

ORDINANCE #189

**SAUCONY CREEK
STORMWATER MANAGEMENT ORDINANCE**

LONGSWAMP TOWNSHIP, BERKS COUNTY, PENNSYLVANIA

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SACONY CREEK WATERSHED
ACT 167 STORM WATER MANAGEMENT ORDINANCE

BE IT ENACTED and ORDAINED by the Township of Longswamp, Berks County,
Pennsylvania, and it is hereby enacted and ordained by the authority of the same as follows:

ARTICLE I
GENERAL PROVISIONS

Section 101. Title and Statement of Findings

This ordinance shall be titled and known as the “Longswamp Township Storm Water Management Ordinance”

The Board of Supervisors of Longswamp Township finds that:

- A. Inadequate management of accelerated storm water runoff resulting from development throughout a watershed increases flood flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of existing streams and storm sewers, greatly increases the cost of public facilities to convey and manage storm water, undermines floodplain management and flood reduction efforts in upstream and downstream communities, reduces groundwater recharge, and threatens public health and safety.
- B. A comprehensive program of storm water management, including reasonable regulation of development and activities causing accelerated erosion, is fundamental to Longswamp Township and all the people of the Commonwealth, their resources, and the environment.

Section 102. Purpose

The purpose of the Ordinance is to promote health, safety, and welfare within the Sacony Creek Watershed by minimizing the damages described in Section 101.A of this Ordinance through provisions designed to:

- A. Manage accelerated runoff and erosion and sedimentation problems at their source by regulating activities that cause these problems.
- B. ~~Utilize~~ Utilize and preserve the existing natural drainage systems.
- C. Encourage recharge of groundwater where appropriate and prevent degradation of

groundwater quality.

- D. Maintain existing flows and quality of streams and watercourses in Longswamp Township and the Commonwealth.
- E. Preserve and restore the flood-carrying capacity of streams.
- F. Provide proper maintenance of all permanent storm water management facilities that are constructed in Longswamp Township.
- G. Provide performance standards and design criteria for watershed-wide storm water management and planning.

Section 103. Statutory Authority

Longswamp Township is empowered to regulate land use activities that affect runoff by the Authority of the Act of October 4, 1978 32 P.S., P.L. 864 (Act 167) Section 680 et seq., as amended, known as the "Pennsylvania Storm Water Management Act", and the Longswamp Township Subdivision and Land Development Ordinances.

Section 104. Applicability

This Ordinance shall apply to those areas of Longswamp Township that are located within the Sacony Creek Watershed, as delineated in Appendix E which is hereby adopted as part of this ordinance.

This Ordinance shall only apply to permanent storm water management facilities constructed as part of any of the Regulated Activities listed in this Section. Storm water management and erosion and sedimentation control during construction activities are specifically not regulated by this Ordinance, but shall continue to be regulated under existing laws and ordinances.

This Ordinance contains only the storm water management performance standards and design criteria that are necessary or desirable from a watershed-wide perspective, and shall be regulated, enforced, and interpreted at the discretion of Longswamp Township and the Longswamp Township Engineer.

Local storm water management design criteria (e.g. inlet spacing, inlet type, collection system design and details, outlet structure design, etc.) shall continue to be regulated by Longswamp Township Subdivision and Land Development Ordinance and the Longswamp Township Engineer's Discretion.

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

Ordinance.

- A. Land development.
- B. Subdivision.
- C. Construction of new or additional impervious or semi-pervious surfaces (driveways, parking lots, etc.).
- D. Construction of new buildings or additions to existing buildings.
- E. Diversion or piping of any natural or man-made stream channel.
- F. Installation of storm water management facilities or appurtenances thereto.

Section 105. Repealer

Any ordinance of Longswamp Township inconsistent with any of the provisions of the Ordinance is hereby repealed to the extent of the inconsistency only.

Section 106. Severability

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

Section 107. Compatibility With Other Ordinance Requirements

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

**ARTICLE II
DEFINITIONS**

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

- A. Words used in the present tense include the future tense; the singular number includes the plural, and the plural number includes the singular; words of masculine gender include feminine gender; and words of feminine gender include masculine gender.
- B. The word "includes" or "including" shall not limit the term to the specific example but is intended to extend its meaning to all other instances of like kind and character.
- C. The word "person" includes an individual, firm association, organization

partnership, trust, company, corporation, or any other similar entity.

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

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

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

Agricultural Activities- The work of producing crops and raising livestock including tillage, plowing, discing, harrowing, pasturing and installation of conservation measures. Construction of new buildings or impervious area is not considered an agricultural activity.

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

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

Channel Erosion- The widening, deepening, and headward cutting of small channels and waterways, due to erosion caused by moderate to large floods.

Cistern- An underground reservoir or tank or tank storing rainwater.

Conservation District- The Berks County Conservation District.

Culvert- A structure with appurtenant works which carries a stream under or through an embankment of fill.

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

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 storm water management systems.

Designee- The agent of Longswamp Township Board of Supervisors and/or agent of the governing body involved with the administration, review or enforcement of any provisions of this ordinance by contact or memorandum of understanding.

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

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

Developer- A person, partnership, association, corporation, or other entity, or any responsible person therein or agent thereof, that undertakes any Regulated Activity of this Ordinance.

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

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

Drainage Conveyance Facility- A Storm Water Management Facility designed to transmit storm water runoff and include streams, channels, swales, pipes, conduits, culverts, storm sewers, etc.

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

Drainage Permit- A permit issued by Longswamp Township governing body after the drainage plan has been approved. Said permit issued prior to any activity governed by Section 104.

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

Earth Disturbance- Any activity including, but not limited to, construction, mining, timber harvesting and grubbing which alters, disturbs, and exposes the existing land surface.

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

Erosion and Sediment Pollution Control Plan- A plan which is designed to minimize accelerated erosion and sedimentation.

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

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

Floodplain- Any land area susceptible to inundation by water from any natural source or delineated by applicable Department of Housing and Urban Development, Federal Insurance Administration Flood Hazard Boundary-Mapped as being a special flood hazard area. 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 which are reasonably required to carry and discharge the 100- year frequency flood. Unless otherwise specified, the boundary of the floodway is as indicated on maps and flood insurance studies provided by FEMA. In an area where no FEMA maps or studies have defined the boundary of the 100-year frequency floodway, it is assumed-absent evidence to the contrary-that the floodway extends from the stream to 50 feet from the top of the bank of the stream.

Forest Management/Timber Operations- Planning and activities necessary for the management of forest land. 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.

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

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

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

Groundwater Recharge- Replenishment of existing natural underground water supplies.

Impervious Surface- A surface that prevents the percolation of water into the ground.

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

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

Inlet- A surface connection to a closed drain. A structure at the diversion end of a conduit. The upstream end of any structure through which water may flow.

Land Development- (i) the improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving (a) a group of two or more 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 Pennsylvania Municipalities Planning Code.

Land Disturbance- Any activity involving grading, tilling, digging or filling of ground or striping of vegetation or any other activity that causes an alteration to the natural condition of the land.

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

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

Municipality- Longswamp Township, Berks County, Pennsylvania.

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

NRCS- Natural Resource Conservation Service (previously SCS).

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

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

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

PADEP- Pennsylvania Department of Environmental Protection.

PADOT- Pennsylvania Department of Transportation.

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

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

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

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

Plan- The storm water management and erosion and sediment pollution control plans and narratives.

Planning Commission- The Longswamp Township Planning Commission.

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

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

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

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

Retention Basin- An impoundment in which storm water is stored and not released during the storm event. Stored water may be released from the basin at some time after the end of the storm.

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

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

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

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

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

Sediment Pollution- The placement, discharge or any other introduction of sediment into the waters of the Commonwealth occurring from the failure to design, construct, implement or maintain control measures and control facilities in accordance with the requirements of this Ordinance.

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

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

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

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

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

Spillway- A depression in the embankment of a pond or basin which is used to pass a peak discharge greater than the maximum, design storm controlled by the pond.

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

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

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

Storm Water- The total amount of precipitation reaching the ground surface.

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

Storm Water Management Plan- The plan for managing storm water runoff in the Sacony Creek Watershed adopted by Berks County as required by the Act of October 4, 1978, P.L. 864, (Act 167), and known as the "Sacony Creek Watershed Action 167 Storm Water Management Plan".

Storm Water Management Site Plan- The plan prepared by the Developer or his representative indicating how storm water runoff will be managed at the particular site of interest according to this Ordinance.

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

Subarea- The smallest drainage unit of a watershed for which storm water management criteria has been established in the Storm Water Management Plan.

Subdivision- The division or re-division 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: provided, however, that the subdivision by lease of land for agricultural purposes into parcels of more than ten (10) acres, not involving any new street or easement of access or any residential dwellings, shall be exempt.

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

Timber Operations- See Forest Management.

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

Watercourse- A stream of water; river; brook; creek; or channel or ditch for water, whether natural or manmade.

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

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, ferns, and ~~similar~~ areas.

ARTICLE III STORM WATER MANAGEMENT

Section 301. General Requirements

- A. All site development in the Sacony Creek Watershed which do not fall under the exemption criteria shown in Appendix A shall submit a drainage plan consistent with the Sacony Creek Watershed Storm Water Management Plan to Longswamp Township for review.

This criteria shall apply to the total proposed development even if development is to take place in stages. Impervious cover shall include, but not be limited to any roof, parking or driveway areas and any new streets and sidewalks. Any areas designed to initially be gravel or crushed stone shall be assumed to be impervious for the purposes of comparison to the waiver criteria.

- B. Storm water drainage systems shall be provided in order to permit unimpeded flow along natural watercourses, except as modified by storm water management facilities or open channels consistent with this Ordinance.
- C. The existing points of concentrated drainage that discharge onto adjacent property shall not be altered without permission of the altered property owner(s) and shall be subject to any applicable discharge criteria specified in this Ordinance.
- D. Areas of existing diffused drainage discharge shall be subject to any applicable discharge criteria in the general direction of existing discharge, whether proposed to be concentrated or maintained as diffused drainage areas, except as otherwise provided by this ordinance.

If diffused flow is proposed to be concentrated and discharged onto adjacent property, the Developer must document that adequate downstream conveyance facilities exist to safely transport the concentrated discharge, or otherwise prove that no erosion, sedimentation, flooding or other harm will result from the concentrated discharge, and obtain release authorization from affected downstream land owners.

- E. Where a development site is traversed by watercourses drainage easements shall be provided conforming to the line of such watercourses. The terms of the easement shall prohibit excavation, the placing of fill or structures, and any alterations that may adversely affect the flow of storm water within any portion of the easement. Also, maintenance, including mowing of vegetation within the easement shall be required, except as approved by the appropriate governing authority.

- F. When it can be shown that, due to topographic conditions, drainageways on the site cannot adequately provide for drainage, open channels may be constructed conforming substantially to the line and grade of such natural drainageways. Work within natural drainageways shall be subject to approval by PADEP through the Joint Permit Application process, or, where deemed appropriate by PADEP, through the General Permit process.
- G. Any storm water management facilities regulated by this Ordinance that would be located in or adjacent to waters of the commonwealth or wetlands shall be subject to approval by PADEP through the Joint Permit Application process, or where deemed appropriate by PADEP, the General Permit process. When there is a question whether wetlands may be involved, it is the responsibility of the Developer or his agent to show that the land in question cannot be classified as wetlands, otherwise approval to work in the area must be obtained from the PADEP.
- H. Any storm water management facilities regulated by this Ordinance that would be located on State highway rights-of-way shall be subject to approval by the Pennsylvania Department of Transportation (PADOT).
- I. Minimization of impervious surfaces and infiltration of runoff through seepage beds, infiltration trenches, etc. are encouraged, where soil conditions permit, to reduce the size or eliminate the need for detention facilities.
- J. Runoff from impervious areas must be drained to pervious areas of the property.
- K. Roof drains must not be connected to streets, sanitary or storm sewers or roadside ditches to promote over land flow and infiltration/percolation of stormwater where advantageous to do so. When it is more advantageous to connect directly to streets or storm sewers, then it shall be permitted on a case by case basis by Longswamp Township.

Section 302. Storm Water Management Districts

The Sacony Creek Watershed has been divided into five storm water management districts as shown on Appendix E and as follows:

Development sites located in each of the A, B, or C Districts must control post-development runoff rates to pre-development runoff rates for the design storms as follows:

<u>District</u>	<u>Subareas</u>	<u>Post-Development</u>	<u>Pre-Development</u>
A.	1-8,11, 999	2.33-year 10-year 50-year	2.33-year 10-year 50-year
B.	43-67	10-year 50-year	2.33-year 10-year
C.	9, 10, 12-41	10-year 50-year	2.33-year 50-year

- D. Development sites which can discharge directly to the Sacony Creek main channel or major tributaries or indirectly to the main channel through an existing storm water drainage system (i.e., storm sewer or tributary) may do so without control of post-development peak rate of runoff. If the post-development runoff is intended to be conveyed by an existing stormwater drainage system to the main channel, assurance must be provided that such system has adequate capacity to convey the increased peak flows or will be provided with improvements to furnish the required capacity. When adequate capacity of downstream structure does not exist and will not be provided through improvements, the post-development peak rate of runoff must be controlled to the predevelopment peak rate as required in District B provisions (10-year post-development flows to 2.33-year pre-development flows) for the specified design storms. The subwatershed areas which are included in this district are: 68-72, 75.
- E. The same provisions apply as in District D, however, if the adequate capacity of downstream structure does not exist and will not be provided through improvements, the post-development peak rate of runoff must be controlled to the predevelopment peak rate as in District A provisions for the specified design storms. The subwatershed areas which are included in this district are: 42, 73-74, 76-92.

Section 303. Storm Water Management District Implementation Provisions (Performance Standards)

- A. General- Post-development rates of runoff from any regulated activity shall not exceed the peak ~~relative~~ rates of runoff prior to development for the design storms specified on the Storm Water Runoff Peak Rate Districts Map, Ordinance Appendix E and Section 302 of this Ordinance.

