

CHAPTER 123

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Appendix A Stormwater Management Plan Application

HISTORY: Adopted by the Board of Supervisors of the Township of Paradise 1-19-1993 by Ord. No. 108 (Ch. 18, Part 2, of the 1987 Code). Revised 8-18-08 by Ord. No. 169 Amendments noted where applicable.]

GENERAL REFERENCES

- Driveways -- See Ch. 58.
- Floodplain management -- See Ch. 65.
- Sewage disposal -- See Ch. 110.
- Subdivision and land development -- See Ch. 131.
- Zoning -- See Ch. 160.

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ARTICLE I – GENERAL PROVISIONS

§ 123-1. Short title.

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

§ 123-2. Statement of findings.

Paradise Township finds that:

- A. Inadequate management of accelerated runoff of stormwater resulting from development and lack of proper wetland conservation throughout a watershed increases flood flows and velocities, contributes to accelerated erosion and sedimentation, overtaxes the carrying capacity of streams and storm sewers, greatly increases the cost of public facilities to carry and control stormwater, undermines floodplain management and flood control efforts in downstream communities, reduces groundwater recharge, impacts surface and groundwater quality and threatens public health and safety.
- B. A comprehensive program of stormwater management, nonpoint source pollution control, and wetland conservation, including reasonable regulation of development and activities causing accelerated erosion and sediment pollution, is fundamental to the public health, safety and welfare and the protection of the people of the township and all the people of the commonwealth, their resources and environment.
- C. Through project design, impacts from stormwater runoff can be minimized to maintain the natural hydrologic regime, and sustain high water quality, groundwater recharge, stream baseflow and aquatic ecosystems. The most cost effective and environmentally advantageous way to manage stormwater runoff is through nonstructural project design, minimizing impervious surfaces and sprawl, avoiding sensitive areas (i.e. buffers, floodplains, steep slopes), and designing new development in a manner which uses existing topography and soil characteristics, to the extent practicable, to maintain the natural hydrologic regime.
- D. To effectively monitor the maintenance of base flow within the watershed, a tracking of consumptive use, including stormwater discharges and groundwater withdrawals, is critical to maintain baseflow and stream health.

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§ 123-3. Purpose.

The purpose of this chapter is to promote the public health, safety and welfare by minimizing the damages described in § 123-2 of this chapter by provisions designed to:

- A. Promote alternative project designs and layouts that minimize impacts to surface and groundwater.
- B. Promote nonstructural Best Management Practices (BMPs).
- C. Minimize increases in stormwater volumes.
- D. Minimize impervious surfaces.
- E. Control accelerated runoff, erosion and sediment pollution problems at their source by regulating activities which cause such problems.
- F. Utilize and preserve the desirable existing natural drainage systems.
- G. Encourage recharge of groundwater where appropriate and prevent the degradation of groundwater quality.
- H. Control the quality and quantity of stormwater discharges from development sites.
- I. Maintain the existing flows of streams and watercourses and the quality and integrity of wetlands in the township and the commonwealth.
- J. Preserve and restore the flood-carrying capacity of streams.
- K. Provide for proper maintenance of permanent stormwater management controls and structures which are constructed in the township.
- L. Provide performance standards and design criteria for watershed-wide stormwater management and planning.

§ 123-4. Statutory authority.

The Township is empowered to regulate land use activities that affect runoff, surface and groundwater quality and quantity by the authority of the Act of October 4, 1978 P.L. 864, No. 167, known as the “Storm Water Management Act” (hereinafter referred to as “the Act”) found at 32 PS Section 680.1 et seq., as amended; the Act of December 16, 2002, P.L. 1776, No. 220, pertaining to water resources planning, found at 27 Pa.C.S.A. Section 3101 et seq., the Pennsylvania Municipalities Planning code, Act of 1968, P.L. 805, No. 247, as amended, and Section 2704 of the Second Class Township Code found at 53 PS Section 67704 all as amended.

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§ 123-5. Applicability.

- A. This chapter shall apply to all of Paradise Township, which is located entirely within the Brodhead/McMichaels Creek Watershed, as delineated in Appendix D of the Brodhead and McMichaels Creek Watershed Act 167 Stormwater Management Plan Update. Appendix D of the Plan is hereby adopted as part of this Chapter.
- B. This chapter shall apply to permanent nonstructural and structural stormwater BMPs constructed as part of any of the regulated activities listed at §123-5(E), below.
- C. This chapter contains only minimum stormwater runoff control standards. Additional stormwater management design criteria (i.e., inlet spacing, inlet type, collection system details, etc.) which represent sound engineering practice may be required.
- D. The township may, after consultation with the Pennsylvania Department of Environmental Protection (PADEP), approve alternative methods for meeting the State Water Quality Requirements other than those in this Chapter, provided that they meet the minimum requirements of, and do not conflict with, State law.
- E. The following activities (herein after “Regulated Activities”) are included within the scope of this chapter:
 - (1) Land development.
 - (2) Subdivision.
 - (3) Earth disturbance.
 - (4) Construction of new or additional impervious surfaces (driveways, parking lots, etc.).
 - (5) Construction of new buildings or additions to existing buildings.
 - (6) Redevelopment of a site which will increase runoff or change a Point Source discharge.
 - (7) Diversion, piping, or encroachment in any natural or man-made channel.
- F. Exemptions.
 - (1) The following activities are specifically exempt from the requirements of this chapter. All erosion and sediment pollution controls specified in this chapter and/or required by PADEP's Erosion and Sediment Pollution Control Program Manual and Chapter 102 must still be implemented.

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- (a) Earth disturbance affecting less than 20,000 square feet.
- (b) Regulated Activities creating less than 5,000 square feet of impervious surface. This shall include all impervious area created from the original time of approval of this chapter (May 5, 1987).
- (c) Single-family residential home construction and associated amenities creating impervious surfaces that conform to the following table. To allow for the exemption, proposed work must meet both parcel size and minimum distance requirements.

Parcel Size (acres)	Minimum Distance* (feet)	Impervious Area Exemption (square feet)
0 - 1	10	5,000
1 - 2	100	10,000
2 - 5	250	15,000
> 5	500	20,000

* The minimum distance between the proposed impervious area and/or stormwater control discharge point to the downslope property line or watercourse. The downslope property line shall follow the topography directly from newly proposed impervious surface to parcel boundary, or until a stream or wetland is reached, whichever is less.

- (d) Residential use of land for gardening for home consumption.
 - (e) Agriculture when operated in accordance with a Conservation plan or Erosion and Sediment Control Plan found adequate by the Monroe County Conservation District.
 - (f) Forest management/timber operations when operated in accordance with an Erosion and Sediment Control Plan found adequate by the Monroe County Conservation District.
- (2) An exemption shall not relieve the applicant from implementing such measures as are necessary to protect the public health, safety, and property.
 - (3) The Township may require a Stormwater Management Plan submittal even if an applicant meets the exemption criteria above if a drainage problem is documented or known to exist downstream of a proposed activity.
 - (4) This chapter shall apply to the total development even if development is to take place in phases. The date of the original Stormwater Management Ordinance (May 5, 1987) shall be the starting point from which to consider tracts as “parent

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tracts” in which future Regulated Activities and respective impervious area computations shall be cumulatively considered. Impervious areas existing on the parent tract prior to May 5, 1987 shall not be considered in cumulative impervious area calculations for exemption purposes.

G. Waivers.

- (1) In order to permit the reasonable utilization of property, the Board Supervisors may grant a waiver of the requirements of one or more provisions of this Ordinance if literal compliance will result in undue hardship or be unreasonable as it is applied to a particular property, or if the applicant establishes to the satisfaction of the Board of Supervisors that an alternative proposal will allow for equal or better results.
- (2) In granting any requested waiver, the Board of Supervisors may impose such conditions as will, in its judgment, secure substantially the objectives of the standards and requirements of this Ordinance.
- (3) All requests for waivers shall be made in writing, shall be signed by the applicant, shall accompany the submission of a site plan, and shall include:
 - a) The specific provision of this Ordinance with respect to which a waiver is desired.
 - b) The specific waiver requested and the proposed alternative.
 - c) The applicant’s justification for the waiver, including the full basis and facts of the alleged unreasonableness or undue hardship, and an explanation of how the requested waiver is the minimum relief necessary to permit the reasonable utilization of the property that still achieves the purposes and objectives of this Ordinance.
- (4) The Board of Supervisors shall maintain a written record of the action taken on all requests for waivers. Any waivers which are granted or approved shall be set forth on the approved site plan and on the record plan.

