

TREATMENT PLANT APPROVAL 01/2024
Plumbing and Drainage Regulation 2019, part 4

Approval

1. The **M800 – Greywater Treatment System** (“the System”) described in the Specifications and Drawings in the attached Schedule and manufactured by **Aqua Clarus Holdings Pty Ltd** (ABN 810 942 428 14) (“the manufacturer”) has been assessed in accordance with the *Queensland Plumbing and wastewater Code Version 1 2024 (QPWC)*.
2. Approval is granted for the system as an “**High quality effluent**” wastewater treatment system, subject to compliance by the manufacturer with the requirements of the *QPWC – Schedule 1*, and the *Queensland Plumbing and Drainage Regulation 2019* and the conditions of approval detailed below.
3. As no changes have been made to the system, this approval replaces the previous Treatment Plant Approval (TPA) TPA 03/2021 Amendment 1 issued on 22 December 2023.
4. This approval, the conditions of approval and the Schedule comprise the entire Chief Executive Approval document.
5. Any modification by the manufacturer to the design, drawings or specifications scheduled to this approval must be approved by the Chief Executive.

Conditions of approval

6. The manufacture, installation, operation, service, and maintenance of the system must be in conformity with the conditions of this TPA.
7. The system may only be used on premises that generate per day:
 - (a) a maximum hydraulic loading of 720 L; and
 - (b) a maximum organic loading of 400 g BOD₅.
8. For the system to meet the requirements of a “**High-quality effluent**” greywater treatment system, the system must produce the following effluent quality —
 - 90% of the samples taken must have a BOD₅ less than or equal 10 g/m³ with no sample greater than 20 g/m³; and
 - 90% of the samples taken must have total suspended solids less than or equal 10 g/m³ with no sample greater than 20 g/m³; and
 - 90% of the samples taken must have thermotolerant coliform count not exceeding 10 organisms per 100 mL with no sample exceeding 200 organisms per 100 mL.
 - The total chlorine concentration shall be greater than or equal to 0.5 gm³ and less than 2.0 g/m³ in four out of five samples taken.
9. Each system must be serviced in accordance with the manufacturers details supplied in the owner’s service and maintenance manuals.
10. Each system must be supplied with —
 - (a) a copy of this Treatment Plant Approval document;
 - (b) details of the system and ancillary equipment;
 - (c) instructions for authorised persons for its installation;
 - (d) a copy of the owner’s manual to be given to the owner at the time of installation; and
 - (e) detailed instructions for authorised service personal for its operation and maintenance.

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11. This approval does not extend, apply to, or include the land application system used in conjunction with an approved system installed on premises.
12. At each anniversary of the Treatment Plant Approval date, the manufacturer must submit to the Chief Executive a list of all systems installed in Queensland that they have received an installation and commissioning certificate for during the previous 12 months.
13. Where the Chief Executive is notified of any system failures that they believe are a result of poor design or faulty manufacture, the Chief Executive may randomly select several installed systems for audit. The Chief Executive will notify the National Association of Testing Agencies (NATA) accredited laboratory nominated by the manufacturer, which systems are to be audited for Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids (TSS). The sampling and testing of the selected systems, if required, is to be done at the manufacturer's expense. The following results must be reported to the Chief Executive;
 - (a) Address of premises.
 - (b) Date inspected and sampled.
 - (c) Sample identification number.
 - (d) Biochemical Oxygen Demand (BOD₅).
 - (e) Total Suspended Solids (TSS).
14. The Chief Executive may, by written notice, cancel this approval if the manufacturer fails — to comply with one or more of the conditions of approval; or within 30 days, to remedy a breach, for which a written notice been given by the Chief Executive.
15. This approval may only be assigned with the prior written consent of the Chief Executive.
16. This approval expires on **30 April 2029** unless cancelled earlier in accordance with paragraph 14 above.

Lindsay Walker



Director
Plumbing, Drainage and Special Projects
Date approved: 29 April 2024

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SCHEDULE

M800 Greywater Treatment System.

Attachment 1 – M800 Greywater Treatment System - Operators manual.

Attachment 2 – M800 Greywater Treatment System - Schematic diagrams.



GREYWATER TREATMENT SYSTEM

M800s

Owner's Manual

Dec 2016

Serial No. M800s-number this month-month-year

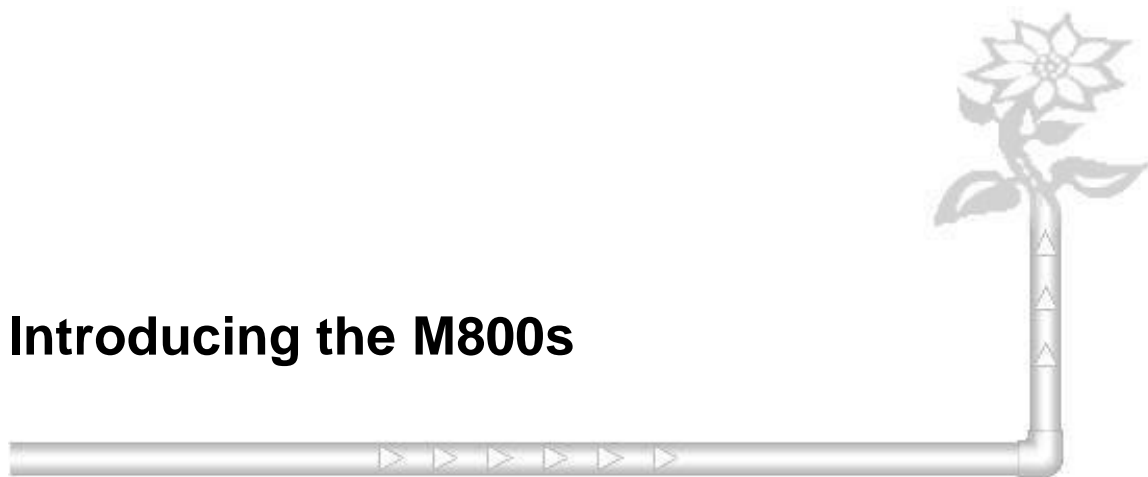




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Introducing the M800s



Congratulations...

...and thank you for purchasing the Aqua Clarus M800s Greywater Treatment System, the most environmentally friendly and sustainable method of processing domestic greywater.

The system treats domestic grey wastewater from houses with no more than 4 bedrooms (up 8 occupants). The greywater system produces reclaimed water of exceptional quality. It is able to treat on average 720 litres/day with a maximum daily load of 1000 litres.

Your system has the technology to be remotely monitored by Aqua Clarus and this is included as part of your service agreement with us. This then enables us to identify potential problems early and deal with these, thereby giving you peace of mind.

About Aqua Clarus

Aqua Clarus was founded to develop, manufacture, distribute and service a sustainable method of processing domestic sewage and purifying the water for irrigation and/or recycling.

Our vision is to be "The World Leader" in the treatment, recycling and reuse of organic waste, wastewater and polluted water.

We are dedicated to providing premier customer service with a strong focus on after sales service and support. Please see our web site www.aquaclarus.com for company information and contact details.

About This Manual

This manual describes the Aqua Clarus M800s Greywater Treatment System and how to use it.

If you require further information about the system please contact us through our web site www.aquaclarus.com.

Compliance and Accreditation

The M800 Greywater Treatment System is manufactured by Aqua Clarus International Pty Ltd and complies with relevant Australian and New Zealand standards under licence from Aqua Clarus Holdings Pty Ltd.

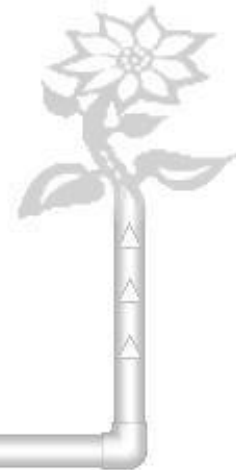
Treatment Plant Approval

Approved by: Lindsay Walker

Delegated Authority

Department of Energy & Public Works



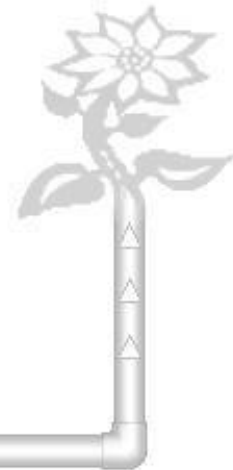


Benefits of the System

The M800s Above Ground Greywater Treatment System has many benefits:

- It produces treated reclaimed water of a much higher quality than that produced by traditional domestic systems
- The unit is one of a few systems approved to recycle kitchen waste water
- The following results are typical:
 - BOD5 – less than 10 mg/l
 - Suspended solids – less than 2 mg/l
 - Faecal coliforms – less than 5 mg/l
 - TKN- less than 5mg/l
 - Total N less than 10mg/l
 - Total P less than 10mg/l
- The unit fits in to a small space and can be generally located against the domestic building
- The system utilises the latest technology for membrane filtering and UV treatment
- Only reliable components are used
- The system is efficient and only needs servicing once every 6 months
- The unit uses the equivalent in power of one 60w light globe running all day so is remarkably efficient
- The system does not use any harmful chemicals such as chlorine.
- The Grey water system is robust and efficient.
- The system is lightweight and the above ground unit only weighs approximately 80 kilograms when empty

How the System Works

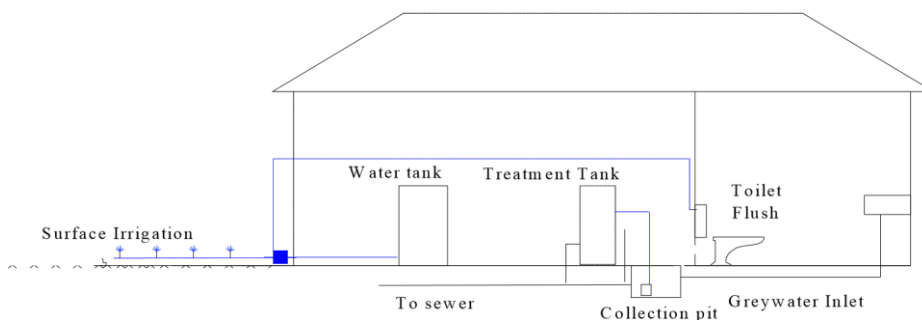


The M800s system is an on-site packaged greywater treatment system designed to treat household greywater and kitchen waste water from domestic houses at the rate of 720 litres per day with up to eight occupants.

The system comprises a below ground collection tank which is coupled to an above ground treatment tank. The recycled water is connected to the house for re-use but additionally the below ground tank is connected to the sewer in case of malfunction.

The M800s uses a state-of-the-art treatment process that produces reclaimed water of exceptional quality at a reasonable cost.

An overview of the treatment systems is illustrated below.

