

### New Impervious Area Exemption Criteria for Peak Rate Control

Total Parcel Size (acres)	Total Parcel Size (square feet)	New Impervious Area Exemption (square feet)
<0.25	<10,890	1,500
0.25 – 0.5	10,890 - 21,780	2,500
>0.5	>21,780	5,000

- D. Agricultural plowing and tilling are exempt from the SWM Site Plan requirements including Sections 303 and 304 of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.
- E. Forest management and timber operations are exempt from the rate control and SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code Chapter 102.

\*The Municipality has, at its discretion, the ability to deny exemption from any requirements of this ordinance. Exemption from any requirements of this ordinance does not convey exemption from any requirements of any other applicable local codes or ordinances (i.e., local building permit requirements).

#### Section 303. Volume Controls

Water volume controls shall be implemented using the *Design Storm Method* in Subsection A or the *Simplified Method* in Subsection B below for all Regulated Activities not otherwise exempted by Section 302. For Regulated Activities disturbing areas equal or less than one (1) acre that do not require hydrologic routing to design the stormwater facilities, this Ordinance establishes no preference for either methodology; therefore, the applicant may select either methodology on the basis of economic considerations, the intrinsic limitations on applicability of the analytical procedures associated with each methodology, and other factors.

- A. *The Design Storm Method* (see Section 8.7 of the most current version of the SWM Manual) is applicable to any size of Regulated Activity. This method requires detailed modeling based on site conditions.
  - 1. Do not increase the post-development total runoff volume for all storms equal to or less than the 2-year, 24-hour duration precipitation.
  - 2. For modeling purposes:
    - a. Existing (pre-development) non-forested pervious areas must be considered meadow or its equivalent.
    - b. Twenty (20) percent of existing impervious area, when present, shall be considered meadow in the model for existing conditions.

B. *The Simplified Method* (see Section 8.7 of the most current version of the SWM Manual) provided below is independent of site conditions and should be used if the Design Storm Method is not followed. This method is not applicable to Regulated Activities greater than one (1) acre or for projects that require design of stormwater detention or rate control facilities. For new impervious surfaces:

1. Stormwater facilities shall be sized to capture at least the first two inches (2") of runoff from all new impervious surfaces.
2. At least the first one inch (1.0") of runoff from new impervious surfaces shall be permanently removed from the runoff flow -- i.e. it shall not be released into the surface waters of this Commonwealth. Removal options include reuse, evaporation, transpiration, and infiltration.
3. Infiltration facilities should be designed to accommodate infiltration of the entire permanently removed runoff; however, in all cases at least the first one-half inch (0.5") of the permanently removed runoff should be infiltrated.
4. The second one inch (1.0") of runoff from new impervious surfaces should be detained using structural and non-structural BMPs (as outlined in the most current version of the SWM Manual) and released at a controlled rate.
5. Regulated Activities eligible under this method are exempt from the requirements of Section 304, Rate Controls.

**Section 304. Rate Controls** (see Section 8.3 of the most current version of the SWM Manual)

A. Areas not covered by a Release Rate Map from an approved Act 167 Stormwater Management Plan:

Post-development discharge rates shall not exceed the predevelopment discharge rates for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year 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. Areas covered by a Release Rate Map from an approved Act 167 Stormwater Management Plan (see Appendix C):

For the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year storms, the post-development peak discharge rates will follow the applicable approved release rate maps (see Appendix C). For any areas not shown on the release rate maps, the post-development discharge rates shall not exceed the predevelopment discharge rates.

## Section 305. Additional SWM and Drainage Requirements

### A. Standards and criteria.

#### 1. Storm drainage system.

##### a. Design flow rate.

- i. The storm sewer system shall be designed to carry a 25-year peak flow rate without surcharging inlets. The peak flow rate into each inlet shall be indicated on the stormwater drainage plan. The design flow rate shall be determined by the rational formula,  $Q=CIA$ .

Where:

- Q = Peak runoff rate, cubic feet per second (CFS).
- C = Runoff coefficient equal to the ratio of the peak runoff rate to the average rate of rainfall over a time period equal to the time of concentration.
- I = Average rainfall intensity in inches per hour for a time equal to the time of concentration.
- A = Drainage area in acres.

- ii. Appropriate values for the runoff coefficient and rainfall intensity shall be taken from the following source:

Commonwealth of Pennsylvania  
Department of Transportation  
Design Manual, Part 2  
Highway Design  
August 1981 (or the latest revision thereto)

##### b. Storm sewer system design.

- i. The storm sewer system shall be designed to the more restrictive of the following: to collect stormwater at any point where three to five cubic feet per second is accumulated during the design storm; and/or inlets/manholes shall not be spaced more than 300 feet apart on pipe sizes up to 24 inches in diameter and not more than 400 feet apart on greater sizes.
- ii. Inlets, manholes, grates, covers, frames and the like shall conform to the Pennsylvania Department of Transportation Roadway Construction Standards and Form No. 408 specifications and all amendments, revisions or updates thereto.
  - (a) All inlets and manholes shall be precast concrete, unless approved otherwise by the Borough.
  - (b) Catch basins or sump areas below inlet piping shall not be permitted.

- c. Bridge/culvert/channel design.
- i. Bridges and culverts shall have ample waterway to carry expected flows, based on a minimum storm frequency of 100 years or as required by the Pennsylvania Department of Environmental Protection. Bridge and/or culvert design shall be in accordance with the Pennsylvania Department of Transportation and/or the Pennsylvania Department of Environmental Protection requirements. All culverts shall be provided with concrete end walls.
  - ii. All drainage channels shall be designed to carry a flow rate equal to a 100-year, 24-hour storm.
  - iii. All drainage channels shall be designed to prevent the erosion of the stream bed and stream bank areas. The flow velocity in all vegetated drainage channels shall not exceed the maximum permissible velocity to prevent soil erosion. Suitable bank stabilization shall be provided where required to prevent soil erosion of the drainage channels. Where storm sewers discharge into existing drainage channels at an angle greater than 30° from parallel with the downstream channel flow, the far side bank shall be stabilized by the use of rip-rap and masonry and/or concrete walls. The stabilization shall be designed to prevent soil erosion and front heave under and behind the stabilizing media.
  - iv. Any vegetated drainage channel requiring mowing of the vegetation shall have a maximum slope of four horizontal to one vertical on those areas to be mowed.
  - v. In all instances where a proposed driveway culvert will cross a drainage channel/swale, a minimum 15 inch diameter driveway culvert must be provided that will be adequate to convey the design flows of the drainage channel.
  - vi. The design of all channels shall, as a minimum, conform to the design procedures outlined in:
    - (a) The United States Department of Transportation Federal Highway Administration Roadside Drainage Channels Hydraulic Design Series No. 4.
    - (b) The United States Department of Transportation Federal Highway Association Design Charts for Open Channel Flow Hydraulic Design Series No. 3.
    - (c) Standards and Specification for Soil Erosion and Sediment Control in Developing Areas, United States Department of Agriculture, Soil Conservation Service, College Park, Maryland.
- d. Overflow system. An overflow system shall be provided to carry flow to the detention basin when the capacity of the storm drain pipe system is exceeded. The

overflow system shall have sufficient capacity to carry the difference between the 100-year and the 25-year peak flow rates.

e. Inlet capacity.

- i. All inlets must be designed to accommodate the 25-year peak flow rate. The capacity of Type C, M or S inlets shall be determined from the following source:

Commonwealth of Pennsylvania  
Department of Transportation  
Design Manual, Part 2  
Highway Design, August 1981 (or the most recent revisions thereto)  
Chapter 10

- ii. The capacity of each inlet shall be indicated on the stormwater drainage plan. All stormwater management plans shall indicate that inlet grates be installed in such a manner that the roadway stormwater will be directed into the inlet and away from the roadway. All inlets shall be designed to create a one-inch sump condition below finished road surface unless approved otherwise by the Borough. At curbed street/driveway intersections, inlets shall be placed on the tangent section and not in the curved portion of the curbing.

