





USER TO INSERT TOPO SURVEY/PLAN MAP

CROSS SECTION

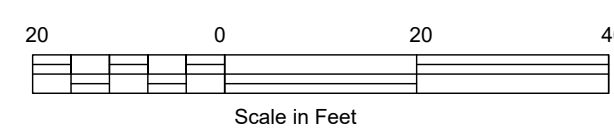
BENCH MARK DESCRIPTIONS

TBM #1 (IP): Elev = ????.??  
Top of 1" X 2" wooden hub, marked by  
witness lath.

TBM #2: Elev = ????.??  
Top of 1" X 2" wooden hub, marked by  
witness lath, near NW corner of building.

TBM #3: Elev = ????.??  
Top of bolt in NW corner of concrete.

**PLAN VIEW**



PROFILE

**LANDOWNER - SITE NAME**

#####

COUNTY Soil Conservation District

JOB CLASS #

TRACT #

\_\_\_\_\_, Maryland

United States  
Department of  
Agriculture



**Natural Resources  
Conservation Service**

File Name

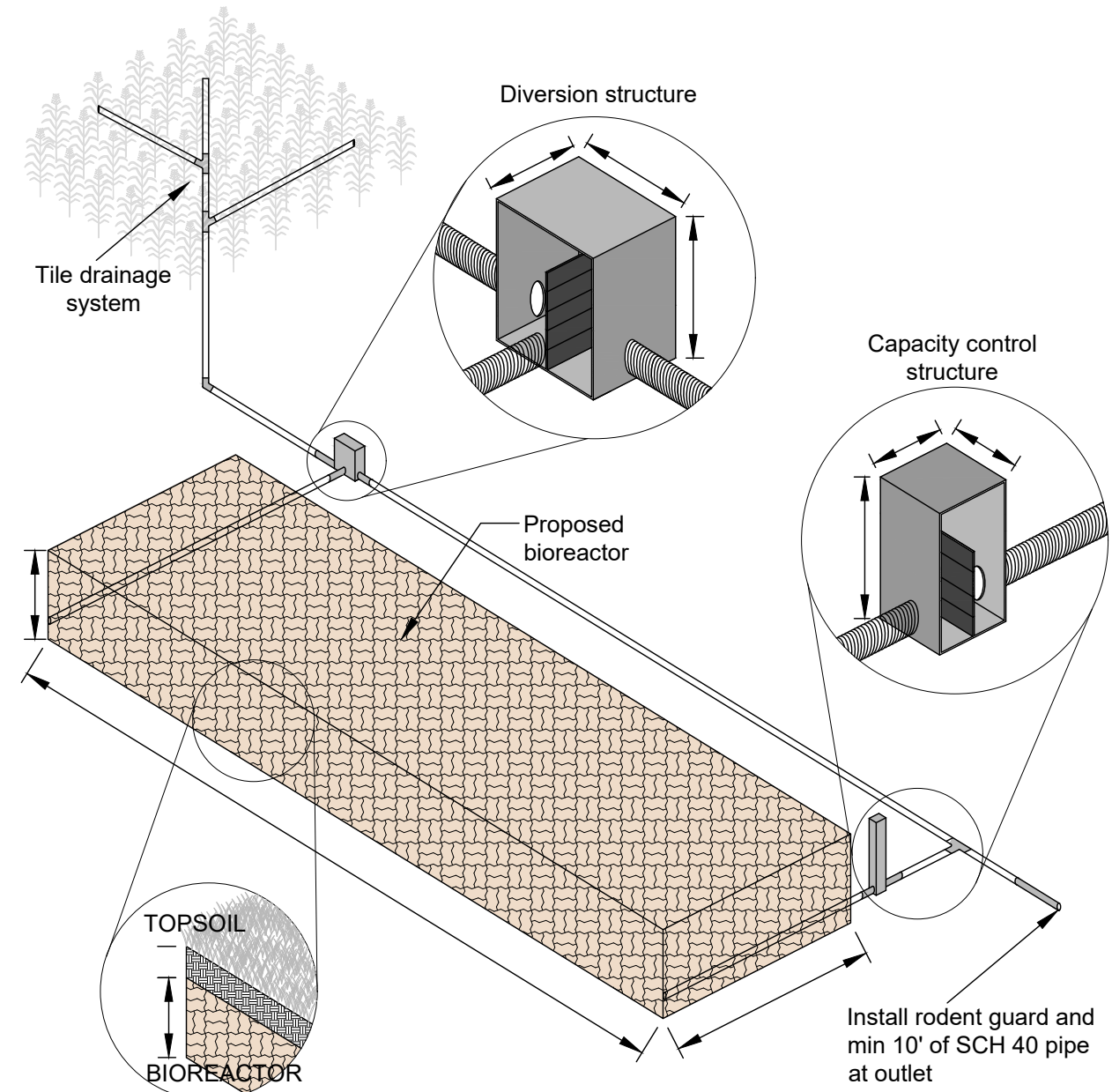
MD\_0041\_Bioreactor.dwg

Drawing No.

MD\_0041

Sheet 2 of 3

Designed	_____	Date	_____
Drawn	_____		_____
Checked	_____		_____
Approved	_____		_____



**Notes:**  
 1) Dimensions vary with the drainage area.  
