Post Construction Stormwater BMP Construction Review Checklist
User Guide
March 2023

Post Construction Stormwater BMP Construction Review Checklists are provided to ensure consistent construction review of stormwater BMPs. With the exceptions of restoration practices, proprietary practices, and source controls, BMP Construction Checklists are provided for all BMP options included in the Delaware Post Construction Stormwater BMP Standards and Specifications.

A Checklist for Each BMP

Each stormwater BMP on a project will have its own BMP Construction Checklist completed during construction. Both the project name and BMP name, for example: "Sample Project Infiltration Basin 1", are entered in the Project Information block on page one of the checklist. The BMP name used on the checklist is the BMP name used on the approved plan. When completing the checklist as a fillable pdf, this information will autofill on the header of each subsequent sheet. If the checklist is being completed by hand, the information will be entered by hand on each sheet header.

The 5101 Delaware Sediment and Stormwater Regulations state that a single BMP may require compliance with more than one BMP variant based on its design and function. If a BMP designed for a particular site is a hybrid made up of one or more BMP variants, the construction checklists pertaining to each of the variants should be completed for the BMP.

Consolidated Checklists

The new and revised BMP Construction Checklists of March 2023 incorporate the post construction verification documentation (PCVD) and BMP acceptance steps, eliminating the need for separate PCVD checklists and BMP closeout checklists. The 2023 BMP Construction Checklists will be used from the time of the BMP pre-construction meeting until the BMP has been verified and released from active construction review to maintenance reviews.

In addition to completion of an as-built survey to demonstrate that the BMP is constructed within acceptable tolerances, PCVD requires submittal material invoices, delivery tickets, confirmatory infiltration testing results, photo documentation, soil test results, soil amendment and seed tags. When these items required as part of PCVD are referenced in the checklist, bold italic notes are provided with that checklist item as a cue to the construction reviewer to collect the documentation.

Who Completes the Checklist?

The individual completing the BMP construction checklist is the "construction reviewer" in the project information block. When the project has a Certified Construction Reviewer (CCR), the CCR is the construction reviewer that will complete the checklist. For sites that do not have a CCR, the individual that will be completing the construction checklist will be determined at the time of the pre-construction meeting.

Completion of the checklist may span a significant period. It is possible that the checklist will be completed by more than one construction reviewer. The project information block on page one of each checklist contains space for the construction reviewer to enter their name and dates of reviews. The review dates on page one allows the approval agency to determine which construction reviewer verified which items of the checklist.

Furthermore, portions of the checklist may be completed by or require input of different individuals.

- All construction phase checklist items including pre-construction, excavation, grading, structural components, media and materials, vegetative stabilization, erosion and sediment control, and maintenance access are completed by the construction reviewer, either the CCR or the individual identified at the pre-construction meeting.
- Completion of the confirmatory testing portion of the checklists for infiltration BMPs will require the construction reviewer to confer with the site designer and/or the Delegated Agency to confirm that the confirmatory infiltration rate is acceptable or if a plan revision is necessary.
- Two post construction sections are included following the construction phase checklist items:
    1. The **Post Construction Verification** section confirms that the BMP has been constructed within the allowable tolerance for the BMP as stated in the Delaware Sediment and Stormwater Regulations (DSSR). As-built surveys conducted for verification purposes must include the seal of a licensed Professional in the State of Delaware (DSSR 3.10). The BMP design sheet of the approved Sediment and Stormwater Plan is set up to accept the as-built survey information and become the Operation and Maintenance Plan for the BMP. The Post Construction Verification section of the checklist may be completed by the design professional.
    2. The **BMP Acceptance** section lists the requirements that must be met to release a BMP from active construction review to maintenance reviews. The approval agency may complete the BMP Acceptance portion of the checklist as part of their BMP acceptance procedures.

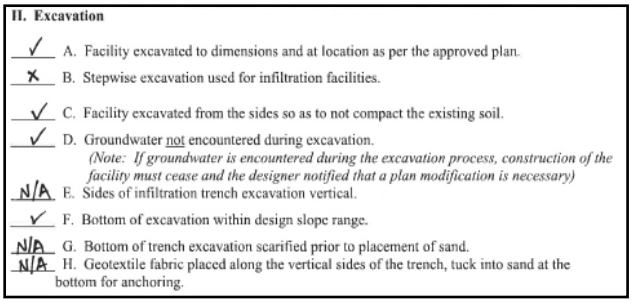
Interim Checklist Submittals

During construction of a BMP, the site CCR will submit interim versions of the BMP Construction Checklist with the weekly CCR report. All documents may be submitted electronically. Submittal of interim BMP construction checklists allows the approval agency to track BMP construction more thoroughly than through submittal of weekly CCR reports alone. If there is no activity on the BMP during the week, with no new verification dates added to the construction checklist, the interim BMP Construction Checklist need not be submitted.

Checklist Item Verification Dates

Previous versions of the BMP Construction Checklist required the use of check marks, X marks, or "N/A" to be included in the blank for each checklist item. A noteworthy change with the 2023 BMP Construction Checklists is the requirement to include the date for which each item of the checklist is verified. If that checklist item does not apply, a "N/A" may be included in the blank, otherwise the entry is either a date (MM/DD/YY) or remains blank. Items to receive an "N/A" may be discussed during the BMP pre-construction meeting and filled at that time.

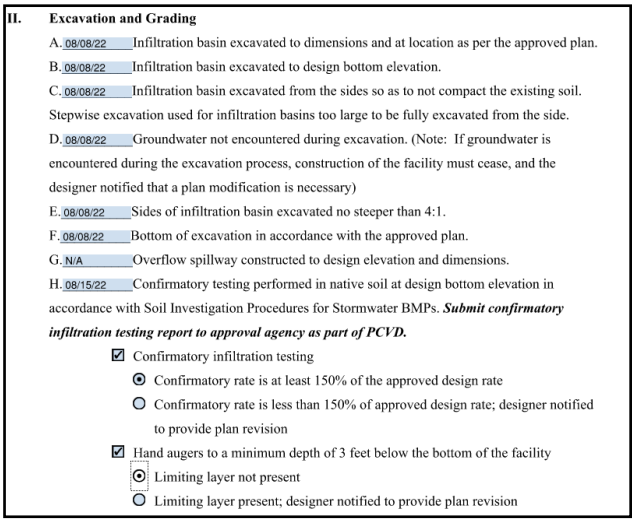
See examples below:



II. Excavation

✓ A. Facility excavated to dimensions and at location as per the approved plan.
X B. Stepwise excavation used for infiltration facilities.
✓ C. Facility excavated from the sides so as to not compact the existing soil.
✓ 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)
N/A E. Sides of infiltration trench excavation vertical.
✓ F. Bottom of excavation within design slope range.
N/A G. Bottom of trench excavation scarified prior to placement of sand.
N/A H. Geotextile fabric placed along the vertical sides of the trench, tuck into sand at the bottom for anchoring.

Previous version of checklist



II. Excavation and Grading

A. 08/08/22 Infiltration basin excavated to dimensions and at location as per the approved plan.
B. 08/08/22 Infiltration basin excavated to design bottom elevation.
C. 08/08/22 Infiltration basin excavated from the sides so as to not compact the existing soil. Stepwise excavation used for infiltration basins too large to be fully excavated from the side.
D. 08/08/22 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)
E. 08/08/22 Sides of infiltration basin excavated no steeper than 4:1.
F. 08/08/22 Bottom of excavation in accordance with the approved plan.
G. N/A Overflow spillway constructed to design elevation and dimensions.
H. 08/15/22 Confirmatory testing performed in native soil at design bottom elevation in accordance with Soil Investigation Procedures for Stormwater BMPs. ***Submit confirmatory infiltration testing report to approval agency as part of PCVD.***

☑ Confirmatory infiltration testing
◉ Confirmatory rate is at least 150% of the approved design rate
○ Confirmatory rate is less than 150% of approved design rate; designer notified to provide plan revision
☑ 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

Current version of checklist

Photo Documentation

In accordance with subsection 6.5.5 of the Delaware Sediment and Stormwater Regulations (DSSR), photographic documentation of construction of the stormwater management system is required. Elements of construction that will be covered, such as underdrains, underground detention systems, outfall pipes, anti-seep collars, etc., must be photo documented during construction as part of the construction review. The BMP Construction Checklist includes notes

at important steps that will require photo documentation, along with space to include the photo's digital filename or number for reference. Photos documenting individual items of the checklist will be attached to the checklist electronically.

III. Structural Components

A. 9/29/22 Pretreatment method(s) installed per the approved plan.

B. N/A Discharge pipe installed from overflow collection pipe to discharge point.

C. 9/29/22 Rock outlet protection provided at all points of discharge and riprap stone size and dimension confirmed.

D. 9/29/22 Photo documentation of construction of structural components taken. ***Submit photo documentation to approval agency as part of PCVD.*** (Photo #: IMG_1762)

IMG_1762.JPG 9/29/2022 2:02 PM

Final Stabilization Standard

Erosion and sediment controls for BMP construction remain in place until the drainage area meets the final stabilization standard. Final stabilization is defined in the Delaware Construction General Permit:

> **Final Stabilization** means all soil disturbing activities at the site have been completed and either of the two following criteria are met:
>
> a. A uniform (e.g. evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or
> b. Equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.
>
> When background native vegetation will cover less than 100% of the ground (e.g., arid areas, beaches), the 70% coverage criteria is adjusted as follows: if the native vegetation covers 50% of the ground, 70% of 50% (0.70 X 0.50 = 0.35) would require 35% total coverage for final stabilization. On a beach with no natural vegetation, no stabilization is required.

BMPs that rely upon the vegetation for their stormwater function such as vegetated channels and sheet flow to vegetated filter strip require the BMP to be established with **90% vegetated cover**, and photo documentation provided, before the BMP may be accepted.