

BULL RUN WATERSHED STORMWATER MANAGEMENT PLAN

SECTION I INTRODUCTION

BACKGROUND

GENERAL

Curbs, gutters, underground and other drainage techniques have traditionally been designed to remove stormwater from developed properties as quickly as possible to minimize the possibility of flooding the properties served by the drainage systems. Little or no efforts were made to minimize increases in the volumes and rates of runoff which occurred as land was converted from a permeable, vegetated condition to an impervious, paved condition. Similarly, little consideration was given to the potential effects of accelerated runoff on downstream properties. Under this approach, progressive development in a watershed results in ever increasing stormwater runoff until damaging downstream problems develop. Problems attributable to inadequate control of stormwater runoff include flooding and accelerated erosion.

A significant change in the approach to stormwater management in Pennsylvania occurred with the passage of the Storm Water Management Act (Act 167) and its companion bill, the Flood Plain Management Act (Act 166). This legislation, passed by the Pennsylvania General Assembly on October 4, 1978, requires a comprehensive approach to planning and managing excess stormwater runoff. Acts 166 and 167 represent a recognition of the increasing problems caused by inadequately controlled stormwater runoff and the associated threats to public health and safety. The Storm Water Act sets up a program for managing accelerated runoff so that it does not lead to increased flooding, while the Flood Plain Act provides for the preservation and restoration of flood plains which are natural stormwater storage areas.

PENNSYLVANIA STORM WATER MANAGEMENT ACT

The statement of legislative findings at the beginning of the Storm Water Management Act sums up the critical interrelationship between development, accelerated runoff, and floodplain management:

Inadequate management of accelerated runoff of storm water resulting from development throughout a watershed increases flood 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 storm water, undermines flood plain management and flood control efforts in downstream communities, reduces ground-water recharge, and threatens public health and safety.

A comprehensive program of storm water management, including reasonable regulation of development and activities causing accelerated runoff, is fundamental to the public health, safety and welfare and the environment.

The policy and purpose of the Storm Water Management Act as articulated in the legislation is to:

1. Encourage planning and management of stormwater runoff in each watershed which is consistent with sound water and land use practices.
2. Authorize a comprehensive program of stormwater management designated to preserve and restore the flood-carrying capacity of Commonwealth streams; to preserve, to the maximum extent practicable, natural stormwater runoff regimes and natural course, current and cross-section of water of the Commonwealth; to protect and conserve ground waters and ground water recharge areas.
3. Encourage local administration and management of stormwater consistent with the Commonwealth's duty as trustee of natural resources and the people's constitutional right to the preservation of natural, economic, scenic, aesthetic, recreational and historical values of the environment.

The general procedure established by the Act for achieving these goals consists of: 1) development of guidelines and regulations to be applied state-wide; 2) the preparation of stormwater management plans for designated watersheds throughout the Commonwealth; 3) implementation of the stormwater management plans; and 4) adherence to the plan requirements by individuals involved in land development activities.

Act 167 establishes certain duties and responsibilities for individuals and various governmental agencies as follows:

PERSONS ENGAGED IN LAND DEVELOPMENT: Act 167 states that any landowner and any person engaged in the alteration or development of land which may affect stormwater runoff characteristics must implement such measures consistent with the provisions of the applicable stormwater management plan as are reasonably necessary to prevent injury of health, safety or other property. Such measures must include such actions as are required:

1. to assure that the maximum rate of stormwater runoff is no greater after development than prior to development activities;
or
2. to manage the quantity, velocity and direction of resulting stormwater runoff in a manner which otherwise adequately protects health and property from possible injury.

DEPARTMENT OF ENVIRONMENTAL RESOURCES (DER): Act 167 assigns the Department of Environmental Resources the primary responsibility to carry out the policies and purposes of the Act. These responsibilities include providing guidelines for county stormwater management plans; designating watersheds for which stormwater management should be prepared; review and approval of the plans;

providing technical assistance and model local ordinances; developing grants and reimbursement regulations governing the disbursement of grant monies; and generally coordinating stormwater management activities state-wide.

COUNTIES: Counties are required to prepare and adopt a watershed stormwater management plan for each designated watershed in their jurisdiction.

MUNICIPALITIES: Municipalities are required to adopt new or to amend existing regulations as necessary to comply with and implement the stormwater management plans.

In 1980, the Department of Environmental Resources (DER) designated 353 (since increased to 356) watersheds for which plans are to be prepared. Model ordinances were made available to localities in September 1981, followed by detailed stormwater management guidelines in June 1983. These guidelines and model ordinances were approved by the Pennsylvania General Assembly in June 1985 and now have the force of law. In May 1984, Act 167 was amended to authorize DER to administer grants to municipalities and counties to pay 75% of the costs of preparing and administering stormwater management plans and regulations.

BULL RUN WATERSHED PLAN DEVELOPMENT APPROACH

GENERAL PLANNING REQUIREMENTS AND APPROACH

The general or overall scope of work and planning approach employed in the preparation of the Bull run Stormwater Management Plan were defined to a large extent by specific planning requirements contained in Act 167 and Storm Water Management Guidelines and Model Ordinances promulgated by the Department of Environmental Resources. The basic requirements of the plan as articulated in these documents are that the plan shall:

1. contain such provisions as are reasonably necessary to manage storm water such that development or activities in each municipality within the watershed do not adversely affect health, safety and property in other municipalities within the watershed and in basins to which the watershed is tributary; and
2. consider and be consistent with other existing municipal, county, regional and state environmental and land use plans.

