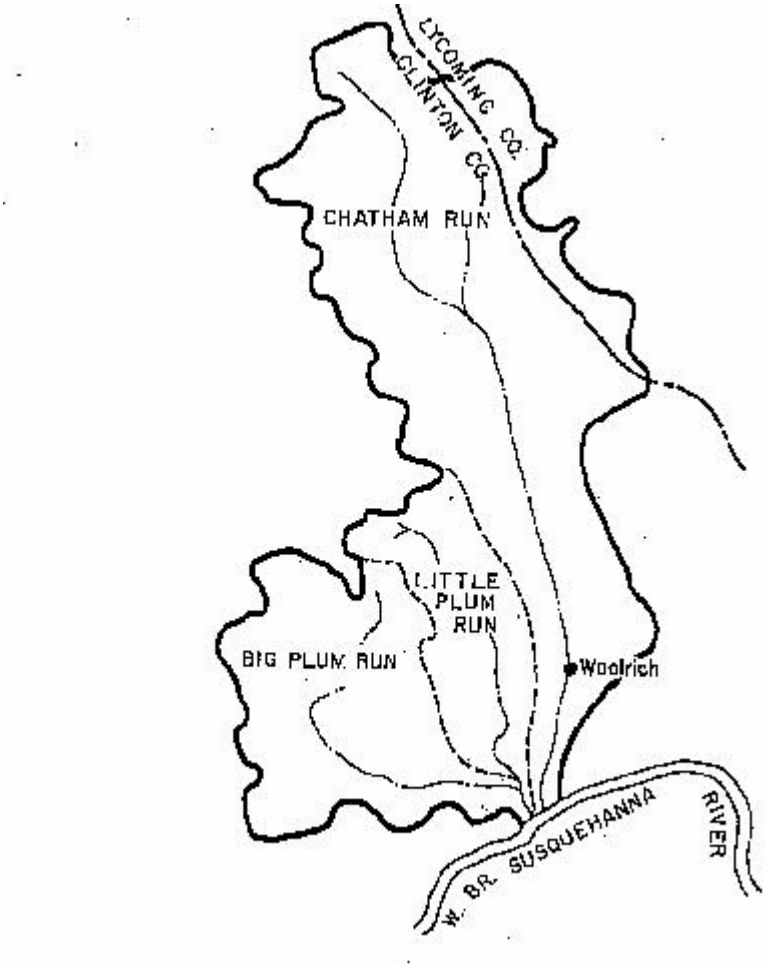
# Chatham Run Watershed
# Act 167
# Stormwater Management Plan




Clinton County, Pennsylvania

JUNE 2006

By:

Clinton County Conservation District
and
Pysher and Associates, Inc.

# Chatham Run Watershed
# Act 167
# Stormwater Management Plan

This Stormwater Management Plan update was prepared by the Clinton County Conservation District and Pysher and Associates, Inc. for the Clinton County Commissioners. The Pennsylvania Department of Environmental Protection, under the authority of Act 167, provided 75 percent of the funding for the preparation of this Stormwater Management Plan.

Adopted by Clinton County Board of Commissioners June 22, 2006

Approved by PA DEP, Stormwater Planning & Management Section
Division of Waterways, Wetlands and Stormwater Management
September 2006

Pennsylvania Department of Environmental Protection

**Rachel Carson State Office Building**
**P.O. Box 8775**
**Harrisburg, PA 17105-8775**
September 15, 2006

**Bureau of Watershed Management**

717-787-6827

SEP 25 2006

B.

Mr. Thomas Bossert, Chairman
Clinton County Commissioners
232 E. Main St.
3rd Floor Garden Building
Lock Haven, PA 17745

Re: Chatham Run Watershed Storm Water Management Update Plan Approval

Dear Commissioner:

On June 27, 2006, we received a letter from the Clinton County Conservation District, notifying the Department of Environmental Protection that the Clinton County Commissioners adopted the Chatham Run, Fishing Creek and Cedar Run watershed Storm Water Management Plans on June 29, 2006. We have received documentation certifying compliance with the municipal and regional review and adoption procedures specified in Sections 6 and 8 of the Storm Water Management Act.

The Department of Community and Economic Development have reviewed the Plan and find it to be consistent with municipal floodplain management plans, state programs that regulate dams, encroachments and water obstructions, and state and federal flood control programs. The Plan is also compatible with other watershed management plans in the watershed and is consistent with the policies and purposes of the Storm Water Management Act.

Since the Plan meets the requirements of Section 9 of the Storm Water Management Act and the Department approves the Chatham Run Watershed Storm water Management Plan Update.

Any person aggrieved by this decision may appeal pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. Section 7514, and the Administrative Agency Law, 2 Pa. C.S. Chapter 5A, to the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, P.O. Box 8457, Harrisburg, PA 17105-8457, telephone 717-787-3483. TDD users may contact the board through the Pennsylvania Relay Service at 1-800-654-5984. Appeals must be filed with the Environmental Hearing Board within 30 days of receipt of written notice of this decision, unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and procedure are also available in Braille or on audiotape from the Secretary to the Board at 717-787-3483. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

Thank you for participating in the Department's Stormwater Management Program. If you have any questions, or need further assistance, please contact me at the above number.

Sincerely,

Barry A. Newman

Barry A. Newman, M.S., P.E.
Chief, Stormwater Planning and Management
Division of Waterways, Wetlands, and
Stormwater Management

cc: Mary Ann Bower, CCCD
Lyman Adams, DEP

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# CHAPTER 1

# INTRODUCTION

## Background of the Chatham Run Study

This Chatham Run Watershed Stormwater Management Plan update was completed in accordance with the Pennsylvania Stormwater Management Act 167, passed in 1978 and implemented by the Pennsylvania Department of Environmental Protection (PA DEP). The purpose of Act 167 is to provide a planning framework to encourage a coordinated approach to watershed-wide stormwater management. The emphasis on watershed-wide planning, as opposed to highly fragmented local level regulation, is the cornerstone of the Act, and was mandated on the principle that stormwater runoff conforms only to watershed boundaries and must be managed accordingly.

Historically, stormwater management was subject to regulation by local municipalities without regard to uniform application of procedures within a given watershed, and without regard to downstream impacts of the local ordinances. This approach tends to produce a very limited "at-site" stormwater management philosophy, with a proliferation of conflicting standards for the control and release of stormwater from engineered facilities. Therefore, the two top priorities in the current PA DEP stormwater program are: (1) watershed-wide planning, and (2) representation in the planning process by all affected municipalities within the study area.

## Requirements of Act 167

The basic elements of Act 167 are summarized as follows in terms of specific responsibilities assigned to various units of state and local government:

1. Each county must develop regional stormwater management plans for each watershed within its boundaries, recognizing that most watersheds will cross county boundaries, and will require collaboration with neighboring counties.

2. Each municipality must adopt local ordinances and engineering design criteria which conform to the provisions of their respective stormwater management plans.

3. Developers must implement stormwater management techniques that meet the standards and criteria set forth in the appropriate municipal ordinances, as supported by the watershed stormwater management plan. In general, these stormwater management techniques will ensure that post-development runoff rates throughout the watershed do not exceed pre-development levels.

4. PA DEP serves as the review agency for each watershed stormwater management plan submitted by the counties. The Act 167 planning process involves three essential steps:

   a. Documentation of existing watershed characteristics, including land use, soils, runoff conditions, peak flows, existing stormwater drainage problems, and flow obstructions. The existing conditions in the watershed represent the baseline for evaluating the effects of future runoff caused by land development.

   b. Preparation of a watershed stormwater management plan to manage stormwater from new development and land use changes within the watershed. The plan includes criteria and performance standards for managing urban runoff, and a listing of alternative stormwater management techniques.

   c. Development of priorities for implementing stormwater management practices within each municipality in accordance with the objectives set forth in the watershed stormwater management plan. This step is crucial to the entire planning process, since local level control is the only mechanism by which total watershed-wide stormwater management can be achieved. While this may seem contradictory with the earlier emphasis on watershed-wide planning, the reader is asked to bear in mind that responsibility for managing excessive stormwater resides with each municipality, in accordance with Act 167.

**Goals and Limitations of Chatham Run Watershed Stormwater Management Plan**

The Act 167 planning process is directed primarily at mitigating the effects of future land use change on watershed hydrology, as well as ensuring that existing storm drainage problems are not aggravated. The Act 167 Stormwater Management Plan presented herein for the Chatham

Run watershed (hereinafter referred to as the Plan) will not require municipalities to correct existing storm drainage problems. The Plan identifies and documents conceptual solutions to existing drainage problems. The Plan will not have a remedial impact on problems of major flooding in natural waterways, although existing flooding problems are identified in the Plan. The Plan does not present detailed engineering design calculations for specific runoff/flooding control points in the watershed. However, the Plan does present a philosophy for managing stormwater discharges within the Chatham Run watershed. The Plan establishes stormwater management performance standards, and leaves the selection of stormwater management techniques and design of stormwater facilities to the engineering professional. The Plan is an instrument for decision-making, and is intended to be used in evaluating the impacts of future land use on the existing hydrology of the Chatham Run watershed. The Plan is not intended to restrict land development, but is intended to provide a framework for evaluating the hydrologic and environmental impacts of future land uses. The Plan is dynamic, and should be updated periodically as development and land use changes dictate.

**Planning Process Participants**

The Chatham Run Watershed Act 167 Stormwater Management Plan was prepared by the Clinton County Conservation District. Act 167 requires that a Watershed Plan Advisory Committee (WPAC) be established to provide assistance and guidance in the development of the Plan. The Chatham Run WPAC is comprised of a delegate from each of the following Clinton County municipalities and agencies:

Gallagher Township
Dunnstable Township
Pine Creek Township
Woodward Township
Clinton County Board of Commissioners
Clinton County Conservation District
Clinton County Geographic Information System (GIS) Department
Clinton County Planning Commission

# CHAPTER 2

# HYDROLOGIC CHARACTERISTICS OF THE CHATHAM RUN WATERSHED

## General Features

The Chatham Run watershed is comprised of three principal subwatersheds, having a total combined area of approximately 24 square miles, as shown on Plate 1. These three principal subwatersheds include Chatham Run mainstem (approximately 14 square miles), Little Plum Run (approximately 4 square miles), and Big Plum Run (approximately 6 square miles). The Chatham Run watershed discharges to the West Branch of the Susquehanna River just below the Village of Chatham Run.

As shown on Plate 1, Big Plum and Little Plum Runs join together and discharge to Chatham Run in a low-lying marshy area just below Chatham Run Village, (located approximately 0.5 miles above the confluence with the West Branch Susquehanna River). This confluence point is located approximately 6 river miles downstream from the City of Lock Haven and approximately 9 miles upstream of Jersey Shore. Chatham Run mainstem and Big Plum and Little Plum Runs flow in a northwest to southeast direction.

## Topography

Topography in the Chatham Run watershed ranges from gently sloping in the higher elevations to very steep in the middle reaches where Chatham Run cuts through heavily forested mountains. The average slope of Chatham Run mainstem is approximately 3% overall from the northern watershed divide to the outlet at the West Branch of the Susquehanna River. This channel slope does not vary significantly, as the channel traverses the open meadow areas in the upper reaches and the forest valley in the middle and lower reaches of the watershed. The very low area near the confluence with the West Branch of the Susquehanna River is extremely flat, and is characterized by swampy wetlands.

Land surface slopes range from approximately 1.5% in the upper-lying meadow areas to approximately 51% in the rugged valleys surrounding the middle reaches of Chatham Run mainstem. Steep slopes (greater than ten percent) appear on Plate 2.

**Surface Geology**

Geologically, the Chatham Run watershed lies in the Allegheny high plateau, just north of the Allegheny Front. There are no known limestone or dolomite formations present in the Chatham Run watershed.

**Soils and Hydrologic Soil Groups**

The soils within the Chatham Run watershed and their associated hydrologic soil group(s) (HSG) appear in Table 2-1 at the end of this chapter. Marginal soils ( HSG B/D) appear on Plate 2.

**Existing Land Uses and Land Covers**

The predominant existing land use categories that comprise the Chatham Run watershed include undeveloped land, recreation areas, public and semi-public lands, residential areas, commercial areas, and industrial areas, as shown on Plate 1. Most of the developed area lies along Chatham Run mainstem, in the Villages of Chatham Run, Woolrich, and Crestmont. Most of the new residential development has occurred in Little Plum Run subwatershed as a part of the Turkey Trot and Saylor subdivisions. Some new residential development has also occurred in the Big Plum Run subwatershed and the Chatham Run mainstem subwatershed.

The Chatham Water Company owns approximately 5,000 acres of forest land located largely in the middle and upper regions of the Chatham Run mainstem subwatershed. Select cutting of trees for lumber is permitted by the Company on a managed basis, except for the mountain sides facing Chatham Run mainstem. There are approximately 550 acres of protected Tiadaghton State Forest in the eastern middle portion of the Chatham Run mainstem subwatershed.

Although several secondary roads traverse the study area, the only major highways are PA 150 (formerly US 220, which passes through the lower reach of the watershed just above the confluence with the West Branch of the Susquehanna River) and State Route 664. The limited development pattern consists of residential subdivisions and vacation homes in Big Plum and Little Plum Run subwatersheds. Commercial/industrial areas are found in the village of Woolrich (associated primarily with the woolen mill and outlet stores operated by the Woolrich Woolen Mills), along State Route 150 in Dunnstable Township, and along a portion of Little Plum Run Road in Gallagher Township.

Three small water supply reservoirs, (owned by the former Chatham Water Company) are located in the middle and upper reaches of Chatham Run mainstem (please refer to Plate 1). However, these impoundments do not have excess storage capacity for flood protection or stormwater management purposes.

**Proposed Land Uses**

There are no new large-scale land developments known to be planned for the Chatham Run watershed. The Clinton County Comprehensive Plan of 2005 shows a "Central Core Growth Area" that spans the lower portions of Dunnstable, Pine Creek, and Woodward Townships. This County Comprehensive Plan is available for review at the Clinton County Planning office, and on the Clinton County website.

**Precipitation**

There are no known raingages within the Chatham Run watershed. A recording raingage is located at the Lock Haven sewage treatment plant; however, the records are insufficient for developing long-term (over 25 years or more) annual average rainfall. The long-term mean annual rainfall at the Williamsport Airport, located approximately 24 miles east of Chatham Run, is 41.28 inches (based on the National Oceanic and Atmospheric Administration NOAA, National Climatic Data Center, Climatological Data Annual Summary for Pennsylvania, 1986).

**Streamflow and Estimated Design Floods**

There are no known stream gages in the Chatham Run watershed. However, based on long-term stream flow records at the USGS Trout Run gage on Lycoming Creek (an adjacent 173.6 square mile watershed having similar hydrologic characteristics), the mean annual runoff on a calendar year basis is 19.93 inches, including base-flow. This would indicate that approximately half of the average annual rainfall is lost to evaporation and deep percolation, while the other half occurs as streamflow.

# Table 2-1

## Soils and Hydrologic Groups

| SYMBOL | NAME | Hydrologic Soils Group |
|---|---|---|
| AgB | ALLENWOOD GRAVELLY SILT LOAM, 3 TO 8 PERCENT SLOPES | B |
| AgC | ALLENWOOD GRAVELLY SILT LOAM, 8 TO 15 PERCENT SLOPES | B |
| AgD | ALLENWOOD GRAVELLY SILT LOAM, 15 TO 25 PERCENT SLOPES | B |
| At | ATKINS SILT LOAM | D |
| Bb | BARBOUR-CRAIGSVILLE COMPLEX | B |
| Bc | BASHER SILT LOAM | B |
| BeB | BERKS CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES | C |
| BeC | BERKS CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPES | C |
| BeD | BERKS-WEIKERT COMPLEX, 15 TO 25 PERCENT SLOPES | B/D |
| BeE | BERKS-WEIKERT COMPLEX, 25 TO 60 PERCENT SLOPES | B/D |
| BgA | BRINKERTON SILT LOAM, 0 TO 3 PERCENT SLOPES | D |
| BhB | BUCHANAN GRAVELLY LOAM, 3 TO 8 PERCENT SLOPES | C |
| BhD | BUCHANAN GRAVELLY LOAM, 8 TO 25 PERCENT SLOPES | C |
| BmB | BUCHANAN GRAVELLY LOAM, 0 TO 8 PERCENT SLOPES, EXTREMELY STONY | C |
| BmC | BUCHANAN GRAVELLY LOAM, 8 TO 25 PERCENT SLOPES, EXTREMELY STONY | C |
| BuB | BUCHANAN-ANDOVER GRAVELLY LOAMS, 3 TO 8 PERCENT SLOPES | D |
| BuC | BUCHANAN-ANDOVER GRAVELLY LOAMS, 8 TO 15 PERCENT SLOPES | D |
| CcB | CHENANGO GRAVELLY LOAM, 3 TO 8 PERCENT SLOPES | A |
| CdB | CLYMER LOAM, 3 TO 8 PERCENT SLOPES | B |
| CdD | CLYMER LOAM, 8 TO 25 PERCENT SLOPES | B |
| CfB | CLYMER CHANNERY LOAM, 0 TO 8 PERCENT SLOPES, EXTREMELY STONY | B |
| CgB | CLYMER-COOKPORT CHANNERY LOAMS, 0 TO 8 PERCENT SLOPES, EXTREMELY STONY | C |
| ChB | CLYMER-HAZLETON SANDY LOAMS, 0 TO 8 PERCENT SLOPES, EXTREMELY STONY | B |
| CmA | COMLY SILT LOAM, 0 TO 3 PERCENT SLOPES | C |
| CmB | COMLY SILT LOAM, 3 TO 8 PERCENT SLOPES | C |
| CmC | COMLY SILT LOAM, 8 TO 15 PERCENT SLOPES | C |
| CpB | COOKPORT CHANNERY LOAM, 0 TO 8 PERCENT SLOPES, EXTREMELY STONY | C |
| CpD | COOKPORT CHANNERY LOAM, 8 TO 25 PERCENT SLOPES, EXTREMELY STONY | C |
| Cr | CRAIGSVILLE GRAVELLY LOAM | B |
| HhB | HARTLETON CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES | B |
| HhC | HARTLETON CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPES | B |
| HkE | HAZLETON CHANNERY SANDY LOAM, 25 TO 80 PERCENT SLOPES, RUBBLY | B |
| HlC | HAZLETON-CLYMER CHANNERY LOAMS, 8 TO 15 PERCENT SLOPES | B |
| HlD | HAZLETON-CLYMER CHANNERY LOAMS, 15 TO 25 PERCENT SLOPES | B |
| HmD | HAZLETON-CLYMER CHANNERY LOAMS, 8 TO 25 PERCENT SLOPES, EXTREMELY STONY | B |
| HoF | HAZLETON-LAIDIG COMPLEX, 25 TO 50 PERCENT SLOPES, EXTREMELY STONY | C |
| HuC | HUSTONTOWN SILT LOAM, 8 TO 15 PERCENT SLOPES | C |
| KcD | KLINESVILLE CHANNERY SILT LOAM, 15 TO 25 PERCENT SLOPES | C |
| KcE | KLINESVILLE CHANNERY SILT LOAM, 25 TO 80 PERCENT SLOPES | C |
| LkB | LECK KILL CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES | B |
| LkC | LECK KILL CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPES | B |
| LkD | LECK KILL CHANNERY SILT LOAM, 15 TO 25 PERCENT SLOPES | B |
| LkE | LECK KILL CHANNERY SILT LOAM, 25 TO 35 PERCENT SLOPES | B |
| Lo | LINDEN SILT LOAM, OCCASSIONALLY FLOODED | B |
| Lr | LINDEN SILT LOAM, RARELY FLOODED | B |
| MeB | MECKESVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES | C |
| MeC | MECKESVILLE SILT LOAM, 8 TO 15 PERCENT SLOPES | C |
| Mn | MELVIN AND NEWARK SILT LOAMS | D |
| NoA | NOLO SILT LOAM, 0 TO 3 PERCENT SLOPES | D |
| Pb | PHILO SILT LOAM | B |
| UoC | UNGERS LOAM, 8 TO 25 PERCENT SLOPES, EXTREMELY STONY | B |
| UoE | UNGERS LOAM, 25 TO 50 PERCENT SLOPES, EXTREMELY STONY | B |
| W | WATER | |
| WaA | WATSON SILT LOAM, 0 TO 5 PERCENT SLOPES | C |
| WeB | WHARTON SILT LOAM, 0 TO 8 PERCENT SLOPES, VERY STONY | C |

