

Chapter 13

Surface Water and Stormwater

Subchapter I – General

13.101 Purpose.....	2
13.102 Applicability	2
13.103 Definitions.....	2
13.104 District immunity	3
13.105 State requirements.....	4
13.106 Enforcement.....	4

Subchapter II – District Flood Abatement Activities

13.201 Watercourse jurisdiction	6
13.202 Adding watercourses.....	6
13.203 Flood abatement projects	6
13.204 Watercourse maintenance when the District does not own the riparian land	7
13.205 Cost sharing for the maintenance of dual use flood abatement facilities	8
13.206 District recreational immunity at dual use flood abatement facilities	9

Subchapter III – Stormwater Runoff Management Requirements

13.301 Applicability of stormwater runoff management requirements.....	10
13.302 Runoff management requirements.....	12
13.303 Site development stormwater runoff management plans and green infrastructure plans	15
13.304 Rainfall data.....	18

Subchapter IV – General Requirements for Local Governments

13.401 Annual reports.....	20
13.402 Notice of FEMA map revisions	20
13.403 Notice of floodplain zoning changes	20
13.404 Outfalls and stormwater conveyance systems	20
13.405 Obstruction prevention.....	21
13.406 Watercourse connections	21

Streams under District Jurisdiction

Appendix 1 Kinnickinnic River and Tributaries

Appendix 2 Lake Michigan Drainage Area

Appendix 3 Menomonee River and Tributaries

Appendix 4 Milwaukee River and Tributaries

Appendix 5 Oak Creek and Tributaries

Appendix 6 Root River and Tributaries

Subchapter I - General

13.101 Purpose

The purpose of this chapter is to:

- (1) reduce the unsafe conditions, property damage, economic losses, and adverse health effects caused by flooding;
- (2) maximize the effectiveness of flood abatement facilities and watercourse improvements;
- (3) reduce the number and magnitude of releases of sewage to the environment from sanitary and combined sewers and to protect sewage collection and treatment facilities from high flows;
- (4) promote comprehensive watershed planning and intergovernmental cooperation; and
- (5) restore and enhance opportunities to use and enjoy watercourses.

13.102 Applicability

This chapter applies to all users of the sewerage system and all governmental units in the sewer service area.

13.103 Definitions

- (1) “Commission” means the governing body of the Milwaukee Metropolitan Sewerage District.
- (2) “Critical time” means the period starting at the time of peak rainfall intensity with a duration equal to the time of concentration of the watershed.
- (3) “Department” means the Wisconsin Department of Natural Resources.
- (4) “Development” means the construction of buildings, roads, parking lots, and paved or unpaved storage areas.
- (5) “FEMA” means the Federal Emergency Management Agency.
- (6) “Governmental unit” means any general purpose or special purpose municipal corporation, including any city, village, town, county, or district.
- (7) “Impervious surface” means any pavement or structural element that prevents rain, surface water runoff, or melting snow from infiltrating into the ground below, including, but not limited to, roofs and paved roads, driveways, and parking lots.

- (8) “Non-member” means a municipality that is within the District’s sewer service area but is neither a First-Class City, according to Wis. Stat. sec. 62.05(1)(a), nor represented on the executive council established by Wis. Stat. sec. 200.23(2)(b).
- (9) “Public right of way” means any road, alley, street, parking lot, sidewalk, plaza, mall, or pathway owned by or dedicated to a governmental unit.
- (10) “Recreational trail” means a path that is:
- (a) distinctly set apart from a roadway, street, or sidewalk;
 - (b) designed for activities such as jogging, walking, hiking, bird-watching, bicycle riding, roller skating, or other recreation not involving the use of motorized vehicles; and
 - (c) not a sidewalk according to Wis. Stat. sec. 340.01(58).
- (11) “Redevelopment” means new development that replaces older development.
- (12) “Regional flood” means the peak flow and peak elevation of water with a 1% probability of occurring during any one year, considering rainfall time and intensity patterns, rainfall duration, area distribution, antecedent moisture, and snow melt.
- (13) “Regional floodplain” means the area of land covered by water during the regional flood.
- (14) “Runoff release rate” means the volume of stormwater flowing off of development per unit of time and area.
- (15) “Runoff management system” means the complete combination of structural and non-structural means used to reduce the rate or volume of runoff from a particular area, including, but not limited to, facilities constructed for conveyance and storage, management practices, and the protection, creation, or restoration of natural areas or systems such as vegetated swales, prairies, and wetlands for storage, conveyance, or infiltration.
- (16) “Time of concentration” means the time required for the point furthest from the outlet of the watershed to contribute to flow at the outlet of the watershed.
- (17) “Ultimate sewer service area” means the maximum geographic area that may receive sanitary sewer service from the District within the foreseeable future, as shown in the current facilities plan.

13.104 District Immunity

This chapter does not guarantee any particular level of protection to property, health, or environmental quality. Nothing in this chapter waives any common law or statutory immunity protecting the District against liability for its action or inaction.

13.105 State Requirements

In addition to complying with the requirements of this chapter, persons or governmental units affecting the waters of the state shall comply with the requirements of the public trust doctrine, the public trust servitude, the requirements of Wis. Stat. Chapter 30, and any other applicable requirements established by the Department. If requirements conflict, then the requirements of the Department supersede any requirement of this chapter.

