

## **ARTICLE III - STORMWATER MANAGEMENT STANDARDS**

### **Section 301. General SWM Site Plan Requirements**

- A. For all regulated activities, unless preparation of an SWM Site Plan is specifically exempted in Section 302:
  - 1. Preparation and implementation of an approved SWM Site Plan is required.
  - 2. No regulated activities shall commence until the Municipality issues written approval of an SWM Site Plan which demonstrates compliance with the requirements of this Ordinance.
- B. All SWM Site Plans for Regulated Activities shall include such measures as necessary to:
  - 1. Protect health, safety, and property.
  - 2. Meet the water quality goals of this Ordinance, as stated in Section 103, by including measures that:
    - a. Minimize disturbance to floodplains, wetlands, wooded areas, and existing vegetation.
    - b. Maintain or extend riparian buffers.
    - c.
    - c. Avoid erosive flow conditions in natural flow pathways.
    - d. Minimize thermal impacts to waters of the Commonwealth.
    - e. Disconnect impervious surfaces by directing runoff to pervious areas.
    - f. Minimize soil disturbance and compaction.
  - 3. Incorporate the techniques for Low Impact Development Practices described in the Pennsylvania Stormwater Best Management Practices Manual (BMP Manual).
- C. Stormwater flows onto adjacent property shall not be created, increased, decreased, relocated, or otherwise altered without the written notification of the adjacent property owner(s) by the developer. Copies of all such notifications shall be included in the SWM Site Plan submission.
- D. For all Regulated Activities where erosion and sediment control is required in accordance with Title 25 of the Pennsylvania Code and the Clean Streams Law, the SWM Site Plan shall include the required erosion and sedimentation control measures. Necessary E&S BMPs shall be designed in accordance with the Erosion

and Sediment Pollution Control Program Manual (E&S Manual) 2, No. 363-2134-008 (April 15, 2000), as amended and updated. Approval of the SWM Site Plan by the Township shall be conditioned on the applicant obtaining erosion and sedimentation control approval from the appropriate agency(ies), when applicable .

- E. For all Regulated Activities where NPDES permitting is required in accordance with the Clean Water Act (33 U.S.C. §1251 *et seq.* [1972], as amended), the SWM Site Plan shall include the information required in the applicant's NPDES Permit application. Approval of the SWM Site Plan by the Township shall be conditioned on the applicant obtaining NPDES Permit approval from the appropriate agency(ies), when applicable.
- F. For all regulated activities, implementation of the volume controls in Section 304 is required.
- G. Special Management Areas – SWM Site Plans involving Regulated Activities within Special Management Areas shall be prepared in a manner consistent with the guidance provided in Chapter 7 of the BMP Manual. The SWM Site Plan submission shall include design details for SWM BMPs within said Special Management Area, and shall include information on why the area is deemed to be a “Special Management Area”.
- H. A SWM Site Plan may propose that stormwater related to the proposed Regulated Activities be accommodated by existing stormwater management facilities on adjoining or nearby properties provided that the SWM Site Plan documents the following.
  - 1. The use of the stormwater management facilities located on said adjoining or nearby property is approved in writing by the owner of the property.
  - 2. The stormwater management facilities located on said adjoining or nearby property are designed in a manner that can accommodate the stormwater management needs of the Regulated Activity in a manner consistent with all requirements of this Ordinance. The SWM Site Plan shall include all documentation necessary for the Township to confirm such compliance.
- I. The design storm volumes to be used in the analysis of peak rates of discharge shall be obtained from the Precipitation-Frequency Atlas of the United States, Atlas 14, Volume 2, Version 3.0, as amended and updated, U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Weather Service, Hydro meteorological Design Studies Center, Silver Spring, Maryland. NOAA's Atlas 14 can be accessed at: <http://hdsc.nws.noaa.gov/hdsc/pfds/>.
- J. SWM Site Plans, once approved by the Township, shall remain on site throughout the duration of the Regulated Activity and be available for review as may be necessary by representatives of the Township.

- K. The design of all facilities over karst shall include an evaluation of measures to minimize adverse effects.
- L. The Township may, after consultation with DEP, approve measures for meeting the state water quality requirements other than those in this Ordinance, provided that they meet the minimum requirements of, and do not conflict with, state law including, but not limited to, the Clean Streams Law. The municipality shall maintain a record of consultations with DEP pursuant to this paragraph.

