

TRITON

STORMWATER SOLUTIONS



**Power
Over Water™**

Triton Stormwater Solutions Main Header Row™ O&M Manual

Introduction

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The Triton Stormwater Solutions Main Header Row™ is a patent pending

ing technique to inexpensively enhance enhance Total Suspended Solids (TSS) removal and provide easy access for inspection and maintenance.

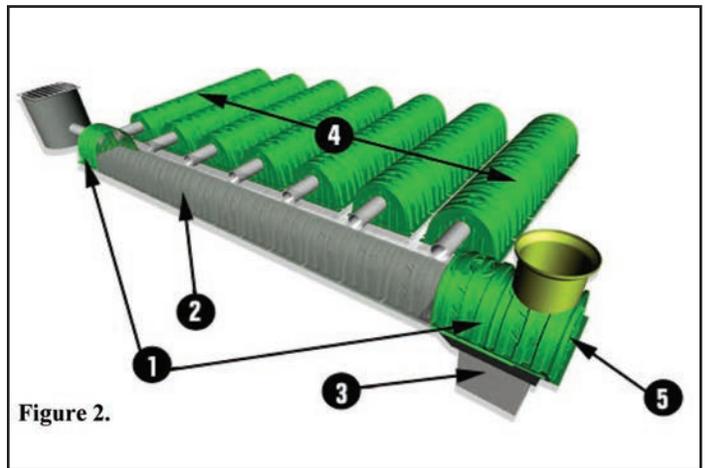
The Main Header Row™

The Main Header Row is comprised of many Triton SWS' chambers that sit on interconnecting sediment floors that are connected to a nearby manhole for easy access. At the end of the Main Header Row there is room for an optional Sump Basin Assembly (shown as item 3 in Figure 2) to help collect and contain any sediment that is flushed out of the Main Header Row during a rain event or maintenance cleaning. The Sump Basin Assembly can be accessed from above via a manhole or up to a 33" (538.2mm) diameter stand pipe. The Main Header Row feeds the distribution rows (shown as item 4 in Figure 2) via a feed or distribution pipe. The feed pipe is at an elevated invert height so the water in the Main Header Row must rise to the invert height before flowing into the distribution rows to capture the sediment in the Main Header Row. The Main Header Row protects the distribution chamber row storage areas from any sediment accumulation. This preserves the infiltration rate

of the area where the distribution rows are installed, allowing the system to perform at the rate for which it was designed.

The sediment floors are designed to prevent scouring of the underlying stone and to stop sediment infiltration into the ground under the Main Header Row. The sediment floors lock together and mate with the chambers so they will remain intact during very high flow events and during high pressure cleaning.

The Main Header Row is typically designed to capture the "first flush" and offers the versatility to be sized on a volume or flow rate basis. An upstream manhole not only provides access to the Main Header Row but typically includes a high flow outlet that controls excessive storm water flow rates or volumes by discharging overflow into surrounding stone or through a manifold to the other Main Header Row chambers.



The Main Header Row may also be part of a treatment train. By treating storm water prior to entry into the Main Header Row system, service life can be extended and pollutants, such as hydrocarbons, can be captured. Pre-treatment best management practices can be as simple as deep sump catch basins and oil-water separators or as innovative as storm water treatment devices. The design of the treatment train and selection of pre-treatment devices by the design engineer are often driven by regulatory requirements. Whether pre-treatment is employed or not, the Main Header Row is recommended by Triton SWS as an effective means of minimizing maintenance requirements and costs.

Main Header Row™ Inspection

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

At a minimum, Triton SWS recommends annual inspections. The Main Header Row should be inspected every 6 months for the first year of operation. In subsequent years, the inspection should be adjusted based on previous observation of sediment deposits.

The Main Header Row incorporates a combination of standard manhole(s) and strategically located inspection ports. 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 sediment depth. When the average depth of sediment exceeds 11" (279.4mm) in the bottom of the Sump Basin and/or if there is 3" (76.2mm) throughout the length of the Main Header Row, the Sump Basin and Main Header Row should be cleaned.



Main Header Row™ Maintenance

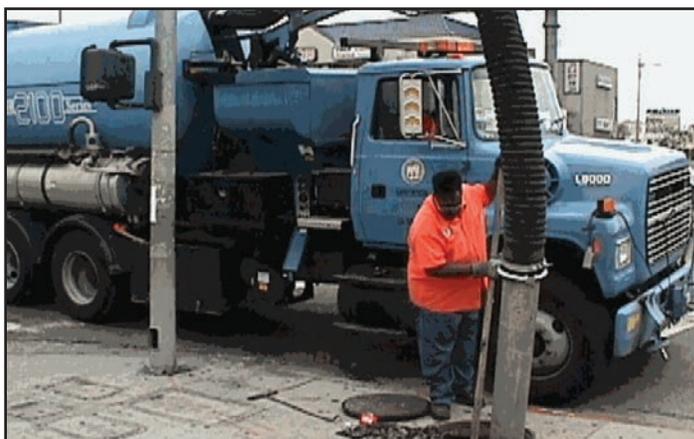
The Main Header Row was designed to reduce the cost of periodic maintenance. By capturing sediment in just one row, costs are dramatically reduced by eliminating the need to clean each row along the storage bed. If inspection indicates the need for maintenance, access is provided via a manhole(s) located on the end of the Main Header Row. If entry into the manhole is required, please follow local and OSHA rules for confined space entries. The inside dimensions of the Triton SWS Main Header Row chambers measure 34" (863.6mm) tall by 48" (1219.2mm) wide.



