Residential Handbook for Flooding Issues

Grasslyn Manor | 2025

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This *Residential Handbook for Flooding Issues* is intended to provide homeowners with information needed to implement specific strategies to combat and prevent flooding on their properties.

Strategies are organized by specific problems homeowners may be experiencing such as water seeping into the basement, water backing up through the basement drain and yard flooding. Homeowners can quickly find which strategies would be the best for them and necessary steps to achieve them.

A Property Evaluation is a Must

The Handbook strongly suggests residents have a home inspection conducted so a professional can recommend which strategy is most appropriate for their unique flooding circumstances. Many programs that exist to help pay for these strategies will require an inspection as part of their evaluation criteria.

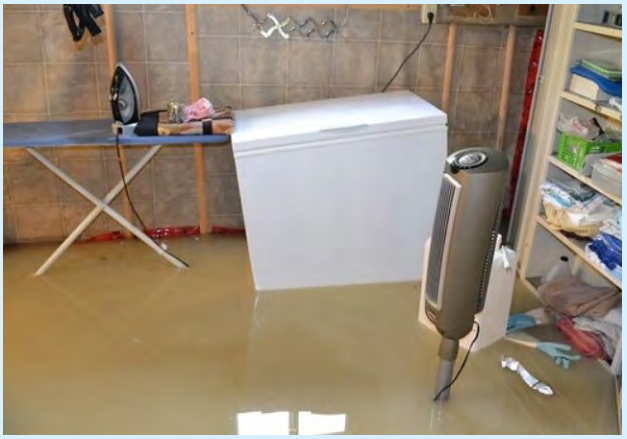
Having your property evaluated by a professional ensures that money is not spent on a solution that will not address the flooding issues you are experiencing. A summary of the evaluation information used for the following programs and organizations is below, with additional details in the Index of Programs:

- **Private Property Inflow & Infiltration Program**
  Clear Water Evaluation is conducted by the selected contractor for the program. This evaluation is offered free of cost as part of the program.
- **Pipe Check**
  A site visit is completed by an Approved Contractor. Lateral inspection is an out of pocket cost to the homeowner but required for funding of lateral replacement.
- **STRONG Homes Loan**
  Requires an inspection and engineering report to be eligible for funding for home improvements for flooding.
- **Branch Out Milwaukee**
  No inspection required. Program will assist in selecting the best location for tree planting.
- **Clean Wisconsin**
  No inspection required. Program will assist in properly installing rain barrels and identifying a safe location for rain gardens in the yard.

Who to Call

If you experience flooding or other issues related to stormwater, please use the numbers and online forms listed in the table below to report your experience.

PROBLEM	Basement Backups	Street Flooding	Clogged Inlets
Description of problem	Sewer backup in home / water in basement	Flooding in the street	Blocked street drains resulting in street or yard flooding
Online Reporting	mmsd.com/about-us/contact-us/reporting-wet-basement	city.milwaukee.gov/dpwservices/Sewer	iframe.publicstuff.com/#?client_id=1000167#picker-top
City Contact	Call **Unified Call Center** for all issues.		
Phone Number	(414) 286-2489 *During regular business hours, Mon–Fri, 7 a.m.–1 a.m. (Sat)* (414) 286-2150 *During non-business hours*		



Do not go into a basement with standing water.

ELECTRICITY + WATER = DANGER.

Wait for the water to drain out of the basement before entering. Or, consult a qualified electrician to disconnect the power before you enter a flooded basement. *Source: MMSD*

Homeowner Strategies

Photo: Sydney VanKuren

Homeowners throughout Grasslyn Manor have experienced various types of flooding issues during and following storms. After a large rain event, common homeowner experiences include basement seepage through foundation walls or window wells, basement backups from an overwhelmed sewer system, and yard flooding.

This guide includes several strategies for homeowners to consider or to consult a professional when flooding occurs at home. Note that while the strategies included are common solutions to flooding, more strategies exist that a professional may recommend.

STRATEGIES TO ADDRESS DIFFERENT TYPES OF FLOODING

Basement Backups	Basement Seeping	Yard Flooding
1. Repair or replace lateral	1. Repair foundation cracks	1. Clean gutters
2. Install backflow valve	2. Address basement window seepage	2. Repair gutters + downspouts
3. Install sump pump	3. Install drain tiles	3. Disconnect downspout to a rain garden or rain barrel
4. Disconnect foundation drain		4. Berm around home and regrade yard
5. Install an overhead sewer system		5. Plant a stormwater tree
		6. Monitor your nearest street drain

Basement Flooding: Water Backing Up Basement Drain

Infiltration + Inflow (I/I) can contribute to sewer backups

The Grasslyn Manor neighborhood has a **separated sewer system**. This means that there are multiple sewer pipes underneath the roads: storm sewers and sanitary sewers.

- **Storm sewers** collect water from drains in the street and convey it away.
- **Sanitary sewers** collect wastewater from toilets, showers, sinks, etc., and are sized to manage the wastewater coming from homes.

Storm laterals and sanitary laterals are the pipes that transport water from homes to the public sewer pipes underneath the street. These laterals are the responsibility of the homeowner. Issues occur when water that is not supposed to be going into the sanitary sewers finds its way there, either through infiltration or inflow. The pipes may not have the capacity to keep the water flowing and this can result in a basement backup.

INFILTRATION: WATER ENTERING A PIPE INDIRECTLY

Infiltration occurs when groundwater enters a pipe through means such as cracks or roots. In Grasslyn Manor, there is likely a high water table with many residents noting springs in their backyard. This is contributing to water entering our sewer system when pipes are in need of repair. Rain water soaking into the ground can also enter cracked pipes.

INFLOW: A DIRECT CONNECTION TO A PIPE

Inflow is a direct connection of rain water into the sanitary sewer system. While stormwater collection is supposed to be connected to the storm sewers, sometimes they are incorrectly connected to the sanitary sewer system. Most homes in Milwaukee that were built after 1920 include foundation drains around the home. These help reduce water entering the home by collecting water near the home's foundation. Homes built before 1954 were often connected to the sanitary sewer instead of the storm sewer. Many of the homes in Grasslyn Manor were built during this time.

