

SMALL PROJECTS WORKSHEETS

from the
West Earl Township Stormwater Ordinance

SIMPLIFIED APPROACH TO STORMWATER MANAGEMENT FOR SMALL PROJECTS

In
West Earl Township,
Lancaster County, Pennsylvania

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I. Introduction:

This design manual has been created as a tool to help property owners manage stormwater on their property and streamline the process of designing on-site stormwater management facilities for Regulated Activities that are new, relatively minor residential and accessory structure projects (less than 5,000 square feet). Through the use of this manual, residents have the ability to determine the appropriate facilities for their property, project and budget. This design method is not intended to be used with large-scale subdivision / land development projects or activities that include infrastructure such as roadways.

The Stormwater Best Management Practices (Stormwater BMPs) listed in this manual should be used as a guide and are not a comprehensive list of options. Residents should contact West Earl Township to discuss alternative solutions for site specific applications.

II. Importance of Stormwater Management:

Stormwater is the runoff produced by precipitation, snow melt, or ice melt. When land is developed or changed, the flow patterns of water, volume of water and quality of water are also changed. Land development activities can affect characteristics of stormwater runoff, including the rate of runoff, volume of runoff, and quality of runoff. When runoff is not managed, the increased volume may aggravate flooding.

The objective of stormwater management is to prevent or mitigate the adverse impacts of the increase in rate and volume of stormwater runoff, while also protecting health, safety, and property. Stormwater BMPs aim to maintain water quality, encourage infiltration in appropriate areas, promote groundwater recharge, maintain the natural drainage characteristics of the site to the maximum extent practicable, and protect stream banks and beds.

III. Standard Terms Used in the Manual:

BMP (Best Management Practice) – Activities, facilities, designs, measures, or procedures used to manage stormwater impacts from Regulated Activities, to provide water quality treatment, infiltration, volume reduction, and/or peak rate control, to promote groundwater recharge, and to otherwise meet the purposes of this Ordinance. Stormwater BMPs are commonly grouped into one (1) of two (2) broad categories or measures: “structural” or “nonstructural.” In this Ordinance, nonstructural BMPs or measures refer to operational and/or behavior-related practices that attempt to minimize the contact of pollutants with stormwater runoff whereas structural BMPs or measures are those that consist of a physical device or practice that is installed to capture and treat stormwater runoff. Structural BMPs include, but are not limited to, a wide variety of practices and devices from large-scale retention ponds and constructed wetlands to small-scale underground treatment systems, infiltration facilities, filter strips, low impact design, bioretention, wet ponds, permeable paving, grassed swales, riparian or forested buffers, sand filters, detention basins, and manufactured devices. Structural stormwater BMPs are permanent appurtenances to the Site.

Disturbed Area – A land area where an Earth Disturbance Activity is occurring or has occurred.

Earth Disturbance (or Earth Disturbance Activity) – A construction or other human activity which disturbs the surface of the land, including, but not limited to: clearing and grubbing; grading; excavations; embankments; land development; agricultural plowing or tilling; operation of animal heavy use areas; timber harvesting activities; road maintenance activities; oil and gas activities; well drilling; mineral extraction; building construction; and the moving, depositing, stockpiling, or storing of soil, rock, or earth materials.

Flow Path – The path that stormwater follows from the discharge point to the nearest property line or channelized flow (i.e. stream, drainage ditch, etc.). The length of the path is measured along the ground slope.

Impervious Surface (or Impervious Area) - Surfaces which prevent the infiltration of water into the ground. All structures, buildings, parking areas, driveways, roads, streets, sidewalks, decks, and any areas of concrete, asphalt, packed stone, and compacted soil shall be considered impervious surface if they prevent infiltration.

Karst – A type of topography or landscape characterized by features including but not limited to surface depressions, sinkholes, rock pinnacles/uneven bedrock surface, underground drainage, and caves. Karst is formed on carbonate rocks, such as limestone or dolomite.

Minor Stormwater Site Plan – A site plan prepared and submitted for Regulated Activities which meet the Small Project and Minor Stormwater Site Plan criteria. The plan depicts existing conditions on the property, proposed impervious areas, and, if required, the location of proposed Stormwater BMPs.

Regulated Activities – Activities, including Earth Disturbance Activities that involve the alteration or development of land in a manner that may affect stormwater runoff. Regulated activities shall include, but not be limited to:

- Land Development subject to the requirements of the Township of West Earl Subdivision and Land Development Ordinance;
- Removal of ground cover, grading, filling or excavation;
- Construction of new or additional impervious or semi-impervious surfaces (driveways, parking lots, etc.), and associated improvements;
- Construction of new buildings or additions to existing buildings;
- Installation or alteration of stormwater management facilities and appurtenances thereto;
- Diversion or piping of any watercourse; and,
- Any other regulated activities where the Municipality determines that said activities may affect any existing watercourse's stormwater management facilities, or stormwater drainage patterns.

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

Small Project - Regulated activities that, measured on a cumulative basis from July 1, 2005, create new impervious areas of more than 1,000 sq.ft. and less than 5,000 sq.ft. or involve Earth Disturbance Activity of an area less than 5,000 sq. ft. and do not involve the alteration of stormwater facilities or watercourses.

IV. Determining What Type of Stormwater Management Submission is Needed:

The following chart provides a guide to determine what type of stormwater submission is needed. Some projects will be eligible for an exemption from preparing a stormwater management plan, but documentation of the project must still be filed with West Earl Township. Completion of the **West Earl Township Stormwater Management Worksheets** will determine what type of documentation is required for each project.

This manual is designed to assist those with Regulated Activities that qualify for the use of a Minor Stormwater Site Plan. If a SWM Site Plan is required in accordance with the West Earl Township Stormwater Management Ordinance, **please consult a qualified professional (ex. Engineer, Surveyor).**

Stormwater Management Ordinance Status	Proposed New Impervious Area	Proposed Earth Disturbance Area	Next Steps
Eligible for Exemption	Less than 1,000 ft ²	Less than 5,000 ft ²	File Stormwater Management Worksheet
Small Project	1,000 ft ² to ≤ 5,000 ft ²	Less than 5,000 ft ²	Prepare a Minor Stormwater Site Plan
Non-Exempt	Greater than 5,000 ft ²	Greater than 5,000 ft ²	Prepare a SWM Site Plan per Article IV

*Note: Regulated Activities must meet BOTH Proposed New Impervious Area and Proposed Earth Disturbance requirements to be eligible for an Exemption or a Small Project.

