

GUIDANCE MANUAL

SURFACE & STORMWATER RULES OF THE DISTRICT

Guidance for sites adding 5,000 sq ft
up to a 1/2 acre of net new impervious area

WHAT IS CHAPTER 13?

Chapter 13 Rules are regulations that require certain sites within the District's planning area to manage rain where it falls and reduce stormwater runoff.

The Rules can be found on the MMSD website at: www.mmsd.com/application/files/4215/5412/8237/Chapter_13_3-25-19.pdf

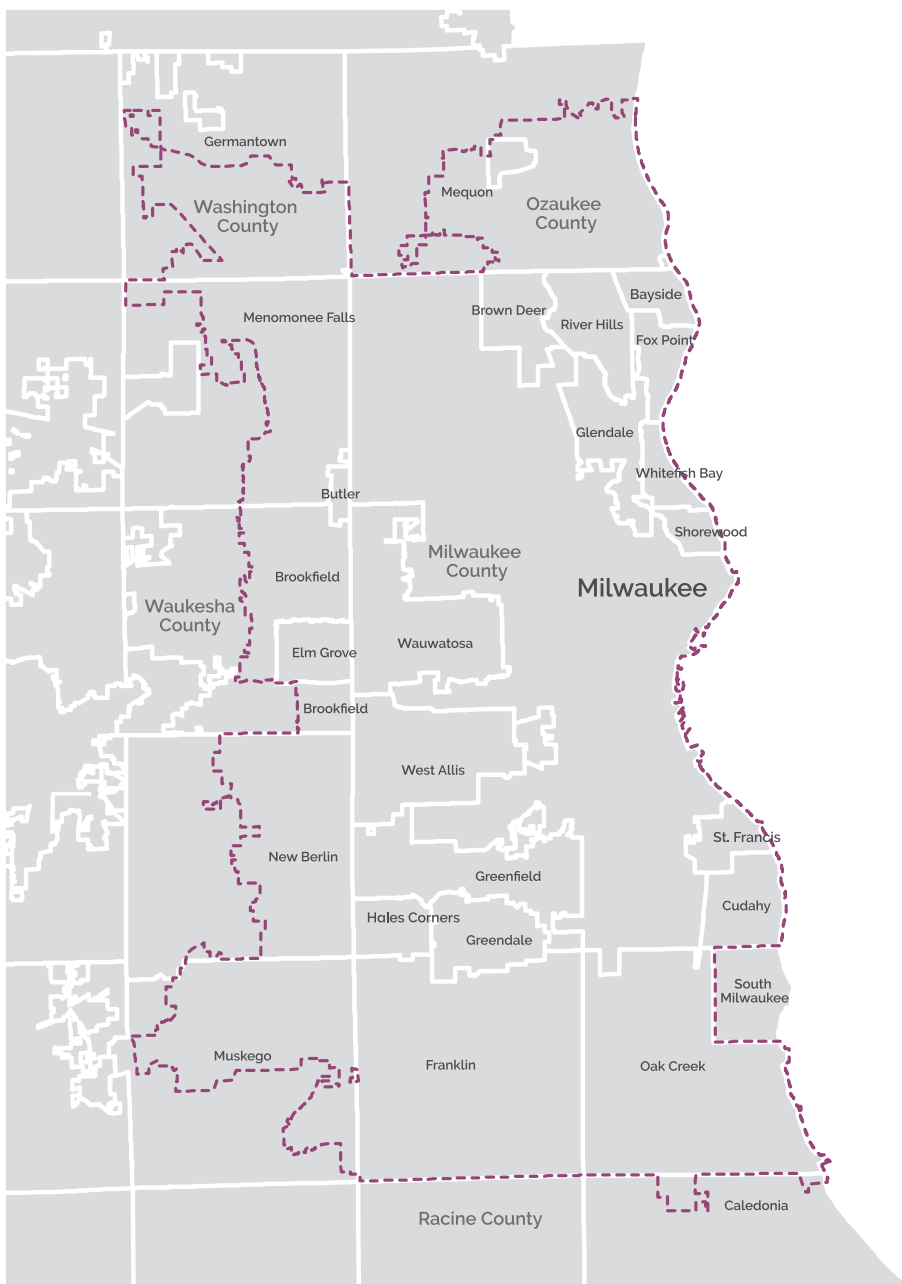


Figure 1
The District's 411-square mile planning area

WHAT IS REQUIRED?

