UPPER SALFORD TOWNSHIP SIMPLIFIED STORMWATER MANAGEMENT PLANNING WORKSHEET

Why am I required to do this?

Upper Salford Township has adopted an ordinance, as required by the PA Dept. of Environmental Protection, to regulate certain activities that affect stormwater runoff and surface and groundwater quantity and quality. The stormwater management requirements affect all NEW development in Upper Salford Township. Because your project does not meet all of the exemption criteria as noted in the Ordinance, you are required to install stormwater management controls to address water quality and groundwater recharge. Your project qualifies to utilize the simplified stormwater method in order to design an underground stone infiltration trench to address the stormwater requirements. The attached worksheet will assist you in designing the stone trench to comply with the Ordinance requirements.

Do I require professional services to complete this worksheet?

This worksheet has been developed so that the individual resident can design a stone infiltration trench to meet 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. If you wish to utilize a stormwater management method other than an infiltration trench as the worksheet proposes, you will need to retain a professional consultant.

What do I need to send to the Municipality?

Even though a formal drainage plan is not required for projects meeting the exemption critieria, the simplified method must be utilized to address the groundwater recharge and water quality requirements. This method requires the following to be submitted to the Township for review and approval:

1) Stormwater Management Application
2) Simplified Method Stormwater Worksheet
3) Plot Plan showing location and dimensions of existing buildings/driveway and proposed improvements; distance of existing and proposed improvements to lot lines and well/septic locations; and location/dimensions of proposed stone infiltration trench.
4) Infiltration Trench Detail with proposed dimensions (length/width) indicated.

Upon approval of this information, a Stormwater Operations & Maintenance Agreement will be sent to you for your review and execution. This agreement serves to ensure continual proper operation and maintenance of the facility. The Agreement shall be signed and notarized and returned to the Township for recording at the County.

Please note that all systems must be inspected and approved by the Township Engineer.

UPPER SALFORD TOWNSHIP
STORMWATER MANAGEMENT (SWM) SITE PLAN APPLICATION

Application is hereby made for review of the Stormwater Management (SWM) and Erosion and Sediment Control (E&S) Plans and related data as submitted herewith in accordance with Upper Salford Township's Stormwater Management Ordinance.

☐ Reduced Stormwater Plan / Worksheet ☐ Stand-alone, Engineered SWM Plan

1. Date Of Submission: _____

2. Name Of Subdivision Or Development: _____

3. Name of Property Owner(s): _____
   Address: _____ Phone No.: _____
   Tax Parcel No.: _____ Email: _____

4. Name of Applicant (if other than owner): _____
   Address: _____
   Phone No.: _____ Email: _____

5. Type of Development/Construction Proposed: _____

6. Area of Proposed and Existing Impervious Area On Entire Tract:
   Existing (To Remain): _____ Existing (To Be Removed): _____
   Proposed: _____

7. Wetlands / Waterbodies
   A. Do wetlands exist on or adjacent to the property? ☐ Yes (See Below)
      ☐ No (Continue to 7.B)
      a. Have the wetlands been delineated by someone trained in wetland delineation? ☐ Yes ☐ No
      b. Total acreage of wetland within the property? _____ (acres)
      c. Total acreage of wetland disturbed? _____ (acres)
      d. Type of supporting documentation enclosed _____

   B. Do any perennial or intermittent watercourses exist on the property? ☐ Yes (See Below)
      ☐ No (Continue to 8)
      a. If yes, are any crossings necessary? ☐ Yes (See Below) ☐ No (Continue to 8)
      b. If crossings are necessary, has State or General permitting been obtained? ☐ Yes ☐ No

8. General
   A. Is the required fee attached? ☐ Yes ☐ No Amount: _____
      Reduced Stormwater Worksheet - $750 Engineered Stormwater Plan - $1500

For Reduced Stormwater Plans Only (#9):

9. Proposed Stormwater Method: ☐ Infiltration Trench ☐ Other _____
   Size: _____
   *Provide Plot Plan showing proposed location of improvements and infiltration trench.