### **Section 302. Exemptions**

- A. A property owner or developer of any Regulated Activity that meets the following exemption criteria is, upon approval from the Township, exempt from the formal SWM plan submission requirements of this Ordinance as specified herein. However, the property owner or developer shall be subject to all other requirements of this Ordinance other than the formal SWM plan submission requirements for which an exemption or exemptions have been authorized. The criteria for exemption in this Section apply to the total development proposed, including instances in which the development is proposed to take place in phases. The date of enactment of this Ordinance shall be the starting point from which future development and the respective exemption criteria shall be cumulatively considered and regulated.
  - 1. Regulated Activities that involve equal to or less than one thousand (1,000) square feet of impervious surface may be exempted from the peak rate control, volume control and the SWM Site Plan preparation and submission requirements of this Ordinance. The applicant shall complete page 1 of the Municipal Stormwater Management Worksheet from the Stormwater Management Design Assistance Manual (see Plan Appendix C) and file said Worksheet with the Township.
  - 2. Regulated Activities that involve greater than one thousand (1,000) square feet and equal to or less than ten thousand (10,000) square feet of impervious area, and where the all the proposed impervious area can be entirely disconnected, may be exempted from the peak rate control, volume control, and the SWM Site Plan preparation and submission requirements of this Ordinance. The applicant shall complete the Stormwater Management Worksheets from the Stormwater Management Design Assistance Manual (see Plan Appendix C) and file said Worksheets with the Township.
  - 3. Regulated Activities that involve greater than one thousand (1,000) square feet and equal to or less than five thousand (5,000) square feet of impervious area may be exempted from the peak rate control and volume control preparation and submission requirements of this Ordinance. A Minor Stormwater Site Plan, as detailed in the Stormwater Management Design Assistance Manual (see Plan

Appendix C), shall be submitted to the Township instead of the submission of a full SWM Site Plan in accordance with Article IV of this Ordinance.

4. Agricultural Activities shall be exempt from the rate control, volume control and SWM Site Plan preparation and submission requirements of this Ordinance provided the agricultural activities are performed in accordance with the requirements of 25 Pa. Code 102. Further, such activities shall not be subject to the exemption approval process of Section 302.B of this ordinance.
  5. Forest management and timber operations are exempted from the rate control, volume control and SWM Site Plan preparation and submission requirements of this Ordinance provided the forest management and timber operations are performed in accordance with the requirements of 25 PA Code 102.
  6. Regulated Activities involving domestic gardening for single-family consumption shall be exempted from volume control, rate control, and SWM Site Plan preparation and submission requirements of this Ordinance, and shall not be subject to the exemption approval process of Section 302.B of this Ordinance.
  7. In Kind Repair, In Kind Replacement, and maintenance of existing surfaces, and structures shall be exempted from volume control, rate control, and SWM Site Plan preparation and submission requirements of this Ordinance, and shall not be subject to the exemption approval process of Section 302.B of this Ordinance.
- B. Authorization of Exemptions: The Township shall determine, in accordance with the following requirements and process, whether a proposed Regulated Activity may be exempted from any of the requirements of this Ordinance.
1. The property owner or developer proposing the Regulated Activity shall submit, in writing on a form supplied by the Township, a request for said proposed Regulated Activity to be exempted from allowable requirements of this Ordinance pursuant to Section A. The written request shall identify the project and shall indicate the specific exemption criteria, as listed in Section 302.A, that apply to the project.
  2. Upon receipt of the exemption request form, the Township or its designee shall either approve or deny the exemption request. If the exemption request is denied, the Township or its designee shall direct the property owner or developer to submit the information required to demonstrate that the proposed Regulated Activity complies with the requirements of this Ordinance or meets the exemption criteria.
  3. Exemption request approval shall be at the discretion of the Township, and shall be subject to the following:

- a. The Township may deny any exemption request or suspend or revoke any approved exemption request at any time for any project where the Township believes that the proposed Regulated Activity poses a threat to public health, safety, property, or the environment.
- b. Approval of an exemption request does not relieve the property owner or developer from other applicable requirements of this Ordinance or of other Township ordinance or regulations.
- c. The Township reserves the right to deny an exemption request if a drainage problem is known or identified as existing or is expected to exist downstream from the proposed Regulated Activity.

