



# **Certificate of Accreditation**

## **Sewage Management Facility**

### **Aerated Wastewater Treatment System**

### **Advanced Secondary Effluent**

*This Certificate of Accreditation is issued by the Secretary of the NSW Ministry of Health pursuant to Clause 41(1) of the Local Government (General) Regulation 2005.*

*System: "Garden Master Elite" Advanced Secondary AWTS*

*Manufacturer: Wastewater Australia Pty Ltd t/a Garden Master*

*Address: 321 New England Highway, Rutherford, NSW, 2320*

*The "Garden Master Elite" Advanced STS-AWTS as described in Schedule A, has been Accredited as a sewage management facility in accordance with the Secondary Treatment System Accreditation Guideline 2018 for use in single domestic premises in NSW. This Accreditation is subject to the conditions and permitted uses specified in Schedule B.*

*A/Director, Environmental Health  
for Secretary (delegation PH335)*

**Issued:** 6 July 2020

**Certificate No:** STS-AWTS045

**Expires:** 31 December 2025

## Schedule A: Specification / Description of the Garden Master Elite Advanced STS

### Name and Model of STS: Garden Master Elite Advanced STS

The Garden Master Elite Advanced Secondary Treatment System (STS) is designed to treat the wastewater from a residential dwelling occupied by a maximum of 10 persons. The Garden Master Elite STS is contained in one vertical axis type cylindrical precast concrete collection well with a design capacity of 7,000 litres. NSW Health Accreditation Numbers STCW037 & STCW013.

Chamber	Design capacities
Primary treatment	3000 L
• Partition 2:1	yes
Secondary treatment	3066 L
• Aeration chamber	2231 L
• Clarifier	465 L
• Irrigation chamber	370 L
Emergency storage	1285 L
Operational water level (depth)	
• Primary	1480mm
• Secondary	1400mm

The emergency storage capacity has been achieved by the increased height of all chambers. The main centre partition wall between the Primary Chamber and Irrigation Chamber is full height preventing overflow. The system consists of:

**Primary Chamber/s:** Influent enters the primary chamber via the source whereby scum and solids capable of settling are separated from the raw influent. Primary treated effluent flows through a transfer port to the aeration chamber. This primary chamber will also act as a storage chamber for sludge returned via the Clarification Chamber.

**Aeration Chamber/s:** Water enters via the Primary Chamber. Air is introduced into this chamber via an air blower to create an environment for aerobic bacteria and other helpful organisms to consume the organic matter present. The aeration tank is designed in a manner to help prevent short circuiting of the wastewater to ensure extended aeration. Media is also present in the tank to support the growth of bacteria. Air is supplied via a Nitto LA80B or equivalent capable of delivering 80 Litres Per Minute at a depth of 1.3 Metres. The air is distributed via 2 x Diffusers located near the bottom of the Aeration Chamber and 2 x Venturi Airlift pumps located in the Clarification Chamber.

**Clarification Chamber:** The Clarification chamber is essentially a quiescent zone where suspended particles/solids are settled out of the water. These particles are returned to either the septic or aeration chambers via a sludge return which aids in further biological reduction, de-nitrification and providing a constant food supply rich in microbes supporting the system through periods of limited flows.

**Disinfection/Irrigation Chamber:** Disinfection is achieved via low doses of chlorine to kill off any remaining harmful organisms. This process is achieved through an automatic chlorinator with sufficient doses to last between maintenance visits. The system is fitted with a submersible pump with a minimum 6 metre head and capable of pumping 2.0m<sup>3</sup>/hour.

**Electrical Control Unit:** The system is fitted with an Electrical Control Unit incorporating an alarm panel or Strobe Light. Should a fault occur an alarm will activate both an audio and visual warning indicating the fault. A mute button is present and when depressed the audio will mute for a period 24 hours.

## Schedule B: Conditions of Accreditation

### 1. General

- 1.1 Prior to installation the owner/occupier of the premises shall make an application, in accordance with Clause 26 of the *Local Government (General) Regulation 2005*, to the local authority for approval to install and operate the Garden Master Elite as a Sewage Management Facility in accordance with Section 68, Part C of the *Local Government Act 1993*.