What is required when a site adds 5,000 square feet up to a 1/2 acre of net new impervious area?

Site owners must submit a GI plan to the municipality then install and maintain green infrastructure (GI).

WHY IS IT REQUIRED?

Why is the district requiring sites adding 5,000 sq ft up to a 1/2 acre of net new impervious area to incorporate GI?

Previously, smaller sites that added less than a 1/2 acre of net new impervious area were not required to manage stormwater. This new regulation was created to help ensure that stormwater from smaller sites does not, over time, cause economic and environmental harm when it rains. Impacts from storms are forecasted to become increasingly challenging as our climate changes.

Requiring developments and redevelopments to install and maintain GI will help keep more rain where it falls and snow where it melts. Every gallon of water detained on a site is one less gallon of water that could be:

- Increasing flood risks and peak flows.
- Entering sewer systems.
- Contributing to streambank erosion.

The new GI requirements are another way the District is:

- Protecting people and property from flood risks.
- Reducing possible overflows and basement backups.
- Safeguarding watercourses.

Chapter 13 focuses on managing water quantity (how much stormwater runs off a site), but GI also improves water quality. By reducing pollutant loads (such as pathogens, phosphorus, sediment, and heavy metals), GI helps improve the water quality, ecology and biodiversity of waterways. Healthier streams and rivers lead to:

- Greater economic investments.
- More public enjoyment of waterways.
- Better public health, safety, and quality of life.



DEFINITIONS

Impervious surfaces

Net new impervious area

GI

Natural wetland

Detention

Infiltration

Development

Redevelopment



WHAT ARE IMPERVIOUS SURFACES?

Impervious surfaces do not allow water to soak into the ground. Impervious surfaces can include: pools, roofs, paved areas, and stone-paved areas.

WHAT IS A NET NEW IMPERVIOUS AREA?

The net new impervious area is the total, cumulative amount of impervious area added to a site since Sec. 13.302(3)(c) (GI plan requirement) became effective on April 1, 2019.

The area of imperviousness that was in place before April 1, 2019 is considered existing. Any impervious area added on or after April 1, 2019 is considered new and will count towards the total of net new impervious area. As soon as a site adds a total of 5,000 square feet (either all at once or in phases over time), then a GI plan must be submitted and GI is required to be installed and maintained.

Sites adding a ½ acre or more of net new imperviousness or redevelopments disturbing two acres or more have a different starting date for tracking net new impervious area. For details, please see the *Guidance Manual for the Surface and Stormwater Rules of the District – Stormwater Management Plans*.

WHAT IS GREEN INFRASTRUCTURE (GI)?

The Rules define GI as any combination of landscaping, facilities, or equipment that captures rain at or near the site where it falls by infiltration into the soil, evapotranspiration by plants, or storage for beneficial use or delayed discharge (Sec. 13.302(1)(c)).

GI THAT CAN BE USED TO MEET CHAPTER 13 REQUIREMENTS INCLUDES:



Rain gardens



Wetlands



Green roofs



Bioswales



Permeable surfacing



Landscaping with deep-rooted plants



Cisterns



Rain barrels



Trees



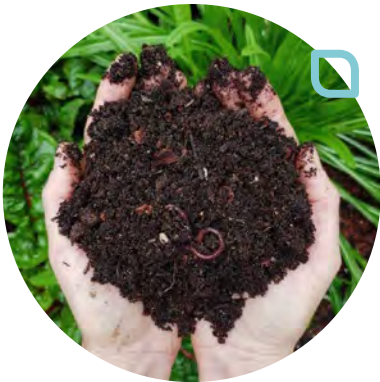
Wet ponds
(requires stormwater modeling)



Dry ponds and other infiltration Best Management Practices (BMPs)



Removal of structures or pavement to allow re-vegetation and infiltration (requires project-specific modeling)



Soil amendments



To learn more about GI strategies, please visit: www.freshcoastguardians.com/resources/green-strategies



WHAT IF A SITE HAS NATURAL WETLANDS?

Natural wetlands will not be considered GI for the purpose of meeting the requirements of Chapter 13. To comply with both District requirements and Wisconsin Department of Natural Resources (WDNR) rules, runoff from new impervious surfaces cannot directly drain into an existing natural wetland. Runoff from the new impervious surfaces must drain first into GI.

WHAT IS DETENTION?

GI detains stormwater by holding it or storing it, and then releasing it slowly after the storm or most intense period of the storm has passed.



WHAT IS INFILTRATION?

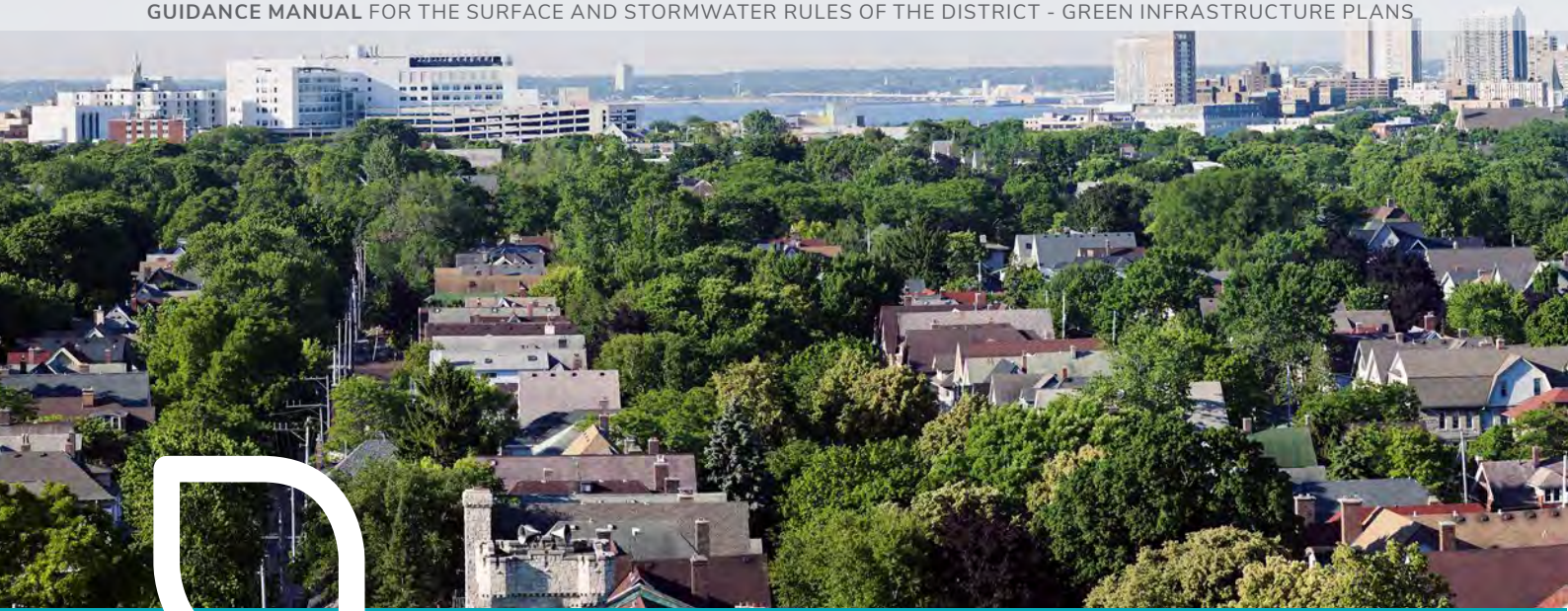
Infiltration happens when water on a surface enters the soil beneath it.

WHAT IS DEVELOPMENT?

A development is the construction of buildings, roads, and parking lots on a site that was previously undeveloped. For example, farmland that is converted to a subdivision is a development.

WHAT IS REDEVELOPMENT?

A redevelopment is any new development that replaces an older development. For example, a site with an old home that's replaced by a new home is a redevelopment.



INFORMATION ABOUT REQUIRED GREEN INFRASTRUCTURE (GI)

GI resources

GI placement

How much is required

Calculating detention volume



GI RESOURCES

The Fresh Coast Resource Center is a free resource where knowledgeable staff can answer questions and help:

- Identify the right type of GI for the site.
- Properly size GI to meet Chapter 13 requirements.
- Provide cost estimates.
- Select the right plants to use.
- Develop a GI plan.

To learn more, visit www.freshcoastguardians.com or call (414) 225-2222.