§ 123-6. Compatibility with other permit and ordinance requirements.

Applicants are required to comply with all applicable requirements of the Paradise Township Code of Ordinances and the PADEP and/or the United States Army Corps of Engineers. Should any stormwater management facilities qualify as a dam under PADEP Chapter 105, the facility shall be designed in accordance with Chapter 105 and meet the regulations of Chapter 105 concerning dam safety. If more stringent requirements concerning regulation of stormwater or erosion and sediment pollution control or

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activities in wetlands are contained in any other code, rule, act or ordinance, the more stringent regulation shall apply.

§ 123-7. Definitions.

Except as defined in this Code (see Chapter 1, General Provisions, Article II, Definitions), all words shall carry the customary meaning.

ARTICLE II – STORMWATER MANAGEMENT

§ 123-8. General requirements.

- A. Applicants proposing Regulated Activities described in § 123-5(E) which do not fall under the exemption criteria shown in § 123-5(F) shall submit a Stormwater Management Plan consistent with § 123-17 to the township for review.
- B. The applicant is required to perform an evaluation to find practicable alternatives to the surface discharge of stormwater, the creation of impervious surfaces and the degradation of waters of the Commonwealth, and must maintain as much as possible the natural hydrologic regime.
- C. Stormwater management shall be conducted in such a way as to minimize accelerated erosion and resulting sediment pollution. Measures to control erosion and resulting sediment pollution shall, at a minimum, meet the standards of Chapter 102 (Erosion and Sediment Pollution Control) of Title 25, Rules and Regulations of the PADEP.
- D. Stormwater management shall be conducted in such a way as to minimize and mitigate impact upon regulated wetlands. Such areas shall not be altered in any way without obtaining design approval, required certifications and permits from Paradise Township, the United States Army Corps of Engineers and the PADEP. Constructed wetlands shall be designed in accordance with guidelines found in Appendix G of the Brodhead and McMichaels Creek Watershed Act 167 Stormwater Management Plan Update.
- E. Stormwater Management Plans shall be designed so that the construction of basins within the one-hundred-year floodplain shall be avoided, where possible, but where unavoidable, shall be consistent with Chapter 65 (Floodplain Management) of the Paradise Township Code of Ordinances and Rules and regulations of the PADEP.
- F. Stormwater management shall permit unimpeded flow of natural watercourses except as modified by stormwater detention facilities or open channels consistent with this chapter.

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- G. Stormwater Management Plans shall include financial guaranties for all Stormwater Management Plan controls as specified in § 123-27 through 123-29.
- H. Stormwater Management Plans shall be prepared by a Design Professional.
- I. The Stormwater Management Plan must be designed through an evaluation consistent with the sequencing provisions of § 123-9 to ensure maintenance of the natural hydrologic regime, to promote groundwater recharge, and protect groundwater and surface water quality and quantity. The Stormwater Management plan designer must proceed sequentially in accordance with this Article.
- J. The Stormwater Management Plan must be prepared in compliance with the water quality provisions in § 123-10.
- K. The Stormwater Management Plan must be prepared in compliance with the riparian buffer provisions in Chapter 160 (Zoning).
- L. The Stormwater Management Plan must be prepared in compliance with the groundwater recharge requirements in §123-11.
- M. The Stormwater Management Plan must be prepared in compliance with the standards for managing runoff in §123-12 for the Brodhead Watershed.
- N. The Stormwater Management Plan must be prepared using the calculation methodology required by §123-13.
- O. The Stormwater Management Plan must be prepared to comply with other requirements in §123-14.
- P. The Stormwater Management Plan shall document compliance with the erosion and sedimentation control requirements of § 123-15.
- Q. All Stormwater Management Plans shall include a consumptive use tracking report as required in § 123-16.
- R. Any stormwater management facilities regulated by this chapter that would be located on state highway rights-of-way shall be subject to approval by the Pennsylvania Department of Transportation (PennDOT).

§ 123-9. Non-structural project design.

- A. The applicant is required to investigate alternatives to the surface discharge of stormwater and the creation of impervious surfaces and must maintain as much as

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possible the natural hydrologic regime of the site. All practicable alternatives to the discharge of stormwater are presumed to have less adverse impact on quantity and quality of waters of the Commonwealth unless otherwise demonstrated. The design of all regulated activities shall include the following steps, in sequence, to minimize stormwater impacts:

1. Prepare an Existing Resources and Site Analysis Plan as described in § 131-38 of the Paradise Township Subdivision and Land Development Ordinance.
2. Clearly indicate buffers in compliance with § 160-21(C)(7) of the Paradise Township Zoning Code.
3. Prepare a draft project layout avoiding earth disturbance in sensitive areas and minimizing total site earth disturbance. The ratio of the disturbed area to the entire site area must be indicated on the plan.
4. Identify site specific predevelopment drainage areas, discharge points, recharge areas to be preserved and hydrologic soil groups A and B to be utilized for recharge.
 - a) Evaluate nonstructural stormwater management alternatives, including strategies to minimize earth disturbance, break large impervious surfaces into smaller, separated areas and minimize total impervious areas.
 - b) Satisfy water quality requirements in § 123-10 of this Chapter.
 - c) Satisfy groundwater recharge (infiltration) objectives in § 123-11 of this Chapter, providing stormwater treatment prior to infiltration.
 - d) Determine what stormwater management district the site falls into and conduct a predevelopment runoff analysis.
 - e) Prepare final project design to maintain predevelopment drainage areas and discharge points, minimize earth disturbance and impervious surfaces, and reduce runoff.
 - f) Conduct a post development runoff analysis based on the final design and document that the release rate(s) for the site stormwater management district(s) has/have been met.
 - g) Document runoff from the site is managed through treatment prior to discharge, as part of detention, bioretention, direct discharge or other structural control.
5. A pre-application meeting with the Township Engineer is an optional but

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strongly encouraged step to speed the review process. The applicant will be responsible for any/all engineering review fees and charges associated with such pre-application meeting.

123-10. Water quality.

- A. Water quality BMPs shall be designed to detain the proposed conditions 2-year, 24-hour design storm to the existing conditions 1-year flow using the SCS Type II distribution. Additionally, provisions shall be made (such as adding a small orifice at the bottom of the outlet structure) so that the proposed conditions 1-year storm takes a minimum of 24 hours to drain from the facility from a point where the maximum volume of water from the 1-year storm is captured (i.e., the maximum water surface elevation is achieved in the facility). Wet basins that meet the requirements in the Pennsylvania Stormwater BMP manual are encouraged.

Release of water can begin at the start of the storm (i.e., the invert of the water quality orifice is at the invert of the facility). Orifices smaller than 3 inches in diameter are discouraged unless it can be demonstrated that orifices with smaller diameters are necessary to meet the release rate criteria above. All orifices shall be protected from clogging and sedimentation.

- B. In selecting appropriate BMPs the applicant shall consider the following:
1. Total contributing area.
 2. Permeability and infiltration rate of the site soils.
 3. Slope and depth to bedrock.
 4. Seasonal high water table.
 5. Proximity to building foundations and well heads.
 6. Erodibility of soils.
 7. Land availability and configuration of the topography.
 8. Peak discharge and required volume control.
 9. Stream bank erosion protection.
 10. Efficiency of the BMPs to mitigate potential water quality problems.
 11. The volume of runoff that will be effectively treated.

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12. The nature of the pollutant being removed.
 13. Maintenance requirements.
 14. Creation/protection of aquatic and wildlife habitat.
 15. Recreational value.
- C. For areas within defined Special Protection subwatersheds, which includes Exceptional Value (EV) and High Quality (HQ) waters, the temperature and quality of water and streams shall be maintained in accordance with applicable DEP anti-degradation criteria.
- D. Roof drains shall not be connected to street, sanitary or municipal storm sewers or roadside ditches.
- E. All stormwater runoff shall be treated for water quality in accordance with current DEP guidelines prior to discharge to surface or groundwater.
- F. Control facilities which receive stormwater from areas which are a potential source of oil and grease contamination shall include a baffle, skimmer, grease trap or other mechanism suitable for preventing oil and grease from leaving the facility in concentrations that would cause or contribute to a violation of applicable water quality standards in the receiving waters.
- G. Vector control strategies (such as the selection of hydrophytic plant species) shall be used to minimize mosquito populations in all proposed wet basins.

