

# Inlet Protection



Source: Soil Tek

## BENEFITS

	L	M	H
Flow Control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Erosion Control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sediment Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Runoff Reduction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flow Diversion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Description:** Inlet protection devices consist of a variety of manufactured sediment barriers and products, which are used to filter runoff before it enters the storm sewer system.

**Typical Uses:** Inlet protection is considered the last line of protection against releasing sediment into the stormwater system or a water body. Inlet protection should be considered around all stormwater intakes and culverts that accept runoff from disturbed areas.

### **Advantages:**

- Provide one last opportunity to remove suspended particles from stormwater runoff.
- Areas requiring protection are easy to identify during both planning and construction.

### **Limitations:**

- Available practices are not effective at removing fine particles.
- May be used improperly as the sole method of erosion and sediment control.
- Require high level of maintenance.
- Limited to treating runoff from areas of 1 acre or less.

**Longevity:** Varies by product; until sediment accumulates and clean out is required

**SUDAS Specifications:** Refer to [Section 9040, 2.18](#) and [3.24](#)

## A. Description/Uses

Inlet protection can be provided by a variety of methods. A number of new manufactured products are currently available which claim to adequately filter runoff before it enters the storm sewer intake. The effectiveness of these products has yet to be determined.

The traditional method of providing inlet protection is to construct a filter at the opening. The filter is constructed from wire mesh or a steel plate, filter fabric, and crushed stone.

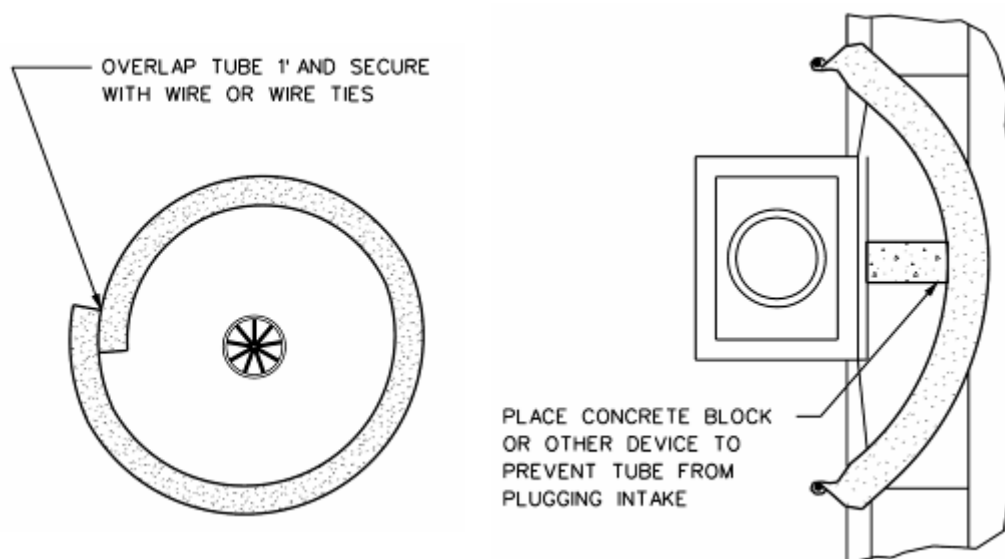
## B. Design Considerations

Most inlet protection devices rely on filtering techniques or on ponding small volumes of water to remove suspended particles. In general, the only way to remove fine particles from suspension is to detain the runoff for an extended period of time. Because inlet protection devices do not have the ability to pond and store large volumes of water, they are generally considered ineffective at removing fine particles from suspension in runoff. However, they are the last line of protection against releasing sediment-laden runoff into a stormwater system or water body. In addition, they may provide some benefit by trapping a portion of the larger suspended particles.

Because of their relative inefficiency compared to other techniques, inlet protection devices should not be used on a project as the sole method of sediment removal.

The traditional method for providing inlet protection was to construct a filter at the opening. The filter was constructed from wire mesh, filter fabric, and crushed stone. Runoff flowing to the intake would percolate through the stone and filter fabric before entering the intake. This stone medium slowed the flow of water and filtered larger sediment particles from the water. Today, these methods have been replaced with alternative techniques and materials.

**Figure 7E-20.01: Filter Tubes Used for Inlet Protection**



Silt fence, placed around the perimeter of an area intake, can also serve as an inlet protection device. Silt fence used around an intake should be reinforced with 6 by 6 inch welded wire fabric, placed on the inside of the silt fence and securely attached to the posts. Silt fence should not be placed where concentrated flows are expected.

Filter socks may be used around the perimeter of an area intake, or in locations where silt fence cannot be installed, such as paved areas. Refer to [Section 7E-4 - Filter Socks](#) for additional information on using filter socks around intakes.

A variety of manufactured products are available including storm intake filter socks, synthetic filter tubes for open throat curb intakes, intake inserts, pop-up filters for area intakes, and many others. These products should be used and installed according to the manufacturer's recommendations.

Using any inlet protection device that restricts the flow into the intake should be avoided for intakes that are on-grade. Because of the flow restriction, a majority of the flow to an on-grade intake will be bypassed to the downstream intake. This creates the potential for flooding problems downstream. To limit the potential for flooding, the drainage area to a protected inlet should be limited to 1 acre. For drainage areas larger than 1 acre, temporary sediment traps, flow diversion, or other methods should be considered.

## C. Application

Inlet protection devices should be considered for inlets that are to receive runoff from small disturbed areas (less than 1 acre). These devices are used as a last line of defense against releasing sediment into the storm sewer or a water body.

## D. Maintenance

Inlet protection devices are easily plugged, and may require a high level of maintenance. The devices should be cleaned out or replaced when standing water is still evident 48 hours after a rain event.