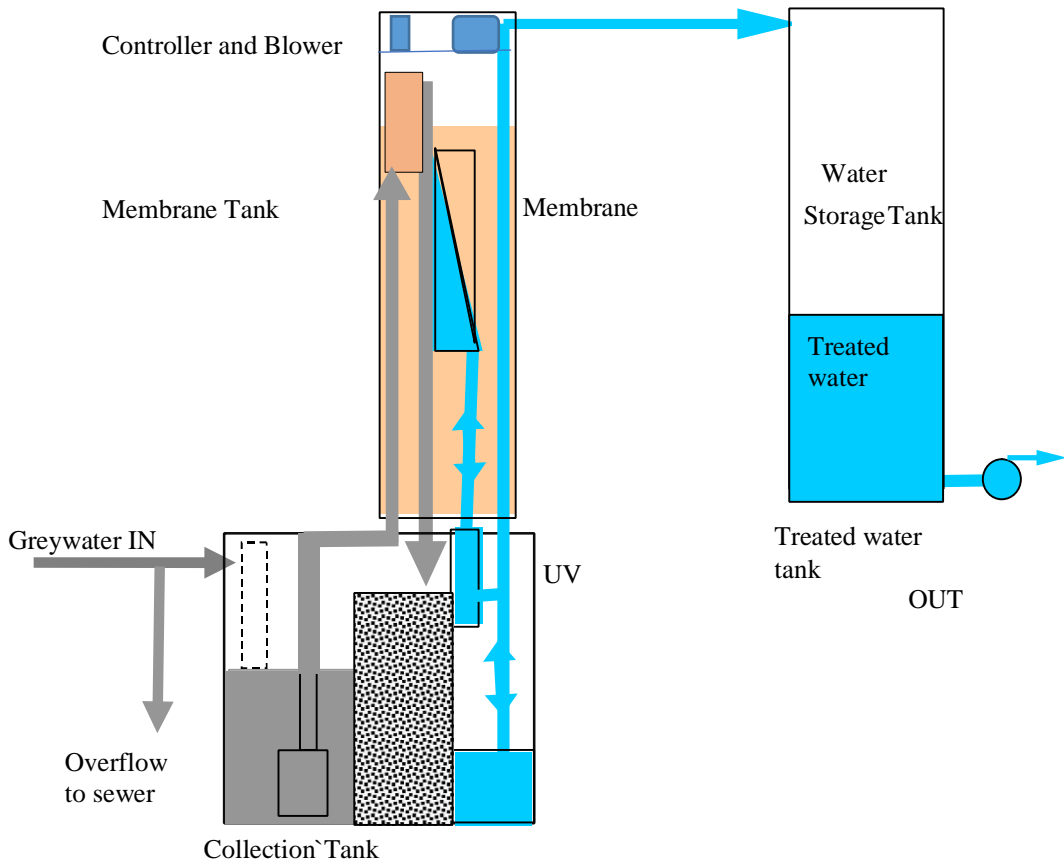


How Waste is Processed

The greywater flows into an in ground feed tank where the liquid is strained to remove hair, lint and other items. The collected liquid is then pumped to the above ground treatment system where it enters a bioreactor, membrane filter and finally passes through an ultraviolet disinfection system before entering a small treated water tank.

When the liquid in the water tank reaches a predetermined level it is automatically pumped back to backflush the membranes. The bulk of the treated water is pumped to a larger water storage tank for reuse. Solids removed in the process are discharged to sewer or other approved solid treatment system.

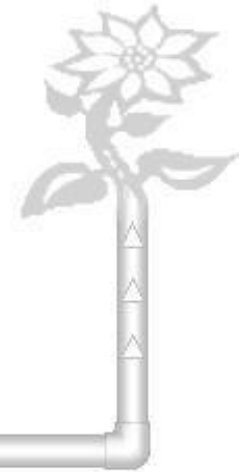
A schematic of the system is as follows:-



Electrical, mechanical and communication

The M800s utilises four small low wattage pumps, an ultra-violet disinfecter and an aerator. The system is self-contained and only needs to connect to a standard 10 amp GPO outlet.

A audio visual alarm is also incorporated in to the system with light and buzzer which alerts you to a problem.



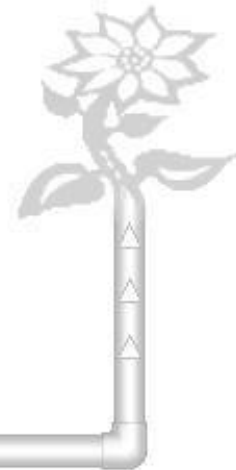
Using Your Greywater System

After installation, your installer will start up and commission the system, running it in start-up mode for 4 weeks to ensure the unit is functioning, cycling and treating water correctly and in line with council requirements. At the end of the start-up period an Aqua Clarus representative will return, inspect the system and ensure it is operating correctly. The representative will take you through the system and “handover” to you, telling you when you can begin using it.

Once your system is operational, you will need to do very little to maintain it.

There are some do’s and don’ts though as some materials may damage and/or create blockages in your system (or household plumbing), or could affect the health of the living organisms in the system.

- DO NOT add anything to the system that will disrupt the biological processes as detailed below.
- You CAN use general household detergents and cleaners in moderation.
- DO NOT add more than one quarter of a cup of bleach to the system in any given day.
- You should if possible use in-sink food disposal units.
- DO NOT wash fats or oils down your sink, other than those washed off during normal dishwashing.
- NEVER add sump oil, paint thinner/stripper or any other toxic chemicals to the system under any circumstances. These substances should be disposed of in a manner approved by your Local Authority.
- If any of these materials accidentally enter the greywater entry pipe from the house then you should turn the M800 system off, open the in ground collection tank and open the divert valve to sewer. Restart the system and pump the collection tank completely out. .
- Once empty it should be flushed with water before again emptying and closing the valve and recycling the system to start.



Servicing the System

Standard Service

Under government legislation, a service agreement is required for all on-site sewerage treatment systems. This ensures that the system is periodically checked for correct operation. The M800s service interval is six monthly. Aqua Clarus offer Service Agreements on their systems and we will manage the servicing of your system for you. Alternatively, you may care to make your own arrangements with a local plumber.

Please note your warranty will be void if unauthorised personnel service the system.

Your first service is scheduled for 6 months from the installation date. (The installation date is noted on the installation report completed by your installer and submitted to the Aqua Clarus Head Office when installation is complete.)

For a standard service, the service person will:

- test and check all electrical, mechanical and testable components
- inspect and report on the condition of the Land Application area
- test and check the Remote Monitoring System if connected

Optionally the service person will also:

- carry out water testing if required by Local Authorities (charges apply)
- provide instruction to new occupants on the operation of the system, if the property has been sold.

The standard service will usually require less than one hour (excluding travelling) to complete. If parts need to be replaced or additional service work is required

A copy of each service report will be provided to you and your local authority. We suggest that you keep your copy of all reports with this manual.

Alarm Panel

There is an alarm panel on the front of the cabinet.

This contains a green power light, red alarm light, and a switch to silence the buzzer

The green power light indicates the 240v supply is on. If the power fails and the power light goes out a battery will operate the probes and the alarms will still activate until the battery runs out (1 Day). However the blower and pumps will not work and the collection tank will fill with greywater and overflow to sewer.

Alarms

Please contact your service provider if the system alarms

The alarm buzzer sounds and red alarm light activates and is continuously red if the system overfills. The alarm will activate 2 hours after the high level probe is covered.

The alarm can be muted by pushing the mute button on the alarm panel. The red light will remain on until the fault is rectified.

Other reasons for reporting a problem could be smell, flies, unusual noise or damage to the system (bush fire, floods etc)

A service person will visit the site as soon as practical depending on the seriousness of the problem.

For the audio visual system, if the alarm sounds....

- Press the alarm mute button on the alarm panel to stop the sound.
- Make sure there is power to the system (i.e. is the power light illuminated).
- NOTE - if there is a power failure and the pumps stop cycling the system will automatically overflow to sewer so water does not escape.
- If the problem is not a power failure please phone Aqua Clarus or contact your local authorised Aqua Clarus Representative.

If you have any problems outside of regular service arrangements, please contact us through our web site www.aquaclarus.com



Commissioning report



You must have approval from the local council or relevant authority before your system is installed.
If approval is not obtained, your warranty will be void.

Commissioning will be carried out as soon as possible after installation. The final handover will occur 4 weeks later when operation and water quality will be checked.

COMMISSIONING REPORT

Installer details:

Company name

ABN.....Lic number.....

Installer Name.....Phone

Date installed:Serial Number.....

Connection / Toilet Flushing / Irrigation details: Notes

.....

.....

- Council approval obtained
- Warranty card completed and returned
- Service agreement signed
- Systems operation explained at start up

Warranty Information

The Aqua Clarus M800s Greywater Treatment System is engineered from quality components and must be installed by qualified people.

The system has an expected service life of 15 years, excluding electrical and mechanical components.

- It is covered by a Comprehensive Manufacturers Warranty of two (2) years on all parts and labour
- All electrical parts shall have a service life of five years and a warranty period of 12 months
- All pumps and blowers shall have a service life and warranty period in line with the manufacturer's warranty for those components

The warranty is validated when Aqua Clarus receives the completed warranty reply card.

To maintain the warranty:

- Council approval must be obtained prior to installation
- a regular six monthly service must be carried out and recorded by a service person approved by Aqua Clarus
- the system must be maintained in good working order, save due wear and tear
- the area around the unit must be kept clear of debris and other items which may impede the performance of the system
- the system must be operated according to the instructions supplied when it is installed or as modified from time to time
- no modifications to the system may be made without the prior approval of Aqua Clarus International Pty Ltd

Please complete the attached warranty reply card. Post it to the supplied address on your warranty card within fourteen (14) days of the installation date.

Please record the date the warranty card was posted to Aqua Clarus International Pty Ltd below: -

Date:

Warranty Card

Owner's Name:
Postal Address:
.....
Contact Numbers:Day.....After Hours
Email:.....

Return this warranty card by post.

.....Fold Here

	Affix Postage Stamp
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Aqua Clarus International Pty Ltd
PO Box 337
Bulimba Q4171

