

# Grassed Waterways



A well-functioning Grassed Waterway. This practice provides a stable outlet to convey surface water off the field while preventing ephemeral soil erosion.

## What

**Grassed Waterways are a shaped or graded, perennially vegetated channel designed to carry runoff at a slow speed to a stable outlet or receiving waterway.** As water travels down the waterway, the vegetation prevents erosion that would otherwise result from concentrated flows. When used in conjunction with other field practices, grassed waterways can be easily maintained and will require little cleaning and repair.

## Why

**Grassed waterways manage storm flows and snowmelt while protecting fields against gullies and soil loss.**

The vegetation in the waterway slows down and soaks up incoming water, significantly reducing erosion. The result is a drainage structure that maintains its shape and function over

time. Additionally, due to the decrease in soil loss and sedimentation, water quality and habitat for aquatic organisms is protected. Grassed waterways are appropriate wherever row crops or perennial forage crops are grown, or on pastures.

## How

**The length, depth, and width of the waterway will depend on a number of factors,** including the size, slope, and soil type of the contributing watershed, and the soil type and slope of the waterway. Most grassed waterways are sized to accommodate the ten-year storm event (a storm of such a magnitude has a ten percent chance of occurring in any one year). In Vermont, these storms produce about four inches of rainfall in twenty-four hours.

A shallow parabolic (or “U”) shape waterway will resist erosion and be easily crossed with tilling and harvesting equipment when side slopes are maintained flatter than a ratio of two horizontal to one vertical. The concave surface of a grassed waterway must be kept smooth, to maintain overland flow and avoid creating gullies. The channel slope itself should be at least one percent and shouldn’t exceed five percent. If the slope does exceed five percent, grade control structures may be needed.

Quickly establishing vegetation on a newly shaped waterway is critical and construction of the waterway should coincide with recommended planting dates for the chosen vegetation types. Use species adapted to the site conditions that can achieve the best vigorous growth and cover in stabilizing the waterway. Nurse crops may help seeds germinate and seedlings successfully grow. Straw or hay bale dikes and upslope runoff diversions using