Specific and more detailed plan requirements were also defined in the Act.

Beyond the general and specific plan requirements established by law and regulations, several additional considerations served as a guide to the development of the planning approach and scope employed during the preparation of this Bull Run Stormwater Management Plan. These additional planning goals are as follows:

1. The development of the technical standards contained in the plan should accurately reflect local conditions.

2. The development of the technical standards should employ accepted computational techniques familiar to the local planning agencies.
3. The computational procedures employed should be reproducible and amenable to direct application when the plan is updated.
4. The recommended stormwater management control standards and criteria should be attainable, clear, concise, broadly applicable and enforceable. The standards should clearly define performance requirements but allow sufficient latitude to permit creative stormwater control approaches.
5. The recommended stormwater management controls and associated institutional framework should represent a reasonable and measured approach to effectively managing stormwater runoff. The plan should not produce unnecessary impediments to development nor excessive local government responsibilities.
6. The recommended stormwater legal/institutional framework should be compatible with existing municipal and county financial, legal, technical and administrative capabilities.

TECHNICAL APPROACH

The technical approach was designed to satisfy the planning goals by employing accepted hydrologic modeling techniques to define existing conditions and quantify stormwater control criteria necessary to comply with the intent of Act 167. The technical analysis utilized the Penn State Runoff Model (PSRM) to estimate existing and future runoff characteristics. The model was also employed to define the hydrologic interactions throughout the watershed to provide a basis for establishing stormwater runoff control criteria on a watershed wide basis. The PSRM was selected for use because it is recognized by DER as an appropriate tool for watershed stormwater planning and it possesses several attributes of particular value in the development of specific stormwater control performance criteria.

The data collection effort was designed to take fullest advantage of available data sources and current data analysis and management techniques to maximize the accuracy of the physical features data base necessary to model the watershed. Land cover information was obtained from National High Altitude Program (NHAP) color infrared photographs of the basin. Land cover was manually classified using this information. Terrain characteristics, expressed in terms of slope and aspect, were derived from the United States Geological Service (USGS) Digital Elevation Model (DEM) digital terrain models data base.

Soil characteristics as reflected by hydrologic soil group classes were obtained through digitization of United States Soil Conservation Service (SCS) soils maps. These data were digitally overlaid and processed using geographic information system software to define the hydrologic characteristics of the watershed to a resolution approximating 30 meters. These data, in turn, were aggregated into approximately 48 subbasins comprising the Bull Run watershed.

Additional information, including obstruction sizes and capacities, stream characteristics, stormwater collection system locations, and descriptions of stormwater and flood control and flood protection facilities were obtained by conducting field and mail surveys and a review of available data sources.

LEGAL/INSTITUTIONAL APPROACH

This portion of the study deals with four interrelated issues:

1. The primary laws governing stormwater management in Pennsylvania.
2. The institutional options for organizing an effective stormwater management effort in the watershed.
3. Institutional system initiatives and precedents established by previous watershed stormwater management planning efforts completed in the region.
4. Guidelines for incorporating stormwater provisions into municipal zoning, subdivision and land development ordinance, and building codes to implement the plan's technical recommendations.
5. Methods of fine-tuning stormwater control provisions to address issues encountered during the implementation of pilot stormwater management plans completed in the region.

As part of the analysis, various laws were reviewed to determine specific areas of concern, requirements, duties, penalties and remedies, along with interrelationships with the other statutes. In addition to the laws related directly to stormwater management, common law relative to private and public nuisances and state and local municipal immunity statutes were reviewed, with attention to the remedies that addressed stormwater related problems.

The plan document includes proposals for ordinance provisions designed to implement the recommended technical measures. These ordinance standards are intended to provide a guide to the municipalities in enacting or amending their existing ordinances. These standards may not be appropriate for direct incorporation into an existing municipal ordinance. They do, however, indicate the types of provisions that are required and in which ordinances they properly belong.

Finally, the institutional section outlines alternative organizational arrangements for developing and managing stormwater control facilities and for administering the local ordinances. Since the stormwater management plans cannot be implemented effectively on a piecemeal basis, a watershed-wide management approach and inter-governmental cooperation are required. Therefore, this study identifies several approaches that the municipalities, county, and state can take to implement a workable stormwater management system.

The nature of the optimal institutional system will be determined to a large extent by the roles and duties the system will be expected to fulfill. The system may be expected to perform a variety of duties, ranging from planning and regulation to construction, operation and maintenance, and financing. Consequently, this plan

outlines the range of responsibilities associated with stormwater management, describes the capabilities, resources and legal authorities necessary to discharge those responsibilities.

The selection of the recommended institutional framework will also depend upon the nature of the existing institutional system and the current and anticipated future roles and capabilities of each level of government. This plan, therefore, presents an overview of the existing system and a discussion of expectations relative to the future role of each level of government in stormwater management issues.

CONTENTS OF THE PLAN

This Bull Run Watershed Stormwater Management Plan report is presented in two volumes. Volume 1, the Plan Study Report, contains the plan text and describes the background and general characteristics of the study area, the method used for data collection, the analytical tools used, results of the analyses, and stormwater runoff control alternatives. Specific control requirements and management and regulatory responsibilities are identified as they relate to developers and local, county, and state agencies. Volume 2, the Executive Summary, contains a condensed overview of the plan development process and summarizes the findings and recommendations of the plan.

