



# Certificate of Accreditation

## On-Site Waste Water Management System

This Certificate of Accreditation is hereby issued by the Minister for Building and Construction pursuant to Section 18 of the *Building Act 2000* and the Plumbing Code of Australia as applicable.

System:	<b>Nature Loo Classic 850 Water Free Composting Toilet System</b>
Manufacturer or Supplier:	<b>Ecoflo Waste Water Management Pty Ltd, ABN 33 606 583 895</b> <b>As above</b>
Of:	<b>6 Hurricane Street, Banyo, QLD 4014</b>

This is to certify that the Nature Loo Classic 850 Water Free Composting Toilet System (the system) as described in Schedule 1, has been accredited for use as an on-site waste water 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 the Plumbing Code of Australia as applicable.

**Dale Webster**

**Director of Building Control**

*Delegate of the Minister for Building and Construction*

**Date of Issue: 20 April 2018**

**Certificate Number: BSR0368/2013**

**This Certificate of Accreditation is valid until 20 April 2023 and subject to conditions unless withdrawn earlier by the Director of Building Control**

## Schedule I: Specification

### Informative

## Nature Loo Classic 850 Water Free Composting Toilet System

### General Description

The Nature Loo Classic 850 Water Free Composting Toilet System (the system) is designed to receive and treat human waste from one toilet pedestal in a domestic situation. No flushing water is required. A 12 volt DC supply is required for the fan. Organic material (sugar cane mulch or other organic material as recommended by the *supplier*) should be added to the composting wastes as a bulking agent at the intervals specified by the *supplier*, together with an enzyme additive recommended by the *supplier*. The system is designed to reduce such wastes, after a minimum composting period as detailed in the owner's manual, into an innocuous relatively dry waste that is capable of being disposed of in the ground within the premises where it has been generated.

This is a batch system and features a pedestal directly above the tapered circular composting chamber with a chute to convey waste to the composting chamber (bin). The chamber is placed directly below the pedestal in a basement or sub-floor area. A 12 volt extractor fan and flexible air hose lead from the composting chamber to an external rigid plastic vent pipe. The vent pipe is fitted with a moisture trap and rain cap.

The Nature Loo Classic 850 chambers have a diameter of 740 mm and a height of 700 mm. The design capacity is determined by the number of composting chambers that are supplied and used in batch rotation.

For identification purposes illustrations, engineering drawings and schematic drawings showing the parts of the systems are provided in appendices A to B. For further details refer to the appropriate Owner's Manuals.

### Design capacity

The *supplier's* specifications for composting capacity and usage of the systems are shown in the following table:

Model	Description	Residential use, Adults	Power
Classic 850-2 (2 bins)	Batch waterless toilet	3-4 persons	12 volts
Classic 850-3 (3 bins)	Batch waterless toilet	4-5 persons	12 volts
Classic 850-4 (4 bins)	Batch waterless toilet	5-6 persons	12 volts

### Energy consumption

The system requires a 12 volt DC supply for the ventilation/ extractor fan. The fan is recommended to be run continuously. The fan can be powered by battery or 240 volt AC to 12 volt DC adapter. The cost of charging the 12 volt battery will depend upon the type of battery and whether the charger is supplied by 240 volt AC mains, generator or photo-voltaic (solar).

Electrical Equipment	Watts	Daily operation (hours) specified by manufacturer	kWh/year	Estimated Annual Cost
Sunon Extractor fan	2	24	17.5 @12 volts	See above

## Description of Treatment Process

The *system* is supplied with up to four composting chambers (bins) which are rotated in sequence (batch processing) in order to achieve the design capacity.

- Faeces and urine fall by gravity from the pedestal directly into the composting chamber. No flushing water is required. Organic material (bulking agent) is added at intervals, together with additives and enzymes as recommended by the *supplier*.
- A 12 volt DC fan draws air through the pedestal, over the compost pile and evaporating chamber and up an external vent stack. The vent stack is fitted with a rain cap and moisture trap. Air circulation to the out of service chambers of the *system* is available as an option by way of a 12 volt powered fan ventilation *system* in lieu of a wind driven ventilator.
- Each composting chamber has a perforated floor which allows urine and other liquid to pass to the base of the *system* where it is evaporated by circulating air. Any excess liquid drains to a small absorption trench. See condition 2.2 (d).
- When the compost in the chamber reaches the volume recommended by the *supplier*, the chamber is replaced by an empty chamber and the full chamber is allowed to mature. The *system* is designed to reduce the wastes into an innocuous, relatively dry product after a minimum composting period of 6 months. When the compost has matured it may be disposed of on-site in accordance with the conditions of accreditation.
- The frequency of rotation of the compost chambers depends on usage.
- The compost chambers and compost pile must be maintained at a minimum temperature of 15 degrees Celsius in order for the microbial action to properly compost the waste.
- The compost pile must be maintained at an optimum moisture level in order for proper composting to take place. See owner's manual for details.

