9. PROOF OF RECORDING

The plan must include a signature space for the recorder of deeds as follows:	
Recorded in the office of the Recorder of Deeds of the County of Alle Commonwealth of Pennsylvania, in Plan Book Volume, Page(s)	gheny
Given under my hand and seal this day of, 19	
(Seal)	
Recorder of Deeds	

NOTE: APPROVAL FOR ATTACHED DWELLING LOT LINES

If the original subdivision or land development plan shows the large lots on which townhouse or similar structures are to be constructed, then the division of one of those larger lots into smaller divisions is really just a re-subdivision or further subdivision, which should be handled like any other subdivision plan. This would include, in municipalities which have ordinances, submission to and approval by the municipality, and review prior to recording by the county.

To cover this situation, this category of subdivision has been added to the definition of "plat adjustment," which will make it eligible for recording after approval of the signed transparency by the Department. A municipal sign-off, however, would be required in municipalities with ordinances in effect. The county's expedited processing for minor subdivisions and plat adjustments in this ordinance are offered to municipalities that have their own ordinances.

The owner(s)/developer(s) are referred to the Township of Kennedy's Zoning Ordinance No. 171, Section 420, R-3 Multiple Family Residence District, Section 424 AREA, Section 424.2 Multiple Family Dwelling for Each Dwelling Unit, and Section 425 YARD AREAS, which apply to attached dwelling lot lines.

Townhouse and Garden Apartment Lot Lines - in cases where a plan is submitted for approval without all lot lines finalized, the owner(s)/developer(s) shall be required to certify that he/she/they will record a survey of final construction for each lot with the Office of the Recorder

of Deeds of Allegheny County prior to any conveyance of any part thereof. Said survey of final construction shall be signed by the owner(s)/developer(s), certified as accurate by a registered surveyor, submitted to Kennedy Township for approval and certification of compliance with original plan prior to recording, and signed off by the Township's President of the Board of Commissioners and the Engineer for the Township of Kennedy. See Section 10.

SECTION 10 TOWNHOUSE AND GARDEN APARTMENT UNIT FINALIZATION PHASES (See Section 3.3.3)

(Individual Owner Adoption)		
In fulfillment of the requirem	ents set forth in Section 3.3.3 of the Kennedy Town	ship
Subdivision and Land Develop	oment Regulations (1996), (I or We)	
	owner(s)/developer(s) do hereby certify that	the
foregoing is a survey of final	construction for Lots in the	
plan. (I or We) do furt	ner certify that the title of this property is in the nam	e of
	, as recorded in Deed Book Volume	
, Page in the Offi	ce of the Recorder of Deeds of Allegheny County.	
₽		
Witness	Owner	

Before me, the subscriber, a Notary Public in and for said Commonwealth and County, personally appeared the above named (Name or Owner), and acknowledged the foregoing survey of final construction to be (his, her, their) act and deed and desired the same to be recorded as such.

APPENDIX 3 STANDARDS FOR SURVEYS

Surveys shall be performed generally in accordance with standards set forth in the most recent standards published by the Pennsylvania Society of Land Surveyors. Closure requirements, in terms of angular closure and/or lineal ratios of 1/x, shall relate to the closure of the original random traverse performed to create the outer boundary of the subdivision or site in question. If the survey was performed by survey measurements taken on the actual property lines with no random traversing created, then closure accuracies shall relate to the raw, unadjusted closure of the surveys thus performed. All subsequent survey data created from this field survey shall indicate closures of not less than 1/100,000 or better.

All care and diligence will be extended to assure that any survey correctly reflects the property or right-of-way lines as originally established, and honors to the largest degree possible, all rights of adjoiners and the parent tract. All surveys shall be performed in the field, and <u>no</u> office developed subdivisions will be accepted. Copies of field data and calculations may be requested at the option of the Department. All bearing notations should show degrees, minutes and seconds with the appropriate quadrant, such as northeast, southwest, etc. Linear dimensions shall be shown to not less than one hundredth of a foot on all measurements. Full centerline and right-of-way geometry shall be shown. Curve data in the form of arc, delta, radius, cord and tangent should be provided on all streets. In the case of redundant arc segments within a fully defined arc length on a right-of-way only, such arc segments may be limited to arc, delta and radius.

APPENDIX 4 STORM WATER MANAGEMENT PROVISIONS FOR SUBDIVISIONS AND LAND DEVELOPMENTS

Section 101 - General Provisions

A. Purpose

The Kennedy Township Stormwater Management Ordinance 293. (See Appendix 6.)

These regulations are adopted and implemented to achieve the following general purposes and objectives:

- 1. To manage and control storm water runoff resulting from land alteration and disturbance activities.
- 2. To utilize and preserve the desirable existing natural drainage systems and to preserve the flood-carrying capacity of streams.
- 3. To encourage natural infiltration of rainfall to preserve groundwater supplies and stream flows.
- 4. To provide for adequate maintenance of all permanent storm water management structures in the municipality.

B. Applicability

These provisions shall apply to all subdivisions and land developments which will affect storm water runoff characteristics.

C. <u>Liability Disclaimer</u>

- 1. Neither the granting of any approval under these storm water management provisions, nor compliance with these provisions, or with any condition imposed by a county or municipal official hereunder, shall relieve any person from any responsibility for damage to persons or property resulting therefrom, or as otherwise imposed by law, nor impose any liability upon the county or municipality for damages to persons or property.
- 2. The granting of a permit which includes any storm water management facilities shall not constitute a representation, guarantee or warranty of any kind by the county or municipality, or by any official or employee thereof, of the practicability or safety of any structure, use or other plan proposed, and shall create no liability upon or cause of action against such public body, official or employee for any damage that may result pursuant thereto.

Section 102 - Erosion and Sedimentation Controls

- A. An erosion/sedimentation pollution control plan shall be provided in accordance with the Pennsylvania Erosion/Sedimentation Regulations (25 PA Code, Chapter 102), the standards and guidelines of the Allegheny County Conservation District.
- B. Proposed erosion/sedimentation control measures shall be submitted with the storm water management plan as part of the preliminary and final applications.

Section 103 - Maintenance of Storm Water Management Controls

A. <u>Maintenance Responsibilities</u>

- 1. The storm water management plan for the development site shall contain an operation and maintenance plan prepared by the developer and approved by the municipality after recommendation 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).
- 2. The storm water management 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:
 - a. If a development consists of structures or lots which are to be separately owned and in which streets, sewers, and other public improvements are to be dedicated to the municipality, storm water control facilities should also be dedicated to and maintained by the municipality.
 - b. If a development site is to be maintained in single ownership, or if sewers and other public improvements are to be privately owned and maintained, then the ownership and maintenance of storm water control facilities should be the responsibility of the owner or private management entity.
 - 3. The municipal governing body, upon recommendation of the municipal engineer, shall make the final determination on ownership of facilities and continuing maintenance responsibilities prior to final approval of the storm water management plan.

B. Maintenance Agreement for Privately Owned Storm Water Facilities

- 1. Prior to final approval of the site's storm water management plan, the property owner shall sign and record a maintenance agreement covering all storm water control facilities which are to be privately owned. The agreement shall stipulate that:
 - a. The owner shall maintain all facilities in accordance with the approved maintenance schedule and shall keep all facilities in a safe and attractive manner.

- b. The owner shall convey to the municipality easements and/or rights-of-way to assure access for periodic inspections by the municipality and maintenance if required.
- c. The owner shall keep on file with the municipality the name, address and telephone number of the person or company responsible for maintenance activities; in the event of a change, new information will be submitted to the municipality within 10 days of the change.
- d. If the owner fails to maintain the storm water control facilities following due notice by the municipality to correct the problem(s), the municipality may perform the necessary maintenance work or corrective work; and the owner shall reimburse the municipality for all costs.
- Other items may be included in the agreement when 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.

C. Municipal Storm Water Maintenance Fund

(Note: This provision is an example of one way that a municipality could establish a special fund to finance its maintenance and inspection activities for storm water retention/detention facilities. It is an optional provision. If a municipality is interested in establishing such a fund, it is recommended that it consult with its solicitor for legal requirements and procedures.)

- Persons installing storm water storage facilities shall be required to pay a specified amount to the Municipal Storm Water Maintenance Fund to help defray costs of periodic inspections and maintenance expenses. The amount of the deposit shall be determined as follows:
 - a. 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 10 years, as estimated by the municipal engineer. After that period of time, inspections will be performed at the expense of the municipality.
 - b. 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 10 years. The municipal engineer will establish the estimated costs utilizing information submitted by the applicant.
 - c. 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.1

- If a storage facility is proposed that also serves as a recreation facility (e.g., ballfield, lake), the municipality may reduce or waive the amount of the maintenance fund deposit based upon the value of the land for public recreation purposes.
- 3. 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.

Section 104 - Storm Water Plan Requirements

A. <u>General Requirements</u>. No final subdivision/land development plan shall be approved, no permit authorizing construction issued, or any earthmoving or land disturbance activity initiated until the final storm water management plan for the development site is approved in accordance with these provisions.

