



## **BUREAU OF WATERSHED MANAGEMENT PROGRAM GUIDANCE**

**Runoff Management Policy Management Team  
Storm Water Management Program**

Wisconsin Department of Natural Resources  
101 S. Webster Street, P.O. Box 7921  
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### **Design Considerations for Post- Construction Performance Standards for Public Trails near Waterways or Wetlands**

May 2017

EGAD Number: 3800-2017-02

*This document is intended solely as guidance and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.*

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APPROVED:

Pam Biersach, Director  
Bureau of Watershed Management

May 17, 2017  
Date

## **A. Statement of Problem**

Public trails provide opportunities to enjoy Wisconsin's many scenic areas. However, construction or reconstruction of a public trail may have water quality impacts on nearby wetlands, streams, and lakes due to erosion caused by storm water runoff. Also, storm water runoff from a public trail may impact these water resources after construction is complete. Subchapter IV of [ch. NR 151, Wis. Adm. Code](#), *Transportation Facility Performance Standards*, identifies the post-construction performance standards for public trails. Depending on the nature of land disturbance<sup>1</sup> involved in the development of a public trail project and its long-term characteristics, there are some straightforward post-construction storm water treatment options that provide flexibility when planning work on a public trail. The prescribed options discussed in this guidance will assist with meeting the transportation facility post-construction performance standards for construction or reconstruction of a public trail.

### **Scope**

The Wisconsin Department of Natural Resources (Department) is providing this guidance for public trail<sup>2</sup> projects requiring a construction site storm water permit and where portions of the project will be near waterways or wetlands. The construction site storm water permit is required when there is one acre or more of land disturbing activity. Public trail maintenance activities performed to restore the existing trail surface without exposing the underlying soil are not land disturbing construction activities.

To calculate the area in acres for the construction of a trail, multiply the length of the soil disturbance in feet by the width of the soil disturbance in feet and then divide the result by 43,560 (one acre equals 43,560 square feet). For example, a trail construction project that will disturb 7260 feet in length and 6 feet in width will disturb a total of one acre:

$$7260 \text{ ft} \times 6 \text{ ft} = 43,560 \text{ ft}^2 = \text{one acre}$$

## **B. Background**

Subch. IV of ch. NR 151, Wis. Adm. Code, identifies the transportation facility performance standards that apply to transportation projects, including public trails. The post-construction performance standards, pursuant to ss. NR 151.241 to 151.249, Wis. Adm. Code, are intended to limit runoff pollution in order to achieve water quality standards after construction is complete.

This guidance is intended for any public trail construction site that consists of one acre or more of land disturbing construction activity, which constitutes discharges needing a Wisconsin Pollutant Discharge Elimination System (WPDES) construction site storm water permit. For a public trail, this guidance provides clarity for Department staff and external partners when planning for post-construction storm water treatment options near a waterway or wetland. This document will focus on treatment options to consider when planning for the protective area standard, pursuant to s. NR 151.245, Wis. Adm. Code. In general, unless unique site conditions suggest otherwise on a case-by-case basis, post-construction performance standards in ss. NR 151.242, 151.243, and 151.244, Wis. Adm. Code, will be met if the plan and construction follows the protective area design considerations in this guidance. This guidance only applies to

public trails as defined in s. NR 151.21(10), Wis. Adm. Code.

### **C. Discussion**

Section NR 151.245, Wis. Adm. Code, pertains to the establishment of protective areas for transportation facility post-construction sites. Protective areas are established to minimize impacts from runoff coming from developed areas before it reaches sensitive resources. However, there are additional considerations available for post-construction practices when developing a public trail near a waterway or wetland.

This guidance provides storm water treatment options that can be considered during the planning of public trails where a WPDES construction site storm water permit is required and the trail is located near a waterway or wetland. The Department has determined that public trails will typically have low pollutant loads associated with post-construction storm water runoff if designed, constructed, and maintained such that runoff is directed to a pervious area<sup>3</sup> to facilitate adequate filtration and infiltration of runoff.

### **D. Guidance**

Before considering what storm water treatment options to use when designing a public trail, the project proponent needs to determine the location of waterways and wetlands. The presence or absence of waterways and wetlands is to be determined by using the Initial Screening Process in the [Waterway/Wetland, Concentrated Animal Feeding Operation \(CAFO\) and Storm Water Management Program Wetland Screening and Delineation Procedures](#) guidance memo (#3500-2016-01), signed December 15, 2016, by Pam Biersach, Bureau of Watershed Management Director. The presence or absence of wetlands within the project area will need to be determined before construction of a public trail. Contact your local Water Management Specialist ([dnr.wi.gov/topic/Waterways/contacts.html](http://dnr.wi.gov/topic/Waterways/contacts.html)) for assistance.