# CHAPTER 3

# EXISTING STORM DRAINAGE PROBLEMS AND HYDRAULIC OBSTRUCTIONS

## Existing Storm Drainage Problems

Existing drainage problems in the Chatham Run watershed are limited to local flooding of streets and properties. Information regarding existing drainage and flooding problems was collected from local municipalities by the Clinton County Conservation District, and is presented in Table 3-1. This study does not present specific solutions for each problem area. However, preliminary recommendations for alleviating the specific problem are provided in Table 3-1.

**Table 3-1**
**Inventory of Existing Stormwater Drainage Problems**

| Location | Municipality | Problem | Recommendation |
|---|---|---|---|
| Park Avenue from SR 1006 to Woolrich Park | Pine Creek | Street Flooding | Increase existing storm sewer capacity. |
| Intersection of T-439 and Park Avenue | Pine Creek | Street Flooding | Increase existing storm sewer capacity. |
| Park Avenue 1,500 feet south of T-439 | Pine Creek | Street Flooding | Increase existing storm sewer capacity. |
| Sagamore Hills | Pine Creek | Yard/ Street Flooding | Clear and maintain culvert and swale. Increase existing storm sewer capacity. |
| Park Avenue at Pine Creek/Dunnstable Boundary | Pine Creek Dunnstable | Street Flooding | Extend existing storm sewer. |
| Lower Reaches of Big Plum Run Between SR 0150 and Big Plum Run Road | Dunnstable | Stream Flooding, Erosion, Sediment Deposits | Requires further study. |
| Intersection of SR 1008 and Park Avenue | Dunnstable | Street Flooding | Increase existing storm sewer capacity. |

**Floodplains**

The 100-year floodplain limits along Little Plum Run, Big Plum Run, and Chatham Run mainstem appear on the Flood Insurance Studies (FIS) prepared by or for the Federal Emergency Management Agency (FEMA). These studies are available for review at each municipal office. Boundaries of the 100-year flood were delineated for Dunnstable Township (September 1976), Pine Creek Township (October 1976), and Woodward Township (July 1976). Gallagher Township is located in the headwaters of the Chatham Run watershed and is less susceptible to major flooding problems. A recommendation of this Study is to update the current FIS for each of the subwatersheds in the Chatham Run watershed.

**Flood Hazard Areas**

Based on the aforementioned 100-year floodplain information, flood hazard areas within the 100-year floodplain are limited to highways and agricultural areas located along Big Plum and Little Plum Runs, and the lower reaches of Chatham Run mainstem. In Pine Creek Township, residences between Chatham Run mainstem and Park Avenue are located within the 100-year floodplain and are designated as flood hazard areas.

The increase in runoff from upstream development impacts the flood hazard areas that are located downstream by increasing the magnitude of the flood discharges and depths in the downstream areas. However, the limited nature of proposed development in the Chatham Run watershed, and its location within the watershed would produce small increases in flood discharges, velocity, and depth in the floodplain areas.

**Survey of Significant Hydraulic Obstructions**

Obstructions along channels limit flow capacity and can potentially cause significant ponding or diversion of water. Thirty-eight significant hydraulic obstructions were identified within the Chatham Run watershed. A list of hydraulic obstructions and structure sizes appears in Table 3-2. There are three reservoirs in the Chatham Run watershed, and these include Caldwell Dam, Woolrich Water Company Number 1, and Woolrich Water Company Number 2. Since these reservoirs do not provide any storage for flood protection or stormwater management, they are not applicable to this study.

## Table 3-2 Inventory of Obstructions

| ID | NAME | TYPE | SUBWATERSHEDS |
|---|---|---|---|
| 1 | CHATHAM RUN at HARLEY DR | RCB DOUBLE | CHATHAM RUN |
| 2 | UNNAMED #1at PARK AVE | RCB SINGLE | CHATHAM RUN |
| 3 | CHATHAM RUN at GRAVEL HILL RD | BRIDGE | CHATHAM RUN |
| 4 | UNNAMED at GRAVEL HILL RD | CMP ARCH | CHATHAM RUN |
| 5 | CHATHAM RUN at MAIN ST | BRIDGE | CHATHAM RUN |
| 6 | SULPHUR RUN at DUTCH HOLLOW RD | CMP | SULPHUR RUN |
| 7 | UNNAMED at DUTCH HOLLOW RD | RCP | SULPHUR RUN |
| 8 | CHATHAM RUN at LOCUST ST | BRIDGE | CHATHAM RUN |
| 9 | CHATHAM RUN at W SPRUCE ST | BRIDGE | CHATHAM RUN |
| 10 | CHATHAM RUN at ELLIS ISLAND LN | BRIDGE | CHATHAM RUN |
| 11 | CHATHAM RUN at MOORE LN | BRIDGE | CHATHAM RUN |
| 12 | UNNAMED #2 at COUDERSPORT PIKE | DOUBLE RCP | CHATHAM RUN |
| 13 | UNNAMED #3 at COUDERSPORT PIKE | CMP ARCH (5 FOOT) | CHATHAM RUN |
| 14 | LITTLE PLUM RUN at BEARPEN HOLLOW RD | RCP | LITTLE PLUM RUN |
| 15 | LITTLE PLUM RUN at LITTLE PLUM RUN RD | CMP | LITTLE PLUM RUN |
| 16 | LITTLE PLUM RUN at PRIVATE DR 835 | BRIDGE | LITTLE PLUM RUN |
| 17 | LITTLE PLUM RUN at GERMAN RD | BRIDGE | LITTLE PLUM RUN |
| 18 | LITTLE PLUM RUN at WEAVER HILL RD | STRUCTURAL PLATE ARC | LITTLE PLUM RUN |
| 19 | LITTLE PLUM RUN at WEAVER HILL RD | CMP ARCH | LITTLE PLUM RUN |
| 20 | LITTLE PLUM RUN at BIG PLUM RUN RD | RCB | LITTLE PLUM RUN |
| 21 | LITTLE PLUM RUN at STEWART RD | BRIDGE | BIG PLUM RUN |
| 27 | LITTLE PLUM RUN at CIDER PRESS RD | BRIDGE | BIG PLUM RUN |
| 22 | UNNAMED #1 at N VISTA DR | HDPE TYPE S | BIG PLUM RUN |
| 23 | UNNAMED #2 at N VISTA DR | HDPE TYPE S | BIG PLUM RUN |
| 24 | LITTLE PLUM RUN at TOBACCO SHED RD | CMP | BIG PLUM RUN |
| 25 | UNNAMED at CIDER PRESS RD | RCB | BIG PLUM RUN |
| 26 | LITTLE PLUM RUN at PRIVATE DR | RCP OVAL | BIG PLUM RUN |
| 28 | UNNAMED #1 at BIG PLUM RUN RD | HDPE TYPE S | BIG PLUM RUN |
| 29 | UNNAMED #2 at BIG PLUM RUN RD | RCP (WITH CBC 3') | BIG PLUM RUN |
| 30 | UNNAMED #3 at BIG PLUM RUN RD | HDPE TYPE S | BIG PLUM RUN |
| 31 | UNNAMED #4 at BIG PLUM RUN RD | HDPE TYPE S | BIG PLUM RUN |
| 32 | BIG PLUM RUN at BIG PLUM RUN RD | BRIDGE | BIG PLUM RUN |
| 33 | BIG PLUM RUN at BIG PLUM RUN RD | BRIDGE | BIG PLUM RUN |
| 34 | BIG PLUM RUN at BIG PLUM RUN RD | BRIDGE | BIG PLUM RUN |
| 35 | UNNAMED #1 at GERMAN RD | CMP | BIG PLUM RUN |
| 36 | UNNAMED #2 at GERMAN RD | HDPE | BIG PLUM RUN |
| 37 | BIG PLUM RUN at GERMAN RD | CMP ARCH | BIG PLUM RUN |
| 38 | UNNAMED #1 at WEAVER HILL RD | RCP | BIG PLUM RUN |

RCB – Reinforced Concrete Box
CMP – Corrugated Metal Pipe
RCP – Reinforced Concrete Pipe
RCB – Reinforced Concrete Box
HDPE – High Density Polyethylene Pipe (Type S= Smooth Bore)

# CHAPTER 4
# EXISTING AND PROPOSED FLOOD PROTECTION PROJECTS, AND STORMWATER COLLECTION SYSTEMS

## Existing Stormwater and Flood Protection Facilities

Information concerning existing stormwater collection systems, stream improvement, and flood protection projects located in the Chatham Run watershed are incomplete and can best be described in narrative form.

Several localized stormwater collection systems are in place in the Chatham Run watershed. The Crestmont Development in Dunnstable Township is served by a series of 12- and 15-inch corrugated metal pipes (CMPs) and grassed swales. Drainage from this development flows to both Chatham Run mainstem and Little Plum Run. Other localized stormwater collection systems in Dunnstable Township include a series of 12- and 15-inch CMPs and grassed swales in the Sagamore Hills Development (partially located in Pine Creek Township); a series of 15-inch CMPs and drop inlets at the intersection of Park Avenue and State Route 1008; and numerous grassed swales, drop inlets, and culverts under township and state roads.

Several localized stormwater collection systems are in place in Pine Creek Township (including the Village of Woolrich). A series of drop inlets and 15-inch CMPs drain Park Avenue and discharge directly to Chatham Run mainstem. Woolrich Woolen Mills drains paved parking areas directly to Chatham Run mainstem. Other municipal-owned, localized stormwater collection systems are present in Pine Creek Township.

No stormwater collection systems were identified in Gallagher or Woodward Townships, other than roadside ditches and culverts under township and state roads.

Based on information from the Clinton County Conservation District, no major flood protection projects have been completed, or are proposed in the Chatham Run watershed at the time of this report. However, one project of undetermined size, which involved relocating Chatham Run in Woolrich, was completed in 1935. A flood protection study of Chatham Run in Dunnstable and Pine Creek Townships was completed by PA DEP in 1977 in response to flood-related damages to thirteen (13) homes between Park Avenue and SR 0150. The study by PA DEP concluded that the cost of this project would greatly exceed the benefit that would be derived from protecting the subject homes from flood damage. Therefore, no PA DEP funded project was recommended. The study recommended floodproofing of residences by individual property owners. The study further recommended that townships should encourage individual property owners to purchase flood insurance.

A number of small flood protection projects involving stream improvements have been completed on Big and Little Plum Runs, and on Chatham Run mainstem. Riprap has been placed on the eastern stream bank of Big Plum Run between SR 0150 and Big Plum Run Road, and sediment has been removed from the stream bed in the same area.

Channel improvements on Chatham Run mainstem have been made in four locations: (1) the western bank of the stream was graded at a 2:1 slope, sediment and debris were removed, and the channel depth was increased by 1.5 feet between the SR 0150 bridge and River Road; (2) the eastern bank immediately above the SR 0150 bridge was graded at a 1.5:1 side slope, and riprap was placed along the banks as a stabilization measure; (3) the abutment of the SR 0150 bridge, located adjacent to the Woolrich Woolen Mills garage was repaired and the streambank was reshaped as a result of damages incurred during tropical storm Agnes in 1972; and (4) a request for debris and sediment removal in Chatham Run south of SR 0150 and north of the abandoned railroad viaduct was submitted to PA DOT by PA DEP. No other existing or proposed flood protection projects have been identified by the Clinton County Conservation District.

A portion of the existing concrete wall along Chatham Run mainstem just upstream of the Main Street bridge in Pine Creek Township was damaged during the recent Ivan flood event. This damaged section of concrete wall is proposed for repair during calendar year 2006 through a grant from the Pennsylvania Department of Environmental Protection (PA DEP). Portions of the existing earthen dike along Chatham Run mainstem downstream of Gravel Hill Road were also damaged during the recent Ivan flood event. Pine Creek Township is currently working with residents protected by this earthen dike to coordinate permits for the necessary repair work.

**Proposed Stormwater and Flood Protection Facilities**

According to information provided to the Clinton County Conservation District by local county and municipal officials, there are no new flood protection projects or stormwater collection systems proposed in the Chatham Run watershed at the time of this report. Therefore, estimates of design capacity, costs, implementation schedules, funding scenarios, and operation and maintenance costs of proposed facilities are not included as a part of this study. Any plans for new facilities in the future should be developed and submitted to the appropriate municipalities, as described in the model ordinance contained in Chapter 8 of this Plan.

# CHAPTER 5

# TECHNICAL STANDARDS AND CRITERIA FOR STORMWATER MANAGEMENT

Effective stormwater management is accomplished through the development of performance standards and criteria for individual sites that consider basin-wide runoff impacts. Traditionally, the approach to stormwater management treated each site as a separate entity and did not address the impact of post-development runoff from individual sites on the entire watershed. Prior to early 1980, alternatives to the traditional stormwater management approach were not considered. Watershed planning during the past decade utilized an approach known as the "release rate method" to address the impact of post-development runoff from individual sites on the entire watershed.

In an effort to simplify the regulations and requirements for rural watersheds like Chatham Run where development potential is limited to a few areas or corridors, this study recommends the application of traditional stormwater management standards that would limit the release of post-development flows to pre-development levels.

## Effects of Development on Runoff Quality

The change in annual pollutant loads resulting from hypothetical development in the Little Plum Run subwatershed was analyzed as a part of a graduate course in urban hydrology at the Pennsylvania State University (Laffey, 1988). The analysis was conducted assuming that impervious cover increased from 11 percent to 15 percent; residential land use increased from 9.7 to 17 percent; and wooded land decreased from 93.3 percent to 86.0 percent. These figures are hypothetical, and do not represent projected development figures presented elsewhere in this report. Although this analysis is not based on actual projected development for Little Plum Run, the results are important for this stormwater management plan because they provide a qualitative measure of the effects of development on watershed pollutants.

The aforementioned classroom analysis applied a pollutant regression method published by Driver and Tasker (1988) to the Little Plum Run subwatershed. The regression method estimates pollutant loads using hydrologic input data for the watershed that includes total annual rainfall; drainage area; impervious cover; and industrial, commercial, and residential land use. The classroom analysis reported existing and future annual pollutant load estimates for suspended solids, total phosphorous, and total nitrogen. Table 5-1 compares these existing and future annual pollutant load estimates for the Little Plum Run subwatershed.

Increases in pollutant loads resulting from development can be reduced through proper engineering design and prudent selection of stormwater management techniques. Stormwater management techniques selected to reduce pollutants from development must consider annual pollutant load estimates, and identify the specific pollutants that are to be removed.

**Table 5-1**

## Comparison of Annual Pollutant Loads (lbs/yr) Discharged Under Existing and Future Conditions in Little Plum Run

| | Suspended Solids | Total Phosphorous | Total Nitrogen |
|---|---|---|---|
| Existing | 215,186 | 691 | 183 |
| Future | 220,461 | 694 | 226 |
| Increase (%) | 2.5 | 0.4 | 23.5 |

# CHAPTER 6

# STORMWATER MANAGEMENT TECHNIQUES

Techniques to lessen the impact of stormwater runoff from both existing and proposed land uses fall into two broad categories; structural, and non-structural. Structural stormwater management techniques utilize physical means to reduce or manage runoff. Stormwater detention basins, infiltration trenches, and grassed waterways are all examples of structural stormwater management techniques. Non-structural stormwater management techniques generally refer to land use restrictions used to manage the amount and extent of land use changes. Floodplain, stormwater management, subdivision, and zoning regulations are all examples of effective non-structural stormwater management techniques.

A summary of stormwater management alternatives for the Chatham Run watershed is presented below. The applicability of a particular stormwater management technique is site specific. On-site characteristics such as topography, soils, sub-surface geology, water table, existing and proposed land uses, land requirements, and regulatory controls must be considered to determine the suitability of a particular stormwater management technique.

