CHESTNUTHILL TOWNSHIP
MONROE COUNTY, PENNSYLVANIA

ORDINANCE NO. 2008-01

AN ORDINANCE ENACTING REVISED AND UPDATED STORMWATER MANAGEMENT REGULATIONS PURSUANT TO THE STORMWATER MANAGEMENT ACT, ACT 167 OF 1978, AND REPLACING IN ITS ENTIRETY ORDINANCE NO. 1989-1, AS AMENDED

WHEREAS, the Chestnuthill Township Supervisors adopted adopted a Stormwater Management Ordinance on April 18, 1989, Ordinance No. 1989-01 (hereafter "the 1989 Ordinance") pursuant to the Stormwater Management Act, Act of April 4, 1978, P.L. 864 (Act 167 of 1978), commonly known as "Act 167";

WHEREAS, Act 167, at Section 5(a), requires counties to implement and update a Stormwater Management Plan at least every five years after an initial plan adoption;

WHERAS, the Monroe County Commissioners adopted an amended Act 167 Brodhead and McMichaels Creek Watershed Stormwater Plan on December 6, 2006.

WHEREAS, Section 11 of Act 167 requires each municipality within an identified watershed within the county's Stormwater Management Plan to adopt or amend and implement such ordinances and regulations as are necessary to regulate development within the municipality in a manner consistent with the applicable watershed stormwater plan and the provisions of Act 167; and

WHEREAS, the Pennsylvania Department of Environmental Protection, Bureau of Watershed Management, notified the Monroe County Commissioners on December 12, 2006

that the Bureau approved the County's amended Brodhead and McMichaels Creeks Watershed Act 167 Stormwater Management Plan Update.

NOW THEN, be it ordained this 4th day of March , 2008 that the Chestnuthill Township Board of Supervisors hereby enacts and ordains Ordinance Number 2008-0 ,the "Chestnuthill Township Stormwater Management Ordinance" and consisting of the following 47 pages of text and separate Appendices consisting of Appendix A through Appendix G.

BOARD OF SUPERVISORS OF CHESTNUTHILL TOWNSHIP

Carl B. Gould, II, Chairman

Leigh Kane, Supervisor

Dave Fleetwood, Supervisor

ATTEST:

Secretary

ARTICLE IX - ENACTMENT

ORDAINED AND ENACTED into an Ordinance at a regular meeting of the Board of Supervisors of Chestnuthill Township, Monroe County, Pennsylvania, this _____ day of _____, 2008.

BOARD OF SUPERVISORS OF CHESTNUTHILL TOWNSHIP

_____
Carl B. Gould, II, Chairman

_____
Leigh Kane, Supervisor

_____
Dave Fleetwood, Supervisor

ATTEST:

_____
Secretary

(TOWNSHIP SEAL)

THE CHESTNUTHILL TOWNSHIP STORMWATER MANAGEMENT

ORDINANCE

ORDINANCE NO. 2008-01

CHESTNUTHILL TOWNSHIP, MONROE COUNTY,

PENNSYLVANIA

Adopted at a Public Meeting Held on

3/4, 2008

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ARTICLE I- GENERAL PROVISIONS

Section 101. Statement of Findings

The governing body of the Municipality finds that:

A. Inadequate management of accelerated stormwater runoff resulting from development throughout a watershed increases flood flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of existing streams and storm sewers, greatly increases the cost of public facilities to convey and manage stormwater, undermines floodplain management and flood reduction efforts in upstream and downstream communities, reduces groundwater recharge, and threatens public health and safety.

B. A comprehensive program of stormwater management, including reasonable regulation of development and activities causing accelerated erosion, is fundamental to the public health, safety, welfare, and the protection of the people of the Municipality and all the people of the Commonwealth, their resources, and the environment.

C. Inadequate management of accelerated stormwater runoff resulting from development throughout a watershed poses a threat to surface and groundwater quality.

D. 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 storm water runoff is through nonstructural project design, minimizing impervious surfaces and sprawl, avoiding sensitive areas (i.e. buffers, floodplains, steep slopes), and designing to topography and soils to maintain the natural hydrologic regime.

Section 102. Purpose

The purpose of this Ordinance is to promote the public health, safety, and welfare within **all watersheds within Chestnuthill Township** maintaining the natural hydrologic regime by minimizing the impacts described in Section 101 of this Ordinance through provisions designed to:

A. Promote alternative project designs and layout that minimizes impacts to surface and ground water.

B. Promote nonstructural BMP's.

C. Minimize increases in stormwater volume.

D. Minimize impervious surfaces.

E. Manage accelerated runoff and erosion and sedimentation problems at their source by regulating activities that cause these problems during construction.

F. Utilize and preserve the existing natural drainage systems.

G. Encourage recharge of groundwater where appropriate and prevent degradation of groundwater quality.

H. Address the quality and quantity of stormwater discharges from the development site.

I. Maintain existing baseflow and quality of streams and watercourses in the municipality and the Commonwealth.

J. Preserve and restore the flood-carrying capacity of streams.

K. Provide proper maintenance of all permanent stormwater management facilities that are constructed in the Municipality.

L. Provide performance standards and design criteria for watershed-wide stormwater management and planning.

Section 103. Statutory Authority

The Municipality 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 32 P.S., P.L. 864 (Act 167) Section 680.1 et seq., as amended, the "Stormwater Management Act" (hereinafter referred to as "the Act"), and the Water Resources Management Act of 2002, as amended, Municipalities Planning Code, Act of 1968, P.L.805, No.247, as amended, Second Class Township Code, 53 PS Section 66501 et seq., 66601 et seq. and the Borough Code 53 PS Section 46201 et seq.

Section 104. Applicability/Regulated Activities

This Ordinance shall apply to all of Chestnuthill Township. Those areas of the Municipality that are located within the Brodhead/McMichaels Creek Watershed are delineated in Appendix D which is hereby adopted as part of this Ordinance. Areas located outside of the Brodhead/McMichaels Creek Watershed are subject to the same requirements as if they were located in Stormwater Management District "A".

This Ordinance shall only apply to permanent nonstructural and structural stormwater management Best Management Practices (BMP's) constructed as part of any of the Regulated Activities listed in this Section.

The construction detail and design criteria for stormwater management and conveyance facilities (e.g., inlet spacing, inlet type, collection system design and details, outlet structure design, etc.) shall also be regulated by the Chestnuthill Township Subdivision and Land Development Ordinance Section 98-61 and applicable State Regulations.

The Municipality may, after consultation with DEP, approve alternative methods for meeting the State Water Quality Requirements other than those in this Ordinance, provided that they meet the minimum requirements of, and do not conflict with, State law including but not limited to the Clean Streams Law and the Pennsylvania Stormwater BMP Manual as revised.

The following activities are defined as "Regulated Activities" and shall be regulated by this Ordinance:

A. Land development.
B. Subdivisions.
C. Alteration of the natural hydrologic regime.
D. Construction of/or additional impervious or semi-pervious surfaces (driveways, parking lots, roads).
E. Construction of new buildings or additions to existing buildings.
F. Redevelopment of a site which will increase runoff or change a discharge point. Any redevelopment that does not increase the runoff must still comply with Sections 303 (Water Quality and Streambank Erosion) and 304 (Ground Water Recharge).
G. Diversion piping or encroachments in any natural or man-made channel.
H. Nonstructural and structural storm water management BMP's or appurtenances thereto.
I. Stream enhancement or restoration projects.

"See Section 402 for additional information on exemptions"

The following land use activities are exempt from the Drainage Plan submission requirements of this ordinance:

1. Use of land for gardening for home consumption.

2. Agriculture when operated in accordance with a Conservation Plan or Erosion and Sediment Control Plan (E & S) found adequate by the Conservation District.

3. Forest Management operations which are following the Department of Environmental Protection's management practices contained in its publication "Soil Erosion and Sedimentation (E & S) Control Guidelines for Forestry" and are operating under an approved E & S Plan and must comply with stream buffer requirements in section 303 and flood plain management requirements.

4. Impervious Surface - Any Regulated Activity that has less than 5,000 square foot of impervious surface and/or meets the following exemption criteria is exempt from the plan submittal provisions of this Ordinance. These criteria shall apply to the total development even if development is to take place in phases. The date of the original Brodhead or McMichaels municipal Ordinance adoption shall be the starting point from which to consider tracts as "parent tracts" in which future subdivisions and respective impervious area computations shall be cumulatively considered. Impervious areas existing on the "parent tract" prior to adoption of this Ordinance shall not be considered in cumulative impervious area calculations for exemption purposes.

Section 105. Repealer

Any ordinance or ordinance provision of the Municipality inconsistent with any of the provisions of this Ordinance is hereby repealed to the extent of the inconsistency only.

Section 106. Severability

Should any section or provision of this Ordinance be declared invalid by a court of competent jurisdiction, such decision shall not affect the validity of any of the remaining provisions of this Ordinance.

Section 107. Compatibility With Other Ordinance Requirements

Approvals issued pursuant to this Ordinance do not relieve the Applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance.

ARTICLE II-DEFINITIONS

Section 201. Interpretation.

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

A. Words used in the present tense include the future tense; the singular number includes the plural, and the plural number includes the singular; words of masculine gender include feminine gender; and words of feminine gender include masculine gender.

B. The word "includes" or "including" shall not limit the term to the specific example, but is intended to extend its meaning to all other instances of like kind and character.

C. The word "person" includes an individual, firm, association, organization, partnership, trust, company, corporation, unit of government, or any other similar entity.

D. The words "shall" and "must" are mandatory; the words "may" and "should" are permissive.

E. The words "used or occupied" include the words "intended, designed, maintained, or arranged to be used, occupied or maintained."

Section 202 - Definitions

Accelerated Erosion - The removal of the surface of the land through the combined action of man's activity and the natural processes of a rate greater than would occur because of the natural process alone.

Agricultural Activities - The work of producing crops and raising livestock including tillage, plowing, disking, harrowing, pasturing and installation of conservation measures. For purposes of regulation by this Ordinance construction of new buildings or impervious area is not considered an agricultural activity.

Alteration - As applied to land, a change in topography as a result of the moving of soil and rock from one location or position to another; also the changing of surface conditions by causing the surface to be more or less impervious; land disturbance.

Applicant - A person who has filed an application for approval to engage in any Regulated Activities as defined in Section 104 of this Ordinance.