### **Section 303. General Design Standards**

#### **A. Impervious Area.**

1. The measurement of impervious areas shall include all of the impervious areas in the total proposed development, even if development is to take place in phases.
2. For development taking place in phases, the total proposed impervious area within the SWM Site Plan must be used in determining conformance with this Ordinance.
3. For projects that add impervious area to a parcel, the total impervious area on the parcel is subject to the requirements of this Ordinance; except that the volume controls in Section 304 and the peak rate controls of Section 305 do not need to be retrofitted to existing impervious areas that are not being altered by the proposed Regulated Activity.

B. Normally dry, open-top storage facilities, designed as such, shall completely drain both the volume control and rate control capacities over a period of time not less than 24 hours and not more than 72 hours from the end of the design storm. However, any designed infiltration volume at such facilities is exempt from the minimum 24-hour standard, i.e., may infiltrate in a shorter period of time, so long as none of the stormwater intended for infiltration is discharged into the surface waters of the Commonwealth.

C. Infiltration BMPs shall be spread out, made as shallow as practicable, and located to maximize use of natural on-site infiltration features while still meeting the other requirements of this Ordinance.

### **Section 304. Volume Controls**

The low impact development practices provided in the BMP Manual shall be utilized for all Regulated Activities. Water volume controls shall be implemented using the Design Storm Method in Section 304.A or the Simplified Method in Section 304.B. For Regulated Activity involving less than one (1) acre of impervious coverage that does not require hydrologic routing to design the stormwater facilities, the applicant may select either methodology on the basis of economic considerations, the intrinsic limitations on applicability of the analytical procedures associated with each methodology, and/ or other factors. The Design Storm Method in Section 304.A shall be used for all Regulated Activity involving greater than one (1) acre of impervious coverage.

A. The Design Storm Method (CG-1 in the BMP Manual) may be used for any size of Regulated Activity. This method requires detailed modeling to achieve the following standards.

1. The post-development total runoff volume shall not increase for all storms equal to or less than the two (2)-year 24-hour duration precipitation.
2. For modeling purposes:
  - a. Existing (pre-development), non-forested, pervious areas must be considered meadow.
  - b. Twenty percent (20%) of existing impervious area, when present, shall be considered meadow in the model for existing conditions.

B. The Simplified Method (CG-2 in the BMP Manual) is independent of site conditions and may be used for projects involving Regulated Activities proposing equal to or less than one (1) acre of impervious coverage and that do not require design of stormwater storage facilities. When the Simplified Method is used to address stormwater management needs of new impervious surfaces, the following design standards shall be achieved:

1. Stormwater facilities shall capture at least the first two (2) inches of runoff from all new impervious surfaces.
2. At least the first one (1) inch of runoff from new impervious surfaces shall be permanently removed from the runoff flow and shall not be released into the surface waters of the Commonwealth. Removal options for the first one (1) inch of runoff include, but are not necessarily limited to, reuse and infiltration.
3. Infiltration facilities shall be designed to accommodate infiltration of as much of the permanently removed runoff as site conditions will allow. If the soils within the project area do not allow for infiltration of the entire first one (1) inch of runoff from new impervious surfaces, other forms of runoff volume control shall be used to achieve the required removal volume. Such measures may include, but are not limited to vegetated roofs, bioretention, and capture-and-reuse systems. In

addition, the Infiltration Alternative authorized in Section 304.C may be employed.

4. This method is exempt from the requirements of Section 305, Rate Controls.

C. Infiltration Alternative: Where infiltration is not possible due to soil characteristics or is not desirable given other characteristics, water quality control may be proposed as an alternative to strict adherence to the volume control standards of Section 304 of this Ordinance. Where water quality control is proposed, the following standards shall be achieved.

1. At a minimum, the following documentation shall be provided to justify the proposal to reduce the infiltration requirements:

- a. Description of and justification for field infiltration/ permeability testing with respect to the type of test and test locations.
- b. An interpretive narrative describing existing soils of the site and their structure as these relate to the interaction between soils and water characteristics of the site. In addition to providing soil and soil profile descriptions, this narrative shall identify depth to seasonal water tables and depth to bedrock and provide a description of all subsurface elements (restrictive layers, geology, etc.) that influence the direction and rate of subsurface water movement.
- c. A qualitative assessment of the site's contribution to annual aquifer recharge shall be made, along with the identification of any restrictions or limitations associated with the use of designed infiltration facilities.
- d. The provided documentation must be signed and sealed by a professional engineer or geologist.

