

STORMWATER MANAGEMENT DESIGN ASSISTANCE MANUAL

**For Small Projects in
Warwick Township, Lancaster County, Pennsylvania**

Small Projects Application

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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 residential homes, additions and accessory structure projects from 1,000 sq. ft. to 2,500 sq. ft. Through the use of this manual, residents or their builder/designer have the ability to determine the appropriate facilities for their property, project and budget. This design method is not intended to be used for commercial projects, large-scale subdivision / land development projects or activities that may or may not 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 or their builder/designer, have the following options: 1) you may hire a design professional to complete the attached information and design your system. This may expedite the Township's review process; or 2) you may fill out the attached information and along with your design be forwarded to the Township's Engineer for review. Both of these processes may require a review and associated fees.

If a Small Projects Application is denied, the Applicant may seek an appeal of the decision to the Board of Supervisors within 45 days of the date of denial.

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 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:

The terms listed below are specific to the Stormwater Management Design Assistance Manual – Small Projects Simplified Approach

Best Management Practice (BMP) – Activities, facilities, designs, measures, or procedures used to manage stormwater impacts from regulated activities, to meet state water quality requirements, to promote groundwater recharge, and to otherwise meet the purposes of this Ordinance.

Disconnected Impervious Area (DIA) – An impervious or impermeable surface that is disconnected from any stormwater drainage or conveyance system and is redirected or directed to a pervious area, which allows for infiltration, filtration, and increased time of concentration.

Disturbed Area – An unstabilized land area where an earth disturbance activity is occurring or has occurred.

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 (Impervious Area) – A surface that prevents the infiltration of water into the ground. Impervious surfaces and areas include but are not limited to roofs, additional indoor living spaces, patios and decks, garages, storage sheds and similar structures, streets, driveways, access drives, parking areas, and sidewalks. Any areas designed to be covered by loose surfacing materials such as gravel, stone and/or crushed stone, and intended for storage of and/or travel by vehicles, or pedestrians shall be considered impervious. Surfaces or areas designed, constructed and maintained to permit infiltration may be considered pervious.

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

Regulated Activities – Any earth disturbing activities or any activities that involve the alteration or development of land in a manner that may affect stormwater runoff.

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

Small Project – Regulated activities that, measured on a cumulative basis from June 21, 2006, create additional impervious areas of more than 1,000 sq. ft. and less than 2,500 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 exempt from preparing a stormwater management plan, but documentation of the project must still be filed with Warwick

Township. Completion of the Warwick Township **Stormwater Management Worksheets** will determine what type of documentation is required for each project.

This manual is designed to assist those with projects that qualify as a Small Project (more than 1,000 square feet but less than 2,500 square feet of impervious area). If a formal Stormwater Management Plan is required in accordance with the Warwick Township Stormwater Management Ordinance, **please consult a qualified person (ex. Engineer, Surveyor).**

Stormwater Management Ordinance Status	Proposed New Impervious Area	Next Steps
Exempt per Section 502.A.	Up to 1,000 ft ²	File Municipal Stormwater Management Worksheet with Warwick Township
Small Project per Definition	1,000 ft ² to ≤ 2,500 ft ²	Prepare a Small Project Plan per Section 501
Non-Exempt	Greater than 2,500 ft ²	Prepare a SWM Site Plan per Article IV

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 Warwick Township Stormwater Management Worksheets will assist the property owner, or applicant, and Warwick Township in determining the impervious area of a proposed project and providing guidance through ensuing steps.

Step 1: Step 1 of the Warwick Township Stormwater Management Worksheet provides a table and directions on how to figure out the new impervious area proposed to be created. If the total new impervious area is less than or equal to 1,000 square feet, the project may qualify as an exemption. The owner will sign the Acknowledgement at the top of the sheet and file it with Warwick Township. Warwick Township will use this as a record of exempt projects and keep a running total of proposed impervious area since June 21, 2006.

Step 2: Step 2 of the Warwick Township Stormwater Management Worksheet provides a process to determine the Disconnected Impervious Area (DIA). If the total new impervious area can be disconnected in accordance with the standards expressed in this Manual, projects of this size may be exempt from providing additional stormwater management controls. The owner will sign the Acknowledgement at the top of the sheet and file it with Warwick Township. Warwick Township will use this as a record of exempt projects and keep a running total of proposed impervious area since June 21, 2006.