For projects that involve crossing a stream or wetland, replacement of a culvert, grading on the bank of a stream, or filling a wetland, the project proponent may also need to apply for waterway or wetland permits. More information is available at the Department's waterway and wetland permits webpage at [dnr.wi.gov/topic/Waterways/](http://dnr.wi.gov/topic/Waterways/), or by contacting the local Water Management Specialist ([dnr.wi.gov/topic/Waterways/contacts.html](http://dnr.wi.gov/topic/Waterways/contacts.html)).

### **Storm Water Treatment Options**

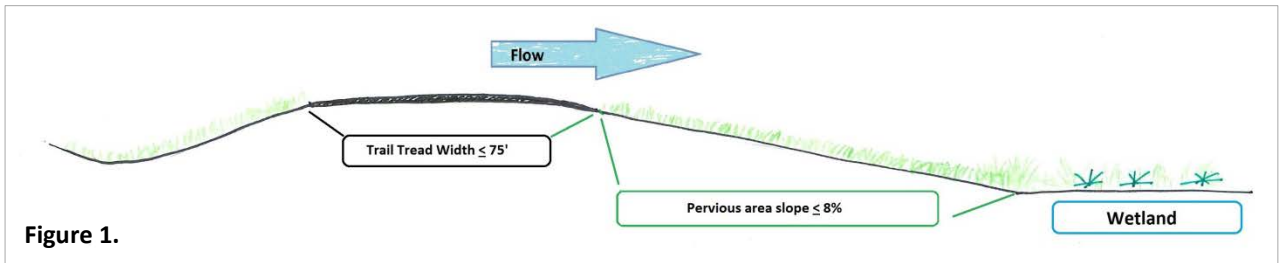
A public trail can meet the post-construction performance standards if designed, constructed, and maintained in accordance with one or more of the following storm water treatment options (1. - 4.). A trail developer can choose any option or combination of options that best meet the specific conditions of portions of a public trail located near a waterway or wetland.

1. Meet conditions of protective area<sup>4</sup> standard.  
Determine the protective area width based on the susceptibility of the wetland or waterbody as summarized in [Guidance for the Establishment of Protective Areas for Wetlands in Runoff Management Rules, Wisconsin Administrative Code NR 151](#) guidance memo (#3800-2015-02).

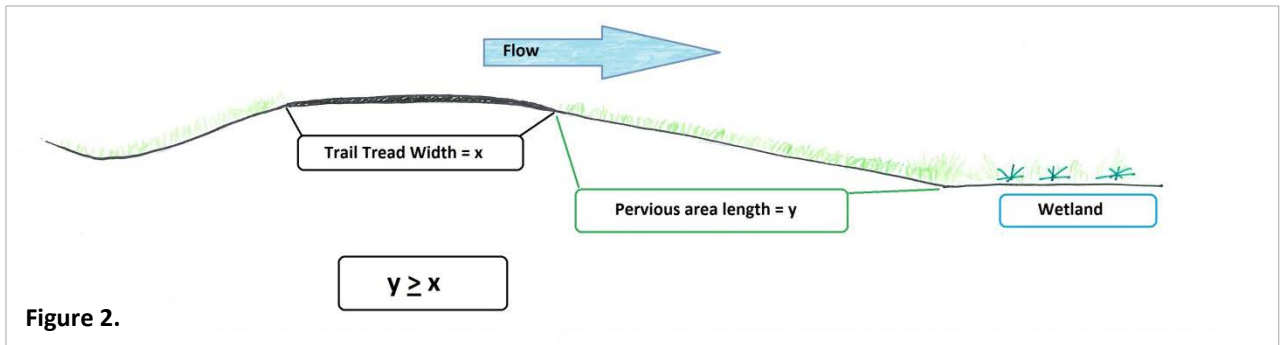
2. Meet conditions of “disconnection.”