The Applicant should first review the planned project with West Earl Township to confirm the following:

- That the proposed project is not otherwise exempt from the stormwater management control and the engineered Stormwater Management Site Plan requirements of the Municipality's Stormwater Management Ordinance;
- That the proposed project is eligible to follow the Small Project-Minor Stormwater Site Plan requirements;
- To determine which components of the proposed project must be included in the calculation of "impervious surfaces (areas)"; and,
- Whether any local conditions are known to the Municipality that would preclude the use of any of the techniques included in the Simplified Approach for Small Projects.

The following shall be submitted to West Earl Township depending on the proposed project:

- Eligible for Exemption
 - Stormwater Management Worksheet
- Small Project
 - Stormwater Management Worksheet
 - Owner Acknowledgement (signed)
 - Minor Stormwater Site Plan
 - Signed and notarized Stormwater Best Management Practices Operation, Maintenance and Inspection Plan and Agreement. Following approval and signature by the Municipality, the Landowner must have the Agreement recorded at the Lancaster County Office of the Recorder of Deeds, so that the Agreement will be applicable to future landowners.
- Non-Exempt
 - SWM Site plan and associated calculations prepared by a Professional Engineer, Landscape Architect or Surveyor in accordance with Articles III and IV of this Stormwater Management Ordinance.

V. Using the Stormwater Management Worksheets:

Determining the new impervious area of a proposed project is the first step in using this Manual. Completing the attached West Earl Township Stormwater Management Worksheets will assist the property owner, or applicant, and West Earl Township in determining the impervious area of a proposed project and providing guidance through ensuing steps.

Step 1: Step 1 of the West Earl Township Stormwater Management Worksheet provides a table and directions on how to calculate the new impervious area proposed to be created. If the total new impervious area is less than 1,000 square feet, the project may be exempt from the volume, rate, and SWM Site Plan requirements of the West Earl Township Stormwater Management Ordinance. After completing Step 1 of the worksheet, the applicant will sign the Acknowledgement statement on the worksheet and file it with West Earl Township.

West Earl Township will use this as a record of exempt projects and keep a running total of proposed impervious area since the adoption of the West Earl Township Stormwater Management Ordinance. After exceeding 1,000 square feet of impervious area since the adoption of the West Earl Township Stormwater Management Ordinance, a property owner will need to prepare a Minor Stormwater Site Plan or a Stormwater Management Site Plan in accordance with Article IV.

However, applicants shall note that Regulated Activities that meet the exemption criteria may be required to manage stormwater runoff and provide plans and/or calculations as required in this

ordinance should West Earl Township determine that there is a potential for stormwater runoff associated with the proposed Regulated Activity to adversely affect adjacent or downstream public or private properties.

If the total new impervious area is 1,000 square feet or greater and less than 5,000 square feet, the applicant will go on to Step 2. If the Regulated Activity involves only Earth Disturbance less than 5,000 square feet, the applicant shall contact West Earl Township for additional guidance.

Step 2: Step 2 of the West Earl Township Stormwater Management Worksheet provides guidance to calculate the total volume of stormwater runoff from new impervious surfaces that must be controlled using stormwater BMPs. Upon completion of these calculations, continue to Step 3.

Step 3: Step 3 of the West Earl Township Stormwater Management Worksheet provides guidance regarding the preparation of a Minor Stormwater Site Plan, as outlined in this design manual, for approval by West Earl Township. This includes determining the types, sizes, and location of proposed Stormwater BMPs to be employed for a given project. The worksheets, Minor Stormwater Site Plan, and Owner Acknowledgement will be submitted to West Earl Township for approval. West Earl Township will use this submission as a record to keep a running total of proposed impervious area since the adoption of the West Earl Township Stormwater Management Ordinance, and to monitor the installation of the required Stormwater BMPs necessary to support the project.

VI. Minor Stormwater Site Plan Requirements

A Minor Stormwater Site Plan depicts the existing conditions of a property and the location of proposed impervious surfaces. Depicting the relationship between the Regulated Activities and distances to things like property lines, streams, and vegetated areas will help determine if the stormwater runoff created by the proposed project can be managed naturally within the property or if additional Stormwater BMPs are needed to accommodate the stormwater runoff.

If a project requires the submission of a Minor Stormwater Site Plan or a plan in support of an Exemption, the applicant shall prepare and submit to West Earl Township a Minor Stormwater Site Plan and the West Earl Township Stormwater Management Worksheet. Applicants may be able to obtain assistance from the Lancaster County GIS Office to develop property maps depicting existing features on their site. A Minor Stormwater Site Plan depicting the key features of the site must be drawn to scale and show the following:

- Property owner name, address, email and phone number
- Property address (if different from owner address)
- Tax Parcel ID number
- Name, address, phone number & email address of plan preparer
- Property boundary.
- Site conditions (grassed areas, agricultural fields, direction of slope and stormwater flow on the property).

- Location of all existing and proposed structures (house, driveway shed, addition, etc.) and any existing and proposed downspouts. Include the dimensions of proposed structures.
- Distance from proposed downspouts to property line.
- All existing and proposed driveways and other impervious areas (stone and gravel driveways are considered impervious).
- Natural features such as streams, wetlands, floodplains, tree lines and other vegetation on the property and within 50 feet of the property line.
- Distance from proposed structures or downspouts along the stormwater flow path to any stream or wooded area.
- Any other pertinent information that may be significant to the project site (existing drainage ways, steep slopes, exposed bedrock, upslope drainage areas, etc.).
- Wells and on-site sanitary sewer systems (septic tank, drainfield, etc.).
- Surface and subsurface utilities.
- Existing and proposed easements (gas, electric, stormwater, water, sewer, etc.).

If Stormwater BMPs are required, the following information must also be shown on the plan:

- Location and size of proposed Stormwater BMPs.
- Details of BMPs as necessary for construction.

Other Considerations for Minor Stormwater Management Plans:

- For Minor Stormwater Management Plans, soil testing is highly recommended to select and apply the appropriate Stormwater BMPs. The use of soil maps, infiltration tests, and/ or perc tests may provide the applicant basic information about soil characteristics.
- Proposed stormwater management facilities must be designed to handle flows from the contributing area.
- The site shall not have any pre-existing stormwater drainage-related problems (as verified by West Earl Township), at the discretion of West Earl Township.
- Water quality shall be protected per Chapter 93 of PA Code.
- West Earl Township may inspect all Stormwater BMPs during and after construction / installation.
- Infiltration BMPs should not be constructed nor receive runoff until the entire contributory drainage area has achieved final stabilization.
- Ensure that infiltration in geologically susceptible areas such as, but not limited to, carbonate geology / karst topography do not cause adverse effects. The Minor Stormwater Site Plan should incorporate steps to ensure that salt or chloride will not contaminate the groundwater.
- Selected Stormwater BMPs shall be designed, constructed, and maintained in accordance with the manufacturer's recommendation, the *PA Stormwater Management BMP Manual*, or other written guidance acceptable to West Earl Township.

- Proposed sump pumps shall discharge to infiltration or vegetative Stormwater BMPs to the maximum extent practicable and not adversely impact adjacent and downstream properties.

VII. Selecting Stormwater BMPs

If the submission of a Minor Stormwater Management Plan including the use of Stormwater BMPs is required, the applicant should review the compiled information in the *PA Stormwater Management BMP Manual*. This document identifies Stormwater BMPs that have been deemed to be of a nature and cost that will accomplish the goals of the Lancaster County Stormwater Management Plan, while not unduly burdening the residents. It will then be the Owner's responsibility to select a facility, determine the appropriate size and agree to construct and maintain that facility or facilities. The property owner is encouraged to utilize both multiple and hybrid versions of the facilities, as outlined in the documents mentioned above.

The applicant may choose to install a Stormwater BMP facility as shown in the Stormwater Management Worksheets. The Stormwater BMP facility shall be constructed in accordance with the associated construction details, requirements and notes.

VIII. Stormwater Management Worksheets

Stormwater Management Worksheets can be obtained from the West Earl Township Municipal Office.

STORMWATER MANAGEMENT

Exemption & Small Project Application & Worksheet

Applicant's Name _____

Property Owner's Name (if different from Applicant) _____

Address of Property _____

Parcel ID # _____

Phone Number _____ Email Address _____

Proposed Impervious Area Associated with this Project _____ Square Feet
(include Worksheet on following page)

Impervious Area Installed Since January 1, 2005 _____ Square Feet

Total Proposed and Previous Impervious Area Since January 1, 2005 _____ Square Feet

Stormwater Management Submission Type: _____ Exempt
 _____ Small Project - Minor Stormwater Site Plan
 _____ AG Alternate Processing

Property Owner Acknowledgement - I declare that I am the property owner, or authorized representative of the owner, and that the information provided is true and accurate to the best of my knowledge. I understand that stormwater may not adversely affect adjacent properties or be directed onto another property without written permission. I also understand that false information may result in a stop work order or revocation of permits. Municipal representatives are also granted reasonable access to the property for review and/ or inspection of this project if necessary.

Signature _____ Date _____

West Earl Township Receipt

Date Received _____ Fee Submitted _____

West Earl Township Approval

Signature _____ Date _____

Stormwater Management Worksheet

Step 1: Determine the amount of new impervious surface area and total disturbed area created by the proposed project. This includes any new impervious surface area that prevents infiltration of stormwater into the ground. New stone and gravel areas are considered impervious. Impervious surface areas existing before July 1, 2005 do not need to be included in this calculation. Use additional sheets if necessary.

Calculate new impervious area and disturbed area by completing this table and steps a. through e.

Surface	Length (ft)	x	Width (ft)	=	Impervious Area (ft ²)
Buildings		x		=	
Driveway		x		=	
Parking Areas		x		=	
Patios/ walkways		x		=	
Other		x		=	
Total Proposed Impervious Surface Area (Sum of all impervious areas)					
Area of Grading, Filling, Earth Disturbance (excluding Impervious Area)					
Total Proposed Disturbed Area (Impervious Area plus Area of Grading, Filling, Earth Disturbance)					

- a. If the total new impervious surface area is **less than 1,000 ft²** and the total disturbed area is **less than 5,000 ft²**, the project is eligible to be exempted from the requirement to submit a Minor Stormwater Site Plan or a SWM Site Plan. However, a Sketch Plan of the proposed project is required.
- b. Applicants shall note that Regulated Activities that meet the exemption criteria may be required to manage stormwater runoff and provide plans and/or calculations as required in this ordinance should the Municipality determine that there is a potential for stormwater runoff associated with the proposed Regulated Activity to adversely affect adjacent or downstream public or private properties.
- c. If no further information is necessary, sign Acknowledgement and file this sheet with West Earl Township.
- d. If total new impervious surface area is **equal to or greater than 1,000 ft² and less than 5,000 ft²**, continue to Step 2.
- e. If no new impervious area is proposed and total disturbed area is **less than 5,000 ft²**, contact West Earl Township to discuss preparation of a Minor Stormwater Site Plan.

Step 2: Calculate the volume of stormwater runoff created by new impervious surfaces. Use the following chart to determine this volume.

Impervious Area (ft ²) to be Managed (Sum of Step 1)	X	3.0 in/12 in = 0.25 ft (3.0 in is approx. 2-year 24-hour rainfall amount)	=	Amount of Stormwater to be Managed (ft ³)
	X	0.25 ft	=	

Step 3: Determine the techniques to be used to manage the stormwater volume calculated in Step 2 and prepare the Minor Stormwater Management Plan. Use the following information to determine the BMPs to be used to manage the required stormwater volume.

Stormwater BMPs may be sized using the following Simple BMP Sizing table.

