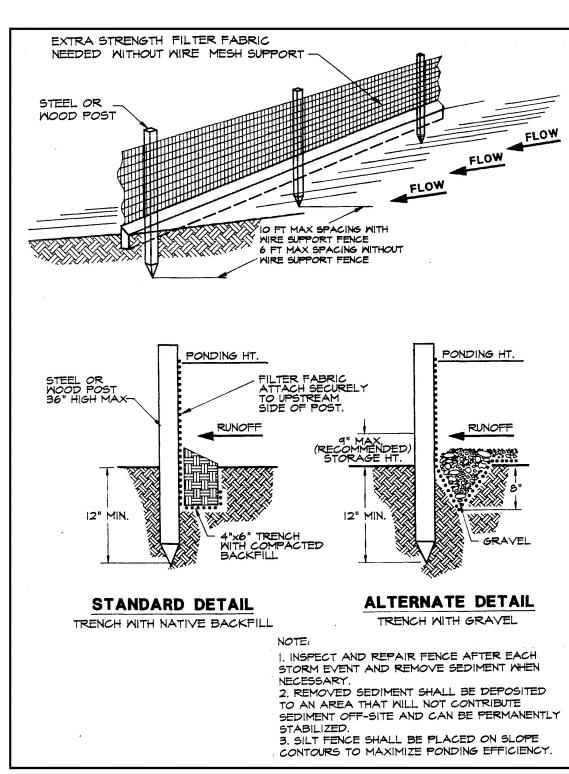
CHAPTER 4: BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENTATION CONTROL



Source: Erosion Draw

Figure 4.4a. Silt Fence

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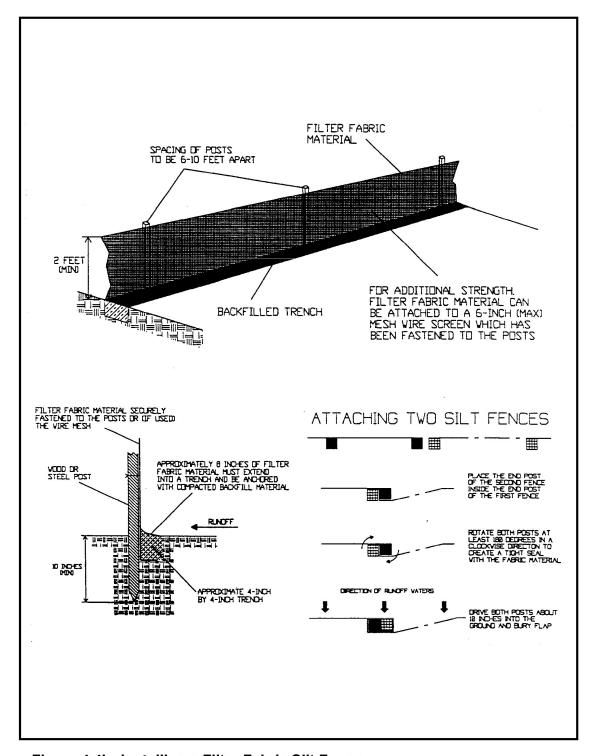


Figure 4.4b. Installing a Filter Fabric Silt Fence Source: HydroDynamics, Inc.

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- 8. When attaching 2 silt fences together, place the end post of the second fence inside the end post of the first fence. Rotate both posts at least 180 degrees in a clockwise direction to create a tight seal with the filter fabric. Drive both posts into the ground and bury the flap (see Figure 4.4b).
- 9. The trench shall be backfilled and the soil compacted over the filter fabric.
- 10. The most effective application consists of a double row of silt fences spaced a minimum of 3 feet apart, so that if the first row collapses it will not fall on the second row. Wire or synthetic mesh may be used to reinforce the first row (see **Figure 4.4c**).
- 11. When used to control sediments from a steep slope, silt fences should be placed away from the toe of the slope for increased holding capacity (see Figure 4.4d).
- 12. Silt fences shall be removed when they have served their useful purpose, but not before the upslope area has been permanently stabilized.

