Grassed Waterway

Oklahoma Conservation Practice Job Sheet **412 01**

Definition

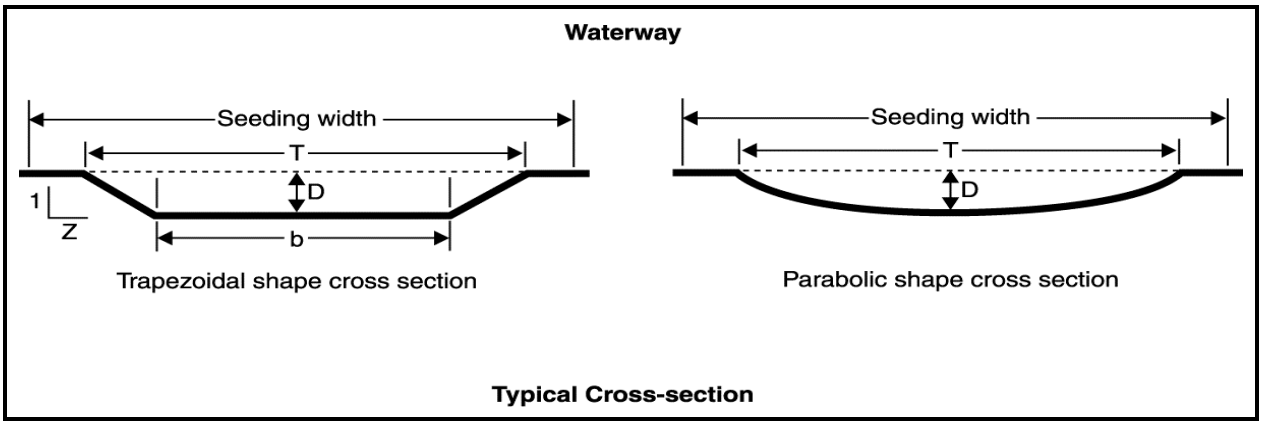
A grassed waterway consists of a natural or constructed vegetated channel that is shaped or graded and vegetated to carry surface water at a non-erosive velocity to a stable outlet

Purpose

Grassed waterways convey runoff from terraces, diversions, or other water concentrations without causing soil erosion or flooding. Vegetation in the waterway protects the soil from erosion caused by concentrated flows while carrying water downslope. A stable outlet is designed to slow and/or spread the flow of water. In addition, the grassed waterway installation must assure that the runoff from the grassed waterway does not cause gullies and/or overfalls to develop. A vegetated filter (Oklahoma Conservation Practice Standard, Filter Strip - 393) may be installed downstream of the grassed waterway outlet. Vegetative filters are designed to trap sediment and increase infiltration so that other pollutants, such as pesticides and nutrients, can be removed from surface runoff. Depending upon the selection of vegetation and management practices, grassed waterways can offer diversity and cover for wildlife.

Where the practice applies

A grassed waterway is used in areas where added water conveyance capacity and vegetative protection are needed to control soil erosion resulting from concentrated runoff. Such areas commonly include draws and other low-lying areas or outlets for other conservation practices (e.g., diversions and terraces). The minimum capacity of a waterway conveys the peak runoff expected from a storm of 10-year frequency, 24-hour duration. In some areas, a combination of high peak runoff and steep slopes may cause water velocities that preclude the use of a grassed waterway.



A grassed waterway can have a cross-section configuration that is trapezoidal or parabolic. Side slopes are constructed to be no steeper than a ratio of two horizontal to one vertical. The intent is to accommodate maintenance and tillage/harvesting equipment that will cross the waterway. Waterways are generally less than 100 feet wide to control the tendency of low flows to meander.

Vegetation establishment

The most critical time for successful installation of a grassed waterway is immediately following construction when the channel is bare and unprotected from runoff. Establish vegetation according to Oklahoma NRCS Conservation Practice Standard, Critical Area Planting (342) before allowing water to flow in the waterway. Use soil amendments and irrigation to hasten establishment of vegetation as necessary. Use mulch, anchoring, a cover crop, rock, hay-bale dikes, filter fences, or runoff diversions to protect the vegetation until established. For the stable, spreading-type outlet, select perennial plant species (native species are encouraged where possible) that are sod-forming plants having stiff, upright stems that act as a dense filter. It is critical during the vegetative establishment period to restrict outside water from flowing through the channel. Therefore, it may be necessary to delay construction of terraces and/or diversions until the grassed waterway is well established.

Wildlife

A grassed waterway can enhance wildlife objectives, depending on the vegetative species used and management practiced. Consider using native or adapted vegetative species that can provide food and cover for important wildlife. Delay mowing of the grassed waterway until after the nesting season. Prescribed burning, or other disturbance practice, may be appropriate to enhance wildlife values, but burning must be conducted to avoid critical nesting seasons or to reduce winter cover.

Conservation management system

A grassed waterway can be used in combination with other conservation practices, such as vegetated filters, contour buffers, terraces, diversions, crop residue management, and nutrient and pesticide management. Grassed waterways located below areas of high sediment production need special design and additional maintenance.

Operation and maintenance

Maintain vigorous growth of desirable vegetative coverings in the grassed waterway. All vegetative treatment types shall be protected from concentrated flow and grazing until vegetation is established. Protect vegetation from direct herbicide sprays, and use plant species tolerant of chemicals used at the site. Do not use as a roadway. Minimize damage to vegetation by limiting vehicle traffic and excluding livestock during periods of soil wetness. Inspect grassed waterways regularly, especially following heavy rains. Damaged areas will need to be filled, compacted, and seeded immediately. Avoid using grassed waterways as turn-rows during tillage and cultivation operations. Mow or periodically graze vegetation to control height, so that capacity is maintained and sediment deposition is reduced. Remove sediment deposits to maintain the capacity of the waterway. Control noxious weeds.