UPPER GWYNEDD TOWNSHIP

MONTGOMERY COUNTY, PENNSYLVANIA

ORDINANCE NO. 2004-02

AN ORDINANCE AMENDING THE UPPER GWYNEDD TOWNSHIP ZONING CODE BY ADDING A COMPREHENSIVE STORMWATER MANAGEMENT ORDINANCE

IT IS ORDAINED AND ENACTED by the Board of Commissioners of Upper Gwynedd Township, and it is hereby **ORDAINED** and **ENACTED** as follows:

Section 1. The Upper Gwynedd Township Code ("the Code") is hereby amended by adding the following at Chapter 162 thereof:

ARTICLE I – GENERAL PROVISIONS

Section 101. Short Title

This Ordinance shall be known and may be cited as the "Upper Gwynedd Township Stormwater Management Ordinance."

Section 102. Purpose

The purpose of this Ordinance is to promote health, safety, and welfare within the Township and its watershed through provisions designed to:

A. Provide review procedures and performance standards for stormwater planning and management.

B. Utilize and preserve the existing natural drainage systems as much as possible.

C. Manage stormwater impacts close to the runoff source, in a manner which requires a minimum of structures and relies on natural processes.

D. Focus on infiltration of stormwater, to maintain groundwater recharge and to prevent degradation of surface and groundwater quality and to otherwise protect water resources.

E. Maintain existing flows and quality of streams and watercourses.

F. Meet legal water quality requirements under state law, including regulations at 25 Pa. Code Chapter 93.4a to protect and maintain "existing uses" and maintain the level of water quality to support those uses in all streams, and to protect and maintain water quality in "special protection" streams.

G. Prevent scour and erosion of streambanks and streambeds.

H. Provide for proper operations and maintenance of all permanent stormwater management facilities that are implemented in the Township.

I. Provide a mechanism to identify controls necessary to meet NPDES permit requirements.

J. Implement an illegal discharge detection and elimination program to address non-stormwater discharges into the Township's separate storm sewer system.

Section 103. Statutory Authority

The Township is empowered to regulate land use activities that affect stormwater impacts by the authority of *the Municipalities Planning Code,* at 53 P.A. §10503.

Section 104. Applicability

This Ordinance applies to any Regulated Earth Disturbance activities within the Township, and all stormwater runoff entering into the Township's separate storm sewer system from lands within the boundaries of the Township.

Section 105. Repealer

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

Section 106. Compatibility with Other Requirements

A. Approvals issued and actions taken under this Ordinance do not relieve the Applicant of the responsibility to secure required permits or approvals for activities regulated by any other code, law, regulation or ordinance. To the extent that this Ordinance imposes more rigorous or stringent requirements for stormwater management, the specific requirements contained in this Ordinance shall be followed.

B. Nothing in this Ordinance shall be construed to affect any of the Township's requirements regarding stormwater matters which do not conflict with the provisions of this Ordinance, such as stormwater management design criteria (e.g. inlet spacing, inlet type, collection system design and details, outlet structure design, etc.).

ARTICLE II - DEFINITIONS

Section 201. Definitions

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

Accelerated Erosion - The removal of the surface of the land through the combined action of human activities and the natural processes, at a rate greater than would occur because of the natural process alone.

Applicant - A landowner, developer or other person who has filed an application for approval to engage in any Regulated Earth Disturbance activity at a project site in the Township.

BMP (Best Management Practice) - Activities, designs, measures or procedures used to manage stormwater impacts from Regulated Earth Disturbance activities, to meet State Water Quality Requirements, to promote groundwater recharge and to otherwise meet the purposes of this Ordinance.

Conservation District - The Montgomery County Conservation District.

DEP - The Pennsylvania Department of Environmental Protection.

Developer - A person that seeks to undertake any Regulated Earth Disturbance activities at a project site in the Township.

Development - See "Earth Disturbance Activity." The term includes redevelopment.

Development Site - The specific tract of land where any Earth Disturbance activities in the Township are planned, conducted or maintained.

Earth Disturbance Activity - A construction or other human activity which disturbs the surface of the land, including, but not limited to, clearing and grubbing, grading, excavations, embankments, road maintenance, building construction and the moving, depositing, stockpiling, or storing of soil, rock or earth materials.

Erosion - The process by which the surface of the land, including channels, is worn away by water, wind, or chemical action.

Erosion and Sediment Control Plan - A plan for a project site which identifies BMPs to minimize accelerated erosion and sedimentation.

Groundwater Recharge - Replenishment of existing natural underground water supplies.

Impervious Surface - A surface that prevents the infiltration of water into the ground. Impervious surface includes, but is not limited to, any roof, parking or driveway areas, and any new streets and sidewalks. Any surface areas designed to initially be gravel or crushed stone shall be assumed to be impervious surfaces.