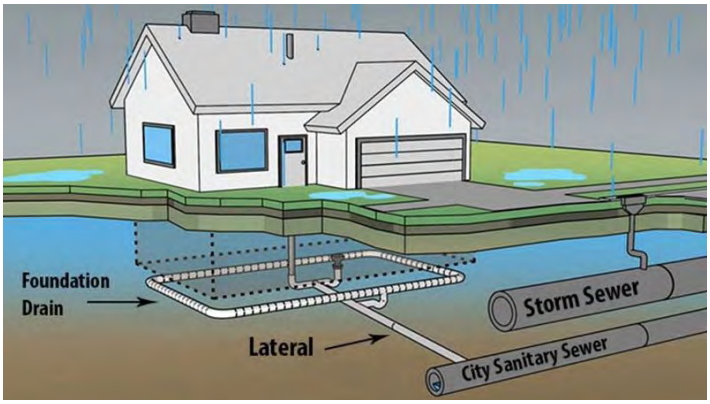


Diagram of a separated sewer system under a residence. *Source: MMSD*

SOLUTIONS

Infiltration and inflow can be reduced through MMSD's Pipe Check Program and the City of Milwaukee's Private Property Inflow & Infiltration Program. These programs aim to repair leaky laterals to avoid having groundwater and rainwater infiltrate into the pipe. When the pipe is in very poor condition, the entire lateral may need to be replaced. Inflow is reduced by disconnecting foundation drains from sanitary sewers and rerouting the drains through a sump pump system to connect to the storm sewer in the roadway via a storm lateral.

STRATEGIES IN THIS SECTION INCLUDE:

1. Repair or replace lateral
2. Install backflow valve
3. Install sump pump
4. Disconnect foundation drain
5. Install an overhead sewer system

STRATEGY 1

Repair or replace lateral

A sanitary sewer lateral is a pipe that directs wastewater from your home (toilets, sinks, showers, laundry, floor drains, etc.) to the sanitary sewer under the street. A storm lateral is a pipe that directs rain water from your home (connected downspouts, sump pump) to the storm sewer under the street. The maintenance of laterals is a homeowner's responsibility.

The causes of lateral backups may include grease from cooking, paper products such as cloth diapers and feminine products, disposal wipes, etc. **There also could be cracks in the pipe caused from old age or tree roots (see diagram below).**

HOW

- Step 1: Hire a contractor to come out and run a camera through your lateral to check for blockages, leaks, and cracks.
- Step 2: Hire a contractor to fix the blockage/leak/crack.
- Step 3: Ask the Department of Public Works to check for problems with the public sewer: (414) 286-2489

MONITORING + MAINTENANCE

- None

Local Funding Support:

- Private Property Inflow & Infiltration Program
- Pipe Check
- STRONG Homes Loan

The lateral pipe directs wastewater to the sanitary sewer under the street. *Source:* MMSD

STRATEGY 2

Install backflow valve

A backflow valve temporarily blocks drain pipes and prevents return flow from re-entering through drains. There are different types of valves to consider. For example, gate valves have a strong seal, but must be operated by hand. This requires the homeowner to have adequate warning of an upcoming rain event in order to close the valve before the storm. Automatic valves such as flap or check do not require hand operation, but do not provide as strong of a seal.

HOW

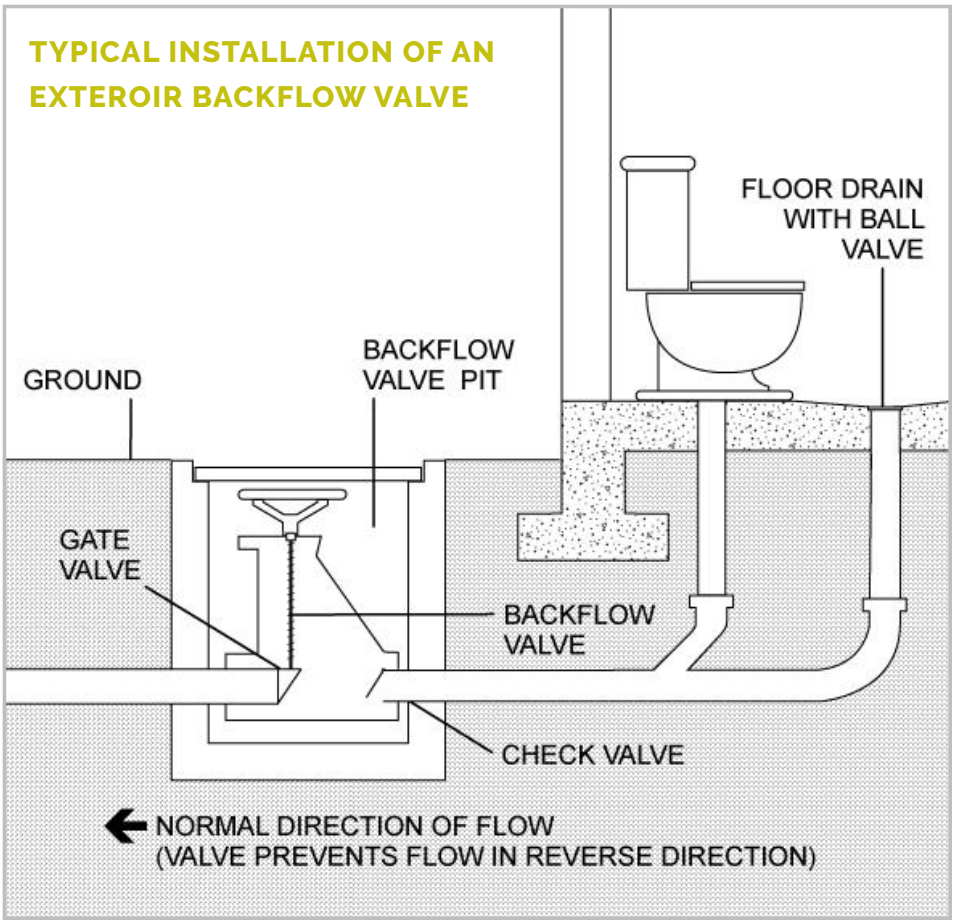
- Step 1: Determine the type of backflow valve you want: gate or automatic.
- Step 2: Hire a licensed plumber or contractor for installation.

MONITORING + MAINTENANCE

- As-Needed. Monitor after installation to ensure proper performance.

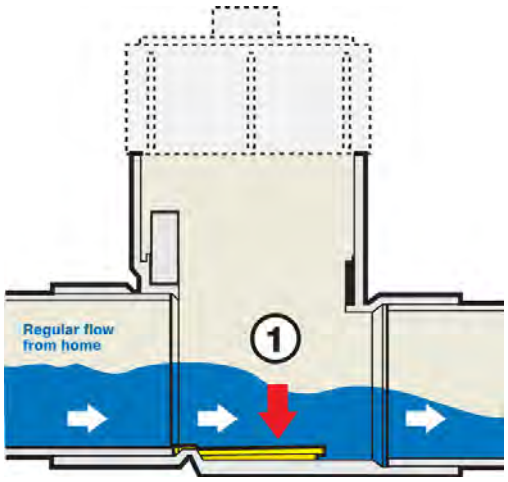
Local Funding Support: None

TYPICAL INSTALLATION OF AN EXTEROIR BACKFLOW VALVE

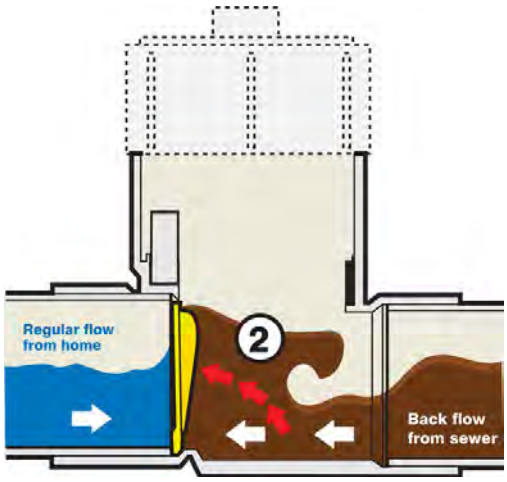


Source: FEMA

HOW A GATE BACKFLOW VALVE WORKS



1. Normal water flow from home to the sewer system.



2. Gate shuts to block sewage back flow from sewer system.

Source: Backwater Solutions Canada

STRATEGY 3

Install a sump pump

Homes built before 1954 are likely connected only to the sanitary sewer. Because sanitary sewers are not sized to manage excess water during rain events, there is an increased risk of a basement backup for you and your neighbors. A sump pump is a solution that reduces the risk of basement backups by removing water from the lowest point of your home. It can be pumped to the storm sewer via a lateral or discharged at least 10 feet from your home to flow safely away.

HOW

- Hire a licensed contractor for evaluation and installation.

MONITORING + MAINTENANCE

- As-Needed. If you experience issues with your sump pump, MMSD has several tips for troubleshooting. *See Reminders from MMSD*.

Local Funding Support:

- Private Property Inflow and Infiltration Program
- Pipe Check
- STRONG Homes Loan

Reminders from MMSD

- **If you have standing water in your basement or pooled water around your sump pump or electrical fixtures, do not try to do anything.** Consult a professional plumber!
- It is illegal to drain your sump pump into the floor drain or wash tub in your basement! Doing so can significantly increase the risk of basement backups for you and your neighbors during heavy rain by directing excess water into the sanitary sewer system when it's at or near capacity.

If you have an existing sump pump that is experiencing issues, MMSD has several tips for troubleshooting.

STRATEGY 4

Disconnect foundation drain

Cross section of a house foundation featuring black foundation drains.

Foundation drains are pipes beneath your foundation and basement floor that gather and redirect water away from the house, helping to prevent water accumulation in your basement.

Foundation drains for older buildings were originally connected to the sanitary sewer, which may contribute to basement backups. In order to prevent water from entering the basement, it may be required to re-route the foundation drain to a building-code approved location, such as the storm sewer and/or a sump pump. It is important that this determination is made by consulting a professional.

Read more: MMSD: How Does a Foundation Drain without a Sump Pump work?, MMSD: What is a Foundation Drain?

HOW

- Step 1: Hire a contractor to disconnect your foundation drain from the sanitary sewer lateral and connect to your sump pump.
- Step 2: See *Install a sump pump* section for more information.

MONITORING + MAINTENANCE

- As-Needed. See *Install a sump pump* section.

Local Funding Support:

- Private Property Inflow & Infiltration Program
- Pipe Check

STRATEGY 5

Install an overhead sewer system

An overhead sewer system prevents sanitary sewer overflows into basements by raising the lowest point of a home's plumbing to well above the level of the overflowing sewer. These systems differ from standard gravity-based systems and utilize a pump, typically placed in an ejector pit, in order to move water through the pipes and out to the public sewer system.

Note: Perimeter drain tile and other sources of stormwater must be disconnected from the sanitary sewer in order for this strategy to be effective. See Disconnect Foundation Drain section for more information.

Read more: Village of Evergreen Park: Overhead Sanitary Sewer Service Conversions

HOW

- Hire a licensed plumber or contractor.

MONITORING + MAINTENANCE

- As-Needed.

Local Funding Support: None

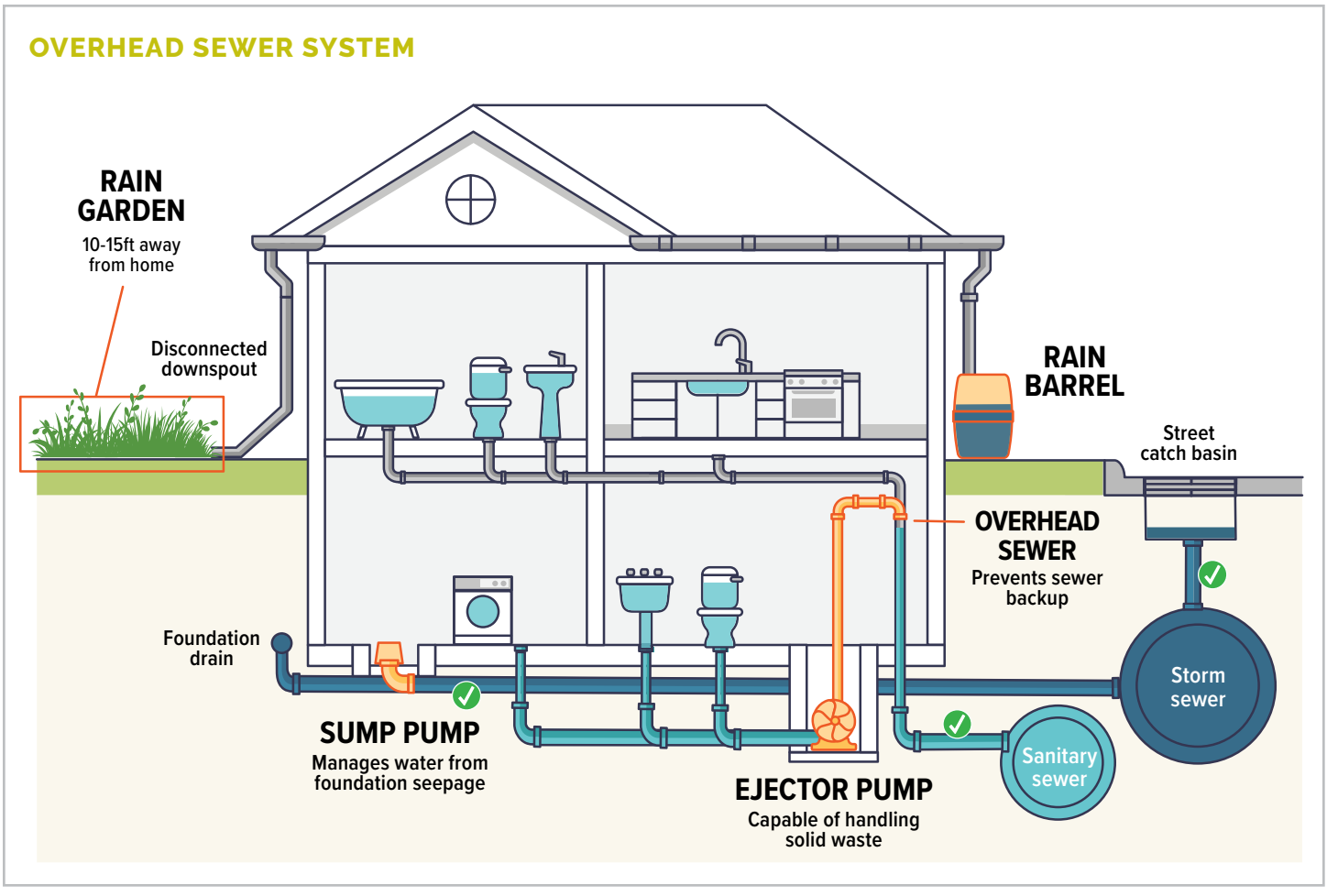


Diagram of an overhead sewer replacement. *Note: The above drawing is not to scale and is for illustrative purposes only. Source: Greenprint Partners*