Maintenance is accomplished by removing the sediment that has built up in the Sump Basin using a standard vacuum truck as shown to the right. The Triton SWS' Main Header Row system was designed for easy access to the Sump Basin via a manhole/inspection port or up to a 33" (838.2mm) diameter pipe. There is no special process required to clean out the

Sump Basin and the Main Header Row. They can be cleaned using a JetVac process or can be cleaned using a water tank truck or fire truck equipped with a hose to flush the sediment to the Sump Basin. To use a water tanker or fire truck, simply insert the hose into the upstream catch basin structure and flush the sediment to the end of the Main Header Row where the Sump Basin is located. If the Sump Basin is located close to the inlet, vacuum out the sediment first and then back flush the Main Header Row into the Sump Basin.

NOTE: The JetVac or high pressure hose process should only be performed on the Main Header Row where the Triton SWS' Sediment Floor System has been installed, and only if there is 3" (76.2mm) of sediment throughout the length of the Main Header Row.



GOING **green**



Main Header Row™ Step-by-Step Maintenance Procedures

Step 1. Inspect Sump Basin and Main Header Row for sediment

A. Inspection ports (if present)

- i. Remove lid from floor box frame
- ii. Remove cap from inspection riser
- iii. Using a flashlight and stadia rod, measure depth of sediment in the Sump Basin and record results in the maintenance log
- iv. If sediment is at- or above- 11" (279.4mm) depth, proceed to Step 2. If not, proceed to step 3.

B. All Main Header Rows

- i. Remove cover from manhole at upstream end of Main Header Row
- ii. Using a flashlight, inspect the Main Header Row through outlet pipe and through each distribution pipe that is connected in between the Main Header Row and the distribution row of chambers
- iii. If sediment is at- or above- 11" (279.4mm) mark in the sump bin, proceed to Step 2

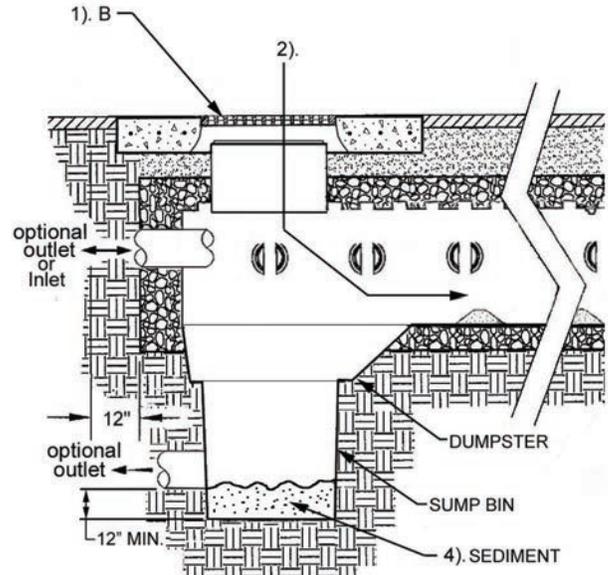
1. Be sure to have proper footing when entering into Main Header Row
2. Follow OSHA regulations for confined space entry if entering Main Header Row
If not, proceed to Step 3

Step 2. Clean out the Sump Basin with a vacuum truck

- A. Remove any secondary filtration media that may be installed in the Sump Basin
- B. Vacuum Sump Basin as required

Step 3. Replace all caps, lids, and covers Record observations and actions

Step 4. Inspect and clean catch basins and man-holes upstream of the Triton SWS system



Sample Maintenance Log

Date	Stadia Rod Readings		Sediment Depth (1)-(2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to chamber top (2)			
4/11/2007	9.7 ft. (2.95656m)	None		New installation. Fixed point is J1 frame at grade	KET
10/21/2007		9.6	0.1 ft. (.03048m)	Very little sediment in system - No maintenance required	GKT
4/11/2008		9.4	0.3 ft. (.19144m)	Very little sediment in system - No maintenance required	CMM
7/25/2008		9.1	0.6 ft. (.18288m)	Some debris/sediment is visible in sump basin assembly but not interfering with outlet	LEJ
7/20/2009		8.7	1.0 ft. (.30480m)	Some debris/sediment is visible in sump basin assembly - maintenance is due	DLC
8/20/2010	9.7 ft. (2.95656m)		0	System has cleaned and vacuumed - very easy system to clean	NAT



LIFETIME SYSTEM WARRANTY

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