- B. District Boundaries- The boundaries of the Storm Water Management Districts are shown on an official map which is available for inspection at the Longswamp Township Municipal Office. A copy of the official map at a reduced scale is included in this Ordinance as Appendix E.

The exact location of the Storm Water Management District boundaries as they apply to a given development site shall be determined by mapping the boundaries using the two-foot topographic contours (or most accurate data required) provided as part of the Drainage Plan.

- C. Sites Located in More Than 1 District- for a proposed development site located within two or more release category subareas, the peak discharge rate from any subarea shall be the pre-development peak discharge for that subarea multiplied by the applicable release rate. The calculated peak discharges shall apply regardless of whether the grading plan changes the drainage area by subarea. An exception to the above may be granted if discharges from multiple subareas re-combine in proximity to the site. In this case, peak discharge in any direction may be a 100% release rate provided that the overall site discharge meets the weighted average release rate.
- D. Off-Site Areas- Off-site areas which drain through a proposed development site are not subject to release rate criteria when determining allowable peak runoff rates. However, on-site drainage facilities shall be designed to safely convey off-site flows through the development site.
- E. Site Areas- Where the site area to be impacted by a proposed development activity differs significantly from the total site area, only the proposed impact area shall be subject to the release rate criteria.
- F. "No-Harm" Option- For any proposed development site not located in a provisional direct discharge district, the developer has the option of using a less restrictive runoff control (including no detention) if the developer can prove that "no harm" would be caused by discharging at a higher runoff rate than that specified by the Plan. The "no harm" Option is used when a developer can prove that the post-development hydrographs can match pre-development hydrographs, or if it can be proved that the post-development conditions will not cause increases in peaks at all points downstream. Proof of "no harm" would have to be shown based upon the following "Downstream Impact Evaluation" which shall include a "downstream hydraulic capacity analysis" in accordance with Section 303G to determine if adequate hydraulic capacity exists. The land developer shall submit to Longswamp Township this evaluation of the impacts due to increased downstream stormwater flows in the watershed.
1. The "Downstream Impact Evaluation" shall include hydrologic and hydraulic calculations necessary to determine the impact of hydrograph timing

modifications due to the proposed development upon a dam, highway, structure, natural point of restricted streamflow or any stream channel section, established with the concurrence of Longswamp Township.

2. The evaluation shall continue downstream until the increase in flow diminishes due to additional flow from tributaries and/or stream attenuation.
3. The peak flow values to be used for downstream areas for the design return period storms (2-, 10-, 25- and 100-year) shall be the values from the calibrated Penn State Runoff Model for Sacony Creek Watershed. These flow values would be supplied to the developer by the Conservation District upon request.
4. Developer-proposed runoff controls which would generate increased peak flow rates at storm drainage problem areas would, by definition, be precluded from successful attempts to prove "no-harm", except in conjunction with proposed capacity improvements for the problem areas consistent with Section 303.H.

Capacity improvements may be provided as necessary to implement the "no-harm" option which proposes specific capacity improvements to provide that a less stringent discharge control would not create any harm downstream.

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

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

1. Channels or swales must be able to convey the increased runoff associated with a 2-year return period event within their banks at velocities based upon criteria included in the PADEP Erosion and Sediment Pollution Control Program Manual (April 1990).
2. Channels or swales must be able to convey the increased 100-year return period runoff without creating any hazard to person or property.
3. Culverts, bridges, storm sewers or any other facilities which must pass or convey flows from the tributary area must have sufficient capacity to pass or convey the increased flows associated with the 25-year return period runoff event, except for facilities located within a designated floodplain area which must be capable of passing or conveying the 100-year return period runoff. Any facilities which constitute stream enclosures per PADEP Chapter 105 regulations shall be designed to convey the 100-year return period runoff.

4. Any available capacity in the downstream conveyance system as documented by a developer may be used by the developers only in proportion to his development site acreage relative to the total upstream undeveloped acreage from the identified capacity (i.e. if his site is 10% of the upstream undeveloped acreage, he may use up to 10% of the documented downstream available capacity).

H. Capacity Improvements- In certain instances, particularly provisional direct discharge areas, local drainage conditions may dictate more stringent levels of runoff control than those based upon protection of the entire watershed. In these instances, if the developer could prove that it would be feasible to provide capacity improvements to relieve the capacity deficiency in the local drainage network, then the capacity improvements could be provided by the developer in lieu of runoff controls on the development site. Peak flow calculations are to be performed assuming that the local watershed is in the existing condition and then assuming that the local watershed is developed per the Sacony Creek Watershed Stormwater Management Plan's (hereinafter referred to as "Plan" Future Land Use Map (Plate III-4) or current zoning and using the specified runoff controls. Any capacity improvements would be designed using the larger of the above peak flows and the capacity criteria specified in Section 303. G. All new development in the entire subarea(s) within which the proposed development site is located shall be assumed to implement the developer's proposed discharge control, if any.

1. If capacity improvements are proposed and the downstream conveyance system is situated in another municipality other than Longswamp Township where the land development activity occurs, the land developer shall inform the affected municipality of the downstream hydraulic capacity analysis and shall provide a copy of the drainage plan to that municipality containing the proposed capacity improvements for its review.
2. When any downstream capacity improvements are proposed to occur in a municipality other than Longswamp Township where the land development activity will occur, Longswamp Township, at its discretion may request the municipality where the development activity is occurring to incorporate its comments into the subdivision plan. Upon receipt of such a request, the municipality where the land development activity will occur shall furnish a written response to Longswamp Township within 30 days of the receipt of the request stating its decision.
3. The granting of any approval by Longswamp Township where the land development activity will occur does not relieve the applicant from obtaining any permits or approvals from the municipality where the capacity improvements will occur as they relate to the design installation or construction of the capacity improvements.

- I. Regional Detention Alternatives- For certain areas within the study area, it may be more cost-effective to provide one control facility for more than one development site. The initiative and funding for any regional runoff control alternatives are the responsibility of prospective developers. The design of any regional control basins must incorporate reasonable development of the entire upstream watershed. The peak outflow of a regional basin would be determined on a case-by-case basis using the hydrologic model of the watershed consistent with protection of downstream watershed areas. "Hydrologic model" refers to the calibrated version of the Penn State Runoff Model as developed for the Storm Water Management Plan.

Section 304. Design Criteria for Storm Water Management Facilities

- A. Any storm water facility located on State highway rights-of-way shall be subject to approval by the Pennsylvania Department of Transportation.
- B. Any storm water management facility (i.e. detention basin) designed to store runoff and requiring a berm or earthen embankment required or regulated by this ordinance shall be designed to provide an emergency spillway to handle flow up to the 100-year post-development conditions. The height of embankment must be set as to provide a minimum 1.0 foot of freeboard above the maximum pool elevation computed when the facility functions for the 100-year post-development inflow. Should any storm water management facility require a dam safety permit under PADEP Chapter 105, the facility shall be designed in accordance with Chapter 105 and meet the regulations of Chapter 105 concerning dam safety which may be required to pass storms larger than 100-year event.
- C. Any facilities that constitute water obstructions (e.g., culverts, bridges, outfalls, or stream enclosures), and any work involving wetlands, as directed in PADEP Chapter 105 regulations (as amended), shall be designed in accordance with Chapter 105 and doesn't require a permit from PADEP. Any other drainage conveyance facility the doesn't fall under Chapter 105 regulations must be able to convey, without damage to the drainage structure or roadway, runoff from the 25-year design storm with a minimum 1.0 foot of freeboard measured below the lowest point along the top of the roadway. Roadway crossings located within designated floodplain areas must be able to convey runoff from a 100-year design storm with a minimum 1.0 foot of freeboard measured below the lowest point along the top of roadway. Any facility that constitutes a dam as defined in PADEP chapter 105 regulations may require a permit under dam safety regulations. Any facility located within a PADOT right of way must meet ~~PADEP~~ minimum design standards and permit submission requirements.
- D. Any drainage conveyance facility and/or channel that doesn't fall under Chapter 105 Regulations, must be able to convey, without damage to the drainage

structure or roadway, runoff, from the 100-year design storm. Conveyance facilities to or exiting from storm water management facilities (e.g. detention basins) shall be designed to convey the design flow to or from that structure. Roadway crossings located within designated floodplain areas must be able to convey runoff from a 100-year design storm. Any facility located within a PADOT right-of-way must meet PADOT minimum design standards and permit submission requirements.

- E. Storm sewers must be able to convey post-development runoff from a 25-year design storm without surcharging inlets, where appropriate.
- F. Adequate erosion protection shall be provided along all open channels, and at all points of discharge
- G. The design of all stormwater management facilities shall incorporate sound engineering principles and practices. Longswamp Township shall reserve the right to disapprove any design that would result in the occurrence or continuation of an adverse hydrologic or hydraulic condition within the watershed.

Section 305. Water Quality Requirements

One of the major objectives of the Sacony Creek Watershed Stormwater Management Plan is to maintain and, if possible, improve existing water quality by preventing additional loading of stormwater runoff pollutants. In considering issues such as ease of implementation and cost effectiveness, the following is the minimum water quality criteria established to meet the objective of the Plan, see Section IV, subsection E. Because the standard for water quality may result in a fairly small outlet orifice in detention facilities, Longswamp Township may require a minimum standard such as a 3-inch diameter orifice.

- A. In addition to the performance standards and design criteria requirements of Article III of this Ordinance, the land developer shall comply with the following water quality requirements of this Article unless otherwise exempted by the provisions of this Ordinance.
- B. In addition to the water quantity requirements of this ordinance, the land developer shall control for water quality as follows:
 - 1. Residential Areas- Stormwater management facilities shall be provided to detain the 1-year, 24-hour design storm using the SCS Type II distribution. Provisions shall be made so that 1-year storm takes a minimum of 24 hours to drain from the facility from a point where the maximum volume of water captured from the facility for the 1-year storm is achieved (i.e., the maximum water surface elevation achieved in the

facility). On a smaller site the criteria shall apply to the appropriate calibration methodology, i.e. the modified rational method.

Release of this water can begin at the start of the storm (i.e., the invert of the water quality orifice is at the invert of the facility). The design of the facility shall consider and minimize the chances of clogging and sedimentation potential.

2. Commercial/Industrial Areas- Commercial and industrial sites shall detain the first ½ inch of run off for a 24-hour period.
- C. To accomplish A. and B. above, the land developer MAY submit original and innovative designs to the Township Engineer for review and approval.
- D. In selecting the appropriate Best Management Practice (BMP) or combinations thereof, the land developer SHALL consider the following:
1. Total contributing area
 2. Permeability and infiltration rate of the site soils
 3. Slope and depth to bedrock
 4. Seasonal high water table
 5. Proximity to building foundations and well heads
 6. Erodibility of soils
 7. Land availability and configuration of the topography
- E. The following additional factors SHOULD be considered when evaluating the suitability of the BMP's used to control water quality at a given development site:
1. Peak discharge and required volume control
 2. Streambank erosion
 3. Efficiency of the BMP's to mitigate potential water quality problems
 4. The volume of runoff that will be effectively treated
 5. The nature of the pollutant being removed
 6. Maintenance requirements
 7. Creation/protection of aquatic and wildlife habitat
 8. Recreational value
 9. Enhancement of aesthetic and property value

Section 306. Calculation Methodology

Storm water runoff from all development sites shall be calculated using either the rational method or a soil-cover-complex methodology.

- A. Any storm water runoff calculations involving drainage areas greater than 200 acres, including on- and off-site areas, shall use generally accepted calculation technique that is based on the NRCS soil cover complex methods. Table VIII-1 summarizes acceptable computation methods. It is assumed that all methods will be selected by the design professional based on the individual limitations and suitability of each method for a particular site.

Longswamp Township may approve the use of the Rational Method to estimate peak discharges from drainage areas that contain less than 200 acres.

- B. All calculations consistent with the requirements of this Ordinance using the soil cover complex method shall use the appropriate design rainfall depths for the various return period storms presented in Table B-1 in Appendix B of this

Ordinance. If a hydrologic computer model such as PSRM or HEC-1 is used for storm water runoff calculations, then the duration of rainfall shall be 24 hours. The NRCS 'S' curve is shown in Figure B-1, Appendix B of this Ordinance shall be used for the rainfall distribution.

- C. For the purposes of predevelopment flow rate determination, undeveloped land shall be considered as "meadow" condition, unless the natural ground cover generates a lower curve number or Rational 'C' value (i.e. forest).
- D. All calculations using the Rational Method shall use rainfall intensities consistent with appropriate times of concentration for overland flow and return periods from the Design Storm Curves from PADEPARTMENT of Transportation Design Rainfall Curves (1986) (Figure B-2). Times of concentration for overland flow shall be calculated using the methodology presented in Chapter 3 of Urban Hydrology for Small Watersheds, NRCS, TR-55 (as amended or replaced from time to time by NRCS). Times of concentration for channel and pipe flow shall be computed using Manning's equation.
- E. Runoff Curve Numbers (CN) for both existing and proposed conditions to be used in the soil cover complex method shall be obtained from Table B-2 in Appendix B of this Ordinance.

TABLE VIII-1
ACCEPTABLE COMPUTATION METHODOLOGIES FOR STORM WATER
MANAGEMENT PLANS

METHOD	METHOD DEVELOPED BY	APPLICABILITY
TR-20 (or commercial package based on TR-20)	USDA NRCS	Applicable where use of full hydrology computer model is desirable or necessary.
TR-55 (or commercial computer package based on TR-55)	USDA NRCS	Applicable for land development plans within limitations described in TR-55.
HEC-1	Us Army Corps of Engineers	Applicable where use of full hydrologic computer model is desirable or necessary.
PSRM	Penn State University	Applicable where use of a hydrologic computer model is desirable or necessary; simpler than TR-20 or HEC-1.
Rational Method (or commercial computer package based on Rational Method)	Emil Kuichling (1889)	For sites less than 200 acres, or as approved by Longswamp Township or Longswamp Township Engineer.
Other Methods	Varies	Other computation methodologies approved by Longswamp Township or Longswamp Township Engineer.