BMP Type		Simple BMP Sizing - Amount New Impervious Area to be Managed (ft ²)								
		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	5,000
Bioretention	Ex. Rain garden, Vegetated swale	125 ft ³ or	250 ft ³ or	375 ft ³ or	500 ft ³ or	625 ft ³ or	750 ft ³ or	875 ft ³ or	1,000 ft ³ or	1,125 ft ³ or
	Ex. Dry well, Infiltration trench	313 ft ³	625 ft ³	938 ft ³	1,250 ft ³	1,563 ft ³	1,875 ft ³	2,188 ft ³	2,500 ft ³	3,125 ft ³

* Assumes stone with 40% voids is used as storage volume

The Simple BMP Sizing table is used as follows. Match the required stormwater volume to the “Amount of New Impervious Area to be Managed” in white boxes in the table (rounding **up** to the next value if the number is between two values). Then look in the light grey box to determine the required size of the type of Stormwater BMP (bioretention or infiltration) being considered. For example, 1,000 square feet of new impervious surface area could be accommodated by a 250 cubic foot bioretention system. Bioretention systems such as a 16’x 16’x 1.0’ rain garden could be used to achieve this storage volume. Similarly, a 625 cubic foot Infiltration system such as a 25’x 5’x 5’ infiltration trench could be used to achieve this storage volume.

Once the sizing of necessary stormwater BMPs has been determined, prepare the required Minor Stormwater Site Plan in accordance with the associated requirements and submit to West Earl Township for review and approval. Bring the worksheets, Minor Stormwater Site Plan, Owner Acknowledgement, and BMP Facilities and Maintenance Agreement (if applicable) to West Earl Township.

If an area greater than 5,000 square feet of earth is disturbed, an erosion and sedimentation (E & S) control plan must be prepared. West Earl Township may require that the E&S plan be submitted to, reviewed, and approved by the Lancaster County Conservation District prior to approval of the Minor Stormwater Site Plan.

**OWNER ACKNOWLEDGMENT
FOR
MINOR STORMWATER SITE PLAN**

- Development activities shall begin only after West Earl Township approves the Minor Stormwater Site Plan.
- The installed Stormwater BMPs shall not adversely affect any property, septic systems, or drinking water wells on this or any other property.
- If, after approval of the Minor Stormwater Site Plan by West Earl Township, the applicant wishes to pursue alternative stormwater management measures in support of the project, the applicant shall submit a revised Minor Stormwater Site Plan to West Earl Township for approval. If a site requires a more complex system or if problems arise, the applicant may need the assistance of a licensed professional.
- The applicant acknowledges that the proposed Stormwater BMPs shall be a permanent fixture of the property that can not be altered or removed without approval by West Earl Township.
- West Earl Township shall have the ability to perform periodic inspections and/or a final inspection of the proposed Stormwater BMPs to ensure installation in accordance with the approved Minor Stormwater Site Plan.
- The applicant acknowledges that they shall be responsible for paying applicable and reasonable fees associated with the Township staff and/or Township consultants processing, reviewing and inspecting the Stormwater Management Worksheet, Minor Stormwater Site Plan and installed BMPs.

I (we) _____, hereby acknowledge the above statements and agree to assume full responsibility for the implementation, construction, operation, and maintenance of the proposed stormwater management facilities. Furthermore, I (we) also acknowledge that the steps, assumptions, and guidelines provided in this submission, including but not limited to the Minor Stormwater Site Plan, the West Earl Township Stormwater Worksheet, and the Stormwater Management / BMP Facilities and Maintenance Agreement (if applicable) will be adhered to.