## Structural Stormwater Management Techniques

Structural stormwater management techniques can be broken down into two categories, volume reduction and peak reduction techniques. Volume reduction techniques decrease the amount of stormwater that runs off a site by increasing the infiltration fraction of precipitation. Peak reduction techniques decrease the magnitude of peak flows while increasing the duration of runoff period.

A discussion of volume reduction and rate reduction techniques that may be appropriate for use in the Chatham Run watershed is presented below. A description of the techniques, applicability, advantages and disadvantages, maintenance requirements, and approximate construction costs (where available) are presented at the end of this Chapter in Table 6-1. The "Pennsylvania Handbook of Best Management Practices for Developing Areas" (Pennsylvania Association of Conservation Districts, 1998) "…describes practices and principles that are effective in controlling erosion and sediment and managing storm water, and that also efficiently use space, are esthetically pleasing, and preserve or even improve water quality and wildlife habitat."

## Volume Reduction Techniques

Land use changes and development in the watershed will increase the volume of runoff. Any reduction in the amount of runoff from new developments that can be accomplished through the prudent implementation of a stormwater management plan for the site will play a role in the success or failure of the watershed-wide stormwater management plan. Volume reduction techniques can be a valuable part of any stormwater management plan.

Some volume reduction techniques decrease runoff from a site by routing water to the subsurface and the local water table. Great care must be taken to ensure these types of volume reduction techniques do not degrade the water quality of local aquifers. Title 25, Chapter 97 (Industrial Wastes) Underground Disposal, Section 97.71, clearly refers to stormwater runoff as potential pollution unless "...the disposal is close enough to the surface so that the wastes will be absorbed in the soil mantle and be acted upon by the bacteria naturally present in the mantle before reaching the underground or surface waters." Discharges to sinkholes are not acceptable unless a geologic evaluation shows that groundwater would not be adversely affected. Stormwater runoff discharges containing materials that are not biodegradable or are not capable of being absorbed/adsorbed by the soil structure are not acceptable. This includes solvents which may be spilled in parking lots, and de-icing agents used during winter months.

Volume reduction techniques are typically used in conjunction with peak reduction techniques as part of the overall stormwater management plan. Volume reduction techniques normally are not sufficient by themselves to provide adequate attenuation of stormwater runoff, except for use at individual homes and small parking lots. Volume reduction techniques can be used to decrease the size of the peak reduction facilities, thereby lowering capital costs.

## Peak Reduction Techniques

Peak reduction techniques are generally temporary storage facilities that decrease peak flows from a site. Proper design of peak reduction facilities can decrease peak discharges to acceptable values within the constraints of the watershed-wide stormwater management plan. The design of peak reduction facilities must consider pre-development peak flows, anticipated post-development peak flows, applicable release rates, and site constraints.

**Non-Structural Stormwater Management Techniques**

Non-structural stormwater management techniques rely primarily on federal, state, and local regulations. Applicable federal regulations which regulate activities in waters of the United States include, but are not limited to, Section 404 of the Clean Water Act (PL 92-500) and the River and Harbor Act of 1899, which regulate activities such as filling, dredging, and wetlands encroachment. State regulations include, but are not limited to, the Dam Safety and Encroachment Act (P.L.177), which regulates activities such as stormwater detention pond outflows into receiving streams under the jurisdiction of the PA DEP Bureau of Dams & Waterway Management, in or near waters of the Commonwealth. On the local level, ordinances such as floodplain management, stormwater management, subdivision, and zoning regulate development. All non-structural stormwater management techniques affect runoff by regulating land use.

**Table 6-1**
**Structural Stormwater Management Techniques**
**Chatham Run Watershed**

| Description | Applicability | Advantages | Disadvantages | Maintenance |
|---|---|---|---|---|
| **VOLUME REDUCTION TECHNIQUES** | | | | |
| Drain runoff from impervious areas over pervious areas | Use in low density development areas outside principal drainageways. Do not use in natural or man made drainageways. | • Inexpensive to install and maintain<br>• Promotes groundwater recharge<br>• Promotes green space preservation | • May degrade groundwater quality | • Periodic inspections for sedimentation<br>• Harvest vegetation and collect thatch |
| Infiltration-pits, trenches and dry wells | Use when soil permeability is below bottom of structure, and runoff is free of particulate matter | • Inexpensive to construct<br>• Provides groundwater recharge<br>• Reduces pipe capacities and costs when used in conjunction with storm sewer bedding<br>• Reduces ponding and local flooding<br>• Multi-purpose use<br>• Effective for controlling “first flush” pollutants | • Requires sediment free runoff (otherwise filters may be required)<br>• Limited to small applications<br>• Clogged systems must be replaced<br>• Must provide contingencies for ponding in a clogged or full system<br>• Accelerates sinkhole production | • Must clean and maintain sediment filters |
| Concrete grid and modular pavement | Use on large parking areas and on-street parking. Use as erosion control devices in drainageways and at detention basin outfalls (must be protected from undermining) | • Increased flexibility eases repair of underground utilities, replacement of pavement units, and installation of signs and plantings<br>• Flexibility prevents buckling<br>• Aesthetically pleasing | • Installation expensive and labor intensive<br>• Susceptible to damage from fertilizers and de-icing agents<br>• Shifting units result in uneven surface and present a safety hazard<br>• Potential groundwater quality degradation | • Maintain vegetation in voids<br>• Reset shifted units and replace broken units |

**Table 6-1 (cont.)**
**Structural Stormwater Management Techniques**
**Chatham Run Watershed**

| Description | Applicability | Advantages | Disadvantages | Maintenance |
|---|---|---|---|---|
| Porous asphalt pavement | Use in low volume traffic areas not subjected to heavy loads or the turning or stopping action of large vehicles. Requires a permeable soil subbase | • Reduces or eliminates additional storage facilities<br>• Water free surfaces enhance skid resistance<br>• Eliminates need for crowns and cross slopes<br>• Increases groundwater recharge | • Asphalt cement prone to stripping by de-icing agents<br>• Prone to clogging problems<br>• Susceptible to freeze/thaw damage if adequate subsurface drainage is not provided<br>• Increased aggregate base or asphalt thickness required<br>• More expensive than conventional pavement<br>• Conveys oils and solvents to groundwater<br>• Weeds may grow through pavement | • Remove debris and sediment from surface |
| Grassed waterways, filter strips, and seepage areas | Use in small developments with open space for stormwater control and along roadside drainage systems | • Less expensive than curbs and gutters<br>• Enhances groundwater recharge<br>• Eliminates flooding of roadways from inlet by-passing<br>• Multi-purpose recreational use<br>• Plantings in filter strips effectively screens parking areas<br>• Positive aesthetics, increases time of concentration, and enhances infiltration | • Requires more regular maintenance than curb and gutter systems<br>• Requires wider right-of-ways<br>• Driveway culverts trap debris<br>• May require guide rails along roadway<br>• May not be compatible with local subdivision<br>• Receptacle for lawn debris<br>• Sedimentation discourages vegetative growth<br>• Seepage areas accumulate contaminants in upper layers of soil<br>• Overflows from seepage areas may damage down stream areas<br>• May accelerate sinkhole<br>• production | • Remove obstructions along drainageways & repair erosion & sedimentation damage<br>• Maintain vegetation & remove dead material<br>• Maintain soil permeability to eliminate insect breeding problems |

**Table 6-1 (cont.)**
**Structural Stormwater Management Techniques**
**Chatham Run Watershed**

| Description | Applicability | Advantages | Disadvantages | Maintenance |
|---|---|---|---|---|
| **Peak Reduction Techniques** | | | | |
| Detention basins | Use in practically any situation | • Provides local & watershed-wide stormwater control<br>• Enhances sediment and debris control<br>• Ease of constructability<br>• Considerable design flexibility<br>• May enhance groundwater recharge<br>• May reduce downstream erosion problems<br>• Effective for controlling "first flush" pollutants<br>• Multi-purpose use | • Converts sheet flow to point discharges<br>• May promote sinkhole development in Karst terrain<br>• Shallow sloped bottoms discourages vegetative growth<br>• Standing water is a safety concern<br>• Reduces amount of salable land<br>• Undersized outlets collect debris<br>• Concentrates pollutants in the soil | • Maintenance access must be provided<br>• Remove debris<br>• Fill localized depressions to eliminate insect breeding<br>• Maintain earthwork to prevent piping around outlet structure & erosion on spillway<br>• Maintain veg. |
| Oversized conveyance system storage | Use anywhere storm sewers can be installed | • Does not use valuable land space<br>• Minimal maintenance needs | • Sediment accumulation must be flushed from the system<br>• Constrictions in on-line systems may trap debris in inaccessible locations<br>• Additional cost of oversized storm sewer and constricted outlets | • Periodic inspection and cleaning of storm sewers |
| Parking lot storage | Use wherever large paved lots can be used to temporarily store runoff without causing safety concerns or inconvenience | • Easily incorporated into parking lot grading<br>• Reduces downstream storage requirements | • Can cause inconvenience<br>• Requires significant slope on parking area to limit spread of water<br>• May cause hazardous conditions in winter weather | • Remove debris at outlet<br>• Must keep parking lots clean |

**Table 6-1 (cont.)**
**Structural Stormwater Management Techniques**
**Chatham Run Watershed**

| Description | Applicability | Advantages | Disadvantages | Maintenance |
|---|---|---|---|---|
| Parking lot storage | Use wherever large paved lots can be used to temporarily store runoff without causing safety concerns or inconvenience | • Easily incorporated into parking lot grading<br>• Reduces downstream storage requirements | • Can cause inconvenience<br>• Requires significant slope on parking area to limit spread of water<br>• May cause hazardous conditions in winter weather | • Remove debris at outlet<br>• Must keep parking lots clean |
| Rooftop detention | Use on large flat roofs in highly urbanized settings | • Requires no additional land space<br>• Poses no safety hazard or inconvenience to general public<br>• Stored water con be used for landscape maintenance<br>• May significantly impact local runoff problems | • Failure generally leads to on-site property damage<br>• Not well suited to retrofitting<br>• Little impact on watershed-wide runoff control<br>• May require modification to local building codes<br>• May not receive regular inspection and maintenance<br>• Results in higher roof loadings | • Routine leak detection inspections<br>• Downspouts must be kept free of debris |
| Cistern storage | Use anywhere construction costs are not prohibitive | • Cisterns are unobtrusive<br>• Can easily be fit into existing sites<br>• Provides a free source of non-potable water<br>• Sumps are well suited for residential roof drainage<br>• Effective for controlling “first flush” pollutants | • Difficult to clear accumulated debris<br>• Difficult to drain, may require pump<br>• Requires large volume if no outlet is provided<br>• Susceptible to deterioration, expensive and difficult to maintain | • Regular inspection and debris removal |

**Table 6-1 (cont.)**
**Structural Stormwater Management Techniques**
**Chatham Run Watershed**

| Description | Applicability | Advantages | Disadvantages | Maintenance |
|---|---|---|---|---|
| **Other Peak Reduction Techniques with Limited Potential** | | | | |
| Gravel parking lots & driveways | Use in log term parking areas and on very small lots | • Reduces runoff<br>• Reduces construction costs | • Runoff fraction increases as gravel consolidates<br>• Mud con become a major problem<br>• Susceptible to pothole development<br>• Material may be removed during large storm events | • Fill potholes<br>• Excavate soft spots and muddy areas, and replace with new, clean aggregate |
| Rooftop gardens | Use wherever adequate space is available | • Provides free source of non-potable water | • Extremely limited effect on local and watershed-wide runoff control | • Not available |

# CHAPTER 7
# PLAN IMPLEMENTATION

In order to implement the Chatham Run Watershed Act 167 Stormwater Management Plan, the county planners and municipal officials must review the plan. The County Board of Commissioners must then formally adopt the Plan. The Pennsylvania Department of Environmental Protection (PA DEP) will approve the plan after reviewing the County adoption resolution and plan review comments, as well as the plan itself. Implementation of the Plan will be the responsibility of the municipalities within the Chatham Run Watershed subsequent to County adoption and approval by PA DEP. Act 167 requires municipal implementation of the Plan subsequent to County adoption and PA DEP approval.

Watershed-specific stormwater management performance standards and criteria developed by this Plan are intended to apply only to the portion of each municipality lying within the Chatham Run Watershed. However, the model ordinance that appears in this Plan, upon implementation by each municipality within the Chatham Run Watershed, may either apply to the portion of the municipality within the Chatham Run Watershed or apply to the entire municipality.

The following sequence of events must take place to implement this Plan:

1. Submission of the Plan to PA DEP, as adopted by Clinton County, and Plan approval by PA DEP.
2. Municipal adoption of the model ordinance.

   Municipal adoption is a critical step. Municipalities will adopt the model ordinance for ease of implementation, compliance with the Plan, and consistency among the Watershed's municipalities. Municipalities would then tie the model ordinance into existing ordinances by referring to the model ordinance in any existing ordinances that currently regulate stormwater runoff. Municipalities must then send a copy of the municipal resolution to adopt the stormwater ordinance to PA DEP.
3. Municipal Review of Drainage Plans.

   The municipality, through its qualified agent such as the municipal engineer, will receive stormwater drainage plans for all activities regulated by the adopted stormwater ordinance. The municipality will then review the plans for compliance

with the adopted stormwater ordinance, and shall approve or disapprove stormwater drainage plans.

4. Remediation of Existing Storm Drainage Problems.

During the planning process, the Clinton County Conservation District obtained and generated data on existing storm drainage problems. Municipalities should use these data to develop a systematic, prioritized strategy to remedy existing problems. However, neither the Plan nor the Stormwater Management Act 167 mandates the remediation of these problems. Watershed planning is intended to ensure that existing problems do not intensify and that new problems do not occur. Therefore, as municipalities meet these objectives through proper implementation of this Plan's provisions, they may consider the remediation of existing problems as the next logical step in a stormwater management program.

To assist municipalities in obtaining funds to address these problems, the Pennsylvania Infrastructure Investment Authority (PENNVEST) is authorized to provide low interest loans to municipalities for stormwater projects. Municipalities within the Chatham Run Watershed should prioritize existing problems by severity, impact, and cost and consider the PENNVEST program for their financing.

**Chapter 8**

# CHATHAM RUN WATERSHED
# ACT 167 STORMWATER MANAGEMENT ORDINANCE

ORDINANCE NO. _____

MUNICIPALITY OF

_____

CLINTON COUNTY, PENNSYLVANIA

Adopted at a Public Meeting Held on

_____, 20___

Article VIII-Enforcements and Penalties

| | |
|---|---|
| Section 801. | Right of entry |
| Section 802. | Inspection |
| Section 803. | Enforcement |
| Section 804. | Suspensions and Revocation |
| Section 805. | Penalties |
| Section 806. | Appeals |

Article IX- References

| | |
|---|---|
| Appendix A: | Low Impact Development Practices |
| Appendix B: | Site Conditions Suitable for Infiltration<br>BMPs for Infiltration<br>BMPs for Rate Control<br>BMPs for Evapotranspiration |
| Appendix C: | Operation and Maintenance Agreement, Stormwater Best Management Practices |
| Appendix D: | Procedure and Examples for Total Impervious Area Calculation |

# ARTICLE I -GENERAL PROVISIONS

## Section 101. Short Title

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

## Section 102. Statement of Findings

The governing body of the Municipality finds that:

A. Inadequate management of accelerated runoff of stormwater resulting from development throughout a watershed increases flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of streams and storm sewers, greatly increases the cost of public facilities to carry and control stormwater, undermines flood plain management and flood control efforts in downstream communities, reduces groundwater recharge, threatens public health and safety, and increases non-point source pollution of water resources.

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

C. Stormwater is an important water resource, which provides groundwater recharge for water supplies and base flow of streams, which also protects and maintains surface water quality.

D. Federal and state regulations require certain municipalities to implement a program of stormwater controls. These municipalities are required to obtain a permit for stormwater discharges from their separate storm sewer systems under the National Pollutant Discharge Elimination System (NPDES).

## Section 103. Purpose

The purpose of this Ordinance is to promote health, safety, and welfare within the Municipality and its watershed by minimizing the harms and maximizing the benefits described in Section 102 of this Ordinance, through provisions designed to:

A. Meet legal water quality requirements under state law, including regulations at 25 Pa. Code Chapter 93 to protect, maintain, reclaim and restore the existing and designated uses.

B. Preserve the natural drainage systems as much as possible.

C. Manage stormwater runoff close to the source.

D. Provide the minimum procedures and performance standards for stormwater planning and management.

E. Maintain groundwater recharge, to prevent degradation of surface and groundwater quality and to otherwise protect water resources.

F. Prevent scour and erosion of stream banks and streambeds.

G. Provide proper operations and maintenance of all permanent SWM BMPs that are implemented within the Municipality.

H. Provide the minimum standards to meet NPDES permit requirements.

## Section 104. Statutory Authority

**A. Primary Authority:**

The municipality is empowered to regulate these activities by the authority of the Act of October 4, 1978, P.L. 864 (Act 167), 32 P.S. Section 680.1, et seq., as amended, the "Stormwater Management Act" and the (appropriate municipal code).

**B. Secondary Authority:**

The Municipality also is empowered to regulate land use activities that affect runoff by the authority of the Act of July 31, 1968, P.L. 805, No. 247, The Pennsylvania Municipalities Planning Code, as amended.

## Section 105. Applicability

All Regulated Activities and all activities that may affect stormwater runoff are subject to regulation by this Ordinance.

## Section 106. Repealer

Any other ordinance provision(s) or regulation 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 a court of competent jurisdiction declares any section or provision of this Ordinance invalid, such decision shall not affect the validity of any of the remaining provisions of this Ordinance.

## Section 108. Compatibility with Other Requirements

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. In the event that other ordinances regulating stormwater management would be more restrictive than this ordinance, then the stormwater management provisions of the more restrictive ordinance shall apply.

ARTICLE II -DEFINITIONS

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

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

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

C. The words “shall” and “must” are mandatory; the words “may” and “should” are permissive.

D. The word “person” includes an individual, firm, association, organization, partnership, trust, company, corporation, or any other similar entity.

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

**Agricultural Activity** - The work of producing crops including tillage, land clearing, plowing, disking, harrowing, planting, harvesting crops, or pasturing and raising of livestock and installation of conservation measures. Construction of new buildings or impervious area is not considered an Agricultural Activity.

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

**BMP (Best Management Practice)** - Activities, facilities, designs, measures or procedures used to manage stormwater impacts from Regulated Activities, to meet State Water Quality Requirements, to promote groundwater recharge and to otherwise meet the purposes of this Ordinance. BMPs include but are not limited to infiltration, filter strips, low impact design, bioretention, wet ponds, permeable paving, grassed swales, forested buffers, sand filters and detention basins. Structural SWM BMPs are permanent appurtenances to the project site.

**Conservation District** - A conservation district, as defined in section 3(c) of the Conservation District Law (3 P. S. § 851(c)), which has the authority under a delegation agreement executed with the Department to administer and enforce all or a portion of the erosion and sediment control program in this Commonwealth.

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

**Detention** - the volume of runoff that is captured and released into the Waters of this Commonwealth at a controlled rate.

**DEP** - The Pennsylvania Department of Environmental Protection.

**Development Site (Site)** - See Project Site.

**Earth Disturbance Activity** - A construction or other human activity which disturbs the surface of the land, including, but not limited to clearing and grubbing; grading; excavations; embankments; road maintenance; building construction; conversion of pervious surfaces to impervious surfaces; the moving, depositing, stockpiling, or storing of soil, rock, or earth materials; or any other action that causes any alteration or an alteration to the land surface.

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

**Extended Detention Volume (EDV)-** Release of detained runoff in excess of **Permanently Removed Volume (PRV)** over an extended period of time of 24 to 72 hours.

**Floodplain** - Any land area susceptible to inundation by water from any natural source or delineated by applicable Federal Emergency Management Agency (FEMA) maps and studies as being a special flood hazard area. Also included are areas that comprise Group 13 Soils, as listed in Appendix A of the Pennsylvania Department of Environmental Protection (PADEP) Technical Manual for Sewage Enforcement Officers (as amended or replaced from time to time by PADEP).

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

**Forest Management / Timber Operations** - Planning and activities necessary for the management of forestland. These include timber inventory and preparation of forest management plans, silvicultural treatment, cutting budgets, logging road design and construction, timber harvesting, site preparation and reforestation.

**Hydrologic Soil Group (HSG)** - Infiltration rates of soils vary widely and are affected by subsurface permeability as well as surface intake rates. Soils are classified into four HSG's (A, B, C, and D) according to their minimum infiltration rate, which is obtained for bare soil after prolonged wetting. The Natural Resources Conservation Service (NRCS) of the US Department of Agriculture defines the four groups and provides a list of most of the soils in the United States and their group classification. The soils in the area of the development site may be identified from a soil survey report that can be obtained from local NRCS offices or conservation district offices. Soils become less pervious as the HSG varies from A to D.

**Impervious Surface (Impervious Area) -** A surface that prevents the infiltration of water into the ground. Impervious surfaces (or covers) shall include, but not be limited to, roofs, additional indoor living spaces, patios, garages, storage sheds and similar structures, and any new streets or sidewalks, decks, parking areas, and driveway areas.

**Karst –** A type of topography or landscape characterized by surface depressions, sinkholes, rock pinnacles / uneven bedrock surface, underground drainage and caves. Karst is formed on carbonate rocks, such as limestone or dolomite.

**Land Development (Development)** – Inclusive of any or all of the following meanings: (i) the improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving (a) a group of two or more buildings, or (b) the division or allocation of land or space between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups, or other features; (ii) any subdivision of land; (iii) development in accordance with Section 503(1.1) of the PA Municipalities Planning Code.

**Municipality** -_____, _____ County, Pennsylvania.

**NRCS** - Natural Resources Conservation Service (previously SCS).

**PA DOT** – Pennsylvania Department of Transportation.

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

**Permanently Removed Volume (PRV)** – The volume of runoff that is permanently removed from the runoff and not released into surface Waters of this Commonwealth during or after a storm event.

**Pervious Surface (Pervious Area)** – Ground surfaces that may be vegetated or un-vegetated, and that are not covered with any type of impervious surface(s).

**Project Site** - The specific area of land where any Regulated Activities in the Municipality are planned, conducted or maintained.

**Qualified Professional –** Any person licensed by the Pennsylvania Department of State or otherwise qualified by law to perform the work required by the Ordinance.

**Regulated Activities-** All activities involving land development or earth disturbance activity.

**Retention / Removed** - The volume of runoff that is captured and not released directly into the surface Waters of this Commonwealth during or after a storm event.

**Return Period** - The interval, in years, within which a storm event of a given magnitude can be expected, on average, to recur. For example, the 25-year return period rainfall would be expected, on average, to recur every twenty-five years.

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

**Sediment-** Soils or other materials transported by surface water as a product of erosion.

**State Water Quality Requirements -** The regulatory requirements to protect, maintain, reclaim, and restore water quality under Pennsylvania Code Title 25 and the Clean Streams Law.

**Stormwater** – Drainage runoff from the surface of the land resulting from precipitation, snow, or ice melt.

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

**Stormwater Management Plan -** The plan for managing storm water runoff adopted by the County of _____ for the _____ Watershed as required by the Act of October 4, 1978, P.L. 864, (Act 167), as amended, and known as the "Stormwater Management Act".

**Stormwater Management BMPs-** Is abbreviated as **SWM BMPs** throughout this Ordinance.

**Stormwater Management Site Plan** - The plan prepared by the Developer or his representative indicating how storm water runoff will be managed at the project site in accordance with this Ordinance. **Stormwater Management Site Plan** will be designated as **SWM Site Plan** throughout this Ordinance.

**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.

**USACE** – United States Army Corps of Engineers

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

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

**Wetland** - Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, fens, and similar areas.

# ARTICLE III-STORMWATER MANAGEMENT STANDARDS

## Section 301. General Requirements

A. No Regulated Activities shall commence until the municipality approves a plan, which demonstrates compliance with the requirements of this Ordinance.

B. Plans approved by the Municipality shall be on site throughout the duration of the Regulated Activity.

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

D. For all Regulated Activities equal to or greater than 1000 sq. ft. in area, implementation of peak rate controls and preparation of a SWM Site Plan are required, unless exempted by Section 302 of this Ordinance. Please note that a pre-design conference shall be required to discuss the design and implementation of peak rate controls, and the preparation of a SWM Site Plan. Also note that both the Applicant and the Qualified Professional must attend this pre-design conference. The Qualified Professional will be provided with a copy of the Municipality's applicable stormwater management design manual at this pre-design conference.

E. Impervious Areas:

1. The measurement of impervious areas shall include the all of the imperious areas in the total proposed development even if development is to take place in stages.

2. For development taking place in stages, the entire development plan must be used in determining conformance with this Ordinance.

3. For projects that add impervious area to a parcel, the Total Impervious Area on the parcel is subject to the requirements of this ordinance.

F. Discharges onto adjacent property shall not be created, increased, decreased, or relocated, or otherwise altered without permission of the adjacent property owner(s). Such discharges shall be subject to the requirements of this Ordinance.

G. All regulated activities shall include such measures as necessary to:

1. Protect health, safety, and property;

2. Meet State Water Quality Requirements as defined in Article II;

3. Meet the water quality goals of this ordinance by implementing measures to:

a. Minimize disturbance to floodplains, wetlands, natural slopes over 15%, and existing native vegetation.

b. Preserve and maintain trees and woodlands. Maintain or extend riparian buffers and protect existing forested buffer. Provide trees and woodlands adjacent to impervious areas whenever feasible.

c. Establish and maintain non-erosive flow conditions in natural flow pathways.

d. Minimize soil disturbance and soil compaction. Cover disturbed areas with topsoil having a minimum depth of 4 inches. Use tracked equipment for grading when feasible.

e. Disconnect impervious surfaces by directing runoff to pervious areas.

4. Incorporate the techniques described in Appendix A of this Ordinance (Low Impact Development Practices) whenever practical.

H. The design of all facilities over Karst shall include an evaluation of measures to minimize adverse effects.

I. The design storm volumes to be used in the analysis of peak rates of discharge should be obtained from the Precipitation-Frequency Atlas of the United States, Atlas 14, Volume 2, US Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland, 20910. NOAA's Atlas 14 can be accessed at Internet address: http://hdsc.nws.noaa.gov/hdsc/pfds/.

J. All project sites shall be evaluated for the presence of wetlands. If wetlands are present, then the applicant shall obtain a jurisdictional determination from the USACE.

## Section 302. Exemptions

A. Regulated Activities that create less than 1000 sq. ft. of new impervious area and that meet the Area of Influence (AOI) requirements shown in Table 1A are exempt from the peak rate control and the SWM Site Plan preparation requirement of this Ordinance.

B. Regulated Activities that create less than 1000 sq. ft. of new impervious area and that meet the Area of Influence (AOI) requirements shown in Table 1B are exempt from the rate control requirements of this Ordinance.

C. Use the Guidelines in Appendix D to determine the Area of Influence (AOI), in acres and the Total Impervious Area (TIA), in square feet to determine if an exemption is applicable for regulated activities less than 1000 square feet.

D. After the date of the Ordinance adoption, if a subdivision, land development plan, or any plan for a regulated activity is submitted that addresses peak rate control and includes a SWM Site Plan, then the impervious exemption is calculated from the date of approval of that plan, based upon the impervious area shown on the subdivision and land development plan.

E. Agricultural plowing and tilling are exempt from the rate control and SWM Site Plan preparation requirements of this ordinance provided the activities are performed according to the requirements of 25 Pa.Code Chapter 102.

F. Exemptions from any provisions of this Ordinance shall not relieve the applicant from the requirements in Sections 301.F, G, H, and J.

TABLE 1A: SWM exemptions from Peak Rate Controls and SWM Site Plan preparation for Area of Influence (AOI) less than 3 acres.

| **Area of Influence (AOI) (acres)** | **Total Impervious Area (TIA) Exempt from Peak Rate Controls and from SWM Site Plan Preparation (square feet)** |
|---|---|
| < 0.125 acre | 1000 |
| 0.2 | 1400 |
| 0.3 | 1900 |
| 0.4 | 2300 |
| 0.5 | 2700 |
| 0.6 | 3100 |
| 0.7 | 3500 |
| 0.8 | 3900 |
| 0.9 | 4200 |
| 1.0 | 4600 |
| 1.1 | 4900 |
| 1.2 | 5200 |
| 1.3 | 5500 |
| 1.4 | 5900 |
| 1.5 | 6200 |
| 1.6 | 6500 |
| 1.7 | 6800 |
| 1.8 | 7100 |
| 1.9 | 7300 |
| 2.0 | 7600 |
| 2.1 | 7900 |
| 2.2 | 8200 |
| 2.3 | 8400 |
| 2.4 | 8700 |
| 2.5 | 9000 |
| 2.6 | 9200 |
| 2.7 | 9500 |
| 2.8 | 9800 |
| 2.9 | 10000 |

TABLE 1B: SWM exemptions from peak rate controls (ONLY) for Area of Influence (AOI) 3.0 acres and greater

| **Area of Influence (AOI) (acres)** | **Total Impervious Area (TIA) Exempt from Peak Rate Controls ONLY (square feet)** |
|---|---|
| 3 | 10300 |
| 3.1 | 10500 |
| 3.2 | 10800 |
| 3.3 | 11000 |
| 3.4 | 11300 |
| 3.5 | 11500 |
| 3.6 | 11700 |
| 3.7 | 12000 |
| 3.8 | 12200 |
| 3.9 | 12500 |
| 4 | 12700 |
| 4.1 | 12900 |
| 4.2 | 13200 |
| 4.3 | 13400 |
| 4.4 | 13600 |
| 4.5 | 13800 |
| 4.6 | 14100 |
| 4.7 | 14300 |
| 4.8 | 14500 |
| 4.9 | 14700 |
| 5 | 15000 |
| > 5 | 15000 |

**Notes: The Area of Influence (AOI) in acres and the Total Impervious Area (TIA) in square feet are calculated using the guidelines provided in Appendix D.**

## Section 303. Water Quality

Water quality control shall be implemented using the following methodologies:

A. The Simplified Method, as detailed below, is independent of site conditions.

1. Retention and detention facilities shall be sized to capture the first two inches (2") of runoff from all impervious surfaces.

2. The first **one inch** (1.0") of runoff shall be permanently removed and shall not be released into the surface Waters of this Commonwealth. This is the Permanently Removed Volume (PRV). Removal options include reuse, evaporation, transpiration, and infiltration. A list of the site conditions and BMP's generally suitable for infiltration is provided in Appendix B.

3. The subsequent **one inch** (1.0") of runoff shall be detained. This is the Extended Detention Volume (EDV).

4. Infiltration of the first **one-half inch** (0.5") of the PRV is encouraged. This portion of the PRV is the Groundwater Recharge Volume (GRV). A list of the site conditions and BMP's generally suitable for infiltration is provided in Appendix B.

5. The Permanently Removed Volume (PRV) requirement for land areas with existing cover consisting of meadow, brush, wood-grass combination, or woods proposed for conversion to any other non-equivalent type of pervious cover shall be one-fourth (1/4) inch of runoff.

6. Retention and detention facilities should be designed to drain both the PRV and EDV completely within 48 to 96 hours from the start of the storm.

7. Retention facilities should be designed to accommodate infiltration of the PRV. Infiltration areas should be spread out and located in the sections of the site that are most suitable for infiltration. A list of the site conditions and BMPs generally suitable for infiltration is provided in Appendix B.

B. The Design Storm Method, as detailed below, requires technical modeling based on site conditions.

1. Do not increase the post-development total runoff volume for all storms equal to or less than the 2-year 24-hour duration rainfall.

2. Do not increase peak rate of runoff for (1-, 2-, 10-, 25-, 100-year storms (at minimum), pre-development to post-development; as necessary, provide additional peak rate control for as required by Act 167 planning.

3. Existing (pre-development) non-forested pervious areas must be considered meadow or its equivalent.

*The Pennsylvania Stormwater Best Management Practices Manual* (1) provides guidance on selection and application of both water quality control methodologies.

## Section 304. Rate Controls

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

Post-development discharge rates shall not exceed the predevelopment discharge rates for the 1-, 2-, 10-, 25-, and 100-year storms. If it is shown, that the peak rates of discharge indicated by the post-development analysis are less than or equal to the peak rates of discharge indicated by the pre-development analysis for 1-, 2-, 10-, 25-, and 100-year, 24-hour storms, then the requirements of this section have been met. Otherwise, the applicant shall provide additional controls as necessary to satisfy the peak rate of discharge requirement.

B. Areas covered by a Release Rate Map from an approved Act 167 Stormwater Management Plan:

For the 1-, 2-, 10-, 25-, and 100-year storms, the post-development discharge rates will follow the release rate maps in this Ordinance. For any areas not shown on the release rate maps, the post-development discharge rates shall not exceed the predevelopment discharge rates.

C. BMPs for Rate Controls

A list of BMPs for peak rate controls is provided in Appendix B, Item C.

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

## Section 401. Plan Contents

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

A. Appropriate sections from the Municipal Subdivision and Land Development Ordinance shall be followed in preparing the SWM Site Plans. In instances where the Municipality lacks Subdivision and Land Development regulations, the County Subdivision and Land Development Ordinance shall be followed.

B. The SWM Site Plan shall provide the following supplemental information:

1. The overall stormwater management concept for the project.

2. A determination of Site Conditions in accordance with Appendix B. A detailed site evaluation shall be completed for projects proposed in karst topography.

3. Stormwater runoff computations as specified in this Ordinance.

4. Expected project time schedule.

5. An erosion and sediment pollution control plan, as prepared for and submitted to the approval authority.

6. 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.

7. Plan and profile drawings of all SWM BMP's including open channels and swales.

8. SWM Site Plan shall show the locations of existing and proposed septic tank infiltration areas and wells.

9. A permanent fifteen-foot wide pathway for use by vehicles shall be provided around all SWM BMPs, such as ponds and infiltration structures. The pathways shall connect to a public thoroughfare.

10. The following signature block for the Municipality:

"_____, on this date (date of signature), has reviewed this SWM Site Plan in accordance with the design standards and criteria of the applicable Municipal Ordinances."

11. The following signature block for the Qualified Professional:

"_____, on this date (date of signature), herby certify that this SWM Site Plan was prepared in strict accordance with all of the design standards and criteria of all applicable Municipal Ordinances."

## Section 402. Plan Submission

A. Five (5) copies of the SWM Site Plan shall be submitted as follows:

1. Two (2) copies to the Municipality.

2. One copy to the Municipal Engineer (when applicable)

3. One (1) copy to the County Conservation District.

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

B. Additional copies shall be submitted as requested by the Municipality, DEP, or PA DOT.

## Section 403. Plan Review

A. The SWM Site Plan shall be reviewed by a qualified professional for the Municipality for consistency with the provisions of this ordinance. After review, the qualified professional shall provide a written recommendation for the municipality to approve or disapprove the SWM Site Plan. If it is recommended to disapprove the SWM Site Plan, the qualified professional shall state the reasons for the disapproval in writing. The qualified professional also may recommend approval of the SWM Site Plan with conditions and, if so, shall provide the acceptable conditions for approval in writing. The SWM Site Plan review and recommendations shall be completed within the time allowed by the Municipalities Planning Code for reviewing subdivision plans.

B. The Municipality shall notify the applicant in writing within 45 calendar days whether the SWM Site Plan is approved or disapproved. If disapproved, the Municipality shall cite the reasons for disapproval.

C. The Municipality's approval of a SWM Site Plan shall be valid for a period not to exceed five (5) years. This five-year time period shall commence on the date that the Municipality signs the approved SWM Site Plan. If stormwater management facilities included in the approved SWM Site Plan have not been constructed, or if an As-Built Survey of these facilities has not been approved within this five-year time period, then the Municipality may consider the SWM Site Plan disapproved and may revoke any and all permits. SWM Site Plans that are considered disapproved by the Municipality shall be resubmitted in accordance with Section 405 of this Ordinance.

## Section 404. Modification of Plans

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

## Section 405. Resubmission of Disapproved SWM Site Plans

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

## Section 406. As Built Surveys, Completion Certificate, and Final Inspection

A. The Developer shall be responsible for completing an "As-Built Survey" of all SWM BMPs included in the approved SWM Site Plan. The As-Built Survey and an explanation of any discrepancies with the design plans shall be submitted to the Municipality.

B. The submission shall include a certification of completion from an engineer, architect, surveyor or other qualified person verifying that all permanent SWM BMPs have been constructed according to the plans and specifications and approved revisions thereto.

C. After receipt of the completion certification by the Municipality, the Municipality may conduct a final inspection.

# ARTICLE V- OPERATION AND MAINTENANCE

## Section 501. Responsibilities

A. The Municipality shall make the final determination on the continuing maintenance responsibilities prior to final approval of the SWM Site Plan. The Municipality may require a dedication of such facilities as part of the requirements for approval of the SWM Site Plan. Such a requirement is not an indication that the Municipality will accept the facilities. The Municipality reserves the right to accept the ownership and operating responsibility for any or the entire stormwater management controls.

B. Structural SWM BMPs shall be enumerated as permanent real estate appurtenances and recorded as deed restrictions.

## Section 502. Operation and Maintenance Agreements

The owner is responsible for Operation and Maintenance of the SWM BMP's, and for preparing an Operation and Maintenance Agreement in accordance with Appendix C. If the owner fails to adhere to the Operation and Maintenance Agreement, the Municipality may perform the services required and charge the owner appropriate fees. Non-payment of fees may result in a lien against the property.

# ARTICLE VI-FEES AND EXPENSES

## Section 601. General

The Municipality may include all costs incurred in the Review Fee charged to an Applicant.

The Review Fee may include but not be limited to costs for the following:

A. Administrative/clerical processing.

B. Review of the SWM Site Plan.

C. Attendance at Meetings.

D. Inspections.

E. Engineering Review Costs

# ARTICLE VII-PROHIBITIONS

## Section 701. Prohibited Discharges

A. Any drain or conveyance, whether on the surface or subsurface, which allows any non-stormwater discharge including sewage, process wastewater, and wash water to enter the Waters of this Commonwealth is prohibited.

B. Discharges, which may be allowed, if they do not significantly contribute to pollution to the Waters of this Commonwealth, are:

| | |
|---|---|
| -Discharges from fire fighting activities | -Flows from riparian habitats and wetlands |
| -Potable water sources including dechlorinated water line and fire hydrant flushings | -Uncontaminated water from foundations or from footing drains |
| -Irrigation drainage | -Lawn watering |
| -Air conditioning condensate | -Dechlorinated swimming pool discharges |
| -Springs | -Uncontaminated groundwater |
| -Water from crawl space pumps | -Water from individual residential car washing |
| -Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) and where detergents are not used | -Routine external building wash down (which does not use detergents or other compounds) |

C. In the event that the Municipality or DEP determines that any of the discharges identified in Subsection 701.B, significantly contribute to pollution of the Waters of this Commonwealth, the Municipality or DEP will notify the responsible person(s) to cease the discharge.

## Section 702. Roof Drains

Roof drains and sump pumps shall discharge to infiltration or vegetative BMP's to the maximum extent practicable.

## Section 703. Alteration of BMPs

No person shall modify, remove, fill, landscape, or alter any SWM BMPs without the written approval of the Municipality.

# ARTICLE VIII-ENFORCEMENT AND PENALTIES

## Section 801. Right-of-Entry

As a condition of approval of an Applicant's stormwater management site plan, and upon presentation of proper credentials, the Applicant agrees that the Municipality, and/or their agents, may enter upon any property within the Municipality to inspect the condition of the stormwater structures and facilities in regard to any aspect regulated by this Ordinance.

## Section 802. Inspection

SWM BMPs shall be inspected by the land owner/developer (including Municipality for dedicated facilities) according to the following list of frequencies:

1. Annually for the first 5 years.

2. Once every 3 years thereafter,

3. During or immediately after the cessation of any storm event.

## Section 803. Enforcement

A. It shall be unlawful for a person to undertake any Regulated Activity except as provided in an approved SWM Site Plan.

B. It shall be unlawful to alter, remove, or fail to implement any control structure required by the SWM Site Plan.

C. Inspections regarding compliance with the SWM Site Plan are a responsibility of the Municipality.

## 804. Suspension and Revocation

A. Any approval for a Regulated Activity may be suspended or revoked (in writing) by the Municipality for:

1. Non-compliance with, or failure to implement any provision of the approval, including As-Built Surveys and Completion Certificates.

2. A violation of any provision of this Ordinance or any other applicable law, Ordinance, rule or regulation relating to the Regulated Activity.

3. The creation of any condition or the commission of any act during the Regulated Activity which constitutes or creates a hazard or nuisance, pollution, or which endangers the life or property of others.

B. A suspended approval may be reinstated by the Municipality when:

1. The Municipality has inspected and approved the corrections to the violations that caused the suspension.

2. The Municipality is satisfied that the violation has been corrected.

C. An approval that has been revoked by the Municipality cannot be reinstated. The Applicant may apply for a new approval under the provisions of this Ordinance.

D. Prior to revocation or suspension of a permit, if there is no immediate danger to life, public health, or property the Municipality may notify the land owner/ developer to discuss the non-compliance.

## Section 805. Penalties

A. Anyone violating the provisions of this Ordinance may be assessed a civil penalty of not more than $_____ for each violation, recoverable with costs. Each day that the violation continues constitutes a separate violation, and penalties shall be cumulative.

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

## Section 806. Appeals

A. Any person aggrieved by any action of the Municipality or its designee, relevant to the provisions of this Ordinance, may appeal to the Municipality within thirty (30) days of that action.

B. Any person aggrieved by any decision of the Municipality, 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 Municipality's decision.

# ARTICLE IX - REFERENCES

1. Pennsylvania Department of Environmental Protection. 2005. *Draft Pennsylvania Stormwater Best Management Practices Manual.* Harrisburg, PA.

**ENACTED and ORDAINED** at a regular meeting of the

_____

on this _____ day of _____, 20__.

This Ordinance shall take effect immediately.

_____

[Name] [Title]

_____

[Name] [Title]

_____

[Name] [Title]

ATTEST:

_____

Secretary

APPENDIX A

# LOW IMPACT DEVELOPMENT PRACTICES ALTERNATIVE APPROACH FOR MANAGING STORMWATER RUNOFF

Natural hydrologic conditions may be altered by development practices, which may create impervious surfaces, destroy drainage swales, construct storm sewers, and change local topography. A traditional approach to drainage has been to remove runoff from sites as quickly as possible and capture it in downstream detention basins. This approach leads to the degradation of water quality as well as additional expenditures for detaining and managing concentrated runoff.

The recommended approach is to promote practices that will minimize post-development runoff rates and volumes and minimize needs for artificial conveyance and storage facilities. To simulate pre-development hydrologic conditions, increased infiltration often is helpful to offset the effects of increasing the area of impervious surfaces. The ability to increase infiltration depends upon the soil types and land use.

Preserving natural hydrologic conditions requires careful site design that includes preservation of natural drainage features, minimization of impervious surfaces, reduction of hydraulic connectivity of impervious surfaces, and protection of natural depression storage areas. A well-designed site will contain a mix of all these features. The following describes various techniques to achieve this:

A. **Preserve Drainage Features**. Protect natural drainage features, particularly vegetated drainage swales and channels. Locate streets and adjacent storm sewers away from valleys and swales.

B. **Protect Natural Depression Storage Areas**. Depression storage areas have no surface outlet, or they drain very slowly. Depressions should be protected and the storage capacity should be incorporated into required detention facilities.

C. **Avoid Creating Impervious Surfaces.** Reduce impervious surfaces to the maximum extent possible. Building footprints, sidewalks, driveways and other features should be minimized.

D. **Avoid Connecting Impervious Surfaces**. Route roof runoff over lawns and avoid using storm sewers. Grade sites to increase the travel time of stormwater runoff. Avoid concentrating runoff.

E. **Use Pervious-Paving Materials**. Use pervious materials for driveways, parking lots, access roads, sidewalks, bike trails and hiking trails. Provide pervious strips between streets and sidewalks.

F. **Reduce Setbacks**. Reduce setbacks for buildings to shorten the driveways and entry walks.

G. **Construct Cluster Developments**. Construct Cluster Developments to reduce street length per lot.

# APPENDIX B

## A. LIST OF SITE CONDITIONS SUITABLE FOR INFILTRATION

1. Depth of bedrock below the invert of infiltration BMPs should be greater than or equal to 2 feet.

2. Depth of seasonal high water table below the invert of infiltration BMPs should be greater than or equal to 2 feet.

3. Soil permeability tests should be greater than or equal to 0.10 inches / hour and less than or equal to 10 inches per hour.

4. Setback distances or buffers of infiltration BMPs should be a minimum of:

   a. 50 feet from individual water supply wells and 100 feet from community or municipal water supply wells.

   b. 20 feet from building foundations.

   c. 50 feet from septic system drain fields.

   d. 50 feet from karst geologic contacts such as sinkholes, closed depressions, fracture traces, faults, and pinnacles.

   e. 20 feet from the property line unless documentation is provided to show that all setbacks from wells, foundations and drain fields on neighboring properties will be met

## B. EFFECTIVE BMPs FOR INFILTRATION

1. Infiltration trench

2. Infiltration Basin

3. Biofilters, rain gardens, bioinfiltration, bio swales

4. Filters for pre-treatment.

## C. EFFECTIVE BMPs FOR RATE CONTROL

1. Wet ponds
2. Stormwater wetlands
3. Extended detention (dry) ponds
4. Swales
5. Runoff volume reduction BMPs listed and B and C above such as retention, infiltration and re-vegetation.

## D. EFFECTIVE BMPs FOR EVAPOTRANSPIRATION

1. Rain gardens
2. Green roofs

# APPENDIX C

## OPERATION AND MAINTENANCE AGREEMENT STORMWATER BEST MANAGEMENT PRACTICES

**THIS AGREEMENT**, made and entered into this _____ day of _____, 200__, by and between _____, (hereinafter the "Landowner"), and _____, _____ County, Pennsylvania, (hereinafter "Municipality");

WITNESSETH

**WHEREAS**, the Landowner is the owner of certain real property as recorded by deed in the land records of _____ County, Pennsylvania, Deed Book _____ at Page _____, (hereinafter "Property").

**WHEREAS**, the Landowner is proceeding to build and develop the Property; and

**WHEREAS,** the stormwater management BMP Operation and Maintenance Plan approved by the Municipality (hereinafter referred to as the "Plan") for the property identified herein, which is attached hereto as Appendix A and made part hereof, as approved by the Municipality, provides for management of stormwater within the confines of the Property through the use of Best Management Practices (BMPs); and

**WHEREAS**, the Municipality, and the Landowner, his successors and assigns, agree that the health, safety, and welfare of the residents of the Municipality and the protection and maintenance of water quality require that on-site stormwater Best Management Practices be constructed and maintained on the Property; and

**WHEREAS**, the Municipality requires, through the implementation of the SWM Site Plan, that stormwater management BMP's as required by said Plan and the Municipal Stormwater Management Ordinance be constructed and adequately operated and maintained by the Landowner, his successors and assigns.

**NOW, THEREFORE**, in consideration of the foregoing promises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. The Landowner shall construct the BMPs in accordance with the plans and specifications identified in the SWM Site Plan.

2. The Landowner shall operate and maintain the BMPs as shown on the Plan in good working order accordance with the specific maintenance requirements noted on the approved SWM Site Plan.

3. The Landowner hereby grants permission to the Municipality, its authorized agents and employees, to enter upon the property, at reasonable times and upon presentation of proper credentials, to inspect the BMPs whenever necessary. Whenever possible, the Municipality shall notify the Landowner prior to entering the property.

4. In the event the Landowner fails to operate and maintain the BMPs per paragraph 2, the Municipality or its representatives may enter upon the Property and take whatever action is deemed necessary to maintain said BMP(s). This provision shall not be construed to allow the Municipality to erect any permanent structure on the land of the Landowner. It is expressly understood and agreed that the Municipality is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the Municipality.

5. In the event the Municipality, pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Landowner shall reimburse the Municipality for all expenses (direct and indirect) incurred within 10 days of receipt of invoice from the Municipality.

6. The intent and purpose of this Agreement is to ensure the proper maintenance of the onsite BMPs by the Landowner; provided, however, that this Agreement shall not be deemed to create or affect any additional liability of any party for damage alleged to result from or be caused by stormwater runoff.

7. The Landowner, its executors, administrators, assigns, and other successors in interests, shall release the Municipality from all damages, accidents, casualties, occurrences or claims which might arise or be asserted against said employees and representatives from the construction, presence, existence, or maintenance of the BMP(s) by the Landowner or Municipality.

8. The Municipality shall inspect the BMPs at a minimum of once every three years to ensure their continued functioning.

This Agreement shall be recorded at the Office of the Recorder of Deeds of _____ County, Pennsylvania, and shall constitute a covenant running with the Property and/or equitable servitude, and

shall be binding on the Landowner, his administrators, executors, assigns, heirs and any other successors in interests, in perpetuity.

ATTEST:

WITNESS the following signatures and seals:

(SEAL) For the Municipality:

_____

(SEAL) For the Landowner:

_____

ATTEST:

_____ (City, Borough, Township)

County of _____, Pennsylvania

I, _____, a Notary Public in and for the County and State aforesaid, whose commission expires on the _____ day of _____, 20__, do hereby certify that _____ whose name(s) is/are signed to the foregoing Agreement bearing date of the _____ day of _____, 20__, has acknowledged the same before me in my said County and State.

**GIVEN UNDER MY HAND THIS** _____ day of _____, 200_.

_____ _____

**NOTARY PUBLIC** **(SEAL)**

APPENDIX D

EXAMPLE CALCULATIONS TO DETERMINE
EXEMPTION FROM SWM SITE PLAN PREPARATION REQUIREMENTS

# Example 1

1. The proposed new impervious area B of a garage is 900 sq. ft which is next to the house and a driveway which are 1920 and 700 sq. ft respectively.

2. Determine the longest dimension of the area by connecting the out to out points of the area (the diagonal D). This measures 102 ft. (the driveway is 32 ft by 30 ft and the house is 60 ft by 32 ft)

3. Extend the area of the house and driveway (60 ft. by 82 ft) in every direction by 102 ft and draw a rectangle. This is a 264 ft. by 286 ft. rectangle. The area of this rectangle is designated as the Area of Influence (AOI) and is equal to 75,504 sq. ft, which is 1.7 acres.

4. Now, calculate the Total Impervious Area (TIA) inside this Area of Influence (AOI) which is designated as a = area of the existing house +area of the new garage+ area of the driveway+ portion of neighbor's house on the right + area of hickory lane on the bottom.

5. a= 1920+900+700+1200+ 264*10= 7360 sq. ft.

6. According to Table 1A, maximum exemption for 1.7 Acres is 6800 sq. ft. 7360 sq. ft. is larger than 6800 sq. ft.

7. So, construction of this new garage requires preparation of SWM Site Plan that includes Peak Rate Control.

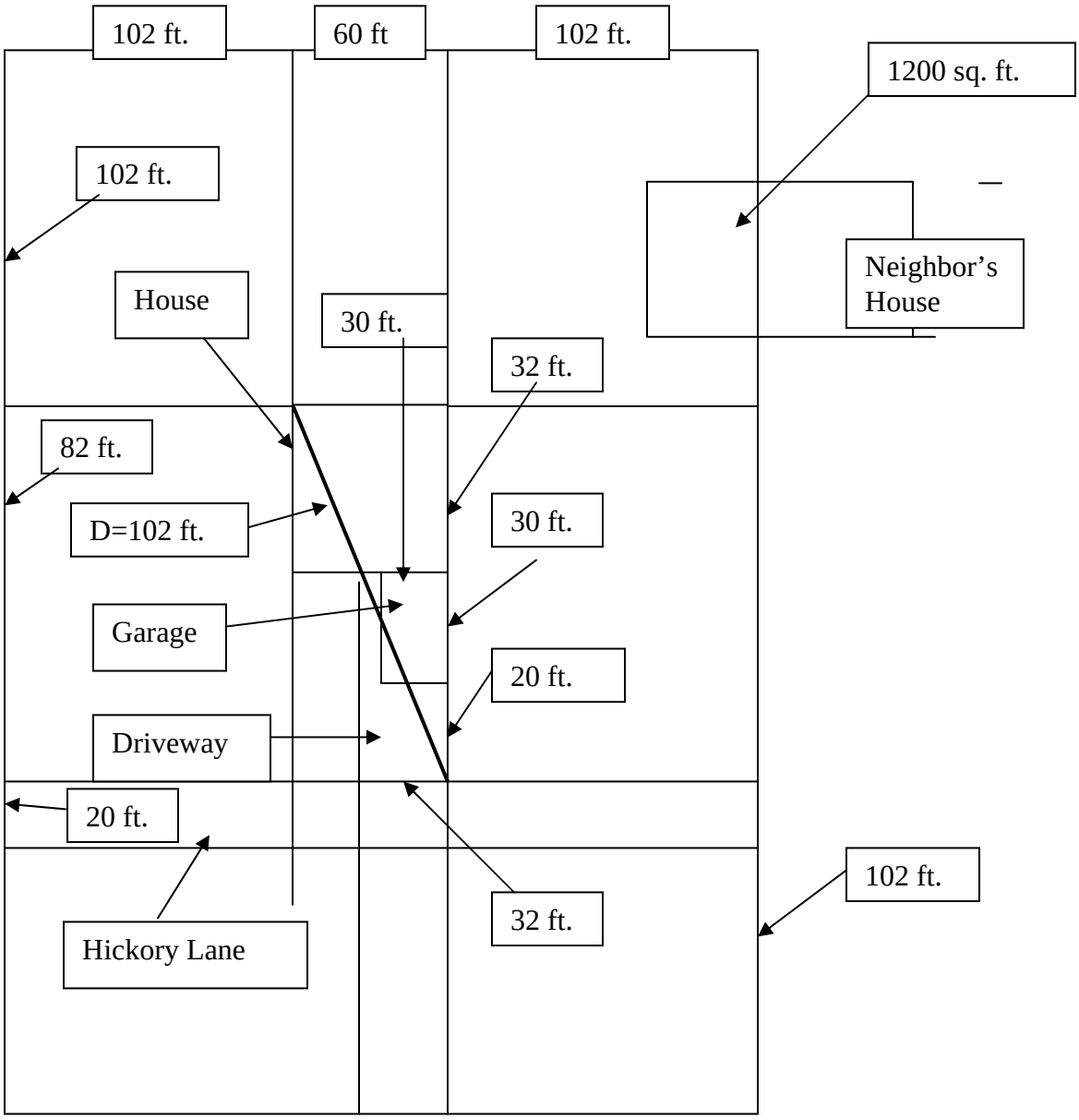
102 ft.
60 ft
102 ft.
1200 sq. ft.
102 ft.
Neighbor's House
House
30 ft.
32 ft.
82 ft.
D=102 ft.
30 ft.
Garage
20 ft.
Driveway
20 ft.
102 ft.
32 ft.
Hickory Lane

**Figure D.1.**

# Example 2

1. Proposed new impervious area, B= Area of the garage = 600

2. Total Impervious Area (TIA) within the Area of Influence (AOI) is
a = Area of the house+ area of the garage+ area of the driveway+ Area of the Rhubarb's lane

=50*30+600+30*5+20*25+(94*2+50)*10
=5130 sq. ft

3. Area of Influence (AOI)=(94*2+50)*(94+30+50+94)
=(238*268) sq. ft
=63784 sq. ft.
=1.5 acres

4. From Table 1A, Total Impervious Area allowed from Peak Rate Control and SWM Site Plan preparation is 6200 sq. ft., corresponding to the Area of Influence (AOI), is 1.5 acres. The Total Impervious Area 5130 sq. ft. within the Area of Influence (AOI) is less than 6200 sq. ft.; therefore, construction of the 600 sq. ft. garage is exempt from preparation of the SWM Site Plan (and from peak rate control) requirement.

