BOROUGH OF BALDWIN
ORDINANCE NO. 859

AN ORDINANCE AMENDING BOROUGH OF BALDWIN ORDINANCE 605, AS AMENDED BY ORDINANCE 691, KNOWN AS THE BOROUGH OF BALDWIN STORMWATER MANAGEMENT ORDINANCE, DEALING WITH STORMWATER REGULATIONS

WHEREAS, the Borough of Baldwin enacted Ordinance 605 on April 17, 1989 and amended same on November 20, 1995 through Ordinance 691; and,

WHEREAS, said Ordinance must be replaced and superseded by a new Stormwater Management Ordinance as set forth below.

NOW THEREFORE, BE IT ORDAINED and ENACTED, by the Borough Council of Baldwin, Allegheny County, Pennsylvania, and it is ORDAINED and ENACTED as follows:

BOROUGH OF BALDWIN
STORMWATER MANAGEMENT ORDINANCE
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ARTICLE X
General Provisions

§ 142-37. Title.

This Part 2 shall be known and may be cited as the "Borough of Baldwin Stormwater Management Ordinance" or just the "stormwater regulations."

§ 142-38. Grant of power; prior ordinances superseded.

This Part 2 is adopted in accordance with the authority granted to municipalities to regulate subdivision and land development by the Stormwater Management Act of October 9, 1978 (P.L. 864, No. 167, 32 P.S. §§ 680.1 through 680.17), as amended, and the Stormwater Management Guidelines adopted by the General Assembly. This ordinance shall supersede all previous ordinances.

§ 142-39. Purpose.

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

A. To manage stormwater runoff resulting from land alterations and disturbance activities in accordance with watershed stormwater management plans adopted pursuant to the Pennsylvania Storm Water Management Act (Act 167 of 1978, as amended).[2]

B. To utilize and protect the desirable existing natural drainage systems and to preserve the flood protection capacity of streams.

C. To encourage natural infiltration of rainfall to preserve groundwater supplies and stream flows.

D. To provide for adequate maintenance of all permanent stormwater management facilities in the Borough.

E. To update and revise the existing Ordinance No. 605[3] due to changes in the engineering concepts concerning stormwater management.

F. To update and revise the existing Ordinance No. 605 (as amended by Ord. No. 659) due to changes in the engineering and legal concepts concerning stormwater management.

[2] Editor's Notes See 32 P.S. § 680.1 et seq.

[3] Editor's Note: Said ordinance comprised the former stormwater regulations, amended in their entirety by Ord. No. 691.

G. Inadequate maintenance of stormwater facilities contributes to erosion and sedimentation, overtaxes the carrying capacity of streams and storm sewers, increases the cost of public facilities to carry and control stormwater, undermines flood plain management and flood control efforts in downstream communities, reduces groundwater recharge, threatens public health and safety, and increases pollution of water resources

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

I. Federal and state regulations require certain municipalities to obtain a permit for stormwater discharges from their separate storm sewer systems under the National Pollutant Discharge Elimination System (NPDES). Permittees are required to enact, implement, and enforce a prohibition of non-stormwater discharges to the permittee's regulated small municipal separate stormsewer systems (MS4s).

J. Manage stormwater runoff impacts at their source by regulating activities that cause the problems.

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

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

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

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

§ 142-40. Applicability.

The provisions of this Part 2 shall apply to all subdivision and land developments unless specifically exempted or otherwise modified herein. All activities related to proper operation and maintenance of approved stormwater management BMPs and all activities that may contribute non-stormwater discharges to a regulated small MS4 are subject to regulation by this Ordinance.

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

B. Severability - In the event that any section or provision of this ordinance is declared invalid by a court of competent jurisdiction, such decision shall not affect the validity of any of the remaining provisions of this Ordinance.

C. Compatibility with Other Requirements - Actions taken under this Ordinance do not affect any responsibility, permit or approval for any activity regulated by any other code, law, regulation, or ordinance

§ 142-41. Fees.

The applicant will be responsible for all fees associated with the approval and installation of the stormwater management plan; such fees to include, but not be limited to, inspection, engineering, legal and administrative. Said fees are posted with the municipality. Such fees will be established from time to time by the Borough by resolution; engineer costs and expenses shall be billed to the Borough that shall be payable by the applicant.

A. Administrative/Clerical Costs:

The review of the BMP Operations and Maintenance Plan by the Municipal Engineer. The site inspections including, but not limited to, pre-construction meetings, inspections during construction of stormwater BMPs, and final inspection upon completion of the stormwater BMPs.

§ 142-42. Definitions and word usage.

A. Interpretation. The word "person" includes a corporation, association, partnership or individual. The words "shall" and "will" are mandatory; the word "may" is permissive. The word "building" includes structure or any part thereof. Words used in the present tense include the future tense. Words in the masculine gender shall include the feminine gender.

B. Definitions. As used in this Part 2, the following terms shall have the meanings indicated:

ACT – The Stormwater Management Act (Act of October 4, 1978, P.L. 864 No. 167; 32 P.S. §§ 680.1 through 680.17, as amended by Act of May 24, 1984, No. 63).

AGRICULTURAL ACTIVITY – Activities associated with agriculture such as agricultural cultivation, agricultural operation, and animal heavy use areas. This includes the work of producing crops including tillage, land clearing, plowing, disking, harrowing, planting, harvesting crops or pasturing and raising of livestock and installation of conservation measures. Construction of new buildings or impervious area is not considered an agricultural activity

APPLICANT – A landowner or developer (including his/her heirs, successors and assigns), as defined by the Pennsylvania Municipalities Planning Code, Act 247 of 1968, as amended by Act 170 of 1988, as further amended by Act 209 of 1990 and Act 131 of 1992, who has filed an application for development within the Borough of Baldwin.

BOROUGH ENGINEER – A professional engineer registered in the Commonwealth of Pennsylvania specializing in civil engineering and appointed by the Borough of Baldwin.

CHANNEL – A natural or artificial waterway which periodically or continuously contains moving water or which forms a connecting link between two (2) bodies of water. It has a definite bed and banks which confine the water.

CONSERVATION DISTRICT (ACCD) – The Allegheny County Conservation District.

COUNTY – Allegheny County, Pennsylvania.

CULVERT – A closed conduit for the free passage of surface drainage under a highway, railroad, canal or other embankment.

DEPARTMENT – Shall mean the Allegheny County Planning Department.

DESIGN CRITERIA –

(1) Engineering guidelines specifying construction details and materials.

(2) Objectives results or limits which must be met by a facility, structure, or process in performance of its intended functions.

DESIGN STORM – The magnitude of precipitation from a storm event measured in probability of recurrence (e.g., 25-year storm) and duration (e.g. 24-hour), and used in computing stormwater management control systems.

DETENTION – The slowing, dampening, or attenuating of runoff entering the natural drainage pattern or storm drainage system by temporarily holding water on a surface area such as detention basins, reservoirs, on roof tops, in streets, parking lots, or within the drainage system itself, and releasing the water at a desired rate of discharge.

DETENTION BASIN – A basin designed to retard stormwater runoff by temporarily storing the runoff and releasing it at a predetermined rate. A "detention basin" can be designed to drain completely after a storm event, or it can be designed to contain a permanent pool of water, in which case it is called a "retention basin".

DEVELOPMENT – Any activity, construction, alteration, change in land use or similar action that affects stormwater runoff characteristics.

DEVELOPMENT SITE – A lot, parcel or tract of land on which development is taking place or is proposed.

DISCHARGE – Rate of flow, specifically fluid flow; a volume of fluid flowing from a conduit or channel, or being released from detention storage, per unit of time; commonly expressed as cubic feet per second (cfs), million gallons per day (mgd), gallons per minute (gpm). See also "Rate of Runoff".

DRAINAGE – Interception and removal of excess surface water or groundwater from land by artificial or natural means.

DRAINAGE AREA – The contributing land area to a single drainage basin, expressed in acres, square miles, or other units of area; also called a "catchment area", "watershed", or "river basin"; the land area served by a drainage system or by a watercourse receiving storm and surface water, also called "subarea".

DRAINAGE BASIN – The land area from which water is carried off by a natural drainage system; also called a "watershed" or "catchment area".

DRAINAGE EASEMENT – A right granted by a landowner to a grantee allowing the use of private land for stormwater management purposes.

ENCROACHMENT – Any structure or activity which in any manner changes, expands or diminishes, the course, current or cross section of any watercourse, floodway or body of water.

EROSION – Wearing away of the lands by running, water, glaciers, winds and waves.

EROSION CONTROL – The application of measures to reduce erosion of land surfaces.

FLOODPLAIN – A normally dry land area adjacent to stream channels that is susceptible to inundation by overbank stream flows. For regulatory purposes, the Pennsylvania Flood Plain Management Act (Act of October 4, 1978, P.L. 851, No. 166) and regulations pursuant to the Act define the floodplain as the area inundated by a 100-year flood and delineated on a map by FEMA (Federal Emergency Management Agency) or by the applicant in accordance with Borough ordinance requirements.

FOREST MANAGEMENT / TIMBER OPERATIONS - Planning and activities necessary for the management of forestland. These include conducting a timber inventory, preparation of forest management plans, silvicultural treatment, cutting budgets, logging road design and construction, timber harvesting, site preparation, and reforestation

GROUND COVER – Materials covering the ground surface.

GROUND WATER – Subsurface water occupying the saturation zone, from which wells and springs are fed.

GROUND WATER RECHARGE – Replenishment of ground water naturally by precipitation or runoff or artificially by spreading or injection.

HYDRAULICS – The branch of science concerned with the mechanics of fluids, especially liquids. As applied in stormwater management, the study of the characteristics of water flow in, and conveyance capacity of, a watercourse, considering such factors as depth, velocity and turbulence.

HYDROLOGIC SOIL GROUP - Infiltration rates of soils vary widely and are affected by subsurface permeability as well as surface intake rates. Soils are classified into four HSGs (A, B, C, and D) according to their minimum infiltration rate, which is obtained for bare soil after prolonged wetting. The NRCS defines the four groups and provides a list of most of the soils in the United States and their group classification. The soils in the area of the development site may be identified from a soil survey report that can be obtained from local NRCS offices or conservation district offices. Soils become less pervious as the HSG varies from A to D (NRCS [3,4])

HYDROLOGY – The science de3aling with the waters of the earth and their distribution and circulation through the hydrosphere (above, on or within the earth). Engineering hydrology deals with the application of hydrologic concepts to the design of projects for use and control of water, as well as the calculation of the rates of stormwater runoff.

HYDROGRAPH – A graph showing the quantity of runoff at a specific point in time during a rainfall event.

IMPERVIOUS MATERIAL OR SURFACE – Material which resists the entrance or passing through of water or other liquids. Some examples: pavement or roofs.

INFILTRATION –
1. The flow or movement of water through the interstices or pores of a soil or other porous medium.
2. The absorption of liquid by the soil.

INTERMITTENT FLOW – Flow that starts and stops again at different intervals.

LAND DEVELOPMENT – Any of the following activities:

A. The improvement of one lot or two or more contiguous lots, tracts or parcels or land for any purpose involving:
   A group of two or more residential or non-residential buildings, whether proposed initially or cumulatively, or a single non-residential building on a lot or lots regardless of the number of occupants, or tenure; or

   The division or allocation of land or space, whether initially or cumulatively, between or among two or more existing or prospective occupants by means or, for the purpose of streets, common areas, leaseholds, condominiums, building groups or other features.

B. A subdivision of land.

LAND DISTURBANCE – Any activity involving grading, tilling, digging or filling or stripping of vegetation; or any other activity which causes land to be exposed to the danger of erosion or changed water flow characteristics.