Basement Flooding: Water Seeping into Basement

Water can enter the basement through pathways besides basement backups. In Grasslyn Manor, we may have a high water table as many residents note springs in their backyard. Naturally occurring groundwater can enter homes through cracks in the foundation, window wells or up through basement floor cracks if they are not properly sealed. In addition to the strategies below, see *Yard Flooding* solutions as these can help reduce the amount of water near the home in the first place.

STRATEGIES IN THIS SECTION INCLUDE:

1. Repair foundation cracks
2. Address basement window seepage
3. Install drain tiles

STRATEGY 1

Repair foundation cracks

Foundation cracks can be a serious issue that increases water seepage into your basement, in addition to compromising the structural integrity and safety of your home. It is important to identify and address these cracks right away.

There are two types of foundation cracks: structural and non-structural. Structural cracks are one-quarter-inch or wider, and can result in further damages to your house and foundation. These should be assessed by a professional. Cracks that are less than one-quarter-inch wide are considered non-structural cracks and typically cause less issues.

HOW

- Step 1: Identify the type of crack (structural vs. non-structural). See the table below. It is recommended you consult a foundation professional if you are unsure.
- Step 2: For structural cracks, consult a licensed contractor. For non-structural cracks, there are several DIY resources available — most fixes will require epoxy injections or hydraulic cement patches.

MONITORING + MAINTENANCE

- As-Needed. After foundation crack has been addressed, monitor during rain events to ensure proper sealing.
- See *Preventative Measures* to the right

Local Funding Support:

- STRONG Homes Loan

Preventative Measures to Avoid Foundation Cracks

- **Avoid planting large trees close to your home**
- **Control irrigation practices**
- **Grade away from the foundation**
- **Maintain proper drainage**
- **Monitor soil moisture levels**

Read more: Architectural Digest

Foundation Cracks: How to Tell if it is Structural or Non-Structural

Source: Epp Concrete

STRUCTURAL

- **Over 1/10 inch wide** – Structural cracks are usually wider than 1/10 inch (often wider at one end) and grow larger over time.
- **Stair-step cracks in block or brick walls**
- **Horizonal foundation cracks in walls**, with or without bowing
- **A series of vertical cracks next to each othe**r
- **Large diagonal cracks**
- **Cracks in a ceiling that run across the ceiling and down a wall**

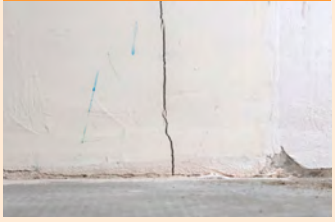
Large diagonal crack

Stair-step crack

NON-STRUCTURAL

- **Less than 1/10 inch wide**
- **Vertical foundation cracks** – Vertical cracks in a foundation wall that go from floor to ceiling usually aren't structural because there's no obstruction stopping the home's load from reaching the footing.
- **Cracks on one block in a concrete block wall –** A single, hairline crack in just one cinder block is usually a sign of damage during construction or transportation and not a structural issue.

Floor-to-ceiling vertical crack



Hairline crack on one block

STRATEGY 2

Address basement window seepage

Basement window seepage is characterized by visible moisture around the window, water stains, and/or pooling water around the window frame. This can be followed by standing water on the floor, damp and humid air, odor, mold and mildew, deterioration of carpet or wood, and a white powdery crust on the walls called efflorescence. This seepage can cause major health and safety issues.

HOW

- Step 1: Remove excessive internal moisture sources in the basement (humidifiers, cooking) and ventilate other sources (clothes dryer, bathroom).
- Step 2: If condensation in the summer is the problem, do not ventilate the basement directly with warm, humid air. Ventilation through an air conditioning system or with a desiccant-type heat exchanger is recommended.
- Step 3: Correct grading, gutter and downspout system.
  - Grading. See *Berm around home and regrade yard* section of this guide
  - Gutter and Downspout system. See *Repair gutters + downspouts* section of this guide
- Step 4: Provide an interior or exterior drainage system.
  - Review the following sections of this guide:
    - *Disconnect downspout to a rain garden or rain barrel*
    - *Install an overhead sewer system*
    - *Disconnect foundation drain*

Unaddressed basement window seepage can lead to standing water, damp and humid air, order, mold and mildew.

MONITORING + MAINTENANCE

- As-Needed. After window issues have been addressed, monitor during rain events to ensure water is no longer seeping through the windows.

Local Funding Support: None

Note: Dehumidification is not a permanent solution

Dehumidification can be used as a means of reducing the symptoms of humidity and odor in a basement, but it is not a permanent or complete solution. In fact, if a dehumidifier is used in a basement with moisture problems, it may cause greater damage. By drying out the basement air, moisture is drawn into the basement more rapidly causing efflorescence and spalling of concrete and further damage to interior finishes.

Read more: University of Minnesota Extension: Moisture in Basements: Causes and Solutions

STRATEGY 3

Install drain tiles

It is important to create a path for water to flow away from your home to prevent foundation issues. To do this, a drain tile (also known as a French drain) should be installed below the level of the basement slab or crawlspace floor, on the exterior side of the footings. Drain tiles have inlets that provide an entrance into the drainage system, which allows any water present to flow into the drain tile rather than pond along the foundation wall. The drain tile will discharge to a sump pump (see *Sump Pump* section) which will be connected either directly to a storm lateral or discharge into the yard 10 feet away, or be diverted to a dry well, storm sewer, or sump pump in the crawlspace or basement floor.

HOW

- Step 1: Consult a professional to determine where the drain tile should be installed for optimal drainage.
- Step 2: Hire a licensed contractor for consultation and installation.

MONITORING + MAINTENANCE

- As-Needed. After installation, monitor to make sure any water present is draining through the drain tile. If you are still experiencing water ponding issues, you may wish to consult a professional to assess if the install was performed properly.

