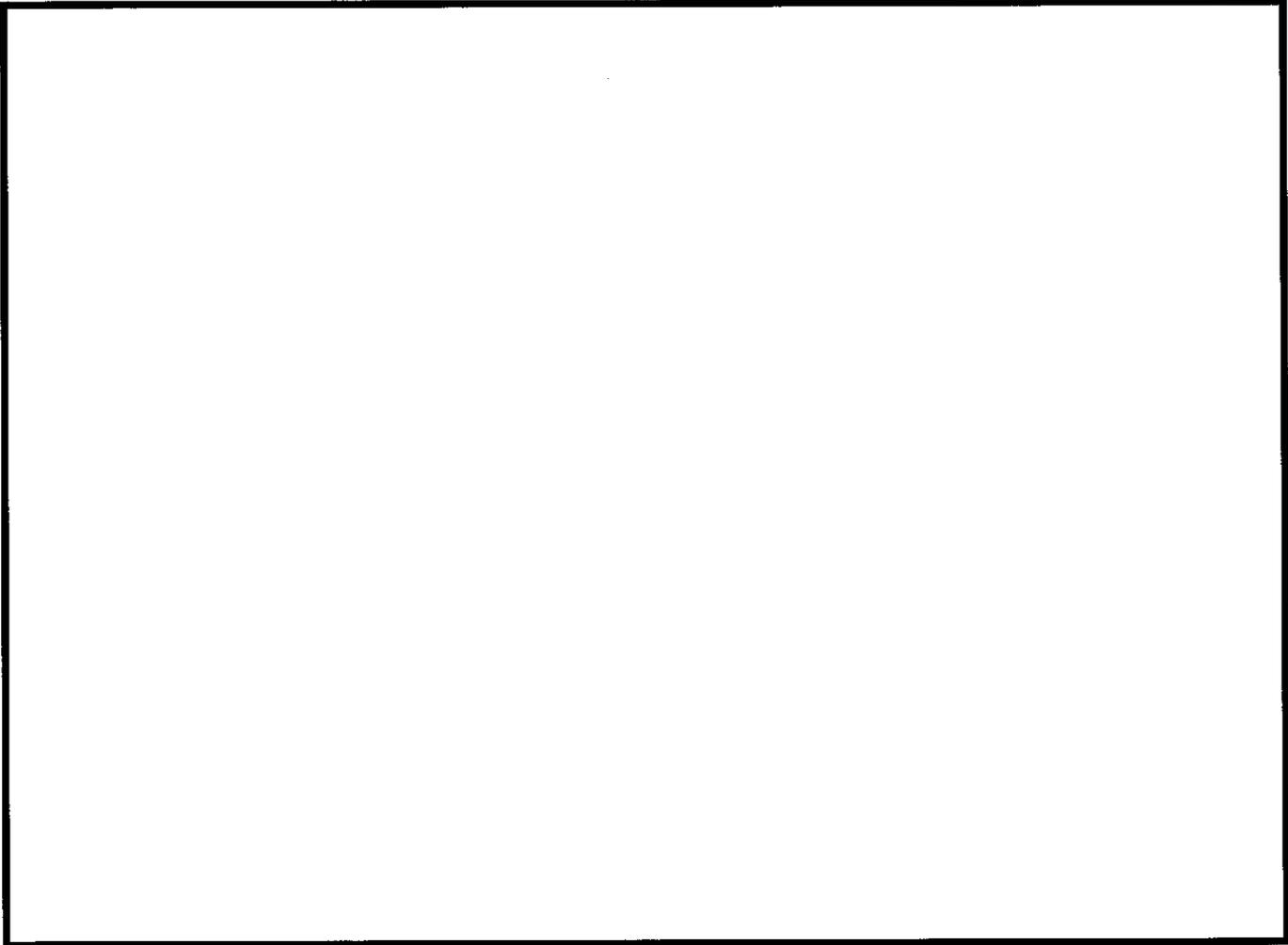


APPENDIX C
MINOR SWM PERMIT SITE DESIGN WORKSHEET



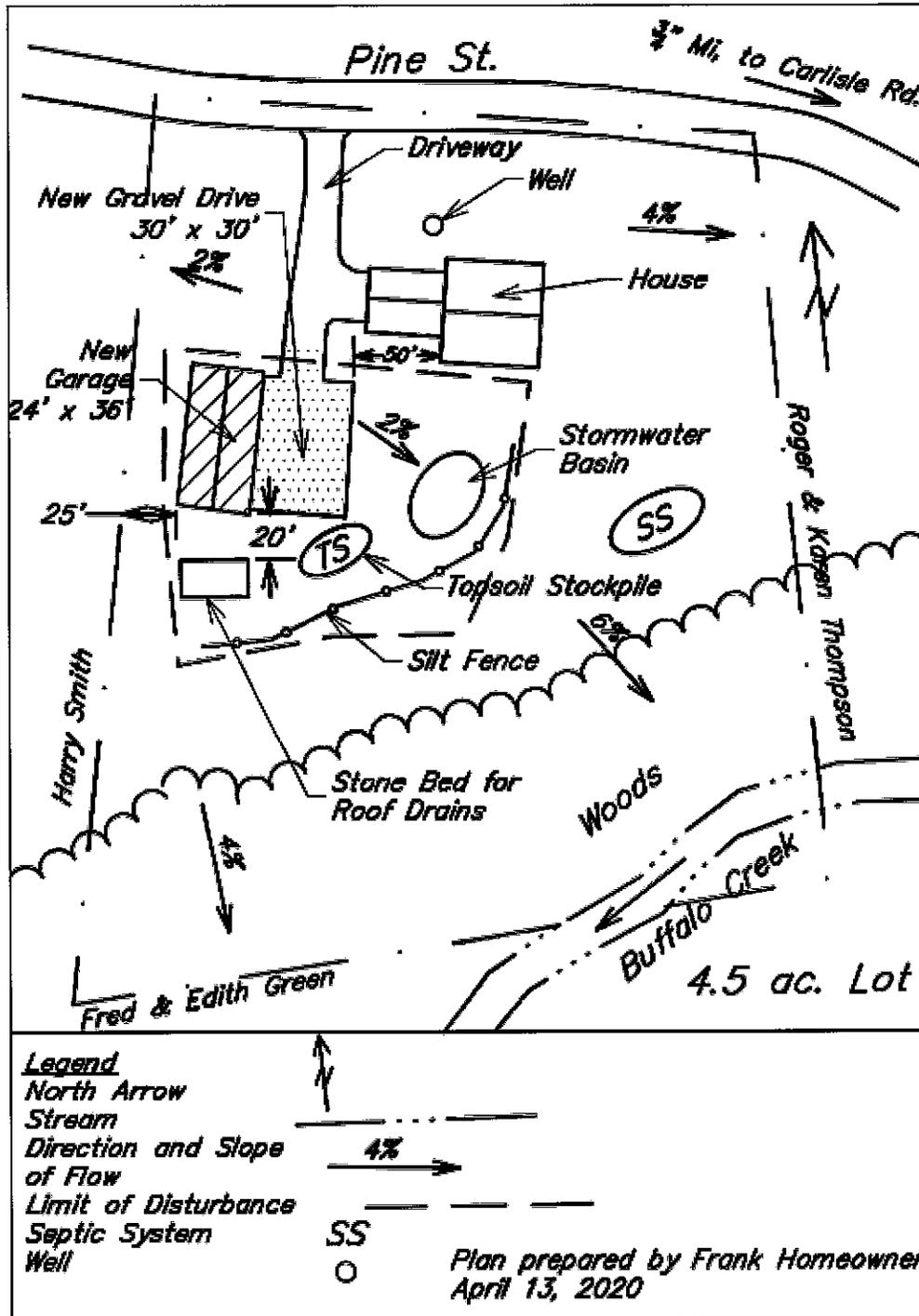
Draw a general site plan including the following: 1. The general layout of the property, including approximate lot lines and existing improvements; 2. All proposed improvements; 3. Flow arrows showing the direction of runoff; 4. The location of the proposed stormwater facilities. An example site plan is available on the following page.