Copies of the materials and data developed during plan preparation are on file at the Union County offices.

BULL RUN WATERSHED STORMWATER MANAGEMENT PLAN

SECTION II LEGAL FRAMEWORK FOR STORMWATER MANAGEMENT

GENERAL

An analysis of stormwater management would not be complete without some discussion of the law that created the stormwater management program, along with the other laws that relate to its implementation. This is particularly true in the case of the Storm Water Management Act (Act 167), where there are relatively few administrative regulations or case law with which to interpret its meaning and provisions.

This is an area of law that is not widely understood by local officials, developers and property owners. Pennsylvania's common law relating to drainage rights has developed over decades into a vary complex system, and it is not always easy to determine who has what rights and when. Many persons are still not aware of the extent to which Act 167 redefines prior common law. Further, many municipal officials, engineers, and developers are not well informed on other laws which relate to stormwater, development regulation, and governmental liabilities.

In addition to the Storm Water Management Act, other laws that collectively provide the legal posers and mandates to implement a comprehensive stormwater management plan are:

- Dams Safety and Encroachments Act (Act 325-1978)
- Clean Streams Law (specifically, the erosion and sedimentation regulations adopted pursuant to the Law)
- Flood Plain Management Act (Act 166-1978)
- Municipalities Planning Code (Act 247, as amended)

As part of the analysis, each law was reviewed to determine its scope, standards, duties, penalties and remedies, and enforcement responsibilities. The interrelationships between the five statutes and regulations were also examined. Additionally, the common law relative to private and public nuisances, municipal codes, and state and municipal immunity statutes were researched, relative to the powers, duties, and remedies that they provide for stormwater related issues. A general overview of the general background in the law is offered as a back drop to the discussion of the five statutes specifically impacting stormwater management.

Key provisions of each of the five primary statutes are presented here. Highlighted are the elements that are most pertinent to the watershed stormwater plans and management programs. A brief overview on governmental immunities is included because it is helpful for the municipalities to understand their potential liabilities.

It should be noted that the comments on these acts are not intended to be official legal opinions or to constitute advice on any specific issue or case. This is especially true for Act 167 where presently there are no administrative regulations or case law to interpret the Act. This section is provided to assist in a general understanding of the legal framework for stormwater management.

COMMON LAW BACKGROUND

Stormwater law developed in the courts of the Commonwealth of Pennsylvania and across the United States in cases between private landowners. Common law rights, duties and responsibilities in regard to drainage and flooding evolved as a result of the resultant court decisions. In the common law, a basic distinction is drawn between waters in a watercourse and surface waters. A watercourse was defined as a channel with defined bed and banks. Watercourse law also included lakes, ponds, marshes and swamps. Surface water, on the other hand, was defined as diffused water running overland, to a defined channel or watercourse. Flood water which overflowed the banks of a watercourse and followed the course of the stream, was also held to be governed by the laws of watercourses. However, flood waters which entirely lost their connection with a watercourse, spread out over the adjoining countryside and settled in low places, were governed by the law of surface waters.

WATERCOURSE LAW

Watercourse law is based on the rights and duties established between riparian property owners (owners of land along the banks of a river or lake). The fundamental principle of the riparian system is that each riparian owner has an equal right to make a reasonable use of the water of a stream subject to the equal rights for the other riparians to do likewise. A riparian right is reciprocal. Therefore, a riparian owner must exercise his rights in a reasonable manner and extent so as not to interfere unnecessarily with the corresponding rights of others.

As a general rule in most jurisdictions, a riparian owner does not have the right to construct an embankment or dike to protect his land from ordinary floods, if, in so doing, he causes damage to the lands of others. Expressed in slightly different terms: a riparian owner has the right to protect his land, but only if in exercising this right, he causes no damage to other riparian owners.

SURFACE WATER LAW

There are three basic doctrines which the courts have adopted regarding surface waters. These are the 1) "common enemy rule", 2) "civil law rule" and 3) "reasonable use rule".

As originally conceived, under the civil law rule a landowner may do anything he pleases with surface waters regardless of the harm it might do to others. The upper land owner can divert or drain surface waters onto the lower land, and the lower landowner may put up a barrier even if it floods the upper property. Since the water must go somewhere, this would appear to inevitably result in contests in engineering where "might makes right". Therefore, some courts have made modifications to the

strict rule, resulting in a "modern common enemy rule" which can be stated as giving the landowners the right to obstruct or divert surface waters, but only when such obstruction or diversion is incidental to the ordinary use, improvement or protection of their land, and when it is done without malice or negligence.

The civil law rule granted the owner of upland property the right to drain surface waters onto lower property; imposed a duty upon the lower property owner to receive surface water from upland property; granted the owner of upland property an easement of natural flow over the lower property; and prohibited the owner of lower property from obstructing the natural flow of diffused surface water from upland properties. The key word is natural, meaning those waters which flowed from the land before alteration or development. A legal cause of action on the part of the lower property owner was deemed to have arisen when the upland property owner or another party interfered with natural conditions or caused water to be discharged in a greater quantity or in a different manner than would naturally occur.