- f. Straight pipe sections. All storm sewers shall be designed to follow straight courses. No angular deflections of storm sewer pipe sections in excess of 5° shall be permitted. No vertical curves shall be permitted in the storm sewer system.
- g. Minimum grade and size. All storm drain pipes shall be designed to maintain a minimum grade that will result in a full flow velocity of at least two feet per second. All storm sewer pipes shall have a minimum inside diameter of 15 inches.
- h. Pipe capacity. The capacity of all pipe culverts shall, as a minimum, provide the required carrying capacity as determined by the following sources:

- i. The United States Department of Transportation  
Federal Highway Administration  
Hydraulic Engineering Circular No. 5  
Hydraulic Charts for the Selection of Highway Culverts
- ii. The United States Department of Transportation  
Federal Highway Administration  
Hydraulic Design Series No. 3  
Design Charts for Open Channel Flow
- iii. The United States Department of Transportation  
Bureau of Public Roads  
Hydraulic Engineering Circular No. 10  
Capacity Charts for the Hydraulic Design of Highway Culverts

- i. Pipe arches. Where headroom is restricted, equivalent pipe arches may be used in lieu of circular pipes.
- j. Pipe material and gauge thickness. All storm sewers shall be either reinforced cement concrete, corrugated aluminum, corrugated polyethylene pipe, smooth lined corrugated polyethylene pipe, or aluminized Type II steel pipe. Storm sewers shall be of the proper class and thickness to support the above fill material. Pipe class and gauge or thickness shall be noted on the plans. All pipe shall conform to Pennsylvania Department of Transportation specifications.
- k. Allowable headwater depth. At all inlets or manholes, the maximum allowable headwater depth shall be one foot below the top of the inlet grate or the manhole.
- l. Horizontal pipe deflections. A manhole or inlet shall be provided at all horizontal deflections in the storm pipe system exceeding 5°.
- m. Minimum and maximum cover. In lawn areas, a minimum of 12 inches of cover shall be maintained over all storm drain pipes or as specified by the pipe manufacturer. Under streets, the top of storm drain pipes shall be a minimum of six inches below sub grade elevation or as specified by the pipe manufacturer. The maximum cover over storm drain pipes shall be 10 feet unless otherwise approved by the Borough.
- n. Storm sewer system outlets. Storm sewer system outlet pipes shall extend to proposed stormwater management facilities, natural watercourses and the like. A concrete end wall shall be required on all storm sewer system inlet and outlet pipes. All storm/sewer outlets 24 inches in diameter or greater shall be equipped with a galvanized child-proof horizontal bar rack, bolted to the end wall.
- o. Roof drains. Stormwater roof drains shall not discharge water directly over a sidewalk, into any sanitary sewer line or into a street or paved area without a straight curbed gutter.
- p. Drainage easements.
  - i. All storm sewer easements through undedicated land shall be a minimum of 20 feet in width.
  - ii. Where a site is traversed by a watercourse, a drainage easement or right-of-way conforming substantially with the line of such watercourse and of such width as will be adequate to preserve natural drainage and provide sufficient width for maintenance shall be created, as determined by the Borough.
- q. Diversion of surface water runoff. All storm sewers and/or drainage swales shall be designed to carry such runoff into a detention basin or similar facility utilized to control the rate of runoff, unless approved otherwise by the Borough.

2. Runoff control measures.

- a. Runoff control. The rate and quantity of stormwater runoff from any proposed subdivision and/or land development shall not exceed the rate and quantity of runoff prior to development (i.e., zero increase runoff). This standard shall be maintained for all storms (i.e., both high-frequency and low-frequency) and shall be in accordance with Section 303 and Section 304.
- b. Runoff control devices. The increased runoff which may result from subdivisions and/or land developments shall be controlled by permanent runoff control measures that will provide the required runoff control specified within Section 303 and Section 304. All runoff control devices will be evaluated for their effectiveness to maintain the above-mentioned standard for all storms with a return period of up to 100 years.
- c. Groundwater recharge. All runoff control measures will be designed to encourage groundwater recharge when suitable subsurface conditions are present. Soils testing and certification by a registered professional engineer, geologist, soils scientist or the like shall be required when groundwater recharge systems are proposed.
- d. Detention basin versus other available methods. Detention basins are an acceptable technique for controlling the rate of runoff from a subdivision and/or land development. However, the use of other available runoff control measures can be employed as approved by the Borough. Runoff control measures other than detention basins may include on-lot berms, on-lot or centralized seepage beds. All pertinent detention basin design standards shall be applicable to any such on-lot facilities.
- e. Regional detention basins. The use of regional detention basins to combine and eliminate numerous smaller basins is encouraged. Consultation with the Borough is required prior to design of a regional detention basin.

3. Detention/retention basins.

- a. Detention basins shall be designed in accordance with the Soil Cover Complex Method and the procedures developed by the United States Department of Agriculture, Soil Conservation Service, as outlined in their Technical Release No. 55, Urban Hydrology for Small Watersheds, with specific attention given to antecedent moisture conditions, flood routing and peak discharge and Hydrology National Engineering Handbook Section 4.
- b. Basin design criteria
  - i. Basins shall be designed to safely convey the quantity of water resulting from a one-hundred-year, twenty-four-hour storm under full development conditions. Stormwater management calculations shall ensure that the predevelopment discharge from the site meets the requirements set forth within this Ordinance.

- c. Outlet control structures.
  - i. All outlet control structures shall be constructed of concrete, properly anchored to prevent flotation and equipped with child-proof, nonclogging removable trash racks over all design openings 12 inches or greater in diameter, except those openings designed to carry perennial stream flows.
  - ii. Temporary sedimentation controls shall be provided during construction to prevent the flow of sediment through the basin outlet pipe. Such measures may include temporary riser pipes, rock-filled gabions, plywood standboxes, silt fences and the like.
- d. Emergency spillways. Whenever possible, the emergency spillway for basins shall be constructed on undisturbed ground. Emergency spillways shall be constructed of reinforced concrete, concrete mound slabs or vegetated earth. All emergency spillways shall be constructed so that the basin berm is protected against soil erosion. The minimum capacity of the emergency spillway shall be designed to pass the one-hundred-year post development flow and shall not include the capacity of the principal outlet structure. Emergency spillways shall extend along the upstream and downstream berm embankment slopes. The emergency spillway shall not discharge stormwater over earthen fill and/or easily erodible material without adequate protection against soil erosion.
- e. Freeboard. The minimum freeboard shall be one foot. (Freeboard is the difference between the design flow elevations in the emergency spillway and the top of the basin embankment.)
- f. Basin outlet pipes. Basin outlet pipes shall be equipped with watertight joints.
- g. Antiseep collars. Antiseep collars shall be installed around the principal pipe barrel within the normal saturation zone of the basin berms. The antiseep collars and their connections to the pipe barrel shall be watertight. The antiseep collars shall be designed in accordance with USDA SCS criteria. Design calculations for antiseep collars must be submitted with the basin calculations.
- h. Basin outlets. Energy dissipating devices (concrete aprons and the like) shall be placed at all basin outlets. Concrete end walls shall be placed at all basin outlets. All basin outlet pipes 12 inches in diameter or greater shall be equipped with child-proof devices to deter entry by pedestrians or animals. Design calculations for proposed energy dissipaters must be submitted with basin calculations.
- i. Slope of detention basin embankment.
  - i. The maximum slope of earthen basin embankments shall be four to one (4:1), unless otherwise approved by the Borough. The top or toe of any slope shall be located a minimum of 15 feet from adjacent property lines with the exception of the downstream property line where the toe of the embankment shall be placed a sufficient distance to allow for energy



dissipating devices but in no case less than 40 feet unless approved otherwise by the Borough.

- ii. Whenever possible, the side slopes and basin shape shall blend with the natural topography. Straight side slopes and rectangular basins shall be avoided whenever possible.
- j. Width of berm. The minimum top width of detention basin berms shall be six feet.
- k. Construction specifications. The plans shall indicate the construction specifications and compaction requirements for all detention/retention basins.
- l. Slope of basin bottom. In order to ensure proper drainage of detention basins, a minimum grade of two percent shall be maintained for all basins unless otherwise approved by the Borough.
- m. Cut-off trench. A cut-off trench shall be excavated along the center line of dam on earth fill embankments. The minimum depth shall be three feet. The minimum bottom width shall be 10 feet or wide enough to permit operation of compaction equipment. The side slopes shall be no steeper than 1:1. The trench shall be kept free from standing water during the backfilling operations.
- n. Grading and landscaping of basins; cuts and fills. No excavation or fill shall be made with a cut and fill slope steeper than four feet horizontal to one foot vertical unless otherwise approved by the Borough Engineer. A written statement shall be required from a civil engineer licensed by the Commonwealth of Pennsylvania having experience in soils engineering certifying that he has inspected the site and that any proposed deviation from the slope specified above should not endanger any property or result in personal injury. Retaining walls will be required if a stable slope cannot be maintained. Any retaining wall design must be designed by an experienced structural engineer licensed by the Commonwealth of Pennsylvania. The toe of any cut or fill slope must be located a minimum of 15 feet from adjacent property lines with the exception stated in Section 305.A.3.i.i. above.
- o. Landscaping.
  - i. A minimum of four inches of topsoil shall be placed on all areas affected by the basin construction (bottom of basin, side slopes, top of berm and the like).
  - ii. All earthen basins shall be seeded with a standard seed mix containing temporary and permanent grasses capable of providing a minimum uniform 70% perennial ground cover, or other approved ground covers, within seven days after final grading. Application rate shall be in accordance with the seed supplier's guidelines and recommendations.
  - iii. Fencing may be required around detention/retention basins where the Borough determines that circumstances warrant the fencing.