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

Outfall - "Point source" as described in 40 CFR § 122.2 at the point where the Township's storm sewer system discharges to surface waters of the Commonwealth.

Person - An individual, partnership, public or private association or corporation, or a governmental unit, public utility or any other legal entity whatsoever which is recognized by law as the subject of rights and duties.

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

Project Site – The specific area of land where any Regulated Earth Disturbance activities in the Township are planned, conducted or maintained.

Redevelopment -Earth Disturbance activities on land which has previously been disturbed or developed.

Regulated Earth Disturbance Activity - Earth disturbance activity one acre or more with a point source discharge to surface waters or the Township's storm sewer system, or five acres or more regardless of the planned runoff. This includes earth disturbance on any portion of, part, or during any stage of, a larger common plan of development. This only includes road maintenance activities involving 25 acres or more or earth disturbance.

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

Separate Storm Sewer System - A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains) primarily used for collecting and conveying stormwater runoff.

State Water Quality Requirements - As defined under state regulations -- protection of *designated* and *existing* uses (See 25 Pa. Code Chapters 93 and 96)--including:

A. Each stream segment in Pennsylvania has a "designated use," such as "cold water fishery" or "potable water supply," which are listed in Chapter 93. These uses must be protected and maintained, under state regulations.

B. "Existing uses" are those attained as of November 1975, regardless whether they have been designated in Chapter 93. Regulated Earth Disturbance activities must be designed to protect and maintain existing uses and maintain the level of water quality necessary to protect those uses in all streams, and to protect and maintain water quality in special protection streams.

C. Water quality involves the chemical, biological and physical characteristics of surface water bodies. After Regulated Earth Disturbance activities are complete, these characteristics can be impacted by addition of pollutants such as sediment, and changes in habitat through increased flow volumes and/or rates as a result of changes in land surface area from those activities. Therefore, permanent discharges to surface waters must be managed to protect the stream bank, streambed and structural integrity of the waterway, to prevent these impacts.

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

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

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

Watershed – Region or area drained by a river, watercourse or other body of water, whether natural or artificial.

ARTICLE III - STORMWATER MANAGEMENT FOR WATER QUALITY

Section 301. Erosion and Sediment Control During Regulated Earth Disturbance Activities

A. No Regulated Earth Disturbance activities within the Township shall commence

until approval by the Township of an Erosion and Sediment Control Plan for construction activities which follows BMPs meeting State Water Quality Requirements.

B. Evidence of any necessary permit(s) for Regulated Earth Disturbance activities from the appropriate DEP regional office or County Conservation District must be provided to the Township.

C. A copy of the Erosion and Sediment Control plan and any permit required by DEP regulations, shall be available at the project site at all times.

Section 302. Water Quality Requirements After Regulated Earth Disturbance Activities Are Complete

A. No Regulated Earth Disturbance activities within the Township shall commence until approval by the Township of an operation and maintenance plan ("the Stormwater Management Facilities Operation and Maintenance Plan") which follows BMPs designed to achieve compliance with State Water Quality Requirements after construction is complete.

B. To control post-construction stormwater impacts from Regulated Earth Disturbance activities, State Water Quality Requirements can be met by BMPs, including site design, which provide for replication of pre-construction stormwater infiltration and runoff conditions, so that post-construction stormwater discharges do not degrade the physical, chemical or biological characteristics of the receiving waters. This may be achieved by the following:

1. Infiltration: replication of pre-construction stormwater infiltration conditions,

2. Treatment: use of water quality treatment BMPs to ensure filtering out of the chemical and physical pollutants from the stormwater runoff, and

3. Streambank and Streambed Protection: management of volume and rate of post-construction stormwater discharges to prevent physical degradation of receiving waters (e.g., from scouring).

ARTICLE IV – STORMWATER MANAGEMENT FOR RUNOFF CONTROL

Section 401. General Requirements

Measures used to collect and carry stormwater on any site ("stormwater management facilities") shall be designed to meet the following minimum performance standards.

A. Prevent erosion damage and satisfactorily carry-off or detain and control the rate of release of surface waters.

B. When subsurface soil conditions are suitable, require runoff control measures to percolate the stormwater into the ground to aid in the recharge of ground waters, and the preservation of baseflow.

C. Carry surface water to the nearest adequate street, storm drain, detention basin, natural watercourse, or drainage facility.

D. Take surface water from the bottom of vertical grades, to lead water away from springs, and collect water upgrade of all street intersections at the earliest or most efficient point.

E. Control/accommodate not only the anticipated peak discharge from the on-site disturbed area, but also the existing runoff being contributed from all land at a higher elevation in the same watershed.

F. Maintain the adequacy of the natural stream channels. Accelerated bank erosion shall be prevented by controlling the rate and velocity of runoff discharged to these watercourses, so as to avoid increasing the occurrence of stream bank over-flow.

G. Preserve the adequacy of existing culverts, and bridges by suppressing the new flood peaks created by the new earth disturbances.

H. If in the course of preparing or reviewing the stormwater management plan, the Township Engineer determines that off-site improvements are necessary to satisfactorily control the stormwater from the site, the applicant shall be responsible for such off-site improvements.

I. All stormwater detention and retention facilities shall be in place and functioning prior to the creation of any impervious surface.

J. When ever a watercourse, stream or intermittent stream is located within a grading site, it shall remain open in its natural state and location and shall not be piped unless permitted by Pennsylvania Department of Environmental Protection (DEP) and the Township.

K. The existing points of natural drainage discharge onto adjacent property shall not be altered without the written approval and a drainage easement from the affected landowners.

L. No stormwater runoff or natural drainage shall be so diverted as to overload existing drainage systems, or create flooding or the need for additional drainage structures on other private properties or public lands.

M. All stormwater management facilities shall be designed to satisfy the following requirements.

1. They shall be capable of withstanding the discharge associated with the 100-year return rainfall event, without failing or resulting in damage to downstream areas. Some non-detention facilities may be designed to by-pass stormwater discharges, which are in excess of the appropriate design storm. In this case, conveyance must be provided to transport the 100-year surcharge flow to downstream facilities, a natural watercourse, or storm drainage system inlet.

2. All groundwater recharge devices shall be protected from sedimentation. Areas designated for recharge shall not receive runoff until the contributory drainage areas have achieved final stabilization.

Section 402. Detention Facility Design

A. Stormwater Detention Facilities – Stormwater detention facilities include all structural measures, which can reliably and predictably achieve the peak discharge requirements. Stormwater detention facilities include, but are not necessarily limited to, detention basins, retention basins, bioretention areas, open (at-grade) sand filters, closed (below-grade) sand filters, water quality inlets, dry wells, below-grade detention chambers, and roof top detention.

B. Peak Discharge Design Storms – The design storm criteria to be used in calculations for the watershed is to limit the post-development runoff for the 2, 10, 50 and 100-year storms to the pre-development rates. Any stormwater detention facilities required by this Chapter and subject to the water quality requirements and stormwater runoff peak rate requirements herein shall meet the applicable water quality and peak rate requirement for the 2, 10, 50 and 100-year return period runoff events (design storms) consistent with the standard and accepted calculation methodology and engineering standards and be satisfactory to the Township engineer.

C. Runoff Calculation Methodology

1. Any stormwater runoff calculation involving drainage areas greater than 20 acres, including on-and off-site areas, shall use a generally accepted calculation technique that is based on the NRCS soil cover complex method. It is assumed that all methods will be selected by the design professional based on the individual limitations and suitability of each method for a particular site.

2. All calculations consistent with this Chapter using the soil cover complex method shall use the appropriate design rainfall depths for the various return period storms.

3. For purposes of pre-development 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.

4. All calculations using the Rational Method shall use rainfall intensities consistent with appropriate times of concentration for overland flow and return periods from NRCS Methodology. Time of concentration for overland flow (maximum 300 feet) and concentrated flow shall both be calculated using NRCS methodology. Times of concentration for channel and pipe flow shall be computed using Manning’s Equation or NRCS Methodology.

5. The design of any stormwater detention facilities intended to meet the performance standards of this Chapter shall be verified by routing the design storm hydrograph through these facilities using accepted methods of practice. The Township Engineer may approve the use of any generally accepted reservoir routing technique, which shall use a total runoff volume that is consistent with the volume from a method that produces a full hydrograph. The computer routing program used must take into account the tailwater effect of the discharge pipe on the orifice design as well as the submergence of the discharge pipe outlet.

6. Outlet structures for stormwater management facilities shall be designed to meet the performance standards of this Chapter using any generally accepted hydraulic analysis technique or method approved by the Township Engineer.

D. Stormwater Detention and Retention Facilities – Stormwater detention and retention facilities shall meet the following minimum design/construction standards:

1. Detention basin shall be designed to facilitate regular maintenance, mowing and periodic silt removal and reseeding. Shallow broad basins are preferred to steep sided basins.

2. The maximum slope of the earth and detention basin embankment shall be three-to-one (3:1) with the exception that any slope to be maintained by the Township shall be four-to-one (4:1). The top or toe of any slope shall be located a minimum of five (5) feet from a property line. Whenever possible the side slope and basin shape shall conform to the natural topography.

3. Unless permitted detention basins shall not be located within floodplains nor within areas of floodplain or alluvial soils.

4. Detention basins shall be designed so they return to normal conditions within approximately 24 hours after termination of the storm, unless the Township Engineer finds that downstream conditions may warrant other design criteria for stormwater release.

5. If retention basins are used, the applicant shall demonstrate that such ponds are designed to protect public health, safety and welfare.

6. Fences may be required for any detention or retention basins where there is a permanent water surface or conditions warrant.

7. The minimum top width of the detention basin berm shall be 10 ft. A cut-off trench (keyway) of relative impervious material shall be provided beneath all embankments requiring fill material. The keyway shall be a minimum 8 feet wide, minimum 3 feet deep, and have 1:1 side slopes.

8. In order to insure proper drainage on the basin bottom, a minimum grade of 2% shall be maintained for sheet flow. Where a 2% slope cannot be maintained, low flow

channels at a minimum grade of 1% constructed of concrete or other materials approved by the Township Engineer, shall be constructed between all basin inlets and the basin outlet.

9. All detention and retention basin embankments shall be placed in 8 inch maximum lifts to a minimum 95% dry density. Prior to proceeding to the next lift, compaction shall be checked by the Township Engineer or an approved soils engineer who shall provide the Township Engineer with a written report. Compaction tests shall be performed using the modified proctor method in accordance with ASTM D-1577. Compaction tests shall be run on the leading and trailing edge as well as the top of the berm.

10. Emergency overflow facilities shall be provided for detention facilities to accommodate runoff in excess of design flows. Whenever possible, emergency spillway for the detention basins shall be constructed on undisturbed ground. Emergency spillways shall be constructed of concrete pavers, gabions, or other similar materials approved by the Township Engineer. All emergency spillways shall be constructed so that the detention basin berm is protected against erosion. The minimum capacity of all emergency spillways shall be the peak flow rate of the one-hundred (100) year design storm after development. The construction material of the emergency spillway shall extend along the upstream and downstream berm embankment slopes. The upstream edge of the emergency spillway shall be a minimum of three (3) feet below the spillway crest elevation. The downstream slope of the spillway shall as a minimum extend to the toe of the berm embankment. The emergency spillway shall not discharge over earthen fill or easily erodible material.

11. The minimum freeboard shall be one (1) foot.

12. Anti-seep collars shall be installed around the pipe barrel within the normal saturation zone of the detention basin berms. The anti-seep collars and their connections to the pipe barrels shall be watertight. The anti-seep collars shall extend a minimum of two feet beyond the outside of the principle pipe barrel. The maximum spacing between collars shall be fourteen (14) times the minimum projection of the collar measured perpendicular to the pipe. A minimum of two (2) anti-seep collar shall be installed on each outlet pipe.

13. All outlet pipes through the basin berm shall be reinforced concrete pipe, designed to withstand the loading caused by a fully saturated berm and shall be watertight joints using O-ring joint pipe. Outlet pipe shall be backfilled with material similar to the core material (semi impervious).

14. The invert of the inlet pipe(s) into a basin shall be six (6) inches above the basin floor or lining so that it can adequately drain after rainstorms. Inlet pipe(s) shall discharge to areas of the basin that slope toward the outlet structure.

15. Energy dissipaters and/or level spreaders shall be installed at points where pipes or drainage ways drain to or from the basin. Energy dissipaters shall comply with criteria in Hydraulic Engineering Circular No. 15 – Design of Stable Channels with Flexible Linings published by the Federal Highway Administration of the U.S. Department of Transportation of the Engineering Field Manual for Conservation Practices, NCRS Energy dissipating device calculations shall be submitted for Township review and approval.

16. Inlet and outlet structures shall be located at a maximum distance from one another in order to promote water quality benefits. The Township Engineer may require a rock filter or rock filled gabion for entrapping sediments carried in stormwater if sufficient separation of inlet and outlet structures cannot be achieved.

17. A perforated riser, or similar sediment control device, shall be provided at each outlet of all detention basins during construction for sediment control. The riser shall be constructed of metal or concrete. The riser shall extend to a maximum elevation of two (2) feet below the crest elevation of the emergency spillway. The perforated riser shall be designed so that the rate of outflow is controlled by the pipe barrel through the basin berm, when the depth of water within the basin exceeds the height of the riser. Circular perforations with a maximum diameter of one (1) inch shall be spaced twelve (12) inches vertically. The horizontal spacing shall be in accordance to DEP Soil Erosion and Sedimentation Control manual Specifications. The perforations shall be cleanly cut and shall not be susceptible to enlargement. All metal risers shall be suitable coated to prevent corrosion. A trash rack or similar appurtenance shall be provided to prevent debris from entering the pipe. All risers shall have concrete base attached with a watertight connect. The base shall be of sufficient weight to prevent flotation of the riser. An anti-vortex device consisting of a thin vertical plate normal to the base and berm, shall be provided at the top of the riser. Unless this structure is part of the permanent outlet control, it shall be removed from the site when it has been adequately stabilized as determined by the Township Engineer.

