TREATMENT PLANT APPROVAL 05/2023
Plumbing and Drainage Regulation 2019, part 4.

Queensland Government

Approval

1. The **Taylex Concrete ABSNR-2000+P** ("the system") described in the Specifications and Drawings in the attached Schedule and manufactured by **Taylex Australia Pty Ltd** (ABN 43 646 051 989) ("the manufacturer") has been assessed in accordance with the Queensland Plumbing and Wastewater Code (QPW Code).

2. Approval is granted for the system as an advanced secondary quality wastewater treatment system with nutrient reduction, subject to compliance by the manufacturer with the requirements of the *Plumbing and Drainage Regulation 2019*, part 4 and the conditions of approval detailed below.

3. This approval, the conditions of approval and the Schedule comprise the entire Chief Executive Approval document.

4. 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

5. The manufacture, installation, operation, service and maintenance of the systems must be in conformity with the conditions of this Treatment Plant Approval.

6. The system when tested by a certification accreditation body in accordance with AS1546.3:2017 was found to comply with the advanced secondary 13.3EP/2000L level with nutrient reduction effluent criteria and must continue to meet the following requirements:

TABLE 2.2 (AS1546.3:2017)

TABLE 2.2

EFFLUENT COMPLIANCE CRITERIA FOR AN STS WITH NUTRIENT REDUCTION FACILITIES

Parameter	Secondary effluent with reduced nutrients		Advanced secondary effluent with reduced nutrients	
	90% of samples	Maximum	90% of samples	Maximum
BOD_5	≤ 20 mg/L	30 mg/L	≤ 10 mg/L	20 mg/L
TSS	≤ 30 mg/L	45 mg/L	≤ 10 mg/L	20 mg/L
E. coli *	≤ 10 cfu/100 mL	30 cfu/100 mL	≤ 10 cfu/100 mL	30 cfu/100 mL
FAC †	Minimum 0.5 mg/L ‡	N/A	Minimum 0.5 mg/L ‡	N/A
Turbidity §	N/A	N/A	N/A	10 NTU
Total N ‖	N/A	15 mg/L	N/A	15 mg/L
Total P ‖	N/A	2 mg/L	N/A	2 mg/L

* Where disinfection is required.

† Where chlorine disinfection is used.

‡ Minimum level, not 90% of samples.

§ Where UV light is used for disinfection (see Paragraph B3.1).

‖ In alignment with NZ OSET NTP 'A grade' nutrient reduction capabilities.

Treatment Plant Approval
Approved by: Lindsay Walker
Delegated Authority
Department of Energy & Public Works

Queensland Government

7. Each system must be serviced in accordance with the accreditation certificate issued by Global Certification Pty Ltd on 16 March 2019, and details supplied in the owner's operation and maintenance manual.

8. Each system must be supplied with —

(a) a copy of this Treatment Plant Approval document;
(b) details of the system;
(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.

9. At each anniversary of the Treatment Plant Approval date, the supplier must submit to the Chief Executive a list of all systems installed in Queensland during the previous 12 months. Where the Chie Executive is notified of any system failures the Chief Executive may randomly select a number of installed systems for audit. The Chief Executive will notify the supplier's nominated NATA accredited laboratory which systems are to be audited for BOD^5 and TSS. The sampling and testing of the selected systems, if required, is to be done at the supplier'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) BOD^5 for influent and effluent; and
(e) TSS for influent and effluent.

10. The Chief Executive may, by written notice, cancel this approval if the manufacturer/supplier fails —

(a) to comply with one or more of the conditions of approval; or
(b) within 30 days, to remedy a breach, for which a written notice been given by the Chief Executive.