## Schedule 2: Conditions of Accreditation

### Normative

#### I Definitions

Where included in this Certificate of Accreditation and Schedules:

**AS/NZS 1547** means the Joint Australian/New Zealand Standard ‘AS/NZS 1547:2012 On-site domestic-wastewater management’;

**AS/NZS 1546.3** means the Joint Australian/New Zealand Standard ‘AS/NZS 1546.3:2008 On-site domestic wastewater treatment units, Part 3: Aerated wastewater treatment systems’;

**AS/NZS 3000** means the Joint Australian/New Zealand Standard ‘AS/NZS 3000:2000 Wiring rules’;

**AS/NZS 5667** means the Joint Australian/New Zealand Standard ‘AS/NZS 5667.1:1998 Water quality – Sampling, Part 1: Guidance on the design of sampling programs, sampling techniques and preservation and handling of samples’;

**BOD<sub>5</sub>** 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 system have been met and all pre-commissioning tests have been carried out in accordance with AS/NZS 1547 on all associated equipment including the land application system’;

**Designer** means ‘a person who is accredited under the *Building Act 2016* or a *Plumber* who has a specialty in the area of designing on-site waste water management system installations’;

**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/m<sup>3</sup>** means grams per cubic metre, which is equivalent to milligrams per litre (mg/L);

**Informative** defines the application of Schedule 1, which is for information and guidance only;

**Manufacturer** means ‘**Ecoflo Waste Water Management Pty**’;

**NATA** means ‘National Association of Testing Authorities’;

**Normative** defines the application of Schedule 2, which is an integral part of the Certificate of Accreditation;

**PCA** means ‘Vol. 3 of the National Construction Code (Plumbing Code of Australia)’;

**Permit** means ‘a Permit issued by the *council* pursuant to section 154 of the *Building Act 2016*’;

**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’;

**Plumber** means a person who holds an appropriate class of licence under the *Occupational Licensing Act 2005* as a Plumber Practitioner (Certifier);

**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 for the **Nature Loo Classic 850 is Ecoflo Waste Water Management Pty Ltd**;

**System** means **Nature Loo Classic 850**;

**TSS** means ‘Total Suspended Solids’.

## 2 General

- 2.1 For each installation the owner/occupier of the premises must make an application for a *permit* to a *permit authority* to install a *system* as a waste water management system in accordance with Sections 154 through 156 of the *Building Act 2016* and Part 3 of the *Plumbing Regulations 2004*.
- 2.2 For each installation the application to the *permit authority* must include:
- a) Plans and specification of the nominated *system*;
  - b) Where applicable, a site plan drawn to scale showing the location and type of any proposed waste water management *system* for the premises and state the method of managing greywater generated on-site;
  - c) A statement detailing the proposed method of disposal of the composted end product, the frequency of such disposal and the estimated volume of composted end product to be removed;
  - d) A statement about whether the *system* is likely to produce a liquid component and how it is proposed to dispose of the liquid. The statement shall be supported by detailed plans of any necessary liquid disposal *system*.
- 2.3 When issuing a *permit* the *permit authority* is to satisfy itself that, the designer's choice of the *system* configuration is optimal for the proposed site conditions and use.
- 2.4 The Certificate of Accreditation is valid for five (5) years from the date of issue or until withdrawn by the *Director*.
- 2.5 Any proposed modifications to the *system's* specified processes, equipment, materials, fittings or manuals must be authorised by the *Director* and may be subject to additional verification and/or testing.

## 3 Installation and Commissioning

- 3.1 All plumbing work carried out in connection with the *system* installation must satisfy the requirements of the *Building Act 2016* and Tasmanian Plumbing Regulations, and be carried out by a registered plumber with appropriate training and qualifications.
- 3.2 All electrical work must be carried out by a licensed electrician and in accordance with the relevant provisions of AS/NZS 3000.
- 3.3 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 should 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/*permit authority*.