MAINTENANCE – The upkeep necessary for efficient operation of stormwater structures and facilities.

MUNICIPALITY – The Borough of Baldwin, Allegheny County, Pennsylvania.

NATURAL STORM WATER RUNOFF REGIME – A watershed where natural surface configurations, runoff characteristics and defined drainage conveyances have attained the conditions of equilibrium.

OUTFALL – The points at which stormwater runoff leaves streams, storm sewers, swales, or other well defined natural or artificial drainage features, as well as areas of dispersed overland flows within the site and/or leaving the site.

OUTLET STRUCTURE – A structure designed to control the volume of stormwater runoff from a detention or retention facility during a specific length of time.

OWNER – The person or association which is responsible for the care of the structure(s) described.

PaDEP – Pennsylvania Department of Environmental Protection.

PEAK RATE OF RUNOFF (OR DISCHARGE) - The maximum rate of flow of water at a given point and time resulting from a predetermined storm.

PERFORMANCE STANDARD – A standard which establishes an end result or outcome which is to be achieved but does not prescribe specific means for achieving it. A specification standard in contrast is one which prescribes the exact characteristics to be used, leaving little choice to the applicant. The allowable release rate is an example of a performance standard; the design standards for storm sewers are specifications standards.

PERSON – An individual, partnership, public or private association or corporation, firm, trust, estate, municipality, government unit, public utility or any legal entity whatsoever which is recognized by law as the subject of rights and duties.

PERVIOUS MATERIAL – Material which permits the passage or entrance of water or other liquid. (i.e. grass, earth, stone, and trees).

PRE-APPLICATION CONFERENCE – A meeting with the Borough prior to a formal application submittal.

POINT OF INTEREST – A point of hydrologic and/or hydraulic concern such as a bridge, culvert, or channel section, for which the rate of runoff is computed or measured.

PROJECT SITE - The specific area of land where any Regulated Earth Disturbance activities in the Municipality are planned, conducted or maintained

QUALIFIED PERSON OR QUALIFIED PROFESSIONAL - Any person licensed by the Pennsylvania Department of State or otherwise qualified by law to perform the work required by this Ordinance

RATE OF RUNOFF – Instantaneous measurement of water flow expressed as a unit of volume per unit of time, also referred to as DISCHARGE. Usually stated in cubic feet per second (cfs) or gallons per minute (gpm).

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

RELEASE RATE PERCENTAGE – The watershed factor determined by comparing the maximum rate of runoff from a subbasin to the contributing rate of runoff to the watershed peak rate at specific points of interest.

RETENTION BASIN – A type of detention basin designed to contain a permanent pool of water.

RETURN PERIOD – The average interval in years over which an event of a given magnitude can be expected to recur.

RUNOFF – That part of precipitation which flows over the land.

RUNOFF CHARACTERISTICS – The surface components of any watershed which affect the rate, amount, and direction of stormwater runoff. These may include but are not being limited to vegetation, soils, slopes, and manmade landscape alterations.

ROUTING – Using an inflow hydrograph to simulate the water flow through a storage facility creating storage data and an outflow hydrograph.

SCS – Soil Conservation Service, U. S. Department of Agriculture.

SEDIMENT – Solid material, both mineral and organic, that is in suspension, is being transported, or has been removed from its site or origin by air, water, gravity, or ice and has come to rest on the earth's surface.

SEDIMENTATION – The process by which mineral or organic matter is accumulated or deposited by moving water, wind or gravity.

SOIL COVER COMPLEX METHOD – A method of runoff computation developed by the U. S. Soil Conservation Service and specifically found in its publication "Urban Hydrology for Small Watersheds", Technical Release No. 55, SCS (or most current

edition). There are several runoff models which implement this methodology and it is not limited to the TR-55.

STORAGE FACILITY – See Detention Basin.

STORM FREQUENCY – See Design Storm.

STORM SEWER – A pipe, culvert or underground open channel that carries intercepted surface runoff, street water, and other wash waters, or drainage, but excludes domestic sewage and industrial wastes.

STORMWATER COLLECTION/CONVEYANCE SYSTEM – Natural or engineered structures which collect and transport stormwater through or from a drainage area to the point of final outlet, including but not limited to, any of the following: conduits and appurtenance features, canals, channels, ditches, streams, culverts, streets and pumping stations.

STORMWATER MANAGEMENT PLAN – The plan for managing stormwater runoff from a specific development site.

STORMWATER MANAGEMENT SITE PLAN - The plan prepared by the developer or his representative indicating how stormwater runoff will be managed at the development site in accordance with this Ordinance. Stormwater Management Site Plan will be designated as SWM Site Plan throughout this Ordinance

STORMWATER RUNOFF – Waters resulting from snow melt or precipitation within a drainage basin, flowing over the surface of the ground, collected in channels and conduits, and carried by receiving streams.

STREAM – A watercourse.

SUBAREA – A portion of the watershed that has similar hydrological characteristics and drains to a common point. Also called a drainage area.

SUBDIVISION – The division or re-division of a lot, tract or parcel of land by any means into two or more lots, tracts, parcels or other divisions of land including changes in existing lot lines for the purpose, whether immediate or future, of lease, partition by the court for distribution to heirs or devises, transfer of subdivision by lease of land for agricultural purposes into parcels of more than 10 acres, not involving any new street or easement of access or any residential dwelling shall be exempted.

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

UPLAND – The higher parts of a region or tract of land.

VOLUME OF STORMWATER RUNOFF – Quantity of water normally measured cubic feet, or acre-feet, measured or determined analytically from (1) runoff coefficients; (2) rainfall / runoff ratios; and (3) areas underneath hydrographs.

WATERCOURSE (WATERWAY) – Any channel of conveyance of surface water having a defined bed and banks, whether natural or artificial, with perennial or intermittent flow.

WATERSHED – The entire region or area drained by a river or other body of water whether natural or artificial. A "designated watershed" is an area delineated by PaDEP and approved by the Environmental Quality Board as one for which the county is required to prepare a watershed stormwater management plan in accordance with the Pennsylvania Stormwater Management Act. Also called a drainage basin.

WATERS OF THIS COMMONWEALTH – Rivers, streams, creeks, rivulets, impoundments, ditches, watercourses, storm sewers, lakes, dammed water, wetlands, ponds, springs and other bodies or channels of conveyance of surface water, or parts thereof, whether natural or artificial, within or on the boundaries of this Commonwealth. (Source: The Clean Streams Law)

WETLANDS – Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adopted for life in saturated soil conditions, including swamps, marshes, bogs and similar areas. The term includes but is not limited to wetland area listed in the State Water Plan, the United States Fish and Wildlife Service Wetlands Inventory Maps, and the Pennsylvania Coastal Zone Management Plan and any wetland area designated by a river basin commission.

ARTICLE XI
Stormwater Plan Requirements

§ 142-43. General Requirements.

The following general requirements shall be followed for all plan submissions:

A. No final subdivision or land development plan shall be approved, no permit authorizing construction issued, or any earthmoving or land disturbance activity initiated until the final stormwater management plan for the development site is approved in accordance with the provisions of this Ordinance.

B. A development of a single lot for a single family home or estate must submit a simplified stormwater management plan. This plan must include a site location map, a soils map, the runoff calculations and the routing computations through the stormwater detention system. A site plan must be submitted with contours at two foot intervals and all natural features including any natural watercourse.

C. The Borough Engineer shall review the proposed provisions for stormwater management for a single lot for a single family home or estate. Where the applicant is proposing to connect to an existing storm sewer, the applicant shall demonstrate that sufficient capacity exists in the storm sewer from the point of connection to the point of outlet in the natural drainage system. The Borough Engineer shall determine if the proposed development site is part of a larger parcel or tract for which a stormwater management plan was approved previously and, therefore, subject to any specific stormwater management control contained in the prior plan.

D. At the time of the submission of an application by a developer for Stormwater Management Review, the developer shall also submit a fee, which will be established from time to time, by resolution of the Borough Council of the Borough of Baldwin. Such fees shall be in payment of the costs incurred by the Borough for the review by the Borough Engineer of the development plan, for any legal fees incurred in preparation of Development Plan Agreements, and other services, which shall be established by resolution of the Borough Council from time to time, and the cost of issuing permits related to the plan.

E. Techniques described in Appendix E (Low Impact Development) of this Ordinance are encouraged, because they reduce the costs of complying with the requirements of this Ordinance and the State Water Quality Requirements.

F. In conjunction with meeting the requirements of this Ordinance, the Applicant shall refer to and meet all conditions and requirements set forth in the Borough of Baldwin Municipal Separate Storm Sewer System (MS4) Prohibited Discharge Ordinance.

G. In conjunction with meeting the requirements of this Ordinance, the Applicant shall refer to and meet all conditions and requirements set forth in the Borough of Baldwin Total Maximum Daily Load (TMDL) Plan as adopted and revised.

§ 142-44. Criteria for Small Developments.

A. At the time of application, the Borough Engineer shall determine if the subdivision of land development qualifies as a "small development" and, therefore, is eligible for a simplified stormwater management plan submission. For the purposes of this Article, a small development is as follows: Any subdivision or land development which results (or will result when fully constructed) in the creation of five thousand (5,000) or less square feet of impervious surface area shall be classified as a small development and is exempt from a stormwater management plan submission. Small developments must provide safe management of stormwater runoff in accordance with the performance standard of this Article and as approved by the Borough. Any stormwater management facilities constructed as part of the development shall be designed to control the peak pre-development stormwater runoff for the 1, 2, 10, 25 and 100 year storm. The detention facility must be able to safely pass the post development 100 year storm peak discharge. The facility must provide an emergency outlet which can discharge the peak runoff for the undetained post development 100 year storm.

B. Applications for small developments shall include a plan which describes, narratively and graphically, the type and location of proposed on-site stormwater management techniques or the proposed connection to an existing storm sewer system. The plan should show accurately site boundaries, contours at five-foot intervals for areas of greater than 15 percent slope gradient and at two-foot intervals for areas with less than 15 percent slope, location of watershed and/.or subarea boundaries on the site (if applicable); and any watercourses, flood plains or exiting drainage facilities or structures located on the site.

C. The pre and post development calculations which show the amount of increase impervious area for the land development must be submitted prior to receiving an exception from submission of a stormwater management plan.

D. If applicable, a copy of the PaDEP stream encroachment permit and all supporting calculations must be submitted prior to an exemption.

E. If the land development discharges its runoff into a floodway or a natural or manmade swale or ditch, and is located upstream of a known area of continuous flooding, the calculations showing no increase in the peak water surface elevation at the point of flooding shall be submitted for review.

F. The Borough Engineer shall review and approve the proposed provisions for stormwater management for a small development. Where the applicant is proposing to connect to an existing storm sewer, the applicant shall demonstrate that sufficient capacity exists in the storm sewer from the point of connection to the point of outlet in the natural drainage system. The Borough Engineer shall determine if the proposed development site is part of a larger parcel or tract for which a stormwater management plan was approved

previously and, therefore, subject to any specific stormwater management control contained in the prior plan.

G. For a parcel or tract of land held under single ownership, only one application for a small development, as defined above, shall be permitted before requiring a stormwater management plan for the entire parcel. A project cannot be phased to circumvent the stormwater requirements by using the exemption for small developments. Stormwater for phased projects will be looked at as a whole.

§ 142-45. Municipal Separate Storm Sewer System Ordinance.

A. In conjunction with meeting the requirements of this Ordinance, the applicant shall refer to and meet all conditions and requirements set forth in the Borough of Baldwin's Municipal Separate Storm Sewer System (MS4) Prohibited Discharge Ordinance.