As-built drawings - Those maintained by the Contractor as he constructs the project and upon which he documents the actual locations of the building components and changes to the original contract documents. These, or a copy of same, are turned over to the Engineer at the completion of the project.

Bankfull – The channel at the top-of-bank or point where water begins to overflow onto a floodplain.

Base Flow – The portion of stream flow that is sustained by ground water discharge.

Bioretention – A storm water retention area which utilizes woody and herbaceous plants and soils to remove pollutants before infiltration occurs.

BMP (Best Management Practice) - Stormwater structures, facilities and techniques to control, maintain or improve the quantity and quality of surface runoff and groundwater recharge.

Buffer – The area of land immediately adjacent to any wetland, lake, pond, vernal pond, or stream, measured perpendicular to and horizontally from the delineated edge of the wetland, lake, pond, or vernal pond, or the top-of-bank on both sides of a stream.

Channel Erosion - The widening, deepening, and headward cutting of small channels and waterways, caused by stormwater runoff or bankfull flows.

Cistern - An underground reservoir or tank for storing rainwater.

Conservation District - The Monroe County Conservation District.

Consumptive Water Use – That part of water removed from the immediate water environment not available for other purposes such as water supply, maintenance of stream flows, water quality, fisheries and recreation, as opposed to water that is used non-consumptively, which is returned to surface water, where practicable, and groundwater.

Culvert - A structure with appurtenant works, which carries water under or through an embankment or fill.

Dam - An artificial barrier, together with its appurtenant works, constructed for the purpose of impounding or storing water or another fluid or semifluid, or a refuse bank, fill or structure for highway, railroad or other purposes which does or may impound water or another fluid or semifluid.

Department – The Pennsylvania Department of Environmental Protection.

Designee - The agent of the Monroe County Planning Commission, Monroe County Conservation District and/or agent of the governing body involved with the administration, review or enforcement of any provisions of this ordinance by contract or memorandum of understanding.

Design Professional (Qualified) – A Pennsylvania Registered Professional Engineer, Registered Landscape Architect or a Registered Professional Land Surveyor trained to develop stormwater management plans.

Design Storm - The magnitude and temporal distribution of precipitation from a storm event measured in probability of occurrence (e.g., a 5-year storm) and duration (e.g., 24-hours), used in the design and evaluation of stormwater management systems.

Detention Basin - An impoundment structure designed to manage stormwater runoff by temporarily storing the runoff and releasing it at a predetermined rate.

Detention District - Those subareas in which some type of detention is required to meet the plan requirements and the goals of Act 167.

Development Site - The specific tract of land for which a Regulated Activity is proposed.

Diffused Drainage Discharge – Drainage discharge not confined to a single point location or channel, such as sheet flow or shallow concentrated flow.

Disturbed Areas – Land area where an earth disturbance activity is occurring or has occurred.

Downslope Property Line - That portion of the property line of the lot, tract, or parcels of land being developed located such that overland or pipe flow from the site would be directed towards it.

Drainage Conveyance Facility - A Stormwater Management Facility designed to transmit stormwater runoff and shall include channels, swales, pipes, conduits, culverts, storm sewers, etc.

Drainage Easement - A right granted by a grantor to a grantee, allowing the use of private land for stormwater management purposes.

Drainage Permit - A permit issued by the Municipal governing body after the drainage plan has been approved.

Drainage Plan - The documentation of the stormwater management system, if any, to be used for a given development site, the contents of which are established in Section 403.

Earth Disturbance – A construction or other human activity which disturbs the surface of land, including, but not limited to, clearing and grubbing, grading, excavations, embankments, agricultural plowing or tilling, timber harvesting activities, road maintenance activities, mineral extraction, and the moving, depositing, stockpiling, or storing of soil, rock or earth materials.

Emergency Spillway – A conveyance area that is used to pass peak discharge greater than the maximum design storm controlled by the storm water facility.

Encroachment – A structure or activity that changes, expands or diminishes the course, current or cross section of a watercourse, floodway or body of water.

Erosion - The movement of soil particles by the action of water, wind, ice, or other natural forces.

Erosion and Sediment Control Plan - A site specific plan that is designed to minimize accelerated erosion and sedimentation during construction.

Exceptional Value Waters – Surface waters of high quality which satisfy Pennsylvania Code Title 25 Environmental Protection, Chapter 93, Water Quality Standards, § 93.4b(b) (relating to anti-degradation).

Existing Conditions - The initial condition of a project site prior to the proposed alteration. If the initial condition of the site is undeveloped land, the land use shall be considered as "meadow" unless the natural land cover is proven to generate lower curve numbers or Rational "C" value.

Flood - A temporary condition of partial or complete inundation of land areas from the overflow of streams, rivers, and other waters of this Commonwealth.

Floodplain - Any land area susceptible to inundation by water from any natural source or delineated by applicable Department of Housing and Urban Development, Federal Insurance Administration Flood Hazard Boundary - Mapped as being a special flood hazard area.

Floodway - The channel of the watercourse and those portions of the adjoining floodplains, which are reasonably required to carry and discharge the 100-year frequency flood. Unless otherwise specified, the boundary of the floodway is as indicated on maps and flood insurance studies provided by FEMA. In an area where no FEMA maps or studies have defined the boundary of the 100-year frequency floodway, it is assumed - absent evidence to the contrary - that the floodway extends from the stream to 50 feet from the top of the bank of the stream.

Forest Management/Timber Operations - Planning and activities necessary for the management of forest land with no change of land use proposed. These include timber inventory and preparation of forest management plans, silvicultural treatment, cutting budgets, logging road design and construction, timber harvesting and reforestation.

Freeboard - A vertical distance between the elevation of the design high-water and the top of a dam, levee, tank, basin, swale, or diversion berm. The space is required as a safety margin in a pond or basin.

Grade - A slope, usually of a road, channel or natural ground specified in percent and shown on plans as specified herein. (To) Grade - to finish the surface of a roadbed, top of embankment or bottom of excavation.

Grassed Waterway - A natural or constructed waterway, usually broad and shallow, covered with erosion-resistant grasses, used to convey surface water.

Groundwater Recharge - Replenishment of existing natural underground water supplies without degrading groundwater quality.

HEC-HMS - The U.S. Army Corps of Engineers, Hydrologic Engineering Center (HEC) - Hydrologic Modeling System (HMS) computer program.

High Quality Waters – Surface waters having quality which exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water by satisfying Pennsylvania Code Title 25 Environmental Protection, Chapter 93 Water Quality Standards, §93.4b(a).

Hydrologic Regime (natural) – The hydrologic cycle or balance that sustains quality and quantity of storm water, baseflow, storage, and groundwater supplies under natural conditions.

Hydrologic Soil Group, - A classification of soils by the Natural Resources Conservation Service, formerly the Soil Conservation Service, into four runoff potential groups. The groups range from A soils, which are very permeable and produce little runoff, to D soils, which are not very permeable and produce much more runoff.

Impervious Surface - A surface that prevents the percolation of water into the ground such as rooftops, pavement, sidewalks, driveways, gravel drives, roads and parking, and compacted fill, earth or turf to be used as such.

Impoundment - A retention or detention basin designed to retain stormwater runoff and release it at a controlled rate.

Infill – Development that occurs on smaller parcels that remain undeveloped but are within or very close proximity to urban areas. The development relies on existing infrastructure and does not require an extension of water, sewer or other public utilities.

Infiltration – For stormwater to pass through the soil from the surface.

Infiltration Structures - A structure designed to direct runoff into the underground water (e.g., French drains, seepage pits, seepage trench).

Inlet - The upstream end of any structure through which water may flow.

Land Development - (i) the improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving (a) a group of two or more residential or nonresidential buildings, whether proposed initially or cumulatively, or a single nonresidential building on a lot or lots regardless of the number of occupants or tenure or (b) the division or allocation of land or space, whether initially or cumulatively, between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups, or other features; (ii) A subdivision of land; (iii) development in accordance with Section 503(1.1) of the PA Municipalities Planning Code.

Limiting Zone—A soil horizon or condition in the soil profile or underlying strata which includes one of the following:

(i) A seasonal high water table, whether perched or regional, determined by direct observation of the water table or indicated by soil mottling.

(ii) A rock with open joints, fracture or solution channels, or masses of loose rock fragments, including gravel, with insufficient fine soil to fill the voids between the fragments.

(iii) A rock formation, other stratum or soil condition which is so slowly permeable that it effectively limits downward passage of water.

Lot – A part of a subdivision or a parcel of land used as a building site or intended to be used for building purposes, whether immediate or future, which would not be further subdivided. Whenever a lot is used for a multiple family dwelling or for commercial, institutional or industrial

purposes, the lot shall be deemed to have been subdivided into an equivalent number of single family residential lots as determined by estimated sewage flows.

Main Stem (Main Channel) - Any stream segment or other runoff conveyance facility used as a reach in the Brodhead/McMichaels hydrologic model.

Manning Equation (Manning formula) - A method for calculation of velocity of flow (e.g., feet per second) and flow rate (e.g., cubic feet per second) in open channels based upon channel shape, roughness, depth of flow and slope. "Open channels" may include closed conduits so long as the flow is not under pressure.

Municipality – Chestnuthill Township, Monroe County, Pennsylvania.

Natural Hydrologic Regime (see hydrologic regime).

Non-point Source Pollution - Pollution that enters a water body from diffuse origins in the watershed and does not result from discernible, confined, or discrete conveyances.

Nonstructural BMPs – Methods of controlling stormwater runoff quantity and quality, such as innovative site planning, impervious area and grading reduction, protection of natural depression areas, temporary ponding on site and other techniques.

NRCS - Natural Resource Conservation Service (previously SCS).

Open Channel - A drainage element in which stormwater flows within an open surface. Open channels include, but shall not be limited to, natural and man-made drainage ways, swales, streams, ditches, canals, and pipes flowing partly full.

Outfall - Point where water flows from a conduit, stream, or drain.

Outlet - Points of water disposal from a stream, river, lake, tidewater or artificial drain.

Parent Tract – The parcel of land from which a land development or subdivision originates existing as of the date of municipal adoption of the original Brodhead or McMichaels Creek ordinance.

Parking Lot Storage - Involves the use of parking areas as temporary impoundments with controlled release rates during rainstorms.

Peak Discharge - The maximum rate of stormwater runoff from a specific storm event.