For Engineered Plans Only (#10-12):

10. Firm which Prepared the Plan: _____
    Address: _____
    Person Responsible for the Plan: _____
    Phone No.: _____ Email: _____

11. Stormwater Design
    A. Type of Facilities Proposed: _____

    B. Does the proposed stormwater design meet the requirements and guidelines of the Stormwater Ordinance? ☐ Yes ☐ No (If "No", provide waiver request letter with justification for requested waivers)

    C. Is a Cost Estimate of Improvements Attached? ☐ Yes ☐ No

    D. Is a Stormwater Operations & Maintenance Program Attached? ☐ Yes ☐ No

    E. Who will have ultimate maintenance responsibility of the stormwater control facilities?
    _____

12. Erosion & Sediment Control (E&S)
    A. Area of Disturbance: _____ (in square feet or acres)

    B. For projects with disturbance >5,000 SF and < 1 Acre, has the SWM and E&S Plans and Supporting Documentation been submitted to the Montgomery County Conservation District? ☐ Yes ☐ No

    C. For projects with disturbance >/= 1 Acre, has an NPDES permit application been submitted to the Montgomery County Conservation District / PADEP? ☐ Yes ☐ No

The undersigned hereby represents that, to the best of his knowledge and belief, all information listed above is true, correct, and complete.

_____ _____, 20_____
Signature of Landowner or Applicant Date

_____ _____, 20_____
Signature of Engineer (if applicable) Date

FOR TOWNSHIP USE ONLY

Township Official Submission Receipt:

Date Complete Application Received: _____

Fee required: _____ Date Fees Paid: _____ Received By: _____

TEI project # _____

Determination of Recharge Volume

The area of the required stone infiltration trench 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 + new building 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.

Final Dimensions: 2' Deep x ____' Long x _____' Wide

<u>Example Sizing</u>:

STEP 1: Proposed impervious surface = 1000 square feet; with 0 square feet to be removed; determine Total Impervious Surfaces (1000 – 0) 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**

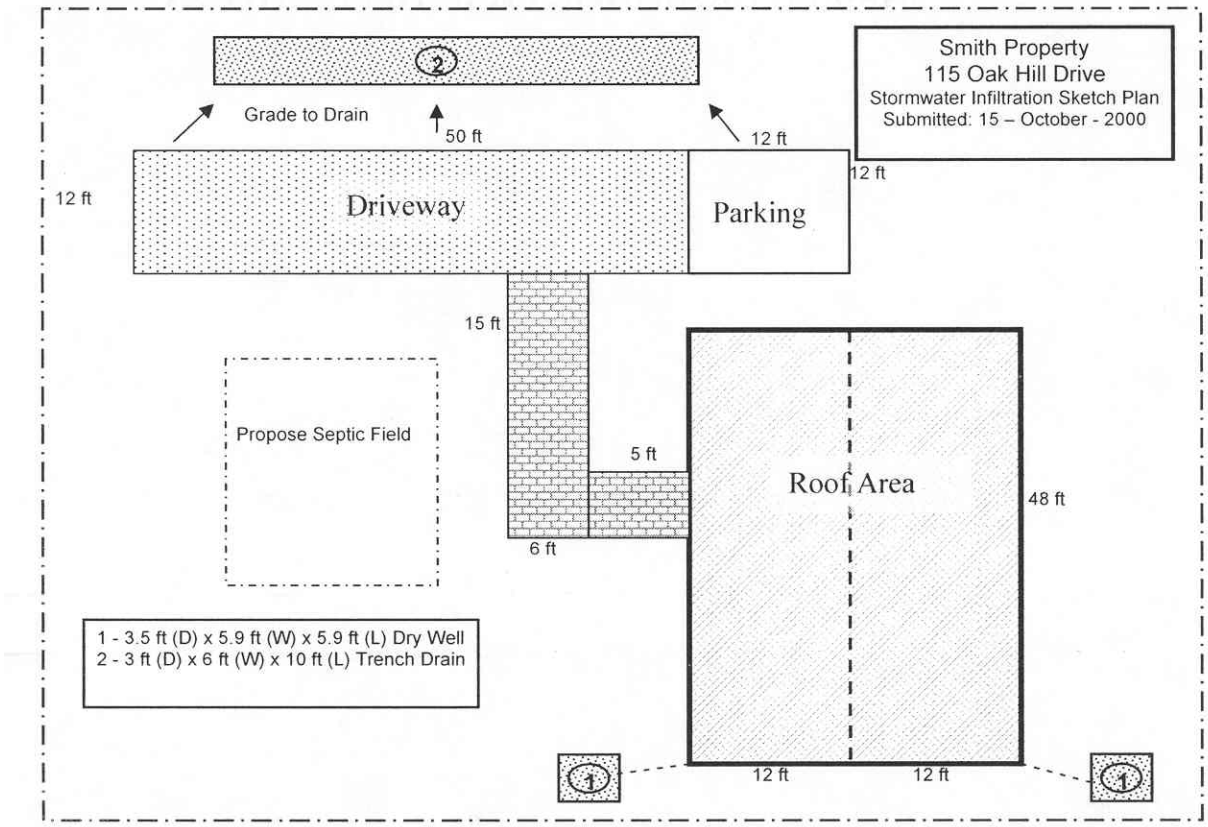
STEP 4 - The value in Step 3 is the minimum volume required for the infiltration facility. Divide the value in Step 3 by 2 feet (this is the depth of the infiltration facility).
Enter this value (in square feet) here: **250 / 2 = 125 square feet**