Local Funding Support:

- STRONG Homes Loan

Drain tile installation on the exterior of home footings. Read more: Office of Energy Efficiency & Renewable Energy: Footing Drain Pipe

Yard Flooding

Yard flooding can occur when:

- Water tables are high (as may be the case for Grasslyn Manor);
- There are issues with soil moisture and sloping; or
- Overwhelmed infrastructure is present (i.e., when street flooding overtops the curb).

Not all water in yards is a bad thing if the yard is properly graded away from the home. This section aims to help with unwanted yard flooding.

STRATEGIES IN THIS SECTION INCLUDE:

1. Clean gutters
2. Repair gutters + downspouts
3. Disconnect downspout to a rain garden or rain barrel
4. Berm around home and regrade yard
5. Plant a stormwater tree
6. Monitor your nearest street drain

Start an Equipment Library

Some of the strategies in this section can be accomplished with common household tools and equipment.

If you have ladders or other useful equipment that you would like to share or borrow from your neighbors, consider starting an "Equipment Library" where you can donate, borrow or share tools within your community. This is a great way to share the cost of equipment, as well as share amongst your neighbors the tips, tricks and even labor needed to achieve some of the homeowner actions in this guide.

STRATEGY 1

Clean gutters

Your home's gutter system is essential for proper water conveyance on your property. Every year when leaves fall, they can clog gutters. This prevents water from getting to the downspouts, and creates cascading water in places where it is not intended. This results in ground-level ponding on your property. Proper cleaning, done regularly, is a great first step to preventing nuisance ponding.

HOW

- Step 1: Assess: Do a visual check of your gutters to see where leaves and debris are piling up.
- Step 2: Remove: Clear away the debris by getting up on a ladder and removing it with your hands. You could use a leaf blower attachment designed for cleaning gutters.
- Step 3: Prevent: Consider installing a gutter guard to prevent leaves from clogging gutters.

Read more: MMSD: Gutters and Downspouts, City of Milwaukee: Food Waste and Yard Debris

DID YOU KNOW?
Yard debris, such as grass and leaves, is banned from landfills in the State of Wisconsin. The table below provides information on proper disposal of leaves after cleaning gutters.

MONITORING + MAINTENANCE

- Clean gutters and downspouts three times per year (spring/fall/winter) to remove debris.
  - **Winter**
    Dig out and clear the snow from the downspout discharge location. Connect the downspout extensions and ensure a clear path for the discharged water to flow away from your house. Your gutters are likely full of snow and ice. There isn't much you can do about this, but ensure the water has a path once they thaw out.
  - **Spring and Fall**
    Check that your gutters and downspouts are clean (no clogs) and not broken, bent, separated or hanging loose.

Local Funding Support: None or free (if you own a ladder and can do the labor)

- Tip: Enlist the help of the local Scouts troop or other community organizations to see if they can offer volunteers that might be able to provide free labor.

HOW TO PROPERLY DISPOSE OF LEAVES

Mulching On-Site	Backyard Composting	Fall Leaf Collection	Leaf Drop-Off
Residents are encouraged to mulch the leaves with a lawn mower on-site.	Leaves and some yard debris can be composted at home. The Department of Public Works hosts an annual composting bin sale.	The City of Milwaukee allows residents to rake their leaves into the street every fall for free leaf collection by the Department of Public Works.	If a resident misses the last leaf collection day, they may bring the leaves to a drop off center for a fee.

STRATEGY 2

Repair gutters + downspouts

Gutters play an important role in preventing damage to your home from water leakage. A clogged or broken gutter can no longer divert water, leaving your home vulnerable to foundation damage, mold, mildew and water-breeding insects. Depending on the state of your gutters, adjusting/cleaning your gutters may solve or prevent the issues you are experiencing. However, replacing gutters may be required if you experience the following:

1. Breaks at the seams or cracks
2. Peeling paint
3. Water damage around the gutters
4. Rust, sagging or pulling

Read more: Forbes: Warning Signs You Need New Gutters

HOW

- Step 1: Adapt your Gutters
  - Clean your gutters regularly with water, a plumbing snake or by hand
  - Install a gutterhelmet and/or gutter splash guards
  - Check the slope of your gutters to ensure that water is draining away from the home. However, too much gutter slope may result in damage to your home's exterior.
- Step 2: Replace Gutters
  - Consult a professional
  - DIY resources are available, but may require expensive specialty equipment

MONITORING + MAINTENANCE

- As-Needed.

Local Funding Support:

- STRONG Homes Loan

STRATEGY 3

Disconnect downspout to a rain garden or rain barrel

Downspouts are traditionally connected directly to the sewer system or directed to a paved surface such as a street or driveway. The process of disconnecting the downspout allows water — that otherwise would have been directed to unwelcome places — to drain into a rain garden or a rain barrel. You may choose a rain barrel over a rain garden depending on yard layout or personal preference.

Disconnected downspout empties into a rain garden. *Source: MMSD*

HOW

Downspout disconnection

- Step 1: First determine if your downspout can be disconnected.
- Step 2: Determine if you will disconnect the downspout yourself or consult a professional.
  - For a step-by-step guide to disconnecting your own downspouts, please reference the *Downspout Disconnection guide* provided by MMSD.
- Step 3: If installing a rain barrel, attend a free rain barrel workshop hosted by MMSD to learn how!
- Step 4: If installing a rain garden, you will need enough space in your yard for the water to drain into the soil. MMSD hosts several rain garden workshops as well as an annual rain garden plant sale each spring that provides a 50% discount on plant purchases.

MONITORING + MAINTENANCE

Barrels:

- Monthly: Clear inlets of trash, leaves and debris; inspect for leaks, clogs and obstructions; check rain barrel cover and spigot; replace as needed.
- Annually: Drain barrel and flush out sediments; clean interior.
- Pre-Winter: Open all valves to prevent system from freezing; drain barrel and reroute feeding pipes away from rain barrel to avoid freezing.

Gardens:

- Monthly: Inspect soil and repair areas of erosion; water plants when 10+ days without rain pass; remove trash, leaves, sediment and debris.
- Quarterly: Inspect and replace unhealthy plants; weed garden to remove invasive plants; replace mulch with three inches of new mulch.
- As-Needed: Treat plant diseases, prune and confirm water drains within 72 hours.

Local Funding Support:

- Clean Wisconsin Residential Green Infrastructure Program
- MMSD Annual Plant Sale

Read more: MMSD: Rain Gardens, MMSD: Why should I disconnect my downspout?, MMSD: Why Use Rain Barrels?

MMSD Tips for Selecting a Rain Barrel

- The top is covered to keep out debris, mosquitoes, and other bugs
- The spigot should be low on the barrel, so water does not stagnate at the bottom
- Use a downspout diverter to redirect water to the downspout preventing rain barrel overflows
- Look for a barrel made of thicker plastic that is UV resistant. If it feels like an oversized garbage can, it probably won't last.

