



SWPPP Cut Sheet

Last Updated: 7-1-07

Section 2: Storm Water Management – Post Construction

2.6 Filtrex FilterCell™

Sediment and Pollution Control Technology

PURPOSE & DESCRIPTION

The Filtrex FilterCell™ filtration system is a temporary or permanent **water or storm water filtration system used to remove sediment and soluble pollutants** from water or storm water. The land based system uses organic FilterMedia™ and vegetation to remove pollutants from water/storm water prior to discharge into collection ponds, constructed wetlands, infiltration basins, fields, or receiving waters. This system combines the benefits of organic matter, humus, vegetation, and proprietary flocculants to clean point and non-point water sources. Filtrex flocculants can be used with easy to maintain Filtrex Filter Baffles™ to create a custom design to target specific pollutants in water/storm water.

APPLICATION

The Filtrex FilterCell™ system can be used for temporary applications during land disturbing/construction activities or for permanent applications where vegetation can be established to create a permanent organic vegetative filter that is designed into the landscape. Typical applications include: Pretreatment for temporary sediment detention ponds; Post-treatment for temporary sediment detention pond discharge or emergency storm overflow; Pretreatment for permanent storm water collection ponds; Sediment and soluble pollutant control of storm runoff; Sediment and soluble pollution filtration from contaminated effluent.

INSTALLATION

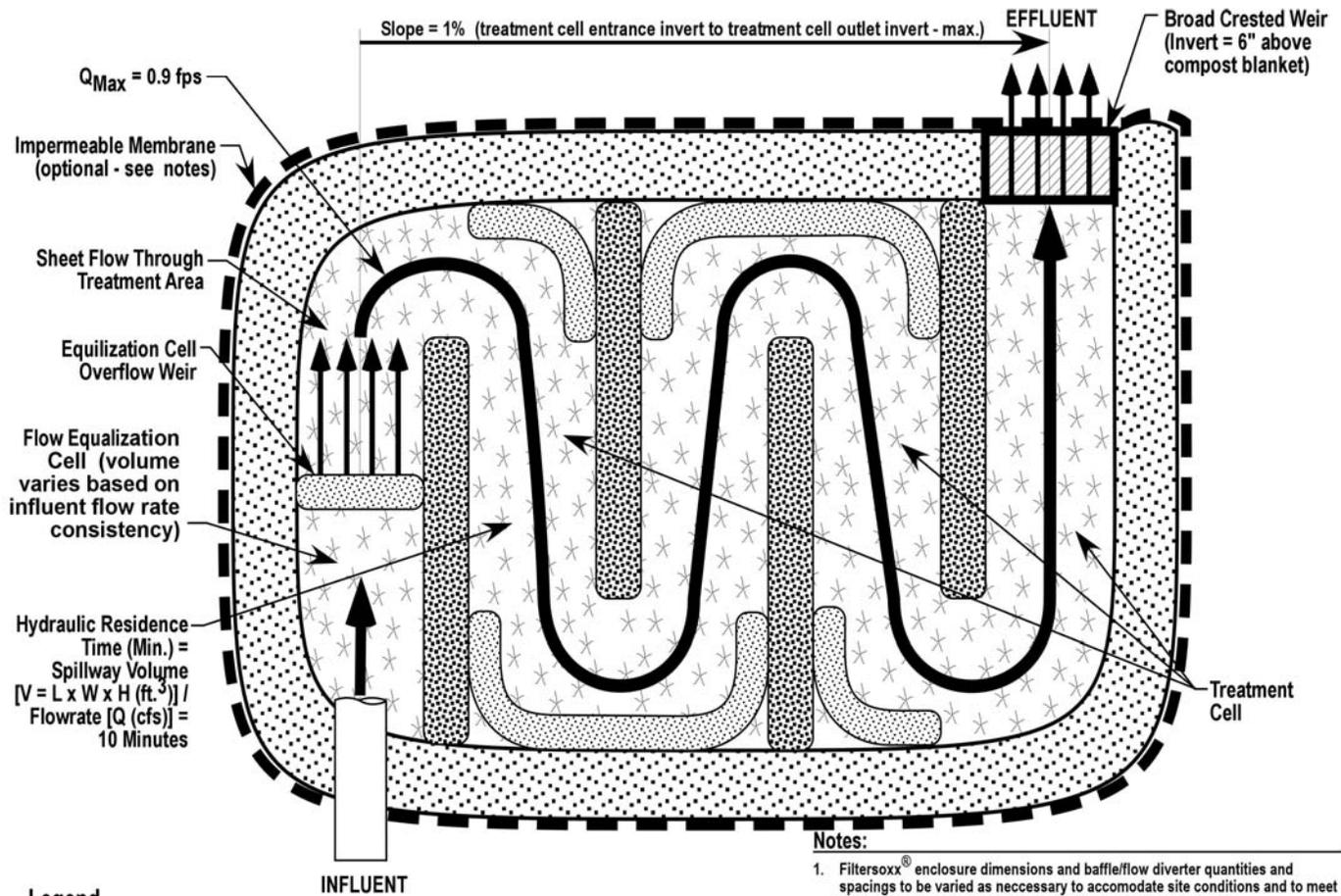
1. Filtrex FilterCell™ shall meet Filtrex FilterCell™ Specifications and use Filtrex GrowingMedia™ and Filtrex FilterMedia™.
2. Contractor is required to be a Filtrex Certified™ Installer as determined by Filtrex International, LLC (440-926-2607; www.filtrex.com). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application (list found at www.filtrex.com). Look for Filtrex Certified™ Installer Seal.
3. FilterCell™ will be placed at locations indicated on plans as directed by the Engineer and will be fabricated on-site.
4. FilterCell™ shall be placed perpendicular to water flow in a manner that allows water or storm water to flow, percolate, and/or gravitate through the system.
5. FilterCell™ must be installed and stabilized before water flow is allowed to enter the filtration system.
6. Land surface shall be cleared of debris, including rocks, roots, large clods, and sticks; and lightly compacted and graded prior to FilterCell™ installation.
7. FilterCells™ shall be placed on slopes between 1 and 5%.
8. On-site fabrication of FilterCell™ will ensure a continuous length FilterSoxx™ system. Upon completing one section of FilterSoxx™ filling (approximately 100-200 ft [30-60m]), the next section shall be 'sleeved' over the completed section by a minimum of 1 ft (300mm). A stake shall be placed in overlap section, securing the two sections.
9. An minimum 18 in (450mm) FilterSoxx™ will be used to construct the perimeter enclosure of the FilterCell™
10. The perimeter FilterSoxx™ shall be injected with seeded GrowingMedia™ at the time of installation.
11. Filter Baffles™ or weirs shall be installed perpendicular to flow across the entire width of the flow area at or near FilterCell™ entrance and at the exit.
12. Filter Baffles™ may be injected with Filtrex flocculants (with FilterMedia™) to target specific pollutants at time of installation.
13. Flow Diversion Soxx™ injected w/ seed & GrowingMedia™ shall be placed at perimeter walls & perimeter wall/Filter Baffle™ intersect to direct flow/reinforce wall/baffles.
14. Once in place, FilterSoxx™ shall be lightly compacted to prevent water undercutting of FilterSoxx™.
15. Stakes shall be installed through the middle of the FilterSoxx™ on a minimum of 10 ft (3m) centers, using 2 in (50mm) by 2 in (50mm) by 3 ft (1m) wooden stakes.
16. Stakes shall also be placed at the ends of FilterSoxx™ to hold them in place.
17. Minimum staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.
18. Once all FilterSoxx™ are in place a turf reinforcement mat (TRM), rolled erosion control blanket (RECB), or LockDown™ Netting may be placed on the soil surface.
19. TRMs and RECBs should follow manufacturers' installation and stapling procedures.
20. LockDown™ Netting shall be anchored to the soil using 6-8 in (150-200mm) sod staples to be driven along the entire perimeter of the net and netting area.
21. Staples for LockDown™ Netting shall be spaced no more than 24 in (600mm) apart on all sides.
22. Where more than one roll of LockDown™ Netting is required for area width or area length, netting edges shall be overlapped by a minimum of 6 in (150mm).
23. LockDown™ Netting shall be installed from top to bottom (never across) on the slope and under the entire area of the fill blanket.
24. FilterCell™ fill blanket shall use GrowingMedia™ applied to 100% of the TRM, RECB or LockDown™ Netting fill blanket area and shall be 2 to 4 in (50-100mm) deep.
25. FilterCell™ fill blanket may be seeded at the time of application; seed selection will be determined by the Engineer.
26. Seeded FilterCells™ should not be installed prior to seasons where growing vegetation is difficult.
27. Seed shall be thoroughly mixed with the GrowingMedia™ prior to construction or injected into GrowingMedia™ at time of application.
28. After fill blanket has been applied another RECB or LockDown™ Netting may be installed on top of the fill blanket to prevent GrowingMedia™ transport and wash.
29. Installation procedures for RECBs and LockDown™ Netting used on top of the GrowingMedia™ fill blanket shall be the same as the installation underneath the fill blanket.
30. Optional biotechnical engineering with live stakes, tubers, seedlings, or plugs should be conducted after staking of FilterSoxx™ is complete.
31. Live stakes should be from a live hardwood species and cuttings should be 1 to 3 ft (300-900mm) long.
32. Live stakes should be spaced 3 to 5 ft (1-1.5m) apart, and planted vertically with one end planted through the FilterSoxx™ and at least 2 in (50mm) into GrowingMedia™.
33. Seeded and/or live staked FilterCells™ shall be thoroughly watered after installation and allowed to settle for 1 week.
34. Drip tape may be installed within the FilterSoxx™ during construction to provide irrigation for establishing vegetation (water source should be located and secured).
35. If drip irrigation system is installed and municipal water or a pump will be utilized, a pressure reducer may be required to manage flow and prevent drip tape from bursting.

INSPECTION and MAINTENANCE

Routine inspection should be conducted within 24 hrs of a runoff or flow event for the first year after installation or until permanent vegetation has established.

1. The Contractor shall maintain the FilterCell™ in a functional condition at all times and it shall be routinely inspected.
2. If the FilterCell™ has been damaged, it shall be repaired, or replaced if beyond repair.
3. The Contractor shall remove sediment at base of upslope side of FilterCell Filter Baffle™ when accumulation reaches 1/2 the effective ht of Soxx™, or as directed by Engrn.
4. If FilterCell™ becomes clogged w/ debris or solids, it shall be maintained to proper hydraulic flow through. Overflow/undercutting of contaminated water is not acceptable.
5. If FilterCell Filter Baffle™ becomes clogged with sediment or hydraulic flow is significantly reduced it may be replaced with a new Filter Baffle™.
6. If undercutting occurs, areas may be plugged with sand or additional FilterMedia™. Leveling/minor grading may be required to increase surface contact w/ FilterCell Soxx™.
7. FilterCells™ shall be maintained until disturbed area above the device has been permanently stabilized and construction activity has ceased.
8. FilterCells™ shall be maintained until contaminated water has fully percolated through the device.
9. FilterMedia™, GrowingMedia™, sediment, and filtrate may be dispersed on site if there are no concerns with soil and water contamination, or as determined by the Engineer.
10. If FilterCell™ is to be vegetated, the Contractor shall maintain the vegetation in the FilterCell™ in a functional condition at all times and it shall be routinely inspected.
11. Vegetated FilterCells™ shall be maintained until a uniform minimum cover of 70% of the applied area has been vegetated or permanent vegetation has established.
12. Vegetated FilterCells™ may need to be irrigated in hot and dry weather and seasons, or arid and semi-arid climates to ensure vegetation establishment.
13. Where FilterCell™ vegetation does not establish, it fails, or rilling occurs, the Contractor will repair, reseed, or provide an approved and functioning alternative.
14. Regular mowing of FilterCell™ vegetation to a min. ht of 4 in (100mm) and a max. ht of 10 in (250mm) will deter invasive weeds, allow sunlight to kill captured pathogens.
15. Sediment shall be removed once it reaches 25% of the height of the vegetation (mowed) to prevent diversion of storm runoff and reduction of vegetation health and cover.

Figure 6.1 Engineering Design Drawing for Filtrexx FilterCell™



Notes:

1. Filtrexx® enclosure dimensions and baffle/flow diverter quantities and spacings to be varied as necessary to accommodate site conditions and to meet the design flow rate and hydraulic residence time requirements.
2. Impermeable liner may be required for point-source discharges.
3. All Filtrexx® to be seeded with High-Marsh vegetation, per Metropolitan Washington Council of Governments (MWCG) guidelines and/or equivalent local native species.
4. All Filtrexx® compost blanket to be seeded with Emergent/Low-Marsh vegetation, per MWCG guidelines and/or equivalent local native species.
5. System can be modified for constant (point-source) discharges or intermittent (nonpoint-source, construction site, etc) discharges.

Legend

- 18" Weighted, Seeded Filtrexx® Compost Filtersoxx® Enclosure
- 12" Weighted, Seeded Filtrexx® Compost Filtersoxx® Baffle
- 8" Weighted, Seeded Filtrexx® Compost Filtersoxx® Flow Diverter
- 4" Seeded Filtrexx® Compost Blanket w/ Lockdown Netting

Figure 6.2. Staking Details for Filtrexx FilterCell™