Penn State Runoff Model (calibrated) - The computer-based hydrologic modeling technique adapted to the Brodhead/McMichaels watershed for the Act 167 Plan. The model has been "calibrated" to reflect actual recorded flow values by adjoining key model input parameters.

Pipe - A culvert, closed conduit, or similar structure (including appurtenances) that conveys stormwater.

Planning Commission - The planning commission of Chestnuthill Township.

PMF - Probable Maximum Flood - The flood that may be expected from the most severe combination of critical meteorological and hydrologic conditions that are reasonably possible in any area. The PMF is derived from the probable maximum precipitation (PMP) as determined based on data obtained from the National Oceanographic and Atmospheric Administration (NOAA).

Practicable Alternative – An alternative that is available and capable of being done after taking into consideration cost, existing technology and logistics in light of overall project purposes.

Predevelopment – Undeveloped/Natural Condition.

Pretreatment – Techniques employed in structural and nonstructural stormwater BMPs to provide storage or filtering to help trap coarse materials and other pollutants before they enter the system, but not necessarily meet the water quality volume requirements of Section 303.

Rational Formula - A rainfall-runoff relation used to estimate peak flow.

Recharge Area – Surface area or depression where stormwater collects, and a portion of which infiltrates and replenishes the underground and groundwater.

Record Drawings - Original documents revised to suit the as-built conditions and subsequently provided by the Engineer to the Client. The Engineer takes the Contractor's as-builts, reviews them in detail with his/her own records for completeness, then either turns these over to the Client or transfers the information to a set of reproducibles, in both cases for the Client's permanent records.

Redevelopment – Any construction, alteration, or improvement exceeding 5,000 square feet of impervious surface on sites where existing land use is commercial, industrial, institutional, or multifamily residential.

Regulated Activities - Actions or proposed actions that have an impact on stormwater runoff quality and quantity and that are specified in Section 104 of this Ordinance.

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

Retention Basin - A structure in which stormwater is stored and not released during the storm event. Retention basins do not have an outlet other than recharge and must infiltrate stored water in no more than four (4) days.

Return Period - The average interval, in years, within which a storm event of a given magnitude can be expected to recur.

Riser - A vertical pipe extending from the bottom of a pond that is used to control the discharge rate from the pond for a specified design storm.

Rooftop Detention - Temporary ponding and gradual release of stormwater falling directly onto flat roof surfaces by incorporating controlled-flow roof drains into building designs.

Runoff - Any part of precipitation that flows over the land surface.

SALDO – Subdivision and Land Development Ordinance.

Sediment Basin - A barrier, dam, retention or detention basin located and designed to retain rock, sand, gravel, silt, or other material transported by water during construction.

Sediment Pollution - The placement, discharge or any other introduction of sediment into the waters of the Commonwealth.

Sedimentation - The process by which mineral or organic matter is accumulated or deposited by the movement of water or air.

Seepage Pit/Seepage Trench - An area of excavated earth filled with loose stone or similar coarse material, into which surface water is directed for infiltration into the underground water.

Sheet Flow - Runoff that flows over the ground surface as a thin, even layer.

Soil-Cover Complex Method - A method of runoff computation developed by the NRCS that is based on relating soil type and land use/cover to a runoff parameter called Curve Number (CN).

Source Water Protection Areas (SWPA) – The zone through which contaminants, if present, are likely to migrate and reach a public drinking water well or public surface water intake.

Special Protection Subwatersheds - Watersheds for which the receiving waters are exceptional value (EV) or high quality (HQ) waters.

Spillway – A conveyance that is used to pass the peak discharge of the maximum design storm controlled by the stormwater facility.

Storage Indication Method - A reservoir routing procedure based on solution of the continuity equation (inflow minus outflow equals the change in storage) with outflow defined as a function of storage volume and depth.

Storm Frequency - The number of times that a given storm "event" occurs or is exceeded on the average in a stated period of years. See "Return Period".

Storm Sewer - A system of pipes and/or open channels that convey intercepted runoff and stormwater from other sources, but excludes domestic sewage and industrial wastes.

Stormwater - The surface runoff generated by precipitation reaching the ground surface.

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

Stormwater Management Plan - The plan for managing those land use activities that will influence stormwater runoff quality and quantity and that would impact the Brodhead/McMichaels Watershed adopted by Monroe County and Pike County as required by the Act of October 4, 1978, P.L. 864, (Act 167), and known as the "Brodhead/McMichaels Watershed Act 167 Stormwater Management Plan".

Stormwater Management Site Plan - The plan prepared by the Applicant or his representative indicating how stormwater runoff will be managed at the particular site of interest according to this Ordinance.

Stream – A natural watercourse.

Stream Enclosure - A bridge, culvert or other structure in excess of 100 feet in length upstream to downstream which encloses a regulated water of this Commonwealth.

Subarea (Subwatershed)- The smallest drainage unit of a watershed for which stormwater management criteria have been established in the Stormwater Management Plan.

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

Swale - A low lying stretch of land which gathers or carries surface water runoff.

Timber Operations - See Forest Management.

Time-of-Concentration (Tc) - The time for surface runoff to travel from the hydraulically most distant point of the watershed to a point of interest within the watershed. This time is the combined total of overland flow time and flow time in pipes or channels, if any.

Vernal Ponds – Upland areas that are wet only for periods of two or three months in the Spring or Summer and are typically identified during dry months by the thin film or soil sediment that usually exists on the upper side of the leaf litter covering the forest floor. These very shallow depressions constitute critical habitat for a range of woodland amphibians and related species and provide important storage for stormwater and snow melt that would otherwise contribute to downstream flooding.

Watercourse - A channel or conveyance of surface water having defined bed and banks, whether natural or artificial, with perennial or intermittent flow.

Watershed – A specific land area that drains water into a river system or other body of water.

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

Wellhead – The point at which a groundwater well bore hole meets the surface of the ground.

Wellhead Protection Area - The surface and subsurface area surrounding a water supply well, well field, spring or infiltration gallery supplying a public water system, through which contaminants are reasonably likely to move toward and reach the water source.

Wetland - Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence

of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, fens, and similar areas.

ARTICLE III-STORMWATER MANAGEMENT

Section 301. General Requirements

A. Applicants proposing Regulated Activities in Brodhead/McMichaels Creek Watershed which do not fall under the exemption criteria shown in Section 402 shall submit a drainage plan consistent with the Brodhead/McMichaels Creek Watershed Stormwater Management Plan to the municipality for review. These criteria shall apply to the total proposed development even if development is to take place in stages.

B. The Applicant is required to perform an alternatives analysis 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. The Drainage Plan must be designed through an alternatives analysis consistent with the sequencing provisions of Section 302 to ensure maintenance of the natural hydrologic regime and to promote groundwater recharge and protect groundwater and surface water quality and quantity. The Drainage Plan designer must proceed sequentially in accordance with Article III of this ordinance.

D. Stormwater drainage systems shall be provided in order to permit unimpeded flow along natural watercourses, except as modified by stormwater management facilities or open channels consistent with this Ordinance.

E. The existing points of concentrated drainage that discharge onto adjacent property shall not be altered in any manner which could cause property damage without permission of the affected property owner(s) and shall be subject to any applicable discharge criteria specified in this Ordinance.

F. Areas of existing diffused drainage discharge shall be subject to any applicable discharge criteria in the general direction of existing discharge, whether proposed to be concentrated or maintained as diffused drainage areas, except as otherwise provided by this ordinance. If diffused drainage discharge is proposed to be concentrated and discharged onto adjacent property, the Applicant must document that adequate downstream conveyance facilities exist to safely transport the concentrated discharge, or otherwise prove that no erosion, sedimentation, flooding or other impacts will result from the concentrated discharge.

G. Where a development site is traversed by existing watercourses, drainage easements shall be provided conforming to the line of such watercourses. The terms of the easement shall conform to the stream buffer requirements contained in Section 303.I of this Ordinance.

H. All drainage plans shall include a consumptive use tracking report as required in Section 309.

I. Any stormwater management facilities regulated by this Ordinance that would be located in or adjacent to waters of the Commonwealth or wetlands shall be subject to approval by PaDEP through the Joint Permit Application process, or, where deemed appropriate by

PaDEP, the General Permit process. When there is a question whether wetlands may be involved, it is the responsibility of the Applicant or his agent to show that the land in question cannot be classified as wetlands, otherwise approval to work in the area must be obtained from PaDEP.

J. Any stormwater management facilities regulated by this Ordinance that would be located on State highway rights-of-way shall be subject to approval by the Pennsylvania Department of Transportation (PennDOT).

K. Infiltration of runoff through seepage beds, infiltration trenches, etc., where soil conditions permit, and minimization of impervious surfaces to the extent permitted by the municipality's zoning ordinance are encouraged to reduce the size or eliminate the need for, detention facilities or other structural BMPs.

L. Roof drains shall not be connected to streets, sanitary or storm sewers or roadside ditches in order to promote overland flow and infiltration/ percolation of stormwater where advantageous to do so. Considering potential pollutant loading, roof drain runoff in most cases will not require pretreatment.

M. All stormwater runoff, other than roof top runoff discussed in Section L. above, shall be treated for water quality prior to discharge to surface or groundwater.

***Section 302.* Non-Structural Project Design (Sequencing to Minimize Stormwater Impacts)**

A. The design of all Regulated Activities shall include the following steps in sequence to minimize stormwater impacts.

1. The Applicant is required 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 of the site.

2. An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology and logistics in light of overall project purposes.

3. 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.

B. The Applicant shall demonstrate that they designed the Regulated Activities in the following sequence to minimize the increases in stormwater runoff and impacts to water quality:

1. Prepare an Existing Resource and Site Analysis Map (ERSAM), showing environmentally sensitive areas including, but not limited to, steep slopes, ponds, lakes, streams, wetlands, hydric soils, vernal ponds, flood plains, buffer areas, hydrologic soil groups A and B (areas conducive to infiltration), any existing recharge areas and any other requirements outlined in the municipal Subdivision and Land Development ordinance.

2. Establish buffers according to Section 303.

3. Prepare a draft project layout avoiding earth disturbance in sensitive areas identified in section 302.B.1 and minimizing total site earth disturbance as much as possible. The ratio of the disturbed area to the entire site area and measures taken to minimize earth disturbance shall be included on the ERSAM.