See MMSD's step-by-step guide for using a rain barrel.

STRATEGY 4

Berm around home and regrade yard

Grading — or reshaping the slope of the land — around your home plays a key role in where water will accumulate. It is best if all the water that falls on your house and property is able to move away from your house. Managing the grading of your property, including creating berms or elevated places on your property, can significantly reduce unwanted flooding in specific areas.

HOW

Grading

- Step 1: Evaluation: There should be a downwards slope from your house to your yard, ideally dropping one inch for every one foot for the first 5–10 feet from your house. This conveys water away from your house foundation.
- Step 2: Fix/Improve Grading: Add soil next to the foundation to increase the slope away from the house.

Berm

- Step 1: Evaluation: Decide berm location based on the movement of water.
- Step 2: Determine the size and shape. A berm should be about 4–6 times longer than it is wide.
- Step 3: Remove existing plants or grass.
- Step 4: Dig up the lawn along the edge of the berm.
- Step 5: Use fill dirt or inorganic fill for the base and topsoil for the top of the berm.
- Step 6: Add new plants or grass.

MONITORING + MAINTENANCE

- General lawn maintenance (mowing, weeding, etc., depending on plants selected)
- Monitor occasionally after rain events to ensure that water is directed as intended.

Local Funding Support: None

- Tip: Consider this strategy in tandem with a rain garden or tree installation. When a rain garden or a tree is installed, excess soil can be used to create a berm and/or fill in low spots around your yard.

Read more: MMSD: Proper Grading Around Your Home, UC Master Gardeners of Butte County: The Real Dirt Blog: Landscaping with Berms

Berms can be designed in a variety of shapes and sizes depending on your property. *Left to right: Berm with flat flagstone wall (Photo: Cindy Weiner / UC Master Gardeners of Butte County); Berm with mulch and bushes; and berm used as a garden bed (Photos: Steve O'Connell)*

STRATEGY 5

Plant a stormwater tree

Planting a tree to soak up water is helpful for reducing yard flooding because its extensive root system helps absorb excess rainwater and reduce the risk of soil erosion. The tree's canopy also acts as a natural barrier, slowing down rainfall and allowing water to infiltrate the soil gradually rather than causing rapid runoff. Additionally, trees filter pollutants from the water, promoting cleaner runoff and protecting local water quality.

Photo: Steve O'Connell

HOW

- Step 1: Assess your property to identify an appropriate location for planting the stormwater tree. Choose an area with well-draining soil, adequate sunlight and enough space for the tree to grow without causing conflicts with structures or utilities. Consult your local nursery or the EPA: Stormwater Trees Technical Memorandum for more info on siting issues including steep slopes, utilities and proximity to structures for specifications on how to plant the tree.
- Step 2: Research and choose a tree species known for its ability to manage stormwater effectively. Look for trees with deep root systems that can absorb and slow down water runoff. Native species are often well-adapted to local conditions and can contribute to the ecosystem.
- Step 3: Dig a hole that is twice as wide as the tree's root ball and just as deep. Loosen the soil in the hole to encourage root expansion. If the soil is compacted, consider amending it with organic matter to improve drainage.

MONITORING + MAINTENANCE

- As-Needed: Monitor the tree regularly for signs of stress, pests or diseases.
- Weekly: Water. New trees benefit from a consistent water source in order to establish in your yard.
- Annually: Prune the tree to maintain its shape and remove any damaged or dead branches.

Local Funding Support:

- Branch Out

Read more: EPA: Stormwater Trees Technical Memorandum, i-Tree Species, Wisconsin Sea Grant, Arbor Day Foundation: Tree Care Tips & Techniques, City of Milwaukee: Milwaukee Urban Forestry Fund

Funds Available for Tree Planting Projects

The Milwaukee Urban Forestry Fund provides trees, expertise and guidance for community partners that want to bring the many benefits that trees provide to their neighborhood. All communities within the City of Milwaukee are encouraged to apply for a tree planting project, which could be a great community event for scout troops, local green groups and other organizations. Tree planting projects have a minimum of 10 trees.

Sherman Park residents gather around the base of a newly planted tree on Arbor Day in 2023. *Photo: SPCA*

STRATEGY 6

Monitor your nearest drain

Street drains allow rain water to enter the pipes underground. When they are clogged with trash, grass clippings and other debris, it can contribute to street flooding. When street flooding is high enough, it can overtop curbs into yards. While the City Department of Public Works is responsible for sweeping streets regularly (once a month in Grasslyn Manor from May through November), residents can commit to cleaning up storm drains near their homes or businesses to supplement these municipal street cleanings. Additional sweeping can be requested by calling the City.

Adopt Your Drain Program

Adopt Your Drain is a social awareness and action campaign providing residents of Southeastern Wisconsin the opportunity to protect their watershed and communities near their own homes.

The goals of Adopt Your Drain are to raise awareness of stormwater pollution and flooding through residents committing to cleaning up storm drains near their homes or businesses. This would prevent residentially-sourced grass clippings from ending up in the drains. The program provides people with supplies and drain messaging so that they can clean out their local drains in between street sweeping and remind their neighbors of things to avoid putting in their drains.

HOW

- Step 1: Register your local drain with the Adopt-a-Drain program at **adoptyourdrain.com**.
- Step 2: Maintain the drain in front of/near your property.
- Step 3: Add a lawn sign to your property to help spread the word to your neighbors.

MONITORING + MAINTENANCE

- As-Needed: Particularly in the fall when leaves may contribute to drain clogs.
- If more frequent street sweeping seems to be needed, call the City of Milwaukee Call Center at (414) 286-2489 to request additional service.

Local Funding Support: None

- Tip: Adopt-Your-Drain program run by Sweet Water is a helpful resource.

Index of Funding Programs + Resources

There are a number of existing programs and grants available to help homeowners fund many of the strategies found in this Residential Handbook. Below are some of the key programs that may help Grasslyn Manor residents continue to take local action around flooding. A summary of each program is available in the following pages.

The Home Improvement Resource Navigator can help residents find additional City of Milwaukee Resources available to them!

bit.ly/home-improvement-navigator

		Private Property Inflow & Infiltration Program	Pipe Check	Fresh Coast Resource Center*	STRONG Homes Loan	Branch Out	Clean Wisconsin Residential GI
Basement Backups	Repair or replace lateral	X	X		X		
	Install backflow valve						
	Install sump pump	X	X				
	Disconnect foundation drain	X	X				
	Install an overhead sewer system						
Basement Seeping	Repair foundation cracks				X		
	Address basement window seepage						
	Install drain tiles						
Yard Flooding	Clean gutters						
	Repair gutters + downspouts				X		
	Disconnect and/or divert downspout to a rain garden or rain barrel			X			X
	Berm around home and regrade yard						
	Plant a stormwater tree					X	
	Monitor your nearest street drain						

*Managed by MMSD

Private Property Inflow & Infiltration Program

ELIGIBILITY / QUALIFICATIONS

All homeowners in a designated project area are welcomed and encouraged to participate!

