ENVIROPOD™

ENVIROPOD® FILTER

Stormwater Drain Catchpit Insert

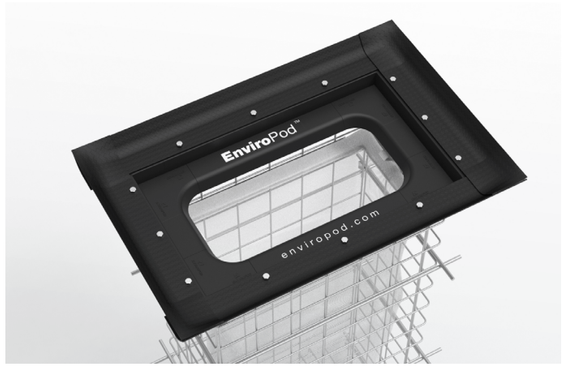
OPERATIONS MANUAL

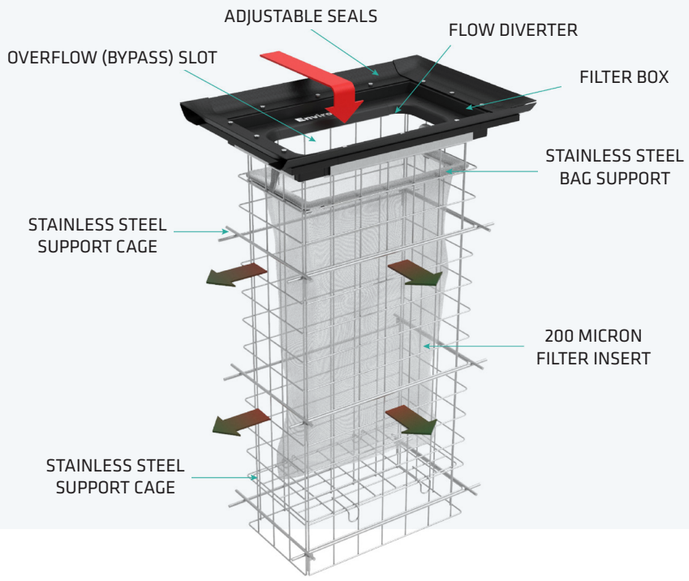
Stormwater360®
BETWEEN SKY AND SEA

ENVIROPOD® FILTER

Cost-effective, easily maintained catchpit insert

The EnviroPod® Filter is a proven catchpit insert designed to be easily retrofitted into new and existing stormwater catchpits, requiring no construction or land take. It removes a significant portion of sediment, litter, debris and other pollutants from water entering the stormwater system, and can be installed in either kerb inlet, standard pre-cast catchpits or manhole catchpits.





Using low-cost passive screening and optional oil-adsorbent media, the EnviroPod® Filter can be customised to meet site-specific requirements with interchangeable polyestermesh screens ranging from 100 to 1600 micron pore size. 200micron filter mesh filter bags are supplied as standard (unless specified otherwise). This filter mesh has a moderate/high removal rate and a moderate maintenance requirement. The EnviroPod® Filter is also effective as a pre-treatment device for use in a treatment train with hydrodynamic separators, filtration devices, ponds and wetlands. In many cases, it is often the most practical solution for retrofits. Independently trialled and tested by city councils throughout Australia and New Zealand and with installation of over 50,000 units including North America, the EnviroPod® Filter is the premiere pit insert.

How does it work?

As stormwater enters a storm grate or catchpit, it passes over the oil adsorbent pads (optional) and into the filter bag. Litter, debris, and other pollutants larger than the filter bag aperture are captured and retained, while oil and grease are reduced by the oil adsorbent pads. If the filter bag is full, or during high flows, overflow is released through the overflow apertures in the frame assembly.

Design and Operation

The EnviroPod® Filter consists of a filter bag supported by a filterbox and structural cage. Modular plastic deflector panels attach to the filterbox and guide the flow of water to the filter bag. The filter bag captures pollutants and allows the water to pass through to the outlet pipe. Optional absorbent material inside the filter bag captures oil and grease. Openings in the filterbox allow water to bypass the filter bag during high flow conditions to prevent surface flooding.