The reasonable use rule is based on tort rather than on property law. In tort law liability is based on negligence. A person can be held negligent if he has not acted like the "reasonably prudent man" in a given situation. This rule recognizes the common law rule that the use of one's property may occur in any reasonable manner which does not injure that of another. This test is basically a balancing test, and the common law considered the reasonable necessity to alter drainage to make use of one's property, their reasonable manner of accomplishing alterations so as to avoid injury, the utility of the conduct and the gravity of the injury to the other.

Pennsylvania jurisprudence has, at one time or another, applied all three of the doctrines in various cases.

The Pennsylvania Storm Water Management Act of 1978 more specifically and directly assigns responsibilities for stormwater control. The Act imposes an affirmative duty on any landowner and person (including municipalities) engaged in the alteration or development of land which may affect stormwater runoff to implement measures to prevent injury to health, safety or property.

STORM WATER MANAGEMENT ACT (ACT 167-1978)

There are two key sections of this Act: Section 5, which sets up the watershed stormwater planning programs, and Section 13, which establishes the basic standard to manage stormwater runoff to prevent harm to persons and property. A primary goal of the Act is to prevent future problems resulting from uncontrolled runoff, including flooding, erosion and sedimentation, land-slides, and pollution and debris often carried by storm runoff. A secondary intent is the elimination or correction of existing stormwater and flooding problems.

WATERSHED STORMWATER PLANS

As discussed in the preceding chapter, one of the Act's innovative features is the creation of a public stormwater planning, and management and control system at the watershed level. The plans are to be prepared for each watershed delineated by DER.

The counties must organize a watershed advisory committee composed of representatives from the municipalities in the watershed. The committee is to advise the county during the planning process, and the plans are to be adopted by the county commissioners and approved by DER, after public review and comment. The completed plans must be consistent with local land use plans and state plans, such as regional water quality management plans, the state water plan and floodplain programs.

After the adoption and approval of a watershed stormwater management plan, the location, design and construction of stormwater management systems, obstructions, flood control projects, subdivisions and major land developments, highways and transportation facilities, facilities for the provision of public utilities and facilities owned and financed in whole or in part by the Commonwealth (including PennDOT) shall be conducted in a manner consistent with the plan (Section 11). This provision gives the stormwater plan a definite legal status. Unlike municipal comprehensive plans, which are only advisory documents, watershed stormwater plans will be legally binding.

Also, within six months of the approval of the watershed stormwater management plan, each municipality in the watershed must adopt the land use and development ordinances to implement the plan (Section 11). These regulations must be consistent with the plan, as well as standards of the Storm Water Management Act. Failure to adopt and implement the necessary ordinances could result in the state withholding funds from the General Fund for which the municipality might be eligible.

BASIC STANDARD FOR STORMWATER MANAGEMENT

The basic premise of the Act is that those whose activities will generate additional runoff, or increase its velocity, or change the direction of its flow, should be responsible for controlling and managing it so that these changes will not cause harm to other persons or property either now or in the future. The policy is that Pennsylvania's legal system will no longer condone those who negligently disregard the impact of runoff from their activities. It will not allow them to shift the burden of runoff management to the public and downstream property owners.

Section 13 of Act 167 defines the legal duties owed by developers and others engaged in the alteration of land by setting performance standards for runoff management. This section of the Act became effective immediately upon the signing of the Act (October 4, 1978). These new standards essentially replace prior common law rules. Common law rules, however, will still apply to all developments and land alterations occurring prior to October 4, 1978.

Section 13 provides that:

Any landowner and any person engaged in the alteration or development of land which may affect stormwater runoff characteristics shall implement such measures consistent with the provisions of the applicable watershed stormwater plan as are reasonably necessary to prevent injury to health, safety or other property. Such measures shall include such actions as are required:

- (1) to assure that the maximum rate of stormwater runoff is no greater after development than prior to development activities; or
- (2) to manage the quantity, velocity and direction of resulting stormwater runoff in a manner which otherwise adequately protects health and property from possible injury.

Act 167 defines persons as individuals, private corporations, municipalities, counties, school districts, public utilities, sewer and water authorities, and state agencies. When, for example, public agencies build storm sewers, roads, buildings, or utility lines, they must implement runoff control measures that comply with Section 13 standards. With this coverage, Section 13 is a comprehensive standard for stormwater control.

Section 13's primary measure of sound stormwater management is the taking of reasonable steps to prevent harm or injury to health and property. This general duty is contained in the language which precedes Sections 13(1) and 13(2). Thus, the proverbial "bottom line" for stormwater management is: do not cause harm. The section then prescribes two alternatives [Section 13(1) and 13(2)] for meeting this basic objective.

Further, when Section 13 is read in conjunction with other portions of the Act, it becomes apparent that the intent of the Act is to apply the standard to protect persons and property downstream of the site being altered and not only immediately adjacent to the site. In other words, Section 13 is not spatially limited; it applies not only as the runoff leaves the site, but as far as its impact can be reasonably determined.

Section 2 of the Act states that the Legislature found that inadequate management of runoff has adverse impacts on downstream communities and that reasonable regulation of activities causing runoff is fundamental to the public welfare. Section 3 indicates that the Act was intended to manage runoff at the watershed level.

Further, Section 5(c)(1) requires that the watershed plans contain provisions to manage stormwater so that an activity in one municipality does not have adverse effects on persons or property in another municipality in the watershed to which the watershed is tributary. Therefore, it is clear that the stormwater plans and management activities must consider the watershed impact of land alteration activities, and runoff controls must be designed to prevent reasonably foreseeable harm, from the boundary of the site and downstream to the base of the watershed.

