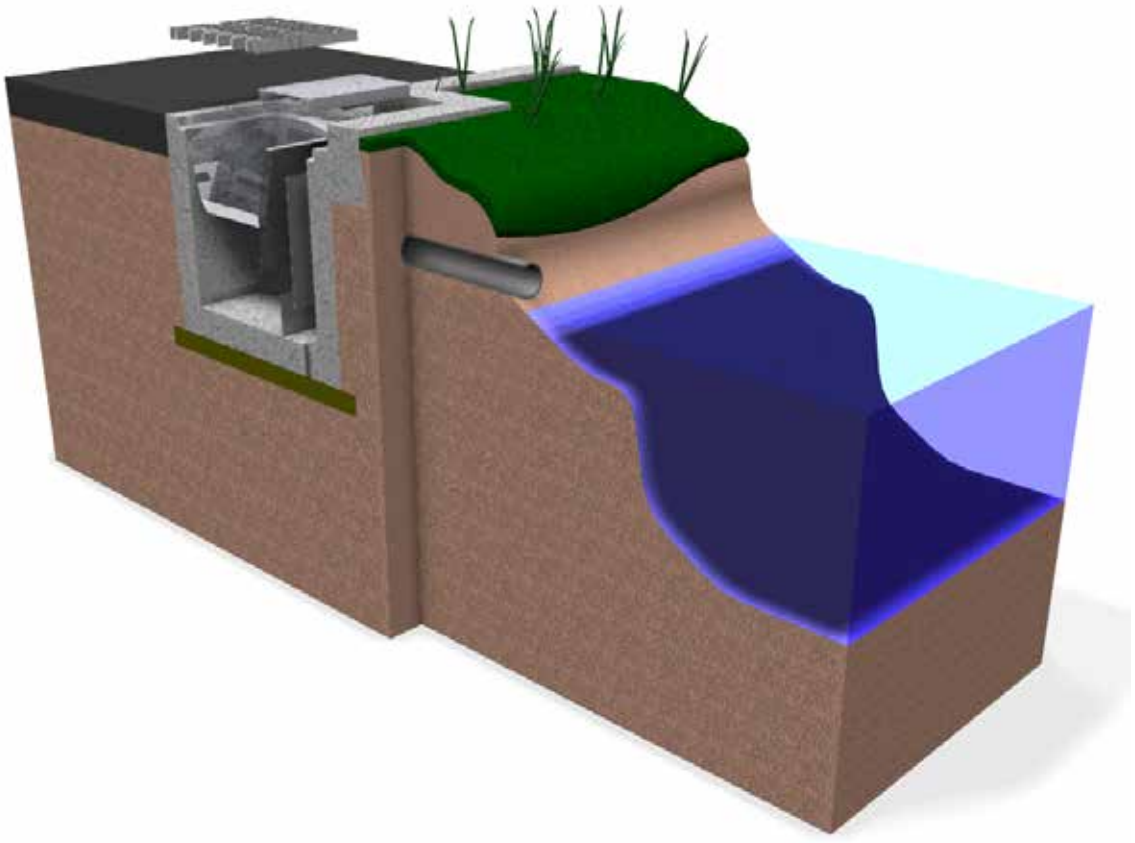
Ecosol™
Storm Pit (Class 1)
Maintenance Guide



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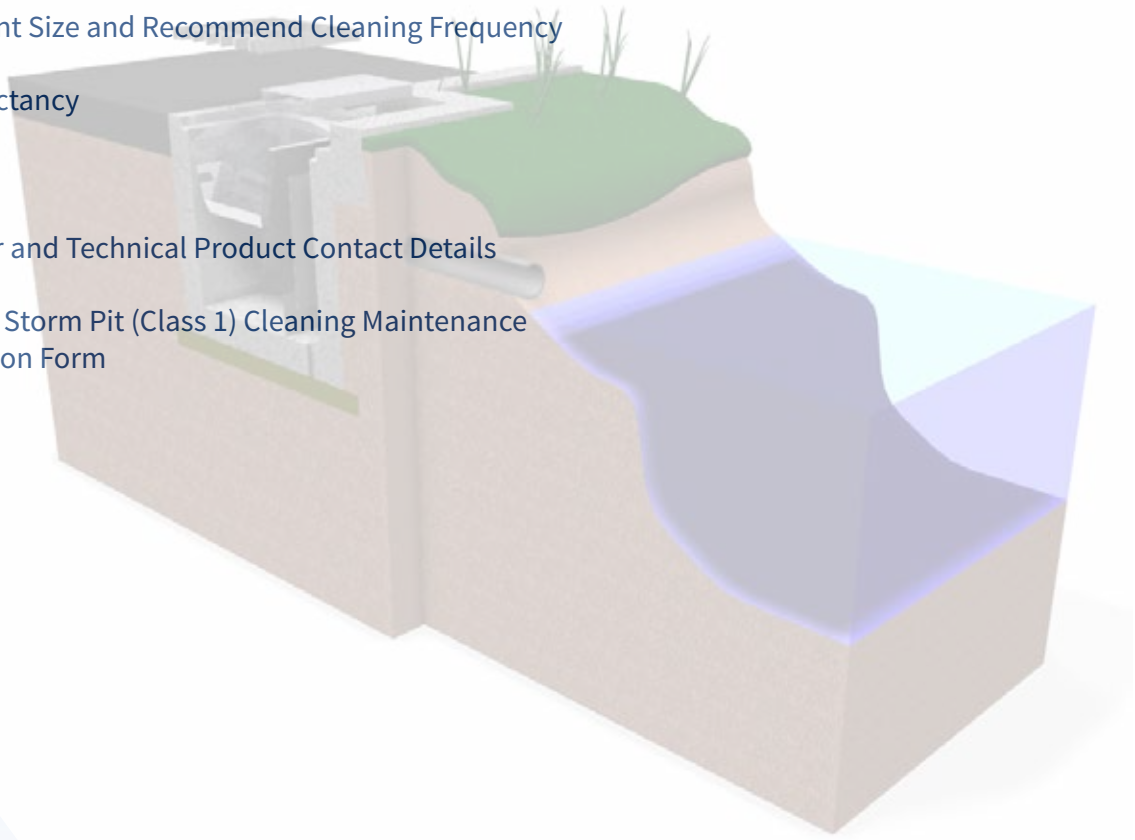

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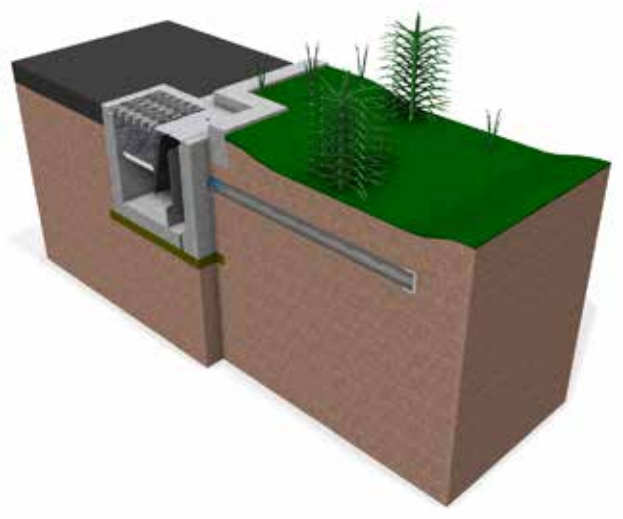
The **Ecosol™ Storm Pit (Class 1)** has been designed specifically for easy on site cleaning and maintenance using a licensed waste contractor equipped with a vacuum truck



1.0 Introduction

The range of Ecosol™ Storm Pits provides a purpose designed and built storage pit where stormwater that is contaminated with pollutants is conveyed to the unit and then released at predetermined flow rates. The Ecosol™ Storm Pit (Class 1) by design enables gross litter to be pre-screened by a removable litter basket and suspended particulate matter to be conveyed to the settling sump where fine silts, sedimentation and hydrocarbons will remain trapped by the internal sump and baffle system.

2.0 Key Dimensions

The below table provides a general guide on typical unit configurations and typical pollutant holding capacities for the Ecosol™ Storm Pit (Class 1).

Ecosol™ STORM PIT - CLASS 1 (PRIMARY TREATMENT SYSTEM)				
Product Code	Maximum outlet pipe diameters	Approximate external unit dimensions (L x W x D from surface level to pit base)	Approximate unit weight	Loading classification
	(mm)	(mm)	(t)	
Storm Pit 7L Class 1	100	1200 x 900 x 1050	2.0	D
Storm Pit 13L Class 1	150	1200 x 900 x 1050	2.0	D
Storm Pit 15L Class 1	225	1200 x 900 x 1050	2.0	D

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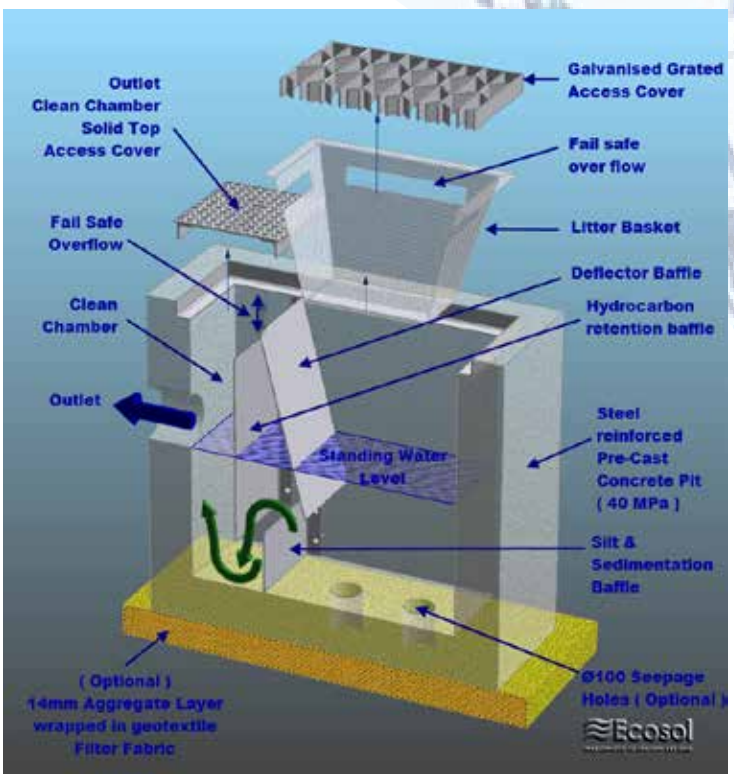
3.0 Monitoring

Initially Urban Asset Solutions Pty Ltd recommends that regular monthly monitoring is undertaken. Once the unit has been in operation for an extended period of time (say, 1 months) the monitoring schedule can be adjusted to reflect the actual operating conditions specific to the catchment. It is also recommended that the unit is inspected after every major storm event.

One of the key advantages of the Ecosol™ Storm Pit (Class 1) is that it can be cleaned by vacuum method using street-sweeping vehicles. This is safe and cost efficient.



4.0 Cleaning and Maintenance Procedures

One of the key advantages of the Ecosol™ Storm Pit (Class 1) is that both the primary litter basket and wet sediment sump can be easily cleaned by vacuum method using a vacuum truck from surface level. This eliminates any risks associated with manually handling captured pollutants.

Prior to cleaning day

It is important that, prior to commencing a clean, you confirm all plant and equipment is available and operational with service records and pre-start checklists available. It is also recommended that weather conditions for the day of the proposed clean be confirmed as cleaning can only be completed in dry weather conditions. Ensure that you:

- Advise all concerned parties of the proposed date and time that the clean is to take place
- Load all equipment
- Obtain approvals from the appropriate authorities and
- Complete a safe work method statement for the work to be undertaken

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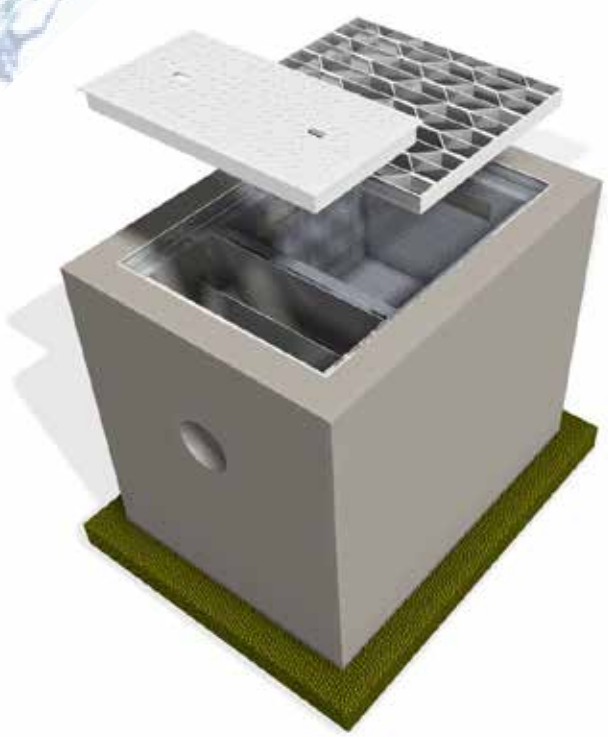
4.0 Cleaning and Maintenance Procedures continued



Site establishment

- Review and amend as necessary and sign off the safe work method statement
- Implement if necessary traffic control measures
- Ensure that the that all access covers are exposed and accessible
- Ensure that barricades are provided at all working areas and that signs are in place to prevent injuries to public or staff
- Ensure all working areas are safe and all equipment, including hoses and machinery, are in place, and ready for operation
- Ensure all plant and equipment is positioned within the area allocated in the car park or adjacent to the unit
- Commence recording cleaning data on the cleaning report provided

Opening access covers

When lifting the covers care should be taken to avoid falling into the openings and lifting should be in accordance with the manual handling code of practice to avoid back injury.

Steps to open the access covers:

- Open all surface access lids to the Ecosol™ Storm Pit (Class 1) using the lifting keys provided
- Place barricades and mesh over the openings not being used

Removal of Gross Pollutants

The primary litter basket is designed to capture and retain gross pollutants. This should be cleaned first

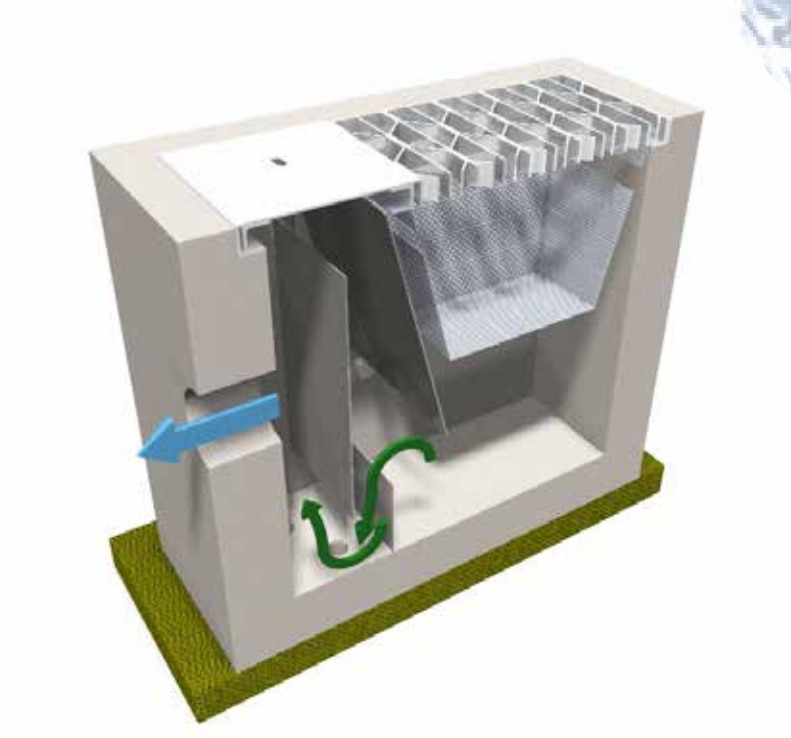
- Start the vacuum truck and position the vacuum hose over the filtration basket
- Lower the vacuum hose into the basket and by moving the vacuum hose over the trapped material remove all retained gross pollutants
- Once all visible pollutants have been removed from the filtration basket lift the vacuum hose and stop the vacuum truck
- Remove manually the primary litter basket from the pit to obtain access to the wet settling sump

4.0 Cleaning and Maintenance Procedures continued

Cleaning of the sedimentation chamber within the unit

As the sedimentation chamber is a wet sump cleaning by vacuum truck is required.

- Start the vacuum truck and position the hose over the sedimentation chamber
- Lower the vacuum hose into the chamber and by moving the hose over the trapped material commence removal of all captured and retained stormwater and sediment
- Once all visible pollutants have been removed from the sedimentation chamber lift the vacuum hose and stop the vacuum truck



Cleaning of the outlet/clean chamber.

It is important during the cleaning process to also ensure that the outlet/clean chamber is free of debris. If material is present in this chamber complete the following tasks:

- Start the vacuum truck and position hose into the chamber over the retained pollutants and by moving the vacuum hose over the trapped material commence removal of this material
- Once all visible pollutants have been removed from the chamber lift the vacuum hose and stop the Vacuum truck

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4.0 Cleaning and Maintenance Procedures continued

Site demobilization

- Once the unit is clear of all debris replace the primary litter basket
- Using long handle access cover lifters, lift all access covers back into position
- The vacuum truck must be packed up and ready to leave the site to dispose of all captured pollutants at an approved waste facility
- Load all other plant, equipment and hand tools ensuring the site is restored to its original condition
- Complete the cleaning report accordingly

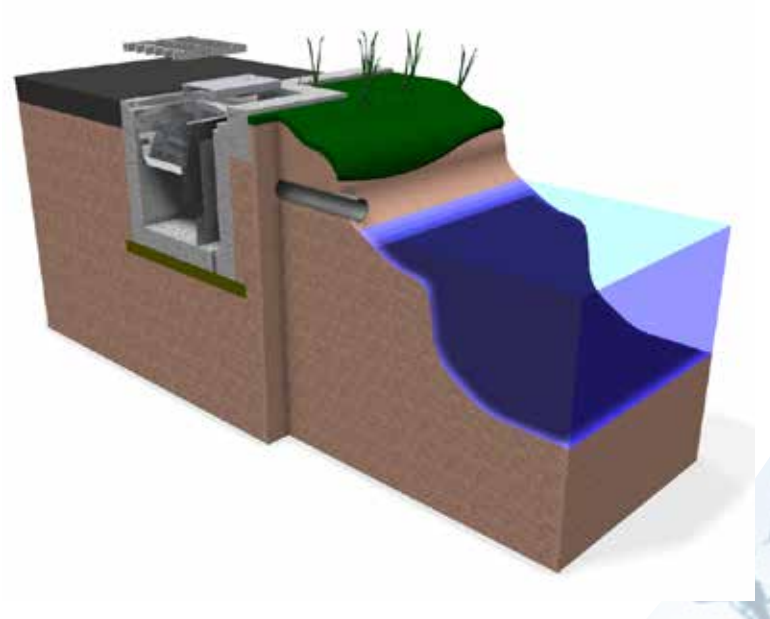
Please note:
It is recommended that the unit be cleaned at a minimum of twice yearly and regularly inspected. Failure to regularly clean and maintain your Ecosol™ Storm Pit may invalidate the warranty and may reduce its performance efficiency. Should the Ecosol™ Storm Pit require any remedial works please contact your nearest Urban Asset Solutions Pty Ltd office.

5.0 Reporting

After each clean it is important that all cleaning data is recorded for use in ongoing asset management activities. A cleaning report should be prepared that details as a minimum the following information

- Site location;
- Date and time of the clean
- Duration of the clean
- Volume or weight of material removed
- Composition of the captured material eg. sediment, vegetation and litter
- Details of any remedial work undertaken or required at a later stage

Reporting of the above information is included in the cost of any clean undertaken by Urban Asset Solutions Pty Ltd please refer to the next section for more details.



6.0 Monitoring, Cleaning, and Maintenance Service

Urban Asset Solutions Pty Ltd has a very competitive cleaning service using an eductor truck for the removal of all captured pollutants. After each clean we provide a full report detailing the volume and type of pollutants removed. We believe that it is in your best interest for Urban Asset Solutions Pty Ltd staff to clean and maintain the unit, not only because we are specialists, but also because proper monitoring and maintenance enhances the unit life significantly.

7.0 Catchment Size and Recommended Cleaning Frequency

The Ecosol™ Storm Pit (Class 1) should be cleaned regularly. The cleaning frequency and the cost depend heavily on the surrounding environment, the unit's proximity to a waste facility, the number of units, their location, and the type of pollution collected. The figures in the table below give a broad guideline about the optimal catchment size and the number of cleans required annually based on typical expected pollutant loads.

Ecosol Storm Pit (Class 1) Product Code	Pollution Holding Capacities			Optimal Catchment Area (Ha)	Recommended Cleaning Frequency
	Gross Pollutants	Sediment	Sediment		
	m^3	m^3	Litres	Ha	Per Annum
Storm (Class 1) Pit 7L Storm (Class 1) Pit 12L Storm (Class 1) Pit 15L	0.09	0.072	67	0.25	1

[1] Cleaning frequency is based on typical gross pollutant loads anticipated for standard commercial, residential and light industrial catchments. Gross pollutants in this instance includes vegetation as well as anthropogenic litter, however excludes sediment. Cleaning frequencies may vary based on local catchment conditions and rainfall.

8.0 Life Expectancy

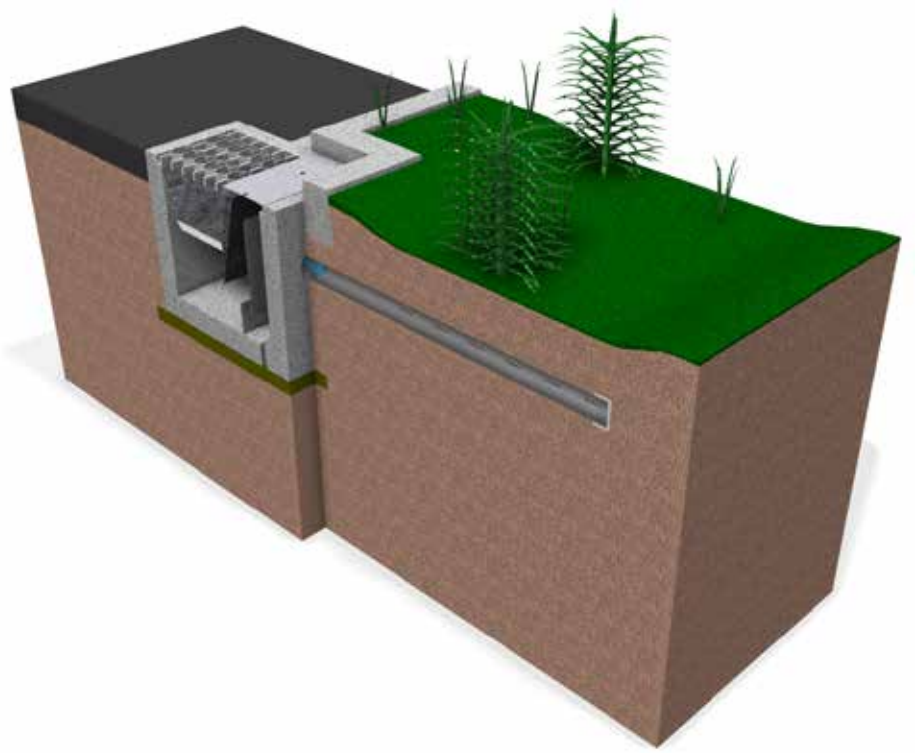
The Ecosol™ Storm Pit (Class 1) is covered by a twelve-month warranty provided the unit is maintained and cleaned with the frequency, and using the method, recommended in this maintenance guide

9.0 Warranty

The Ecosol™ Storm Pit (Class 1) is designed to meet strict engineering guidelines and manufacturers guarantees. The stainless steel components have a life expectancy of 15 years while the litter basket, albeit stainless steel only has a life expectancy of 5 years due to high wear and tear. The steel reinforced pre-cast concrete pit has a life expectancy of 50 years providing appropriate maintenance practices are employed..

10.0 Supplier and Technical Product Contract Details

For any maintenance or technical product enquiries please contact:
Urban Asset Solutions Pty Ltd
Tel: 1300 706 624
Fax: 1300 706 634
Email: info@urbanassetsolutions.com.au



11.0 Ecosol™ Storm Pit (Class 1) Cleaning and Maintenance Inspection Form

Customer Details			
Asset Owner:		Asset ID:	
Unit Location :		Ecosol Ref:	
Date:	Time:	Product Code: Ecosol™ Storm Pit	
Inspected By:			

Visual Inspection

Visual Inspection	Good	Fair	Damaged	Remarks
Condition of Primary Litter Basket				
Litter Basket % of fill				
Condition of Sump pit and baffles				
Sump % of fill				
Surrounding surfaces (Hardstands)				
Condition of access covers				
Standing Water Level				

Comments

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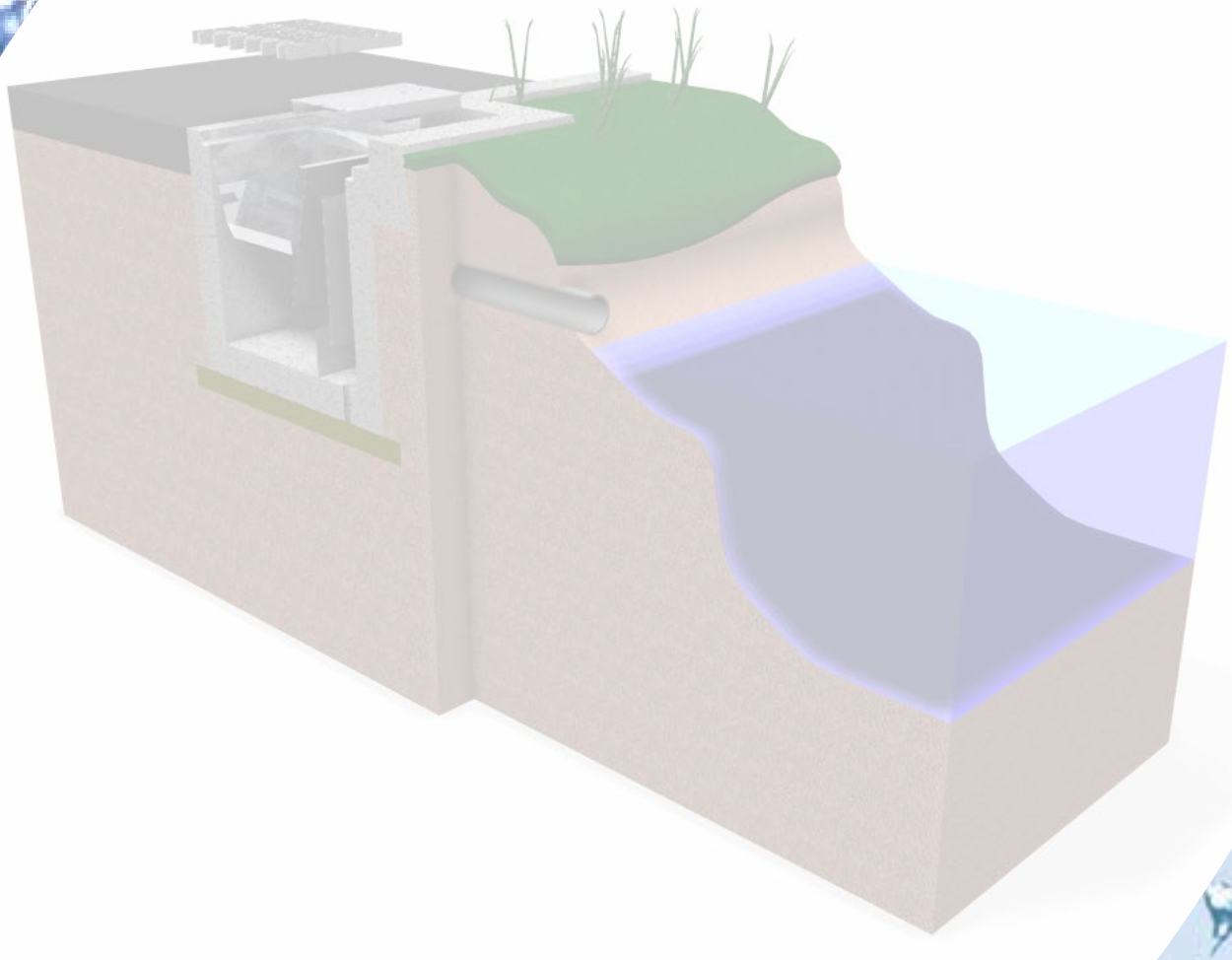

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