The kerb entry manhole EnviroPod® Filter is inserted through the manhole access cover and is supported by arms fixed to the kerb channel/pit wall.

Capabilities

- Captures sediment, litter, debris and other pollutants before they enter the drainage system
- Fits a range of catchpit sizes - ideal for retrofits
- Easy access - maintenance friendly design, generally no confined space entry required
- Bypasses high flows with no moveable parts
- Adjustable panels allow fine-tuning during installation for a perfect fit

Configurations

The drop-in EnviroPod® Filter is designed to be simply inserted into the catchpit below the grate and rest on the base of the pit. Plastic deflector panels seal against the pit walls and direct flow into the filterbox and through the mesh screens. There are two standard sizes to fit most pre-cast regular and kerb entry catchpits. Custom designs are able to be fabricated for nonstandard pits.

Installation/Inspection/Maintenance

Traffic control must be well planned when installing, inspecting or maintaining EnviroPod® Filters. All standard rules and regulations governing Traffic Control and Safety while working on the road must be rigidly followed at all times. All potential hazards must be identified and control methods put in place prior to installing, inspecting or maintaining filters.

Health and Safety

Contractors should fully comply with current Health and Safety legislation and adhere to all applicable Laws, Regulations and Standards.

If there is a need to proceed in a confined space, the space shall be inspected for gas/fumes. Safety equipment must be worn where deemed necessary. Non trained staff must not go into confined spaces.

All relevant precautions must be taken to prevent contact with sediment and litter when installing, inspecting or maintaining filters. Stormwater sediments can contain Lead, Copper, Zinc, Mercury and PCBs as well as other harmful constituents. The following Personal Protective Equipment (PPE) should be worn at all times:

- Puncture resistant gloves.
- Steel capped safety boots.
- Fluorescent safety vest.
- Safety apron (optional).
- Overalls or similar skin protection.
- Eye/ear protection if necessary.

ENVIROPOD® FILTER COMPONENTS

FILTER BAG 100-1600micron filterbag with 304 grade stainless steel support ring with catch

FILTER BOX Moulded Recycled HDPE plastic

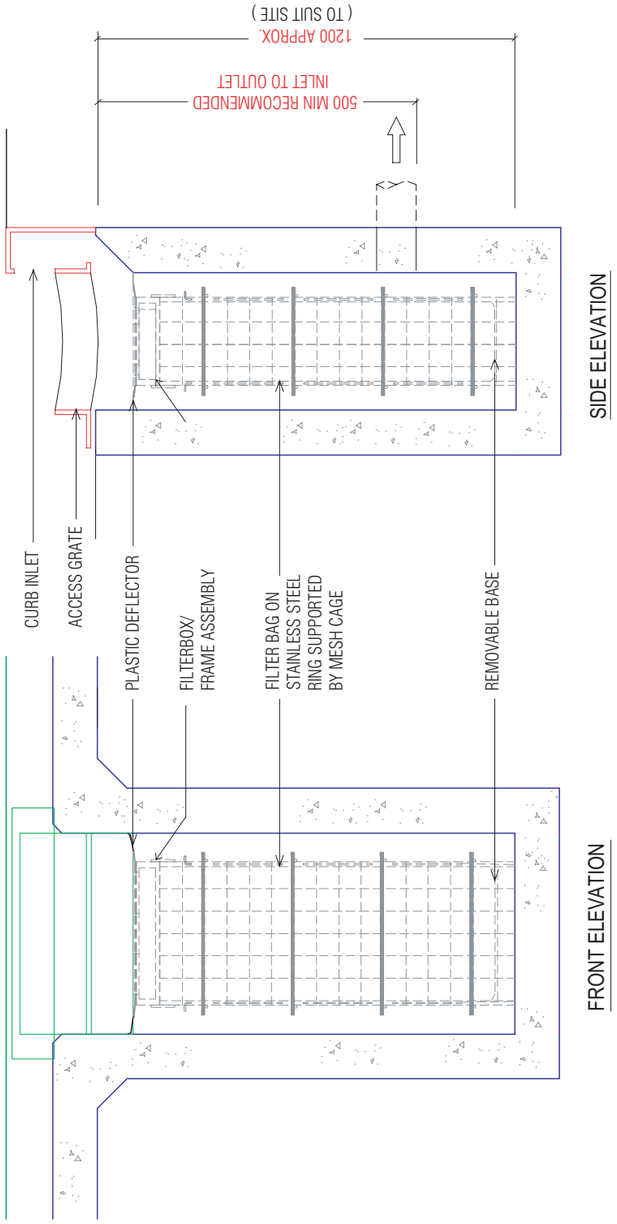
OVERFLOW Bypass slots designed to prevent surface flooding