18. All drainage channels shall be designed to prevent erosion of the bed and banks. The maximum permissible flow velocity shall not exceed the design requirements outlined in the current “Soil Erosion and Sedimentation Control Manual”, published by the Pennsylvania Depart of Environmental Protection. Suitable stabilization shall be provided where required to prevent erosion of the drainage channels.

19. Any vegetated drainage channel requiring mowing of the vegetation shall have a maximum grade of three (3) horizontal to one (1) vertical on those areas to be mowed.

20. Because of the critical nature of vegetated drainage channels, the design of all vegetated channels shall as a minimum conform to the design requirements outline in the current “Soil Erosion and Sedimentation Control Manual”, published by the Department of Environmental Protection.

Section 403. Stormwater Conveyance System

A. General

1. Storm sewers, culverts, bridges and related installations shall be provided:

   a. To permit unimpeded flow of natural watercourses and in such a manner as to protect the natural character of the watercourses and to provide regulated discharge;

   b. To insure adequate drainage of all low points along the line of streets; and

   c. To intercept stormwater run-off along streets at intervals reasonably related to the extent and grade of the area drained and to prevent substantial flow of water across intersections.

2. All storm sewer system components shall conform to current PennDOT standards.

3. Drainage structures, which drain watershed areas in excess of one half square mile (320 acres), or which have a span of eight (8) feet or more, shall be designed for a maximum expected run-off as calculated using the Soil Conservation Service Technical release 55 “Urban Hydrology for Small Watersheds (less than 2000 acres)”.

4. The design storm for the above structures shall be a 100-year storm. A Water Obstruction Permit shall be obtained from the Pennsylvania Department of Environmental Protection for the waterway opening before final design is undertaken.

5. The cartway over the culvert or bridge shall be as wide as the ultimate width of the roadway approaches. Additional width may be required to provide sidewalk on one or both sides of the cartway.

B. Storm Sewer Design and Construction Requirements

1. Minimum pipe size is 18 inches.

2. Minimum pipe slope shall be 0.005 feet per foot.

3. Minimum drop across junctions shall be 2 inches. At changes in pipe diameter, pipe crowns shall be matched at junctions (manhole, inlet or junction box).

4. Maximum distance between junctions shall be 300 feet.

5. Run-off to proposed storm sewers and inlets shall be calculated using the rational method.

6. The time of concentration shall be assumed 5 minutes for pipes under 30 inches. For pipes 30 inches or greater, the calculated time of concentration can be utilized.

7. The time of concentration to inlets for grate capacity calculations shall be assumed 5 minutes.

8. All storm sewer pipes shall be designed as a minimum to accommodate a minimum of a 10-year storm. Twenty-five (25) year storms shall be used as required by the Township Engineer.

9. All storm sewer pipes at inlets in sump condition shall be designed to accommodate the 50-year storm.

10. All storm sewer pipes and inlets intended to drain to detention facilities shall be designed to accommodate the 100 year storm if the bypass or overflow run-off will not reach the basin by overland flow. In cases where the bypass or overflow run-off will flow over land, a stable swale shall be constructed to accommodate the excess run-off.

11. All inlets in sump condition shall be 6-foot inlets or dual 4-foot inlets, as needed.

12. All storm sewer systems shall be analyzed for both inlet and outlet control (including tailwater effects) by using the equations and nomographs as shown in the FHA's Hydraulic Design Services No. 5. In lieu of this, computer programs that calculate the actual hydraulic grade line for the storm sewer system can be used, provided all losses (friction, bend, junction, etc.) are taken into account. Documentation for the program must be submitted for approval.

13. Minimum cover over pipes is 2 feet from finished grade to outside of pipe bell.

14. Inlet capacities shall be calculated using PennDOT of Manufacturer's Nomographs. Documentation for Manufacturer's Nomograph must be provided to the Township Engineer.

C. Shoulders in Cut Areas (without swales)

1. Water flowing in the shoulder shall not encroach more than two-thirds the shoulder width during a twenty-five (25) year frequency storm of five (5) minute duration.

2. The maximum velocity as determined by Manning's Equation shall not exceed the allowable velocities for the specific type of shoulder material.

3. Inlets shall be provided to control the shoulder encroachment and water velocity.

D. Swales Adjacent to Shoulders.

1. Swales in cut areas shall be designed to prevent the passage of water on the cartway during a twenty-five (25) year frequency storm of five (5) minute duration.

2. The maximum velocity as determined by Manning's Equation shall not exceed the allowable velocities for the specific type of shoulder material.

E. Curb Sections

1. The maximum encroachment of water on the roadway pavement shall not exceed 3 inches in depth at the curb during a twenty-five (25) year frequency storm of five (5) minute duration.

2. Inlets shall be provided to control the encroachment of water on the pavement.

F. Inlets – General

1. At street intersections, inlets shall be placed in the tangent portion, rather than the curved portion, of the curbing.