If the total new impervious area is greater than 1,000 square feet and less than or equal to 2,500 square feet, and if DIA requirements cannot be met for all the new impervious area, projects of this size may not be exempt from the volume and rate requirements of the Warwick Township Stormwater Management Ordinance. In these cases, applicants will continue to Step 3.

Step 3: Step 3 of the Warwick Township Stormwater Management Worksheet provides guidance to determine the total volume of stormwater from new impervious surfaces that must be controlled using stormwater BMPs. This step involves calculating the volume of stormwater that can be controlled by planting new deciduous and / or evergreen trees, and the volume of stormwater that must be controlled using other BMP measures. Upon completion of these calculations, continue to Step 4.

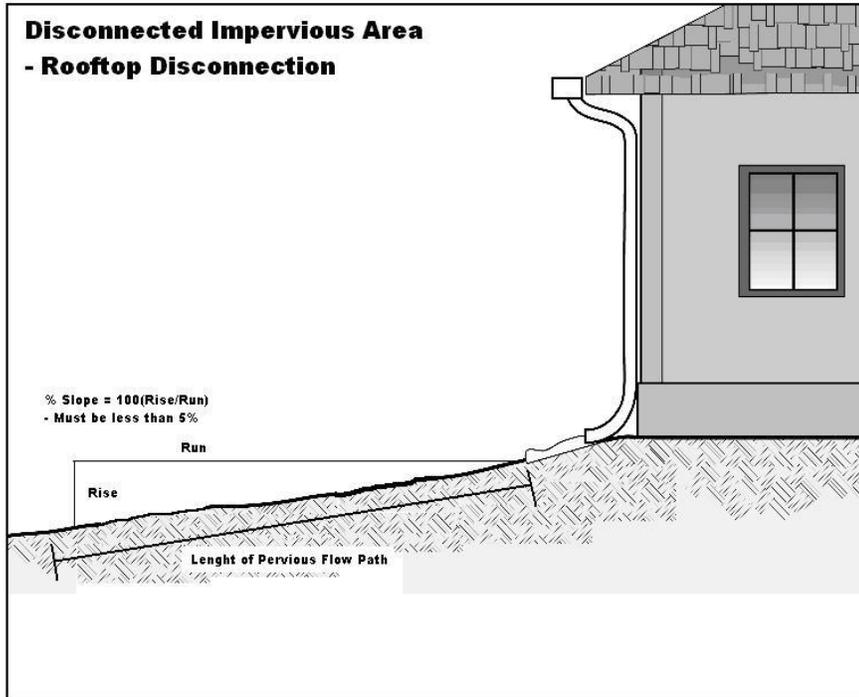
Step 4: Step 4 of the Warwick Township Stormwater Management Worksheet provides guidance regarding the preparation of a Small Project Stormwater Site Plan, as outlined in this Design Manual, for approval by Warwick Township. This includes determining the types, sizes, and location of proposed Stormwater BMPs to be employed for a given project. The worksheets, Small Project Stormwater Site Plan, and Owner Acknowledgement will be brought to Warwick Township for approval. Warwick Township will use this submission as a record to keep a running total of proposed impervious area since the adoption of the Warwick Township Stormwater Management Ordinance, and to monitor the installation of the required Stormwater BMPs necessary to support the project.

VI. DISCONNECTED IMPERVIOUS AREA (DIA):

When impervious surface areas like rooftops and paved areas are directed to a pervious area that allows for infiltration, filtration, and increased time of concentration, the impervious surface areas may qualify to be treated as Disconnected Impervious Area (DIAs).

Rooftop Disconnection: A rooftop is considered to be completely disconnected if it meets the requirements listed below.

- The overland flow path from roof runoff discharge point has a positive slope of five percent (5%) or less.
- The length of the overland flow path is greater than 75 feet.
- Soils along the overland flow path are not classified as wetlands, i.e. infiltration is at least 1 inch per 24-hour day.
- The receiving pervious area shall not include another person's property.



Note: Downspout not required.

Determining Status of Rooftop DIA:

Step 1: Determine contributing area of the roof to each disconnected discharge (downspout).