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.

5. Evaluate Nonstructural Stormwater Management Alternatives
   a. Minimize earth disturbance
   b. Minimize impervious surfaces
   c. Break up large impervious surfaces.

6. Satisfy water quality and streambank erosion protection objective (Section 303).

7. Satisfy groundwater recharge (infiltration) objective (Section 304) and provide for stormwater treatment prior to infiltration.

8. Determine what Management District the site falls into (Ordinance Appendix D) and conduct a predevelopment runoff analysis.

9. Prepare final project design to maintain predevelopment drainage areas and discharge points, to minimize earth disturbance and impervious surfaces, and to reduce runoff to the maximum extent possible.

10. Conduct a post development runoff analysis based on the final design and to meet the release rate and in turn the overbank flow and extreme event requirements (Section 305).

11. Manage any remaining runoff through treatment prior to discharge, as part of detention, bioretention, direct discharge or other structural control.

After completion of Section 302, proceed to Section 303

Section 303. Water Quality and Streambank Erosion Requirements

In addition to the performance standards and design criteria requirements of this Ordinance, the Applicant SHALL comply with the following water quality requirements of this Article.

A. For water quality and streambank erosion, the objective is to design a water quality BMP 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.) At the same time, the objective is not to attenuate the larger storms in "no detention" areas (District C) only. This can be accomplished by configuration of the outlet structure not to control the larger storms, or by a bypass or channel to divert only the 2-year flood into the basin or divert flows in excess of the 2-year storm away from the basin.

   Where practicable, wet basins shall be utilized for water quality control and shall meet the requirements found in the PA Stormwater BMP manual as revised.

   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). The design of the facility shall consider and minimize the chances of clogging and sedimentation. Orifices smaller than 3 inches diameter are not recommended. However, if the Design Professional can provide proof that the smaller orifices are protected from clogging by use of trash racks, etc., smaller orifices may be permitted.

B. In selecting the appropriate BMPs or combinations thereof, 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.
   10. Efficiency of the BMPs to mitigate potential water quality problems.
   11. The volume of runoff that will be effectively treated.
   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 include Exceptional Value (EV) and High Quality (HQ) waters, the temperature and quality of water and streams shall be maintained through the use of temperature sensitive BMPs and stormwater conveyance systems.

D. The Applicant shall consider the guidelines found in the references specified in Appendix G for constructed wetlands, where proposed,

E. Pretreatment in accordance with Sections 301.L and 301.M shall be provided prior to infiltration.

F. Streambank restoration projects shall include the following:

1. No restoration or stabilization projects may be undertaken without examining the fluvial geomorphology of stable reaches above and below the unstable reach.

2. Restoration project design must then consider maintenance of stability in the adjacent stable reaches of the stream channel.

3. An Erosion and Sediment Control Plan approved by the Conservation District must be provided by the Applicant.

4. All applicable State and Federal permits must be obtained.

G. Biology shall be incorporated into the design of all wet basins in accordance with the West Nile Virus Guidance found in Appendix E.

H. To accomplish the above, the Applicant SHALL submit original and innovative designs to the Municipal Engineer for review and approval. Such designs may achieve the water quality objectives through a combination of BMPs (Best Management Practices).

I. Buffers

1. A project designer shall provide a standard buffer for streams, wetlands, vernal ponds and lakes in Section 303.I.2.

a. Where resource buffers overlap, the more restrictive requirements shall apply.

b. Pre-existing Lots or Parcels/Land Development Plan in Outer Buffers - In the case of legally pre-existing lots or parcels or Land Development Plans (approved prior to the effective date of this ordinance) where the useable area of a lot or parcel lies within an outer buffer area, rendering the lot or parcel unable to be developed in accordance with the allowable use per

municipal zoning, the development may only be permitted by modification as provided in Section 702 of the municipality's SALDO.

c. Improvements to Existing Structures in Outer Buffers - The provisions of this section do not require any changes or improvements to be made to lawfully existing structures in buffers. However, when any substantial improvement to a structure is proposed which results in a horizontal expansion of that structure, the improvement may only be permitted by modification as provided in Section 702 of the municipality's SALDO.

2. Standard Buffers for Water Quality

a. Wetlands and Vernal Ponds

i. Wetland Identification – wetlands shall be identified in accord with the 1987 U.S. Army Corps of Engineers Manual for Identifying and Delineating Wetlands, as amended, and properly flagged and surveyed on site.

(1) Wetlands in an artificial watercourse – wetlands contained within the banks of an artificial watercourse shall not to be considered for buffer delineation purposes.

(2) Wetlands in a natural watercourse – where wetlands are contained within the banks of a natural watercourse, only the stream buffer shall apply.

ii. Wetland and Vernal Pond Buffer Delineation – A 50 foot inner buffer and 100 foot outer buffer, measured perpendicular to and horizontally from the edge of the delineated wetland or vernal pond for a total distance of 150 feet, shall be maintained for all wetlands and vernal ponds.

(1) Inner Buffer – Measured perpendicular to and horizontally from the edge of the delineated wetland or vernal pond, for a distance of 50 feet.

(a) Stormwater conveyance required by the Township, buffer maintenance and restoration, the correction of hazardous conditions, wetland crossings permitted by DEP and passive unpaved stable trails shall be permitted. No other earth disturbance, grading, filling, buildings, structures, new construction, or development shall be permitted.

(b) The area of the inner buffer altered by activities permitted in accord with Section 303.I.2.a.ii(1)(a) shall be minimized to the greatest extent practicable.

(2) Outer Buffer – Measured perpendicular to and horizontally from the outer edge of the inner buffer for a distance of 100 feet.

(a) Provided no buildings are constructed, stormwater conveyance required by the Township/Borough, buffer maintenance and restoration, the correction of hazardous conditions, wetland crossings permitted by DEP, parking lots constructed to existing grade, roads constructed to existing grade, stable trails, and limited forestry activities that do not clear cut the buffer (e.g. selective regeneration harvest) in accord with a forestry management plan shall be permitted.

(b) No more than twenty (20) percent of the cumulative outer buffer on the subject parcel shall be altered by the activities permitted in accord with Section 303.I.2.a.ii(2)(a) above.

b. Lakes and Ponds

i. There is no outer buffer around lakes and ponds.

ii. Lake and Pond Buffer Delineation – A 50 foot buffer measured perpendicular to and horizontally from the edge of any lake or pond, shall be maintained.

iii. Permitted Activities/Development - Stormwater conveyance required by the Township/Borough, buffer maintenance and restoration, the correction of hazardous conditions, lake front views, boat docks and passive unpaved stable trails shall be permitted provided no buildings are involved.

iv. No more than thirty-five (35) percent of the cumulative pond or lake buffer on the subject parcel shall be altered by the activities permitted in accord with Section 303.I.2.b.iii above.

c. Streams

i. Stream Buffer Delineation - A 50 foot inner buffer and 100 foot outer buffer, measured perpendicular to and horizontally from the top-of-bank on both sides of any stream, for a total distance of 150 feet, shall be maintained. See Figure 303-1.

(1) Inner Buffer – Measured perpendicular to and horizontally from the top-of-bank of the stream for a distance of 50 feet.

(a) Stormwater conveyance required by the Township/Borough, buffer maintenance and restoration, the correction of hazardous conditions, stream crossings permitted by DEP,

fish hatcheries, wildlife sanctuaries and boat launch sites constructed so as not to alter the flood plain cross section, and passive unpaved stable trails shall be permitted provided no buildings are constructed. No other earth disturbance, grading, filling, buildings, structures, new construction, or development shall be permitted.

(b) The area of the inner buffer altered by activities permitted in accord with Section 303.I.2.c.i(1)(a) shall be minimized to the greatest extent practicable.

(2) Outer Buffer – Measured perpendicular to and horizontally from the outer edge of the inner buffer for a distance of 100 feet.

(a) Provided no buildings are constructed, stormwater conveyance required by the Township/Borough, buffer maintenance and restoration, the correction of hazardous conditions, agricultural activities, plant nurseries, parking lots constructed to existing grade, temporary fairs and carnivals, accessory uses for residential purposes, private sportsmen's club activities, athletic facilities, orchards, wildlife sanctuaries, boat launch sites that do not alter the flood plain cross section, fish hatcheries, stream crossings permitted by DEP and passive unpaved stable trails, and limited forestry activities that do not clear cut the buffer (e.g. selective regeneration harvest) in accord with a forestry management plan shall be permitted.

(b) In areas of the outer buffer which are not wetlands, vernal ponds or slopes of more than fifteen (15) percent, stormwater management facilities which improve water quality of stormwater discharge shall be permitted unless prohibited by other Township or state requirements. No other earth disturbance, grading, filling, buildings, structures, new construction, or development shall be permitted.

(c) No more than twenty (20) percent of the cumulative outer buffer on the subject parcel shall be altered by the activities permitted in accord with Section 303.I.2.c.i.(2)(a) above.

