

General Description

Stormwater media filters are usually two-chambered including a pretreatment settling basin and a filter bed filled with sand or other absorptive filtering media. As stormwater flows into the first chamber, large particles settle out, and then finer particles and other pollutants are removed as stormwater flows through the filtering media in the second chamber.

There are currently three manufacturers of stormwater filter systems. Two are similar in that they use cartridges of a standard size. The cartridges are placed in vaults; the number of cartridges a function of the design flow rate. The water flows laterally (horizontally) into the cartridge to a centerwell, then downward to an underdrain system. The third product is a flatbed filter, similar in appearance to sand filters.

Inspection/Maintenance Considerations

Media filters may exhibit decreased effectiveness after a few years of operation, depending on the activities occurring in the drainage area. Media filters clog easily when subjected to high sediment loads. Sediment reducing pretreatment practices, such as vegetated buffer strips or vegetated swales, placed upstream of the filter should be maintained properly to reduce sediment loads into filter. Media filters can become a nuisance due to mosquito or midge breeding if not properly designed and maintained. Installations should dewater completely (recommended 72 hour or less residence time) to prevent creating mosquito and other vector habitats. Maintenance efforts will need to focus on basic housekeeping practices such as removal of debris accumulations and vegetation management (in filter media) to prevent clogs and/or pods of standing water. To minimize the potential for clogging, frequent maintenance and inspection practices are required. Waste sand, gravel, filter cloth, or filter media must be disposed of properly and in accordance with all applicable laws.

Maintenance Concerns, Objectives, and Goals

- Pollutant Breakthrough
- Clogged of Sand Media
- Trash and Debris Accumulation

Targeted Constituents

- ✓ Sediment
- ✓ Nutrients
- ✓ Trash
- ✓ Metals
- ✓ Bacteria
- ✓ Oil and Grease
- ✓ Organics

Removal Effectiveness

See New Development and Redevelopment Handbook-Section 5.



Inspection Activities	Suggested Frequency
<ul style="list-style-type: none"> ■ During the first year of operation, inspect chambers quarterly to ensure that the system is functioning properly. ■ Inspect sand filters after every major storm in the first few months after construction to ensure that the system is functioning properly. 	Post construction
<ul style="list-style-type: none"> ■ Ensure that filter surface, inlets, and outlets are clear of debris. ■ Ensure that the contributing area is stabilized and mowed, with clippings removed. ■ Check to ensure that the filter surface is not clogging. ■ Ensure that activities in the drainage area minimize oil/grease and sediment entry to the system. ■ Inspect the facility once during the wet season after a large rain event to determine whether the facility is draining completely within 72 hr. 	Quarterly, and after major storms
<ul style="list-style-type: none"> ■ Inspect for standing water, sediment, trash and debris, structural damage, and to identify potential problems. 	Semi-annual
<ul style="list-style-type: none"> ■ Check to see that the filter bed is clean of sediments and the sediment chamber contains no more than six inches of sediment. ■ Make sure that there is no evidence of deterioration of concrete structures. ■ Inspect grates (if used). ■ Inspect inlets, outlets, and overflow spillway to ensure good condition and no evidence of erosion. ■ Ensure that flow is not bypassing the facility. ■ Ensure that no noticeable odors are detected outside the facility. 	Annual
Maintenance Activities	Suggested Frequency
<ul style="list-style-type: none"> ■ Remove trash and debris from the sedimentation basin (Austin design), the riser pipe, and the filter bed as needed. ■ Prevent grass clippings from washing into the filter. ■ Remove trash from inlet grates to maintain the inflow capacity of the media filter. ■ Upstream vegetation should be maintained as needed. 	Frequently (as needed)
<ul style="list-style-type: none"> ■ Clean filter surface semiannually; or more often if watershed is excessively erosive. ■ Replace sorbent pillows (Multi-Chamber Treatment Train only). 	Semi-annual
<ul style="list-style-type: none"> ■ Repair or replace any damaged structural parts. ■ Stabilize any eroded areas. 	Annual
<ul style="list-style-type: none"> ■ Remove accumulated sediment in the sedimentation chamber every 10 years or when the sediment occupies 10-20% of the basin volume or accumulates to a depth of six inches, whichever is less. ■ Remove top 2 in. of media filter and landfill if facility drain time exceeds 72 hr. Restore media depth to 18 in. when overall media depth drops to 12 in.). 	As needed

References

Metropolitan Council, Urban Small Sites Best Management Practices Manual. Available at:
<http://www.metrocouncil.org/environment/Watershed/BMP/manual.htm>

U.S. Environmental Protection Agency, Post-Construction Stormwater Management in New Development & Redevelopment BMP Factsheets. Available at:
http://www.cfpub.epa.gov/npdes/stormwater/menuofbmps/bmp_files.cfm

Ventura Countywide Stormwater Quality Management Program, Technical Guidance Manual for Stormwater Quality Control Measures. July, 2002.