



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Bureau of Nonpoint Pollution Control

Division of Water Quality

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Trenton, New Jersey 08625-029

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http://www.state.nj.us/dep/dwq/bnpc_home.htm

JON S. CORZINE
Governor

MARK N. MAURIELLO
Acting Commissioner

June 18, 2009

Thomas Pank
President
BaySaver Technologies, Inc.
1302 Rising Ridge Road, Unit 1
Mount

Re: Interim Certification
BayFilter by BaySaver Technologies, Inc.

Issuance Date: June 18, 2009

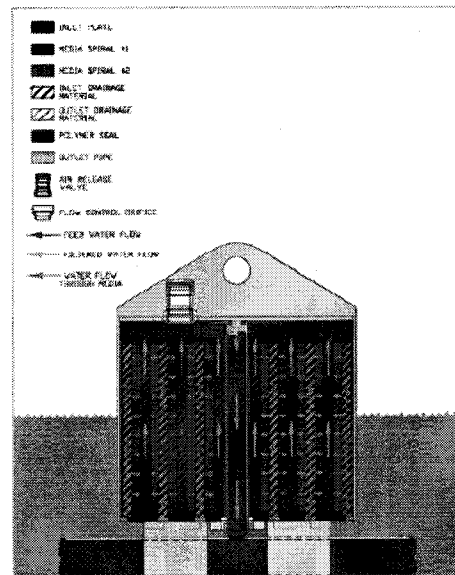
Expiration Date: May 15, 2011

Dear Mr. Pank:

The Stormwater Management rules at N.J.A.C. 7:8-5.5(b) and 5.7(c) allow the use of manufactured treatment devices (MTDs) for compliance with the design and performance standards at N.J.A.C. 7:8-5 if the pollutant removal rates have been verified by New Jersey Corporation for Advanced Technology (NJCAT) and have been certified by the New Jersey Department of Environmental Protection (NJDEP).

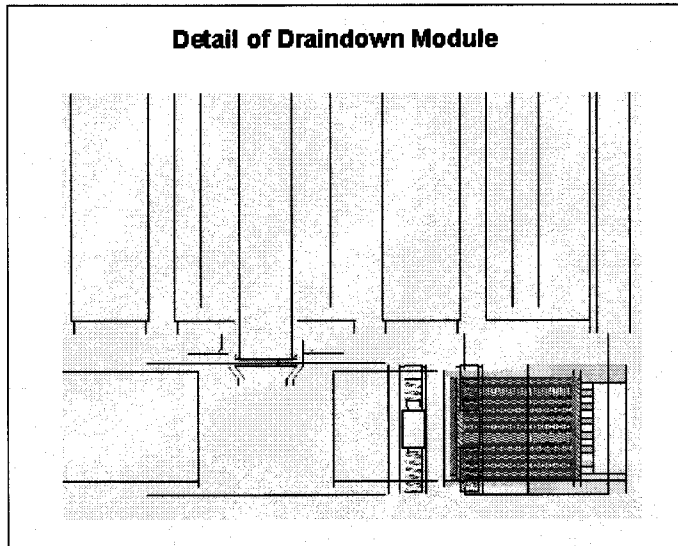
The BayFilter system is installed in a vault with a minimum one BayFilter cartridge (BFC) with an associated Draindown module (DDM). The flow enters above the bottom of the vault with the peak flow rate addressed by the number of BayFilter cartridges. Draindown cartridges are installed to drain the chamber to within 0.5 inches from the bottom of the chamber. The system must be configured such that

BayFilter Cartridge



flow will begin when the water reaches 28" (2'4") above the vault floor. Full design flow will be achieved when the flow reaches 34" (2'10") above the vault floor.

In the BFC, flow rises up the into an outlet chamber at the top cartridge which drains through center into the outlet pipe. The allows the flow to drain below cartridge to discharge into the pipe at a much lower flow rate the BFC. There is a n air valve on top of the cartridge enables a siphon for form and the vault to within 6 inches of vault floor. When the vault down to or below 6 inches air the cartridge and breaks the triggering a backwash of the



filters of the the the DDM the the outlet than release which drain the drains enters siphon, filter.

At this point the water that has been filtered and not drained out of the cartridge will reverse flow and backwash the cartridge and remove collected pollutants and restore filter porosity The cartridge (media) flow rate is initially controlled by a flow control orifice (disk) located at the bottom of the center discharge of the cartridge. As the filter becomes occluded to the point that the media is more restrictive than the flow control orifice, the media becomes the flow limiter.

The NJDEP certifies the use of the BayFilter by BaySaver Technologies, Inc at a TSS removal rate of 80%, subject to the following conditions:

1. The Bayfilter system must be designed according to the NJ Water Quality Design Storm in N.J.A.C. 7:8-5.5.
2. The peak inflow of the water quality design storm is limited to 0.067 cfs per cartridge. The maximum inflow area per cartridge is limited to 0.7 acres of impervious area.
3. Sufficient draindown cartridges must be placed in any system to ensure that the draindown time for the water quality design storm event does not exceed thirty-six (36) hours.
4. The BayFilter system is certified as an off-line system only.
5. BayFilter Systems must provide a minimum of 7 sf of settling area for every BayFilter Cartridge. If the water quality design storm is controlled by upstream detention/attenuation for 12 hours or more, the minimum settling area does not apply.
6. This conditional certification does not extend to the enhanced removal rates under N.J.A.C. 7:8-5.5 through the addition of settling chambers (such as a hydrodynamic separator) or media filtration practices (such as a sand filter).
7. The maintenance plan for sites using this device shall incorporate, at a minimum, the maintenance requirements for the BayFilter system shown in Appendix A below.

Additional information regarding the implementation of the Stormwater Management rules N.J.A.C. 7:8 are available at www.njstormwater.org.

If you have any questions regarding the above information, please contact Sandra Blick of my office at (609) 633-7021

Sincerely,

A handwritten signature in black ink, appearing to read "B. Chalofsky".

Barry Chalofsky, P.P., Chief
Bureau of Nonpoint Pollution Control.

Enclosure

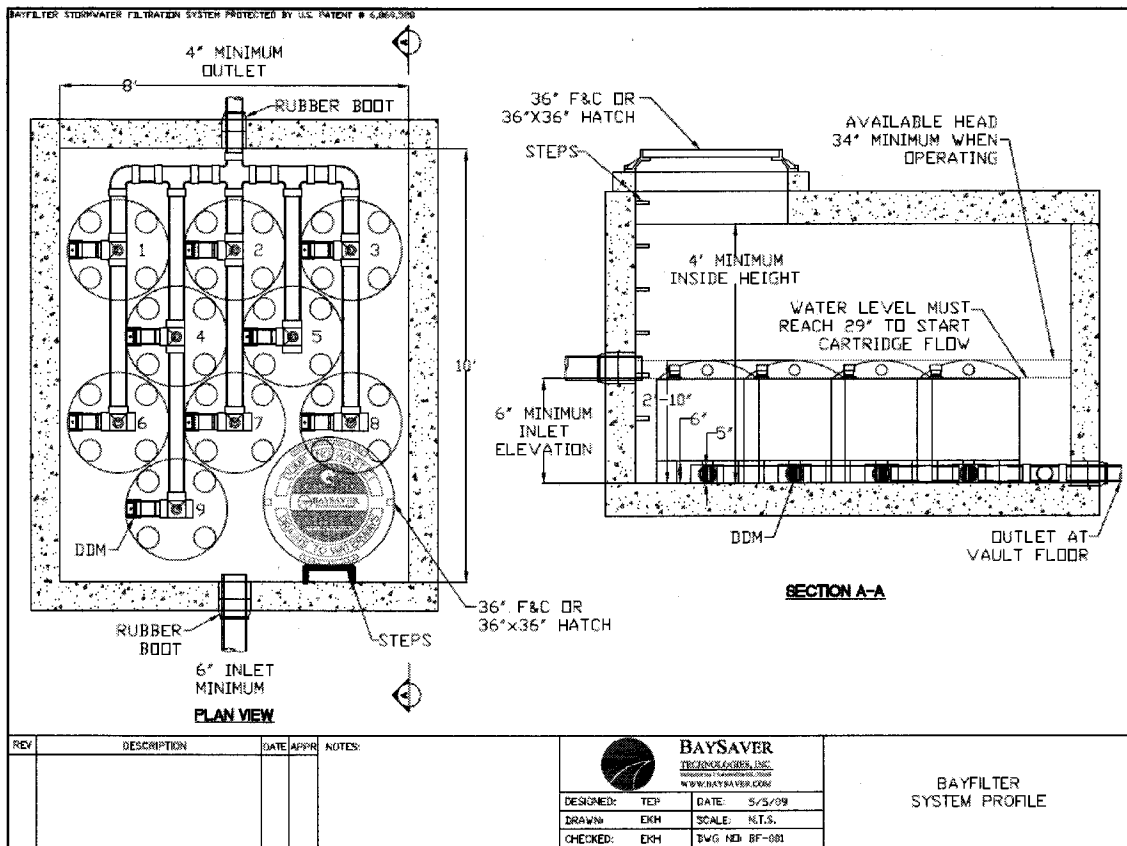
c: Rhea Weinberg Brekke, NJCAT
Tom Micai, NJDEP

Appendix A: Maintenance Requirements for BaySaver System by BaySaver Technologies, Inc.

Effective performance of stormwater management best management practices requires regular and proper maintenance. Chapter 8 of the New Jersey Stormwater Best Management Practices Manual and N.J.A.C. 7:8-5.8 of the Stormwater Management rules provides additional information and requirements for preparing a maintenance plan for stormwater management facilities. Specific maintenance requirements for the BayFilter manufactured treatment device by BaySaver Technologies, Inc. are presented below. These requirements must be included in the stormwater management system's maintenance plan in order to achieve the TSS removal rate associated with this manufactured treatment device.

BayFilter System Profile

(Note: This drawing is provided for illustration purposes and the exact dimensions of cartridges to vault area or draindown cartridge must be based on the specific requirements of the certification.)



A. General Maintenance

The person responsible for maintenance must evaluate the effectiveness of the maintenance plan at least once a year. Any changes to the maintenance plan must be sent to the review agency with associated justification and revised in the deed.

Any and all stormwater management system components expected to receive and/or trap debris and sediment must be inspected for clogging and excessive debris, sediment, and oil accumulation at least four times annually as well as after every storm exceeding 1 inch of rainfall. Such components may include, but is not limited to, bottom of chamber, filters, pipes, trash racks, and cleanouts.

The sediment and debris must be removed at or before the average depth of sediment reaches three (3) or trash reaches six (6) inches above the bottom of the system. Disposal of debris, trash, sediment, and other waste material must be done at suitable disposal/recycling sites and in compliance with all applicable local, state, and federal waste regulations.

Design Engineer must specify one of the following filter replacement frequency for each BayFilter System Design:

For BayFilter systems that are sized based on water quality peak flow without attenuation:

All cartridges must be replaced at a minimum of once every three (3) years.

For BayFilter systems that are sized based on a reduced water quality peak flow due to upstream attenuation:

All cartridges must be replaced at a minimum of once a year.

The performance of the BayFilter system must be evaluated to ensure that the vault drains within thirty-six (36) hours of the end of a rain event. If the draindown time is longer than 36 hours, the filter cartridges both the BayFilter Cartridges and associated the DrainDown Modues) must be evaluated for clogging and replacement.

Inspection of the BayFilter system may require entry into the vault which is a confined space. The stormwater technician must follow all OSHA confined space entry regulations.

B. Minimum Equipment Requirements

At a minimum, a vacuum truck is necessary for the maintenance of these units.

C. Structural Components

All structural components must be inspected for cracking, subsidence, spalling, erosion, and deterioration at least annually.

D. Replacement Parts

Certain components of this device are only available through the manufacturer in order to achieve the TSS removal certified by the Department. Replacement BayFilter cartridges can be obtained by contacting BaySaver Technologies, Inc.

In addition to the above, the detailed maintenance plan must include all of the items identified in Chapter 8: Maintenance of the New Jersey Stormwater Best Management Manual. Such items include, but are not limited to, the list of inspection and maintenance equipment and tools, specific corrective and preventative maintenance tasks, indication of problems in the system, and training of maintenance personnel. Additional operation and maintenance information associated with this manufactured treatment device is available from the vendor to assist in the development of a complete maintenance plan.



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

401-02B

Bureau of Nonpoint Pollution Control

Division of Water Quality

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http://www.state.nj.us/dep/dwq/bnpc_home.htm

August 31, 2011

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

Thomas E. Pank
Baysaver Technologies, Inc.
1302 Rising Ridge Road
Mount Airy, MD 21771

Re: MTD Laboratory Test Certification for the BayFilter by BaySaver Technologies, Inc.

Effective Date: September 1, 2011

Expiration Date: September 1, 2013

TSS Removal Rate: 80%

Dear Mr. Pank:

The Stormwater Management Rules at N.J.A.C. 7:8 allow the use of manufactured treatment devices (MTDs) for compliance with the design and performance standards provided that the pollutant removal rates have been verified by New Jersey Corporation for Advanced Technology, NJCAT, and certified by the New Jersey Department of Environmental Protection (NJDEP).

The certification process was revised through the "Transition for Manufactured Treatment Devices," dated July 15, 2011. NJDEP has determined that BayFilter by BaySaver Technologies, Inc. is consistent with the criteria under *A. Manufactured Treatment Devices with Interim Certifications*. Therefore, **NJDEP certifies the use of the BayFilter by BaySaver Technologies, Inc. with an 80% TSS removal rate, provided that the project design is consistent with the following conditions:**

1. The various models and associated water quality flow capacities shall be sized for the peak flow of the New Jersey Water Quality Design Storm per N.J.A.C. 7:8-5.
2. The peak inflow of the Water Quality Design Storm is limited to 0.067 cfs per cartridge. The maximum inflow area per cartridge is limited to 0.7 acres of impervious area.
3. Sufficient draindown cartridges must be placed in any system to ensure that the draindown time for the Water Quality Design Storm does not exceed thirty-six (36)

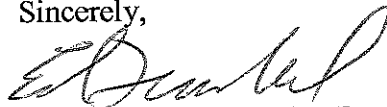
hours. Draindown cartridges must be installed to drain the chamber to within 0.5 inches from the bottom of the chamber. The system must be configured such that flow will begin when the water reaches 28 inches above the vault floor. Full design flow will be achieved when flow reaches 34 inches above the vault floor.

4. The BayFilter must provide a minimum of 7 sf of settling area for every BayFilter cartridge. If the Water Quality Design Storm is controlled by upstream detention / attenuation for 12 hours or more the minimum settling area does not apply.
5. The BayFilter is certified as an off-line system. Any flow above the New Jersey Water Quality Design Storm must be bypassed around the system.
6. This certification does not extend to the enhanced removal rates under N.J.A.C. 7:8 – 5.5 through the addition of settling chambers (such as hydrodynamic separators) or media filtration practices (such as a sand filter).
7. The maintenance plan for the sites using this device shall incorporate at a minimum, the maintenance requirements for the Bayfilter shown attached.

In addition to the attached, any project with a Stormwater BMP subject to the Stormwater Management Rules, N.J.A.C. 7:8, must include a detailed maintenance plan. The detailed maintenance plan must include all of the items identified in Stormwater Management Rules, N.J.A.C. 7:8-5.8. Such items include, but are not limited to, the list of inspection and maintenance equipment and tools, specific corrective and preventative maintenance tasks, indication of problems in the system, and training of maintenance personnel. Additional information can be found in Chapter 8: Maintenance of the New Jersey Stormwater Best Management Manual.

NJDEP anticipates proposing further adjustments to this process through the readoption of the Stormwater Management Rules. Additional information regarding the implementation of the Stormwater Management Rules, N.J.A.C. 7:8, are available at www.njstormwater.org. If you have any questions regarding the above information, please contact Ms. Sandra Blick of my office at (609) 633-7021.

Sincerely,



Ed Frankel, P.P., Acting Bureau Chief
Bureau of Nonpoint Pollution Control

C: Richard S. Magee, NJCAT
Chron file

February 3, 2009

Sandy Blick
NJDEP
Division of Water Quality
PO Box 029
Trenton, NJ 08625-029
609-633-7021

RE: Email Requesting Maintenance Information 1/28/09

Dear Sandy,

The BayFilter system requires periodic maintenance to continue operating at the design efficiency. The maintenance process consists of the removal and replacement of each BayFilter cartridge and the cleaning of the vault or manhole with a vacuum truck. BayFilter maintenance should be performed by a BaySaver Technologies, Inc. (BTI) certified maintenance contractor.

The BayFilter cartridges are provided on an exchange basis and are refilled by BTI and reused. Certain components are replaced such as the filter fabric, media and any part that would not fully function for the next life cycle. The media and any non-recyclable components are disposed of by BTI as part of the exchange.

The maintenance cycle of the BayFilter system will be driven mostly by the actual solids load on the BayFilter system. The system should be checked periodically to be certain it is operating correctly. Since stormwater solids loads can be variable, it is possible that the maintenance cycle could be more or less than the projected duration.

BTI recommends the BayFilter system be inspected every six (6) months after its initial installation and inspected annually after the first year of installation. The BayFilter system has two indicators that maintenance is required. The two indicators are sediment storage capacity and flow capacity.

Sediment Storage Capacity:

Since the majority of the sediments are ultimately collected on the vault floor (some are contained within the media and fabric) and the flow enters the cartridge through the bottom, there is a limit to the practical storage capacity of sediments between the vault floor and the bottom of the cartridge. At the point that the sediments cover the 4" outlet manifold pipes, there is only about 1.5" of capacity remaining until the sediments will be at a level that the water will no longer flow into the filter. During maintenance the cartridges should be exchanged and the vault cleaned. Upon inspection sediment levels can easily be measured with a measuring stick. The maintenance

personnel will need to take a proper length measuring stick and measure the sediment depth from the vault floor. If the vault floor has 4" of sediment accumulated the system must be maintained.

Flow Capacity:

Each BayFilter system is designed to operate at a specific minimum flow. A simple check of the system after any storm event will indicate if it is operating properly. For flow-based systems, they should be checked within twenty four (24) hours of the end of the inflow to make certain there is no standing water above the bottom of the cartridges. For a detention/water quality volume-based system, this inspection should occur around 40 hours after the cessation of inflow. In either case, upon inspection if the water level is not below the bottom of the filter cartridge the system must be maintained.

Maintenance on a BayFilter system is easy and requires no special training. There is no need for special or additional tools and equipment. When maintenance is being performed on a BayFilter system there are several steps which should be executed properly:

1. Remove the manhole covers and open all access hatches.
2. Before entering the system make sure the air is safe per OSHA standards or use a breathing apparatus. Use low O₂, high CO₂, or other applicable warning devices per regulatory requirements. The stormwater maintenance technician must be certified for confined space entry.
3. Using a vacuum truck remove any liquid and sediments that can be removed prior to entry.
4. A chain and trolley system is installed with each project. The chain and trolley system are used to lift the cartridges off the manifold system and move them towards the opening of the vault. The chain and trolley system connect to the eyelet of the filter cartridge. Once the cartridge has been lifted, it can be moved with ease towards the vault opening and lifted out by a vacuum truck.
5. Use the small lift or boom of the vacuum truck to remove the used cartridges by lifting them out of the vault.
 - a. Any cartridges that cannot be lifted, can be slid along the floor to a location where they can be lifted via a small lift or boom.
 - b. A BayFilter system in a manhole configuration will not require a trolley. The vacuum truck will be able to lift out the cartridges from the manhole opening.

6. When all filter cartridges are removed, vacuum out the remainder of the solids and water; then loosen the stainless steel clamps on the Fernco couplings for the manifold and remove the drain pipes as well. Carefully cap the manifold and Fernco's then rinse the floor and remove the remainder of the collected solids.
7. Clean the manifold pipes, inspect and reinstall. After all the sediment has been sucked out by the vacuum truck, the outlet manifold system needs to be reassembled.
8. The new BayFilter cartridges can be lowered down into the vault and the trolley system used to lift and lower the cartridges on top of the outlet manifold system. After all the filter cartridges are replaced, close all covers.
9. The used cartridges must be sent back to BaySaver Technologies, Inc. for exchange/recycling and credit on undamaged units.

NJDEP recommends that all stormwater treatment systems be inspected quarterly and after storms exceeding one (1) inch of rainfall. Maintenance requirements as recommended in the Best Management Practices (BMP) Manual, suggest that the BayFilter system should be inspected and maintained in accordance with both the NJDEP's and the manufacturer's instructions.

Sincerely

Brad Gianotti
Regulatory Compliance Coordinator
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301-829-6470
bgianotti@baysaver.com