DESIGN PROCEDURE FOR GRASSED WATERWAY OR OUTLET

Steps

1. Determine drainage area from USGS maps, field observations, and/or aerial photographs.
2. Determine average watershed slope from survey data, soil survey, field observations, and/or USGS maps. For definition of average watershed slope, see EFM, Chapter 2, page 2-7.
3. Determine waterway grade from field surveys.
4. Determine minimum design frequency requirements from Standard and Specification 412, Grassed Waterway or Outlet, Section IV of the Technical Guide, based on grade determined in Step 3.
5. Determine Soil type and Hydrologic Soils Group , use Soil Survey and EFM Chapter 2, IN-2-1 through IN-2-6.
6. (a) If waterway grade is equal to or greater than 1%, determine curve number (CN) from EFM, Chapter 2, based on soils, cover, etc., as determined by field observations and soil survey. Use Worksheet IN-1, page IN-2-91.1

   (b) If waterway grade is less than 1%, proceed to Step 7b.
7. Determine rainfall from EFM, Chapter 2, pages IN-2-7 through IN-2-14.

   (a) If waterway grade is equal to or greater than 1%, determine peak discharge Q in cfs from EFM, Chapter 2, IN-2-91.2. Use Worksheet IN-2.

   (b) If waterway grade is less than 1%, determine "B" drainage curve capacity from EFM, Chapter 14, page 14-89. This is the minimum capacity that may be used, if flow does not cause erosion, use this value or one up to 10-year, 24-hour value.
8. Determine degree of retardance, using "C" retardance for fescue waterways. For other classifications of vegetative cover, see EFM, Chapter 7, page 7-18.
9. Determine permissible velocity from EFM, Chapter 7, page 7-19. Must not exceed 5 fps in accordance with Standard and Specification 412, Section IV of the Technical Guide.
10. Determine size of waterway required from EFM, Chapter 7, Exhibit 7-4 or 7-5, sheets 1 through 14 or Exhibit IN-7-7 sheets 1 through 13, or Exhibit IN -7-8, sheets 1 through 12.
11. Fill out the sheets for the plan. Seeding recommendations are in Standard and Specification 412, Section IV of the Technical Guide.
12. Check all works for omissions and errors.