Stormwater Quality Improvement Device Evaluation Protocol (SQIDEP)

VERIFICATION CERTIFICATE

Applicant Information

Applicant Name	**Atlan Stormwater**
Applicant Address	130 Sandstone Place, Parkinson, QLD 4115
Website	www.atlan.com.au
Contact Email	Andy.hornbuckle@atlan.com.au

Verified Technology

Product Title	Atlan Vortceptor
SQIDEP Pathway	Body of Evidence submission with local field test data
Reviewed Documents	The following documents form the basis of this independent evaluation: 1) Vortceptor Body of Evidence report (Vortceptor BoE) (Issue 2) Drapper, D.; Nyakas, L.; Waldron, S. Field Monitoring of Atlan Vortceptor (Offline) SQIDEP Body of Evidence Submission; Drapper Environmental Consultants: Crestmead, Queensland, Australia, 2024. 2) Atlan Vortceptor sizing chart 09/08/2019 (SPEL Vortceptor Summary 09082019.pdf) – Spreadsheet data 3) Vortceptor working capacities (VORTCEPTOR WORKING CAPACITIES.pdf) – spreadsheet data 4) Letter from Optimal Stormwater Pty Ltd to Blacktown City Council dated 11 May 2020 – 'RE: Equivalency of the Vortceptor to the CDS Unit Gross Pollutant Trap' 5) Various documents from the water quality analysis laboratory, ALS Laboratories, including chain of custody forms, sample receipt notices, certificates of analysis quality control reporting and QA/QC Compliance Assessments There were several other documents and reviewed which related to the sizing of the Vortceptor and applicable treatment flow rates including computational fluid dynamics modelling output. There was also information provided by direct correspondence with the applicant.

Technology Information

Applicant's Verified Performance Claims (ER)

Parameter	
Total suspended solids	**93%**
Total phosphorus	**86%**
Total nitrogen	**49%**
Total petroleum hydrocarbons	**Not claimed**
Gross pollutants	**100 %**

IEP's comments: The verified claims are contingent on maintenance being undertaken, which includes regular and episodic checks and emptying once device storage capacities are reached.
The specified device should have a shear cone fitted as part of manufacture. Gross pollutants have been assessed as those 5 mm or greater in size

IEP's recommendations: All performance claims were considered compliant up to the treatment flow rate for the applicable device.
Verified flow rates for each available Atlan Vortceptor model are included in the table below:

Model of Vortceptor (mm)	TFR (m^3/s)
SVO.096	0.096
SVO.140	0.136
SVO.180	0.180
SVO.220	0.270
SVO.360	0.373
SVO.530	0.530
SVO.800	0.800
SVO.810	0.810
SVO.1200	1.150
SVO.1600	1.600

Test Stormwater Runoff	31 compliant stormwater events. Water chemistry was compliant with Table 1 in SQIDEP v1.3. The minimum number of aliquots was collected, and samples were representative. 90% confidence in the results was assessed, including removal of certain events of concern to ensure that significance was still valid, and the dataset complied.
Test Catchment	The field testing was carried out on a new residential development in Cranbourne South, Victoria, Australia. The device was located on Dynasty Drive (near Authentic Avenue) within the Brompton Lodge Estate, Cranbourne South. The catchment draining to the device was reported to be approximately 7.5 ha, of which approximately 85% was impervious area consisting of roofs, driveways and roads. Pervious areas included street verges and back and front gardens. Field testing in the performance claim was collected from January 2023 through to January 2024.

Maintenance Performed during monitoring	Maintenance was performed during monitoring due to the excessive sediment loads that occurred during construction of the nearby residential development. This included removing sediment accumulated in the stormwater pipe system upstream of the device. This was considered to have been reasonable – by removing this sediment, it is likely that this was effectively removing larger, heavier particles of sediment that would have been removed by the Vortceptor anyway due to being larger and heavier (as they were settling in the drainage system while subject to flow events). The Vortceptor submission also indicates that the retained sludge within the Vortceptor was inspected every six months, with the system emptied by vacuum immediately prior to the trial, and in February 2024 (after the cessation of the reported monitoring). The reviewers accept that the device performance was not overstated because of the maintenance that occurred.

Verified method:

The Reviewers have verified that the method undertaken complies with the intent and specifics of SQIDEP v1.3. A more detailed Independent Evaluators Report is available and should be read in conjunction with his certificate to gain a full appreciation of assessments undertaken as part of this verification process.

Conditions/Notes

MUSIC modelling shall be carried out as follows:

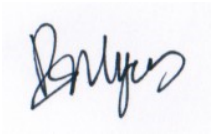
A generic node is to be used in MUSIC with a high flow bypass set to the applicable TFR (see table below) for the size of the Atlan Vortceptor proposed and with inlet and outlet concentrations as follows:

Pollutant	Inlet concentration	Outlet Concentration
TSS	100	7
TP	100	14
TN	10	5.1

Model of Vortceptor (mm)	TFR – or high flow bypass to be adopted in MUSIC modelling (m^3/s)
SVO.096	0.096
SVO.140	0.136
SVO.180	0.180
SVO.220	0.270
SVO.360	0.373
SVO.530	0.530
SVO.800	0.800
SVO.810	0.810
SVO.1200	1.150
SVO.1600	1.600

STORMWATER AUSTRALIA

Independent Reviewers

Evaluator Name	Evaluator Signature
Andrew Allan	
Baden Myers	

Issue of Verification Certificate

Acceptance by SQIDEP Governance Panel	26 September 2024
Acceptance by Stormwater Australia Board of Directors	26 September 2024
Verification Issued	19 September 2024
Stormwater Australia Verification Certificate Number Reference	SA-2024/11-VC

Verified under SQIDEP Version 1.3

Body of Evidence Pathway