§ 123-11. Groundwater recharge requirements.

Applicants are required to maximize groundwater recharge of stormwater generated by proposed development. Infiltration/recharge stormwater management facilities should compensate for the reduction in natural percolation that occurs when the ground surface is disturbed or impervious surfaces are created and should be used in conjunction with other innovative or traditional BMPs, stormwater control facilities and nonstructural stormwater management alternatives. The volume of runoff to be recharged is dependent on site characteristics, as follows:

- A. A minimum depth of 24 inches is required between the bottom of the BMP and the limiting zone.
- B. An infiltration and/or percolation rate sufficient to accept the additional stormwater load and drain completely must be determined by field tests conducted by the applicant's design professional.
- C. The recharge facility shall be capable of completely infiltrating the recharge

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volume within 4 days.

- D. Pretreatment shall be provided prior to infiltration unless the applicant can demonstrate groundwater quality will not be degraded.
- E. The size of the recharge facility shall be based upon the following volume criteria:
1. The Natural Resources Conservation Service (NRCS) Curve Number (CN) for the property in its existing conditions shall be utilized to calculate infiltration requirements (I) using the following equation:

$$I(\text{inches}) = (200/\text{CN}) - 2 \quad \text{Equation 1}$$

The required recharge volume shall be calculated by multiplying the infiltration requirement (I) by the proposed impervious area:

$$\text{Required recharge volume} = (I) \times (\text{Impervious Area}) \quad \text{Equation 2}$$

Applicants must note that the infiltration requirement (I) is in inches. The NRCS Curve Number conversion to infiltration requirement is shown graphically below.

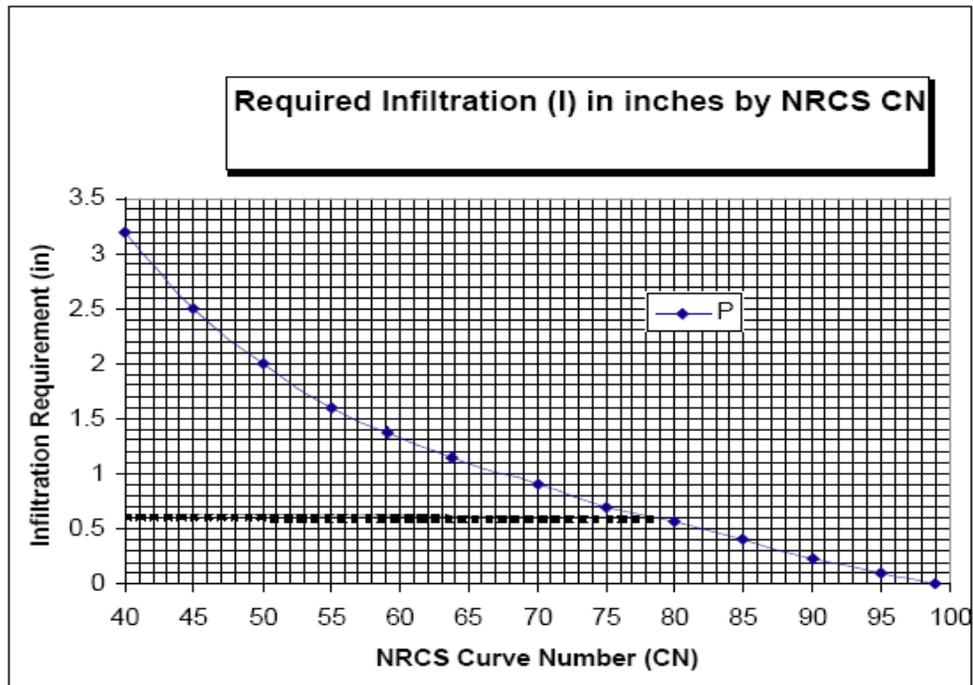


Figure 1. Infiltration requirement based upon NRCS Curve Number.

2. If the site does not include a suitable area for recharge with a minimum depth of 24 inches between the bottom of the BMP and the limiting zone required in § 123-11(A) above, then 0.6 inches of rainfall shall be infiltrated from all impervious areas, up to an existing site condition curve number of 77. Above an existing condition curve number

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of 77, Equation 1 or the CN from Figure 1 should be used to determine the Infiltration requirement.

3. A detailed soils evaluation is required to determine the suitability of recharge facilities. The evaluation shall be performed by a Design Professional, and at a minimum, address soil permeability, depth to bedrock and subgrade stability. The general process for designing the infiltration BMP shall be:
 - (a) Analyze hydrologic soil groups as well as natural and man-made features within the watershed to determine general areas of suitability for infiltration practices.
 - (b) Provide site-specific infiltration test results (at the level of the proposed infiltration surface) in accord with applicable ASTM guidelines to determine the appropriate hydraulic conductivity rate.
 - (c) Design the infiltration structure for the required storm volume based on field-determined capacity at the level of the proposed infiltration surface.
 - (d) In residential developments where individual on-lot recharge areas are proposed, along with providing infiltration test results on each proposed lot in accordance with (b), above, the applicant must show the infiltration areas on the development plans as boxes depicting 110 % of the required area, and be located on the plan by a minimum of two (2) bearings and distances from known, fixed points. Easements are required on each lot to provide the Township with access for inspection. Agreements formalizing maintenance requirements and responsibilities must be approved by the Board of Supervisors.

F. Additional recharge requirement exemptions and exceptions.

1. Land uses that generate higher concentrations of hydrocarbons, trace metals or toxicants than are found in typical stormwater runoff such as vehicle salvage yards and recycling facilities, fleet storage areas (bus, truck, etc.), public works storage areas and facilities that generate or store hazardous materials, shall not recharge stormwater from those areas where pollutants could be released due to facility operations or accidental spills without DEP approved pretreatment of all such runoff.
2. Infiltration area(s) shall not be located in any Wellhead Protection Zone 1.
3. A detailed hydrogeologic investigation may be required by the Township if stormwater runoff could contain hazardous materials or hazardous waste.

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G. Recharge/infiltration facilities shall be used in conjunction with other innovative or traditional BMPs, stormwater control facilities, and nonstructural stormwater management alternatives.

§ 123-12. Stormwater management districts.

A. The Brodhead/McMichaels Watershed has been divided into stormwater management districts as shown on the Watershed Map in Appendix D of the Brodhead and McMichaels Creek Watershed Act 167 Stormwater Management Plan Update. Standards for managing runoff from design storms for each of the districts located in Paradise Township are shown in Figure 2. Development sites located in each of the districts must control proposed conditions runoff rates to existing conditions runoff rates for the design storms in accord with Figure 2.

District	Proposed Conditions	(reduce to)	Existing Conditions
A	2 - year		1 - year
	5 - year		5 - year
	10 - year		10 - year
	25 - year		25 - year
	50 - year		50 - year
	100 - year		100 - year
B - 1	2 - year		1 - year
	5 - year		2 - year
	10 - year		5 - year
	25 - year		10 - year
	50 - year		25 - year
	100 - year		100 - year
B - 2	2 - year		1 - year
	5 - year		2 - year
	25 - year		5 - year
	50 - year		10 - year
	100 - year		50 - year
B -3	50 - year		10 - year
	100 - year		50 - year

Figure 2. Standards for managing runoff.

B. The boundaries of the stormwater management districts are shown on an official map that is available for inspection at the Township office. A copy of the official map at a reduced scale is included in Appendix D of the Brodhead and McMichaels Creek Watershed Act 167 Stormwater Management Plan Update. The exact location of the Stormwater Management District boundaries as they apply to a given development site shall be determined by mapping the boundaries using the topographic contours provided as part of the Stormwater Management Plan.