ARTICLE XII
Stormwater Plan Contents: Preliminary Plan

§ 142-46. General Format.

The stormwater management plan shall be prepared using the general performance and technical standards requirements for plan format contained in Part 1, the Subdivision and Land Development Ordinance, and in this Article with the following additions:

A. Watershed Location Map: Provide a key map showing the location of the development site within the watershed(s) and watershed(s) subareas(s). On all site drawings, show the boundaries of the watershed(s) and subarea(s) as they are located on the development site and identify watershed name(s) and subarea number(s). Example: Use a USGS map with the watershed, watershed subareas, and the subject property all outlined and designated.

B. Subwatershed Map: A plan must be submitted showing all the drainage areas and subwatersheds for the pre- and post-development peak runoff calculations. Example: Use the site plan and draw the watersheds and subwatersheds on the plan.

C. Floodplain Boundaries: Identify 100-year floodplain on the development site as shown on the FEMA mapping where applicable. In the case where no FEMA mapping exists for a watercourse that boarders the proposed development site, the applicant's determination of the 100-year flood plain for any watercourse or water body on the development site shall be used.

D. Natural Features: Show all bodies of water (natural and artificial), watercourses (permanent and intermittent), swales, wetlands and other natural drainage courses on the development site, or which will be affected by runoff from the development.

E. Soils: Provide a map showing soil types and boundaries within the development site (consult county, SCS, U. S. Geologic Survey for information). The soils must be defined on the plan.

F. Contours: Show existing and final contours at intervals of two feet; in areas with slopes greater than 15%, five-foot contour intervals may be used.

G. Stormwater Management Controls: Show any existing stormwater management and/or drainage structures, such as storm sewers, swales, culverts, etc. which are located on the development site, or which are located off-site but will be affected by runoff from the development.

H. Wetlands: Show any areas on the plan which have soils with hydric inclusions, are shown on the National Wetlands Inventory Map and/or support common wetland plants. These areas must be delineated by a registered professional engineer, who specializes in this field.

I. Appendix A: The preliminary stormwater management plan checklist must be completed and submitted.

J. A Soil Erosion and Sedimentation Pollution Control Plan or NPDES Plan in accordance with Chapter 102 of PaDEP Administrative Code Title 25 as authorized by the Clean Streams Law, Act 222, amended, and current Borough Erosion and Sedimentation Control Ordinance must be submitted.

K. Land Cover: Show existing and final land cover classifications as necessary to support and illustrate the runoff calculations performed.

L. Drainage Area Delineations: Show the boundaries of the drainage areas employed in the runoff calculations performed.

M. Stormwater Management Controls: Show any existing stormwater management or drainage controls and/or structures, such as sanitary and storm sewers, swales, culverts, etc. which are located on the development site, or which are located off-site but will be affected by runoff from the development.

N. DEP has regulations that require municipalities to ensure design, implementation and maintenance of Best Management Practices ("BMPs") that control runoff from new development and redevelopment after Regulated Earth Disturbance activities are complete. These requirements include the need to implement post-construction os with assurance of long-term operations and maintenance of those BMPs.

Construction Criteria for Stormwater Control Facilities:

Stormwater management facilities shall be constructed in accordance with the following minimum specifications:

A. All workmanship and materials shall conform to the Borough Construction Standards. In addition, all workmanship and materials shall conform to the latest edition of PennDOT Form 408 and be supplied by manufacturers or suppliers listed in PennDOT's Bulletin 15.

B. All connections to existing storm sewer pipes shall be made by construction of a suitable junction box (inlet or manhole) to provide access for clean-out. No blind connections shall be permitted.

C. All pipe outlets shall discharge onto a stone riprap blanket to prevent erosion of soil. Riprap shall be sized considering pipe exit velocities plus a Factor of Safety of 1.5.

D. The discharge of stormwater runoff shall be to a well-defined drainage course which has a defined bed and bank. If stormwater runoff cannot be discharged to a defined drainage course, documentation of written recorded drainage easement permission from each downstream property owner shall be provided for all properties between the source of discharge and the defined drainage course.

§ 142-47. Professional Certification.

The stormwater management plan (including all calculations) must be prepared, signed and sealed by a registered professional engineer, or land surveyor with training and expertise in hydrology and hydraulics, or such other professional persons as are qualified to make certification under the laws of Pennsylvania. The preparer of the stormwater management plan must fill out and submit Appendix C with said plan.[9]

§ 142-48. Runoff Calculations.

A. Runoff calculations are the acceptable methods of calculation for use in determining the stormwater runoff correspondence with recommendations of The Monongahela River Watershed Plan, prepared by the County, in order to maintain a uniform, watershed wide approach. The following methods for calculating pre- and post-development runoff rates have been stipulated in the standards and criteria of the watershed plan:

(1) Methods of runoff calculations, such as:

(a) The Modified Rational Method may be used for drainage areas less than or equal to three (3) acres.
(b) The SCS TR-55, TR-20, HEC-1 Virginia Tech / Penn State Runoff Model or the Penn State Runoff Model must be used for all drainage areas greater than three (3) acres.

B. All pertinent information used to generate the pre- and post-developed discharge rates must be included with the stormwater management plan. Also, the calculations for the sizing of the stormwater control facilities must be submitted with the stormwater management plan.

§ 142-49. Detention Facility Routings.

All inflow hydrographs to detention facilities must be routed using methodology that analyzes detention storage and outflow simultaneously with respect to time. The modified-puls method or approved equal, as found in Haested Method's Pond 2 or the Army Corps of Engineers' HEC-1, is recommended.

The following provisions shall be considered the overriding performance standards against which all proposed stormwater control measures shall be evaluated, and they shall apply to all areas of the Borough.

A. Stormwater shall not be permitted, as a result of development undertaken after adoption of this Ordinance, to collect upon any property, or to pass from one property to another in a

concentrated flow without benefit of a legal easement, or to cross a public street on the surface.

B. Any landowner and any person engaged in the alteration or development of land which may affect stormwater runoff characteristics shall implement such measures 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; and

2. To manage the quality, velocity and direction of resulting stormwater runoff in a manner which will not adversely impact the health on, or value of, any affected properties.

C. In the case of a development in which the total of the building and paved surfaces on the site exceed ten thousand (10,000) square feet, the developer shall provide as part of the design a stormwater management narrative signed and sealed by an engineer licensed in the Commonwealth of Pennsylvania. The stormwater management narrative shall include an analysis of both Pre- and Post-Developed runoff conditions.

1. For the analysis of redevelopment projects twenty percent (20%) of the existing impervious surface shall be considered meadow in good condition.

2. Post-development runoff rates after development shall not exceed the Pre-developed runoff rates including the reduction in impervious surface required for redevelopment projects.

§ 142-50. Stormwater Controls.

All proposed stormwater runoff control measures must be shown on the plan, including methods for collecting, conveying and storing stormwater runoff on-site which are to be used both during and after construction. Erosion and sedimentation controls must be shown on a separate plan. The preliminary plan should provide information on the general type, location, sizing, etc., of all proposed facilities and their relationship to the existing watershed drainage system.

A. If the development is to be constructed in stages, the applicant must demonstrate that stormwater facilities will be installed to manage stormwater runoff safely during each stage of development.

B. A schedule for the installation of all temporary and permanent stormwater control measures and devices shall be submitted.

C. If appropriate, a justification should be submitted as to why any preferred stormwater management techniques, as listed in § 142-66, are not proposed for use.

§ 142-51. Easements, Rights-of-Way, Deed Restrictions.

All existing and proposed easements and rights-of-way for drainage and/or access to stormwater control facilities shall be shown and the proposed owner identified. Show any areas subject to special deed restrictions relative to or affecting stormwater management on the development site.

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

C. Stormwater management easements shall be provided by the property owner if necessary for (1) access for inspections and maintenance, or (2) preservation of stormwater runoff conveyance, infiltration, and detention areas and other BMPs, by persons other than the property owner. The purpose of the easement shall be specified in any agreement under Section 405.

D. If a conservation easement is provided the long term ownership, access, maintenance, and use restrictions must be identified on the recording plan.

§ 142-52. Other Permits and Approvals.

A. A list of any approvals/permits relative to stormwater management that will be required from other governmental agencies (e.g., a water obstruction permit from PaDEP or approval from Allegheny County Planning) and anticipated dates of submission/receipt should be included with the preliminary plan submission. Copies of applications must be submitted to the Borough.

B. A list of any permits relative to wetlands along with a wetlands study must be submitted to the Borough if wetlands are found on the development site. The wetlands study must be prepared, signed and sealed by a person certified to do such work.

§ 142-53. Maintenance Program.

The preliminary application shall contain a proposed maintenance plan for all stormwater control facilities, in accordance with the following:

A. Identify the proposed ownership entity (e.g., municipality, property owner, a homeowners; association, other management entity).

B. If ownership is to be an entity other than the Borough, include a maintenance program for all facilities, outlining the type of maintenance activities, probable frequencies, personnel and equipment requirements, and estimated annual maintenance costs.

C. Identify method of financing continuing operation and maintenance if facility is to be owned by other than the Borough or other governmental agency.

D. Include copies of any legal agreements required to implement the maintenance program and, if applicable, copies of the maintenance agreement as required by Article XVI of this Part 2. FOR ALL FACILITIES

§ 142-54. Financial Guaranties.

Submit financial guaranties in accordance with the provisions of Article XVI of this Part 2.

ARTICLE XIII
Stormwater Plan Contents: Final Plan

§ 142-55. **Required Documentation.**

A. General Requirements. The final stormwater management plan shall be prepared using the general performance and technical standards and requirements for plan format contained in Part 1, the Subdivision and Land Development Ordinance, and in this Article with the following additions:

(1) All information pertaining to stormwater management from the preliminary plan along with any changes.

(2) Final maps showing the exact nature and location of all temporary and permanent stormwater management controls along with design and construction specifications. Details for the construction of all facilities shall be included as part of the construction drawings.

(3) A schedule for the installation of all temporary and permanent stormwater control measures and devices.

(4) An accurate survey showing all current and proposed easements and rights-of-way and copies of all proposed deed restrictions.

(5) A maintenance program establishing ownership and maintenance responsibilities for all stormwater control facilities (identify specific person or entity) and detailing financial requirements and sources of funding. Submit any legal agreements required to implement the maintenance program and copies of the maintenance agreement as specified by this Article.

(6) Financial guaranties, to ensure that all stormwater controls are installed properly and functioning satisfactorily.

(7) Anything else within reason that might be required by the Borough Engineer and/or Borough of Baldwin to effectuate the purposes of this Part 2.

(8) Appendix B. The final stormwater management plan checklist must be competed and submitted.[10]

(9) Notification of adjacent property owners.

B. Additional information. The information requested in Appendices A, B and C must be submitted.[11]

10 Editor's Note: Appendix B is included at the end of this chapter.
11 Editor's Note: Said Appendices are included at the end of this chapter.

ARTICLE XIV
Stormwater Plan Review Procedures

§ 142-56. Pre-Application Phase.

A. During the pre-application conference, applicants are encouraged to consult with the Borough Engineer, the Allegheny County Planning Department, and the County Conservation District on the applicable regulations and techniques for safely managing stormwater runoff from the development site in a manner consistent with the Borough ordinances. These agencies may be helpful in providing the data that is necessary for preparing the stormwater management plan or the development site.

B. Applicants are encouraged to submit a sketch plan with a narrative description of the proposed stormwater management controls for general guidance and discussion with the Borough and other agencies.

C. The pre-application phase is not mandatory, and nay review comments provided by Borough or other agencies are advisory only and do not constitute any binding action on the part of the Borough or any other agency.

