

Certificate of Accreditation

On-Site Waste Water Management System

This Certificate of Accreditation is hereby issued by the Director of Building Control pursuant to Section 18(1) of the *Building Act 2016* and the accreditation of product.

System:	Ubi Aqua Aerated Wet Cell
Manufacturer or Supplier:	Global Rotomoulding PTY LTD
Of:	14 Nans Rd, Helidon QLD

This is to certify that the Ubi Aqua Aerated Wet Cell as described in Schedule 1, has been accredited for use as a Secondary Treatment on-site wastewater management system in single dwellings (within plumbing installations in Tasmania). This accreditation is subject to the conditions and permitted uses specified in Schedule 2, and in accordance with the *Building Act 2016*.



Henry Hodgson
Delegate of the Director of Building Control
Consumer, Building and Occupational Services
Department of Justice

Date of Issue: 22 August 2023

Certificate Number: DOC/23/66730

This Certificate of Accreditation is in force until 22 August 2028 unless withdrawn earlier at the discretion of the Director of Building Control

Document Development History

Version date	Certificate number	Approved by	Amendment notes
1.0	DOC/23/66730	Henry Hodgson	Original Release

Schedule I: Specification

Normative

System Description

The Aerated Wet Cell 1500 (WC1500) is an in situ, aerobic packed media reed bed treatment system for advanced secondary wastewater treatment. The system has an enhanced capacity to treat wastewater by means of increased dissolved oxygen levels achieved by way of the use a UBI Aqua Annular Venturi and associated Speece Cone, which increases the oxygen transfer to the water being recycled back through bed A or transferred from bed A to bed B as it moves through the system.

Reed species for planting out the reed beds, as per manufacturer's recommendation is *thargmites australis*. This species may or may not be suitable for specific local conditions, further advice from the manufacturer or local nursery is recommended.

This model has been assessed as a Secondary Treatment System to AS/NZS1546.3.2017.

It has been tested and certified as meeting the minimum Advanced Secondary Treatment effluent standards.

This model has been approved by the certifier for use in Climate Zone 7.

Schedule 2: Conditions of Accreditation

Definitions in this schedule:

(Note: referenced Standards and Acts refer to version as per current NCC)

AS/NZS 1547 means the Joint Australian/New Zealand Standard 'AS/NZS 1547 On-site domestic-wastewater management'

AS/NZS 1546.3 means the Joint Australian/New Zealand Standard 'AS/NZS 1546.3 On-site domestic wastewater treatment systems, Part 3: Secondary treatment systems'

AS/NZS 3000 means the Joint Australian/New Zealand Standard 'AS/NZS 3000 Wiring rules'

AS/NZS 5667 means the Joint Australian/New Zealand Standard 'AS/NZS 5667.1 Water quality – Sampling, Part 1: Guidance on the design of sampling programs, sampling techniques and preservation and handling of samples'

BOD₅ means '5-day Biochemical Oxygen Demand'

Council means 'the Municipal Council having jurisdiction'

Commissioned means 'when the test results from a NATA Certified Laboratory show that the water quality requirements for the STS have been met and all pre-commissioning tests have been carried out in accordance with AS/NZS 1547 on all associated equipment and the sub-surface irrigation system'

Designer means 'a person who has a specialty in the area of designing on-site waste water management system installations and may include but not be restricted to appropriately trained professional engineers, soil scientists, land surveyors and plumbers'

Director means 'the Director of Building Control'

EC means electrical conductivity

E. coli means 'Escherichia coli of the family Enterobacteriaceae which is a bacterium used in public health as an indicator of faecal pollution'

g/m³ means grams per cubic metre

Manufacturer means as listed on Certificate of Accreditation

N means 'Nitrogen' NATA means 'National Association of Testing Authorities'

PCA means 'Plumbing Code of Australia'

Permit means 'a Permit issued by the council pursuant to section 82 of the Building Act'

Permit authority means 'a person or body authorised for that purpose by the council of the municipal area in which the on-site waste water management system is installed'

Secondary Treatment System A wastewater treatment 'system' which produces effluent of a secondary standard

Supplier means 'the party that is responsible for ensuring that products meet and, if applicable, continue to meet, the requirements on which the certification is based.'

The supplier means as listed on Certificate of Accreditation

System means as listed on Certificate of Accreditation

TSS means 'Total Suspended Solids'.

1.0 General

- 1.1 The *system* must be supplied, constructed and installed in accordance with the design submitted and accredited by the *Director*.
- 1.2 The *system* must not be installed in a plumbing installation other than in accordance with the conditions of permit issued by the *Permit Authority*.
- 1.3 Each *system* must be permanently and legibly marked on a non-corrosive metal plaque or equivalent, attached to the lid with the following information:
- The brand and model name or designation of the system
 - The manufacturer's name or registered trademark
 - Top load limitations, and
 - The month and year of manufacture.
- 1.4 The *supplier* must supply the owner and occupier, of each installation, with a user manual setting out the following:
1. the treatment process
 2. procedures to be followed in the event of a system failure
 3. emergency contact number
 4. care, operation, monitoring and maintenance requirements, and
 5. inspection and sampling procedures to be followed as part of the on-going monitoring and program required by the permit authority.
- 1.5 Any proposed modifications to the *system's* specified processes, equipment, materials, fittings or manuals must have prior authorisation in writing from the *Director* and may be subject to additional verification or testing.
- 1.6 Each application to a *permit authority* to install a *system* must be accompanied by a site-and-soil evaluation report and design report in accordance with AS/NZS 1547 as appropriate.
- 1.7 The *supplier* must provide the following information to each *permit authority* where it is intended to install a *system* in their jurisdiction:
- Statement of warranty
 - System compatibility with area specific climate zone
 - Statement of service life
 - Quality Assurance Certification
 - Installation Manual
 - Service Manual
 - Owner's Manual
 - Service Report Form
 - Engineering Drawings on A3 format
 - Detailed Specifications
 - Certificate of Accreditation and Schedules.

- 1.8 This Certificate of Accreditation is valid for five (5) years from the date of issue or until withdrawn by the *Director*.
- 1.9 At each anniversary of the accreditation date the *supplier* must submit to the *Director* a list of all *systems* installed in Tasmania during the previous 12 months. The *Director* may randomly select up to 10% of the installed *systems* in any one calendar year. The *Director* will nominate a NATA accredited laboratory for all sampling and will be tested for *BOD₅* and *TSS* and Chlorine residual. The sampling and testing of the selected *systems* is to be done at the *supplier's* expense. The following results must be reported to the *Director*:
- Address of premises
 - Date inspected and sampled
 - Sample identification number
 - Chlorine Residual
 - BOD₅
 - TSS, and
 - Service history.
- 1.10 Where a *system* has been found not to operate satisfactorily during its serviceable life, and as a result require modification to achieve the required water quality limits, all installed *systems* are to be modified accordingly.
- 1.11 When granting a *permit* the *permit authority* is to satisfy itself that the *designer's* choice of the *system* configuration is optimal for the proposed use and site conditions.
- 1.12 The *system* must not be deployed to areas where seasonal climatic conditions will negatively affect its proper operation (refer to *manufacturer's* specifications).
- 1.13 Prior to the granting of a *permit* to install a *system* the following reports must be submitted with an application to the *permit authority*.

Site-and-soil evaluation report

The site and soil evaluation report is to detail results of an assessment of the individual lot(s) for the public health, environmental, legal and economic factors which are likely to impinge on the location and design of a land-application. (Refer to AS/NZS 1547 and associated appendices).

Design report

The Design Report is to include the following:

- (a) Relevant aspects of the Site-and-soil Evaluation Report.
- (b) A report on the selection of the land-application. (Refer to AS/NZS 1547, and associated appendices for further information).
- (c) A report on the selection of the wastewater-treatment system. (Refer to AS/NZS 1547, and associated appendices for further information).
- (d) Sufficient information to show that the relevant performance requirements set out in the PCA have been met.
- (e) A loading certificate which sets out the design criteria and the limitations associated with use of the system and incorporates such matters as:
 - (i) System capacity (number of persons and daily flow)
 - (ii) Summary of design criteria

- (iii) The location of and use of reserve areas
- (iv) Use of water efficient fittings, fixtures, or appliances
- (v) Allowable variation from design flows (peak loading events)
- (vi) Consequences of changes in loading (due to varying wastewater characteristics)
- (vii) Consequences of overloading the system
- (viii) Consequences of under-loading the system
- (ix) Consequences of lack of operation, maintenance and monitoring attention, and
- (x) Any other relevant considerations related to the use of the system.

I.14 The following reports must be submitted to the *permit authority* and owner and be made available to the *Director* upon request after *commissioning* of the system:

Installation and commissioning report

The Installation and Commissioning Report is to cover the 'as-constructed' records of the *system* installation together with the results of *commissioning* tests to demonstrate correct construction and installation and is to be provided to the owner and *permit authority* on completion of the work. (Refer to and AS/NZS 1547 and associated appendices).

Inspection and Maintenance Report

Maintenance reports cover ongoing inspection and maintenance operations in order to monitor the operation of the installation. (Refer to AS/NZS 1547).

