



INDIANA DEPARTMENT OF TRANSPORTATION

Driving Indiana's Economic Growth

Design Memorandum No. 22-22

November 10, 2022

TO: All Design, Operations, and District Personnel, and Consultants

FROM: /s/ Sandra A. Bowman
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SUBJECT: Post-construction Stormwater Management

REVISES: *Indiana Design Manual (IDM) Chapter 204*

EFFECTIVE: As noted

As of December 18, 2021, Indiana no longer administers the construction stormwater program under Indiana Administrative Code (327 IAC 15-5 or Rule 5). Permitting coverage is now issued under the [Indiana Department of Environmental Management's \(IDEM\) Construction Stormwater General Permit \(CSGP\)](#). The design requirements of CSGP include the implementation of post-construction stormwater management measures to manage the quality and quantity of stormwater discharge from the project area. See [Construction Stormwater General Permit](#) Section 3.2 (a)(9).

INDOT has developed a *Post-construction Stormwater Management* guidance document as a resource for implementing the CSGP requirements. The document is available from the [Environmental Services Division Stormwater webpage](#) under the heading [Post-construction Stormwater Management](#). This document supplements the guidance in *Indiana Design Manual (IDM) Section 203-5.0, Stormwater Management and Detention*.

The guidance for post-construction stormwater management and associated structural measures applies to INDOT projects. Local Public Agency projects will follow the local municipality's ordinances for post-construction measures, as applicable.

When are post-construction stormwater management measures required?

A project should be evaluated for inclusion of one or more post-construction stormwater management measures when both of the following conditions are satisfied:

1. The project requires a Construction Stormwater General Permit. A CSGP is required where the project has one acre or more of land-disturbing activity, including staging areas for construction. The CSGP defines land-disturbing activity as any manmade change of the land surface including, but not limited to, removing vegetative cover that exposes the underlying soil, excavating, filling, and grading.
2. The project includes one acre or more of new impervious surface. The CSGP defines impervious surface as any land surface with a low or no capacity for soil infiltration, including but not limited to the pavement, sidewalks, streets, parking areas, driveways, compacted gravel, or soil roadways, and rooftops.

Project Commitments – Implementing Post-construction Stormwater Management Measures for Projects in Development

All projects that meet the land disturbance and additional impervious area thresholds described above should revise the Project Commitments to include the following commitment.

Project will add approximately xxx acres of impervious surface. Designer will examine project for inclusion of post-construction stormwater management measures according to the INDOT Post-construction Stormwater Management guidance document.

Project Commitment Resolutions

Project actions should be based on the added impervious surface area and project development process milestones according to Table 1 below. Table 2 provides the corresponding commitment resolutions based on the action taken.

Projects that are at a later stage in design may have stormwater quantity or quality measures that qualify, or can be modified to qualify, as a post-construction stormwater management measure. Projects that are at an early stage in design will have post-construction stormwater management measures added unless found to be infeasible. See *Post-construction Stormwater Management*, Section 3.04, for Infeasibility Determination.

Table 1: Project action based on project development process milestone and the amount of additional impervious area

PDP Milestone	Added Impervious Surface <1 acre	Added Impervious Surface ≥ 1 acre and < 3 acres	Added Impervious Surface ≥ 3 acres
Stage 3 as of November 18, 2022	No action	No action - Project is advanced in development for design changes or additional project commitments	Credit measures already included in design through supporting calculations and designation as a post- construction stormwater measure
Stage 2 as of November 18, 2022	No action	Credit measures already included in design through supporting calculations and designation as a post- construction stormwater measure	Examine for measures to add or modify, consult with PM on acquiring ROW
Stage 1 as of November 18, 2022	No action	Examine for measures to add or modify, consult with PM on acquiring ROW	Examine for measures to add or modify, consult with PM on acquiring ROW
Prior to Stage 1 as of November 18, 2022	No action	Post-construction stormwater measures are required	Post-construction stormwater measures are required

Table 2: Commitment resolutions based on action selected from Table 1

Action	Commitment Resolution
No action - Project is advanced in development for design changes or additional project commitments	<i>Project was advanced past Stage X design on November 18, 2022, and it is infeasible to add post-construction stormwater management measures late in project development.</i>
Credit measures already included in design through supporting calculations and designation as a post-construction stormwater measure	<i>Project was advanced past Stage X design on November 18, 2022, and the post-construction stormwater management measures included in design are xxxx; it is infeasible to add other measures.</i>
Examine for measures to add or modify, consult with PM on acquiring ROW	<i>Project was advanced past Stage X design on November 18, 2022, and xxxx post-construction stormwater management measures were included in design, modified to meet requirements, or added.</i> <i>Additional measures required to meet permit requirements are infeasible because xxxx.</i>
Post-construction stormwater measures are required	<i>xxxx post-construction stormwater management measures are included in the design.</i>

Selecting Post-construction Stormwater Management Measures

The term post-construction stormwater management measures will be used to differentiate these measures from temporary construction best management practices (BMPs). Some BMPs can remain in place and serve as post-construction measures.

INDOT has developed a list of preferred measures (defined as structural measures) for removing contaminants from stormwater runoff based on construction cost and ease of maintenance. The *Post-construction Stormwater Management* document provides descriptions of various measures and guidance for selection and design.

Table 3 shows the INDOT recommended post-construction structural measures, ranked by priority. In general, measures with a priority value of 1 should be considered for inclusion first. The use of proprietary devices should be limited and should include an agreement of ownership and maintenance responsibility.

Table 3. INDOT Recommended Post-Construction Structural Measures

Structural Measure	Description	Pollutant Removal Mechanism	Priority
Dry Turf Grass Swale	A broad and shallow channel planted with grass. Fully drains between rainfall events.	Sedimentation, physical filtration, and biofiltration	1
Dry Native Grass Swale	A broad and shallow channel planted with dense specialized plants. Fully drains between rainfall events.	Sedimentation, physical filtration, and biofiltration	1
Filter Strip	A vegetated linear section of land. Also often referred to as a buffer strip.	Physical filtration, sorption, biofiltration	1
Dry Detention	An engineered pond or swale planted with grass. Fully drains between rainfall events. Includes an outlet structure to control flow.	Sedimentation, physical filtration, and biofiltration	1
Wet Swale	A broad and shallow channel planted with grass. Designed with a permanent pool and an elevated outlet structure.	Sedimentation, physical filtration, and biofiltration	2
Wet Retention Pond	Engineered basin designed to permanently store run-off. Designed with a permanent pool and an elevated outlet structure.	Sedimentation, physical filtration, and biofiltration	2
Infiltration Swale	A broad and shallow channel with permeable soil planted with grass. Designed to infiltrate run-off into the underlying soil.	Sedimentation, physical filtration, infiltration, sorption, and biofiltration	3
Infiltration Basin	An engineered basin with permeable soil planted with grass. Designed to infiltrate run-off into the underlying soil.	Sedimentation, physical filtration, infiltration, sorption, and biofiltration	3
Proprietary Device ¹	Hydrodynamic separators.	Sedimentation and physical filtration	4

1: If the device will not be owned by INDOT, an agreement to transfer ownership and maintenance responsibility to a local government upon project completion must be established.

Plans

Typical details of proposed measures are included in the *Post-construction Stormwater Management* document. The measures should be clearly identified on the plans, with dimensions and construction details. In some instances, temporary BMP measures used during construction can be used for post-construction. The plans should include a table showing all proposed post-construction stormwater measures.

Each measure should be labeled as “Post-Construction Stormwater Measure, [Measure Name]”. Linear measures should include begin and end stations. For example, Post-Construction Stormwater Measure, Dry Turf Swale Line “A” Sta. 100+00 to Sta. 200+00. Single features should include the station at the approximate center of the feature and the offset. For example, Post-Construction Measure, Dry Detention Pond, Line “A” Sta. 100+00, Offset 60 ft Rt.

Where a temporary BMP will remain in place and serve as a post-construction measure, it should be labeled as such.

Design Calculations

Calculations will follow the guidance provided in the *Post-construction Stormwater Management* document. Additional guidance for design calculation submittals and required supporting documentation will be provided through the [Environmental Services Division Stormwater webpage](#) .

Pay Items and Unique Special Provisions (USPs)

Pay items and Unique Special Provisions are under development. Guidance will be provided through the [Environmental Services Division Stormwater webpage](#)

Pay items will be added periodically as they are developed and become available.

Stormwater Pollution Prevention Plan (SWPPP)

The SWPPP should include the project commitment and resolution. It should include the implementation of appropriate post-construction stormwater quality measures to target the pollutants associated with the intended post-construction land use of the project. The implemented measures should be functional upon completion of the project and periodically monitored and maintained.

Post-Construction Storm Water Runoff Control

Once the construction is complete, the intended post-construction measures should become operational to maintain adequate stormwater quality from the developed site. The post-construction stormwater quality measures should be managed and maintained regularly. According to INDOT's Municipal Separate Storm Sewer System (MS4) rule, the post-construction minimum control measure (MCM) program plan should be signed and submitted to INDOT two years from the initial NOI letter receivership date.

Indiana Design Manual Revisions

IDM Chapter 204, Permanent Stormwater Quality Controls has been renamed Post-construction Stormwater Management and revisions are as noted below.

Questions

For questions related to this design memo, contact Sandra Bowman: sbowman@indot.in.gov
See the [Environmental Services Division Storm Water webpage](#) for the *Post-construction Stormwater Management* guidance document, maintenance plan templates, frequently asked questions, and other implementation resources. Additional resources will be added as they are available.

POST-CONSTRUCTION STORMWATER MANAGEMENT

INDOT's Municipal Separate Storm Sewer System (MS4) permit requires the agency to develop and administer a comprehensive program to address discharges of post-construction stormwater run-off from new development and redevelopment with land-disturbance of one acre or more. See [4.6 SWQMP Post-construction Stormwater Run-off minimum control measure \(MCM\)](#). The intent of the program is to manage the discharge of stormwater runoff to address quality and quantity. A key requirement of this permit is to establish a design criterion to reduce pollutants and manage stormwater quantity according to the post-construction requirements of the Construction Stormwater General Permit (CSGP).

The INDOT *Post-Construction Stormwater Management* guidance document was developed to implement the permit requirements. It is intended to supplement the guidance in Section 203-5.0, Stormwater Management and Detention.

For INDOT projects, post-construction stormwater management measures are required for projects with land disturbances of one acre or more and have additional impervious surfaces of one acre or more. The compliance with IDEM's CSGP in these projects requires the implementation of post-construction stormwater management measures.