§ 142-57. Preliminary and Final Stormwater Plan Reviews

A. Preliminary and final plans required. Stormwater management plans, in accordance with the requirements of this Part 2, will be submitted with the preliminary and final subdivision or land development plan application to the Borough Secretary, together with the appropriate fees.

B. Review by Borough Engineer and Conservation District. Preliminary and final stormwater management plans will be reviewed by the Borough Engineer.

C. Notification of affected municipalities. If, during the review of the proposed stormwater management plan, the Borough determines that properties in adjacent municipalities may be affected by the stormwater runoff and proposed management system for the site, the applicant will notify the affected municipality(ies) and provide an opportunity to submit comments as part of the preliminary or final plan reviews. Copies of the plans will be made available to the municipalities upon request. Comments received will be submitted to the Planning Commission and Borough Council.

D. Borough Engineer's Review. The Borough Engineer shall provide a recommendation to approve or disapprove the preliminary and final stormwater management plan based on the requirements of the Borough's ordinances, the standards and criteria of the watershed plan and good engineering practice. The engineer shall submit a written report, along with supporting documentation, to the Borough Planning Commission for its consideration as part of the overall subdivision or land development plan review. In the cases where the Borough will be responsible for the

maintenance of the stormwater management facility, the Borough Engineer shall also prepare a recommended maintenance program for review and approval by Council.

E. Approval of stormwater plan required for subdivision and land development approval. No preliminary or final approval shall be granted for the overall subdivision or land development application until a stormwater management plan for the site has been approved.

F. Permits required from other governmental agencies. Where the subdivision or land development application requires a water obstruction or erosion/sedimentation permit, then final subdivision or land development plan approval shall be conditional upon receipt of such permits. However, no building permit shall be issued, or construction started, until the permits are received and copies filed with the Borough. Approval from Allegheny County Conservation District or the Pennsylvania Department of Environmental Protection for Soil and Erosion is required prior to construction.

G. County planning review.

(1) The Borough shall forward a copy of the stormwater plan, along with all runoff calculations, shall be forwarded to the Allegheny County Planning Department. A report of the findings will be returned to the Borough within thirty (30) days.

(2) If the Allegheny County Planning Department determines that the plan fails to comply with the watershed standards and criteria or that a possibility exists for harmful downstream impacts from the development site, the applicant will be advised so that proposed stormwater management controls can be modified. The Borough Engineer shall not recommend approval of the development site's stormwater management plan until it receives a positive review from the County Planning Department.

H. Status of the Engineer's determination. The recommendation of approval/disapproval of the site's stormwater management plan by the Borough Engineer shall be considered final. The governing body shall not reverse the engineer's determination by approval or disapproving the site's stormwater management plan or any specific control measure in contradiction to the engineer's action. The governing body may request modifications or alternative approaches to the stormwater management controls, provided that these are agreed to by the Borough Engineer and the applicant's engineer.

§ 142-58. Status of Stormwater Plan After Final Approval.

Upon recording of the final plat, the applicant may start to install or implement the approved stormwater management controls, subject to the provisions of the above. If site development or building construction does not begin within two (2) years of the date of final approval of the subdivision or land development plan, then before doing so, the applicant shall resubmit the stormwater management plans to verify that no condition has changed within the watershed that

would affect the feasibility or effectiveness of the previously approved stormwater management controls. Further if, for any reason, development activities are suspended for two (2) years or more, then the same requirement for resubmission of the stormwater management plan shall apply. The terms of these subsequent reviews shall be subject to the provisions of this Part 2 and any amended additional ordinances subsequently passed.

§ 142-59. Stormwater Plan Modifications.

Procedures for approving plan modifications. Requests for modifications in the final approved stormwater management controls shall be submitted to the Borough Engineer as follows:

A. If the request is initiated before construction begins, the stormwater plan must be resubmitted and reviewed according to the original procedures.

B. If the request is initiated after construction is underway, the Borough Engineer shall have the authority to approve or disapprove the modification, based on field inspection, provided that the request changes in stormwater controls do not result in any modifications to other approved borough land use/development requirements. The Borough Engineer shall maintain a record of all changes approved for the stormwater management controls and shall submit these to Borough Council with the final as-built plans for the development, prior to the acceptance of any improvements by the Borough and/or the release of any bond money for improvements being constructed. If no bond money was required, this information must be submitted prior to the Borough's final inspection of the plan is completed and approval is granted.

ARTICLE XV
Stormwater Management Performance Standards

§ 142-60. Stormwater Zones: Monongahela River Watershed.

A. For purposes of stormwater management, the municipality of Baldwin Borough is divided into stormwater management release rate zones. These zones are designated in the Monongahela River Watershed Plan, and a map of these zones may be found in Appendix D of this chapter.[12]

(1) The following release rate zones are located within Baldwin Borough:

Zone 2	Zone 21
Zone 4	Zone 22
Zone 6	Zone 24
Zone 9	Zone 32
Zone 12	Zone 34
Zone 15	Zone 35
Zone 43	

(2) One (1) or more of these districts may be further subdivided into subareas which have similar hydrological characteristics and drain to a common point.

B. The location and boundaries of the watershed(s) and subareas are shown on the Municipal Stormwater Management District Zone Map which is hereby adopted as part of this section. A copy of this District Map is available through the Borough Office.

§ 142-61. General Performance Standards.

The following provisions shall be considered the overriding performance standards against which all proposed stormwater control measures shall be evaluated:

A. Any landowner and any person engaged in the alteration or development of land which may affect stormwater runoff characteristics shall implement such measures as are reasonably necessary to prevent injury to health, safety or other property. Such measures shall include actions as required and shall be evaluated according to the following standards:

(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.

B. The stormwater management plan for the development site must consider all the stormwater runoff flowing over the site.

C. No discharge of toxic materials into any stormwater management system shall be permitted. Where required by federal and state regulation, the landowner or developer shall be responsible for obtaining a NPDES permit for stormwater discharges.

D. For any development that is to be constructed in stages, the applicant must demonstrate that stormwater facilities shall be installed to manage stormwater runoff safely during each stage of development.

E. For the analysis of redevelopment projects twenty percent (20%) of the existing impervious surface shall be considered meadow in good condition.

F. Where existing storm sewers are reasonably accessible, proposed developments shall be required to connect with the storm sewer system unless insufficient capacity or other reasons can be demonstrated to prevent the connection. The Borough Engineer shall determine what is reasonably accessible.

§ 142-62. Technical Performance Standards.

The stormwater performance standards contained in this section are intended to implement the standards and criteria contained in the Monongahela River Stormwater Management plan, adopted and approved in accordance with the Pennsylvania Storm Water Management Act.[13] If there is any discrepancy between the provisions of this section and the standards and criteria of the plan, or if the watershed plan is subsequently amended, then the standards/criteria of the current watershed plan shall govern.

§ 142-63. Storm Frequencies.

A. Stormwater management facilities on all development sites shall control the peak stormwater discharge for the one-, two-, ten-, twenty-five, fifty-, and one-hundred year storm frequencies. The SCS twenty-four hour, Type II Rainfall Distribution shall be used for analyzing stormwater runoff for both pre- and post-development conditions. The twenty-four hour total rainfall for these storm frequencies in the watershed are:

Design Storm Return Period	**24-Hour Rainfall Depth in Inches**
1-year	1.97
2-year	2.50
10-year	3.61
25-year	4.31
50-year	4.40
100-year	5.71

B. The modified Rational Method shall be used for analyzing the stormwater runoff for small watersheds as specified in this Article. The rainfall intensities for the design storms are as specified. (For additional information or data on other return periods, consult the Rainfall Duration Frequency Tables for Pennsylvania, produced by PaDEP, Office of Resource Management, Division of Stormwater Management, Harrisburg, February 1983, or in its most recent update.)

§ 142-64. Calculation Methods.

A. Development sites. For the purposes of computing peak discharges and runoff hydrographs from development sites and drainage areas larger than three (3) acres, calculations shall be performed using the methodologies presented in SCS Publication, Technical Release 55 (TR 55) or TR 20, HEC 1, Penn State Runoff Method (PSRM), Modified Rational Method, or an approved method for analyzing these types of watersheds. For development sites less than three (3) acres, the Rational Method may be utilized using the design storm criteria shown in § 142-63 or an approved method for analyzing these types of watersheds. The Borough may approve the use of simulation computer programs for the stormwater analysis and design. The appropriate calculations and worksheets or acceptable computer printouts as approved by the Borough must be submitted regardless of the methodology used for these calculations. An approved simulation of the modified puls (Haested Method Pond 2, HEC 1) routing methodology shall be used in analysis for routing the design storm hydrographs through the detention / retention facility. The proper stage / storage and stage / discharge and routed outflow hydrographs must be submitted for approval.

B. Stormwater collection / conveyance facilities. For the purpose of designing storm sewers, open swales and other stormwater runoff collection and conveyance facilities, the Rational Method shall be applied. Rainfall intensities for a twenty-five year design storm with a minimum five-minute duration must be used and should be obtained from the Pennsylvania Department of Transportation's Part II Manual, Chapter 10, Rainfall Intensity Charts. However, if the existing Tc is larger than five (5) minutes, it should be used as the rainfall duration.

C. Detention / retention basin. The inflow hydrograph shall be routed through the detention / retention facility by using the Modified Puls method or other recognized routing method subject to the approval of the Borough and the County. The routing and outflow hydrographs for each design storm must be submitted.

D. Pre-development conditions. Pre-development conditions shall be assumed to be those which exist on any site at the time of adoption of the Monongahela River Stormwater Management Plan. Hydrologic conditions for all areas with pervious cover (i.e., fields, woods. Lawn areas, pastures, cropland, etc.) shall be assumed to be in good condition, and the lowest recommended SCS runoff curve number (CN) shall be applied for all pervious land uses within the respective range for each land use and hydrologic soil group.

§ 142-65. Release Rate Percentage.

A. Definition. The release rate percentage defines the percentage of the pre-development peak rate of runoff that can be discharged from an outfall on the site after development. It applies uniformly to all land development or alterations within a subarea.

B. Procedure for use:

(1) Identify the specific subarea in which the development site is located from the watershed map located in Appendix D of this Part 2[14] and obtain the subarea release rate percentage from the following corresponding zone release rate percentages:

Assigned Release Rate Area	Release Rate Percentage
Zone 2	100
Zone 4	60
Zone 6	60
Zone 9	90
Zone 12	50
Zone 15	70
Zone 21	50
Zone 22	60
Zone 24	70
Zone 32	70
Zone 34	50
Zone 35	70
Zone 43	100

All other areas not located within an assigned zone by the Monongahela River Watershed Plan are assigned the release rate of one hundred percent (100%).

(2) Computer the pre- and post-development runoff hydrographs for each stormwater outfall on the development site using an acceptable calculation method for the one-, two-, ten-, twenty-five-, fifity-,and one-hundred year storms. If the post-development peak runoff rate and the runoff volume is less than or equal to the pre-development peak runoff rate and volume then additional stormwater control shall not be required at the outfall. If the post-development peak runoff rate and volume are greater than the pre-development peak runoff rate and volume, then stormwater detention shall be required. The maximum allowable release rate form the detention facility shall be calculated by multiplying the subarea release rate percentage by the pre-development rate of runoff from the development site for each of the four (4) design storms.

14 Editor's Note: Appendix D is included at the end of this chapter.

§ 142-66. No-Harm Evaluation.

A. An applicant may seek to exceed the otherwise applicable subarea release rate percentage by performing the "No Harm Evaluation". This evaluation requires an independent engineering analysis to demonstrate that other reasonable options exist to prevent the occurrence of increased stormwater runoff discharge rates and/or velocities or that measures can be provided to prevent increased stormwater discharge rates and/or velocities from increasing flood elevations and accelerating erosion at all downstream points in the watershed.