Maintenance

- Silt fences shall be inspected within 24 hours after each ½-inch rainfall event and at least once a week. Any required repairs shall be made immediately.
- 2. Should the fabric on a silt fence decompose or become ineffective before the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly.
- Sediment deposits should be removed when deposits reach approximately one-half the height of the barrier.
- Any sediment deposits remaining in place after the silt fence is no longer required shall be dressed to conform with the existing grade, prepared, and seeded.

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4.5 Storm Drain Inlet Protection

Definition

A sediment filter or an excavated impounding area around a storm drain drop inlet or curb inlet.

Purpose

To prevent sediment from entering stormwater conveyance systems prior to permanent stabilization of the disturbed area.

Condition Where Practice Applies

Where storm drain inlets are to be made operational before permanent stabilization of the disturbed drainage area. Different types of structures are applicable to different conditions (see Figures 4.5a through 4.5j).

Planning Considerations

Storm sewers that are made operational before their drainage area is stabilized can convey large amounts of sediment to receiving waters. In the case of extreme sediment loading, the storm sewer itself may clog and lose most of its capacity. To avoid these problems, it is necessary to prevent sediment from entering the system at the inlets.

There are several types of inlet filters and traps, which have different applications depending on the site conditions and type of inlet. Other innovative techniques for accomplishing the same purpose are encouraged, but only after specific plans and details are submitted to and approved by the stormwater permitting agency.

Note that these various inlet protection devices are for drainage areas of less than 1 acre (0.4 ha). Runoff from large, disturbed areas should be routed through a TEMPORARY SEDIMENT TRAP (Chapter 4).

Design Criteria

- 1. The drainage area shall be no greater than 1 acre (0.4 ha).
- The inlet protection device shall be constructed to facilitate the cleanout and disposal of trapped sediment and to minimize interference with construction activities.
- The inlet protection devices shall be constructed so that any resultant ponding or stormwater will not cause excessive inconvenience or damage to adjacent areas or structures.
- 4. Figures 4.5a through 4.5j provide specific design criteria for each particular inlet protection device.

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Construction Specifications

Fabric Drop Inlet Sediment Filter

- Fabric shall be cut from a continuous roll to avoid joints.
- Stakes shall be 2 x 4 inches (5 x 10 cm) wood (preferred) or equivalent metal with a minimum length of 3 feet (90 cm) (see Figure 4.5a).
- Staples shall be of heavy duty wire at least ½ inch (13 mm) long.
- 4. Stakes shall be spaced around the perimeter of the inlet a maximum of 3 feet (90 cm) apart and securely driven into the ground a minimum of 8 inches (20 cm). A frame of 2 x 4 inches (5 x 10 cm) of wood shall be constructed around the top of the stakes for proper stability.
- A trench shall be excavated approximately 4 inches (10 cm) wide and 4 inches (10 cm) deep around the outside perimeter of the stakes (see Figure 4.5b).
- 6. The fabric shall be stapled to the wooden stakes, and 8 inches (20 cm) of the fabric shall be extended into the trench. The height of the filter barrier shall be a minimum of 15 inches (38 cm) and shall not exceed 18 inches (45 cm)
- 7. The trench shall be backfilled and the soil compacted over the fabric.

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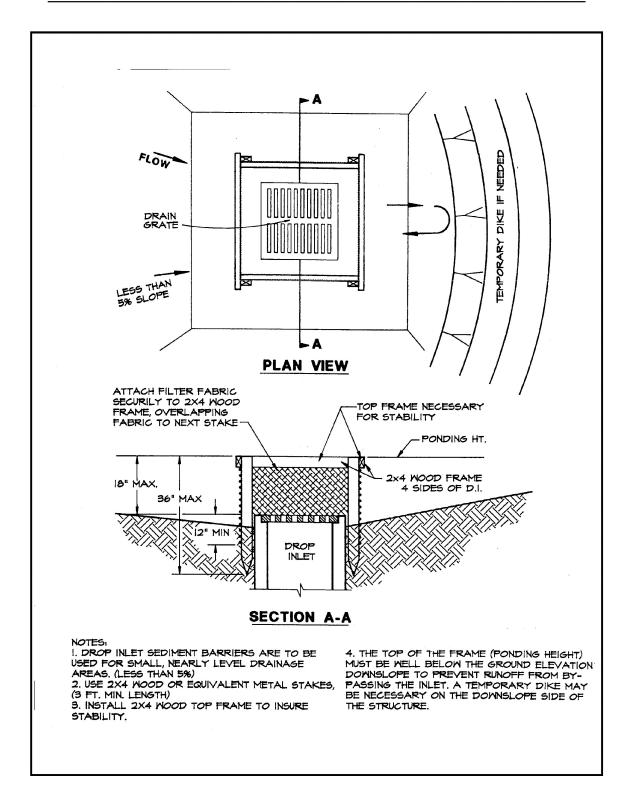


Figure 4.5a. Silt Fence Drop Inlet Sediment Barrier
Source: Erosion Draw

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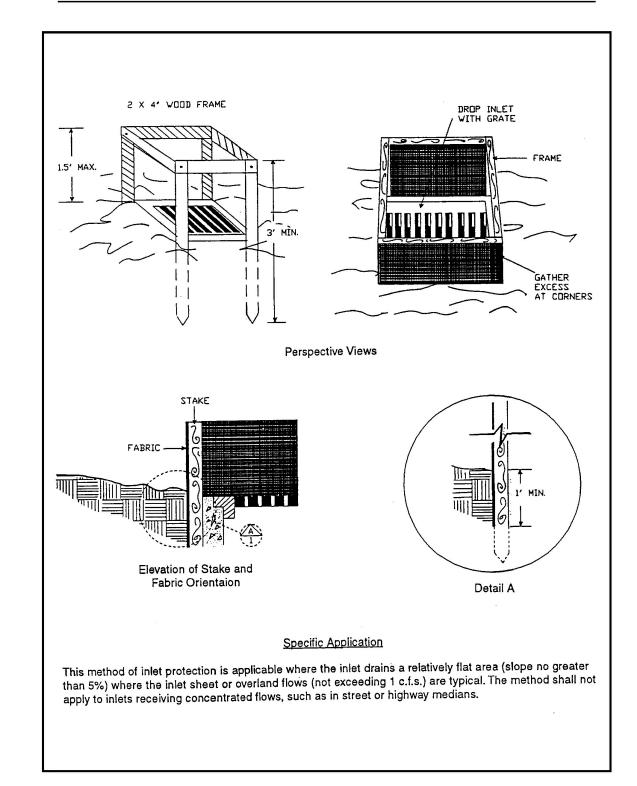


Figure 4.5b. Filter Fabric Drop Inlet Sediment Filter
Source: North Carolina Erosion and Sediment Control Manual

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Gravel and Wire Mesh Drop Inlet Sediment Filter

1. Wire mesh shall be laid over the drop inlet so that the wire extends a minimum of 1 foot (30 cm) beyond each side of the inlet structure. Hardware cloth or comparable wire mesh with ½ inch (13 mm) openings shall be used. If more than 1 strip of mesh is necessary, the strips shall be overlapped at least 1 foot (30 cm).



- FDOT No. 1 Coarse Aggregate (1.5 to 3.5 inch) (4 to 9 cm) stone shall be placed over the wire mesh, as shown in Figure 4.5c. The depth of the stone shall be at least 12 inches (30 cm) over the entire inlet opening. The stone shall extend beyond the inlet opening at least 18 inches (45 cm) on all sides (see Figure 4.5c).
- If the stone filter becomes clogged with sediment so that it no longer adequately performs its function, the stones must be pulled away from the inlet, cleaned, and replaced.
- NOTE: This filtering device has no overflow mechanism. Therefore, ponding is likely, especially if sediment is not removed regularly. This type of device must NEVER be used where overflow may endanger an exposed fill slope. Consideration should also be given to the possible effects of ponding on traffic movement, nearby structures, working areas, adjacent property, etc.

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