

MAINTAINING STORMWATER CONTROL MEASURES

Guidance for Private Owners & Operators

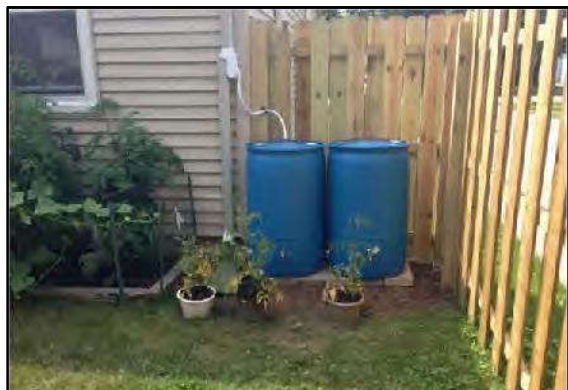
STORMWATER CONTROL MEASURES

Rain Barrels & Cisterns

Rain barrels and cisterns are structures that collect rooftop rainwater that would otherwise drain to natural waters or sewer systems. The collected stormwater can be used to water plants, trees, or lawns during dry periods.

A rain barrel is typically composed of a 40-55 gallon barrel or drum with some type of diverter or connection from a downspout, a spigot or hose to drain the barrel, and some type of overflow mechanism. Openings to the air are screened to keep debris and pests out. An overflow mechanism is provided so that when the rain barrel is full, excess water flows back into the downspout and then to a sewer system or into a landscaped area such as a rain garden.

Cisterns are similar to rain barrels in function but hold larger quantities of water. They are typically constructed out of reinforced concrete, galvanized steel, or plastic. Cisterns may be installed underground, at ground level, or elevated depending on the site and space constraints of the property.



*Dual **rain barrels** connected in series from the downspout diverter. Once barrels are full, rainwater continues down the downspout. Credit: Chagrin River Watershed Partners, Inc.*



*Hose connection from **downspout diverter** to barrel should be positioned without sags or loops to allow free flow of rainwater into the barrel. Downspout diverter should be placed 2 feet above the rain barrel. Credit: Chagrin River Watershed Partner, Inc.*

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*Large **cistern** (silver tank) capturing stormwater runoff from a green roof at the Cleveland Metroparks West Creek Reservation Watershed Stewardship Center. Credit: Northeast Ohio Regional Sewer District.*

MAINTENANCE TIPS AND SUGGESTIONS

- Inspect rain barrel or cistern on a regular basis and periodically during a rain event to ensure all openings and connections are clear of debris and flowing freely.
- Clean gutters regularly to reduce debris and leaves from clogging connections and being deposited into the barrel or cistern.
- Once a year, tip empty rain barrels over and rinse the inside with a hose to remove collected debris. If a significant amount of algae is observed within the barrel, apply a small capful of chlorine bleach into the barrel to help prevent further algae growth.
- Insure the barrels or cisterns are stable on a strong, sturdy, and flat base.
- Rain barrels and cisterns must be appropriately winterized. Typically this entails draining and diverting flows for the winter months to prevent ice damage or leaks.
- For cisterns, refer to manufacturer recommendations for sediment removal and maintenance of pumps or filters if present.

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ROUTINE AND NON-ROUTINE MAINTENANCE

- Fertilizer Application: Apply slow-release fertilizer per manufacturer's specifications.
- System Component Repair: Repair or replace damaged system components based on manufacturer's specifications.

Non-Structural SCMs: Riparian & Wetland Setbacks and Conservation Areas

Routine Maintenance:

- Encroachment: Inspect boundaries and internal areas of riparian and wetland setbacks or conservation areas for encroachment, damaged vegetation or soil-disturbing activities. Report non-compliance issues to appropriate regulatory authority or conservation easement holder.
- Vegetation Management: Inspect plant health seasonally to ensure vigorous growth and protection from soil erosion.

