruction infiltration of runoff to the maximum extent possible with the exception of **hot spots**. As a minimum, this shall be a volume of additional runoff generated by a 2-year, 24 hour storm. Preferred BMP's for a **hot spot** include storm inlet filters, proprietary stormwater quality devices, underground detention tanks, detention ponds with forebays, tree planting, green roof. Permeable pavement, infiltration BMP's, and rain gardens are not recommended for hotspots.

- F. In addition to the provisions set forth in paragraphs A. through C., inclusive, as set forth above, all regulated development activities within the Township shall be designed, implemented, operated and maintained to meet the purposes of this Article, through these two elements:
1. Erosion and sediment control during the earth disturbance activities (e.g., during construction).
  2. Water quality, rate and volume protection measures after completion of earth disturbance activities (e.g., post-construction stormwater management), including operations and maintenance.
- G. No regulated development activities within the Township shall commence until the requirements of this ordinance are met.
- H. All best management practices (BMPs) used to meet the requirements of this ordinance shall conform to the State water quality requirements, and any more stringent requirements as determined by the Township.
- I. LID and green infrastructure techniques described in the PA DEP Stormwater BMP Manual 2006 or most current edition are encouraged.
- J. Proposed projects must comply with the Township's approved MS4 permit, including compliance with the six Minimum Control Measures (MCM's).

**§308. Watershed Standards**

- A. The stormwater management performance standards in this Article are intended to implement the provisions, standards and criteria contained in the Pennsylvania Stormwater Management Act (Act 167), 32 P.S. §680.1 *et seq.* If there is any discrepancy between the provisions of this Article and the provisions, standards and criteria of the Act, or if a stormwater management plan is subsequently approved and adopted by the appropriate governmental agency or body, then the provisions, standards and criteria of the current watershed plan shall govern.
- B. Management of stormwater runoff is key objective of 25 Pa.Code, Chapter 93, of the DEP Regulations, because runoff can change the physical, chemical and biological integrity of waterbodies thereby impacting rate, volume and water quality.
- C. The project plan shall describe how these rate, volume and water quality protection requirements will be met. Infiltration BMPs shall be evaluated and utilized to the maximum extent possible to manage the net change in stormwater runoff generated so that post construction discharges do not degrade the physical, chemical or biological characteristics of the receiving waters. These BMPs may be used to satisfy all or part of the requirements found within this Ordinance.
- D. Refer to the Stormwater Performance Districts outlined in Appendix A, and the Westmoreland County Integrated Water Resources Plan (IWRP) at [www.westmorelandstormwater.org](http://www.westmorelandstormwater.org) . The project plan shall describe how the proposed project will address performance standards, impairments, and pollutant loading found in the IWRP. For areas not covered by a stormwater performance district, the release rate shall be 80% of the pre-development peak flow as set by the Township.

**§309. Design Criteria for Stormwater Management Facilities and BMPs.**

- A. *General Criteria.*



1. Applicants may select runoff control techniques, or a combination of techniques, which are most suitable to control stormwater runoff from the development site. Refer to the Acceptable Computation Methodologies table of this Article. All controls must be subject to approval of the Township engineer and the WCD. The Township engineer may request specific information on design and/or operating features of the proposed stormwater controls in order to determine their suitability and adequacy in terms of the standards of this Ordinance.
2. If the proposed development site is located in an impaired water shed according to Category 4 of the PA Integrated Water Quality Monitoring and Assessment Report, or in a watershed with a TMDL according to Category 5 of the same Report, the applicant shall identify the source and cause of impairment and shall propose, if required or applicable the use of BMPs to mitigate any impacts to the waters.
3. The applicant should consider the effect of the proposed stormwater management techniques on any special soil conditions or geological hazards which may exist on the development site. In the event such conditions are identified on the site, the Township engineer may require in depth studies by a competent geotechnical engineer. Not all stormwater control methods may be advisable or allowable at a particular development site.
4. The applicant shall consider the effect of the proposed stormwater management techniques on existing stream impairments and pollutant loading. Refer to the Westmoreland County Integrated Water Resources Plan (IWRP) at [www.westmorelandstormwater.org](http://www.westmorelandstormwater.org).
5. The applicant shall consider existing conditions on the site for the prior five (5) years to determine prevailing land use and impervious cover, and shall consider 20% of existing impervious cover as meadow for pre-existing conditions on redevelopment sites.
6. The Hydrologic Soil Group (HSG) used for existing soils shall be assumed to be for drained conditions. As an example, a soil identified in the USDA NRCS soil survey as HSG B/D shall be assumed to be HSG B soil unless information, such as infiltration testing and groundwater monitoring data, is presented that justifies the use of HSG D soil.
7. For post-development conditions of sites that are undeveloped, the HSG for each disturbed soil shall be reduced by one HSG level relative to its HSG reported in the USDA NRCS soil survey in order to account for compaction of the soil due to earthmoving activities, unless specific accommodations are employed, such as deep-tilling (or subsoiling) and soil amendment, to counter against the soil compaction that normally results due to typical earthmoving activities.
8. The stormwater management practices to be used in developing a stormwater management plan for a particular site shall be selected according to the following order of preference:
  - a. Site planning for locating proposed buildings, impervious areas and grading which minimizes disruption of the natural site characteristics especially utilizing low impact development techniques.
  - b. Minimization of impervious areas and promotion of retentive grading.
  - c. Implementation of non-structural measures (refer to the PA DEP Stormwater BMP Manual 2006 or current edition).

- d. Implementation of innovative / green infrastructure structural measures (refer to the PA DEP Stormwater BMP Manual 2006 or current edition).
- e. Stormwater detention/retention structures.
- 9. Any BMP which is a dam, culvert, stream obstruction or encroachment or outfall as defined in 25 Pa.Code, Chapter 105, shall be designed according to the requirements in those regulations.
- 10. Drainage easements shall be provided for all stormwater conveyance and BMPs serving multiple properties and not located within a public right of way. Easements shall include ingress and egress to a public right of way, and shall be recorded at the County with the final plan. Terms of easement shall prohibit excavation or placement of fill or structures and any alteration that may adversely affect the flow of stormwater within any portion of the easement.
- 11. No person shall install, create, modify, remove, fill, landscape or otherwise alter or place any structure, soil, rock, material or vegetation in or on, or otherwise adversely affect, any stormwater management facility or any area within a stormwater easement without the written approval of the Township and approval of the WCD.
- 12. Persons engaged in land development activities shall provide the required financial Security and O&M Agreements to the Township as outlined in Appendix B of this Ordinance.

*B. Criteria for Stormwater Management Facilities and BMPs.*

- 1. If stormwater management facilities and BMPs are utilized for the development site, the facility(s) shall be designed such that post-development peak runoff rates from the developed site are controlled to those rates defined by a Stormwater Management Performance District for the 1-, 2-, 5-, 10-, 25-, 50-, 100- year storm frequencies having rainfall durations of twenty-four (24) hours. Rainfall data shall be obtained from NOAA Atlas 14 or other source as approved by the Township.
- 2. All stormwater management facilities and BMPs shall be equipped with outlet/overflow structures to provide rate discharge control for the designated storm frequencies. Provision shall also be made to safely pass the entire post-development 100-year storm without breaching or otherwise damaging the facilities, downstream or neighboring properties.
- 3. Release of stormwater flow from a development site must be to an existing stormwater conveyance or easement, whether natural or man-made, that has defined bed and banks. Calculations and information shall be presented as to the ownership, responsible party, capacity, and stability of such conveyance. Release of 'sheet flow' as from a level spreader, will be permitted on a case-by-case basis as approved by the Township engineer and the WCD.
- 4. All stormwater management facilities and BMPs shall be designed to control volume and water quality as defined by the Stormwater Management Performance District. Refer to Appendix A.
- 5. Shared stormwater management facilities and BMPs, which provide control of runoff for more than one development site within a single subarea may be considered and are encouraged. Such facilities shall meet the criteria contained in this Section. In addition, runoff from the development sites involved shall be conveyed to the facility in a manner that avoids adverse impacts (such as flooding or erosion) to channels and properties located between the development site and the shared storage facilities.

6. Where stormwater management facilities and BMPs will be utilized, multiple use facilities, such as wetlands, lakes, ballfields or similar recreational/open space uses are encouraged wherever feasible, subject to the approval of the Township.
7. Other considerations which shall be incorporated into the design of the stormwater management facilities and BMPs include:
  - a. Inflow and outflow structures shall be designed and installed to prevent erosion and embankments, cuts, fills and bottoms of impoundment type structures should be protected from soil erosion.
  - b. Control and removal of debris both in the storage structure and in inlet or outlet devices shall be a design consideration.
  - c. Inflow and outflow structures, pumping stations and other structures shall be designed and protected, using safety benches, trash racks, energy dissipaters and other means to minimize safety hazards.
  - d. Access restrictions include fencing, with at least one lockable ingress and egress gate, in a minimum height of 6 feet shall be required at the discretion of the Township and the Township Engineer.
  - e. Interior slopes of storage ponds shall not exceed a ratio of three to one horizontal to vertical dimension with a combination of interior and exterior slopes not exceeding five. Steeper slopes may be approved by the Township engineer if documented to be stable by a geotechnical analysis prepared by, or under the direction of, and sealed by a licensed geotechnical engineer.
  - f. Pond principal spillways shall consist of a solid reinforced concrete box (riser) that is designed and constructed to control the flow rate out of the detention facility. Non-corrugated plastic pipe may be used for the riser where the riser height is less than three feet and the plastic pipe is properly anchored to prevent horizontal or vertical displacement. The riser shall be joined by a watertight connection to a horizontal reinforced concrete pipe or high-performance polypropylene pipe (barrel) extending through the embankment and outletting beyond the downstream toe of the fill. The maximum capacity of the barrel will be the twenty-five-year post-development flow. The construction materials must be approved by the Township engineer.
  - g. Pond dam embankments shall consist of all excavation on the project, except such material as may be determined unsuitable by the Township engineer, which includes but is not limited to frozen material, organic material, rock in excess of three (3) inches in diameter, construction debris, sandy or other coarse grained soils, non-compactable soils and excessively wet or dry material. Acceptable material shall conform to the current PennDOT Publication 408 section on embankment material or shall be as approved by the Township engineer. The pond dam embankment shall be compacted to a minimum 95% standard proctor maximum dry density as per ASTM D698. The embankment shall be constructed and compacted in maximum eight inch (8") lifts and the principle spillway outfall barrel and anti-seep collar(s) shall be constructed integral with the dam embankment construction.
  - h. Landscaping shall be provided for the facility which stabilizes disturbed areas and preserves the natural and beneficial values of the surrounding area. Landscaping shall consist of plant species native to southwestern Pennsylvania. No trees or other woody vegetation shall be planted on the fill areas of the pond

dam embankment that may result in loosening of the compacted soils of the embankment. Detention basin bottoms shall be vegetated with a diverse native planting mix and may include trees, woody shrubs and meadow/wetland herbaceous plants. Noxious and invasive plants that inhibit plant species diversity shall not be included in the plant mix. PennDOT seed mix Formulas B, C, D and L as per PennDOT Publication 408 latest revision, or approved equivalent mix shall be used for revegetation of embankment areas. Crownvetch and birdsfoot trefoil shall **not** be used due to their interference with performance of inspections of the dam embankment. For other suitable landscape plant species, refer to Appendix B of the Pennsylvania Stormwater Best Management Practices Manual, latest edition.

- i. Facilities shall be located to facilitate maintenance, considering the frequency and type of equipment that will be required.
- j. Underground detention/retention/infiltration facilities shall be equipped with open grate inlet(s), inspection ports and/or manhole access to facilitate visual inspections and maintenance.
- k. Other considerations which should be incorporated into the design of the detention facilities include the following:
  - 1) Inflow and outflow structures shall be designed and installed to prevent erosion, and bottoms of impoundment-type structures should be protected from soil erosion.
  - 2) All inflow structures into detention/retention ponds shall discharge into a pond forebay designed in accordance with the Pennsylvania Stormwater Best Management Practices Manual.
  - 3) Control and removal of debris both in the storage structure and in all inlet or outlet devices shall be a design consideration.
  - 4) Inflow and outflow structures, pumping stations and other structures shall be designed and protected to minimize safety hazards.
  - 5) The water depth at the perimeter of a storage pond should be limited to that which is safe for children. This is especially necessary if bank slopes are steep or if ponds are full and recirculating in dry periods. Restrictions of access (fence, walls, etc.,) shall be necessary, depending on the location of the facility.
  - 6) A safety bench with a minimum width of eight (8) feet shall be provided around the entire interior perimeter of the pond at an elevation of 6 inches minimum above the 2-year peak water surface elevation in the pond.
  - 7) An anti-vortex device and trash rack shall be attached to the top of the principal spillway to improve the flow of water into the spillway and prevent floating debris from being carried out of the basin.
  - 8) The base of the principal spillway must be firmly anchored to prevent its floating. Computations must be made to determine the anchoring requirements. As a minimum, a factor of safety of 1.25 shall be used (downward forces = 1.25 x upward forces).
  - 9) The barrel of the principal spillway, which extends through the embankment, shall be designed to carry the twenty-five-year

predevelopment flow provided by the riser of the principal spillway with the water level at the crest of the emergency spillway. The barrel shall consist of a reinforced concrete pipe (RCP) or high-performance polypropylene (HPPP) pipe and shall be fully supported along its entire length by a concrete cradle extending to the centerline of the pipe and projecting horizontally a minimum of 6 inches beyond the outside wall of the pipe and vertically 6 inches below the bottom of the pipe. The connection between the riser and the barrel must be watertight. The outlet of the barrel must be protected to prevent erosion or scour of downstream area. This will include an end section or end wall with a designed rip-rap apron. For principle spillway barrels that pass through compacted fill pond dam embankments, the barrel, cradle and anti-seep collar(s) shall be constructed integral with the dam embankment construction as opposed to cutting into the completed dam embankment to construct the barrel etc.

10) Anti-seep collars.

- i Anti-seep collars shall be used on the barrel of the principal spillway within the normal saturation zone of the embankment to increase the seepage length by at least 10% if either of the following conditions is met:
  - 1 The settled height of the embankment exceeds 10 feet.
  - 2 The embankment has a low silt clay content and the barrel is greater than 10 inches in diameter.
- ii The anti-seep collars shall be installed within the saturated zone. The maximum spacing between collars shall be 14 times the projection of the collar above the barrel. Collars shall not be closer than two feet to a pipe joint. Collars should be placed sufficiently far apart to allow space for hauling and compacting equipment. Collars shall consist of reinforced concrete with a minimum thickness of 8 inches. Connections between the collars and the barrel shall be watertight.

- 11) The emergency spillway shall consist of an open channel having a control section at least 20 feet in length. The control section is a level portion of the spillway channel at the highest elevation in the channel. The emergency spillway shall be designed to carry the peak rate of runoff expected from the entire post-development 100-year storm to the stormwater facility. The spillway channel shall be located so as to avoid sharp turns or bends. The channel shall return the flow of water to a defined channel downstream from the embankment. At the discretion of the Township engineer and/or WCD, the emergency spillway shall include a reinforced concrete grade control wall extending perpendicular to the flow through the spillway with the top of the wall flush with the spillway crest. This control wall shall have a minimum width of 8 inches, extend a minimum of 18 inches below the spillway crest and have a length no less than the width of the emergency spillway opening at the top of dam. The emergency spillway shall provide a minimum one (1) foot of freeboard

between the water surface of the full 100-year post-development discharge through the spillway and the top of the dam embankment.

*C. Criteria for Collection/Conveyance Facilities.*

1. All stormwater runoff collection or conveyance facilities, whether storm sewers or other open or closed channels, shall be designed in accordance with the following basic standards:
  - a. All building sites shall use measures to provide drainage away from and around the structure in order to prevent any potential flooding damage as much as practical. Such measures shall include grading the surrounding lawn or pavement area so that it slopes away from the structure by a minimum of 5% slope over a minimum distance of 6 feet; raising the floor of the structure so that it is a minimum of 6 inches above the predominant surrounding land elevation and above the designated floodplain elevation for those located within a floodplain; eliminating or waterproofing penetrations thru the structure's walls or foundation; constructing berms, curbs, or swales to divert surface water around the structure; arranging roof and area drains to carry water away from the structure.
  - b. Developers proposing a land development or subdivision shall arrange internal drainage within the subdivision so that surface water is safely directed and channeled away from all structures within and adjacent to the development site.
  - c. Developers shall provide to all persons constructing a structure within a land development site, standards including drawings and specifications to ensure that those persons adhere to the general site plans and stormwater management plans for the development. Persons constructing a structure within a land development site shall submit to the Township engineer and WCD drawings, calculations, and other information to show how they will meet the stormwater management requirements of the development site.
  - d. Lots located on the high side or low side of streets shall extend roof, trench and area drains to a stable vegetated area, natural watercourse, the curb or gutter line of roadway or storm collection/conveyance/control system (if applicable) in accordance with the approved stormwater management plan for the development site.
  - e. For all building sites and lots, the inclusion of rain barrels, rain gardens, drywells and other strategies for infiltration of roof runoff close to its source is encouraged.
  - f. Collection/conveyance facilities should not be installed parallel and less than 10 feet from the top or bottom of an embankment, greater than or equal to 15 feet in height to avoid the possibility of failing or causing the embankment to fail, unless documented to be stable by a geotechnical analysis.
  - g. All collection/conveyance facilities shall be designed to convey the 25year storm peak flow rate from the contributing drainage area to the nearest suitable outlet such as a stormwater control facility, curbed street, storm sewer or natural watercourse. However, the 100-year design storm may be required as determined by the Township engineer where it is necessary for

the storm system to convey the 100-year design storm to the stormwater management facility.

- h. Where drainage swales or open channels are used, they shall be suitably lined to prevent erosion and designed to avoid erosive velocities.
2. Wherever storm sewers are proposed to be utilized, they shall comply with the following additional criteria:
- a. Where practical, designed to traverse under seeded and planted areas. If constructed within 10 feet of road paving, walks or other surfaced areas, drains shall have a narrow trench and maximum compaction of backfill to prevent settlement of the superimposed surface or development.
  - b. Preferably installed after excavating and filling in the area to be traversed is completed, unless the drain is installed in the original ground with a minimum of 3 feet cover and/or adequate protection during the fill construction.
  - c. *Designed.*
    - i. With cradle when traversing fill areas of indeterminate stability.
    - ii. With anchors when gradient exceeds 20 percent.
    - iii. With encasement or special backfill requirements when traversing under a paved area.
  - d. Designed to adequately handle the anticipated stormwater flow and be economical to construct and maintain. The minimum pipe size shall be 15 inches in diameter, with the exception of roof drains, foundation drains, internal french drains and/or sump pumps, or similar conveyances.
  - e. Drain pipe, trenching, bedding and backfilling requirements and appropriate grates, catch basins, stormwater inlets, manholes and other appurtenances shall conform to the requirements of the Township and/or applicable PennDOT specifications, Publication 408.
  - f. All corrugated metal pipe shall be polymer coated, and with paved inverts where prone to erode. Pipe within a Township right-of-way shall be reinforced concrete pipe or high performance polypropylene pipe with a diameter sufficient to accept existing and reasonably anticipated future stormwater capacity and in no event less than the minimum diameter of 15 inches.
  - g. Storm inlets and structures shall be designed to be adequate, safe, self-cleaning and unobtrusive and consistent with Township standards with sufficient capture and conveyance capacity and spacing of inlets and cleanouts for maintenance.
  - h. Where a proposed sewer or conveyance connects with an existing storm sewer or conveyance system, the applicant shall demonstrate that sufficient capacity exists in the downstream system to handle the additional flow.
  - i. Storm sewer outfalls shall be equipped with energy dissipation devices to prevent erosion and conform with applicable requirements of the Pennsylvania DEP for stream encroachments (Section 7 of the Dam Safety and Encroachments Act, 32 P.S. §693.1, et seq., and the rules and regulations promulgated thereunder at 25 Pennsylvania Code §105.441-105.449). Exit velocities of the design storm for the stormwater conveyance systems must be considered in the design of the energy dissipation devices.

- j. Storm inlets shall include castings with the message “Dump No Waste. Drains to Stream”, or similar message as approved by the Township engineer, cast into or permanently affixed to the casting and positioned in a manner that is legible to pedestrian traffic.

*D. Criteria for Riparian Buffers*

1. If a riparian buffer is required by PA DEP as part of an NPDES permit, then DEP regulations will govern.
2. If a Riparian Buffer is used to meet stormwater management requirements and/or MS4 pollutant load reduction credits it shall meet the following requirements:
  - a. In order to protect and improve water quality, a Riparian Buffer Easement may be created and recorded as part of any subdivision or land development that encompasses a Riparian Buffer.
  - b. Except as required by PA Code Title 25 Chapter 102, the Riparian Buffer Easement shall may be measured to a minimum of 35 feet measured from the top of the nearest bank (on each side), or an average of 35 feet with no distance from top of bank less than 25 feet.
  - c. Minimum Management Requirements for Riparian Buffers:
    - i. Existing native vegetation shall be protected and maintained within the Riparian Buffer Easement.
    - ii. 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.
    - iii. There shall be no earth disturbance beyond which is necessary to establish or maintain a planted buffer.
3. The Riparian Buffer Easement shall be enforceable by the Township and shall be recorded in the Westmoreland 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 required by the Township’s Zoning Ordinance, unless specified otherwise in the Township Ordinance.
4. 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.
5. Stormwater drainage pipes and all other linear utility lines as approved by the Township shall be permitted within the Riparian Buffer Easement, but they shall cross the Easement in the shortest practical distance. Other stormwater management facilities and BMPs are not permitted within the Riparian Buffer Easement.
6. The following conditions shall apply when public and/or private recreation trails are permitted within Riparian Buffers:
  - a. Trails shall be for non-motorized use only.
  - b. Trails shall be designed to have the least impact on native plant species and other sensitive environmental features.
7. Septic drainfields and sewage disposal systems shall not be permitted within the



Riparian Buffer Easement and shall comply with setback requirements established under 25 Pa. Code Chapter 73.

*E. Criteria for Stream Restoration Project*

1. A stream restoration project may eligible for stormwater management and/or MS4 load reduction credits if it meets qualifying criteria set by the Township and as follows:
  - a. Existing conditions, such as channel or streambank erosion and an actively enlarging or incising urban stream condition, shall be documented prior to restoration.
  - b. Projects should be located on 1<sup>st</sup> to 3<sup>rd</sup> order (small) streams to be effective.
  - c. Project should address a minimum of 100 linear feet of stream channel and both sides where need to do so is evident.
  - d. Upstream impervious area should be sufficiently treated to address peak flows that may exceed engineering design thresholds or compromise channel form and function.
  - e. Utilize a comprehensive approach employing a mix of techniques appropriate to the site, creating long-term stability of the streambed, streambanks and floodplain.
  - f. Armored length of streams (i.e. using riprap or gabions) may be used to maintain channel stability, but the same length shall not be included in the load reduction calculation.
  - g. Project shall maximize floodplain reconnection, with minimal channel invert elevation increase (i.e. bank height ratio = 1.0 or less) to achieve the objective.
  - h. Project shall include a minimum 35 feet permanent riparian buffer.
  - i. Project shall include an O&M plan identifying O&M activities, frequencies and responsible parties.

**§310. Design Standards for Grading Activities.**

*A. Excavation standards.*

1. No excavation shall be made with a cut face steeper in slope than two horizontal to one vertical, except under one or more of the following conditions:
  - a. The excavation is located so that a line having a slope of two horizontal to one vertical and passing through any portion of the cut face will be entirely inside the property lines of the property on which the excavation is made.
  - b. The material in which the excavation is made is sufficiently stable to sustain a slope steeper than two horizontal to one vertical and a written statement of a professional engineer, licensed by the Commonwealth of Pennsylvania and experienced in erosion control, to that effect is submitted to the Code Official and approved by him. The statement shall state that the site has been inspected and that the deviation from the

slope specified above will not result in increased risk of injury to persons or damage property.

- c. A retaining wall or other approved support designed by a registered professional engineer and said design approved by the Code Official is provided to support the face of the excavation.
2. The Code Official may require an excavation to be made with a cut face less (flatter) in slope than two horizontal to one vertical if he finds that the material in which the excavation is to be made is unusually subject to erosion or if other conditions exist which, under applicable engineering practice, make such flatter cut slope necessary for stability and safety.
3. Excavations adjacent to any footing, foundation, or structure shall not extend below the angle of repose or natural slope of the soil under the nearest point of the same unless such footing, foundation, or structure is first properly underpinned or protected against settlement.
4. Before commencing any excavation which will in any way affect an adjoining property or structure thereon, the person making or causing the excavation to be made shall notify, in writing, the owners of adjoining buildings not less than 30 days before such excavation is to be made. Adjoining properties and structures shall be protected as provided in the Sewickley Township Building Code and/or as required by the Code Official.

**B. *Fill standards.***

1. No fill shall be made which creates any exposed surface steeper in slope than two horizontal to one vertical, except under one or more of the following conditions:
  - a. The fill, in the opinion of the Code Official, is located so that settlement, sliding, or erosion of the fill material will not result in property damage or be a hazard to adjoining property, streets, alleys, or structures.
  - b. A written statement of a professional engineer, licensed by the Commonwealth of Pennsylvania and experienced in erosion control, to that effect is submitted to the Code Official and approved by him. The statement shall state that the site has been inspected and that the deviation from the slope specified above will not result in increased risk of injury to persons or damage property.
2. The Code Official may require that the fill be constructed with an exposed slope less (flatter) than two horizontal to one vertical if he finds that under the particular conditions such flatter slope is necessary for stability and safety.
3. Whenever a fill is to be made of materials other than clean soil or earth, the grading permit shall be subject to the following additional limitations and requirements:
  - a. The fill shall be completed within a reasonable length of time, said time limit to be determined by the Code Official and to be specified on the grading permit.
  - b. Clean soil or earth shall be placed over the top and exposed surfaces of the fill to a depth sufficient to effectively conceal all materials, other than clean soil or earth, within the fill.
4. When the fill is other than clean soil or earth, the Code Official may require clean soil or earth to be placed over the top and exposed surfaces of the fill to a depth sufficient to conceal all materials at the end of each day's operations.
  - a. No fill of any kind shall be placed over trees, stumps, or other material which would create a nuisance or be susceptible to attracting rodents, termites, or other pests.
5. All fills shall be compacted to provide stability of material and to prevent undesirable settlement.

6. The fill shall be spread in a series of layers, each not exceeding twelve (12) inches in depth, and shall be compacted by a sheep's-foot roller or other approved method after each layer is spread.
7. Where fills are placed on slopes of 5% or more, benching of the surface shall be required and indicated on the cross sections.
8. The Code Official may require tests or other information if, in his opinion, the conditions or materials are such that additional information is necessary.
9. The movement of earth in the course of farming or agricultural work or private landscaping.

C. *Ground cover.*

1. In order to prevent erosion, the permit holder shall be required to provide adequate surface treatment by installing ground covering of such kind and character as may be approved by the Code Official.
2. The ground covering shall be grass, crown vetch, or other approved variety of vegetation.

D. *Drainage.*

1. Adequate provisions shall be made to prevent any surface waters from damaging the cut face of an excavation or the sloping surface of a fill.
2. The Code Official shall require such drainage structures or pipes to be constructed or installed which are necessary to prevent erosion damage and to satisfactorily carry off surface waters.
3. All drainage provisions shall be of such design so that the peak discharge for all stormwater outfalls on site shall be in conformance with the performance standards set forth herein.

E. *Maintenance.*

1. The owner of any property on which an excavation or fill has been made shall maintain in good condition and repair all retaining walls, cribbing, drainage structures, fences, ground cover, and other protective devices as established by permit, and, further, the continued use of said area shall be contingent upon the maintenance and upkeep, satisfactorily to the Township, and subject to such further conditions as the Township may prescribe.
2. The certificate of completion, therefore, may, at any time, be revoked by the Board of Supervisors, in accordance with the procedures set forth by the certificate of completion subsection, if the conditions of the permit are not being observed or if conditions exist that prejudice the health, safety, and welfare of any person, persons, or property.

F. *Protection of adjacent property and utilities.*

1. Prevention of slides or washes. Materials shall not be permitted to roll, slide, flow, or wash onto adjacent private or public property. Where necessary, walls, cribbing, silt fence, or benching shall be utilized to comply with this requirement.
2. Horizontal distance of excavation or fill slope from property or easement line.
  - a. The horizontal distance from the toe or top of the excavation or fill slope line shall be five feet or 1/2 of the vertical height of the fill or excavation from any adjoining property or easement line, whichever is greater, but such distance need not exceed 10 feet.

- b. The Code Official shall have the authority to modify this requirement in instances where it is demonstrated that such modification is needed to secure desirable interrelationships between properties and will not result in a condition detrimental to the adjacent property.
  - 3. Support and protection of public utilities and public streets.
    - a. A plan shall be in effect for proper support and protection from drainage resulting from the operation for all public and private utilities, whether on the surface, beneath the ground surface, or overhead, and, when necessary, for the repair, replacement, or relocation of such utilities.
    - b. The surface and other facilities or public streets shall be fully restored by the permit holder in the event of such damage.
    - c. The permit holder shall correct any damage to the utility involved before the Code Official issues the completion certificate.
- G. *Fencing.* Should the nature of land operation, in the opinion of the Code Official, create a hazard to persons or property unless adequately fenced, the permit holder shall construct such fences or guide rails as safeguards to persons using adjoining property, public or private.
- H. *General requirements.*
  - 1. Any excavations within a floodway or floodplain must follow the guidelines as set forth in the floodplain management sections of the Township Code.
  - 2. A temporary construction fence not less than four feet in height, or a design approved by the Code Official and meeting Township fence requirements, shall be placed at the top of all cuts or fills with slopes in excess of two horizontal to one vertical.
  - 3. The permit holder and owner of a property shall be responsible to protect and clean up lower properties of silt or debris washing from his property as a result of the regrading of his property.
  - 4. In order to prevent the denuding of the landscape, large trees and other natural features constituting important physical, aesthetic, and economic assets to existing or impending suburban development shall be preserved.
  - 5. All grading, excavating, or fill shall be performed so that no unnecessary dust shall be raised. The Code Official may enforce reasonable dust-control regulations and may revoke any permit issued under this chapter until proper dust-control regulations are met.
- I. *Certificate of completion.*
  - 1. If, upon final inspection of an excavation or fill, it is found that the work authorized by the permit has been satisfactorily completed in accordance with the requirements of this chapter, a certificate of completion covering such work and stating that the work is approved shall be issued to the permit holder by the Code Official.
  - 2. The Board of Supervisors shall have the power to revoke any certificate of completion upon the recommendation of the Code Official that the work covered by the certificate has been materially extended or altered without a permit so to do or that any retaining walls, cribbing, drainage structures, fences, or other protective devices shown on the approved plans and specifications submitted for a permit have not been maintained in good order and repair.
  - 3. Before such revocation, the Code Official shall first give written notice to the permit holder and to the owner of the property involved, specifying the defective condition and stating that, unless such defective condition is remedied, the certificate may be revoked. If the defective

condition is remedied, the certificate shall not be revoked. Such conditions shall be corrected within 30 days' notice to the owner to correct the same.

4. Following the issuance of a certificate of completion, and provided that as a minimum 90% of the proposed homes are constructed, the developer's completion guarantee bond will be released by the Township.
- J. During any stage of the regulated earth disturbance activities, if the Township or its designee determines that any BMPs are not being implemented in accordance with this chapter, the Township may suspend or revoke any existing permits or other approvals until the deficiencies are corrected.

**§311. *Erosion and Sedimentation Controls.***

- A. No regulated development activities within the Township shall commence until approval by the Township and the WCD of an erosion and sediment control plan for construction activities.
- B. Any earth disturbance activity of 5,000 square feet or more requires an erosion and sedimentation control plan under 25 Pa.Code §102.4(b). Refer to the PA DEP Erosion and Sediment Pollution Control Manual 2012 or most recent version.
- C. In addition, under Title 25 Pa.Code, Chapter 92, a DEP NPDES construction activities permit is required for regulated development activities.
- D. Evidence of any necessary permit(s) for regulated development activities from the appropriate DEP regional office or Westmoreland Conservation District must be provided to the Township. The issuance of an NPDES construction permit (or permit coverage under the Statewide General Permit (PAG-2)) may satisfy the requirements under subsection 1, upon review and approval by the Township.
- E. A copy of the erosion and sediment control plan and any permit required by DEP or the Township shall be available at the project site at all times.

**§312. *Water Obstructions and Encroachments***

- A. No regulated development activities which require Chapter 105 (Water Obstructions and Encroachment) permit from either PA DEP or Westmoreland Conservation District shall commence until all permits have received PA DEP or WCD approval, and Township approval.
- B. Evidence of any necessary Chapter 105 permit from PA DEP / WCD shall be provided to the Township.
- C. Proposed development shall avoid the long and short term adverse impacts associated with the occupancy and modification of floodplains as designated by FEMA, to the extent possible wherever there is a practicable alternative in order to reduce the risk of flood loss, minimize the impacts of floods on human safety, health and welfare, and restore and preserve the natural and beneficial values served by flood plains.
- D. Any proposed development found to be within the base floodplain of a waterway shall be in compliance with all floodplain management regulations of the Sewickley Township Code and shall include the identification of impacts, an evaluation of practicable alternatives outside the floodplain, and when impacts cannot be avoided, the development of measures to minimize the impacts and restore and preserve the floodplain as appropriate. Findings shall be presented at a public meeting and a determination made by the Sewickley Township Board of Supervisors.

- E. Any proposed stormwater management plan should be consistent with the provisions of the PA Floodplain Management Act 166 of 1978 and applicable municipal floodplain ordinances, and when impacts cannot be avoided, the development of measures to minimize the impacts and restore and preserve the floodplain is appropriate.

## **ARTICLE IV            Stormwater Management Plan Requirements.**

### **§401.            *General Requirements.***

No development plan, subdivision plat or land development plan shall be approved; no permit authorizing construction or development issued; nor any earth disturbance activity subject to this Article shall be initiated or undertaken unless and until a stormwater management plan for such activity is reviewed and approved in accord with the provisions of this ordinance.

- A. No regulated development activities within the Township shall commence until approval by the Township of a stormwater management plan which demonstrates compliance with State water quality requirements after construction is complete. Refer to the Regulated Development Activity Table located in Article III of this ordinance.
- B. The stormwater management plan must be designed, implemented and maintained to meet State water quality requirements, and any other more stringent requirements as determined by the Township.
- C. To control post-construction stormwater impacts from regulated development activities, State water quality requirements can be met by BMPs, including site design and green infrastructure, which provide for replication of pre-construction stormwater infiltration and runoff conditions, so that post-construction stormwater discharges do not degrade the physical, chemical or biological characteristics of the receiving waters. As described in the DEP Comprehensive Stormwater Management Policy (#392-0300-002, September 28, 2002), this may be achieved by the following:
  - 1. *Infiltration.* Replication of pre-construction stormwater infiltration conditions.
  - 2. *Treatment.* Use of water quality treatment BMPs to ensure filtering out of the chemical and physical pollutants from the stormwater runoff.
  - 3. *Streambank and Streambed Protection.* Management of volume and rate of post-construction stormwater discharges, using detention/retention and other means, to prevent physical degradation of receiving waters (e.g., from scouring).
- D. In the absence of an existing stormwater conveyance or easement whether natural or man-made for release of stormwater flow from a development site, an easement must be provided. Information shall be presented as to the ownership, responsible party, and agreement for said easement.
- E. The stormwater management plan must meet DEP regulations that require municipalities to ensure design, implementation and maintenance of best management practices (“BMPs”) that control runoff from new development and redevelopment after regulated development activities are complete. These requirements include the need to implement post-construction stormwater facilities and BMPs with assurance of long-term operations and maintenance of those BMPs.
- F. Evidence of any necessary permit(s), such as Chapter 102 erosion and sedimentation control or Chapter 105 stream encroachment, for regulated development activities from WCD or the appropriate DEP regional office must be provided to the Township. The issuance of an

NPDES construction permit (or permit coverage under the Statewide General Permit (PAG-2)) may satisfy the requirements of paragraph (A) above, after review and approval by the Township.

- G. Appropriate sections from the Township's Subdivision and Land Development Ordinance (SALDO), and other applicable local ordinances, shall be followed in preparing the SWM Plans.
- D. The Township shall not approve any SWM Plan that is deficient in meeting the requirements of this Ordinance. At its sole discretion and in accordance with this Article, when a SWM Plan is found to be deficient, the Township may either disapprove the submission and require a resubmission, or in the case of minor deficiencies, the Township may accept submission of modifications.
- E. *Professional Certification.* The stormwater management plan (including all calculations) must be prepared and sealed by a qualified professional with training and expertise in hydrology and hydraulics. Documentation of qualifications may be required by the Township.

#### **§402. Stormwater Management Plan Contents.**

*General Format.* The stormwater management plan shall include a narrative and a set of plan drawings. Refer to checklist Appendix D.

- A. A narrative describing the overall stormwater management concept for the project.
  - 1. A determination of site conditions in accordance with the PA DEP Stormwater BMP Manual. A detailed site evaluation shall be completed for projects proposed environmentally sensitive areas, such as brownfields.
  - 2. *Runoff Calculations.* Stormwater runoff design calculations for determining pre- and post-development discharge rates, for designing proposed stormwater control facilities and to demonstrate that the maximum practicable measures have been taken to meet the requirements of this Ordinance, must be submitted with the stormwater management plan. All calculations shall be prepared using the methods and data prescribed by general requirements in Section 302. Refer to the Acceptable Computation Methodologies table in Article III Section 307 of this ordinance.
    - a. Runoff volume and rate shall be calculated according to generally accepted methods such as those listed under Stormwater Management Performance Standards, General Standards.
    - b. Detention/retention requirements, including volume, routing, etc. for BMPs shall be calculated using commonly acceptable standard methods.
    - c. Water quality calculations shall be determined by using the PA DEP Stormwater BMP Manual 2006 or current edition Worksheets 12 and 13 or acceptable alternative method by the municipality.
  - 3. Expected project time schedule for the installation of all temporary and permanent stormwater control measures and devices. If the development is to be constructed in stages, the applicant must describe how stormwater facilities and BMPs will be sequentially installed to manage stormwater runoff safely during each stage of development.

4. The effect of the project (in terms of runoff rate, volumes, and water quality) on surrounding properties and aquatic features and on any existing stormwater conveyance system that may be affected by the project.
  5. If appropriate, the narrative should provide justification as to why any preferred stormwater management techniques, such as LID and green infrastructure, as listed in this Ordinance, are not proposed for use. Refer to the PA DEP Stormwater BMP Manual 2006 or most recent edition for list of acceptable management techniques.
  6. Operation and maintenance program and responsible party(s) for permanent stormwater facilities and BMPs. Refer to Section VI of this ordinance.
- B. The stormwater management plan drawings shall be drawn to a scale of not less than 1 inch equals 100 feet. All sheets shall contain a title block with name and address of applicant and designer, scale, north arrow, legend and date of preparation.
1. *Existing and Proposed Features.* The plan shall show the following:
    - a. *Watershed Location.* Provide a key map (using USGS Topo maps) showing the location of the development site within the watershed(s) and watershed subarea(s). On all site drawings, show the boundaries of the watershed(s) and subarea(s) as they are located on the development site and identify watershed name(s) and subarea number(s). Refer to Appendix A Watershed Performance District Maps.
    - b. *Floodplain Boundaries.* Identify 100-year floodplains on the development site (as appropriate) based on the FEMA Flood Insurance Rate Map(s) for the Township.
    - c. *Natural Features.* Show all bodies of water (natural or artificial), watercourses (permanent and intermittent), swales, wetlands and other natural drainage courses on the development site, or which will be affected by runoff from the development.
    - d. *Soils.* Provide an overlay showing soil types and boundaries within the development site (consult WCD, SCS and U.S. Geological Survey for information).
    - e. *Contours.* Show existing and final contours at intervals of 2 feet; in areas with slopes greater than 15 percent, 5-foot contour intervals may be used.
    - f. *Land Cover.* Show existing and final land cover classifications, including existing and proposed improvements, as necessary to support and illustrate the runoff calculations performed.
    - g. *Drainage Area Delineations.* Show the boundaries of the drainage areas and points of interest employed in the runoff calculations performed.
    - h. *Time of Concentration flow paths.* Show flow paths used for all time of concentration calculations. Identify the different segments of flow path used for travel time calculations for sheet flow, shallow concentrated flow and channel flow regimes.
    - i. *Utilities and easements.* Show any existing utilities, stormwater management or drainage controls and/or structures, such as sanitary sewers, water, gas, electric, telecommunications, storm sewers, swales, culverts, and any easements, which are located on the development site, or which are off site but may be affected by runoff from the development.



2. *Proposed Stormwater Facilities and BMPs.* All proposed stormwater runoff control measures must be shown on the plan including methods for collecting, conveying and storing stormwater runoff onsite, which are to be used both during and after construction. Erosion and sedimentation controls shall be shown in accordance with applicable Township and WCD requirements. The plan shall provide information on the exact type, location, sizing, design and construction of all proposed facilities and relationship to the existing watershed drainage system.
  - a. If the development is to be constructed in stages, the applicant must demonstrate that stormwater facilities will be installed to manage stormwater runoff safely during each stage of development.
  - b. A schedule for the installation of all temporary and permanent stormwater control measures and devices shall be included in the narrative and shown on the site plan. This schedule shall include all stages of construction identified as critical for the proper short-term and long-term operation and performance of these control measures that will need to be inspected by the stormwater design engineer, the Township engineer and/or the WCD.
  - c. Operation and maintenance program and responsible party(s) for permanent stormwater BMPs. Refer to Section VI of this ordinance.
3. *Easements, Rights of Way, Deed Restrictions.* BMPS and stormwater management facilities that provide control for more than one lot shall be located on a separate dedicated lot or in an easement. All existing and proposed easements for any BMPs and stormwater management facilities and controls for access, inspections, maintenance, repair, preservation and use shall be shown on the plan and, if required, dedicated to the entity, association or person required. The easement and the purpose for the same shall be set forth on the plan and in the agreement required by the Ordinance.

**§403. *Other Permits/Approvals.***

A list of any approvals/permits relative to stormwater management that will be required from other governmental agencies (e.g., Chapter 102 Erosion and Sedimentation Control, PennDOT Highway Occupancy Permit, Chapter 105 Water Obstruction and Encroachment Permit from PA DEP) and anticipated dates of submission/receipt should be included with the stormwater plan submission. Copies of permit applications may be requested by the Township where they may be helpful for the plan review.

**§404. *Operation and Maintenance Plan.***

The application shall contain a proposed operation and maintenance plan (O&M) for all stormwater control facilities in accordance with the following and as described in Article VI of this ordinance:

- A. Identify the responsible party and their responsibilities as described in Article VI Section 601 (e.g., the Township, property owner, private corporation, homeowner's association or other entity).

- B. Include an operation and maintenance plan for all stormwater facilities, outlining the routine maintenance actions and schedules necessary to ensure proper operation of the stormwater control facilities as described in Article VI Section 602.
- C. Submit any legal agreements required to implement the maintenance program and copies of the maintenance agreement as required by this Ordinance. Refer to Article VI Section 603.
- D. Identify method of financing continuing operation and maintenance if the facility is to be owned by other than the Township or a governmental agency. Refer to Article VI Section 604.

**§405.           *Financial Guarantees***

Submit financial guarantees in accordance with the provisions of this Ordinance. Refer to Appendix E.

**ARTICLE V           Stormwater Management Plan Submission and Review Procedures.**

**§501.           *Preapplication Phase.***

- A. The Westmoreland County Integrated Water Resources Plan provides an online decision making tool to assist developers, designers, property owners in addressing all water resources during development and redevelopment and should be consulted. Refer to [www.paiwrp.com](http://www.paiwrp.com) for the decision-making tool and [www.westmorelandstormwater.org](http://www.westmorelandstormwater.org).
- B. [Applicants should refer to the Westmoreland County Integrated Water Resources Plan \(IWRP\) located at www.westmorelandstormwater.org, for mapping of impaired streams, riparian buffers and pollutant loading to determine appropriate BMPs to address sources of impairments.](http://www.westmorelandstormwater.org)
- C. Before submitting the stormwater management plan, and any other plan required by a reviewing agency, applicants are urged to consult with the Township, Westmoreland County Department of Planning and Development and Westmoreland Conservation District, and PennDOT where applicable, on the requirements for safely managing the development site in a manner consistent with the Township Code, applicable watershed stormwater management plan and Federal and State requirements. These agencies may also be helpful in providing necessary data for the stormwater management plan.
- D. Applicants are encouraged to submit a sketch plan with a narrative description of the proposed stormwater management controls for general guidance and discussion with the Township and other agencies.
- E. The pre-application phase is not mandatory; any review comments provided by the Township or other agencies are advisory only and do not constitute any legally binding action on the part of the Township or any County agency.

**§502.           *Stormwater Management Plan Submission and Review.***

- A. *Submission of Plans.* Stormwater management plan application shall be submitted with the preliminary and final subdivision/land development applications or if no subdivision or land development is involved, then with the application for development.

Copies of the SWM Site Plan shall be submitted to the following agencies as determined by the Township:

1. One paper and one digital copy to Township, in a digital format acceptable to the Township.
  2. One copy to the Township engineer (when applicable).
  3. One copy to the Westmoreland Conservation District (when applicable).
  4. One copy to the Municipal Authority of Westmoreland County (when applicable).
  5. One copy to the Westmoreland County Department of Planning and Development. (if applicable)
  6. One copy to the Westmoreland County Department of Public Safety/local emergency management coordinator (when applicable)
  7. One copy to DEP (when applicable)
- B. *Notification of Affected Municipalities.* The Township shall notify municipalities upstream and downstream of the development site which may be affected by the stormwater runoff and proposed controls for the site. Copies of the plans will be made available to the affected municipalities upon request. Comments received from any affected municipalities will be considered by the Township engineer and County agencies in their reviews.
- C. *Review by the Township Engineer and Westmoreland Conservation District (WCD).* Stormwater management plans shall be reviewed by the Township engineer and WCD. BMPs shall be shown on all stormwater management plans and erosion and sedimentation control plans, as applicable. At its discretion, the Township and/or WCD may also engage other specialists in hydrology or hydraulics to assist with the stormwater management plan review. The costs of such specialist review shall be borne by the Applicant and shall be paid prior to the issuance of any permits. The WCD will review the plan for general compliance with the watershed plan standards and criteria and watershed-wide impacts and, where appropriate, may consult with adjacent municipalities for their comments. If the WCD review identifies the improper application of the watershed standards and criteria or the possibility of harmful impacts downstream from the development site's proposed stormwater management system, the applicant and Township engineer will be notified so that the necessary modifications can be made to promote safe stormwater management. The Township and the WCD 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 90 days, unless the applicant is notified that a longer notification period is provided by other statute regulation or ordinance. If modifications are required, the review period may be extended by the Township and the WCD, in order for the applicant to address inadequacies.
- D. A disapproved stormwater management plan may be resubmitted, with the revisions addressing the Township's and WCD's concerns, to the Township and the WCD in accordance with this Ordinance.
- E. *Township Engineer Review.* The Township engineer shall approve or disapprove the stormwater management plan based on the requirements of the Township Code, the standards and criteria of the watershed plan, applicable State and Federal requirements and good engineering practice. The Township Engineer shall submit a written report, along with supporting documentation, stating the reasons for approval or disapproval.

- F. *Status of the Engineer's Determination.* The approval/disapproval of the site's stormwater management plan by the Township engineer shall be submitted to the Sewickley Township Board of Supervisors for final action. Final approval of the plan rests with the Township.
- G. *Permits Required From Other Governmental Agencies.* Where the proposed development requires a permit from the Pennsylvania DEP, PennDOT, or an erosion/sedimentation permit or Chapter 105 permit from the Westmoreland Conservation District, then final stormwater management plan approval shall be conditional upon receipt of such permits. However, no building permit shall be issued, nor construction or development started, until all requisite permits are received and copies filed with the Township.
- H. Reviews by the Township and WCD shall be subject to fees as outlined in Article VII section 706 of this Ordinance.

**§503.           *Status of Stormwater Management Plan after Approval.***

- A. Upon final stormwater management plan approval and receipt of all necessary permits, financial guarantees and agreements, the applicant may commence to install or implement the approved stormwater management plan, BMPs plan or erosion and sedimentation plan controls.
- B. Prior to the start of construction, the applicant shall schedule and conduct a pre-construction meeting that includes the owner or owner's representative, the design professional for the project, the contractor and any subcontractors, utility representatives, municipal code officer, building inspector, Township engineer, WCD inspector and any other personnel deemed relevant to review and discuss the site plan, E&S controls and the stormwater management facilities. The meeting should address critical stages of construction that will require inspections by a certified professional and other documentation that will be needed in order for an as-built drawing to be prepared and approved by the Township and the WCD.
- C. If site development or building construction does not begin within two (2) years of the date of final approval of the stormwater management plan, then before doing so, the applicant shall re-submit the stormwater management plan, BMPs plan or erosion or sedimentation plan to verify that no condition has changed on the property, adjacent to the site or within the watershed that would affect the feasibility or effectiveness of the previously approved stormwater management controls. Further, if for any reason development activities are suspended for two (2) years or more, then the same requirement for re-submission of the stormwater management plan shall apply. There shall be no vested interest in stormwater management plans where work does not commence within two (2) years or if development activities are suspended for two years and less than 25% of the development activities are completed, and in such case, upon resubmission the applicant shall comply with the stormwater standards in effect at the time of resubmission.

**§504.           *Modification of Stormwater Management Plan.***

If the request for a plan modification is initiated before construction begins, the stormwater management plan must be resubmitted and reviewed according to the procedures, contained in this ordinance, effective the time of resubmission.

- A. If the request for a plan modification is initiated after construction is underway, the Township Engineer and the WCD shall have the authority to approve or disapprove the modification based on field conditions; provided:

1. The requested changes in stormwater controls do not result in any modifications to other approved Township land use/development requirements (e.g., building setbacks, yards, etc.).
  2. The performance standards in this Ordinance are met. Notification of the Engineer's and WCD's action shall be sent to the Sewickley Township Supervisors, which may issue a stay of the plan modification within 5 days and require the permittee to re-submit the plan modification for full stormwater management plan review in accordance with this ordinance.
- B It shall be unlawful to, and no person shall, alter, replace, modify, landscape or remove, or otherwise adversely affect, any permanent stormwater management facilities, BMP controls, or any area within a stormwater easement or dedicated or designated area for stormwater facilities and BMPs required by an approved stormwater management plan, BMP operations and maintenance plan, or to allow the property to remain in a condition which does not conform to an approved stormwater management plan, BMP operations and maintenance plan, unless an exception is granted in writing by the Township and/or approval is secured from all relevant agencies of the Commonwealth.

**§505.           *Inspection of Stormwater Management Facilities, BMPs and Grading.***

- A. The Township engineer or a designated representative shall inspect the implementation, construction, condition, operation and maintenance of the temporary and permanent stormwater management system and controls for the development site. The Township or a designated representative shall have the right to temporarily locate and/or install on any BMP in the Township such devices as are necessary to conduct monitoring and/or sampling the discharge from such BMP.
- B. The permittee shall notify the Township engineer and the WCD forty-eight (48) hours in advance of the completion of the following key development phases:
  1. At the completion of preliminary site preparation including stripping of vegetation, stockpiling of topsoil and construction of temporary stormwater management control facilities.
  2. At the completion of rough grading but prior to placing topsoil, permanent drainage or other site development improvements and ground covers.
  3. During construction of the permanent stormwater facilities and BMPs at such times as specified by the Township engineer.
  4. Special structure inspection: when excavations are completed for retaining and crib walls and when reinforcing steel is in place before concrete is poured.
  5. Drainage facility inspection: when drainage facilities are to be installed and before such facilities are backfilled.
  6. Completion of permanent stormwater management facilities and BMPs including established ground covers and plantings.
  7. Completion of final grading, vegetative control measures or other site restoration work done in accordance with the approved plan and permit.
- C. The Township and/or WCD may conduct inspections during construction as it deems appropriate.
- D. No work shall commence on any subsequent phase until the preceding one has been inspected and approved. If there are deficiencies in any phase, the Township engineer

and/or WCD shall issue a written description of the required corrections and stipulate the time by which they must be made.

- E. If, during construction, the contractor or permittee identifies any site condition, such as subsurface soil conditions, alterations in surface or subsurface drainage, which could affect the feasibility of the approved stormwater facilities, or erosion and sedimentation controls he/she shall notify the Township engineer and WCD within 24 hours of the discovery of such condition and request a field inspection. The Township engineer and WCD shall determine if the condition requires a modification of the stormwater management plan, BMPs plan or erosion and sedimentation control plan.
- F. In cases where grading is to be performed and/or stormwater facilities or erosion and sedimentation controls are to be installed in areas of landslide-prone soils or other special site conditions exist, the Township may require special precautions such as a geotechnical study, soil tests and core borings, full-time inspectors and/or similar measures. All costs of any such measures shall be borne by the permittee.
- G. Safety precautions.
  - 1. If, at any stage of work, the Code Official shall determine by inspection that the nature of the formation is such that further work, as authorized by the existing permit, is likely to endanger any property or streets or ways or to create hazardous conditions, the Code Official may require, as a condition to allowing the work to be done, that such reasonable safety precautions be taken as the Code Official considers advisable to avoid such likelihood of danger.
  - 2. Safety precautions may include, but shall not be limited to, specifying a less flat or exposed slope, construction of additional drainage facilities, berms, terracing, compaction, cribbing, or walls.

**§506.           *Record Drawings, Completion Certificate, and Final Inspection***

- A. The developer shall be responsible for providing record drawings of all stormwater management facilities and BMPs as built and included in the approved Stormwater Management Plan. The record drawing for subdivision plans should identify any and all lots that are to have individual on-lot controls (i.e. dry wells, et al) and a description of the type of on-lot control, a typical detail of that control and the basis for their individual design (i.e. storage volume per impervious area), as identified in the approved Stormwater Management Plan for the overall subdivision plan. The record drawings and an explanation of any discrepancies with the construction plans shall be submitted to the Township and WCD.
- B. As-built calculations. For developments with detention/retention basin(s), the developer shall submit calculations bearing the seal of a registered professional engineer, surveyor, or landscape architect verifying that the peak discharge rates from the as-built basin(s) for the postdevelopment design storms will be less than or equal to their respective allowable discharge rates as determined from the approved stormwater management plan. At a minimum, for each constructed basin, these calculations shall include the following:
  - 1. A stage-storage-discharge rating table for the as-built basin and its outlet structure(s);

2. The postdevelopment runoff hydrograph to the basin for each of the design storms. The postdevelopment runoff hydrographs to the basin as provided in the approved stormwater management plan for the development may be used as long as as-built site conditions closely replicate those conditions provided in the approved stormwater management plan. The use of the hydrographs provided in the approved stormwater management plan is subject to approval by Sewickley Township or the Township's representative;
  3. Postdevelopment runoff hydrograph routed through the basin for each of the design storms using the Modified-Puls Method or a recognized reservoir routing method subject to the approval of Sewickley Township or the Township's representative. The stage-storage-discharge rating table for the as-built basin shall be used to route the runoff hydrographs through the basin.
- C. The record drawing submission shall include a certification of completion signed by a qualified professional verifying that all permanent stormwater management facilities and BMPs have been constructed according to the approved plans and specifications. The latitude and longitude coordinates for all permanent stormwater management facilities and 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 Township, the Township and WCD may conduct a final inspection.
  - E. An occupancy permit shall not be issued unless the certification of completion has been secured or an appropriate stormwater facilities bond is in place. The occupancy permit shall be required for each lot owner and/or developer for all subdivisions and land developments in the Township.

## **ARTICLE VI            Operation and Maintenance of Stormwater Facilities and BMPs**

### **§601.            *Operation and Maintenance Responsibilities.***

- A. The stormwater management plan for the development site shall contain an operation and maintenance plan prepared by the developer and approved by the Sewickley Township Board of Supervisors. The operation and maintenance plan shall outline the responsible party(ies) and required routine maintenance actions and schedules necessary to insure proper operation of the stormwater control facility(s).
- B. The stormwater management plan for the development site shall establish responsibilities for the continuing operation and maintenance (O&M) of all stormwater facilities and BMPs, consistent with the following:
  1. If a development consists of structures or lots which are to be separately owned and in which streets, sewers and other public improvements are to be dedicated to the Township, stormwater facilities and BMPs should also be dedicated to and maintained by the Township, except for those individual on-lot facilities and BMPs for privately owned structures.

2. If a development site is to be held in single ownership or if sewers and other public improvements are to be privately owned, operated and maintained, then the operation and maintenance of stormwater facilities and BMPs should be the responsibility of the owner or private management entity.
  3. Person(s) responsible for operation and maintenance of stormwater facilities and BMPs shall be named with contact information provided.
- C. The Sewickley Township Board of Supervisors, upon recommendation of the Township Engineer, shall make the final determination on the continuing maintenance responsibilities prior to final approval of the stormwater management plan. The Sewickley Township Board of Supervisors reserves the right to accept the ownership and operating responsibility for any or all of the stormwater management facilities and BMPs. Under no circumstances is Sewickley Township obligated to accept the stormwater management facilities and BMPs.
  - D. If the development site involves land located in more than one municipality, then the plan shall be reviewed by the Township and WCD to determine if all activities both within and without the Township meets the requirements of this Ordinance. The Township may only approve stormwater management plans, facilities and BMPs and development activities located within the Township, unless the Township and the other municipality(ies) enter into an Intergovernmental Cooperation Agreement authorizing the Township to approve the same in the other municipality(ies).
  - E. Stormwater facilities and BMPs shall be inspected by the owner/responsible party named in the O&M plan on a regular basis as determined by the Township or as approved in the O&M plan. Inspections may include photographs, written reports, measured drawings as necessary to document conditions of the facility(s) and the report shall be provided to the Township as requested.

**§602.            *Stormwater Facility and BMP Operations and Maintenance Plan Requirements.***

- A. No regulated development activities within the Township will be considered complete until approval by the Township of BMP operations and maintenance plan which describes how the permanent (i.e., post-construction) stormwater facilities and BMPs will be properly operated and maintained.
- B. The following items shall be included in the BMP operations and maintenance plan:
  1. Map(s) of the project area, in a form that meets the requirements for recording at the Office of the Recorder of Deeds of Westmoreland County, refer to the <http://www.wcdeeds.us/dts/> . The contents of the maps(s) shall include, but not be limited to:
    - a. Ownership and operation and maintenance responsibilities of stormwater facilities and BMPs.
    - b. Clear identification of the location and nature of permanent stormwater facilities and BMPs, including individual on-lot BMPs that are to be provided as per the approved stormwater management plan.
    - c. The location of the project site relative to highways, Township boundaries or other identifiable landmarks.



- d. Existing and final contours at intervals of 2 feet are required if the general slope of the site is less than 15 percent, and at vertical intervals of 5 feet if the general slope is equal to or greater than 15 percent.
  - e. Existing streams, lakes, ponds, or other bodies of water within the project site area.
  - f. Other physical features including flood hazard boundaries, sinkholes, streams, existing drainage courses, and areas of natural vegetation to be preserved.
  - g. The locations of all existing and proposed utilities, sanitary sewers, and water lines within 50 feet of property lines of the project site.
  - h. Proposed final changes to the land surface and vegetative cover, including the type and amount of impervious area that would be added.
  - i. Proposed final structures, roads, paved areas, and buildings.
  - j. A 15-foot wide access easement around all stormwater facilities and BMPs that would provide ingress to and egress from a public right-of-way.
- 2. A description of how each of the permanent stormwater facilities and BMPs will be operated and maintained, and the identity of the person(s) responsible for operations and maintenance.
  - 3. The name of the project site, the name and address of the owner of the property, and the name of the individual or firm preparing the plan.
  - 4. A statement, signed by the landowner, acknowledging that the stormwater facilities and BMPs are fixtures that can be altered or removed only after approval by the Township.
- C. Each stormwater facility and BMP shall be recorded with the County as permanent real estate appurtenances, and as deed restrictions or conservation easements that run with the land. Prior to final approval of the stormwater plan the property owner shall sign and record an O&M agreement for those facilities and BMPs. Refer to Appendix B of this ordinance.
  - D. If the owner fails, refuses or neglects to maintain any stormwater facility and/or BMP, the Township reserves the right to conduct maintenance work and charge and assess the owner any and all costs, expenses incurred and fees set by the Township. The Township reserves the right to take enforcement actions for failure to perform required O&M. Refer to Article VII of this ordinance.
  - E. A financial guarantee for timely installation and proper construction of stormwater facilities and BMPs shall be as specified in Article VII of this ordinance.

**§603.      *Operations and Maintenance Agreement for Privately Owned Stormwater Facilities and BMPs.***

- A. Prior to final approval of the site's stormwater management plan the property owner shall sign and record with the Recorder of Deeds Office of Westmoreland County an operations and maintenance agreement covering all stormwater facilities and BMPs which are to be privately owned. The agreement (refer to Appendix B) shall stipulate that:
  - 1. The owner, successors and assigns shall maintain all facilities in accordance with the approved maintenance schedule and shall keep all facilities in a safe and functional manner and consistent with the surrounding natural area.

2. The owner, successors and assigns shall convey to the Township easements and/or rights-of-way to assure access for periodic inspections by the Township and maintenance, if required.
  3. The owner, successors and assigns shall keep on file with the Township the name, address and telephone number of the person or company responsible for maintenance activities; and in the event of a change, new information will be submitted to the Township within ten (10) days of the change.
  4. If the owner, successors and assigns fails to maintain the stormwater facilities and BMPs following due notice by the Township to correct the problem(s), the Township may perform the necessary maintenance work or corrective work and the owner shall reimburse the Township for all costs.
- B. Other items may be included in the agreement where determined necessary to guarantee the satisfactory inspection and maintenance of all stormwater facilities and BMPs for a ten 10 year period. The maintenance agreement shall be subject to the review and approval of the Township Solicitor and the Township Board of Supervisors and shall be in a form such as may be recorded in the Office of the Recorder of Deeds of Westmoreland County.
- C. The property owner shall sign an operations and maintenance agreement with the municipality covering all stormwater facilities and BMPs that are to be privately owned. The agreement shall be substantially the same as the agreement in the Appendix of this Ordinance. The agreement shall be recorded as an encumbrance on the property and shall contain a covenant running with the land which shall be recorded in the Office of the Recorder of Deeds in and for Westmoreland County, Pennsylvania, within 30 days of the execution of the agreement. The costs of recording said agreement shall be the responsibility of the property owner and/or the developer.

**§604.        *Sewickley Township Stormwater Facility and BMP Operation and Maintenance Fund.***

- A. Persons installing stormwater facilities or BMPs shall be required to pay a specified amount to the Sewickley Township stormwater facilities and BMPs fund to help defray costs of periodic inspections and maintenance expenses. The amount of the deposit shall be determined as follows:
1. If the stormwater facilities and/or BMPs are to be privately owned and maintained, the deposit shall cover the cost of periodic inspections performed by the Township for a period of ten (10) years, as estimated by the Township Engineer. After that period of time, inspections will be performed at the expense of the Township.
  2. If the stormwater facilities and/or BMPs are to be accepted, owned and maintained by the Township, the deposit shall cover the estimated costs for maintenance and inspections for ten (10) years. The Township Engineer will review these estimated costs as submitted by the applicant and may request additional information from the applicant supporting these costs.
  3. The amount of the deposit to the fund shall be converted to present worth of the annual series values. The Township engineer shall determine the present worth

equivalents which shall be subject to the approval of the Township Board of Supervisors.

- B. If stormwater facilities and BMPs are proposed that also serves as a recreation facility (e.g., ball field, lake), the Township may reduce or waive the amount of the maintenance fund deposit based upon the value of the land for public recreation purposes, or the Township may accept the maintenance fund deposit on behalf of the agency managing the recreation resource and make said fees available to the agency's maintenance department.
- C. If at some future time stormwater facilities and BMPs (whether publicly or privately owned) are eliminated due to the installation of storm sewers or other stormwater facilities and BMPs, the unused portion of the maintenance fund deposit will be applied to the cost of abandoning the facility and connecting to the storm sewer system or other facility. Any amount of the deposit remaining after costs of abandonment are paid will be returned to the depositor.

## **ARTICLE VII        Fees, Financial Guarantees and Dedication of Public Improvements**

### **§701.            *Guarantee of Completion.***

A completion guarantee or financial security in the form of a bond, cash deposit, cashier's check or other negotiable securities acceptable to the Township shall provide for, and secure to the Township, the completion of any improvements which may be required on or before the date fixed in the formal action of approval or accompanying agreement for completion of the improvements. The guarantee or security shall cover any and all stormwater management facilities, BMPs, storm sewer collection and conveyance systems, erosion and sedimentation controls and other required improvements (collectively, "improvements") and shall be equal to 110% of the cost of completion estimated as of 90 days following the date scheduled for completion by the developer. Annually the Township may adjust the amount of financial security by comparing the actual cost of the improvements which have been completed and the estimated cost for the completion of the remaining improvements as of the expiration of the 90<sup>th</sup> day after either the original date scheduled for completion or a rescheduled date of completion. Subsequent to said adjustment, the Township may require the developer to post additional security in order to assure that the financial security equals said 110%. Any additional security shall be posted by the developer in accordance with this subsection.

### **§702.            *Release of Completion Guarantee.***

The completion guarantee or financial security shall be returned or released upon written certification by the Township Engineer or a designated agent that improvements and facilities have been installed and completed in accordance with the approved plan and specifications.

### **§703.            *Default of Completion Guarantee.***

If improvements are not installed in accordance with the approved final plans, the Township Board of Supervisors may enforce any corporate bond or any security by appropriate legal and equitable remedies. If proceeds of such bond or other security are insufficient to pay the cost of installing or making repairs or corrections to all the improvements covered by said security, the Township Board of Supervisors may at its option install part of such improvements in all or part of the development and may institute appropriate legal or equitable action to recover the monies necessary to complete

the remainder of the improvements. All proceeds, whether resulting from the security or from any legal or equitable action brought against the developer, or both, shall be used solely for the installation of the improvements covered by such security and not for any other Township purpose.

**§704.       *Dedication of Public Improvements.***

- A. When streets, sanitary sewers, stormwater management facilities, BMPs, erosion and sedimentation controls or other required improvements in the development have been completed in accordance with the final plans, such improvements shall be deemed private until such time as they have been offered for dedication to the Township and accepted by separate Resolution of the Township Board of Supervisors or until they have been condemned for use as a public facility. The Township shall be under no obligation to accept such facilities or controls unless and until the Township so determines that it is in the best interest of the Township to do so.
- B. Prior to acceptance of any improvements or facilities, the Township engineer shall inspect the same to ensure that the same are constructed in accordance with the approved plans and are functioning properly.
- C. The owner shall submit as-built plans for all facilities proposed for dedication.

**§705.       *Structural Integrity Guarantee.***

Prior to acceptance of any improvements or facilities, the applicant shall provide financial security to secure the structural integrity and functioning of the improvements. The security shall:

- A. Be in the form of a bond, cash, cashier's check or other negotiable securities acceptable to the Township.
- B. Be for a term of 18 months.
- C. Be in an amount equal to 15 percent of the actual cost of the improvements and facilities so dedicated.

**§706.       *Fee Schedule.***

- A. The Sewickley Township Board of Supervisors may adopt by resolution, from time to time, a reasonable schedule of fees to cover the cost of pre-application and pre-construction meetings, plan reviews, inspections and other activities necessary to administer, monitor and enforce the provisions of this Ordinance.
- B. Expenses covered by fees.

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

- 1. Administrative/clerical costs.
  - 2. The review of the project plan and the BMP operation and maintenance plan by the Municipal engineer.
  - 3. The site inspections, including, but not limited to, pre-construction meetings, inspections during construction of stormwater BMPs and final inspection upon completion of the stormwater BMPs.
  - 4. Any additional work required to monitor and enforce any provisions of this Chapter, correct violations and assure proper completion of stipulated remedial actions.
- C. Amendment of required fees.

The Sewickley Township Board of Supervisors reserves the right to revise or amend the fee schedule from time to time through adoption of a resolution that establishes a new fee schedule as necessary to administer, monitor and enforce the provisions of this Ordinance.

## **ARTICLE VIII      Enforcement Procedures and Remedies.**

### **§801.            *Right of Entry.***

Upon presentation of proper credentials, duly authorized representatives of the Township may enter at reasonable times upon any property to inspect, investigate or ascertain the condition of the subject property in regard to an aspect related to stormwater management regulated by this Ordinance. Prohibitions and unreasonable delays in allowing the Township access to a stormwater management facility pursuant to this Ordinance is a violation of this Ordinance. The failure of any person or entity to grant entry or to undertake any action which impedes or prevents entry is prohibited and constitutes a violation of this Ordinance. Unless in the event of an emergency, the Township shall notify the property owner and/or developer twenty-four hours prior to entry.

### **§802.            *Enforcement Generally.***

- 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 Article III Section 303 of this Ordinance.
- B. It shall be unlawful to alter any BMPs, facilities or structures that were installed under the Ordinance without written approval of the Township.
- C. In the event that the applicant, developer, owner or his/her agent fails to comply with the requirements of this Ordinance or fails to conform to the requirements of any permit a written notice of violation shall be issued. Such notification shall set forth the nature of the violation(s) and establish a time limit for correction of the violation(s). Upon failure to comply within the time specified, unless otherwise extended by the Township, the applicant, developer, owner or his/her agent shall be subject to the enforcement remedies of this Ordinance. Such notice may require without limitation:
  1. Whenever the Township finds that a person has violated a prohibition or failed to meet a requirement of this Ordinance, the Township may order compliance by written notice to the responsible person. Such notice may require without limitation, any or all of the following:
    - a. The performance of monitoring, analyses, and reporting.
    - b. The elimination of prohibited connections or discharges.
    - c. Cessation of any violating discharges, practices, or operations.
    - d. The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property.
    - e. Payment of a fine to cover administrative and remediation costs.
    - f. The implementation of stormwater management measures or facilities.
    - g. Operation and maintenance of stormwater management measures and/or facilities
    - h. Assessment and payment of any and all costs and expenses relative to corrective measures taken or to be taken and reasonable costs, expenses

and attorney fees incurred by the Township in and related to enforcement and collection proceedings.

2. Such notification shall set forth the nature of the violation(s) and establish a time limit for correction of these violations(s). Said notice may further advise that, if applicable, should the violator fail to take the required action within the established deadline, the work will be done by the Township or designee and the expense thereof shall be charged to the violator, plus a 10% administrative fee.
3. Failure to comply within the time specified shall also subject such person to the penalty provisions of this Ordinance. All such penalties shall be deemed cumulative and shall not prevent the Township from pursuing any and all other remedies available in law or equity.

**§803.           *Suspension and Revocation***

- A. Any approval or permit issued by the Township 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 related 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 Township when:
  1. The Township has inspected and approved the corrections to the violations that caused the suspension.
  2. The Township is satisfied that the violation has been corrected.
- C. An approval that has been revoked by the Township 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 Township may provide a limited time period for the owner to correct the violation. In these cases, the Township may 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 Township may revoke or suspend any, or all, applicable approvals and permits pertaining to any provision of this Ordinance.

**§804.           *Preventative Remedies.* [requires municipal solicitor review]**

- A. In addition to other remedies, the Township may institute and maintain appropriate actions by law or in equity to restrain, correct or abate a violation, to prevent unlawful construction, to recover damages and to prevent illegal occupancy of a building or premises.
- B. The Township may refuse to issue any permit or grant approval to further improve or develop any property which has been developed in violation of this Ordinance.

**§805.           *Violations and Penalties.***

- A. Any person who has violated or knowingly permitted the violation of the provisions of this Ordinance or has refused, neglected or failed to perform any of the actions required pursuant to the Notice set forth Section 802 above, upon conviction thereof in an action brought before a magisterial district judge in the manner provided for the enforcement of summary offenses under the Pennsylvania Rules of Criminal Procedure, shall be guilty of a summary offense, and shall be sentenced to pay a fine of not less than \$100.00 nor more than \$1,000.00 for each violation, plus costs, together with reasonable attorney fees; and, in default or failure of full and timely payment of such fine, costs and fees, to a term of imprisonment not to exceed ninety (90) days or to a term of imprisonment to the extent permitted by law for the punishment of violations of summary offenses, whichever is less. Each day that a violation of this Ordinance continues or each Section of this Ordinance which shall be found to have been violated shall constitute a separate offense. No judgment shall commence or be imposed, levied or be payable until the date of the determination of a violation by the magisterial district judge. Each day that a violation of this Ordinance continues or each Section of this Ordinance which shall be found to have been violated shall constitute a separate offense.
- B. If the defendant neither pays nor timely appeals the judgment, the Township may enforce the judgment pursuant to applicable rules of civil procedure.
- C. Each day that a violation continues shall constitute a separate violation unless the magisterial district judge further determines that there was a good faith basis for the person violating this Ordinance to have believed that there was no such violation. In such case there shall be deemed to have been only one such violation until the fifth day following the date of the district justice's determination of the violation; thereafter each day that a violation continues shall constitute a separate violation.
- D. All judgments, costs and reasonable attorney fees collected for the violation of this Ordinance shall be paid over to the Township.
- E. The court of common pleas, upon petition, may grant an order of stay, upon cause shown, tolling the per diem fine pending a final adjudication of the violation and judgment.
- F. Nothing contained in this Section shall be construed or interpreted to grant to any person or entity other than the Township, the right to commence any action for enforcement pursuant to this Section.
- G. Each day that a violation of any provision of this Ordinance shall constitute a separate violation and be deemed a public nuisance.

**§806.           *Additional Remedies.***

In addition to the above remedies, the Township may also seek the remedies and penalties under applicable Pennsylvania statutes, or regulations adopted pursuant thereto including, but not limited to, the Stormwater Management Act, 32 P.S. §§693.1 *et seq.*, and the erosion and sedimentation regulations, 25 Pa.Code, Chapter 102. Any activity conducted in violation of this Ordinance or any Pennsylvania approved watershed stormwater management plan may be declared a public nuisance by the Township and abatable as such.

**§807.           *Appeals.***

A. Appeals.

1. Any person aggrieved by a decision of the Sewickley Township Board of Supervisors or any of its authorized persons or agencies, may appeal in writing said decision to the Sewickley Township Board of Supervisors within thirty (30) days of any decision. Any appeal must be filed with the Sewickley Township Board of Supervisors. If a decision appealed is from an authorized person or agency of the Township, a copy of the written appeal must be filed with such person or agency by such appellant within thirty (30) days of such decision.
2. The appellant shall pay to the Township at the time of filing the appeal, any and all fees and charges as set forth in a Resolution of the Township.

B. Procedure. Any Appeal filed pursuant to this section shall be governed by the Local Agency Law of the Commonwealth of Pennsylvania (2 Pa. C.S.A. §105, specifically 2 Pa. C.S.A. §551-§555).

C. Hearing. The Township shall schedule a hearing within sixty (60) days of receipt of said Appeal. Written notice of the hearing shall be given to the party filing the Appeal and any authorized person or agency of the Township involved, not less than fifteen (15) days prior to said hearing.

D. Hearing Procedure.

1. The Sewickley Township Board of Supervisors shall maintain a stenographic record of the proceedings. The appearance fee for a stenographer shall be shared equally by the appealing party and the Sewickley Township Board of Supervisors. The cost of the original transcript shall be paid by the Board if the transcript is ordered by the Sewickley Township Board of Supervisors or shall be paid by the person appealing from the decision of the Sewickley Township Board of Supervisors if such appeal is made, and in either event the cost of additional copies shall be paid by the person requesting such copy or copies. In other cases the party requesting the original transcript shall bear the cost thereof.
2. The Sewickley Township Board of Supervisors shall not be bound by technical rules of the evidence at the aforesaid hearing, and all relevant evidence of reasonably probative value may be received. Reasonable examination and cross-examination shall be permitted.

E. Adjudication.

The adjudication of the Sewickley Township Board of Supervisors shall be in writing, shall contain findings and the reasons for the adjudication, and shall be served upon all parties to the Appeal or their counsel personally, or by mail.

F. Appeal from Adverse Adjudication.

Pursuant to 2 Pa. C.S.A. Section 751 et seq. any person aggrieved by the adjudication of the Sewickley Township Board of Supervisors who has a direct interest in such adjudication shall have the right to appeal therefrom to the Court vested with jurisdiction of such appeals by or pursuant to Title 42 (Relating to Judiciary and Judicial Procedure).



## 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/>.
6. PennDOT **Publication 408 – Construction Specifications, Publication 584 - Drainage Manual** current editions.

**Appendix A** Stormwater Management Performance Districts  
**Appendix B** Example: Operation and Maintenance Agreement  
**Appendix C** Small Project Stormwater Management Site Plan  
**Appendix D** Stormwater Management Plan Checklist  
**Appendix E** Fees, Financial Guarantees

## **APPENDIX A**

### **STORMWATER MANAGEMENT PERFORMANCE DISTRICT MAPS**

**Refer to the Watershed Performance District (Release Rate) Maps at**  
[www.westmorelandstormwater.org](http://www.westmorelandstormwater.org)

**NOTE:** For areas not covered by current recommended Performance District (release rate) Maps, municipalities are authorized to establish performance standards / release rates as discussed in 308.D of the Stormwater Management and Land Disturbance Activity Ordinance.

**NOTE:** Municipalities are authorized to establish release rates stricter than those established by the recommended Performance District Maps upon consultation with WCD and their municipal engineer.

## APPENDIX B

### LANDOWNER LETTER OF ACKNOWLEDGMENT

**Project Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
**Location:** \_\_\_\_\_

- ✓ New impervious areas can potentially increase stormwater runoff from this site and the use of proposed stormwater facilities and/or best management practices (BMPs) can manage those impacts by mimicking natural processes to provide groundwater recharge and stream base flow.
- ✓ Regulated development activities on this site shall not begin until the Sewickley Township Board of Supervisors has issued an approval for a Small Project Stormwater Management Plan.
- ✓ If stormwater management facilities and/or BMPs included on the approved Small Project Stormwater Site Plan require revisions or changes, the applicant shall submit a revised plan to the Township for approval. If a problem arises, the applicant may need to seek the assistance of a qualified professional.
- ✓ Installed stormwater facilities and/or BMPs shall not adversely affect any property, septic systems, or drinking water wells on this or any other property.
- ✓ The applicant acknowledges that the installed stormwater management facilities and/or BMPs will be a permanent fixture of the property, shall be inspected and maintained regularly to retain the original function, and cannot be altered or removed without the approval of the Sewickley Township Board of Supervisors.

I (we) \_\_\_\_\_, hereby acknowledge the above statements

and agree to assume full responsibility for the implementation, construction, operation, and maintenance of the proposed stormwater management facilities and/or BMPs. Furthermore, I (we) acknowledge that the steps, assumptions, and guidelines provided in the Sewickley Township Small Project Stormwater Management Plan and Worksheet will be adhered to.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## APPENDIX B

### OPERATION AND MAINTENANCE (O&M) AGREEMENT STORMWATER MANAGEMENT BEST MANAGEMENT PRACTICES (SWM BMPs)

**THIS AGREEMENT**, made and entered into this day \_\_\_\_\_ of \_\_\_\_\_, 20\_\_\_\_\_, by and between \_\_\_\_\_ (hereinafter the "Landowner"), and Sewickley Township, Westmoreland County, Pennsylvania (hereinafter "Municipality");

#### WITNESSETH

**WHEREAS**, the Landowner is the owner of certain real property as recorded by deed in the land records of Westmoreland County, Pennsylvania, Deed Book \_\_\_\_\_ at page \_\_\_\_\_, (hereinafter "Property").

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

**WHEREAS**, the SWM BMP Operation and Maintenance (O&M) Plan approved by the Municipality (hereinafter referred to as the "O&M 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 SWM BMPs as required by said SWM Site 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 SWM Site Plan in good working order in accordance with the specific operation and maintenance requirements noted on the approved O&M 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 BMP(s). 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. A timeline shall be set as mutually agreed upon .....

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 on-site BMPs by the Landowner; provided, however, that this Agreement shall not be deemed to create 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 BMP(s) by the Landowner or Municipality.

8. The Municipality intends to inspect the BMPs at a minimum of once every three years to ensure their continued functioning.

This Agreement shall be recorded at the Office of the Recorder of Deeds of Westmoreland 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.

ATTEST:

WITNESS the following signatures and seals:

(SEAL)

For the Municipality:

---

For the Landowner:

---

ATTEST:

\_\_\_\_\_, Sewickley Township

County of Westmoreland, Pennsylvania

I, \_\_\_\_\_, a Notary Public in and for the county and state aforesaid, whose commission expires on the day \_\_\_\_\_ of \_\_\_\_\_, 20\_\_\_\_\_, do hereby certify that whose name(s) is/are signed to the foregoing Agreement bearing date of the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_, has acknowledged the same before me in my said county and state.

**GIVEN UNDER MY HAND THIS** \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_.

\_\_\_\_\_  
**NOTARY PUBLIC**

\_\_\_\_\_  
**(SEAL)**

**The Sewickley Township Stormwater Management and Land  
Disturbance Activity Ordinance  
APPENDIX C  
The Sewickley Township  
SMALL PROJECT STORMWATER MANAGEMENT PLAN**

This small project stormwater management plan has been developed to assist those proposing residential projects to meet the requirements of the *Westmoreland County Model Stormwater Management Ordinance* (SWO) without having to draft a formal stormwater management plan. This small project stormwater management plan is only permitted for projects with new impervious area between 1,000 and 3,000 square feet, OR total earth disturbance between 3,000 and 5,000 square feet, (Section 302 Regulated Development Activity Table of the SWO) and by using the recommendations in this Appendix for Volume Control. Additional information can be found in Chapter 6 of the PA SW BMP Manual 2006 or most recent version.

**A. What is an applicant required to submit?**

All requirements of Section 305 of the Sewickley Township Stormwater Management and Land Disturbance Activity Ordinance, including:

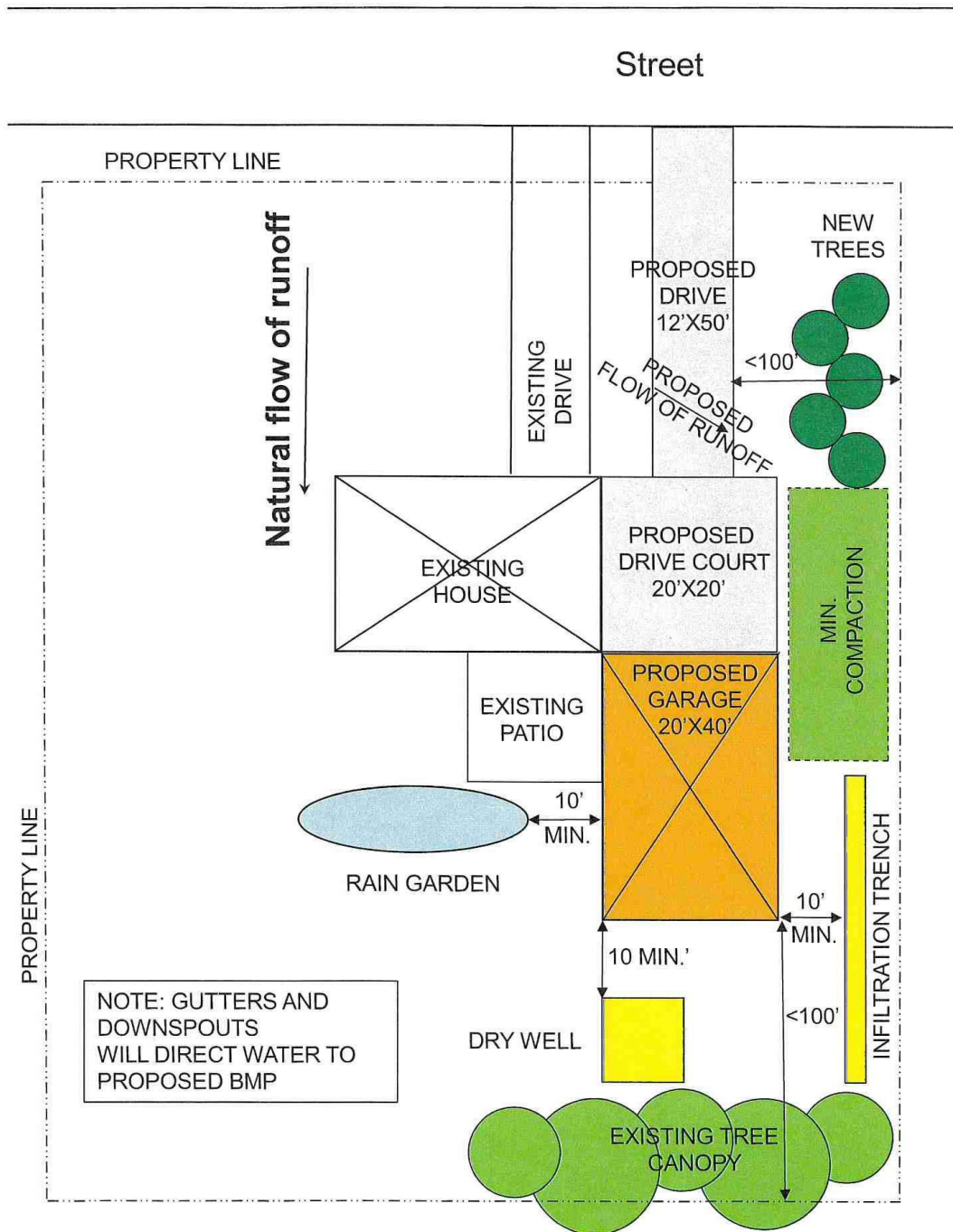
- ✓ A narrative including a brief description of the proposed stormwater facilities and BMPs, types of materials to be used, total square footage of proposed impervious areas, volume calculations;
- ✓ A sketch plan showing location of existing and proposed structures, driveways, or other paved areas with approximate surface area in square feet; location of any existing or proposed utilities, especially onsite septic system and/or potable water wells showing proximity to infiltration facilities, location and dimensions of all proposed stormwater facilities and BMPs;
- ✓ Small Project Stormwater Management Worksheet;
- ✓ Signed agreement page for installation, operation and maintenance of stormwater facilities and BMPs (Refer to Appendix B); and
- ✓ Conservation District erosion and sediment control “Adequacy” letter as required by Municipal, County or State regulations;

**B. Determination of Required Control Volume and Sizing Stormwater Facilities and BMPs**

By following the simple steps outlined below in the provided example and Small Project Stormwater Management Worksheet, an applicant can determine the runoff volume that is required to be controlled and how to choose the appropriate stormwater facility or BMP to permanently remove the runoff volume from the site. Impervious area calculations must include all areas on the lot proposed to be covered by roof area or pavement which would prevent rain from naturally percolating into the ground, including proposed impervious surfaces such as sidewalks, driveways, parking areas, patios or swimming pools. **NOTE: Sidewalks, driveways or patios that are designed and constructed to allow for infiltration (permeable paving systems) are not included in this calculation.**

## Small Project Sketch Plan: *Example*

Project Name: \_\_\_\_\_ Date: \_\_\_\_\_  
 Location: \_\_\_\_\_





## Step 1: Determine Total Impervious Surfaces and Required Control Volume:

**TABLE 1: Example**

| New Impervious Surface | Dimensions (width x length) (FT) | Area in SF    | 1" storm Multiplier (0.083) | Required Control Volume 1" in CF |
|------------------------|----------------------------------|---------------|-----------------------------|----------------------------------|
| <i>Garage Roof</i>     | <i>20'x40'</i>                   | <i>800 SF</i> | <i>0.167</i>                | <i>133 CF</i>                    |
| <i>Driveway Court</i>  | <i>20'x20'</i>                   | <i>400 SF</i> | <i>0.167</i>                | <i>67 CF</i>                     |
| <i>Driveway</i>        | <i>12'x50'</i>                   | <i>600 SF</i> | <i>0.167</i>                | <i>100 CF</i>                    |
|                        |                                  | SF            |                             | CF                               |
|                        |                                  | SF            |                             | CF                               |
|                        |                                  | SF            |                             | CF                               |

**Total Required Control Volume (enter in Table 2):** 300 CF

In Table 1, as in the example above and as shown on the Figure 1 example sketch plan, list each of the new improvements that create impervious area on the property along with their dimensions and total area in square feet in the first three columns. Then, depending on the design storm required by the municipality, multiply the area in square feet by the design storm multiplier to determine required control volume and list in the last column. Add each of the required control volumes together to equal the Total Required Control Volume and enter in Table 2.

## Step 2: Sizing the Selected Volume Control BMP(s)

Several Best Management Practices (BMPs) are suitable for small stormwater management projects. However, their application depends on the volume required to be controlled, how much land is available, and the site constraints. Proposed residential development activities can apply both nonstructural and structural BMPs to control the volume of runoff from the site. A number of these different volume control BMPs are described below. Note that Figure 1 is an example of how these BMPs can be utilized on a property to control the total required control volume.

Credit can be taken for non-structural best management practices (BMPs) on a site to reduce the total volume required to be controlled. Credits must follow the requirements listed in this Appendix. Fill out Table 2 with proposed non-structural BMP credits and structural BMP control volumes entered in Tables 6 and 10 to meet the total required control volume.

**TABLE 2: Example**

|   |               |
|---|---------------|
| <b>Required Control Volume (Table 1)</b>                                    | <b>300 CF</b> |
| Non-structural BMP Credit (Table 6)   | 137 CF        |
| <b>Adjusted Required Control Volume (after credits) (Table 1 - Table 6)</b> | <b>163 CF</b> |
| Structural BMP Control Volume (Table 10)                                    | 202 CF        |
| <b>TOTAL Volume Controlled (Table 6 + Table 10)</b>                         | <b>338 CF</b> |

NOTE: Total Volume Controlled shall be **greater than or equal to** Required Control Volume.

### Step 3: Choosing and Measuring Non-Structural BMPs

#### 1. Tree Planting and Preservation

Trees and forests reduce stormwater by capturing, storing and evapotranspiring rainfall through their roots and leaves. Tree roots and leaf litter also create soil conditions that promote infiltration of rainwater into the soil and that breakdown excessive nutrients and pollutants. For more information refer to the PA DEP BMP Manual 5.6.3.

Considerations for credit:

- ✓ New tree plantings must be at least 6 feet in height and have at least a 2 inch caliper trunk, and the quantity entered in Table 3
- ✓ New tree plantings must be native to Pennsylvania. Refer to <http://www.dcnr.pa.gov/Conservation/WildPlants/Pages/default.aspx>
- ✓ Existing trees must have at least a 4" caliper trunk, and must be located within 100 feet of impervious surfaces
- ✓ Measure existing tree canopy by determining the square foot area covered within the drip line of the tree(s), and enter the area in Table 4
- ✓ Site runoff should be directed via sheet flow to the area(s) of trees being used for volume control

**TABLE 3: New Tree(s)**

| New Trees | Volume Control Multiplier | Tree Quantity | Volume Controlled (CF) |
|-----------|---------------------------|---------------|------------------------|
| Deciduous | 6 CF                      | 2             | 12 CF                  |
| Evergreen | 10 CF                     | 3             | 30 CF                  |
|           |                           |               |                        |

Total Volume Control Credit (new trees) enter in Table 6: 42 CF

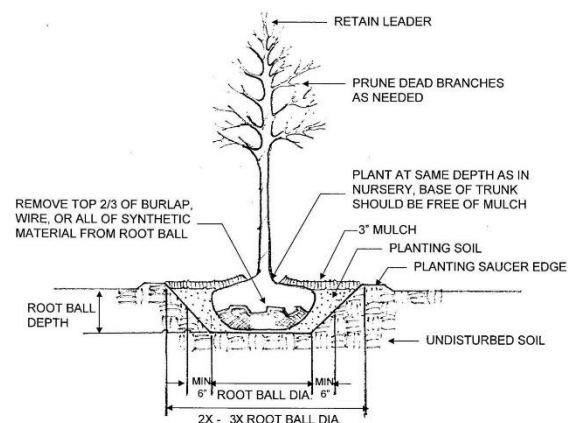
**TABLE 4: Existing Tree Canopy**

| Existing Tree Canopy (SF) | Distance of Impervious to Canopy (FT) | Volume Control Multiplier | Volume Controlled (CF) |
|---------------------------|---------------------------------------|---------------------------|------------------------|
| SF                        | 0 FT to 20 FT                         | 0.0833                    | CF                     |
| 2000 SF                   | 20 FT to 100 FT                       | 0.0416                    | 83 CF                  |
|                           |                                       |                           |                        |

Total Volume Control Credit (ex. trees) enter in Table 6: 83 CF



Remove all synthetic material from the root ball before planting



**TREE PLANTING**

WCD 2009 N.T.S.

## 2. Minimize Soil Compaction and Revegetate (lawn or meadow seeding)

When soil is overly compacted during construction it can cause a drastic reduction in the permeability of the soil and rarely is the soil profile completely restored. Runoff from overly compacted vegetated areas can resemble increased runoff from impervious areas. Minimizing soil compaction during the construction process, or restoring and amending compacted soils and revegetating them after construction can greatly increase natural infiltration on a site. For more information refer to the PA DEP BMP Manual 5.6.2 and 5.6.3.

Considerations for credit:

- Area(s) shall not be stripped of topsoil and areas shall be protected from construction vehicles and lay down space with construction fencing or mats. Enter square foot area in Table 5.
- Soil ripping and soil amendments can be used to restore the soils
- Vegetation should be used, especially native plants and meadow mixes as an alternative to lawn

**TABLE 5: Minimize Soil Compaction Example**

| Type of stabilization | Area of minimal compaction (SF) | Volume Control Multiplier | Volume Controlled (CF) |
|-----------------------|---------------------------------|---------------------------|------------------------|
| Meadow                | SF                              | 0.0275                    | CF                     |
| Lawn                  | 600 SF                          | 0.0208                    | 12 CF                  |
|                       |                                 |                           |                        |

Total Volume Control Credit (min. compaction) enter in Table 6: 12 CF



Plywood sheets protect lawn from compaction



Fencing protects areas from compaction

### Step 4: Determining Non-Structural BMP Credit:

**TABLE 6: Non-Structural BMP Credit Summary: Example**

| Non- structural BMP             | Storage Volume Credit (CF) |
|---------------------------------|----------------------------|
| New Tree                        | 42 CF                      |
| Existing Tree Canopy            | 83 CF                      |
| Minimized Soil Compaction       | 12 CF                      |
| <b>TOTAL (enter in Table 2)</b> | <b>137 CF</b>              |

## Step 5: Choosing and Sizing Structural BMPs

### 1. Infiltration Trench

An infiltration trench is a linear stormwater management BMP consisting of a continuously perforated pipe at a minimum slope in a stone-filled trench. During small storm events, infiltration trenches can significantly reduce volume and serve in the removal of fine sediments and pollutants. Runoff is stored in the pipe and between the stones and infiltrates through the bottom of the facility and into the surrounding soil matrix. Runoff should be pretreated using vegetative buffer strips or swales to limit the amount of coarse sediment entering the trench which can clog and render the trench ineffective. In all cases, an infiltration trench should be designed with a positive overflow to a stable outlet point. For more information refer to the PA DEP BMP Manual 6.4.4.

#### Design Considerations:

- Continuously perforated pipe (min 4" diameter) set at a minimum slope (1%) in a stone filled, nearly level-bottomed trench on un-compacted soils.
- The trench width and depth can vary, but it is recommended that infiltration trenches be no wider than four (4) feet, and a minimum of thirty (30) inches and maximum six (6) feet in depth.
- Stone fill should be clean, angular stone, separated from soil layers by four (4) inches of straw (top and bottom) or a nonwoven geotextile (top, sides, and bottom).
- A minimum of 6" of topsoil can be placed over trench and vegetated.
- Cleanouts or inlets should be installed at both ends and at intersections of the infiltration trench and at appropriate intervals to allow access to the perforated pipe.
- The discharge or outlet from the infiltration trench should be safely conveyed to a stable vegetated area, natural watercourse, the curb or gutter line of roadway or existing storm collection/conveyance/control system as applicable.
- Volume of facility = Depth x Width x Length x Void Space of the gravel bed (assume 40%).

#### Maintenance:

- Cleanouts, catch basins and inlets should be inspected at least two times a year and cleaned out as necessary to maintain function of the system.
- The vegetation along the surface of the infiltration trench should be maintained in good condition and any bare spots should be re-vegetated as soon as possible.
- Vehicles should not be parked or driven on the trench and care should be taken to avoid soil compaction by lawn mowers.

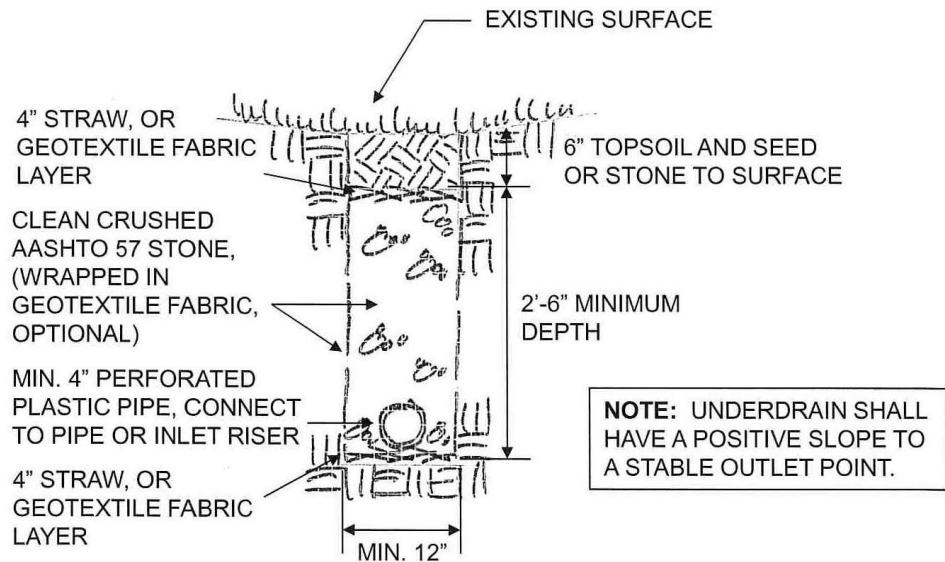
**TABLE 7 - Determining size of infiltration trench for volume control: *Example***

| Required Control Volume (CF) From Table 2 | Storage Volume Divider | Trench Volume (CF) | Trench Depth (FT) | Trench Width (FT) | Trench Length (FT) | Volume Controlled |
|---|------------------------|--------------------|-------------------|-------------------|--------------------|-------------------|
| 163                                       | 0.4                    | 413 CF             | 3FT               | 3FT               | 46FT               | 165 CF            |
|   |                        |                    |                   |                   |                    |                   |

Total Volume Control Credit (Inf. trench) **enter in Table 10:** 165 CF



## Infiltration Trench Construction:



Perforated pipe covered with stone and wrapped in fabric



Perforated pipe covered in stone with straw  
separation layers

## 2. Rain Garden

A rain garden is a landscaped shallow depression that uses mulch, soil mix, and deep rooted plants to capture, adsorb and infiltrate stormwater runoff from roofs, and pavement. For more information refer to the PA DEP BMP Manual 6.4.5.

Design considerations:

- ✓ A rain garden should be located on nearly level to gently sloping ground and no closer than 10 feet to a building foundation and 25 feet from septic field or wellhead.
- ✓ A rain garden can vary in length, width and depth, but should have a ponding depth of 6 to 12 inches, and a total surface depth of no greater than 18 inches.
- ✓ Side slopes within the garden should not exceed 3:1 horizontal to vertical.
- ✓ The rain garden should be constructed in layers with a (min 4") perforated underdrain in a clean angular stone envelope, separated from soil layers by four (4) inches of straw (top and bottom) or a nonwoven geotextile (top, sides, and bottom), covered with 12 inches to 36 inches of 50-30-20 topsoil-sand-compost mix or as approved by the municipality, and 3 inches of shredded bark mulch or vegetated cover. Soil depth should be determined by plant choices and control volume requirements.
- ✓ Vegetation should be deep rooted and tolerant of wet and dry conditions, salts and environmental stress.
- ✓ An emergency overflow should be set in the rain garden such as a vertical pipe or inlet box, with basket type grate set even with the ponding depth, below the surrounding ground elevation and connected to the perforated underdrain and an outlet pipe.
- ✓ The outlet from the rain garden should be safely conveyed to a stable vegetated area, natural watercourse, the curb or gutter line of roadway or existing storm collection/conveyance/control system as applicable.

Maintenance:

- ✓ Cleanouts, catch basins and inlets should be inspected at least two times a year and cleaned out as necessary to maintain function of the system. Detritus should be removed from the rain garden as necessary to prevent clogging of the overflow outlet.
- ✓ The vegetation should be maintained in good condition and replaced as necessary. Rain garden plants may need to be watered during dry spells.
- ✓ Rain garden should be weeded and shredded bark mulch should be amended as necessary to prevent volunteer weeds.

**TABLE 8 – Determining Size of Rain Garden for volume control: *Example***

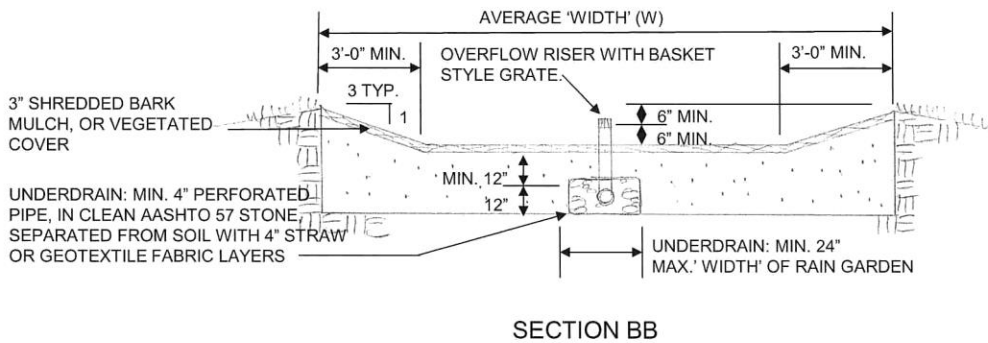
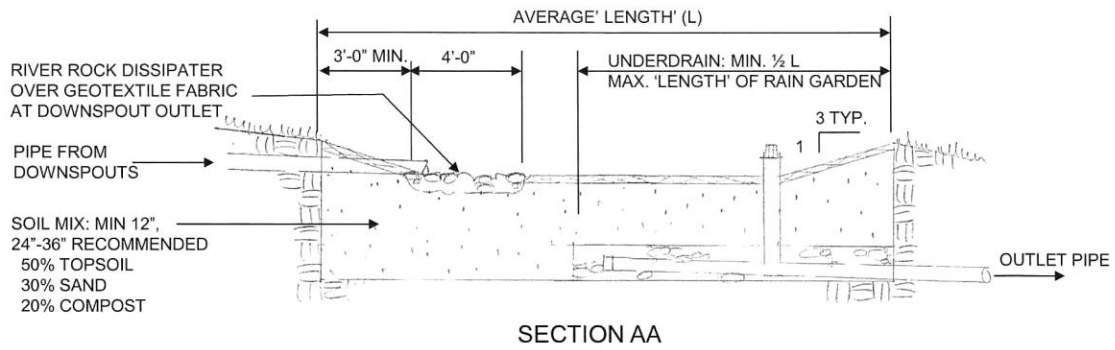
(surface volume, soil storage volume should **each** be greater than or equal to required control volume)

| Required Control Volume (CF) from Table 2 | Ponding Depth (0.5 FT to 1.0 FT) Divider | Rain Garden Surface Area (SF) | Rain Garden Width (FT) | Rain Garden Length (FT) | Soil Mix Depth (1 FT to 3 FT) Multiplier | Soil Storage Volume Multiplier | Soil Storage Volume (<= RCV) | Volume Controlled (soil) |
|---|--|-------------------------------|------------------------|-------------------------|--|--------------------------------|------------------------------|--------------------------|
| 165 CF                                    | 0.5                                      | 330 SF                        | 12 FT                  | 28FT                    | 2 FT                                     | 0.3                            | 202 CF                       | 202 CF                   |
|   |  |                               |                        |                         |  |                                |                              |                          |

Total Volume Control Credit (rain garden) **enter in Table 10:** 202 CF



## Rain Garden Construction:



Mark rain garden location to avoid utilities



Excavate rain garden at least 10' from foundation



Separate underdrain layer from soil with fabric or straw



Use decorative but tolerant plants for seasonal interest

### 3. Dry Well / Seepage Pit

A dry well or seepage pit is a subsurface storage facility that temporarily stores stormwater runoff from roofs and infiltrates it into the surrounding soils. Roof downspouts connect directly to a dry well or seepage pit that is an excavated pit filled with clean angular stone with an overflow pipe to ensure the system will not be overwhelmed. Prefabricated chamber systems or perforated pipe sections are commercially available for use as dry wells and should be designed, constructed and maintained according to the manufacturer's recommendations. For more information on dry wells and seepage pits refer to the PA DEP BMP Manual 6.4.6.

#### Design considerations:

- ✓ A dry well / seepage pit should be located on nearly level to gently sloping ground and no closer than 10 feet to a building foundation and 25 feet from septic field or wellhead.
- ✓ A dry well / seepage pit can vary in length, width and depth, but should be a minimum depth of 3 feet.
- ✓ A downspout should direct water to the surface, a system of perforated pipes should distribute the water throughout the system with an inspection/cleanout pipe to the surface, and an over flow pipe should outlet excess water during intense storms.
- ✓ The storage system can be clean angular stone, separated from soil layers by four (4) inches of straw (top and bottom) or a nonwoven geotextile (top, sides, and bottom).
- ✓ The outlet from the dry well / seepage pit should be safely conveyed to a stable vegetated area, natural watercourse, the curb or gutter line of roadway or existing storm collection/conveyance/control system as applicable.

#### Maintenance:

- ✓ Drywells and seepage pits should be inspected at least 4 times a year, and after each storm event exceeding 1 inch.
- ✓ Remove sediment, debris, detritus and any other waste material from the system as necessary.
- ✓ Regularly clean out gutters and downspouts to ensure proper connections and to maintain effectiveness of the system.
- ✓ Replace any filter screen or clean out any sump box that may intercept roof runoff as necessary.

**Table 9: Determining Size of Dry Well (stone filled) for volume control: *Example***

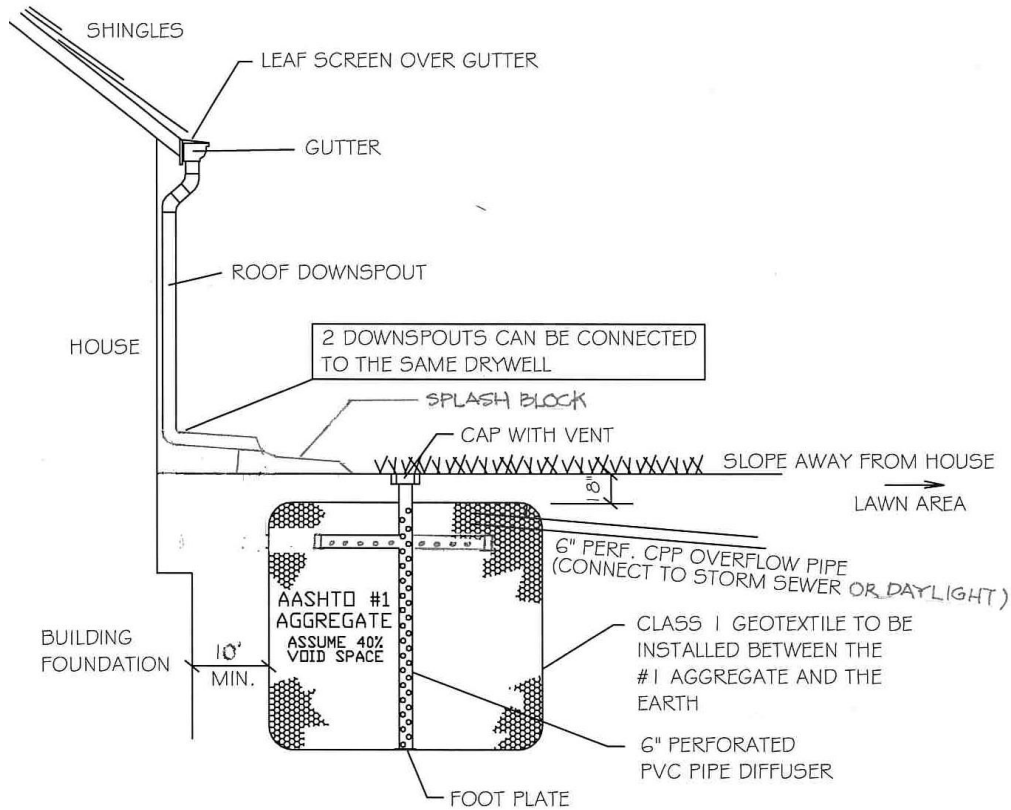
| Required Control Volume (CF) from Table 2 | Storage Volume Divider | Dry Well Volume (CF) | Dry Well Depth (FT) | Dry Well Width (FT) | Dry Well Length (FT) | Volume Controlled (CF) |
|---|------------------------|----------------------|---------------------|---------------------|----------------------|------------------------|
| 165                                       | 0.4                    | 413 CF               | 5 FT                | 9 FT                | 9.2 FT               | 165 CF                 |
|   |                        |                      |                     |                     |                      |                        |

Total Volume Control Credit (dry well) **enter in Table 10:** 165 CF

**NOTE:** Applicants are required to utilize the manufacturer's recommendations for sizing proprietary stormwater infiltration systems, and to submit supporting documentation for meeting the required control volume and maintenance requirements.



## Dry Well (stone filled) Construction:



Excavate a drywell at least 10' from foundation



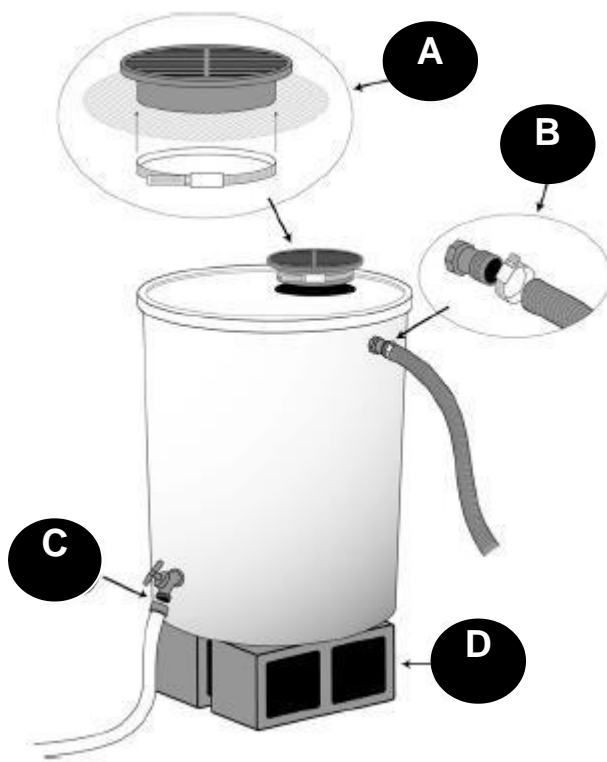
Separate stone fill from soil with straw layers or fabric

#### 4. Alternative BMP Capture and Re-Use (rain barrel / cistern)

Rain barrels and cisterns are above or below ground containers used for temporary storage of rainwater, to be used for landscape irrigation and other similar uses after the rain has ended. A rain barrel or cistern **cannot be used** as a volume control because infiltration is not guaranteed after a storm event, but they are viable alternative method to capture and reuse stormwater.

##### Considerations:

- ✓ Rain barrels and cisterns should be directly connected to a downspout with a mosquito screen
- ✓ There should be a means to release the water after a storm event to provide storm volume for the next event
- ✓ An overflow, near the top of the container should direct water to a vegetated area away from any structures
- ✓ Barrels can be connected in series to provide more volume collection



##### ANATOMY OF A RAIN BARREL

A – hole in top for downspout connection, with screen for mosquitoes

B – hole on side near top for overflow hose

C – hole on side near bottom for draining

D– blocks to elevate barrel as needed for draining

## Step 6: Determining BMP Volume Control

**TABLE 10: Structural BMP Volume Control Summary:**

| Structural BMP                  | Storage Volume (CF) |
|---------------------------------|---------------------|
| Infiltration Trench             | CF                  |
| Rain Garden                     | 202 CF              |
| Dry Well                        | CF                  |
| <b>TOTAL (enter in Table 2)</b> | <b>202 CF</b>       |

*Use Small Project Stormwater Management Worksheet*

## Step 7: Post-Installation Operation and Maintenance Requirements

It is the property owner's responsibility to properly maintain any stormwater facilities and BMPs in accordance with the minimum maintenance requirements listed in this Appendix. The property owner shall submit a signed acknowledgment to the Sewickley Township Board of Supervisors for installation, and maintenance of any proposed stormwater management facilities and BMPs. It is also the property owner's responsibility to inform any future owners of the function, operation and maintenance needed for any BMPs on the property prior to the purchase of the property.