11. This approval may only be assigned with the prior written consent of the Chief Executive.

12. This approval expires on 16 February 2028 unless cancelled earlier in accordance with paragraph 10 above.

Lindsay Walker

Treatment Plant Approval
Approved by: Lindsay Walker
Delegated Authority
Department of Energy & Public Works
Queensland Government

Director
Plumbing, Drainage and Special Projects
Date approved:

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TREATMENT PLANT APPROVAL No. 05/2023
Plumbing and Drainage Regulation 2019, part 4

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SCHEDULE

Attachment 1

Specifications & Drawings for the

Taylex Concrete ABSNR-2000+P

Treatment Plant Approval
Approved by: Lindsay Walker
Delegated Authority
Department of Energy & Public Works

Queensland Government

PRODUCT CERTIFICATE OF REGISTRATION

Taylex Australia Pty Ltd

56 Prairie Road, Ormeau, QLD 4208, Australia

Product Performance Testing

AS 1546.3:2017

Advanced Secondary Quality with nutrient reduction of 55.4% for Nitrogen and 93.3% for Phosphorus at 2000 L/day (13.3EP level)

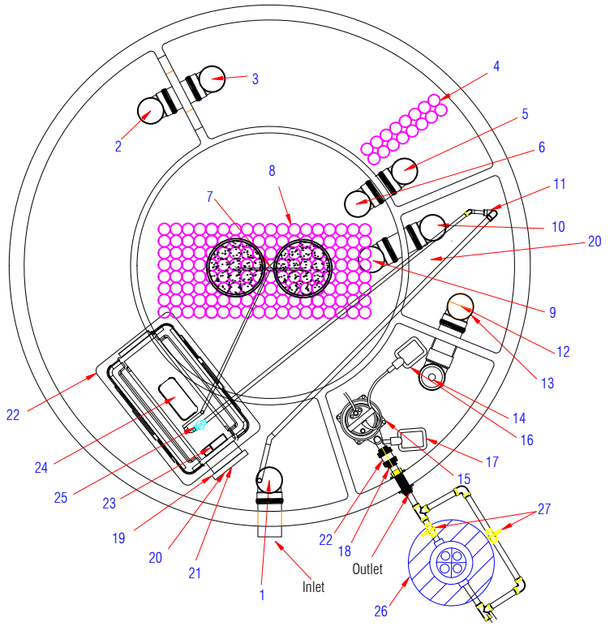
Model	Disinfection	Average Results over the Test Period	Servicing Frequency	Discharge	Manufactured and assembled
Taylex Concrete ABSNR+P 2000	Yes	TSS 4.61 mg/L (98.82%) BOD_5 4.22 mg/L (98.69%) Nitrogen 31.41 mg/L (55.40%) Phosphorus 0.78mg/L (93.30%) E coli 1.12CFU/100mL (99.99%) FAC 0.82mg/L	3 Monthly	Pumped via disinfection/pump chamber with chlorine dispenser	Manufactured and Assembled: 56 Prairie Road, Ormeau, QLD 4208, Australia
The system took 3 weeks to achieve Advanced Secondary Level. Chlorine was added during the test period for sterilisation. Taylex P Media added via a Filter after the pump out Chamber					

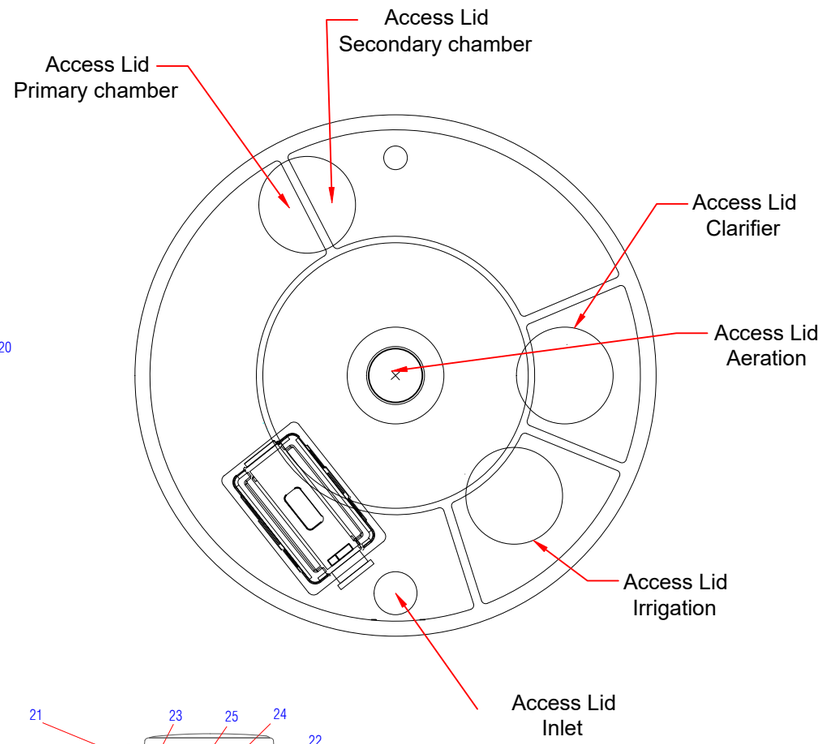
This Certificate of Conformance to the Product Certificate Scheme for "Domestic Wastewater Treatment Units (AWTS)" remains the property of Global Certification Pty. Ltd. and is granted subject to the terms and conditions of the Contract Application, in respect of the Product certified on this page and the attached schedule to the Certification of Conformance, bearing the same number as this certificate.