Disconnection may be assumed provided all (a. through d.) of the following are met:

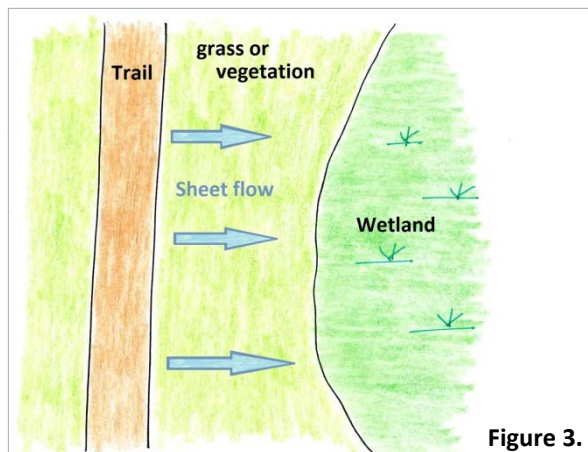
- a. The source area (i.e., trail tread width) flow length does not exceed 75 feet<sup>5</sup>. (Figure 1.)
- b. The pervious area is covered with a self-sustaining vegetation in good condition<sup>6</sup> and at a slope not exceeding 8 percent. (Figure 1.)



- c. The pervious area flow length is at least as long as the contributing impervious<sup>7</sup> area and there can be no additional runoff flowing into the pervious area other than that from the source area. (Figure 2.)



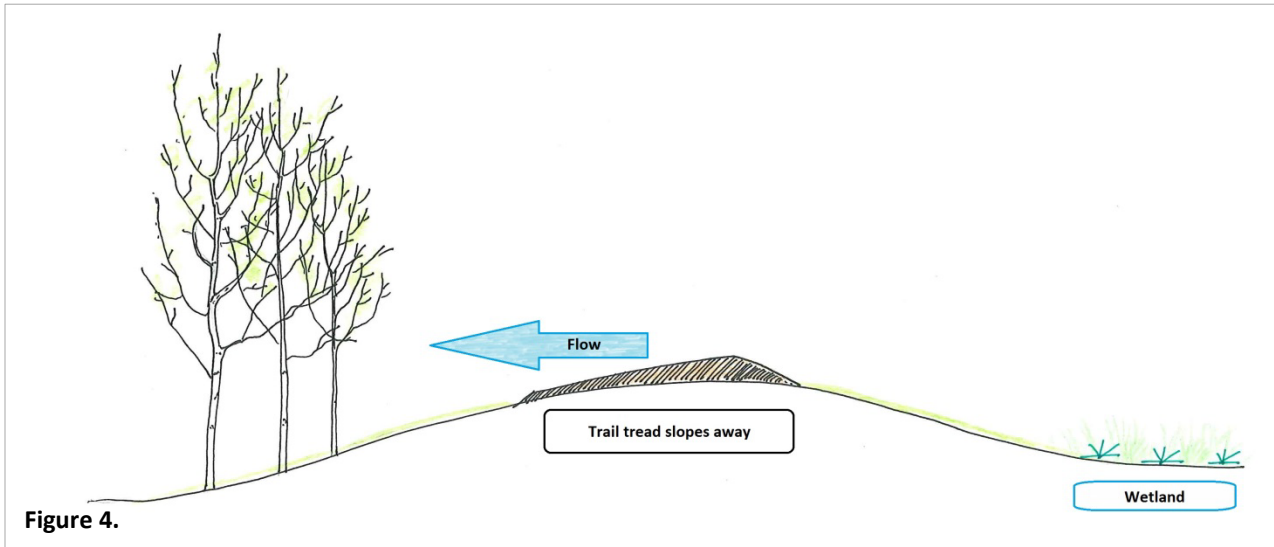
- d. The pervious area must receive runoff in a sheet flow (as opposed to concentrated flow) manner across an impervious area with a pervious width at least as wide as the contributing source area (i.e., trail tread width). (Figure 3.)