DEFLECTOR PANELS Recycled HDPE, U.V. stabilised plastic deflector panels trimmable to seal against pit walls

FRAME ASSEMBLY Recycled HDPE plastic or stainless steel

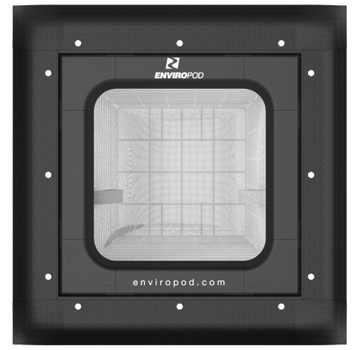
ENVIROPOD CAGE Fabricated 304 grade stainless steel

EP675 AND EP450 KERB ENTRY ENVIROPOD® FILTER



SPECIFICATIONS

Size	EP675x450	EP450x450
Pit Width	600-700	350-460
Pit Length	380-600	400-460
Treatable Flow	up to 10L/s	up to 10L/s
Bypass Capacity	55L/s	38L/s



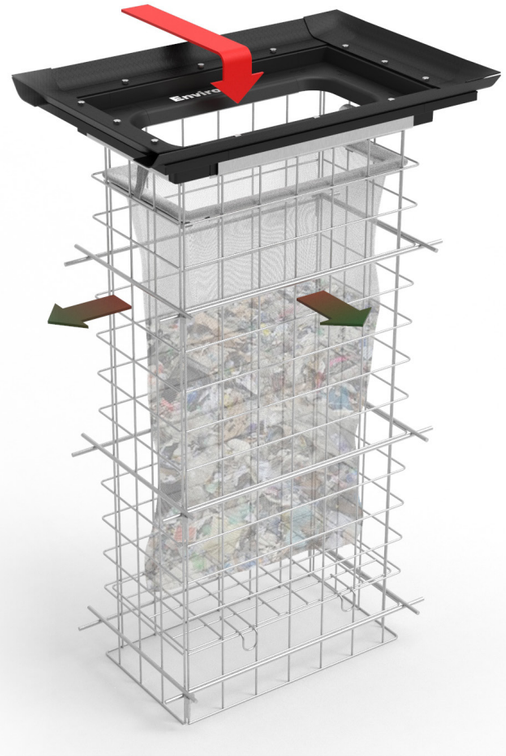
Filterbag

The standard EnviroPod® filter bag is a polyester 200 micron monofilament material which is precision woven. The filter medium has a smooth and slippery surface which allows filtered sediments to be easily washed from the filtration surface. In a high flow situation, this will serve as a self cleaning mechanism. Other micron pore sizes are available up to 1600micron burnproof litter bags for gross pollutant removal.

Size	EP675x450	EP450x450
Open area	45%	45%
Thread Diameter	105 micron	105 Micron
Weight	75 g per m2	75 g per m2
Head Loss at 11 L/s*	19mm	22mm
Storage Volume**	0.155 m3	0.114 m3
Screening Area**	1.848m2	1.488m2

* Based on bag @ 2/3 full. Head loss determined by lab testing of filter fabric. (Tonkin & Taylor)

** Figures from ARC 2003 Oakley Creek trial, (Tonkin & Taylor)



Sediment Removal

Particle Range	4L/s	12L/s	20L/s
500-10,000	100%	100%	99%
100-500	97%	100%	96%
0-100	23%	14%	18%

* Figures from ARC Lab testing 2003 using artificial sediments, (Tonkin & Taylor)

INSPECTION & MAINTENANCE

The system must be monitored and maintained in accordance with relevant local authority guidelines.

EnviroPod® Filter installations vary due to the vast number of catchpit configurations and site conditions. These guidelines should apply to most cases as written. For the remaining cases, follow the general actions of these guidelines, varying them as necessary. Typically 200micron filters should be serviced every three months, depending on local site conditions, pit depth and the number of vehicle movements.

The frequency of maintenance services should be reviewed at the completion of each service and modified if pollutant loadings deem this necessary. At the required maintenance interval the contaminants need to be removed from the filterbags and disposed of appropriately.

The maintenance crew is responsible for the disposal of debris in accordance with all applicable regulations , including confined space entry requirements.

Contact the maintenance department at Stormwater360 for more information or to order EnviroPod® Filter bags and oil absorbent pouches.

Maintenance using a Vacuum Inductor Truck

Maintenance utilising an Inductor truck is the preferred option for cleaning EnviroPod® filters. Hand maintenance is discouraged as it can lead to damage of the filters and has Health and Safety implications with sediments often being highly contaminated. Filters are also capable of storing a large weight of material.

1. Establish a safe working area per typical catchpit service activity
2. Remove grate / access cover
3. Vacuum accumulated debris from the upper portion of the catchpit
4. Remove and inspect the oil absorbent pouches (if applicable) clipped to the inside of the EnviroPod® Filter bag. Replace with new pouches in step 8 if the pouches are dark with oil
5. Vacuum contents from bag. Once most of the material is removed, remove the bag from the EnviroPod® Filter with two lifting hooks through the loops at the top of the bag. Inspect filterbag and repair or replace if damaged
6. Remove stainless steel ring from top of bag and rejuvenate bag by washing using a double cold wash, or waterblast at an approved cleaning site
7. Place rejuvenated bag in EnviroPod® Filter. CRITICAL - Make sure the loose ends of the stainless steel ring are joined together in the connector tube
8. Re-install oil absorbent pouches (if applicable)
9. Replace grate






MAINTENANCE & REMOVAL


Spill Procedure

In the event of a spill discharging into any EnviroPod® Filter, all sediment is to be removed from catchpit and the filterbag is to be removed and replaced with a rejuvenated filter bag immediately. Normal maintenance procedures apply to additional cleaning as a result of spills.

Blockages

In the unlikely event of surface flooding around a catchpit fitted with an EnviroPod® Filter the following steps should be carried out:

1. Check EnviroPod® Filter overflow bypass. The EnviroPod® Filter has been designed with an overflow mechanism built into the filterbox. If surface flooding exists check the overflow slots underneath the rubber seal. If debris is lodged in the overflow slots these can be easily cleared by hand or steel rod
2. If overflow is clear and surface flooding still exists, remove EnviroPod® Filter and check outlet pipe for blockages
3. Removal of the unit may be difficult if the filter is clogged and the EnviroPod® Filter is holding water. If the filter is clogged, brush the source of the filter with a yard broom or similar. This will dislodge particles trapped at the interface allowing contained water to flow through the filter
4. If the outlet pipe is blocked, it is likely that a vacuum truck will be required to unblock it. Debris should be removed from the EnviroPod® Filter with the truck before removal of the Enviropod® Filter

   If a vacuum truck is not available and the EnviroPod® Filter needs to be removed by hand, follow the steps below;

   – Remove excess debris by hand or brush the side of the filter

   – Lift and place filter ring through the filter box and into cage

   – Remove filter box

   – Lift cage containing filter bag and ring out of the pit

   – Unblock outlet pipe

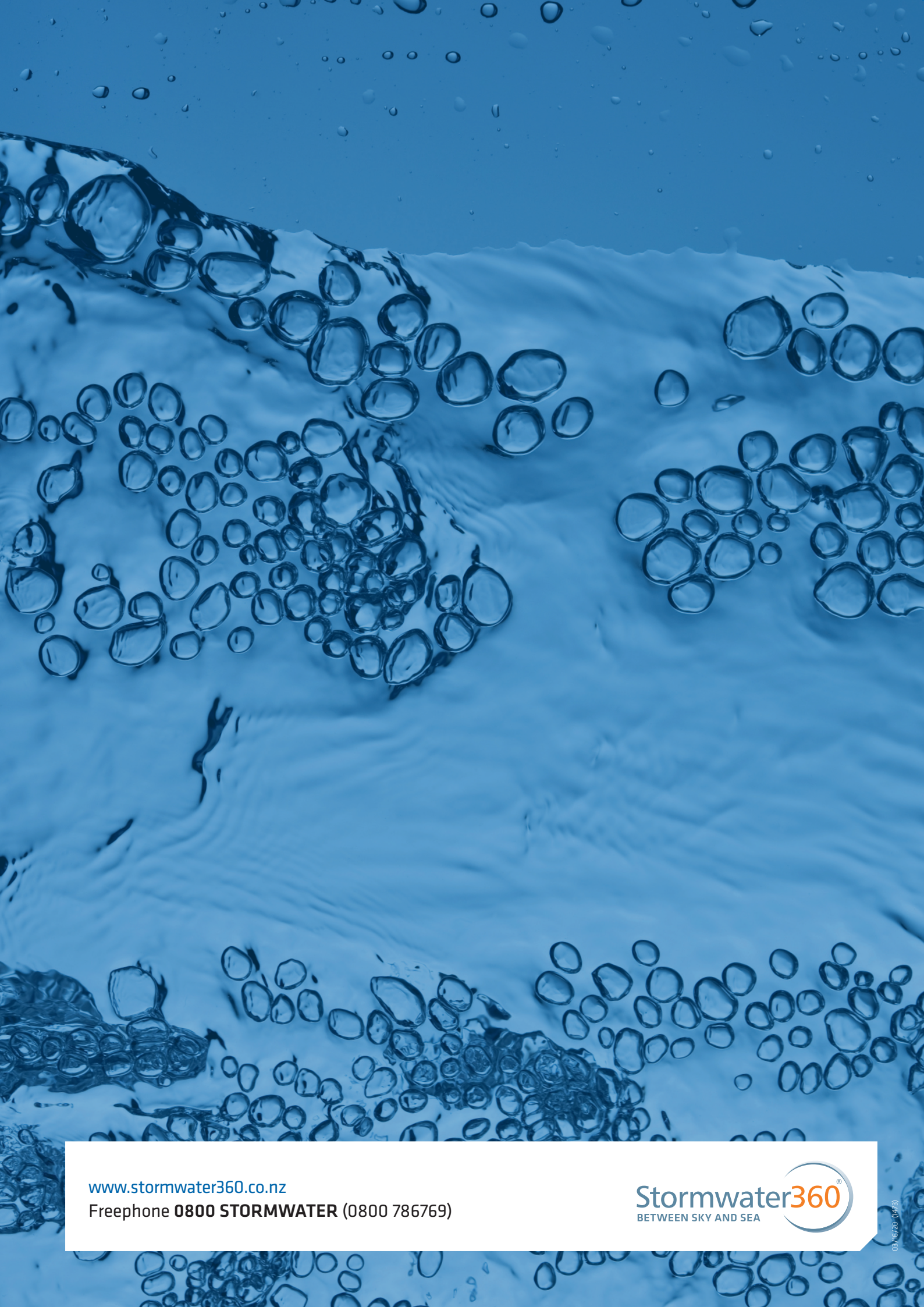
EnviroPod® Filter Removal

If the EnviroPod® Filter has been in bypass for a long period of time, it may have sediment build-up between the cage and pit wall. This may lead to impeded flow through the system, to impeded flow through the system, and in extreme cases blockage of the outlet pipe. In these instances, the unit may require complete removal and re-installation. To remove the EnviroPod®, Filter* the steps below should be followed:

*For Standard pre-cast catchpit EnviroPod® Filter

1. Clean all material out of EnviroPod® Filter bag and remove bag
2. Fold plastic deflector panels toward the centre of the filterbox and lift filterbox out of pit
3. Lift cage from pit. [NB. if sediment is lodged between cage and pit wall, mechanical lifting may be required by fastening chain around cage and lifting by Hi-ab or similar mechanical means]
4. Clean out all sediment and debris from the catchpit and re-install EnviroPod® as per Installation instructions

For removal instructions for Kerb-Inlet Manhole EnviroPod® Filters - Contact Stormwater360 at **0800 STORMWATER**



www.stormwater360.co.nz
Freephone **0800 STORMWATER** (0800 786769)

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