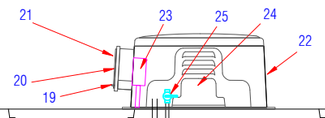
Managing Director

CERTIFICATION DATE:	DATE OF ISSUE:	EXPIRY DATE:	CERTIFICATE #:
29 November 2022	1 December 2022	29 November 2027	4385-3039-01

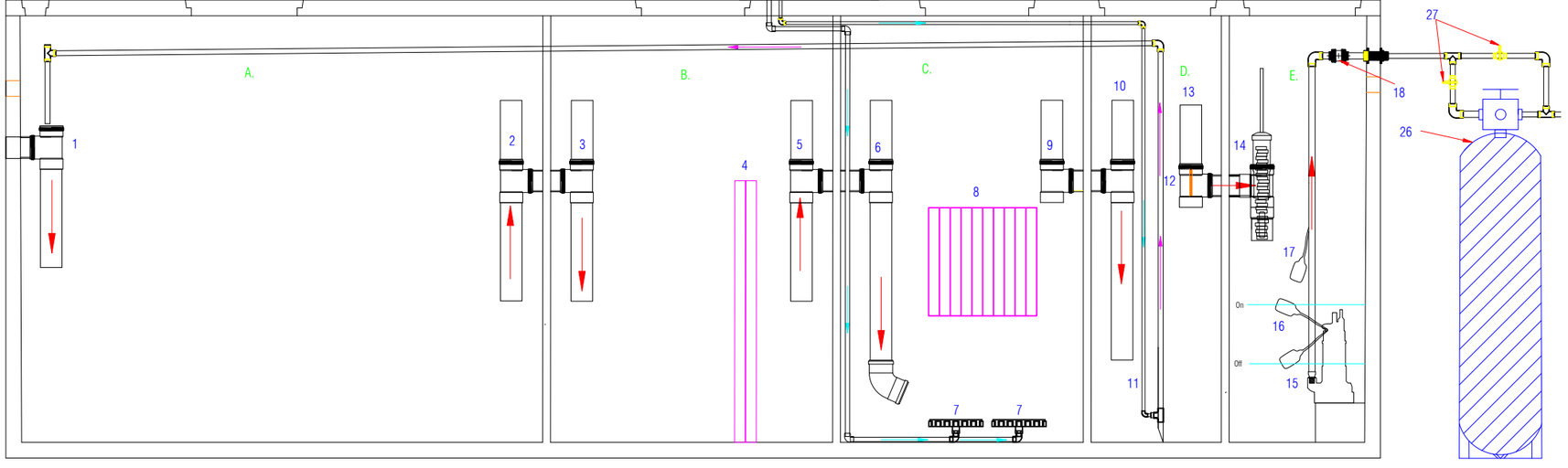
Patent Pending







Patent Pending



Primary Chamber | Secondary Chamber | Aeration Chamber | Clarifier Chamber | Disinfection Chamber

TANK DETAILS

TAYLEX WASTEWATER

Concrete Tank

	CHAMBER	CAPACITY 'L'
A	PRIMARY	1684
B	SECONDARY	842
C	AERATION	2071
D	CLARIFIER	662
E	IRRIGATION	621
	EMERGENCY STORAGE	3440

