



Certificate of Accreditation

Sewage Management Facility

Vermiculture Composting Secondary

Treatment System

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 2021.

System: *WormSmart Plus Vermiculture Composting
Secondary Treatment System*

Manufacturer: *Property Werx Pty Ltd t/a WormSmart*

Of: *42 Production Drive, Wauchope, NSW, 2446
PO Box 688, Port Macquarie, NSW 2444*

The WormSmart Plus Vermiculture Composting Secondary Treatment System described in Schedule 1 is accredited as a sewage management facility for use in single domestic premises in NSW. This accreditation is subject to the conditions of accreditation and permitted uses specified in Schedule 2.

P. Byereld

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

Issued: *10 / March / 2023*

Certificate No: *STS-VC001*

Expires: *31 December 2027*

Schedule 1: Specification

WormSmart Plus (WSP1500PF) Vermiculture Composting STS

The WormSmart Plus (WSP1500PF) Vermiculture Composting STS (WormSmart Plus) is designed for onsite treatment of domestic sewage from a residential dwelling occupied by a maximum of ten people. The WormSmart Plus is contained in two Everhard Industries polypropylene collection wells vessel each with a design capacity of 3000 L. The NSW Health Accreditation Number is STCW001. Two other subsidiary vessels not needing NSW Health Accreditation are used.

Chamber	Design capacities
Total System	6000 L+ 800 L
Primary treatment Total	3000 L
• Partition	Yes
Sludge Tank	400 L
Secondary treatment	3000 L
Disinfection / Irrigation chamber	400 L
Emergency storage	1000 L

The Wormsmart Plus is a package wastewater treatment plant that comprises of a primary vermiculture compost plant followed by a sludge and sediment filter then a single pass trickling filter. The final effluent is disinfected with chlorine before utilisation and reuse. It is an eco-friendly and sustainable alternative to existing mechanical treatment plants and comprises of 4 stages:

1. **WASTEWATER ENTERS THE SYSTEM:** All grey and black water from the property is plumbed into the tank via a standard single line 100mm DWV pipe. This is a standard connection that would be found in most other septic and sewer connections.
2. **NATURE DOES ITS WORK:** The primary tank contains worms that break down the organic waste and turns it into an organic humus, aerobic bacteria feed on and digest the humus and further treat the water as it passes through the organic matter and incorporated filter into a sub chamber.
3. **FURTHER PASSIVE FILTRATION:** From the primary tank the water is lifted via a high quality and low wattage submersible pump (if required) into a raised sludge and sediment filter. (This filter is easily accessible for cleaning and servicing). Gravity then sends the water to evenly disperse into the second tank where it slowly trickles through and gets further treated by aerobic bacteria.
4. **DISPERSAL AND DISENFECTION:** The filtered water will pass through a compulsory chlorine disinfection unit before being dispersed out into the irrigation area where the organically nutrient rich water will work to improve the quality of the soil.

Fault Warning System: The System is provided with an automatic fault warning alarm system which includes an internally wall mounted, mutable audible, fault warning panel for inside of a building in addition to a flashing warning light detecting failure of the discharge pump.

Emergency Storage: 2200 L of emergency storage capacity is achieved via additional height of chambers above operational level and gravity feed preventing system short circuiting.

Service Interval: Three monthly

Schedule 2: 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 2021*, to the local authority for approval to install and operate the WormSmart Plus 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 WormSmart Plus issued under Clause 45(4), *Local Government (General) Regulation 2021*.
- 1.3 In accordance with Clause 36 of the *Local Government (General) Regulation 2021*, the WormSmart Plus 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 WormSmart Plus 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 WormSmart Plus 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 WormSmart Plus 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 WormSmart Plus shall not be permitted.
- 1.7 Each WormSmart Plus 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 WormSmart Plus 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 WormSmart Plus. 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 an WormSmart Plus in their area once Ministry Accreditation has been obtained:

- Statement of warranty
- Statement of service life
- Quality Assurance Certification
- Installation Manual
- Service Manual
- Owner's Manual
- Manufacturer's Service Report Form
- Engineering Drawings
- Specifications
- A4 Plans
- Certificate of Accreditation documentation from NSW Health.

The manufacturer need not provide the above information to the local council 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 WormSmart Plus 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 WormSmart Plus by a licensed electrician and in accordance with the relevant provisions of AS/NZS 3000.

2.3 The owner / occupier shall not commission the WormSmart Plus 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 WormSmart Plus 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 WormSmart Plus;
 - uses replacement parts which meet the minimum specification of the WormSmart Plus;
 - has advised of their name, contact details and credentials to the local authority;
 - submits a completed NSW Health "Local Council Service Report" (template 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 WormSmart Plus unless they are an authorised agent of the manufacturer.