## 4 Maintenance and Monitoring

- 4.1 Each installation must be serviced and monitored in accordance with the conditions of accreditation, the conditions of the *permit* and *manufacturer's* requirements.
- 4.2 At the end of the second anniversary of the accreditation date and each anniversary thereafter, the supplier shall provide a list of all their installed *systems* by anniversary year of installation to the *Director*. The *Director* may randomly select up to 5 (five) or 10% of the installed *systems* (whichever is the greater) from each year of installation. The supplier, at its own cost, shall arrange sampling to be organised by an independent body accepted by the *Director*. Samples for faecal coliforms and salmonella are to be determined by a NATA registered laboratory or laboratory accepted by the *Director*. The results are to be reported to the *Director* by:
- a) Address of premises
  - b) Date sampled
  - c) Sample identification
  - d) Faecal coliforms
  - e) Salmonella
  - f) Service history, and
  - g) Graphs of accumulative data for faecal coliforms and salmonella results for each anniversary group.

## 5 Performance

- 5.1 Maximum design capacity as specified by the supplier is as per the following table:

Model	Description	Residential use, Adults	Power
Classic 850-2 (2 bins)	Batch waterless toilet	3-4 persons	12 volts
Classic 850-3 (3 bins)	Batch waterless toilet	4-5 persons	12 volts
Classic 850-4 (4 bins)	Batch waterless toilet	5-6 persons	12 volts

## 6 On-going Management

- 6.1 The mechanical aspects of the *system* shall be maintained in accordance with the *manufacturer's* instructions and appropriate spare parts such as an extractor fan should be on hand in case of failure, as recommended by the *manufacturer*.
- 6.2 Regular rotation of the compost chambers as recommended by the *manufacturer*.
- 6.3 Addition of high carbon content bulking material as recommended by the *manufacturer*.
- 6.4 Addition of enzyme or other additives or compost accelerants as recommended by the *manufacturer*.
- 6.5 Remove compost from the *system* as recommended by the *manufacturer*.
- 6.6 Conduct periodic checks of the *system*, including liquid drainage and overflow pipe as recommended by the *manufacturer*.
- 6.7 Conduct periodic checks of the compost temperature, moisture level and appearance as recommended by the *manufacturer*.

- 6.8 Unless otherwise directed by the *permit authority*, the composted end product is to be:
- a) buried for 6 – 12 months within an area where it will not come into contact with consumable plants or surface waters prior to its application to land. The minimum cover of soil over the deposited end product must be 100 mm; or
  - b) retained for an additional period of three months in a lidded compost bin and at the completion of this period the compost may be used as a soil conditioner without any further treatment.
  - c) Transported off site to an authorised disposal site.

## 7 Permitted use

- 7.1 The *system* is designed to receive and treat human waste from a single toilet pedestal in domestic premises.
- 7.2 The *system* is not intended for the disposal or treatment of grey water. See clause 2.2 (b).

## 8 Winter use

The *system* is suitable for continuous or periodic use during the cold winter months.

**Note:** The compost chambers are made of medium density black polyethylene but are not insulated. In non-heated or non-insulated enclosures/rooms the compost pile may become very cold and composting action will temporarily be inhibited.

### Limited Winter Use.

For limited winter use (for example, about once a month or so) in cold temperatures, the *system* can still be used. However, adequate space for additional waste must be available in the chamber. The fan or extractor must be operated in accordance with the *manufacturer's* instructions.

**Note:** These requirements are only applicable to limited use, e.g. planning on using the *system* once a month or so during the winter months. If the *system* is used more frequently during the winter months, the extended winter use conditions apply.

### Extended Winter Use

For continuous use or extended use during winter (i.e. every weekend, or residential use), the *system* must be kept warm (at least 15°C) to maintain the composting activity.