WORKING VOLUME 5880 Litres

TOTAL VOLUME 9320 Litres

INDEX

1. PVC JUNCTION 100MM X 90
2. PVC JUNCTION 100MM X 90
3. PVC JUNCTION 100MM X 90
4. BIO BLOCK
5. PVC JUNCTION 100MM X 90
6. PVC JUNCTION 100MM X 90
7. DISK DIFFUSER
8. BIO BLOCK
9. PVC JUNCTION 100MM X 90
10. PVC JUNCTION 100MM X 90
11. RECIRCULATION
12. TFC (PATENT PENDING)
13. PVC JUNCTION 100MM X 90
14. CHLORINE DISPENSER
15. IRRIGATION PUIMP
16. IRRIGATION PUIMP FLOAT CONTROL
17. HIGH LEVEL ALARM
18. NON-RETURN VALVE
19. ECO-PANEL BOX
20. ECO-PANEL CONTROL
21. ECO-PANEL ALARM LIGHT
22. BLOWER BOX
23. WEATHERPROOF GPO'S
24. BLOWER
25. RECIRCULATION AIR COCK
26. TALL SAND FILTER
27. CONTROL VALVES

Taylex WASTEWATER

DESIGNED:	DW	14.09.2022	STATUS:	DESIGN
DRAWN:	CZ	14.09.2022	SCALE:	NTS
CHECKED:	KQ			
CAD FILE:				

CLIENT: Taylex Australia Pty Ltd

PROJECT: Certification Drawing

TITLE: ABSNR 2000+P

DRAWING No.: 1 of 1

SERIES: 2

ISSUE No.:

Taylex
WASTEWATER

Specification

CONCRETE ADVANCED BLOWER SYSTEM
-Nutrient Reduction
-2000L/per day
-with Taylex Phosphorus Removal System

ABSNR-2000 P

TAYLEX ADVANCED BLOWER SYSTEM NUTRIENT REDUCTION 2000L/ per day with Taylex Phosphorus Removal System
ABSNR -2000 P

Specification

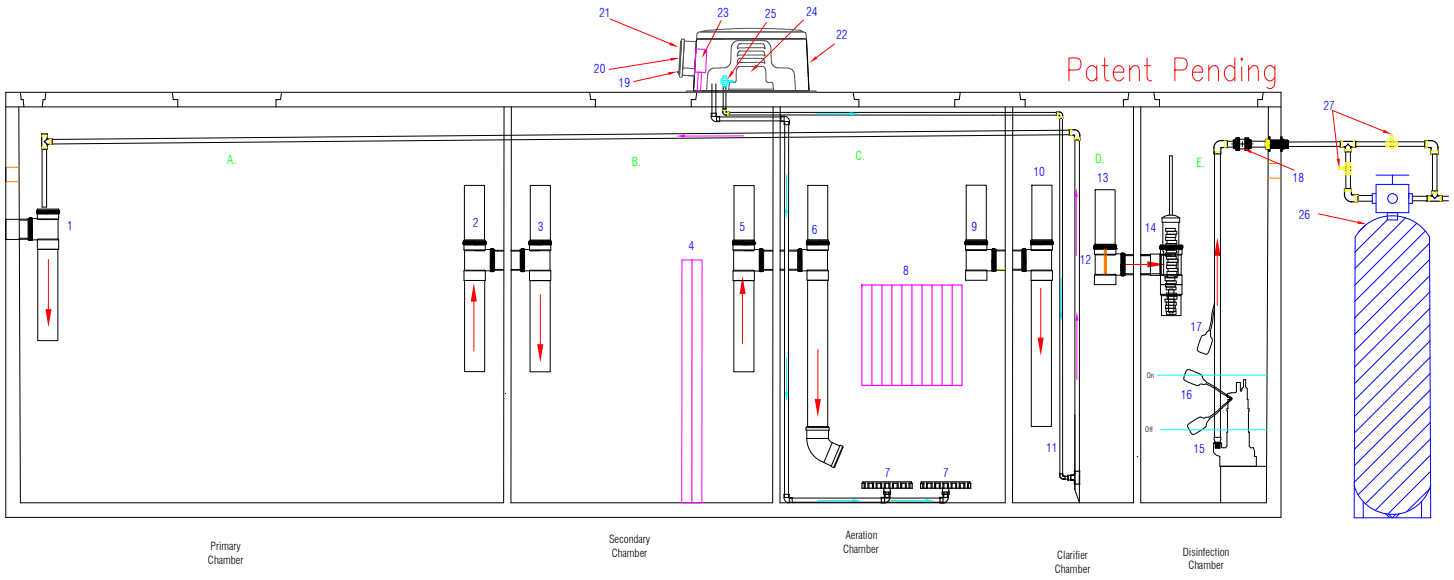
General Description:

The Taylex Advanced Blower System NR 2000 P (ABSNR-2000 P) Secondary Treatment System (STS) is designed to treat the wastewater from a residential dwelling up to 1,350 Litres per day, with a daily flow of 150 Litres per person and an average daily BOD^5 70g per person.