2. If the capacity of the shoulder, swale, curb section, or depressed median section exceeds the assumed inlet capacities, the inlet capacities shall govern the spacing of inlets.

3. If the capacity of the shoulder, swale, curb section, or depressed median section is less than the inlet capacities, then the shoulder, swale, curb section or depressed section capacity shall govern the spacing of inlets.

ARTICLE V – STORMWATER MANAGEMENT FACILITIES OPERATIONS AND MAINTENANCE PLAN REQUIREMENTS

Section 501. General Requirements

A. The following items shall be included in the Stormwater Management Facilities Operations and Maintenance Plan:

1. Map(s) of the project area, in a form that meets the requirements for recording at the offices of the Recorder of Deeds of Montgomery County, and shall be submitted on 24-inch x 36-inch or 30-inch x 42-inch sheets. The contents of the maps(s) shall include, but not be limited to:

   a. Clear identification of the location and nature of permanent stormwater management facilities

   b. The location of the project site relative to highways, municipal boundaries or other identifiable landmarks,
   c. Existing and final contours at intervals of two feet, or others as appropriate,
   d. Existing streams, lakes, ponds, or other bodies of water within the project site area,
   e. Other physical features including flood hazard boundaries, sinkholes, streams, existing drainage courses, and areas of natural vegetation to be preserved,
   f. The locations of all existing and proposed utilities, sanitary sewers, and water lines within 50 feet of property lines of the project site,
   g. Proposed final changes to the land surface and vegetative cover, including the type and amount of impervious area that would be added,
   h. Proposed final structures, roads, paved areas, and buildings, and
   i. A fifteen-foot wide access easement around all stormwater management facilities that would provide ingress to and egress from a public right-of-way.

2. A description of how each permanent stormwater management facility will be operated and maintained, and the identity of the person(s) responsible for operations and maintenance,

3. The name of the project site, the name and address of the owner of the property, and the name of the individual or firm preparing the Plan, and

4. A statement, signed by the landowner, acknowledging that the stormwater management facilities are fixtures that can be altered or removed only after approval by the Township.

Section 502. Responsibilities for Operations and Maintenance of Stormwater Management Facilities

A. The Stormwater Management Facilities Operations and Maintenance Plan for the project site shall establish responsibilities for the continuing operation and maintenance of all permanent stormwater management facilities, as follows:

1. If a Plan includes structures or lots which are to be separately owned and in which streets, sewers and other public improvements are to be dedicated to the Township, stormwater management facilities may also be dedicated to and maintained by the Township;

2. If a Plan includes operations and maintenance by a single ownership, or if sewers and other public improvements are to be privately owned and maintained, then the operation and maintenance of stormwater management facilities shall be the responsibility of the owner or private management entity.

B. The Township shall make the final determination on the continuing operations and maintenance responsibilities. The Township reserves the right to accept or reject the operations and maintenance responsibility for any or all of the stormwater management facilities.

Section 503. Township Review of Stormwater Management Facilities Operations and Maintenance Plan

A. The Township shall review the Stormwater Management Facilities Operations and Maintenance Plan for consistency with the purposes and requirements of this ordinance, and any permits issued by DEP.

B. The Township shall notify the Applicant in writing whether the Stormwater Management Facilities Operations and Maintenance Plan is approved.

C. The Township may require an "As-Built Survey" of all stormwater management facilities, and an explanation of any discrepancies with the Stormwater Management Facilities Operations and Maintenance Plan.

Section 504. Adherence to Approved Stormwater Management Facilities Operations and Maintenance Plan

It shall be unlawful to alter or remove any permanent stormwater management facilities required by an approved Stormwater Management Facilities Operations and Maintenance Plan, or to allow the property to remain in a condition which does not conform to an approved BMP Operations and Maintenance Plan, unless an exception is granted in writing by the Township.

Section 505. Operations and Maintenance Agreement for Privately Owned Stormwater Management Facilities

The property owner shall sign an operations and maintenance agreement with the Township covering all stormwater management facilities that are to be privately owned.

Section 506. Stormwater Management Easements

A. Stormwater management easements are required for all areas used for off-site stormwater control, unless a waiver is granted by the Municipal Engineer.

B. Stormwater management easements shall be provided by the property owner if necessary for (1) access for inspections and maintenance, or (2) preservation of stormwater runoff conveyance, infiltration, and detention areas and other stormwater management facilities, by persons other than the property owner.

Section 507. Recording of Approved Stormwater Management Facilities Operations and Maintenance Plan and Related Agreements

The following documents shall be recorded in the Office of the Recorder of Deeds for Montgomery County:

1. The Stormwater Management Facilities Operations and Maintenance Plan, or a summary thereof,

2. Operations and Maintenance Agreements under Section 505, and

3. Easements under Section 506.

Section 508. Municipal Stormwater Management Facilities Operation and Maintenance Fund

If stormwater management facilities are accepted by the Township for dedication, the Township may require persons installing such facilities to pay a specified amount to the Municipal Stormwater Management Facility Operation and Maintenance Fund, to help defray costs of operations and maintenance activities. The amount may be determined as follows:

1. If the stormwater management facilities are to be owned and maintained by the Township, the amount shall cover the estimated costs for operations and maintenance for ten (10) years, as determined by the Township.