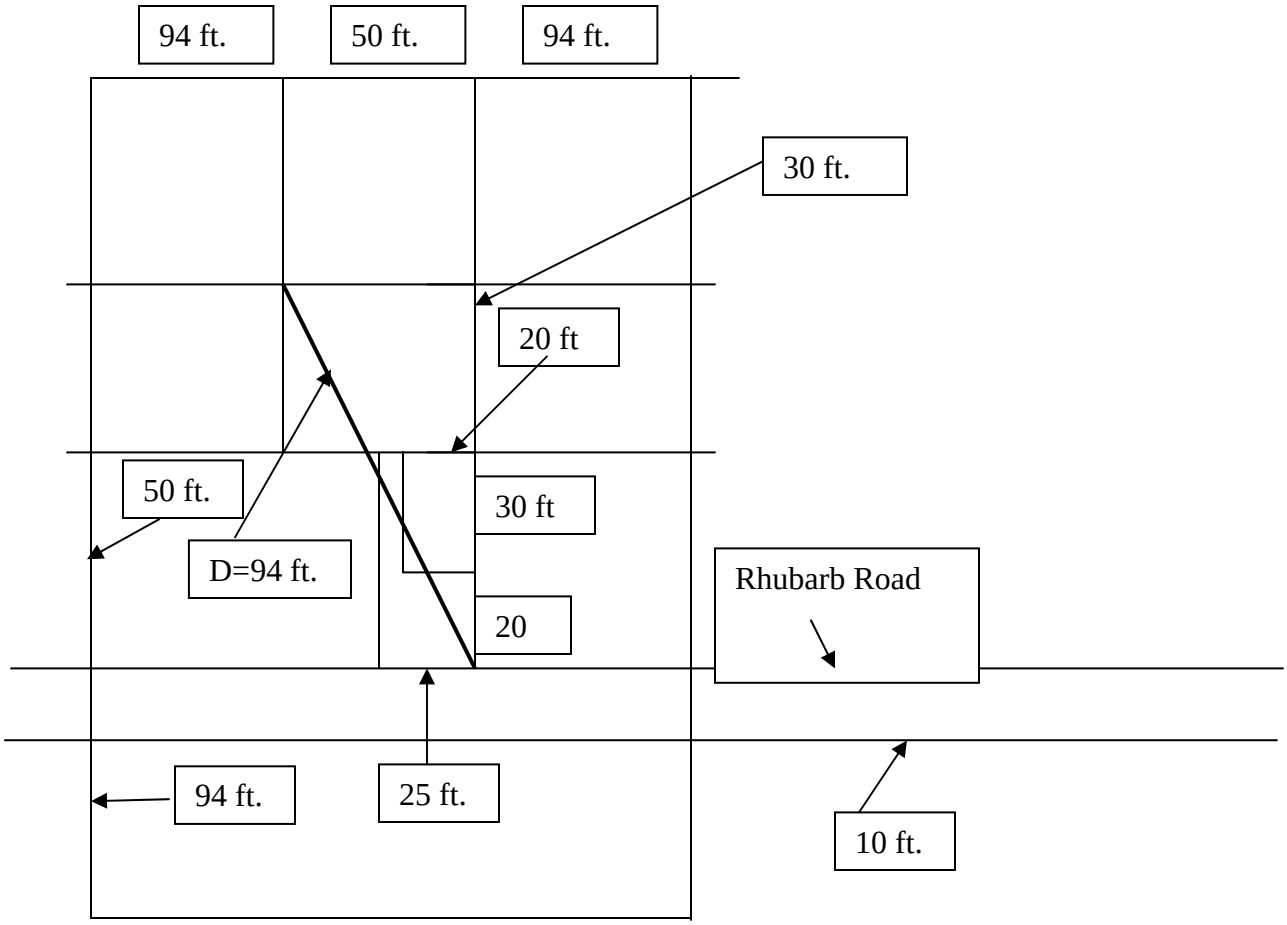
94 ft.
50 ft.
94 ft.
30 ft.
20 ft
50 ft.
30 ft
D=94 ft.
Rhubarb Road
20
94 ft.
25 ft.
10 ft.

Figure D.2.

# REFERENCES


Driver, N.E. and G.D. Tasker, 1988, Techniques for Estimation of Storm-Runoff Loads, Volumes, and Selected Constituent Concentrations in Urban Watersheds in the United States, U.S. Geological Survey Open-File Report 88-191, Denver, CO.

Laffey, T. 1988, "Estimating Pre- and Post-Development Non-Point Source Water Quality pollution Loadings for the Calder Alley and Little Plum Run Watersheds," CE554, Urban Hydrology, Pennsylvania State University, University Park PA.

PA Handbook of Best Management Practices for Developing Areas, (PA Association of Conservation District, 1998).

Pennsylvania Department of Environmental Protection, Division of Bureau of Water Quality Protection, Division of Waterways, Wetlands and Erosion Control, March 2000. Erosion and Sediment Pollution Control Program Manual, Harrisburg, PA.

Pennsylvania Department of Environmental Protection. 2005. Draft Pennsylvania Stormwater Best Management Practices Manual. Harrisburg, PA.

Schuler, T., 1987, Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMP's, Metropolitan Washington Council of Governments, Washington, DC.

U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey , February 13, 2004. Soil Survey Geographic (SSURGO) database for Clinton County, PA., Forth Worth, Texas. Correlation date 2/2002 as amended.

U.S. Department of Housing and Urban Development Flood Insurance Study, Dunnstable Township, (1976), Pine Creek Township (1976), Woodward Township (1979)

# CHATHAM RUN WATERSHED

*CLINTON COUNTY, PENNSYLVANIA*

**LAND USE & OBSTRUCTIONS**

KEY

- MUNICIPAL BOUNDARY
- WATERSHED BOUNDARY
- SUBWATERSHEDS

**LAND USE**

**USE**

- Undeveloped Land
- Recreation
- Public and Semi-Public
- Residential
- Commercial
- Transportation, Communication
- Industrial
- STREAMS
- OBSTRUCTIONS

*1INCH EQUALS 3/4 MILE*

*A SERVICE OF CLINTON COUNTY GOVERNMENT*

664
664
150
Caldwell Dam
12
13
14
Chatham Run
Little Plum Run
Big Plum Run
Chatham Run
Little Plum Run
Big Plum Run
Chatham Run
Little Plum Run
Big Plum Run
GALLAGHER TWP
DUNNSTABLE TWP
PINE CREEK TWP
DUNNSTABLE TWP
WOODWARD TWP
PINE CREEK TWP
DUNNSTABLE TWP
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# CHATHAM RUN WATERSHED

*CLINTON COUNTY, PENNSYLVANIA*

## SLOPE & SOILS

KEY

- MUNICIPAL BOUNDARY
- WATERSHED BOUNDARY
- SUBWATERSHEDS
- STREAMS

**PERCENT SLOPE**

**Slope**

- 0 - 3
- 3 - 6
- 6 - 10
- 10 - 14
- 14 - 19
- 19 - 24
- 24 - 30
- 30 - 44
- 44 - 90
- B-Dsoils

*1INCH EQUALS 3/4 MILE*

*A SERVICE OF CLINTON COUNTY GOVERNMENT*

664

Caldwell Dam

Chatham Run

664

Chatham Run

GALLAGHER TWP

PINE CREEK TWP

DUNNSTABLE TWP

Little Plum Run

Chatham Run

DUNNSTABLE TWP

WOODWARD TWP

Big Plum Run

Little Plum Run

PINE CREEK TWP

DUNNSTABLE TWP

Chatham Run

Big Plum Run

150

Big Plum Run

# Attachments

WPAC Meeting Minutes
- March 22, 2006 (Solicitors and Engineers)
- March 22, 2006 (WPAC)
- May 30, 2006 (WPAC)

Public Hearing Minutes
- June 15, 2006

Clinton County Resolution – adoption of plan, June 29, 2006

Stormwater Management Plan Comments
- Clinton County Planning Department
- O'Connor & Salisbury for Woodward Township
- Coploff, Ryan, & Welch for Mill Hall Borough Council

(Please note that some comments are related to either the Chatham Run or the Fishing Creek Stormwater Management Plans, but the Model Ordinance included with both are the same).

Clinton County Commissioners Comments re: Municipality Enactment

Lewis Steinberg, Clinton County Solicitor
- Review of Comments and Model Ordinance

# Chatham Run and Fishing Creek
# Act 167 Stormwater Management Plan Update
# Meeting
# March 22, 2006

5:30 PM Meeting with Engineers and Solicitors

Mary Ann Bower, District Manager Clinton County Conservation District and Todd Pysher, Pysher & Associates, Inc., the Project Engineer, welcomed the group and gave a brief update of the Stormwater Management process that was started for the Chatham Run watershed in 2002.

The Clinton County Soil Survey was recently updated during the process of the Stormwater Management (SWM) plan update. It was discovered that the original SWM Plan for Chatham Run had incorrectly identified the Hydrologic groups. Also the maps were very poor.

There will now be 2 Map Plates that will be included with the Chatham Run SWM Plan Update. The watershed release rate maps included with the original Fishing Creek SWM Plan will still remain in effect.

The Pennsylvania Act 167 Stormwater Management Planning Act requires that Municipalities adopt an ordinance to implement the SWM plan. A municipality can adopt a different ordinance than the Model Ordinance we will present tonight, as long the ordinance addresses the SWM plan that has been adopted by the County Commissioners and approved by the Department of Environmental Protection.

In regard to the municipalities who do not have their own Zoning Odinances, and are covered by the County for enforcement, that Muncipality must still adopt the Ordinance.

Todd Pysher and Tom Bittner reviewed the Model Ordinance:
Important items to note or comments made include:
Section 301 D – requirement for a pre-design conference is for better consistency with each municipality's and other agency's permit requirements. Municipalities may however add a sentence stating that "it be required unless waived by the Township Engineer",
Section 301, E, 3 – The Total Impervious Area would only be subject to requirements if it was developed after adoption of ordinance
Section 301, H – regarding Karst Topography
Section 301, J – regarding wetlands
Section 302, F – Section 301 J will be added
Section 303 – Water Quality provisions and the PA Stormwater Best Management Practices Manual for guidance (it is still in draft but will be released soon)
Section 304 – relates to areas covered by a Release Rate Map (Fishing Creek) or not covered (Chatham Run)
Section 401, B, 10 – signature block for Municipality to add review date

Section 401, B, 10 – signature block for Engineer to add certification of SWM design
Section 403, C,– Municipality can add a time period the plan would be valid. 5 years seemed to be the most favored because of other expiration dates.
Section 406, – As Built Surveys, a completion certificate or inspection date: puts the responsibility on the developer or the owner to certify to the Municipality that the project was built as designed.
Section 601, F – There were questions on whether the legal fees could be included
Section 803 – Enforcement
Section 805 – Penalties (this should be discussed with your solicitor) There were questions about it being a summary offense

Please note the Area of Influence and Total Impervious Area calculations used to determine exemptions for plan development (included as Appendix D of the Model Ordinance):

Submitted by:
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45 Cooperation Lane
Mill Hall, PA 17751
Phone: 570-726-3798

# Chatham Run and Fishing Creek
# Act 167 Stormwater Management Plan Update
# Meeting
# March 22, 2006

Watershed Planning Advisory Committee Meeting:

Meeting started at 7:10 p.m.

**Mary Ann Bower** welcomed everyone and introduced County Officials and key people involved in the process of updating the Chatham Run and the Fishing Creek Stormwater Management (SWM) Plans. She introduced Todd Pysher, of Pysher and Associates who is the Project Engineer.
She reported on the process of the Chatham Run SWM Plan Update since 2002. The Clinton County Soil Survey was recently updated during the process of the Stormwater Management (SWM) plan update. It was discovered that the original SWM Plan for Chatham Run had incorrectly identified the Hydrologic groups. Also the maps were very poor. Fishing Creek SWM Plan Update will involve deleting the original exemption chart and following the new exemptions listed in the Model Ordinance. The original Fishing Creek watershed rate release maps will remain the same. The State Department of Environmental Protection is recommending that Municipalities adopt the new Model Ordinance municipal-wide, not just in the watershed study area.

**Tahmina Parvin** from Department of Environmental Protection (DEP) Stormwater Plannining and Management Section, showed a PowerPoint Presentation overview of Act 167 Stormwater Management Planning. She reported on the purpose of Act 167 and planning process. She explained the calculations for the Area of Influence and the Impervious Area that are included as Appendix D of the Model Ordinance.

**Barry Newman**, DEP, Stormwater Plannining and Management Section Chief, reported that 75% of a municipality's expenses for implementing the SWM Plan is reimbursable by the State. Almost all expenses are reimbursable except litigation over implementing the plan. All other expense are reimbursable including: advertising, engineers time, municipal personnel time, solicitors time, etc.

Barry also reported that action can be taken by DEP against municipalities if they are found in violation.

**Chuck Sweeney**, Clinton County Planning Commission, asked, "Why haven't more plans been done in Pennsylvania over 30 years that Act 167 has been in place?" "The Act appears to be a failure."

Barry reported that initially the Act itself was viewed as a permitting tool, not a planning process. He also reported that Act 167 was not aggressively implemented as it could have and should have been over the past 30 years. When NPDES Phase II came into effect, is when the Act 167 plans were reevaluated. Act 167 is a critical tool for water quality.

**Todd Pysher** reported that the problems that were encountered while updating the Chatham Run SWM Plan were with soil hydrologic groups. The data that the GIS now has available from the updated Soil Survey changed engineering modeling for the plan.

He also reported that the Chatham Run SWM Plan that was distributed at the meeting is much smaller than it used to be. There were several things removed such as: compilations, tables, etc. (Todd referred to specific sections in the plan.)

The Fishing Creek SWM Plan will remain the same with the deletion of the exemption table and the new Model Ordinance..

The Model Ordinance is Chapter 8 of the Chatham Run SWM Plan and Chapter 11 of the Fishing Creek SWM Plan. This Model Ordinance is to be used by the municipalities and made specific for each individual municipality. The Model Ordinance should be adopted by each municipality at a public meeting. The municipalities should consult their municipal engineers and solicitors. This "model" ordinance can be changed to suit each municipality as long as it addresses the SWM Plan. Also, the Model Ordinance is meant to be implemented municipality-wide not just within the Chatham Run and Fishing Creek Watershed areas.

Below are some of the discussion items from that meeting as they pertain to the Model Ordinance:

- Section 301, D - Municipalities should require pre-applications meetings with developers and their engineers prior to issuing any Occupancy permits. If pre-applications meetings are required it could eliminate confusion, people being left out of the planning process, other agency permit requirements, and it could also save time and money. Municipalities may however add a sentence stating that "it be required unless waived by the Township Engineer",
- Section 304 – relates to areas covered by a Release Rate Map (Fishing Creek) or not covered (Chatham Run)
- Section 401 – Signature blocks - - The first signature block is for the municipal officials, only stating that they reviewed the plan along with the applicable ordinances. The other signature block should be for the site plan was prepared in accordance with all applicable ordinances.
- Section 402 – Plan Submission – 5 copies of the plan will need to be submitted to various departments.
- Section 403, C – The municipalities should be including an expiration date for the SWM Site Plan so that if the construction isn't completed, the permits that were issued could be revoked.
- Section 601 - The cost of the municipal Engineer's review can be passed on to the Developers. Question on whether legal fees can also be collected.
- Section 803 - Enforcement
- Section 805 – Penalties (this should be discussed with your solicitor) There were questions about it being a summary offense
- Appendix A – Low Impact Development Practices, Alternative Approach for Managing Stormwater Runoff.
- Appendix B – List of Best Management Practices
- Appendix C - Operation and Maintenance agreement between the Landowner/Developer and the Municipality could be a very important tool.
- Appendix D - Please note the Area of Influence and Total Impervious Area calculations used to determine exemptions from SWM site plan development.

The municipalities should have separate delegation agreements for Act 167. If the County Planning Commission is issuing the Occupancy Permits for the municipality, Act 167 **IS NOT** automatically included without a separate agreement. The municipality is still responsible for enforcing Act 167.

**Mr. Tom Bossert** asked, "Can the County opt out of having a delegation agreement for SWM enforcement even if they are issuing the Occupancy Permits?" "Can adjacent municipalities use the same Stormwater Management enforcement officer?"

**Mr. Paul Welch** responded, "Absolutely, two or several municipalities can have agreements to use the same SWM enforcement officer." The County does not have to be the enforcing officer for Act 167.

**Barry Newman** suggested adding a phrase to the Model Ordinance – Section 301D that states a Pre-Application meeting can be waived at the discretion of the municipality.

Todd and Mary Ann reported that comments on the draft plans are due by May 5, 2006, to the Conservation District. The Final Plans will be adopted by the County Commissioners on June 15, 2006, following a Public Hearing. Municipalities will have 6 months from that date to adopt their own ordinance.

**Mary Ann** thanked everyone for attending the meeting.

Meeting ended at 9:15 p.m.

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# Chatham Run and Fishing Creek
# Act 167 Stormwater Management Plan Update
# Watershed Planning Advisory Committee Meeting:
# May 30, 2006

Meeting started at 7:00 PM

Mary Ann Bower, Clinton County Conservation District, welcomed everyone and introduced County Officials and key people involved in the process of updating the Chatham Run and the Fishing Creek Stormwater Management (SWM) Plans. She introduced Todd Pysher, of Pysher and Associates who is the Project Engineer.

Todd Pysher reviewed the official comments received in writing. Comments received regarding the recommendation to adopt the Model Ordinance municipal-wide was discussed. It was noted that the Model Ordinance is written so that it could be adopted municipal-wide, if a Municipality chooses to do so. Act 167 states it is a watershed based Storm Water Management Plan; therefore, it is the Municipality's decision to adopt the ordinance as they choose.

Some of the reasons to consider adopting the Ordinance municipal-wide are:

- Some development projects can span two different watersheds in your municipality and therefore the ordinances would not be consistent
- Developers, being aware of the difference in ordinances, would be more inclined to develop in the areas not covered by these ordinances.
- Department of Environmental Protection is recommending that the Model Ordinance be enforced Municipal-wide, and plan to enforce a similar ordinance on all counties and municipalities in the future. This is due to the number of complaints and problems created by increased runoff from development occurring in areas with no coverage.
- This model ordinance establishes municipal authority to administer and enforce proper implementation and maintenance of Best Management Practices that would meet several state regulations.

Chuck Rine, Woodward Township stated that he would like to encourage the County to do a County-wide Stormwater Management Plan. He felt that would make ordinances consistent throughout the county. He felt that with Chatham Run being only a very small portion of his township, and adopting it township wide would be unfair. But if all the county was covered he would agree with that.

Tahmina Parvin from Department of Environmental Protection (DEP) Stormwater Plannining and Management Section, explained to the County Commissioners that it would be possible to extend their present agreement to include a county-wide plan. Chris Dwyer, Bald Eagle Townsip also encouraged the County to pursue this type of a plan. Although everyone present agreed that County-wide would be an ideal situation, the County is not prepared to pursue that at this time. County Commissioner Bud Yost requested that Tahmina or Barry Newman send a letter to the County regarding the County pursuing a County-wide Plan and Ordinance.

The original update was only planned for Chatham Run, since it was originally done in 1989. SWM plans should be reviewed every ten years. The process started in 2002, but was extended due to changes in soils information. In November, DEP asked is the County would be interested in also updating the Fishing Creek SWM Plan and Ordinance done in 1995.

Dan Eckley, Pine Creek, Greene, Lamar and Porter Townships, stated that he felt that the Apprendix D Area of Influence calculation was too difficult for most people to follow, even for a Zoning Officer to determine if someone would need to develop a SWM Plan. It also appeared to him that most would need a plan to build a house or garage. He stated that he would like the County to consider providing assistance to townships on making these determinations. It was stated that the exemption chart shows most projects under 1,000 square feet could be exempt.

Todd Pysher stated that perhaps the Area of Influence calculation could be simplified.

Larry Coploff, Solicitor for Loganton Borough, asked if any changes could be made to the Model Ordinance. It was explained that as long as the intent of the ordinance was not changed, that would be acceptable.

In order for Municipalities to get reimbursement, they must complete the DEP Reimbursement application form.

The Public Hearing will be held on Thursday, June 15, 2006, at 9:00 AM at the Garden Building, Commissioners Meeting Room.

Meeting ended at 8:15 p.m.

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Mill Hall, PA 17751
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THURSDAY, JUNE 22, 2006

PRESENT: Thomas H. Bossert, and Harold C. Yost, Jr., Richard K. Kyle, Patricia Edwards, Treasurer.

The meeting was called to order at 10:03 am by Chairman Thomas Bossert.

MINUTES APPROVAL

Mr. Bossert asked for a motion to approve the minutes from the June 8, 2006 meeting. Motion by Mr. Yost, seconded by Mr. Kyle. Motion carried.

PROCLAMATION

Proclamation: Dairy Month
Motion by Mr. Kyle, seconded by Mr. Yost. Motion carried.
Mr. Kyle stated that that are many County employees in the room who have worked specifically in the dairy business. He stated it was nice to read the proclamation. Lori Dotterer, Clinton County Dairy Princess was in attendance and thanked the Commissioners for recognizing Dairy Month. She gave all those present ice cream made from her family's dairy farms milk.

CDBG COMPETITIVE GRANT FLEMINGTON BOROUGH

Mr. Bossert asked for a motion to file for a CDBG competitive grant on behalf of Flemington Borough in the amount of $500,000.00 for sewer line improvements. Motion by Mr. Yost, seconded by Mr. Kyle. Motion carried. Jessica Sheets from Innovative Consulting Group was in attendance and stated that this grant, if approved, will pay for a portion of the Woods Avenue project. The Borough will also be applying for Penn Vest funding in August to fund the remainder of the project. The total project cost is $987,120.00. The Borough is scheduled for a rate increase on July 1. Mr. Bossert stated that this grant will pay to improve a transmission line that Mill Hall Borough, Bald Eagle Township and East Nittany Valley use to get to the City. This is an integral part of the community effort to upgrade infrastructure.
Ms. Sheets stated that the project will need to be completed by the summer of 2007 as Penn Dot is scheduled to repave the road. Mr. Bossert asked if the project was shovel ready, Ms. Sheets stated that it is about 85% ready.

GENERAL OBLIGATION NOTE $400,000.00

Mr. Bossert asked for a motion to approve the purchase of a General Obligation Note in the amount of $400,000.00 for a period of 7 years at a fixed rate of 4.19%. Mr. Bossert stated that the money will be used for capital improvements such as the roof replacement project, the disconnect project, and two new heating units at the prison. Motion by Mr. Yost, seconded by Mr. Kyle. Motion carried. Mr. Bossert stated that this is not coming out of General Fund. Mr. Yost stated that the electrical disconnect had to be sent back to the manufacturer to be modified to work with the prison system. Mr. Kyle stated that it is the proper way to do financing. It has not been done this way in past years.

LIQUID FUELS BALD EAGLE TWP

Mr. Bossert asked for a motion to approve liquid fuels for Bald Eagle Township in the amount of $ 2,486.00 for 2006 road projects. Motion by Mr. Yost, seconded by Mr. Kyle. Motion carried.

LIQUID FUELS DUNNSTABLE TOWNSHIP

Mr. Bossert asked for a motion to approve liquid fuels for Dunnstable Township in the amount of $ 1,436.00 for shoulder work on Cider Press and Big Plum Run roads. Motion by Mr. Kyle, seconded by Mr. Yost. Motion carried.

BOARD REAPPOINTMENT REVOLVING LOAN FUND

Mr. Bossert asked for a motion to re-appoint James Maguire, Jr., Steve Bason, Tien Lu Chu and Susan Hanna to the Revolving Loan Fund Board for a one year term expiring June 30, 2007. Motion by Mr. Kyle, seconded by Mr. Yost. Motion carried.

BOARD REAPPOINTMENT R SHEETS

Mr. Bossert asked for a motion to approve the re-appointment of Roger Sheets to the Central PA Workforce Development Corp. for a three year term expiring June 30, 2009. Motion by Mr. Kyle, seconded by Mr. Yost. Motion carried.

RESIGNATION B HANLEY

Mr. Bossert asked for a motion to confirm the resignation of Barbara Hanley, Lieutenant at the Clinton County Correctional Facility effective June 26, 2006. Motion by Mr. Kyle, seconded by Mr. Yost. Motion carried.

RESIGNATION D SPECHT

Mr. Bossert asked for a motion to a confirm the resignation of Dana Specht, Corrections Officer at the Clinton County Correctional Facility effective June 30, 2006. Motion by Mr. Yost, seconded by Mr. Kyle. Motion carried.

RESIGNATION S HOLMES

Mr. Bossert asked for a motion to confirm the resignation of Sherrie Holmes, Corrections Officer at the Clinton County Correctional Facility effective June 29, 2006. Motion by Mr. Kyle, seconded by Mr. Yost. Motion carried.

FT STATUS J HURSH

Mr. Bossert asked for a motion to confirm the transfer of Jennifer Hursh, temporary full time Corrections Officer to full time status effective June 25, 2006, with no salary change. Motion by Mr. Yost, seconded by Mr. Kyle. Motion carried.

PT NEW HIRE D SAXTON

Mr. Bossert asked for a motion to approve the hiring of Dawn Saxton, part time Legal Secretary in the office of President Judge Richard Saxon, Jr. effective July 3, 2006. Motion by Mr. Kyle, seconded by Mr. Yost. Motion carried.

NEW HIRE J MITCHELL

Mr. Bossert asked for a motion to approve the hiring of Joseph Mitchell, Sr., part time Dispatcher at the Clinton County Department of Emergency Services effective June 26, 2006. Motion by Mr. Kyle, seconded by Mr. Yost. Motion carried.

SALARY BOARD

The Salary Board was called to order at 10:22 AM. Details of the Salary Board are in the Salary Board minutes.

COUNTY BILLS APPROVED

Mr. Bossert asked for a motion to approve County Bills Accounts Payable in the amount of $479,085.18; Payroll P/E 6/16/06 $ 298,551.60 Motion by Mr. Kyle, seconded by Mr. Yost. Motion carried. Mr. Yost stated that the bill total was for 2 weeks and included the monthly health insurance payment.

STORM WATER MANAGEMENT PLAN ADOPTION

Kathy Conrad stated that an item should have been added to the agenda. The Storm Water Management Plan adoptions for Chatham Run watershed and Fishing Creek watershed. Mr. Bossert asked for a motion to adopt the Chatham Run Storm Water Management Plan (Act 167). Motion by Mr. Kyle, seconded by Mr. Yost. Motion carried.
Mr. Yost made a motion to adopt the Fishing Creek Storm Water Management Plan (Act 167), seconded by Mr. Kyle. Motion carried. Mary Ann Bower from the Clinton County Conservation District was in attendance and stated that the Plan needs to be submitted by June 30 in order to receive 75% of the funding reimbursement from the State. She stated that there is an in kind match of 25%. The cost to do the plan was around $80,000.00. She stated that a review is required by law every 10 years. The plan will now go to DEP for their approval. Once approved, each municipality will have 6 months to adopt it. Mr. Kyle asked Ms. Bower what would happen if the County did not update the plan. She stated that the County would lose 75% of the funding from the State and the taxpayers would be forced to pay for whole plan instead of just 25%. Mr. Kyle stated that he wanted the taxpayers to realize that this update of the plan was also a mandate and if not done it would have cost even more.
Mr. Yost thanked the Conservation District for their hard work and timely manner in getting the job done. Suzy Watson stated that both plans will be posted on the County website.
Mr. Kyle encouraged all municipalities to adopt this ordinance countywide, it is in their best interest.

COMMISSIONER COMMENTS

Mr. Bossert apologized on behalf of the Board of Commissioners to Richard Morris for the abuse he took at last night's hate commission meeting. He stated that it was unjust and incorrect.

Mr. Morris stated that he got a little involved with the reassessment that was done in Lycoming County. He stated that there is no question that Clinton County needs to do a reassessment. He stated that no one would go to work today for wages that were from 1973. He stated that the public needs to become more aware of the process. It is true that some people will pay more taxes and some people will not. If the reassessment issue is turned into a tennis ball between the County and the government study commission it could be tainted as something that is undesirable. Mr. Bossert stated that the Commissioners are not vindictive in their effort to do a reassessment they are only concerned with tax fairness. Mr. Kyle stated that the reassessment process has already been started. There is money in this years budget to purchase the software which is the first step in the this process. He stated that they will try to educate the public as to the process of reassessment. He stated that Tuesday afternoon after making his comment on Monday he was told he committed political suicide. He said if that is true then so be it, but he was elected to make good solid decisions on behalf of the citizens of Clinton County and will continue to do that.

Mr. Yost commended Flemington Borough for their pro-active stance and hard work to get the job done.

Mr. Bossert welcomed home the National Guard's return and wished them well for an outstanding job. They are to be commended as they are the "keepers of freedom."

ADJOURNMENT

Mr. Kyle made a motion to adjourn the meeting at 11:10 am, seconded by Mr. Yost. Motion carried.

_____
Chief Clerk

# Chatham Run and Fishing Creek
# Act 167 Stormwater Management Plan Update
# PUBLIC HEARING MINUTES
# June 15, 2006

The Public Hearing was called to order by Commissioner Thomas Bossert at 9:00 AM.

It was noted that the recorded minutes from this Public Hearing on the Chatham Run and Fishing Creek Act 167 Stormwater Management Plans and Model Ordinance would be made a part of the final plan along with the minutes from the prior two Watershed Planning Advisory Committee meetings.

Lewis Steinberg, Clinton County Solicitor, submitted his written review of the comments that were received on the draft stormwater management plans and model ordinance. His suggestions for changes will be made to the final model ordinance. It was noted that the model ordinance will be the responsibility of the municipalities to enact either within the studied watershed area or municipal wide.

Tom Bittner, Clinton County Conservation District, noted that once the final stormwater management plans which contain the model ordinance are adopted by the County Commissioners, there can still be changes made to the model ordinance if a municipality so chooses, as long as the intent of the ordinance is not changed.

Mr. Bossert invited each of those present to present their testimony.

Bill Suydam, Clinton County and Pine Creek Township Planning Commissions, stated that he would like to see all of Pine Creek Township, including the Pine Creek watershed area not just Chatham Run watershed area, protected by this ordinance.

Mr. Pysher stated that the Township has the authority to adopt the stormwater ordinance within their entire township, if they so choose. He also stated that as the Pine Creek Engineer he has made that recommendation to the township that they adopt it township-wide for consistency.

Lewis Steinberg, Clinton County Solicitor, stated that the role of the County Commissioners was to consider adoption of the Chatham Run and Fishing Creek Stormwater Management Plan which includes the Model Ordinance for use by those affected municipalities. Each municipality will have the responsibility to enact this ordinance or amend an existing stormwater management ordinance that would meet the intent of this model ordinance.

Robert Jacobs, Castanea Township Supervisor, stated that he was here to learn more about the Fishing Creek Stormwater Management Plan and its effect on his township.

Dale Copenhaver, Gallagher Township Supervisor, had questions about the Lycoming County stormwater management study being done at this time and whether the Chatham Run Stormwater Management Plan would be adopted by Watson Township, Lycoming County, that shares a small portion of the watershed.

Mr. Pysher stated that while Lycoming Creek watershed was being studied, Lycoming County decided that a similar Model Ordinance will be adopted county-wide.

David Webb, Developer, stated that he was concerned about the new regulations from many aspects and how they will affect developers and the cost to build. He was also under the impression that the watershed boundary line was being changed under the updated study. He now owns a development in the Reeds Run watershed area.

Mr. Bittner stated that the watershed boundary lines did not change with the new update.

Mr. Harold (Bud) Yost stated that as a County Commissioner he was in agreement with the changes submitted by Mr. Steinberg.

Mr. Rich Kyle, County Commissioner, stated that the County Commissioners responsibility was to have the stormwater management plan updated according to Act 167 regulations and the Department of Environmental Protection. The Commissioners will adopt the Chatham Run and Fishing Creek Stormwater Management Plan updates which include the Model Ordinance. It is the municipalities in those watersheds responsibility to proceed in adopting the ordinance as they choose. He asked that municipalities realize it is under their authority to address stormwater management, not the County. He recommended that they consider adopting the ordinance to their best benefit.

Mr. Bossert thanked everyone for attending and for their comments. He reminded everyone that the Chatham Run and Fishing Creek Stormwater Management Plans would be considered for adoption at the County Commissioners regular meeting on June 22, 2006.

Meeting ended at 9:35 p.m.

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# Chatham Run and Fishing Creek
# Act 167 Stormwater Management Plan Update
# PUBLIC HEARING
# Attendance
# June 15, 2006

| Name | Organization/Township |
|---|---|
| Bill Suydam | Clinton County and Pine Creek Township Planning Commissions |
| David Webb | Developer |
| Robert Jacobs | Castanea Township Supervisor |
| Dale Copenhaver | Gallagher Township Supervisor |
| Lewis Steinberg | Clinton County Solicitor |
| Thomas Bossert | Clinton County Commissioner |
| Richard Kyle | Clinton County Commissioner |
| Harold (Bud) Yost | Clinton County Commissioner |
| Todd Pysher | Pysher & Associates, Inc |
| Thomas Bittner | Clinton County Conservation District |
| Mary Ann Bower | Clinton County Conservation District |

**Board of Commissioners**

**Thomas H. Bossert**
*Chairman*
**Harold C. Yost, Jr.**
*Vice Chairman*
**Richard K. Kyle**
*Commissioner*

**Kathy Z. Conrad,** *Chief Clerk*
**Lewis G. Steinberg,** *Solicitor*

*Phone: (570) 893-4000*
*(800) 509-6697*
*Fax: (570) 893-4041*

# RESOLUTION NO. 12 OF 2006

**WHEREAS,** The Act 167 planning process is directed primarily at mitigating the effects of future land use change on watershed hydrology, as well as ensuring that existing storm drainage problems are not aggravated.

**WHEREAS**, The Act 167 Storm Water Management Plan presented herein for the Chatham Run watershed will not require municipalities to correct existing storm drainage problems.

**WHEREAS**, The Plan identifies and documents conceptual solutions to existing drainage problems.

**WHEREAS**, The Chatham Run Watershed plan includes Gallagher Township, Dunnstable Township, Pine Creek Township, and Woodward Township.

