

MAINTAINING STORMWATER CONTROL MEASURES

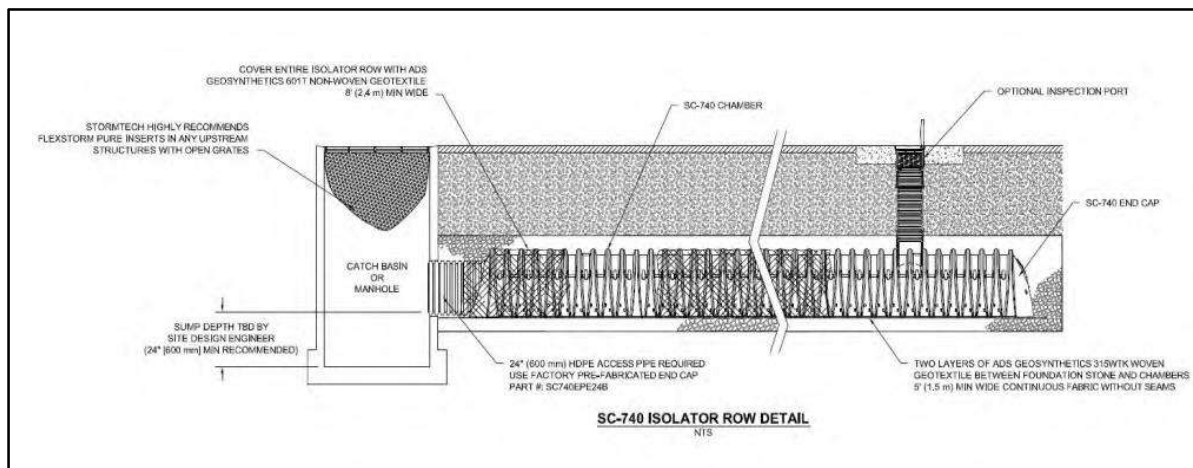
Guidance for Private Owners & Operators

STORMWATER CONTROL MEASURES

Underground Detention

Underground detention consists of large underground pipes or chambers that capture and store stormwater runoff before slowly releasing it to a stormwater system.

Underground detention is often used in space limited areas, such as parking lots, roadways, and paved areas in commercial, industrial, or residential developments, where adequate land for a surface SCM facility is unavailable. Pretreatment structures may be integrated into the underground detention system or built as a standalone control measure near the system to remove pollutants from the stormwater before it is released to a stormwater system or water resource.



Underground detention storage configuration. Credit: StormTech a Division of ADS, Inc.

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*Installation of **underground detention system** within permeable parking lot at the Courtyard by Marriott hotel in Cleveland, Ohio. Credit: Northeast Ohio Regional Sewer District*



***Open-bottom underground detention pipe** segments awaiting installation into gravel backfilled storage layer. Credit: StormTech a Division of ADS, Inc.*

MAINTENANCE REQUIRED WHEN:

- Ponding on surface area draining to system.
 - Sediment and debris is accumulated at the inlets or outlets of system.
 - There is visible damage to the inlets or outlets.
 - Inspection of pipes or chambers through inspection port (if present) using a flashlight and stadia rod reveal sediment accumulation that exceeds design criteria.
- * *Do not enter underground detention manholes to inspect system unless Occupational Safety & Health Administration (OSHA) regulations for confined space entry are followed.*
- * *Follow inspection and maintenance instructions and schedules provided by system manufacturer and installer.*

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ROUTINE AND NON-ROUTINE MAINTENANCE

- Specialized Soil Replacement: Clogging of the specialized soil by fine sediments may require complete replacement of the specialized soil, mulch and plant materials.

Sand Filter System

Routine Maintenance:

- Sediment and Debris: Remove accumulated sediment, debris, trash and oil/grease from sand filter bed and collection chambers per manufacturer's specifications.
- Outlet and Inlet Structures: Keep outlets and inlets of sand filter free from blockage by sediment, debris and trash.
- Erosion and Scour: Repair soil erosion or scouring at the outlet(s) of the sand filter.

Non-Routine Maintenance:

- Filter Media Replacement: Replace entirety of sand or other filter media if clogged.
 - Leaks or Damage: Inspect system components for leaks and damage based on manufacturer's specifications.
- * *Do not enter sand filter chambers to inspect system unless Occupational Safety & Health Administration (OSHA) regulations for confined space entry are followed.*
- * *Follow inspection and maintenance instructions and schedules provided by system manufacturer and installer.*
- * *Properly dispose of all wastes removed from the sand filter system.*

Underground Detention

Routine Maintenance:

- Sediment and Debris: Remove accumulated sediment, debris and trash from inlets, detention chambers and outlets per manufacturer's specifications.
- Erosion and Scour: Repair soil erosion or scouring at the outlet(s) of the underground detention if overflow is discharged onto ground surfaces.

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ROUTINE AND NON-ROUTINE MAINTENANCE

- Inspection Port: Inspect the monitoring well or inspection port to ensure access by qualified personnel to determine if accumulation of sediment and debris within detention chambers requires removal per manufacturer's specifications.

Non-Routine Maintenance:

- System Component Repair: Repair or replace damaged system components based on manufacturer's specifications.
- * *Do not enter underground detention manholes to inspect system unless Occupational Safety & Health Administration (OSHA) regulations for confined space entry are followed.*
- * *Follow inspection and maintenance instructions and schedules provided by system manufacturer and installer.*
- * *Properly dispose of all wastes.*

Oil-Water Separator

Routine Maintenance:

- Oil and Sludge Removal: Remove captured oils, grease and sludge from separation chambers and dispose of properly per manufacturer's specifications.
- Oil Containment Chamber: Remove floating oil layer or empty oil container once it has reached manufacturer's recommended volume to be removed. If system contains oil-absorbing pads, replace before completely saturated.
- Sediment and Debris: Inspect inlets and outlets to ensure they are free of sediment, debris and trash.
- Sediment Collection Chamber: Remove accumulated sediment and sludge at bottom of system when it has reached manufacturer's recommended volume to be removed.
- Erosion and Scour: Repair soil erosion or scouring at the outlet(s) of the oil-water separator system if overflow is discharged onto ground surfaces.

Underground Detention System 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"/> vegetated filter strip <input type="checkbox"/> swale <input type="checkbox"/> turf grass <input type="checkbox"/> forebay <input type="checkbox"/> other, specify: _____ <input type="checkbox"/> none | | | |
| Site Plan or As-Built Plan Available: <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |

*Do not enter underground detention chambers to inspect system unless Occupational Safety & Health Administration (OSHA) regulations for confined space entry are followed.

*Follow inspection and maintenance instructions and schedules provided by system manufacturer and installer.

* Properly dispose of all wastes.

| Inspection Item | | Comment | Action Needed |
|---|---|---------|--|
| 1. PRETREATMENT | | | |
| Sediment has accumulated. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Trash and debris have accumulated. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 2. INLETS | | | |
| Inlets are in poor structural condition. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Sediment, trash, or debris have accumulated and/or is blocking the inlets. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 3. CHAMBERS | | | |
| Sediment accumulation threshold has been reached. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Trash and debris have accumulated in chambers. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 4. OTHER SYSTEM COMPONENTS | | | |
| Structural deterioration is evident. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 5. OUTLETS | | | |
| Outlets in poor structural condition. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Sediment, trash or debris are blocking outlets. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Erosion is occurring around outlets. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 6. OTHER | | | |
| Evidence of ponding water on area draining to system. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Evidence that water is not being conveyed through the system. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Additional Notes | | | |
| | | | |
| Wet weather inspection needed <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |

Site Sketch: