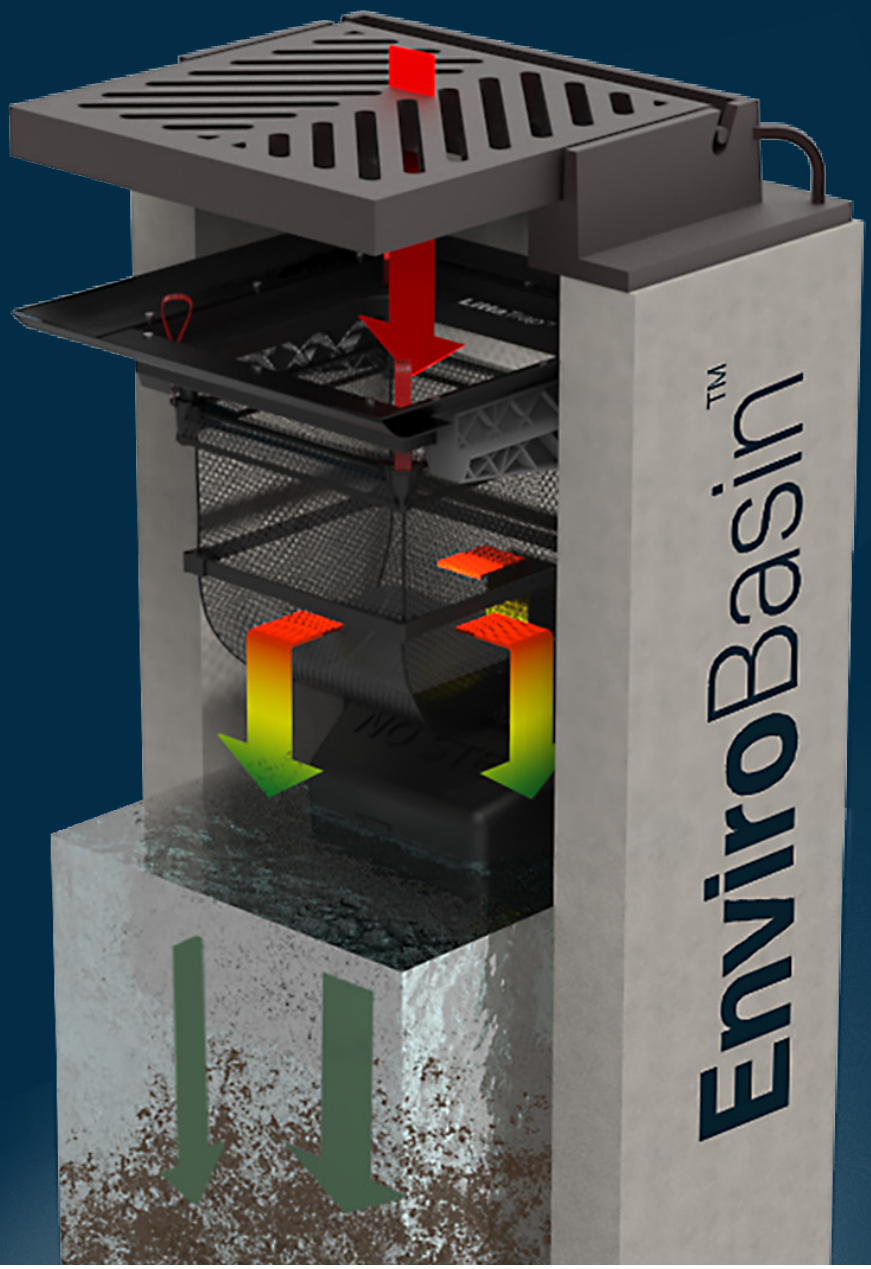
ENVIROPOD.COM

EnviroBasin™



Technical Guide

ENVIROPOD™
A STORMWATER360™ COMPANY

The EnviroBasin™

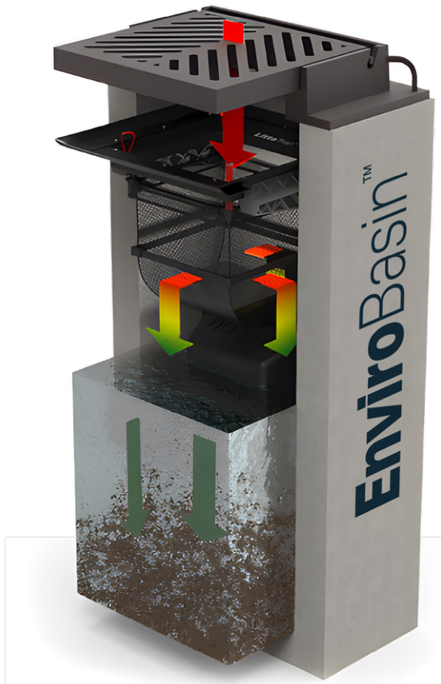
The EnviroBasin™ is an engineered water quality inlet offering two functions:

1. Conveyance of stormwater runoff from ground level into the reticulation system; and
2. Removal of pollutants and improvement of water quality.

The EnviroBasin™ consists of the LittaTrap™ catch basin insert installed into a pre-cast catch basin to dissipate energy, promote sedimentation and provide full capture of gross solids 5 mm in diameter and greater in stormwater runoff. This is done by the LittaTrap™ device in conjunction with an energy dissipator dish and submerged outlet baffle.

The system is easy and safe to maintain, with large storage capacity relative to its catchment area. Confined space entry is not required.

ISO 14034
ETV VERIFIED

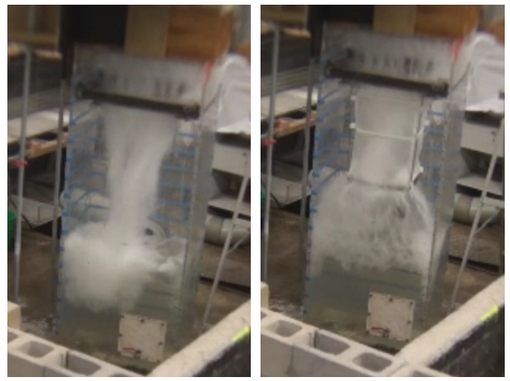


EnviroBasin™ Standard Grate Inlet

The EnviroBasin™ eliminates the need for downstream oil and grit separators, as it treats the stormwater at the source before it enters the stormwater system.

FEATURES

- High flow, dry gross solid capture.
- Enhanced nutrient removal.
- Reduced contaminant release.
- Hand maintenance of gross pollutant basket; no vactor truck or confined space entry needed.
- Enhanced energy dissipation and flow distribution.
- >50% sediment removal (Good Harbour Labs, 2017).
- Reduced resuspension.
- Large sediment sump storage volume.
- No confined space entry. Vactor truck maintenance frequency of the sump is reduced.
- Lower carbon footprint.



Turbulence in sumped stormwater inlet (left) and EnviroBasin™ (Right)

TREATABLE CATCHMENT AREA

Each jurisdiction supplies guidance around the hydraulic design, location, and capture capacity of stormwater inlets. Catchment area, gradient, cross fall, configuration, dimensions, and grate all affect the inlet capacity of a catch basin and therefore, the spacing.

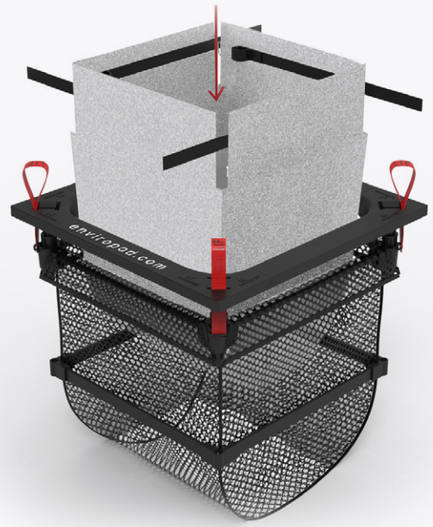
The maximum catchment area of the EnviroBasin™ is typically governed by the ability of the peak capture flow of the device, i.e. the inflow for a 5 or 10-year design storm.

EnviroPod in conjunction with AECOM Canada have developed a performance estimating tool to determine the Total Suspended Solids (TSS) removal of the EnviroBasin™ for a given catchment. The performance estimating tool uses third party performance data obtained from Canadian Environmental Technology Verification Program (CETV) procedure for Laboratory Testing of Oil-Grit Separators ISO14034 testing and historical rainfall data to estimate flow, determine surface loading rate and estimate performance for a catchment area.

Field Trials

EnviroBasin™ Components

EnviroPod Construction Liner



EnviroBasin™ installed with a EnviroPod Geotextile Constriction Liner protects the catch basin from construction to completion.

- **One product for two jobs** (Construction and post-construction trash control).
- **Easy maintenance.** The construction liner is supported by the LittaTrap™ basket allowing easy removal and replacement.
- **Hydraulically designed** not to cause flooding.
- **Cost savings.** Construction liners are a low cost addition to your site.
- **Readily available** online and through distributors.

✓ High hydraulic capacity
✓ Large sediment storage volume
✓ Structurally robust
✓ Easily maintained

× Blocks storm drain
× Can't be maintained
× Ineffective

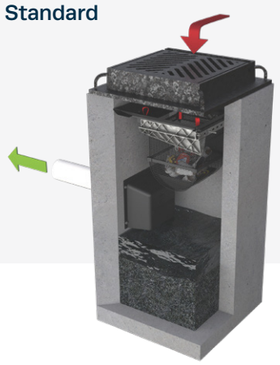
MODEL AND SIZE SPECIFICATION

The EnviroBasin™ has six standard models. Table 1 below details the standard models available.

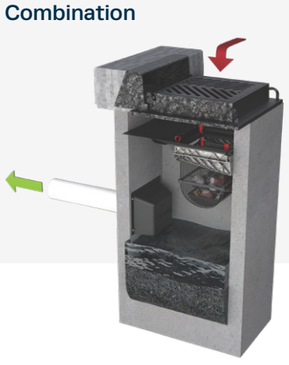
Model	LittaTrap™ Size	Impervious area for 60% TSS* (m_2)	Gross Solid Storage (L)	Sediment Storage (m_3)
Standard	LT6060	950	43	0.32
London Combination	LT6060 with seal kit	1330	43	0.45
Twin	2 x LT6060	2300	43	0.78
Ditch	LT6060	950	43	0.32
Junction	LT6060	950	43	0.32
Round	Specification dependant on the catch basins size. Contact EnviroPod for more info.			

*Estimated using ETV PSD modelled in a specification based on 6 hour 25mm storm depth. Note this is a guide only and site specific design may be required.

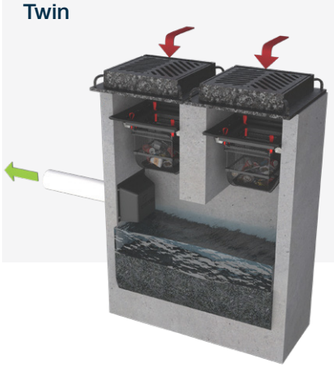
Standard



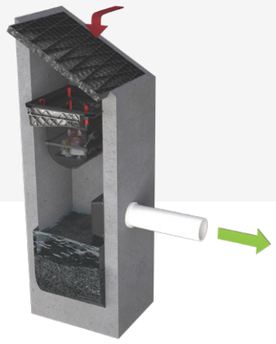
Combination



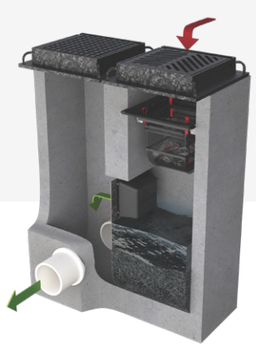
Twin



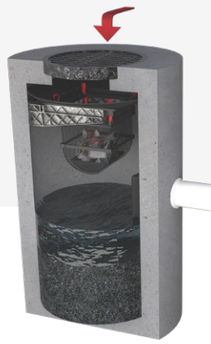
Ditch



Junction



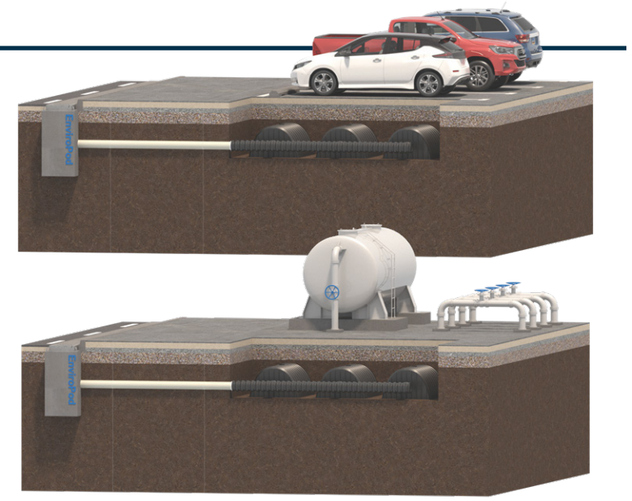
Round



Applications

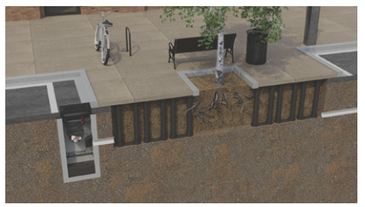
PRE-TREATMENT

Ideal pre-treatment to infiltration. As a pre-treatment device or as a stand-alone alternative to a catch basin, the EnviroBasin™ can be used in carpark roads, retail, industrial sites and other high contaminant generating areas.



LOW IMPACT DESIGN

Ideal for pre-treatment to Low Impact Design or infiltration. Using EnviroBasin™ allows a distributed entry into these drainage structures.



URBAN COASTAL AREAS

Ideal for urban coastal areas such as waterfronts, marinas and ports where catch basins often directly discharge into the ocean or lake.

What is ETV testing and why does it matter

In Canada and other jurisdictions, regulatory agencies and permitting authorities may have requirements and performance criteria to approve and accept various stormwater treatment devices for specific applications and operating conditions.

Regulatory agencies and authorities can benefit from scientifically defensible, verifiable performance data applicable to different end-use requirements and operating conditions.

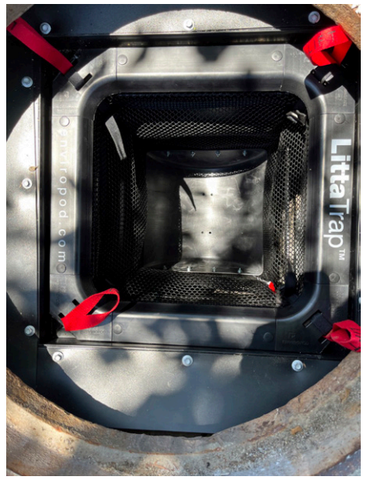
The "Procedure for Laboratory Testing of Oil-Grit Separators" was initially prepared in 2013 by TRCA for the Canadian Environmental Technology Verification (ETV) Program and subsequent verification following the International Organization for Standardization ISO requirements 14034:2016 ETV standard, published in November 2016.

The procedure intends to provide a standard procedure for testing and verifying the performance of OGS under controlled conditions independently and transparently. Independent verification of the performance data using the procedure as the basis for testing has assisted Canadian regulatory agencies, permitting authorities and other affected stakeholders in evaluating treatment technology options.

The ETV ISO 14034 testing standard represents a practical approach for testing to produce verifiable performance data on specific technologies under defined operating conditions. The procedure reduces uncertainties and improves the likelihood of market acceptance of the independently generated performance data, contributing to more informed technology decisions.

The EnviroBasin™ has been tested to the Procedure for Laboratory Testing of Oil-Grit Separators and has ETV-verified results.

Stormwater designers and municipalities can adopt the use of the EnviroBasin™ with confidence knowing it is verified and accepted across Canada.



Maintenance

The system is easy to maintain and the EnviroBasin's™ unique enhanced storage sump capacity extends vactor truck maintenance requirements to once every two-to-three years.

3–12 months	**Routine maintenance** of LittaTrap™ by hand or vactor truck (dependent on site specific loading).
2–3 years	**Periodic maintenance** by vactor truck maintenance of the EnviroBasin™ sump (depending on site specific loading).

LittaTrap™ Basket Hand Maintenance

It is recommended the LittaTrap™ basket be emptied when 75% full (generally every 3–12 months). To empty the basket, simply "Lift, Tip, Reuse". The following steps detail hand maintenance:

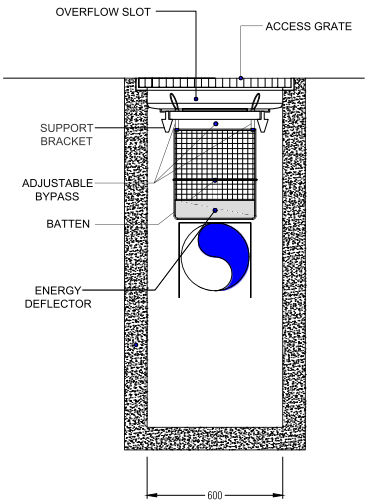
1. Establish a safe working area per typical catch basin service activity.
2. Remove grate/access cover.
3. Remove the basket with two lifting hooks or lift by hand through the loops on the top of the basket. Excess debris should be scooped out first if the basket is over half full.
4. Pour contents of the basket into a disposal container.
5. Replace grate.

EnviroBasin™ Sump Vactor Maintenance

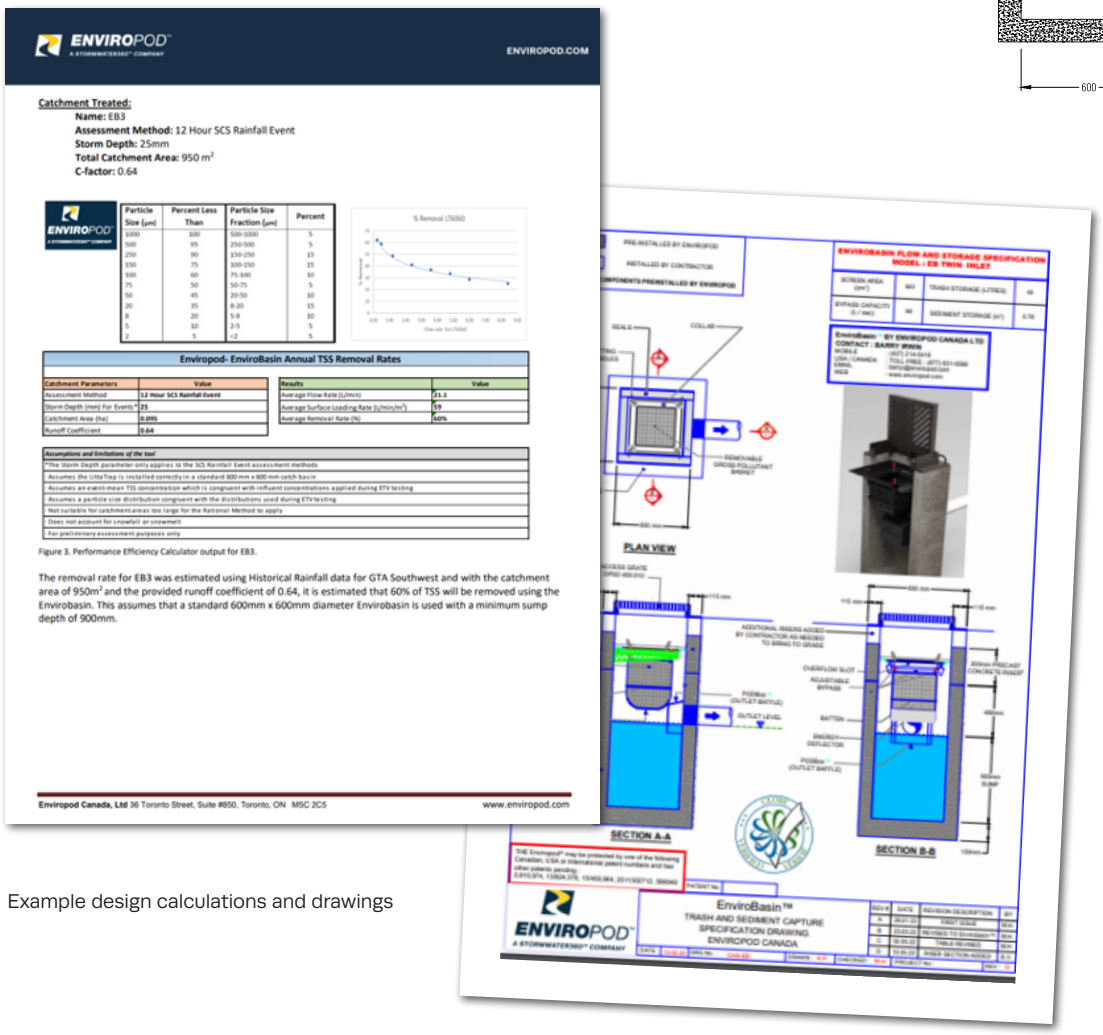
Steps for vactor maintenance are as detailed below:

1. Establish a safe working area per typical catch pit service activity.
2. Remove grate/access cover.
3. Vacuum accumulated debris from the basket.
4. Vactor the contents from the sump of the catch basin (if required).
5. Inspect the LittaTrap™ and EnviroBasin™ for any damage. Reinstall the LittaTrap™ basket.
6. Replace grate/access cover.

Free Design support & regulatory assistance



EnviroPod offers a free design service where the cumulative performance of several EnviroBasin's can be modelled for a specific project based on local rainfall and treatment needs. This service allows stormwater consultants to optimize the number and the location of EnviroBasin's for their projects.



ENVIROPOD
ENVIROPOD.COM

Catchment Treated:
Name: EB3
Assessment Method: 12 Hour SCS Rainfall Event
Storm Depth: 25mm
Total Catchment Area: 950 m²
C-factor: 0.64

Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

Enviropod- EnviroBasin Annual TSS Removal Rates

Catchment Parameters	Value
Assessment Method	12 Hour SCS Rainfall Event
Storm Depth (mm) For Events	25
Catchment Area (ha)	0.095
Runoff Coefficient	0.64

Results	Value
Average Flow Rate (L/min)	21.1
Average Surface Loading Rate (L/min/m²)	59
Average Removal Rate (%)	60%

Assumptions and limitations of the tool
*The Storm Depth parameter only applies to the SCS Rainfall Event assessment methods
Assumes the LittaTrap is installed correctly in a standard 600 mm x 600 mm catch basin
Assumes an event-mean TSS concentration which is congruent with influent concentrations applied during ETV testing
Assumes a particle size distribution congruent with the distributions used during ETV testing
Not suitable for catchment areas too large for the Rational Method to apply
Does not account for snowfall or snowmelt
For preliminary assessment purposes only

Figure 3. Performance Efficiency Calculator output for EB3.

The removal rate for EB3 was estimated using Historical Rainfall data for GTA Southwest and with the catchment area of 950m² and the provided runoff coefficient of 0.64, it is estimated that 60% of TSS will be removed using the Envirobasin. This assumes that a standard 600mm x 600mm diameter Envirobasin is used with a minimum sump depth of 900mm.

Enviropod Canada, Ltd 36 Toronto Street, Suite #850, Toronto, ON M5C 2C5 www.enviropod.com

ENVIROBASIN FLOW AND STORAGE SPECIFICATION
MODEL : ES TWIN INLET

PLAN VIEW
SECTION A-A
SECTION B-B

EnviroBasin™
TRASH AND SEDIMENT CAPTURE
SPECIFICATION DRAWING
ENVIROPOD CANADA

Example design calculations and drawings

ABOUT ENVIROPOD

EnviroPod is the world's leading catch basin insert technology provider. The company has over 50,000 installations worldwide, including catchment wide retrofits. The EnviroBasin™ is a result of 26 years' of research, implementation and operation of source treatment solutions.

For further information please see www.enviropod.com

ENVIROPOD™
A STORMWATER360™ COMPANY

1960 05/23