By submitting this worksheet, the Applicant agrees:

1. To submit a Minor SWM Permit for Municipal approval with this Site Design Worksheet.
2. To direct all runoff from proposed impervious areas to the proposed stormwater facilities.
3. To construct the stormwater facilities in conformance with the details and calculations within this worksheet.
4. That the proposed regulated activity conforms to the requirements of the Londonderry Township Stormwater Management Ordinance, including but not limited to the provision of a 15 foot setback for stormwater facilities, and an O&M agreement.
5. That stormwater flows onto adjacent properties shall not be created, increased, relocated, significantly concentrated, or otherwise detrimentally altered without written approval from the affected property owner(s).
6. That stormwater management facilities are permanent fixtures and may not be modified, removed, filled, landscaped, have improvements placed within them, or otherwise be altered without written approval of Londonderry Township.
7. To provide Londonderry Township or its representatives access to the property for the purposes of inspecting SWM and ESC facilities.
8. That all construction shall follow the PADEP BMP Manual and E&S Manual, and that an E&S plan will be sent to the Dauphin County Conservation District for review of adequacy if earth disturbance is equal to or greater than 5,000 square feet.
9. That identification of sensitive natural features, such as wetlands or karst features, is the Applicant's responsibility, and that sensitive natural features on the site will not be encroached upon without proper permitting and/or Municipal approval.
10. That Londonderry Township and its representatives bear no design responsibility for the proposed improvements, including proposed SWM facilities. All design responsibility is borne by the Applicant, and the Applicant should consult with a professional if desired.
11. That the designs produced by utilizing this worksheet are likely conservative in nature.
12. To indemnify Londonderry Township and its representatives from any damage that may result from the proposed improvements, including stormwater management facilities.

Signature of Applicant: _____ Date: _____

Example Minor SWM Permit Site Plan

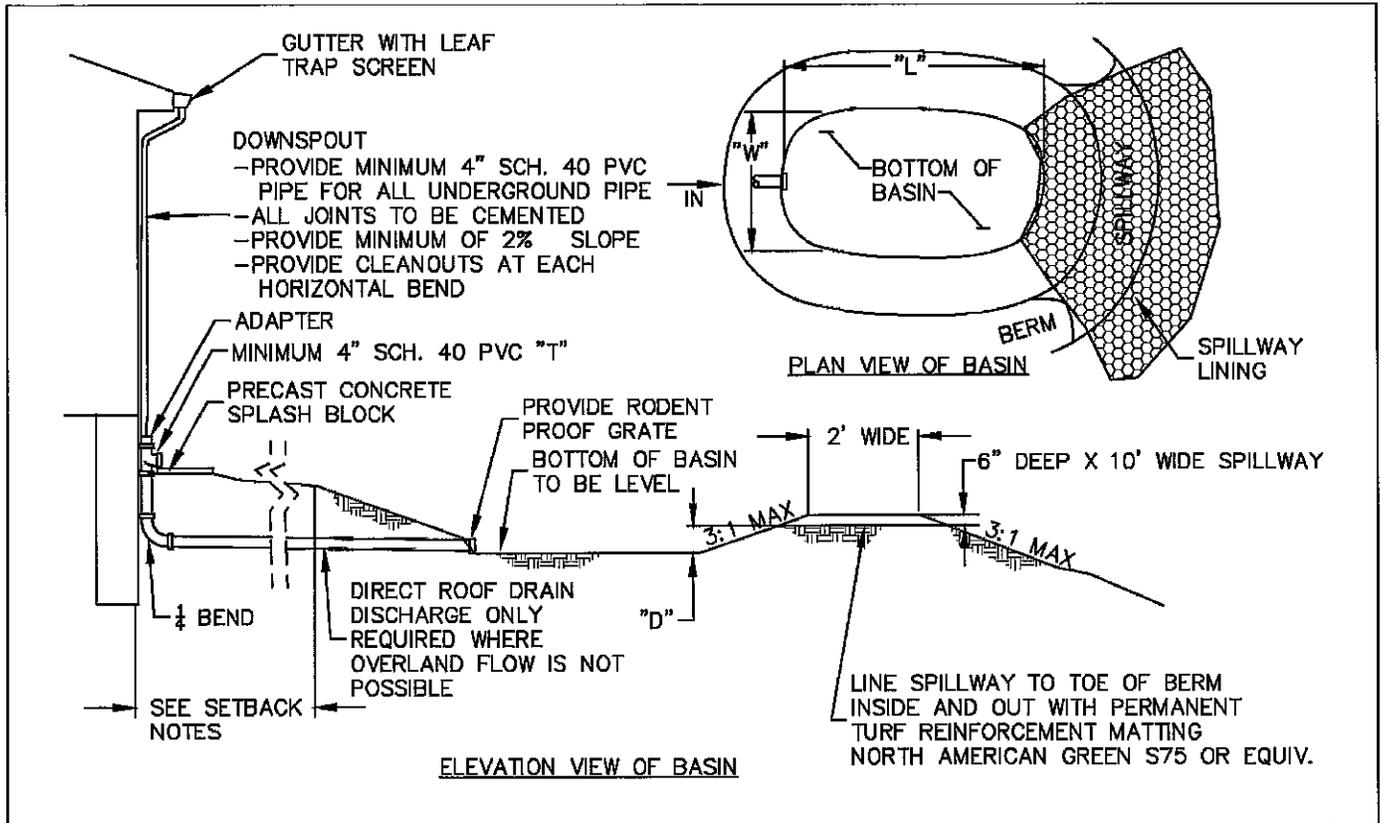


- Legend**
- North Arrow
 - Stream
 - Direction and Slope of Flow
 - Limit of Disturbance
 - Septic System
 - Well

Plan prepared by Frank Homeowner
April 13, 2020

Stormwater Facility Standard Details

Rain Garden



Notes

NOTE 1: Infiltration trenches may only be used for structures; infiltration basins may be used for all surfaces, including structures.

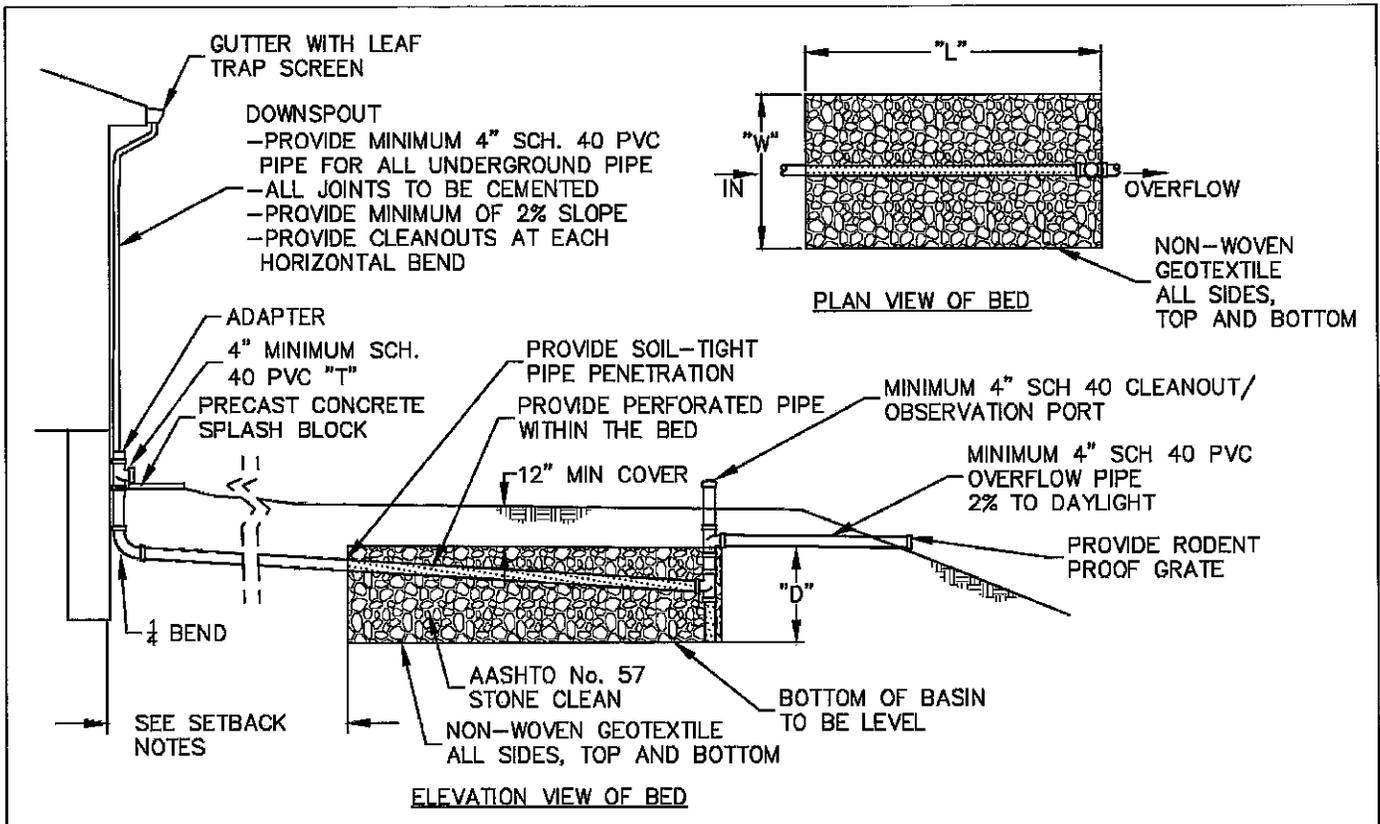
NOTE 2: Infiltration basins deeper than 3 feet may be required to be fenced upon guidance from the Township.

