

TOWNSHIP OF PINE
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SMALL PROJECT STORMWATER MANAGEMENT SITE PLAN GUIDANCE

This small project stormwater guidance has been developed to assist those proposing residential projects to meet the requirements of the *Allegheny County Stormwater Management Plan* Model Ordinance without having to hire professional services to draft a formal stormwater management plan. This small project site plan is only permitted for projects with earth disturbances between one-twentieth (0.05) acre and one quarter (0.25) acre of earth disturbance and containing less than 5000 square feet of impervious surface and using *The Simplified Method* (CG-2 in the BMP Manual³) for Volume Control as described in Section 303.B. Additional information can be found in Chapter 6 of the Pennsylvania Stormwater Best Management Practices Manual. Applicants proposing use of this methodology shall complete and submit for review a Small Development Stormwater Management Plan Application, as included herein.

By following the simple steps outlined below in the provided example, an applicant can determine the runoff volume that is required to be controlled and how to size a typical stormwater facility to permanently remove the runoff volume from the site. Impervious area calculations must include all (new) areas on the lot proposed to be covered by roof area or pavement which would prevent rain from naturally percolating into the ground, including impervious surfaces such as sidewalks, driveways, parking areas, patios or swimming pools. Sidewalks, driveways or patios that are designed and constructed to allow for infiltration are not included in this calculation.

Site Plan Example: Controlling runoff volume from a proposed home site

Step 1: Determine Total New Impervious Surfaces Proposed with the Project

Impervious Surface (Example)	Dimensions (feet)		Area (square feet)
House Footprint	40' X 48'	=	1,920
Accessory Structure Footprint	28' X 40'	=	1,120
Concrete/Paved Driveway	16' X 50'	=	800
Sidewalks and Patios	12' X 10'	=	120
Total:			3,960

Step 2: Determine Required Volume Control (cubic feet) using the following equation:

Volume (cu. ft.) = (Total impervious area in square feet x 2 inches of runoff) /12 inches

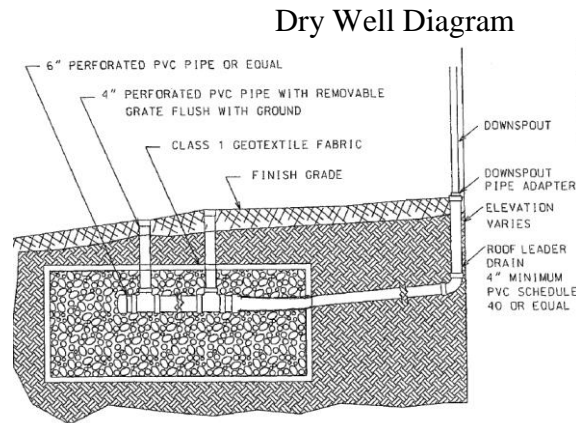
(3,960 sq. ft. x 2 inches of runoff) /12 inches = **660 cubic feet (volume control required)**

Step 3: Sizing the Volume Control BMP

A typical Best Management Practices (BMP), as described below, is suitable for small stormwater management projects. However, their application depends on the volume required to be controlled, how much land is available, and the site constraints. Proposed residential development activities can apply both nonstructural and structural BMPs to control the volume of runoff from the site. Additional BMP options identified in section §84-125 of the Township of Pine Code can be utilized. The included "Dry Well" example is a typical BMP commonly used for stormwater management on residential lots.

1. Dry Well (a.k.a., Seepage Pit)

A Dry Well, sometimes called a Seepage Pit, is a subsurface storage facility that temporarily stores and infiltrates stormwater runoff from the roofs of structures. By capturing runoff at the source, Dry Wells can dramatically reduce the increased volume of stormwater generated by the roofs of structures. Roof leaders connect directly into the Dry Well, which may be either an excavated pit filled with uniformly graded aggregate wrapped in geotextile, or a prefabricated storage chamber or pipe segment. Dry Wells discharge the stored runoff via infiltration into the surrounding soils. In the event that the Dry Well is overwhelmed in an intense storm event, an overflow mechanism (surcharge pipe, connection to a larger infiltration area) will ensure that additional runoff is safely conveyed downstream.



Sizing Example for Dry Well:

1. Determine the required infiltration volume:
 $(3,960 \text{ sq. ft.} \times 2 \text{ inches of runoff}) / 12 \text{ ft.} = 660 \text{ cu. ft.} / 0.4^* = 1,650 \text{ cu. ft.}$
(*0.4 assumes 40% void ratio in gravel bed)

2. Sizing the infiltration trench facility:

Volume of Facility = Depth x Width x Length

Final dry well dimensions: 8 ft. (D) x 10ft. (W) x 20.6 ft. (L)

Design Considerations:

- Dry Wells typically consist of clean washed, uniformly graded aggregate with 40% void capacity (AASHTO No. 3, or similar). “Clean” gravel fill should average one and one-half to three (1.5 – 3.0) inches in diameter.
- Dry Wells are not recommended when their installation would create a significant risk for basement seepage or flooding. In general, 10 - 20 feet of separation is recommended between Dry Wells and building foundations.
- The facility may be either a structural prefabricated chamber or an excavated pit filled with aggregate.
- Stormwater dry wells must never be combined with existing, rehabilitated, or new septic system seepage pits. Discharge of sewage to stormwater dry wells is strictly prohibited.
- As shown in the Figure, the installation should include a surcharge or overflow pipe

Maintenance:

- Dry wells should be inspected at least four (4) times annually as well as after large storm events.
- Remove sediment, leaves, debris/trash, and any other waste material from a dry well.
- Regularly clean out gutters and ensure proper connections to the dry well.
- Install a filter screen to intercept the roof runoff as necessary when leaves or debris are common.

Small Project Stormwater Management Plan Application

(for small projects proposing less than 5000 square feet of impervious surfaces)

Based upon the information you have provided a *Stormwater Plan Is Required* for this development activity and the project is eligible for review as a small development. The Municipal Stormwater Management Ordinance allows for submission of a simplified stormwater management plan for small developments.

Regulated activities shall be conducted only after the Municipality approves a stormwater management plan. The Stormwater Management Ordinance will assist you in preparing the necessary information and plans for the Township to review and approve. ***This document will constitute an approved plan*** if all the relevant details are installed in their entirety AND no part of the stormwater system adversely affects any other property, nor adversely affects any septic systems or drinking water wells on this, or any other, parcel. If an alternative system is to be used a plan will need to be submitted to the Township for approval. A design by a qualified professional may be required for more complex sites.

Table 1: Calculate Total of New Impervious Surfaces

Length (ft.)	X	Width (ft.)	=	Proposed Impervious Area (sq. ft.)
Total New Impervious Surfaces Proposed (cannot exceed 5000 square feet in total area)				

Table 2: Calculate Runoff Volume Required to be Managed

Impervious Surface (sq. ft.) From Table 1	X	Runoff Depth (in)	÷	12 in/ft	=	Total Runoff Volume to be Managed (cu ft)
	x	2	÷	12	=	

Table 3: Proposed Structural BMP Volume

BMP Type	Length (ft)	X	Width (ft)	X	Depth (ft)	X	Void Space	=	Volume Managed (cu ft)
Dry Well		x		x		x	0.40	=	

NOTE: The proposed Stormwater Management Plan can include one or more types of BMP's constructed as a single structure or multiple structures placed a minimum of 10' separation on the building lot. Alternate BMP types and designs can be referenced in section §84-125 of the Township of Pine Code or the Pennsylvania Stormwater Best Management Practices Manual.

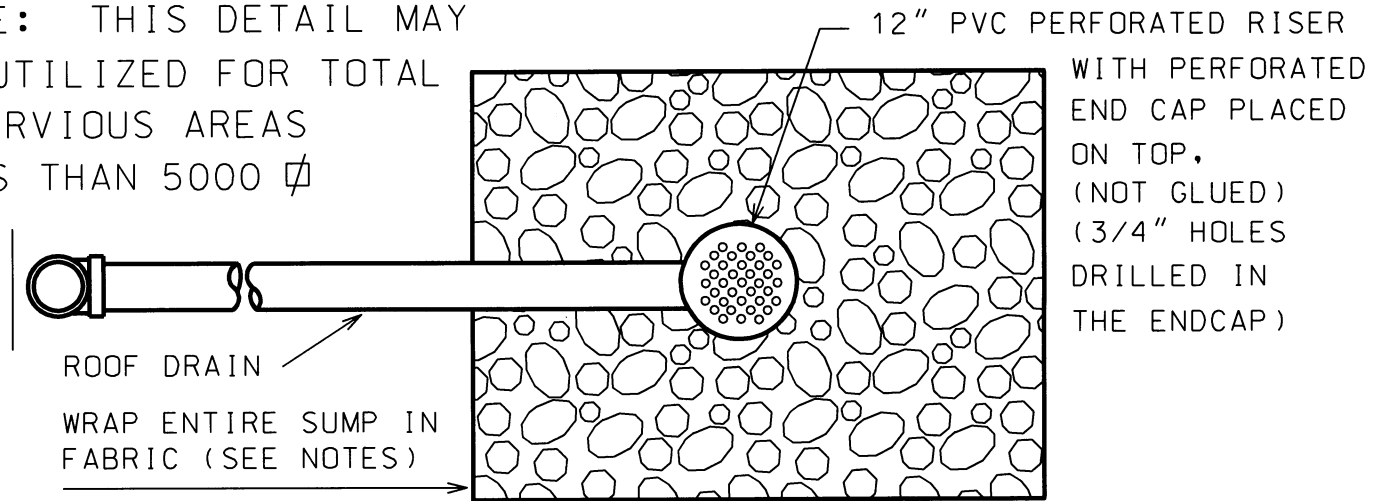
Acknowledgement – By executing below, the Property Owner acknowledges the following:

1. I declare I am the owner or authorized owner's agent of the property.
2. The information provided is accurate.
3. I further acknowledge that municipal representatives are granted access to the above described property for review and inspection as may be required.
4. I acknowledge that all structural BMP's constructed on my lot will be maintained in accordance with Pine Township Code section §84-125

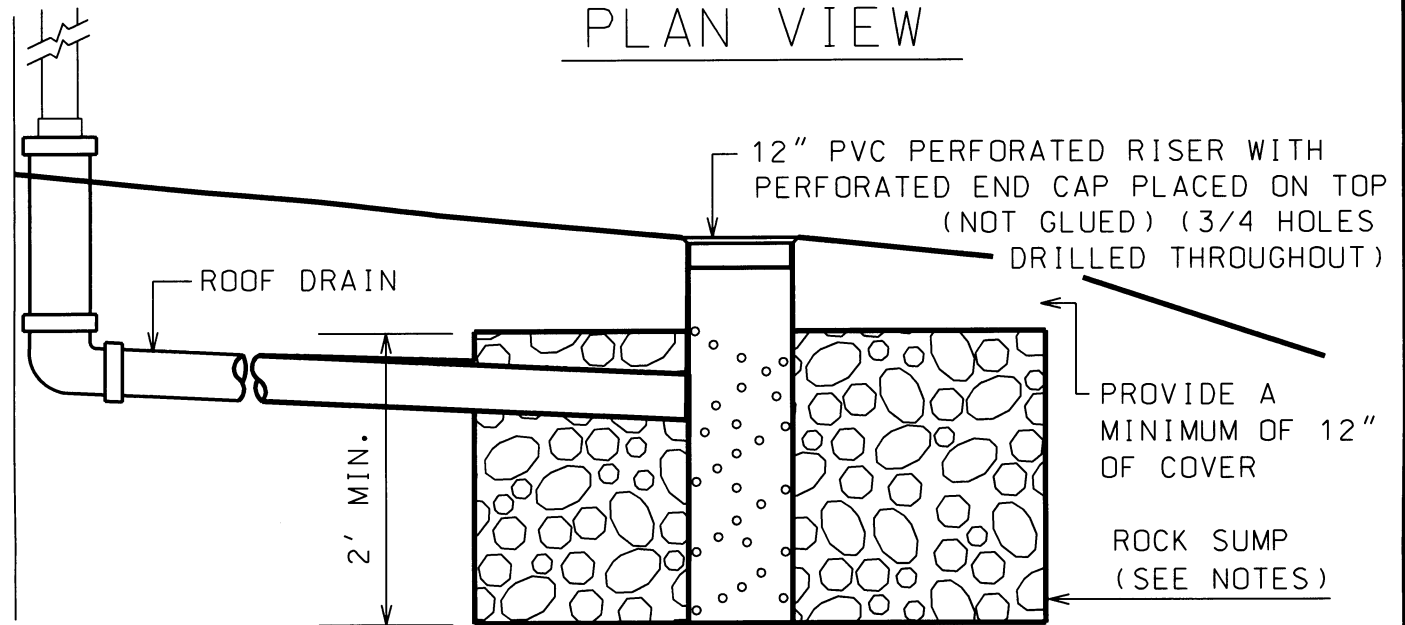
Owner/Agent _____

Date _____

NOTE: THIS DETAIL MAY BE UTILIZED FOR TOTAL IMPERVIOUS AREAS LESS THAN 5000 \square



PLAN VIEW



SECTION

1. PLACE SUMP IN UNDISTURBED SOILS. NO PLACEMENT IN FILL SOILS PERMITTED.
2. ALL SUMPS SHALL BE A MINIMUM OF 10' FROM HOUSE OR PROPERTY LINES.
3. SUMP TO BE FILLED WITH AASHTO #1 STONE WITH VOID CONTENT OF 35% OR MORE, OR APPROVED EQUIVALENT (SEE DETAIL GN-1)
4. PVC ROOF LEADER TO BE INSTALLED IN UNDISTURBED SOIL OR COMPACTED BACKFILL.
5. IMPERVIOUS AREA GREATER THAN 5000 \square IN AREA REQUIRE THE SUBMISSION OF A STORMWATER MANAGEMENT REPORT PREPARED BY AN ENGINEER LICENSED IN THE STATE OF PENNSYLVANIA.

DATE: SEPTEMBER 2007
REV: DECEMBER 2018

Scale: N.T.S.

TOWNSHIP OF PINE
Standard Details
Detail
ROCK SUMP DETAIL