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- C. For a proposed development site located within two or more subareas of a stormwater management district, the peak discharge rate from each subarea shall be the existing conditions peak discharge for that subarea. The calculated peak discharges shall apply regardless of whether the grading plan changes the drainage area. If discharges from multiple subareas recombine prior to discharge from the site, peak discharge in any direction may be a one hundred percent (100%) release rate provided that the overall site discharge meets the release rate criteria for the site.
- D. Off-site areas that drain through a proposed development site are not subject to release rate criteria when determining allowable peak runoff rates. However, on-site drainage facilities shall be designed to safely convey off-site flows through the development site.
- E. Areas of a site that will remain undeveloped and that bypass the stormwater management facilities are not subject to the management district criteria.
- F. A less restrictive runoff control (including no detention) shall be allowed if the applicant can demonstrate that proposed hydrographs match existing hydrographs, or that proposed conditions will not increase peak flows at all points downstream and that the hydrologic regime of the site will be maintained. Hydrologic and hydraulic calculations must show any/all impacts of proposed development and indicate any/all hydrograph timing modifications that will result on a dam, highway, structure, natural point of restricted streamflow or any stream channel section, established with the concurrence of the Township Engineer. The evaluation to demonstrate no impact must continue downstream until the increase in flow diminishes due to additional flow from tributaries and/or stream attenuation. The peak flow values to be used for downstream areas for the design return period storms (2, 5, 10, 25, 50, and 100-year) shall be the values from the calibrated model for the Brodhead/McMichaels Watershed. These flow values can be obtained from the original Act 167 watershed storm water management plan. Less restrictive runoff controls shall not be allowed if peak flows would be increased at storm drainage problem areas unless the applicant includes downstream capacity improvements to mitigate the existing drainage problems.
- G. Any downstream hydraulic capacity analysis conducted in order to accomplish (G), above, must demonstrate the following:
1. Existing natural or man-made channels or swales must be able to convey the increased runoff associated with a 2-year design storm within their banks at velocities consistent with protection of the channels from erosion. Acceptable velocities shall be based upon criteria included in the DEP Erosion and Sediment Pollution Control Program Manual.
 2. Existing natural or man-made channels or swales must be able to convey increased 25-year design storm without creating any hazard to persons or property.

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3. Culverts, bridges, storm sewers or any other facilities which must pass or convey flows from the tributary area must be designed in accordance with PADEP Chapter 105 regulations (if applicable) and, at minimum, pass the increased 25-year design storm runoff.

§ 123-13. Calculation Methodology.

- A. Stormwater runoff from all development sites with a drainage area of greater than two hundred (200) acres shall be calculated using a generally accepted calculation technique that is based on the NRCS soil cover complex method. Table 1 summarizes acceptable computation methods and the method selected by the design professional shall be based on the individual limitations and suitability of each method for a particular site. The Rational Method may be used to estimate peak discharges from drainage areas that contain less than two hundred (200) acres. The Soil Cover Complex Method shall be used for drainage areas greater than two hundred (200) acres.

METHOD	METHOD DEVELOPED BY	APPLICABILITY
TR-20 (or commercial computer package based on TR-20)	USDA NRCS	Applicable where use of full hydrology computer model is desirable or necessary
TR-55 (or commercial computer package based on TR-55)	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
PSRM	Penn State University	Applicable where use of a hydrologic computer model is desirable or necessary simpler than TR-20 or HEC-1
Rational Method (or commercial computer package based on Rational Method)	Emil Kuichling (1889)	For sites less than 200 acres, or as approved by the Township and/or the Township Engineer
Other Methods	Varies	Other computation methodologies approved by the Township and/or the Township Engineer

Figure 3. Calculation methodologies.

- B. All calculations using the Soil Cover Complex Method shall use the appropriate design rainfall depths for the various return period storms according to the region in

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which they are located as presented in Table B-1 in Appendix B of the Brodhead and McMichaels Creek Watershed Act 167 Stormwater Management Plan Update. If a hydrologic computer model such as PSM or HEC-1 is used for stormwater runoff calculations, then the duration of rainfall shall be 24 hours. The SCS 'S' curve shown in Figure B-1, Appendix B of this Ordinance shall be used for the rainfall distribution.

- C. For the purposes of existing conditions flow rate determination, undeveloped land shall be considered as "meadow" in good condition, unless the natural ground cover generates a lower curve number or Rational 'C' value, as listed in Table B-2 or B-3 in Appendix B of the Brodhead and McMichaels Creek Watershed Act 167 Stormwater Management Plan Update.
- D. All calculations using the Rational Method shall use rainfall intensities consistent with appropriate times-of-concentration for overland flow and return periods from the Design Storm Curves from PennDOT Design Rainfall Curves (1986) (Figures B-2 to B-4 of Appendix B of the Brodhead and McMichaels Creek Watershed Act 167 Stormwater Management Plan Update). Times-of-concentration for overland flow shall be calculated using the methodology presented in Chapter 3 of Urban Hydrology for Small Watersheds, NRCS, TR-55 (as amended or replaced from time to time by NRCS). Times-of concentration for channel and pipe flow shall be computed using Manning's equation.
- E. Runoff Curve Numbers (CN) for both existing and proposed conditions to be used in the soil cover complex method shall be obtained from Table B-2 in Appendix B of the Brodhead and McMichaels Creek Watershed Act 167 Stormwater Management Plan Update.
- F. Runoff coefficients (c) for both existing and proposed conditions for use in the Rational Method shall be obtained from Table B-3 in Appendix B of this Ordinance.
- G. The designer shall consider that the runoff from proposed sites graded to the subsoil will not have the same runoff conditions as the site under existing conditions, even after topsoiling or seeding. The designer may increase his proposed condition "CN" or "c" to better reflect proposed soil conditions.
- H. Where uniform flow is anticipated, the Manning Equation shall be used for hydraulic computations, and to determine the capacity of open channels, pipes, and storm sewers. Values for Manning's roughness coefficient (n) shall be consistent with Table B-4 in Appendix B of the Brodhead and McMichaels Creek Watershed Act 167 Stormwater Management Plan Update.
- I. Outlet structures for stormwater management facilities shall be designed to meet the performance standards of this Ordinance using any generally accepted hydraulic analysis technique or method.
- J. The design of any stormwater detention facilities intended to meet the performance

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standards of this Ordinance shall be verified by routing the design storm hydrograph through these facilities using the Storage-Indication Method. For drainage areas greater than two hundred (200) acres in size, the design storm hydrograph shall be computed using a calculation method that produces a full hydrograph.

§ 123-14. Other Requirements.

- A. Any stormwater management facility designed to store runoff and requiring a berm or earthen embankment shall be designed to provide an emergency spillway to handle flow up to and including the 100-year design storm proposed conditions. The height of embankment must provide a minimum one (1) foot of freeboard above the maximum pool elevation computed when the facility functions for the 100-year event maximum pool elevation assuming all design orifices are blocked.
- B. Conveyance facilities leading to or exiting from stormwater management facilities shall be designed to convey the design flow to or from that structure. The total drainage conveyance system must be able to convey, without damage to any drainage structure or roadway, runoff from the 100-year design storm. Any open conveyance facilities designed to handle the entire 100-year design storm shall maintain a minimum one (1) foot of freeboard measured between the water level and top of bank. All conveyance facilities shall be contained within the lines of a drainage easement.
- C. In no event shall individual storm sewers, roadside swales, and inlet systems be designed to convey less than proposed conditions runoff from a 25-year design storm without surcharging inlets. Storm sewer pipes shall be constructed of concrete or approved plastic pipe. A minimum slope of 1% shall be provided for corrugated storm sewer and 0.5% for smooth lined storm sewers.
- D. Stormwater gutter flows shall not exceed one-half (1/2) of a through travel lane or one (1) inch less than the depth of curb for curbed sections of roadway, or two-thirds (2/3) of the design shoulder during a 10-year design storm of a five (5) minute duration.
- E. Storm Sewers shall meet the following standards:
 - 1. All storm sewer structures shall be constructed of reinforced concrete in accordance with current PennDOT 408 or RC-34 standards.
 - 2. All storm sewer structures shall provide for a minimum one-tenth (1/10) foot drop from the lowest inlet pipe invert elevation and the outlet pipe invert elevation.
 - 3. When there is a change in pipe size throughout a storm sewer pipe system, the elevation of the crowns of the pipe shall be matched, or the crown of the smaller pipe shall be higher.

