

BMP C206: Level Spreader

Purpose

To provide a temporary outlet for dikes and diversions consisting of an excavated depression constructed at zero grade across a slope. To convert concentrated runoff to sheet flow and release it onto areas stabilized by existing vegetation or an engineered filter strip.

Conditions of Use

Used when a concentrated flow of water needs to be dispersed over a large area with existing stable vegetation.

- Items to consider are:
 1. What is the risk of erosion or damage if the flow may become concentrated?
 2. Is an easement required if discharged to adjoining property?
 3. Most of the flow should be as ground water and not as surface flow.
 4. Is there an unstable area downstream that cannot accept additional ground water?
- Use only where the slopes are gentle, the water volume is relatively low, and the soil will adsorb most of the low flow events.

Design and Installation Specifications

Use above undisturbed areas that are stabilized by existing vegetation. If the level spreader has any low points, flow will concentrate, create channels and may cause erosion.

- Discharge area below the outlet must be uniform with a slope flatter than 5H:1V.
- Outlet to be constructed level in a stable, undisturbed soil profile (not on fill).
- The runoff shall not re-concentrate after release unless intercepted by another downstream measure.
- The grade of the channel for the last 20 feet of the dike or interceptor entering the level spreader shall be less than or equal to 1 percent. The grade of the level spreader shall be 0 percent to ensure uniform spreading of storm runoff.
- A 6-inch high gravel berm placed across the level lip shall consist of washed crushed rock, 2- to 4-inch or 3/4-inch to 1½-inch size.
- The spreader length shall be determined by estimating the peak flow expected from the 10-year, 24-hour design storm. The length of the spreader shall be a minimum of 15 feet for 0.1 cfs and shall increase by 10 feet for each 0.1 cfs thereafter to a maximum of 0.5 cfs per spreader. Use multiple spreaders for higher flows.
- The width of the spreader should be at least 6 feet.

- The depth of the spreader as measured from the lip should be at least 6 inches and it should be uniform across the entire length.
- Level spreaders shall be setback from the property line unless there is an easement for flow.
- Level spreaders, when installed every so often in grassy swales, keep the flows from concentrating. Materials that can be used include sand bags, lumber, logs, concrete, and pipe. To function properly, the material needs to be installed level and on contour. [Figures 4.2.5](#) and [4.2.6](#) provide a cross-section and a detail of a level spreader. A capped perforated pipe could also be used as a spreader.

Maintenance Standards

The spreader should be inspected after every runoff event to ensure that it is functioning correctly.

- The contractor should avoid the placement of any material on the structure and should prevent construction traffic from crossing over the structure.
- If the spreader is damaged by construction traffic, it shall be immediately repaired.

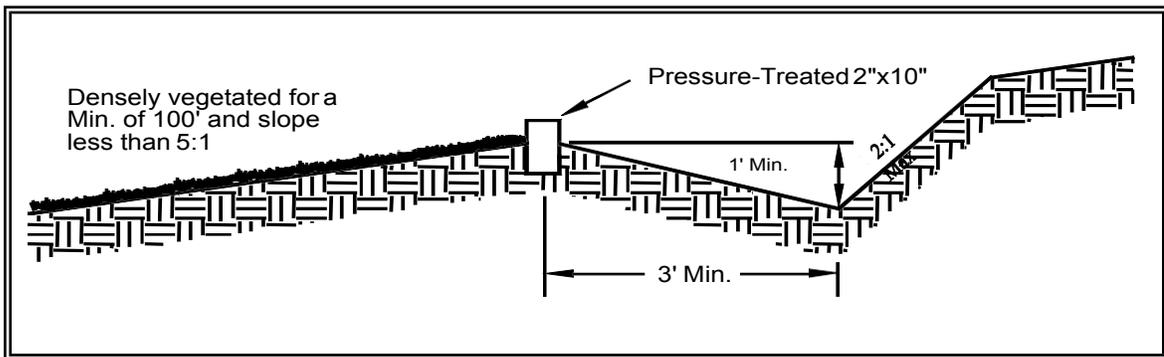


Figure 4.2.5 – Cross Section of Level Spreader

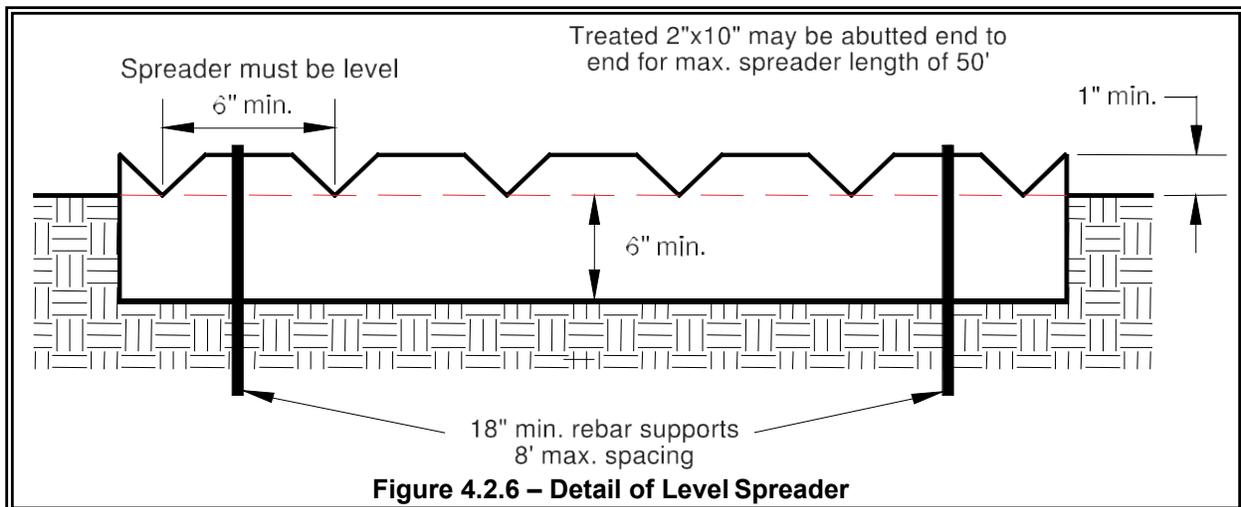


Figure 4.2.6 – Detail of Level Spreader