

USDA GRADE STABILIZATION STRUCTURE

Conservation Practice Jobsheet

410

Natural Resources Conservation Service (NRCS)

July 2009

Landowner _____



WHAT IS A GRADE STABILIZATION STRUCTURE?

A grade stabilization structure is a structure used to control the grade and head cutting in natural or artificial channels.

PURPOSE

A grade stabilization structure may be applied as part of a conservation management system to achieve one or more of the following:

- To stabilize the grade and control erosion in natural or artificial channels
- To prevent the formation or advance of gullies
- To enhance environmental quality and reduce pollution hazards

WHERE THE PRACTICE APPLIES

A grade stabilization structure is applicable in areas where concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Special attention shall be given to maintaining or improving habitat for fish and wildlife where applicable

GENERAL CRITERIA AND CONSIDERATIONS

Grade stabilization structures are located so that the elevation of the inlet of the spillway is set at an elevation that will control upstream headcutting.

A wide range of alternative types of structures are available for this practice, including
 Type A: L-Shaped
 Type B: Rice Water Weir
 Type C: Low Overfall
 Type D: Funnel Inlet.

An intensive site investigation is required to plan and design an appropriate grade stabilization structure for a specific site.

Once the structure is established, a protective cover of vegetation shall be established on all exposed surfaces of the embankment, spillway, borrow area, and disturbed areas. Temporary vegetation may be used until permanent vegetation can be established.

GRADE STABILIZATION STRUCTURE – SPECIFICATIONS SHEET

Landowner/Cooperator _____

Field Office _____

Plan Number _____ Location _____

Purpose/Objective of the Practice (Check all that apply)

	To stabilize the grade and control erosion in natural or artificial channels
	To prevent the formation or advance of gullies
	To enhance environmental quality and reduce pollution hazards
	Other: _____

Operation and Maintenance

Periodically inspect the area for any damage, deterioration, or maintenance needs. Promptly repair eroded areas and re-establish vegetative cover where erosion has removed seeding. Ensure that all spillways remain open and remove trash or debris that may accumulate around the entrance.

Protective vegetation should be fertilized when necessary to maintain a vigorous cover. To prevent growth of large woody-stemmed weeds, water plants, or other undesirable vegetation, mow, spray, or chop out such vegetation from the embankment and spillway areas.

Additional Specifications and Notes

Client's Acknowledgement (To be signed after jobsheet completed and before practice installation)

By signing below, I acknowledge that I:

- have reviewed the site specific installation, operation and maintenance requirements in this jobsheet and have an understanding of them;
- will install, operate, and maintain the conservation practice in accordance with the requirements;
- will make no changes to the requirements, without prior written approval of the Natural Resources Conservation Service (NRCS);
- will obtain all necessary permits and/or rights, and comply with all ordinances and laws pertaining to the installation, operation, and maintenance of the conservation practice, prior to the start of installation; and
- will notify LA One Call prior to the installation, operation, and maintenance of the conservation practice. Forms LA-ENG-54 and LA-ENG-55 will be utilized as required for the installation of this or multiple installations of practices.

Signature _____ Date _____

Practice Design Certification (To be completed after jobsheet is complete and before practice installation)

By signing below, I certify that:

- the site specific requirements for the installation, operation, and maintenance of the practice on the client's treatment unit, as recorded in this jobsheet, have been prepared in accordance with the 410 Grade Stabilization Structure Standard and the guidance in the 410 Grade Stabilization Structure Specification; and
- I have the required job approval authority or certification required for 410 Grade Stabilization Practice design.

Signature

Date

Practice Installation Certification (To be completed after practice installation and check out)

By signing below, I certify that:

- The practice has been installed according to the site specific installation requirements, and
- I have the required job approval authority or certification required for 410 Grade Stabilization Practice implementation.

Signature

Date

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GRADE STABILIZATION STRUCTURE DESIGN AND CHECKSHEET

Landowner/Cooperator _____
Field Office _____
Plan Number _____ **Location** _____
Soil Type _____ **USCS Class** _____ **Piping Potential** _____

Pipe Drop Number	1	2	3	4	5	6	7	8	9	10
Drainage Area										
Type of Crop Drained ¹										
Elevation of Normal Ground or Drain										
Elevation of Outlet Channel										
Total Overall in Feet										
Type of Structure Needed ²										
Required Capacity (Q) in CFS										
Design Head										
Emergency Spillway Bottom Width										
Riser Diameter in Inches										
Barrel Diameter in Inches										
Riser Length in Feet (crest to barrel inlet invert)										
Barrel Length in Feet										
Deflection (inches per foot)										
Number of 80lb Bags of Concrete										
Anti-Vortex Height in Feet										
Diversion Levee Length and Height										
DATA USED TO COMPUTE GULLY EROSION FOR Form AD-862, Section E-3-C $F = A * [(B+C)/2] * D * [E/2000]$	Average Depth (A)									
	Average Top Width (B)									
	Average Bottom Width (C)									
	Advance in Feet per Year (D)									
	Tons Soil Saved (F)									

¹ R-Rice, P-Pasture, S-Soybeans and Row Crops, Sc-Sugarcane, W-Woodland, Cp-Crawfish Pond, U-Urban or Industrial, MH-Maximum Hill, O-Other

² See next page for letter reference

Soil Texture Class	Dry Density (E) PCF
Clay	70-95
Silty clay, silty clay loam	75-100
Sandy clay, loam sandy loam	80-105
Clay loam, silt silt loam	85-100
Sandy clay loam, loamy sands, sands	95-110

Needs Determined by _____ Date _____