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4. All inlets proposed in curb lines shall be “Type C” inlets.
- F. Stormwater management shall not alter the existing points of concentrated drainage discharge onto adjacent property or existing road rights-of-way.
1. Areas of existing drainage onto adjacent property or existing road right-of-way shall be managed such that, at minimum, the peak flow does not increase in the general direction of discharge, except as otherwise provided in this chapter. If the flow is proposed to be concentrated and discharged onto the adjacent property, the developer must document that there are adequate downstream conveyance facilities to safely transport the concentrated discharge or otherwise prove that no harm will result from the concentrated discharge. Areas of existing drainage discharge shall be subject to any applicable release rate criteria in the general direction of existing discharge whether they are proposed to be concentrated or maintained as diffused drainage areas. Written permission must be obtained from the adjacent downstream landowner to discharge onto their property.
 2. Where existing drainage patterns or watercourses traverse a subdivision or area of earth disturbance a drainage easement is required. Said drainage easement should conform with the line of the existing drainage pattern. The width of the easement shall be adequate to provide for unimpeded flow of storm runoff based on calculations made for the 100-year design storm runoff.

The terms of the easement shall prohibit excavation, the placing of fill or controls and any alterations which may adversely affect the flow of stormwater within any portion of the easement. Also, periodic cutting of vegetation in all portions of the easement may be required as specified by § 123-27 through § 123-29.
- G. Where stormwater drainage is to cross a roadway, culverts with headwalls shall be provided.
1. Road culverts shall be designed to a capacity to accommodate the twenty-five-year frequency storm event.
 2. Culverts shall be constructed of concrete pipe or approved plastic pipe with a minimum diameter of fifteen (15) inches.
 3. Driveway culverts shall be sized for each lot to provide the required capacity in the roadside swale. These sizes shall be listed on the final plans.
- H. Where detention basins are proposed the following standards shall apply:
1. Detention basin setbacks. All setbacks shall be measured from the pool location of the basin at the elevation of the emergency spillway or the toe of the embankment, whichever is the more restrictive.

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- a. Property lines: Fifteen (15) feet.
 - b. Road rights-of-way: Fifteen (15) feet.
 - c. Streams: Fifty (50) feet from top of bank.
2. No basin, dissipaters or waterways may be located closer than 250 feet from any downslope existing or proposed dwellings, septic system or well in such a manner that failure of the structure could cause damage to these items.
 3. The basin is to be sodded or topsoiled and seeded, including the bottom, side slopes and all earthen dams and embankments.
 4. Suitable lining shall be required to all points of inflow to the basin where erosion and scour may occur.
 5. An easement to allow maintenance crews access to the basin and outlet areas shall be established around all basins to be maintained. The limits of such easements shall be fifteen (15) feet from the outside toe of all dams and embankments and top of all pond side slopes and shall be connected to a public right-of-way.
 6. The design dimensions of the detention basins shall be maintained throughout construction unless it is to be used as a sedimentation basin during construction in the watershed. If so, it shall be immediately returned to design requirements following the completion of such construction. If used as a temporary sedimentation basin, it shall be designed based upon PADEP standards for sedimentation basins.
 7. The inlet shall enter at the opposite end of the basin from the discharge, if possible. If not used for approved infiltration, the basins shall have a minimum bottom slope of one percent (1%) towards the primary drainage and prevent saturated conditions, swampy conditions and maintenance problems. Low flow channels may be required to convey small inflows to the basin outlet.
 8. Side slopes shall be a maximum of three (3) feet horizontal to one (1) foot vertical, unless the design slopes are less than three (3) feet deep, whereas a four (4) to one (1) slope is required. The design engineer may propose steeper side slopes if justifiable evidence is submitted.
 9. Basins greater than three (3) feet deep shall be fenced the entire perimeter to keep out children. A basin less than three (3) feet deep may have three (3) to one (1) side slopes if fencing is provided. A gate shall be installed to allow access to the basin for maintenance.

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10. In many instances, the provision of separate detention facilities for a number of single sites may be more expensive and more difficult to maintain than provision of joint facilities for a number of sites. In such cases, the township will be willing to consider provision of joint detention facilities which will fulfill the requirements of this regulation. In such cases, a properly planned, staged program of detention facilities may be approved by the township in which compliance with some requirements may be postponed at early stages, while construction of preliminary phases are being undertaken. This shall pertain to stormwater management only and not erosion and sediment pollution control.
12. Safety ledges shall be constructed on the side slopes of all detention basins having a permanent pool of water. The ledges shall be four feet to six feet in width and located approximately two and one-half (2 ½) to three (3) feet below and one (1) foot to one and one-half (1 ½) feet above the permanent water surface.
13. Where the project consists of more than one phase, the stormwater controls shall be designed so that the rate of runoff for the ultimate build-out condition is consistent with the release rate specified in the plan. The outlet structure may have to be modified for the first phase. The stormwater detention basin shall be constructed prior to the construction of the first phase.
14. An erosion and sediment pollution control plan and narrative shall be developed for the detention basin. This plan shall be included in the erosion and sediment pollution control plan for the site.
15. Outlet structures and outlet pipes larger than 15 inches shall be constructed of reinforced concrete. All outlet structures shall include properly sized anti-seep collars.
16. All basins shall have, at a minimum, a primary outlet used to control the design storm and an emergency spillway to safely convey the one-hundred-year design storm with one foot of freeboard. The emergency spillway shall be constructed in undisturbed virgin soil and stabilized accordingly. Spillways shall be suitably lined. The maximum permissible velocity for the outlet shall be based upon current PADEP standards. All outlets must exit to an existing swale, stream or watercourse of adequate size to convey the design release rate in addition to existing flow, and the quantity, velocity and direction of flow shall be managed to protect health and property from possible injury. Outlets shall be designed to function without manual, electric or mechanical controls where possible.

Applicant must demonstrate that adequate conveyance system capacity exists between the project site and discharge to the first natural watercourse,

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and that no damage to properties existing between the project site and said natural watercourse will occur or be exacerbated by the proposed conditions additional flow.

Maximum velocities in emergency spillways shall be determined based on the velocity of the peak flow in the spillway resulting from the routed emergency spillway hydrograph. Where maximum velocities exceed those contained in Appendix 67, page 36, of the PADEP Sedimentation and Erosion Control Manual or its successor, suitable lining shall be provided.

I. Where dams and embankments are proposed the following standards shall apply:

1. The minimum top widths of all dams and embankments are listed below.

Minimum Top Widths

Heights (feet)	Top Width (feet)
0 to 3	4
3 to 5	6
5 to 15	8
15 to 20	10
20 to 25	14

2. The design top elevation of all dams and embankments, after all settlement has taken place, shall be equal to the maximum water surface elevation in the basin resulting from the routed 100-year storm, plus twelve (12) inches. Therefore, the design height of the dam or embankment, defined as the vertical distance from the top down to the bottom of the deepest cut, shall be increased by the amount needed to ensure that the design top elevation will be maintained following all settlement. This increase shall not be less than five percent (5%).
3. All earth fill shall be free from brush, roots and other organic material subject to decomposition.
4. The fill material in all earth dams and embankments shall be compacted to at least ninety-five percent (95%) of the maximum density obtained from compaction tests performed by the appropriate ASTM method.

§ 123-15. Erosion and sediment control requirements.

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- A. Any earth disturbance must be conducted in conformance with PA Title 25, Chapter 102, “Erosion and Sediment Control.”
- B. Additional erosion and sediment control design standards and criteria that must be or are recommended to be applied where infiltration BMPs are proposed shall include the following:
 - 1. Areas proposed for infiltration BMPs shall be protected from sedimentation and compaction during the construction phase to maintain maximum infiltration capacity.
 - 2. Infiltration BMPs shall not be constructed nor receive runoff until the entire contributory drainage area to the infiltration BMP has achieved final stabilization.

§ 123-16. Consumptive use tracking report.

All Regulated Activities shall submit a “Consumptive Use Tracking Report” (CUTR), which shall be developed in accordance with Appendix F of the Brodhead and McMichaels Creek Watershed Act 167 Stormwater Management Plan Update, to the Monroe County Conservation District.

ARTICLE III – STORMWATER MANAGEMENT PLAN

§ 123-17. Stormwater Management Plan content.