F. Runoff coefficients (c) for both existing and proposed conditions for use in the Rational method shall be obtained from Table B-3 in Appendix B of this Ordinance.

G. Where uniform flow is anticipated, the Manning equation shall be used for hydraulic computations, and to determine the capacity of open channels, pipes, and storm sewers. Values for Manning's roughness coefficient (n) shall be consistent with Table B-4 in Appendix B of the Ordinance.

Outlet structures for storm water management facilities shall be designed to meet the performance standards of this Ordinance using any generally accepted hydraulic analysis technique or method.

H. The design of any storm water detention facilities intended to meet the performed standards of this Ordinance shall be verified by routing the design storm hydrograph through these facilities using the Storage-Indication Method. For drainage areas greater than 20 acres in size, the design storm hydrograph shall be computed using a calculation method that produces a full hydrograph. Longswamp Township may approve the use of any generally accepted full hydrograph approximation technique which shall use a total runoff volume that is consistent with the volume from a method that produces a full hydrograph.

Section 307. Erosion and Sedimentation Requirements

A. Whenever the vegetation and topography are to be disturbed, such activity must be in conformance with Chapter 102, Title 25, Rules and Regulations, Part I, Commonwealth of Pennsylvania, Department of Environmental Protection, Subpart C, "Erosion Control," and in accordance with Berks County Conservation Districts, and the standards and specifications of Longswamp Township.

B. Additional erosion and sedimentation control design standards and criteria that must be or are recommended to be applied where infiltration BMPs are proposed and include the following:

1. Areas proposed for infiltration BMPs shall be protected from sedimentation and compaction during the construction phase, so as to maintain their maximum infiltration capacity.
2. Infiltration BMPs shall not be constructed nor receive runoff until the entire contributory drainage area to the infiltration BMP has received final stabilization. Exceptions to this requirement are infiltration basins designed to accept construction phase sediment. Design criteria for such basins are found in Appendix 3, of the Sacony Creek Watershed Stormwater Management Plan.

3. Areas of proposed infiltration shall be designed to the appropriate percolation rates of the existing soil.
4. Infiltration areas shall consider the effects of Section 308.

Section 308. Limestone and/or Sinkhole Prone Areas

- A. The ability to retain and maximize the ground water recharge capacity of the area being developed is encouraged. Design of the storm water management facilities shall give consideration to providing ground water recharge to compensate for the reduction in the percolation that occurs when the ground surface is paved and roofed over. A detailed geologic evaluation of the project site shall be performed to determine the suitability of recharge facilities. The evaluation shall be performed by a qualified geologist and/or soil scientist, and a minimum, address soil permeability, depth to bedrock, susceptibility to sinkhole formation, and subgrade stability. Where pervious pavement is permitted for parking lots, recreational facilities, non-dedicated streets, or other areas, pavement construction specifications shall be noted on the plat.
- B. Whenever a basin will be located in an area underlain by limestone, a geological evaluation of the proposed location shall be conducted to determine susceptibility to sinkhole formations. The design of all facilities over limestone formations shall include measures to prevent ground water contamination and, where necessary, sinkhole formation. Soils used for the construction of basins shall have low-erodibility factors ("K" factors). Longswamp Township may require the installation of an impermeable liner in detention basins.

It shall be the developers responsibility to verify if the site is underlain by limestone. The following note shall be attached to all drainage plans and signed and sealed by the developer's engineer/surveyor/landscape architect/architect:

I, _____, certify that the proposed detention basin is/is not underlain by limestone.

Name: _____

Registration No.: _____

ARTICLE IV DRAINAGE PLAN REQUIREMENTS

Section 401. General Requirements

For any of the activities regulated by this Ordinance, the final approval of subdivision and/or land development plans, the issuance of any building or occupancy permit, or the commencement of any land disturbance activity may not proceed until the Property Owner or Developer or his/her agent has received written approval of a Drainage Plan from Longswamp Township.

Section 402. Exemptions

- A. Any Regulated Activity that meets the exception criteria in this Ordinance Appendix A is exempt from the Drainage Plan preparation provisions of this Ordinance. This criteria shall apply to the total development even if development is to take place in phases. The date of Longswamp Township Ordinance adoption shall be the starting point from which to consider tracts as "parent tracts" in which future subdivisions and respective impervious area computation shall be cumulatively considered. Exemption shall not relieve the applicant from providing adequate storm water management to meet the purpose of this Ordinance.
- B. Land disturbance associated with existing one and two family dwellings, subject to conditions described in A. of this Section.
- C. Use of land for gardening for home consumption.
- D. Agriculture when operated in accordance with a conservation plan or erosion and sedimentation control plan found adequate by the Conservation District. The agricultural activities such as growing crops, rotating crops, filling of soil and grazing animals and other such activities are specifically exempt from complying with the requirements of this Ordinance.
- E. Forest Management operations which are following the Department of Environmental Protection's management practices contained in its publication "Soil Erosion and Sedimentation Control Guidelines for Forestry" and are operating under an erosion and sedimentation control plan.
- F. ~~Prior~~ Drainage Plan Approval- Any Regulated Activity for which a Drainage Plan was previously prepared as part of a subdivision or land development proposal that received preliminary plan approval from Longswamp Township prior to the effective date of this Ordinance is exempt from the Drainage Plan preparation

provisions of this Ordinance provided that the approved Drainage Plan included design of storm water facilities consistent with ordinance provisions in effect at the time of approval, provided that said Drainage Plan is constructed and approved by the Township within five (5) years from the effective date of this Ordinance. If significant revisions are made to the Drainage Plan after both the preliminary plan approval and the effective date of the Ordinance, preparation of a new Drainage Plan, subject to the provisions of this Ordinance shall be required.

No exemption shall be provided for Regulated Activities as defined in Section 104.E and 104.F of this Ordinance.

Section 403. Drainage Plan Contents

The Drainage Plan shall consist of all applicable calculations, maps, and plans. A note on the maps shall refer to the associated computations and erosion and sedimentation control plan by title and date. The cover sheet of the computations and erosion and sedimentation control plan shall refer to the associated maps by title and date. All Drainage Plan materials shall be submitted to Longswamp Township in a format that is clear, concise, legible, neat, and well organized; otherwise, the Drainage Plan shall be disapproved and returned to the Applicant.

The following items shall be included in the Drainage Plan:

A. General

1. General description of project.
2. General description of permanent storm water management techniques, including construction specifications of the materials to be used for storm water management facilities.
3. Complete hydrologic, hydraulic, and structural computations for all storm water management facilities.

B. Map(s) of the project area shall be submitted on drawings no smaller than 18" x 24" and no larger than 36" x 48" shall be prepared in a form that meets the requirements for recording at the offices of the Recorder of Deeds of Berks, County. The contents of the map(s) shall include, but not be limited to:

1. The location of the project relative to highways, municipalities or other identifiable landmarks.
2. Existing contours at intervals of two feet. In areas of slopes (greater than

4 percent), five-foot contour intervals may be used.

