



Tasmania

Certificate of Accreditation

On-Site Waste Water Management System

This Certificate of Accreditation is hereby issued by the Minister for Justice and Workplace Relations pursuant to Section 59(2) of the Building Act 2000 and Part G2 of the Tasmanian Plumbing Code 2006.

System: **Envirocycle 10NR AWTS**

Manufacturer: **AWTS Maintenance Services Pty Ltd**

ABN: 88 073 578 195

Of: **C/- Professional Plumbing**

7 Hornby Road,

GOODWOOD TAS 7010

ABN: 59 009 580 705

This is to certify that the Envirocycle 10NR AWTS, (the 'system') as described in Schedule 1, has been accredited as an on-site waste water management system for use in single domestic premises in Tasmania. This accreditation is subject to the conditions of accreditation and permitted uses specified in Schedule 2, and in accordance with the Tasmanian Plumbing Code 2006.

Director, Building Control
for Minister for Planning and Workplace Relations
(delegation BSR457 dated 19 July 2004)

Date of Issue: 27 October 2008

Certificate No: BSR0538/2008

This Certificate of Accreditation is in force until 27 October 2013

Schedule 1: Envirocycle 10NR AWTS

General Description:

Envirocycle® model 10NR is a 10 person nitrogen reduction system suitable to treat all sewage and waste water from domestic premises.

Specifications:

Description	Capacity m ³
Primary/Anaerobic	3.3004m ³
Aeration	2.0430m ³
Sedimentation	0.6642m ³
Pump Chamber	0.3876m ³
Total	6.3876m ³

Tank capacity component comply with table B1, Appendix B AS/NZS 1546.1:1998.

Pipework typically 100mm PVCU to clause 3.5.2.2.1 AS/NZS 1546.1:1998.

Tank manufacture to comply with AS/NZS 3600

Concrete tank reinforced with 75kg/m² of 'onsteel' EE fibresteel 256EE steel fibre.

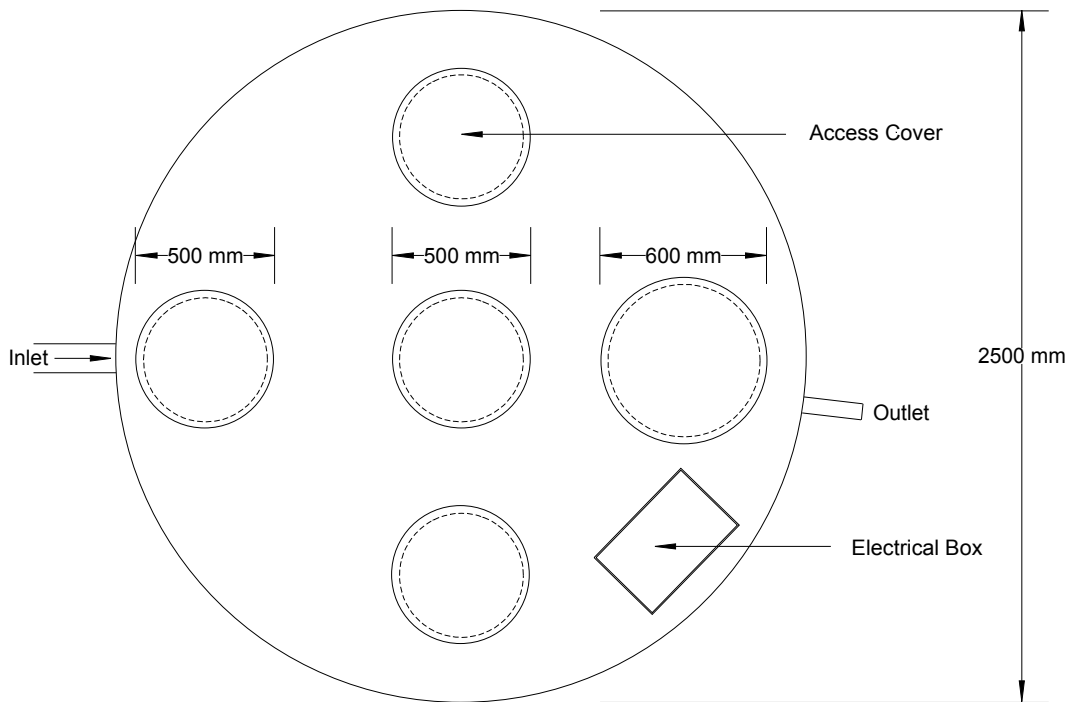
Concrete in tank lid F'c = 32 MPa

Tank and lids comply with AS/NZS 1546.1:1998

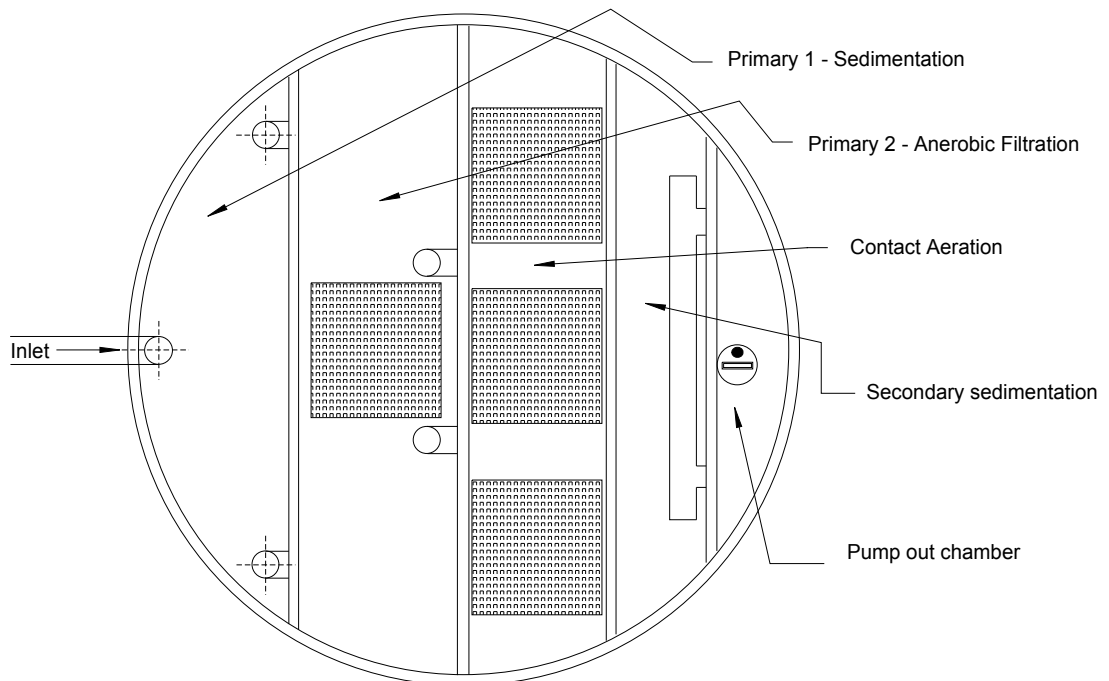
Loose baffles secured in place by epoxy paste

- (a) Baffles B1 and B3 from the inlet with 100mm long pads @ 500centres;
- (b) Baffle B4 from the inlet with continuous epoxy to produce a water tight seal

Tank capacity to maximum water level = 6,692.2 litres



Plan view – (Tank top)



Plan view – (Internal configuration)

Schedule 2: Conditions of Accreditation

1.0 Definitions

In this schedule:

AS/NZS 1547 means the Joint Australian/New Zealand Standard “AS/NZS 1547: 2000, *On-site domestic-wastewater management*”;

AS/NZS 1546.1 means the Joint Australian/New Zealand Standard “AS/NZS 1546.1:1998, *On-site domestic wastewater treatment units, Part 1: Septic tanks*”;

AS/NZS 3000 means the Joint Australian/New Zealand Standard “AS/NZS 3000:2007, *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 system have been met and all pre-commissioning tests have been carried out in accordance with AS/NZS 1547 on all associated equipment and the irrigation system (where installed)”;

Designer means “a person who has a specialty in the area of designing on-site waste water management systems 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”;

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

Manufacturer means “AWTS Maintenance Services Pty Ltd”;

NATA means “National Association of Testing Authorities”;

Permit means “a Permit issued by the council pursuant to section 82 of the *Building Act 2000*”;

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”;

SS means “Suspended Solids”;

System means “Envirocycle 10NR AWTS”

TN means “Total Nitrogen”;

TPC means the “Tasmanian Plumbing Code 2006”.

2.0 General

- 2.1 The *system* must not be installed in a plumbing installation other than in accordance with the conditions of *permit* issued by the *permit authority*.
- 2.2 The *system* must be supplied, constructed and installed in accordance with the design as submitted and accredited by the Department of Justice.
- 2.3 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 or testing.
- 2.4 Each unit must be provided with a permanent, clear indelible notice in a prominent position that is readily visible after installation. The notice is to include, as a minimum, the following information:
- (a) the *manufacturer's* name or registered mark;
 - (b) model number or designation;
 - (c) the month and year of manufacture;
 - (d) the capacity in litres/week;
 - (e) top load limitations; and
 - (f) weight of unit.
- 2.5 The *manufacturer* must supply with each *system* a user's (owner's) manual setting out the following:
- (a) the treatment process;
 - (b) procedures to be followed in the event of a *system* failure;
 - (c) emergency contact number;
 - (d) care, operation, monitoring and maintenance requirements; and
 - (e) inspection and sampling procedures to be followed as part of the on-going monitoring and maintenance program required by the *Permit Authority*.
- 2.6 The *system* is not to be installed under conditions that will allow the effluent in the aeration chamber to fall below 15⁰ Celsius.
- 2.7 The manufacturer is to provide the following information to each *permit authority* where it is intended to install a *system* in their jurisdiction:
- (a) Statement of warranty
 - (b) Statement of service life
 - (c) Quality Assurance Certification
 - (d) Installation Manual
 - (e) Service Manual
 - (f) Owner's Manual
 - (g) Service Report Form
 - (h) Engineering Drawings on A3 format
 - (i) Detailed Specifications
 - (j) A4 Plans
 - (k) Certificate of Accreditation and associated Schedules.
- 2.8 The *manufacturer* is to keep a register of installed *systems* in Tasmania and is to be made available to the *Director* on request.

- 2.9 Prior to the issue of a *permit* to install a *system* the following reports are to be obtained and submitted with an application to the *permit authority*:

Site-and-soil evaluation report

This 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 siting and design of a land-application system and an evaluation of the site and soil characteristics to determine feasible options for designing and sizing a land-application system. (Refer to AS/NZS 1547 Clause 4.1.5 and associated appendices to 4.1).

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 system. (Refer to AS/NZS 1547, Clause 4.2.4 and associated appendices to Clause 4.2 for further information).
 - (c) A report on the selection of the wastewater-treatment unit. (Refer to AS/NZS 1547, Clause 4.3.6 and associated appendix to Clause 4.3 for further information).
 - (d) The Design Report is to provide sufficient information to show that the performance objectives of Part 2 of AS/NZS 1547 have been met.
- 2.10 The following reports are to be submitted to the *permit authority* and made available to the *Director* upon request after *commissioning* of the *system*:

- (a) Installation and commissioning report

The Installation and Commissioning Report is to cover the 'as-constructed' records of the installation together with the results of *commissioning* tests to demonstrate correct construction and installation and is to be provided to the *permit authority* on completion of the installation. (Refer to and AS/NZS 1547 Clause 4.5.6.3 and associated appendices to Clause 4.5 for further information).

- (b) Inspection and Maintenance Reports

Maintenance reports cover ongoing inspection and maintenance operations in order to monitor the operation of the *system* installation. (Refer to AS/NZS 1547 Clause 3.7.4 and associated Appendix 3A for further information).

- 2.11 The Certificate of Accreditation is valid for five (5) years from the date of issue or until withdrawn by the Director.

3.0 Installation and Commissioning

- 3.1 The installation and operation of the *system* is to comply with the conditions of accreditation and the *manufacturer's* instructions and be carried out by a registered plumber with appropriate training and qualifications.
- 3.2 Installation of the *system* must also be carried out in accordance with the installation requirements set out in *Appendix A1 – On-site Waste Water Management Systems* of the *TPC*.
- 3.3 All electrical work must be carried out by a licensed electrician and in accordance with relevant provisions of AS/NZS 3000.

- 3.4 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 installation has been constructed, installed and *commissioned* in accordance with the 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 *permit* authority as applicable.

- 3.5 Where discharging waste water to a land application system by shallow sub-surface or aboveground irrigation a lockable sampling tap or gate valve is to be provided on the outlet pipe to the irrigation system.
- 3.6 A report is to be prepared by the council approved maintenance contractor detailing the inspection of the installation and the results of the *commissioning* tests and be accompanied by a certificate certifying that the *system* and associated land application system is operating and performing adequately.
- 3.7 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 for the period specified in the *permit*.
- (a) The initial *system* installation and *commissioning* report;
 - (b) All required laboratory analytical test reports; and
 - (c) All inspection and maintenance reports accompanied by a certificate referred to in condition 4.8;
- 3.8 Copies of any report or certificate required by the conditions of accreditation must be made available to the *Director* on request.
- 3.9 The *designer* is to provide a statement warning the user of the system of which items and products must not be placed in the *system*.
- 3.10 To verify that the system is *commissioned*, sampling must be carried out, by a *council* approved person, for *BOD₅*, *SS*, *E. coli* and Free Residual Chlorine where applicable. The samples are to be tested and reported on by a *NATA* certified laboratory.

4.0 Maintenance/monitoring

- 4.1 The *system* and its associated land application system must be operated and maintained to ensure they perform continuously and without any intervention between inspections carried out by the council approved servicing contractor
- 4.2 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. The licensed plumber should receive appropriate training from the *manufacturer* before carrying out any maintenance on the *system*.
 - 2 The maintenance and monitoring intervals may be combined provided the monitoring frequency remains at every 3 months
- 4.3 The owner of the *system* must enter into and maintain a maintenance contract with the council, the *manufacturer* of the *system*, or other *council* approved person.

- 4.4 The owner must enter into an agreement with the *council* to maintain the maintenance contract where that contract is with the *manufacturer* of the *system* or other council approved person.
- 4.5 A service report is to be prepared by the licensed plumber 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 inspections;
- 4.6 The service report is to be accompanied by a signed certificate certifying that the *system* is operating and performing adequately;
- 4.7 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 the installation of which items and products must not be placed in the *system*;
- 4.8 Each service must include monitoring the operation of the plant and land application system;
- 4.9 Maintenance and monitoring must be carried out on all mechanical, electrical and functioning components of the system as appropriate;
- 4.10 The 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 on the condition of membranes;
 - (g) Check and report operation of sludge return, sludge level and desludging;
 - (h) Check and record water meter reading;
 - (i) Check and record trench operation;
 - (j) Check and record operation of irrigation area, irrigation fittings;
 - (k) Check and clean/replace irrigation filters;
 - (l) Check and report on water quality (testing for pH, Turbidity, and dissolved oxygen);
 - (m) Check and report on disinfection agent and record quantity added;
 - (n) Check, clean and record operation UV system;
 - (o) Cleaning of the following items at above the waterline –
 - i. clarifier
 - ii. chlorine detention chamber
 - iii. pipework
 - iv. valves
 - v. walls of chambers
- 4.11 The *system* is to be deslugged at not greater than 5 yearly intervals and in accordance with the *manufacturer's* recommendations.
- 4.12 The removal and disposal of sludge must satisfy the relevant requirements of the Department of Primary Industries and Water.

5.0 On-going Management

- 5.1 Mandatory testing for Free Residual Chlorine is to be carried out, every three months and is to commence 3 months after the plant is commissioned, by using a Lovibond® or equivalent quality testing kit. Testing is to coincide with the manufacturers required on-going routine scheduled maintenance program.
- 5.2 At each anniversary of the accreditation date the manufacturer must submit to the *Director* a list of all *systems* installed in Tasmania during the previous 12 months. The *Director* will randomly select up to 10% of the installed systems from each year of installation. The manufacturer, at its own expense, must arrange for the selected systems to be inspected and sampled. Sampling is to be organised by an independent JAS/ANZ accredited body. Samples for *BOD₅*, *SS*, *E. coli* are to be determined by a NATA registered laboratory, and samples for disinfectant concentration, if applicable are to be determined on site. The results must be reported to the Director by:
- Address of premises;
 - Date inspected and sampled;
 - Sample identification number;
 - *BOD₅*
 - *SS*;
 - *E. coli*;
 - Disinfectant concentration (if applicable); and
 - Service history
- 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 Where any systems have been found not to operate satisfactorily during their service life, and as a result require modification to achieve the required performance requirements, in particular, water quality limits, the installed systems are to be modified accordingly;
- 5.5 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 *E. coli* and Free Residual Chlorine as appropriate must be carried out until the plant is *commissioned*;
- 5.6 Where applying effluent to a land application system by shallow subsurface or aboveground irrigation, a lockable sampling tap or gate valve is to be provided at the unit on the outlet pipe to the irrigation system.
- 5.7 Effluent from the *system* taken in any random grab sample when tested must satisfy the following water quality standard:

<i>BOD₅</i>	less than 30 mg/L
<i>TSS</i>	less than 45 mg/L
<i>E. coli</i>	less than 100 cfu/100 mL
Free residual chlorine	greater than 0.2 and less than 2.0 mg/L

- 5.8 It is recommended that the council cause annual random surveillance for FC's at not less than 25% of the installations at the individual owner's expense. All installations should be monitored over a four-year period.

6 Permitted uses

- 6.1 The effluent is suitable for land application by way of the following forms:
- (a) sub-surface by:

- i. drip irrigation covered by mulch which is maintained with ≥ 100 mm cover in accordance with the relevant provisions of AS/NZS 1547;
 - ii. trenches, beds, mounds, evapo-transpiration systems in accordance with the relevant provisions of AS/NZS 1547;
- (b) Above ground spray irrigation in accordance with AS/NZS 1547;
- (c) Surface drip irrigation in accordance with 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.

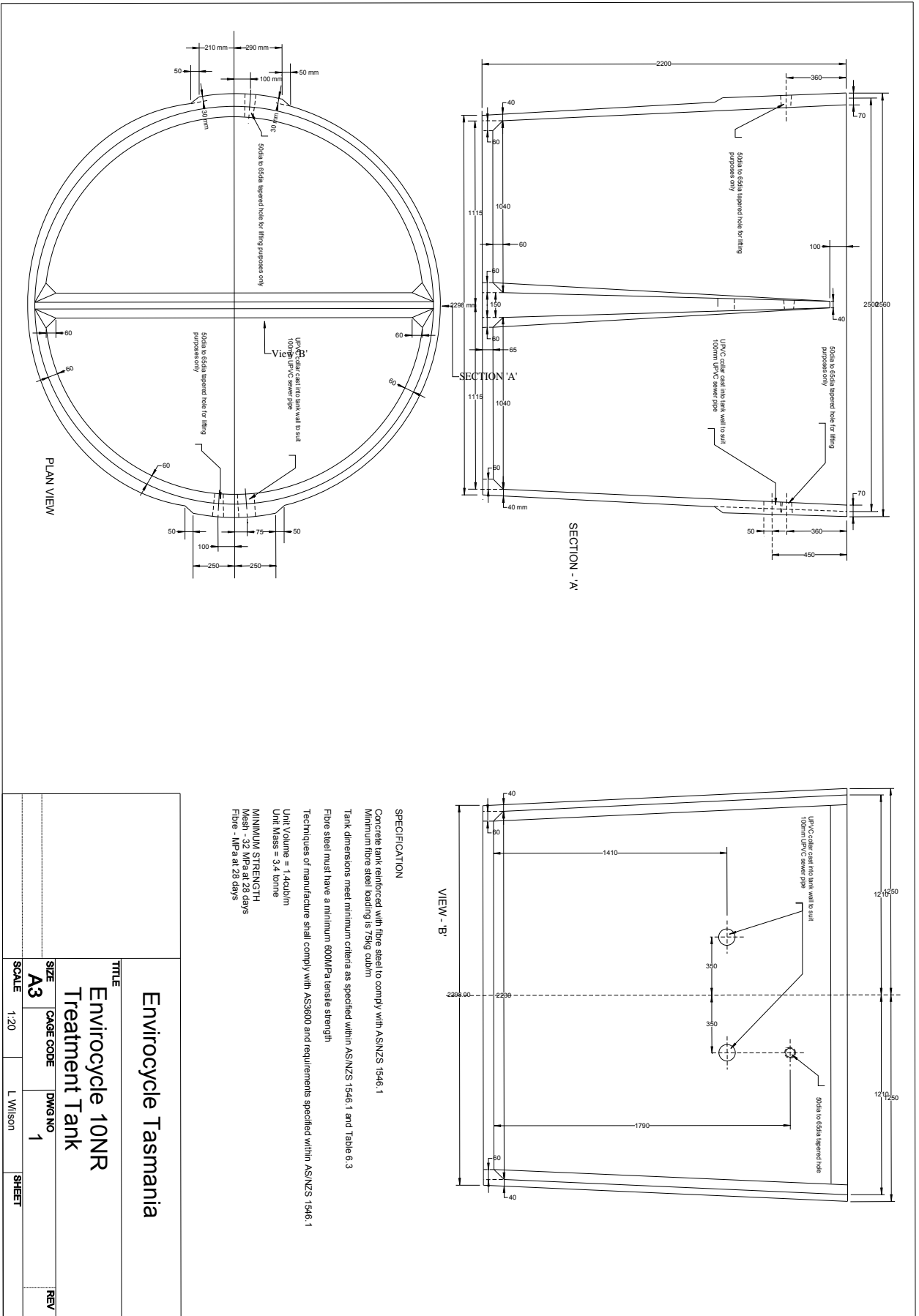
- 6.2 Where it is not practicable for effluent from the *system* to be applied in accordance with AS/NZS 1547 the method of discharge must satisfy contemporary relevant regulatory requirements to the satisfaction of the *permit authority*.

7.0 Irrigation systems

- 7.1 Effluent distribution by surface or subsurface irrigation 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) irrigation system has been designed and is capable of being installed and maintained in accordance with AS/NZS 1547;
 - (c) the location of the land application system 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 set out in these conditions;
- 7.2 Where a sub-surface irrigation systems forms part of the *system* installation the irrigation system must incorporate the following:
- (a) Appropriate filtration (120 micron/120 mesh or disk filter)
 - (b) Pressure regulator;
 - (c) Vacuum breaker;
 - (d) Control valves
 - (e) Submain manifold;
 - (f) Flushing manifold;
 - (g) Emitter lines; and
 - (h) Emitters;
- 7.3 The cleaning of disc filters or filter screens on irrigation-dosing equipment must be by rinsing back into the primary wastewater-treatment unit.
- 7.4 Irrigation lines must be flushed periodically to scour out any accumulated sediment and must be flushed back into the primary wastewater-treatment chamber.

Note: In the event of an owner or occupiers default in failing to comply with the conditions of *permit*, the Council may take action to obtain compliance in accordance with the *Building Act 2000* and the *Plumbing Regulations 2004* as appropriate.

Schedule 3: Drawings



<p>Envirocycle Tasmania</p>			
<p>Envirocycle 10NR Treatment Tank</p>			
<p>TITLE</p>	<p>SIZE</p>	<p>CAGE CODE</p>	<p>DWG NO</p>
<p>Envirocycle 10NR Treatment Tank</p>	<p>A3</p>	<p>1</p>	<p>1</p>
<p>SCALE</p>	<p>1:20</p>	<p>L. Wilson</p>	<p>SHEET</p>
<p>REV</p>	<p>1</p>	<p>1</p>	<p>1</p>

SPECIFICATION

Concrete tank reinforced with fibre steel to comply with AS/NZS 1546.1
 Minimum fibre steel loading is 75kg sub/m
 Tank dimensions meet minimum criteria as specified within AS/NZS 1546.1 and Table 6.3

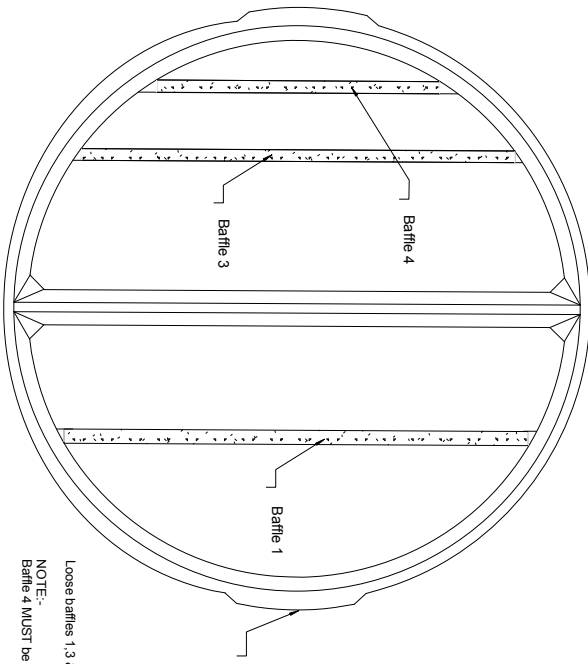
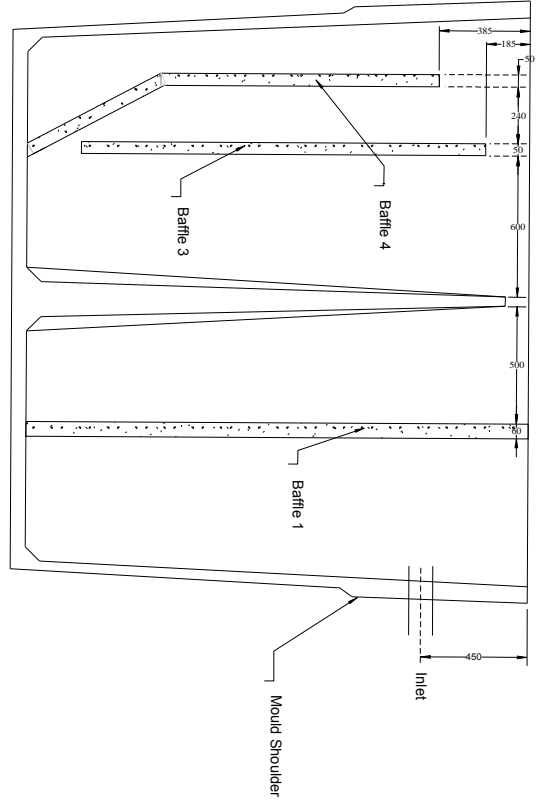
Fibre steel must have a minimum 600MPa tensile strength

Techniques of manufacture shall comply with AS3600 and requirements specified within AS/NZS 1546.1

Unit Volume = 1.4cb/m
 Unit Mass = 3.4 tonne

MINIMUM STRENGTH
 Mesh - 32 MPa at 28 days
 Fibre - MPa at 28 days

Schedule 3: Drawings

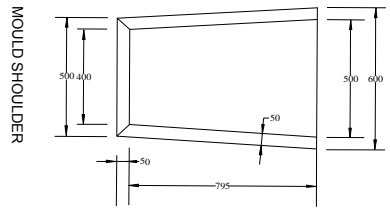
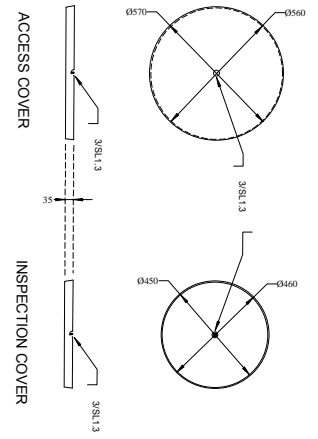


Loose baffles 1, 3 & 4 fixed in place by epoxy paste
 NOTE:-
 Baffle 4 MUST be continuous epoxy in order to produce water tight seal

ACCESS/INSPECTION COVERS

Access Cover
 Unit Volume = 0.009m
 Unit Mass = 22kg
 Inspection cover
 Unit Volume = 0.006m
 Unit Mass = 14kg

Fibre steel reinforcement in order to comply with AS/NZS 1546.1



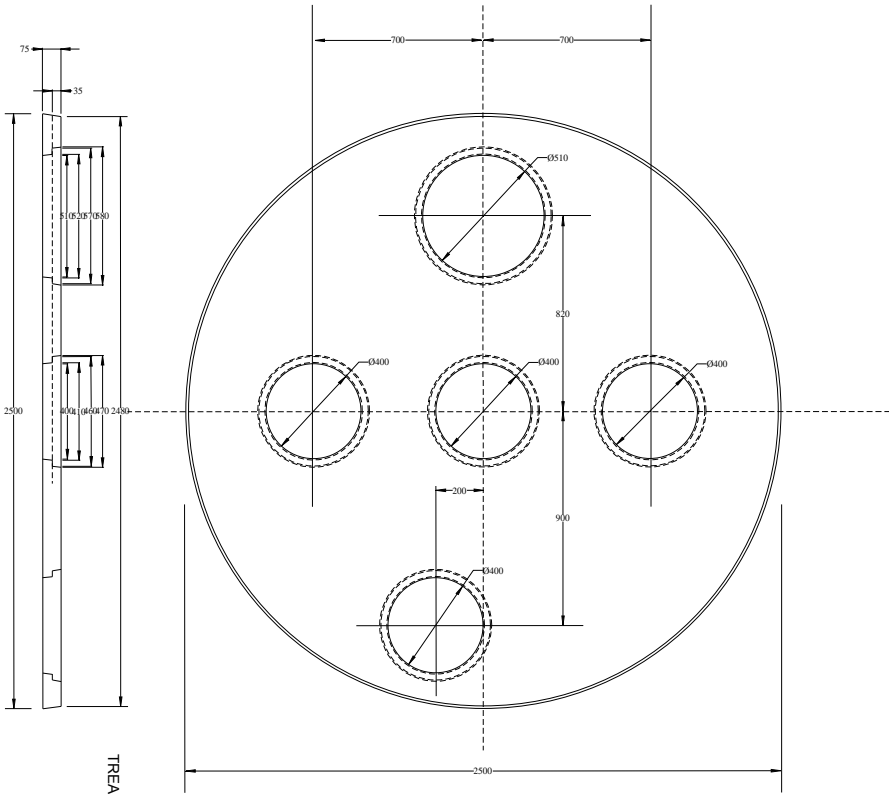
SPECIFICATION

Concrete tank reinforced with fibre steel to comply with AS/NZS 1546.1
 Minimum fibre steel loading is 75kg cub/m
 Tank dimensions meet minimum criteria as specified within AS/NZS 1546.1 and Table 6.3
 Fibre steel must have a minimum 600MPa tensile strength
 Techniques of manufacture shall comply with AS3900 and requirements specified within AS/NZS 1546.1
 Unit Volume = 1.4cub/m
 Unit Mass = 3.4 tonne
 CONSTRUCTION NOTE
 Baffles 3 & 4 must be fibre reinforced in order to comply with AS/NZS 1546.1
 Baffle 1 may be mesh reinforced with a minimum 25mm cover from either face
 MINIMUM STRENGTH
 Mesh - 32MPa at 28 days
 Fibre - 35 MPa at 28 days

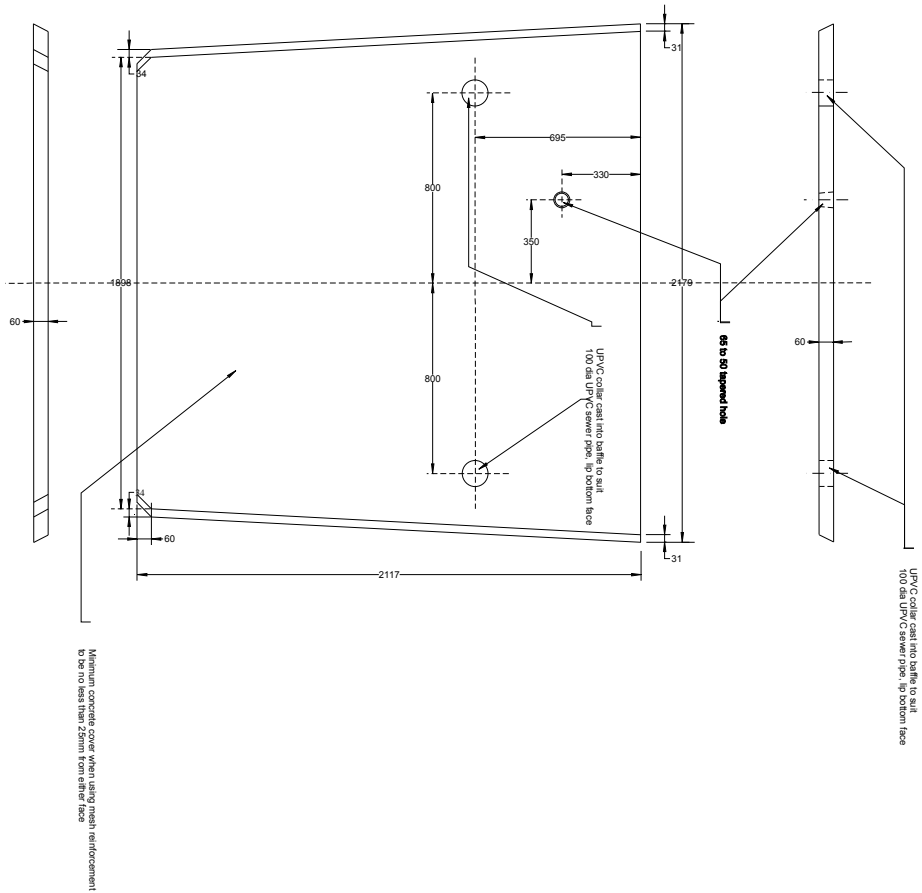
Envirocycle Tasmania			
Envirocycle 10NR			
Baffles 3 & 4, Covers & Shoulder			
TITLE	SIZE	CAGE CODE	DWG NO
	A3		2
SCALE	1:20	L. Wilson	SHEET

Schedule 3: Drawings

- BAFFLE - 1
Unit Volume - 0.25cub/m
Unit Mass - 0.6 tonne
- TREATMENT TANK LID
Unit Volume - 0.35cub/m
Unit Mass - 0.8 tonne
- REINFORCEMENT
1 layer of mesh as required by AS/NZS 1546.1:1998
(Note: Mesh can not be used in partitions or tops of less than 60mm thickness)
- STEEL FIBRE
75kg cub/m minimum 600MPa tensile strength as required by AS/NZS 1546.1:1998
- MINIMUM STRENGTH
Mesh - 32 MPa at 28 days
Steel Fibre - 35 MPa at 28 days

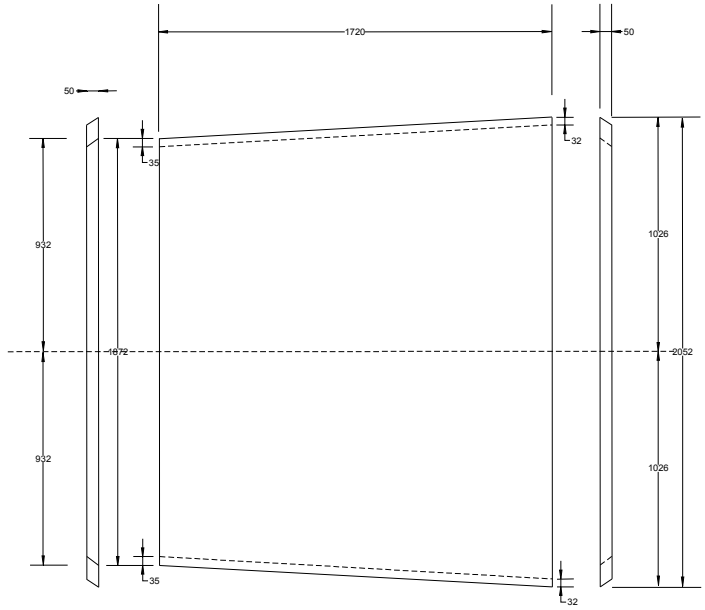


TREATMENT TANK LID



BAFFLE - 1

Envirocycle Tasmania			
TITLE			
Envirocycle 10NR			
Baffle 1 & Tanklid			
SIZE	CAGE CODE	DWG NO	REV
A3		3	
SCALE	L. Wilson		SHEET
1:20			



BAFFLE 3

SPECIFICATION

Baffles reinforced with fibre steel to comply with AS/NZS 1546.1
Minimum fibre steel loading is 79kg cub/m

Fibre steel must have a minimum 600MPa tensile strength

Techniques of manufacture shall comply with AS3600 and requirements specified within AS/NZS 1546.1

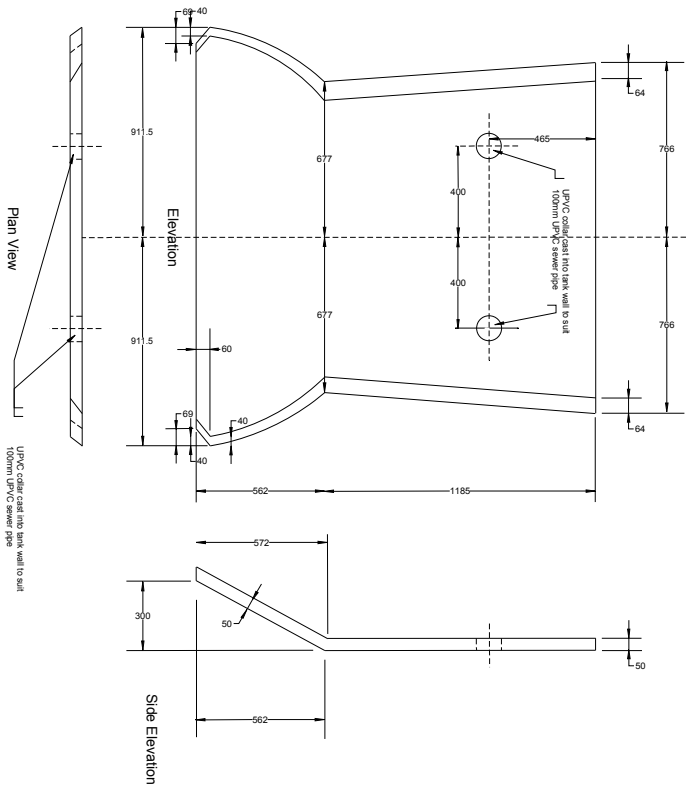
BAFFLE 3
Unit Volume = 0.15cub/m

Unit Mass = 0.4 tonne

BAFFLE 4
Unit Volume = 0.15cub/m

Unit Mass = 0.4 tonne

MINIMUM STRENGTH
Mesh - 32MPa at 28 days
Fibre - 35 MPa at 28 days



BAFFLE 4

Envirocycle Tasmania			
Envirocycle 10NR			
Model 10NR - Baffles 3 & 4			
TITLE	SIZE	CAGE CODE	DWG NO
	A3		4
SCALE	1:20	L. Wilson	SHEET
			REV