2. The amount shall then be converted to present worth of the annual series values.

ARTICLE VI-INSPECTIONS AND RIGHT OF ENTRY

Section 601. Inspections

A. The Township or its designee may inspect all phases of the construction, operations, maintenance and any other implementation of stormwater management facilities.

B. During any stage of the Regulated Earth Disturbance activities, if the Township or its designee determines that any BMPs are not being implemented in accordance with this Ordinance, the Township may suspend or revoke any existing permits or other approvals until the deficiencies are corrected.

Section 602. Right of Entry

A. Upon presentation of proper credentials, duly authorized representatives of the Township may enter at reasonable times upon any property within the Township to inspect the implementation of BMPs or the, condition, operation and maintenance of stormwater management facilities in regard to any aspect governed by this Ordinance.

B. Stormwater management facilities owners and operators shall allow persons working on behalf of the Township ready access to all parts of the premises for the purposes of determining compliance with this Ordinance.

C. Persons working on behalf of the Township shall have the right to temporarily locate on any stormwater management facilities in the Township such devices as are necessary to conduct monitoring and/or sampling of the discharges from such stormwater management facilities.

ARTICLE VII - FEES AND EXPENSES

Section 701. General

The Township may charge a reasonable fee for review of Erosion and Sediment Control Plans, designs for stormwater management facilities and Stormwater Management Facilities Operations and Maintenance Plans to defray review costs incurred by the Township.

Section 702. Expenses Covered by Fees

The fees required by this Ordinance may cover:

A. Administrative/clerical Costs.

B. The review of the Erosion and Sediment Control Plans, designs for stormwater management facilities and Stormwater Management Facilities Operations and Maintenance Plans by the Municipal Engineer.

C. The site inspections including, but not limited to, pre-construction meetings, inspections during construction of stormwater management facilities, and final inspection upon completion of the stormwater management facilities.

D. Any additional work required to monitor and enforce any provisions of this Ordinance, correct violations, and assure proper completion of stipulated remedial actions.

ARTICLE VIII-PROHIBITIONS

Section 801. Prohibited Discharges

A. No person in the Township shall allow, or cause to allow, stormwater discharges into the Township's separate storm sewer system which are not composed entirely of stormwater, except as provided in subsection B below.

B. Discharges which may be allowed, based on a finding by the Township that the discharge(s) do not significantly contribute to pollution to surface waters of the Commonwealth, are:

Discharges from fire fighting activities

Uncontaminated water from foundation or from footing drains

Potable water sources including dechlorinated water line and fire hydrant flushing

Flows from riparian habitats and wetlands

Lawn watering

Irrigation drainage

Routine external building wash down (which does not use detergents or other compounds)

Air conditioning condensate

Car washing

Springs

Water from crawl space pumps

Pavement washwaters where spills or leaks of toxic or hazardous materials have not

occurred (unless all spill material has been removed) and where detergents are not used

Water from individual residential car washing

Dechlorinated swimming pool discharges

Uncontaminated groundwater

C. In the event that the Township determines that any of the discharges identified in Subsection B significantly contribute to pollution of waters of the Commonwealth, or is so notified by DEP, the Township will notify the responsible person to cease the discharge.

Section 802. Prohibited Connections

The following connections are prohibited, except as provided in Section 801.B above:

A. Any drain or conveyance, whether on the surface or subsurface, which allows any non-storm water discharge including sewage, process wastewater, and wash water, to enter the separate storm sewer system, and any connections to the storm drain system from indoor drains and sinks; and

B. Any drain or conveyance connected from a commercial or industrial land use to the separate storm sewer system which has not been documented in plans, maps, or equivalent records, and approved by the Township.

Section 803. Roof drains

A. Roof drains shall not be connected to streets, sanitary or storm sewers or roadside ditches, except as provided in Section 803.B.

B. When it is more advantageous to connect directly to streets or storm sewers, connections of roof drains to streets or roadside ditches may be permitted by the Township.

C. Roof drains shall discharge to infiltration areas to the maximum extent practicable.

Section 804. Alteration of Stormwater Management Facilities

A. No person shall modify, remove, fill, landscape or alter any existing stormwater management facility, unless it is part of an approved maintenance program, without the written approval of the Township.

B. No person shall place any structure, fill, landscaping or vegetation into a stormwater management facility or within a drainage easement, which would limit or alter the functioning of the stormwater management facilities, without the written approval of the Township.