NOTE 3: No stormwater facility may be deeper than 6 feet.

NOTE 4: Any infiltration facilities located within HSG D, Applicant shall provide infiltration testing results that show adequate infiltration rates. See Appendix E for HSG map.

Stormwater Facility Standard Details

Infiltration Trench



NOTE 1: Infiltration trenches may only be used for structures; infiltration basins may be used for all surfaces, including structures.

NOTE 2: Infiltration basins deeper than 3 feet may be required to be fenced upon guidance from the Township.

NOTE 3: No stormwater facility may be deeper than 6 feet.

NOTE 4: Any infiltration facilities located within HSG D, Applicant shall provide infiltration testing results that show adequate infiltration rates (minimum 0.5 inches per hour). See Appendix E for HSG map.

Disconnected Impervious Area (DIA)

When rooftop or pavement runoff is directed to a pervious area that allows for infiltration, filtration, and increased time of concentration, the contributing rooftop or pavement area may qualify as a Disconnected Impervious Area (DIA). A rooftop or pavement area is considered to be a DIA if it meets the requirements listed below:

- The soil in proximity of the discharge area, is not designated as hydrologic soil group "D" or equivalent (see Appendix E – Hydrologic Soil Group Map).
- The overland flow path (pervious area serving as BMP) from discharge area has a positive slope of 10% or less.
- The length of overland flow path (pervious area serving as BMP) is greater than or equal to the contributing rooftop or pavement length.
- The length of overland flow path (pervious area serving as BMP) is greater than 25 feet.

If the discharge is concentrated at one or more discrete points, no more than 1,000 square feet of impervious area 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 edge of pavement, this requirement is waived; however, there must be a provision for the establishment of vegetation along the pavement edge and temporary stabilization of the area until vegetation becomes stabilized.

If rainspouts are discharged underground to provide infiltration, the portion of the impervious area draining to those rainspouts is waived from the DIA discharge requirements. Rainspouts discharged underground which are directly connected to a storm sewer system are not waived from the DIA requirements.

See Attached Disconnected Impervious Area worksheet.

Disconnected Impervious Area (DIA) Worksheet

Applicant Address:	Brief Description of Project:				
Nearest Waterbody:	No more than 1,000 sq. ft can discharge to one point on the surface. Number of discharge points required:				
Total Proposed Impervious Area(A):	Discharge Point 1	Discharge Point 2	Discharge Point 3	Discharge Point 4	Discharge Point 5
Total Earth Disturbance:	Area:	Area:	Area:	Area:	Area:
Are rainspouts discharged underground? (Y/N)	Impervious Path Length:	Impervious Path Length:	Impervious Path Length:	Impervious Path Length:	Impervious Path Length:
If yes, contributing impervious area (B):	Pervious Path Length:	Pervious Path Length:	Pervious Path Length:	Pervious Path Length:	Pervious Path Length:
Total Impervious Area Discharged on Surface (A) – (B)	Pervious Path Slope <10%? (Y/N)	Pervious Path Slope <10%? (Y/N)	Pervious Path Slope <10%? (Y/N)	Pervious Path Slope <10%? (Y/N)	Pervious Path Slope <10%? (Y/N)
HSG Soil Group from Appendix E – Hydrologic Soils Group Map (Cannot be “D” Soils):					
Project Sketch: Only show discharge points, slopes, and pervious flow path lengths:					

Stormwater Facility Calculations

(The following worksheets is only applicable to Minor SWM Permits)

How to calculate the size of your stormwater facility

1. Determine the area of your property available for the installation of stormwater facilities in terms of length and width (in feet). If large areas of your property are available, determine how much you would like to dedicate to the installation of stormwater facilities in terms of length and width.
2. Enter the length and width chosen into #1: (Facility Area) in the table below, and multiply them together. This will tell you the area (in square feet) that your stormwater facility will take up.
3. Determine the area of impervious surfaces you are proposing to construct that will discharge into the stormwater facility. For example, a 30 foot x 40 foot garage would be 1200 square feet. For surfaces that are not simple geometric shapes, you may need to get the area of impervious surfaces from your contractor.
4. Enter the area of impervious surfaces into #2: (Runoff Volume) in the table below, and multiply this by 0.2. This will tell you the volume of stormwater runoff the impervious surfaces are generating (in cubic feet).
5. Enter the runoff volume (#2 below) and the stormwater facility area (#1 below) into #3: (Facility Depth) in the table below. Divide #2 by #1. This will tell you how deep (in feet) your stormwater facility will need to be if it is an infiltration basin. **If you are proposing to construct an infiltration basin, skip step 6 and proceed to step 7.**
6. **If you are proposing to construct an infiltration trench**, enter the facility depth (#3 below) into #4: (Depth w/ Stone) in the table below, and divide by 0.4. This will tell you how deep (in feet) your stormwater facility will need to be since it is using stone. Stone takes up approximately 60% of the volume within an infiltration trench, so only 40% of the volume of the infiltration trench is available to actually store stormwater. Dividing by 0.4 compensates for this loss of runoff storage.
7. If your stormwater facility depth is greater than 6 feet, you will need to expand the area for the stormwater facility determined in #1 above, and repeat the above process until the depth is equal to or lesser than 6 feet.

Facility Name or #	1: Facility Area	_____ (L) x _____ (W)	SF
	2: Runoff Volume	_____ (Imp. Area to Facility) x 0.2	CF
	3: Facility Depth	_____ (#2) / _____ (#1)	F
	4: Depth w/ Stone	(TRENCHES ONLY) _____ (#3) / 0.4	F

NOTE: Extra tables provided below for repeat calculations or for extra facilities.

Facility Name or #	1: Facility Area	_____ (L) x _____ (W)	SF
	2: Runoff Volume	_____ (Imp. Area to Facility) x 0.2	CF
	3: Facility Depth	_____ (#2) / _____ (#1)	F
	4: Depth w/ Stone	(TRENCHES ONLY) _____ (#3) / 0.4	F

Facility Name or #	1: Facility Area	_____ (L) x _____ (W)	SF
	2: Runoff Volume	_____ (Imp. Area to Facility) x 0.2	CF
	3: Facility Depth	_____ (#2) / _____ (#1)	F
	4: Depth w/ Stone	(TRENCHES ONLY) _____ (#3) / 0.4	F

Facility Name or #	1: Facility Area	_____ (L) x _____ (W)	SF
	2: Runoff Volume	_____ (Imp. Area to Facility) x 0.2	CF
	3: Facility Depth	_____ (#2) / _____ (#1)	F
	4: Depth w/ Stone	(TRENCHES ONLY) _____ (#3) / 0.4	F