13.106 Enforcement

- (1) The District may take any action authorized by law to enforce the requirements of this chapter. District action is not limited to the actions listed in this section. The District may take any combination of actions in any sequence, without regard for the order in which actions are listed in this section.
- (2) The District may request records from any governmental unit whenever necessary for evaluating compliance with this chapter. The governmental unit shall provide these records without cost to the District.
- (3) The Executive Director, a Commissioner, the chair of any committee established by the Commission, or the decision-maker at a hearing under sec. 6.05 may issue a subpoena for the attendance of a witness at a hearing or for the production of documents. The subpoena shall be in a form substantially equivalent to Wis. Stat. sec. 885.02 and shall be served according to Wis. Stat. sec. 885.03.
- (4) The District may issue notices of violation and requests for remedial action. This notice shall describe the facts that have caused the District to find that a governmental unit has violated the requirements of this chapter. This notice shall require the submission of a remedial action plan and schedule or other appropriate action.
- (5) The Commission may issue a special order according to Wis. Stat. sec 200.45(2) or a notice of claim according to Wis. Stat. sec. 893.80 or both. When taking these actions, the order or notice shall describe the nature of the violation and the remedial action the governmental unit must take. The Commission may also request the payment of penalties.
- (6) In a request for remedial action, special order, or notice of claim, the District may require an audit of land development and stormwater management activities. The purpose of the audit would be to identify and disclose past violations and identify the actions that would achieve compliance. The District may accept an audit report only if the governmental unit does not assert any privileges that would limit disclosure of the contents of the report. These privileges include, but are not limited to, attorney-client and attorney work product.
- (7) The District may commence civil litigation to: obtain penalties for past violation to the extent authorized by Wis. Stat. sec 200.45; obtain injunctions against future violations; abate a public nuisance; or obtain any other remedy authorized by law.

- (8) The District may withhold sewer system improvements that would benefit a governmental unit that is violating this chapter. This action may include: stopping work on facilities under construction; stopping the design of facilities recommended by a facilities plan; deferring planning for sewerage system capacity expansion or relief; or placing a moratorium on requests for approval of sewer connections or service area expansions, according to MMSD Rules, chs. 2 or 7.

Subchapter II – District Flood Abatement Activities

13.201 Watercourse Jurisdiction

- (1) The District may abate the regional flood along the watercourses listed in the appendix.
- (2) District flood abatement action shall be limited to the reduction of regional flood risks.
- (3) District action to abate regional flooding does not modify or eliminate any responsibility of other governmental units for local stormwater management or surface water drainage.
- (4) The listing of a watercourse in the appendix does not, by itself, affect any riparian property interest. Riparian property owners retain all the benefits and burdens of ownership, including the duty to use their property in a manner that does not cause harm to or interfere with the rights of others.

13.202 Adding Watercourses

- (1) Any governmental unit may petition the Commission to take action to abate regional flooding risks along a watercourse not already listed in the appendix.
- (2) The petitioner shall submit its petition to the Secretary of the Commission.
- (3) A petition shall identify:
 - (a) the features that create a risk of flood losses,
 - (b) the constructed features that create a risk of flood losses and the related owners or operators,
 - (c) the extent and magnitude of probable flood losses,
 - (d) the actions that would reduce flood losses, and
 - (e) an explanation for why regional action is necessary.
- (4) To add a watercourse, the District shall use procedures for rule-making, according to Wis. Stat. sec. 200.45(1).
- (5) If the Commission fails to act on a petition within one year of submission, then the petition is denied.

13.203 Flood Abatement Projects

- (1) When planning, designing, and constructing flood abatement projects, the District shall include features or use techniques that restore stream habitat, improve water quality, protect

wetlands, and enhance public access to and use of watercourses, to the maximum extent practical.

- (2) The District shall utilize non-structural flood abatement techniques, such as conservation easements, whenever practical. The District shall manage conservation easements according to land trust practices.
- (3) The District may straighten a channel, line a channel with an impervious material, or take other activities that merely accelerate flow rates only if no feasible alternative exists.
- (4) The District may not provide direct flood abatement services, such as the purchase of real property, to any property altered, built, or modified in a way that violates floodplain or shoreland zoning requirements, including pre-existing property allowed to continue as a nonconforming use. This prohibition does not apply to properties that are already included in projects planned by the District as of the date of adoption of this chapter.
- (5) Specific requirements in a Commission resolution related to a particular project supersede the requirements of subs. (1) to (4).
- (6) District action to improve a watercourse's bed or banks does not, by itself, create for the District an ownership interest in the bed or banks.