The Section 13(1) standard does not contain any limiting language from which it could be implied that no increase in maximum rate means only at a development's property line. Likewise, Section 13(2) contains no language to suggest that its "do not cause harm" standard applies only to neighboring or nearby property. Indeed, if this were the case, where would the line be drawn?

The language "runoff characteristics" is not a spatially limited term. Section 13(2) indicates that runoff characteristics include at least direction, volume, and velocity. Changes in any of these characteristics will affect a stream all the way to its mouth. Downstream from the generator, these runoff changes may result in either an increase in peak rate or harm, or both.

SECTION 13(1)

Section 13(1) requires that any land alteration does not cause an increase in the "maximum rate" of stormwater runoff; that is, the maximum (peak) rate of runoff after development, for any level storm, may not be higher than the peak rate which would have been generated from the site before development. By using the terminology of rate rather than volume, Section 13(1) implies that total volume of runoff generated may increase; but any increased volume must be retained and discharged over time, so that the predevelopment maximum rate of flow will not be exceeded. This is an important point because a standard that did not permit any increase in volume could only be met at sites where additional runoff could be permanently stored or recharged on-site. Obviously, this would limit the use of many sites.

It is not clear whether no increase in "maximum rate" means only for the site as a whole or for any point where runoff was discharged from the site before development. However, since the purpose of Section 13 is to prevent harm from changes in runoff characteristics, and runoff characteristics include direction, it would seem that the no-increase in peak rate standard should apply to each predevelopment discharge point. This interpretation seems necessary to control runoff from large developments in a manner which can achieve the purpose of the Act. Peak rate of discharge from the site as a whole could be used where runoff is discharged to a storm sewer or public retention system.

Summary

Section 13(1) means that development cannot increase the maximum rate of runoff, at any point, from the boundary of the site to the bottom of the watershed. Also, development may not cause an increase in maximum rate of flow in any other watershed to which its watershed is a tributary. The cutoff point for purposes of Section 13(1) seems to turn on the potential for harm. Where it is reasonably possible for the developer to foresee that a higher peak rate will result because of the activities, then the duty imposed by Section 13(1) applies.

SECTION 13(2)

One of the purposes of Section 13(2) is to make the statutory drainage standard more flexible. Section 13(2) permits changes in runoff characteristics provided they do not cause harm. For example, Section 13(2) permits increased rates of runoff to be discharged into storm sewer systems, when the storm sewers can handle increased volumes and velocities without, in turn, causing harm. The Act, however, does not define harm, thresholds (in any) of acceptable levels of potential harm, or speak to issues relating to how the potential for harm is to be assessed. It would appear that the burden of establishing no harm is assumed by the developer. Practical problems associated with proving such a negative hypothesis (i.e. establishing that an action will not produce harm or increase the potential for harm throughout a watershed) is a major concern in developing means of generally incorporating Section 13(2) into watershed plans.

VIOLATIONS, PENALTIES, REMEDIES

Section 15 of the Storm Water Management Act makes any violation of the provision of the Act or of the watershed stormwater plan a public nuisance. A public nuisance is a nuisance per se. This means it is a nuisance by its very existence and therefore, it is not necessary to wait and see if damage results. Any aggrieved person, affected municipality, or DER can institute suits at equity to restrain or abate a violation of a law for damages caused by a violation of this Act.

The state is not subject to penalty provisions and the municipalities, county and state agencies are protected to a large extent from private damage suits by governmental immunity statutes (see later discussion). The rights and remedies created by the Act are in addition to rights and remedies which existed prior to the Act's passage. For example, private persons can still sue for private nuisances.

DAMS SAFETY AND ENCROACHMENTS ACT (ACT 325-1978)

Act 325 replaces several older state statutes dealing with dam safety, water obstructions and encroachments. This Act is the primary source of regulation for dams, existing and new obstructions, encroachments, fill in floodplains, culverts, bridges, retaining walls, and outfalls (e.g., storm sewers) in a stream or a (100 year) floodplain. The Act requires permits for the construction, or alteration or abandonment of dams, obstructions and encroachments. The owners of existing obstructions or encroachments are also required to obtain permits. Permits are issued by DER pursuant to the Act and regulations (25 Pa. Code Chapter 105). In some cases retention/detention facilities may qualify as dams under the definition of the Act, a permit from DER is required in these cases.

By covering both new and existing structures, the Dams Safety and Encroachments Act is quite broad in its coverage. It also requires permittee's and owners of obstructions to inspect, maintain, and repair the structures. For example, owners of culverts must inspect them annually and remove silt and debris if the carrying capacity is reduced by 10 percent or more (Regulations, Section 105.171). If conditions change such that the design of an obstruction or encroachment no longer conforms to the performance standards in the Act or regulations, the permittee or owner has a duty to make such alterations as are necessary to achieve compliance.

DER is the prime agency responsible for administering the Act. It must adopt regulations to implement the Act and is the permit issuing agency. The regulation [Section 105.14(b)(9)] requires DER to consider the project's consistency with state and local floodplain and stormwater management programs, when approving permits. Municipalities should not issue local building permits until any necessary obstruction permits are obtained.

Violations of the Act are treated as a public nuisance. Therefore, municipalities can sue to enjoin or abate the nuisance, or can make necessary repairs and assess costs against the property. A private person also can sue on a private nuisance.

As the prime enforcement agent, DER can issue orders to permittees and landowners to correct a violation of the Act or permit. Failure to comply can

expose the violator to civil and criminal penalties. This provision includes municipalities and counties when they are the permittee for a structure.

If DER does not sue to correct the violation of the Act, any "affected municipality" may sue in the name of the Commonwealth. An affected municipality includes one where the violation occurs or where damage or harm results. The only limitation on these suits is that the municipality must give the State Attorney General 30 days notice of the municipality's intention to act.

CLEAN STREAMS LAW (EROSION/SEDIMENTATION REGULATIONS)

Pennsylvania's Clean Streams Law was enacted in 1937, and its original scope was limited to regulating discharges of sewage and industrial wastes. Since its original enactment, its scope and duties have expanded substantially. In 1972, DER determined that sediment constitutes a water pollutant under the provisions of the law and promulgated regulations for the control of erosion and sedimentation caused by earth moving activities (25 Pa. Code, Chapter 102).

The general requirement of the erosion/sedimentation regulations is that earth-moving activities (including excavations, land development, mineral extraction or any other activity that disturbs the surface of the land) be conducted in a manner to prevent accelerated erosion and resulting sedimentation of streams and other watercourses, such as culverts. Persons engaged in earth moving activities must prepare erosion/sedimentation control plans for the site.

These plans must be available on the site at all times; sites 25 acres or larger must obtain an erosion/sedimentation permit prior to commencing any activity. As with obstructions and floodplain permits, local building permits should not be issued prior to receiving the erosion/sedimentation permit, if required.

The erosion plans must consider all factors which might contribute to increased erosion during and after land disturbance activities. Plans should include both temporary and permanent control measures, as well as a maintenance program for all control facilities. Since many of these temporary facilities can also serve as permanent stormwater runoff control measures, it is important that erosion/sedimentation and stormwater management controls be designed and reviewed as a package.

The adequate enforcement of erosion control plans will be critical if stormwater controls are to function as designed. If culverts, storm sewers, detention ponds, or other control measures are filled with silt, they cannot function properly to control stormwater flows. As is discussed in subsequent sections of this Plan, problems of localized flooding often are caused by structures filled with sediment and debris. Implementing adequate erosion controls will reduce the need and costs for the maintenance of structures.

Since the Clean Streams Law antedates the Storm Water Management Act, it does not specially mention the Storm Water Act. However, it can be assumed that erosion/sedimentation controls should be consistent with the Storm Water Act, and certainly an approved watershed stormwater plan. Since they could affect stormwater runoff management for the site, they would have to comply with Act 167

standards. Also, the Dams Safety and Encroachments Act requires that obstruction permits comply with the Clean Streams Law including the erosion regulations, which in turn must be consistent with stormwater management programs.

DER has major administrative and regulatory responsibilities for implementing the Clean Streams Law. DER may issue enforcement orders, and failure to comply with an order is a nuisance and exposes the violator to abatement actions as well as civil and criminal penalties.

DER or an affected municipality may sue to abate or restrain anyone who is in violation of the law (i.e., erosion regulations). Again, a municipality can act in the name of the Commonwealth after due notice to the Attorney General.

It is important to note that both private parties and municipalities may be subject to abatement actions. For example, DER or a neighboring municipality may sue a municipal violator to compel action. When performing proprietary functions (e.g., constructing a road or sewer), a municipality (or authority) must comply with the same regulations as private individuals.

FLOOD PLAIN MANAGEMENT ACT (ACT 166-1978)

The Flood Plain Management Act requires municipalities with floodplain areas to participate in the National Flood Insurance Program, and to adopt floodplain management regulations that control new development, at least, in accordance with the minimum requirements established by the Federal Insurance Administration.

Municipalities participating in the National Flood Insurance Program must require building permits for all construction and development occurring within identified floodplain areas. Such permits are not to be issued until all other required federal and state permits have been received by the applicant. Thus, municipalities should not issue building permits for development within floodplain areas unless the applicant has obtained any necessary obstruction and erosion/sedimentation permits. Of course, building permits should not be issued unless the proposed activity complies with the stormwater management regulations which have been adopted by the municipality.

Through this interrelated permitting process, the Flood Plain Management Act encompasses a comprehensive control of all activities in a floodplain. It assures that there is compatibility among the actions governed by the different laws.

As noted earlier, preservation of natural floodplains and a comprehensive program of floodplain management are a key part of effective overall stormwater management. Natural flood areas should be maintained as part of the watershed's natural stormwater control system. Similarly, effective future stormwater management will help to preserve floodplain areas and assure that properties not now subject to flooding do not become so in the future.

MUNICIPALITIES PLANNING CODE (ACT 247, AS AMENDED)

The Municipal Planning Code (MPC) is related to stormwater management because of the authorities it grants to municipalities and counties. The MPC enables

communities to prepare comprehensive land use plans and capital facilities programs. It also empowers them to prepare and adopt zoning (including regional zoning), subdivision and land development, planned residential development, and official map ordinances. The various municipal codes (borough, township, etc.) authorize communities to adopt building/housing codes pursuant to their health, safety, and general welfare powers.

