

**TREATMENT PLANT APPROVAL 06/2020**  
*Plumbing and Drainage Act 2018*



**Approval**

1. The **Taylex ABS with UV** ("the system") described in the Specifications and Drawings in the attached Schedule and manufactured by **Taylex Industries Pty Ltd** (ABN 351 134 530 91) ("the manufacturer") has been assessed in accordance with the Queensland Plumbing and Wastewater Code (QPW Code) dated 26 October 2017.
2. Approval is granted for the advanced secondary quality wastewater treatment system, subject to compliance by the manufacturer with the requirements of the *Plumbing and Drainage Regulation 2018*, and the conditions of approval detailed below.
3. This approval, the conditions of approval and the Schedule comprise the entire Treatment Plant 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 advanced secondary quality wastewater treatment system, which is an example of the approved systems, may only be used on premises that generate per day:
  - (a) a maximum hydraulic loading of 2,000 litres; and
  - (b) a maximum organic loading of 700grams BOD<sup>5</sup>
7. The system must continue to meet the requirements of advanced secondary quality wastewater treatment system, producing the following effluent quality:
  - (a) 90% of the samples taken must have a BOD<sup>5</sup> less than or equal to 10 g/m<sup>3</sup> with no sample greater than 20g/m<sup>3</sup>.
  - (b) 90% of the samples taken must have total suspended solids less than or equal to 10g/m<sup>3</sup> with no sample greater than 20g/m<sup>3</sup>.
  - (c) 90% of the samples taken must have a thermotolerant coliform count not exceeding 10 organisms per 100 mL with no sample exceeding 200 organisms per 100 mL.
  - (d) The manufacturer has included a level of nitrogen and phosphorus reduction in the treatment process, the effluent generated by the system must continue to meet, in addition to the above, the following criteria –
    - i. 90% of the samples taken, with 95% confidence limits, shall have a total nitrogen concentration less than or equal to 25mg/L; and
    - ii. 90% of the samples taken, with 95% confidence limits, shall have a total phosphorus concentration less than or equal to 5mg/L

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Delegated Authority

Department of Housing & Public Works



8. Each system must be serviced in accordance with the details supplied in the owner's operation and maintenance manual.
9. 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.
10. 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 Chief 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<sup>5</sup> 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<sup>5</sup> for influent and effluent; and
  - e) TSS for influent and effluent.
11. 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.
12. This approval may only be assigned with the prior written consent of the Chief Executive.
13. This approval expires on 01 January 2024 unless cancelled earlier in accordance with paragraph 11 above.

Lindsay Walker

**Director**  
**Plumbing, Drainage and Special Projects**  
**Building Legislation and Policy**

Date approved: 14 April 2020

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**SCHEDULE**

**Attachment 1**

Drawings and Specifications for the

**Taylex ABS with UV**

**Treatment Plant Approval**

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**SPECIFICATIONS**  
**TAYLEX ADVANCED BLOWER SYSTEM**  
**(A.B.S) WITH U.V**

**General Description**

The Taylex ABS (Advanced Blower System) Aerated Wastewater Treatment System (AWTS) is designed to treat the wastewater from a residential dwelling occupied by a maximum of 13 persons. The Taylex ABS AWTS is contained in one vertical axis type cylindrical precast concrete collection well with a design capacity of 9320 litres and an operational capacity of 5880 litres.