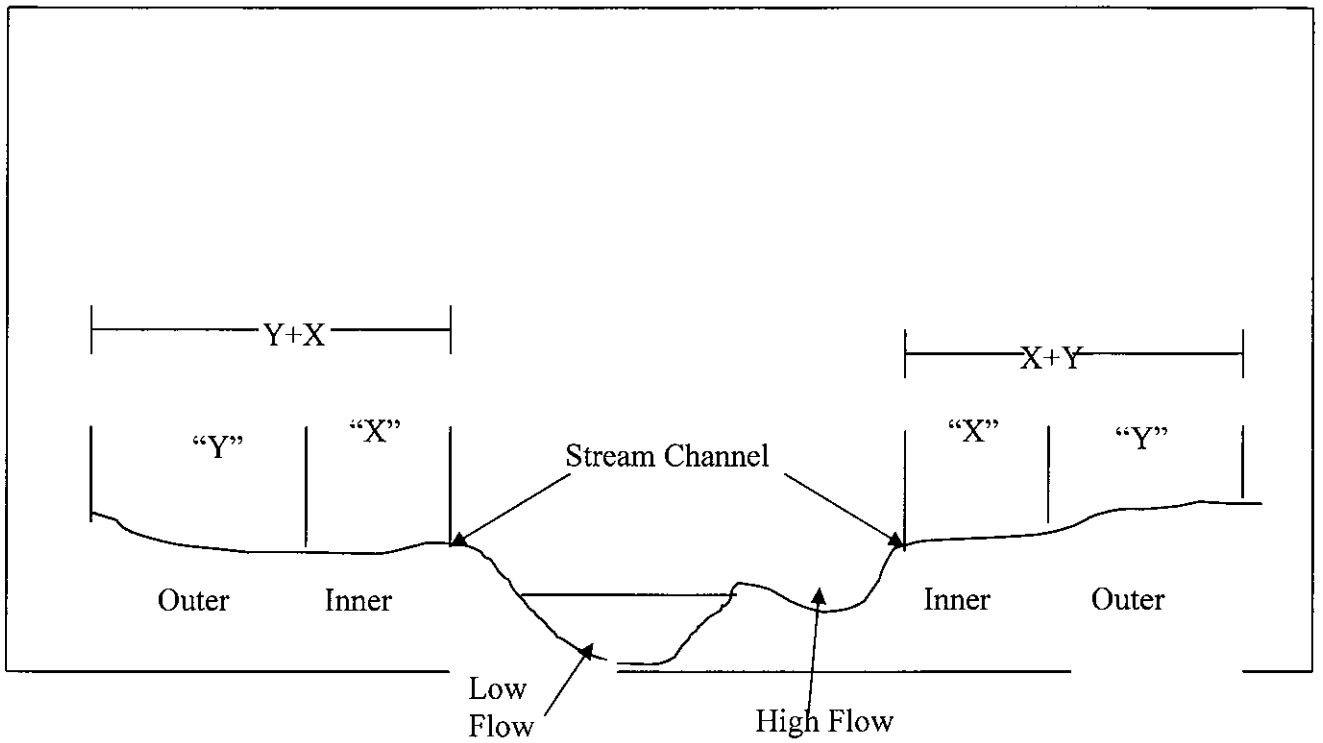


Figure 303.1 Stream Buffer

Section 304 Ground Water Recharge (Infiltration/Recharge/Bioretention)

Maximizing the ground water recharge capacity of the area being developed is required. Design of the infiltration/recharge stormwater management facilities shall give consideration to providing ground water recharge to compensate for the reduction in the percolation that occurs when the ground surface is disturbed or impervious surface is created. It is recommended that roof runoff be directed to infiltration BMPs which may be designed to compensate for the runoff from parking areas. These measures are required to be consistent with Section 102, and take advantage of utilizing any existing recharge areas.

A. Infiltration BMPs shall meet the following minimum requirements:

1. Maximum Infiltration Requirements:

   a. Regulated activities will be required to recharge (infiltrate), where practicable, a portion of the runoff created by the development as part of an overall stormwater management plan designed for the site. The volume of runoff to be recharged shall be determined from Sections 304.A.3.a. or 304.A.3.b, depending upon demonstrated site conditions.

2. Infiltration BMPs intended to receive runoff from developed areas shall be selected based on suitability of soils and site conditions and shall be constructed on soils that have the following characteristics:

   a. A minimum depth of 24 inches 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 as determined by field tests conducted by the Applicant's design professional.

   c. The recharge facility shall be capable of completely infiltrating the recharge volume within 4 days.

   d. Pretreatment in accordance with Sections 301.L and 301.M shall be provided prior to infiltration.

3. The size of the recharge facility shall be based upon the following volume criteria:

   a. NRCS Curve Number equation.

   The NRCS runoff shall be utilized to calculate infiltration requirements (P) in inches.

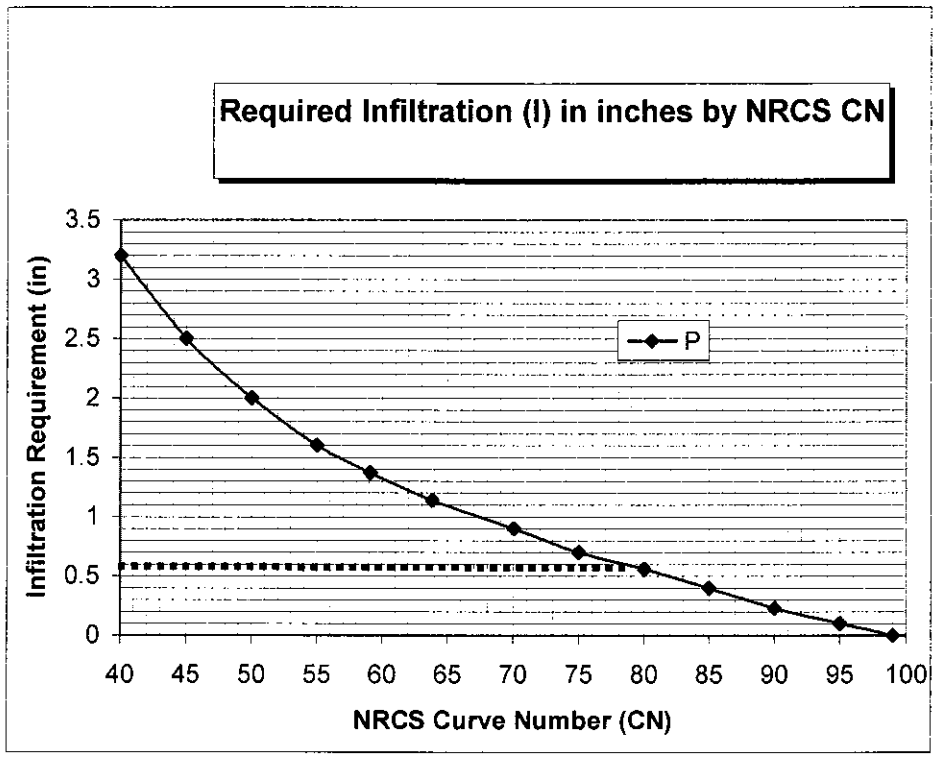
   For zero runoff: $P = I \text{ (Infiltration) (in.)} = (200 / CN) - 2$ Eqn: 304.1
   Where: CN=SCS (NRCS) curve number of existing conditions contributing to the recharge facility.

   This equation is displayed graphically in, and the infiltration requirement can be determined from, Figure 304.1.

   The recharge volume required would therefore be computed as:

   Re_v (cubic feet) =I* impervious area (S.F.) ÷ 12 Eqn: 304.2
   Where: I= infiltration requirements (in.)

Figure 304.1. Infiltration requirement based upon NRCS Curve Number.



a. Annual Recharge – Water Budget Approach

It has been determined that infiltrating 0.6 inches of runoff from the impervious areas will aid in maintaining the hydrologic regime of the watershed. Areas in the Township that fall outside of the Broadhead/McMichaels watershed will need to meet a 2 year-24 hour net infiltration rate . If the goals of Sections 304.A.2.a cannot be achieved, then 0.6 inches of rainfall shall be infiltrated from all impervious areas, up to an existing site condition curve number of 77. Above a curve number of 77, Equation 304.1 or the curve in Figure 304.1 should be used to determine the Infiltration requirement.

The recharge volume (Re_v) required would therefore be computed as:
Re_v=0.6 or I, whichever is less * % impervious area.

B. Soils - A detailed soils evaluation of the project site shall be required where practicable to determine the suitability of recharge facilities. The evaluation shall be performed by a qualified 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:

1. Analyze hydrologic soil groups as well as natural and man-made features within the watershed to determine general areas of suitability for infiltration practices.

2. Provide site-specific infiltration test results (at the level of the proposed infiltration surface) in accord with ASTM Guide No. D 5126 to determine the appropriate hydraulic conductivity rate.

3. Design the infiltration structure for the required storm volume based on field determined capacity at the level of the proposed infiltration surface.

4. If on-lot infiltration structures are proposed by the Applicant's design professional, it must be demonstrated to the municipality that the soils are conducive to infiltrate on the lots identified.

C. Stormwater Hotspots – A stormwater hotspot is defined as a land use activity that generates higher concentrations of hydrocarbons, trace metals or toxic materials than are found in typical stormwater runoff, based on monitoring studies. Table 304.1 provides samples of designated hotspots. If a site is designated as a hotspot, it has important implications for how stormwater is managed. First and foremost, untreated stormwater runoff from hotspots cannot be allowed to infiltrate into groundwater where it may contaminate water supplies. Therefore, the Re_v requirement is NOT applied to development sites that fit into the hotspot category (the entire WQ_v must still be treated). Second, a greater level of stormwater treatment may be needed at hotspot sites to prevent pollutant washoff after construction. EPA's NPDES stormwater program requires some industrial sites to prepare and implement a stormwater pollution prevention plan.

Table 304.1 – Classification of Stormwater Hotspots

The following land uses and activities are samples of stormwater hotspots:
• Vehicle salvage yards and recycling facilities
• Fleet storage areas (bus, truck, etc.)
• Public works storage areas
• Facilities that generate or store hazardous materials

Extreme caution shall be exercised where salt or chloride would be a pollutant since soils do little to filter this pollutant and it may contaminate the groundwater. The qualified design professional shall evaluate the possibility of groundwater contamination from the proposed infiltration/recharge facility and perform a hydrogeologic justification study if necessary. The infiltration requirement in High Quality/Exceptional Value waters shall be subject to the Department's Chapter 93 Antidegradation Regulations. The municipality may require the installation of an impermeable liner in detention basins where the possibility of groundwater contamination exists. A detailed hydrogeologic investigation may be required by the municipality.

The municipality shall require the Applicant to provide safeguards against groundwater contamination for uses which may cause groundwater contamination, should there be a mishap or spill. (See Appendix E of the complete Act 167 Study).

D. Extreme caution shall be exercised where infiltration is proposed in Source Water Protection Areas or that may affect a wellhead or surface water intake.

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

Upon completion of Section 304, proceed to Section 305, 306 and 307

Section 305. Stormwater Management Districts

A. The Brodhead/McMichaels Watershed has been divided into stormwater management districts as shown on the Watershed Map in Appendix D.

Standards for managing runoff from each subarea in the Brodhead/McMichaels Watershed for design storms are shown in Table 305.1. Development sites located in each of the A, B, or C Districts must control proposed conditions runoff rates to existing conditions runoff rates for the design storms in accord with Table 305.1.

In addition to the requirements specified in Table 305.1 below, the water quality and streambank erosion (Section 303), groundwater recharge (Section 304), and erosion control (Section 308) requirements shall be implemented.