These are the major planning and regulatory mechanisms that municipalities will use to implement the watershed plans. Section 11 of the Storm Water Management Act specifically requires municipalities to adopt "...such ordinances..., including zoning, subdivision and development, building code, and erosion and sedimentation ordinances..." to regulate development activity consistent with the watershed plan and Act 167. The specification of these ordinances by Section 11 implies that the municipalities are supposed to utilize the land use and development authorities granted by the MPC.

It is necessary to understand that these various ordinances - zoning, subdivision and land development, and building - regulate different and distinct aspects or parts of the land use and development process. It is not possible to adopt one type of ordinance, zoning for example, and simply include the items and controls covered by the other types of regulations. In other words, a community cannot regulate land usage or lot size in a subdivision and land development ordinance because that is a zoning power, or establish structural standards for building construction in a subdivision and land development ordinance because that is a building code regulation, and so forth. Therefore, a comprehensive development regulation system requires, in most cases, the utilization of all three types of ordinances.

The applicable stormwater controls should be included in the proper ordinance whenever stormwater is being regulated for a land use or development activity that falls within the scope of one of the enabling authorities contained in the Planning Code (i.e., zoning, subdivision/land development, planned residential development) or under the building code's powers in the municipal codes. For example, if the activity being regulated is a subdivision, then the relative stormwater provisions belong in the subdivision ordinance. If a community utilizes a separate, single purpose stormwater ordinance, the ordinance should be clearly referenced into the appropriate sections of the municipality's zoning, subdivisions/land development and building codes. Also, the preamble of a separate stormwater ordinance should indicate that it is being adopted pursuant to the Municipalities Planning Code, Storm Water Management Act, and applicable sections of the municipal code. Under either approach, when a development activity is within the scope of the MPC, then the municipality should be sure to follow the various plan review processes and other administrative procedures prescribed in the MPC, including the procedures for enacting and amending zoning and subdivision regulations. The inclusion of specific procedural requirements in the MPC clearly demonstrates the Legislature's concern that all development applications be given a fair and timely review. Since most stormwater management activities will relate to zoning, subdivision/land development or building permit applications, the stormwater reviews would adhere to the procedures required by the respective ordinances.

GOVERNMENTAL TORT IMMUNITY

Municipal immunity is becoming a concern to local communities and officials who will be adopting and implementing stormwater management regulations. Also, Pennsylvania and municipal immunity statutes have been the subject of recent changes and litigation. This last section identifies the laws specifically dealing with federal, state, municipal, and public official immunity. The discussion summarizes the basic scope of the laws, with some analysis of the relationship of the new (1979) Subdivision Torts Claims Act to stormwater management issues in local municipalities. Municipal officials, of course, will have to be guided by the advice of their solicitors on potential liabilities as specific cases or situations arise.

FEDERAL AND STATE IMMUNITY

In common law there were three distinct levels of governmental tort immunity: sovereign immunity, political subdivision immunity, and public official immunity. Sovereign immunity was part of the common law from its very beginnings and became part of the law of this country and the Commonwealth when the common law of England was adopted after independence. The concept behind the doctrine was that the king was sovereign and could be sued only if he consented. In fact, the rule of law came to be that "the king could do no wrong" (*Russel vs. Men of Devon*, 100 Eng. Rep. 359). After independence, the federal and state governments became sovereign and invested themselves with the king's immunity.

Congress, by statute, has dramatically limited the doctrine of sovereign immunity as applied to the federal government. The Federal Tort claims Act (Title 28 U.S.C. 1346, 2671 et. seq.) provides (subject to certain enumerated exceptions) that the federal government can be held liable to the same extent as a private individual for the negligent acts or omissions of its employees.

With respect to the state sovereign immunity, the trend among states is to abolish or severely limit the doctrine by statute or case law. The belief is that the doctrine is unfair and not suited to the times. The Pennsylvania courts grudgingly applied the sovereign immunity doctrine, while pointing out its unjust results and strongly suggesting the need for legislation to reform the law; and, finally, the Pennsylvania Supreme court abolished the doctrine in *Maybe vs. Pennsylvania Department of Highways*, 479 Pa. 384 (1978).

Maybe was decided in mid-July, 1978. Before the end of September of that year, the Legislature had recreated sovereign immunity by statute (42 Pa. C.S.A. 58521 et. seq). This new statute does provide for some very limited specifically enumerated exceptions, most of which go to negligent failure to adequately enforce state statutes and regulations. The statute also limits the amounts which can be recovered in suits brought under the exceptions. It is important to note that state immunity extends to state agencies, such as PennDOT and DER.

MUNICIPAL IMMUNITY

The second level of government tort immunity which developed as common law was applied to political subdivisions (i.e., municipalities, counties, municipal authorities, municipal agencies, commissions and departments, including planning commissions and zoning hearing boards). The historical basis of the doctrine was that local governments were the agents of the king.

A substantial number of states have abolished municipal immunity by statute or judicial decision. The Pennsylvania Supreme Court first limited the doctrine by holding that it only applied to torts arising out of governmental function (i.e., those activities which are typically performed by government; e.g., police, fire, regulatory, etc.) and not to torts arising out of a municipality's proprietary activities (i.e., activities that could be done by private corporations, such as owning and operating utilities).

Finally, in 1973, the court abolished the municipal immunity doctrine in *Ayala vs. Philadelphia of Public Education*, 453 Pa. 584. The court's rationale was that compensating the victims of negligent public employees should be properly regarded as a cost of the administration of government and should be distributed by taxes to the public which benefits from that government. This decision exposed political subdivisions to unlimited liability (i.e., the same degree of liability to which private persons and corporations have always been exposed) for their negligent acts or omissions and those of their employees and agents.