13.204 Watercourse Maintenance when the District Does Not Own the Riparian Land

- (1) The provisions of this section apply when the District does not own the riparian land.
- (2) District watercourse maintenance work shall be limited to watercourses listed in the appendix.
- (3) The District shall limit its work to preventing harm from structures constructed or installed by the District and the removal of obstructions that create a threat of harm to structures, unless other work is explicitly authorized by the Commission or is specifically required by a recorded easement; a permit issued by the Department according to Wis. Stat. Chapter 30; a grant agreement; an intergovernmental cooperation agreement established according to Wis. Stat. sec. 66.0301; or an agreement with a donor of land.
- (4) The District may remove an obstruction only if all of the following conditions are satisfied:
 - (a) The riparian owner requests removal,
 - (b) The obstruction would cause the regional flood to damage structures, and
 - (c) The riparian owner does not:
 1. impose unreasonable restrictions upon the manner or timing of the District's work,

2. impose access fees, or
 3. require a permit, bond, or insurance.
- (5) If an obstruction in a watercourse creates an imminent and substantial endangerment to public safety, then the District may order the riparian owner to remove the obstruction or take other emergency action to eliminate the risk to public safety. The order shall be written, state the reasons for the order, describe the administrative procedures that are available to request modification or reversal of the order, and be hand delivered or delivered by certified mail, return receipt requested. If the recipient requests an administrative review of the order according to MMSD Rules, ch. 6, then the District shall undertake the review within the shortest reasonable time. If the riparian owner fails to remove the obstruction, then the District may remove the obstruction without regard for any requirements established by the riparian owner. If the District removes the obstruction, then the riparian owner shall reimburse the District's costs.
- (6) Whenever practical, the District shall use maintenance techniques that minimize adverse effects upon fish or wildlife habitat.

13.205 Cost Sharing for the Maintenance of Dual Use Flood Abatement Facilities

- (1) If a facility constructed for regional flood abatement also provides other functions, such as sports fields, picnic areas, other public park amenities, or best management practices for stormwater quality, then the District and the governmental unit where the facility is located shall establish a maintenance cost sharing agreement. According to this agreement, the District may reimburse a portion of the governmental unit's maintenance costs.
- (2) Governmental units are responsible for all costs unrelated to flood abatement, including, but not limited to:
 - (a) the design, construction, maintenance, or repair of recreational facilities, restrooms, fencing, board walks, trails, lighting, play grounds, turf, landscaping, and signage regarding access restrictions or hazards, including the cleaning, repairing, and restoration of these features after flooding;
 - (b) snow removal, mosquito control, grass cutting, landscaping maintenance, litter or debris removal for aesthetic purposes, and any other tasks incidental to or necessary for the maintenance of public land or a public right of way; and
 - (c) all costs related to storms with a recurrence interval of 2 years or less and a probability of 50% or more, including costs for removing debris and sediment from basins and other costs related to best management practices for improving stormwater quality.

- (3) The District's share of costs shall be limited to: maintaining the structural integrity and operational effectiveness of the berms, retaining walls, or other facilities constructed by the District to abate the regional flood; removing debris deposited by floods caused by storms with a recurrence interval of more than 2 years and a probability of less than 50%; and removing obstructions to inlet or outlet structures.
- (4) The District shall share only direct actual costs. The District may not share in the general operating expenses of governmental units, such as overhead or administrative costs.
- (5)
 - (a) Governmental units shall pay a minimum of 60% of the total maintenance costs, with the District paying the remainder, except as otherwise provided by par. (b).
 - (b) A governmental unit may petition the Commission for the District to pay a larger fraction of the cost. The petition shall include facts and arguments showing that costs related to regional flood abatement comprise more than 40% of the total maintenance costs. The petitioner has the burden of persuasion regarding the proposed alternative cost allocation.
- (6) Cost sharing agreements shall use multi-year cost averaging principles, as established for this purpose by the District.

13.206 District Recreational Immunity at Dual Use Flood Abatement Facilities

- (1) For the purposes of this section, "recreational activity" has the meaning established by Wis. Stat. sec. 895.52.
- (2) If an owner, lessee, co-tenant, or occupant of a flood abatement facility constructed according to this chapter imposes a fee for a recreational activity occurring at the facility and if the District does not receive any portion of this fee, then:
 - (a) any person claiming injury from a recreational activity at the facility may not attribute the fee to the District; and
 - (b) the owner, lessee, co-tenant, or occupant shall indemnify the District and hold the District harmless from all claims or liability arising from the activity, except for claims of malicious acts committed solely by the District.
- (3) Any written agreement with the District regarding the use of a facility shall incorporate the requirements of sub. (2).

Subchapter III – Stormwater Runoff Management Requirements

13.301 Applicability of Stormwater Runoff Management Requirements

(1) Type of governmental unit

The following types of governmental units are required to implement the runoff management requirements of this chapter:

- (a) cities,
- (b) villages, and
- (c) any other governmental unit, including counties, special districts, and state agencies, if the governmental unit asserts exemption from local land development requirements and receives sewer service from the District.

(2) Characteristics requiring runoff management

Runoff management is required for any development or redevelopment that meets all of the following criteria, except as provided in subs. (3) to (8).

(a) Location

The development or redevelopment is within the ultimate sewer service area.

(b) Local approval

The development or redevelopment receives full and final approval from a governmental unit after the effective date of the applicable District requirements for all details relevant to runoff management.

(c) Affected area

1. The development or redevelopment involves a net increase of 5,000 square feet or more of impervious surface; or
2. Demolition or construction during redevelopment will disturb an area larger than 2 acres.

(3) Sites riparian to Lake Michigan

Runoff management is not required for sites riparian to Lake Michigan.

(4) Previously approved projects

Runoff management is not required if:

- (a) a governmental unit approved a development or redevelopment before the effective date of the applicable requirements and
- (b) this approval had sufficient finality to create a vested right to proceed with the development.