ARTICLE IX - ENFORCEMENT AND PENALTIES

Section 901. Public Nuisance

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

Section 902. Enforcement Generally

A. Whenever the Township finds that a person has violated a prohibition or failed to meet a requirement of this Ordinance, the Township may order compliance by written notice to the responsible person. Such notice may require without limitation:

1. The performance of monitoring, analyses, and reporting;
2. The elimination of prohibited connections or discharges;
3. Cessation of any violating discharges, practices, or operations;
4. The abatement or remediation of storm water pollution or contamination hazards and the restoration of any affected property;
5. Payment of a fine to cover administrative and remediation costs;
6. The implementation of stormwater BMPs; and
7. Operation and maintenance of stormwater management facilities.

B. Such notification shall set forth the nature of the violation(s) and establish a time limit for correction of these violations(s). Said notice may further advise that, if applicable, should the violator fail to take the required action within the established deadline, the work will be done by the Township or designee and the expense thereof shall be charged to the violator.

C. Failure to comply within the time specified shall also subject such person to the penalty provisions of this Ordinance. All such penalties shall be deemed cumulative and shall not prevent the Township from pursuing any and all other remedies available in law or equity.

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

Section 903. Suspension and Revocation of Permits and Approvals

A. Any building, land development or other permit or approval issued by the Township may be suspended or revoked by the Township for:

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

2. A violation of any provision of this Ordinance; or

3. 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.

B. A suspended permit or approval shall be reinstated by the Township when:

1. The Municipal Engineer or designee has inspected and approved the corrections to the stormwater BMPs, or the elimination of the hazard or nuisance, and/or;

2. The Township is satisfied that the violation of the Ordinance, law, or rule and regulation has been corrected.

Section 904. Penalties

A. Any person violating the provisions of this ordinance shall, upon conviction, be subject to a fine of not more than $ 1,000 for each violation. Any person or persons, firm or corporation who shall violate any of the provisions of this Article, upon conviction thereof, shall be liable to pay a fine or penalty not to exceed one thousand dollars ($1,000.00) for each and every offense. All fines and penalties imposed by this Article are recoverable by summary proceedings before the District Justice, and all suits or actions at law instituted for the recovery thereof are to be in the name and for the use of Upper Gwynedd Township, against which the offenses are committed. In default of payment of any fine or penalty imposed by any District Justice under the provisions of this Article, the person or persons so offending may be committed to the Montgomery County Prison for

a period not exceed thirty (30) days.

B. In addition, the Township, through its solicitor, 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 2. Section 168-21K of the Code is hereby amended to read as follows:

Stormwater management facilities shall be provided pursuant to the provisions of the Stormwater Management Ordinance set forth at Chapter 162."

Section 3. Section 168-24A of the Code is hereby amended to read as follows:

"The management of stormwater on the site, both during and upon completion of the disturbances associated with the proposed subdivision or land development, shall be accomplished in accordance with the standards and criteria set forth in this Section and in the Stormwater Management Ordinance set forth at Chapter 162."

Section 4. Section 168-24B(1) of the Code is hereby amended to read as follows:

"In order to prevent accelerated erosion and resulting sedimentation, land disturbance activities relating to an approved subdivision or land development shall be conducted only in conformity with Section 168-25 and the Stormwater Management Ordinance set forth at Chapter 162."

Section 5. Section 168-24C of the Code is hereby deleted in its entirety, and the remaining subsections are hereby relettered accordingly.

Section 6. The second sentence of Section 168-24D(2) [as relettered] is amended to read as follows:

"Reinforced concrete pipe or high density polyethylene (smooth-lined interior) pipe may be used for storm sewers."

Section 7. Section 168-24F [as relettered] of the Code is hereby amended to read as follows:

"Detention basins shall meet the standards and criteria set forth in the Stormwater Management Ordinance at Chapter 162."

Section 8. Section 168-25A of the Code is hereby amended to read as follows:

"Where any excavation or grading is proposed, the developer shall prepare necessary plans and obtain necessary permits as required by this Section and by the Stormwater Management Ordinance set forth at Chapter 162."

Section 9 - Severability. In the event that any section, sentence, clause, phrase or word of this Ordinance shall be declared illegal, invalid or unconstitutional by any court of competent jurisdiction, such declaration shall not prevent, preclude

or otherwise foreclose enforcement of any of the remaining portions of this Ordinance.

Section 10 - Repealer. All Ordinances or parts of Ordinances inconsistent herewith or in conflict with any of the specific terms enacted hereby, to the extent of said inconsistencies or conflicts, are hereby specifically repealed.

Section 11 - Effective Date. This Ordinance shall become effective five days after its enactment.

ENACTED and ORDAINED this 22nd day of March 2004.

BOARD OF COMMISSIONERS
UPPER GWYNEDD TOWNSHIP

By: _____
President

Attest: _____
Secretary