

UPPER SALFORD TOWNSHIP REDUCED STORMWATER MANAGEMENT PLANNING WORKSHEET

Why am I required to do this?

Upper Salford Township has adopted an ordinance to regulate certain activities that affect stormwater runoff and surface and groundwater quantity and quality. This Ordinance was created to comply with certain requirements specified by the Pennsylvania Department of Environmental Protection. Because your project does not meet all of the exemption criteria as noted in the Ordinance, you have chosen to complete this simplified worksheet and installation of a best management practice (BMP) to satisfy the purpose and intent of the Ordinance.

Who is affected by these requirements?

The stormwater management requirements affect all NEW development in Upper Salford Township. This worksheet has been created for those projects who do not comply with the exemption criteria in full as noted in the Ordinance. Although applicants are not required to submit formal drainage plans to the Township under this scenario; they are still required to address water quality and groundwater recharge criteria specified in the Ordinance. This worksheet assists the resident in accomplishing both under a simplified approach.

Do I require professional services to complete this worksheet?

This worksheet has been developed to assist the individual resident in meeting the water quality and groundwater recharge goals of this Ordinance. If the guidelines presented in this worksheet are followed, the individual resident will not require professional services to comply with these water quality and groundwater recharge goals. However, you may require a professional contractor or excavator to install the final design on your property.

What do I need to send to the Municipality?

Even though a formal drainage plan is not required for individual lot owners meeting the exemption criteria, a brief description of the proposed infiltration facilities, including types of material to be used, total impervious areas and volume calculations as shown below, and a simple sketch plan showing the information below shall be submitted to the Township Engineer prior to construction. Upon approval of this information, you may proceed with installing your stormwater management control. Please note that all systems must be inspected and approved by the Township Engineer.

- Location of proposed structures, driveways, or other paved areas with approximate size in square feet.
- Location of any existing or proposed on-site septic system and/or potable water wells showing rough proximity to infiltration facilities.

Determination of Recharge Volume

The area of the required recharge bed that should be provided to meet the intent of the Ordinance can be determined using the following procedure.

STEP 1 – Determine Total Proposed Impervious Surfaces (driveway+house footprint+patios/etc.) minus any Impervious Surfaces to be Removed (NET INCREASE).

Enter total value in square feet: _____

STEP 2 – Multiply the value in Step 1 by 0.1 (1.2 inches rainfall/12 inches/foot).

Enter this value (in cubic feet) here: _____

STEP 3 – Divide the value in Step 2 by 0.40 (void ratio for aggregate).

Enter this value (in cubic feet) here: _____

STEP 4 - The value in Step 3 is the minimum volume required for the infiltration facility. Divide the value in Step 3 by 2 feet (this is the depth of the infiltration facility).

Enter this value (in square feet) here: _____

STEP 5 – Determine the area of the infiltration facility (length x width) based on trial and error to meet the minimum value in Step 4. This value will yield the dimensions of the footprint of the infiltration facility.

Example Sizing:

STEP 1: Suppose proposed impervious surface = 1000 square feet; determine Total Impervious Surfaces (driveway+house footprint+patios/etc.) with 0 square feet being removed. Enter total value in square feet: **1000 feet**

STEP 2 – Multiply the value in Step 1 by 0.1 (1.2 inches rainfall/12 inches/foot).

Enter this value (in cubic feet) here: **1000 * 0.1 = 100 cubic feet**

STEP 3 – Divide the value in Step 2 by 0.40 (void ratio for aggregate).

Enter this value (in cubic feet) here: **100 / 0.40 = 250 cubic feet**

STEP 4 - The value in Step 3 is the minimum volume required for the infiltration facility. Divide the value in Step 3 by 2 feet (this is the depth of the infiltration facility).

Enter this value (in square feet) here: **250 / 2 = 125 square feet**

STEP 5 – Determine the area of the infiltration facility (length x width) based on trial and error to meet the minimum value in Step 4. This value will yield the dimensions of the footprint of the infiltration facility.

The width of the trench should be greater than 2 times its depth (2 x D); therefore, in this example a trench width of 4 feet is selected;

Determine trench length: $L = 125 \text{ sq. ft.} / 4 \text{ ft.} = 31.25 \text{ ft.}$

Final trench dimensions: 2 ft. (D) x 4 ft. (W) x 32 ft. (L)

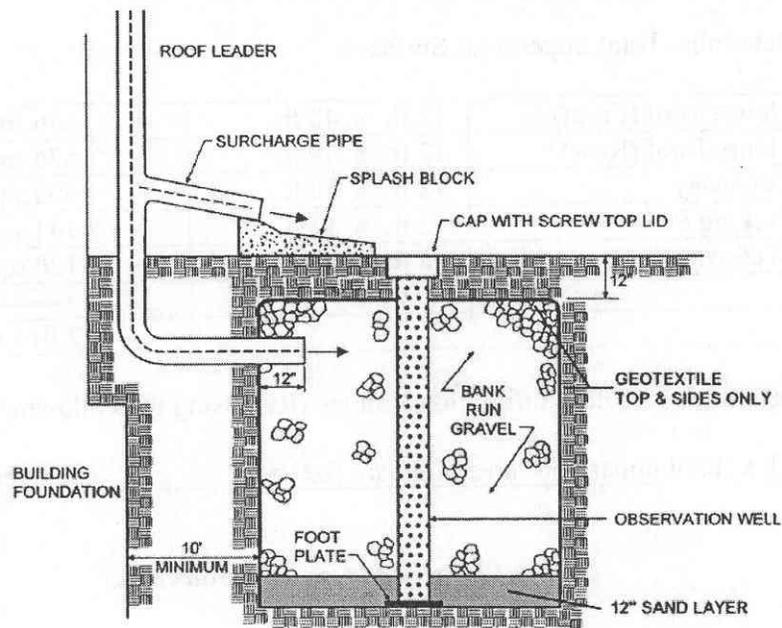
Sizing of Select Infiltration Method

The following pages show several methods of infiltrating stormwater runoff from residential areas. Their appropriateness depends on the amount of infiltration volume required and the amount of land available. More than one method can be implemented on a site, depending on site constraints. Dry wells should be used only for receiving runoff from roof drains. Infiltration trenches are appropriate for receiving runoff from roof drains, driveways, sidewalk, or parking areas. Other methods may be appropriate, but these should be discussed with the Township Engineer prior to installation.

Dry Wells

Dry wells are effective methods of infiltrating runoff from roof leaders. These facilities should be located a minimum of ten (10) feet from the building foundation to avoid seepage problems. A dry well can be either a structural prefabricated chamber or an excavated pit filled with aggregate. Construction of a dry well should be performed after all other areas of the site are stabilized to avoid clogging. During construction, compaction of the subgrade soil should be avoided, and construction should be performed with only light machinery. Depth of dry wells in excess of three and one half (3½) feet should be avoided. Gravel fill should be an average one and one half to three (1.5 – 3.0) inches in diameter. Dry wells should be inspected at least four (4) times annually as well as after large storm events.

FIGURE B-1
TYPICAL DRY WELL CONFIGURATION



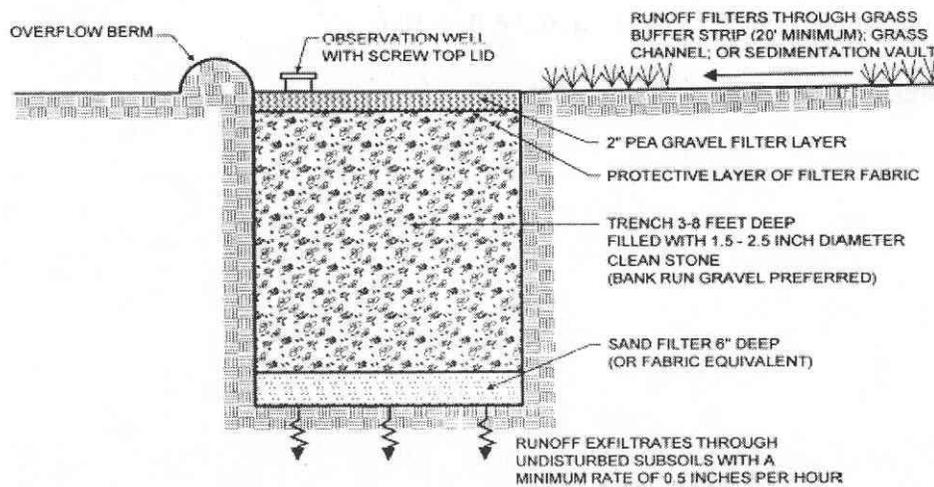
Source: Maryland Stormwater Design Manual

Infiltration Trenches

An infiltration trench is a long, narrow, rock-filled trench with no outlet that receives stormwater runoff. Runoff is stored in the void space between the stones and infiltrates through the bottom and into the soil matrix. Infiltration trenches perform well for removal of fine sediment and associated pollutants. Pretreatment using buffer strips, swales, or detention basins is important for limiting amounts of coarse sediment entering the trench which can clog and render the trench ineffective.

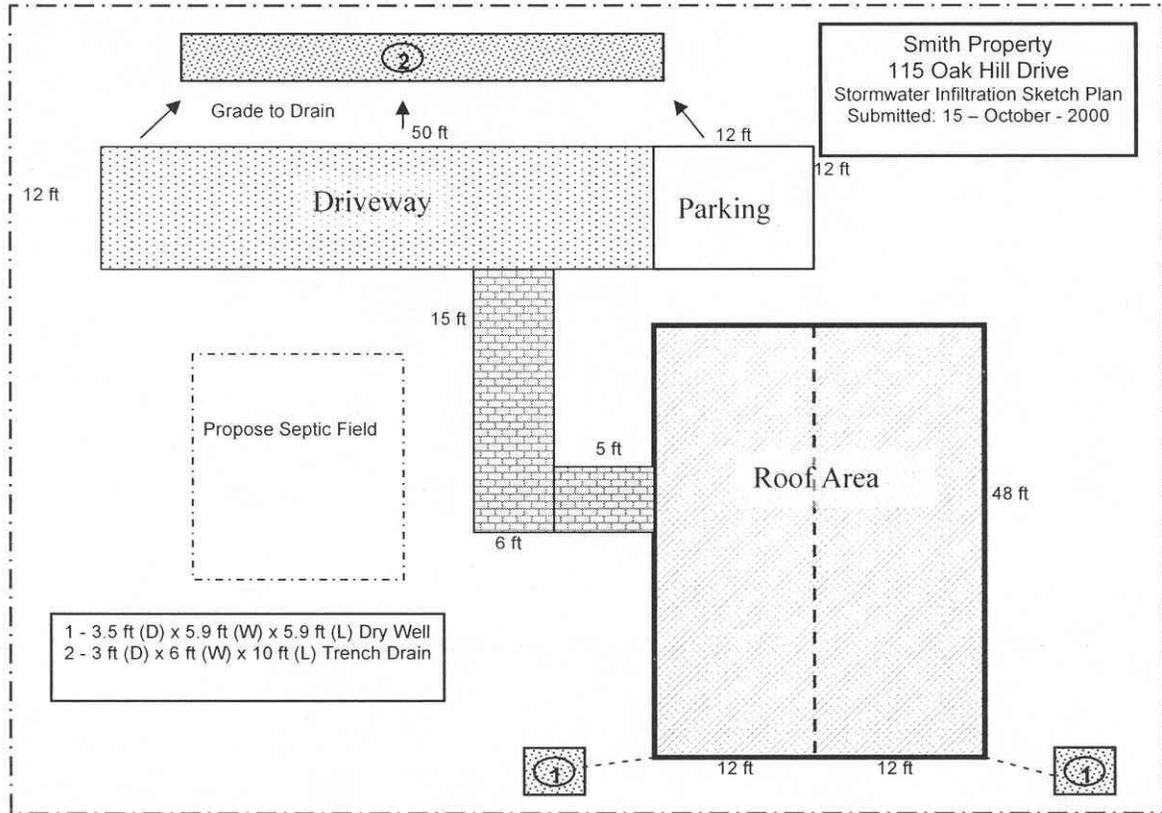
FIGURE B-2

TYPICAL INFILTRATION TRENCH CONFIGURATION



Source: Maryland Stormwater Design Manual

FIGURE B-3
SAMPLE SITE SKETCH PLAN



Source: Maryland Stormwater Design Manual