- I.15 Where the supplied pump is not suitably rated for the proposed land application area it must be replaced with a pump which has a rated capacity that matches the hydraulic characteristics of the irrigation and be capable of discharging at least 50% more than the 30 minute flow rate. For drip irrigation, ensure that drip emitter flow rates do not vary more than 10% from the design rate over the whole of the system when installed on a sloping site.

Note: The pump selection is to be based on flow, head loss and pressure requirements.

- I.16 Effluent distribution by sub-surface application may be permitted where the *Permit Authority* is satisfied that the application for a *permit* to install the *system* has demonstrated that the:
- (a) effluent can be retained within the authorised land application area
 - (b) where applicable the land application has been designed and is capable of being installed and maintained in accordance with AS/NZS 1547
 - (c) the location of the land application satisfies the relevant requirements of the State Policy on Water Quality Management 1997, and
 - (d) the discharge is capable of satisfying the relevant water quality limits (see 5.1).

Product approval documentation

The following documents are referenced as part of this Accreditation:

Document	Document date
Arris Test Report	21/04/2023
Certificate of Conformity – SAI Global SMK40298	28/07/2023

2.0 Installation and Commissioning

- 2.1 The installation and operation of the *system* must comply with the conditions of accreditation and the *manufacturer's* instructions.
- 2.2 All plumbing work carried out in connection with the *system* installation must satisfy the requirements of the *Building Act* and the *Plumbing Code of Australia* and be carried out by a licensed plumber with appropriate training and qualifications.
- 2.3 All electrical work must be carried out by a licensed electrician and in accordance with relevant provisions of *AS/NZS 3000*.
- 2.4 The *system* requires a 240V AC power supply. A weather-proof isolating switch must be provided at the power outlet. The power supply must have its own clearly marked designated circuit breaker in the electricity supply fuse box.
- 2.5 Each *system* installation must be inspected and checked by the *designer* or the designer's agent. The *designer* on completion is to certify that the *system* has been constructed, installed and *commissioned* in accordance with its design, the conditions of accreditation and any additional requirements set out in the *permit*.

Note: Where the *designer* is not available to supervise the installation, the *designer* shall obtain signed certification from the installing plumber stating that the installation has been constructed/installed and *commissioned* in accordance with its design, the conditions of accreditation and any additional requirements of the *council* and/or *permit authority*.

- 2.6 Where discharging wastewater to a land application by irrigation, a lockable sampling tap or gate valve is to be provided on the outlet pipe to the irrigation.
- 2.7 A report is to be prepared by the *council* approved plumbing contractor detailing the inspection of the installation and the results of the *commissioning* tests and be accompanied by a certificate certifying that the *system* is operating and performing adequately (see 2.15).
- 2.8 Copies of the following reports/certificates must be submitted to the *council* and the owner as soon as practicable after the *commissioning* of the *system* and after each scheduled or unscheduled service or inspection for the period specified in the *permit*:
 - (a) The initial plant installation and commissioning report
 - (b) All required laboratory analytical test reports, and
 - (c) All inspection and maintenance reports.
- 2.9 Copies of any report or certificate required by the conditions of accreditation must be made available to the *Director* on request.
- 2.10 The *designer* is to provide a statement warning the user of which items and products that must not be placed in the *system*.
- 2.11 To verify that the plant is commissioned, sampling must be carried out, by a *council* approved person, for *BOD₅*, *TSS* and Free Residual Chlorine. The samples are to be tested and reported on by a NATA certified laboratory.

3.0 Maintenance and monitoring

3.1 Each installation must be serviced and monitored at not less than 3 monthly intervals in accordance with the conditions of accreditation, the conditions of *permit* and *manufacturer's* requirements.

Notes:

- (1) Only a licensed plumber can carry out the maintenance and required monitoring of the *system* other than electrical work unless licensed to do so.
 - (2) The licensed plumber may need to complete training by the *supplier* before carrying out any maintenance on the *system*.
 - (3) The maintenance and monitoring intervals may be combined provided the monitoring frequency remains at 3 month intervals.
- 3.2 The owner of the *system* must enter into and maintain a maintenance contract with the *council*, the *supplier* of the *system*, or other *council* approved plumbing contractor.
- 3.3 The *system* must be operated and maintained to ensure it performs continuously and without any intervention between inspections carried out by the *council* approved plumbing contractor.
- 3.4 A service report is to be prepared by the plumbing contractor who carried out the work detailing the inspection of the installation and the results of all servicing tests and conditions at the completion of all scheduled or unscheduled services or inspections.
- 3.5 The service report is to be accompanied by a signed certificate certifying that the system is operating and performing adequately.
- 3.6 A copy of the service report and certificate is to be provided to the occupant and *council*. Each service report is to contain a statement reminding the user of which items and products that must not be placed in the *system*.
- 3.7 Each service must include monitoring the operation of the *system* and associated land application.
- 3.8 Maintenance must be carried out on all mechanical, electrical and functioning components of the *system* as appropriate.
- 3.9 The monitoring, servicing and reporting of the installation must include but not be restricted to the following matters, as appropriate:
- (a) Reporting on weather conditions, ambient temperature, effluent temperature
 - (b) Odour
 - (c) Check and test pump
 - (d) Check and test air blower, fan or air venturi and clean/replace air filters
 - (e) Check and test alarm system
 - (f) Check slime growth on membranes and report the on condition of membranes
 - (g) Check and report operation of sludge return, sludge level and de-sludging;
 - (h) Check and record water meter reading (if fitted)
 - (i) Check and record operation of irrigation area, irrigation fittings
 - (j) Check and clean/replace irrigation filters
 - (k) Check and report on water quality (testing for pH, Turbidity, EC and dissolved oxygen)
 - (l) Check, and replenish chlorine disinfection system
 - (m) Cleaning of the following items at above the waterline:
 - (i) clarifier

- (ii) pipework
- (iii) valves
- (iv) walls of chambers.

4.0 Performance

4.1 Hydraulic and Organic Loading:

The system is accredited for treatment of domestic wastewater from residential and commercial premises with the following **MAXIMUM** hydraulic and organic loads:

Model	Hydraulic load (L/day)	Biochemical Oxygen Demand (g/day)
Ubi Aqua Aerated Wet Cell	1500	591

Treated effluent from the system must not exceed the following limits (90% of samples):

For sub-surface irrigation:	
5-day Biochemical Oxygen Demand (BOD ₅)	10 g/m ³ (max. 20 g/m ³)
Total Suspended Solids (TSS)	10 g/m ³ (max. 20 g/m ³)
Total Nitrogen (TN)	Less than or equal to 25
Total Phosphorous (PH)	Less than or equal to 5
For surface irrigation:	
5-day Biochemical Oxygen Demand (BOD ₅)	10 g/m ³ (max. 20 g/m ³)
Total Suspended Solids (TSS)	10 g/m ³ (max. 20 g/m ³)
Total Nitrogen (TN)	Less than or equal to 25
Total Phosphorous (PH)	Less than or equal to 5
E. coli	10 cfu/100 mL (max. 20 cfu/100 mL)
Free Residual Chlorine concentrations	≥ 0.5 g/m ³ and less than 2.0 g/m ³

4.0 On-going management

5.1 The mandatory servicing and monitoring is to commence 3 months after the plant is commissioned. The servicing and monitoring is to coincide with the supplier's required on-going routine scheduled maintenance program.

- 5.2 In the event of failure to comply with the water quality limits set out in these conditions, fortnightly sampling and testing for *BOD₅*, *TSS* and Free Residual Chlorine must be carried out until the plant is re-commissioned.
- 5.3 The method of preserving and the handling of samples taken from the plant must satisfy the relevant requirements of *AS/NZS 5667*.
- 5.4 Copies of the following reports and certificates must be submitted to the *permit authority* and the owner as soon as practicable after the *commissioning* of the system and after each scheduled or unscheduled service for the period specified in the *permit*:
- the initial plant installation and *commissioning* report
 - all laboratory analytical test reports; and
 - all inspection and maintenance reports
- 5.5 The system is to be de-sludged strictly in accordance with the *manufacturer's* recommendations and the sludge is to be disposed of in accordance with the Tasmanian Biosolids Reuse Guidelines and the conditions of *permit*.
- 5.6 Only persons with a waste transport business Environment Protection Notice are to be engaged for the removal, transporting and disposal of accumulated sludge removed from the system.
- 5.7 Any waste material removed from the system must be collected and disposed of or utilised by an approved facility or agency.
- 5.8 Measures are to be put in place during servicing that will protect the environment, personnel and any other persons who could be affected by the activity.

5.0 Permitted uses (remove non-applicable uses)

6.1 The effluent is suitable for land application by way of the following forms:

- (a) sub-surface by:
 - (i) subsurface drip irrigation in accordance with the relevant provisions of *AS/NZS 1547*
 - (ii) trenches, beds, mounds, evapo-transpiration in accordance with the relevant provisions of *AS/NZS 1547*.
- (b) above ground by:
 - (i) spray irrigation
 - (ii) surface drip irrigation in accordance with the relevant provisions of *AS/NZS 1547*.

Note: Each of the above forms of irrigation is subject to consent from the *permit authority* and the relevant provisions of *AS/NZS 1547*.

6.2 Where it is not practicable for effluent from the system to be applied in accordance with *AS/NZS 1547* the method of discharge must satisfy contemporary relevant regulatory requirements to the satisfaction of the *permit authority*.