3. Existing streams, lakes, ponds, or other bodies of water within the project area.
4. Other physical features including flood hazard boundaries, sinkholes, streams, existing drainage courses, areas of natural vegetation to be preserved, and the total extent of the upstream area draining through the site.
5. The location of all existing and proposed utilities, sanitary sewers, and water lines within 50 feet of property lines.
6. An overlay showing soil names and boundaries.
7. Proposed changes to the land surface and vegetative cover, including the type and amount of impervious area that would be added.
8. Proposed structures, roads, paved areas and buildings.
9. Final contours at intervals at two feet. In areas of steep slopes (greater than 4 percent), five-foot contour intervals may be used.
10. The name of the development, the name and address of the owner of the property, and the name of the individual or firm preparing the plan.
11. The date of submission.
12. A graphic and written scale of one (1) inch equals no more than fifty (50) feet; for tracts with lots which average two (2) acres or more, the scale may be one (1) inch equals no more than one hundred (100) feet.
13. A north arrow.
14. The total tract boundary and size with distances marked to the nearest foot and bearings to the nearest degree.
15. Existing and proposed land use(s).
16. A key map showing all existing man-made features beyond the property boundary that would be affected by the project.
17. Horizontal and vertical profiles of all open channels, including hydraulic

capacity.

18. Overland drainage paths.
19. A twenty (20') foot wide access easement around all storm water management facilities that would provide ingress from and egress to a public right-of-way.
20. A note on the plan indicating the location and responsibility for maintenance of storm water management facilities that would be located off-site shall meet the performance standards and design criteria specified in this Ordinance.
21. A construction detail of any improvements made to sinkholes and the location of all notes to be posted, as specified in this Ordinance.
22. A statement, signed by the landowner, acknowledging the storm water management system to be a permanent fixture that can be altered or removed only after approval of a revised plan by Longswamp Township.
23. The location of all erosions and sedimentation control facilities.
24. All other data require by Sections 4.20 and 4.30 of the Longswamp Township Subdivisions and Land Development Ordinance.

C. Supplemental Information

1. A written description of the following information shall be submitted.
 - a. The overall storm water management concept for the project.
 - b. Storm water runoff computations as specified in this Ordinance.
 - c. Storm water management techniques to be applied both during and after development.
 - d. Expected project time schedule.
2. A soil erosion and sedimentation control plan, where applicable, including all reviews and approvals, as required by PADEP.
3. A geologic assessment of the effects of runoff on sinkholes as specified in this Ordinance.
4. The effects of the project (in terms of runoff volumes and peak flows) on adjacent properties and on any existing Longswamp Township storm

water collection system that may receive runoff from the project site.

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

D. Storm Water Management Facilities

1. All storm water management facilities must be located on a plan and described in detail.
2. When groundwater recharge methods such as seepage pits, beds or trenches are used, the locations of existing and proposed septic tank infiltration areas and wells must be shown.
3. All calculations, assumptions, and criteria used in the design of the storm water management facilities must be shown.

Section 404. Plan Submission

For all activities regulated by this Ordinance, the steps below shall be followed for submission. For any activities that require a PADEP Joint Permit Application and regulated under Chapter 105 (Dam Safety and Waterway Management) or Chapter 106 (Floodplain Management) of PADEP's Rules and Regulations, require a PADOT Highway Occupancy Permit, or require any other permit under applicable state or federal regulations, the permit(s) shall be part of the plan.

1. The Drainage Plan shall be submitted by the Developer to Longswamp Township as part of the Preliminary Plan submission for the Regulated Activity.
2. Eight (8) copies of the Drainage Plan shall be submitted. Distribution of the Drainage Plan will be as follows:
 - a. One (1) copy to Longswamp Township Zoning Officer accompanied by the requisite Longswamp Township Review Fee, as specified in this Ordinance.
 - b. Two (2) copies to Longswamp Township Engineer and one (1) copy to Longswamp Township Solicitor.
 - c. Two (2) copies to Longswamp Township accompanied by the

requisite Longswamp Township Review Fee as specified in this Ordinance.

d. One (1) copy to Longswamp Township Planning Commission.

e. One (1) copy to the Berks County Planning Commission.

Section 405. Drainage Plan Review

- A. The Longswamp Township Engineer shall review the Drainage Plan for consistency with the adopted Sacony Creek Watershed Act 167 Storm Water Management Plan. Longswamp Township shall require receipt of a complete plan, as specified in this Ordinance.
- B. The Longswamp Township Engineer shall review the Drainage Plan for any submission or land development against Longswamp Township subdivision and land development ordinance provisions not superseded by this Ordinance.
- C. For activities regulated by the Ordinance, Longswamp Township Engineer shall notify Longswamp Township in writing, within forty-five (45) calendar days, whether the Drainage Plan is consistent with the Storm Water Management Plan. Should the Drainage Plan be determined to be consistent with the Storm Water Management Plan, Longswamp Township Engineer will forward an approval letter to Longswamp Township Secretary with a copy to the Developer.

Should the Drainage Plan be determined to be inconsistent with the Storm Water Management Plan, the Longswamp Township Engineer will forward a disapproval letter to the Longswamp Township Secretary and Developer citing the reason(s) for the disapproval. Any disapproved Drainage Plans may be revised by the Developer and resubmitted consistent with this Ordinance.

- D. For Regulated Activities specified in Sections 104.C and 104.D of this Ordinance, the Longswamp Township Engineer shall notify the Longswamp Township Building Permit Officer in writing, within a time frame consistent with the Longswamp Township Building Code and/or Longswamp Township Subdivision Ordinance, whether the Drainage Plan is consistent with the Storm Water Management Plan and forward a copy of approval/disapproval letter to the Developer. Any disapproved drainage plan may be revised by the Developer and resubmitted consistent with this Ordinance.
- E. ~~For~~ Regulated Activities requiring a PADEP Joint Permit Application, Longswamp Township Engineer shall notify PADEP whether the Drainage Plan is consistent with the Storm Water Management Plan and forward a copy of the

review letter to Longswamp Township and the Developer. PADEP may consider Longswamp Township Engineer's review comments in determining whether to issue a permit.

- F. Longswamp Township shall not approve any subdivision or land development for Regulated Activities specified in Sections 104.A and 104.B of this Ordinance if the Drainage Plan has been found to be inconsistent with the Storm Water Management Plan, as determined by the Longswamp Township Engineer. All required permits from PADEP must be obtained prior to approval.
- G. The Longswamp Township Building Permit Office shall not issue a building permit for any Regulated Activity specified in Section 104 of this Ordinance if the Drainage Plan has been found to be inconsistent with the Storm Water Management Plan, as determined by Longswamp Township Engineer, or without considering the comments of Longswamp Township Engineer. All required permits from PADEP must be obtained prior to issuance of a building permit.
- H. The Developer shall be responsible for completing an "As-Built Survey" of all storm water management facilities included in the approved Drainage Plan. The As-Built Survey and an explanation of any discrepancies with the design plans shall be submitted to the Longswamp Township Engineer for final approval. In no case shall Longswamp Township approve the As-Built Survey until Longswamp Township receives a copy of an approved Declaration of Adequacy, Highway Occupancy Permit from the PADOT District Office, and any applicable permits from PADEP.
- I. Longswamp Township's approval of a Drainage Plan shall be valid for a period not to exceed one (1) year. This one-year time period shall commence on the date that Longswamp Township signs the approved Drainage Plan. If storm water management facilities included in the approved Drainage plan have not been constructed, or if an As-Built Survey of these facilities has not been approved within this one-year time period, then Longswamp Township may consider the Drainage plan disapproved and may revoke any and all permits. Drainage Plans that are considered disapproved by Longswamp Township shall be resubmitted in accordance with Section 407 of this Ordinance.
- J. Township inspection of the approved Drainage Plann shall be conducted per Article V here in.

