

Best Management Practices Fact Sheet

Inlet Protection

PURPOSE: A catch basin insert installed in a storm drain inlet filters contaminants out of runoff entering the inlet, which enhances the water quality of runoff delivered to storm sewer systems and streams.

Manufactured inlet protection units are an alternative to conventional oil-water separators that filter pollutants from runoff as it enters a stormwater inlet. These pollutants include hydrocarbons found in oil and grease, heavy metals and volatile organic compounds from pesticides, and sulfides. Design variations include tray filters installed around the perimeter of the inlet, filter bags placed around the perimeter of the inlet grate, and baskets that are set in the inlet.

Inlet protection systems typically provide for multiple stages of treatment of runoff. Upon entering the inlet, runoff is directed to a pre-settling chamber that collects heavy sediments and debris passing through the inlet grate. Runoff then passes through carbon and cellulose filters for removal of microscopic organic pollutants before being channeled to a bottom drain, where the treated water is released into the storm sewer system.

The system is designed to capture and treat the “first flush”, or initial wave, of runoff, which contains the highest concentration of pollutants. During a major storm event (more than a half-inch per hour), alternate bypass outlets divert subsequent volumes of runoff to the bottom drain to be released to the storm sewer system or stream. Since secondary waves of runoff contain lower levels of pollutants, they require less filtering, and bypassing the filtering chambers does not drastically affect the quality of runoff being released.

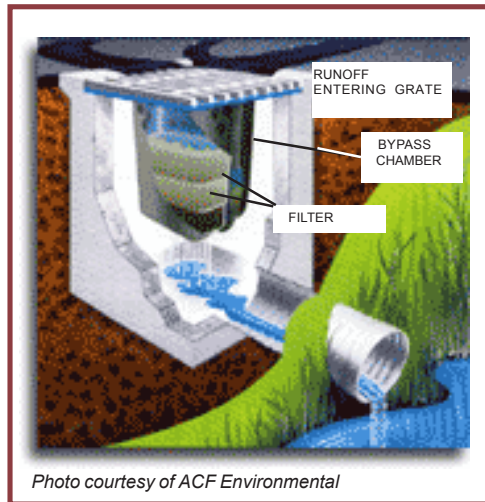


Photo courtesy of ACF Environmental

Inlet protection unit before installation.



Inlet protection unit placed in stormwater inlet.

Benefits and Uses

- Filters contaminants from runoff prior to its discharge to the storm sewer system
- Applicable to residential developments/commercial/industrial sites
- Less expensive than oil-water separators
- Can be used to treat runoff along residential streets, stream corridors, and small parking lots
- Existing inlets can be retrofit with custom-sized units

Additional Resources

PA Department of Environmental Protection
- www.dep.state.pa.us
- Pennsylvania Stormwater Best Management Practices Manual

US Environmental Protection Agency
www.epa.gov

Stormwater Manager's Resource Center
www.stormwatercenter.net

Metropolitan Council Environmental Services
www.metrocouncil.org and click on “Environmental Services” to find the link to the *Urban Small Sites BMP Manual*

General Design Considerations

- Consider type of pollutants and size of drainage area in order to select the most appropriate type of unit
- Most effective for drainage areas of less than one acre
- Follow manufacturer's guidelines regarding installation instructions
- Retrofits should be designed to fit existing inlets
- Unit should include overflow drainage to remove excess stormwater
- Placement should be accessible for maintenance
- Required maintenance includes regular removal of sediment from filters and replacement of filters every four to six months
- Effective for pre-treatment of runoff when used with infiltration beds and detention ponds; effective post-treatment of runoff when used with risers