water

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Green infrastructure solutions

Water discussion heats up

LittaTrap meets North American treatment standards

Canadian testing of the LittaTrap demonstrated high sediment removal in addition to high gross pollutant capture, explains **Mike Hannah,** Managing and Technical director of Stormwater360.

In December 2017 the LittaTrap was independently tested in Toronto, Canada at Good Harbour Laboratories.

This innovative catchpit insert from Stormwater360 New Zealand was tested for sediment efficiency, gross pollutants capture and scour potential.

The testing protocol was based on a combination of the New Jersey Department of Environmental Protection (NJDEPT), Canadian Environmental Technology Verification (CETV) and Californian Transport Authority (Caltrans).

These protocols are used to certify the performance of treatment devices in North America in meeting regulatory requirements.

The first test to understand sediment efficiency used a standardised synthetic stormwater sediment to evaluate removal rates.

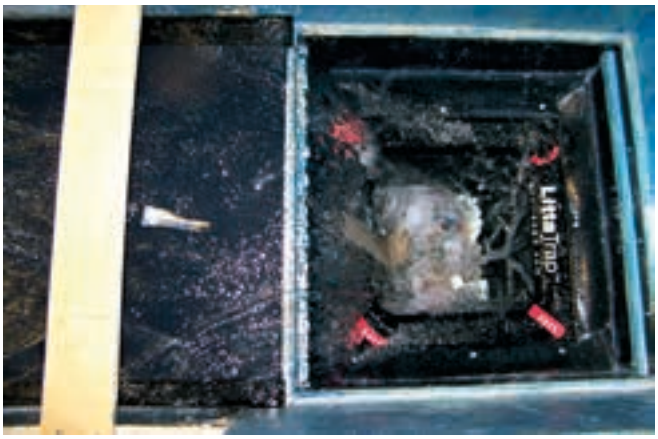
The test sediment was the standard test sediment under the Canadian ETV and New Jersey Manufactured Treatment Device protocols. The test sediment is very fine with a d50 of 75 microns and with no particles over 1mm.

In the test, the LittaTrap removed over 50 percent of the suspended sediment. Inflow into the catchpit is directed onto the LittaTrap, which dissipates the energy of the incoming water and distributes the flow across the entire surface area of the sump. This increases the settling ability of the existing catchpit sump and the LittaTrap captures this fine sediment in the sump of the catchpit.

By removing over 50 percent, the LittaTrap qualifies as a pre-treatment device with equivalent performance to end of pipe Hydrodynamic Separators and Gross Pollutant Traps.

Testing also included evaluating the system for wash-out or scour in large or more extreme rainfall events. The objective of this test was to quantify and characterise the amount of previously captured sediment that can be re-suspended and washed out during periods of high flow.

For treatment devices to be placed online they must not release more than the average 20mg/l at 200 percent of its treatable flow rate. For this test, the sump of the catchpit was filled to 50mm below the outlet with test sediment.



Far left: Laboratory sediment removal testing set up.
Left: Test sediment particle size distribution.

This is the suggested maintenance depth of the sump with a LittaTrap installed. The flow rate through the system was gradually increased over the test to a maximum of 15.6 l/sec. The average released concentration was 7.8-mg/l.

The final test conducted on the LittaTrap was the Trash Test. This performance test assessed the LittaTrap's ability to remove gross pollutants from stormwater runoff and evaluates the systems-clogging capability and hydraulic performance. This test is based on work reported in the Caltrans document "*Laboratory Testing Of Gross Solids Removal Devices*".

Synthetic gross pollutants were added to the testing runoff and included: paper, plastic sheets, cloth and plastic film contaminants that can easily stick to a screen and cause a treatment device to "blind".

In this test, the LittaTrap caught 99.4 percent of the gross solids @ 15 l/sec in a test that lasted over one hour.

While originally developed to be an 'Easy to Maintain, Low-Cost Solution' to trap plastics at the source, these results show the LittaTrap also greatly enhances the performance of the catchpit to a level where it is equivalent to a Gross Pollutant Trap in removing fine suspended solids.

The LittaTrap is an ideal solution for pre-treatment, and by removing over 50 percent of total suspended solids the system can extend the maintenance frequency of down stream treatment devices such as wetlands and filters. This in turn greatly reduces the operational costs of these devices.

For more information please contact sales@stormwater360.co.nz or visit our website www.stormwater360.co.nz

The only other New Zealand catchpit insert that has undergone such rigorous and scientific testing is the Stormwater360 EnviroPod, which shows our continued dedication to true, independent, scientific evaluation to international standards. **WNZ**