Section 406. Modification of Plans

A modification to a submitted Drainage Plan for a development site that involves a change in storm water management facilities or techniques, or that involves the relocation or re-design to

storm water management facilities, or that is necessary because soil or other conditions are not as stated on the Drainage Plan as determined by Longswamp Township Engineer, shall require a resubmission of the modified Drainage Plan consistent with Section 404 of this Ordinance and be subject to review as specified in Section 405 of this Ordinance.

A modification to an already approved or disapproved Drainage Plan shall be submitted to Longswamp Township, accompanied by the applicable review fee. A modification to a Drainage Plan for which a formal action has not been taken by Longswamp Township shall be submitted to Longswamp Township, accompanied by the applicable the Longswamp Township Review Fee.

Section 407. Resubmission of Disapproved Drainage Plans

A disapproved Drainage Plan may be resubmitted, with the revisions addressing Longswamp Township Engineer's concerns documented in writing, to Longswamp Township Engineer in accordance with Section 404 of this Ordinance and be subject to review as specified in Section 405 of this Ordinance. The applicable Longswamp Township Review Fee must accompany a resubmission of a disapproved Drainage Plan.

Section 408. Hardship Waiver Procedure

Longswamp Township may hear requests for waivers where it is alleged that the provisions of this Ordinance inflict unnecessary hardship upon the applicant. The waiver request shall be in writing on an application form promulgated by Longswamp Township and accompanied by the requisite fee based upon a fee schedule adopted by the Township. A copy of the completed application form shall be provided to each of the following: Longswamp Township, the Longswamp Township Engineer, the Longswamp Township Solicitor, the Longswamp Township Planning Commission and the Berks County Planning Commission. The application shall fully document the nature of the alleged hardship.

Longswamp Township may grant a waiver provided that all of the following findings are made in a given case:

1. That there are unique physical circumstances or conditions, including irregularity of lot size or shape, or exceptional topographical or other physical conditions peculiar to the particular property, and that the unnecessary hardship is due to such conditions, and not the circumstances or conditions generally created by the provisions of this Ordinance in the Stormwater Management District in which the property is located;
2. ~~That~~ That because of such physical circumstances or conditions, there is no possibility that the property can be developed in strict conformity with the provisions of this Ordinance, including the "no harm" provision, and that the authorization of a

waiver is therefore necessary to enable the reasonable use of the property;

3. That such unnecessary hardship has not been created by the applicant; and
4. That the waiver, if authorized, will represent the minimum waiver that will afford relief and will represent the least modification possible of the regulation in issue.

In granting any waiver, Longswamp Township may attach such reasonable conditions and safeguards as it may deem necessary to implement the purposes of Act 167 and this Ordinance.

ARTICLE V INSPECTIONS

Section 501. Schedule of Inspections

- A. The Longswamp Township Engineer or his assignee shall inspect all phases of the installation of the permanent storm water management facilities.
- B. During any stage of the work, if the Longswamp Township Engineer determines that the permanent storm water management facilities are not being installed in accordance with the approved Storm Water Management Plan, Longswamp Township shall revoke any existing permits until a revised Drainage Plan is submitted and approved, as specified in this Ordinance.

ARTICLE VI FEES AND EXPENSES

Section 601. General

The fees required by this Ordinance are the Longswamp Township Municipal Review Fee. The Longswamp Township Municipal Review fee shall be established by the resolution to defray review costs incurred by the Longswamp Township. All fees shall be paid by the applicant.

Section 602. Longswamp Township Drainage Plan Review Fee

Longswamp Township shall establish a Review Fee Schedule based on the size of the Regulated Activity and based on Longswamp Township's costs for reviewing Drainage Plans. Longswamp Township shall periodically update the Review Fee Schedule to ensure that review costs are adequately reimbursed.

Section 603. Expenses Covered by Fees

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

- A. Administrative Costs.
- B. The review of the Drainage Plan by Longswamp Township, Longswamp Township Engineer, and Township Solicitor.
- C. The site inspections.
- D. The inspection of storm water management facilities and drainage improvements during construction.
- E. The final inspection upon completion of the storm water management facilities and drainage improvements presented in the Drainage Plan.
- F. Any additional work required to enforce any permit provisions regulated by this Ordinance, correct violations, and assure proper completion of stipulated remedial actions.

ARTICLE VII MAINTENANCE RESPONSIBILITIES

Section 701. Performance Guarantee

The applicant at the discretion of the Township, may be required to provide a financial guarantee to Longswamp Township for the timely installation and proper construction of all stormwater management controls as required by the approved and proper construction of all stormwater management controls and this ordinance equal to the full construction cost of the required controls, plus ten percent (10%) contingencies.

Section 702. Maintenance Responsibilities

- A. The storm water management plan for the development site shall contain an operation and maintenance plan prepared by the developer and approved by Longswamp Township. The operation and maintenance plan shall outline required routine maintenance actions and schedules necessary to insure proper operation of the facility(ies). The operation and maintenance plan shall be the exclusive responsibility of the developer.
- B. The storm water management plan for the development site shall establish responsibilities for the continuing operating and maintenance of all proposed storm water control facilities, consistent with the following principles:
 - 1. If a development consists of structures or lots which are to be separately owned and in which streets sewers and other public improvements are to

be dedicated to Longswamp Township, storm water control facilities may also be dedicated to and maintained by Longswamp Township, after a Maintenance Agreement is established per Section 703.

2. If a development site is to be maintained in a single ownership or if sewers and other public improvements are to be privately owned and maintained, then the ownership and maintenance of storm water control facilities should be the responsibility of the owner or private management entity.
- C. The governing body, upon recommendation of the Longswamp Township engineer, shall make the final determination on the continuing maintenance responsibilities prior to final approval of the storm water management plan.

Section 703. Maintenance Agreement for Privately Owned Storm Water Facilities

- A. Prior to final approval of the site's storm water management plan, the property owner shall sign and record a maintenance agreement covering all storm water control facilities which are to be privately owned. The agreement shall stipulate that:
 1. The owner shall maintain all facilities in accordance with the approved maintenance schedule and shall keep all facilities in a safe and attractive manner.
 2. The owner shall convey to Longswamp Township easements and/or rights-of-way to assure access for periodic inspections by Longswamp Township and maintenance, if required.
 3. The owner shall keep in file with the Longswamp Township the name, address and telephone number of the person or company responsible for maintenance activities; in the event of a change, new information will be submitted to Longswamp Township within ten (10) days of the change.
 4. If the owner fails to maintain the storm water control facilities following due notice by Longswamp Township to correct the problem(s), Longswamp Township may perform the necessary maintenance work or corrective work and the owner shall reimburse Longswamp Township for all costs incurred per Section 805 B.
- B. ~~Other~~ Items may be included in the agreement where determined necessary to guarantee the satisfactory maintenance of all facilities, including the posting of financial maintenance security in a sum not less than fifteen percent (15%) of the total project costs for an eighteen (18) month period from date of Township

approval. The maintenance agreement shall be subject to the review and approval of Longswamp Township solicitor and governing body.