Non-Routine Maintenance:

- Invasive Vegetation: Treat and remove invasive vegetation from riparian and wetland setbacks or conservation areas per the terms of setback regulations or conservation easement agreements.
- Sign Replacement: Replace riparian and wetland setback or conservation area boundary signs if damaged, vandalized or removed.

Rain Barrels & Cisterns

Routine Maintenance:

- Leaks: Inspect system components for leaks at all connections and joints per manufacturer's specifications.
- Clogging: Inspect system components for clogging at all connections and joints per manufacturer's specifications.
- Winterization: Properly winterize rain barrels and cisterns to protect connections, pipes and storage containers from freeze damage.

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ROUTINE AND NON-ROUTINE MAINTENANCE

Non-Routine Maintenance:

- Algae Control: If algae accumulate within the storage container, dewater and rinse thoroughly to remove algae.
- Pest Control: If mosquito larvae appear within the storage container, determine their point of access and seal the storage container to prevent access to the stored water.
- System Component Repair: Repair or replace damaged system components based on manufacturer's specifications.

Rain Garden

Routine Maintenance:

- Sediment and Debris: Remove accumulated sediment and debris from the mulch layer of the rain garden.
- Erosion and Scour: Repair soil erosion or scouring within the rain garden or side slopes leading into the rain garden.
- Mulch: Maintain a 2 to 3 inch depth of hardwood bark mulch layer within the rain garden. If an excessive depth of mulch exists, remove mulch until the mulch layer is 2 to 3 inches in depth.
- Curb Cuts: Keep curb cuts to rain garden free from blockage by sediment, debris and trash.
- Weeds: Remove weeds and invasive plants from rain garden.
- Vegetation Management: Inspect plant health seasonally to ensure vigorous growth. Prune plants, particularly shrubs and trees, during the dormant season (fall to early spring).
- Snow Removal: Do not pile or store snow within the rain garden as this will compact the specialized soils and add sediments from snow melt that may lead to clogging.

Non-Routine Maintenance:

- Plant Replacement: Replace diseased or dying plants.
- Ponding Water: When ponding continues beyond a 24 hour period, contact your local community stormwater manager for further consultation.

Rain Barrel/Cistern Inspection and Maintenance Checklist

Facility:			
Location/Address:			
Date:	Time:	Weather Conditions:	Date of Last Inspection:
Inspector:		Title:	
Rain in Last 48 Hours <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, list amount and timing:			
Pretreatment: <input type="checkbox"/> downspout screen <input type="checkbox"/> gutter guards <input type="checkbox"/> rain barrel filter/screen <input type="checkbox"/> other, specify:			
Site Plan or As-Built Plan Available: <input type="checkbox"/> Yes <input type="checkbox"/> No			

Inspection Item	Comment	Action Needed
1. PRETREATMENT		
Sediment and debris have accumulated in gutter.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
The screen or trap is clogged or not attached.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. FOUNDATION		
Barrel foundation is unstable.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. INLETS/DOWNSPOUTS		
Gutters and downspouts joints are disconnected and/or leaks are present.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Downspouts are disconnected to barrel and/or leaks are present.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Diverter is disconnected and/or leaks are present.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. SPIGOT		
Visible leaks are present and connections are not tight.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Valves and knobs do not turn.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. RAIN BARREL/CISTERN		
Sediment accumulated at bottom of barrel.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Odor of mildew present or algae is visible inside the barrel.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Cracks or leaks are visible in barrel.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Mosquito larva is visible in barrel.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. OVERFLOW STRUCTURE		
Overflow is directed away from the structure or disconnected from the downspout.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Other:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Special Notes: An untrained individual should never enter a cistern. Never drink water from a rain barrel or a cistern. Always follow the manufacturer's manual and recommended maintenance schedule.		
Additional Notes		
Wet weather inspection needed <input type="checkbox"/> Yes <input type="checkbox"/> No		

Site Sketch: