

APPENDIX E – SMALL PROJECTS SWM APPLICATION

APPENDIX E

SMALL DEVELOPMENT STORMWATER MANAGEMENT DESIGN CRITERIA

The design criteria included herein is a guideline that may be used for small development Project Plan stormwater BMP design. The applicant for a Small Development may also utilize Control Guideline 2 (CG-2) in the Pennsylvania Stormwater Best Management Practices Manual, Document Number: 363-0300-002, Effective Date: December 30, 2006, or latest revision. A copy of which is available at the Township or from PA DEP.

If the applicant for a Small Development Project Plan desires to utilize the guidelines herein, the following procedure shall be followed:

1. Determine total impervious area, using Figure C-1, Impervious Area Calculation.

If the Total new Impervious Surface Area is 500 Square Feet or less, read, acknowledge and sign below. Attach this page with your Building Permit or Grading Permit application and submit to the Township. No further action is required to meet the Stormwater Management Site Plan and Report requirements of this Ordinance; however, the applicant shall provide adequate stormwater management to meet the purposes of this Ordinance.

If the Total new Impervious Surface Area is greater than 500 Square Feet and less than 5,000 square feet Small Development Plan guidelines are applicable. Applicant shall proceed to Step 2 to determine required storage volume

If the Total new Impervious Surface Area is EQUAL TO OR EXCEEDS 5,000 Square Feet, Small Development Plan guidelines are NOT applicable. A Storm Water Management Site Plan and Report, in accordance with this Ordinance, are required to be submitted.

2. Determine required storage volume, using Figure C-2, Required Storage Volume.
 - a.) Applicant MAY reduce Required Storage Volume utilizing Credits herein, as applicable.
3. Show appropriate stormwater management BMPs on Project Plan, using Figure C-3, Roof Drain Sump Details, and Figure C-4, Rock Filled Trench Detail.

ACKNOWLEDGMENT

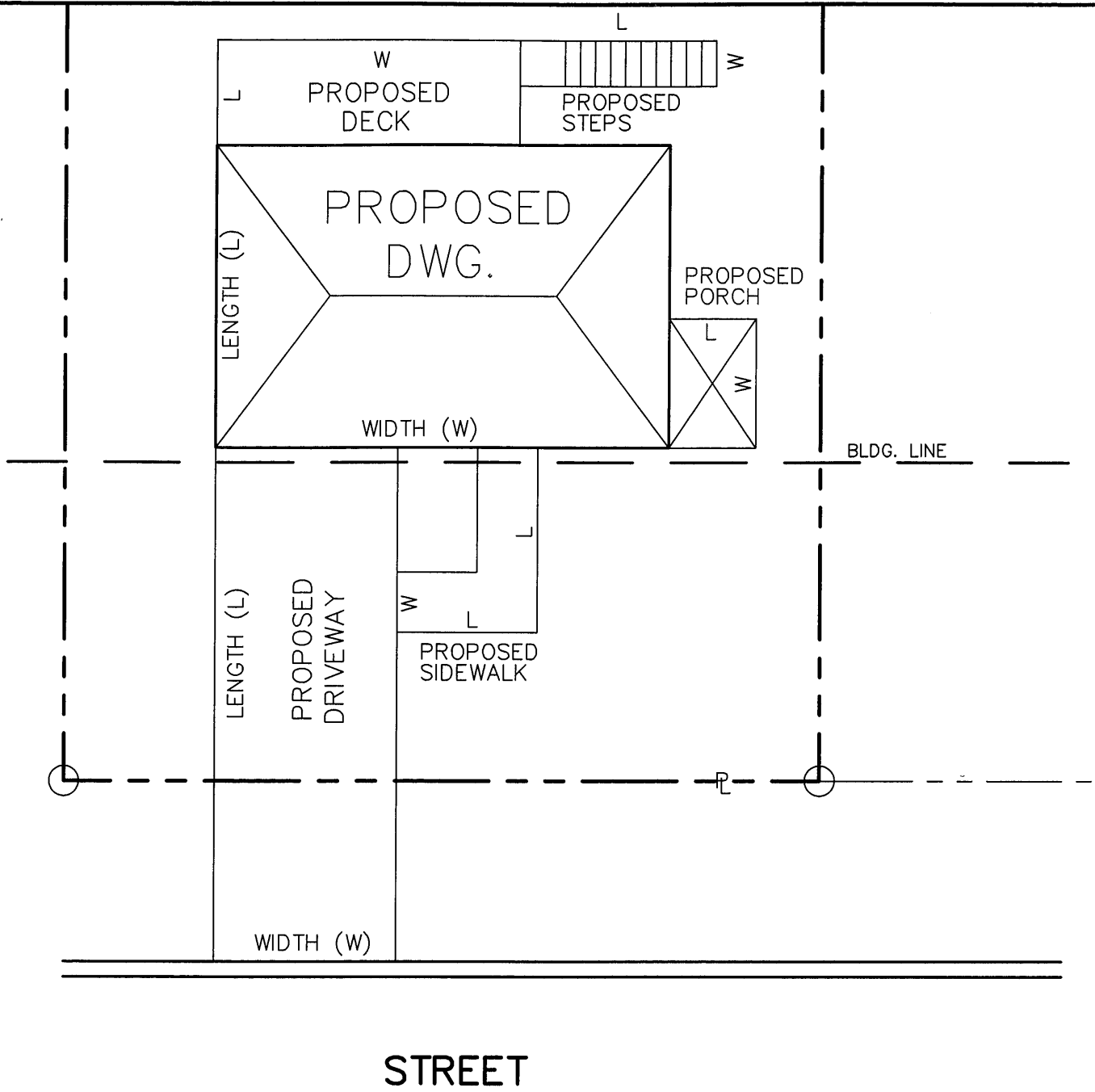
Based Upon the information you have provided a **SWM Site Plan IS NOT required** for this regulated activity.