The operational water level in the Primary – Second Primary – Aeration and Clarifier chambers is 1450 mm from base (inside)

The Taylex ABS system flow path is as follows:

1. A primary pre-treatment chamber with a capacity of 1684 litres
2. A second pre-treatment chamber with a capacity of 842 litres, fitted with a Taylex disk filter located on the outlet of the secondary pre-treatment chamber
3. An aeration chamber with a capacity of 2071 litres containing Taylex PVC media panels with a surface area of 80m<sup>2</sup>
4. A sedimentation/clarifier chamber with a capacity of 662 litres
5. An irrigation pump chamber with a capacity of 621 litres incorporating a capacity of 300 litres for U.V contact of effluent
- A 16 watt U.V unit is installed on the outlet pipe of the clarifier
- Air is supplied to the aeration chamber by an 80 litre/minute air blower via a 15 mm PVC pipe to a Matala 225 fine bubble disk diffuser or equivalent located 300 mm up from the base of the aeration chamber
- A Davey D25 submersible irrigation pup or equivalent

**Effluent Compliance Criteria**

(In accordance with AS/NZS 1546.3:2008 and AS/NZS 1547:2000)

1. Biological oxygen demand (BOD<sub>5</sub>) ≤ 10 mg/L
2. Suspended solids (SS) ≤ 10 mg/L
3. Thermotolerant Coliforms (TC) ≤ 10 organisms per 100 ml

**Component List and Specifications**

1. Primary Tank
2. TFG Disk Filter
3. 80 litre/min Air Blower
4. Irrigation Pump
5. Sludge recirculation system
6. Control Panel
7. Cover Box
8. Alarm System
9. Media
10. Air diffuser
11. T.F.R Filter
12. 16 Watt U.V Light

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## **Control**

The plant is controlled via a timer which has been parameterized in the factory. Faults are signally both visually via the timer display and acoustically via an alarm mounted down on the system. The control system is equipped with a mains-independent power failure monitor function.

## **Power Saving Mode**

The control system automatically switches over the power saving mode if no sewerage flows into the plant over a longer period (at night, holidays etc.) In the power saving mode, the aeration time is reduced to the minimum necessary for supplying the micro-organisms with sufficient oxygen.

## **Sludge Removal**

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

## **Servicing**

Routine maintenance servicing of the Taylex A.B.S UV is to be scheduled quarterly (every 3 months).

Refer to Field Service Report sheet for testing requirements.

### **1. Tank**

Material:	Precast reinforced concrete, or plastic, in accordance with AS/NZS 1546.1:2008
Height:	2 350 mm
Diameter:	2 400 mm
Total Volume:	9 320 litres
Working Volume:	5 880 litres
Dry Weight:	6.25 T

### **2. Taylex TFG Disk Filter**

Material:	A.B.S and Nylon
Height:	400 mm
Diameter:	300 mm
Disks:	29

### **3. 80 litre/min Air Blower**

Material:	Alloy/Plastic
Height:	180 mm
Width:	200 mm
Length:	300 mm
Weight:	4.9. kg
Capacity:	80 litres
Pressure:	160 mbar
Motor Power:	86 Watt
Power Source:	240 v 50 hZ

In addition to supplying the microorganisms in the bioreactor with oxygen, the air compressor is also used to supply air to the sludge lift using a “venturi principle”

### **4. Irrigation Pump**

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Height: 370 mm  
Diameter: 225 mm  
Weight: 9 kg  
Capacity:  $\leq 200$  l/min  
Head: 9 m max  
Motor Power: 250 watt  
Power Source: 230 v/50 hZ AC

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-activated the pump. The type and capacity of the pump will be in accordance with land application requirements.

#### 5. **Sludge Recirculation System**

Operation: Air  
Material: PVC

This is a typical set up for the trans-location 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.

#### 6. **Control Panel**

Height: 100 mm  
Length: 160 mm  
Width: 60 mm  
IP Rating: IP44

Programmable control of submersible pumps, compressors, alarms, LCD display of functional operation, adjustment and malfunction alert. Active switching for sampling allows for sampling function of effluent, power failure, indication and restoration, and circuit breaking protection. Also incorporates power saving function and alarm testing sequence.