*Refer to Sample(s) Appendix B*

## SMALL PROJECT STORMWATER MANAGEMENT WORKSHEET

### For Sewickley Township

Project Name: \_\_\_\_\_ Date: \_\_\_\_\_

Location: \_\_\_\_\_

**TABLE 1: Determination of Control Volume Requirements:**

| New Impervious Surface | Area in SF | 1" storm<br>Multiplier<br>(0.083) | Required Control Volume<br>1" in CF |
|------------------------|------------|-----------------------------------|-------------------------------------|
|                        | SF         |                                   | CF                                  |
|                        | SF         |                                   | CF                                  |
|                        | SF         |                                   | CF                                  |
|                        | SF         |                                   | CF                                  |
|                        | SF         |                                   | CF                                  |
|                        | SF         |                                   | CF                                  |

**Total Required Control Volume (enter in Table 2): \_\_\_\_\_ CF**

**TABLE 2: Determination of Volume Controlled:**

|   |           |
|---|-----------|
| <b>Required Control Volume (Table 1)</b>  | <b>CF</b> |
| Non-structural BMP Credit (Table 6)   | -         |
| <b>Adjusted Required Control Volume<br/>(after credits) (Table 1 – Table 6)</b> | <b>CF</b> |
| Structural BMP Control Volume (Table 10)  | CF        |
| <b>TOTAL Volume Controlled<br/>(Table 6 + Table 10)</b>                         | <b>CF</b> |

NOTE: Total Volume Controlled shall be **greater than or equal to** Required Control Volume.

### Determining Non-Structural BMP Credit:

**TABLE 3: New Tree(s)**

| New Trees | Volume Control<br>Multiplier | Tree Quantity | Volume Controlled (CF) |
|-----------|------------------------------|---------------|------------------------|
| Deciduous | 6 CF                         |               | CF                     |
| Evergreen | 10 CF                        |               | CF                     |
|           |                              |               |                        |

**Total Volume Control Credit (new trees) enter in Table 6: \_\_\_\_\_ CF**

**TABLE 4: Existing Tree Canopy**

| Existing Tree Canopy<br>(SF) | Distance of Impervious to<br>Canopy (FT) | Volume Control<br>Multiplier | Volume Controlled (CF) |
|------------------------------|--|------------------------------|------------------------|
| SF                           | 0 FT to 20 FT                            | 0.0833                       | CF                     |
| SF                           | 20 FT to 100 FT                          | 0.0416                       | CF                     |
|                              |  |                              |                        |

**Total Volume Control Credit (ex. trees) enter in Table 6: \_\_\_\_\_ CF**

**TABLE 5: Minimize Soil Compaction**

| Type of stabilization | Area of minimal compaction (SF) | Volume Control Multiplier | Volume Controlled (CF) |
|-----------------------|---------------------------------|---------------------------|------------------------|
| Meadow                | SF                              | 0.0275                    | CF                     |
| Lawn                  | SF                              | 0.0208                    | CF                     |
|                       |                                 |                           |                        |

Total Volume Control Credit (min. compaction) **enter in Table 6:** \_\_\_\_\_ CF

**TABLE 6: Non-Structural BMP Credit Summary:**

| Non- structural BMP             | Storage Volume Credit (CF) |
|---------------------------------|----------------------------|
| New Tree                        | CF                         |
| Existing Tree Canopy            | CF                         |
| Minimized Soil Compaction       | CF                         |
| <b>TOTAL (enter in Table 2)</b> | <b>CF</b>                  |

**Sizing of Structural BMPs:****TABLE 7: Infiltration Trench (stone filled)**

| Required Control Volume (CF) | Storage Volume Divider | Trench Volume (CF) | Trench Depth (FT) | Trench Width (FT) | Trench Length (FT) | Volume Controlled |
|------------------------------|------------------------|--------------------|-------------------|-------------------|--------------------|-------------------|
| CF                           | 0.4                    | CF                 | FT                | FT                | FT                 | CF                |
|                              |                        |                    |                   |                   |                    |                   |

Total Volume Control Credit (Inf. trench) **enter in Table 10:** \_\_\_\_\_ CF

**TABLE 8: Rain Garden** (surface & soil storage volume should be greater than or equal to required control vol.)

| Required Control Volume (CF) | Ponding Depth (0.5 FT to 1.0 FT) Divider | Rain Garden Surface Area (SF) | Rain Garden Width (FT) | Rain Garden Length (FT) | Soil Mix Depth (1 FT to 3 FT) Multiplier | Soil Storage Volume Multiplier | Soil Storage Volume (<= RCV) | Volume Controlled (soil) |
|------------------------------|--|-------------------------------|------------------------|-------------------------|--|--------------------------------|------------------------------|--------------------------|
| CF                           | FT                                       | SF                            | FT                     | FT                      | FT                                       | 0.3                            | CF                           | CF                       |
|                              |  |                               |                        |                         |  |                                |                              |                          |

Total Volume Control Credit (rain garden) **enter in Table 10:** \_\_\_\_\_ CF

**TABLE 9: Dry Well (stone filled)**

| Required Control Volume (CF) | Storage Volume Divider | Dry Well Volume (CF) | Dry Well Depth (FT) | Dry Well Width (FT) | Dry Well Length (FT) | Volume Controlled (CF) |
|------------------------------|------------------------|----------------------|---------------------|---------------------|----------------------|------------------------|
| CF                           | 0.4                    | CF                   | FT                  | FT                  | FT                   | CF                     |
|                              |                        |                      |                     |                     |                      |                        |

Total Volume Control Credit (dry well) **enter in Table 10:** \_\_\_\_\_ CF

**TABLE 10: Structural BMP Volume Control Summary:**

| Structural BMP                  | Volume Controlled (CF) |
|---------------------------------|------------------------|
| Infiltration Trench             | CF                     |
| Rain Garden                     | CF                     |
| Dry Well                        | CF                     |
| <b>TOTAL (enter in Table 2)</b> | <b>CF</b>              |

**APPENDIX D**  
**Sewickley Township**  
**Stormwater Management Plan Checklist**

See Sewickley Township Stormwater Management and Land Disturbance Activity Ordinance for complete requirements.

Project Name: \_\_\_\_\_ Date: \_\_\_\_\_

Location: \_\_\_\_\_ Performance District: \_\_\_\_\_.

Type of Plan: \_\_\_ Residential, \_\_\_ Commercial, \_\_\_ Institutional, \_\_\_ Industrial, \_\_\_ Recreational, \_\_\_ Other

Owner: \_\_\_\_\_ Contact Information: \_\_\_\_\_.

Plan Preparer: \_\_\_\_\_ Contact Information: \_\_\_\_\_.

**Submission Requirements**

- Checklist
- Application
- Fees and
- Location map (USGS)
- T h r e e    ( 3 )    sets completed plans, narrative
- E&S plan, as submitted for approval
- Operation and maintenance agreement
- Municipal notification(s)
- Financial guarantees, maintenance fund

**General Requirements**

Narrative:

- Project description, including Watershed Performance District, existing and proposed features and improvements, soils and limitations, landform, land cover, drainage areas, utilities, proposed SWM facilities and BMPs, easements and other information required by the Sewickley Township Stormwater Management and Land Disturbance Activity Ordinance
- Stormwater calculations
- Project schedule
- Construction sequence, including phases if applicable
- Justification for SWM facilities and/or BMPs
- Operation and Maintenance requirements and responsible party(s)

Plan:

- Location map (USGS)
- Watershed Performance District
- Existing natural features
- Soils; and limitations
- Landform; existing and proposed contours at 2' intervals, or 5' intervals for slopes >15%
- Land cover; existing and proposed improvements
- Drainage areas; existing and proposed
- Utilities; existing and proposed
- SWM facilities and BMPs; existing and proposed
- Easements, including offsite easements for drainage
- Stormwater construction details and sections (as applicable)
- Stormwater construction notes and sequence
- Operation and Maintenance requirements and responsible party(s)

## **APPENDIX E**

### **FEES, FINANCIAL GUARANTEES**

1. The landowner shall pay to the Sewickley Township all fees as are established by Sewickley Township for issuance of permits, evaluation of plans, inspections, and re-inspection of properties governed by this ordinance and as outlined for each regulated development activity listed below.
2. The landowner shall pay to Sewickley Township a financial guarantee in the amount and form as acceptable to Sewickley Township and in accordance with §701 for the construction and/or reconstruction of any BMP as deemed necessary and appropriate by Sewickley Township
3. Separate fees for reviews and/or inspections by the Westmoreland Conservation District (WCD) are to be paid directly to the WCD and in accordance with their fee schedule.

#### **Exemptions**

(Sites with less than 500 Sq. Ft. of new impervious area AND less than 1 Acre of disturbed area.)

1. Application Fee: \$100
2. Review Fee: \$300 + Subsequent Review Fee (if required): \$124/Hour <sup>(1)</sup>
3. Site Inspection Fee: \$300 per inspection, if required. <sup>(1)</sup>

#### **Waiver / Modification / Demonstrated Equivalency (Subject to Municipal approval)**

(Sites with less than 1/2 acre of new impervious area AND less than 1 acre of disturbed area.)

1. Application Fee: \$100
2. Review Fee: \$600 + Subsequent Review Fee (if required): \$100/Hour <sup>(1)</sup>
3. Site Inspection Fee: \$300 per inspection, if required. <sup>(1)</sup>

#### **Small Project Site Plan**

(Sites with new impervious of 1,000 Sq. Ft. to 3,000 Sq. Ft., OR disturbed area of 3,000 Sq. Ft. to 5,000 Sq. Ft.)

1. Application Fee: \$100
2. Review Fee: \$500 + Subsequent Review Fee (if required): \$124/Hour <sup>(1)</sup>
3. Site & Construction Inspection Fee: \$124/Hour <sup>(1)</sup>
4. Post- Construction Inspections Deposit: \$1,200 (\$300/inspection for 4 inspections). <sup>(3)</sup>
5. Post- Construction Maintenance Deposit: To be determined according to §604. <sup>(2)</sup>

#### **Stormwater Management Site Plan**

(Greater than 3,000 Sq. Ft. of new impervious area, OR greater than 5,000 Sq. Ft. of disturbed area.)

1. Application Fee: \$500
2. Review Fee: \$600 + Subsequent Review Fee (if required): \$124/Hour <sup>(1)</sup>
3. Site & Construction Inspection Fee: \$124/Hour <sup>(1)</sup>
4. Post- Construction Inspections Deposit: \$1,600 (\$400/inspection for 4 inspections) <sup>(3)</sup>

5. Post- Construction Maintenance Deposit: To be determined according to §704. (2)

Notes:

- (1) The Township may invoice applicants for associated costs over and above the amount of fees paid per §806.
- (2) See §604 regarding required deposits to the Stormwater Facility and BMP Operation and Maintenance Fund.
- (3) Upon completion of Construction in year 1 and every 3 years (years 4, 7 and 10) for a period of 10 years.



## APPENDIX F

### LOW IMPACT DEVELOPMENT PRACTICES

#### ALTERNATIVE APPROACH FOR MANAGING STORMWATER RUNOFF

Natural hydrologic conditions may be altered radically by poorly planned development practices, such as introducing unneeded impervious surfaces, destroying existing drainage swales, constructing unnecessary storm sewers, and changing local topography. A traditional drainage approach of development has been to remove runoff from a site as quickly as possible and capture it in a detention basin. This approach leads ultimately to the degradation of water quality as well as expenditure of additional resources for detaining and managing concentrated runoff at some downstream location.

The recommended alternative approach is to promote practices that will minimize post development runoff rates and volumes, which will minimize needs for artificial conveyance and storage facilities. To simulate pre-development hydrologic conditions, forced infiltration is often necessary to offset the loss of infiltration by creation of impervious surfaces. The ability of the ground to infiltrate depends upon the soil types and its conditions.

Preserving natural hydrologic conditions requires careful alternative site design considerations. Site design practices include preserving natural drainage features, minimizing impervious surface area, reducing the hydraulic connectivity of impervious surfaces, and protecting natural depression storage. A well-designed site will contain a mix of all those features. The following describes various techniques to achieve the alternative approach:

- **Preserving Natural Drainage Features.** Protecting natural drainage features, particularly vegetated drainage swales and channels, is desirable because of their ability to infiltrate and attenuate flows and to filter pollutants. However, this objective is often not accomplished in land development. In fact, commonly held drainage philosophy encourages just the opposite pattern – streets and adjacent storm sewers typically are located in the natural headwater valleys and swales, thereby replacing natural drainage functions with a completely impervious system. As a result, runoff and pollutants generated from impervious surfaces flow directly into storm sewers with no opportunity for attenuation, infiltration, or filtration. Developments designed to fit site topography also minimizes the amount of grading on site.
- **Protecting Natural Depression Storage Areas.** Depressional storage areas have no surface outlet, or drain very slowly following a storm event. They can be commonly seen as ponded areas in farm fields during wet season or after large runoff events. Traditional development practices eliminate these depressions by filling or draining, thereby obliterating their ability to reduce surface runoff volumes and trap pollutants. The volume and release-rate characteristics of depressions should be protected in the design of

development site. The depressions can be protected by simply avoiding the depressions or by incorporating its storage as additional capacity in required detention facilities.

- **Avoiding introduction of impervious areas.** Careful site planning should consider reducing impervious coverage to the maximum extent possible. Building footprints, sidewalks, driveways and other features producing impervious surfaces should be evaluated to minimize impacts on runoff.
- **Reducing the Hydraulic Connectivity of Impervious Surfaces.** Impervious surfaces are significantly less of a problem if they are not directly connected to an impervious conveyance system (such as storm sewer). Two basic ways to reduce hydraulic connectivity are routing of roof runoff over lawns and reducing the use of storm sewers. Site grading should promote increasing travel time of stormwater runoff, and should help reduce concentration of runoff to a single point in the development.
- **Routing Roof Runoff Over Lawns.** Roof Runoff can be easily routed over lawns in most site designs. The practice discourages direct connections of downspouts to storm sewers or parking lots. The practice also discourages sloping driveways and parking lots to the street. By routing roof drains and crowning the driveway to run off to the lawn, the lawn is essentially used as a filter strip.
- **Reducing the Use of Storm Sewers.** By reducing use of storm sewers for draining streets, parking lots, and back yards, the potential for accelerating runoff from the development can be greatly reduced. The practice requires greater use of swales and may not be practical for some development sites, especially if there are concerns for areas that do not drain in a “reasonable” time. The practice requires educating local citizens and public works officials, who expect runoff to disappear shortly after a rainfall event.
- **Reducing Street Widths.** Street widths can be reduced by either eliminating on-street parking or by reducing roadway widths. Municipal planners and traffic designers should encourage narrower neighborhood streets which ultimately could lower maintenance.
- **Limiting Sidewalks to One Side of the Street.** A sidewalk on one side of the street may suffice in low-traffic neighborhoods. The lost sidewalk could be replaced with bicycle/recreational trails that follow back-of-lot lines. Where appropriate, backyard trails should be constructed using pervious materials.
- **Using Permeable Paving Materials.** These materials include permeable interlocking concrete paving blocks or porous bituminous concrete. Such materials should be considered as alternatives to conventional pavement surfaces, especially for low use surfaces such as driveways, overflow parking lots, and emergency access roads.
- **Reducing Building Setbacks.** Reducing building setbacks reduces driveway and entry walks and is most readily accomplished along low-traffic streets where traffic noise is not a problem.

- **Constructing Cluster Developments.** Cluster developments can also reduce the amount of impervious area for a given number of lots. The biggest savings is the street length, which also will reduce costs of the development. Cluster development clusters the construction activity onto less-sensitive areas without substantially affecting the gross density of development.

In summary, a careful consideration of the existing topography and implementation of a combination of the above mentioned techniques may avoid construction of costly stormwater control measures. Other benefits include reduced potential of downstream flooding, water quality degradation of receiving streams/water bodies and enhancement of aesthetics and reduction of development costs. Beneficial results include more stable base flows in receiving streams, improved groundwater recharge, reduced flood flows, reduced pollutant loads, and reduced costs for conveyance and storage.