Step 2: Determine the length of down slope pervious flow path available for each disconnected discharge.

Step 3: Determine the % slope of the pervious flow path, % slope = (rise/ run) x 100. Must be 5% or less.

Step 4: See the Partial Rooftop Disconnection table to determine the percentage of the area that can be treated as disconnected. If the available length of the flow path is equal to or greater than 75 ft, the discharge qualifies as entirely disconnected.

Partial Rooftop Disconnection		
Length of Pervious Flow Path* (ft) Lots 10,000 ft ² and Under	Length of Pervious Flow Path* (ft)	Roof Area Treated as Disconnected
0 – 7.9	0 – 14	0%
8 – 15.9	15 – 29	20%
16 – 22.9	30 – 44	40%
23 – 29.9	45 – 59	60%
30 – 34.9	60 – 74	80%
35 or more	75 or more	100%

*Pervious flow path must be at least 15 feet from any impervious surface and cannot include impervious surfaces.

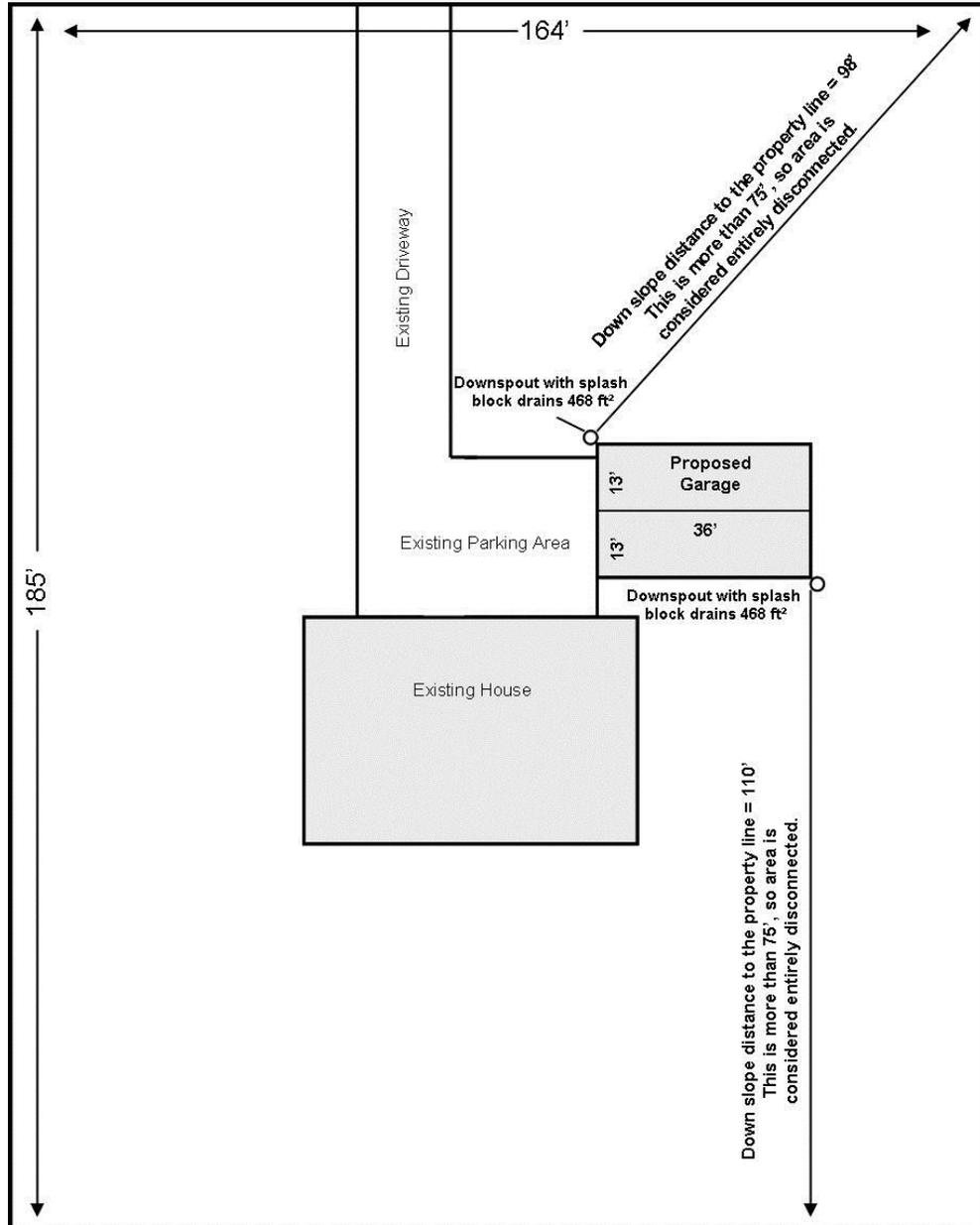
Other Impervious Surface Disconnection: When runoff from other impervious surfaces is directed to a pervious area that allows for infiltration, filtration, and increased time of concentration, the contributing impervious surface may qualify as disconnected. Other impervious surfaces include all non-rooftop surfaces, including but not limited to driveways, parking areas, walkways, porches, and decks. With regard to driveways, parking areas, and walkways, this analysis applies to only small or narrow facilities. Features such as commercial parking lots or commercial entrance / circulation drives shall not be included in this analysis. Other impervious surfaces can be considered disconnected if they, or the adjacent areas, meet the following requirements:

- The contributing flow path over the impervious area is not more than 75 feet.
- The length of overland flow is greater than or equal to the maximum length of flow over the impervious area.
- The slope of the contributing impervious area is five percent (5%) or less.
- The slope of the overland flow path is five percent (5%) or less.
- If discharge is concentrated at one or more discrete points, no more than 1,000 ft² may discharge to any one point. In addition, a gravel strip or other spreading device is required for concentrated discharges. For non-concentrated discharges along the entire edge of paved surface, a level spreader is not required; however, there must be provisions for the establishment of vegetation along the paved edge and temporary stabilization of the area until the vegetation is established.

REFERENCE: Philadelphia Water Department. 2006 & 2011. Stormwater Management Guidance Manual. Section 4: Integrated Site Design. Philadelphia, PA.

Example Project: The following example determines the status of DIA for a proposed 936 ft² garage.

This example meets the Disconnected Impervious Area criteria. to be exempted from the volume, rate, and SWM Site Plan requirements of the Warwick Township Stormwater Management Ordinance.



Step 1: Determine the area to each disconnected discharge. The area draining to each downspout is 468 ft².

Step 2: The discharge on the north side of the garage has a 98 ft pervious flow path available. The south discharge has 110 ft pervious flow path available.

Step 3: The rise of the north discharge is 2 ft and the run is 75 ft for a slope of 2.6%. This is 5% or less so it qualifies. For the south discharge the rise is 4 ft and the run is 100 ft equaling a slope of 4%. This is 5% or less, so it qualifies.

Step 4: Both of these discharges have pervious flow paths greater than 75 ft, so they qualify as entirely disconnected.

VII. Small Project Stormwater Site Plan Requirements

A Small Project Stormwater Site Plan depicts the existing conditions of a property and the location of proposed impervious surfaces. Depicting the relationship between the proposed 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 Small Project Stormwater Site Plan, the applicant may prepare and submit to Warwick Township a Small Project Stormwater Site Plan and the Warwick Township Stormwater Management Worksheet. The Lancaster County GIS Office can provide assistance to applicants to obtain property maps of existing features. A Small Project Stormwater Site Plan depicting the key features of the site must be drawn to scale and show the following:

- 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, shed, addition, etc.) and any 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, tree lines and other vegetation on the property and within 50 feet of the property line for lots smaller than 5 acres.
- 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, etc.).
- Wells and on-site septic systems.

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

- Location and size of proposed Stormwater BMPs.

Other Considerations for Small Project Stormwater Management Plans:

- While soil testing is not mandatory for Small Project 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 Warwick Township), at the discretion of Warwick Township.
- Water quality shall be protected per Chapter 93 of PA Code.
- Warwick 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 Small Project 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 *Guide to Choosing Stormwater BMPs*, as may be updated or amended (see Appendix C of the Lancaster County Stormwater Management Plan), the *PA Stormwater Management BMP Manual*, or other written guidance acceptable to Warwick Township.
- Proposed sump pumps shall discharge to infiltration or vegetative Stormwater BMPs to the maximum extent practicable.