Section 704. Longswamp Township Storm Water Maintenance Fund

- A. Persons installing storm water storage facilities shall be required to pay a specified amount to the Longswamp Township Storm Water Maintenance Fund to help defray costs of periodic inspections and maintenance expenses. The amount of the deposit shall be determined as follows:
 - 1. If the storage facility is to be privately owned and maintained, the deposit shall cover the cost of periodic inspections performed by Longswamp Township for a period of ten (10) years, as estimated by the Longswamp Township Engineer.
 - 2. If the storage facility is to be owned and maintained by Longswamp Township, the deposit shall cover the estimated costs for maintenance and inspections for ten (10) years. Longswamp Township engineer will establish the estimated costs utilizing information submitted by the applicant.
 - 3. The amount of the deposit to the fund shall be converted to present worth of the annual series values. The Longswamp Township engineer shall determine the present worth equivalents which shall be subject to the approval of the governing body.
- B. If a storage facility is proposed that also serves as a recreation facility (e.g. ballfield, lake), Longswamp Township may reduce or waive the amount of the maintenance fund deposit based upon the value of the land for public recreation purpose.
- C. If at some future time a storage facility (whether publicly or privately owned) is eliminated due to the installation of storm sewers or other storage facility, the unused portion of the maintenance fund deposit will be applied to the cost of abandoning the facility and connecting to the storm sewer system or other facility. Any amount of deposit remaining after the costs of abandonment are paid will be returned to the depositor.

Section 705. Post-Construction Maintenance Inspections

- A. Basins should be inspected by the land owner/developer or responsible entity on the following basis:
 - 1. Annually for the first 5 years.
 - 2. Once every 3-5 years,
 - 3. Immediately after the cessation of a 100-year or greater storm event.
- B. The entity conducting the inspection should be required to submit a report to Longswamp Township regarding the condition of the facility and recommending necessary repairs, if needed.

ARTICLE VII ENFORCEMENT AND PENALTIES

Section 801. Right of Entry

Upon presentation of proper credentials, duly authorized representative of Longswamp Township may enter at reasonable times upon any property within Longswamp Township to investigate or ascertain the condition of the subject property in regard to any aspect regulated by this Ordinance.

Section 802. Notification

In the event that a person fails to comply with the requirements of this Ordinance, or fails to conform to the requirements of any permit issued hereunder, Longswamp Township shall provide written notification of the violation. Such notification shall set forth the nature of the violation(s) and establish a time limit, usually 16 days, for correction of these violation(s). Failure to comply within the time specified shall subject such person to the penalty provisions of this Ordinance. All such penalties shall be deemed cumulative. It shall be the responsibility of the owner of the real property on which any Regulated Activity is proposed to occur, is occurring, or has occurred, to comply with the terms and conditions of this Ordinance.

Section 803. Public Nuisance

- A. Any violation of any provision of this Ordinance is deemed a public nuisance.
- B. ~~Each~~ Each day that a violation of any provision continues constitutes a separate violation.

Section 804. Liability Disclaimer

- A. Neither the granting of any approval nor the compliance with the provisions of this ordinance or with any condition imposed by Longswamp Township, its officials, employees or designated representatives hereunder, shall relieve any person from any responsibility for damage to persons or property resulting therefrom, or as otherwise imposed by law, nor impose any liability upon Longswamp Township, its officials, employees or designated representatives to the maximum extent permitted by law.
- B. The granting of any permit which includes any stormwater management requirements shall not constitute a representation, guarantee or warranty of any kind by the Longswamp Township officials, employees or designated representatives thereof, of the practicability or safety of any stormwater structure or facility, use or other plan proposed, and shall create no liability or cause of action upon Longswamp Township, its officials, employees, or designated representatives for any damage that may result pursuant thereto to the maximum extent permitted by law.

Section 805. Enforcement

A. Notices

Whenever the Building Permit Officer or other authorized Longswamp Township representative determines that there are reasonable grounds to believe that there has been a violation of any provisions of the Ordinance, or of any regulation adopted pursuant thereto, the Building Permit Officer shall give notice of such alleged violation as hereinafter provided. Such notice shall (a) be in writing; (b) include a statement of the reasons for its issuance; (c) allow a reasonable time not to exceed a period of thirty (30) days for the performance of any act it requires; (d) be served upon the property owner or his agent as the case may require; provided, however, that such notice or order shall be deemed to have been properly served upon such owner or agent when a copy thereof has been served with such notice by any other method authorized or required by the laws of this State; and (e) contain an outline of remedial action which, if taken, will effect compliance with the provisions of the Ordinance.

B. Penalties

~~Any person~~ Any person or entity who fails to comply with any or all of the requirements or provisions of the Ordinance or who fails or refuses to comply with any notice, order or direction of the Building Permit Officer or any other authorized employee of Longswamp Township shall be subject to the civil enforcement procedures,

finer, and schedule of fines as set forth in Ordinance No. 1997-186, the "Civil/Criminal Enforcement Procedure Ordinance of Longswamp Township. In addition to the above penalties all other actions are hereby reserved including an action in equity for the proper enforcement of this Ordinance. The imposition of a fine or penalty for any violation of, or non-compliance with, this Ordinance shall not excuse the violation or non-compliance or permit it to continue and all such persons shall be required to correct or remedy such violations and non-compliance within a reasonable time. Any development initiated of any structure or building constructed, reconstructed, enlarged, altered, or relocated, in non-compliance with this Ordinance may be declared by the Township to be public nuisance and abatable as such.

Section 806. Appeals

- A. Any person aggrieved by any decision of the Longswamp Township Board of Supervisors may appeal to the County Court of Common Pleas of Berks County within thirty (30) days of that decision.

Section 807. Miscellaneous

- A. All ordinances or parts of ordinances inconsistent with the provisions of this Ordinance are hereby repealed insofar, but only insofar, as the same are inconsistent herewith.
- B. The provisions of this Ordinance are severable and if any provision or part thereof shall be held invalid, unconstitutional or inapplicable to any person or circumstances, such invalidity, unconstitutionality or inapplicability shall not effect or impair the remaining provisions or parts thereof of this Ordinance.
- C. This Ordinance shall become effective five days after its adoption.

ORDAINED and ENACTED as an Ordinance by the Board of Supervisors of the

Township of Longswamp, Berks County, Pennsylvania, in lawful session duly assembled this
10th day of February, 1998.

BOARD OF SUPERVISORS OF LONGSWAMP
TOWNSHIP, BERKS COUNTY, PA

Nevin M. Behn
Nevin M. Behn, Chairman

Russell W. Kulp
Russell W. Kulp, Supervisor

Donald C. Siegfried
Donald C. Siegfried, Supervisor

Attest:

Robert Evans
Township Secretary