C. Stormwater Plan Contents

- General Format: The storm water plan shall be drawn to a scale of not less than 1 inch = 200 feet. All sheets shall contain a title block with; Name and address of applicant and engineer, scale, north arrow, legend and date of preparation.
- 2. Existing and Proposed Features: The plan shall show the following:
 - a. Location Provide a key map showing the location of the development site.

 On all site drawings, show the boundaries of watershed(s) located on the development site and identify watershed names(s).
 - Flood plain boundaries Identify 100-year flood plains, if any, on the development site based on the municipal Flood Insurance Study maps.
 - c. Natural features Show all bodies of water (natural or artificial), watercourses (permanent and intermittent), swales, wetlands, and other natural drainage courses on the development site, or which will be affected by runoff from the development.
 - d. Soils Provide an overlay showing soil types and boundaries within the development site (consult county, SCS, and U.S. Geological Survey for information).

The required deposit would be equal to an amount that with the interest would generate sufficient income annually to pay the maintenance and inspection costs over 10 years. If the estimated maintenance/inspecion cost is \$500 per year, instead of requiring a deposit of \$5,000 (\$500 x 10 years), the deposit would be reduced to \$3,690 with the present worth approach, assuming a 6 percent annual interest rate and that the funds would be reduced to zero at the end of the 10 years.

- Contours Show existing and final contours at intervals of 2 feet; in areas with slopes greater than 15 percent, 5-foot contour intervals may be used.
- f. Land cover Show existing and final land cover classifications as necessary to support and illustrate the runoff calculations performed.
- g. Drainage area delineations Show the boundaries of the drainage areas employed in the runoff calculations performed.
- h. Storm water management controls Show any existing storm water management or drainage controls and/or structures, such as sanitary and storm sewers, swales, culverts, etc. which are located on the development site, or which are located off-site but will be affected by runoff from the development.
- 3. <u>Professional certification</u>: The storm water management plan (including all calculations) must be prepared and sealed by a registered professional engineer with training and expertise in hydrology and hydraulics. Documentation of qualifications may be required by the Township.
- 4. Runoff calculations: Calculations for determining pre- and post-development discharge rates and for designing proposed storm water control facilities must be submitted with the storm water management plan. All calculations shall be prepared using the methods and data prescribed by Section 102 of these provisions.
- 5. Storm water controls: All proposed storm water runoff control measures must be shown on the plan including methods for collecting, conveying and storing storm water runoff on-site, which are to be used both during and after construction. Erosion and sedimentation controls shall be shown in accordance with applicable requirements. The plan shall provide information on the exact type, location, sizing, requirements. The plan shall provide information on the exact type, location, sizing, design, and construction of all proposed facilities and relationship to the existing watershed drainage system.
 - a. If the development is to be constructed in stages, the applicant must demonstrate that storm water facilities will be installed to manage storm water runoff safely during each stage of development.
 - A schedule for the installation of all temporary and permanent stormwater control measures and devices shall be submitted.
 - c. If appropriate, a justification should be submitted as to why any preferred stormwater management techniques, as listed in Section 103, are not proposed for use.
 - 6. <u>Easements, rights-of-way, deed restrictions</u>: All existing and proposed easements and rights-of-way for drainage and/or access to storm water control facilities shall be shown and the proposed owner identified. Show any areas subject to special deed restrictions relative to or affecting storm water management on the development site.

- 7. Other permits/approvals: A list of any approvals/permits related to storm water management that will be required from other governmental agencies (including DEP Chapter 105 and 106 permits) and anticipated dates of submission/receipt should be included with the storm water plan submission. Copies of permit applications have be requested by the Township where they may be helpful for the plan review.
- 8. <u>Maintenance program</u>: The application shall contain a proposed maintenance plan for all storm water control facilities in accordance with the following:
 - Identify the proposed ownership entity (e.g., municipality, property owner, private corporation, homeowner's association, or other entity).
 - Include a maintenance program for all facilities, outlining the type of maintenance activities, probable frequencies, personnel and equipment requirements, and estimated annual maintenance costs.
 - c. Identify method of financing continuing operation and maintenance if the facility is to be owned by other than the municipality or governmental agency.
 - d. Submit any legal agreements required to implement the maintenance program and copies of the maintenance agreement as required by these provisions.
 - Financial guarantees: Financial guarantees shall be provided in accordance with the provisions of the Kennedy Township Subdivision and Land Development Ordinance and Section 509 of the Pennsylvania Municipalities Planning Code.

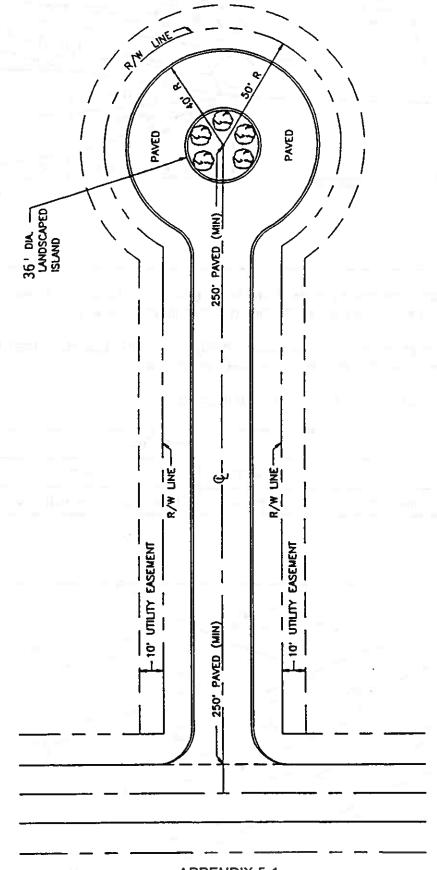
Section 105 - Plan Review Procedures

A. <u>Pre-Application Phase</u>

- 1. Before submitting the storm water plan, applicants are urged to consult with the municipality, Allegheny County Planning Department, and Allegheny County Conservation District on requirements for safely managing runof; from the development site in a manner consistent with municipal, county and state regulations. These agencies may also be helpful in providing necessary data for the storm water management plan.
- Applicants are encouraged to submit a sketch plan with a narrativ description of the proposed storm water management controls for gener guidance and discussion with the Township.
- 3. The pre-application phase is not mandatory; any review comments provide by the Township are advisory only and do not constitute any legally bindinaction on the part of the Township.

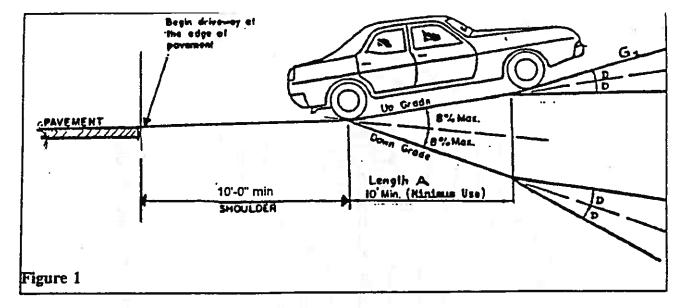
Storm Water Plan Reviews B.

- Submission of plans: Storm water plan applications shall be submitted to the Township with the preliminary and final subdivision/land development 1. applications.
- The Township shall notify municipalities upstream and downstream of the development site, which may be affected by the storm water runoff and proposed controls for the site. 2. Copies of the plans shall be made available by the applicant to any Comments received from any affected municipality upon request. municipality will be considered by the Township in its review.
- Municipal review. A copy of the storm water management plan, along with all runoff calculations, shall be forwarded by the applicant to the municipality in which the proposed development is located for review by the municipality 3. and its engineer.
 - The municipal engineer shall review the storm water management plan based on the requirements of any applicable municipal ordinances, the requirements of these provisions, and good a. engineering practice.
 - A report of the findings shall be returned to the Applicant within 30 Ъ. days.



MINIMUM REQUIREMENTS FOR PENNDOT - LIQUID FUEL FUNDING PROGRAM (See Section 5.17.7 B)

(<u>)</u> .		N.T.S
F.D.C. and Associates	CUL-DE-SAC STREET DETAIL	
DATE: 4-24-96		
CADD #: DT4-CULD	KENNEDY TOWNSHIP, ALLEGHENY COUNTY, PA	

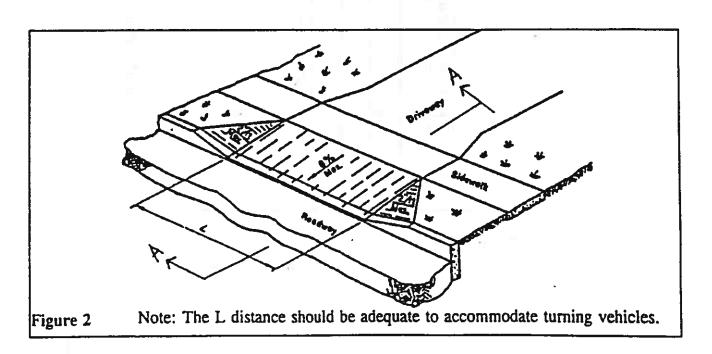


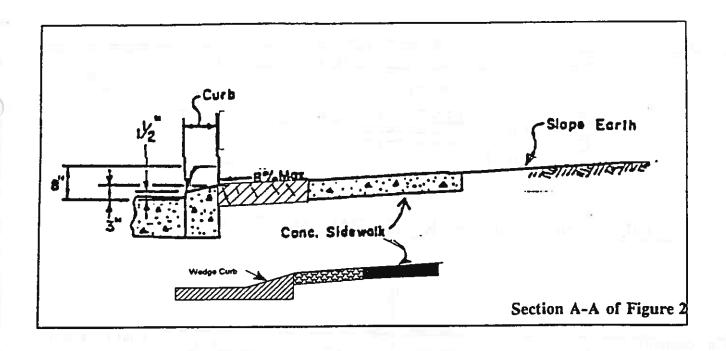
The shoulder slope usually varies from $\frac{1}{2}$ "/ft (4%) to $\frac{1}{2}$ "/ft (6%). However, the shoulder slope should be maintained when constructing the driveway.

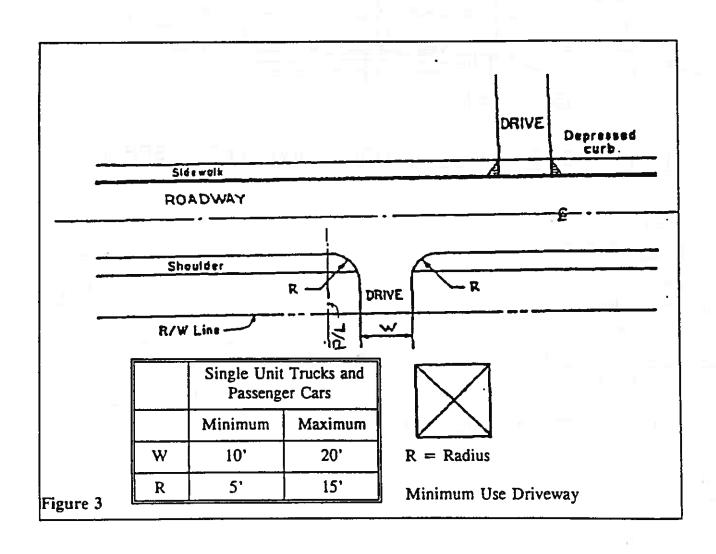
For grade changes greater than those shown in Figure 1, vertical curves at least 10 feet long shall be constructed and length "A" shall be increased.

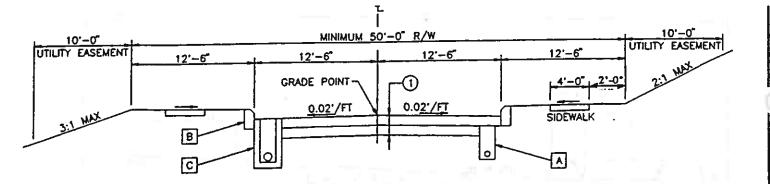
Grades (G₂) shall be limited to 15% for minimum use driveways.

	Maximum Grade Change (D)	
=1	Desirable	Maximum
Low Volume Driveway	± 6%	Controlled by vehicle clearance

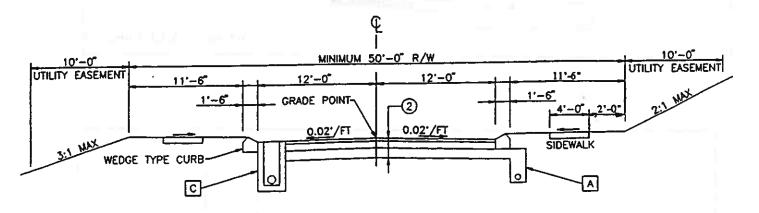








TYPICAL SECTION - RIGID PAVEMENT (CONCRETE)

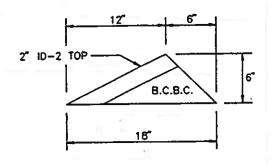


TYPICAL SECTION - FLEXIBLE PAVEMENT (ASPHALT)

NOTES:

- SEE PDT STANDARDS FOR ROADWAY CONSTRUCTION, RC-30 FOR PLACEMENT OF SUBSURFACE DRAINS
- B CONCRETE CURB SEE RC-64
- C INLET ASSEMBLY SEE RC-34

ALL COMPONENTS OF THE PAVEMENT STRUCTURE ARE TO BE IN ACCORDANCE WITH PDT PUBLICATION 408.



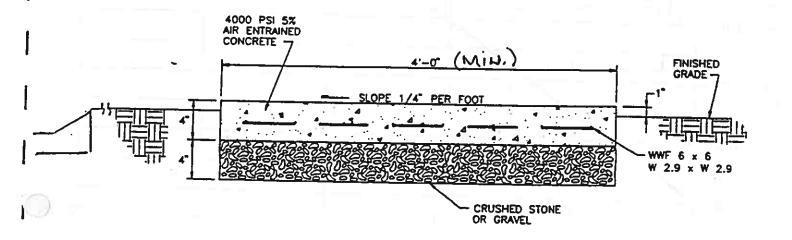
WEDGE TYPE CURB

MINIMUM PAVEMENT DESIGN:

- 1 P.C.C. 6", OR R.C.C. 6" BASE COURSE - 6"
- WEARING COURSE 2" B.C.B.C. - 4" SUBBASE - 6"

P.C.C. = PLAIN CEMENT CONCRETE
R.C.C. = REINFORCED CEMENT CONCRETE
B.C.B.C. = BITUMINOUS CONCRETE BASE COURSE

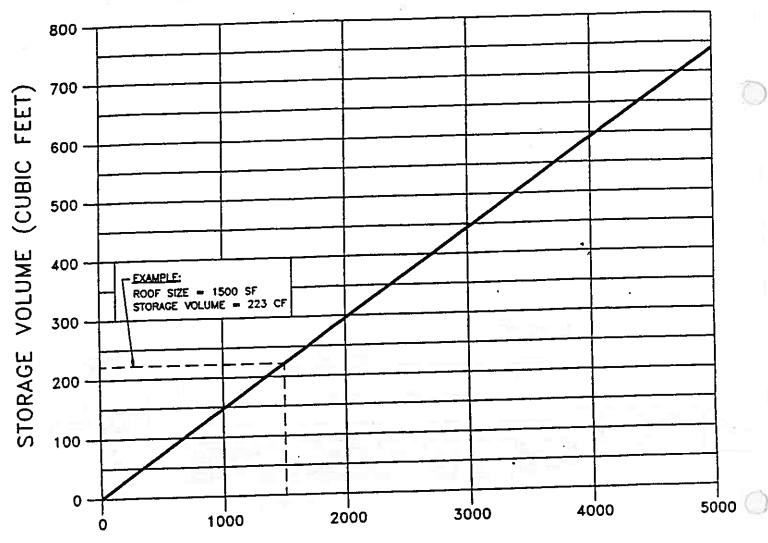
F.D.C. und Associates	TYPICAL PAVEMENT CROSS SECTIONS	
<u>5: 4-24-96</u>		
D #: DT1-XSEC	KENNEDY TOWNSHIP, ALLEGHENY COUNTY, PA	1



NOTES:

- A WALK SHALL BE SCORED EVERY FIVE FEET (5')
- B 1/2" PREFORMED EXPANSION JOINTS EVERY TWENTY FIVE FEET (25')
- C BROOM FINISH

<u>-0</u>		N.T.:
F.D.C. and Associates	CONCRETE SIDEWALK	
DATE: 4-24-95	CONCILIE SIDEWALK	İ
CADD #: DT2-WALK	KENNEDY TOWNSHIP, ALLEGHENY COUNTY, PA	
		 _



ROOF SIZE (SQUARE FEET)

BASED UPON:

- A 25 YEAR, 1 HOUR STORM
- B Tc < 5 MINUTES
- C = 7.2 in/hr
- D PRE-DEVELOPED C = 0.30
- E POST-DEVELOPED C = 0.90
- F DETENTION TIME = 10 MIN

NOTE: SUMP TO BE FILLED WITH GRAVEL HAVING A VOID CONTENT OF 40% OR MORE.

		N.T.S.
= FDG	TOP SO CHART FOR BOOK DRAINS	-0
end Associates	SUMP STORAGE CHART FOR ROOF DRAINS	
DATE: 4-24-96 CADD #: DT3-SUMP	KENNEDY TOWNSHIP, ALLEGHENY COUNTY, PA	

STORMWATER MANAGEMENT ORDINANCE

ORDINANCE NO. 413

KENNEDY TOWNSHIP ALLEGHENY COUNTY, PENNSYLVANIA

Adopted at a Public Meeting Held on March 8, 2004

APPENDIX 6

TABLE OF CONTENTS

Article I - General Provisions

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Article VI - Fees and Expenses

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Article IX - Enforcement and Penalties

ARTICLE I - GENERAL PROVISIONS

Section 101. Short Title

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

Section 102. Statement of Findings

The governing body of the Municipality perceives that:

- A. Stormwater runoff from lands modified by human activities threatens public health and safety by causing increased runoff flows and velocities, which may overtax the carrying capacity of existing streams and storm sewers, and increase the cost of public facilities to convey and manage stormwater.
- B. Inadequate planning and management of stormwater runoff resulting from land development and redevelopment throughout a watershed may also harm surface water resources by changing the natural hydrologic patterns, accelerating stream flows (which increase scour and erosion of stream-beds and stream-banks thereby elevating sedimentation), destroying aquatic habitat and elevating aquatic pollutant concentrations and loadings such as sediments, nutrients, heavy metals and pathogens. Groundwater resources are also impacted through loss of recharge.
- C. These impacts happen mainly through a decrease in natural infiltration of stormwater.
- D. A comprehensive program of stormwater management, including reasonable regulation of development and other activities causing loss of natural infiltration, 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.
- E. Public education on the control of pollution from stormwater is a component in successfully addressing stormwater.
- F. Federal and state regulations require certain municipalities to implement a program of stormwater controls. These municipalities are required to obtain a federal permit for stormwater discharges from their separate storm sewer systems under the National Pollutant Discharge Elimination System (NPDES).
- G. Non-stormwater discharges to municipal separate sewer systems can contribute to pollution of waters of the Commonwealth by the Municipality.

Section 103. Purpose

The purpose of this Ordinance is to promote health, safety and welfare within the Municipality and its watershed by minimizing the damages described in Section 101 of this Ordinance, through provisions designed to:

- A. Manage stormwater runoff impacts at their source by regulating activities that cause these problems.
- B. Provide review procedures, performance standards and design criteria for stormwater planning and management.
- C. Utilize and preserve the existing natural drainage systems as much as possible.
- D. Manage stormwater impacts close to the runoff source, which requires proper planning of structures and relies on natural processes.
- E. Focus on infiltration of stormwater to prevent degradation of surface and groundwater quality and to otherwise protect water resources.
- F. Maintain existing flows and quality of streams and watercourses.
- G. 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 in "special protection" streams.
- H. Prevent stream-bank and streambed scour and erosion.
- I. Provide for proper operations and maintenance of all permanent stormwater management facilities that are constructed in the Municipality.
- J. Provide a mechanism to identify controls necessary to meet the NPDES permit requirements.
- K. Implement an illegal discharge detection and elimination program to address non-stormwater discharges into the Municipality's separate storm sewer system.

Section 104. Statutory Authority

The Municipality is empowered to regulate land use activities that affect stormwater runoff by the authority of the Act of July 31, 1968, P.L. 805, No. 247, "The Municipalities Planning Code", as amended, and Kennedy Township Ordinances No. 348 and No. 377.

Section 105. Applicability

- A. This Ordinance applies to any Land Development activities within the Municipality, all stormwater runoff entering into the Municipality's separate storm sewer system from lands within the boundaries of the Municipality and existing stormwater BMP's.
- B. Stormwater management activities are also regulated under existing state law and implementing regulations. This Ordinance shall operate in coordination with those parallel requirements; the requirement of this Ordinance shall be no less restrictive in meeting the purposes of this Ordinance than state law.

Section 106. 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 107. Severability

In the event that any section or provision of this Ordinance is 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 108. 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 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 Municipality's requirements regarding stormwater matters which do not interfere with the provisions of this Ordinance, such as local stormwater management design criteria (e.g. inlet spacing, inlet type, collection system design and details, outlet structure design, etc.).

ARTICLE II - DEFINITIONS

For the purposes of this chapter, 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 "included" 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 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".

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.

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; the changing of surface conditions by causing the surface to be more or less impervious; or, earth disturbance.

Applicant – A landowner, developer or other person who has filed an application for approval, including a Project Plan under Section 401, to engage in any Land Development involving earth disturbance 5,000 square feet or greater at a project site in the Municipality.

BMP (Best Management Practice) – Activities, facilities, measures or procedures used to manage stormwater impacts from land development, to protect and maintain water quality and groundwater recharge and to otherwise meet the purposes of this Ordinance, to including but not limited to infiltration, filter strips, low impact design, bioretention, wet ponds, permeable paving, grassed swales, forested buffers, sand filters and detention basins.

Building Permit – A permit or other approval issued by a municipality for construction and/or earth disturbance.

Channel Erosion – The widening, deepening and headward cutting of small channels and waterways, due to erosion caused by increased rate or volume of stormwater runoff.

Conservation District – The Allegheny County Conservation District.

Design Storm – The magnitude and temporal distribution of precipitation from a storm event measured in probability of occurrence (e.g. a 2-year storm) and duration (e.g. 24 hours), used in the design and evaluation of Stormwater BMP's.

Developer – A person that seeks to undertake <u>any</u> land development at a project site in the Municipality.

Development Site; Project Site - The specific tract of land where any land development in the Municipality is planned, conducted or maintained.

Earth Disturbance – A construction or other human activity which disturbs the surface of the land, including but not limited to clearing and grubbing, grading, excavations, embankments, land development, road maintenance, 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 Pollution Control Plan – A site-specific plan identifying BMP's to minimize accelerated erosion and sedimentation, pursuant to 25 Pa. Code Chapter 102.

Groundwater Recharge – Replenishment of existing natural underground water supplies.

Hydrograph – A graphical comparison of runoff being discharged from any particular site (measured in cubic feet per second) on the vertical axis, versus time (measured as time into the storm event such as hour 1, 2, 3, etc.) on the horizontal axis.

Impervious Surface — A surface that prevents the percolation 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.

Land Development - Any of the following activities:

- (i) Earth Disturbance as defined herein, and
- (ii) Land development as defined in Section 107(a) of the Municipalities Planning Code.

Municipality - Kennedy Township, Allegheny County, Pennsylvania.

Open Channel – A drainage element in which stormwater flows with an open surface. Open channels include, but shall not be limited to natural and man-made drainageways, swales, streams, ditches, canals and pipes flowing partly full (for computational purposes).

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

PADEP - The Pennsylvania Department of Environmental Protection.

Person – An individual, partnership, association, corporation or any other entity.

Project Site – The specific tract of land where any land development in the Municipality is planned, conducted or maintained.

Redevelopment – Development of land which has previously been developed, but not including building additions less than 5,000 square feet.

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

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

Separate Storm Sewer System – A system of pipes, open channels, streets and other conveyances intended to carry stormwater runoff.

Sheet Flow – Runoff that flows over the ground surface as a thin, even layer, not concentrated in a channel.

Soil Group, Hydrologic – A classification of soils by the Soil Conservation Service into four runoff categories. 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.

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

Stormwater – The total amount of precipitation reaching the ground service.

Subdivision — The division or re-division 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, transfer of ownership, or building or lot development. The definition does not include 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 dwellings.

Watercourse – A stream of water; river; brook; creek or a channel or ditch for water, whether natural or man made.

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

- a. Each stream segment in Pennsylvania has a "designated use" such as a "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. Land development 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 land development, these characteristics can be impacted by addition of pollutants such as sediment and changes in habitat through increased flow volumes and/or rates. Therefore, discharges to surface waters must be designed and managed to protect the stream-bank, streambed and structural integrity of the waterway, to prevent these impacts.

Watershed – Region or area bounded peripherally by water parting and draining to a particular watercourse or body of water.

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 and underground water, or parts thereof, whether natural or artificial, within or on the boundaries of the Commonwealth.

ARTICLE III - STORMWATER MANAGEMENT

Section 301. General Requirements for Stormwater Management

- A. All Land Development within the Municipality shall be designed, implemented, operated and maintained to meet the purposes of this Ordinance, through these two elements:
 - 1. Erosion and Sediment control prevention during land development (e.g., earth disturbance during construction) and,
 - 2. Water Quality protection measures after completion of land development (e.g., post-construction).
- B. No approval of any subdivision or land development plans, or issuance of any building or occupancy permit, or the commencement of any earth disturbance at a project site within the Municipality, shall proceed until the requirements of this Ordinance are met, including approval of a Project Plan under Section 401 and a permit under PADEP regulations, where applicable.
- C. Erosion and sediment control during land development shall be addressed as required by Section 304.
- D. Water Quality protection shall be addressed as required by Section 305.
- E. All Best Management Practices (BMPs) used to meet the requirements of this Ordinance shall conform to the Design Criteria contained in Section 308 and shall use the Calculation methods as described in Section 309.
- F. Techniques described in Appendix E (Low Impact Development) of this Ordinance are encouraged because they reduce the costs of complying with the requirements of this Ordinance and the state Water Quality Requirements.

Section 302. Permit Requirements by Other Government Entities

The following permit requirements apply to certain land development activities, and must be met prior to municipal approval of subdivision approval or land development plans, or issuance of building or occupancy permits, where applicable:

- A. All earth disturbance activities subject to standards and possible permit requirements by PADEP under regulations at 25 Pa. Code Chapter 102.
- B. Work within natural drainage ways subject to permit by PADEP under 25 Pa. Code Chapter 105.

- C. Any stormwater management facility that would be located in or adjacent to surface waters of the Commonwealth, including wetlands, subject to permit by PA DEP under 25 Pa. Code Chapter 105.
- D. Any stormwater management facility that would be located on a State highway right-of-way subject to approval by the Pennsylvania Department of Transportation (PENNDOT).
- E. Culverts, bridges, storm sewers or any other facilities, which must pass or convey flows from the tributary area and any facility which may constitute a dam subject to permit by DEP under 25 Pa. Code Chapter 105.

Section 303. Requirement for Approved Stormwater Management Project Plan ("Project Plan")

- A. Any person conducting any land development activities in the Municipality involving earth disturbance 5,000 square feet or greater, shall submit and obtain approval from the Municipality of a Project Plan meeting the requirements of this Ordinance, prior to commencing the activity.
- B. The Project Plan shall describe the BMPs for erosion and sediment control, and the post-construction BMPs for water quality protection.
- C. The Project Plan shall follow the Design Criteria and Calculation methodology contained in Sections 308 and 309 respectively.
- D. The requirements in this Section apply to the total land development project, even if it is to take place in stages.
- E. All redevelopment projects shall evaluate the feasibility of reducing site impervious area by at least 20 percent. Where project site conditions prevent the reduction of impervious area, then stormwater BMPs shall be evaluated to provide qualitative controls for at least 20 percent of the site's impervious area.

Section 304. Erosion and Sediment Control During Land Development

- A. Earth disturbance activities of 5,000 square feet or greater require design, implementation and maintenance of crosion and sediment control BMPs that control erosion and prevent sediment pollution during the earth disturbance activities.
- B. The BMPs shall be identified in a plan and a permit if applicable, as required by PADEP regulations at 25 Pa. Code Chapter 102.

- C. The local County Conservation Districts are frequently delegated the authority to issue permits and other approvals by PADEP. Evidence of any necessary permits for the earth disturbance activities from the appropriate PADEP regional office, or the local County Conservation District office if delegated by DEP, must be provided to the Municipality.
- D. A copy of the Erosion and Sediment Control plan and any required permit, under 25 Pa. Code Chapter 102, shall be available at the project site at all times.

Section 305. Water Quality Requirements After Land Development is Complete

- A. The Project Plan shall specify permanent stormwater BMPs to be implemented, operated and maintained to meet legal Water Quality requirements. Because water quality requirements vary depending on the "uses" of the waterbodies in the watershed, a framework methodology is provided here.
- B. In order to protect and maintain Water Quality, additional stormwater runoff created by the development project must be captured, stored and treated. In addition, post construction stormwater infiltration of runoff to the maximum extent possible; in High Quality and Exceptional Value watersheds, special requirements may apply.
- C. The volume of additional stormwater runoff to be captured, stored and treated is called the Water Quality Volume ("WQv").
 - a. The formula for determining WQv is:

WQv=[(P)(Rv)(A)]/12], where

- i. P = Rainfall depth in inches, using the "90% storm" the volume of rainfall for 90% of the storm events which produce runoff in the watershed annually (e.g., 1.0 inches) (see appendix A).
- ii. A = Project Area in acres
- iii. Rv = Volumetric Runoff Coefficient [0.05 + 0.009(I)], where I is the impervious surface percentage (impervious area ÷ total project area) X 100%
- b. In Special Protection watersheds, as described in 25 Pa. Code Chapter 93, this volume may be required to remain on site through infiltration and other methods, to protect Water Quality. Guidance can be obtained from PADEP.
- c. Runoff treatment BMPs must be employed where necessary to ensure the Water Quality requirements are met.

- D. Water temperature is a particular concern in High Quality and Exceptional Value watersheds. Temperature-sensitive BMPs and stormwater conveyance systems are to be used and designed with storage pool areas and supply outflow channels, and should be shaded with trees. Vegetation shall be planted within the facilities, provided that capacity for volumes and rate control as required by this Ordinance is maintained.
 - a. At a minimum, the southern half on pond shorelines shall be planted with shade or canopy trees within ten (10) feet of the pond shoreline.
 - b. In conjunction with this requirement, the maximum slope allowed on the berm area to be planted is 10 to 1. This will lessen the destabilization of berm soils due to root growth.
 - c. A long-term maintenance schedule and management plan for the thermal control BMPs is to be established and recorded for all development project sites.
- E. The Applicant may, subject to approval of the Municipality, use any of the following stormwater credits, described in the following table, in computing the required Water Quality Volume:

Stormwater Credit	Description .
Natural Area Conservation	Conservation of natural areas such as forest, wetlands or other sensitive areas in a protected easement thereby retaining their pre-development hydrologic and water quality characteristics. Using this credit a designer may subtract conservation areas from total site area when computing the required water quality volume.
Disconnection of Rooftop Runoff	Credit is given when rooftop runoff is disconnected and then directed over a pervious area where it may either infiltrate into the soil or filter over it. Credit is typically obtained by grading the site to promote overland flow or by providing bio-retention on single-family residential lots. If a rooftop area is adequately disconnected, the impervious area may be deducted from the total impervious cover.
Disconnection of Non-Rooftop Runoff	Credit is given for practices that disconnect surface impervious cover by directing it to pervious areas where it is either infiltrated or filtered through the soil. As with rooftop runoff, the impervious area may be deducted from the total impervious cover thereby reducing the required water quality volume.
Stream Buffer Credit	Credit is given when a stream buffer effectively treats stormwater runoff. Effective treatment constitutes capturing runoff from pervious and impervious areas adjacent to the buffer and treating the runoff through overland flow across a grass or forested area. Areas treated in this manner may be deducted from total site area.
Grass Channel (Open Section Roads)	Credit may be given when open grass channels are used to reduce the volume of runoff and pollutants during smaller storms. If designed according to appropriate criteria, these channels may meet water quality criteria for certain types of residential development.
Environmentally Sensitive Rural Development	Credit is given when a group of environmental site design techniques are applied to low density or rural residential development. This credit eliminates the need for structural practices to address water quality volume. See Appendix E.

F. The volume and rate of any stormwater discharges allows under this Ordinance must be managed to prevent the physical degradation of receiving waters, such as by stream bank scour and erosion. If a detention facility is proposed which is part of the BMPs approved for the project, the facility(ies) must be designed to provide for a 24-hour extended detention of the 1-year, 24-hour storm event (i.e., the stormwater runoff will be released over a minimum 24 hours for the 1-year, 24-hour storm event).

Section 306. Infiltration

- A. Prevention of stormwater runoff is key objective of Chapter 93 of the DEP regulations, because runoff can change the physical, chemical and biological integrity of waterbodies thereby impacting Water Quality.
- B. The Project Plan shall describe how these Water Quality protection requirements will be met. Infiltration BMPs shall be evaluated and utilized to the maximum extent possible to manage the net change in stormwater runoff generated so that post construction discharges do not degrade the physical, chemical or biological characteristics of the receiving waters. These BMPs may be used to satisfy all or part of the requirements in Section 305.
- C. Post construction stormwater infiltration of runoff shall replicate pre-construction infiltration of runoff to the maximum extent possible. In High Quality and Exceptional value watersheds, special requirements may apply. Guidance is available from PADEP.
- D. In calculating the volume of runoff that can be infiltrated at a site, the following methodology shall be used:
 - a. Methodology:

Rev = [(S)(Rv)(A)]/12, where:

Rev = Recharge Volume (acre-feet)

S = Soil specific recharge factor (inches)

A = Site area contributing to the recharge facility (acres)

Rv = Volumetric runoff coefficient, Rv = 0.05 + 0.009 (I), where:

I = percent impervious area, and

S shall be obtained based upon hydrologic soil group based upon the table below:

Hydrologic Soil Group	Soil Specific Recharge Factor(s)
A	0.38
В	0.25
C	0.13
D	0.06

If more than one hydrologic soil group (HSG) is present at a site, a composite recharge volume shall be computed based upon the proportion of total site area within each HSG.

- b. In selecting the appropriate infiltration BMPS, the Applicant shall consider the following:
 - (i.) Permeability and infiltration rate of the site soils.
 - (ii.) Slope and depth to bedrock.
 - (iii.) Seasonal high water table.
 - (iv.) Proximity to building foundations and well heads.
 - (v.) Erodibility of soils.
 - (vi.) Land availability and topography.
- c. A detailed soils evaluation of the project site shall be performed to determine the suitability of infiltration BMPs. The evaluation shall be performed by a qualified professional, and at a minimum, address soil permeability, depth to bedrock, susceptibility to sinkhole formation and subgrade stability. The general process for designing the infiltration BMP shall be:
 - (i) Analyze hydrologic soil groups as well as natural and man-made features within the watershed to determine general areas of suitability for infiltration BMPs.
 - (ii) Provide field-testing data to determine appropriate percolation rate and/or hydraulic conductivity.
 - (iii) Design infiltration BMPs for required stormwater volume based on field determined capacity at the level of the proposed infiltration surface.
- d. Soil characteristics: Subject to the specific considerations in subsection "g" below:
 - (i) Infiltration BMPs are particularly appropriate in hydrologic soil groups A and B, as described in the Natural Resources Conscrvation Service Manual TR-55.
 - (ii) Low erodibility factors ("K factors") are preferred for the construction of basins (shall have water retention).
 - (iii) There must be a minimum depth of 48 inches between the bottom of any facility and the seasonal high water table and/or bedrock (limiting zones),

- except for infiltration BMPs receiving only roof runoff which shall be placed in soils having a minimum depth of 24 inches between the bottom of the facility and the limiting zone.
- (iv) There must be an infiltration and/or percolation rate sufficient to accept the additional stormwater load, and to drain completely as determined by field tests.
- (v) Infiltration BMPs shall be located a minimum of 10 feet away from the foundation wall of any building.
- (vi) The infiltration system shall have positive overflow controls to prevent storage within 1 foot of the finished surface or grade.
- (vii) Infiltration rates shall not be used in computing the storage volume of the infiltration system.
- (viii)Surface inflows shall be designed to prevent direct discharge of sediment into the infiltration system.
- e. The recharge volume provided at the site shall be directed to the most permeable HSG available, except where other considerations apply such as in limestone geology.
- f. Any infiltration BMP shall be capable of completely infiltrating the impounded water within 48 hours.
- g. Extreme caution shall be exercised where infiltration is proposed in geologically susceptible areas such as:
 - (1) strip mines
 - (2) where salt or chloride may be applied in deicing and other winter applications, causing ground water pollution since soils do little to filter this pollutant, and
 - (3) limestone areas:
 - a) Whenever a basin will be located in an area underlain by limestone, a geological evaluation of the proposed location shall be conducted to determine susceptibility to sink hole formations.
 - b) The design of all BMPs over limestone formations shall include measures to prevent ground water contamination, and where necessary, sink hole formation.
 - c) It shall be the Applicant's responsibility to verify whether the site is underlain by limestone.
 - d) The following note shall be attached to all drainage plans and signed and sealed by the Applicant's licensed engineer/surveyor/ladscaper/architect/geologist if a detention facility is proposed: "I certify that the proposed facility is/is not underlain by limestone.

- h. During the period of land disturbance, runoff shall be controlled prior to entering any proposed infiltration area, areas proposed for infiltration BMPs shall be protected from sedimentation and compaction during the construction phase, so as to maintain their maximum infiltration capacity.
- i. Infiltration BMPs shall not be constructed nor receive runoff until the entire contributory drainage area to the infiltration BMP has received final stabilization.

Section 308. Design Criteria for Stormwater Management BMPs

- A. Applicants may select a combination of runoff control techniques, which are most suitable to control stormwater runoff from the site. All controls shall be subject to approval of the municipal engineer. The municipal engineer may request specific information on design and/or operating features of the proposed stormwater controls in order to determine their suitability and adequacy in terms of the standards of this Section.
- B. The Applicant shall consider the effect of the proposed stormwater management techniques on any special soil conditions or geological hazards, which may exist on the development site. In the event such conditions are identified on the site, the municipal engineer may require in-depth studies by a competent geotechnical engineer.
- C. The stormwater management BMPs shall be selected according to the following order of preference:
 - a. Site planning for locating proposed buildings, impervious areas and grading, which minimizes disruption of the natural site characteristics.
 - b. Minimization of impervious areas and promotion of retentive grading.
 - c. Implementation of innovative non-structural measures (See Appendix _)
 - d. Infiltration of runoff on-site.
 - e. Flow attenuation by use of open vegetated swales and natural depressions.
 - f. Stormwater detention/retention structures
- D. Any BMP which is a dam, culvert, stream enclosure or outfall as defined in 25 Pa. Code Chapter 105 shall be designed according to the requirements in those regulations.
- E. Any stormwater BMP, which does not constitute a dam under 25 Pa. Code Chapter 105, and is designed to store runoff and requiring a berm or earthen embankment (i.e. detention basin), shall be designed to satisfy the following:
 - a. Berms and earthen embankments shall be designed to provide an emergency spillway to handle flow up to and including the 100-year post-development conditions.

- b. Berms and earthen embankments shall be designed to provide a minimum 1.0 foot of freeboard above the maximum pool elevation computed when the facility functions for the 100-year post-development inflow.
- c. Water obstructions shall convey runoff from the 25-year design storm with a minimum of 1.0 foot of freeboard measured below the lowest point along the top of the roadway, without damage to the drainage structure or the roadway.
- d. Roadway crossings located within designated floodplain areas must be able to convey runoff from a 100-year design storm.
- e. Drainage conveyances must be able to convey, without damage to the drainage structure or roadway, runoff from the 50-year design storm without surcharging inlets, where appropriate.
- f. Adequate erosion and sediment control protection shall be provided along all open channels, and at all points of discharge.

Section 309. Calculation Methodology

- A. Stormwater runoff from all development and post-development sites shall be calculated using either the Rational Method or a Soil Cover Complex methodology.
- B. Any stormwater runoff calculations involving areas greater than 200 acres, including on and off site areas, shall use a generally accepted calculation technique that is based on the NRCS Soil Cover Complex method. Table III-1 summarizes acceptable computation methods. All methods will be selected by the design professional based on the individual limitations and suitability of each method for a particular site. These assumptions shall be used in runoff calculations:
 - 1. Average antecedent moisture conditions
 - 2. Type II distribution storm
 - 3. Meadow in good condition shall be used in pre-development runoff calculations for all areas of existing cultivation.
 - 4. All areas other than cultivation shall use the land cover condition, which existed during the past 10 consecutive years.
 - 5. All areas to be disturbed during construction and subsequently returned to open space will be assumed to be reduced one Hydrologic Group category level for post-development runoff.
 - 6. If the initial condition of the site is underdeveloped 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, such as forested lands.
- C. 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 presented in Table D-1 in Appendix D of this Ordinance. If a hydrologic computer model such as TR-20, PSRM or HEC-HMS is used for stormwater runoff calculations, then the duration of rainfall shall be 24 hours. The NRCS 'S' curve

- shown in Figure D-1, Appendix D of this Ordinance shall be used for the rainfall distribution.
- 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) (Figure B-2). 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 D-2 in Appendix D of this Ordinance.
- F. Runoff coefficient (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. 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.
- H. 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.
- I. 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 20 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, which shall use a total runoff volume that is consistent with the volume from a method that produces a full hydrograph.
- J. The Municipality may require that computed existing runoff rates be reconciled with field observations and conditions. If the design professional can substantiate through actual physical calibration that more appropriate runoff and time-of-concentration values should be utilized at a particular site, then appropriate variations may be made upon review and recommendations of the Municipal Engineer. Calibration shall require detailed gauge and rainfall data for the particular site in question.

TABLE III-1

ACCEPTABLE COMPUTATION METHODOLOGIES FOR STORMWATER MANAGEMENT PLANS

METHOD	METHOD DEVELOPED BY	APPLICABILITY
TR-20 or Commercial	F .	When use of full model is
Package Based on TR-20	USDA – NRCS	desirable or necessary
TR-55 or Commercial		Applicable for plans within
Package Based on TR-55	USDA – NRCS	the models limitations
		When full model is desirable
HEC-1	U.S. Army Corps of Engineers	or necessary
	= Tiiii 19	When full model is desirable
PSRM	Penn State University	or necessary
Rational Method or		
Commercial Package		For sites less than 200 acres
Based on Rational		
Method	Emil Kuiching (1889)	
Other Methods	Various	As approved by the Municipal
G 38		Engineer

ARTICLE IV - PROJECT PLAN REQUIREMENTS

Section 401. General Requirements

- A. No approval of any subdivision or land development plans, or issuance of any building or occupancy permit, or the commencement of any earth disturbance, involving earth disturbance 5,000 square feet or greater at a project site within the Municipality, shall proceed until a written approval of a Project Plan is issued by the Municipality.
- B. The following general Project Plan requirements apply:
 - 1. Stormwater management designs shall permit unimpeded flow along natural watercourses, except as modified by stormwater BMPs consistent with this Ordinance.
 - 2. The existing points of concentrated drainage that discharge onto adjacent property shall not be altered without permission of the adjacent property owner(s).
 - 3. Areas of existing diffused drainage discharge shall be subject to any applicable 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 flow is proposed to be concentrated and discharged onto adjacent property, the applicant must demonstrate that the resulting flows will not result in any increased flooding or risk to human health and safety, and violation of the Water Quality requirements herein.
 - 4. Where a development site is traversed by watercourses, drainage easements shall be provided conforming to the line of such watercourses. The terms of the easement shall prohibit excavation, the placing of fill or structures, and any alterations that may adversely affect the flow of stormwater within any portion of the easement. In addition, maintenance, including mowing of vegetation within the easement, shall be required. All such easements shall be recorded in the County Recorder's office.
 - 5. When it can be shown that, due to topographic conditions, natural drainage ways on the site cannot adequately provide for stormwater surface drainage, open channels may be constructed conforming substantially to the line and grade of such natural drainage ways.

C. The following items shall be included in the Project Plan:

1. General

- a. General description of project.
- b. General description of permanent stormwater BMPs, including construction specifications of the materials to be used for stormwater BMPs.
- c. Complete hydrologic, hydraulic and structural computations for all stormwater BMPs.
- 2. Map(s) of the project area shall be submitted on 24-inch x 36-inch or 30-inch x 42-inch sheets and shall prepared in a form that meets the requirements for recording in the offices of the Recorder of Deeds of Allegheny County. The contents of the map(s) shall include, but not be limited to:
 - a. The location of the project relative to highways, municipalities or other identifiable landmarks.
 - b. Existing contours at intervals of two feet. In areas of steep slopes (greater than 15 percent), five feet contour intervals may be used.
 - c. Existing streams, lakes, ponds or other bodies of water within the project area.
 - d. Other physical features including flood hazard boundaries, sinkholes, streams, existing drainage courses, areas of natural vegetation to be preserved and the total extent of the upstream area draining through the site.
 - e. The locations of all existing and proposed utilities, sanitary sewers and waterlines within 50 feet of property lines.
 - f. An overlay showing soil names and boundaries.
 - g. Proposed changes to the land surface and vegetative cover, including the type and amount of impervious area that would be added.
 - Proposed structures, roads, paved areas and buildings
 - i. Final contours at intervals at two feet. In areas of steep slopes (greater than 15 percent), five feet contour intervals may be used.

- j. The name of the development, the name and address of the owner of the property and the name of the individual or firm preparing the plan.
- k. The date of submission.
- 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.
- m. A North arrow
- n. The total tract boundary and size with distances marked to the nearest foot and bearings to the nearest degree.
- o. Existing and proposed land use(s).
- p. A key map showing all existing man-made features beyond the property boundary that would be affected by the project.
- q. Horizontal and vertical profiles of all open channels, including hydraulic capacity.
- r. Overland drainage paths.
- s. A fifteen-foot wide access easement around all stormwater BMPs that would provide ingress to and egress from a public right-of-way.
- t. The location and responsibility for maintenance of stormwater management BMPs that would be located off-site. All off-site facilities shall meet the performance standards and design criteria specified in the Ordinance.
- u. Construction detail of any improvements made to sinkholes and the location of all notes to be posted, as specified in this Ordinance.
- v. Statement, signed by the landowner, acknowledging the stormwater BMPs to be fixtures that can be altered or removed only after approval of a revised plan by the Municipality.
- w. The location of all erosion and sediment control BMPs.
- x. The following signature block for the Municipal Engineer:

	, on this date (date of signature), have
reviewed and hereby	certify that the Drainage Plan meets all
design standards and	l criteria of the Municipal Ordinance."

D. Supplemental Information

- 1. A written description of the following information shall be submitted.
 - a. The overall stormwater management concept for the project.
 - b. Stormwater runoff computations as specified in this Ordinance.
 - c. Stormwater management BMPs to be applied both during and after development.
 - d. Expected project time schedule.
- 2. A soil erosion and sediment control plan, where applicable, including all reviews and approvals, as required by PADEP.
- 3. A geologic assessment of the effects of runoff on sinkholes as specified in this Ordinance.
- 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.

E. Stormwater Management BMPs

- 1. All stormwater BMPs must be located on a plan and described in detail.
- 2. When infiltration methods such as seepage pits, beds or trenches are used, the locations of existing and proposed septic tanks, infiltration areas and wells must be shown.
- 3. All calculations, assumptions and criteria used in the design of the stormwater BMPs must be shown.

F. Maintenance

The Project Plan shall describe the maintenance provisions as described in Section VII of this Ordinance.

Section 402. Coordination with Permit Requirements

For any activities that require a PADEP Permit under Chapter 102 (Brosion and Sediment Control), Chapter 105 (Dam Safety and Waterway Management) or chapter 106 (Floodplain Management) of PADEP regulations, require a PENNDOT Highway Occupancy Permit, or require any other permit under applicable state or federal regulations, the permit(s) application(s) (or confirmation of application by relevant governmental unit) shall be part of the plan submittal.

Section 403. Project Plan Review

- A. The Municipal Engineer shall review the Project Plan for consistency with this Ordinance. The Municipality shall require receipt of a complete plan, as specified in this Ordinance.
- B. The Municipal Engineer shall consider the municipal subdivision and land development ordinance provisions not superseded by this Ordinance when reviewing the Project Plan.
- C. For activities governed by this Ordinance, the Municipal Engineer shall notify the Applicant in writing within 30 calendar days, whether the Project Plan is consistent with this Ordinance. Should the Project Plan be determined to be consistent with this Ordinance, the Municipal Engineer will forward an approval letter to the Applicant with a copy to the Municipal Secretary.
- D. Should the Project Plan be determined to be inconsistent with this Ordinance, the Municipal Engineer will forward a disapproval letter to the Applicant with a copy to the Municipal Secretary citing the reason(s) for the disapproval. Any disapproved Project Plans may be revised by the Applicant and resubmitted consistent with this Ordinance.
- E. The Municipal Engineer shall notify the Municipal Building Permit Officer in writing, within a time frame consistent with the Municipal Building Code and/or Municipal Subdivision Ordinance, whether the Project Plan is consistent with this Ordinance and forward a copy of the approval/disapproval letter to the Applicant. Any disapproved Project Plan may be revised by the Applicant and resubmitted consistent with this Ordinance.
- F. For land development activities requiring a PADEP Permit or other approval, the Municipal Engineer shall notify PADEP whether the Project Plan is consistent with this Ordinance and forward a copy of the review letter to the Municipality and the Applicant. PADEP may consider the Municipal Engineer's review comments in determining whether to issue a permit.
- G. All required permits from PADEP must be obtained prior to the approval of the Project Plan by the Municipality.

- H. The Municipality shall not approve any subdivision or land development plan, or issue a building or occupancy permit unless the Project Plan complies with the requirements of this Ordinance as determined by the Municipal Engineer.
- I. The Applicant shall be responsible for completing an "As-Built Survey" of all stormwater BMPs included in the approved Project Plan. The As-Built Survey, and an explanation of any discrepancies with the Project Plan, shall be submitted to the Municipal Engineer for final approval.
- J. In no case shall the Municipality approve the As-Built Survey until the Municipality receives a copy of an approved Declaration of Adequacy, Highway Occupancy Permit from the PENNDOT District Office, and any applicable permits from PADEP.
- K. The Municipality's approval of a Project Plan shall be valid for a period not to exceed one (1) year. This one (1) year time period shall commence on the date that the Municipality signs the approved Project Plan. If stormwater BMPs included in the approved Project Plan have not been constructed, or if an As-Built Survey of these BMPs has not been approved within this one (1) year time period, then the Municipality may consider the Project Plan disapproved and may revoke any and all municipal permits and approvals. Project Plans that are considered disapproved by the Municipality shall be resubmitted in accordance with Section 406 of this Ordinance.

Section 404. Retention of Plans at Project Site

A set of design plans approved by the Municipality shall be on file at the site throughout the duration of the development activity. Periodic inspections may be made by the Municipality or designee during development activities.

Section-405. Adherence to Approved Plan

It shall be unlawful for any person to undertake any development activity on any property except as provided for in the approved Project Plan and pursuant to the requirements of this Ordinance. It shall be unlawful to alter or remove any BMP required by the Project Plan pursuant to this Ordinance or to allow the property to remain in a condition which does not conform to the approved Project Plan.

Section 406. Certification of Completion

- A. At the completion of the project, and as a prerequisite for the release of the performance guarantee under Section 701, the owner the owner 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 "As-Built" drawings.
- B. After receipt of the certification by the Municipality, a final inspection shall be conducted by the Municipality or its designee to certify compliance with this Ordinance.

Section 407. Occupancy Permit

An occupancy permit shall not be issued unless the Certification of completion has been secured. The occupancy permit shall be required for each lot owner and/or developer for all subdivisions and land development in the Municipality.

ARTICLE V - INSPECTIONS AND RIGHT OF ENTRY

Section 501. Schedule of Inspections

- A. The Municipal Engineer or his designee shall inspect all phases of the implementation of stormwater BMPs.
- B. During any stage of the work, if the Municipal Engineer determines that the BMPs are not being implemented in accordance with this Ordinance, the Municipality shall revoke any existing permits and approvals until a revised Project Plan is submitted and approved, as specified in this Ordinance.

Section 502. Right of Entry

- A. 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 implementation, condition or operation and maintenance of the stormwater BMPs in regard to any aspect governed by this Ordinance.
- B. BMP owners and operators shall allow persons working on behalf of the Municipality ready access to all parts of the premises for the purposes of determining compliance with this Ordinance.
- C. Persons working on behalf of the Municipality shall have the right to temporarily locate on any BMP in the Municipality such devices as are necessary to conduct monitoring and/or sampling of the facility's storm water discharge.
- D. Unreasonable delays in allowing the Director access to a BMP is a violation of this Article.

ARTICLE VI - FEES AND EXPENSES

Section 601. General

The fees required by this Ordinance are the <u>Municipal Project Plan Review Fee</u> and the <u>Municipality Inspection Fee</u>. The Municipal Review Fee may be established by the Municipality to defray review costs incurred by the Municipality and the Municipal Engineer. The Applicant shall pay all fees.

Section 602. Municipality Project Plan Review Fee

The Municipality may establish a Project Plan Review Fee Schedule by Resolutin of the municipal governing body based on the size of the development project and based on the Municipality's costs for reviewing Project Plans. The Municipality may periodically update the Project Plan Review Fee Schedule to ensure that review costs are adequately reimbursed.

Section 603. Expenses Covered by Fees

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

- A. Administrative/clerical costs.
- B. The review of the Project Plan by the Municipality and the Municipal Engineer.
- C. The site inspections including, but not limited to, pre-construction meetings, inspections during construction of stormwater BMPs and final inspection upon completion of the stormwater BMPs.
- D. 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 - MAINTENANCE RESPONSIBILITIES

Section 701. Performance Guarantee

The Applicant shall provide a financial guarantee to the Municipality for the timely installation and proper construction of all stormwater management BMPs as required by this Ordinance equal to the full construction cost of the required BMPs.

Section 702. Maintenance Responsibilities

- A. The Project Plan required under Section 401 shall contain an operation and maintenance plan prepared by the Applicant and approved by the Municipal Engineer. The operation and maintenance plan shall describe required routine maintenance actions and schedules necessary to ensure proper operation of the BMPs.
- B. The Project Plan for the development site shall establish responsibilities for the continuing operation and maintenance of all proposed stormwater BMPs, consistent with the following principles:
 - If a development project consists of structures or lots, which are to be separately owned and in which streets, sewers and other public improvements are to be dedicated to the Municipality, stormwater BMPs may also be dedicated to and maintained by the Municipality.
 - 2. If a development project is to be maintained in a single ownership or if sewers and other public improvements are to be privately owned and maintained, then the ownership and maintenance of sformwater BMPs shall be the responsibility of the owner 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 final approval of the Project Plan. The Governing Body reserves the right to accept or reject the ownership and operating responsibility for any or all of the stormwater BMPs.

Section 703. Maintenance Agreement for Privately Owned Stormwater BMPs

A. Prior to final approval of the Project Plan, the property owner shall sign a maintenance agreement covering all stormwater BMPs that are to be privately owned. The agreement shall substantially be the same as the agreement in Appendix C of this Ordinance, and shall be recorded as an encumbrance on the property in the County Recorder's Office within 30 days of execution of the agreement.

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. Stormwater Management Easements

- A. Stormwater management easements shall be provided by the property owner if necessary for: (1) access for facility inspections and maintenance, or (2) preservation of stormwater runoff conveyance, infiltration and detention areas and facilities, including flood routes for the 100-year storm event. The purpose of the easement shall be specified in the maintenance agreement signed by the property owner.
- B. Stormwater management easements are required for all areas used for off-site stormwater control, unless a waiver is granted by the Municipal Engineer.
- C. Easements shall be recorded with the County Register of Deeds prior to the issuance of a building permit or land development approval by the Municipality.

Section 705. Municipal Stormwater Maintenance Fund

- A. If stormwater BMPs are accepted by the municipality for dedication, persons installing stormwater storage BMPs shall be required to pay a specified amount to the Municipal Stormwater Maintenance Fund to help defray the costs of periodic inspections and maintenance expenses. The amount of the deposit shall be determined as follows:
 - 1. If the BMP 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.
 - 2. 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 Municipal Governing Body.
- B. If a BMP 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 BMP (whether publicly or privately owned) is eliminated due to the installation of storm sewers or another BMP, 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.

Section 706. Post-Construction Maintenance Inspections

- A. BMPs shall be inspected by the land owner/developer or responsible entity (including the Municipal Engineer for dedicated BMPs) on the following basis:
 - 1. Annually for the first five (5) years.
 - 2. Once every three (3) years thereafter.
 - 3. During or immediately after the cessation of a 100-year or greater storm event.
- B. The entity conducting the inspection should be required to submit a report to the Municipality regarding the condition of the BMPs and recommending necessary repairs, if needed.

ARTICLE VIII - PROHIBITIONS

Section 801. Prohibited Discharges

- A. No person in the Municipality shall allow or cause to allow stormwater discharges into the Municipality's separate storm sewer system which are not composed entirely of stormwater, except discharges allowed under a state or federal permit.
- B. Discharges which may be allowed under the Municipality's NPDES permit based on a finding by the Municipality that the discharge(s) do not significantly contribute to pollution to surface waters of the Commonwealth by the Municipality are:

Water line flushing Discharges from potable sources

Landscape irrigation Discharges from foundation drains

Diverted stream flows Air conditioning condensation

Rising ground waters Irrigation water

Uncontaminated pumped Flows from riparian habitats and

ground water wetlands

Springs Street wash water

Water from crawl space pumps Individual residential car washing

Footing drains Lawn watering

Dechlorinated swimming Discharges from firefighting activities

pool discharges including training

C. In the event that the Municipality subsequently determines that any of the discharges identified in Section 801(B) significantly contribute to pollution of waters of the Commonwealth by the Municipality, then the Municipality will notify the responsible person to cease the discharge.

D. Upon notice provided by the Municipality under Section 801(C), the discharger will have a reasonable time to cease the discharge consistent with the degree of pollution caused by the discharge.

Section 802. Prohibited Connections

A. The following connections are prohibited:

- Any drain or conveyance, whether on the surface or sub-surface, which allows any non-storm water discharge including sewage, process waste water and wash water to enter the separate storm sewer system, and any connections to the storm drain system from indoor drains and sinks;
- 2. 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 the Municipality.
- B. This prohibition expressly includes, without limitation, connections made in the past, regardless of whether the connection, drain or conveyance was previously allowed, permitted or approved by a government agency, or otherwise permissible under law or practices applicable or prevailing at the time of connection.

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 802(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 on a case by case basis by the Municipality.
- C. Roof drains shall discharge to infiltration areas or vegetative BMPs to the maximum extent practicable.

Section 804. Waste Disposal Prohibitions

No person shall throw, deposit, leave, maintain, keep or permit to be thrown, deposited, left or maintained, in or upon any public or private property, driveway, parking area, street, alley, sidewalk or other component of the Municipality's separate storm sewer system, any refuse, rubbish, garbage, litter or other discarded or abandoned objects, articles and accumulations, so that the same may cause or contribute to pollution. Wastes deposited in streets in proper waste receptacles for the purposes of collection are exempted from this prohibition.

Section 805. Alteration of BMPs

A. No person shall modify, remove, fill, landscape or alter any existing stormwater BMP, unless part of an approved maintenance program, without the written approval of the Municipality.

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

ARTICLE IX - ENFORCEMENT AND PENALTIES

Section 901. 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 902. Enforcement Generally

- A. Whenever the Municipality finds that a person has violated a prohibition or failed to meet a requirement of this Ordinance, the Municipality 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 illegal 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; and
 - 6. The implementation of stormwater BMPs.
- B. Such notification shall set forth the nature of the violation(s) and establish a time limit for correction of these violation(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 Municipality or designee and the expense thereof shall be charged to the violator pursuant to Section 904 below.
- 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 Municipality from pursuing any and all other remedies available in law or equity.

Section 903. Suspension and Revocation of Permits and Approvals

- A. Any building permit or land development approval issued by the Municipality may be suspended or revoked by the governing body for:
 - 1. Non-compliance with or failure to implement any provision of the permit.
 - 2. A violation of any provision of this Ordinance.

- 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 shall be reinstated by the Governing Body when:
 - 1. The Municipal Engineer or his designee has inspected and approved the corrections to the stormwater BMPs, or the elimination of the hazard or nuisance, and/or;
 - 2. The Governing Body is satisfied that the violation of the Ordinance, law or rule and regulation has been corrected.
- C. A permit, which has been revoked by the Governing Body, cannot be reinstated. The Applicant may apply for a new permit under the procedures outlined in this Ordinance.

Section 904. Penalties

- A. Any person violating the provisions of this Ordinance shall be guilty of a misdemeanor, and upon conviction shall be subject to a fine of not more than three hundred dollars (\$300.00) for each violation, recoverable with costs, or imprisonment of not more that ten (10) days, or both. Each day that the violation continues shall be a separate offense.
- B. In addition, the Municipality, 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 order, temporary or permanent injunctions, mandamus or other appropriate forms of remedy or relief.

Section 905. Appeals

- A. Any person aggrieved by any action of the Municipality or its designee, relevant to the provisions of this Ordinance may appeal to the Municipal Zoning Hearing Board within thirty (30) days of that action.
- B. Any person aggrieved by any decision of Zoning Hearing Board, relevant to the provisions of this Ordinance, may appeal to the County Court of Common Pleas in the County where the activity has taken place within thirty (30) days of the Zoning Hearing Board's decision.

ENACTED AND ORDAINED at a regular meeting of the Kennedy Township Board of Commissioners on the 8th day of March, 2004. This Ordinance shall take effect immediately.

TOWNSHIP OF KENNEDY

Richard Marciniak, Municipal Engineer

ATTEST:

nthy, Township Splicitor

I hereby certify that the foregoing Ordinance was advertised in the Coraopolis Record Star on February 25, 2004, a newspaper of general circulation in the Municipality and was duly enacted and approved as set forth at a regular meeting of the Municipality's Governing Body held on March 8, 2004.

Margaret K. Leck, Secretary