

SC-5 SANDBAG BARRIER

Refer to: ITD Standards and Specifications for Highway Construction, Section 212.



BMP Objectives

- Perimeter Control
- Slope Protection
- Borrow and Stockpiles
- Drainage Areas
- Sediment Trapping
- Stream Protection
- Temporary Stabilizing
- Permanent Stabilizing

A sandbag barrier is a temporary linear sediment barrier consisting of stacked sandbags, designed to intercept and slow the flow of sediment-laden sheet flow runoff. Sandbag barriers allow sediments to settle from runoff before water leaves the construction site. Large sandbag barriers can also be used for in-water work and/or water diversions if site conditions allow and appropriate permits are obtained.

Appropriate Applications

- To divert or direct flow or create a temporary sediment/desilting basin.
- During construction activities in stream beds when the contributing drainage area is less than 5 acres.
- To capture and detain non-stormwater flows until proper cleaning operations occur.
- When site conditions or construction sequencing require adjustments or relocation of the barrier to meet changing field conditions and needs during construction.
- To temporarily close or continue broken, damaged, or incomplete curbs.

Appropriate locations:

- Along the perimeter of a site.
- Along streams and channels.
- Below the toe of exposed and erodible slopes.
- Down slope of exposed soil areas.

- Around stockpiles.
- Across or along channels to serve as a barrier for utility trenches or provide a temporary channel crossing for construction equipment, or to create an in-stream diversion for a work space to reduce stream impacts.
- Parallel to a roadway to keep sediment off paved areas.
- At the top of slopes to divert roadway runoff away from disturbed slopes.
- Along the perimeter of vehicle and equipment fueling and maintenance areas or chemical storage areas.

Limitations

- The drainage area upstream of the barrier shall be limited to 5 acres.
- Degraded sandbags may rupture when removed, spilling sand.
- Installation can be labor-intensive.
- Limited durability of bag material.
- When used to detain concentrated flows, maintenance may increase.

Design Considerations

- **Bag Material:** Bags shall be woven polypropylene, polyethylene, or polyamide fabric, minimum unit weight 4 ounces per square yard; mullen burst strength exceeding 300 psi in conformance with the requirements in ASTM designation D3786; and ultraviolet stability exceeding 70 percent in conformance with the requirements in ASTM designation D4355.
- **Fill Material:** Sand shall be clean and free from clay balls, organic matter, and other deleterious materials that could leach from the bag. Fill material is subject to approval by the Engineer.

Construction Guidelines

- When used as a linear sediment control:
 - Install along a level contour.
 - Turn ends of sandbag row upslope to prevent flow around the ends.
 - Generally, use sandbag barriers in conjunction with temporary soil stabilization controls upslope to provide effective erosion and sediment control.
- Construct sandbag barriers with a set-back of at least 3 feet from the toe of a slope. Where it is determined to be not practical due to specific site conditions, the sandbag barrier may be constructed at the toe of the slope but shall be constructed as far from the toe of the slope as practicable.
- When used for in water work:
 - Ensure appropriate permits are obtained for in water work and fill material in waters of the U.S.

- Use clean sand to fill bags.
- Place bags in a manner that causes the least amount of disturbance to the stream bed.

Maintenance and Inspection

- Conduct inspections as required by the NPDES permit or contract specifications.
- Reshape or replace sandbags as needed, or as directed by the Engineer.
- Repair washouts or other damages as needed, or as directed by the Engineer.
- Removed sediment shall be incorporated in the project at locations designated by the Engineer or disposed of as approved.
- Remove sandbags when no longer needed. Remove sediment accumulation, and clean, re-grade, and stabilize the area.