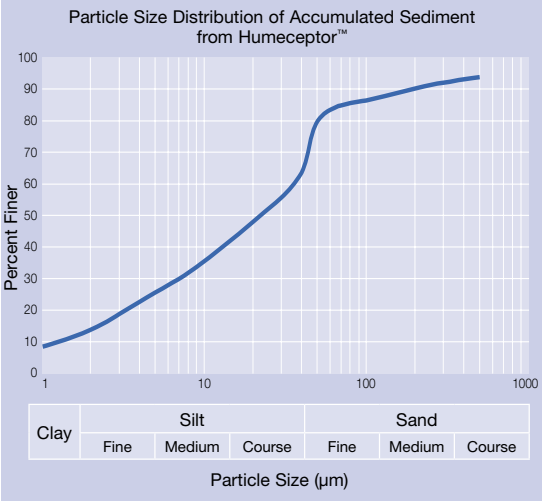
Key Benefits / Features

Hume*ceptor*™ is a unique stormwater management product which can demonstrate superior performance in terms of the capture and retention of hydrocarbons and total suspended solids. Most proprietary products are gross pollutant traps and are therefore focussed on the capture of large litter items. These products are generally unsuitable for the typical **Hume***ceptor*™ applications, since they fail to adequately control flow rates and operational velocities which are required to be minimised to firstly capture fine suspended solids and hydrocarbons and then retain these over a range of subsequent hydrologic conditions. The main features of the **Hume***ceptor*™ product which provide this superior level of performance include the following:



From field validation monitoring the total suspended solids load exported from urbanised catchments, commonly comprise 80% of material with a particle size less than 60 µm.

Table 1: Scouring velocities for various sediment particle sizes

Description of sediment		Particle Diameter (µm)	Scouring Velocity (m/s)
Coarse	Pebbles	2000	0.72
	Course Sand	1000	0.51
	Medium Sand	500	0.36
		250	0.25
Fine	Fine Sand	125	0.18
	Coarse Silt	62	0.13
		31	0.09
	Medium Silt	16	0.06

Metcalf and Eddy, 1991. "Wastewater Engineering: Treatment Disposal and Reuse"

Hume*ceptor*™ effectively captures and retains total suspended solids and petroleum hydrocarbons

- **Hume***ceptor*™ is generally sized to capture and retain 75-95% of the total suspended solids load.
- The average maximum velocity generated within the treatment chamber of **Hume***ceptor*™ at the maximum nominated treatment flow rate is less than 0.007 m/s.
- This very low velocity facilitates the capture and retention of very fine suspended solids with typical sediment samples containing 80% of particles less than 60 µm in size.
- The table below indicates how this operational velocity compares with published scouring velocities for various sediment particle sizes. In many cases gross pollutant traps generate excessive operational velocities between 0.30 – 1.5 m/s, which facilitates the capture of large visual litter items, but leads to relatively poor performance with respect to the total suspended solids load.
- The very fine suspended solids have been identified as the most damaging to ecological health within waterways and estuaries and act as a primary carrier for contaminants such as heavy metals and hydrocarbon products.
- During peak flow events, **Hume***ceptor*™ continues to carefully control flow rates by a unique orifice which guarantees the retention of previously deposited fine material.
- **Hume***ceptor*™ has been proven under independent testing to retain 98% of the free (floating) oil concentration and has been shown under field conditions to achieve 99.6% removal and limit outlet hydrocarbon concentrations to 10ppm (depending on input concentrations) during rainfall events.
- **Hume***ceptor*™ is effective at intercepting and capturing emergency spills, can be configured to collect up to 60,000 litres of petroleum products and has been proven to achieve this outcome in many real world spill situations.

The performance of Hume*ceptor*™ has been extensively verified.

- **Hume***ceptor*™ performance has been independently verified across a total of some 50 individual rainfall events with rainfall intensities varying from 1 to 131 mm/hr and flows varying up to six times (500%) the nominated treatment flow rates for the units (i.e. units in bypass under high flow conditions) – in other words across a wide range of hydrologic conditions.
- Where regulatory agencies operate independent environmental technology verification (ETV) programs, Hume*ceptor*™ has been tested by the authorities and the performance verified and certified by the regulatory authorities.
- Laboratory testing that is utilised to demonstrate the performance of the product has been completed on full scale models at full treatment flow rates to alleviate issues associated with scaling results from small scaled down laboratory model testing.
- Complete test reports, test summaries and raw data for these performance validation tests are available upon request.

Full scale research and development hydraulics laboratory with full time laboratory technicians developing the next advancement in the **Hume***ceptor*™ product and continually evolving the current product range.

Hume*ceptor*™ reduces overall municipal costs by capturing contaminants at source.

- **Hume***ceptor*™ is a source control product and is often installed within individual private commercial and industrial properties.
- A distributed stormwater management approach across a catchment, treating contaminants at source alleviates the burden of local authorities at the end of pipe.
- Requiring private entities to manage their runoff within their site is a more cost effective management tool for the community and local authorities.
- Where utilised in conjunction with ponds and wetlands, **Hume***ceptor*™ will extend the service life of the wetland by capturing the majority of the particulate matter, thus allowing the wetland to focus more on dissolved pollutants and extending the frequency of dredging/removing sediment accumulation within a wetland environment.
- **Hume***ceptor*™ is inexpensive to service and maintain.

The use of **Hume***ceptor*™ as a source control device on high risk land use activities across the catchment will often lead to cost effective outcomes for municipal authorities charged with the responsibility of managing downstream water quality.

Hume*ceptor*™ is easy to design

- **Hume***ceptor*™ Expert Design System Software (available on CD) enables a specifier to size the unit on the basis of local hydrology (historical rainfall records).
- The Expert Design System utilises a continuous rainfall – runoff simulation similar to other popular pollutant export and catchment modelling packages such as XP-AQUALM[1] (WP Software) and MUSIC[2] (CRC for Catchment Hydrology, 2002). Continuous runoff modelling is more appropriate to analysing water quality solutions than adopting a design event flow rate approach, which has no nexus with water quality outcomes.
- **Hume***ceptor*™ is sized to achieve a water quality outcome, expressed as a percentage of total suspended solids removal and is therefore directly comparable to regulatory water quality outcomes or objectives.
- The performance of **Hume***ceptor*™ is easily incorporated within MUSIC modelling following use of the Expert Design System to assess the performance of an overall stormwater management solution, within which **Hume***ceptor*™ operates in conjunction with other best management practices.

Hume*ceptor*™ is easy to install

- The modular precast concrete construction facilitates easy and rapid installation.
- The Kor-N-Seal® rubberised boots provide a flexible connection between the inlet and outlet pipes taking up any tolerances in invert levels and facilitating rapid installation without the need to mortar in the pipes. The boots are an additional unique feature of **Hume***ceptor*™.
- The product is suitable for new and retrofit projects.

A proven performance record

- **Hume***ceptor*™ is the market leader – with over 13,500 units installed worldwide and almost 2,000 units installed within Australia.
- Extensively adopted across the United States, Canada and Australia
- **Hume***ceptor*™ has a certified 50 year design life with all components complying with relevant New Zealand Standards.

STC18 **Hume***ceptor*™ ready for back filling and pipe connection. Note Kor-N-Seal® boots ready to accommodate inlet/outlet pipes.