TABLE 305.1 – Water Quantity Requirements

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

C		Provisional Direct Discharge District - Development sites which can discharge directly to the main channel or major tributaries or indirectly to the main channel through an existing stormwater drainage system (i.e., storm sewer or tributary) **which meets the "Downstream Hydraulic Capacity Analysis" in Section 305 H and is shown by the design professional to not cause a downstream problem, may allow an increase in flow as long as no downstream harm is demonstrated.** However, sites in District C shall comply with the criteria for water quality and streambank erosion (Ordinance Section 303); and groundwater recharge (Ordinance Section 304). If the proposed conditions runoff is intended to be conveyed by an existing stormwater drainage system to the main channel, **assurance must be provided that such system has adequate capacity to convey the increased peak flows or will be provided with improvements to furnish the required capacity.** When adequate capacity of the downstream system does not exist and will not be provided through improvements, the proposed conditions peak rate of runoff must be controlled to the existing conditions peak rate as required in District A provisions (i.e., 10-year proposed conditions flows to 10 year existing conditions flows) for the specified design storms.

B. General - Proposed conditions rates of runoff from any Regulated Activity shall not exceed the peak release rates of runoff prior to development for the design storms specified on the Stormwater Management District Watershed Map (Ordinance Appendix D) and Section 302, of this Ordinance.

C. District Boundaries - The boundaries of the Stormwater Management Districts are shown on an official map that is available for inspection at the municipal office. A copy of the official map at a reduced scale is included in the Ordinance Appendix D. 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 two-foot topographic contours (or most accurate data required) provided as part of the Drainage Plan.

D. Sites Located in More Than One District - For a proposed development site located within two or more stormwater management district category subareas, the peak discharge rate from any subarea shall be the existing conditions peak discharge for that subarea as indicated in Section 302. The calculated peak discharges shall apply regardless of whether the grading plan changes the drainage area by subarea. An exception to the above may be granted by the municipalities if discharges from multiple subareas recombine in proximity to the site. In this case, peak discharge in any direction may be a 100% release rate provided that the overall site discharge meets the weighted average release rate.

E. Off-Site Areas - 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.

F. Site Areas - Where the site area to be impacted by a proposed development activity differs significantly from the total site area, only the proposed impact area utilizing stormwater management measures shall be subject to the Management District Criteria. In other words, unimpacted areas bypassing the stormwater management facilities would not be subject to the Management District Criteria.

G. "No Harm" Option - For any proposed development site not located in a provisional direct discharge district, the Applicant has the option of using a less restrictive runoff control (including no detention) if the Applicant can prove that "no harm" would be caused by discharging at a higher runoff rate than that specified by the Stormwater Management Plan. The "no harm" option is used when an Applicant can prove that the proposed hydrographs can match existing hydrographs, or if it can be proved that the proposed conditions will not cause increases in peaks at all points downstream. Proof of "no harm" must be shown based upon the following "Downstream Impact Evaluation" which shall include a "downstream hydraulic capacity analysis" consistent with Section 305H to determine if adequate hydraulic capacity exists. The Applicant shall submit to the municipality this evaluation of the impacts due to increased downstream stormwater flows in the watershed.

1. The Hydrologic Regime of the site must be maintained.

2. The "Downstream Impact Evaluation" shall include hydrologic and hydraulic calculations necessary to determine the impact of hydrograph timing modifications due to the proposed development upon a dam, highway, structure, natural point of restricted streamflow or any stream channel section, established with the concurrence of the municipality.

3. The evaluation shall continue downstream until the increase in flow diminishes due to additional flow from tributaries and/or stream attenuation.

4. 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 plans.

5. Applicant-proposed conditions runoff controls which would generate increased peak flow rates at storm drainage problem areas would, by definition, are precluded from successful attempts to prove "no-harm", except in conjunction with proposed capacity improvements for the problem areas consistent with Section 305.H.

6. A financial distress shall not constitute grounds for the municipality to approve the use of the "no-harm" option.

7. Downstream capacity improvements may be provided as necessary to achieve the "no harm" option.

8. Any "no harm" justifications shall be submitted by the Applicant as part of the Drainage Plan submission per Article IV.

H. "Downstream Hydraulic Capacity Analysis" - Any downstream hydraulic capacity analysis conducted in accordance with this Ordinance shall use the following criteria for determining adequacy for accepting increased peak flow rates:

1. Existing natural or man-made channels or swales must be able to convey the increased runoff associated with a 2-year return period event 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 return period runoff without creating any hazard to persons or property.

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 DEP Chapter 105 regulations (if applicable) and, at minimum, pass the increased 25-year return period runoff.

I. Hardship Option - The Stormwater Management Plan and its standards and criteria are designed to maintain existing conditions peak flows and volumes throughout the Brodhead/McMichaels watershed as the watershed becomes developed. There may be certain instances, however, where the standards and criteria established are too restrictive for a particular Applicant. The existing drainage network in some areas may be capable of safely transporting slight increases in flows without causing a problem or increasing flows elsewhere. If an Applicant cannot meet the stormwater standards due to lot conditions or if conformance would become a hardship to an Applicant, the hardship option may be applied. A financial distress shall not constitute grounds for the Municipality to approve the use of the hardship option. The Applicant would have to plead his/her case to the Governing Body with the final determination made by the Municipality. Any Applicant's pleading the "hardship option" will assume all liabilities that may arise due to exercising this option. A financial distress shall not constitute grounds for the municipality to approve the use of the "no-harm" option.

Section 306. Calculation Methodology

A. Stormwater runoff from all development sites with a drainage area of greater than 200 acres shall be calculated using a generally accepted calculation technique that is based on the NRCS soil cover complex method. Table 306-1 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 Municipality may allow the use of the Rational Method to estimate peak discharges from drainage areas that contain less than 200 acres. The Soil Cover Complex Method shall be used for drainage areas greater than 200 acres.

TABLE 306-1
Acceptable Computation Methodologies For Stormwater Management Plans

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 Municipality and/or Municipal Engineer.
Other Methods	Varies	Other computation methodologies approved by the Municipality and/or Municipal Engineer.

B. All calculations consistent with this Ordinance using the soil cover complex method shall use the appropriate design rainfall depths for the various return period storms according to the region in which they are located as presented in Table B-1 in Appendix B of this Ordinance. If a hydrologic computer model such as PSRM 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 this Ordinance.

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 PA Department of Transportation Design Rainfall Curves (1986) (Figures B-2 to B-4). 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 this Ordinance.

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 Ordinance.

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 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 200 acres in size, the design storm hydrograph shall be computed using a calculation method that produces a full hydrograph. The municipality may approve the use of any generally accepted full hydrograph approximation technique that shall use a total runoff volume that is consistent with the volume from a method that produces a full hydrograph.

Section 307. Other Requirements

A. Any stormwater facility located on State highway rights-of-way shall be subject to approval by the Pennsylvania Department of Transportation (PennDOT).

B. Pretreatment in accordance with Sections 301.L and 301.M shall be provided prior to infiltration.

C. All wet basin designs shall incorporate biologic controls consistent with the West Nile Guidance found in Appendix E.

D. Any stormwater management facility (i.e., BMP, detention basin) designed to store runoff and requiring a berm or earthen embankment required or regulated by this Ordinance shall be designed to provide an emergency spillway to handle flow up to and including the 100-year proposed conditions. The height of embankment must provide a minimum 1.0 foot of freeboard above the maximum pool elevation computed when the facility functions for the 100-year proposed conditions inflow. Should any stormwater management facility require a dam safety permit under PaDEP Chapter 105, the facility shall be designed in accordance with Chapter 105 and meet the regulations of Chapter 105 concerning dam safety which may be required to pass storms larger than the 100-year event.

E. Any facilities that constitute water obstructions (e.g., culverts, bridges, outfalls, or stream enclosures), and any work involving wetlands governed by PaDEP Chapter 105 regulations (as amended or replaced from time to time by PaDEP), shall be designed in accordance with Chapter 105 and will require a permit from PaDEP.

F. Any other drainage conveyance facility that does not fall under Chapter 105 regulations must be able to convey, without damage to the drainage structure or roadway, runoff from the 25-year design storm with a minimum 1.0 foot of freeboard measured below the lowest point along the top of the roadway. Any facility that constitutes a dam as defined in PaDEP Chapter 105 regulations may require a permit under dam safety regulations. Any facility located within a PennDOT right-of-way must meet PennDOT minimum design standards and permit submission requirements.

G. Any drainage conveyance facility and/or channel not governed by Chapter 105 Regulations must be able to convey, without damage to the drainage structure or roadway, runoff from the 25-year design storm. Conveyance facilities to or exiting from stormwater management facilities (i.e., detention basins) shall be designed to convey the design flow to or from that structure. Roadway crossings located within designated floodplain areas must be able to convey runoff from a 100-year design storm. Any facility located within a PennDOT right-of-way must meet PennDOT minimum design standards and permit submission requirements.

H. Storm sewers must be able to convey proposed conditions runoff from a 25-year design storm without surcharging inlets, where appropriate.

I. Adequate erosion protection shall be provided along all open channels, and at all points of discharge.

J. The design of all stormwater management facilities shall incorporate sound engineering principles and practices. The Municipality reserves the right to disapprove any design that would result in the construction of or continuation of a stormwater problem area.

Upon completion of Section 307, proceed to Section 308

Section 308. Erosion and Sediment Control Requirements

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.

Section 309. Consumptive Use Tracking Report

A. Submissions

All regulated activities shall submit a "Consumptive Use Tracking report"(CUTR) which shall be developed in accordance with Appendix f as follows:

1. Residential Development or Redevelopment – The CUTR shall be submitted to the Monroe County Conservation District along with the erosion and sedimentation control plan.

2. Commercial /Industrial Development – Redevelopment – The CUTR shall be submitted to the Monroe County Conservation District by the applicant along with a copy of the occupancy permit.

ARTICLE IV-DRAINAGE PLAN REQUIREMENTS

Section 401. General Requirements

For any of the activities regulated by this Ordinance, the preliminary or final approval of subdivision and/or land development plans, the issuance of any building or occupancy permit, or the commencement of any earth disturbance may not proceed until the Applicant or his/her agent has received written approval of a Drainage Plan from the Municipality and an adequate Erosion and Sediment Control Plan review by the Conservation District.