.....Fold Here

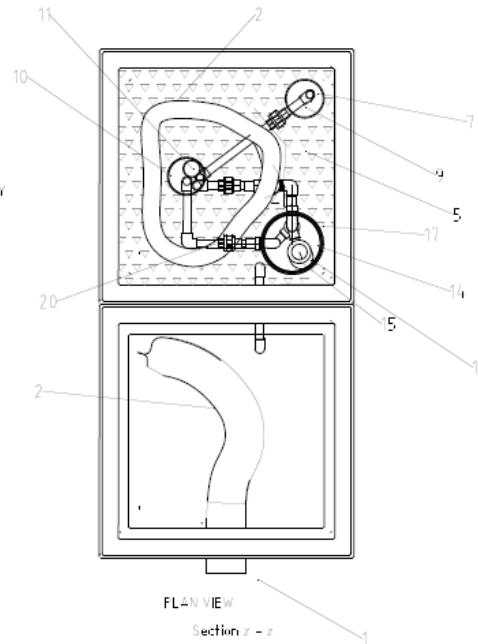
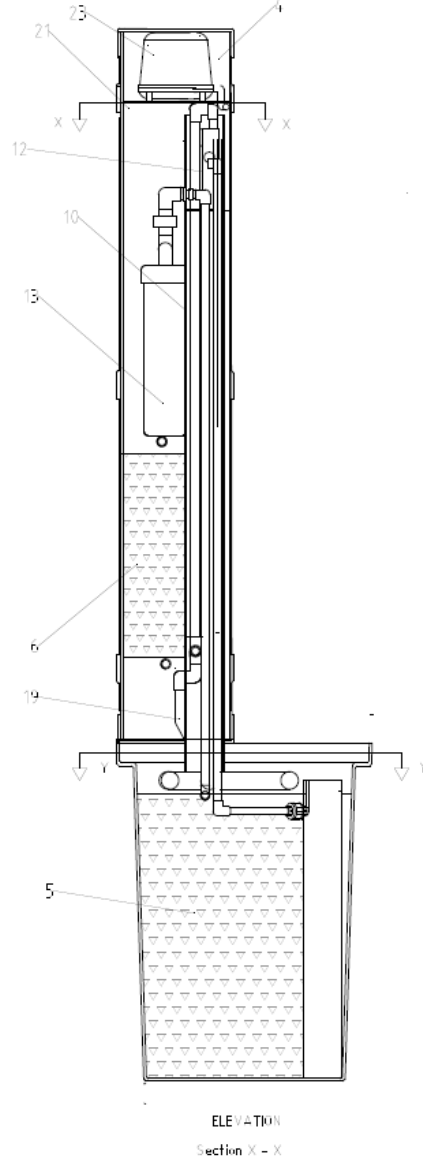
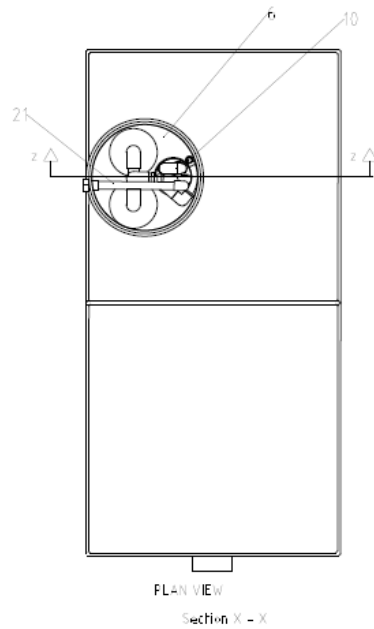
Site Address: Purchase Date:

..... Serial Number:

Installer:



Attachment 2 – M800 Greywater Treatment System - Schematic diagrams.



ITEM	DESCRIPTION	DETAIL
1	Inlet Pipe	100DWV from inlet and to overflow
2	Pre-filter	100mm ag pipe with sock
3, 3a	Collection tank	Everhard Tank Pumpwells with extension. 500 litres
4	Membrane Tank/upper section housing blower	300mm SW pipe with end caps
5	Trickle bed reactor	100mm ag pipe cut into 100mm lengths 220l
6	Treatment cartridge	50 mm ag pipe cut into 50mm lengths
7	Recirculation Pump	12v pump
8	Pump-well	10mm DWV pipe
9	Collection tank floats	Two magnetic float switches
10	Standpipe	Two magnetic float switches
11	Aeration tube	50mm ag pipe without holes
12	Membrane feed tank	100 mm DWV
13	Membrane cartridge	2x Microdyn NadirUltra flow UF Membrane BT42
14	Booster pump	Rule 12 v
15	UV	Wedeco LCU2
16	Water tank	SW pipe with end caps 30 litres
17	Water tank Floats	Two magnetic float switches attached to outlet pipe
18	Water Tank Pump	Rule 12v pump
19	Air lift pipes	Lift 20mm pipe Air pipe 15mm
20	Solenoid valve	12v DC solenoid valve
21	Outlet pipe	15mm female connection
22	Contol Panel	300mm SW pipe
23	Blower	Hiblow HP80 Blower
24	Controllor	Aqua Clarus specification
25	Air lift pipe	20mm pipe

M800s GREYWATER SYSTEM
Key Components

DATE - 11/04/18
DWE - 11/0/18

AU M800-04-003