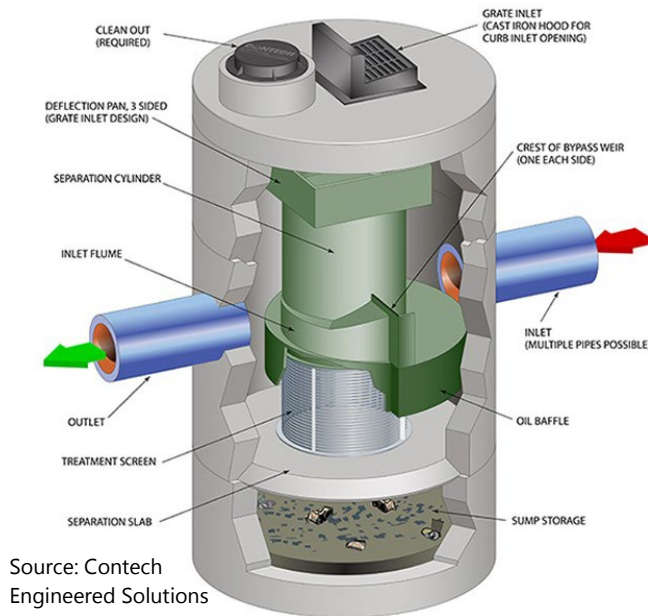


Proprietary Pretreatment Device



Source: Contech Engineered Solutions

Description

Proprietary stormwater BMPs are manufactured systems that use proprietary settling, filtration, absorption/adsorption, vortex principles, vegetation, and other processes to remove pollutants from stormwater runoff. Proprietary BMPs are commonly used as pretreatment for other BMPs, as described in this section (Proprietary Pretreatment Device), or as treatment systems in retrofit applications where physical site constraints limit the use of other retention and/or treatment BMPs (refer to [Chapter 11 - Proprietary Stormwater BMPs](#) for use of Proprietary BMPs for stand-alone treatment).

Common types of proprietary BMPs include hydrodynamic separators, media filtration devices, and catch basin inserts. This category of stormwater BMPs also includes new and emerging technologies that are continually coming onto the market.

[Chapter 11 - Proprietary Stormwater BMPs](#) of this Manual further describes the appropriate uses and limitations of proprietary stormwater BMPs, third-party BMP performance verification requirements for proprietary BMPs, and general design criteria and maintenance requirements.

Siting Considerations

- Proprietary pretreatment devices are generally designed to pretreat runoff from relatively small impervious drainage areas. The maximum contributing drainage area to a proprietary

Stormwater BMP Type

Pretreatment BMP	<input checked="" type="checkbox"/>
Infiltration BMP	<input type="checkbox"/>
Filtering BMP	<input type="checkbox"/>
Stormwater Pond BMP	<input type="checkbox"/>
Stormwater Wetland BMP	<input type="checkbox"/>
Water Quality Conveyance BMP	<input type="checkbox"/>
Stormwater Reuse BMP	<input type="checkbox"/>
Proprietary BMP	<input type="checkbox"/>
Other BMPs and Accessories	<input type="checkbox"/>

Stormwater Management Suitability

Retention	<input type="checkbox"/>
Treatment	<input type="checkbox"/>
Pretreatment	<input checked="" type="checkbox"/>
Peak Runoff Attenuation	<input type="checkbox"/>

Pollutant Removal

Sediment*	High
Phosphorus	Low
Nitrogen	Low
Bacteria	Low
*Includes sediment-bound pollutants and floatables	

Implementation

Capital Cost	Moderate to High
Maintenance Burden	Moderate to High
Land Requirement	Low

pretreatment device varies depending on the type of device and manufacturer's recommendations.

- Locate where:
 - Land use requirements prohibit use of other pretreatment approaches.
 - Underground features are necessary due to site conditions.
 - Can accept runoff from watersheds with high trash, debris, oil and grease, floatables, and other pollutant loads.
 - In areas with high groundwater, buoyancy and anchoring requirements must be considered.

- Siting limitations include:
 - Depth of bedrock
 - Presence of utilities
 - Unstable subsurface conditions that limit depth of excavation.

Design Recommendations⁷⁸

Proprietary devices should meet all the following criteria to qualify as acceptable for pretreatment applications:

- Remove a minimum of 50% TSS, based on pollutant concentrations or loads, as verified by a recommended independent third-party stormwater BMP performance verification program (refer to [Chapter 11 - Proprietary Stormwater BMPs](#) for recommended programs)

- Be designed per the manufacturer's recommendations

- Be designed as off-line systems or have an internal bypass to avoid large flows and resuspension of pollutants.
 - If designed in an on-line configuration, proprietary pretreatment devices should be designed in accordance with the manufacturer's recommendations and any applicable use limitations upon which the third-party performance certification is based.

The following are general design criteria for proprietary pretreatment devices, in addition to the design criteria specified by the device manufacturer and any design criteria and/or use limitations upon which the third-party performance certification is based.

⁷⁸ Per the CTDOT MS4 Permit, linear projects have alternative standards and may take an alternative approach to address constraints that are different than those that affect traditional parcel development projects. These alternative linear project standards can be found in the CTDOT drainage manual, the CTDOT MS4 General Permit, the General Construction Permit and in the supporting materials that CTDOT has developed.

- The proprietary device should be designed and installed with the same configuration utilized during the performance verification testing.
- Locate proprietary devices to be accessible for maintenance and/or emergency removal of oil or chemical spills.
- Designs for hydrodynamic separators may not include grate inlets directly into the unit unless they were specifically tested with this type of inlet.
- Proprietary devices subject to vehicular loading should be designed for at least HS-20 traffic loading at the surface.
- All joints and connections should be watertight.
- The manhole cover, or other approved permanent marker, should clearly indicate that the BMP is a pollutant-trapping device.
- Proprietary devices should be designed to safely convey overflows to downgradient drainage systems, including overflow structures designed to provide safe, stable discharge of stormwater runoff in the event of an overflow.
- Any connection to downgradient stormwater management facilities should include access points such as inspections ports and manholes for visual inspection and maintenance, as appropriate, to prevent blockage of flow and ensure operation as intended.
- Tailwater effects should be considered based upon the manufacturer's recommendations.

Maintenance Needs

- Maintain proprietary devices in accordance with the manufacturer's guidelines.
- Perform inspections of proprietary devices a minimum of once per year. However, 2 times per year – in late Spring after snowmelt and in late Fall after leaf fall and before the first snowfall is recommended to prevent BMP failure.
- During inspections, examine the device for standing water. If standing water is present in the device, and standing water is not a component of the design, take corrective action and revise the maintenance plan to prevent similar failures in the future.
- Clean proprietary devices when pollutant removal capacity is reduced by 50% or more, or when the pollutant storage capacity is reduced by 50% or more.
- Typical maintenance includes removal of accumulated oil and grease, floatables, and sediment using a vacuum truck or other catch basin cleaning equipment.

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- The Operation and Maintenance (O&M) Plan should indicate the maximum allowable level of oil, sediment, and debris accumulation. These levels should be monitored during inspections to ensure that removal of these materials is performed when necessary.
- Dispose of material removed from the device, in accordance with CT DEEP guidelines (see [Chapter 6 - Source Control Practices and Pollution Prevention](#)) and other state and federal requirements, by a properly licensed contractor.