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 sq. ft. /4 ft. = 31.25 ft.
Final trench dimensions: 2 ft. (D) x 4 ft. (W) x 32 ft. (L)

FIGURE B-1

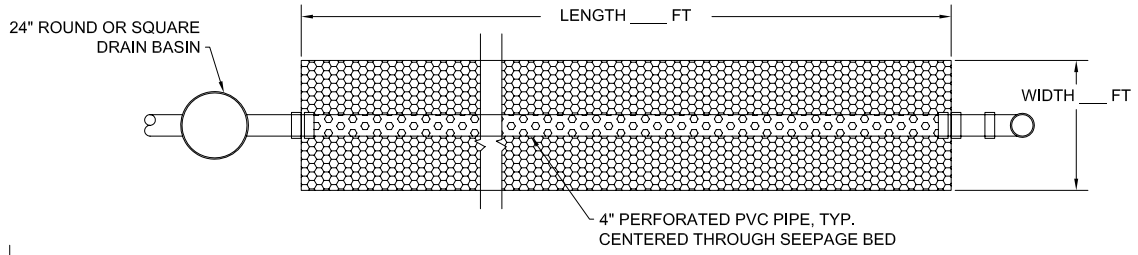
SAMPLE SITE SKETCH PLAN



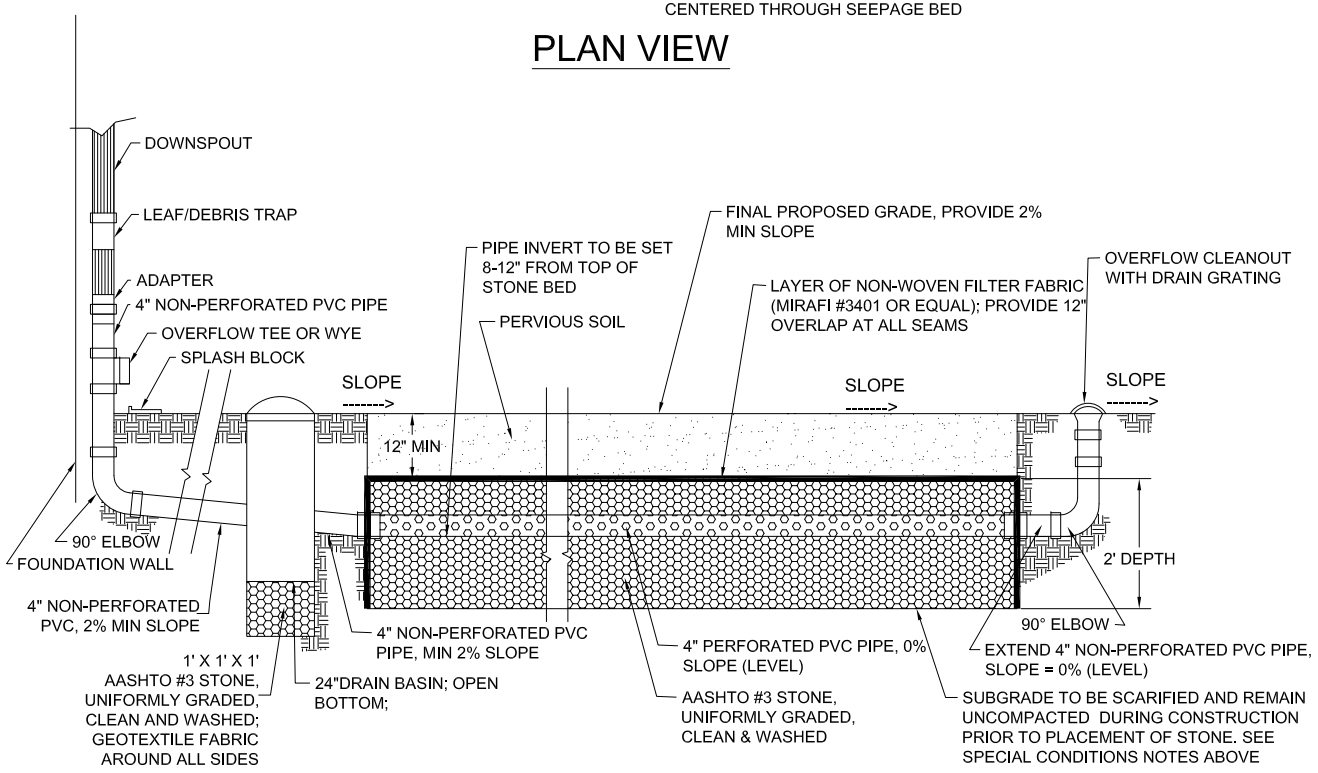
Source: Maryland Stormwater Design Manual

FIGURE B-2: SIMPLIFIED STORMWATER METHOD - INFILTRATION TRENCH DETAIL

STONE INFILTRATION TRENCH CONSTRUCTION DETAIL



PLAN VIEW



CROSS SECTION

GENERAL NOTES:

1. STONE INFILTRATION BED SHALL BE SIZED PER PROPOSED IMPERVIOUS SURFACE DRAINING TO IT.
2. STONE SHALL BE AASHTO #3, UNIFORMLY GRADED, CLEAN AND WASHED, WITH 40% VOID RATIO.
3. LEAF SCREENS SHALL BE INSTALLED OVER GUTTERS OR LEAF DEFLECTOR GUARDS INSTALLED IN THE DOWNSPOUT, OR OTHER APPROVED LEAF PROTECTION DEVICE.
4. PROPERTY OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF STORMWATER FACILITIES IN ACCORDANCE WITH THE BRECKNOCK TOWNSHIP STORMWATER ORDINANCE, CHAPTER 93, AND THE RECORDED OPERATIONS & MAINTENANCE AGREEMENT.

CONSTRUCTION NOTES:

1. INSTALLATION OF STONE INFILTRATION TRENCH SHALL BE INSPECTED BY THE TOWNSHIP ENGINEER OR DESIGNATED REPRESENTATIVE, WITH A MINIMUM 24 HOURS NOTICE.
2. REQUIRED INSPECTIONS INCLUDE EXCAVATION - PRIOR TO PLACEMENT OF STONE; STONE/PIPING PRIOR TO TOP LAYER OF FABRIC; AND FINAL GRADING AND SEEDING. ADDITIONAL INSPECTIONS MAY BE NECESSARY AS DETERMINED BY TOWNSHIP ENGINEER.
3. PRIOR TO PLACEMENT OF STONE IN THE INFILTRATION TRENCH, THE CONTRACTOR OR PROPERTY OWNER SHALL MAKE A TEST PIT 2 FEET BELOW THE BOTTOM OF INFILTRATION TRENCH TO ENSURE THAT BEDROCK AND/OR GROUNDWATER ARE NOT PRESENT IN THIS ZONE; IF GROUNDWATER/BEDROCK IS ENCOUNTERED, IMMEDIATELY CONTACT THE TOWNSHIP ENGINEER TO DISCUSS REDESIGN AND RELOCATION OF THE INFILTRATION TRENCH.
4. EXCAVATION FOR THE INFILTRATION TRENCH SHALL BE PERFORMED WITH EQUIPMENT THAT WILL NOT COMPACT THE BOTTOM OF THE BED AREA.
5. INFILTRATION TRENCHES SHALL BE KEPT CLEAN OF SOIL/SEDIMENT DURING THE INSTALLATION PROCESS. IF INSPECTION INDICATES THAT SOIL HAS ENTERED THE INFILTRATION TRENCH, THEN APPROPRIATE MEASURES (IE CLEANING OF SOIL FROM FABRIC/STONE ETC. AND REPLACEMENT OF FABRIC/STONE) SHALL BE ADDRESSED.
6. AFTER INFILTRATION TRENCH IS INSTALLED, ALL HEAVY CONSTRUCTION EQUIPMENT SHALL BE RESTRICTED FROM THE TRENCH AREA TO ELIMINATE IMPACTS THAT MAY COMPROMISE IT. IN THE EVENT ANY IMPACTS COMPRISE THE FUNCTIONALITY OF THE INFILTRATION TRENCH, IT MUST BE IMMEDIATELY REPAIRED OR REPLACED TO DESIGN SPECIFICATIONS.

TRENCH DIMENSIONS:

FINAL TRENCH DIMENSIONS MAY VARY ACCORDING TO SITE CONDITIONS BUT FINAL DIMENSIONS MUST PROVIDE THE REQUIRED TRENCH VOLUME (LENGTH * WIDTH * DEPTH) AND BE APPROVED BY THE TOWNSHIP.