Section 402. Exemptions

A. Exemptions

The following land use activities are exempt from the Drainage Plan submission requirements of this ordinance:

1. Use of land for gardening for home consumption.

2. Agriculture when operated in accordance with a Conservation Plan or Erosion and Sediment Control Plan (E & S) found adequate by the Conservation District.

3. Forest Management operations which are following the Department of Environmental Protection's management practices contained in its publication "Soil Erosion and Sedimentation (E & S) Control Guidelines for Forestry" and are operating under an approved E & S Plan and must comply with stream buffer requirements in section 303 and flood plain management requirements.

4. Impervious Surface - Any Regulated Activity that has less than 5,000 square foot of impervious surface and/or meets the following exemption criteria is exempt from the plan submittal provisions of this Ordinance. These criteria shall apply to the total development even if development is to take place in phases. The date of the original Brodhead or McMichaels municipal Ordinance adoption shall be the starting point from which to consider tracts as "parent tracts" in which future subdivisions and respective impervious area computations shall be cumulatively considered. Impervious areas existing on the "parent tract" prior to adoption of this Ordinance shall not be considered in cumulative impervious area calculations for exemption purposes.

B. Additional exemption criteria includes:

1. Exemption responsibilities – An exemption shall not relieve the Applicant from implementing such measures as are necessary to protect the public health, safety, and property. An exemption shall not relieve the Applicant from providing adequate stormwater management for Regulated Activities to meet the purpose of this Ordinance; however, drainage plans will not have to be submitted to the municipality. 2. This exemption shall not relieve the Applicant from meeting the special requirements for watersheds draining to Exceptional Value (EV) waters and Source Water Protection Areas (SWPA): requirements for nonstructural project design sequencing (Section 302) water quality and streambank erosion (Section 303), and groundwater recharge (Section 304).

3. Drainage Problems - If a drainage problem is documented or known to exist downstream of, or expected from the proposed activity, then the municipality may require a Drainage Plan Submittal.

4. Parent Tracts – Ordinance criteria shall apply to the total development even if development is to take place in phases. The date of the municipal Ordinance adoption from the original McMichaels Creek and Brodhead Creeks Act 167 Plans shall be the starting point from which to consider tracts as "parent tracts" in which future subdivisions and respective impervious area computations shall be cumulatively considered.

Section 403. Drainage Plan Contents

The Drainage Plan shall consist of a general description of the project including sequencing items described in Section 302, calculations, maps and plans and I 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 Drainage Plan materials shall be submitted to the municipality in a format that is clear, concise, legible, neat, and well organized; otherwise, the Drainage Plan shall not be accepted for review and shall be returned to the Applicant.

The following items shall be included in the Drainage Plan:

A. General

1. General description of the project including those areas described in Section 302.

2. General description of permanent stormwater management techniques, including construction specifications of the materials to be used for stormwater management facilities.

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 by the Conservation District.

5. A general description of nonpoint source pollution controls.

B. Maps

Map(s) of the project area shall be submitted on 24-inch x 36-inch sheets and/or shall be prepared in a form that meets the requirements for recording at the offices of the Recorder of Deeds of Monroe County. If the Subdivision and Land Development Ordinance (SALDO) has more stringent criteria then the more stringent criteria shall apply. The contents of the map(s) shall include, but not be limited to:

1. The location of the project relative to highways, municipalities or other identifiable landmarks.

2. Existing and final contours at intervals of two feet. In areas of steep slopes (greater than 15 percent), five-foot contour intervals may be used.

3. Existing streams, lakes, ponds or other Waters of the Commonwealth within the project area.

4. Other physical features including flood hazard boundaries, buffers, existing drainage courses, areas of natural vegetation to be preserved, and the total extent of the upstream area draining through the site.

5. The locations of all existing and proposed utilities, sanitary sewers, and water lines within fifty (50) feet of property lines.

6. The location(s) of public water supply wells and surface water intakes as well as their source water protection areas.

7. Soil names and boundaries.

8. Limits of earth disturbance, including the type and amount of impervious area that would be added.

9. Proposed structures, roads, paved areas, and buildings.

10. The name of the development, the name and address of the Applicant of the property, and the name of the individual or firm preparing the plan.

11. The date of submission.

12. A graphic and written scale of one (1) inch equals no more than fifty (50) feet; for tracts of twenty (20) acres or more, the scale shall be one (1) inch equals no more than one hundred (100) feet.

13. A north arrow.

14. The total tract boundary and size with distances marked to the nearest foot and bearings to the nearest degree.

15. Existing and proposed land use(s).

16. A key map showing all existing man-made features beyond the property boundary that would be affected by the project.

17. Location of all open channels.

18. Overland drainage patterns and swales.

19. A fifteen foot wide access easement to and around all stormwater management facilities that would provide ingress to and egress from a public right-of-way.

20. The location of all erosion and sediment control facilities.

21. 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.

22. A statement, signed by the Applicant, acknowledging that any revision to the approved Drainage Plan must be approved by the Municipality and that a revised E&S Plan must be submitted to the Conservation District for a determination of adequacy.

23. The following signature block for the Design Engineer:

    I, (Design Engineer), on this date (date of signature), hereby certify that the Drainage Plan meets all design standards and criteria of the Brodhead/McMichaels Watershed Act 167 Stormwater Management Ordinance.

C. Supplemental Information

1. A written description of the following information shall be submitted.

    a. The overall stormwater management concept for the project designed in accordance with Section 302.
    b. Stormwater runoff computations as specified in this Ordinance.
    c. Stormwater management techniques to be applied both during and after development.
    d. Expected project time schedule.
    e. Development stages (project phases) if so proposed.
    f. An operation and maintenance plan in accordance with Section 702 of this Ordinance.

2. An erosion and sediment control plan.

3. Completed Consumptive Use Tracking Report as specified in Section 309.

4. The effect of the project (in terms of runoff volumes and peak flows) on adjacent properties and on any existing municipal stormwater collection system that may receive runoff from the project site.

5. A Declaration of Adequacy and Highway Occupancy Permit from the PennDOT District Office when utilization of a PennDOT storm drainage system is proposed.

D. Stormwater Management Facilities

1. All stormwater management facilities must be located on a plan and described in detail.

2. 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.

3. All calculations, assumptions, and criteria used in the design of the stormwater management facilities must be shown.

Section 404. Plan Submission

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

For any activities that require an NPDES 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 approvals shall be part of the plan. The plan shall be coordinated with the state and federal permit process and the municipal SALDO review process.

A. For those Regulated Activities which require SALDO approval, the Drainage Plan and ERSAM shall be submitted by the Applicant as part of the Preliminary Plan submission.

B. For those Regulated Activities that do not require SALDO approval, See Section 401, General Requirements.

C. Six (6) copies of the Drainage Plan shall be submitted and distributed as follows:

1. Two (2) copies to the Municipality accompanied by the requisite Municipal Review Fee, as specified in this Ordinance and or by resolution.

2. Two (2) copies to the Conservation District.

3. One (1) copy to the Municipal Engineer.

4. One (1) copy to the County Planning Commission.

D. 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.

Section 405. Drainage Plan Review

A. The Municipal Engineer shall review the Drainage Plan for consistency with the adopted Brodhead/McMichaels Watershed Act 167 Stormwater Management Plan.

B. The Municipal Engineer shall review the Drainage Plan for any subdivision or land development against the municipal subdivision and land development ordinance provisions not superseded by this Ordinance.

C. The E & S Plan shall be reviewed by the County Conservation District and found adequate to meet the requirements of PaDEP's Chapter 102 regulations prior to Municipal approval of the Drainage Plan.

D. For Regulated Activities specified in Section 104 of this Ordinance, the Municipal Engineer shall notify the Municipality in writing, within forty-five (45) calendar days, whether the Drainage Plan is consistent with the Stormwater Management Plan.

1. Should the Drainage Plan be determined to be consistent with the Stormwater Management Plan, the Municipal Engineer will forward a letter of consistency to the Municipal Secretary, who will then notify the Developer.

2. Should the Drainage Plan be determined to be inconsistent or noncompliant with the Stormwater Management Plan, the Municipal Engineer shall forward a letter to the Municipal Secretary with a copy to the Applicant citing the reason(s) and specific Ordinance sections for the inconsistency or noncompliance. Inconsistency or noncompliance may be due to inadequate information to make a reasonable judgment as to compliance with the stormwater management plan. Any Drainage Plans that are inconsistent or noncompliant may be revised by the Applicant and resubmitted consistent with this Ordinance. The Municipal Secretary shall then notify the Developer of the Municipal Engineer's findings. Any disapproved Drainage Plans may be revised by the Developer and resubmitted consistent with this Ordinance.

E. For Regulated Activities specified in Section 104 of this Ordinance, which require a building permit, the Municipal Engineer shall notify the Enforcement Officer in writing, whether the Drainage Plan is consistent with the Stormwater Management Plan and forward a copy of the approval/disapproval letter to the Applicant. Any disapproved drainage plan may be revised by the Applicant and resubmitted consistent with this Ordinance.

F. For Regulated Activities specified in Section 104 of this Ordinance that require an NPDES Permit Application, the Applicant shall forward a copy of the Municipal Engineer's letter stating that the Drainage Plan is consistent with the stormwater management plan to the Conservation District. PaDEP and the Conservation District may consider the Municipal Engineer's review comments in determining whether to issue a permit.

G. The Municipality shall not grant approval or grant preliminary approval to any subdivision or land development for Regulated Activities specified in Sections 104 of this Ordinance if the Drainage Plan has been found to be inconsistent with the Stormwater Management Plan, as determined by the Municipal Engineer. All required permits from PaDEP must be obtained prior to approval of any subdivision or land development.

H. No municipal permits shall be issued for any Regulated Activity specified in Section 104 of this Ordinance if the Drainage Plan has been found to be inconsistent with the Stormwater Management Plan, as determined by the Municipal Engineer, or without considering the comments of the Municipal Engineer shall be issued. All required permits from PaDEP must be obtained prior to issuance of a building permit.

I. The Applicant shall be responsible for completing record drawings of all stormwater management facilities included in the approved Drainage Plan. The record drawings and an explanation of any discrepancies with the design plans shall be submitted to the Municipal Engineer for final approval. In no case shall the Municipality approve the record drawings until the Municipality receives a copy of an approved Declaration of Adequacy and/or Highway Occupancy Permit from the PennDOT District Office, NPDES Permit, and any applicable permits or approvals, from PaDEP or the Conservation District. The above permits and approvals must be based on the record drawings.

