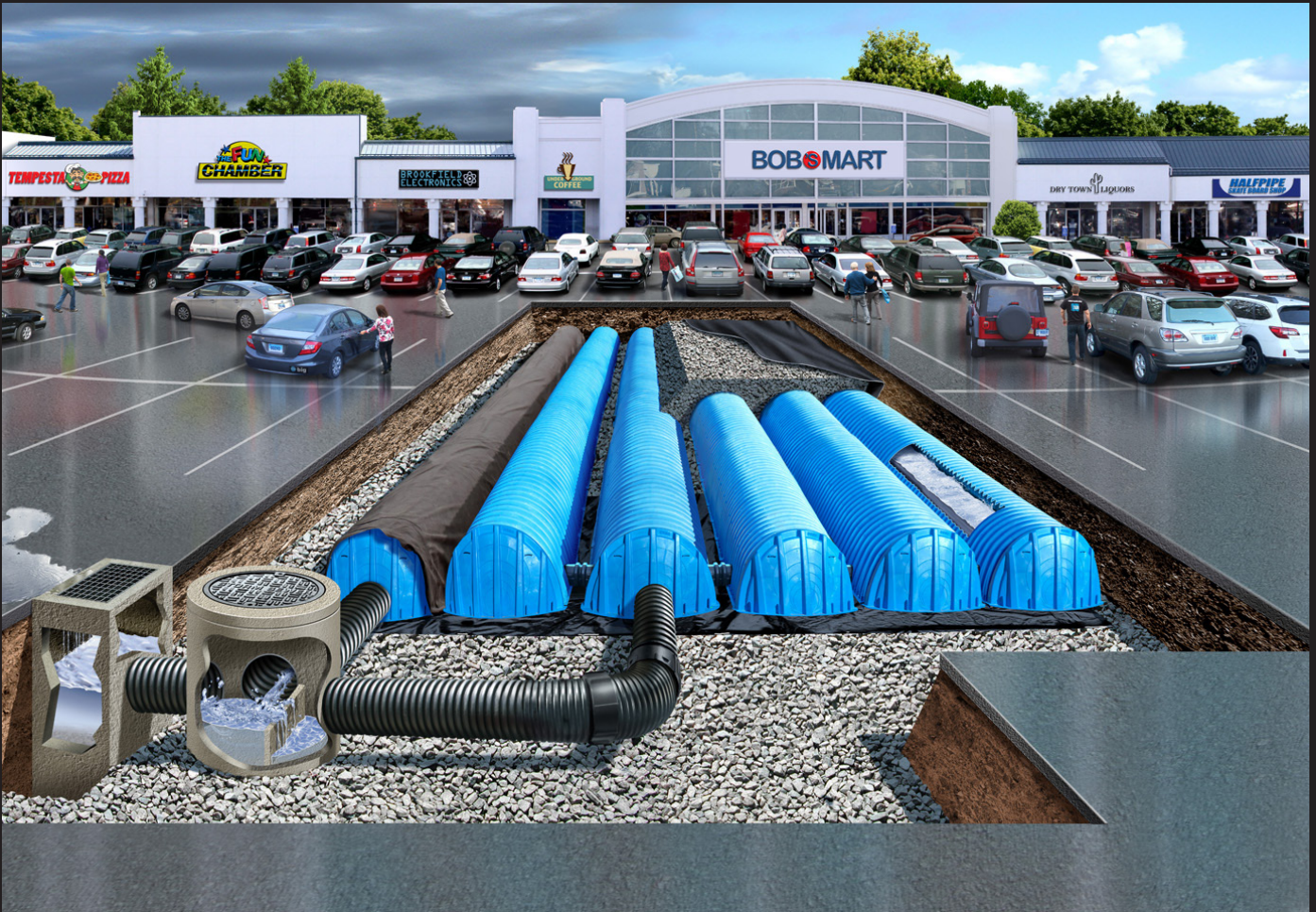


# ADS Isolator<sup>®</sup> Row PLUS

## WATER QUALITY SYSTEM



### O&M MANUAL

FOR CULTEC STORMWATER MANAGEMENT SYSTEMS

## The ADS Isolator Row Plus

### Introduction

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The ADS Isolator Row Plus is a technique to inexpensively enhance Total Suspended Solids (TSS), Total Phosphorus (TP), Total Petroleum Hydrocarbons (TPH) and Total Nitrogen (TN) removal with easy access for inspection and maintenance.