- 1.2 The local authority shall apply those Conditions of Accreditation, appropriate to the owner / occupier, to any approval to operate the Garden Master Elite issued under Clause 45(4), *Local Government (General) Regulation 2005*.
- 1.3 In accordance with Clause 36 of the *Local Government (General) Regulation 2005*, the Garden Master Elite shall have an expected service life of 5 years in the case of mechanical and electrical components and 15 years in the case of other components.
- 1.4 The owner / occupier shall ensure that the Garden Master Elite is installed or constructed:
- in accordance with the accredited specifications of the type tested unit and in accordance with good trade practice, and
  - to allow ease of access for maintenance, and
  - regarding the health and safety of users, operators and persons maintaining the facility, and
  - must be installed or constructed to make appropriate provision for access to and removal of contents in a safe and sanitary manner, and
  - must, if it is intended to be a permanent fixture, be anchored to prevent movement.
- 1.5 The manufacturer / supplier shall ensure that the Garden Master Elite is supplied, constructed and installed in accordance with the design (including the disinfection unit) as submitted and accredited by the NSW Ministry of Health. The Garden Master Elite shall not be modified or altered except that alternate individual mechanical and electrical components such as pumps, PLCs, etc., may be substituted provided that the component meets the Accredited design specification.
- 1.6 Any permanent modification or variations to the accredited design of the Garden Master Elite shall be submitted for separate consideration and variation of the Certificate of Accreditation by the NSW Ministry of Health. Modifications will be considered in accordance with section 2.3.13 of AS1546.3:2017.
- 1.7 Each Garden Master Elite shall be permanently and legibly marked by the manufacturer in accordance with section 3 of AS1546.3:2017.
- 1.8 The manufacturer shall supply with each Garden Master Elite an owner's manual, which sets out the care, operation, maintenance and on-going management requirements of the system. The owner's manual prepared by the manufacturer shall specifically contain a plan for the on-going management of the Garden Master Elite. The plan shall include details of:
- the treatment process,
  - procedures to be followed in the event of a system failure,
  - emergency contact numbers,
  - maintenance requirements,
  - inspection and sampling procedures to be followed as part of any on-going monitoring program developed by the local authority.
- 1.9 The manufacturer shall provide the following information to each local authority where it is intended to install a Garden Master Elite in their area once accreditation has been obtained:
- |                                   |                                      |
|-----------------------------------|--------------------------------------|
| • Statement of warranty           | • Manufacturer's Service Report Form |
| • Statement of service life       | • Engineering Drawings               |
| • Quality Assurance Certification | • Specifications                     |
| • Installation Manual             | • A4 Plans                           |
| • Service Manual                  | • Certificate of Accreditation       |
| • Owner's Manual                  | documentation from NSW Health.       |
- The manufacturer need not provide the above information to the local authority where the information or document is contained on the manufacturer's web site.

## 2. Installation and Commissioning

- 2.1 The owner / occupier shall have the Garden Master Elite inspected and checked by the manufacturer or the manufacturer's agent. The manufacturer or the agent is to certify that the system has been installed and commissioned in accordance with its design, conditions of accreditation and any additional requirements of the local authority.

- 2.2 The owner / occupier shall ensure that all electrical work is carried out on the Garden Master Elite by a licensed electrician and in accordance with the relevant provisions of AS/NZS 3000.
- 2.3 The owner / occupier shall not commission the Garden Master Elite unless the land application system has been completed.

### 3. Maintenance

- 3.1 The owner / occupier of the premises shall enter into a minimum 12-month contract or agreement with a service agent and ensure that the Garden Master Elite is serviced:
- in accordance with the manufacturer's / supplier's service manual and using the manufacturer's / supplier's service sheet; and
  - by a service agent who
    - has completed a course on the servicing and maintenance of STS; and has some supervised servicing experience or extensive un-supervised experience;
    - is employed or authorised by the manufacturer / supplier of the Garden Master Elite;
    - uses replacement parts which meet the minimum specification of the Garden Master Elite;
    - has advised of their name, contact details and credentials to the local authority;
    - submits a completed NSW Health "Local Council Service Report" (attached) to the local authority immediately after every service;
    - shall report to the local authority any instances where the owner / occupier refuses to authorise repairs, replacement of parts or maintenance; and
    - does not perform electrical work or enter confined spaces unless trained and is suitably qualified to do so.
- 3.2 The owner/occupier shall not service the Garden Master Elite unless they are an authorised agent.
- 3.3 The Garden Master Elite once installed and commissioned shall be serviced at 3 monthly intervals.
- 3.4 The manufacturer / supplier of the Garden Master Elite shall place on its web site a copy of the service manual, service sheet or form and specifications for the Garden Master Elite to facilitate servicing, maintenance and repairs. Commercial-in-confidence documents may be provided directly to the service agent without uploading to the web site.
- 3.5 Each three monthly service shall, as a minimum where provided, include a check on all mechanical, electrical and functioning parts of the system including:
- The chlorinator and replenishment of the disinfectant,
  - Any alternative disinfection unit,
  - Replace a UV light globe at recommended intervals and keep a record,
  - Pump and air blower,
  - The alarm system,
  - Slime growth on the filter media,
  - Operation of the sludge return system,
  - The effluent irrigation area,
  - On-site testing for free residual chlorine, pH and dissolved oxygen at the appropriate check points.

### 4. Verification

- 4.1 Effluent from the Garden Master Elite taken in any random grab sample shall comply with the following standard:
- BOD<sup>5</sup> less than 30 mg/L
  - TSS less than 45 mg/L
  - E. coli less than 100 cfu/100 ml
  - Free residual chlorine greater than 0.2 and less than 2.0 mg/L

## 5. Permitted uses

5.1 The effluent is suitable for re-use for garden purposes by way of any of the forms of irrigation as described in AS/NZS 1547:2012:

- above ground spray irrigation; and/or
- surface drip irrigation covered by mulch; and/or
- sub-surface drip irrigation installed at around 100 mm depth; and or
- any form of sub-soil application.

Each of the forms of irrigation or application is subject to the approval of the local authority.

## 6. Advanced Secondary Treatment System

6.1 The Garden Master Elite when tested by a Product Certification Body in accordance with AS1546.3:2017 was found to comply with the Advanced Secondary Effluent Criteria as follows:

**TABLE 2.1 (Abrev) AS1546.3:2017  
ADVANCED SECONDARY EFFLUENT COMPLIANCE CRITERIA FOR A STS**

Parameter	Advanced secondary effluent	
	90% of Samples	Maximum
BOD5	≤ 10mg/L	20 mg/L
TSS	≤ 10 mg/L	20 mg/L
<i>E. coli</i> *	≤ 10 cfu/100mL	30 cfu/100mL
FAC ‡	Minimum 0.5 mg/L†	N/A
Turbidity ?	N/A	10 NTU

\* Where disinfection is required.

‡ Where chlorine disinfection is used.

† Minimum level, not 90% of samples.

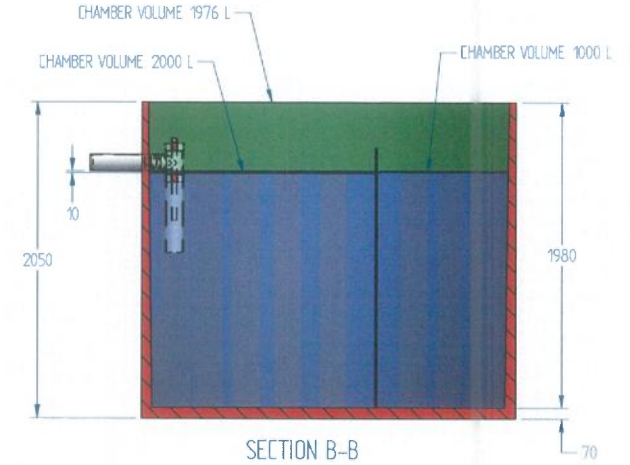
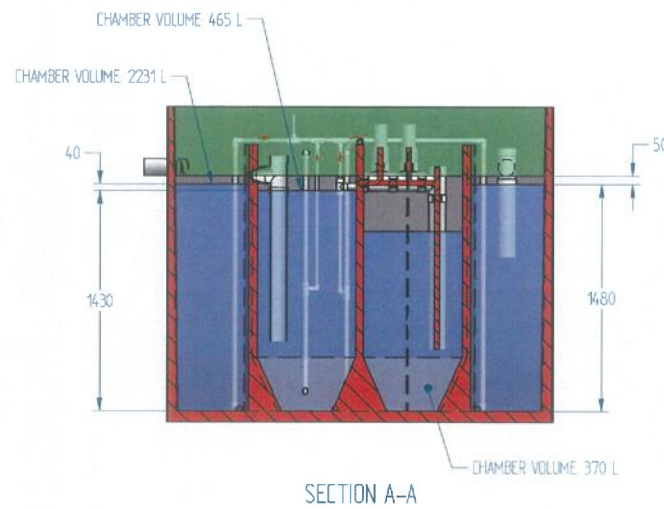
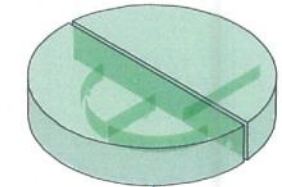
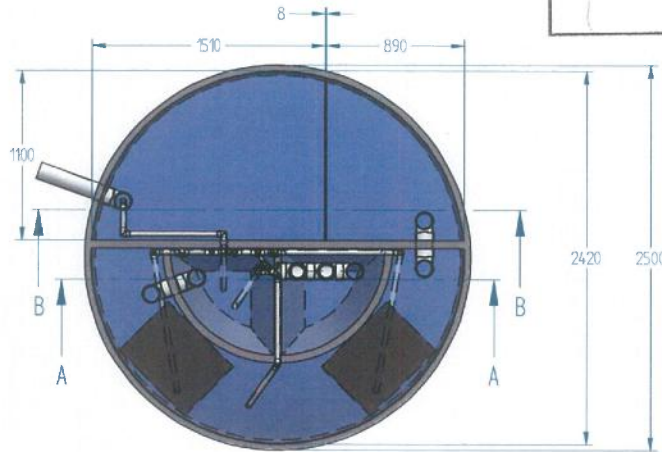
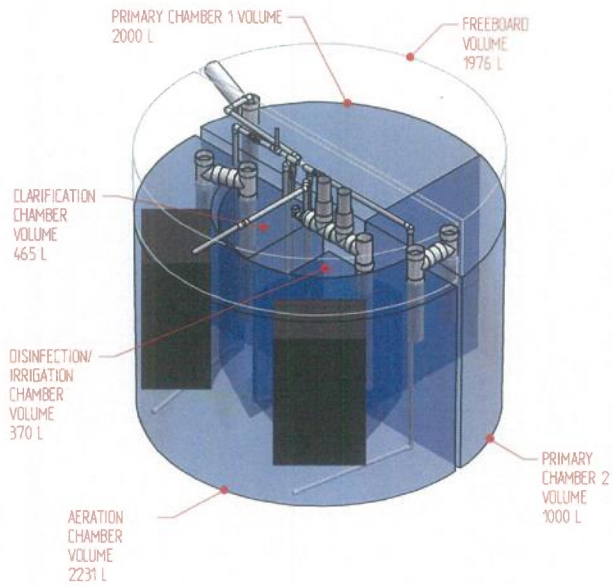
? Where UV light is used for disinfection.

Local Council STS (DGTS) Service Report: February 2018		
Owner's Name:	Local Council:	
Installation Address:		
System Brand & Model:	<input type="checkbox"/> Domestic	<input type="checkbox"/> Commercial
Date of this service: / /	Date of last Service: / /	Next service due: / /
Has the STS/DGTS been <b>serviced</b> in accordance with the manufacturer's / supplier's requirements and using the service sheet? <input type="checkbox"/> Yes <input type="checkbox"/> No If "No" why not?		
STS/DGTS <b>functioning</b> correctly? <input type="checkbox"/> Yes <input type="checkbox"/> No If "No" why not?		
According to sludge-judge or other methodology is de-sludging needed? <input type="checkbox"/> Yes <input type="checkbox"/> No If "Yes" what action is recommended?		
Offensive odours?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If "Yes" what action is recommended?
Alarms tested and functional?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If not "functional" what action is recommended?
<b>Final Effluent Quality</b>		
Tested?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Disinfected?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Chlorine tablets remaining?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Quality?	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory	
On what evidence is this judgement made? If "Unsatisfactory" what action was recommended?		
<b>Land Application Area</b>		
Surface ponding?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Run off?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Excess plant growth?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Effluent leaving premises?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
High risk areas contaminated?*	<input type="checkbox"/> Yes <input type="checkbox"/> No	* Patio, play areas, BBQ, etc
Operating satisfactorily?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If "Not operating satisfactorily" what action was recommended?
<b>Overall Condition of STS?</b> <input type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor		
Comments / Action Recommended / Repairs Needed / Repairs Performed:		
Has the owner / occupier taken recommended actions? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Service Agent:	Contact Details:	
Signature:	Date:	

Source: Adapted from "Checklist 4.2: Operational AWTS inspection report for use by service providers and Council inspectors" in *Designing and Installing On-Site Wastewater Systems*, Sydney Catchment Authority, May 2012

ACCREDITED  
- 6 JUL 2020  
NSW MINISTRY OF HEALTH

TITLE	VOLUME
PRIMARY CHAMBER 1 VOLUME	2000 L
PRIMARY CHAMBER 2 VOLUME	1000 L
AERATION CHAMBER VOLUME	2231 L
CLARIFICATION CHAMBER VOLUME	465 L
DISINFECTION/IRRIGATION CHAMBER VOLUME	370 L
FREEBOARD VOLUME	1976 L



		PROJECT	GARDEN MASTER ELITE	
		TITLE	TREATMENT TANK ROUND	
COPYRIGHT <small>THIS DRAWING AND INFORMATION IS UNCLASSIFIED UNLESS OTHERWISE SPECIFIED BY THE PROPERTY OF GARDEN MASTER PTY LTD AND GARDEN MASTER PTY LTD IS NOT RESPONSIBLE WITHOUT WRITTEN PERMISSION</small>	DATE PLOTTED	17/05/2019		SHEET SIZE
	SCALE	DO NOT SCALE		A3
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MM	DRAWING LAST MODIFIED BY	PART#	2500x2050 TT-R	VERSION
	Peter McKay			1
				1 OF 1