(5) Recreational trails

Runoff management is not required for recreational trails if:

- (a) the trail is less than or equal to 10 feet in width and
- (b) has a continuous pervious buffer at least 5 feet wide on each side, disregarding interruption by streets, driveways, or other impervious surfaces crossing the trail.

(6) Residential infill

Runoff management is not required if:

- (a) The site is five acres or less;
- (b) The development is exclusively residential;
- (c) The net increase in the area of impervious surface is less than 20% of the area of the site; and
- (d) Each boundary of the site is contiguous to:
 - 1. sites that contain earlier development served by sanitary sewers, streets, or public water supply when the governmental unit receives the plans for the new development; or
 - 2. parkland, other public land, a utility right-of-way, or a watercourse.

(7) Public road and sidewalk construction

If the construction or reconstruction of a public road or sidewalk will increase impervious surface by one-half acre or more, then runoff management is necessary for the net increase in impervious surface. The requirements of sec. 13.302(3)(a) shall apply.

Runoff management is not required for the reconstruction of public roads or sidewalks when the area of impervious surface is not changing.

(8) Parking lots

Runoff management is required for the reconstruction of parking lots only when the parking lot will be reconfigured or re-contoured. Runoff management requirements do not apply to pavement maintenance activities, such as sealing, milling and overlaying, or pulverizing and compacting.

13.302 Runoff Management Requirements

(1) Definitions applicable to this section

- (a) “Allowable runoff release rate” means a post-development peak outflow during the 1% probability (100-year) storm that is no more than 0.5 cubic feet per second multiplied by the area of the site in acres and a post-development peak outflow during the 50% probability (2-year) storm event that is no more than 0.15 cubic feet per second multiplied by the area of the site in acres.
- (b) “Allowable runoff volume” means a post-development runoff volume that is no greater than the pre-development volume for both the 1% probability (100-year) and 50% probability (2-year) storm events during the critical time.
- (c) “Green infrastructure” means 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. Green infrastructure includes, but is not limited to: rain gardens; wetlands; green roofs; bioswales, including dry ponds or other detention facilities designed to increase infiltration; permeable surfacing; landscaping with deeply rooted plants; cisterns; rain barrels; trees; soil amendments; wet ponds, when project-specific modeling shows sufficient detention volume; and removal of structures or pavement to allow revegetation and infiltration.

(2) Duties of governmental units

Governmental units shall manage the volume, timing, and peak flow rate of runoff from development or redevelopment approved by a governmental unit after the effective date of this chapter. Governmental units may implement runoff management requirements on a watershed basis or at individual sites.

(3) Stormwater runoff management requirements

- (a) Requirement for new impervious surface of one-half acre or more

If either development or redevelopment will add one-half acre or more of impervious surface, then a site development stormwater runoff management plan shall achieve either the allowable runoff release rate or the allowable runoff volume.

(b) Requirement for redevelopment disturbing two acres or more

If redevelopment will disturb two acres or more but will not add one-half acre or more of impervious surface, then a site development stormwater runoff management plan shall achieve the following runoff release rate reductions, except as provided in sub. (6).

Area Disturbed by Demolition or Construction	Reduction to the Existing Runoff Release Rate
Between 2 acres and 3.5 acres	10%
From 3.5 to 5 acres	15%
Greater than 5 acres	20%

(c) Requirement for new impervious surface of 5,000 square feet to one-half acre

1. Whenever development or redevelopment will increase impervious surface by an area equal to or greater than 5,000 square feet but less than 21,780 square feet (one-half acre), on a net basis, then the development or redevelopment shall include green infrastructure with a detention volume equal to one-half inch multiplied by the area of the net new impervious surface, except as provided in pars. 2 and 3 and sub. (4) below.
2. A development or redevelopment project owner may trade green infrastructure retention volume to another development or redevelopment project owner to achieve compliance with this section on a net basis. If a development or redevelopment project owner has implemented more green infrastructure detention volume at a particular project than required by this section, then that development or redevelopment owner may trade this detention volume to another development or redevelopment project owner, who may proportionally reduce its detention volume. A development or redevelopment project owner may use trading to comply with this subsection only if the District has reviewed the trade and approved the trade in writing.
3. If the new impervious surface is within a residential subdivision for which the District has approved a stormwater runoff management plan, then no additional stormwater runoff management is required.

(4) Redevelopment site constraints

Redevelopment may reduce the runoff release rate by an amount less than required by sub. (3)(b) or implement less green infrastructure than required by sub. (3)(c) when conditions make compliance unreasonable. Relevant conditions include, but are not limited to: soil

contamination, groundwater contamination, land use requirements, land availability, opportunities for off-site management, construction delays, marginal costs, and the availability of financing. In this case, redevelopment shall achieve the greatest practicable reduction.

(5) Watershed stormwater management plans

Governmental units may prepare a watershed or sub-watershed stormwater management plan or a local stormwater management plan for multiple sites considered together. These analyses shall show how runoff volume is distributed over the critical time of the watershed sufficient to comply with this section. Governmental units shall analyze runoff and determine the critical time according to guidance provided by the District. When evaluating how a development will affect watercourses, governmental units shall use models and conditions approved by the District. Governmental units shall use 2035 or later land use conditions. Governmental units shall use pre-project channel conditions. Governmental units shall submit these plans and analyses to the District for review and approval. Governmental units shall update their plans for future conditions, as defined by the District, after the original planning year is reached.

(6) Prioritization of runoff management techniques

When selecting the runoff management techniques appropriate for a development or redevelopment, project owners shall consider the following techniques, in order of preference:

- (a) preservation of the natural features of development sites, including natural storage and infiltration characteristics;
- (b) preservation of existing natural streams, channels, and drainage ways;
- (c) minimization of new impervious surfaces;
- (d) conveyance of stormwater in open vegetated channels;
- (e) construction of structures that provide both quantity and quality control, with structures serving multiple sites being preferable to structures serving individual sites; and
- (f) construction of structures that provide only quantity control, with structures serving multiple sites being preferable to structures serving individual sites.

(7) Local maximum runoff release rates

If a governmental unit has established maximum runoff release rates before the date of adoption of this chapter and if those rates are more stringent than the rates in this section,

then the governmental unit may either continue to implement its rates or implement the requirements of this section.

(8) Stormwater runoff management system ownership

Stormwater runoff management systems may be either public or private.

(9) Stormwater runoff management system maintenance

Governmental units shall ensure that facilities constructed to manage runoff are maintained to preserve their effectiveness.

(10) Stormwater runoff management system remedial action

If a runoff management system is not constructed or maintained according to an approved site development stormwater runoff management plan or green infrastructure plan or otherwise fails to comply with this section, then the governmental unit or project owner shall construct new facilities, expand, or correct previously constructed facilities, or implement other remedial action.

(11) Local ordinance required

Within 180 days after adoption or amendment of this section, cities and villages shall have in effect a stormwater management ordinance that implements this section. Within 30 days after adopting or amending the ordinance, cities and villages shall provide a copy of the ordinance to the District. After adoption, cities and villages shall effectively implement and enforce their stormwater management ordinances.

13.303 Site Development Stormwater Runoff Management Plans and Green Infrastructure Plans

(1) Submission of plans

For all development or redevelopment subject to sec. 13.301, the governmental units listed in sec. 13.301(1) shall submit site development stormwater management plans and green infrastructure plans to the District. Governmental units shall submit plans electronically, as specified by the District.

(2) When plans are due

Site development stormwater runoff management plans and green infrastructure plans are due 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.

(3) Site development stormwater runoff management plans required by sec. 13.302(3)(a) and (b)

Site development stormwater runoff management plans shall include sufficient information to allow the District to independently evaluate compliance with sec. 13.302. A professional engineer registered in the State of Wisconsin shall prepare and seal the plan. The plan shall:

- (a) describe the site, including maps showing relevant features;
- (b) describe the proposed stormwater conveyance system;
- (c) provide data relevant to conveyance system analysis and design;
- (d) if the site will have a site-specific runoff management system or if the site will be the first user of a runoff management system for multiple sites, then provide drawings, design details, design calculations, construction schedule, and a technical analysis showing compliance with sec. 13.302;
- (e) if the site will be tributary to an existing runoff management system for multiple sites, then discuss the location, design, and the available capacity;
- (f) if the site is in a watershed covered by a watershed stormwater management plan that complies with this chapter, then provide a technical analysis showing that the proposed runoff management system is consistent with the watershed stormwater management plan;
- (g) discuss runoff management system operation, inspection, and maintenance requirements and discuss who will be responsible for these activities;
- (h) describe any loss of natural storage or infiltration;
- (i) any other information requested by the District.

(4) Green infrastructure plans required by sec. 13.302(3)(c)

- (a) Green infrastructure plans shall include sufficient information to allow the District to independently evaluate compliance with sec. 13.302(3)(c). The plan shall include:
 - 1. a description of the project and the dimensions of the new impervious surface,
 - 2. a description of the proposed green infrastructure and its dimensions,
 - 3. one or more drawings showing the new impervious surface and the green infrastructure,
 - 4. calculations showing the detention volume needed and the retention volume provided by the proposed green infrastructure, and

5. a maintenance plan.

(b) Green infrastructure plans shall determine detention volume using the following procedures, by order of preference:

1. project-specific modeling,
2. a calculating tool available at www.freshcoastguardians.com or subsequent locations identified by the District, or
3. the following table.

Green Infrastructure	Unit Detention Volume
Bioswale	7.5 gallons per square foot
Cistern	Capacity of cistern
Constructed wetlands	8.3 gallons per square foot
Green roof	1.0 gallon per square foot
Native landscaping	0.4 gallons per square foot
Porous pavement	3.0 gallons per square foot
Rain garden	4.4 gallons per square foot
Rain barrel	Capacity of barrel
Tree	25 gallons per tree

(c) Green infrastructure shall be constructed according to conservation practice standards established by the Department and available at https://dnr.wi.gov/topic/stormwater/standards/postconst_standards.html or subsequent locations identified by the Department.

(d) The new impervious surface or an equivalent impervious area shall drain to the green infrastructure installed to comply with sec. 13.302(3)(c).

(5) Phased development

For phased developments, plans prepared to comply with this section shall address the cumulative effect of all phases. Project owners shall identify the phases of development or redevelopment in any plans prepared to comply with this section. A stormwater runoff management plan is required if the cumulative amount of new impervious surface is one-half acre or more, even if the individual components of a phased development each create less than one-half acre of impervious surface. A green infrastructure plan is required if the cumulative amount of new impervious surface is 5,000 square feet to one-half acre, even if the individual components of a phased development each create less than 5,000 square feet of impervious surface. Cumulative impervious surface shall be calculated starting from September 24, 2001, for stormwater runoff management plan requirements, and from March 25, 2019, for green infrastructure plan requirements.

(6) Off-site removal of impervious surface

If the governmental unit is implementing reduced runoff management requirements in response to the removal of impervious surface at another site, then the site development stormwater runoff management plan or green infrastructure plan shall include technical analyses showing that the proposed action complies with sec. 13.302.

(7) Basis to hold approvals in abeyance

The District may hold site development stormwater runoff management plan and green infrastructure plan approvals in abeyance for any governmental unit subject to enforcement action under MMSD Rules, Chapter 2, *Planning Design, and Construction of Sewers and Ancillary Facilities*, or Chapter 3, *Management, Operations, and Maintenance of Tributary Sewers*.

(8) Scope of review

During the review of plans required by this section, the District shall consider only issues directly related to stormwater management. For activities outside of the regional floodplain, the District may not consider other land use, development, redevelopment, or zoning issues.

(9) Review schedule

A site development stormwater runoff management plan or green infrastructure plan is approved if the District has not taken any of the following actions within 10 District work days after receiving the plan: provided notice of disapproval, requested additional information, or provided notice of a need for additional time to review the plan. The maximum additional time for review shall be 20 District work days. A site development stormwater runoff management plan or green infrastructure plan is approved if the District has not disapproved the plan within 20 District work days after either the date when complete additional information is received or the date of a notice of a need for additional time for review.

(10) Changes to plans

If a change in a site development stormwater runoff management plan approved by the District would increase runoff release rates for the 1%/100 year or 50%/2-year storms, then governmental units shall re-submit the materials required by sub. (3), along with information describing the reason for the change.

13.304 Rainfall Data

- (1) When this chapter requires the calculation of runoff, governmental units shall use the most recent rainfall depths identified by the Southeastern Wisconsin Regional Planning Commission.

- (2) The District may approve the use of proposed alternative depths if a governmental unit submits information showing that the proposed alternative depths are more protective than the depths obtained according to sub. (1) and the governmental unit has adopted the alternative depths in its stormwater management ordinance.
- (3) In the ordinance required by 13.302(11), Governmental units shall implement the rainfall depths of sub. (1) or alternative depths approved according to sub. (2).

Subchapter IV – General Requirements for Local Governments

13.401 Annual Reports

Before April 30 of each year, government units shall provide an annual report to the District. According to forms provided by the District, this report shall provide information for the preceding calendar year related to runoff management and peak flows within the watercourses listed in the Appendix. Governmental units shall submit plans electronically, as specified by the District. The annual report shall describe:

- (1) inspection and maintenance of the runoff management systems required by sec. 13.302;
- (2) FEMA map revisions (Conditional Letter of Map Revision/Letter of Map Revision approval) and floodplain zoning changes;
- (3) storm sewer projects that will increase the diameter of a storm sewer to greater than 36 inches and any other projects that will increase the capacity of stormwater conveyance systems or outfalls by more than 50%;
- (4) green infrastructure location, type, capacity, and maintenance activities; and
- (5) any other relevant information requested by the District.

13.402 Notice of FEMA Map Revisions

Governmental units shall inform the District and provide copies of correspondence regarding any action to revise any FEMA map, including, but not limited to, single residential lot or structure removal from special flood hazard areas, variances, letters of map amendment of any type, changes to base flood elevations, or changes to regional floodplain boundaries, except for actions within the Fox River watershed.

13.403 Notice of Floodplain Zoning Changes

Every governmental unit shall provide to the District notices of petitions to revise floodplain zoning areas or to obtain floodplain variances or floodplain special use permits, except for petitions related to actions within the Fox River watershed. Governmental units shall allow the District to have a meaningful opportunity to be heard regarding whether the proposed action is consistent with this chapter.

13.404 Outfalls and Stormwater Conveyance Systems

- (1) Governmental units shall design and construct stormwater conveyance systems, stormwater conveyance system upgrades, and stormwater outfalls to prevent any:
 - (a) reduction in the level of protection provided by any flood abatement project implemented by the District and

(b) increase in the regional flood.

- (2) The District shall develop guidance indicating how it will evaluate compliance with this section.
- (3) If the District finds that the individual or cumulative effect of new or upgraded stormwater conveyance systems constructed after July 1, 2002 violates sub. (1), then the District may order governmental units within the watershed to comply, according to Wis. Stat. sec. 200.45(2).

13.405 Obstruction Prevention

- (1) Governmental units shall manage the land they own or maintain and shall manage their public rights of way to prevent debris and sediment from creating obstructions at storm sewer outfalls or stormwater drainage structures that discharge to the watercourses listed in the appendix.
- (2) Governmental units shall remove any debris or sediment that obstructs any storm sewer outfall or stormwater drainage structure that discharges to a watercourse listed in the appendix.
- (3) The District shall develop and make available to governmental units guidance regarding obstruction prevention.

13.406 Watercourse Connections

- (1) Before the commencement of construction of any connection to a watercourse listed in the appendix, a governmental unit shall submit to the District design computations, local stormwater conveyance system plans consistent with sec. 2.302, construction plans and specifications consistent with sec. 2.303, and connection plans consistent with sec. 2.304.
- (2) To approve a connection to a watercourse, the District shall issue a connection permit, which may include any specific requirements necessary to ensure structural integrity, ease of maintenance, prevention of erosion, non-interference with flow, or other conditions that promote effective and efficient operation.

Chapter 13 Appendix 1 Kinnickinnic River and Tributaries

Streams Under District Jurisdiction				
Watercourse	Municipalities in Watershed	Upstream Terminus	Downstream Terminus	Length (miles) -approximate-
Lyons Creek	Greenfield Milwaukee	W. Forest Home Avenue and W. Morgan Avenue	Kinnickinnic River, at S. 58 th Street and Kinnickinnic River Parkway	1.2
Edgerton Channel	Cudahy	S. Whitnall Avenue, south of S. Nicholson Avenue	Wilson Park Creek, east of S. Howell Avenue and 450 feet south of E. Layton Avenue	2.5
Wilson Park Creek	Cudahy Greenfield Milwaukee Saint Francis	East of S. Howell Avenue and 450 feet south of E. Layton Avenue	Kinnickinnic River, near S. 30 th Street and W. Manitoba Avenue	3.6
Villa Mann Creek, main stem	Greenfield Milwaukee	I-894, east of S. 27 th Street	Wilson Park Creek, near S. 20 th Street and W. Plainfield Avenue	0.8
Villa Mann Creek, tributary	Greenfield Milwaukee	W. Colony Drive, east of S. 35 th Street	Villa Mann Creek, east of S. 27 th Street	0.7
43 rd Street Ditch	Milwaukee West Milwaukee	W. Rogers Street and S. 50 th Street extended	Kinnickinnic River, near S. 43 rd Street and the railroad bridge	1.0
Kinnickinnic River, main stem	Cudahy Greenfield Milwaukee Saint Francis West Milwaukee	S. 58 th Street and Kinnickinnic River Parkway	W. Becher Street	6.4
Kinnickinnic River Estuary, lake dominated portion	Milwaukee	W. Becher Street	Milwaukee River	1.7

Chapter 13 Appendix 2 Lake Michigan Drainage Area

Streams Under District Jurisdiction				
Watercourse	Municipalities in Watershed	Upstream Terminus	Downstream Terminus	Length (miles) -approximate-
Fish Creek, main stem	Bayside Mequon River Hills	W. County Line Road, between N. Sequoia Drive and N. Wakefield Court	Lake Michigan, north of the Milwaukee County/Ozaukee County border	2.3
Fish Creek, tributary	Bayside Mequon River Hills	W. County Line Road, between N. Columbia Creek Lane and N. Glenview Lane	W. County Line Road, Between I-43 and N. Port Washington Road	0.5

Chapter 13 Appendix 3 Menomonee River and Tributaries

Streams Under District Jurisdiction				
Watercourse	Municipalities in Watershed	Upstream Terminus	Downstream Terminus	Length (miles) -approximate-
Grantosa Creek, upper reach	Milwaukee Wauwatosa	W. Hampton Avenue, east of N. 100 th Street	N. 100 th Street, north of W. Glendale Avenue	0.8
Grantosa Creek, lower reach	Milwaukee Wauwatosa	W. Grantosa Drive at N. 100 th Street	Menomonee River, east of N. Mayfair Road, south of N. Menomonee River Parkway	0.3
Honey Creek	Greenfield Milwaukee Wauwatosa West Allis	S. 43 rd Street near W. Edgerton Avenue	Menomonee River, near W. Honey Creek Parkway and N. 72 nd Street	8.8
Little Menomonee River	Germantown Mequon Milwaukee	Border of Milwaukee and Ozaukee Counties at W. County Line Road, east of N. 107 th Street	Menomonee River, near W. Hampton Avenue and N. Mayfair Road	6.9
Menomonee River, main stem	Brookfield Butler Elm Grove Germantown Greendale Greenfield Menomonee Falls Mequon Milwaukee New Berlin Wauwatosa West Milwaukee	Border of Milwaukee and Waukesha Counties, south of US-45	W. Canal Street	16.3
Menomonee River, Burnham Canal*	Milwaukee	S. 15 th Street, extended	South Menomonee Canal	0.6
Menomonee River, South Menomonee Canal*	Milwaukee	S. 13 th Street, extended	Menomonee River	0.9
Menomonee River Estuary, lake dominated portion*	Milwaukee	W. Canal Street	Milwaukee River	1.9

*The District will not charge non-member municipalities for capital or operation and maintenance costs related to these watercourses because Lake Michigan dominates flood elevations, rather than tributary river flows.