3.3 The WormSmart Plus once installed and commissioned shall be serviced at three (3) monthly intervals.

- 3.4 The manufacturer / supplier of the WormSmart Plus shall place on its web site a copy of the service manual, service sheet or form and specifications for the WormSmart Plus 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,
 - 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 WormSmart Plus taken in any random grab sample shall comply with the following standard:
- BOD⁵ 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 Reduction in nutrient levels

During the testing of the WormSmart Plus the treated effluent was tested for total Nitrogen (TN) and total Phosphorous (TP) concentrations. The treatment process has the capacity to reduce the TN and TP concentrations as follows:

- Total N from an average of 70.37 mg/l to 41.3 mg/l which represents a reduction of 41.27%.
- Total P from an average of 11.64 mg/l to 9.82 mg/l which represents a reduction of 15.55%.



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 serviced 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 functioning 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?		
Final Effluent Quality 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?		
Land Application Area 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?		
Overall Condition of STS? <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:

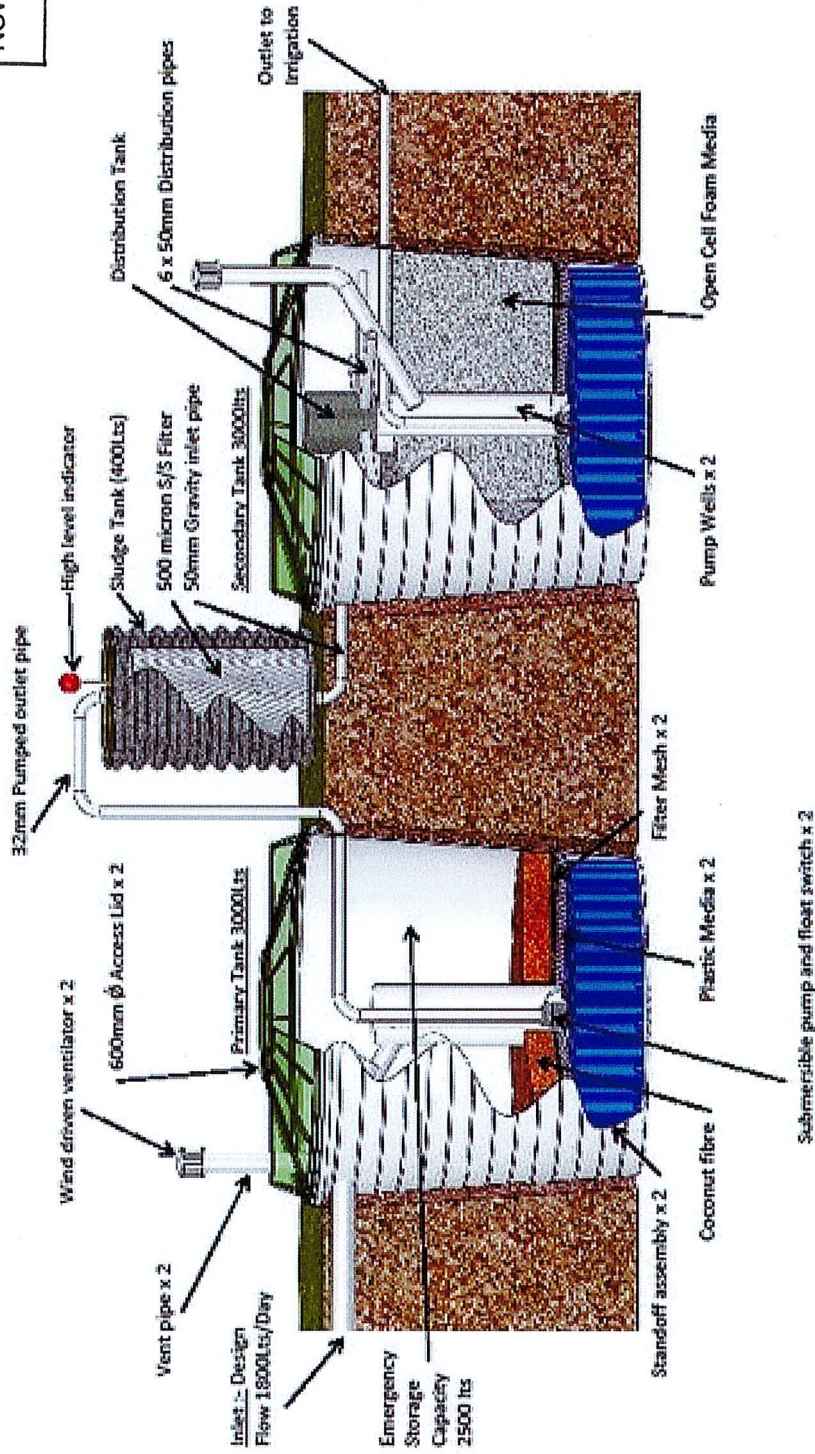
Source: Adapted from "Checklist 4.2: Operational AWTS inspection report for use by service providers and Council inspectors" in *Designing and Installing On-Site Wastewater Systems*, Sydney Catchment Authority, May 2012

ACCREDITED

10 MAR 2023

NSW MINISTRY OF HEALTH

Warmsmart Waste water treatment system



Wayne Gilinsky 0274 372 0889 (No unauthorised duplication of this document is permitted without the owners permission.)