### The ADS Isolator Row Plus

The Isolator Row Plus is a row of CULTEC chambers, either 100HD, 150XLHD, 180HD, 300HD, 330XLHD, 360HD, or 902HD models, which are lined with filter fabric and connected to a closely located manhole for easy access. The fabric lined chambers provide for sediment settling and filtration as stormwater rises in the Isolator Row Plus and passes through the filter fabric. The open bottom chambers allow stormwater to flow vertically out of the chambers. Sediments are captured in the Isolator Row Plus protecting the adjacent stone and chambers storage areas from sediment accumulation.

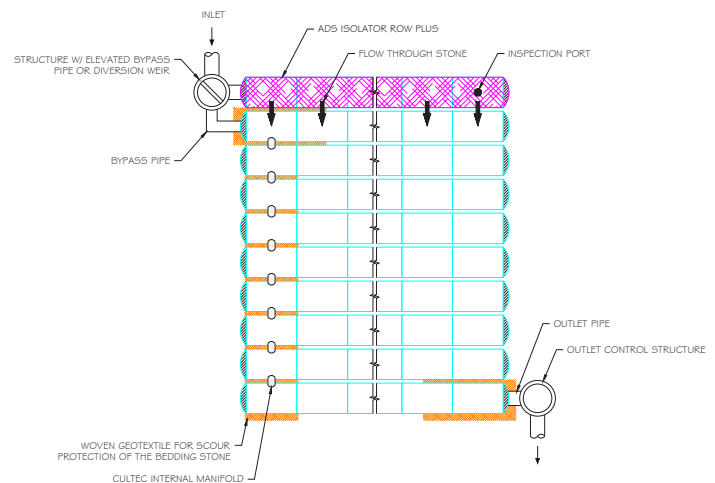
ADS Isolator Row Plus fabric is placed between the stone and the Isolator Row Plus chambers. The woven geotextile provides a media for stormwater filtration, a durable surface for maintenance, prevents scour of the underlying stone and remains intact during high pressure jetting.

The Isolator Row Plus is designed to capture the “first flush” runoff and offers the versatility to be sized on a volume basis or a flow-rate basis. An upstream manhole provides access to the Isolator Row Plus and includes a high/low concept such that stormwater flow rates or volumes that exceed the capacity of the Isolator Row Plus bypass through a manifold to the other chambers. This is achieved with an elevated bypass manifold or a high-flow weir. This creates a differential between the Isolator Row Plus row of chambers and the manifold to the rest of the system, thus allowing for settlement time in the Isolator Row Plus. After



Stormwater flows through the Isolator Row Plus and into the rest of the chamber system it is either exfiltrated into the soils below or passed at a controlled rate through an outlet manifold and outlet control structure.

The Isolator Row Plus may be part of a treatment train system. The treatment train design and pretreatment device selection by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, CULTEC recommends using the Isolator Row Plus to minimize maintenance requirements and maintenance costs.



ADS Isolator Row Plus with Overflow Structure  
(not to scale)



# ADS Isolator Row Plus Inspection/Maintenance

## Inspection

The frequency of inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, CULTEC recommends annual inspections. Initially, the Isolator Row Plus should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The Isolator Row Plus incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3" (75 mm) throughout the length of the Isolator Row Plus, clean-out should be performed.



High pressure water nozzle

## Maintenance

The Isolator Row Plus was designed to reduce the cost of periodic maintenance. By "isolating" sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entry.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row Plus while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" are best. CULTEC recommends a maximum nozzle pressure of 2000 psi be utilized during cleaning. JetVac reels can vary in length. For ease of maintenance, CULTEC recommends Isolator Row Plus lengths up to 200' (61 m). **The JetVac process shall only be performed on ADS Isolator Row Plus that have ADS Plus Fabric (as specified by CULTEC) over their angular base stone.**



Cleaning ADS Isolator Row PLUS and pipes with high pressure water nozzle

# ADS Isolator Row Plus Step By Step Maintenance Procedures

## Step 1

Inspect ADS Isolator Row Plus for sediment.

- A. Inspection ports (if present)
  - i. Remove lid from floor box frame
  - ii. Remove cap from inspection port riser
  - iii. Using a flashlight and stadia rod, measure the depth of sediment and record the results on maintenance log.
  - iv. If sediment is at or above 3 inch depth, proceed to Step 2. If not, proceed to Step 3.
- B. All Isolator Row Plus
  - i. Remove cover from manhole at upstream end of Isolator Row Plus
  - ii. Using a flashlight, inspect down Isolator Row Plus through outlet pipe
    1. Mirrors on poles or cameras may be used to avoid a confined space entry
    2. Follow OSHA regulations for confined space entry if entering a manhole

- iii. If sediment appears to cover the width and length of the row, proceed to Step 2. If not, proceed to Step 3.

## Step 2

Clean out ADS Isolator Row Plus using the JetVac process.

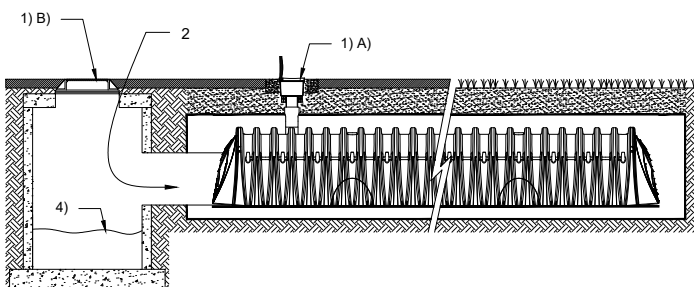
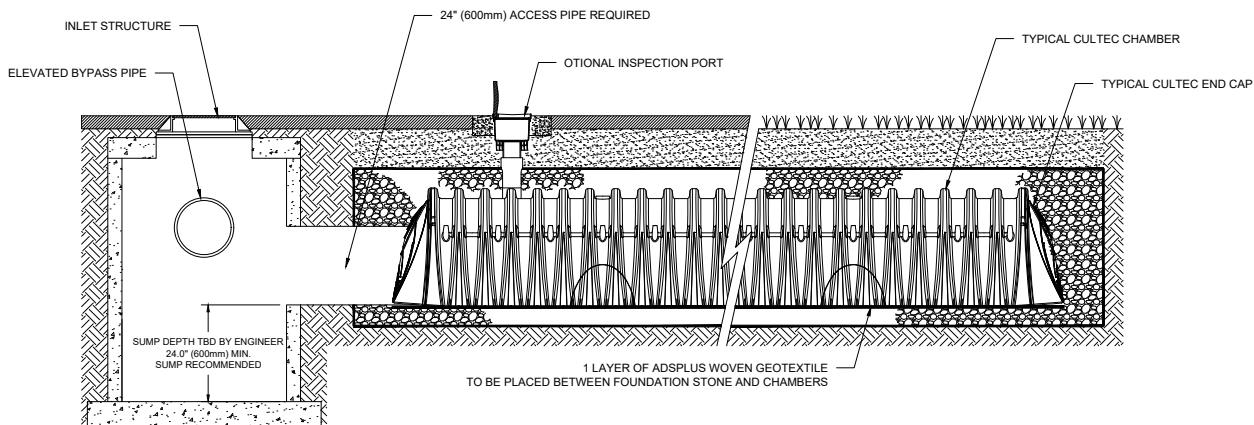
- A. A fixed floor cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
- B. Apply multiple passes of JetVac until backflush water is clean
- C. Vacuum manhole sump as required

## Step 3

Replace all caps, lids and covers, record observations and actions.

## Step 4

Inspect and clean catchbasins and manholes upstream of the CULTEC system.



## Sample Maintenance Log

Date	Stadia Rod Readings		Sediment Depth (1)-(2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/11	6.3 ft	none		New installation. Fixed point is CI frame at grade.	DPG
9/24/11		6.2	0.1 ft	Some grit felt	SM
6/20/13		5.8	0.5 ft	Mucky feel, debris visible in manhole and in Isolator Row Plus, maintenance due.	NV
7/7/13	6.3 ft		0	System jetted and vacuumed	DJM



**CULTEC**

878 Federal Road • Brookfield, CT 06804 USA

P: (203) 775-4416 • Toll Free: 1(800) 4-CULTEC • www.cultec.com

©CULTEC CLT043 01-25