The Stormwater Management Plan shall consist of a general description of the project including sequencing items described in § 123-9, calculations, maps, plans and a Consumptive Use Tracking Report. A note on the maps shall refer to the associated computations and erosion and sediment control plan by title and date. The cover sheet of the computations and erosion and sediment control plan shall refer to the associated maps by title and date. All Stormwater Management Plan materials shall be submitted to the township in a format that is clear, concise, legible, neat, and well organized as determined by the Township Engineer; otherwise, the Stormwater Management Plan shall not be accepted for review and shall be returned to the applicant.

The following items shall be included in the Stormwater Management Plan:

A. General:

- (1) General description of the project including statement of total earth disturbance.
- (2) General description of permanent stormwater management techniques, including construction specifications of the materials to be used for stormwater management facilities.

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- (3) Complete hydrologic, hydraulic, and structural computations for all stormwater management facilities.
 - (4) An Erosion and Sediment Control Plan, including all reviews and letters of adequacy obtained from the Monroe County Conservation District.
 - (5) A Consumptive Use Tracking Report as submitted to the Monroe County Conservation District.
 - (6) General description of nonpoint source pollution controls.
 - (7) Expected project time schedule, including anticipated start and completion dates.
 - (8) A proposed schedule of inspections which will be performed by the applicant's Design Professional and monitored by the Township Engineer or the township designee.
 - (9) A schedule for installation of the control measures and structures with tentative calendar dates.
 - (10) An Operation and Maintenance Plan for all stormwater management, erosion and sediment pollution controls for both the construction period and after construction is complete, including the responsible party. This program must include the proposed ownership of the permanent controls and details for financial responsibility for any required maintenance in compliance with § 123-28 of this Chapter.
 - (11) A description of federal or state agency involvement with the project (i.e., United States Army Corps of Engineers, PADEP).
 - (12) Training and experience of person(s) preparing the plan.
- B. Map(s) of the project area shall be submitted on sheets 24 inches by 36 inches showing:
- (1) The locations of the project relative to highways, municipalities or other identifiable landmarks (i.e., U.S.G.S.).
 - (2) North arrow and scale.
 - (3) All information required for an Existing Resources Site Analysis Plan described in Chapter 131 (Paradise Township Subdivision and Land Development Regulations), Section 131-38.
 - (4) Adjoining property owners.

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- (5) Locations of proposed utilities, sewers and water lines.
- (6) Proposed changes to land surfaces and vegetative cover, including proposed structures, roads, paved areas and buildings.
- (7) Areas to be cut and filled.
- (8) Limits of earth disturbance, including the type and amount of impervious area that would be added.
- (9) Existing and proposed stormwater management, erosion and sediment pollution and nonpoint source pollution control structures as discussed in the narrative.
- (10) Road profiles.
- (11) Details/profiles of all proposed stormwater management, erosion and sediment pollution and nonpoint source pollution control structures as discussed in the narrative.
- (12) Existing and proposed drainage areas and boundaries, including on-site and contributing off-site boundaries.
- (13) When groundwater recharge methods such as seepage pits, beds or trenches are used, the locations of septic systems, infiltration areas, and wells must be shown.
- (14) Easements and rights-of-way to proposed stormwater controls.
- (15) 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.
- (16) A statement, signed by the Applicant, acknowledging that any revision to the approved Stormwater Management Plan must be approved by Paradise Township and that a revised Erosion and Sedimentation Plan must be submitted to the Conservation District for a determination of adequacy.
- (17) A certificate, signed and sealed by an engineer registered in the Commonwealth of Pennsylvania and qualified under all applicable state and local laws to perform such duties, indicating the compliance of the design of the stormwater management facilities and concepts with the provisions of this chapter.
- (18) Supplemental Information.
 - a) An application in compliance with § 123-23 of this Chapter.

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- b) The effect of the project (in terms of runoff volumes and peak flows) on adjacent properties, on any existing municipal stormwater collection system that may receive runoff from the project site, and on conveyance facilities between the project site and the first natural watercourse.
- c) A Declaration of Adequacy and Highway Occupancy Permit from PennDOT District Office when utilization of a PennDOT storm drainage system is proposed.

§ 123-18. Stormwater Management Plan submission.

The Township shall require receipt of a complete plan, as specified in this Ordinance.

For any activities that require a National Pollution Discharge Elimination System Permit for Stormwater Discharges from Construction Activities, or a PADEP Joint Permit Application, or a PennDOT Highway Occupancy Permit, or any other permit under applicable state or federal regulations, or are regulated under Chapter 105 (Dam Safety and Waterway Management) or Chapter 106 (Floodplain Management) of PADEP's Rules and Regulations, the proof of application for said permit(s) or approval(s) shall be part of the plan. The plan shall be coordinated with the state and federal permit process and the Township Subdivision and Land Development Ordinance review process, when applicable.

- A. For the Regulated Activities which require Subdivision and Land Development approval, the Stormwater Management Plan and Existing Resources Site Analysis Plan shall be submitted by the Applicant as part of the Preliminary Plan submission.
- B. For those Regulated Activities that do not require Subdivision and Land Development approval, the Stormwater Management Plan and Existing Resources Site Analysis Plan shall be submitted 30 days prior to permit issuance or commencement of earth disturbance.
- C. For those Regulated Activities that require Subdivision and Land Development approval, the applicant shall have the ability to submit a receipt from the Monroe County Planning Commission showing that the applicant has made the submittal directly. This receipt shall be required as part of the initial submission to the Paradise Township Planning Commission. If the Township Planning Commission fails to receive the receipt or the sufficient number of copies to distribute to the Monroe County Planning Commission, the submittal to the township will be considered incomplete and the time period for approval of the entire application will not commence.
- D. The applicant shall submit the erosion and sediment pollution control plan directly to the Monroe County Conservation District for review and approval.

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- E. The Township shall review and approve the stormwater management site plan and the Monroe County Conservation District shall review and approve the erosion and sediment pollution control plan, prior to the final approval of any subdivision and/or land development plans or the issuance of any permits.
- F. The Stormwater Management plan shall be accompanied by the requisite fee, as set forth in § 123-26 of this chapter.
- G. Eight (8) copies of the completed Stormwater Management plan must be submitted.
- H. Eight (8) copies of the Stormwater Management plan application, as supplied by the township and required by § 123-23 of this chapter, must be submitted.
- I. Any submissions found incomplete shall not be accepted for review and shall be returned to the Applicant with a notification in writing of the specific manner in which the submission is incomplete.

§ 123-19. Stormwater Management Plan review.

- A. Proposed Stormwater Management Plans submitted for review for Regulated Activities which require Subdivision and Land Development approval shall be reviewed in accordance with procedures described in Chapter 131 (Subdivision and Land Development) and the Pennsylvania Municipalities Planning Code.
 - 1. Should the Stormwater Management Plan be determined to be consistent with this Chapter, the Township Engineer shall forward a letter of consistency to the Planning Commission and the Board of Supervisors.
 - 2. Should the Stormwater Management Plan be determined to be inconsistent or noncompliant with this Chapter the Township Engineer shall forward a letter to the Planning Commission and the Board of Supervisors, with a copy to the Applicant, citing the reason(s) and specific Chapter sections involving inconsistency or noncompliance.
 - 3. The Stormwater Management Plan shall be reviewed consistent with the procedures for Subdivision and Land Development Plans in Chapter 131.
- B. Proposed Stormwater Management Plans submitted for review for Regulated Activities which do not require Subdivision and Land Development approval shall be reviewed by the Township Engineer.
 - 1. Should the Stormwater Management Plan be determined to be consistent with this Chapter, the Township Engineer shall forward a letter of consistency to the

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Zoning Officer. The Zoning Officer is then authorized to issue permits if the development plan is also consistent with Chapter 160 (Zoning).