2. Water Quality BMPs shall be implemented on all permanent stormwater discharges from the proposed project site to achieve pollutant removal efficiencies in accordance with the Table 304.1.

**Table 304.1 Required Pollutant Removal Efficiencies for Infiltration Alternatives**

<b>Pollutant Load</b>	<b>Units</b>	<b>Required Removal Efficiency (%)</b>
Total Suspended Solids (TSS)	Pounds	85%
Total Phosphorus (TP)	Pounds	85%
Total Nitrate (NO <sub>3</sub> )	Pounds	50%

3. Design guidance from the most current version of the Pennsylvania Stormwater Best Management Practices Manual, or equivalent resource as pre-coordinated

with the Township, shall be consulted when choosing design criteria for water quality BMPs.

### **Section 305. Rate Controls**

- A. Post-development discharge rates shall not exceed the pre-development discharge rates for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year 24-hour storms. If it is shown that the peak rates of discharge indicated by the post-development analysis are less than or equal to the peak rates of discharge indicated by the pre-development analysis for 1-, 2-, 5-, 10-, 25-, 50-, and 100-year, 24-hour storms, then the requirements of this section have been met. Otherwise, the applicant shall provide additional controls as necessary to satisfy the peak rate of discharge requirement.
- B. For computation of pre-development peak discharge rates, twenty percent (20%) of existing impervious areas, when present, shall be considered meadow.

### **Section 306. – Riparian Buffers/ Riparian Forest Buffers**

Where an applicant proposes to utilize riparian buffers as the means to meet the requirements of this Ordinance, said riparian buffers shall be established and/or maintained in accordance with the BMP Manual or the publication *Riparian Forest Buffer Guidance*, published November, 2010 by the Pennsylvania Department of Environmental Protection, and as may be amended or updated.

### **Section 307. Prohibited Discharges and Connections**

- A. Any drain or conveyance, whether on the surface or subsurface, that allows any non-stormwater discharge including sewage, process wastewater, and wash water to enter the waters of the Commonwealth is prohibited.
- B. No person shall allow, or cause to allow, discharges into surface waters of the Commonwealth which are not composed entirely of stormwater, except (1) as provided in Subsection C below and (2) discharges allowed under a state or federal permit.
- C. The following discharges are authorized unless they are determined to be significant contributors to pollution to the waters of the Commonwealth:



- Discharges from firefighting activities	- Flows from riparian habitats and wetlands
- Potable water sources including water line flushing	- Uncontaminated water from foundations or from footing drains
- Irrigation drainage	- Lawn watering
- Air conditioning condensate	- De-chlorinated swimming pool discharges
- Springs	- Uncontaminated groundwater
- Water from crawl space pumps	- Water from individual residential car washing
- Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) and where detergents are not used	- Routine external building wash-down (which does not use detergents or other compounds)
- Diverted stream flows	- Water discharged in well testing for potable water supplies

D. In the event that the municipality or DEP determines that any of the discharges identified in Subsection C significantly contribute to pollution of the waters of the Commonwealth, the municipality or DEP will notify the responsible person(s) to cease the discharge.

**Section 308. Roof Drains, Sump Pumps and Footer Drains**

Roof drains, sump pumps, and footer drains should discharge to infiltration or vegetative BMPs and, to the maximum extent practicable, satisfy the criteria for DIAs. Discharges of each should be conveyed in such a manner as to not cause water problems for adjoining property owners.

**Section 309. Alteration of SWM BMPs**

No person shall modify, remove, fill, landscape, or alter any SWM BMPs, facilities, areas, or structures in a manner, without the written approval of the Township, with the exception of necessary maintenance activities such as mowing.

**Section 310. Incorporation of Technical Standards**

The standards for the design and construction of Stormwater Management Facilities as stated in the Liberty Township Subdivision and Land Development Ordinance are incorporated into this Ordinance as if fully repeated herein. Those standards shall be applicable to all Stormwater Management Facilities, including those developments classified as single family residential dwellings and any other type of development that might otherwise not be within the scope of the Subdivision and Land Development Ordinance or the Pennsylvania Municipalities Planning Code.