

# Contactor® & Recharger® Stormwater Chambers The Chamber With The Stripe®



## Operation and Maintenance Guidelines

# Operation & Maintenance

*This manual contains guidelines recommended by CULTEC, Inc. and may be used in conjunction with, but not to supersede, local regulations or regulatory authorities. OSHA Guidelines must be followed when inspecting or cleaning any structure.*

## Introduction

The CULTEC Subsurface Stormwater Management System is a high-density polyethylene (HDPE) chamber system arranged in parallel rows surrounded by washed stone. The CULTEC chambers create arch-shaped voids within the washed stone to provide stormwater detention, retention, infiltration, and reclamation. Filter fabric is placed between the native soil and stone interface to prevent the intrusion of fines into the system. In order to minimize the amount of sediment which may enter the CULTEC system, a sediment collection device (stormwater pretreatment device) is recommended upstream from the CULTEC chamber system. Examples of pretreatment devices include, but are not limited to, an appropriately sized catch basin with sump, pretreatment catchment device, oil grit separator, or baffled distribution box. Manufactured pretreatment devices may also be used in accordance with CULTEC chambers. Installation, operation, and maintenance of these devices shall be in accordance with manufacturer's recommendations. Almost all of the sediment entering the stormwater management system will be collected within the pretreatment device.

Best Management Practices allow for the maintenance of the preliminary collection systems prior to feeding the CULTEC chambers. The pretreatment structures shall be inspected for any debris that will restrict inlet flow rates. Outfall structures, if any, such as outlet control must also be inspected for any obstructions that would restrict outlet flow rates. OSHA Guidelines must be followed when inspecting or cleaning any structure.

## Operation and Maintenance Requirements

### I. Operation

CULTEC stormwater management systems shall be operated to receive only stormwater run-off in accordance with applicable local regulations. CULTEC subsurface stormwater management chambers operate at peak performance when installed in series with pretreatment. Pretreatment of suspended solids is superior to treatment of solids once they have been introduced into the system. The use of pretreatment is adequate as long as the structure is maintained and the site remains stable with finished impervious surfaces such as parking lots, walkways, and pervious areas are properly maintained. If there is to be an unstable condition, such as improvements to buildings or parking areas, all proper silt control measures shall be implemented according to local regulations.

### II. Inspection and Maintenance Options

- A. The CULTEC system may be equipped with an inspection port located on the inlet row. The inspection port is a circular cast box placed in a rectangular concrete collar. When the lid is removed, a 6-inch (150 mm) pipe with a screw-in plug will be exposed. Remove the plug. This will provide access to the CULTEC Chamber row below. From the surface, through this access, the sediment may be measured at this location. A stadia rod may be used to measure the depth of sediment if any in this row. If the depth of sediment is in excess of 3 inches (76 mm), then this row should be cleaned with high pressure water through a culvert cleaning nozzle. This would be carried out through an upstream manhole or through the CULTEC StormFilter Unit (or other pre-treatment device). CCTV inspection of this row can be deployed through this access port to determine if any sediment has accumulated in the inlet row.
- B. If the CULTEC bed is not equipped with an inspection port, then access to the inlet row will be through an upstream manhole or the CULTEC StormFilter.
  1. **Manhole Access**

This inspection should only be carried out by persons trained in confined space entry and sewer inspection services. After the manhole cover has been removed a gas detector must be lowered into the manhole to ensure that there are not high concentrations of toxic gases present. The inspector should be lowered into the manhole with the proper safety equipment as per OSHA requirements. The inspector may be able to observe sediment from this location. If this is not possible, the inspector will need to deploy a CCTV robot to permit viewing of the sediment.

**2. StormFilter Access**

Remove the manhole cover to allow access to the unit. Typically a 30-inch (750 mm) pipe is used as a riser from the StormFilter to the surface. As in the case with manhole access, this access point requires a technician trained in confined space entry with proper gas detection equipment. This individual must be equipped with the proper safety equipment for entry into the StormFilter. The technician will be lowered onto the StormFilter unit. The hatch on the unit must be removed. Inside the unit are two filters which may be removed according to StormFilter maintenance guidelines. Once these filters are removed the inspector can enter the StormFilter unit to launch the CCTV camera robot.