#### 7. **Cover Box**

Material: HD Polyethylene  
Height: 350 mm  
Length: 600 mm  
Width: 400mm

#### 8. **Alarm System High Water**

Material: PVC  
Height: 50 mm  
Length: 120 mm  
Width: 90 mm  
Trigger: High Water  
Code: 3  
Visual: Red L.E.D & number 3 on panel  
Audible: Micro buzzer  $\leq 10$  dB

#### **Alarm System Blower Failure**

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Trigger: No air flow  
Code: 5  
Visual: Red L.E.D & number 5 on panel  
Audible: Micro buzzer  $\leq$  10 dB

9. **Bio Mass**

Material: Food grade PVC  
Height: 80 cm  
Length: 720 mm  
Width: 450 mm

10. **Air Diffuser**

Material: PVC & Santoprene & Nylon  
Height: 35 mm  
Weight: 350 g  
Diameter: 220 mm

11. **TFR Filter**

Material: A.B.S Plastic  
Length: 60 cm  
Diameter: 10 cm  
Weight: 300 g

12. **16 Watt U.V Light**

Material: Stainless Steel or Plastic  
Length: 30 cm  
Diameter: 8 cm  
Weight: 700 g

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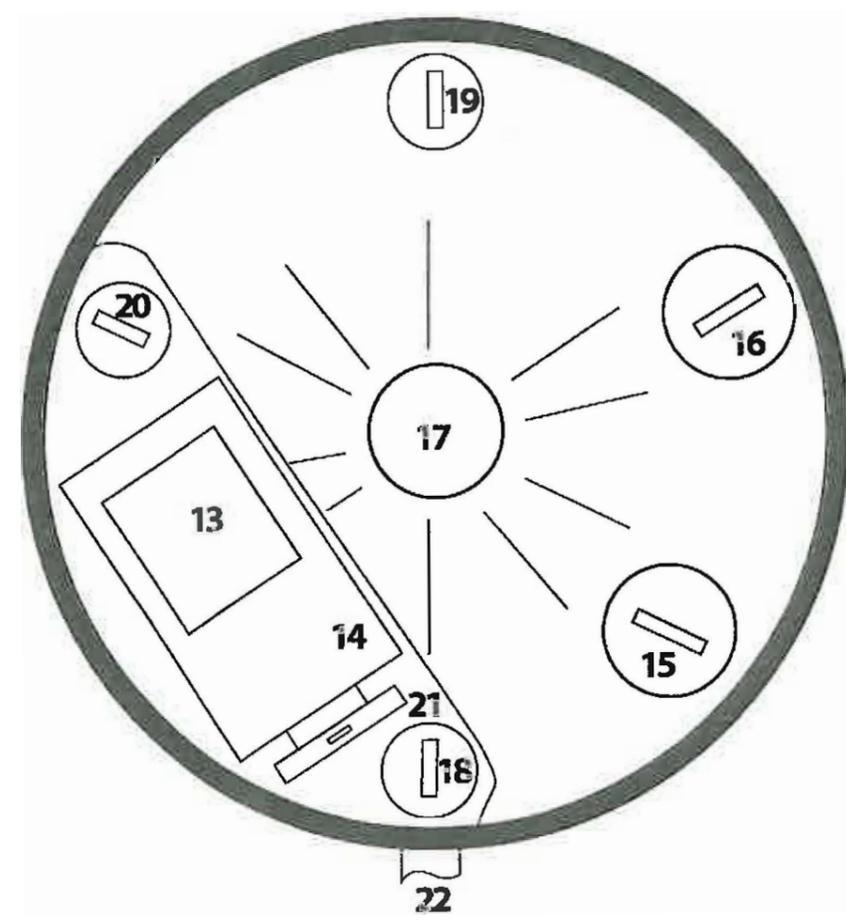
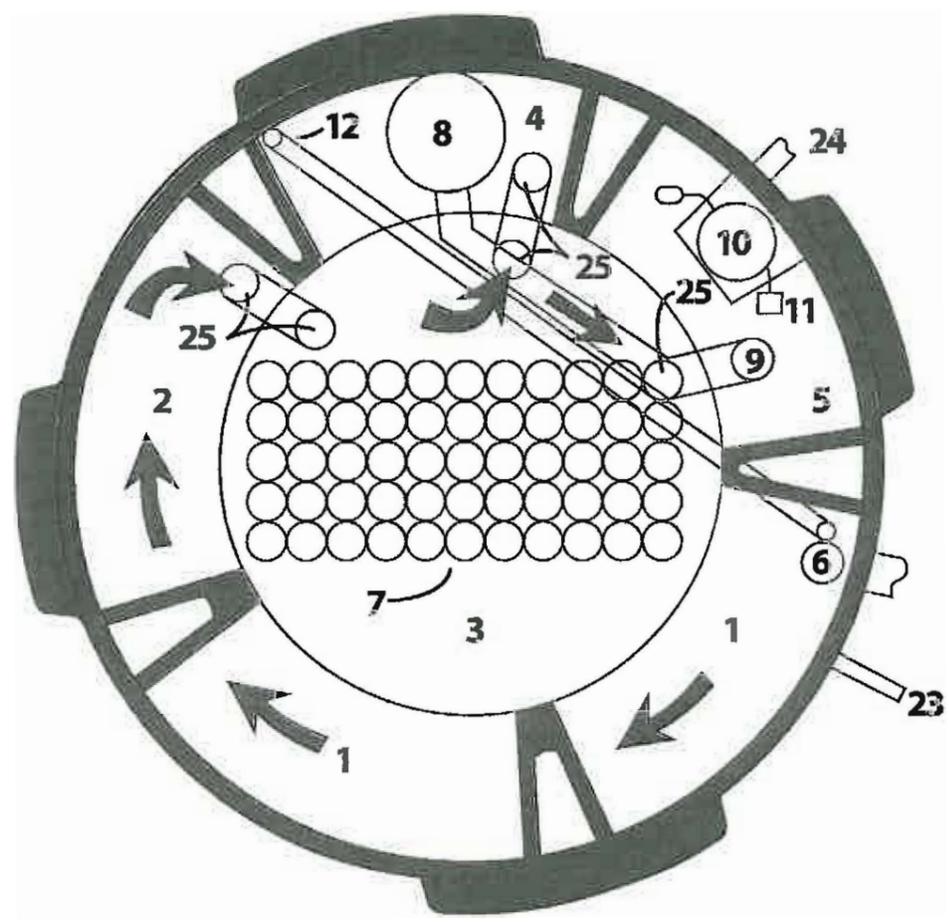


# Taylex Plastic ABS

**Treatment Plant Approval**  
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- 1 Primary
- 2 Secondary
- 3 Aeration
- 4 Clarifier
- 5 Irrigation
- 6 Inlet
- 7 Biomass
- 8 TFG Filter
- 9 UV Tube
- 10 Irrigation Pump
- 11 High level Float
- 12 Sludge Return
- 13 80Lt Nitto Blower
- 14 Blower Box
- 15 Access Lid over Irrigation
- 16 Access Lid over Clarifier
- 17 Access Lid over Aeration
- 18 Access Lid over Inlet
- 19 Access Lid over Secondary
- 20 Access Lid over Primary 2
- 21 High Level Post Light and Switch
- 22 Inlet Socket
- 23. Electrical In
- 24. Irrigation Outlet
- 25. Transfer Tee's



Taylex Plastic ABS

# SPECIFICATIONS

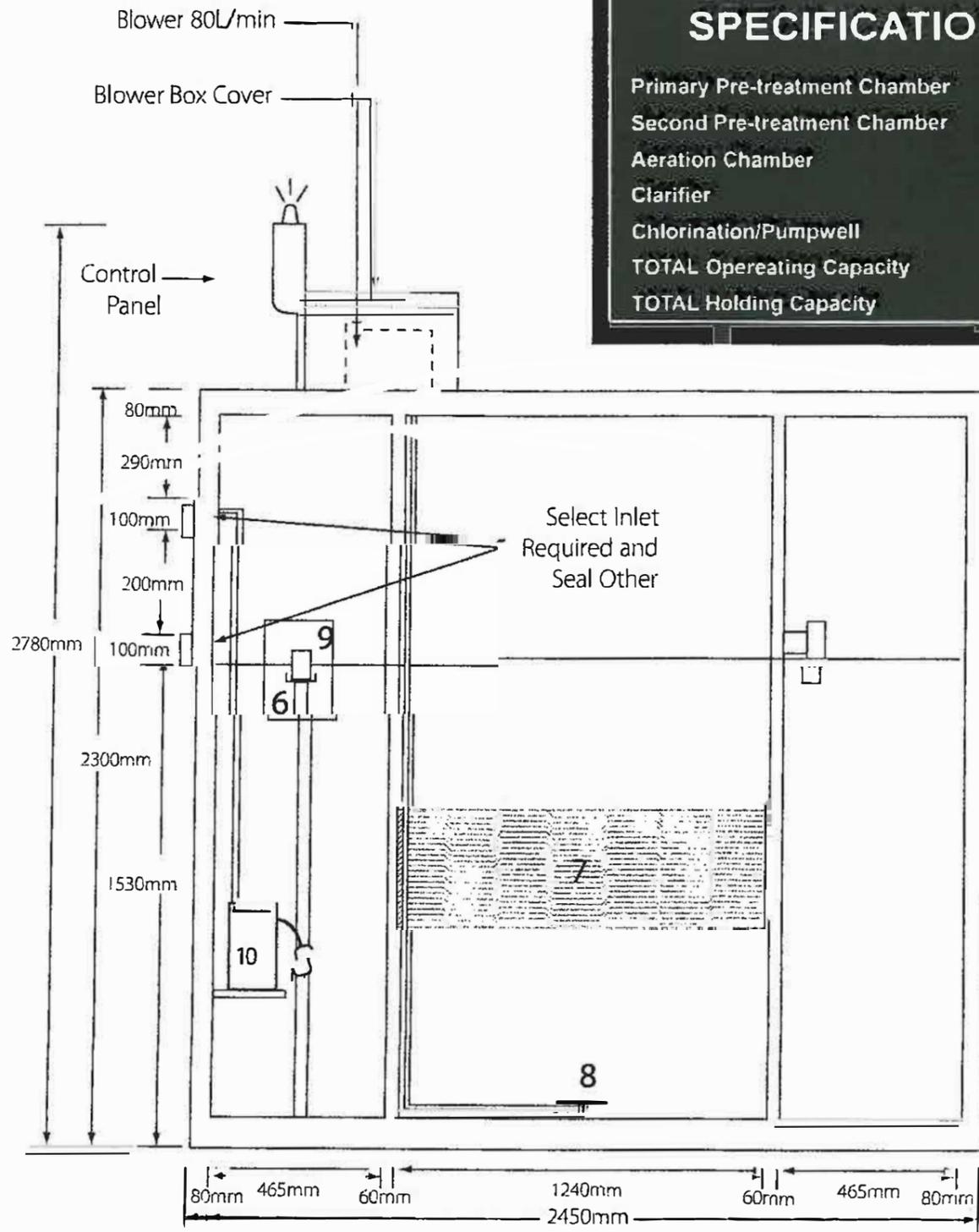
Primary Pre-treatment Chamber	1,684 Lt
Second Pre-treatment Chamber	842 Lt
Aeration Chamber	2,071 Lt
Clarifier	662 Lt
Chlorination/Pumpwell	621 Lt
<b>TOTAL Operating Capacity</b>	<b>5,880 Lt</b>
<b>TOTAL Holding Capacity</b>	<b>9,320 Lt</b>

**Control Panel**  
 Solid State Circuitry  
 Fully Programmable  
 Includes alarm, isolator  
 and overload protection

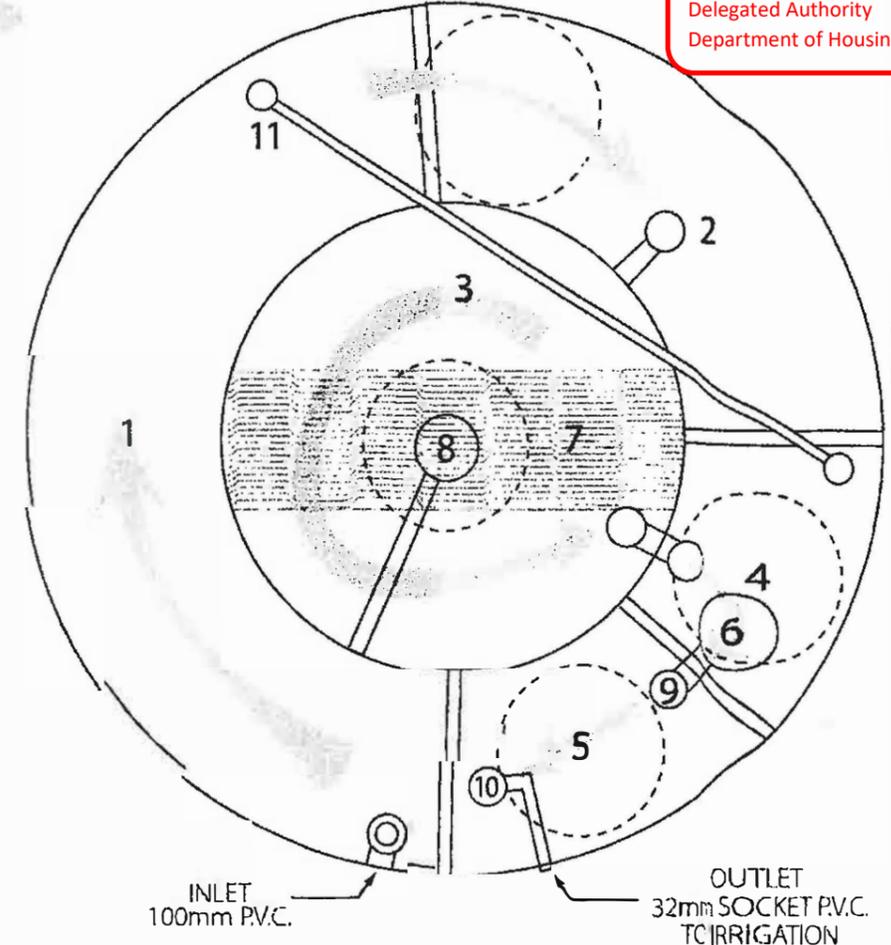
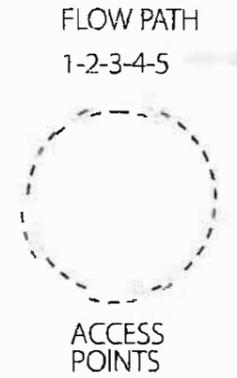
**Tank Construction**  
 All Concrete  
**Height** 2300mm  
**Inlet Invert** 1830 or 1530mm  
**Diameter** 2450mm  
**Weight** 6.25tonnes

1. Primary Pre-Treatment Chamber
2. Second Pre-Treatment Chamber
3. Aeration Chamber
4. Clarifier Chamber
5. U.V./Pumpwell Chamber
6. Taylex Disk Filter
7. Taylex Media Substrate
8. Taylex Air Diffuser
9. U.V. Light
10. Davey D25 Irrigation Pump
11. Sludge Return

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SECTION VIEW



ISOMETRIC VIEW

TITLE  
**TAYLEX ADVANCED BLOWER SYSTEM (A.B.S.)**  
**Wastewater Treatment System**  
 10 Person System



TAYLEX INDUSTRIES PTY LTD  
 56 PRAIRIE RD ORMEAU 4221

DATE 17/01/2014  
 DRAWN BY  
 DARYL WILLISHER