The Taylex ABSNR-2000 P STS is contained in one vertical axis type cylindrical precast concrete collection well with a design capacity of 9,320 Litres and an operating capacity of 5,880 Litres.

Flow path of wastewater:

1. A primary pre-treatment chamber, with a capacity of 1,684 Litres.
2. A secondary pre-treatment chamber, with a capacity of 842 Litres.
3. An aeration chamber, with a capacity of 2,071 Litres. This chamber is fitted with bio block media, 2, 9" disk diffusers.
4. A sedimentation / clarifier chamber, with a capacity of 662 Litres, containing a Taylex Filter Control (TFC) fitted to the outlet, and recirculation to the primary.
5. A Disinfection chamber, with a capacity of 621 Litres, incorporating a capacity of 300 Litres for chlorine contact of effluent. A chlorine disinfection unit is installed on the inlet to the irrigation chamber. The system is fitted with either a Davey D25 or D42 Irrigation Pump.
6. An Emergency Storage Buffer 3440 Litres.
7. The automatic irrigation pump transfers the treated effluent to the effluent disposal area / land application area (LAA).



Taylex WASTEWATER

Product Specification Table:

Australian Standards Compliance		
Effluent Testing	AS1546.3:2017	
Tank Design and Testing	In Ground	AS1546.1:2008
	Above Ground	AS3735.2001
System Model	ABSNR-2000 P	CONCRETE
Treatment Level	Advanced Secondary + % Nutrient Reduction + aylex Phosphorus Removal System	

Tank Capacity	
Total Tank Capacity	9320L
Operating Capacity	5880L

System Chamber Capacities	
Primary Chamber	1684L
Secondary Chamber	842L
Aeration Chamber	2071L
Clarifier Chamber	662L
irrigation Chamber	621L
Emergency Storage	3440L
Maximum Hydraulic Loading Capacity	2,000 litres per day / 13EP

Design Parameters		
Parameter	Total Per Day	Total Per person Per day
Daily Flow	2,000L/ 13 EP	150L
Maximum Organic Loading BOD^5	910g	70g
Total Suspended Solids (TSS)	910g	70g
Total Nitrogen (TN)	195g	15g
Total Phosphorus (TP)	32.5g	2.5g

Effluent Compliance: AS1546.3:2017		
Biochemical Oxygen Demand (BOD^5)	≤10mg/l	
Total Suspended Solids (TSS)	≤10mg/l	
E.Coli	<10cfu/100ml	
Min. FAC	Min 0.5 mg/l	

Temperature		
Operating Temperature C°	Minimum	Maximum
	-2°C	45°C

Electricity Consumption	
Kilowatt hours per day (kWh/d)	2.50
Kilowatt hours per 1000L (kWh/1000L)	1.33

Servicing and Maintenance	
Servicing Frequency	Every 3 months

Components List & Repair/ Replacement Instructions:

1. Primary Chamber – 100mm inlet Junction, BIO Block
2. Secondary Chamber – 100mm Junction x 2
3. Aeration Chamber – 100mm Junction x 2, BIO Block, Air Lift, Disk Diffuser
4. Clarifier Chamber – 100mm Junction, Taylex Filter Control, Recirculation Chamber
5. Irrigation Chamber – 100mm Junction, Chlorine Dispenser, Irrigation Pump, High Level Alarm Float, 100mm Elbow

Component List

TANK

Concrete Tank and Lid
Made from 32mpa concrete with SL 41Mesh

Repair / Replacement Details:
Replacement lids available from Taylex Industries or your local Service Agents.

Chips and cracks can be repaired using Sika panel patch or mortar.

1) 100mm Sweep Tee With dropper pipe and riser
2)

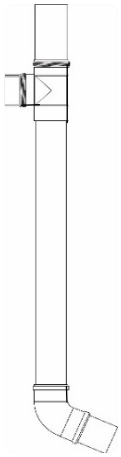
Repair / Replacement Details:
3) Replacement tee and pipe can be purchased from a local plumbing store. Cut 100mm pipe at wall and using a 100mm slab repair coupling install new tee.