- C. The inlet row of the CULTEC system is placed on a polyethylene liner to prevent scouring of the washed stone beneath this row. This also facilitates the flushing of this row with high pressure water through a culvert cleaning nozzle. The nozzle is deployed through a manhole or the StormFilter and extended to the end of the row. The water is turned on and the inlet row is back-flushed into the manhole or StormFilter. This water is to be removed from the manhole or StormFilter using a vacuum truck.

### III. Maintenance Guidelines

The following guidelines shall be adhered to for the operation and maintenance of the CULTEC stormwater management system:

- A. The owner shall keep a maintenance log which shall include details of any events which would have an effect on the system’s operational capacity.
- B. The operation and maintenance procedure shall be reviewed periodically and changed to meet site conditions.
- C. Maintenance of the stormwater management system shall be performed by qualified workers and shall follow applicable occupational health and safety requirements.
- D. Debris removed from the stormwater management system shall be disposed of in accordance with applicable laws and regulations.

### IV. Suggested Maintenance Schedules

**A. Minor Maintenance**

The following suggested schedule shall be followed for routine maintenance during the regular operation of the stormwater system:

| Frequency   | Action   |
|---|--|
| Monthly in first year                                       | Check inlets and outlets for clogging and remove any debris as required. |
| Spring and Fall   | Check inlets and outlets for clogging and remove any debris as required. |
| One year after commissioning and every third year following | Check inlets and outlets for clogging and remove any debris as required. |

**B. Major Maintenance**

The following suggested maintenance schedule shall be followed to maintain the performance of the CULTEC stormwater management chambers. Additional work may be necessary due to insufficient performance and other issues that might be found during the inspection of the stormwater management chambers. (See table on next page)

## Major Maintenance *(continued)*

|                            | Frequency   | Action   |
|----------------------------|---|--|
| Inlets and Outlets         | Every 3 years                                       | <ul style="list-style-type: none"> <li>Obtain documentation that the inlets, outlets and vents have been cleaned and will function as intended.</li> </ul>   |
|                            | Spring and Fall                                     | <ul style="list-style-type: none"> <li>Check inlet and outlets for clogging and remove any debris as required.</li> </ul>  |
| CULTEC Stormwater Chambers | 2 years after commissioning                         | <ul style="list-style-type: none"> <li>Inspect the interior of the stormwater management chambers through inspection port for deficiencies using CCTV or comparable technique.</li> <li>Obtain documentation that the stormwater management chambers and feed connectors will function as anticipated.</li> </ul>  |
|                            | 9 years after commissioning every 9 years following | <ul style="list-style-type: none"> <li>Clean stormwater management chambers and feed connectors of any debris.</li> <li>Inspect the interior of the stormwater management structures for deficiencies using CCTV or comparable technique.</li> <li>Obtain documentation that the stormwater management chambers and feed connectors have been cleaned and will function as intended.</li> </ul>  |
|                            | 45 years after commissioning                        | <ul style="list-style-type: none"> <li>Clean stormwater management chambers and feed connectors of any debris.</li> <li>Determine the remaining life expectancy of the stormwater management chambers and recommended schedule and actions to rehabilitate the stormwater management chambers as required.</li> <li>Inspect the interior of the stormwater management chambers for deficiencies using CCTV or comparable technique.</li> </ul> |
|                            | 45 to 50 years after commissioning                  | <ul style="list-style-type: none"> <li>Replace or restore the stormwater management chambers in accordance with the schedule determined at the 45-year inspection.</li> <li>Attain the appropriate approvals as required.</li> <li>Establish a new operation and maintenance schedule.</li> </ul>  |
| Surrounding Site           | Monthly in 1 <sup>st</sup> year                     | <ul style="list-style-type: none"> <li>Check for depressions in areas over and surrounding the stormwater management system.</li> </ul>  |
|                            | Spring and Fall                                     | <ul style="list-style-type: none"> <li>Check for depressions in areas over and surrounding the stormwater management system.</li> </ul>  |
|                            | Yearly  | <ul style="list-style-type: none"> <li>Confirm that no unauthorized modifications have been performed to the site.</li> </ul>  |

For additional information concerning the maintenance of CULTEC Subsurface Stormwater Management Chambers, please contact CULTEC, Inc. at 1-800-428-5832.



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