**ADOPTED BY** the Clinton County Commissioners at a special meeting on June 29, 2006.

**CLINTON COUNTY COMMISSIONERS**

Thomas H. Bossert, Chairman

Harold C. Yost, Jr., Vice-Chairman

Richard K. Kyle, Commissioner

SEAL

Kathy Z. Conrad, Chief Clerk

ATTEST:

I, Kathy Z. Conrad, Chief Clerk of the County of Clinton, Pennsylvania, do hereby certify that the foregoing is a true and correct copy of the Resolution adopted at a special meeting of the Board of Commissioners of Clinton County, Pennsylvania, held on June 29, 2006.

June 29, 2006
Date

Kathy Z. Conrad, Chief Clerk

# CLINTON COUNTY CONSERVATION DISTRICT

45 COOPERATION LANE, MILL HALL, PA 17751
PHONE: (570) 726-3798
FAX: (570) 726-7977


May 30, 2006

## Watershed Planning Advisory Committee Meeting
## Chatham Run and Fishing Creek
## Act 167 Stormwater Management Plan Updates

Fishing Creek Act 167 Stormwater Management Plan Update
Bald Eagle, Castanea, Crawford, Greene, Logan, Lamar, Logan, Porter Township and Mill Hall & Loganton Borough
Chatham Run Act 167 Stormwater Management Plan Update
Dunnstable, Gallagher, Pine Creek, Woodward Township

The Watershed Planning Advisory Committee meeting for both the Chatham Run and Fishing Creek watershed was held on Wednesday, March 22, 2006. A copy of the Draft Stormwater Management Plan and Model Ordinance for your watershed area was distributed at that meeting. All comments were due to our office by May 5, 2006. Attached are those comments, which we will discuss at our meeting tonight.

We also distributed a copy of the March 22nd meeting minutes, as well as, any pages with changes to the model ordinance to each municipality after the meeting.

The Clinton County Commissioners plan to hold a Public Hearing on **June 15, 2006.** They will then adopt the updated Stormwater Management Plans for both Fishing Creek and Chatham Run, possibly at their Commissioners meeting on June 22nd. All affected Municipalities will have 6 months from that date to adopt the new Model Ordinance.

Once finalized each Municipality will receive a copy of their respective Stormwater Management Plan and Model Ordinance with any changes. You will also receive a copy of a Stormwater Management Best Management Practices Design Manual.

**PLANNING DEPARTMENT**

***Timothy L. Holladay***
*Director*
***William B. Suydam, Sr.***
*Asst. Planner/Grant Administrator*
***Elisabeth L. Lynch***
*Admin. Assistant*

RECEIVED
APR 29 2006
BY:

April 28, 2006

Mary Ann Bower
District Manager
Clinton County Conservation District
45 Cooperation Lane
Mill Hall, PA 17751

Dear Ms. Bower:

The Clinton County Planning Commission reviewed the Chatham Run and Fishing Creek Stormwater Management Plan updates during our April 18th Board meeting. We would like to make the following comments.

Our review of Act 167 indicates that stormwater management plans are to be watershed specific and that runoff management techniques are to be watershed specific. For these reasons we recommend that the plan updates should make it optional for each of the affected Municipalities to adopt their own implementation ordinance covering their entire Municipality. The adoption of an ordinance, covering the specific studied watershed, would remain mandatory. We also suggest that a Solicitor review the legal issues of how the County, requiring Municipal wide ordinances, is authorized under Act 167.

We are also concerned that the exemptions allowed under Section 302 are overly complicated. A homeowner may have difficulty doing the calculations. Additionally, Municipal zoning/permitting officers may have difficulty checking the exemption calculations. In many cases, it will take an engineer or other professional to determine if an activity is exempt or not. We recommend that the exemption criteria be simplified so that homeowners can determine whether or not their project is exempt.

Thank you for this opportunity to provide review comments. Please call me if you have any questions.

Sincerely,

Tim Holladay
Planning Director

**Board of Commissioners**

*Thomas H. Bossert*
*Chairman*
*Harold C. Yost, Jr.*
*Vice Chairman*
*Richard K. Kyle*
*Commissioner*

*Kathy Z. Conrad, Chief Clerk*
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RVED
MAY 03 2006

April 25, 2006

Mary Ann Bower
Clinton County Conservation District
45 Cooperation Lane
Mill Hall PA 17751

Dear Ms. Bower:

The Clinton County Commissioners after reviewing the Conservation District's 5 year strategy of Act 167, are considering your proposal of moving Act 167 implementation into the County Planning Department. However, at this time, it is impossible to do that due to a manpower shortage in the Planning Department. We are currently exploring the possibility of relieving this problem.

We are also in agreement with the Clinton County Planning Commission's comments in regard to the Chatham Run Stormwater Management Plan updates. Each municipality should have the option as to whether or not they adopt the Act 167 Ordinance.

Sincerely,

Clinton County Commissioners

Thomas H. Bossert, Chairman

Harold C. Yost, Jr., Vice Chairman

Richard K. Kyle, Commissioner

O'Connor & Salisbury

Robert D. O'Connor, Jr.
Michael F. Salisbury
*Attorneys at Law*

334 East Water Street
Lock Haven, PA 17745
(570) 748-9666 Tel
(570) 748-9665 Fax

April 18, 2006

RECEIVED
APR 24 2006

Clinton County Commissioners
Clinton County Courthouse Annex
232 East Main Street
Lock Haven, Pennsylvania 17745

Clinton County Planning Commission
Clinton County Courthouse Annex
232 East Main Street
Lock Haven, Pennsylvania 17745

Clinton County Conservation District
45 Cooperation Lane
Mill Hall, Pennsylvania 17751

Pennsylvania Department of Environmental Protection
208 West Third Street
Williamsport, Pennsylvania 17751

RE: WOODWARD TOWNSHIP/PROPOSED CHATHAM RUN WATERSHED ACT 167 STORM WATER MANAGEMENT PLAN AND ORDINANCE

Dear Ladies and/or Gentlemen:

In my capacity as Solicitor for the Township of Woodward, Clinton County, Pennsylvania, I have been authorized and directed to forward this reply in response to the proposed Chatham Run Watershed Act 167 Stormwater Management Plan and the Ordinance adopting the same. Currently, the Township maintains a Watershed Stormwater Management Plan for the Chatham Run Watershed together with a Stormwater Management Plan applicable to the remaining land of the Township. The Stormwater Management Plan governing the Chatham Run Watershed is considerably more restrictive for development and requires rather extensive involvement by Engineers to develop

appropriate Plans and the accompanying cost factor for the preparation and processing of said Plans.

In this regard, it is noted that the proposed Ordinance would apply the Chatham Run Watershed Act 167 Stormwater Management Plan to any development occurring within the jurisdictional limits of the Township. While it is recognized that the Pennsylvania Stormwater Management Act is mandatory, Section 680.5 of the Act only requires a specifically-tailored Stormwater Management Plan for Watersheds to be applicable to Watersheds, not areas unaffected by the Watershed. (32 P.S.§680.5)

Accordingly, while the Board of Supervisors of Woodward Township is receptive to adoption of the proposed Chatham Run Watershed Act 167 Stormwater Management Plan to be applicable to the areas covered by the Watershed, the Township is not receptive to having the proposed Watershed Stormwater Management Plan applicable to the entire Township. Truly, each individual municipality should have the option of adopting a Watershed Stormwater Management Plan applicable to the entire Township or applicable to the Watershed areas only.

If you should have any questions or comments with respect to any of the above, please feel free to contact either a Township Representative or myself at your convenience.

Thank you for your consideration.

Yours very truly,

Robert D. O'Connor, Jr.

RDO/rah

xc: Woodward Township Board of Supervisors

COPLOFF, RYAN & WELCH
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LARRY E. COPLOFF
PAUL J. RYAN
PAUL D. WELCH, JR.

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RECEIVED
APR 17 2006
BY:

April 10, 2006

Mill Hall Borough Council
215 Beech Creek Avenue
Mill Hall, PA 17751

Dear Folks:

Per your request, I have reviewed the proposed Fishing Creek/Cedar Run Watershed Stormwater Management Plan. As part thereof, I also reviewed the proposed Stormwater Management Ordinance and compared same with the Borough's present Ordinance.

As to the Plan, I understand the need for same and the desire of the State to assure "uniformity" in a particular watershed. A lot of the material is best understood by an engineer. In that regard, I believe you should refer same to the Borough's expert in that area.

I do note that Page 7 indicates that "Act 166" requires all municipalities in the combined watershed to enact ordinances that regulate the type and extent of development within flood plain areas. I am unfamiliar with Act 166. Perhaps Borough Council can learn whether "Act 166" is a "typo" and whether same should be "Act 167".

Otherwise, I confine my comments to the proposed Ordinance.

Under Article II (Definitions), I believe that there should be additional subparagraphs D and E adding the following:

> D. The word "person" includes an individual, firm, association, organization, partnership, trust, company, corporation, or any other similar entity.
>
> E. The words "used or occupied" include the words "intended, designed, maintained, or arranged to be used or occupied."

I believe the definition for "earth disturbance activity" in the Definitions section should be as follows:

> A construction or other human activity which disturbs the surface of the land, including, but not limited to, clearing and grubbing; grading;

excavations; embankments; road maintenance; building construction; conversion of pervious surfaces to impervious surfaces; the moving, depositing, stock piling or storing of soil, rock, or earth materials; and any other action that causes any alteration or an alteration to the present condition of the land.

I believe that the definition of "land development" in the Definitions section should be as follows:

> Inclusive of any or all of the following meanings: (i) the improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purposes involving (a) a group of two or more buildings, or (b) the division or allocation of land or space between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups, or other features; (ii) any subdivision of land; (iii) any lot improvements regulated under the Borough Zoning Regulations (Chapter 27 of the Mill Hall Borough Code of Ordinances); (iv) development in accordance with Section 503(1.1) of the Pennsylvania Municipalities Planning Code.

As to the definition for "qualified professional", why does it indicate that the person must be licensed by the Department of State? What does "otherwise qualified by law to perform the work required by the Ordinance" mean? If it is the intent of the Borough to have its engineer be involved as a qualified professional, I believe that the definition should so indicate. If there are individuals otherwise qualified to perform the work required by the Ordinance, I believe that these qualifications should be specifically listed.

The following comments apply to Article III:

1. What is the purpose of Section 301(b)? Should the plans approved by the Borough not be, at all times, in the possession of the person carrying out the regulated activity?

2. Should there not be a provision for a waiver of a pre-design conference in Section 301(d)? This is especially true for "small" projects. Perhaps the language in the second sentence in the paragraph could read as follows:

> Please note that a pre-design conference shall be required to discuss the design and implementation of peak rate

controls, and the preparation of an SWM site plan, unless specifically waived, in writing, by the Borough's Engineer.

3. Subsection (D) of Section 301 also provides for provision of a copy of the Borough's "applicable stormwater management design manual at the pre-design conference". Is it the intent of the Borough to actually have a design manual? Might it be better that the language indicate that the applicant/qualified professional shall obtain a copy of the Borough's Stormwater Management Ordinance prior to the pre-design conference?

4. Section 301(E)(1) makes no sense and I am unable to decipher what is intended.

5. Section 301(E)(2) is unclear.

6. Section 301(E)(3) is unclear. Perhaps it should read:

> For projects that add impervious area to a parcel, such additional area, along with the present impervious area, shall be subject to the requirements of this Ordinance.

7. Section 301(F) is entirely too broad. For example, if a person discharges along the edge of another person's parcel (via a small ditch), and as a result of a project, will decrease any discharges through that ditch at the edge of the property, the adjacent property owner could defeat the project even though it has little or no effect on his/her/its property. This could be an especially serious problem where adjacent landowners do not "personally" care for each other. It seems to me that there has to be some measurable amount which would affect (also having to be defined) the other person's property. Perhaps the Borough should speak with its Engineer about setting up specific standards.

8. Article III, Section 302(F) should be changed to read as follows:

> Exemptions from any provisions of this Ordinance shall not relieve the applicant from the requirements in Sections 301(F), (G), (H), and (J).

9. Section 303 deals with water quality. Section 303(A) addresses a "Simplified Method"; however, same is not defined. Subsection (B) addresses "Design Storm Method". This is not defined. In neither instance is there any indication when one or the other is to be utilized (If the landowner has a choice, this is not indicated.).

10. As to Section 304, I note that both Release Map Rate and BMP is not defined. In addition, it seems that there should be some indication that any determinations (i.e., analysis) under (A) and (B) should be made by the Borough Engineer.

Under Article IV Section 401 (Plan Contents), why not be more specific? I refer you to Section 133 of the Borough's present Stormwater Management Ordinance. Although it may be contemplated that an engineer will be providing the Plan, there may be occasions when that is not the case. Therefore, it seems that the more detail required by the owner, the better.

Article, IV, Section 403(C) provides for a limitation, in number of years, for the Borough's approval of a site plan. I suggest that the time-frame be the same as Pennsylvania's Municipalities Planning Code, i.e., five (5) years.

Article IV, Section 404 is, in my opinion, too vague in that there is no indication as to who decides whether the change involves the items listed. Perhaps there should be an indication that any proposed modification shall be submitted to the Borough, which shall determine if it involves a change listed in Section 404. If it does, then the Borough would require a re-submission.

Relative to Article VI, I do not believe that the Borough may charge legal review costs to an applicant. There was recent case law involving legal review costs for a zoning change disallowing same. I believe the principles are somewhat analogous. Accordingly, I do not believe that the Borough should include in its Ordinance anything relative to legal review costs. Of course, this does not mean that the Borough cannot seek fees for enforcement actions and the like. The particular Section in question refers to fees where an attorney reviews the plan to determine whether it adheres to the Borough's Ordinance.

In addition, I believe that Article VI should be more specific. Instead of being "general", I refer you to the provisions of Sections 151 through 155 of the present Stormwater Management Ordinance. Moreover, there should be, at a minimum, an indication that Borough Council may provide for a fee for various services, from time to time, via Resolution.

Relative to Article VIII, Section 801, I do not believe same to be sufficiently specific. There should be a definition of reasonable times (i.e., between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday/Saturday or whenever an emergency situation eminently dangerous to the public presents itself) and there should be a provision for the failure/refusal of an owner or occupant to allow an agent to inspect. On such occasion I believe the Ordinance should indicate that the Borough may obtain a Court Order upon showing of a reasonable basis to enter upon the premises and that the costs for obtaining same, including attorney's fees, be assessed against the owner and/or occupant. I do not believe, although the Borough's present Ordinance provides for same, that a Search Warrant is appropriate, in that the proposed Ordinance is not criminal in nature.

Article VIII, Section 803(B) should be amended to read as follows:

> It shall be unlawful to alter, remove, or fail to implement any control structure required by the SWM Site Plan.

Under Section 804, dealing with suspension and revocation, there is no notice requirement contained therein. It certainly seems to me that if the Borough intends to revoke a privilege extended to an individual, it must provide some kind of notification prior to doing so. Once again, I refer you to Section 172 of the present Ordinance.

Article VIII, Section 805, definitely needs to be changed. A person cannot be fined for a violation of a civil statute, ordinance, etc. and cannot be found guilty of a "summary offense". On the contrary, the person can be found in violation of an Ordinance and can be assessed a civil penalty. It seems that besides changing this language, there should be additional language providing for attorney's fees.

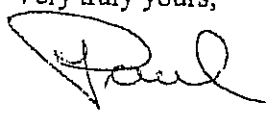
Article VIII, Section 806, relative to appeals is too general. There is no indication as to how the appeal process may work or is to occur, the mechanism for same (i.e., written notification by the landowner/occupant to the Borough, etc.), no indication as to who will make the decisions (i.e., Borough Council, etc.), and in what time-frame the decision must be rendered. Finally, I see no reason to include subsection B of 806.

At the risk of offending those individuals involved in preparation of the Plan and model ordinance (that <u>not</u> being my intent), I believe that Mill Hall Borough's present Stormwater Management Ordinance, with modifications contained in the proposed Model Ordinance, is more specific and therefore, in my opinion, will result in less uncertainty for both landowners and the Borough. As you may recollect, the Ordinance adopted by Borough Council was prepared by me based upon a model ordinance otherwise provided by the State.

In that regard, I note that I have, in one of my files, a Fishing/Cedar Run Watershed Act 167 Stormwater Management Plan adopted by the Clinton County Board of Commissioners on December 13, 1995. Is the one presently being proposed an amendment of that Plan? Why is there a need to re-enact?

I await Borough Council's thoughts/comments/recommendations/directions.

Very truly yours,



Paul D. Welch, Jr.
Attorney-at-Law

PDWJr:kw
cc: Todd Pysher

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OF COUNSEL
MICHAEL K. HANNA, SR.

RECEIVED
JUN 15 2006
BY:.....

June 13, 2006

Mary Ann Bower
District Manager
Clinton County Conservation District
45 Cooperation Lane
Mill Hall, PA 17751

Re: Stormwater Management Plans

Dear Mary Ann:

At your request, I have reviewed the comments received in connection with the above referenced matter. I am cognizant of the fact that the commissioners are only being asked to adopt the Stormwater Management Plans and a Model Ordinance; however, understand that the ordinances enacted by the municipalities need to be consistent with the intent of the model. Although neither the commissioners nor the Conservation District have the authority to direct the municipalities, it is appropriate to make recommendations to assist them in assuring compliance with the state enabling legislation.

It is my opinion that none of the comments received, if incorporated into municipal ordinances, would affect the required intent. The Storm Water Management Act does pertain to watershed stormwater management plans; therefore, as suggested by Bob O'Connor, a municipality could limit the impact of its ordinance to its watersheds; but, does not need to do so. I am of the opinion that many of Paul Welch's comments enhance and improve the model ordinance and none are inconsistent with its intent. I would recommend the inclusion into our model ordinance of two of his suggestions. I would suggest that we amend Article VIII, Section 803(B) to his proposed language: "It shall be unlawful to alter, remove or fail to implement any control structure required by the SWM Site Plan." In addition, I agree with Mr. Welch that it is necessary to

change Article VIII, Section 805, Subsection A, as violations of the provisions of this ordinance are civil; therefore, cannot lead to conviction of summary offenses. This provision should be amended to be consistent with Section 15 (32 P.S. § 680.15) of the Storm Water Management Act.

Very truly yours,

Lewis G. Steinberg

LGS/jab