

### SAFETY REGULATIONS

ALL EXCAVATION AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MARYLAND OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (MOSHA) STANDARDS AS SET FORTH IN THE LATEST VERSION OF THE CODE OF MARYLAND REGULATIONS

### CONSTRUCTION NOTIFICATION

The Contractor/Owner is to notify the County SOIL CONSERVATION DISTRICT at least 72 hours prior to construction to facilitate any scheduling, layout, or preliminary mobilization necessary to ensure proper construction inspection to enable appropriate certification of the project.

It is the Landowner's responsibility to obtain all County, State, and Federal permits that may be needed, and to maintain this structure and related regulations.

THERE WILL BE NO CHANGES IN SPECIFICATION, DIMENSIONS, OR MATERIALS UNLESS APPROVED BY THE ENGINEER RESPONSIBLE FOR THIS DRAWING. THE DRAWINGS ARE PREPARED COOPERATIVELY BY THE NATURAL RESOURCE CONSERVATION SERVICE FOR THE NAMED LANDOWNER.

CONSTRUCTION FOUND NOT IN ACCORDANCE WITH THESE DRAWINGS AND SPECIFICATIONS SHALL VIOLATE THE COOPERATIVE AGREEMENT AND ALL DRAWINGS, SPECIFICATIONS, AND QUANTITIES ESTIMATE SHALL IMMEDIATELY BE RETURNED TO THE LOCAL NRCS OFFICE.



**Know what's below.  
Call before you dig.**

\*The Soil Conservation District makes no representation as to the existence or Non-existence of any utilities at the construction site. Shown on these construction drawings are those utilities which have been identified. It is the responsibility of the landowners or operators and contractors to assure themselves that no hazard exists or damage will occur to utilities\*

#### CRITICAL INSPECTION ITEMS (Waterway) 9/21/15

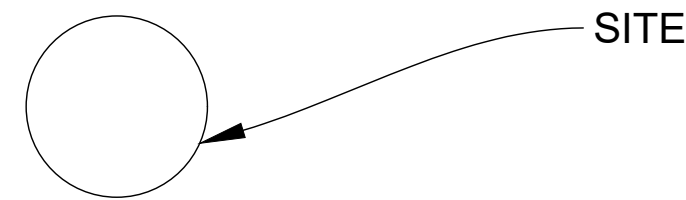
- The landowner will arrange for a pre-construction meeting between the contractor, NRCS and landowner to review the plans, standards and specifications prior to the start of construction.
- There will be no changes in specifications, dimensions, or materials unless approved by the engineer responsible for this drawing.
- The drawings are prepared cooperatively by the Natural Resources Conservation Service for named owner/operator. Construction found not in accordance with these drawings and specifications shall violate the cooperative agreement and all drawings, specifications, and Quantities Estimate shall immediately be returned to the local NRCS office.
- The following is a list of items that must be inspected by the Technician-in-Charge. If cost share is involved, payment may be forfeited if the Technician-in-Charge does not inspect all of the below:
  - Preconstruction Meeting Date: \_\_\_\_\_ Initials: \_\_\_\_\_
  - Verify layouts: Date: \_\_\_\_\_ Initials: \_\_\_\_\_
  - Strip and Stock Pile Top Soil: Date: \_\_\_\_\_ Initials: \_\_\_\_\_
  - Grading of Waterway:
    - Correct Width, Depth and Shape: Date: \_\_\_\_\_ Initials: \_\_\_\_\_
    - Sides Graded to Allow Inflow of Runoff: Date: \_\_\_\_\_ Initials: \_\_\_\_\_
    - Spreading Top Soil: Date: \_\_\_\_\_ Initials: \_\_\_\_\_
  - Placement of Riprap (when applicable):
    - Inspect Foundation: Date: \_\_\_\_\_ Initials: \_\_\_\_\_
    - Geotextile placement and Type: Date: \_\_\_\_\_ Initials: \_\_\_\_\_
    - Gradation and Placement of Rip Rap: Date: \_\_\_\_\_ Initials: \_\_\_\_\_
  - Final Grading: Date: \_\_\_\_\_ Initials: \_\_\_\_\_
  - All disturbed areas seeded and mulched: Date: \_\_\_\_\_ Initials: \_\_\_\_\_
  - Erosion Control Matting Installation:
    - Type and Materials: Date: \_\_\_\_\_ Initials: \_\_\_\_\_
    - Location and Width: Date: \_\_\_\_\_ Initials: \_\_\_\_\_
    - Proper Installation: Date: \_\_\_\_\_ Initials: \_\_\_\_\_
  - Remaining disturbed areas mulched: Date: \_\_\_\_\_ Initials: \_\_\_\_\_
  - Fencing (when applicable):
    - Type and Materials: Date: \_\_\_\_\_ Initials: \_\_\_\_\_
    - Proper location: Date: \_\_\_\_\_ Initials: \_\_\_\_\_
    - Installation: Date: \_\_\_\_\_ Initials: \_\_\_\_\_
  - Other items shown on the plans: Date: \_\_\_\_\_ Initials: \_\_\_\_\_