VIII. Selecting Stormwater BMPs

If the submission of a Small Project Stormwater Management Plan including the use of Stormwater BMPs is required, the applicant should review the compiled information in the *Guide to Choosing Stormwater BMPs*, as may be updated or amended (see Appendix C of the Lancaster County Stormwater Plan), as taken from the *PA Handbook of Best Management Practices for Developing Areas* and the *PA Stormwater Management BMP Manual*. These documents identify Stormwater BMPs that have been deemed to be of a nature and cost that will accomplish the goals of the Warwick Township Stormwater Ordinance, 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.

IX. Stormwater Management Worksheets

For Warwick Township Use and Record of Project Area

Property Owner's Name _____

Address of Property _____

Parcel ID # _____

Phone Number _____ New Impervious Area Associated with this Project _____

Stormwater Management Submission Type: _____ Small Project
 _____ Stormwater Management Plan

Total New Impervious Area Since Adoption of SWM Plan _____

Acknowledgement - I declare that I am the property owner, or representative of the owner, and that the information provided is 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 _____

Step 1: Determine the amount of new impervious surface 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 June 21, 2006 are not included in this calculation. Use additional sheets if necessary.

Calculate new impervious area by completing this table.

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)					

- If the total new impervious surface area is **less than or equal to 1,000 ft²**, the project is eligible to be exempted from the requirement to submit a Small Project Stormwater Site Plan or a SWM Site Plan. Sign Acknowledgement and file this sheet with Warwick Township.

- If total new impervious surface area is **greater than 1,000 ft², and less than or equal to 2,500 ft²**, continue to Step 2.
- If the total new impervious surface area is **greater than 2,500 ft²** then a Stormwater Management Plan shall be submitted in accordance with the Warwick Township Stormwater Management Ordinance.

Step 2: Determine Disconnected Impervious Area (DIA). All or parts of new impervious surfaces may qualify as Disconnected Impervious Area if runoff is directed to a pervious area that allows for infiltration, filtration, and increased time of concentration. The volume of stormwater that needs to be managed could be reduced through DIA.

Rooftop Disconnection Criteria

- Overland flow path from the discharge area or impervious area has a positive slope of 5% or less.
- Soils are not classified as wetlands
- The receiving pervious area shall not include another person’s property.

Paved Disconnection Criteria: Other impervious surfaces (driveways, walkways, porches, decks, etc.) and gravel can be considered disconnected if it meets the criteria above and:

- Runoff does not flow over impervious area for more than 75 feet.
- The length of overland flow is greater than or equal to the contributing flow path.
- The slope of the contributing impervious areas is 5% or less.
- If discharge is concentrated at one or more discrete points, no more than 1,000 ft² may discharge to any one point. In addition, a gravel strip or other spreading device is required for concentrated discharges. Non-concentrated discharges along the entire edge of paved surface must include provisions for the establishment of vegetation along the paved edge and temporary stabilization of the area until the vegetation is established.
- If these criteria can be met, the DIA credit = 0.

Partial Rooftop Disconnection		
Length of Pervious Flow Path (ft) Lots ≤ 10,000 ft ²	Length of Pervious Flow Path (ft)	DIA Credit Factor
35 or more	75 or more	0
30 – 34.9	60 – 74	0.2
23 – 29.9	45 – 59	0.4
16 – 22.9	30 – 44	0.6
8 – 15.9	15 – 29	0.8
0 – 7.9	0 - 14	1.0
Pervious flow path must be at least 15 feet from any impervious surface		

Using the calculations from Step 1, complete the table below. This will determine the impervious area that may be excluded from the area that needs to be managed through stormwater BMPs. If the total impervious area to be managed = 0, the area can be considered entirely disconnected.

Surface	Proposed Impervious Area	x	DIA Credit	=	Impervious Area (ft ²) to be Managed
Buildings (area to each downspout)		x		=	
Driveway		x		=	
Parking Areas		x		=	

Patios/ walkways		x		=	
Other		x		=	
Total Proposed Impervious Surface Area to be managed (Sum of all impervious areas)					

- If the total new impervious surface area can be entirely disconnected, sign Acknowledgement and file worksheets with Warwick Township.
- If the total new impervious surface area is **greater than 1,000 ft² and less than or equal to 2,500 ft²** and can not be entirely disconnected, continue to Step 3.
- If the total new impervious surface area is **greater than 2,500 ft²** and cannot be disconnected, the project may not be submitted with a Small Project Stormwater Site Plan. Discontinue this worksheet and prepare a SWM Site Plan in accordance with Article IV of the Warwick Township Stormwater Management Ordinance.