This was the situation until 1978, when the Pennsylvania Legislature enacted the Political Subdivision Tort Claims Act. The result of this legislation is that since its effective date (January 24, 1979), the doctrine of municipal immunity, with certain statutory exceptions, has been resurrected in Pennsylvania. (The provisions of this Act have been amended and recodified as 42 Pa. C.S. 38501 et. seq.)

The Tort Claims Act applies to municipalities, municipal authorities (e.g., sewer and stormwater authorities), and counties. The purpose of the statute is to limit the liability of political subdivisions for the torts of their agencies, appointed and elected officials, and their employees. Under the Act, a municipality is not liable for damages caused by the negligence of an officer, employee, or agent unless all three of the following preconditions are met (see Section 8542):

- Damages would be recoverable under common law or a statute, if the defendant was not a municipality.
- The injury was caused by the negligence of the municipality or its officers, employees, or agents operating within the scope of his or her office or employments.
- The negligent acts or omissions by a local agency or its officer or employer fall within eight specified categories of activity. The specified categories are:
 - Operation of a motor vehicle.
 - Care, custody, and control of personal property of others.

- Care, custody, and control of real property in the possession of the local agency.
- Dangerous condition of trees, traffic signs, lights, or other traffic controls under care, custody, or control of the local agency.
- Dangerous condition of stream, sewer, water, gas, or electric systems owned by the local agency.
- Dangerous condition of streets owned by the local agency.
- Dangerous condition of sidewalks within the right-of-way of streets owned by the local agency.
- Care, custody and control of animals within the possession of the local agency, [Note: The numbers used here correspond to the numbering of these categories under Section 8542(b)].

The final four categories above are further conditioned by the requirement that a plaintiff must prove that the local agency had actual notice or could reasonably be charged with notice of the dangerous condition at a sufficient time prior to the event to have taken measures to protect against the danger.

It is important to note that the Torts Claims Act limits municipal liability to eight express areas of activity. If an activity does not fit into any of the eight categories, then it appears that the municipality is not subject to any liability.

For example, a municipality does not seem to be liable for damage caused by runoff from a development constructed according to subdivision plans negligently approved by municipal officials or employees. Under the Torts Claims Act, failure to use reasonable care (i.e., negligence) in the plan review and ordinance enforcement process does not fit into any of the eight categories. Therefore, even though there was negligence on the part of the official in performing the duty prescribed in the subdivision regulations and harm may have resulted, the Act appears to prevent the injured party from recovering damages against the municipality. After the Ayala case and before the effective date of the Tort Claims Act, the case law in Pennsylvania would have imposed liability on the municipality in this situation.

The Political Subdivisions Tort Claims Act probably would be held to be controlling with respect to suits of injured parties (e.g., those injured by runoff that would not have occurred but for the negligent enforcement of a municipal ordinance), although the other acts (e.g., Storm Water Management) appear to create municipal liability. Both acts should be read together. Since the Tort Claims Act is directly on point, unless the court finds a clear express Legislative intent to impose liability, the Tort Claims Act would control. An affected municipality (or aggrieved person) could take action under Section 15(c) of the Storm Water Management Act to enjoin a municipality from taking an action, such as a negligent plan approval, because such action was a violation of the Act. Similarly, an aggrieved party may be able to force the municipality (or official) to enforce liability. If "streets" includes culverts and bridges supporting them, as it would seem it should, any culvert or

bridge which does not meet the requirements of the Obstructions Act (which incorporates the Storm Water Management Act standards) could expose the municipality to action for damages. For example, damages which result from backwater flooding due to failure to clean culverts or undersized culverts under a municipal street might be recoverable.

Also, the Torts Claims Act only protects municipalities and their officials from private suits. It does not protect them from enforcement orders issued by a state agency or from any criminal penalties provided by a state statute. Both the Obstructions Act and Clean Streams Law provide for DER enforcement orders and criminal penalties for violations of the statutes.

OFFICIAL IMMUNITY

The final area of tort immunity is that immunity given to public officials, employees, and agents themselves. Sections 8545 and 8546 of Title 42 Pa. C.S. generally codify the common law rule with respect to official immunity. These sections provide that an elected and appointed officer, employee, and agent when carrying out official duties (i.e., when acting within the scope of his or her employment) is liable for damages caused by his or her negligence only to the same extent as is the governmental unit (i.e., provisions of Paragraph 8542 of the Tort Claims Act are applied to public officials). This coverage does not extend to independent contractors under contract with the governmental unit, where the unit has no right of control. This could be the case for many consulting engineers.

In one respect, official immunity is broader than municipal immunity since the official may assert certain defenses. These include those available to employees at common law, good faith, and that the action was discretionary (there is no liability for discretionary as opposed to ministerial acts). Thus, most actions of members of the governing body of a municipality would be immune.

In another respect, however, officials may be held totally liable. Title 42 Pa. C.S. Paragraph 8550 provides that when the conduct of the official is a willful criminal act or involves actual malice or actual fraud, the immunity statute does not apply. Thus, if an official intentionally (knowingly) fails to enforce a regulation, he or she may be held personally liable to the extent of all of their private assets for any damage that their act causes. However, as noted above, the municipality is not liable.