#### GENERAL NOTES:

- PLEASE CONTACT THE SOIL CONSERVATION DISTRICT AT LEAST 3 DAYS PRIOR TO CONSTRUCTION TO ARRANGE A PRE-CONSTRUCTION MEETING AT PHONE #
- A CONSERVATION TECHNICIAN SHALL SET CUT/GRADE STAKES AT THE CONTRACTORS REQUEST
- A CONSERVATION TECHNICIAN MUST BE PRESENT AT THE TIME OF PIPE INSTALLATION, IF REQUIRED

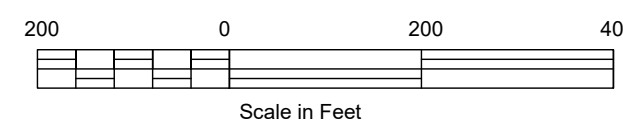
# LANDOWNER - SITE NAME

## 412 GRASSED WATERWAY



# REVISED 7/1/2021

#### LOCATION MAP



USER TO INSERT SHEET LIST TABLE

AS-BUILT STATEMENT		
THE CONSERVATION PRACTICE(S) MEETS OR EXCEEDS NRCS STANDARDS AND SPECIFICATIONS		
INSPECTED BY	SIGNATURE _____	DATE _____
CONSTRUCTION APPROVAL	SIGNATURE _____	DATE _____
VERIFIED DISTRICT CONSERVATIONIST	SIGNATURE _____	DATE _____

AS BUILT CONTRACT ITEMS:	Reportable Amount	Contract Amount

USER TO ENTER PRACTICES

OWNER/CONTRACTOR STATEMENT	
I CERTIFY THAT THIS DESIGN HAS BEEN EXPLAINED TO ME BY A REPRESENTATIVE OF THE COUNTY SOIL CONSERVATION DISTRICT, AND I UNDERSTAND THE CONTENTS, ALL CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND SPECIFICATIONS, I FURTHER UNDERSTAND THAT ALL CONSTRUCTION WILL BE UNDER THE INSPECTION OF THIS OFFICE.	
OWNER/OPERATOR SIGNATURE _____	DATE _____
CONTRACTOR'S SIGNATURE _____	DATE _____

#### RECOMMENDED SEEDING MIXES (USER TO CHOOSE ONE)

All disturbed areas to be stabilized within 7 days of completion, using the following recommendations.

##### Seeding Recommendations

Tall Fescue 60 lb/ac  
 Creeping Red Fescue 20 lb/ac  
 Perennial Ryegrass 5 lb/ac  
 20-40-40 fertilizer 500 lb/ac  
 Ground lime 50% oxides 3 tons /ac  
 Straw Mulch 2 tons/ac

**Dates listed are for plant hardiness Zone 6B, dates will need to be changed for other zones.**

##### Seeding Dates

March 1 thru May 15  
 August 1 thru October 1

It is the landowner responsibility to obtain All County, State, and Federal permits that may be needed, and to maintain this structure and those regulations.

All disturbed areas to be stabilized within 7 days of completion, using the following recommendations.

##### Seeding Recommendations

Tall Fescue 65 lb/ac  
 Perennial Ryegrass or Redtop (tolerates moist sites) 5 lb/ac  
 White Clover 2 lb/ac  
 20-40-40 Fertilizer 500 lb/ac  
 Ground lime 50% oxides 3 tons /ac  
 Straw Mulch 2 tons/ac

**Dates listed are for plant hardiness Zone 6B, dates will need to be changed for other zones.**

##### Seeding Dates

March 1 thru May 15  
 August 1 thru October 1

It is the landowner responsibility to obtain All County, State, and Federal permits that may be needed, and to maintain this structure and those regulations.

#### USER TO ENTER SEEDING INFO

*Maryland Conservation Planting Guide Table 3.3 Notes*

Select turf-type cultivars of Tall Fescue, Kentucky Bluegrass, and Perennial Ryegrass based on recommendations from the University of Maryland Extension, Turfgrass Technical Update TT-77, and the Virginia and Maryland National Turfgrass Evaluation Program (NTEP). The use of recommended cultivars usually results in a grass stand of higher quality and density, greater drought tolerance, lower nutrient requirements, and fewer pest problems. Cultivars developed for other regions of the country or for forage may be also used, but they may not perform as well as the recommended turf-types in a critical area planting.

Tall Fescue: Where livestock may be allowed to graze (e.g., heavy use grass loafing paddocks), use tall fescue varieties that are endophyte-free or are novel endophyte-infected to avoid livestock health problems due to endophyte toxicity. Tall fescue with the novel endophyte is not toxic to livestock, and has the adaptive advantages of being more resistant to drought, disease, and insects than endophyte-free varieties. Please note that endophyte levels in plantings can vary between varieties, between fields of the same variety, and with the time of year. For areas where livestock will not have access, tall fescue varieties with higher endophyte levels are preferable because they tend to be more drought tolerant and more resistant to disease and insect damage. Most turf-type tall fescue varieties have high endophyte levels, as does 'Kentucky 31' tall fescue (originally selected as a forage variety).

Certified varieties of endophyte-infected tall fescue may be used for stockpile grazing (i.e., winter grazing) when the risk of endophyte toxicity is much reduced.

*\*Refer to Maryland's Conservation Planting Guide for additional seeding mixes and specifications for establishing plantings*

Date	_____
Designed	_____
Drawn	_____
Checked	_____
Approved	_____

**LANDOWNER - SITE NAME**

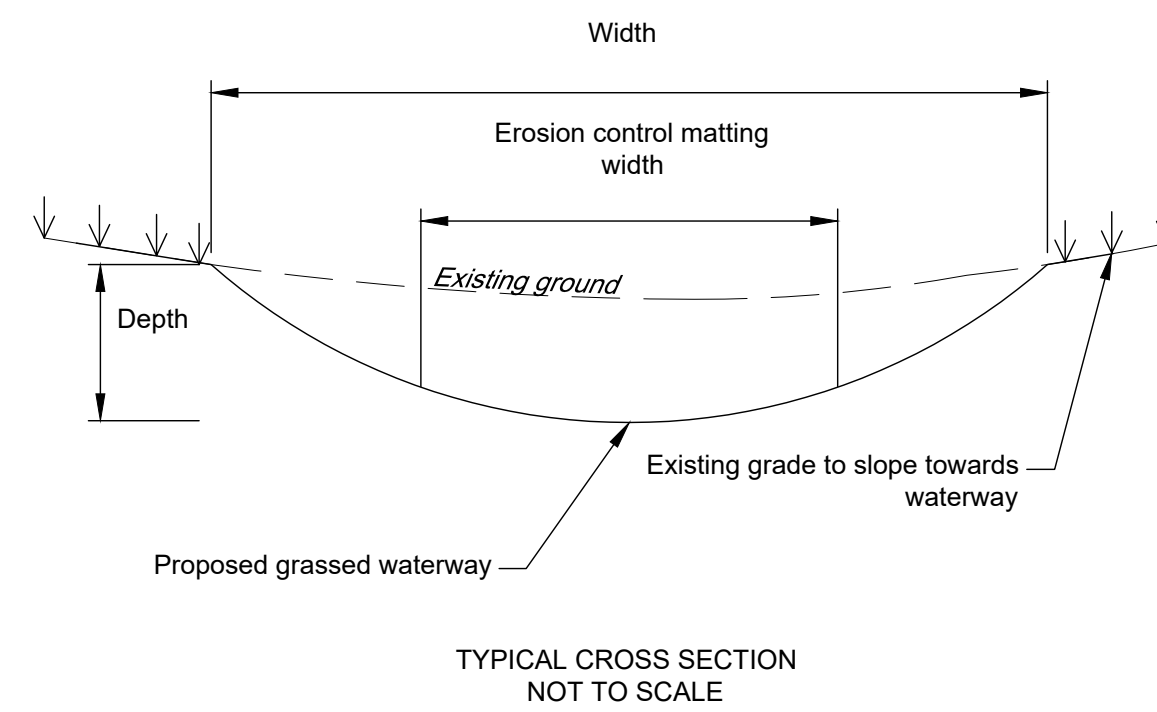
#####  
COUNTY Soil Conservation District  
JOB CLASS #



File Name  
MD\_0045\_GrassedWaterway.dwg

Drawing No.  
MD\_0045

Sheet 1 of 2



- General notes:**
- Remove topsoil prior to grading and stockpile outside limits of waterway construction
  - Install excelsior type erosion control matting according to manufacturer's recommendations. Matting shall meet minimum shear stress of 1.75 lb/ft<sup>2</sup> and maximum velocities of 7ft/s (see erosion control matting detail sheet for installation instructions)
  - Erosion control matting width shall be a minimum of 2/3 of the waterway width or shown as above
  - A minimum of 4" of topsoil shall be placed along entire length and width of constructed waterway
  - Lime, fertilizer and seed shall be placed in waterway prior to installing erosion control matting (see seeding details)
  - Waterway shall be maintained as needed to minimize erosion throughout the required maintenance life of 10 years

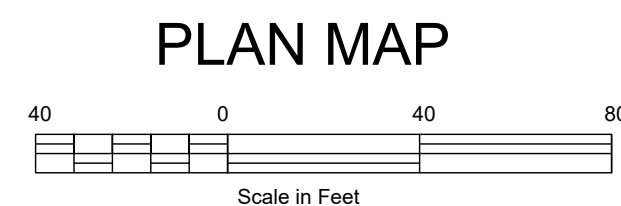
GRASSED WATERWAY DETAIL

**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.



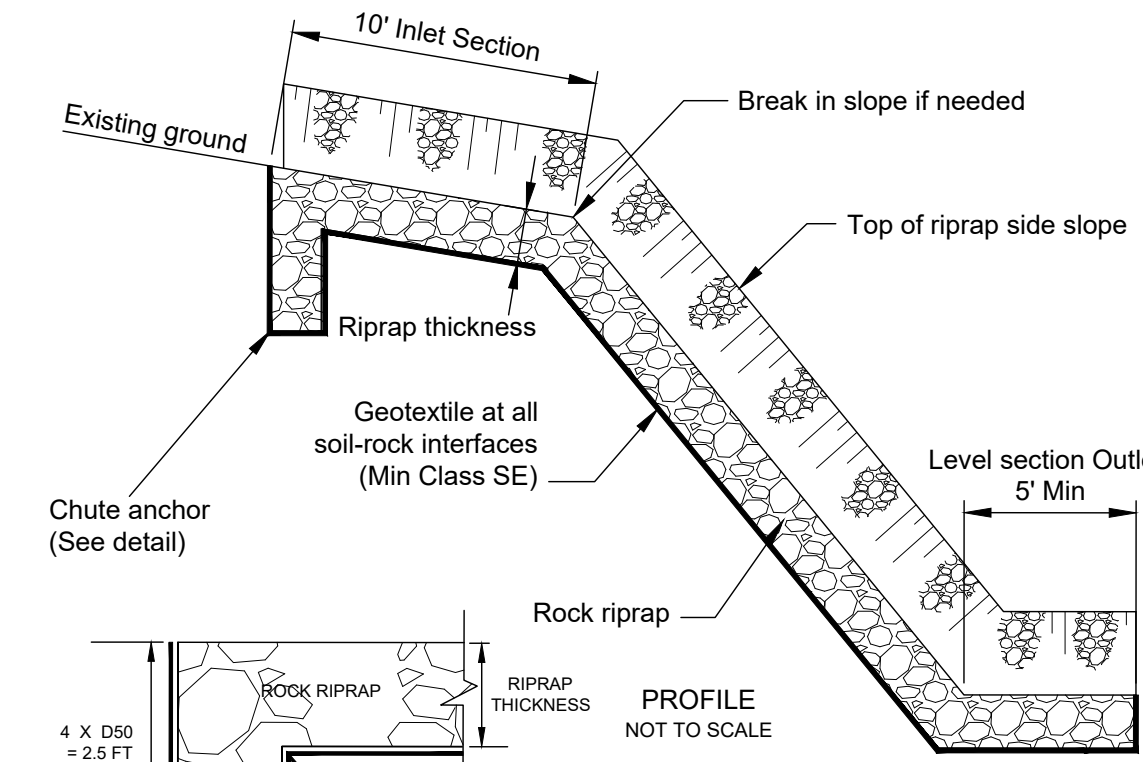
USER TO CLICK ON BLOCK AND ENTER INFORMATION

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

Maryland Application Class	Type of Geotextile	Grab Strength Lb D 4632	Puncture Strength Lb D 4833	Permitivity Sec 1	Apparent Opening Size Max Mm D 4751	Trapezoid Tear Strength Lb D 4533
SE	NONWOVEN	200	80	0.2	0.3	80
	WOVEN	250	90	0.2	0.3	90

Design Specifications:

Length _____ FT	Rock ____ "to ____" d50 = ____ "
Top Width _____ FT	Riprap Thickness _____ FT
Depth _____ FT	Geotextile _____ FT <sup>2</sup>
Grade _____ FT/FT	Clearing _____ AC
Riprap _____ TONS	



- RIPRAP CONSTRUCTION SPECIFICATIONS**
- All materials and construction shall be in accordance with applicable NRCS standards and construction specifications.
  - Riprap shall conform to the requirements as shown on the plans. It shall be free from dirt, clay, sand, rock fines, and other material not meeting the required gradation limits.
  - The subgrade surface on which the rock riprap, filter, bedding, or geotextile is to be placed shall be cut or filled and graded to the lines and grades shown on the drawings. When fill to subgrade lines is required, it shall consist of approved material and shall conform to the requirements as shown on the plans. Rock riprap, filter, bedding, or geotextile shall not be placed until the foundation preparation is completed and the subgrade surface has been inspected and approved.
  - The rock riprap shall be placed by equipment on the surface and to the depth specified. It shall be installed to the full course thickness in one operation and in such a manner as to avoid serious displacement of the underlying material. The rock for riprap shall be delivered and placed in a manner that ensures the riprap in place is reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks and filling the voids between the larger rocks. Some hand placing may be required to provide a neat and uniform surface.

RIPRAP CHANNEL OUTLET DETAIL

USER TO CLICK ON BLOCK AND ENTER INFORMATION

**DETAIL B-4-6-A TEMPORARY SOIL STABILIZATION MATTING CHANNEL APPLICATION**

STANDARD SYMBOL  
TSSMC - \* lb/ft<sup>2</sup>  
(\* INCLUDE SHEAR STRESS)

**CONSTRUCTION SPECIFICATIONS**

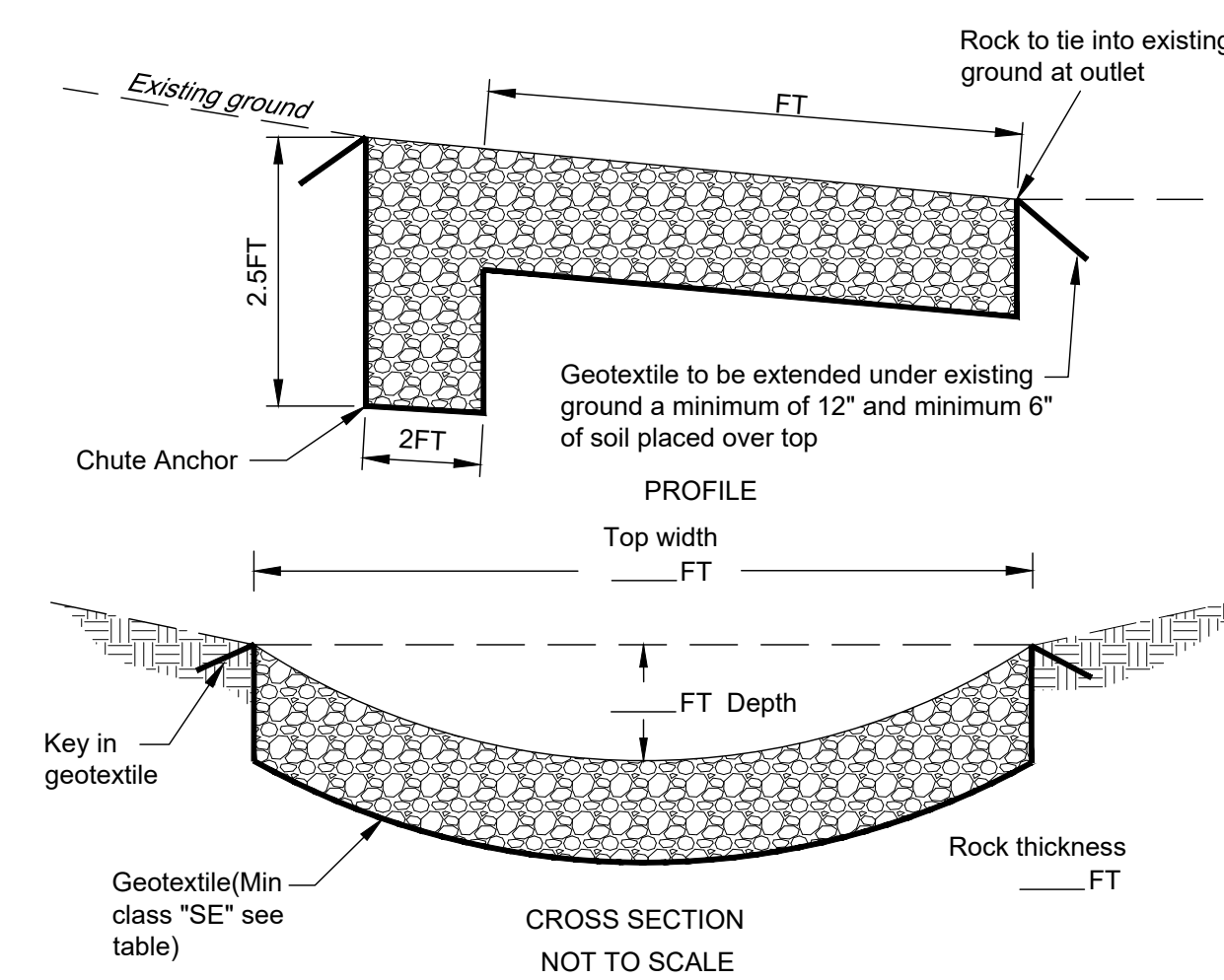
- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
- USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN, IF PRESENT. NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
- SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 9 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
- PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
- UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE SEEDBED SURFACE. AVOID STRETCHING THE MATTING.
- KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING. PLACING THE ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END.
- OVERLAP OR ABUT THE ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
- STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
- ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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Design Specifications:

Length _____ FT	Rock ____ " to ____" d50 = ____ "
Top Width _____ FT	Riprap Thickness _____ FT
Depth _____ FT	Geotextile _____ FT <sup>2</sup>
Grade _____ FT/FT	Clearing _____ AC
Riprap _____ TONS	



PARABOLIC ROCK OUTLET DETAIL

USER TO CLICK ON BLOCK AND ENTER INFORMATION

**PROFILES/CROSS SECTIONS**

Date \_\_\_\_\_

Designed	_____
Drawn	_____
Checked	_____
Approved	_____

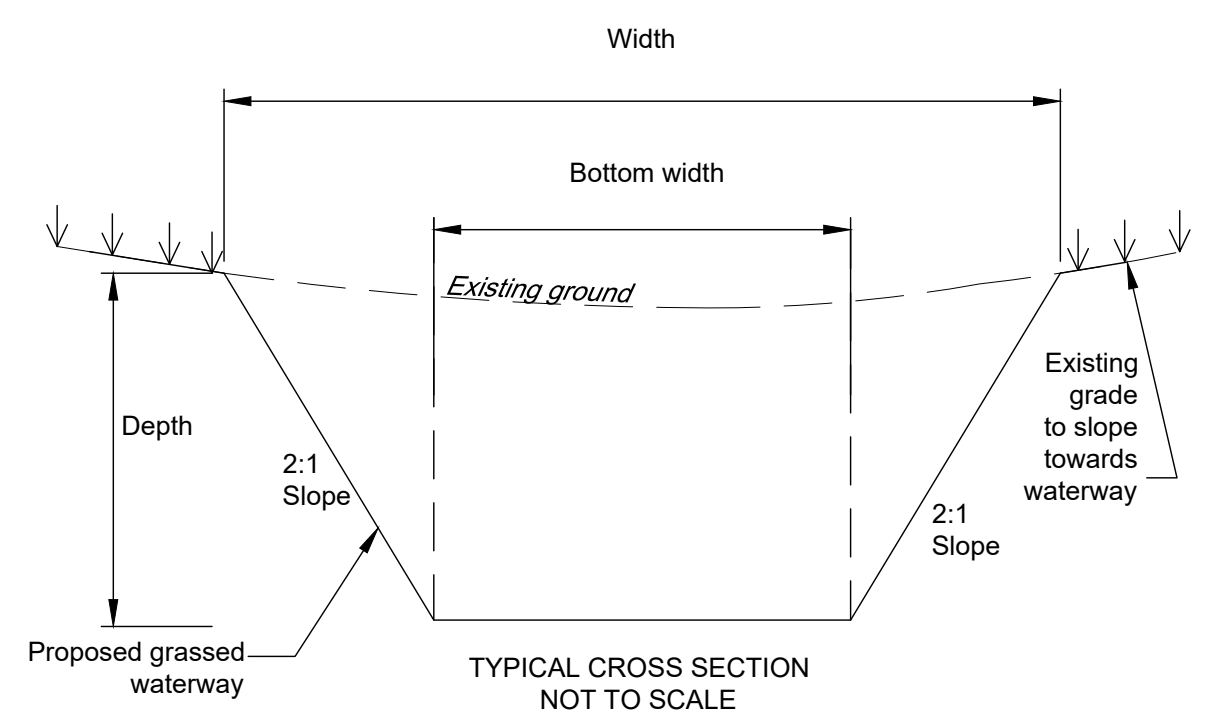
**LANDOWNER - SITE NAME**  
#####  
COUNTY Soil Conservation District  
JOB CLASS # \_\_\_\_\_, Maryland  
TRACT # \_\_\_\_\_



File Name  
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Drawing No.  
MD\_0045

Sheet 2 of 2



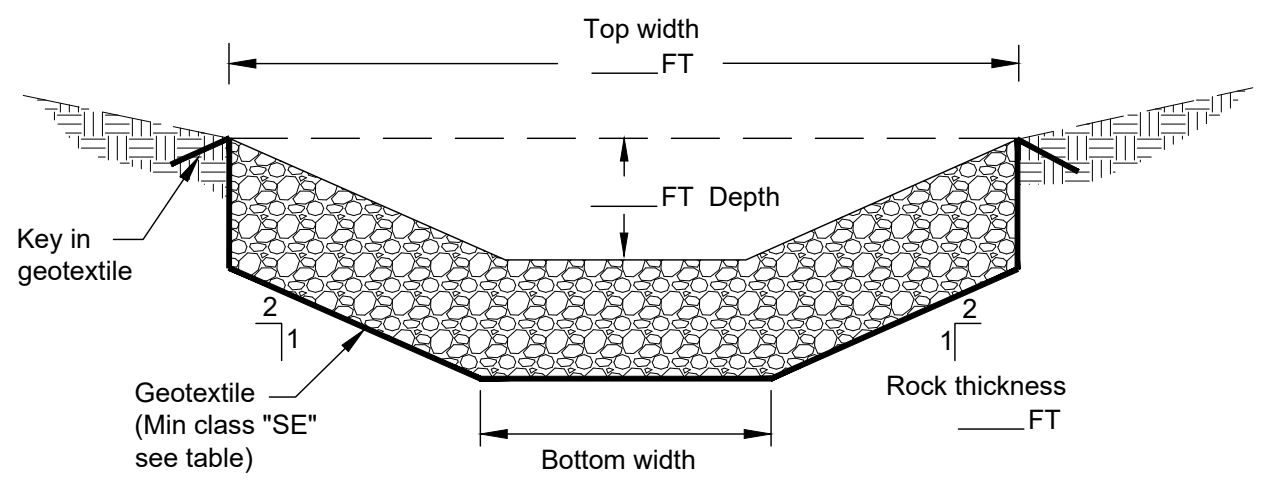
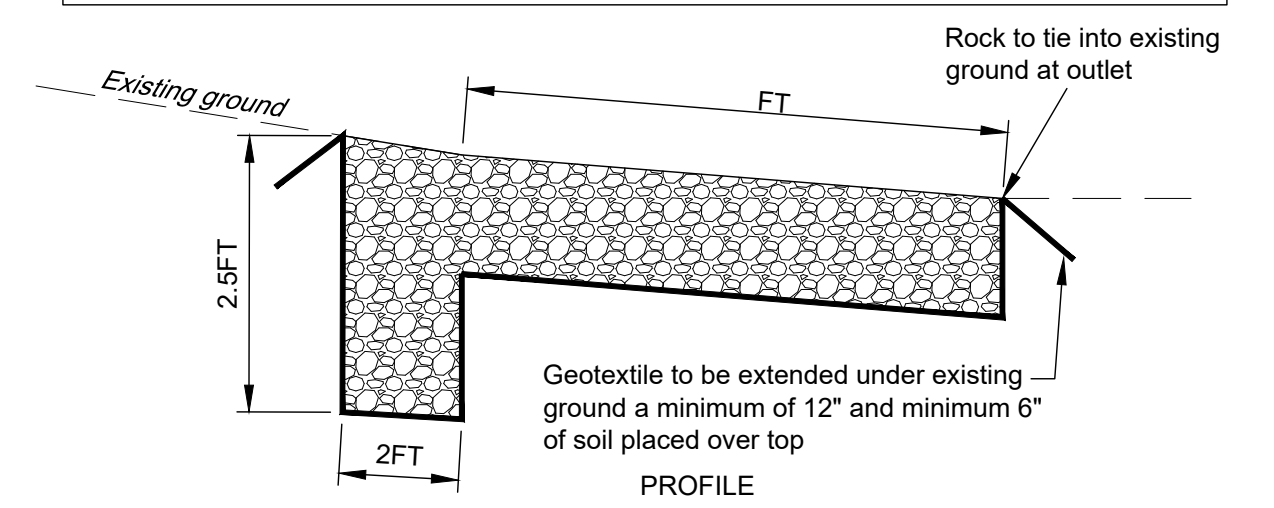
- GENERAL NOTES:**
- Remove topsoil prior to grading and stockpile outside limits of waterway construction
  - Install excelsior type erosion control matting according to manufacture's recommendations. matting shall meet minimum shear stress of 1.75 lb/ft<sup>2</sup> and maximum velocities of 7ft/s (see erosion control matting detail sheet for installation instructions)
  - Erosion control matting width shall be total width of channel.
  - A minimum of 4" of topsoil shall be placed along entire length and width of constructed waterway
  - Lime, fertilizer and seed shall be placed in waterway prior to installing erosion control matting (see seeding details)
  - Waterway shall be maintained as needed to minimize erosion throughout the required maintenance life of 10 years