2. Should the Stormwater Management Plan be determined to be inconsistent or noncompliant with this Chapter the Township Engineer shall forward a letter to the Zoning Officer citing the reason(s) and specific Chapter sections involving inconsistency or noncompliance. The Zoning Officer will then notify the Applicant.
- C. Proposed Stormwater Management Plans determined to be inadequate, inconsistent or noncompliant with this Chapter may be resubmitted in accordance with the requirements of this Chapter.
 - D. The Erosion and Sedimentation Plan shall be reviewed by the Monroe County Conservation District and found adequate to meet the requirements of the PADEP's Chapter 102 regulations prior to Township approval of the Stormwater Management Plan. The Conservation District shall also review the Consumptive Use Tracking Report consistent with § 123-16 of this Ordinance.
 - E. No Township permits shall be issued for any Regulated Activity specified in § 123-5 if the Stormwater Management Plan has been found to be inconsistent with this Ordinance, as determined by the Township Engineer. All required permits from PADEP must be obtained prior to issuance of a zoning permit.
 - F. The Applicant shall be responsible for preparing as-built drawings of all stormwater management facilities included in the approved Stormwater Management Plan for recordation. The as-built drawings and an explanation of any discrepancies with the design plans shall be submitted to the Township Engineer for final approval prior to the issuance of any occupancy permits. In no case shall the Township approve the as-built drawings until the Township receives a copy of an approved Declaration of Adequacy and/or Highway Occupancy Permit from the PennDOT District Office (if required), NPDES Permit, Consumptive Use Tracking Report, and any other applicable permits or approvals from PADEP or the Monroe County Conservation District. The above permits and approvals must be based on the as-built drawings. This means that if there are changes during construction, the as-built drawings must be submitted to the PADEP and the Monroe County Conservation District for an updated approval if this was not done previously.

§ 123-20. Permit requirements and exemptions.

All subdivision/land development or earth disturbance activities as specified in § 123-5(E), except those specifically exempt from Stormwater Management plan submittal and review requirements specified in § 123-5(F), shall be conducted only after Stormwater Management Plan approval.

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§ 123-21. Permit issuance.

The applicant shall obtain the required Stormwater Management permit after obtaining the required Stormwater Management plan approval as specified in § 123-19 of this chapter. This Stormwater Management permit will be issued by the Board of Supervisors concurrently with any associated final subdivision/land development approval.

§ 123-22. Modification of Stormwater Management plans.

- A. A modification to a Stormwater Management Plan under review by the Township for a development site that involves a change in stormwater management facilities or techniques, or that involves the relocation or re-design of stormwater management facilities, or that is necessary because soil or other conditions are not as stated on the Stormwater Management Plan as determined by the Township Engineer, shall require a resubmission of the modified Stormwater Management Plan consistent with § 123-17 of this Ordinance and be subject to review as specified in § 123-19 of this Ordinance.
- B. A modification to an already approved or disapproved Stormwater Management Plan shall be submitted to the Township, accompanied by the application fee. A modification to a Stormwater Management Plan for which a formal action has not been taken by the Township shall be submitted to the Township, accompanied by the applicable fee.

ARTICLE IV - ADMINISTRATION

§ 123-23. Application for permit.

All applications for Stormwater Management permits required by this Chapter shall be made on forms supplied by the Township. Such application shall provide a brief description of the stormwater management controls and earth disturbance activity. This application shall become part of the plan submission required by § 123-17 of this Chapter.

§ 123-24. Expiration and renewal.

- A. The Township's approval of a Stormwater Management Plan shall be valid for a period not to exceed five (5) years, commencing on the date that the Township signs the approved Stormwater Management Plan. If stormwater management facilities included in the approved Stormwater Management Plan have not been constructed, or if constructed, as-built drawings of these facilities have not been submitted for

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approval within this five (5) year time period, then the Township shall consider the Stormwater Management Plan disapproved and shall revoke any and all permits. Stormwater Management Plans that are considered disapproved by the Township must be resubmitted in accordance with § 123-18 of this Ordinance.

- B. A renewal of the expired Stormwater Management permit may be issued by the township following a resubmittal of the Stormwater Management permit application form. Additional fees must be paid for the resubmittal of an expired permit.
- C. The refusal of the Board of Supervisors to reissue an expired Stormwater Management permit shall contain the reasons for such refusal.
 - (1) Changes in project site conditions and requirements for the Stormwater Management plan may occur over a period of time.
 - (2) If the requirements for the Stormwater Management plan have changed as determined by the Board of Supervisors, reapplication, review and permit issuance requirements must be performed pursuant to this chapter.

§ 123-25. Schedule of inspections.

- A. The applicant's Design Professional shall make inspections according to the submitted and approved inspection schedule. At the completion of the project and as a prerequisite for the release of the guaranty as described in §§ 123-27 through 123-29 of this chapter, the owner or his designee shall:
 - (1) Provide a certification of the completion from a Design Professional verifying that the inspections have been made and that all permanent facilities/controls have been constructed according to the plans and specifications and approved revisions thereto.
 - (2) Submit any testing results such as the compaction of the earth berm for any detention basins if required by the Board of Supervisors.
- B. Any portion of the work which does not comply with the approved plans must be corrected by the permittee within that time period specified by the Board of Supervisors or designee. No work may proceed on any subsequent phase of the Stormwater Management Plan, the subdivision or land development or building construction until the required corrections have been made.
- C. If at any stage of the work, the Board of Supervisors or its designee determines that the soil or other conditions are not as stated or shown in the approved application, the Board of Supervisors may suspend or revoke existing permits until a revised plan is submitted and approved, as required by § 123-22 of this chapter.

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§ 123-26. Fees and expenses.

- A. General. Stormwater Management permit fees covering costs to the Board of Supervisors for plan review, permit issuance and inspections shall be established by resolution of the Board of Supervisors.¹ No permit to begin any work on the project shall be issued and no reviews performed until the requisite fees have been paid. The submission shall be considered incomplete if the required fees have not been paid.
- B. Modification of plans. If it is determined that a modification to the existing Stormwater Management Plan is required under § 123-22 of this chapter, a new Stormwater Management permit shall not be issued until the additional fees have been paid by the applicant.
- C. Expenses covered by fees. The fee payable by an applicant shall be on a retainer basis as described in the fee schedule.

ARTICLE V - PERFORMANCE

§ 123-27. Performance guarantee.

- A. For subdivisions and land developments the applicant shall provide a performance guarantee to the Township for the timely installation and proper construction of all stormwater management controls as required by the approved Stormwater Management Plan in the amount and method of payment provided for in the Subdivision and Land Development Ordinance (Chapter 131).
- B. For other Regulated Activities, the Township will require a performance guarantee from the Applicant in an amount equal to one hundred and ten (110) percent of the full construction cost of the stormwater management controls as required by the approved Stormwater Management Plan estimated as of ninety (90) days following the date scheduled for the completion of the construction of the same.
- C. At the completion of the project, and as a prerequisite for the release of the performance guarantee, the Applicant or his representatives shall:
 - 1. Provide a certification of completion from a Pennsylvania –licensed professional engineer, verifying that all required stormwater management facilities have been constructed according to the plans and

¹Editor's Note: The current Fee Schedule is on file in the township offices.

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specifications and approved revisions thereto as follows: “I (Design Professional), on this date (date of signature) hereby certify that the stormwater Management facilities have all been installed in accordance with the approved Stormwater Management Plan for (name of project) and in compliance with the design standards and requirements of the Paradise Township Stormwater Management Ordinance.

2. Provide a set of as-built drawings with a certification from the Design Professional on the as-built drawings that states: “I, (insert signer’s name), state that I am the (insert position) of (insert name of contractor) on this date (date of signature) hereby certify (1) that I am duly authorized to make this certification on behalf of (insert name of contractor), and (2) that all stormwater management facilities have been constructed according to the approved plans and specifications and approved revisions thereto.” The signer shall either be the owner, partner, officer of the corporation, management member of the limited liability company, or the person in control of any other legal entity, duly authorized by the Contractor to sign the certification.
- D. After the Township receives the certifications and as-built drawings, a final observation shall be conducted by the Township Engineer to verify compliance with the approved Stormwater Management Plan and approved revisions thereto.

§ 123-28. Maintenance responsibilities.

- A. The Stormwater Management Plan for the development site shall contain an Operation and Maintenance Plan prepared by the Applicant and approved by the Township Engineer. The Operation and Maintenance Plan shall outline required routine maintenance actions and schedules necessary to insure proper operation of the stormwater management facilities.
- B. The Stormwater Management Plan for the development site shall establish responsibilities for the continuing operation and maintenance of all proposed stormwater management facilities, consistent with the following principles:
 1. Both the owner and developer of the development site shall be responsible for maintenance of the stormwater management facilities, unless the Board of Supervisors shall otherwise agree.
 2. If a development site consists of structures or lots which are to be separately owned and in which streets, sewers or other public improvements are to be offered for dedication to the Township, stormwater control facilities may also

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be offered for dedication to the Township, however the Township is not obligated to accept ownership.

