HENV-715

Cooperative Extension Service

BMP Maintenance and Operation

Detention Basin

General Maintenance

Trash and Debris Removal

Remove trash and debris after rainfall of more than one inch.

Vegetation Height

Maintain height of six to eight inches in and around basin.

Embankment Maintenance

Remove woody or invasive vegetation.

Annual Maintenance

Embankment Maintenance

Repair holes in embankment and side slopes.

Inlet and Outlet Structures

Assess inlet and outlet structures for debris or sediment. Clean out and repair, if needed.

Long-term Maintenance

Every Five Years

Remove sediment from forebays or sediment storage areas. Dredge if needed.

Every 10 to 20 Years

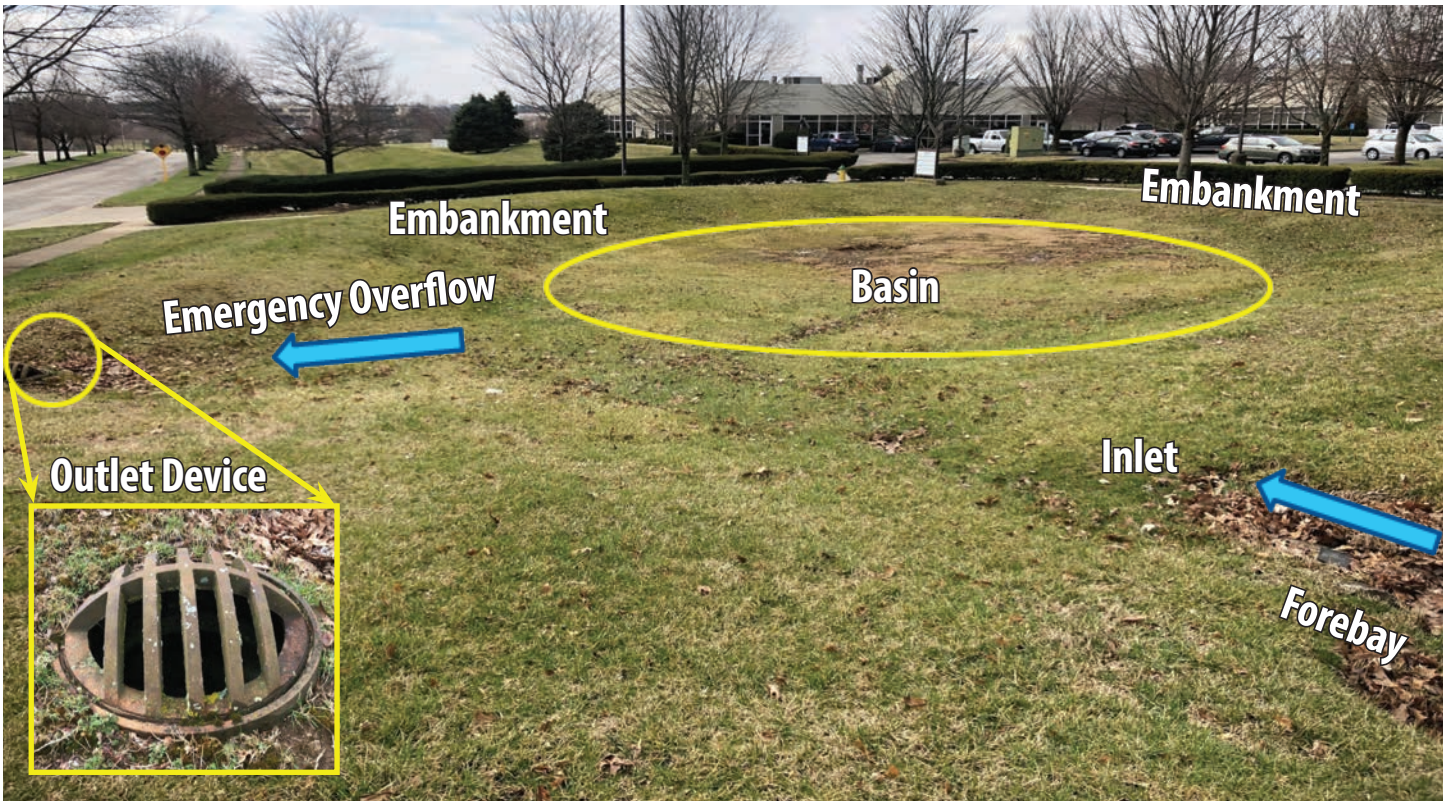
Remove sediment from main cells when 50 percent of total volume is lost. Dredge if needed.

