

Chapter 4 - BEST MANAGEMENT PRACTICE STANDARDS

LEVEL SPREADER

(Permanent Practice)

Definition

An outlet for dikes, diversions, or other concentrated runoff which is slightly depressional allowing water to collect and then disperse uniformly over the surrounding vegetated area.

Purpose

To convert concentrated runoff to sheet flow and release it onto area stabilized by existing vegetation.

Conditions Where Practice Applies

Where sediment-free storm runoff is intercepted and diverted away from graded areas onto undisturbed stabilized areas. This practice applies only in those situations where the spreader can be constructed on undisturbed soil and the area below the level lip is stabilized by natural or pre-established vegetation. The water should not be allowed to reconcentrate after release (Figure 4-113).

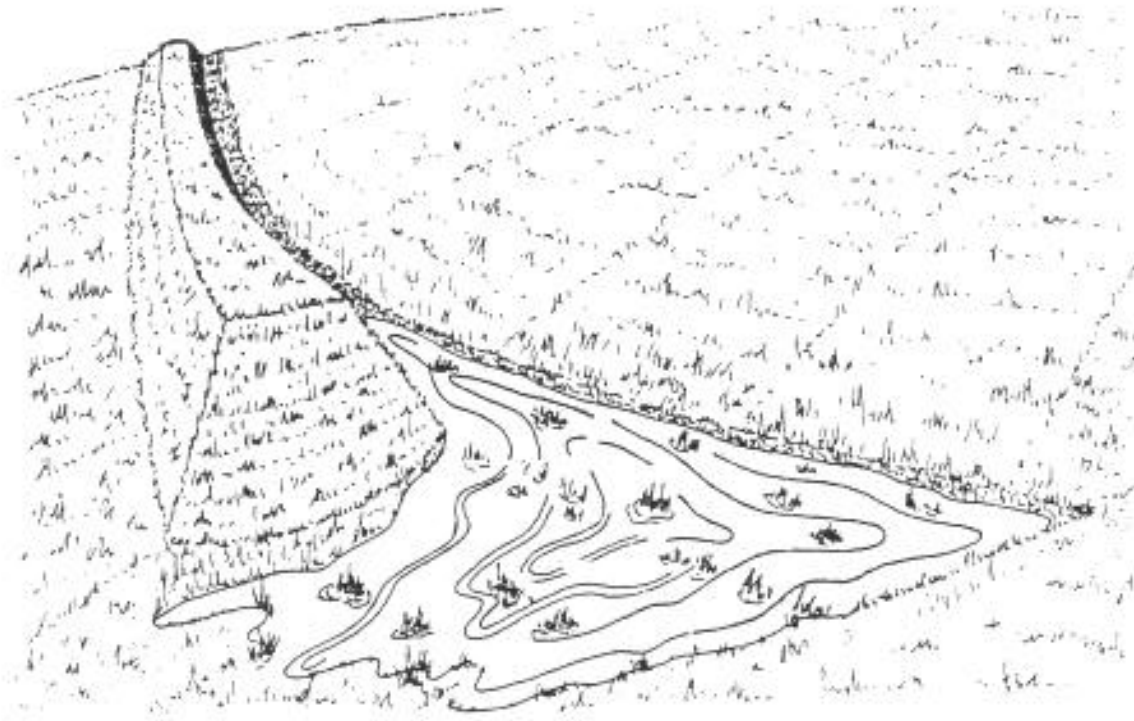


Figure 4-113 Level spreader outlet for diversion

Planning Considerations

The runoff to the Level Spreader shall be relatively free of sediment. If properly constructed, the Level Spreader will significantly reduce the velocity of concentrated stormwater from small drainage areas and spread it uniformly over a stable, undisturbed area.

This practice is relatively easy and inexpensive to install. However, particular care must be taken during construction to insure that the lower lip (crest) of the structure is level. If there are any depressions in the crest, flow will tend to concentrate at these points and erosion will occur, resulting in failure of the outlet. Regular maintenance is essential for this practice.

Design Criteria

The level spreader practice is for small drainage areas.

1. Capacity: The capacity of the spreader crest shall be limited to those drainage areas producing no more than 40 cfs from a 10-year storm.
2. Length: By estimating the flow, the spreader crest length can be determined from the following table:

<u>Design Flow (CFS)</u>	<u>Min. Depression Depth (Feet)</u>	<u>Min. Length (Feet)</u>
0 - 10	0.5	10
10 - 20	0.6	20
20 - 30	0.7	30
30 - 40	0.8	40

3. Width: The minimum acceptable width of the depressional area along the level crest shall be 6 feet.
4. Grade: The grade of the channel for the last 20 feet of the dike or diversion entering the level spreader shall be less than or equal to 1 percent. The grade of the depression along the level spreader shall be 0 percent.
5. Outlet: The release of the stormwater will be over the level crest onto a undisturbed stabilized area. The level crest should be of uniform height and zero grade over the length of the spreader crest.
6. Maintenance: The measure shall be inspected after every rainfall, leaves and debris removed, and repairs made if required. The contractor should avoid the placement of any material on and prevent construction traffic across the structure. If the measure is damaged by construction traffic, it shall be repaired immediately. Fertilizing and mowing will maintain a healthy and vigorous vegetation cover.

Plans and Specifications

Plans for installing a level spreader shall be in keeping with this practice standard and shall describe the requirements for achieving the intended purpose.

Specifications for construction and installation of the level spreader shall use or be in conformance with the following requirements.

1. Level spreaders must be constructed on undisturbed soil (not fill material).
2. The entrance to the spreader must be shaped in such a manner as to insure that runoff enters directly onto the 0 percent channel.
3. The level crest shall be constructed on zero percent grade to insure uniform spreading of storm runoff.
4. The released runoff must outlet onto undisturbed, stabilized areas in sheet flow and not be allowed to reconcentrate below the structure.