Property Owner Acknowledges that submission of inaccurate information may result in a stop work order or permit revocation. Acknowledgement of such is by signature below. I declare that I am the owner or owner's legal representative. I further acknowledge that the information provided is accurate and employees of Buffalo Township are granted access to the above described property for review and inspection as may be required.

Owner *

Date:

***THIS PAGE SHALL ONLY BE SIGNED AND SUBMITTED TO THE TOWNSHIP IF THE TOTAL NEW IMPERVIOUS SURFACE AREA IS 500 SQUARE FEET OR LESS.**



TOTAL IMPERVIOUS AREA

	LENGTH (FT.)	WIDTH (FT.)	AREA(S.F.)
HOUSE	_____ X _____	_____	_____
DRIVEWAY	_____ X _____	_____	_____
PORCH	_____ X _____	_____	_____
SIDEWALK	_____ X _____	_____	_____
STEPS	_____ X _____	_____	_____
DECK	_____ X _____	_____	_____
_____	_____ X _____	_____	_____
_____	_____ X _____	_____	_____
_____	_____ X _____	_____	_____
TOTAL (S.F.):			_____

NOTES:

1. ALL APPLICABLE IMPERVIOUS AREAS SHALL BE LISTED

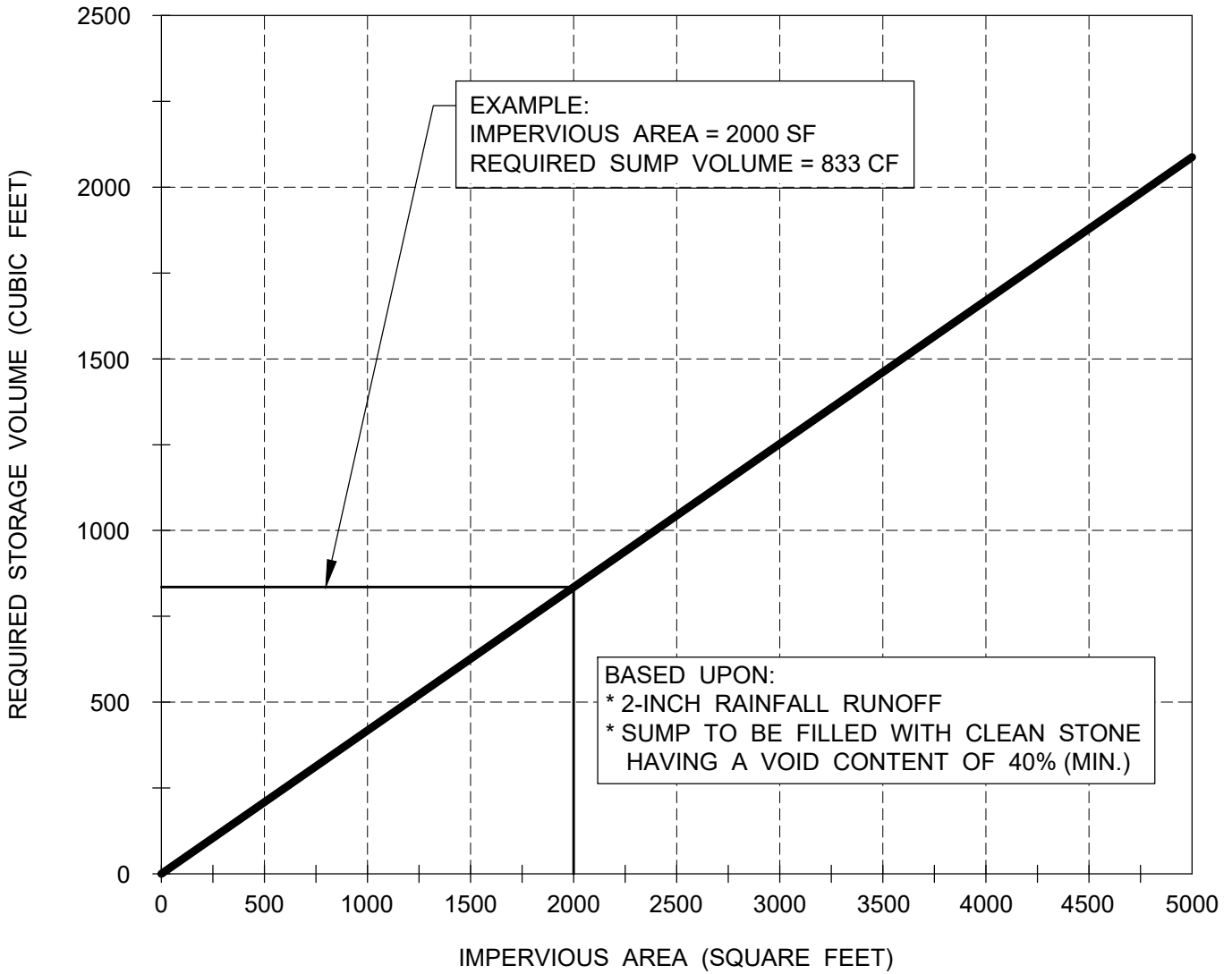
BUFFALO TOWNSHIP
 BUTLER COUNTY PENNSYLVANIA

STANDARD DRAWING
STORMWATER MANAGEMENT
IMPERVIOUS AREA CALCULATION

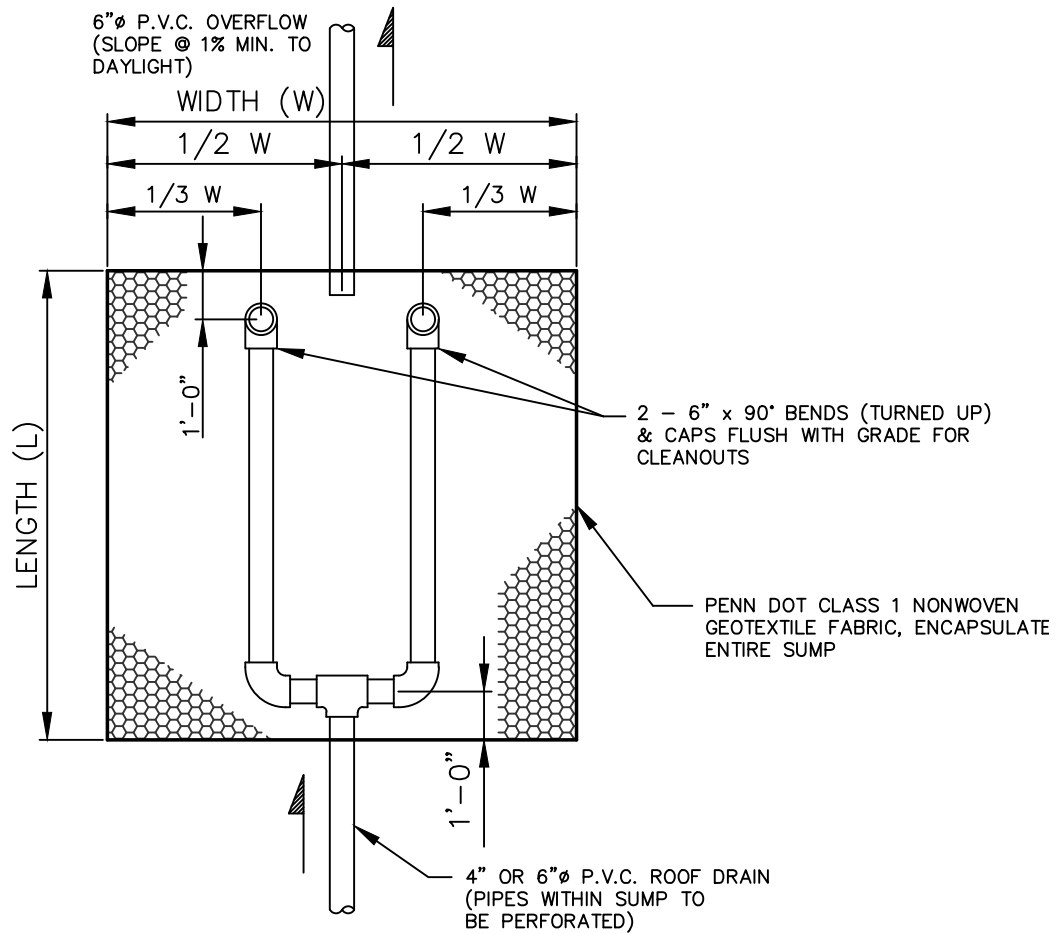
BE BANKSON ENGINEERS, INC. CONSULTING ENGINEERS CHESWICK, PA 15024	SCALE N.T.S.	DRAWN BY D.J.L.	SHEETS IN SET 1
	DATE JUNE 2007	APPROVED BY K.A.H.	DRAWING NUMBER 2-701-6-1

FIGURE C-1

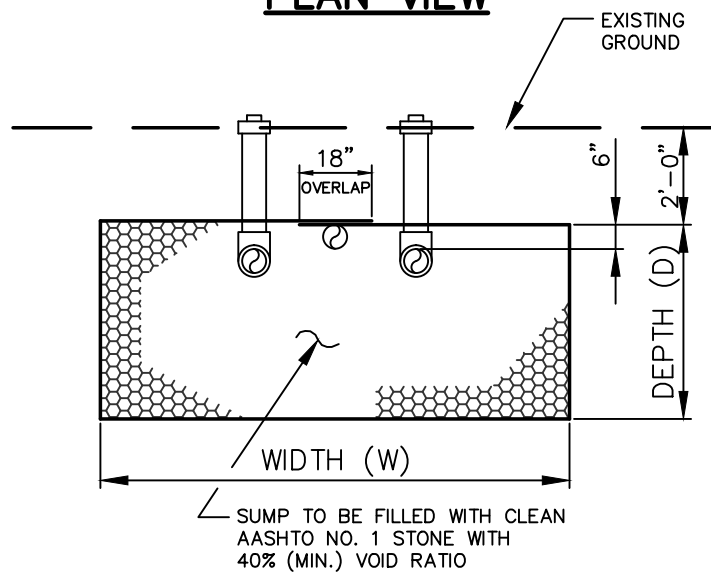
REQUIRED STORAGE VOLUME



(Figure C-2)