Step 3: 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 2)	x	1.0 in/12 in = 0.083	=	Amount of Stormwater to be Managed (ft ³)
	X	0.083	=	

Step 4: Determine the techniques to be used to manage the stormwater volume calculated in Step 3 and prepare the Small Project Stormwater Management Plan. Use the following information to determine the BMPs to be used to manage the proposed stormwater volume.

Where permitted by Warwick Township, planting of new trees may be used to manage a portion of the proposed stormwater volume. First, calculate the cubic feet of stormwater that can be managed by planting new trees. If the criteria below can be met, planting of new trees can be used to manage a portion of the proposed stormwater volume:

Deciduous Trees = 6 ft³ per tree Evergreen Trees = 10 ft³ per tree

Criteria:

- Trees must be PA native species (See PA Stormwater BMP Manual for a list)
- Trees shall be a minimum 1” caliper tree and 3 feet tall shrub (min)
- Trees shall be adequately protected during construction
- No more than 25% of the required capture volume can be mitigated through the use of trees
- Dead trees shall be replaced by the property owner within 12 months
- Please consider the specifications for each tree species when determining location and spacing

Amount of Stormwater to be Managed (ft ³) (Sum of Step 3)	-	Tree Planting Credit (ft ³)	=	Amount of Stormwater to be Managed (ft ³)
	-		=	

Subtract the stormwater volume that can be managed by tree planting from the overall stormwater volume calculated in Step 3. The remaining cubic feet of stormwater must be managed through the installation of properly sized Stormwater BMPs. Select BMPs and size according to the volume of stormwater that needs to be managed.

Alternatively, 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)											
		250	500	750	1000	1500	2000	2500	3000	3500	4000	4500	5000
Bioretention	Ex. Rain garden, Vegetated swale	21	42	62	83	125	166	208	249	291	332	374	415
		ft ³ or	ft ³ or	ft ³ or	ft ³ or	ft ³ or	ft ³ or	ft ³ or	ft ³ or	ft ³ or	ft ³ or	ft ³ or	ft ³ or
Infiltration	Ex. Dry well, Infiltration trench	53	105	155	208	313	415	520	623	728	830	935	1,038
		ft ³	ft ³	ft ³	ft ³	ft ³	ft ³	ft ³	ft ³	ft ³	ft ³	ft ³	ft ³

(Source: Lycoming County Planning Department)

The Simple BMP Sizing table is used as follows. After subtracting the stormwater volume that can be managed through the planting of new trees, match the remaining 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 foot of new impervious surface area could be accommodated by an 83 cubic foot bioretention system. Bioretention systems such as a 13’x 13’x 1.5’ rain garden or a 36’x 2’x 3.5’ vegetated swale could be used to achieve this storage volume.

Once the sizing of necessary stormwater BMPs has been determined, prepare the necessary information required Small Project Stormwater Site Plan and submit to Warwick Township for review and approval. Bring the worksheets, BMP information (size, location, etc.), Owner Acknowledgement, and BMP Facilities and Maintenance Agreement (if applicable) to Warwick 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. Warwick 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 Small Project Stormwater Site Plan

OWNER ACKNOWLEDGMENT

- Development activities shall begin only after Warwick Township approves the Small Project Stormwater Site Plan.
- The installed Stormwater BMPs will not adversely affect any property, septic systems, or drinking water wells on this or any other property.
- If, after approval of the Small Project by Warwick Township, the applicant wishes to pursue alternative stormwater management measures in support of the project, the applicant will submit revised Small Project information and worksheets to Warwick 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 engineer, landscape architect or surveyor.
- The applicant acknowledges that the proposed Disconnected Impervious Area and/or Stormwater BMPs will be a permanent fixture of the property that can not be altered or removed without approval by Warwick Township.