Applicant Acknowledgement of Submission

Signature: _____

Date: _____

West Earl Township Acknowledgement of Receipt

Signature: _____

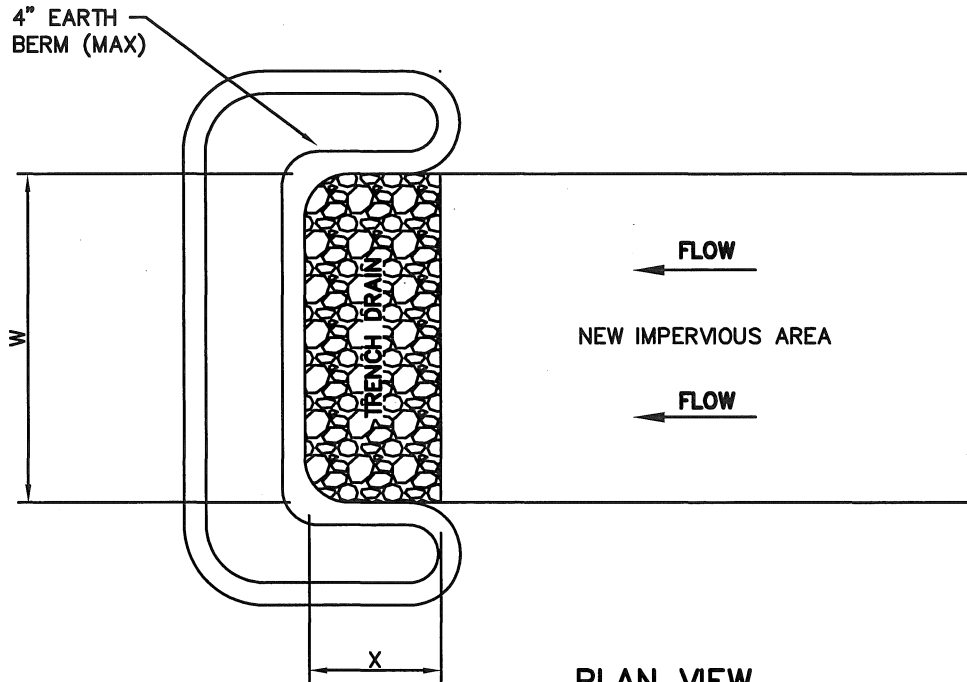
Date: _____

IX. STORMWATER MANAGEMENT / BMP FACILITIES AND MAINTENANCE AGREEMENT

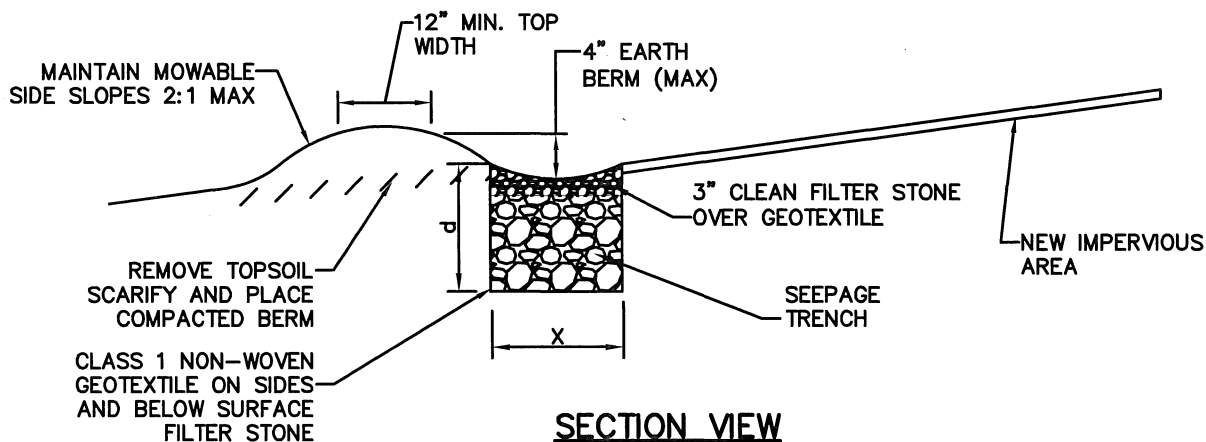
It is the Landowner's responsibility to properly maintain BMPs. It is also the Landowner's responsibility to inform any future buyers of the function, operation, and maintenance needed for any BMPs on the property prior to the purchase of the property. The following maintenance agreement outlines the inspection and maintenance required for each type of BMP, the responsibilities of the Landowner, and the rights of the Municipality in regards to inspection and enforcement of the maintenance requirements.

The Operation, Maintenance and Inspection Plan and Agreement must be signed, notarized and submitted to the Municipality. Following approval and signature by the Municipality, the Landowner must have the Agreement recorded at the Lancaster County Office of the Recorder of Deeds, so that the Agreement will be applicable to future landowners.

The Operation, Maintenance and Inspection Plan and Agreement can be obtained from the West Earl Township Municipal Office.



PLAN VIEW



SECTION VIEW

KEY:

W = WIDTH OF NEW IMPERVIOUS SURFACE = LENGTH OF SEEPAGE TRENCH (FT.)

X = WIDTH OF SEEPAGE TRENCH (FT)

d = DEPTH OF SEEPAGE TRENCH (FT)

REQUIRED VOLUME (RV) FROM WORKSHEET = _____

STORAGE VOLUME OF BED (SV) = $X \cdot W \cdot d \cdot 0.4$ _____

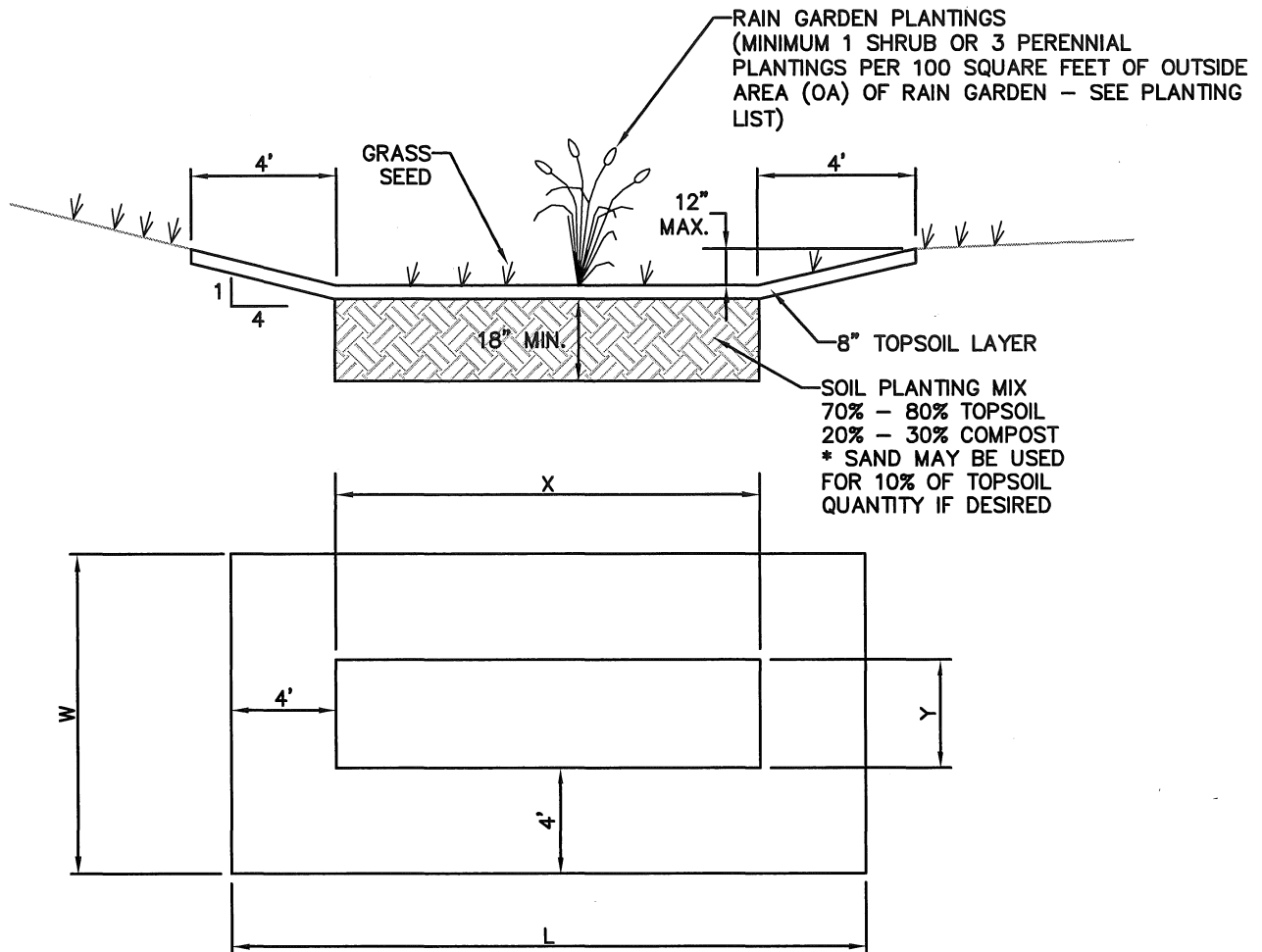
IS SV > RV _____

NOTES:

1. SIDE AND BOTTOM OF TRENCH TO BE WRAPPED IN CLASS 1 GEOTEXTILE.
2. TRENCH TO BE FILLED WITH CLEAN STONE AASHTO #1.
3. TRENCH TO BE CONSTRUCTED AT 0% SLOPE ON UNDISTURBED SOIL.
4. TRENCH TO BE CHECKED REGULARLY TO MAINTAIN PROPER OPERATION.
5. A LAWN AREA MAY BE LOCATED BETWEEN THE NEW IMPERVIOUS AREA AND INFILTRATION TRENCH AS LONG AS THE RUNOFF FROM NEW IMPERVIOUS AREA IS CONVEYED TO INFILTRATION TRENCH.

INFILTRATION TRENCH

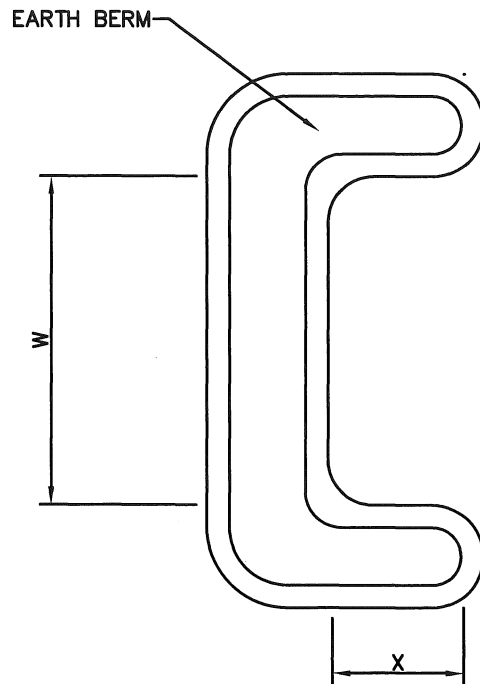
NTS



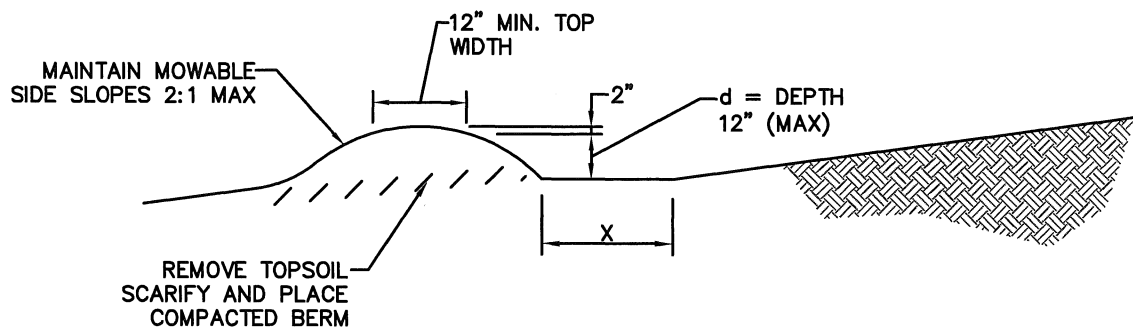
1. REQUIRED RAIN GARDEN VOLUME FROM WORKSHEET (RV) RV = _____ ft³
2. CALCULATE OUTSIDE AREA OF RAIN GARDEN (OA)
(OA) = LENGTH (L) X WIDTH (W) OA = _____ ft²
3. CALCULATE INSIDE AREA OF RAIN GARDEN (IA)
(IA) = [X] X [Y] IA = _____ ft²
4. CALCULATE AVERAGE AREA OF RAIN GARDEN (AA)
(AA) = (OA)/2 + (IA)/2 AA = _____ ft²
5. CALCULATE STORAGE VOLUME (SV)
(SV) = (AA) X 1.0' SV = _____ ft²
6. CHECK FOR ADEQUATE STORAGE
STORAGE VOLUME (SV) MUST BE GREATER THAN REQUIRED VOLUME (RV)
RV = _____ ft³ > SV = _____ ft³
7. ADJUST RAIN GARDEN SIZE
IF STORAGE VOLUME (SV) IS NOT GREATER THAN REQUIRED VOLUME (RV), INCREASE THE SIZE OF THE RAIN GARDEN AND REPEAT STEPS 2-6

RAIN GARDEN

NTS



PLAN VIEW



SECTION VIEW

KEY:

REQUIRED VOLUME (RV) FROM WORKSHEET = _____

STORAGE VOLUME OF BED (SV) = $X \cdot W \cdot d$ = _____

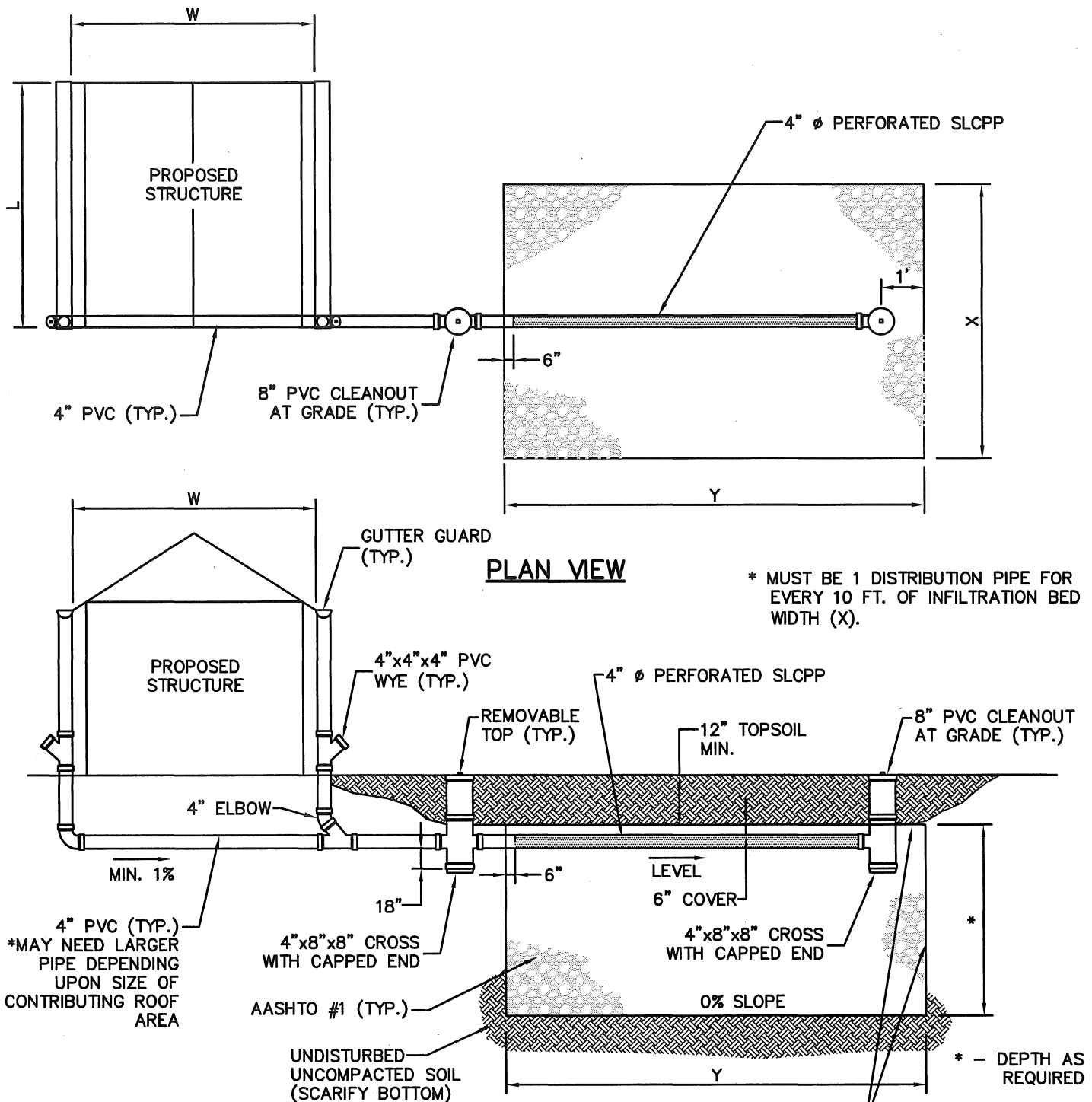
IS SV > RV _____

NOTES:

1. STORAGE AREA BEHIND BERM SHALL NOT BE COMPACTED.

EARTH BERM

NTS



NOTES:

L = LENGTH OF STRUCTURE ROOF (FT.)
W = WIDTH OF ENTIRE ROOF (FT.)
X = WIDTH OF INFILTRATION BED (FT)
Y = LENGTH OF INFILTRATION BED (FT)

REQUIRED VOLUME (RV) FROM WORKSHEET
STORAGE VOLUME OF BED = $X \cdot Y \cdot D \cdot 0.4$
IS SV > RV _____

NOTES:

1. BED BOTTOM AREA CAN BE NO LESS THAN 20% OF IMPERVIOUS AREA CONTRIBUTING TO IT.
2. PIPING AND CLEANOUTS TO BE CENTERED WITHIN INFILTRATION BED.
3. BED TO BE CHECKED REGULARLY TO MAINTAIN PROPER OPERATION.
4. IDENTIFY OVERFLOW LOCATIONS.

DRY WELL

NTS

Prepared By: _____

Return To: Same
Parcel ID # _____

**STORM WATER MANAGEMENT AGREEMENT
AND DECLARATION OF EASEMENT**

THIS AGREEMENT AND DECLARATION OF EASEMENT made this _____ day of _____, 20__, by and between _____ with a mailing address at _____ (hereinafter, whether singular or plural, referred to as the "Grantor"), and **WEST EARL TOWNSHIP**, Lancaster County, Pennsylvania, a municipal corporation duly organized under the laws of the Commonwealth of Pennsylvania, with its municipal office located at 157 West Metzler Road, P.O. Box 787, Brownstown, Pennsylvania 17508 (hereinafter referred to as the "Township").

BACKGROUND

Grantor is the owner of premises located at _____, _____, in the Township of West Earl, Lancaster County, Pennsylvania, as more specifically described in a deed recorded in Deed or Record Book _____, Volume _____, Page _____, or at Document No. _____ in the Office of the Recorder of Deeds in and for Lancaster County, Pennsylvania (hereinafter referred to as the "Premises"). Grantor is proceeding to build on and develop the Premises in such manner as requires the submission of a Small Project Stormwater Site Plan pursuant to the West Earl Township Stormwater Management Ordinance (hereinafter "SWM Ordinance").

Grantor's Small Project Stormwater Site Plan, which is expressly made a part hereof as Exhibit A, as approved or to be approved by the Township, provides for detention of stormwater within the confines of the Premises through the use of Stormwater Best Management Practices (Stormwater BMPs).

In the interest of protecting the health, safety, and welfare of the residents of the Township, the Township requires that on-site Stormwater BMPs as shown on the Small Project Stormwater Site Plan be constructed and adequately maintained by Grantor, his heirs, personal representatives, successors and assigns. Any additional requirements imposed by the Township are considered part of the Small Project Stormwater Site Plan.

The purpose of this Agreement and Declaration of Easement is to describe the ownership and maintenance responsibilities for the on-site Stormwater BMPs, which will be located on the Premises and to impose the ownership and maintenance responsibilities upon Grantor, his heirs, personal representatives and assigns and upon successor owners of the Premises, and set forth the rights of the Township.