SUMMARY OF PROGRAM

The City of Milwaukee's Private Property Inflow & Infiltration (PPII) Program removes financial burdens by covering the cost of reducing inflow and infiltration with the services listed below. Project areas are focused on neighborhood or sewershed wide solutions.

LIST OF SERVICES

- Foundation drain disconnection
- Sump pump installation
- Full sanitary lateral replacement
- Lateral repair

COST CONSIDERATIONS

Free. The program does not cover costs for finished basement restoration, tile, carpet, drywall, etc.

CONTACT

Phone: (414) 286-2465
Email: Rselee@milwaukee.gov

WEBPAGE

city.milwaukee.gov/dpw/Infrastructure/Programs/Private-Property-Infiltration--Inflow-Reduction

Pipe Check

ELIGIBILITY / QUALIFICATIONS

- ☑ Property is located within the MMSD service area
- ☑ Property is a one- or two-family home — can be either owner-occupied or a rental
- ☑ No income requirement to participate
- ☑ A site visit is completed by an Approved Contractor
- ☑ W-9 is submitted to MMSD*
- ☑ Participation waiver must be signed by the homeowner
- ☑ An Approved Contractor completes all the required work identified in the Clear Water Evaluation
- ☑ Property has not previously participated in Pipe Check

SUMMARY OF PROGRAM

Water in your basement can be caused by rain or groundwater, also known as clear water, overwhelming your sanitary sewer lateral causing sewage and water to back-up in your basement. Sources of clear water include connected downspouts and foundation drains, and defects in your sanitary sewer lateral such as roots. Many homeowners do not know that they are responsible for the lateral that connects their home to the municipal sewer line.

The Pipe Check program provides financial incentives to help homeowners eliminate sources of clear water from your home at a reduced cost!

LIST OF SERVICES

Service Provided	Pipe Check Contribution**
Foundation drain disconnection	$2,500
Remove palmer valve	$325
Reroute existing sump pump discharge	$300
New storm lateral	$1,000
Downspout disconnection	$25 each
Full lateral replacement	$5,000–$7,000
Lateral lining	$1,500

**Note: The value of the financial incentive is taxable. MMSD will provide a 1099 at the end of the year.*
***Financial incentives are current as of 2025, but are subject to change. Please check the Pipe Check website for current rates.*

COST CONSIDERATIONS

Financial incentives help homeowners complete critical sanitary sewer system repairs at a reduced cost. They do not cover the full cost of the work. All costs above the value of the financial incentive(s) are the homeowner's responsibility. The total cost of the work is dependent on the existing conditions within the home, the length of your lateral and the chosen repair method. Your chosen Approved Contractor will provide you with a cost estimate for the work required prior to signing a contract. They will also share the MMSD financial incentives for which your home qualifies.

The Pipe Check Approved Contractor will complete all documentation required for the program. MMSD will pay the incentives directly to your contractor, which will be deducted from your final bill.

Costs to Homeowner

- If the approved contractor, selected by the homeowner, charges a site visit fee and/or a fee for the CCTV video of the lateral, those costs are the responsibility of the property owner.
- Any remaining cost of the scope of work, after MMSD financial incentives are deducted.

Paired Programs

Pipe Check can be paired with some other funding sources for homeowners who are interested in assistance with the remaining balance of the work. Partnering programs include:

- STRONG Homes Loan (see p 25)
- Habitat for Humanity Critical Home Repair Program, that can cover up to 80% of costs.

The Fresh Coast Resource Center also provides support for downspout disconnection into a rain barrel or rain garden.

CONTACT

Email: pipecheckinfo@mmsd.com
Phone: (414) 225-2250

WEBPAGES

mmsd.com/pipecheck

freshcoastguardians.com

mmsd.com/what-you-can-do/managing-water-on-your-property/pipe-check/find-a-contractor

milwaukeehabitat.org/housing/repair-your-home/

STRONG Homes Loan

ELIGIBILITY / QUALIFICATIONS

- ☑ Property must be owned and occupied by applicant for at least 12 months prior to applying
- ☑ Applicant must be current on property taxes
- ☑ Applicant must be current on mortgage and utility payments or on an approved payment plan
- ☑ Household income qualification:
  - Applicants with household incomes up to 150% Area Median Income are eligible to apply. A portion of the funds dedicated for the program will be reserved for families with household incomes of <80% of Area Median Income.

Note: Additional qualifications apply.

SUMMARY OF PROGRAM

The STRONG Homes Loan Program offers loans of $1,000 to $25,000 to owner occupants of 1-4 family properties throughout the City of Milwaukee on a first-come, first-served basis for emergencies and essential home repairs. Technical assistance will be provided to homeowners under the program to assist with rehabilitation projects. Loans are administered through the Neighborhood Improvement Development Corporation (NIDC).

LIST OF SERVICES

This program's loans can fund homeowner expenses for the following:

- Abate outstanding building code orders
- Repair or replace roofing/flashing/gutters if there is an active leak affecting habitable rooms, if homeowner's insurance has been cancelled due to the need to repair/replace roofing, or if the roof has reached the end of its useful life
- Repair or replace a non-functioning furnace/boiler ("no heat")
- Replace a non-functioning water heater
- Repair leaking water piping if there are active leaks into habitable rooms, or if sewer gas is entering the home
- Repair collapsed sewer laterals between house and street tap
- Repair leaking water laterals between house and stop box
- Replace lead water lateral lines
- Repair serious electrical hazards
- Repair hazardous structural conditions (including failing porches)
- Repair/replace deteriorating siding, exterior trim or failing exterior paint (on house only)
- Correct a condition that is a threat to health and safety

COST CONSIDERATIONS

- This program is a financing program which provides a partially forgivable loan to homeowners, and helps make these improvements easier to implement.
- Interest Rate: Based on income
  - <60% of Area Median Income - 0% interest
  - 60%-150% of Area Median Income - 3% interest (deferred payment loans carry no interest)
- Partial Loan Forgiveness: 25% of the original principal amount of the loan, up to $5,000, will be forgiven for homeowners that own and occupy the property for ten years after completion of the project. This forgivable "Homeownership Retention Credit" portion of the loan is not interest bearing and is forgiven in a lump sum after ten years.

CONTACT

Email: nidc@milwaukee.gov
Phone: (414) 286-5610

WEBPAGE

city.milwaukee.gov/DCD/NIDC/STRONGloan

Branch Out Milwaukee

ELIGIBILITY / QUALIFICATIONS

- Residents of Sherman Park neighborhood
- Residential property

SUMMARY OF PROGRAM

To counter the effects of long standing environmental and social injustice, Branch Out Milwaukee assists residents in tree plantings and maintenance on their residential properties. By expanding the urban tree canopy, we reduce the chance of flooding, improve personal comfort, increase green space, and help ease health issues like asthma.