GI PLACEMENT

When possible, GI should be installed **near the new impervious areas** to capture and detain the additional flow that will be coming from the new impervious surfaces. If GI cannot be placed next to the new areas of imperviousness, then the GI should ideally be installed near existing impervious areas.

HOW MUCH GI IS REQUIRED

Developments and redevelopments with net new impervious surfaces totaling **5,000 square feet up to a 1/2 acre** must include GI with a detention volume equal to one-half inch multiplied by the area of the net new imperviousness surface (Sec. 13.302(3)(c)).



GI DETENTION VOLUME

In GI plans, detention volume must be reported in gallons. The Rule gives the project owner choices on how to calculate detention volume, by order of preference (Sec. 13.303(4)(b)):

1. Project-specific hydrologic modeling
2. A calculation tool available at www.freshcoastguardians.com/resources/sizing-your-project
3. The following table:

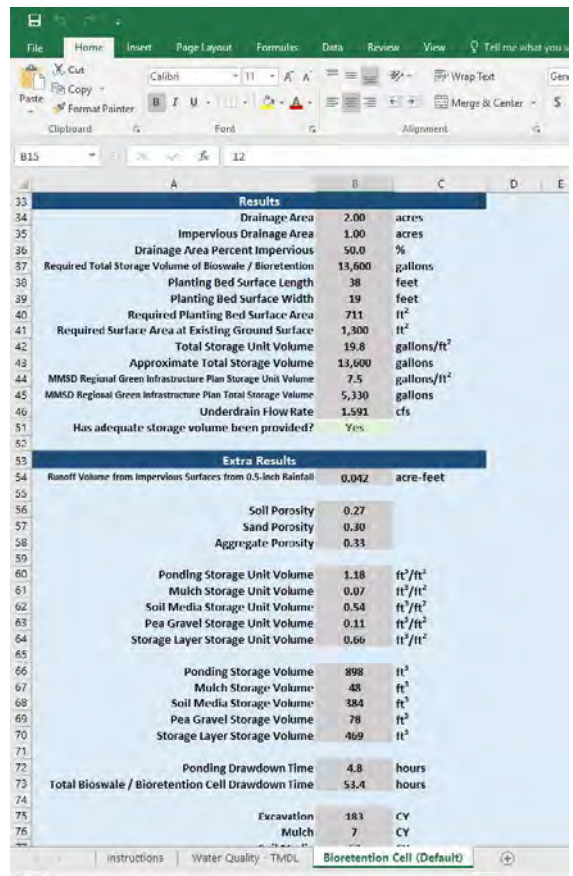
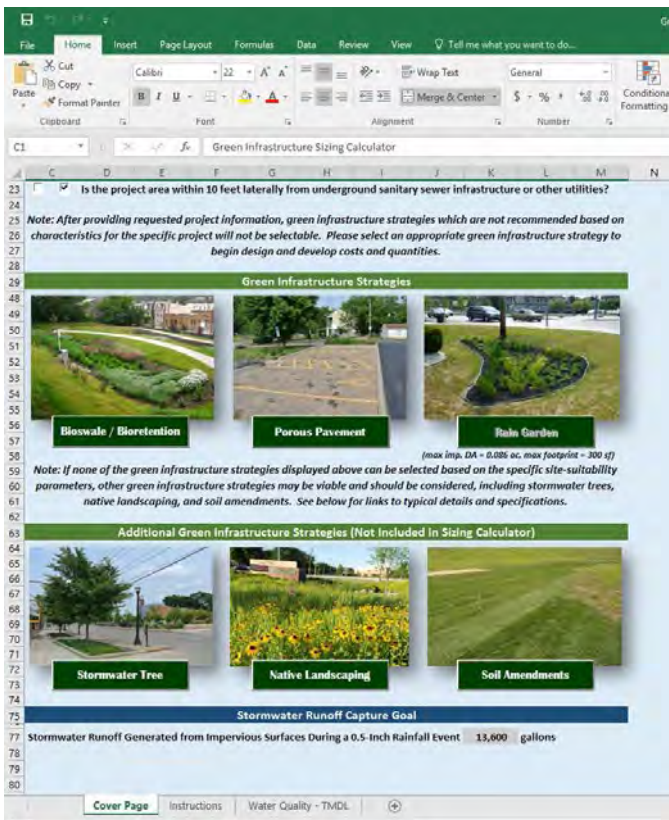
GREEN INFRASTRUCTURE	UNIT DETENTION VOLUME
Bioswale	7.5 gallons per square foot
Cistern	Capacity of the cistern
Constructed wetland	8.3 gallons per square foot
Green roof	1 gallon per square foot
Native landscaping	0.4 gallon per square foot
Porous pavement	3 gallons per square foot
Rain garden	4.4 gallons per square foot
Rain barrel	Capacity of the barrel
Tree	25 gallons per tree

Table 1

Unit detention volume by GI type as allowed by Chapter 13



The Green Infrastructure Sizing Calculator is an easy-to-use tool found at www.freshcoastguardians.com under Resources.