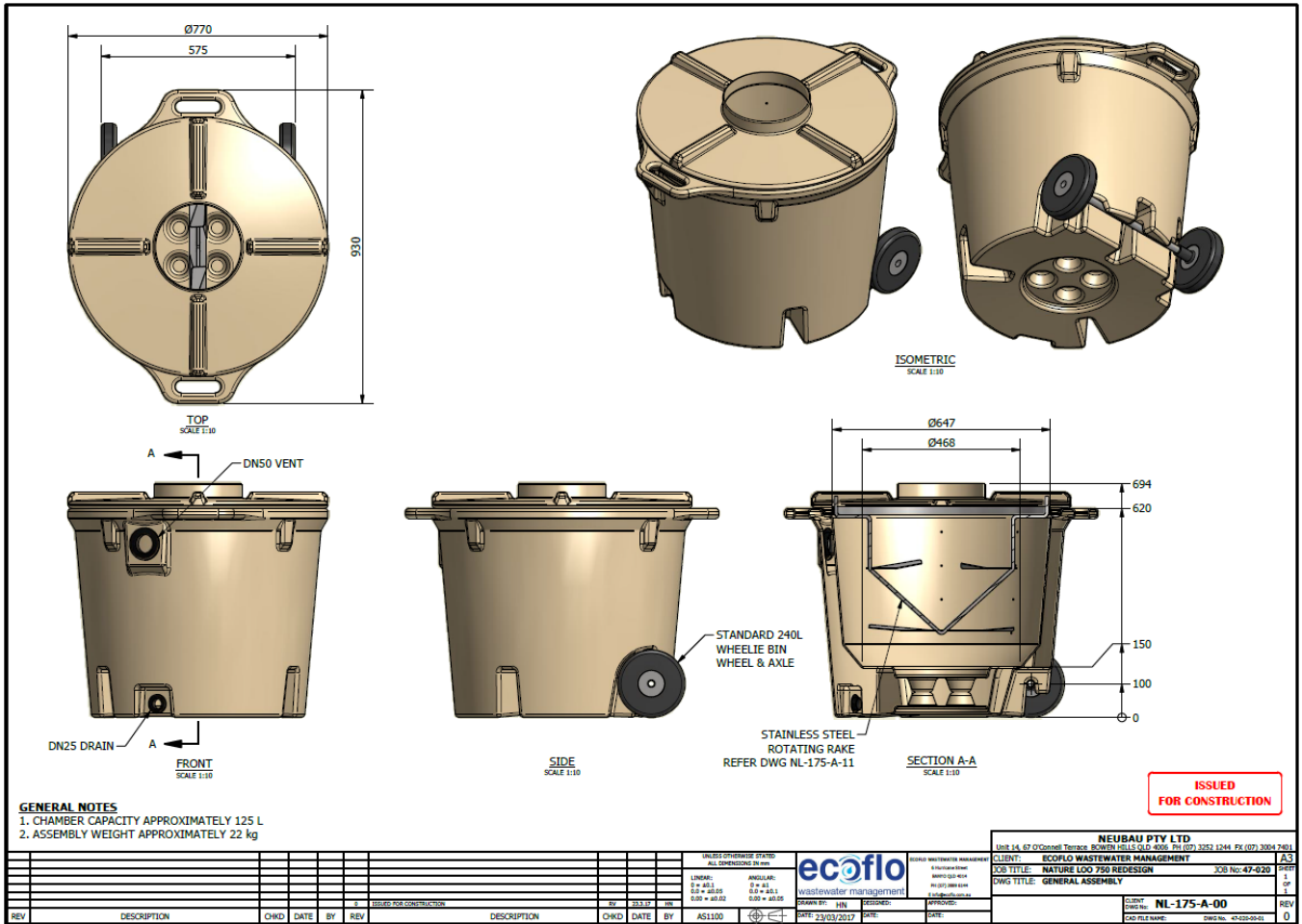
The *System* may require the use of a space heater or other means of heating the area (such as solar) in order to maintain proper composting temperature. The out-of-service chambers must, whilst the compost is maturing, also be maintained in a warm and properly aerated environment as above.

The fan or extractor must be run continuously in accordance with the *manufacturer's* instructions.

*Systems* installed in locations subject to low temperatures, such as Lake St. Clair, Cradle Mountain or the central highlands of Tasmania locations above 900m Australian Height Datum (AHD), must install R1 value insulation around the vent pipe to reduce the risk of freezing in the moisture trap.