Appendix 3 (Continued) Menomonee River and Tributaries

Streams Under District Jurisdiction				
Watercourse	Municipalities in Watershed	Upstream Terminus	Downstream Terminus	Length (miles) -approximate-
Schoonmaker Creek	Milwaukee Wauwatosa	W. Lloyd Street at N. 66 th Street	Menomonee River, near N. 62 nd Street	1.1
Underwood Creek, main stem	Brookfield Elm Grove Milwaukee New Berlin Wauwatosa West Allis	Border of Milwaukee and Waukesha Counties, north of W. Blue Mound Road	Menomonee River, near W. North Avenue and N. Menomonee River Parkway	2.6
Underwood Creek, South Branch	Brookfield Elm Grove Milwaukee New Berlin Wauwatosa West Allis	W. Greenfield Avenue, west of S. 116 th Street	Underwood Creek, main stem, north of W. Blue Mound Road, west of Underwood Creek Parkway	1.0
Woods Creek	Milwaukee West Allis West Milwaukee	S. 56 th Street, north of W. Walker Avenue	Menomonee River, near S. 44 th Street	1.1

Chapter 13 Appendix 4 Milwaukee River and Tributaries

Streams Under District Jurisdiction				
Watercourse	Municipalities in Watershed	Upstream Terminus	Downstream Terminus	Length (miles) -approximate-
Beaver Creek	Brown Deer Mequon Milwaukee	N. 64 th Street, south of W. Brown Deer Road	Milwaukee River, east of N. Green Bay Road and N. Deerwood Drive, extended	1.9
Brown Deer Park Creek	Brown Deer Glendale Milwaukee River Hills	W. Good Hope Road, 0.5 mile west of N. Range Line Road	Milwaukee River, east of N. Range Line Road	1.9
Indian Creek	Bayside Fox Point Glendale River Hills	N. Manor Lane, north of N. Indian Creek Parkway	Milwaukee River, south of W. Bradley Road	2.3
Lincoln Creek	Brown Deer Glendale Milwaukee	Railroad culvert east of N. 60 th Street, north of W. Hemlock Street	Milwaukee River, near N. Green Bay Road and W. Lawn Avenue	8.1
Milwaukee River, main stem	Bayside Fox Point Glendale Mequon Milwaukee River Hills Shorewood Thiensville Whitefish Bay	Border of Milwaukee and Ozaukee Counties, at W. County Line Road, east of N. Green Bay Road	N. Humboldt Avenue	13.1
Milwaukee River Estuary, lake dominated portion*	Milwaukee	N. Humboldt Avenue	Lake Michigan	3.0
Southbranch Creek	Brown Deer Milwaukee River Hills	W. Bradley Road and N. Edgeworth Drive	Milwaukee River, east of N. Green Bay Road and N. Teutonia Avenue	1.5

*The District will not charge non-member municipalities for capital or operation and maintenance costs related to this watercourse because Lake Michigan dominates flood elevations, rather than tributary river flows.

Chapter 13 Appendix 5 Oak Creek and Tributaries

Streams Under District Jurisdiction				
Watercourse	Municipalities in Watershed	Upstream Terminus	Downstream Terminus	Length (miles) -approximate-
Mitchell Field Ditch	Cudahy Milwaukee Oak Creek	S. Howell Avenue and E. Citation Way	Oak Creek, main stem, in Clement Avenue Park, east of the railroad tracks	3.3
Oak Creek, main stem	Cudahy Franklin Greenfield Milwaukee Oak Creek South Milwaukee	W. Southland Drive	S. Pennsylvania Avenue, north of Manitowoc Avenue	8.4
Oak Creek, north branch	Greenfield Milwaukee Oak Creek	Culvert under the most southerly crossing of the Airport Spur Freeway	Oak Creek, main stem, near W. Ryan Road, west of S. Howell Avenue	5.7

Chapter 13 Appendix 6 Root River and Tributaries

Streams Under District Jurisdiction				
Watercourse	Municipalities in Watershed	Upstream Terminus	Downstream Terminus	Length (miles) -approximate-
Crayfish Creek, main stem	Oak Creek	E. Elm Road, 0.5 mile east of S. Nicholson Road	County Line Road, 0.5 mile east of S. Nicholson Road	0.5
Hale Creek	West Allis	W. Lincoln Avenue, West of State Highway 100	Root River, North Branch, near W. Montana Avenue	1.3
Lower Crayfish Creek, main stem	Oak Creek	S. 14 th Street, extended, north of County Line Road	County Line Road, 0.5 mile east of S. Nicholson Road	0.4
Root River, 104 th Street Branch	Greenfield Milwaukee	West of 99 th Street, north of W. Cold Spring Road	Root River, North Branch, south of W. Cold Spring Road	0.5
Root River, East Branch	Franklin Greendale Greenfield Milwaukee Oak Creek	S. Melinda Street, south of W. Parnell Avenue	Root River, North Branch, west of S. 60 th Street and W. Cascade Drive	5.2
Root River, North Branch	Franklin Greendale Greenfield Hales Corners Milwaukee Muskego New Berlin Oak Creek West Allis	S. Root River Parkway and W. Lincoln Avenue	S. 60 th Street, south of W. Oakwood Road	13.2
Root River, West Branch	New Berlin West Allis	S. 124 th Street, south of W. Cleveland Avenue	Root River, North Branch, South of W. National Avenue	1.0
Tess Corners Creek	Franklin Greendale Muskego New Berlin	0.5 mile southwest of W. Rawson Avenue and S. Lovers Lane	Root River, North Branch, near W. College Avenue and S. Root River Parkway	2.2
Whitnall Park Creek	Franklin Greenfield Hales Corners Muskego New Berlin	W. Edgerton Avenue and S. 113 th Street	Tess Corners Creek, near S. 92 nd Street and W. College Avenue	2.7