

Stormwater Filtering System Construction Checklist

This checklist has been developed for BMPs designed in accordance with the Delaware Sediment and Stormwater Program's Post Construction Stormwater BMP Standards and Specifications. Submit interim versions of this construction checklist to the approval agency weekly with the Certified Construction Reviewer report. Submit the final completed checklist with the PCVD.

PROJECT INFORMATION

Project Name/BMP Name: _____

Project Approval Number: _____ NOI number: _____

Location: _____

Contractor: _____

Construction Reviewer: _____

Supervising P.E.: _____

Stormwater Filtering System Variant

11-A Non-Structural Sand Filter

11-C Three-Chamber Underground Sand Filter

11-B Surface Sand Filter

11-D Perimeter Sand Filter (including
"Delaware" Modular Sand Filter)

For each checklist item, enter in the blank the date (MM/DD/YY) the item is completed and verified by the construction reviewer. If an item is not applicable, enter "N/A" in the blank for that checklist item.

I. Pre-Construction

A. _____ Stormwater filtering system field meeting with responsible person and person completing construction checklist.

B. _____ Extents of stormwater filtering system (to include pretreatment area) delineated and access by equipment prohibited with Sensitive Area Protection (SAP) to prevent compaction of existing soils.

C. _____ Equipment on the site large enough to excavate stormwater filtering system from the sides of the facility.

D. _____ Pervious areas draining to the stormwater filtering system stabilized in accordance with the approved plans.

E. _____ Pipe and appurtenances on-site and dimensions and properties checked and confirmed to be in accordance with the approved plan.

i. _____ Discharge pipes

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ii. _____ Observation wells(s)/Cleanout(s), *for Variants 11-A and 11-B*

iii. _____ Underdrain pipe

iv. _____ Other; list: _____

F. _____ Materials on-site and dimensions and properties checked and confirmed to be in accordance with the approved plan. ***Submit materials invoice or delivery tickets to approval agency as part of PCVD for the following items:***

i. _____ Clean, washed gravel (nominal 0.25” max 2.0% passing #200 sieve)

ii. _____ Filter media (AASHTO M-6/ASTM C-33 medium aggregate concrete sand with individual grains between 0.02 and 0.04 inches in diameter) from Department approved vendor. If not used upon delivery, store it on an adjacent impervious area or plastic sheeting.

iii. _____ Mulch (Triple shredded hardwood aged for a min of 6 months) *if applicable*

iv. _____ Impermeable liner (Thirty mil (minimum) PVC Geomembrane liner covered by 8 to 12 oz./sq. yd. non-woven) *for Variant 11-A*

v. _____ Geotextile fabric (Flow rate > 110 gal/min/sf, opening size US #70 or #80 sieve)

vi. _____ Precast filter chamber *for Variants 11-C and 11-D*

vii. _____ Other; list: _____

II. Excavation and Grading

A. _____ Stormwater filtering system excavated to dimensions and at location as per the approved plan.

B. _____ Stormwater filtering system excavated to design bottom elevation.

C. _____ Stormwater filtering system excavated from the sides to not compact the existing soil, *for variants 11-A and 11-B.*

D. _____ Groundwater not encountered during excavation. (Note: If groundwater is encountered during the excavation process, construction of the facility must cease, and the designer notified that a plan modification is necessary) *for Variants 11-A and 11-B.*

E. _____ Sides of stormwater filtering system below filter media surface excavated vertically.

F. _____ Side slopes above filter media surface in accordance with the approved plan.

G. _____ Impermeable liner placed as specified on the approved plan, *for Variant 11-A*

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H. _____ Confirmatory testing performed at design bottom elevation in accordance with Soil Investigation Procedures for Stormwater BMPs. ***Submit confirmatory testing report to approval agency as part of PCVD.***

- Hand augers to a minimum depth of 3 feet below the bottom of the facility
 - Limiting layer not present
 - Limiting layer present; designer notified to provide plan revision

III. Structural Components

A. _____ Pretreatment and energy dissipation provided at stormwater filtering system inlets as specified on the approved plan.

B. _____ Discharge pipe installed as specified on the approved plan.

C. _____ Rock outlet protection provided at all points of discharge and riprap stone size and dimension confirmed as specified on the approved plan.

D. _____ Overflow systems installed as specified on the approved plan.

E. _____ Observation well(s) installed. *For variants 11-A and 11-B*

F. _____ Structure filled with water to the brim once filter structure shell, inlets and outlets completed, and temporary plugged. Confirmation no more than 5% of the water volume has leaked after 24 hours. *For Variants 11-B, 11-C and 11-D*

G. _____ Underdrain stone (clean gravel) placed with the depth of stone in accordance with the approved plan.

H. _____ Underdrain piping laid flat or with positive slope toward outlet.

I. _____ Placement of minimum 3 inches of stone over underdrain piping.

J. _____ Photo documentation of construction of structural components taken. ***Submit photo documentation to approval agency as part of PCVD.*** (Photo #: _____)

IV. Stormwater Filtering System Filter Media

A. _____ Filter media (12-inch minimum depth) placed in maximum 1-foot lifts and manually to minimize compaction.

B. _____ Add clean water until filter bed and sedimentation chambers are full.

C. _____ Refilled filter bed with filter media to final top elevation 48 hours after the filter bed has drained and dried.

D. _____ Placement of filter fabric above the sand filter media. *For variants 11-A and 11-B*

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E. _____ Placement of surface cover as required by the approved plan. *For variants 11-A and 11-B*

F. _____ Photo documentation of placement of surface cover and filter media components taken. **Submit photo documentation to approval agency as part of PCVD.** (Photo #: _____)

V. Vegetative Stabilization

A. _____ Vegetated areas have completed the following items. **Submit soil test report, lime, fertilizer, and seed tickets to approval agency as part of PCVD.**

i. _____ Soil testing.

ii. _____ Side slopes scarified to a minimum depth of 3 inches prior to placing topsoil

iii. _____ Application of topsoil to a minimum depth of 4 inches.

iv. _____ Application of soil amendments including lime and fertilizer in accordance with the recommendations of the soil test or the approved plan.

v. _____ Application of seed to the soil surface using approved methods.

vi. _____ Mulch applied in accordance with the approved plan.

B. _____ Application of soil stabilization matting used on side slopes in accordance with approved plan.

C. _____ Areas to be vegetated inside of the stormwater filtering system surface have been completed in accordance with the approved plans. *For variants 11-A and 11-B. Submit seeding tickets to approval agency as part of PCVD.*

D. _____ Photo documentation of landscaping components taken. **Submit photo documentation to approval agency as part of PCVD.** (Photo #: _____)

VI. Erosion and Sediment Control

A. _____ Sediment prevented from entering stormwater filtering system by keeping it off-line or using perimeter controls as specified on the approved plan.

B. _____ Drainage area and surface filter stabilized in accordance with the approved plan.

C. _____ Sediment controls removed once drainage area meets final stabilization standard

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VII. Maintenance Access

- A. _____ Manhole access 30-inch diameter minimum, *for variants 11-C and 11-D*
- B. _____ Maintenance access to the perimeter of the stormwater filtering system (including outlet structure) has minimum width of 15 feet.
- C. _____ Profile grade of maintenance access does not exceed 10H:1V.
- D. _____ Minimum 10H:1V cross slope on maintenance access.

VIII. Post Construction Verification

Owner shall submit post construction verification documents to demonstrate that the stormwater filtering system practice has been constructed within allowable tolerances in accordance with the Approved Sediment and Stormwater Management Plan and accepted by the approving agency.

- A. _____ Constructed stormwater filtering system surface area confirmed equal to or greater than 90% of the design surface area once ESC controls are removed.
- B. _____ Constructed volume of the stormwater filtering system storage confirmed equal to or greater than 90% of the of the design volume once ESC controls are removed.
- C. _____ Constructed depth of the filter media confirmed equal to or greater than 12 inches once ESC controls are removed.
- D. _____ Constructed elevation of all structures confirmed to be within 0.15 foot of the design elevation for:
 - i. _____ Discharge pipe
 - ii. _____ Overflows
 - iii. _____ Observation (s)/cleanout(s)
 - iv. _____ Underdrain pipe
 - v. _____ Other; list: _____

IX. BMP Acceptance

- A. _____ Final BMP construction review complete.
- B. _____ All BMP punch list items addressed.
- C. _____ Stormwater filtering system is online (stabilized drainage area is entering stormwater filtering system)
- D. _____ As-built survey.

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E. _____ PCVD submitted to approval agency for review and approval. Submit the following pieces of PCVD documentation to the approval agency:

- Materials invoice or delivery tickets
- Photo documentation
- Soil test report
- Lime, fertilizer, and seed tickets
- As-built survey
- Final, completed BMP Construction Checklist