NOW, THEREFORE, intending to be legally bound hereby and in consideration of receiving approval of its Small Project Stormwater Site Plan from the Board of Supervisors, and in consideration of receiving permits from the Township to develop the Premises, Grantor, for Grantor and the heirs, personal representatives, successors and assigns of Grantor, covenant and declare as follows:

1. In accordance with the specifications identified within the Small Project Stormwater Site Plan attached as Exhibit A, Grantor shall construct the on-site Stormwater BMPs, which will be owned by Grantor, his heirs, personal representatives, successors and assigns.

2. Grantor, his heirs, personal representatives, successors and assigns, shall adequately maintain the Stormwater BMPs, including all pipes and channels built to convey stormwater, as well as all structures, improvements, and vegetation provided to control the quantity and quality of the stormwater. Adequate maintenance is herein defined as good working condition so that these facilities are performing their design functions and meeting all requirements of Exhibit B attached hereto and incorporated herein.

3. Grantor, his heirs, personal representatives, successors and assigns, shall inspect the Stormwater BMPs after all rainfall events exceeding one inch of precipitation in a 24-hour period.

4. Grantor agrees that this Agreement creates upon the Premises, for the benefit of all present and future owners of the Premises or part of the Premises, the Township, and all other property owners affected by the storm water facilities, the perpetual right, privilege and easement for the draining of storm water in and through the Stormwater BMPs, and other stormwater facilities depicted on the Small Project Stormwater Site Plan submitted to the Township by Grantor.

5. Grantor, his heirs, personal representatives, successors and assigns, hereby grant permission to the Township, by its authorized agents and employees, to enter upon the Premises without prior notification at reasonable times and upon presentation of proper identification to inspect the Stormwater BMPs whenever the Township deems necessary.

6. In the event the Grantor, or his heirs, personal representatives, successors and assigns, fails to maintain the Stormwater BMPs as shown on the Small Project Stormwater Site Plan and in good working condition, the Township may enter upon the Premises and take whatever action it deems necessary to maintain said Stormwater BMPs and to charge the costs of such repairs to the Grantor, his heirs, personal representatives, successors and assigns. This provision shall not

be construed to allow the Township to erect any structure of permanent nature on the Premises unless such structure(s) were part of the approved Small Project Stormwater Site Plan. It is expressly understood and agreed that the Township is under no obligation to routinely maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the Township.

7. In the event that the Township, 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 Grantor shall reimburse the Township within thirty (30) days of receipt of invoice for all expenses incurred. The Township has the right to file a municipal lien for unpaid costs and expenses that have not been reimbursed thirty (30) days after receipt of invoice. Any municipal lien filed pursuant to this Agreement shall be in the amount of all costs incurred by the Township, plus a penalty of ten percent (10%) of such costs, plus the Township's reasonable attorneys' fees.

8. The intent and purpose of this Agreement is to ensure the proper maintenance of the Stormwater BMPs by the Grantor. This Agreement shall not be deemed to create any additional liability upon any party for damage(s) alleged to result from or be caused by nonpoint source pollution runoff. Furthermore, this Agreement imposes no liability of any kind whatsoever on the Township, or its elected and appointed officials, agents and employees.

9. Grantor agrees to indemnify the Township and all of its elected and appointed officials, agents and employees (hereafter collectively referred to as the "Indemnitees") against and hold Indemnitees harmless from any and all liability, loss or damage, including attorneys' fees and costs of investigation and defense, as a result of claims, demands, costs or judgments against Indemnitees which arise as a result of the design, installation, construction or maintenance of the Stormwater BMPs or any omissions relating thereto. In the event that a claim arising from Grantor's actions or omissions relating to the installation, construction or maintenance of Stormwater BMPs on the Premises is asserted against Indemnitees, the Township shall promptly notify Grantor, and Grantor shall defend, at his own expense, any suit based on the claim. If any judgment against Indemnitees shall be entered as a result of such claim, the Grantor agrees to indemnify Indemnitees and pay all costs and expenses stemming from said judgment.

10. This Agreement is not intended to, nor shall operate to limit the Township's rights and remedies under the SWM Ordinance. The Township may, in addition to the remedies prescribed herein, proceed with any action at law or in equity to bring about compliance with the Township SWM Ordinance and this Agreement.

11. This Agreement shall be binding on Grantor, his heirs, personal representatives, administrators, executors, assigns, and any other successors in interests, in perpetuity.

[SIGNATURES APPEAR ON FOLLOWING PAGE]

IN WITNESS WHEREOF, the undersigned have caused this Agreement and Declaration to be executed on the day and year first above written.

WEST EARL TOWNSHIP
Lancaster County, Pennsylvania

Attest: _____
(Assistant) Secretary

By: _____
(Vice) Chairman
Board of Supervisors

[TOWNSHIP SEAL]

Witness:

GRANTOR:

_____ (SEAL)

Print Name: _____

_____ (SEAL)

Print Name: _____

All property owners must sign the Storm Water Management Agreement in the presence of a notary public who must complete the acknowledgment on the following page. If the property is jointly owned by husband and wife, both must sign.

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF LANCASTER)

On this _____ day of _____, 20__, before me, the undersigned officer, a notary public in and for the aforesaid Commonwealth and County, personally appeared _____, who acknowledged himself/herself to be (Vice) Chairman of the Board of Supervisors of West Earl Township, Lancaster County, Pennsylvania, and that he/she, as such officer, being authorized to do so, executed the foregoing Storm Water Management Agreement and Declaration of Easement for the purposes therein contained by signing the name of such Township by himself/herself as such officer.

IN WITNESS WHEREOF, I set my hand and official seal.

Notary Public

My commission expires:

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF LANCASTER)

On this _____ day of _____, 20____, before me, the subscriber, a notary public, in and for the aforesaid Commonwealth and County, came the above-named _____, known to me (or satisfactorily proven) to be the person(s) whose name(s) is/are subscribed on the within instrument, and acknowledged the foregoing Storm Water Management Agreement and Declaration of Easement to be his/her/their act and deed and desired the same to be recorded as such.

Witness my hand and notarial seal.

Notary Public

My commission expires: