Grade Stabilization
Small Scale Solutions for your Farm

NRCS
Natural Resources Conservation Service

Do you have a problem with a gully or washout in your field?

A Grade Stabilization Structure can help by:

- Stopping a gully from continuing to erode
- Providing a place for water to move from your field and down into a stream or ditch

Gullies (above) can be fixed with a grassed waterway (below) and a grade stabilization structure

What is a grade stabilization structure?

A grade stabilization structure is installed to stop a gully at the edge of a field. A grade stabilization structure is usually installed with a grassed waterway that brings water to the structure.

Here is how a grade stabilization structure can help your operation:

- Inexpensive way to stop gullies
- Stop your soil from washing into the creek
- Get rid of gullies and make your field easier to farm

Costs and Benefits:

The cost to construct a Grade Stabilization Structure depends on what you use to build it and how much of the work you do yourself. Some of the things you will need to consider are:

- Digging with a backhoe
- Grading with a tractor blade or small dozer
- Materials, such as precast concrete blocks, riprap, treated wood, metal posts, cattle panels
- Vegetative re-seeding

Grade Stabilization

Cattle panel structure

Cattle Panel Structures

Cattle panel structures are usually cheap and simple to build, but they should only be used for small gullies.

Treated Wood Structures

A little more expensive because you need treated wood, concrete and riprap rock but a lot of the work can be done by hand. These can be used on larger gullies that carry more water and are steeper.

Treated wood structure

Precast Concrete Block Structures

Usually the most expensive but they can be put in large gullies with a large drop into the stream or ditch. The structures are made from precast concrete blocks made from waste concrete. They can usually be bought from concrete ready mix plants. These structures cost more because the blocks must be purchased and hauled to the site and placed with a piece of heavy equipment.

Precast concrete blocks

Geotextile Reinforced Grass
Usually cheap to build but should be used for smaller gullies.

Geotextile reinforced grass chute

Grade Stabilization

How do I install a grade stabilization structure?

Cattle panel structures require the least amount of work. Three inch steel posts are driven into the ground two feet apart. Wire panels known as “cattle panels” are fastened to the posts on the upstream side and riprap (4 - 6 inch diameter rocks) is dumped on the upstream side and in the channel on the downstream side. Some backhoe work may be needed to place the riprap and to grade around the finished structure.

Treated wood structures can be built by hand. The walls of the structure are made out of 4 x 6 treated wood timbers nailed and bolted together. Concrete is poured to make the floor and riprap is put in the ditch downstream from the structure. A backhoe will be needed to dig out a foundation for the structure and to grade around it when it is finished.

Precast concrete block structures are made by stacking large concrete blocks (2’ x 2’ x 4’) like stair steps. The blocks are made out of leftover concrete and can be bought at a ready mix concrete plant. You will need equipment, such as a backhoe or excavator, to dig out the foundation for the structure. A large backhoe or excavator will also be needed to put the concrete blocks in place.

Geotextile reinforced grass structures are made by shaping the bank to the right size and slope. The soil should be raked smooth before placing the geotextile. The geotextile is laid on the slope with the top and bottom anchored in a trench. Seed is then spread on the geotextile and covered with an erosion control blanket. The erosion control blanket is stapled down through the geotextile. The grass will put down roots through the geotextile making a strong, stable erosion resistant outlet.

Laying out geotextile for grass chute

What type of maintenance will I need to do?
If the grade stabilization structure is built properly, very little maintenance should be needed. However, the structure should be checked regularly to repair any problems that do happen. A good time to check is after big rain storms. Look for washouts around the ends of the structure and just downstream from the structure. Fix washed out areas by replacing the soil and reseeding it with grass. If riprap has washed out of place, put it back in place, adding any rock that is needed.

Help is Available

NRCS Natural Resources Conservation Service

SMALL SCALE SOLUTIONS FOR YOUR FARM

Technical Help Is Available

Your local Natural Resources Conservation Service (NRCS) office has experienced conservationists that can assist you with a grade stabilization structure. They can also help you develop a Conservation Plan to solve other problems you have identified on your farm.

There is no charge for our assistance. Simply call your local office at the number listed below to set up an appointment and we will come to your farm.

You may also be eligible to receive financial assistance, through a state or federal program. Your NRCS office will explain any programs that are available so you can make the best decision for your operation. All NRCS programs and services are voluntary.

Helping People Help the Land

For More Information Contact the:

Natural Resources Conservation Service

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NRCS accepts applications on a continuous basis throughout the year.

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