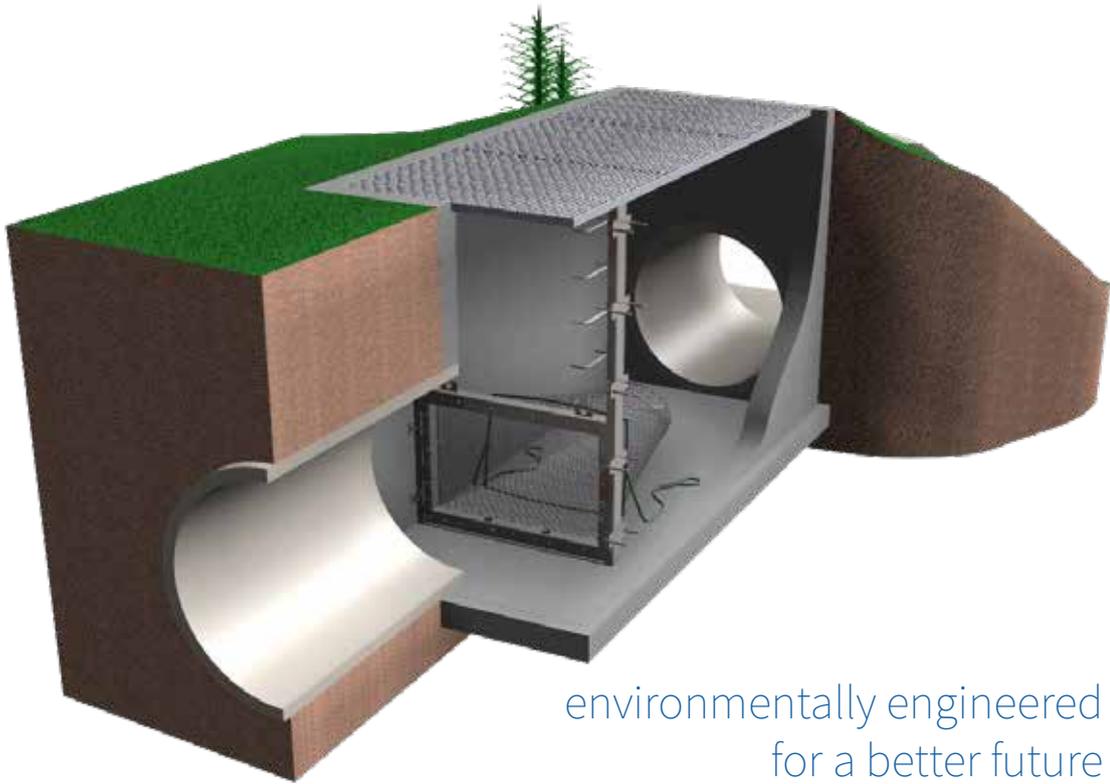


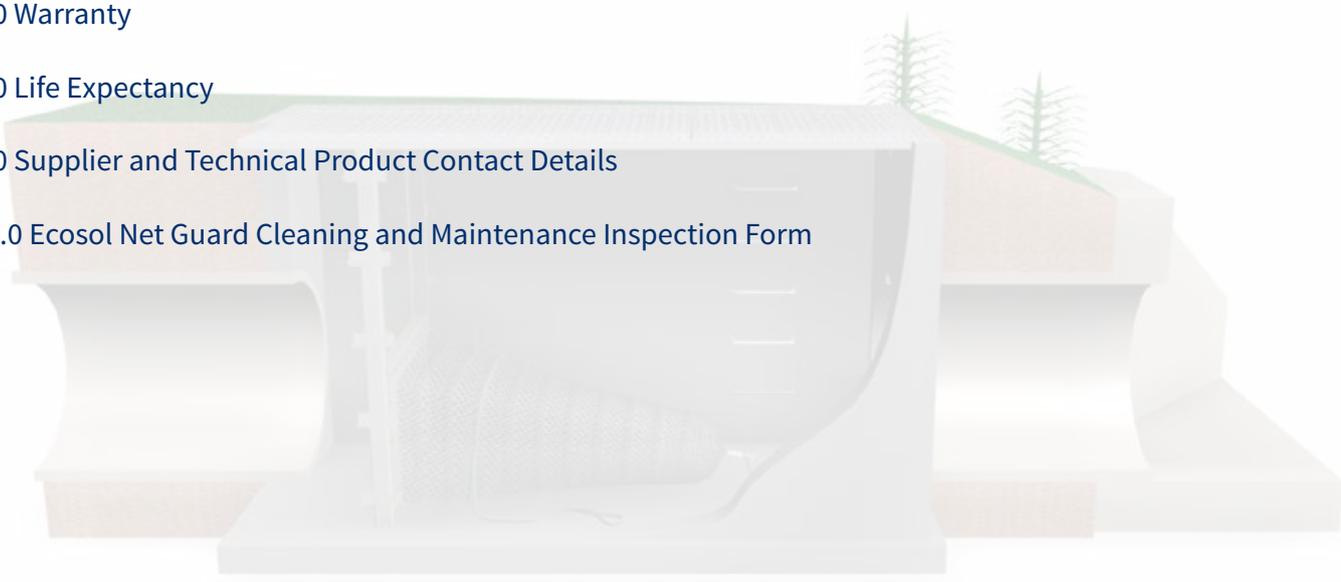
Ecosol™ Net Guard Maintenance Guide



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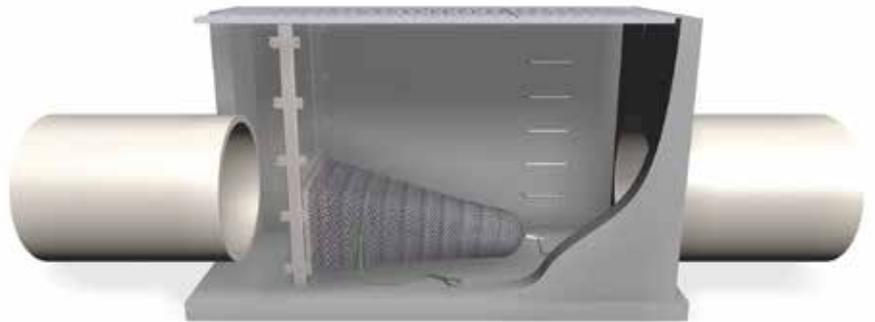
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1.0 Introduction

The Ecosol™ Net Guard has been designed specifically for easy safe on site cleaning and maintenance using a licensed waste contractor equipped with a crane truck. The Ecosol™ Net Guard consists of a pre-cast pit that houses a stainless-steel frame and a removable heavy-duty UV-stabilised polyethylene filtration net that can be easily lifted out for cleaning and maintenance.



One of the key advantages of the Ecosol™ Net Guard design is that a small crane truck can easily lift the frame and filtration net for emptying. This eliminates any risks associated with manually handling captured pollutants and the need for specialised cleaning equipment. In addition there is easy safe access to the filtration net as the grated access covers are removable thereby providing clear well vented access to all internal components for maintenance.

As the Ecosol™ Net Guard is a dry system there is a reduced likelihood of captured contaminants causing any significant adverse environmental impact or nuisance (such as odours and putrefaction). The key benefit of this primary treatment device is its low capital cost along with its low ongoing cleaning and maintenance cost.

2.0 Key Dimensions

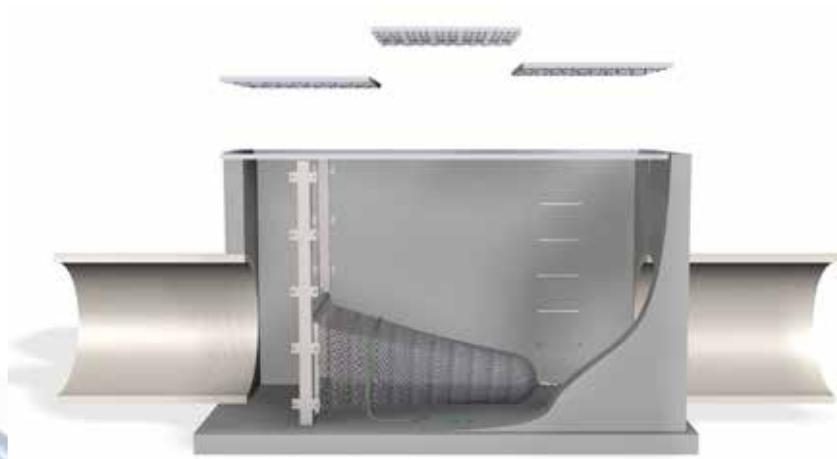
The Ecosol™ Net Guard is able to be custom designed to suit most applications however the below tables provide a general guide on typical unit configurations for cylindrical and box culvert pipe applications.

Unit Description	Cylindrical Pipe Units			
	Maximum Pipe Diameter	Approximate Unit Dimensions (L x W x D from surface to invert level)	Approximate Unit Weight	Approximate Maximum Pollutant Holding Capacity
	(mm)	(mm)	(t)	(m ³)
Single Module Net Guard	1050	3600 x 1650 x 2000	10	1.181
Double Module Net Guard	1650	6450 x 2250 x 2500	16	4.000

Table 1 - Ecosol™ Net Guard - Unit Dimensions for Cylindrical Pipes

Unit Description	Box Culvert Units			
	Maximum Culvert Diameter	Approximate Unit Dimensions (L x W x D from surface to invert level)	Approximate Unit Weight	Approximate Maximum Pollutant Holding Capacity
	(mm)	(mm)	(t)	(m ³)
Single Module Net Guard	900 x 900	3600 x 1650 x 2000	10	1.013
Double Module Net Guard	1800 x 1200	6450 x 2250 x 2500	16	3.500

Table 2 - Ecosol™ Net Guard - Unit Dimensions for Box Culvert Pipes



3.0 Catchment Size and Recommended Cleaning Frequency

Ecosol Net Guard Product Code	Maximum Pipe Diameter	Approximate Unit Dimensions (L x W x D from surface to invert level)	Approximate Unit Weight	Approximate Maximum Pollutant Holding Capacity
		mm	m ³	Ha
Single Module Net Guard Cylindrical Pipe	1050 RCP	1.181	4.20	1
Double Module Net Guard Cylindrical Pipe	1650 RCP	4.000	14.0	1
Single Module Net Guard Box Culvert	900 X 900 RCBC	1.013	3.60	1
Double Module Net Guard Box Culvert	1800 X 1200 RCBC	3.500	10.80	1

Table 3 - Ecosol™ Net Guard - Cleaning Frequencies

Cleaning frequencies are based on typical pollution loads of 0.280m³/ha/year for gross pollutants on a typical fully developed urban catchment. For larger catchments or during extended dry weather periods additional system cleaning may be required.

4.0 Monitoring

Under normal weather and operating conditions your Ecosol™ Net Guard should be checked every three months depending on the quality and quantity of the inflow to the unit. Initially, Urban Asset Solutions Pty Ltd recommends that monitoring is undertaken monthly or immediately after a major rain event. As the unit requires only visual inspection from the surface to determine its percentage of fill this is a relatively cost and time efficient process. Once the unit has been in operation for an extended period of time (say, 12 months) then the monitoring schedule can be adjusted to reflect the actual -operating conditions specific to the catchment.

5.0 Cleaning and Maintenance Procedures

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. It is also recommended that weather conditions for the day of the proposed clean be confirmed as the clean can only be completed in dry weather conditions.

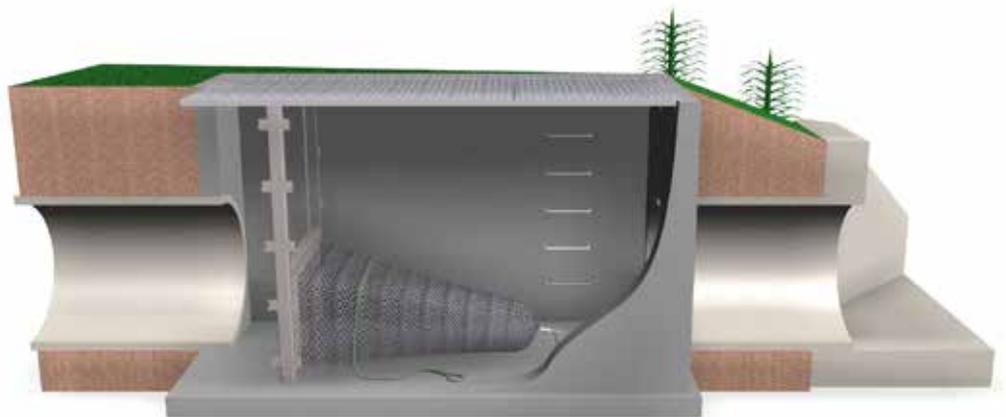
Ensure that you:

- 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
- Complete a safe work method statement for the works to be undertaken



Site establishment:

- Review and amend as necessary and sign off the safe work method statement
- Ensure that the Ecosol™ Net Guard to be cleaned is 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 is in place and ready for operation
- Ensure all plant and equipment is positioned within the area allocated for cleaning and maintenance
- Commence recording cleaning data on the cleaning report provided



5.0 Cleaning and Maintenance Procedures continued



- Position the crane truck adjacent to the unit to be cleaned. Ensure it is on level stable ground and appropriate signage is in place
- Undo the securing bolts or padlocks to the access lids and remove each lid to achieve clear unobstructed access to the pit
- Enter the pre-cast concrete pit with the installed filtration net and connect your lifting shackle to the lifting lugs located on the top of the filtration net frame at the inlet end
- Also connect the secondary lifting tether rope located at the outlet end of the filtration net. It is important both points are correctly tethered to ensure the unit is lifted evenly thereby avoiding damage to the unit guides and loss of captured pollutants
- Carefully commence lifting the full filtration net. Once free of all structures hold the net in suspension to drain any excess stormwater from the net
- Lift net over the transport vehicle and lower to take the weight of the net. Release the cod-end clip at the outlet end of the net, then lift the net to enable captured pollutants to fall from the base of the net
- Once all pollutants have been emptied from the filtration net, re-tighten the cod-end-clip
- Slowly position the filtration net and frame back into position
- Once in position inspect the filtration net, stainless steel frame and general condition of the pit to ensure all components are in good structural and operating condition
- Reposition the grated access covers and bolt down accordingly

Please note:

It is recommended that the unit be cleaned every 12 months, or when it is 60-70% full (which ever occurs first). Failure to regularly clean your Ecosol™ Net Guard may invalidate the warranty and may reduce its performance efficiency. Should the unit require any remedial works please contact your nearest Urban Asset Solutions Pty Ltd office.



6.0 Monitoring, Cleaning, and Maintenance Services

Urban Asset Solutions Pty Ltd has a very competitive cleaning service using a crane 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 interests 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 Warranty

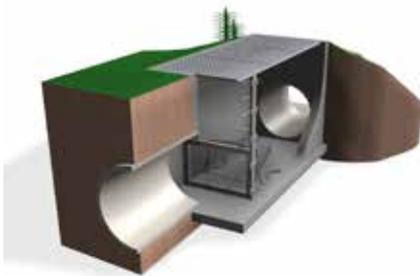
All Ecosol™ Net Guard units are covered by a twelve-month warranty provided the unit is maintained and cleaned with the frequency, and using the method, recommended in our (Maintenance Guide).

8.0 Life Expectancy

The Ecosol™ Net Guard is designed to meet strict engineering guidelines and manufacturers guarantees. The stainless steel components have a life expectancy of 15 years while the filtration net has a life expectancy of 5 years and the precast concrete pit 50 years, providing appropriate maintenance practices are employed.



9.0 Supplier and Technical Product Contact 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

10.0 Ecosol™ Net Guard Cleaning and Maintenance Inspection Form

Asset Owner:

Asset ID:

Unit Location :

Ecosol Ref:

Date:

Time:

Product Code: Ecosol™ Net Guard

Inspected By:

Visual Inspection

	Good	Fair	Damaged	Remarks
Condition of Filtration Nets				
Condition of Cod-End				
Condition of Frames and Guides				
Fixings Condition				
Condition of Pre-cast pit				
Condition of access step irons				
Condition of pipe connections				
Condition of access grates				
Number Net Modules				
Module Size (per module)				
Estimated percentage of fill		(%)		
Volume of material removed		(Tone)		

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 confirms 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, litter, etc; and
- 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 section 6.0 for more details.

Comments

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