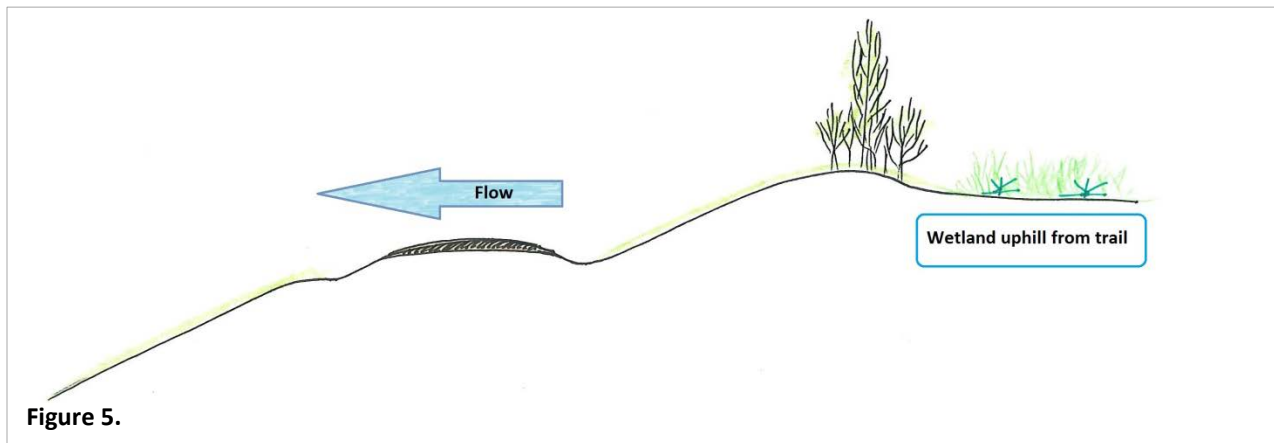
3. Divert Flow.

Design the public trail so that drainage flows away from waterway/wetland. The protective area standard does not apply to the trail if:

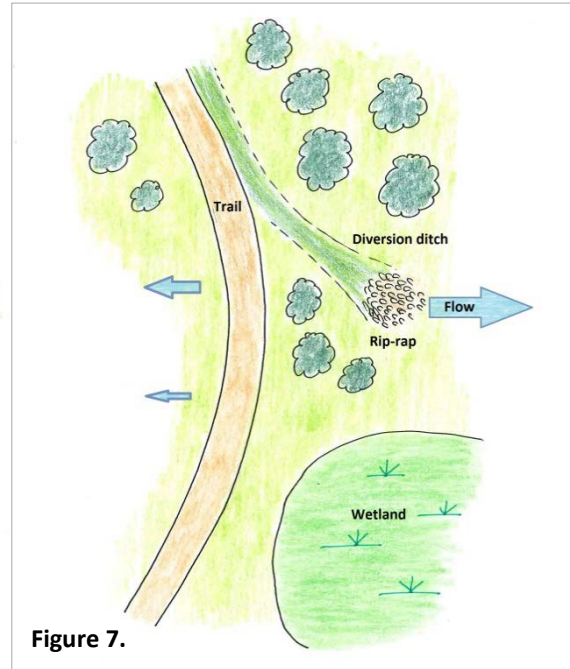
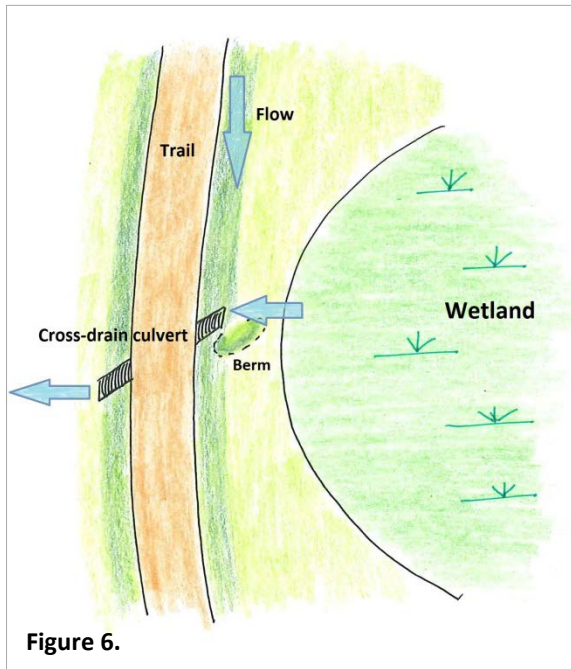
- a. The trail slopes away from the waterway/wetland. (Figure 4.)



- b. The waterway/wetland is upland from the trail. (Figure 5.)



c. Water is diverted away from the waterway/wetland. (Figure 6. and Figure 7.)



#### 4. Treat runoff.

Transportation facilities are exempt from the protective area performance standard if runoff is treated to meet total suspended solids and peak discharge performance standards (ss. NR 151.242 to 151.243, Wis. Adm. Code) prior to entering waters of the state pursuant to s. NR 151.245(4)(d), Wis. Adm. Code. Best Management Practices, or treatment practices, such as filter strips, swales, or wet detention ponds, that are designed to control pollutants from nonpoint sources, may be located in the protective area (s. NR 151.245(3)(c), Wis. Adm. Code).

Projects that meet one or more of the four storm water treatment options are considered in compliance with the post-construction performances standards including the protective area standard.

#### **Additional Resources**

The following documents are useful in to assisting with planning for post-construction storm water treatment options for a public trail:

- [\*Ice Age National Scenic Trail Handbook for Trail Design, Construction and Maintenance\*](#)
- International Mountain Bicycling Association trail building handbook, [\*Trail Solutions\*](#)
- [\*North Country National Scenic Trail: A Handbook for Trail Design, Construction and Maintenance\*](#)
- [\*Wisconsin's Forestry Best Management Practices for Water Quality Field Manual\*](#)

## End Notes

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<sup>1</sup> “Land disturbing construction activity” is defined by s. NR 151.002(22), Wis. Adm. Code, as any man-made alteration of the land surface resulting in a change in the topography or existing vegetative or non-vegetative soil cover, that may result in runoff and lead to an increase in soil erosion and movement of sediment into waters of the state. Land disturbing construction activity includes clearing and grubbing, demolition, excavating, pit trench dewatering, filling and grading activities.

<sup>2</sup> “Public trail” is defined by s. NR 151.21(10), Wis. Adm. Code, as “ ‘state ice age trail area’ designated under s. 23.17(2), Stats., a state trail under s. 23.175(2)(a), Stats., an ‘all-terrain vehicle trail’ under s. 23.33(1)(d), Stats., an ‘off-the-road motorcycle trail’ under s. 23.33(9)(b)4., Stats., a ‘recreational trail’ under s. 30.40(12m), Stats., a ‘walkway’ under s. 30.40(22), Stats., a ‘state trail’ under s. 84.06(11), Stats., a ‘bikeway’ under s. 84.60(1)(a), Stats., a ‘snowmobile trail’ under s. 350.01(17), Stats., a ‘public snowmobile corridor’ under s. 350.12(3j)(a)1., Stats., or any other trail open to the public as a matter of right.”

<sup>3</sup> A pervious area is an area covered by a pervious surface. “Pervious surface” is defined by s. NR 151.002(34), Wis. Adm. Code, as “an area that releases as runoff a small portion of the precipitation that falls on it. Lawns, gardens, parks, forests or similar vegetated areas are examples of surfaces that typically are pervious.”

<sup>4</sup> “Protective area” pursuant to s. NR 151.245(1), Wis. Adm. Code, means “an area of land that commences at the top of the channel of lakes, streams, and rivers, or at the delineated boundary of wetlands, and that is the greatest of the following widths, as measured horizontally from the top of the channel or delineated wetland boundary to the closest impervious surface.”

<sup>5</sup> The Department realizes that for a public trail, the trail tread width will be much less than 75 feet. The Department is using this maximum width because it’s consistent with a previously developed guidance document not applicable to public trails that establishes the conditions of disconnection.

<sup>6</sup> Vegetation in good condition consists of a well-established vegetated cover or other permanent stabilization measures applied to disturbed areas after construction is complete and meeting the conditions of “final stabilization” as defined in s. NR 151.002(15), Wis. Adm. Code:

“Final stabilization” means that all land disturbing construction activities at the construction site have been completed and that a uniform perennial vegetative cover has been established with a density of at least 70% of the cover for the unpaved areas and areas not covered by permanent structures or that employ equivalent permanent stabilization measures.

Notwithstanding the requirement to attain final stabilization after completion of a construction project, public trails are nearly always constructed within natural systems and are intended to give people opportunities to access and enjoy what nature has to offer. Accordingly, some typical aspects of final stabilization may be undesirable in a public trail setting. For example, vegetation associated with turf development or urban landscaping would be inappropriate in many cases, particularly if they could become invasive. In recognition of the unique considerations for keeping the setting of a public trail as natural as possible, other post-construction techniques used by trail developers to establish permanent stabilization measures are recognized, e.g., mulching, re-establishment of leaf litter, natural re-vegetation from the existing seed bank, etc. The trail developer will be responsible for any erosion issues that may arise until these permanent stabilization measures are in place and established.

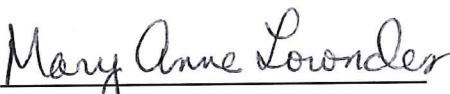
<sup>7</sup> An impervious area is an area covered by an impervious surface. “Impervious surface” is defined by s. NR 151.002(17), Wis. Adm. Code, as “an area that releases as runoff all or a large portion of the precipitation that falls on it, except for frozen soil. Rooftops, sidewalks, driveways, gravel or paved parking lots, and streets are examples of surfaces that typically are impervious.”

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