 2) Medium for carbon source shall be free from soil, fines and other contaminants.  
 3) Inert materials such as gravel may be mixed with the carbon source to provide the required bioreactor volume and flow rate along with the required amount of reactive carbon.  
 4) Use min 20 mil poly lining for the bottom and sides. Use geotextile material for the top of the bioreactor based on the soils and geology of the site.  
 5) For safety and to prevent compaction, the bioreactor must be identified using signage or fence.

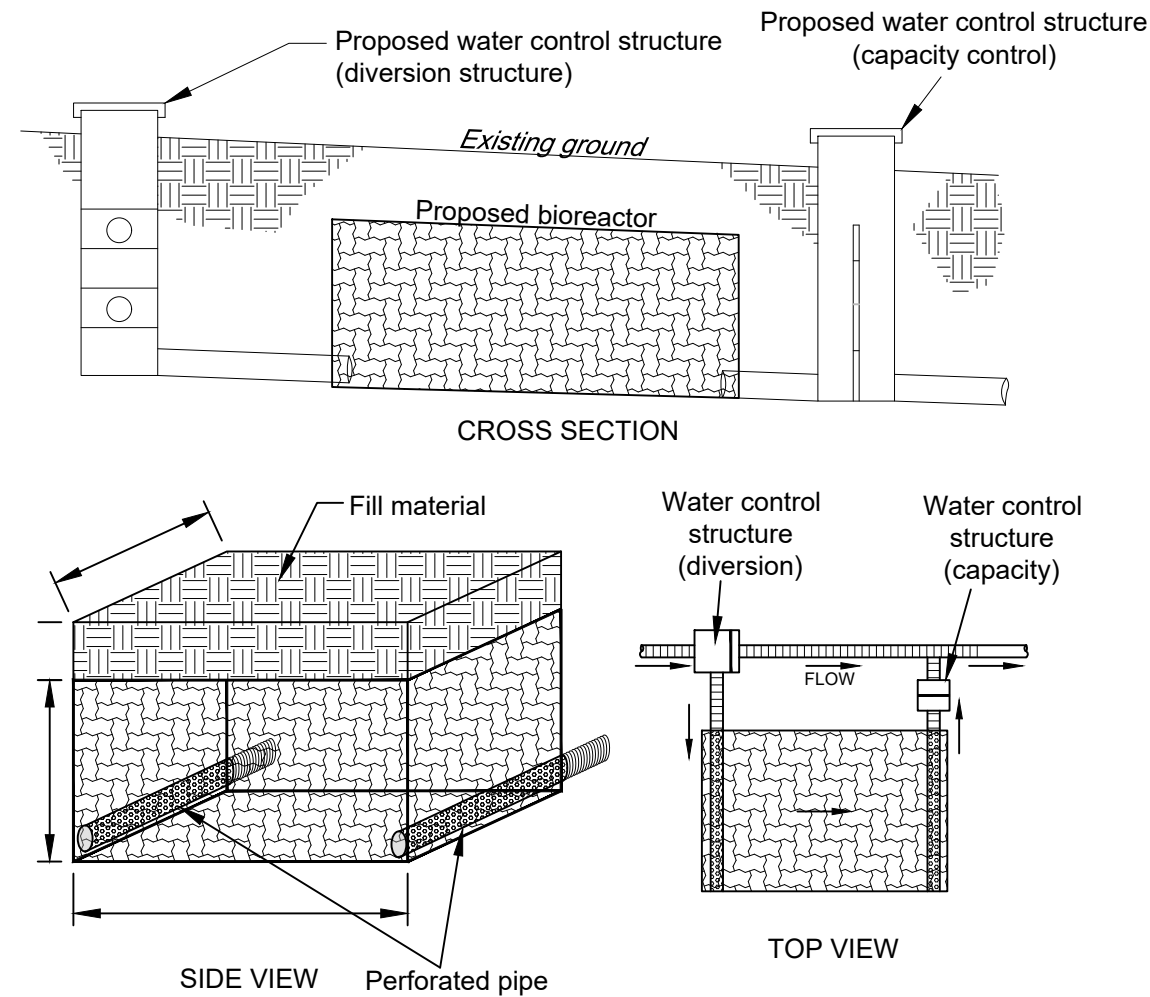
**Carbon Material Specifications:**  
 • Use only non-treated and non-preserved wood chips  
 • Wood chips may be from softwoods or hardwoods  
 • Wood chips shall be 1/4" to 1" size range  
 • Green material such as leaves or conifer needles are not recommended