3. If a development site is to be maintained in a single ownership or if streets, sewers or other public improvements are to be privately owned and maintained, then the ownership and maintenance of stormwater control facilities shall be the responsibility of the Applicant, owner or private management entity, as approved by the Township.
 4. If, with the permission of the Board of Supervisors, the ownership of and/or maintenance responsibility for the stormwater management facilities is assigned/delegated to a homeowners' association, condominium unit owners' association, or similar entity (a "transferee"), such transferee shall enter into an agreement with the Township, which shall be in form and substance acceptable to the Township, acknowledging its duties and the Township's rights, and agreeing to perform all maintenance responsibilities, contained in the Stormwater Maintenance Agreement referenced in § 123-29 of this Chapter entered into with respect to the property or project. If such transfer fails to properly maintain the stormwater management facilities, the Township shall have the same rights granted to municipalities under Section 705 of the Pennsylvania Municipalities Planning code, Act of July 31, 1968, P.L. 805, No. 247, as amended with reference to maintenance of common open space, to maintain the stormwater management facilities.
- C. The Board of Supervisors, upon recommendation of the Township Engineer, shall make the final determination on the continuing maintenance responsibilities prior to approval of the Stormwater Management Plan. The Board of Supervisors reserves the right, but not the obligation or requirement, to accept the ownership and operating responsibility for any or all of the stormwater management controls.

§ 123-29. Maintenance agreement for privately owned stormwater facilities.

- A. Prior to approval of the Stormwater Management Plan, the Applicant shall sign and record a Stormwater Maintenance Agreement in form and substance satisfactory to the Board of Supervisors, covering all stormwater control facilities that are to be privately owned.
- B. Other items may be included in the Stormwater Maintenance Agreement where determined necessary to guarantee the satisfactory maintenance of all facilities. The Stormwater Maintenance Agreement shall be subject to the review and approval of the Township Solicitor and the Board of Supervisors.

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ARTICLE VI - ENFORCEMENT

§ 123-30. Right-of-entry.

Upon presentation of proper credentials, duly authorized representatives of the Township may enter at reasonable times upon any property within the township to inspect the condition of the stormwater structures and facilities in regard to any aspect regulated by this Chapter.

§ 123-31. Public Nuisance or Hazard.

The violation of any provision of this Chapter is hereby deemed a Public Nuisance or Hazard. For the purposes of this Chapter, a Public Nuisance or Hazard shall be the creation, by either commission or omission of any act, of a condition which (a) precludes the stormwater facility from performing as designed; (b) undermines or threatens to undermine the structural integrity of the stormwater facilities or its ability to perform as designed; (c) fails to properly maintain said stormwater facilities; or (d) creates any increased pollution run-off or any other act which may endanger the life or property of others. A Public Nuisance or Hazard shall be subject to enforcement as set forth herein.

§ 123-32. Notification.

In the event that a person fails to comply with the requirements of this Chapter, or fails to conform to the requirements of any permit issued hereunder, the Township shall provide written notification of the violation. Such notification shall set forth the nature of the violation(s) and establish a time limit for correction of such violation(s). Failure to comply within the time specified shall subject such person to the penalty provisions of this Chapter. All such penalties shall be deemed cumulative and shall not prevent the Township from pursuing any and all remedies, including but not limited to injunctive relief. It shall be the responsibility of the Applicant of the real property on which any Regulated Activity is proposed to occur, is occurring, or has occurred, to comply with the terms and conditions of this Chapter.

§ 123-33. Enforcement.

The Board of Supervisors is hereby authorized and directed to enforce all of the provisions of this chapter. All inspections regarding compliance with the Stormwater Management plan shall be the responsibility of the Township Engineer or other person designated by the township.

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- A. A copy of the Stormwater Management Plan approved by the Township shall be on file at the site throughout the duration of the construction activity. Periodic inspections may be made by the Township or designee during construction.
- B. Adherence to approved plan. It shall be unlawful for any person, firm or corporation to undertake any Regulated Activity under § 123-5 on any property except as provided for in the approved Stormwater Management Plan and pursuant to this chapter. It shall be unlawful to alter or remove any control structure required by the Stormwater Management Plan pursuant to this chapter or to allow the property to remain in a condition which does not conform to the approved Stormwater Management Plan.
- C. Hearing. Prior to revocation or suspension of a permit and at the request of the Applicant, the Board of Supervisors will schedule a hearing to discuss the non-compliance if there is no immediate danger to life, public health or property. The expense of a hearing shall be the Applicant's responsibility.
- D. Suspension and revocation of permits.
 - (1) Any permit issued under this chapter may be suspended or revoked by the Board of Supervisors for:
 - (a) Noncompliance with or failure to implement any provision of the permit.
 - (b) A violation of any provision of this chapter or any other applicable law, ordinance, rule or regulation relating to the project.
 - (c) The creation of any condition or the commission of any act during construction or development which constitutes or creates a Public Nuisance or Hazard, pollution, or which endangers the life or property of others.
 - (2) A suspended permit shall be reinstated by the Board of Supervisors if and when:
 - (a) The Township Engineer or his designee has inspected and approved the corrections to the stormwater management and erosion and sediment pollution control measure(s) or the elimination of the hazard or nuisance.
 - (b) The Board of Supervisors is satisfied that the violation of this chapter, law or rule and regulation has been corrected.
 - (3) A permit which has been revoked by the Board of Supervisors cannot be reinstated. The applicant may apply for a new permit under the procedures outlined in this chapter.
- E. Occupancy permit. An occupancy permit shall not be issued unless the requirements of § 123-27 have been fully complied with. An occupancy permit shall be required

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for each lot owner and/or Applicant for all Regulated Activities, subdivisions and land developments in the township.

§ 123-34. Penalties.

- A. Violations of this Chapter shall be enforced by action brought before a court of appropriate jurisdiction in the same manner provided for the enforcement of summary offenses under the Pennsylvania Rules of Criminal Procedure. Any person who violates or permits a violation of the provisions of this Chapter shall, upon conviction in a summary proceeding, pay a fine of not less than \$600 nor more than \$1,000 per violation, plus all Court costs and reasonable attorneys fees incurred by Paradise Township in the enforcement proceedings, and/or be imprisoned to the extent allowed by law for the punishment of summary offenses. Each day or portion thereof that a violation exists or continues shall constitute a separate violation. All fines, penalties, costs and reasonable attorney's fees collected for the violation of this Chapter shall be paid to Paradise Township for its general use.
- B. In addition, the Township may institute injunctive, mandamus or any other appropriate action or proceeding at law or in equity for the enforcement of this Chapter. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus or other appropriate forms of remedy or relief.

§ 123-35. Appeals.

- A. Appeals from any determination of the Zoning Officer or the Township Engineer in the administration or enforcement of this Chapter insofar as the same relates to applications for land development under Articles V or VII of the Pennsylvania Municipalities Planning Code shall be to the Paradise Township Board of Supervisors.
- B. Appeals from any determination of the Zoning Officer or Township Engineer in the administration or enforcement of this Chapter insofar as the same relates only to development not involving an application for land development under Articles V or VII of the Pennsylvania Municipalities Planning Code shall be to the Paradise Township Zoning Hearing Board.

§ 123-36. Severability.

If any sentence, clause, section or part of this Ordinance is for any reason found to be unconstitutional, illegal or invalid, such unconstitutionality, illegality or invalidity shall not affect or impair any remaining provisions, sentences, clauses, sections or parts of this Ordinance. It is hereby declared as the intent of the Board of Supervisors that such remainder shall be and shall remain in full force and effect.

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§ 123-37. Repealer.

All ordinances or parts of ordinances conflicting or inconsistent with any of the provisions of this Ordinance are hereby repealed, but only insofar as the same are in direct conflict, or directly inconsistent, with this Ordinance; provided, however, that the repealed ordinances or resolutions or parts thereof shall remain effective for, and apply to, any applications submitted to and in process before the Township prior to the effective date of this Ordinance.