J. The Municipality's approval of a Drainage Plan shall be valid for a period not to exceed five (5) years. Commencing on the date that the Municipality signs the approved Drainage Plan. If stormwater management facilities included in the approved Drainage Plan have not been constructed, or if constructed, and record drawings of these facilities have not been approved within this five (5) year time period, then the Municipality may consider the Drainage Plan disapproved and may revoke any and all permits. Drainage Plans that are considered disapproved by the Municipality shall be resubmitted in accordance with Section 407 of this Ordinance.

Section 406. Modification of Plans

A. A modification to a Drainage Plan under review by the municipality 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 Drainage Plan as determined by the Municipal Engineer, shall require a resubmission of the modified Drainage Plan consistent with Section 404 of this Ordinance and be subject to review as specified in Section 405 of this Ordinance.

B. A modification to an already approved or disapproved Drainage Plan shall be submitted to the Municipality, accompanied by the applicable Municipal Review and Inspection Fee. A modification to a Drainage Plan for which a formal action has not been taken by the Municipality shall be submitted to the Municipality, accompanied by the applicable Municipal Review and Inspection Fee.

Section 407. Resubmission of Disapproved Drainage Plans

A disapproved Drainage Plan may be resubmitted, with the revisions addressing the Municipal Engineer's concerns documented in writing and addressed to the Municipal Secretary in accordance with Section 404 of this Ordinance and distributed accordingly and be subject to

review as specified in Section 405 of this Ordinance. The applicable Municipal Review and Inspection Fee must accompany a resubmission of a disapproved Drainage Plan.

ARTICLE V-INSPECTIONS

Section 501. Schedule of Inspections

A. The Municipal Engineer or his municipal designee shall inspect all phases of the installation of the permanent stormwater management facilities as deemed appropriate by the Municipal Engineer.

B. During any stage of the work, if the Municipal Engineer or his municipal designee determines that the permanent stormwater management facilities are not being installed in accordance with the approved Stormwater Management Plan, the Municipality shall revoke any existing permits or other approvals and issue a cease and desist order until a revised Drainage Plan is submitted and approved, as specified in this Ordinance.

C. A final inspection of all stormwater management facilities shall be conducted by the Municipal Engineer or his municipal designee and to confirm compliance with the approved Drainage Plan prior to the issuance of any Occupancy Permit.

ARTICLE VI-FEES AND EXPENSES

Section 601. Municipality Drainage Plan Review and Inspection Fee

Fees shall be established by the Municipality to defray plan review and construction inspection costs incurred by the Municipality. All fees shall be paid by the Applicant at the time of Drainage Plan submission. Review and Inspection Fee Schedule shall be established by resolution of the municipal governing body based on the size of the Regulated Activity and based on the Municipality's costs for reviewing Drainage Plans and conducting inspections pursuant to Section 501. The Municipality shall periodically update the Review and Inspection Fee Schedule to ensure that review costs are adequately reimbursed.

Section 602. Expenses Covered by Fees

The fees required by this Ordinance shall at a minimum cover:

A. Administrative costs.

B. The review of the Drainage Plan by the Municipality and the Municipal Engineer.

C. The site inspections.

D. The inspection of stormwater management facilities and drainage improvements during construction.

E. The final inspection upon completion of the stormwater management facilities and drainage improvements presented in the Drainage Plan.

F. Any additional work required to enforce any permit provisions regulated by this Ordinance, correct violations, and assure proper completion of stipulated remedial actions.

ARTICLE VII-CONSTRUCTION AND MAINTENANCE RESPONSIBILITIES

Section 701. Performance Guarantee

A. For subdivisions and land developments the Applicant shall provide a financial guarantee to the Municipality for the timely installation and proper construction of all stormwater management controls as: 1) Required by the approved Drainage Plan equal to or greater than the full construction cost of the required controls or 2) in the amount and method of payment provided for in the Subdivision and Land Development Ordinance.

B. For other Regulated Activities, the Municipality may require a financial guarantee from the Applicant.

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 an engineer, architect, surveyor or other qualified person verifying that all permanent facilities have been constructed according to the plans and specifications and approved revisions thereto.

   2. Provide a set of record drawings.

D. After the municipality receives the certification, a final inspection shall be conducted by the municipal engineer or designee to certify compliance with this ordinance.

Section 702. Maintenance Responsibilities

A. The Drainage Plan for the development site shall contain an operation and maintenance plan prepared by the Applicant and approved by the Municipal Engineer. The operation and maintenance plan shall outline required routine maintenance actions and schedules necessary to insure proper operation of the facility(ies).

B. The Drainage Plan for the development site shall establish responsibilities for the continuing operation and maintenance of all proposed stormwater control facilities, consistent with the following principles:

1. If a development consists of structures or lots which are to be separately owned and in which streets, sewers or other public improvements are to be dedicated to the municipality, stormwater control facilities may also be dedicated to and maintained by the municipality (the municipality is not obligated to accept ownership).

2. 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 may be the responsibility of the Applicant or private management entity.

C. The governing body, upon recommendation of the Municipal Engineer, shall make the final determination on the continuing maintenance responsibilities prior to approval of the Drainage Plan. The governing body reserves the right to accept the ownership and operating responsibility for any or all of the stormwater management controls.

Section 703. Maintenance Agreement for Privately Owned Stormwater Facilities

A. Prior to approval of the site's Drainage Plan, the Applicant shall sign and record the Maintenance Agreement contained in Appendix A which is attached and made part hereof, covering all stormwater control facilities that are to be privately owned.

B. Other items may be included in the agreement where determined necessary to guarantee the satisfactory maintenance of all facilities. The Maintenance Agreement shall be subject to the review and approval of the municipal solicitor and governing body.

Section 704. Municipal Stormwater Maintenance Fund

A. Persons installing stormwater storage facilities shall be required to pay a specified amount to the Municipal Stormwater Maintenance Fund to help defray costs of periodic inspections and maintenance expenses. The amount of the deposit shall be determined as follows:

1. If the storage facility is to be privately owned and maintained, the deposit shall cover the cost of periodic inspections performed by the municipality for a period of ten (10) years, as estimated by the municipal engineer. After that period of time, inspections will be performed at the expense of the municipality.

2. If the storage facility is to be owned and maintained by the municipality, the deposit shall cover the estimated costs for maintenance and inspections for ten (10) years. The municipal engineer will establish the estimated costs utilizing information submitted by the Applicant.

3. The amount of the deposit to the fund shall be converted to present worth of the annual series values. The municipal engineer shall determine the present worth equivalents, which shall be subject to the approval of the governing body.

B. If a storage facility is proposed that also serves as a recreation facility (e.g., ball field, lake), the municipality may reduce or waive the amount of the maintenance fund deposit based upon the value of the land for public recreation purpose.

C. If at some future time a storage facility (whether publicly or privately owned) is eliminated due to the installation of storm sewers or other storage facility, the unused portion of the maintenance fund deposit will be applied to the cost of abandoning the facility and connecting to the storm sewer system or other facility. Any amount of the deposit remaining after the costs of abandonment are paid will be returned to the depositor.

D. Long-Term Maintenance – The municipality may require applicants to pay a fee to the Municipal Stormwater Maintenance Fund to cover long term maintenance of stormwater control and best management practices.

E. Stormwater Related Problems - The municipality may require applicants to pay a fee to the Municipal Stormwater Maintenance Fund to cover stormwater related problems which may arise from the land development and earth disturbance.

ARTICLE VIII-ENFORCEMENT AND PENALTIES

Section 801. Right-of-Entry

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

Section 802. Notification

In the event that a person fails to comply with the requirements of this Ordinance, or fails to conform to the requirements of any permit issued hereunder, the municipality 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 these violation(s). Failure to comply within the time specified shall subject such person to the penalty provisions of this Ordinance. All such penalties shall be deemed cumulative and shall not prevent the municipality from pursuing any and all remedies. 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 Ordinance.

Section 803. Enforcement

The municipal governing body is hereby authorized and directed to enforce all of the provisions of this ordinance. All inspections regarding compliance with the drainage plan shall be the responsibility of the municipal engineer or other qualified persons designated by the municipality.

A. Design Plans - A set of design plans approved by the municipality shall be on file at the site throughout the duration of the construction activity. Periodic inspections may be made by the municipality 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 Section 104 on any property except as provided for in the approved drainage plan and pursuant to the requirements of this ordinance. It shall be unlawful to alter or remove any control structure required by the drainage plan pursuant to

this ordinance or to allow the property to remain in a condition which does not conform to the approved drainage plan.

C. Hearing - Prior to revocation or suspension of a permit and at the request of the applicant, the governing body 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 by the Municipality may be suspended or revoked for:

a. Non-compliance with or failure to implement any provision of the permit.

b. A violation of any provision of this ordinance 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 hazard or nuisance, pollution or which endangers the life or property of others.

2. A suspended permit shall be reinstated by the governing body when:

a. The municipal engineer or his municipal 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, and/or;

b. The governing body is satisfied that the violation of the ordinance, law, or rule and regulation has been corrected.

3. A permit that has been revoked cannot be reinstated. The Applicant may apply for a new permit under the procedures outlined in this Ordinance.

E. Occupancy Permit

An occupancy permit shall not be issued unless the certification of completion pursuant to Section 701 A has been approved by the Municipality. The occupancy permit shall be required for each lot owner and/or Applicant for all subdivisions and land development in the municipality.

Section 804. Public Nuisance

A. The violation of any provision of this ordinance is hereby deemed a Public Nuisance.

B. Each day that a violation continues shall constitute a separate violation.

Section 805. Penalties

A. Anyone violating the provisions of this ordinance shall be subject to a fine of not more than $100 for each violation, recoverable with costs, or imprisonment of not more than 30 days, or both. Each day that the violation continues shall be a separate offense.

B. In addition, the municipality may institute injunctive, mandamus or any other appropriate action or proceeding at law or in equity for the enforcement of this Ordinance. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus or other appropriate forms of remedy or relief.

Section 806. Appeals

A. Any person aggrieved by any action of Chestnuthill Township or its designee may appeal to the Chestnuthill Township governing body within thirty (30) days of that action.

B. Any person aggrieved by any decision of the Chestnuthill Township governing body may appeal to the County Court of Common Pleas in the County where the activity has taken place within thirty (30) days of the municipal decision.

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