**BIOREACTOR DETAIL**  
 Not to scale

**\*DOUBLE CLICK TO EDIT BLOCK\***

Pipe from tile drainage \_\_\_\_\_"  
 Bypass pipe \_\_\_\_\_"  
 Tile drain pipe size in bioreactor \_\_\_\_\_"  
 Bioreactor length \_\_\_\_\_"  
 Bioreactor width \_\_\_\_\_"  
 Bioreactor depth \_\_\_\_\_"  
 Bioreactor material \_\_\_\_\_"

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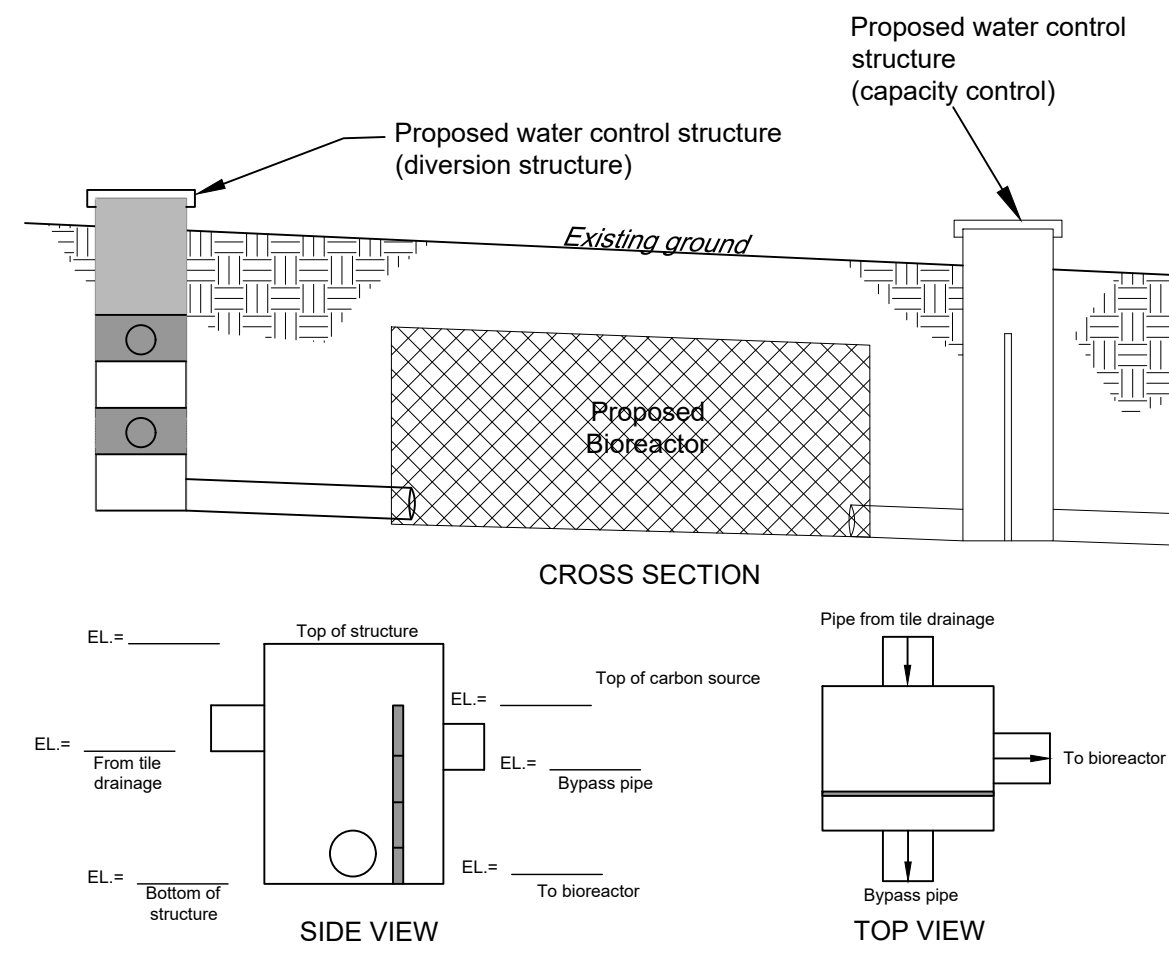
**BIOREACTOR SIZING DETAIL**  
 Not to scale

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Pipe size \_\_\_\_\_"  
 Structure height \_\_\_\_\_'  
 \_\_\_\_\_' OF \_\_\_\_\_" Outlet pipe  
 \_\_\_\_\_' OF \_\_\_\_\_" Inlet pipe  
 \_\_\_\_\_' OF \_\_\_\_\_" Bypass pipe  
 \_\_\_\_\_ ea of 5" boards  
 \_\_\_\_\_ ea of 7" boards  
 Fill \_\_\_\_\_ cy  
 Outlet pipe slope \_\_\_\_\_ ft/ft  
 Bypass pipe slope \_\_\_\_\_ ft/ft

Date	Stop log height in Diversion Structure
November 1	6 inches below the ground surface
Two weeks before planting (March 16- April 31)	12 to 24 inches above tile invert
Two weeks after the end of the planting season (May 16- June 2)	24 to 36 inches above tile invert *

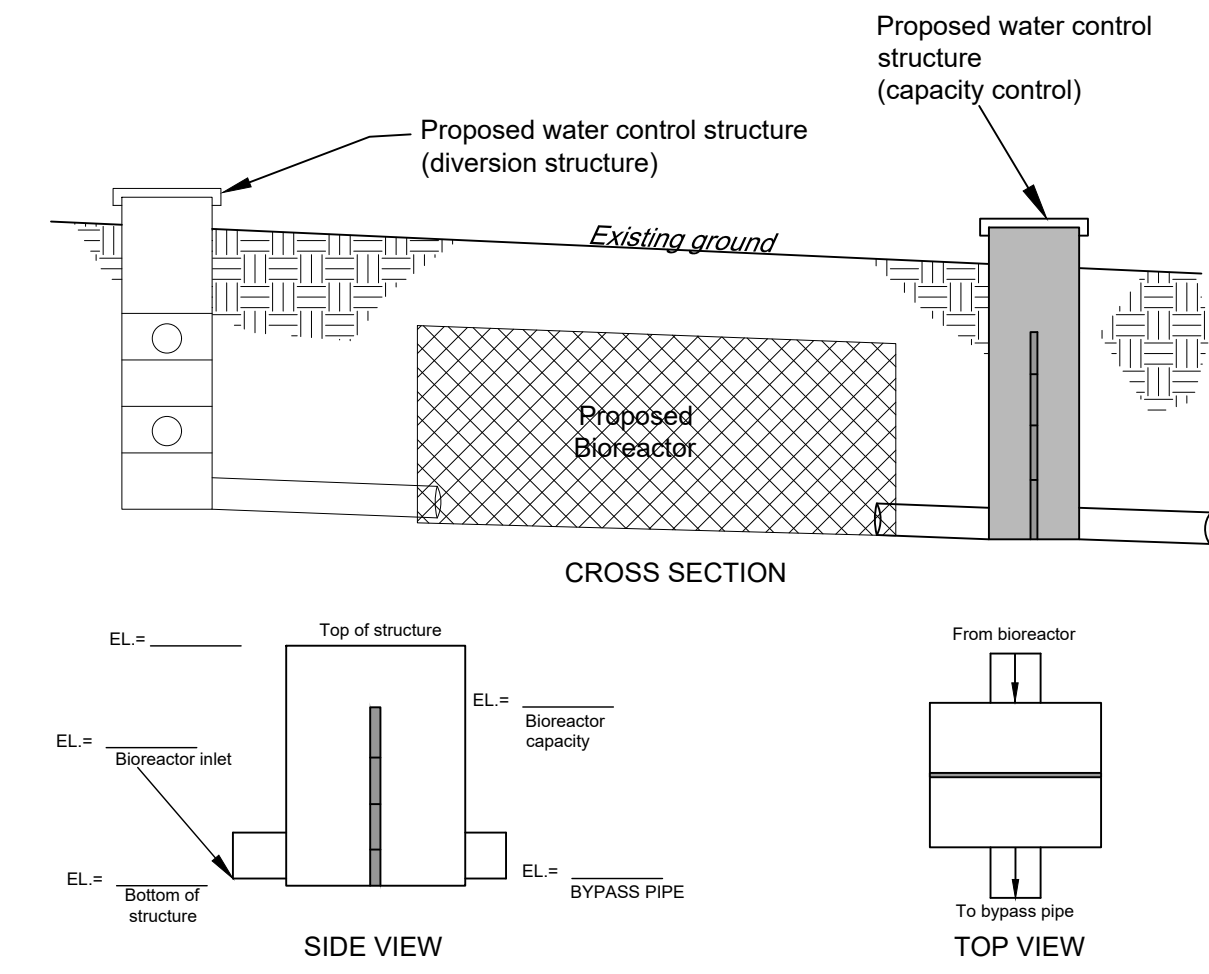
\* Diversion stop logs should be lowered during extremely wet periods to prevent water table from rising into the crop root zone.



**BIOREACTOR DIVERSION STRUCTURE**  
 Not to scale

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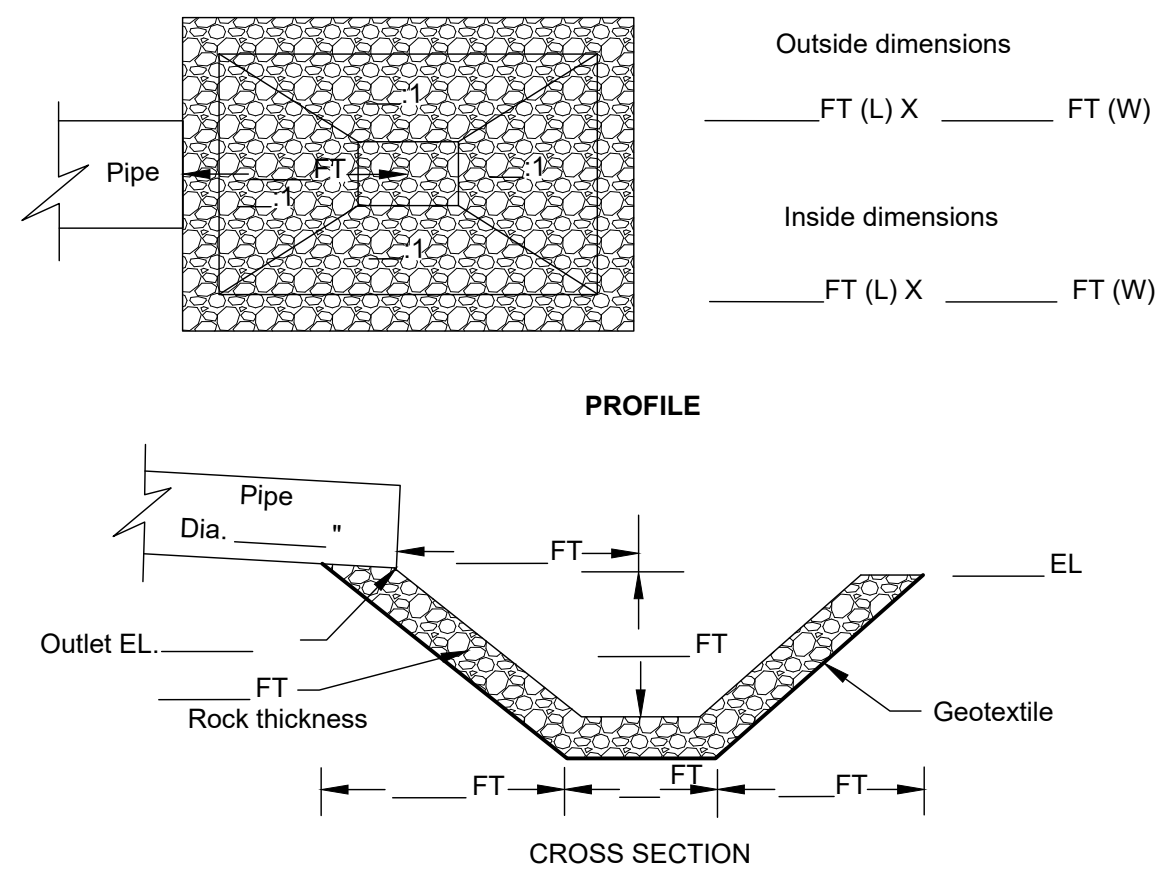
Structure height \_\_\_\_\_'  
 \_\_\_\_\_' OF \_\_\_\_\_" Outlet pipe  
 \_\_\_\_\_' OF \_\_\_\_\_" Inlet pipe  
 \_\_\_\_\_' OF \_\_\_\_\_" Bypass pipe  
 \_\_\_\_\_ ea of 5" boards  
 \_\_\_\_\_ ea of 7" boards  
 Fill \_\_\_\_\_ cy  
 Clearing \_\_\_\_\_ ac  
 Outlet pipe slope \_\_\_\_\_ ft/ft



**BIOREACTOR CAPACITY STRUCTURE**  
 Not to scale

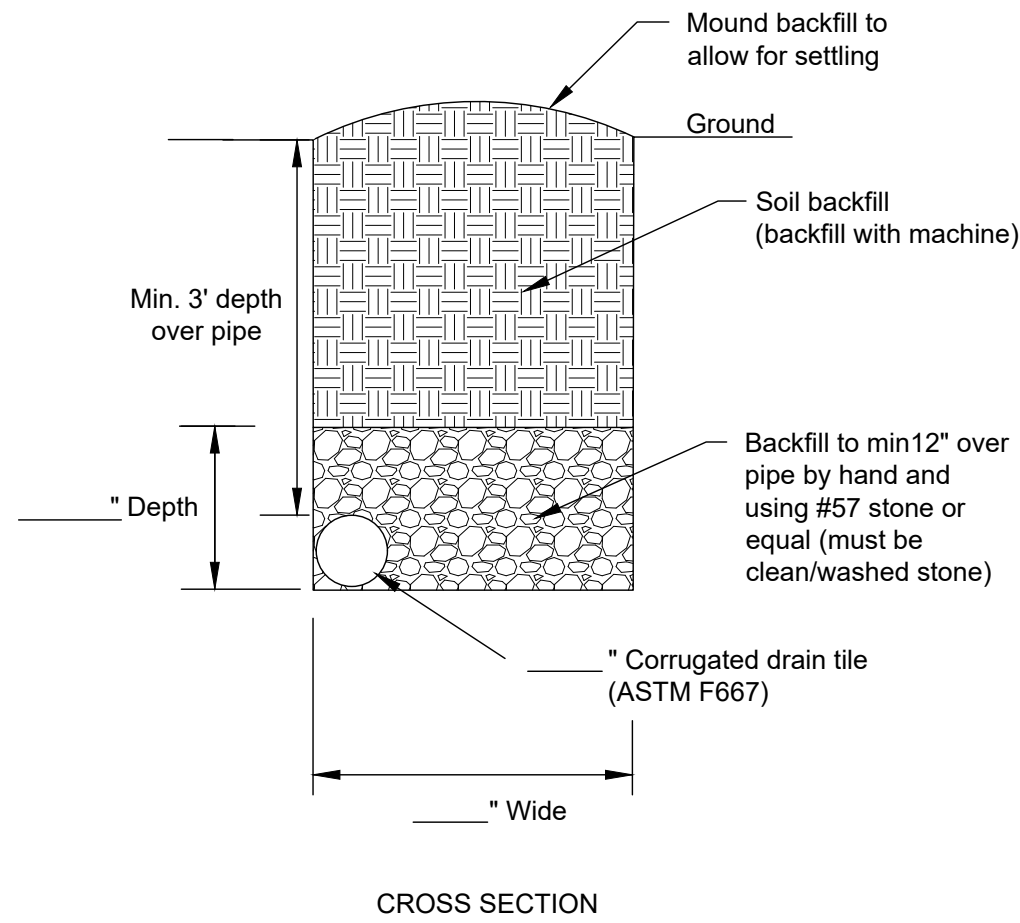
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**Design Specifications:**  
 Depth of Plunge \_\_\_\_\_ FT  
 Distance to CL of plunge \_\_\_\_\_ FT  
 Riprap \_\_\_\_\_ TONS  
 Rock \_\_\_\_\_" to \_\_\_\_\_" d50 = \_\_\_\_\_"  
 Riprap Thickness \_\_\_\_\_ FT  
 Geotextile \_\_\_\_\_ FT<sup>2</sup>  
 Clearing \_\_\_\_\_ AC



**ROCK PLUNGE POOL DETAIL**  
 Not to scale

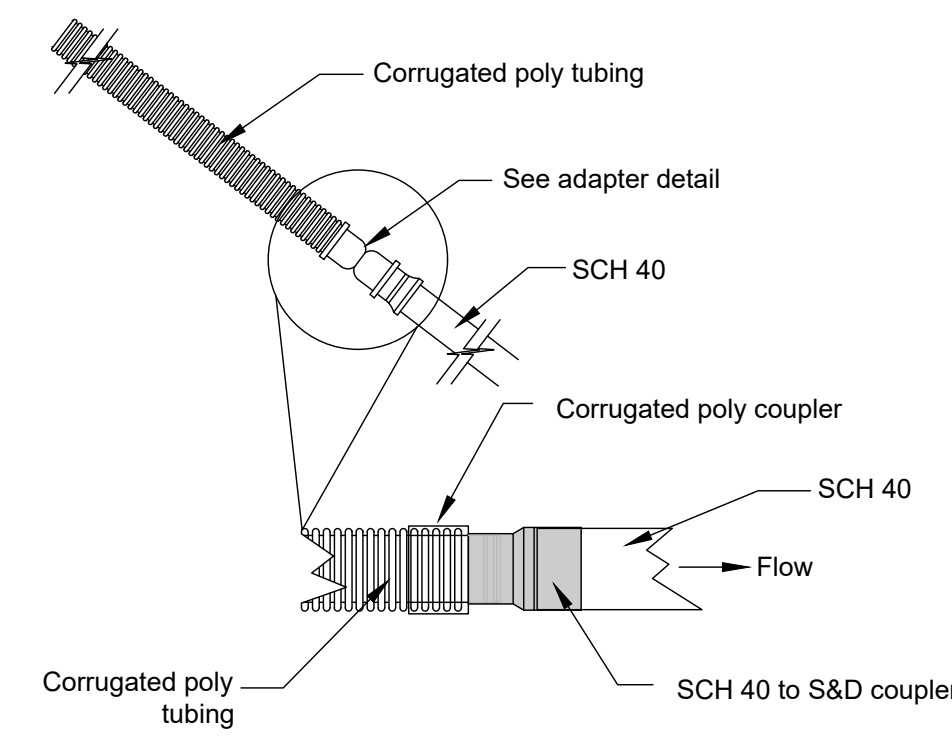
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**CONSTRUCTION NOTES**  
 Plan, design and construct spring developments in accordance with Federal, State, and Local laws and regulations. When collecting water for potable uses, meet the requirements of the state health department for materials and installation. Permits may be required for the installation of these systems. Contact the Permits Division of the local county government for regulations and permit requirements.

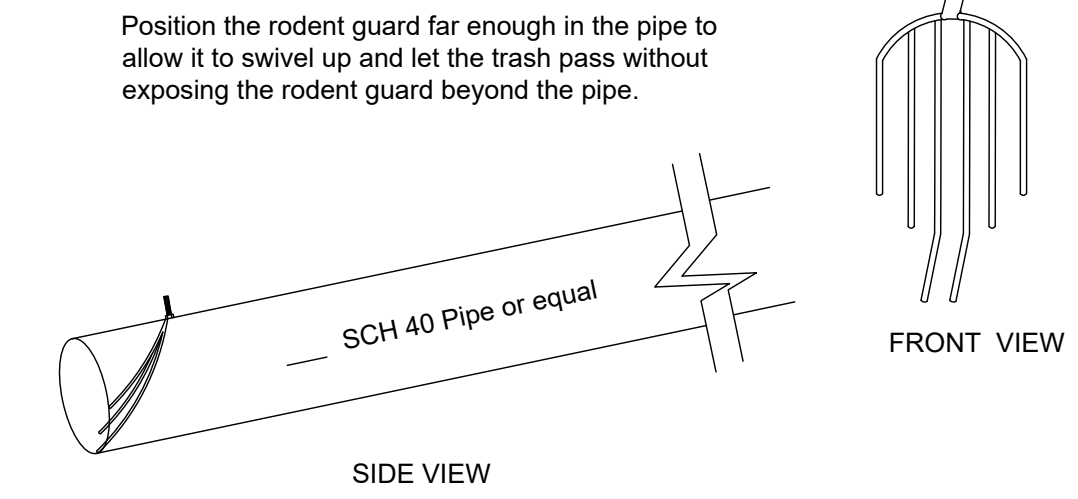
**TILE DRAIN DETAIL**  
 Not to scale

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**ADAPTER DETAIL**  
 Not to scale

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Position the rodent guard far enough in the pipe to allow it to swivel up and let the trash pass without exposing the rodent guard beyond the pipe.

**OUTLET DETAIL**  
 Not to scale

**\*DOUBLE CLICK TO EDIT BLOCK\***

Note: Geotextile to meet the following Maryland State Highway Administration requirements:

Maryland Application Class	Type of Geotextile	Grab Strength Lb	Puncture Strength Lb	Permittivity Sec 1	Apparent Opening Size Max Mm	Trapezoid Tear Strength Lb
SE	NONWOVEN	200	80	0.2	0.3	80
	WOVEN	250	90	0.2	0.3	90

**LANDOWNER - SITE NAME**

#####  
 COUNTY Soil Conservation District

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Sheet 3 of 3

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_____	_____	_____	_____	_____

\_\_\_\_\_, Maryland