

envissSentinel™ Equivalency for STORM Calculator Raingardens

Melbourne Water has an on-line design tool - known as STORM Calculator - to assist in assessing the stormwater treatment requirements for small-scale developments within Melbourne.

The calculator uses basic input information about the subject catchment and assesses the relative compliance of the proposed solution in meeting the Melbourne Water 'Best Practice Environmental Management (BPEM) Guidelines – TSS – 80%, TP – 45%, TN – 45%. The output is presented as a rating (%) relative to these standard target figures.

Treatment measures available for selection include rainwater tanks, ponds, wetlands, infiltration, raingardens & buffer strips. Rocla has undertaken a comparative assessment of its envissSentinel™ Media Filter (using MUSIC V6.1) so as to provide a further option for design consultants to achieve desired treatment outcomes.

The following figures show relative equivalencies of the envissSentinel™ Media Filter to the Storm Calculator's raingarden estimate.

Raingarden Assumptions:

- Filter surface area is equal to ponding area
- Filter depth is 0.5m
- No soil exfiltration
- Hydraulic conductivity is 200mm/hr

Storm Calculator Assumptions:

100% rating = BPEM Guidelines

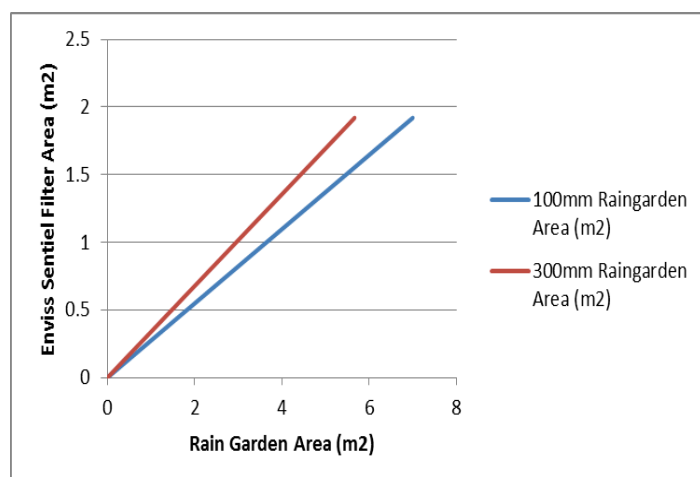
- 80% TSS
- 45% TP
- 45%TN

General MUSIC V6.1 Assumptions:

MUSIC defaults are used except where replaced by Storm Calculator inputs.

envissSentinel™ Assumptions:

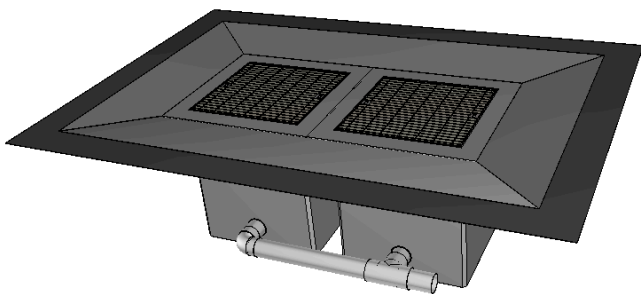
- Hydraulic conductivity is 2000mm/hr
- Ponding depth 50mm (flush with surface)



100mm Raingarden* Area (m ²)	300mm Raingarden#* Area (m ²)	EnvissSentinel™ (no. of Pits)
0.70	0.57	1
1.05	0.85	1
1.40	1.13	2
2.10	1.70	2
3.15	2.55	3
4.20	3.40	4
5.25	4.25	4
6.30	5.10	5
7.00	5.67	6

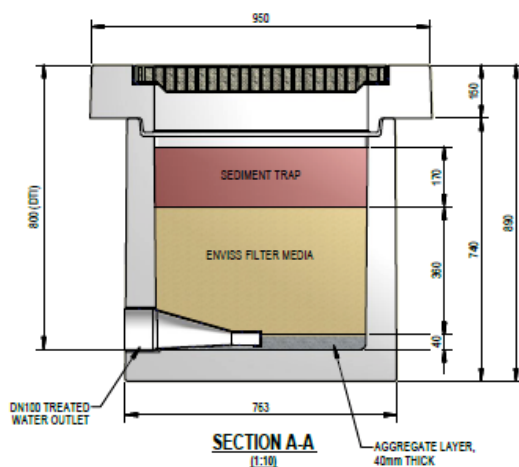
* Ponding depth above media surface with a projected area equal to the raingarden area.

#* Needs to be positioned where extra ponding depth does not cause loss of serviceability or safety hazard



Typical Surface Inlet Arrangement

The comparison makes various assumptions about the options modelled (stated above), but key to the comparison is that the envissSentinel™ requires no pre-designated area be set aside for ponding and functional planting with pits placed directly within paved areas, flush with the surface.



envissSentinel™ Media Filter Pit

envissSentinel™ requires only 50mm ponding, which is provided between the permeable paver and the top of the sediment trap