- iv. All detention/retention basins shall be landscaped.
- p. Permanent pond.
  - i. A five-foot-wide bench sloping at 4% shall be provided for all detention/retention basins designed to contain a permanent pond of water. The toe of the bench shall begin at the permanent water surface elevation. Alternate designs may be submitted for review to the Borough and its Engineer.
  - ii. When a permanent pond is proposed, a report prepared by a certified geotechnical specialist must be provided certifying that the water will not become stagnant. The basin side slopes below the water line must not exceed 4:1.
- q. Positive drainage. Detention basins must be designed to eliminate standing water or swampy conditions after the basin has drained. This must be accomplished either by the installation of stone-trenched underdrains or by providing a minimum basin bottom slope of 2% to the basin outlet. Other arrangements may be presented for review and approval by the Borough provided the facility is entirely dewatered in accordance with Section 301.I.

4. Subsurface Infiltration / Disposal / Retention Basin Systems

- a. The following procedures and materials shall be required for all subsurface stormwater management facilities:
  - i. Prior to starting any excavation for subsurface facilities, the contractor must notify the Borough's Engineer forty-eight (48) hours in advance for inspection of said facilities. Inspection is required for all subsurface stormwater management facilities at the time of installation and prior to backfilling.
  - ii. Excavation for all subsurface facilities shall be performed in a manner that will minimize compaction of the subsurface facility floor and surrounding areas as well as minimize smearing of the sidewalls of the subsurface facility.
  - iii. The floor and sidewalls of the subsurface stormwater management facility shall be roughened prior to placement of the geofabric and aggregate.
  - iv. Only clean, open graded aggregate, free of fines, shall be used in subsurface stormwater management facilities.
  - v. The top, sides, and floor of all subsurface stormwater management facilities shall be covered with a drainage filtration fabric which meets the requirements of the Pennsylvania Department of Transportation, Publication 408 for Class 1 or Class 4 Geofabrics.
  - vi. All pipes leading into subsurface stormwater management facilities shall be equipped with screening or water quality devices to prevent debris from entering the system.
  - vii. The floor of all subsurface stormwater management facilities shall be located a minimum of twelve (12) inches above the seasonal high water

table or bedrock limiting zone as established by a soil test pit and site specific soil profile. Depths of less than twelve (12) inches above the limiting zone will only be allowed where it is certified by a registered professional engineer, geologist, or hydrogeologist that the proposed facility will not create an environmental hazard.

- viii. For all subsurface stormwater management facilities that propose to use infiltration as a means to manage stormwater runoff, infiltration testing must be performed at the same elevation of the invert of the proposed facility to determine a design infiltration rate and dewatering time for the proposed facility. The proposed facility dewatering time must be in accordance with Section 301.I.
- ix. Inspection points, cleanouts, and overflow facilities shall be provided for all subsurface stormwater management facilities. All inspection points and cleanouts must be located in a configuration that will allow for cleaning and maintenance of the entire subsurface facility.
- x. Detailed maintenance instructions and a proposed maintenance schedule must be provided on the plan drawings and provided to the property owner prior to plan approval.
- xi. All subsurface stormwater management facilities must be located a minimum of one hundred (100) feet from any potable water wells.

## ARTICLE IV - STORMWATER MANAGEMENT (SWM) SITE PLAN REQUIREMENTS

### Section 401. Plan Requirements

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

- A. Appropriate sections from the Municipal Zoning, Subdivision and Land Development Ordinance, and other applicable local ordinances, shall be followed in preparing the SWM Site Plans.
- B. The Municipality shall not approve any SWM Site Plan that is deficient in meeting the requirements of this Ordinance. At its sole discretion and in accordance with this Article, when a SWM Site Plan is found to be deficient, the Municipality may either disapprove the submission and require a resubmission, or in the case of minor deficiencies the Municipality may accept submission of modifications.
- C. Provisions for permanent access or maintenance easements as determined necessary by the Municipality for all physical SWM BMPs, such as ponds and infiltration structures, to implement the operation and maintenance plan discussed in item D.1.i below.
- B. The SWM Site Plan shall provide the following information:
  1. General.
    - a. The overall stormwater management concept for the project, including construction specifications of the materials to be used for stormwater management facilities.
    - b. Name, address and telephone number of the SWM Plan preparer and of the landowner or developer submitting the plan.
    - c. Names of adjacent or surrounding landowners.
    - d. Site boundaries with bearings and distances.
    - e. Existing topography and proposed finished grades and proposed buildings and other impervious areas.
    - f. The location and dimensions of all existing and proposed buildings and other impervious areas such as existing and proposed street and parking areas, sidewalks and other structures.
    - g. A determination of site conditions in accordance with the most current version of the SWM Manual. A site assessment shall be completed for projects proposed in areas of carbonate geology or karst topography.
    - h. Stormwater runoff design computations and documentation as specified in this Ordinance, or as otherwise necessary to demonstrate that measures have been taken to meet the requirements of this Ordinance, including the recommendations and general requirements in Section 301.

- i. Expected project time schedule.
  - j. A soil erosion and sediment control plan, where applicable, as prepared for and submitted to the approval authority.
  - k. The effect of the project (in terms of runoff volumes, water quality, and peak flows) on surrounding properties and adjacent aquatic features and on any existing stormwater conveyance system that may be affected by the project.
  - l. Plan and profile drawings of all SWM facilities including drainage structures, pipes, open channels, and swales.
  - m. SWM Site Plan shall show the locations of existing and proposed on-lot wastewater facilities and water supply wells.
  - n. The SWM Site Plan shall include an operation and maintenance (O&M) plan for all proposed physical stormwater management facilities (see Appendix A). This plan shall address long-term ownership and responsibilities for operation and maintenance as well as schedules for O&M activities.
  - o. Name and location address of the project site.
  - p. Complete hydrologic, hydraulic and structural computations for all stormwater management facilities.
2. Map(s) of the project area shall be submitted on twenty-four-inch by thirty-six-inch sheets or thirty-inch by forty-two-inch sheets and shall be prepared in a form that meets the requirements for recording in the offices of the Recorder of Deeds of Cumberland County. The contents of the map(s) shall include, but not be limited to:
- a. The location of the project relative to highways, or other identifiable landmarks.
  - b. Existing contours at intervals of two feet. In areas of steep slopes (greater than 15%), five-foot contour intervals may be used.
  - c. Existing streams or other bodies of water within the project area.
  - d. Other physical features, including flood hazard boundaries, sinkholes, streams, existing drainage courses, areas of natural vegetation to be preserved and the total extent of the upstream area draining through the site.
  - e. The locations of all existing and proposed utilities, sanitary sewers and waterlines within 50 feet of property lines.
  - f. An overlay showing soil names and boundaries.
  - g. Proposed changes to the land surface and vegetative cover, including the type and amount of impervious area that would be added.
  - h. Proposed structures, roads, paved areas and buildings.