B. A "No Harm Evaluation" will be considered only in the following instances:

(1) In the Monongahela River Watershed: only in instances where the discharge to a stream channel from the development site occurs directly to the Monongahela River, to an adequately sized storm or combined sewer which discharges directly into the Monongahela River, or through a properly sized and designed regional stormwater detention facility.

C. The analysis for the no-harm evaluation shall be submitted to the Municipal Engineer and the Allegheny County Planning Department for review and approval.

D. The "No Harm Evaluation" shall be prepared by a registered engineer who is experienced in hydrology and hydraulics. The "No Harm Evaluation" analysis shall be completed using the following procedure.

E. The analysis shall be completed using an approved calculation methodology in the following manner:

(1) Develop the runoff hydrograph(s) for the design storms of the site and areas tributary to it using the approved methodology for pre-development conditions using the land use characterizations contained in the Monongahela River Watershed Stormwater Management Plan.

(2) Develop the post-development discharge hydrograph from the proposed site using the approved methodology.

(3) Subtract the runoff hydrograph ordinates under pre-development conditions (Step 1) from the discharge hydrograph ordinates (Step 2), maintaining the time scales of both hydrographs for one-to-one correspondence.

(4) Obtain the hydraulic model for the existing conditions for the Monongahela River Watershed from the County.

(5) Locate the subbasin(s) in which the proposed development is located and into which the discharge hydrograph enters. If more than one (1) subbasin receives this incremental flow, divide the flow accordingly.

(6) Add the incremental increase computed in Step 3 to the runoff hydrograph of the subbasin(s) identified in Step 5.

(7) Route the adjusted runoff hydrograph through the Monongahela River Watershed Model and note any increase in peak flows which would occur in downstream subbasins. If no increase is noted, then the "No-Harm" has been demonstrated. If no increase is observed in peak flows, the increased potential for erosion and/or sedimentation in downstream channels resulting from any change in the flood hydrograph predicted by the model shall be evaluated. If no increased potential can be demonstrated by appropriated technical means, then the "No-Harm" exemption may be requested.

(8) If an increase in peak flow is observed in any of the downstream subbasins or increased potential for erosion and/or sedimentation is indicated, the "No-Harm" exemption shall not be granted.

§ 142-67. Design Criteria for Stormwater Management Controls.

A. General design guidelines.

(1) Applicants may select runoff control techniques, or combinations of techniques, as provided in this Part 2, Stormwater Management Ordinance, which are most suitable to the level of stormwater runoff control required, the type of development, and the natural features of the site. Cost of maintenance shall be one of the considerations in the designs selected. All controls are subject to the approval of the Borough Engineer. The Engineer may request specific information on design and/or operating features of the proposed stormwater controls in order to determine their suitability and adequacy in terms of the standards of this Part 2.

(2) In selecting and designing stormwater management systems and controls, applicants may be guided by the following references:

(a) Urban Hydrology for Small Watersheds, Technical Release No. 55, USDA, Soil Conservation Service, June 1986 (or most recent edition).

(b) Part II Design Manual, The Pennsylvania Department of Transportation, 1990 Edition (or most recent update).

(c) HEC 1 and HEC 2, U. S. Army Corps of Engineers, most recent edition.

(d) Soil Erosion and Sedimentation Control Manual, Pennsylvania Department of Environmental Resources, March 1982.

(e) Standards and Specifications for Soil Erosion and Sediment Control, Maryland Water Resources Administration, 1983.

(f) Urban Stormwater Management, Special Report No. 49, American Public Works Administration, 1981.

(g) Water Resources Protection Measures in Land Development – A Handbook, University of Delaware Water Resources Center, April 1974.

(h) Design and Construction of Sanitary and Storm Sewers, WPCF Manual of Practice No. 9, Water Pollution Control Federation, 1970.

(3) The applicant should consider the effect on the proposed stormwater management techniques of any special soil conditions or geological hazards which may exist on the development site. In the event such conditions are identified on the development site, the Borough may require in-depth studies by a competent geotechnical engineer.

(4) In developing a stormwater management plan for a particular site, stormwater controls shall be selected according to the following preference:

(a) Infiltration of runoff on-site.

(b) Stormwater detention / retention facilities.

(5) Infiltration practices shall be used to the extent practicable to reduce peak runoff and promote groundwater recharge. A combination of successive practices may be used to achieve the applicable minimum control requirements. Justification shall be provided by the applicant for rejecting each of the preferred practices based on actual site conditions.

B. Criteria for stormwater detention facilities.

(1) If detention facility(ies) are utilized for the development site, the facility(ies) shall be designed such that post-development peak runoff rates from the developed site are controlled to those rates defined by the subarea release rate percentage for the one-, two-, ten-, twenty-five-, fifty-, and one-hundred year storm frequencies.

(2) All detention facilities shall be equipped with outlet structures to provide discharge control for the four (4) designated storm frequencies. Provisions shall also be made to safely pass the post-development one-hundred year storm runoff in the event of an outlet structure failure without damaging or impairing the continued function of the facilities (i.e., impairing the continued function of) the facilities. The facility(ies) must have an emergency outlet which is able to discharge the post-development one-hundred year peak flow. Should any stormwater management facilities qualify as a dam under PaDEP Chapter 105 criteria, the facility shall be designed in accordance with those regulations and meet the regulations concerning dam safety.

(3) Shared-storage facilities, which provide detention of runoff for more than one (1) development site, may be considered within a single subarea. Such facilities shall meet the design criteria contained in this section. In addition, runoff from the development sites involved shall be conveyed to the facility in a manner so as to avoid adverse impacts, such as flooding or erosion, to channels and properties located between the development site and the shared-storage facilities.

(4) Where detention facilities will be utilized, multiple-use facilities, such as lakes, ballfields or similar recreational uses, shall be considered first as storage facilities wherever feasible, subject to the approval of the Borough and Pennsylvania Department of Environmental Protection Chapter 105 Regulations.

(5) Other considerations which should be incorporated into the design of the detention facilities include the following:

(a) Inflow and outflow structures should be designed and installed to prevent erosion, and bottoms of impoundment-type structures must be protected from soil erosion. All outlet velocities must be calculated and submitted. If riprap is used, the sizing calculations must be submitted.

(b) Control and removal of debris both in the storage structure and in all inlet or outlet devices must be a design consideration. Trash racks on the outlet structures are required to minimize debris that enters the structure.

(c) Inflow and outflow structures, pumping stations and other structures should be protected and designed to minimize safety hazards.

(d) The interior slope of a detention / retention basin shall be 3:1 (horizontal to vertical). The water depth at the perimeter of a storage pond should be limited to that which is safe for children. This is especially necessary if bank slopes are steep or if ponds are full and re-circulating in dry periods. Restriction of access (fences, walls, etc.) may be necessary depending on the location of the facility.

(e) Detention / retention basins shall require a supporting report from a geotechnical engineer including design recommendations for embankment construction, interior and exterior slopes, drainage swales and infiltration areas; and shall be constructed under the supervision of the geotechnical engineer.

(f) Landscaping must be provided for the facility which harmonizes with the surrounding area. Landscaping of the pond embankment shall not be permitted.

(g) Facility must be accessible for maintenance purposes, considering the frequency and type of equipment that will be required. A maintenance schedule must be submitted and approved by the Borough.

(h) Details of the facility must be shown on the plan.

(i) A riprap channel with underdrain for low flows must be sized properly and provided within the pond.

(j) If an underground facility (i.e. tank, sump) is proposed, a cleanout manhole with steps must be provided.

(k) An emergency spillway must be provided for all detention / retention facilities. For aboveground basins, the spills must be sized to pass the entire one-hundred year post-development storm with one (1) foot of freeboard.

(l) Outlet control structures shall be constructed of reinforced concrete (cast-in-place, precast or block) and provided with trash racks approved by the Borough.

(m) All impoundment areas shall be adequately underdrained to prevent long-term ponding of water.

(n) All detention facilities shall be provided with an access road (with a legal easement) for maintenance purposes. Such roads shall be minimum of ten (10) feet wide, have a maximum grade of fifteen percent (15%) and be of a stone or impervious surface.

(o) All pond outlet structures shall have suitable gaskets to prevent leakage and piping of water through the pond embankment. All storm pipe installed through the pond embankment must be constructed of reinforced concrete pipe.

(p) An as-built drawing shall be required for each stormwater detention facility constructed. (The drawing shall represent the volume of the facility and the stage-storage relationship.) The drawing shall be stamped by a registered professional engineer and submitted to the Borough within sixty (60) days of the completion of the facility. No facility will be accepted until this requirement has been fulfilled.

(q) The exterior slope of a detention / retention pond shall not exceed three (3) horizontal to one (1) vertical.

(r) Normally dry, open-top, storage BMPs should drain in 24-72 hours.

(s) Infiltration BMPs should be spread out and shallow as much as practicable.

C. Criteria for collection / conveyance facilities. All stormwater runoff collection or conveyance facilities, whether storm sewers or other open or closed channels, shall be designed in accordance with the following basic standards:

(1) All sites shall be graded to provide drainage away from and around the structure in order to prevent any potential flooding damage.

(2) Lots located on the high side of streets shall extend roof and French drains to the storm sewer in the street or to the gutter line of the street if no sewer exists. Low side lots shall extend roof and French drains to a stormwater collection / conveyance system or natural watercourse in accordance with the approved stormwater management plan for the development site.

(3) Collection / conveyance facilities should not be installed parallel and close to the top or bottom of a major embankment to avoid the possibility of causing the embankment to fail.

(4) All collection / conveyance facilities shall be designed to convey the twenty-five year storm peak flow rate from the contributing drainage area and to carry it to the nearest suitable outlet or natural watercourse. Off-site conveyance shall be provided with easements to an existing storm sewer system or natural watercourse.

(5) Where drainage swales or open channels are used, they shall be suitably lined to prevent erosion and designed to avoid excessive velocities. Calculations must be presented for the velocities and it must be shown that the proposed surface for the swale is adequate.

(6) Wherever storm sewers are proposed to be utilized, they must comply with the following criteria:

(a) Designed to traverse under seeded and planted areas. If constructed within ten (10) feet of the road paving, walks or other surfaced areas, the drains shall have a narrow trench, and maximum compaction of backfill to prevent settlement of the superimposed surface or development.

(b) Installed after excavating and filling in the area to be traversed is completed, unless the drain is installed in the original ground with a minimum of three (3) feet cover and/or adequate protection during the fill construction.

(c) Designed with cradle when traversing fill areas of indeterminate stability; designed with anchors when gradient exceeds twenty percent (20%); and designed with encasement or special backfill requirements when traversing under a paved area.

(d) Designed to handle adequately the anticipated stormwater flow and to be constructed and maintained economically. The minimum pipe size shall be fifteen (15) inches in diameter.

(e) Drain pipe, trenching, bedding and backfilling requirements shall conform to the requirements of the Borough and/or applicable requirements of the Borough and/or applicable requirements of the Pennsylvania Department of Transportation Specifications, Publication 408, latest edition.

(f) All pipe shall be made of either P.V.C., corrugated plastic pipe, corrugated plastic pipe with smooth interior walls, corrugated metal / steel or reinforced concrete. All corrugated metal pipe shall be polymer coated, with bonding and paved inverts where prone to erode. Pipe under a Borough cartway shall be reinforced concrete pipe with a minimum diameter of fifteen 15) inches.

(g) Storm inlets and structures shall be designed to be adequate, safe, self-cleaning and unobtrusive and shall be consistent with the standards of the Borough.

(h) Appropriate grates shall be designed for all catch basins, stormwater inlets and other entrance appurtenances in accordance with Borough specifications.

(i) Manholes shall be designed so that the top shall be at finished grade and sloped to conform to slope of finished grade. Top castings of structures located in roads or parking areas shall be machined or installed to preclude rattling.

(j) Where a proposed storm sewer connects with an existing storm sewer system, the applicant shall demonstrate that sufficient capacity exists in the downstream system to handle the additional stormwater flow.

(k) Storm sewer outfalls shall be equipped with energy dissipation to prevent erosion and conform with applicable requirements of the PaDEP for stream encroachments (Chapter 105 of the Department's Rules and Regulations).

§ 142-68. Erosion and Sedimentation Controls.

Proposed erosion and sedimentation pollution control measures should be submitted with the stormwater management plan. These plans shall follow the guidelines set forth in the Borough's current Erosion and Sediment Pollution Control Ordinance under a separate cover. In addition, the plan shall be prepared in accordance with the Pennsylvania Erosion / Sedimentation Regulations (25 PA Code, Chapter 102) and the standards and guidelines of the County Conservation District.

A. No Regulated Earth Disturbance activities within the Municipality shall commence until approval by the Municipality of an Erosion and Sediment Control Plan for construction activities.

B. DEP has regulations that require an Erosion and Sediment Control Plan for any earth disturbance activity of 5,000 square feet or more, under 25 Pa. Code § 102.4(b).

C. In addition, under 25 Pa. Code Chapter 92, a DEP "NPDES Construction Activities" permit is required for Regulated Earth Disturbance activities.

D. Evidence of any necessary permit(s) for Regulated Earth Disturbance activities from the appropriate DEP regional office or County Conservation District must be provided to the Municipality. The issuance of an NPDES Construction Permit (or permit coverage under the statewide General Permit (PAG-2) satisfies the requirements subsection 303.A.

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

§ 142-69. As-Built Drawings.

Prior to releasing the final bond moneys, the Borough shall receive an as-built drawing, signed and sealed by a registered surveyor, and these plans shall include the following:

A. The location of any roads or driveways constructed for the land development or single-family home.

B. The location, tops and flow lines of all storm sewers constructed within the land development or single-family home.

C. The location, depth and contours of the detention or retention facilities constructed for the land development or single-family home.

D. A detail of the outlet structure for the detention or retention facility as constructed.

E. The location and details of all post-construction stormwater management BMPs including water quality devices.

F. A revised stormwater management report reflecting the final contours for a detention pond as constructed.

ARTICLE XVI
Completion of Facilities and Maintenance

§ 142-70. Maintenance Responsibilities.

A. The stormwater management plan for the development site shall establish responsibilities for the continuing operation and maintenance of all proposed stormwater control facilities. The proposed maintenance plan should be consistent with the general maintenance policies stated in this Part 2, the Borough Stormwater Management Ordinance, and also 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 the Borough, stormwater control facilities should also be dedicated to and maintained by the Borough.

(2) If a development site is to be maintained in single ownership or if sewers and other public improvements are to be privately owned and maintained, then the ownership and maintenance of stormwater control facilities should be the responsibility of the owner or private management entity.

B. The Borough Council shall make the final determination on the continuing maintenance responsibilities as part of the final application review based on the recommendation of the Planning Commission. The Council reserves the right to accept or reject the ownership and operating responsibility of any or all of the stormwater management controls.

C. A security deposit in the sum of five thousand dollars ($5,000.00) cash or certified check shall be delivered to the Borough and held by it pending the completion of the stormwater management facilities to ensure the final completion of the site plan development. In the event that the Borough Engineer shall determine that the aforementioned sum of five thousand dollars ($5,000.00) may be insufficient because of the nature and size of the development, the Borough Engineer shall submit a proposal to the Developer of the amount which the Engineer believes to be necessary for completion. In the event that the Developer disagrees with the amount so proposed by the Borough Engineer, a third engineer may be retained to mediate the proposal and establish the amount required to be deposited which will ensure completion of the facilities. The cost incurred by retaining a mediator shall be billed to the Developer.

§ 142-71. Maintenance Agreement for Privately Owned Stormwater Facilities.

A. Prior to final approval of the site's stormwater management plan, the property owner shall prepare and submit to the Borough Secretary a stormwater management agreement which will be referred to the Borough Engineer and to the Borough Solicitor for approval. In the event that the agreement shall be approved, it shall be

submitted to the Recorder of Deeds for recording, and shall be binding upon all successor owners or developers of the premises. The fees for recording the agreement shall be at the cost of the Developer. The agreement shall stipulate that:

(1) The owner shall maintain all facilities in accordance with the approved maintenance schedule and shall keep all facilities maintained in a safe and attractive manner.

(2) The owner shall convey to the Borough easements and/or rights-of-way to assure access for periodic inspections by the Borough and maintenance if required.

(3) The owner shall keep on file with the Borough the name, address and telephone number of the person or company responsible for maintenance activities; in the event of a change, new information will be submitted to the Borough within ten (10) days of the change.

(4) The owner shall establish any special maintenance funds or other financing sources, in accordance with the approved maintenance plan.

(5) If the owner fails to maintain the stormwater control facilities, following due notice by the Borough to correct the problems, the Borough shall perform the necessary maintenance or corrective work. The owner shall reimburse the Borough for all costs or a lien shall be placed on the property.

B. The Borough may require other items to be included in the agreement where determined necessary to guarantee the satisfactory maintenance of all facilities. The maintenance agreement shall be subject to the review and approval of the Borough Solicitor.

§ 142-72. Municipal Stormwater Maintenance Fund.

A. Persons installing stormwater storage facilities shall be required to pay a specified amount to the Municipal Stormwater Maintenance Fund to help defray the costs of periodic inspections and maintenance expenses. The amount of the deposit shall be determined as follows:

(1) If the storage facility is to be privately owned and maintained, the deposit shall cover the cost of periodic inspections performed by the Borough for a period of ten (10 years as estimated by the Borough Engineer. After that period of time, inspections will be performed at the expense of the municipality.

(2) If the storage facility is to be owned and maintained by the Borough, the deposit shall cover one hundred percent (100%) of the estimated costs for maintenance and inspections for ten (10) years. The Borough Engineer will establish the estimated costs utilizing information submitted by the applicant.

(3) The amount of deposit to the fund shall be converted to present worth of the annual series values. The Borough Engineer shall determine the present worth equivalents which shall be subject to the approval of the Borough Council.

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

If, in the future, a storage facility (whether publicly or privately owned) is eliminated due to the installation of storm sewers or other storage facility, the unused portion of the maintenance fund deposit will be applied to the cost of abandoning the facility and connecting to the storm sewer system or other facility. Any amount of the deposit remaining after the costs of abandonment are paid will be returned to the depositor.

§ 142-73. Financial Guaranties and Dedication of Public Improvements.

A. Guaranty of completion. A completion guarantee in the form of a bond, cash deposit, certified check or other negotiable securities acceptable to the Borough shall be filed. The guarantee shall cover all streets, sanitary sewers, stormwater management facilities, water systems, fire hydrants, sidewalks and other required improvements, it shall be in the amount and form prescribed by the Municipal Planning Code (Section 509).[15]

B. Release of completion guarantee. The procedures for requesting and obtaining a release of the completion guarantee shall be in a manner prescribed by the Municipalities Planning Code (Section 510).[16]

C. Default of completion guaranty. If improvements are not installed in accordance with the approved final plan, the governing body may enforce any corporate bond or other security by appropriate legal and equitable remedies. If proceeds of such bond or other security are insufficient to pay the cost of installing or making repairs or corrections to all the improvements covered by said security, the governing body may, at its option, install part of such improvements in all or part of the development and may institute appropriate legal or equitable action to recover the moneys necessary to complete the remainder of the improvements. All proceeds, whether resulting from the security or from any legal or equitable action brought against the Developer, or both, shall be used solely for the installation of the improvements covered by such security and not for any other municipal purpose.

15 Editor's Note: See 53 P.S.§ 10509.
16 Editor's Note: See 53 P.S. § 10510.

D. Dedication of public improvements.

(1) When streets, sanitary sewers, stormwater management facilities, waterlines or other required improvements in the development have been completed in accordance with the final approved plan, such improvements shall be deemed private until such time as they have been offered for dedication to the municipality and accepted by separate ordinance or resolution or until they have been condemned for use as a public facility.

(2) Prior to acceptance of any improvements or facilities, the Borough Engineer shall inspect it to ensure that it is constructed in accordance with the approved plan and is functioning properly. In the case of any stormwater control facility, it must be free of sediment and debris.

(3) The owner shall submit as-built plans for all facilities proposed for dedication.

ARTICLE XVII
Inspection of Stormwater Management Controls

§ 142-74. Inspection Procedures.

A. The Borough Engineer or a designated representative shall inspect the construction of the temporary and permanent stormwater management controls for the development site. The permittee shall notify the Borough Engineer forty-eight (48) hours in advance of the completion of the following key development phases:

(1) At the completion of preliminary site preparation, including stripping of vegetation, stockpiling of topsoil and construction of temporary stormwater management and erosion control facilities.

(2) At the completion of rough grading, but prior to placing topsoil, permanent drainage or other site development improvements and ground covers.

(3) During construction of the permanent stormwater facilities at such times as specified by the Borough Engineer.

(4) Completion of permanent stormwater management facilities, including established ground covers and plantings.

(5) Completion of any final grading, vegetative control measures or other site restoration work done in accordance with the approved plan and permit.

B. No work shall commence on any subsequent phase until the preceding one has been inspected and approved. If there are deficiencies in any phase, the Borough Engineer shall issue a written description of the required corrections and stipulate the time by which they must be made.

C. If, during construction, the contractor or permittee identifies any site conditions, such as subsurface drainage, which could affect the feasibility of the approved stormwater facilities, he must notify the Borough Engineer within twenty-four (24) hours of the discovery of such condition and request a field inspection. The Borough Engineer shall determine if the condition requires a stormwater modification.

D. In cases where stormwater facilities are to be installed in areas of landslide-prone soils of if other special site conditions exist, the Borough may require special precautions such as soil tests and core borings, full-time resident inspectors and/or similar measures. All costs of any such measures shall be borne by the permittee, developer and/or landowner.

E. Inspection of all stormwater management BMP's shall be undertaken by a minimum of two persons at least two times per year, on or before March 1st and October 1st, or

after runoff events in excess of one inch of rainfall. Additional inspections will be required if it becomes apparent facilities are not functioning properly. Corrective actions will then be taken as required to help ensure continuing operation of post-construction stormwater facilities. Any deficiencies noted in items inspected by the Owner shall be documented and corrective actions taken by the Owner. Written records of each maintenance action are to be retained for a minimum of five years.

ARTICLE XVIII
Disclaimer of Liability

§ 142-75. General Disclaimer.

A. Neither the granting of any approval under the stormwater management provisions of this Part 2 nor the compliance with the provisions of this Part 2 or with any condition imposed by a Borough official hereunder shall relieve any person from any responsibility for damage to persons or property resulting there from, or as otherwise imposed by law, nor impose any liability upon the Borough for damages to persons or property.

B. The granting of a permit which includes any stormwater management facilities shall not constitute a representation, guaranty or warranty of any kind by the Borough, or by an official or employee thereof, of the practicability or safety of any structure, use or other plan proposed and shall create no liability upon or cause of action against such public body, official or employee for any damage that may result pursuant thereto.

ARTICLE XIX
Enforcement and Administration

§ 142-76. Enforcement.

This Part 2 shall be enforced by the Code of Enforcement Officer of the Borough of Baldwin who may and shall have authority to issue citations, complaints and to institute other litigation required for the purposes of enforcing this Part 2. Such officer may institute any appropriate action or proceeding to prevent, restrain, correct or abate any violation of this Part 2, provided that notice of such action shall be served upon the violator at least ten (10) days prior to the time the action is begun by serving a copy of the nature of the violation as such other information as may be required or appropriate; provided further however, that if the nature of the violation is such that serious and substantial injury may occur to the Borough or any property situate therein, then such notice may be waived and an action instituted immediately.

A. Right of entry. Upon presentation of proper credentials, duly authorized representatives of the Borough may enter at reasonable times upon any property to investigate or ascertain the condition of the subject property in regard to an aspect regulated by this Part 2.

B. Notification. In the event that the applicant, developer, owner or his/her agent fails to comply with the requirements of this Part 2 or fails to conform to the requirements of any permit, a written notice of violation shall be issued. Such notification shall set forth the nature of the violation(s) and establish a time limit for correction of the violation(s). Upon failure to comply within the time specified, unless otherwise extended by the Borough, the applicant, developer, owner or his/her agent shall be subject to the enforcement remedies of this Part 2.

C. Preventive remedies.

(1) In additional to other remedies, the municipality may institute and maintain appropriate actions by law or in equity to restrain, correct or abate a violation, to prevent unlawful construction, to recover damages and to prevent illegal occupancy of a building or premises.

(2) In accordance with the Planning Code (Section 515.1),[17] the municipality may refuse to issue any permit or grant approval to further improve or develop any property which has been developed in violation of this chapter.

D. Enforcement remedies.

(1) Any person who has violated or permitted the violation of the provisions of this Part 2 shall, upon being found liable therefore in a civil enforcement proceeding commenced by the Borough, pay a fine of not less than fifty dollars ($50.00) and not more than five hundred dollars ($500.00) plus court costs, including reasonable attorney fees incurred by the municipality. No judgment shall

commence or be imposed, levied or be payable until the date of the determination of a violation by the District Justice.

(2) If the defendant neither pays nor timely appeals the judgment, the municipality may enforce the judgment pursuant to applicable rules of civil procedure.

(3) Each day that a violation continues shall Constitute a separate violation unless the District Justice further determines that there was a good faith basis for the person violating the ordinance to have believed that there was no such violation. In such case there shall be deemed to have been only one (1) such violation until the fifth day following the date of the District Justice's determination of a violation; thereafter, each day that a violation continues shall constitute a separate violation.

(4) All judgments, costs and reasonable attorney fees collected for the violation of this Part 2 shall be paid over to the Borough.

(5) The Court of Common Pleas, upon petition, may grant an order of stay, upon cause shown, tolling the per diem fine pending a final adjudication of the violation and the judgment.

(6) Nothing contained in this section shall be construed or interpreted to grant to any person or entity other than the municipality the right to commence any action for enforcement pursuant to this section.

E. Additional remedies. In addition to the above remedies, the Borough may also seek remedies and penalties under applicable Pennsylvania statutes, or regulations adopted pursuant thereto, including but not limited to the Storm Water Management Act (32 P.S. §§ 680.1 through 680.17) and the Erosion and Sedimentation Regulations (25 Pennsylvania Code, Chapter 102). Any activity conducted in violation of this Part 2 or any Pennsylvania approved watershed stormwater management plan may be declared a public nuisance by the Borough and abatable as such.

§ 142-77. Violations and Penalties.

Any person, copartnership or corporation, or principal officer of any corporation who or which shall violate any provision of this Part 2 or proceed with the erection of any structures, or sell any lot without having first complied with the provisions of this Part 2, shall be guilty of a summary offense, and upon conviction thereof before a District Magistrate, such person or the members of such partnership or the officers of such corporation responsible for such violation shall be sentenced to pay a fine of no less than fifty dollars ($50.00) or more than one thousand dollars ($1,000.00). Each day that a violation continues shall be considered a separate violation and a separate fine shall be applicable. In the event that any person shall repeatedly violate the provision of this Part 2, or fail to adhere to notices and other provisions of this Part 2, then such person shall be guilty of a misdemeanor, and upon conviction thereof, such persons shall be sentenced to suffer imprisonment, not to exceed two (2) years, or to pay a fine not exceeding one thousand dollars ($1,000.00), or both, in the discretion of the Court.

17 Editor's Note: See 53 P.S.§ 10515.1

A. Notification of Non-Compliance: A copy of any notice or stop work order shall be served upon the Landowner by either personal delivery or certified mail.

B. Cancellation Notice: Upon completion of remedial steps required by a notice, the Code Enforcement Officer shall forthwith issue of compliance and cancellation of said notice of noncompliance or stop work order.

§ 142-78. Review of Stop Work Order.

Any person who feels aggrieved at any stop work order issued by the Code Enforcement Officer under this Ordinance, or by failure to cancel same after performance of remedial steps, shall have the right to request a hearing within seven (7) days after making said request. At said hearing, the Code Enforcement Officer and the aggrieved person shall present any evidence bearing on the propriety of said stop work order or continuation of same. At the conclusion of the hearing, and based upon the evidence presented to it, the Municipal Board of Supervisors shall:

A. Affirm the stop work order and the remedial steps required therein and direct continuing effect and enforcement of said stop work order with the offending portion of the project has been brought into compliance; or

B. Affirm the stop work order, but upon such modified remedial steps as the Board of Supervisors may find necessary and appropriate, the direct continuing effect and enforcement of said stop work order until the offending portion of the project has been brought into compliance; or

C. Reverse, cancel or suspend the stop work order upon a finding that remedial steps are not necessary or that required remedial steps have been taken, or upon a finding that a stop work order is not appropriate or necessary during the performance of required remedial steps.

§ 142-79. Revocation of Permit.

The Baldwin Borough Board of Supervisors, upon the request by the Code Enforcement Officer at the next regular meeting of the Board of Supervisors, after at least three (3) days notice in writing to the Landowner, may revoke the permit issued pursuant to this Ordinance for any project which the Board of Supervisors finds, upon evidence presented to it that the Landowner has proceeded with work on the offending portion of any project, except specified remedial work to bring the project into compliance with the approved plan, while under a valid stop work order which has neither been reversed canceled nor suspended by the Board of Supervisors.

ORDAINED AND ENACTED into law this 16th day of December, 2014.

ATTEST:

Borough Secretary/Manager

BOROUGH OF BALDWIN

President of Council

EXAMINED AND APPROVED by me this 16th day of December, 2014.

Mayor

Borough of Baldwin

Appendix A

Preliminary Stormwater Management Plan Checklist

For a detailed description, see Article XII, titled "Stormwater Plan Contents: Preliminary Plan."

		Submitted
1.	Key map showing watershed location	_____
2.	Subwatershed map	_____
3.	Floodplain outline on site plan if appropriate	_____
4.	Natural features shown on site plan	_____
5.	Soils map	_____
6.	Contours shown existing and final	_____
7.	Stormwater management controls (existing) shown on Site Plan	_____
8.	Signed and sealed by professional certification	_____
9.	Runoff calculations submitted, including:	
	Hydrographs pre-and post-development	_____
	Hydrographs into and out of detention facilities	_____
	TR-55 worksheets or acceptable computer printouts	_____
	Outlet structures velocities with riprap	_____
10.	Stormwater management controls proposed shown on Site Plan	_____
11.	All easements, rights-of-way and/or deed restrictions shown on Site Plan	_____
12.	A list submitted stating all permits required and applied for to date	_____
13.	Maintenance program plan	_____

_____ _____

Date Submitted Name of Plan

_____

Developer

*Requires additional information

Borough of Baldwin

Appendix B

Final Stormwater Management Plan Checklist

For a detailed description, see Article XIII, titled "Stormwater Plan Contents: Final Plan."

		Submitted
1.	All information required in the preliminary plan, including any changes and/or revisions	_____
2.	Final maps including:	_____
	A. Details on all structures	_____
	B. Storm sewer profiles	_____
	C. Temporary and permanent stormwater management controls	_____
	D. All design and construction specifications	_____
3.	A schedule for installation of all temporary and permanent control methods shown on Site Plan	_____
4.	An accurate survey	_____
5.	Maintenance program plan	_____
6.	Final guaranties	_____

_____ _____

Date Submitted Name of Plan

_____

Developer

Borough of Baldwin

Appendix C

Stormwater Management Plan Record of Training and Experience

Name of plan preparer: _____

Name of employer: _____ Telephone: _____

Formal education: _____

Name of college or technical institution: _____

Curriculum or program: _____

Degree received: _____

Other training: _____

Name of training: _____

Presented by: _____

Date: _____

Name of training: _____

Presented by: _____

Date: _____

Recent Stormwater Management Plan Approved:

Name of project: _____

County: _____

Municipality: _____

Date approved: _____

Name of project: _____

County: _____

Municipality: _____

Date approved: _____

Borough of Baldwin

Appendix D

Stormwater Release Rate Zone Map[18]

APPENDIX E
LOW IMPACT DEVELOPMENT PRACTICES
ALTERNATIVE APPROACH FOR MANAGING STORMWATER RUNOFF

Natural hydrologic conditions may be altered radically by poorly planned development practices, such as introducing unneeded impervious surfaces, destroying existing drainage swales, constructing unnecessary storm sewers, and changing local topography. A traditional drainage approach of development has been to remove runoff from a site as quickly as possible and capture it in a detention basin. This approach leads ultimately to the degradation of water quality as well as expenditure of additional resources for detaining and managing concentrated runoff at some downstream location.

The recommended alternative approach is to promote practices that will minimize post-development runoff rates and volumes, which will minimize needs for artificial conveyance and storage facilities. To simulate pre-development hydrologic conditions, forced infiltration is often necessary to offset the loss of infiltration by creation of impervious surfaces. The ability of the ground to infiltrate depends upon the soil types and its conditions.

Preserving natural hydrologic conditions requires careful alternative site design considerations. Site design practices include preserving natural drainage features, minimizing impervious surface area, reducing the hydraulic connectivity of impervious surfaces, and protecting natural depression storage. A well-designed site will contain a mix of all those features. The following describes various techniques to achieve the alternative approach:

- **Preserving Natural Drainage Features.** Protecting natural drainage features, particularly vegetated drainage swales and channels, is desirable because of their ability to infiltrate and attenuate flows and to filter pollutants. However, this objective is often not accomplished in land development. In fact, commonly held drainage philosophy encourages just the opposite pattern -- streets and adjacent storm sewers typically are located in the natural headwater valleys and swales, thereby replacing natural drainage functions with a completely impervious system. As a result, runoff and pollutants generated from impervious surfaces flow directly into storm sewers with no opportunity for attenuation, infiltration, or filtration. Developments designed to fit site topography also minimizes the amount of grading on site.

- **Protecting Natural Depression Storage Areas.** Depressional storage areas have no surface outlet, or drain very slowly following a storm event. They can be commonly seen as ponded areas in farm fields during the wet season or after large runoff events. Traditional development practices eliminate these depressions by filling or draining, thereby obliterating their ability to reduce surface runoff volumes and trap pollutants. The volume and release-rate characteristics of depressions should be protected in the design of the development site. The depressions can be protected by simply avoiding the depression or by incorporating its storage as additional capacity in required detention facilities.

- **Avoiding introduction of impervious areas.** Careful site planning should consider reducing impervious coverage to the maximum extent possible. Building footprints, sidewalks, driveways and other features producing impervious surfaces should be evaluated to minimize impacts on runoff.

- **Reducing the Hydraulic Connectivity of Impervious Surfaces.** Impervious surfaces are significantly less of a problem if they are not directly connected to an impervious conveyance system (such as storm sewer). Two basic ways to reduce hydraulic connectivity are routing of roof runoff over lawns and reducing the use of storm sewers. Site grading should promote increasing travel time of stormwater runoff, and should help reduce concentration of runoff to a single point in the development.

- **Routing Roof Runoff Over Lawns.** Roof runoff can be easily routed over lawns in most site designs. The practice discourages direct connections of downspouts to storm sewers or parking lots. The practice also discourages sloping driveways and parking lots to the street. By routing roof drains and crowning the driveway to run off to the lawn, the lawn is essentially used as a filter strip.

- **Reducing the Use of Storm Sewers.** By reducing use of storm sewers for draining streets, parking lots, and back yards, the potential for accelerating runoff from the development can be greatly reduced. The practice requires greater use of swales and may not be practical for some development sites, especially if there are concerns for areas that do not drain in a "reasonable" time. The practice requires educating local citizens and public works officials, who expect runoff to disappear shortly after a rainfall event.

- **Reducing Street Widths.** Street widths can be reduced by either eliminating on-street parking or by reducing roadway widths. Municipal planners and traffic designers should encourage narrower neighborhood streets which ultimately could lower maintenance.

- **Limiting Sidewalks to One Side of the Street.** A sidewalk on one side of the street may suffice in low-traffic neighborhoods. The lost sidewalk could be replaced with bicycle/recreational trails that follow back-of-lot lines. Where appropriate, backyard trails should be constructed using pervious materials.

- **Using Permeable Paving Materials.** These materials include permeable interlocking concrete paving blocks or porous bituminous concrete. Such materials should be considered as alternatives to conventional pavement surfaces, especially for low use surfaces such as driveways, overflow parking lots, and emergency access roads.

- **Reducing Building Setbacks.** Reducing building setbacks reduces driveway and entry walks and is most readily accomplished along low-traffic streets where traffic noise is not a problem.

- **Constructing Cluster Developments**. Cluster developments can also reduce the amount of impervious area for a given number of lots. The biggest savings is in street length, which also will reduce costs of the development. Cluster development clusters the construction activity onto less-sensitive areas without substantially affecting the gross density of development.

In summary, a careful consideration of the existing topography and implementation of a combination of the above mentioned techniques may avoid construction of costly stormwater control measures. Other benefits include reduced potential of downstream flooding, water quality degradation of receiving streams/water bodies and enhancement of aesthetics and reduction of development costs. Beneficial results include more stable baseflows in receiving streams, improved groundwater recharge, reduced flood flows, reduced pollutant loads, and reduced costs for conveyance and storage.

18 Editor's Note: Said map is on file in the office of the Borough Secretary.

APPENDIX F
STORMWATER BEST MANAGEMENT PRACTICES
OPERATIONS AND MAINTENANCE AGREEMENT

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

WITNESSETH

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

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

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

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

WHEREAS, for the purposes of this agreement, the following definitions shall apply:

- **BMP** - "Best Management Practice;" activities, facilities, designs, measures or procedures used to manage stormwater impacts from land development, to protect and maintain water quality and groundwater recharge and to otherwise meet the purposes of the Municipal Stormwater Management Ordinance, including but not limited to infiltration trenches, seepage pits, filter strips, bioretention, wet ponds, permeable paving, rain gardens, grassed swales, forested buffers, sand filters and detention basins.

- **Infiltration Trench** - A BMP surface structure designed, constructed, and maintained for the purpose of providing infiltration or recharge of stormwater into the soil and/or groundwater aquifer,

- **Seepage Pit** - An underground BMP structure designed, constructed, and maintained for the purpose of providing infiltration or recharge of stormwater into the soil and/or groundwater aquifer,

- **Rain Garden** - A BMP overlain with appropriate mulch and suitable vegetation designed, constructed, and maintained for the purpose of providing infiltration or recharge of stormwater into the soil and/or underground aquifer, and

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

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

1. The BMPs shall be constructed by the Landowner in accordance with the plans and specifications identified in the Plan.

2. The Landowner shall operate and maintain the BMP(s) as shown on the Plan in good working order acceptable to the Municipality and in accordance with the specific maintenance requirements noted on the Plan.

3. The Landowner hereby grants permission to the Municipality, its authorized agents and employees, to enter upon the property, at reasonable times and upon presentation of proper identification, to inspect the BMP(s) whenever it deems necessary. Whenever possible, the Municipality shall notify the Landowner prior to entering the property.

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

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

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

7. The Landowner, its executors, administrators, assigns, and other successors in interests, shall release the Municipality's employees and designated

representatives from all damages, accidents, casualties, occurrences or claims which might arise or be asserted against said employees and representatives from the construction, presence, existence, or maintenance of the BMP(s) by the Landowner or Municipality. In the event that a claim is asserted against the Municipality, its designated representatives or employees, the Municipality shall promptly notify the Landowner and the Landowner shall defend, at his own expense, any suit based on the claim. If any judgment or claims against the Municipality's employees or designated representatives shall be allowed, the Landowner shall pay all costs and expenses regarding said judgment or claim.

8. The Municipality shall inspect the BMP(s) at a minimum of once every year to ensure their continued functioning.

This Agreement shall be recorded at the Office of the Recorder of Deeds of _____ County, Pennsylvania, and shall constitute a covenant running with the Property and/or equitable servitude, and shall be binding on the Landowner, his administrators, executors, assigns, heirs and any other successors in interests, in perpetuity.

ATTEST:

WITNESS the following signatures and seals:

(SEAL) For the Municipality:

_____

(SEAL) For the Landowner:

_____

ATTEST:

_____ (City, Borough, Township)

County of _____, Pennsylvania

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

GIVEN UNDER MY HAND THIS _____ day of _____, 20___.

_____ _____

NOTARY PUBLIC (SEAL)

APPENDIX G
POLLUTANT LOADS FOR SPECIFIC LAND USES

Worksheet 11 – BMPs for Pollution Prevention		
Does the site design incorporate the following BMPs to address nitrate pollution? A summary "yes" rating is achieved if at least 2 Primary BMPs are provided across the site. "Provided across the site" is taken to mean that the specifications for that BMP set forward in Chapters 5 and 6 are satisfied.		
	Yes	**No**
BMPs for Pollution Prevention:	☐	☐
NS BMP 5.4.1 – Protect Sensitive/Special Value Features	☐	☐
NS BMP 5.4.2 – Protect/Conserve/Enhance Riparian Buffers	☐	☐
NS BMP 5.4.3 – Protect/Utilize Natural Flow Pathways in Overall Stormwater Planning and Design	☐	☐
NS BMP 5.5.1 – Cluster Uses at Each Site; Build on the Smallest Area Possible	☐	☐
NS BMP 5.6.1 – Minimize Total Disturbed Area - Grading	☐	☐
NS BMP 5.6.2 – Minimize Soil Compaction in Disturbed Areas	☐	☐
NS BMP 5.6.3 – Re-Vegetate/Re-Forest Disturbed Areas (Native Species)	☐	☐
NS BMP 5.7.1 – Reduce Street Imperviousness	☐	☐
NS BMP 5.7.2 – Reduce Parking Imperviousness	☐	☐
NS BMP 5.8.1 – Rooftop Disconnection	☐	☐
NS BMP 5.8.2 – Disconnection from Storm Sewers	☐	☐
NS BMP 5.9.15 – Street Sweeping	☐	☐
Structural BMP 6.7.1 – Riparian Buffer Restoration	☐	☐
Structural BMP 6.7.2 – Landscape Restoration	☐	☐
Structural BMP 6.7.3 – Soils Amendment and Restoration	☐	☐

Worksheet 12 – Water Quality Analysis of Pollutant Loading from All Disturbed Areas

Total Site Area (AC)	
Total Disturbed Area (AC)	
Disturbed Area Controlled by BMPs (AC)	

Total Disturbed Areas:

		Pollutant					Pollutant Load		
	Land Cover Classification	TSS EMC (mg/l)	TP EMC (mg/l)	Nitrate-Nitrite EMC (mg/l as N)	Cover (Acres)	Runoff Volume (AF)	TSS** (LBS)	TP** (LBS)	NO_3 (LBS)
Pervious Surfaces	Forest	39	0.15	0.17					
	Meadow	47	0.19	0.3					
	Fertilized Planting Area	55	1.34	0.73					
	Native Planting Area	55	0.40	0.33					
	Lawn, Low-Input	180	0.40	0.44					
	Lawn, High-Input	180	2.22	1.46					
	Golf Course Fairway/Green	305	1.07	1.84					
	Grassed Athletic Field	200	1.07	1.01					
Impervious Surfaces	Rooftop	21	0.13	0.32					
	High Traffic Street/Highway	261	0.40	0.83					
	Medium Traffic Street	113	0.33	0.58					
	Low Traffic/Residential Street	86	0.36	0.47					
	Res. Driveway, Play Courts, etc.	60	0.46	0.47					
	High Traffic Parking Lot	120	0.39	0.60					
	Low Traffic Parking Lot	58	0.15	0.39					
						TOTAL LOAD			
						REQUIRED REUCTION (%)	85%	85%	50%
						REQUIRED REDUCTION (LBS)			

*Pollutant Load = [EMC, mg/l] X [Volume, AF] X [2.7, Unit Conversion]

**TSS and TP calculations only required for projects not meeting CG1/CG2 or not controlling less than 90% of the disturbed area

Worksheet 13 – Pollutant Reduction Through BMP Applications*

*Fill this worksheet out for each BMP type with different pollutant removal efficiencies. Sum pollutant reduction achieved for all BMP types on final sheet.

BMP Type: _____

Disturbed Area Controlled by this BMPs (AC)

Disturbed Area Controlled by this BMPs:

		Pollutant					Pollutant Load**		
	Land Cover Classification	TSS EMC (mg/l)	TP EMC (mg/l)	Nitrate-Nitrite EMC (mg/l as N)	Cover (Acres)	Runoff Volume (AF)	TSS** (LBS)	TP** (LBS)	NO_3 (LBS)
Pervious Surfaces	Forest	39	0.15	0.17					
	Meadow	47	0.19	0.3					
	Fertilized Planting Area	55	1.34	0.73					
	Native Planting Area	55	0.40	0.33					
	Lawn, Low-Input	180	0.40	0.44					
	Lawn, High-Input	180	2.22	1.46					
	Golf Course Fairway/Green	305	1.07	1.84					
	Grassed Athletic Field	200	1.07	1.01					
Impervious Surfaces	Rooftop	21	0.13	0.32					
	High Traffic Street/Highway	261	0.40	0.83					
	Medium Traffic Street	113	0.33	0.58					
	Low Traffic/Residential Street	86	0.36	0.47					
	Res. Driveway, Play Courts, etc.	60	0.46	0.47					
	High Traffic Parking Lot	120	0.39	0.60					
	Low Traffic Parking Lot	58	0.15	0.39					
	TOTAL LOAD TO THIS BMP TYPE								
	POLLUTANT REMOVAL EFFICIENCIES FROM APPENDIX A. STORMWATER MANUAL (%)								
	POLLUTANT REDUCITON ACHIEVED BY THIS BMP TYPE (LBS)								

POLLUTANT REDUCTION ACHIEVED BY ALL BMP TYPES (LBS)			
REQUIRED REDUCTION from WS12 (LBS)			

*Pollutant Load = [EMC, mg/l] X [Volume, AF] X [2.7, Unit Conversion]

**TSS and TP calculations only required for projects not meeting CG1/CG2 or not controlling less than 90% of the disturbed area