## Appendix A – Engineering Drawings

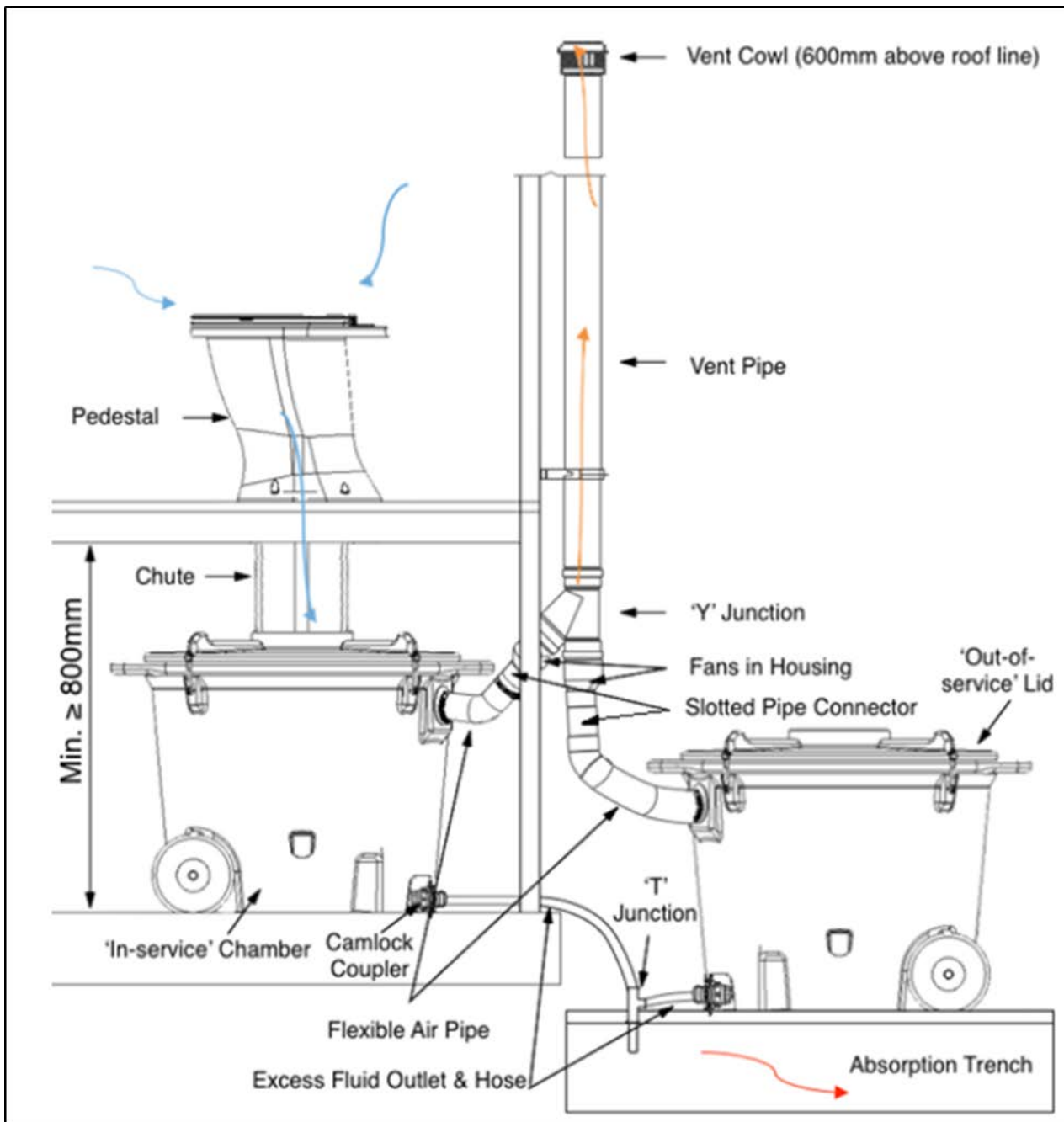
### Nature Loo Classic 850





### Appendix B – Schematic

#### Nature Loo Classic 850



## Appendix C – Parts List

### Nature Loo Classic 850

<b>CHAMBER, PEDESTAL &amp; SEAT</b>
Classic 850 Chamber & In-service Lid
Classic 850 Chamber & Out-Of-Service Lid
Chute & brush seal (fitted to In-service Lid)
25mm Flush Spinweld fitted to Chamber
50mm Flush Spinweld fitted to Chamber
Chamber Post Mould Graphic - <i>Completed*</i>
Mixer Ring-With Blades
Wheel Set = ( x1 Axle & x2 Wheels)
Nature Loo 'How To Use' Sign
Pedestal-Type :
Circular White Sticker if 'Palisade' Pedestal
Toilet Seat with NL logo
<b>PLUMBING</b>
25mm Liquid Drain Hose x 1.5m
25mm Male PP Barbed Camlock
25mm Male/Male BSP Nipple
25mm Female BSP PP Camlock
25mm Male PP Dust Plug
25mm PP Hose Tee
50mm Slotted Pipe Connector
50mm Socket (threaded)
50mm Vent Cowl
100mm Vent Cowl
Moisture Trap-100mm Y-Junction+45° Bend
65mm x 1.5m Unslotted Ag Pipe.
<b>FASTENERS:</b>
Pedestal Screws&Washers-Palisade/Pandora
Steel Hose Clamp for Flexible Vent Pipe
<b>M6</b> x25mm Bolts + Washers + Nylock Nuts
<b>ELECTRONICS</b>
12Volt 5Watt Fan in Housing
240-12 Volt Transformer
Crimps/Wire Connectors
Heater (fitted to each chamber)
Anderson Plugs x2 (x1 Fitted to Chamber)
<b>CONSUMABLES</b>
500ml Spray Flask With Trigger
125ml Nature Flush Enzymes
Nature Quick Microbes (bag)
Bulking Agent (bag)
Toilet Roll
<b>OTHER</b>
Installation Manual(s) & EcoFlo pamphlet