Branch Out Milwaukee is a program of Milwaukee Water Commons.

LIST OF SERVICES

- Planting trees on residential property
- Professional tree assessment and maintenance
- Education about employment and career opportunities as an arborist
- Leadership opportunities with the Sherman Park Tree Board
- Ensuring residents are heard in decisions made about urban forestry programs
- Tree care tips and resources

COST CONSIDERATIONS

- No out-of-pocket costs for consultations and tree planting.
- Subsidized tree maintenance based on income.

CONTACT

Email: info@branchoutmilwaukee.org
Phone: (414) 763-6199 ext. 304

WEBPAGE

milwaukeewatercommons.org/branch-out-milwaukee

Clean Wisconsin Residential Green Infrastructure Program

ELIGIBILITY / QUALIFICATIONS

- Residents within Sherman Park Community Association's service area are eligible to receive a free rain barrel or rain garden while supplies last.
- Residents can only receive one barrel per owner-occupied household. Renters are encouraged to participate and seek permission from their property owner. Sherman Park Community Association's service area includes the area bounded by 60th St, Silver Spring, I-43 and I-94.
- Rain gardens are site-specific and may not be suitable for every property. Prior to a rain garden installation, a home assessment with an interested resident is required. Available yard space and proximity to the property are factors that should be identified with participants.

SUMMARY OF PROGRAM

Clean Wisconsin has worked with landowners in Milwaukee to install small-scale, residential green infrastructure, such as rain barrels and rain gardens, to address localized flooding on private property. They also host community workshops to provide opportunities for residents to learn about the benefits and maintenance needs of green infrastructure features.

LIST OF SERVICES

- Rain barrels
- Rain garden installations
- Green infrastructure workshops

COST CONSIDERATIONS

- Free, No out-of-pocket expense for installation.
- Maintenance is the responsibility of the homeowner.

CONTACT

Email: mkeGI@cleanwisconsin.org
Phone: (414) 400-6650

WEBPAGE

cleanwisconsin.org/our-work/resilient-sustainable-communities/community-engagement

Glossary

Backflow valve
Temporarily blocks drain pipes and prevents return flow from re-entering through drains

Berm
Elevated places created by reshaping the slope of the land

Drain tile
A footing drain system consisting of a perforated drain pipe

DPW
City of Milwaukee Department of Public Works

Foundation drain
Pipes that are installed under your foundation or basement floor to collect water and move it off-site to prevent your basement from filling with water

Infiltration
Occurs when groundwater enters the sanitary sewer through means such as cracks or roots in the lateral pipe.

Inflow
Inflow is a direct connection from storm sewer pipes into the sanitary sewer system.

MMSD
Milwaukee Metropolitan Sewerage District

Overhead sewer
System that reduces sanitary sewer backups into basements by raising the lowest point of a home's plumbing to well above the level of the overflowing sewer. These systems differ from standard gravity-based systems, and use an ejector pump rated to move sanitary waste, typically placed in the basement, in order to move water through the pipes and out to the public sanitary sewer system.

Palmer valve
A fixture that connects foundation drains to a sanitary sewer near a floor drain

Rain garden
An area set below street/ground level that is usually filled with native plants; collects stormwater from the surrounding area and filters it using plants and soil, before it soaks into the ground below.

Rain barrel
A barrel that is connected to a downspout to collect water from a roof for reuse in watering plants

Sanitary lateral
Pipes that transport sanitary water and waste from homes such as from showers, sinks, toilets and washing machines to the public sanitary sewer pipes underneath the street

Sanitary sewer
Public pipes underneath the streets that receive sanitary water from sanitary lateral lines connected to homes. This water is transported underground to a wastewater treatment plant.

Separated sewer system
The sewer system underground consists of both a sanitary sewer managing waste from our homes and a storm sewer managing rain water.

Sewer lateral
See *sanitary lateral* and *storm lateral.* In some homes, all waste is discharged to the same lateral called the sewer lateral.

Storm lateral
Pipes that transport rain water from homes such as from downspouts and sump pumps to the public storm sewer pipes underneath the street

Storm sewer
Public pipes underneath the streets that receive rain water collected through drains on the street or properly connected homes downspouts and sump pumps. This water is transported underground and collected in larger stormwater pipes downstream. During heavy rain events, these pipes release rain water into rivers and streams in the Milwaukee area.

Stormwater tree
A tree (preferably mature) meant to soak up water

Sump pump
Pump that moves accumulated water from a low point (like a basement) to an outside drainage area (like a yard)

WaterMarks
A multi-layered framework to engage residents throughout the City of Milwaukee around water systems and infrastructure that supports their lives

Reference List

Repair or replace lateral (pg. 6)

MMSD: What is a Lateral?

Install backflow valve (pg. 7)

FEMA: Install Sewer Backflow Valves

Install sump pump (pg. 8)

MMSD: What is a Foundation Drain?

Disconnect foundation drain (pg. 9)

MMSD: What is a Foundation Drain?

Install an overhead sewer system (pg. 10)

Village of Evergreen Park:
Overhead Sanitary Sewer Service Conversions

Repair foundation cracks (pg. 12)

Architectural Digest:
How To Repair Foundation Cracks

Address basement window seepage (pg. 13)

University of Minnesota Extension: Moisture in basements: causes and solutions

Install drain tiles (pg. 14)

Office of Energy Efficiency & Renewable Energy:
Footing Drain Pipe

Clean gutters (pg. 16)

MMSD:
Gutters and Downspouts

City of Milwaukee:
Food Waste and Yard Debris

City of Milwaukee:
Fall Leaf Collection

City of Milwaukee:
Drop Off Centers

Repair gutters and downspouts (pg. 17)

Forbes: Warning Signs You Need New Gutters

Disconnect downspout to a rain garden or rain barrel (pg. 18)

EPA: Soak Up the Rain: Disconnect / Redirect Downspouts

University of Minnesota Extension: Moisture in basements: causes and solutions

MMSD:
Rain Gardens

MMSD:
Why Use Rain Barrels?

MMSD:
Why should I disconnect my downspout?

Fresh Coast Guardians: Rain Barrel Workshop

Berm around home and regrade yard (pg. 19)

MMSD:
Proper Grading Around Your Home

UC Master Gardeners of Butte County: The Real Dirt Blog: Landscaping with Berms

Plant a tree (pg. 20)

EPA: Stormwater Trees Technical Memorandum

i-Tree Species

Wisconsin Sea Grant

Arbor Day Foundation:
Tree Care Tips & Techniques

City of Milwaukee:
Milwaukee Urban Forestry Fund

Monitor your nearest street drain (pg. 21)

Sweet Water: Adopt-Your-Drain

GREENPRINT PARTNERS

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