



Certificate of Accreditation

On-Site Wastewater Management System

This Certificate of Accreditation is hereby issued by the Director of Building Control pursuant to Section 18(1) of the *Building Act 2016* (accreditation of products).

System:	Alpha Treat DPI0 STS Secondary Quality Effluent at 1500L/day (10EP)
Manufacturer:	Alpha Treat Pty Ltd, (Alphatreat is a subsidiary of RELN Pty Ltd)
Supplier:	Crisp Ikin 3 Pear Avenue, Derwent Park, Tas 7009
Of:	9 Mackie Way, Brendale, QLD 4500

This is to certify that the Alpha Treat DPI0 STS as described in Schedule 1, is accredited as a Secondary Treatment System for use in plumbing installations in Tasmania for single dwellings. This accreditation is subject to the conditions and permitted uses specified in Schedule 2, and the National Construction Code.

Peter John Graham
Director of Building Control
Consumer, Building and Occupational Services
Department of Justice

Date of Issue: 29 June 2022

Certificate Number: DOC/22/54416

This Certificate of Accreditation is in force until 29 June 2027, unless withdrawn earlier at the discretion of the Director of Building Control

Document Development History

Version	Date	Application date	Sections amended
1.0	29/06/22	New Model to AS1546.3:2017 Secondary Treatment System	Original release

Schedule I: Specification

General Description

The Alpha Treat DPI0 STS is designed for onsite treatment of domestic sewerage from a residential dwelling occupied by a maximum of ten people.

The Alpha Treat DPI0 STS is contained in two AS/NZS1546.1 compliant polymer collection well containers of 3200Ltrs each, ISO Type 5 Certificate of Conformity AMI-1651.

Chamber	Design Capacity
Total System Capacity	6400Ltrs
Operational Liquid Level	1385mm
Emergency Storage	1000Ltrs
Primary Treatment Tank	3200Ltrs
Primary 1	1533Ltrs
Primary 2	767Ltrs
Partition	2:1 Ratio
Secondary Treatment Tank	3200Ltrs
Aeration Chamber	2566Ltrs
Clarifier	417Ltrs
Disinfection/Pump Out Chamber	217Ltrs
Bio-media	42 sheets x 305mm wide x 1450mm long – 50m ²
Disinfection	Chlorine (70mm 150gm Trichlor Tablet or equivalent)
Air Blower	Hiblow 120L/min 40dBA or equivalent
Diffuser	RAD255 Air Diffuser or equivalent
Discharge Pump	Spray Irrigation: Davey D25A pump or equivalent Subsurface Irrigation: Reeve RHS105 pump or equivalent

Primary Treatment: The primary treatment tank is split into 2 chambers via a partition at a 2:1 ratio. Primary Tank 1 receives influent from the dwelling for settlement and anaerobic digestion then gravity feeds to Primary Tank 2 via a Partition mounted Exit Filter Tee Section pipe. Primary 2 exits through an Exit Filter gravity feeding into the Tank 2 Aeration Chamber for aerobic digestion

Aeration: Primary treated waste gravity flows into the aeration chamber consisting of four air diffusers and two bio-media packs. Air is provided by an air pump and distributed via a manual valve controlled 25mm PVC pipe manifold.

Clarification: Aeration treated wastewater is fed to the Clarifier via an air lift. The Clarification Chamber separates suspended solids. Heavy solids collected at the base of the Clarifier are removed by a Sludge Suction Return to the Primary 1 Tank Inlet Tee. Floating matter is Suction Skimmer returned to the Primary 1 Tank Inlet Tee.

Disinfection: Clarified wastewater gravity feeds from the Clarifier into the Disinfection Canister. A weir and chamber provide contact disinfection of the clarified wastewater.

Pump Out Chamber: Effluent is stored in the Disinfection/Pump-Out Chamber until it is discharged to the onsite application/disposal area (not supplied with STS) via a discharge pump with high and low level float controls. Discharge pump is dependent on disposal area technique.

Fault Warning System: The STS 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 atop the secondary tank air-pump cover detecting failure of air blower and/or discharge pump.

Emergency Storage: 1000L of emergency storage capacity is achieved via additional height of chambers above operational level and gravity feed preventing system short circuiting.

Service Intervals: Three monthly.

For treatment system schematic drawings and flow path, refer to Appendix A.

For Engineering drawings refer to Appendix B.

Schedule 2: Conditions of Accreditation

1.0 Definitions

In this schedule:

AS/NZS 1547 means the Joint Australian/New Zealand Standard 'AS/NZS 1547:2008 On-site domestic-wastewater management'

AS/NZS 1546.3 means the Joint Australian/New Zealand Standard 'AS/NZS 1546.3:2017 On-site domestic wastewater treatment systems, Part 3: Secondary treatment systems'

AS/NZS 3000 means the Joint Australian/New Zealand Standard 'AS/NZS 3000 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'

STS means Secondary Treatment System. A wastewater treatment system which produces treated effluent of a secondary standard (as specified in AS 1546.3:2017 Tables 2.1 & 2.2)

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 AWTS have been met and all pre-commissioning tests have been carried out in accordance with AS/NZS 1547 on all associated equipment and the sub-surface irrigation system' (where installed)

Designer means 'a person who has a specialty in the area of designing on-site waste water management system installations 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'

g/m³ means grams per cubic metre

Manufacturer means 'Alphatreat Pty Ltd'

N means 'Nitrogen'

NATA means 'National Association of Testing Authorities'

PCA means 'Plumbing Code of Australia 2019'

Permit means 'a Permit issued by the permit authority pursuant to section 169 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'

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 system is Crisp Ikin 3 Pear Avenue, Derwent Park, Tas 7009;

System means Alphatreat Pty Ltd Models: DPI0 STS

TSS means 'Total Suspended Solids'.

TN means 'Total Nitrogen'

TP means 'Total Phosphorus'

2.0 General

- 2.1 This Certificate of Accreditation is valid up until the date nominated on the front page of this accreditation. Any application for variation or renewal must be accompanied by Product Certification to AS/NZS 1546.3 that has been issued by a JAS-ANZ accredited Conformity Assessment Body (CAB) and other required documentation in accordance with the latest Application for Accreditation Form. The Certificate of Accreditation may be withdrawn by the Director at any time and is not transferable
- 2.2 This certificate supersedes all previously issued certificates.
- 2.3 The system must be supplied, constructed and installed in accordance with the design submitted and accredited by the *Director*.
- 2.4 The system must not be installed in a plumbing installation other than in accordance with the conditions of permit issued by the *Permit Authority*.
- 2.5 Each system must be permanently and legibly marked on a non-corrosive metal plaque or equivalent, attached to the lid with the following information:
- The brand and model name or designation of the system
 - The manufacturer's name or registered trademark
 - Top load limitations, and
 - The month and year of manufacture.
- 2.6 The *supplier* must supply the owner and occupier, of each installation, with a user manual setting out the following:
1. the treatment process
 2. procedures to be followed in the event of a system failure
 3. emergency contact number
 4. care, operation, monitoring and maintenance requirements, and
 5. inspection and sampling procedures to be followed as part of the on-going monitoring and program required by the permit authority.
- 2.7 Any proposed modifications to the system's specified processes, equipment, materials, fittings or manuals must have prior authorisation in writing from the *Director* and may be subject to additional verification or testing.
- 2.8 Each application to a *permit authority* to install a system must be accompanied by a site-and-soil evaluation report and design report in accordance with AS/NZS 1547 as appropriate.
- 2.9 The *supplier* must provide the following information to each *permit authority* where it is intended to install a system in their jurisdiction:
- Statement of warranty
 - Statement of service life
 - Quality Assurance Certification
 - Installation Manual
 - Service Manual
 - Owner's Manual
 - Service Report Form
 - Engineering Drawings on A3 format
 - Detailed Specifications
 - Certificate of Accreditation and Schedules.
- 2.10 This Certificate of Accreditation is valid for five (5) years from the date of issue or until withdrawn by the *Director*.

- 2.11 At each anniversary of the accreditation date the *supplier* must submit to the *Director* a list of all *systems* installed in Tasmania during the previous 12 months. The *Director* may randomly select up to 10% of the installed *systems* in any one calendar year. The *Director* will nominate a NATA accredited laboratory for all sampling and will be tested for *BOD₅* and *TSS* and Chlorine residual. The sampling and testing of the selected *systems* is to be done at the *supplier's* expense. The following results must be reported to the *Director*:
- Address of premises
 - Date inspected and sampled
 - Sample identification number
 - Chlorine Residual
 - BOD₅
 - TSS, and
 - Service history.
- 2.12 Where a *system* has been found not to operate satisfactorily during its serviceable life, and as a result require modification to achieve the required water quality limits, all installed *systems* are to be modified accordingly.
- 2.13 When granting a *permit* the *permit authority* is to satisfy itself that the *designer's* choice of the *system* configuration is optimal for the proposed use and site conditions.
- 2.14 The *system* must not be deployed to areas where seasonal climatic conditions will negatively affect its proper operation (refer to *manufacturer's* specifications).
- 2.15 Prior to the granting of a *permit* to install a *system* the following reports (see AS/NZS 1547 Clause 7.4) must be submitted with an application to the *permit authority*.

Site-and-soil evaluation report

The site and soil evaluation 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 location and design of a land-application. (Refer to AS/NZS 1547 Clause 5.2.4 and Appendices B, C, D, E & G).

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. (Refer to AS/NZS 1547, Clause 5.5.7).
- (c) A report on the selection of the wastewater-treatment system. (Refer to AS/NZS 1547 Clause 5.2.4 and Appendices B, C, D, E & G).
- (d) Sufficient information to show that the relevant performance requirements set out in the PCA have been met.
- (e) A loading certificate which sets out the design criteria and the limitations associated with use of the system and incorporates such matters as:
 - (i) System capacity ((number of persons (EP) and daily flow)
 - (ii) Summary of design criteria
 - (iii) The location of and use of reserve areas
 - (iv) Use of water efficient fittings, fixtures, or appliances
 - (v) Allowable variation from design flows (peak loading events)
 - (vi) Consequences of changes in loading (due to varying wastewater characteristics)
 - (vii) Consequences of overloading the system

- (viii) Consequences of underloading the system
- (ix) Consequences of lack of operation, maintenance and monitoring attention, and
- (x) Any other relevant considerations related to the use of the system.

2.16 The following reports must be submitted to the *permit authority* and owner and be made available to the *Director* upon request after *commissioning* of the system:

Installation and commissioning report

The Installation and Commissioning Report is to cover the 'as-constructed' records of the system installation together with the results of *commissioning* tests to demonstrate correct construction and installation. The report is to be provided to the owner and *permit authority* on completion of the work. (Refer to and AS/NZS 1547 Clause 6.2.5.4).

Inspection and Maintenance Report

Maintenance reports cover ongoing inspection and maintenance operations in order to monitor the operation of the installation. (Refer to AS/NZS 1547 Clause 6.3.5, Appendix T & U).

2.17 Where the supplied pump is not suitably rated for the proposed land application area it must be replaced with a pump which has a rated capacity that matches the hydraulic characteristics of the irrigation and be capable of discharging at least 50% more than the 30 minute flow rate. For drip irrigation, ensure that drip emitter flow rates do not vary more than 10% from the design rate over the whole of the system when installed on a sloping site.

Note: The pump selection is to be based on flow, head loss and pressure requirements.

2.18 Effluent distribution by sub-surface application 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) where applicable the land application has been designed and is capable of being installed and maintained in accordance with AS/NZS 1547
- (c) the location of the land application 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 (see 5.2).

Product approval documentation

The following documents are referenced as part of this Accreditation:

Document	Document date
Global Certification Pty Ltd – Product Certificate of Registration No. 3589-2786-02 AS/NZS 1546.3:2017 Secondary Quality Effluent at 1500L/day (10) EP Level	29/03/2022
ApprovalMark International Pty Ltd Certificate of Registration No. AMI-QM-78017 ISO 9001:2015 Quality Management Systems	Valid 8/04/2021 to 8/7/23
ApprovalMark International Pty Ltd Certificate of Conformity No. AMI 1651 AS/NZS 1546.1:2008 On-site domestic wastewater treatment units – Septic tanks	Valid 14/11/2017 to 14/11/22
Global Certification Pty Ltd – Global Certification Report Number 002 of Alphatreat DPI0 STS to AS/NZS 1546.3:2017	28/02/2022

3.0 Installation and Commissioning

- 3.1 The installation and operation of the *system* must comply with the conditions of accreditation and the *manufacturer's* instructions.
- 3.2 All plumbing work carried out in connection with the *system* installation must satisfy the requirements of the *Building Act 2016* and be carried out by a registered plumber with appropriate training and qualifications.
- 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 The *system* requires a 240V AC power supply. A weather-proof isolating switch must be provided at the power outlet. The power supply must have its own clearly marked designated circuit breaker in the electricity supply fuse box.
- 3.5 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*. (refer to AS/NZS 1547 Clause 6.2.5)

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* and/or *permit authority*.

- 3.6 A report is to be prepared by the installing plumbing contractor detailing the inspection of the installation and the results of the *commissioning* tests and be accompanied by a certificate certifying that the system is operating and performing adequately (see 2.16).
- 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 or inspection for the period specified in the *permit*:
 - (a) The initial plant installation and commissioning report
 - (b) All required laboratory analytical test reports, and
 - (c) All inspection and maintenance reports.
- 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 which items and products that must not be placed in the *system*.
- 3.10 To verify that the plant is commissioned, sampling must be carried out, by a *council* approved person, for *BOD₅*, *TSS* and Free Residual Chlorine. The samples are to be tested and reported on by a NATA certified laboratory.

4.0 Maintenance and monitoring

- 4.1 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/maintenance schedule* 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.
 - (2) The licensed plumber may need to complete training by the *supplier* before carrying out any maintenance on the *system*.
 - (3) The maintenance and monitoring intervals may be combined provided the monitoring frequency remains at 3 month intervals.
- 4.2 The owner of the *system* must enter into and maintain a maintenance contract with a licensed plumbing wastewater servicing contractor and provide council with a copy of that contract.
- 4.3 The *system* must be operated and maintained to ensure it performs continuously and without any intervention between normal service intervals.
- 4.4 A service report is to be prepared by the plumbing contractor 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 services or inspections.
- 4.5 The service report is to be accompanied by a signed certificate certifying that the *system* is operating and performing adequately.
- 4.6 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 which items and products that must not be placed in the *system*.
- 4.7 Each service must include monitoring the operation of the *system* and associated land application.
- 4.8 Maintenance must be carried out on all mechanical, electrical and functioning components of the *system* as appropriate.
- 4.9 The monitoring, 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 the on condition of membranes
 - (g) Check and report operation of sludge return, sludge level and de-sludging;
 - (h) Check and record water meter reading (if fitted)
 - (i) Check and record operation of irrigation area, irrigation fittings
 - (j) Check and clean/replace irrigation filters
 - (k) Check and report on water quality (testing for pH, Turbidity, EC and dissolved oxygen)
 - (l) Check, and replenish chlorine disinfection system

- (m) Cleaning of the following items at above the waterline:
- (i) clarifier
 - (ii) pipework
 - (iii) valves
 - (iv) walls of chambers.

5.0 Performance

5.1 Hydraulic and Organic Loading:

The system is accredited for treatment of domestic wastewater as defined in ASI 546.3:2017 clause 1.8.7 limited to IOEP with the following MAXIMUM hydraulic and organic loads:

Model	Hydraulic load (L/day)	Biochemical Oxygen Demand (g/day)
Alpha Treat DPI0 STS	1500	700

5.2 Hydraulic and Organic Loading:

Treated effluent from the system must not exceed the following limits (90% of samples):

For sub-surface irrigation:	
5-day Biochemical Oxygen Demand (BOD ₅)	20 g/m ³ (max. 30 g/m ³)
Total Suspended Solids (TSS)	30 g/m ³ (max. 45 g/m ³)
For surface irrigation:	
5-day Biochemical Oxygen Demand (BOD ₅)	20 g/m ³ (max. 30 g/m ³)
Total Suspended Solids (TSS)	30 g/m ³ (max. 45 g/m ³)
E. coli	10 cfu/100 mL (max. 20 cfu/100 mL)
Free Residual Chlorine concentrations	≥ 0.5 g/m ³ and less than 2.0 g/m ³

6.0 On-going management

- 6.1 The mandatory servicing and monitoring is to commence 3 months after the plant is *commissioned*. The servicing and monitoring is to coincide with the *supplier's* required on-going routine scheduled maintenance program.
- 6.2 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 Free Residual Chlorine must be carried out until the plant is *re-commissioned*.
- 6.3 The method of preserving and the handling of samples taken from the plant must satisfy the relevant requirements of *AS/NZS 5667*.
- 6.4 Copies of the following reports and certificates must be submitted to the *permit authority* 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*:
 - the initial plant installation and *commissioning* report
 - all laboratory analytical test reports; and
 - all inspection and maintenance reports
- 6.5 The system is to be de-sludged strictly in accordance with the *manufacturer's* recommendations and the sludge is to be disposed of in accordance with the Tasmanian Biosolids Reuse Guidelines and the conditions of *permit*.
- 6.6 Only persons with a waste transport business Environment Protection Notice are to be engaged for the removal, transporting and disposal of accumulated sludge removed from the *system*.
- 6.7 Any waste material removed from the system must be collected and disposed of or utilised by an approved facility or agency.
- 6.8 Measures are to be put in place during servicing that will protect the environment, personnel and any other persons who could be affected by the activity.

7.0 Permitted uses

7.1 The effluent is suitable for land application by way of the following forms:

- (a) sub-surface by:
 - (i) subsurface drip irrigation in accordance with the relevant provisions of AS/NZS 1547
 - (ii) trenches, beds, mounds, evapo-transpiration in accordance with the relevant provisions of AS/NZS 1547.
- (b) above ground by:
 - (i) spray irrigation
 - (ii) surface drip irrigation in accordance with the relevant provisions of 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.

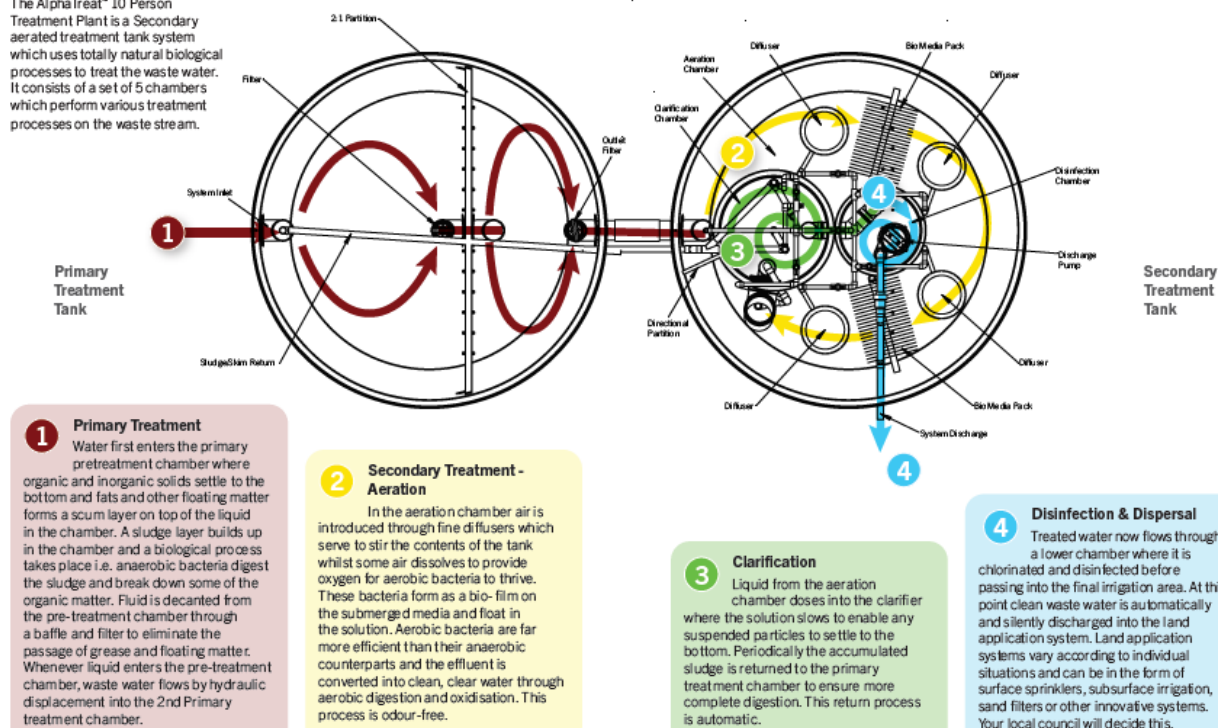
7.2 Where it is not practicable for effluent from the system to be applied in accordance with AS/NZS 1547 the method of discharge must satisfy contemporary relevant regulatory requirements to the satisfaction of the *permit authority*.

Appendix A

System Process

AlphaTreat™ Treatment Process

The AlphaTreat™ 10 Person Treatment Plant is a Secondary aerated treatment tank system which uses totally natural biological processes to treat the waste water. It consists of a set of 5 chambers which perform various treatment processes on the waste stream.



Alpha Treat DP10 STS Treatment Plant - Owners Manual

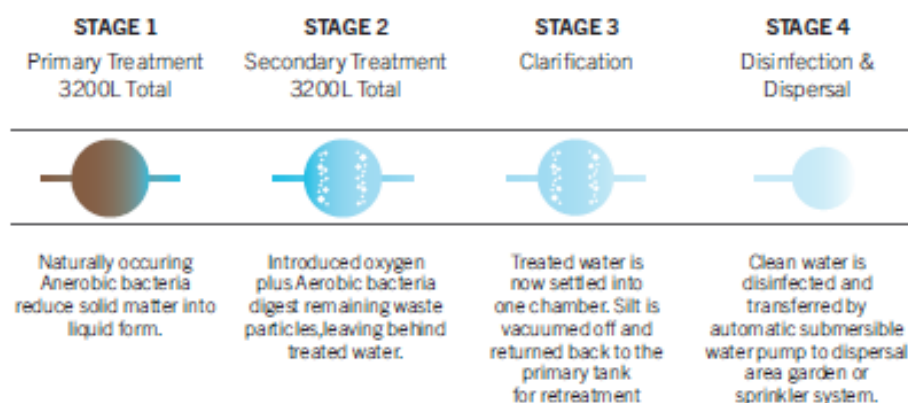
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Alpha Treat DP10 STS Treatment Plant - Owners Manual

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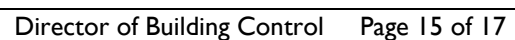
The AlphaTreat™ DP10 STS Treatment Plant is a compact Secondary, sewage treatment system housed in two polymer tanks. It is intended to treat domestic waste water from single households with adequate capacity to treat waste water for up to 10 people. The tank is connected to the household plumbing system and requires electrical power to be supplied for the air blower, electronic alarm control unit and the irrigation pump.

The Process

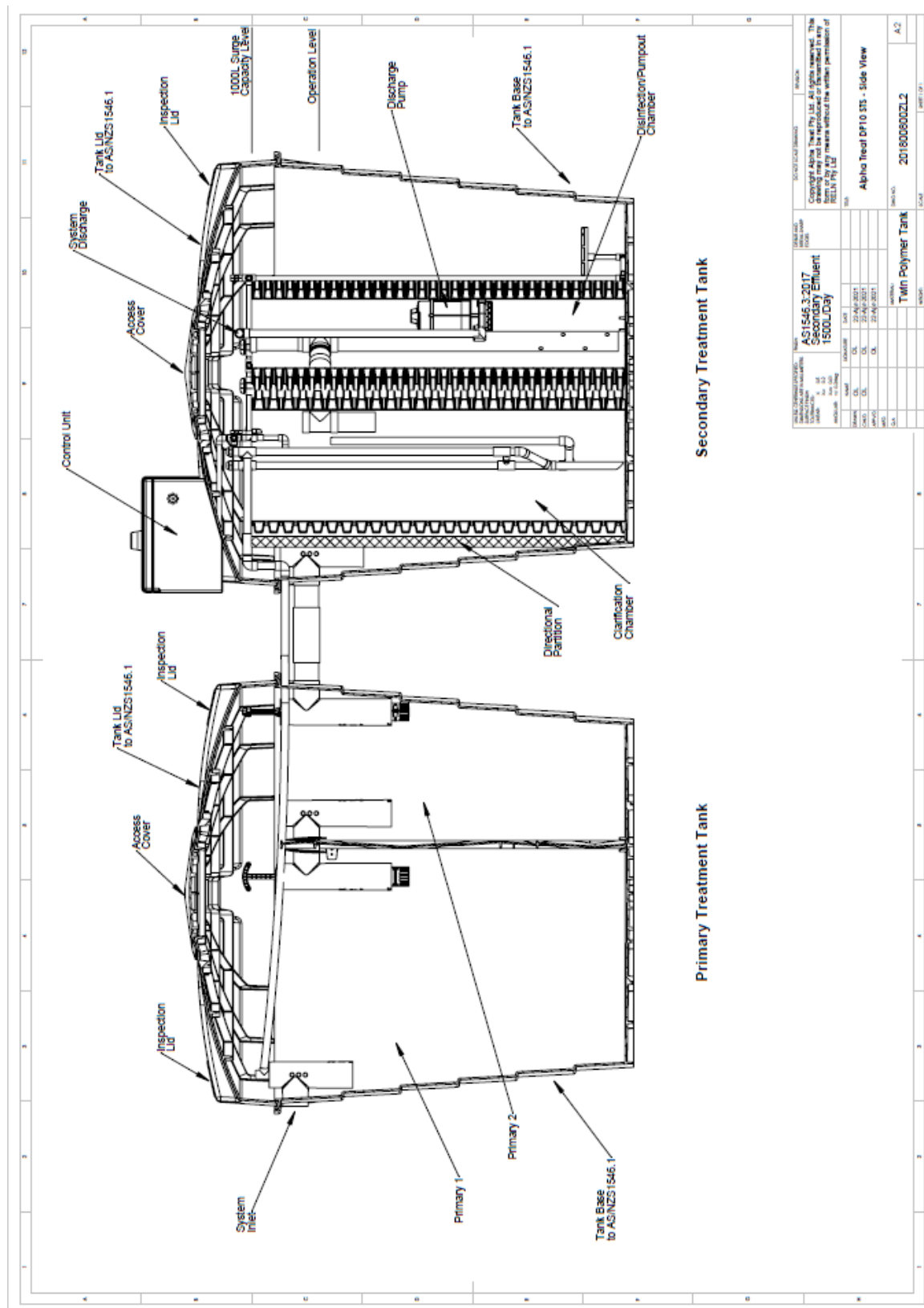


Engineering Drawings

Plan View



Side View



Appendix C

Sampling Procedure

Equipment Needed

Service technician is required to provide equipment as required to facilitate sampling including:

1. Sub surface sampler. Approx. 1.8m long with a sample taking or bottle holding device on the end. Commercial examples – Tank Sampler (Thermo Fischer), Series 6000 Jar Sampler (Ben Meadows), Grab Sampler Li (Rickly Hydrogeologic),
2. Hex drive bit and battery drill, or socket set and driver.

Sampler / Auditor is to provide:

1. Sterilised esky to transport the samples to the laboratory within 24hrs at a temp of less than 4 Degrees Celsius.
2. Approved Sampling bottles

Procedure

Please note that steps 1-6 below will be performed by a service technician upon request by the relevant Authority conducting the sampling / auditing. The service technician is also responsible for securing all plant and equipment upon completion of the sampling / auditing.

1. An accredited service technician unscrews and opens the motor box and effluent chamber, ensuring that there is nothing mechanically wrong with the system.
2. Turn the power to the system off at the GPO.
3. Prepare the sampler or sample bottle on the sampling stick.
4. Mark the sample pole at 1450mm from the sample inlet. Lower the sampler until the mark is level with the lip of the effluent chamber. This will ensure the sample is taken at the same level as the inlet to the irrigation pump.
5. Allow sampler or sample bottle to fill completely before raising from the sampling height.
6. Promptly fill, and or, seal the sample. Making sure not to contaminate the sample

The Sampler / Auditor is responsible for the following steps:

7. Label accordingly and place sample in sterilised esky at 4 degrees Celsius or lower.
8. Deliver to laboratory, complete with relevant Chain of Custody forms.
9. If further samples are required or you are sampling another plant, please sterilise equipment and repeat procedure.