- i. Final contours at intervals of two feet. In areas of steep slopes (greater than 15%), five-foot contour intervals may be used.
  - j. The name of the development, the name and address of the owner of the property and the name of the individual or firm preparing the plan.
  - k. The date of submission.
  - l. A graphic and written scale of one inch equals no more than 50 feet; for tracts of 20 acres or more, the scale shall be one inch equals no more than 100 feet.
  - m. A North arrow.
  - n. The total tract boundary and size with distances marked to the nearest foot and bearings to the nearest degree.
  - o. Existing and proposed land use(s).
  - p. A key map showing all existing man-made features beyond the property boundary that would be affected by the project.
  - q. Horizontal and vertical profiles of all open channels, including hydraulic capacity.
  - r. Overland drainage paths.
  - s. A fifteen-foot-wide access easement around all stormwater management facilities that would provide ingress to and egress from a public right-of-way.
  - t. A note on the plan indicating the location and responsibility for maintenance of stormwater management facilities that would be located off site. All off-site facilities shall meet the performance standards and design criteria specified in this Ordinance.
  - u. A construction detail of any improvements made to sinkholes and the location of all notes to be posted, as specified in this chapter.
  - v. A statement, signed by the landowner, acknowledging the stormwater management system to be a permanent fixture that can be altered or removed only after approval of a revised plan by the municipality.
3. Supplemental information.
- a. A written description of the following information shall be submitted.
    - i. Stormwater runoff computations as specified in this Ordinance.
    - ii. Stormwater management techniques to be applied both during and after development.
  - b. A geologic assessment of the effects of runoff on sinkholes as specified in this chapter.

- c. The effect of the project (in terms of runoff volumes and peak flows) on adjacent properties and any existing municipal stormwater collection system that may receive runoff from the project site.
- 4. Stormwater management facilities.
  - a. All stormwater management facilities must be located on a plan and described in detail.
  - b. When groundwater recharge methods such as seepage pits, beds or trenches are used, the locations of existing and proposed septic tank infiltration areas and wells must be shown.
  - c. All calculations, assumptions and criteria used in the design of the stormwater management facilities must be shown.

#### **Section 402. Plan Submission**

- A. Four (4) copies of the SWM Site Plan shall be submitted as follows:
  - 1. Two (2) copies to the Municipality.
  - 2. One (1) copy to the Municipal Engineer (when applicable).
  - 3. One (1) final copy to the County Conservation District (when applicable).
- B. Additional copies shall be submitted as requested by the Municipality.

#### **Section 403. Plan Review**

- A. The SWM Site Plan shall be reviewed by the Municipal Engineer, if applicable, otherwise a qualified professional for the Municipality for consistency with the provisions of this Ordinance. After review, the qualified professional shall provide a written recommendation for the Municipality to approve or disapprove the SWM Site Plan. If it is recommended to disapprove the SWM Site Plan, the qualified professional shall state the reasons for the disapproval in writing. The qualified professional also may recommend approval of the SWM Site Plan with conditions and, if so, shall provide the acceptable conditions for approval in writing. The SWM Site Plan review and recommendations shall be completed within the time allowed by the Municipalities Planning Code for reviewing subdivision plans.
- B. For SWM Site Plans that do not require subdivision and land development approval, the Municipality shall notify the applicant in writing within 30 calendar days whether the SWM Site Plan is approved or disapproved. If the SWM Plan involves a Subdivision and Land Development Plan, the notification period is 90 days. If a longer notification period is provided by other statute, regulation, or ordinance, the applicant will be so notified by the Municipality. If the Municipality disapproves the SWM Plan, the Municipality shall cite the reasons for disapproval in writing.

#### **Section 404. Modification of Plans**

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

#### **Section 405. Resubmission of Disapproved Storm Water Management Site Plans**

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

#### **Section 406. Authorization to Construct and Term of Validity**

The Municipality's approval of an SWM Site Plan authorizes the Regulated Activities contained in the SWM Site Plan for a maximum term of validity of five years following the date of approval. Terms of validity shall commence on the date the Municipality signs the approval for an SWM Site Plan. If an approved SWM Site Plan is not completed according to Section 407 within the term of validity, then the Municipality may consider the SWM Site Plan disapproved and may revoke any and all permits issued by the Municipality. SWM Site Plans that are considered disapproved by the Municipality shall be resubmitted in accordance with Section 405 of this Ordinance.

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

- A. The Applicant shall be responsible for providing as-built plans of all SWM BMPs and related SWM infrastructure included in the approved SWM Site Plan. The as-built plans and an explanation of any discrepancies with the construction plans shall be submitted to the Municipality.
- B. The as-built submission shall include a certification of completion signed by a qualified professional verifying that all permanent SWM BMPs have been constructed according to the approved plans and specifications. If any licensed qualified professionals contributed to the construction plans, then a licensed qualified professional must sign the completion certificate.
- C. After receipt of the as-built plan, the Municipality may conduct a final inspection.