**TRAPEZOIDAL GRASSED WATERWAY  
DETAIL**

USER TO CLICK ON BLOCK AND ENTER INFORMATION

**Design Specifications:**

Length _____ FT	Riprap _____ TONS
Top Width _____ FT	Rock ____ " to ____ " d50 = ____ "
Bottom Width _____ FT	Riprap Thickness _____ FT
Depth _____ FT	Geotextile _____ FT <sup>2</sup>
Grade _____ FT/FT	Clearing _____ AC

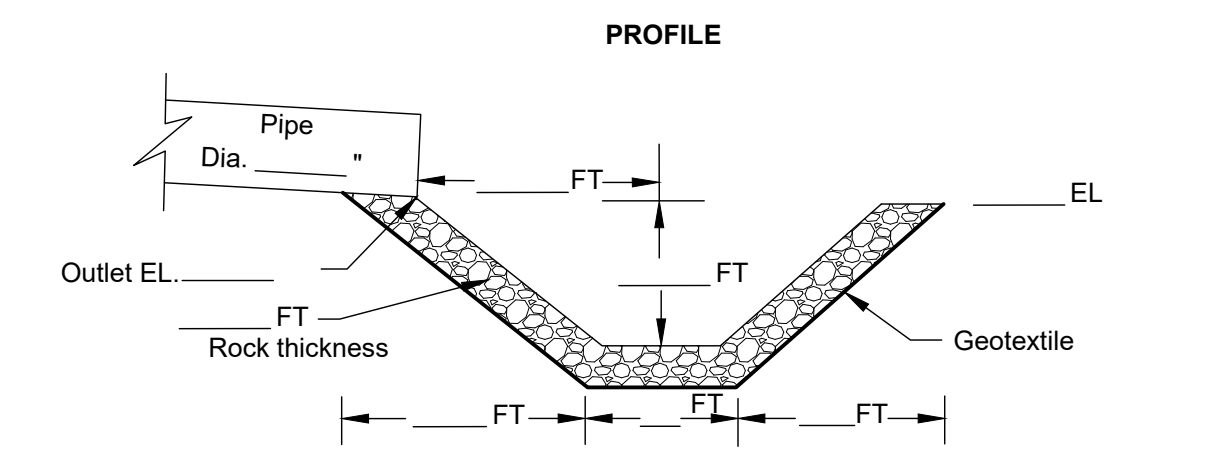
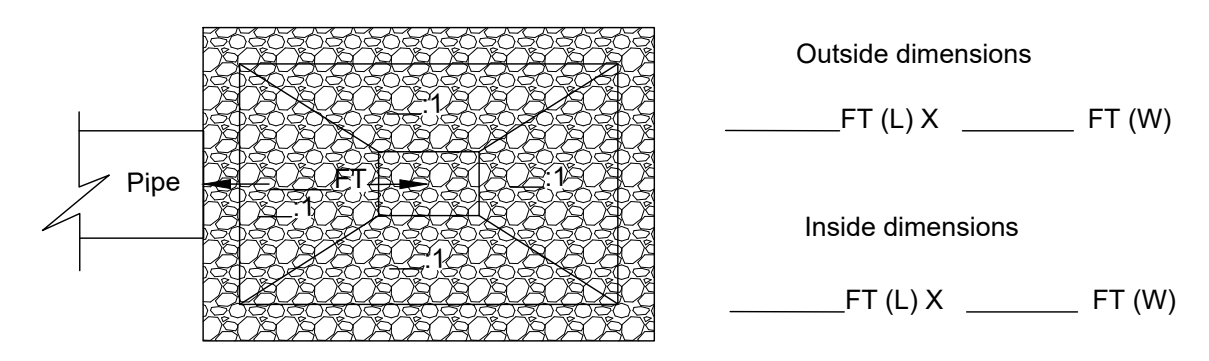


**CROSS SECTION  
N.T.S.  
TRAPEZOIDAL ROCK OUTLET DETAIL**

USER TO CLICK ON BLOCK AND ENTER INFORMATION

**Design Specifications:**

Depth of Plunge _____ FT	Rock ____ " to ____ " d50 = ____ "
Distance to CL of plunge _____ FT	Riprap Thickness _____ FT
Riprap _____ TONS	Geotextile _____ FT <sup>2</sup>
	Clearing _____ AC



**CROSS SECTION  
DRAWING NOT TO SCALE**

USER TO CLICK ON BLOCK AND ENTER INFORMATION