

3.6 FLOTATION SILT CURTAIN



Figure 3.11. Flotation silt curtain (Source: Minnesota DOT)

Overview

Description: A silt barrier for use within a pond or lake. This device consists of a heavy-duty filter fabric that is weighted at the bottom and attached to a flotation unit at the top.

Problem identification: When construction occurs near open bodies of water, measures must be taken to retain and remove sediment and floating debris at the water's edge.

Design purposes: To isolate a construction area within a pond or lake to prevent silt-laden water from migrating out of the construction area; to limit and control the migration of suspended sediment within a pond or lake.

Associated practices: Not used with other control measures.

Installation: Flotation silt curtains are divided into three types, Type I, Type II, and Type III, based on the flow conditions within the water body. The information provided here applies to minimal and moderate flow conditions, where the velocity of flow is five fps or less. For situations in which the flow is greater than this, additional investigation is required, and a qualified manufacturer should be consulted.

The three types of silt curtains are differentiated by the strength and flow-through rate of the fabric and by the strength of the connecting materials used.

1. Type I curtains are considered light-duty and are intended for areas where there is no current and where the area is protected from wind and wave action.
2. Type II curtains can be used in areas with moderate running current (up to 3.5 fps) or where the wind and water currents can affect the curtain.

3. Type III curtains are used in areas with considerable current (up to 5 fps) or where the curtain is subject to more severe wind and wave action.

A flotation carrier should be at the top of the curtain. The carrier may be a floating plastic tube 6 in. in diameter and filled with marine-quality polyethylene foam. A 5/16 in. diameter coated steel cable should be centered in the floating tube to carry the weight of the curtain. The bottom of the curtain should be weighted by a chain or cable that weights 1.1 lbs per linear ft. Every 100 ft of the curtain requires a 24 lb anchor. When the curtain is made of more than one section, the sections should be overlapped so that silt cannot migrate through the connection.

Maintenance/inspection: Inspect after heavy winds that may create waves; also check anchors and their attachments. Weekly checks should be made on each installation to determine the curtain's condition and the remaining capacity for sediment and debris retention. When the remaining capacity falls below 50% or the vegetation is established adjacent to the curtain, the sediment and debris shall be removed in conjunction with curtain removal. Allow 24 hours for sediment to settle before removing the curtain. Any problem or failure of the curtain must be repaired immediately.

Design life: One construction season. Do not leave in place during winter months.

Estimated cost: \$28.00 per linear ft.