5)

4) BIO Block Media
Width - 385mm
Length - 110mm
Height - 1400mm
Surface Area – 20.6m^2

6) 100mm Sweep Tee With 1000mm dropper pipe and 100mm 45° M&F Bend

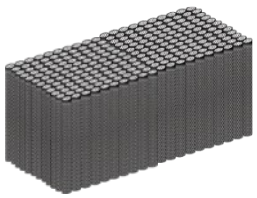
Repair / Replacement Details:
Replacement tee and pipe can be purchased from a local plumbing store. Cut 100mm pipe at wall and using a 100mm slab repair coupling install new tee.



7) Diffuser x 2
Material – EPDM
Diameter – 250mm (9inch)

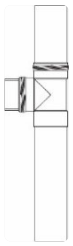
Repair / Replacement Details:
Turn the system off. Replace the diffuser by making a new complete aeration pipe assembly fitted with the Diffuser. Cut the main aeration supply line, place the new diffuser in the system, weighed down with a small concrete block and rotate the diffuser under the biomass. Re fix the new aeration pipe assembly complete with a joining socket. Removing the old Diffuser is not required. Turn the system on. Purchase the complete assembly from Taylex.

8) BIO Block Media
Width - 550mm
Length - 1100mm
Height - 500mm
Surface Area - 105m^2



9) 100mm Sweep Tee With dropper pipe and riser

Repair / Replacement Details:
Replacement tee and pipe can be purchased from a local plumbing store. Cut 100mm pipe at wall and using a 100mm slab repair coupling install new tee.



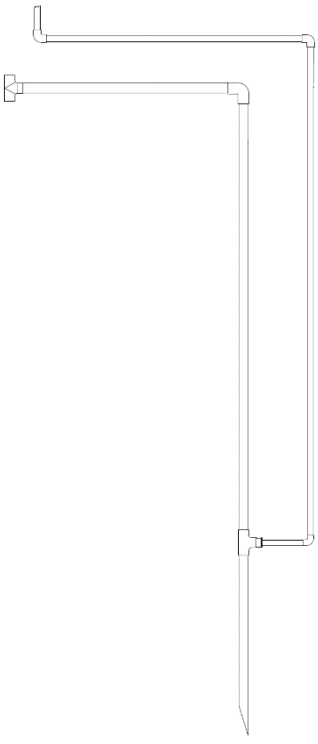
10) Recirculation System

13) For the transfer of fluids using the 'Venturi Principle'. Air is injected toward the base of a vertical open ended PVC conduit. Continuous displacement occurs as the air moves vertically to the liquid, drawing liquid through the bottom of the conduit. The air/liquid mixture reaches a vertical maximum where it then moves through the 90° bend into the primary chamber. The conduit is arranged in the base of the clarifier so that the residual sludge constitutes the main vacuum target.

Sludge Base Removal
Sludge deposit removal is to be scheduled 1 time per 6 years or as determined necessary by a licenced Taylex Sales Technician or the client or due to mechanical failure.

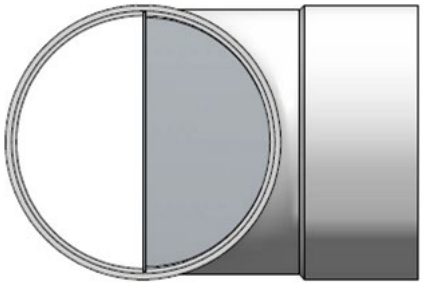
Servicing
Routine maintenance/servicing of the Taylex ABSNR -2000 P is to be scheduled quarterly or as determined necessary by an approved Taylex Sales Technician or due to mechanical failure.
Refer to Field Service Report sheet for testing requirements.

Repair / Replacement Details:
Turn the system off. Replace the Sludge Recirculation Assembly by cutting the main line and installing the new assembly with a joining socket. Turn the system on. Purchase the complete assembly from Taylex.



12) Taylex Filter Control (TFC)
Material – Stainless steel

Repair / Replacement Details:
Replace the TFC assembly by cutting the 100mm slab repair coupling, install the replacement TFC assembly.



14) Chlorine Dispenser
Material – HD Polyethylene
Length – 500mm
Diameter – 90mm

The chlorine dispenser is placed in the 100mm Tee located in the irrigation chamber.

Repair / Replacement Details:
Repairing the Chlorine Dispenser is not recommended. If the Dispenser is damaged, replace it with a new unit. Purchase the complete assembly from Taylex.

15) Irrigation Pump
The irrigation pump is self-controlled via a ball bearing activated float switch. When the according volume is reached in the pump chamber, the ball bearing in the float moves and creates an active connection. The treated effluent is pumped to the approved dispersal zone, as the chamber reaches minimum volume, the float drops and de-activates the pump. The type and capacity of the pump will be in accordance with the land application requirements.

Repair / Replacement Details:
Turn the system off. Replace the pump by disconnecting the barrel union, be sure not to drop the internal valve assembly. Lift the Pump Assembly out of the tank. Undo the threaded fitting connect to the outlet of the pump. Re apply thread tape and fix the threaded fitting back onto the pump. Return the assembly to the tank and re-connect the barrel union, ensuring the valve is seated correctly. Turn the system on. Purchase the correct pump from Taylex or a local outlet, ensuring the performance is identical to the pump removed.

DAVEY D42 – 32m Head	DAVEY D53 – 45m Head
Voltage – 220 -240 IP 68	Voltage – 220 -240 IP 68
AMPS – 4.3 Phase 1 50hZ	AMPS – 5.7 Phase 1 50hZ
Max Flow – 130L/min 7m	Max Flow – 130L/min 12m

17) Alarm System High Water
Material – PVC
Length – 20mm
Width - 90mm
Trigger – High Water
Code – 3
Visual – Red L.E.D - 3 Flashes
Audible – Micro Buzzer
Voltage – 12V

Repair / Replacement Details:
Turn the system off. Replace the float by disconnecting the electrical connection in the terminal block, located in the lower section of the control box. Feed the new float cable into the control box and connect to the terminal block, fixing the screws firmly. Re fix the float to the pipe assembly and loop the lead around the barrel union, to set the float height. Turn the system on. Purchase the float from Taylex.

18) Non- Return Valve
Height – 85mm
Length – 140mm
Width – 85mm

Repair / Replacement Details:
Turn the system off. Replace the Non- Return Valve by cutting the pipe in either side of the valve. Re-join the pipe using sockets and glue the Valve and sockets together. Ensure the glue is set before turning the system back on.

19) Control Panel Box
Material – HD Polyethylene
Height – 210mm
Length – 190mm
Width – 85mm

The weather proof control box is fixed to the side of the blower box using stainless steel screws. The control panel is fitted to the inside of this box and is connected to the power, high water alarm and pressure switch, via a gland at the back of the box.

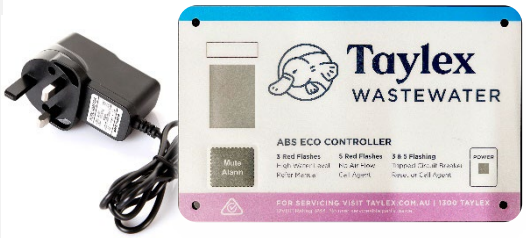
Repair / Replacement Details:
Repairing boxes is not recommended. Replacements boxes be purchased from Taylex or your local service agent

20) ECO Control Panel
(240v to 12V Power Supply)
Length – 160mm
Height – 100mm

The Taylex ECO is a 12V controller powered by the 240v to 12v power supply plug. As the unit is 12V all works including replacements and repairs do not need to be completed by a Licenced Electrician. All service agents can therefore complete all works within the Control Box and on the Taylex ECO Controllers.

The Taylex ECO Controller Assembly (complete with Controller, Control Panel Box, 3 x GPO Assembly and Blower Box) is classed as electrical equipment and has been certified to comply with AS/NZS 3820, meeting the Electrical Safety requirements in Australia and New Zealand

Repair / Replacement Details:
Turn the system off. Replace the Control Panel by removing the 4 screws in the control box. Disconnect the Loom plug from the rear of the panel. Connect the loom to the new panel; return the new Control Panel to the control box and re fix the 4 screws. Turn the system on. Purchase the Control Panel from Taylex.



21) L.E.D Light
Height – 30mm
Length – 20mm

The LED visual alarm is constructed within the Eco Panel. This LED Red light will flash when an alarm is present. The number of flashes represent the particular code.

Repair / Replacement Details:
Replacement of the LED lights only is not possible; the complete Control Panel must be replaced. Purchase the Control Panel from Taylex.

22) Blower Box
Material – HD Polyethylene
Height – 350mm
Length – 600mm
Width – 400mm

The Blower boxed is fitted to the lid of the ABS using 4 x 30mm anchors.

Repair / Replacement Details:

Repairing boxes is not recommended. Replacement boxes can be purchased from Taylex or your local service agent.

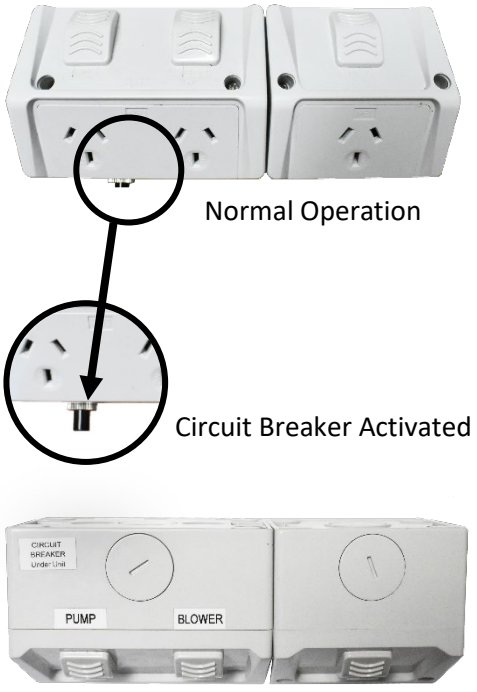
23) Weatherproof GPO's

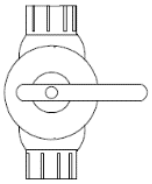
Single	Double
Height – 85mm	Height – 85mm
Length – 85mm	Length – 115mm
Width – 80mm	Width – 80mm

Mains 10amp power is connected through the 25mm coupling provided on the side of the ABSNR -2000 P and pulled up through a conduit into the Single GPO. The 12volt power pack plugs into the single GPO to power the control panel. The blower and irrigation pump are plugged into the double GPO.

The double GPO contains a 5amp circuit breaker, which will activate if either the pump or blower (or both) draw too many amps, indicating a fault with the pump or blower. The breaker can be reset by pushing in the button if activated. The systems normal operation including alarms will continue to function, if the breaker is activated.

Repair / Replacement Details:
Replacing the GPO's can only be completed by a licenced electrician, please refer to the Taylex Electrical Connection instructions for details. Replacements can be purchased from Taylex or your local service agent.



24)	Nitto 120L Blower Material – Alloy / Plastic Height – 232mm Width – 210mm Length – 407mm Weight – 9.7kg Noise Rating: 40dB(A) Capacity – 120L Back Pressure Range – 5kpa – 25kpa Motor Power – 130 Watts Power Source – 240V 50hZ Repair / Replacement Details: Purchase replacement Blowers and parts from Taylex.	
25)	Recirculation Control Valve The Recirculation system has been designed to recirculate a precise volume of bacteria and sludge back to the primary chamber for denitrification and sludge management. The control valve should be set to '10' on the dial for optimum operation. Repair / Replacement Details: Turn the system off. Replace the Recirculation assembly by cutting the main line and installing the new assembly with a joining socket. Turn the system on. Purchase the complete assembly from Taylex.	
26) 27)	Taylex Phosphorus Removal System (TPRS) The TPRS has been designed to absorb the total phosphorus remaining in treated effluent. A specially develop Taylex P Media is used to complete the absorption process. The filter control valves are included for balancing and servicing purposes. Repair / Replacement Details: The Taylex 'P' Media will need periodical replacement which will depend upon the incoming phosphorous load into the system, therefore replacement is as required. Owners are encouraged to use low phosphate product to maximise the lift of the media. Replace by pumping out the media and replacing with the correct kg or filter media and Taylex 'P' Media, your Taylex Service Technician can complete this process. The Media and P Media can be purchased from Taylex.