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 Small Project Stormwater Site Plan, the Warwick Township Stormwater Worksheet, and the Stormwater Management / BMP Facilities and Maintenance Agreement (if applicable) will be adhered to.

Applicant Acknowledgement of Submission

Signature: _____

Date: _____

Warwick Township Acknowledgement of Receipt

Signature: _____

Date: _____

<< Title >>

X. STORMWATER MANAGEMENT / BMP FACILITIES AND MAINTENANCE AGREEMENT

STORMWATER MANAGEMENT/ BMP FACILITIES AND MAINTENANCE AGREEMENT

THIS AGREEMENT, made and entered into this ____ day of _____, 20____, by and between _____ hereinafter called the “Landowner,” and Warwick Township, Lancaster County, Pennsylvania, hereinafter called the “Township.”

WHEREAS, the Landowner is the owner of certain real property described as (Lancaster County Tax Map / Parcel Identification Number) _____ as recorded by deed in the land records of Lancaster County, Pennsylvania, Book _____ Page _____, hereinafter called the “Property”;

WHEREAS, the Landowner is proceeding to build on and develop the property; and

WHEREAS, the Small Project Stormwater Site Plan, which is expressly made a part hereof, as approved or to be approved by the Township, provides for detention of stormwater within the confines of the property through the use of Stormwater Best Management Practices (Stormwater BMPs); and

WHEREAS, The Township and the Landowner, its successors and assigns, agree that the health, safety, and welfare of the residents of the Township, require that on-site Stormwater BMPs be constructed and maintained on the Property; and

WHEREAS, The Township requires that on-site Stormwater BMPs as shown on the Small Project Stormwater Site Plan be constructed and adequately maintained by the Landowner, its successors and assigns. Any additional requirements imposed by the Township are considered part of the Small Project Stormwater Site Plan.

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

1. The Landowner in accordance with the specifications identified within the Small Project Stormwater Site Plan shall construct the onsite Stormwater BMPs.
2. The Landowner, its successors and assigns, shall adequately maintain the Stormwater BMPs. This includes all pipes and channels built to convey stormwater to the facility, 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.
3. The Landowner, its successors and assigns, shall inspect the Stormwater BMPs after all rainfall events exceeding one inch of precipitation in a 24-hour period.

4. The Landowner, its successors and assigns, hereby grant permission to the Township, its authorized agents and employees, to enter upon the Property without prior notification at reasonable times and upon presentation of proper identification to inspect the Stormwater BMPs whenever the Township deems necessary.

5. In the event the Landowner, its 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 Property and take whatever action is deemed necessary to maintain said Stormwater BMPs and to charge the costs of such repairs to the Landowner, its successors and assigns. This provision shall not be construed to allow the Township to erect any structure of permanent nature on the land of the Landowner unless such structures 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.

6. 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 Landowner 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.

7. The intent and purpose of this Agreement is to ensure the proper maintenance of the Stormwater BMPs by the Landowner. This Agreement shall not be deemed to create any additional liability of any party for damage alleged to result from or be caused by nonpoint source pollution runoff. This Agreement imposes no liability of any kind whatsoever on the Township and the Landowner agrees to hold the Township harmless from any liability in the event the Stormwater BMPs fail to operate properly. In the event that a claim is asserted against the Township, its designated representatives or employees, the Township 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 Township shall be allowed, the Landowner shall pay all costs and expenses regarding said judgment.

8. This Agreement shall be binding to the Landowner, its administrators, executors, assigns, heirs and any other successors in interests, in perpetuity.

Landowner:

Signature: _____

Date: _____

Printed Name: _____

Warwick Township:

Signature: _____

Date: _____

Printed Name: _____

Title: _____

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 **WARWICK TOWNSHIP**,
Lancaster County, Pennsylvania, a municipal corporation duly organized under the laws
of the Commonwealth of Pennsylvania, with its municipal office located at 315 Clay
Road, P. O. Box 308, Lititz, Pennsylvania (hereinafter referred to as the "Township").

BACKGROUND

Grantor is the owner of premises located at _____
_____, in the Township of Warwick, 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 Warwick Township Stormwater Management Ordinance (hereinafter "SWM
Ordinance").

Grantor's Small Project Stormwater Site Plan, which is expressly made a part
hereof, 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, 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.

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.

WARWICK 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.