APRIL, 2019

GUIDANCE MANUAL FOR THE SURFACE AND STORMWATER RULES OF THE DISTRICT - GREEN INFRASTRUCTURE PLANS



INFORMATION ABOUT GREEN INFRASTRUCTURE (GI) PLANS

Creating plans

Submitting plans

Exemptions

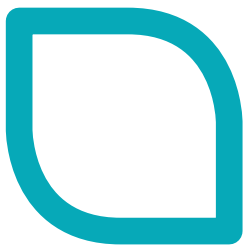


CREATING GI PLANS

Required elements for GI plans include (Sec. 13.303(4)):

- A description of the project and the dimensions for the new impervious surfaces.
- A description of the proposed GI with dimensions.
- One or more drawings showing the location of new impervious surfaces and proposed GI.
- Calculations showing that the volume of detention provided by the GI is equal to or greater than the required detention volume.
- GI maintenance plan.

The Rule requires GI to be constructed according to Wisconsin Department of Natural Resource (WDNR) stormwater post-construction technical standards found at: https://dnr.wi.gov/topic/stormwater/standards/postconst_standards.html



Show me a healthy community with a healthy economy and I will show you a community that has its green infrastructure in order and understands the relationship between the built and the unbuilt environment.

~ Will Rogers, Trust for Public Land



SUBMITTING GI PLANS



Step 1

Site owners can call or visit the Fresh Coast Resource Center and confirm if their proposed project requires a GI plan. If a GI plan is required, Fresh Coast Resource Center staff can help prepare a GI plan. A typical GI plan will take about an hour to complete and can typically be finished during the consultation meeting. Meetings can be either by phone or in-person at the Fresh Coast Resource Center. To make an appointment, call: (414) 225-2222. For more information, please visit: www.freshcoastguardians.com/.



Step 2

Site owners submit the GI plan to the municipality. Sec. 13.303(2) requires GI plans to be submitted within 30 days after all relevant design decisions are complete and the governmental unit has concluded that the development or redevelopment meets all local requirements.



Step 3

The municipality electronically submits the GI plan for District review. Please use the naming convention:

2-letter municipality code_(date in mmddyyyy format)_(Project name)_GI_Plan

Example: MI_04152019_BakerHome_GI_Plan



Step 4

The District reviews the GI plan within 10 District working days.



Step 5

GI plans that are missing elements or that do not satisfy Chapter 13 requirements will be returned to the municipality, and the municipality will request additional information or revisions from the site owner. Corrected GI plans will be resubmitted to the District by the municipality. The District then has another 10 day working days to review the revised GI plan.



Step 6

When the GI plan is approved, the District provides an electronic approval letter to the municipality.



Step 7

The municipality informs the site owner that the GI plan has been approved.

EXEMPTIONS

Exemption 1: Trades



Sec. 13.302(3)(c)2 allows a development or redevelopment project owner to trade GI detention volume to another development or redevelopment project owner.



If a development or redevelopment project owner has implemented more GI detention volume at another site than required by Chapter 13, then that development or redevelopment project owner may trade this detention volume to another development or redevelopment project owner.



Project owners may use traded detention volume to reduce the detention volume that needs to be installed on their site.



The District must first review proposed trades and approve trades.



The District does not facilitate trades. The District only approves proposed trades between owners who have excess detention volume and owners who would like to offset required detention volume.


Exemption 2: Residential subdivisions with approved Stormwater Management Plans (SWMPs)



If the new impervious surface is within a residential subdivision that has an approved a SWMP, then no additional stormwater management is required (Sec. 13.302(3)(c)3).

QUESTIONS ABOUT CHAPTER 13?

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GREEN INFRASTRUCTURE PLANS



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