Detention basins, or **dry ponds**, are designed to collect water during a storm event and hold it for a certain amount of time, usually 48 hours. This short impoundment of stormwater allows pollutants carried in the stormwater to settle to the bottom of the basin before collected stormwater is released through a slow-release outlet. When functioning properly, these basins should remain dry after the release of water until the next storm event.

Detention Basin Potential Issues

Issue	What Causes It?	Remediation
Basin holds water longer than 48 hours.	Clogged/broken outlet device	Clean out or repair outlet device. Dispose of sediment off-site.
Gullies or bare ground is present around perimeter of basin, inlets, outlets, and forebay.	Erosion/stormwater runoff	Regrade soil, till to reduce compaction, and replant vegetation. Lime may be applied to adjust soil pH, if needed. Apply one-time fertilizer and water until vegetation is established.
Shrubs or trees are growing in embankment.	Seedling establishment	Remove entire tree or shrub.
Holes are present in embankment.	Muskrat/beaver/groundhog	Consult local animal or pest control.
Trash or debris is present.	Stormwater runoff	Remove trash and debris.
Insect pests are present.	Clogged/broken outlet device	Clean out outlet and repair it if damaged.
Strong odor is present.	Clogged/broken outlet device	Clean out outlet and repair it if damaged.
Signs of seepage are present on downstream face.	Embankment or emergency outlet failure	Consult a stormwater conveyance system engineer.
Water is going around basin.	Improper grading, clogged forebay or inlet	Regrade to correct flow. Clean debris or sediment out of forebay or inlet.

Parts of a Detention Basin



Common Issues

The outlet is being buried in sediment and vegetation.

Stormwater erosion has formed a gully on the left side of the forebay.

Concentrated stormwater flow has eroded sediment from the embankment, forming a gully.

Detention Basin Inspection and Maintenance Checklist

Site name:			
Location:			
Inspector name(s): Inspection date:			
Rain in previous 48 hours? ☐ Y ☐ N If yes, record amount and timing:			
Current weather conditions:			
Flow or water observed? ☐ Y ☐ N If yes, record appearance:			
Inspection item	**Yes**	**No**	**If no, explain location, extent of issue, and/or maintenance performed.**
General Inspection			
Site is accessible.			
Area is clean of trash, debris, grass clippings, etc.			
Vegetation is maintained at height of six to eight inches and covers more than 50 percent of surface area.			
Woody (trees or shrubs) or invasive plants are absent.			
Erosion protection measures (i.e., turf reinforcement mats) are in place and functioning.			
Erosion is not evident.			
Water is flowing into the basin, and there is no evidence of water going around the structure.			
Sink holes, animal burrows, and instability are absent.			
Basin is dry. (This is not applicable if rainfall occurred in previous 48 hours.)			
Aquatic plants, odors, stains, or mosquito larvae, which could indicate ponding, are absent.			
Sediment			
Sediment accumulation in forebay is less than 60 percent of forebay volume.			
Sediment accumulation in main cells of detention basin is less than 50 percent of total volume.			
Emergency overflow and outlet structure are free of sediment.			
Inlet, outlet, and overflow condition			
Inlet is in good condition, with an absence of erosion.			
Outlet and overflow are in working condition, without evidence of erosion.			
All pipe joints are watertight, and no leaks are visible.			

Glossary

Basin: Concave part of the BMP. It is surrounded by the embankment and captures and holds water for a predetermined amount of time.
BMP: Best management practice.
Embankment: A wall or bank of material, usually soil, that functions to contain water within a certain area of the BMP.
Emergency overflow: A spillway that safely conveys water away from the basin of the BMP once the basin capacity is reached.
Erosion: Process by which soil and material are washed away by high volumes of stormwater.
Forebay: A channel or small basin, often lined with rock, that slows stormwater prior to entering a larger basin.
Inlet: Area where water enters the basin of the BMP. This can be a pipe entering the basin or simply an opening.
Invasive plants: Plant species that tend to spread out of control (e.g., Japanese honeysuckle).
Outlet device: Area where water leaves the BMP structure and continues into the stormwater system. This can be located inside the basin of the BMP or on the outer edge, beyond the emergency overflow.
Sediment: Fine material that is carried by stormwater and deposited as the water settles.
Turf reinforcement mats: Woven, synthetic-fiber mats that slow stormwater flow to prevent erosion, provide temporary cover for bare soil, and support growth of vegetation.

References

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Cooperative Extension Service

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