PLAN VIEW



SECTION

ROOF DRAIN SUMP DETAILS

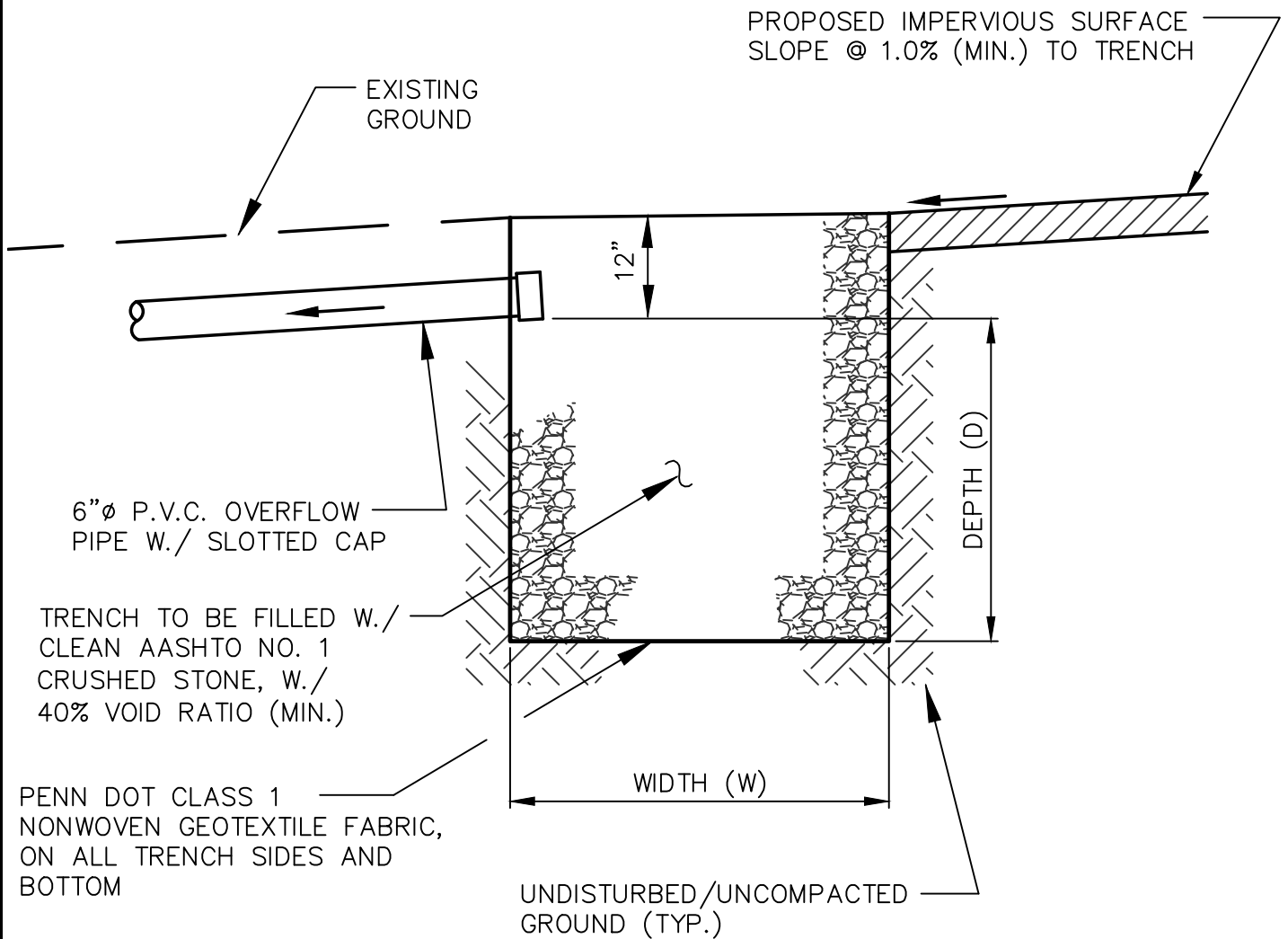
N.T.S.

NOTES:

1. REQUIRED VOLUME = LENGTH (L) X WIDTH (W) X DEPTH (D)
2. ALL SUMPS SHALL BE EQUIPPED WITH OVERFLOW PIPE.
3. OVERFLOW PIPE SHALL NOT DRAIN TO STREET OR STORM SEWER, UNLESS DIRECTED BY TOWNSHIP ENGINEER.

FIGURE C-3

BUFFALO TOWNSHIP			
BUTLER COUNTY		PENNSYLVANIA	
STANDARD DRAWING			
STORMWATER MANAGEMENT			
ROOF DRAIN SUMP DETAILS			
BE	SCALE N.T.S.	DRAWN BY D.J.J.	SHEETS IN SET 1
	DATE JUNE 2007	APPROVED BY K.A.H.	DRAWING NUMBER 2-701-7-1
BANKSON ENGINEERS, INC. CONSULTING ENGINEERS CHESWICK, PA 15024			



ROCK FILLED TRENCH DETAIL

N.T.S.

NOTES:

1. REQUIRED VOLUME = LENGTH (L) X WIDTH (W) X DEPTH (D)
2. ALL TRENCHES SHALL BE EQUIPPED WITH OVERFLOW PIPE.
3. OVERFLOW PIPE SHALL NOT DRAIN TO STREET OR STORM SEWER, UNLESS DIRECTED BY TOWNSHIP ENGINEER.

FIGURE C-4

BUFFALO TOWNSHIP			
BUTLER COUNTY		PENNSYLVANIA	
STANDARD DRAWING			
STORMWATER MANAGEMENT			
ROCK FILLED TRENCH DETAIL			
BE	BANKSON ENGINEERS, INC.		SCALE
	CONSULTING ENGINEERS CHESWICK, PA 15024		N.T.S.
	DATE	DRAWN BY	SHEETS IN SET
	JUNE 2007	D.J.I. K.A.H.	1
		APPROVED BY	DRAWING NUMBER
			2-701-8-1

CREDITS (OPTIONAL)

Credit 1: DISCONNECTION OF IMPERVIOUS AREA

When runoff from impervious areas is directed to a pervious area that allows for infiltration, filtration, and increased time of concentration, all or parts of the impervious areas may qualify as Disconnected Impervious Area (DIA). Using the criteria below, determine the portion of the impervious area that can be excluded from the calculation of total impervious area.

Criteria: An impervious area is considered to be completely or partially disconnected if it meets the requirements listed below

- rooftop area draining to a downspout is ≤ 500 sf
- paved area draining to a discharge is $\leq 1,000$ sf
- flow path of paved impervious area is not more than 75'
- soil at discharge is not designated as hydrologic soil group "D"
- flow path at discharge area has a positive slope of $\leq 5\%$
- gravel strip or other spreading device is required at paved discharges.

Length of Pervious Flow Path from discharge point * (ft)	DIA Credit Factor
0 – 14	1.0
15 – 29	0.8
30 – 44	0.6
45 – 59	0.4
60 – 74	0.2
75 or more	0

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

Calculate DIA Credit & Required Capture Volume									
Surface Type	Proposed Impervious Area (from previous sheet)	X	DIA Credit Factor	=	Impervious Area to be managed	÷	6	=	Required Capture Volume (ft ³)
Building (area per downspout)		X		=		÷	6	=	
		X		=		÷	6	=	
		X		=		÷	6	=	
		X		=		÷	6	=	
Driveway		X		=		÷	6	=	
		X		=		÷	6	=	
		X		=		÷	6	=	
Parking Areas		X		=		÷	6	=	
		X		=		÷	6	=	
		X		=		÷	6	=	
Patios/Walks		X		=		÷	6	=	
		X		=		÷	6	=	
		X		=		÷	6	=	
		X		=		÷	6	=	
Other		X		=		÷	6	=	
		X		=		÷	6	=	
		X		=		÷	6	=	
Total Req'd Capture Volume									

Credit 2: TREE PLANTING

Perhaps the best BMP is a tree as they intercept rainfall, increase evapotranspiration and increase time of concentration. A portion of the required capture volume can be reduced provided the criteria are met.

CREDITS

Deciduous Trees	Evergreen Trees
6 ft ³ per tree planted	10 ft ³ per tree planted

Criteria

To receive credit for planting trees, the following must be met:

- Trees must be native species (see below), minimum 2" caliper and 6 feet tall (min).
- Trees shall be adequately protected during construction.
- Trees shall be maintained until redevelopment occurs.
- No more than 25% of the runoff volume can be mitigated through the use of trees.
- Dead trees shall be replaced within 6 months.
- Non-native species are not applicable.

	Req'd Capture Volume (ft³)
-	
	Tree Planting Credit (ft³)
	Capture Volume to be managed (ft³)

Sizing of BMP

	How much of the Volume will you manage with a Rain Garden?
+	
	How much of the Volume will you manage with a Sump or Trench?
	Capture Volume to be managed (ft³)

Enter the volumes into the **Small Project SWM Plan Worksheet** on the next sheet.

Native Species Trees (Common Name)

- | | |
|--|---|
| <ul style="list-style-type: none"> - Blackgum - Arrow-wood, southern - Box-elder - Maple, (red or silver) - Birch, (river or gray) - Ironwood - Hickory, sweet pignut or shag-bark - Cedar, (Atlantic white or eastern red) - Beech, American - Ash, (white, black or green) - Holly, American - Tuliptree | <ul style="list-style-type: none"> - Sycamore, American - Cotton-wood, eastern - Aspen, big-tooth or quaking - Cherry, black - Oak, (white, swamp white, scarlet, pin, willow, red) - Willow, black - Bald Cypress - Basswood, American - Serviceberry, (downy or shadbush) - Redbud, eastern - Dogwood, flowering - Magnolia, sweetbay - Pine, (pitch or eastern white) |
|--|---|

Small Project SWM Plan Worksheet (to be utilized for optional credits only)

Based upon the information you have provided a **Stormwater Plan IS Required** for this development activity. The Stormwater Management Ordinance developed through the *Butler County Act 167 Stormwater Management Plan* regulates compliance requirements for Stormwater Management in this jurisdiction. A complete copy of the *Plan* can be found on the Butler County Planning office.

Regulated activities shall be conducted only after Buffalo Township approves a stormwater management plan. The *Butler County Act 167 Stormwater Management Plan* will assist you in preparing the necessary information and plans for Buffalo Township to review and approve. **This document will constitute an approved plan if all of the relevant details are to be installed in their entirety AND no part of the stormwater system adversely affects any other property, nor adversely affect 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 Buffalo Township for approval. A design by a qualified professional may be required for more complex sites.

PLEASE INITIAL BELOW TO INDICATE THE STORMWATER MANAGEMENT PLAN FOR THIS SITE

- Minimum Control #1 Erosion & Sediment Pollution Control
- Minimum Control #2: Source Control of Pollution
- Minimum Control #3: Preservation of Natural Drainage Systems and Outfalls

The relevant details from *Butler County Act 167 Stormwater Management Plan* will be installed in their entirety AND the system will be located as not to adversely affect other property, nor any septic systems or drinking water wells on this, or any other, parcel.

To meet this requirement, the following will be installed and maintained:

Capture Volume to be managed (ft ³)			Conversion	Surface Area of BMPs (ft ²)
	By Rain Garden 6" ponding; 2' soil depth	x	1.20	
	Dry Well or Infiltration Trench 2½' aggregate depth	x	1.25	
	Total		Total	

In lieu of meeting the above, an alternative and/or professional design is attached for approval AND the system will be located as not to adversely affect other property, any septic systems or drinking water wells on this, or any other, parcel.

Site Sketch Plan showing:

- Property lines with dimensions
- Proposed buildings with dimensions
- Proposed impervious surfaces with dimensions
- Proposed septic system, if applicable
- Proposed well site, if applicable
- Proposed stormwater management system(s)

Operation and Maintenance Agreement

Condition on approval - The stormwater management plan must be fully implemented prior to a request for final inspection of the building or zoning permit.

Acknowledgement - By executing below, the Owner acknowledges the following:

- I declare that I am the owner of the property.
- The information provided is accurate.
- I further acknowledge that municipal representatives are granted access to the above described property for review and inspection as may be required.

Owner

Date:
