

# Outback System

Environmental Sewage Systems

1800 808 135

# ECO-SEPTIC

## DESIGN CALCULATIONS

### PROPOSED INFLUENT QUANTITIES / QUALITIES

AVERAGE FLOW RATE: 15,000 litres per day

### PROPOSED EFFLUENT QUALITY

|                          |                |
|--------------------------|----------------|
| <b>BOD<sub>5</sub></b>   | 150 – 300 mg/L |
| <b>SS</b>                | 150 – 300 mg/L |
| <b>Total Nitrogen</b>    | 20 – 100 mg/L  |
| <b>Total Phosphorous</b> | 10 – 25 mg/L   |

### PROPOSED EFFLUENT QUALITY

|                        |                  |
|------------------------|------------------|
| <b>BOD<sub>5</sub></b> | <10 mg/L         |
| <b>SS</b>              | <10 mg/L         |
| <b>Free Chlorine</b>   | >0.2 & <2.0 mg/L |
| <b>Thermotolerant</b>  |                  |
| <b>Coliforms</b>       | <10 cfu/100ml    |

## SEPTIC SECTION: 33,000 LITRES

Min Requirement

**1500 sludge allowance + (150 x N)**

N = Number of persons

1,500 + Avg. Daily Flow

1,500 + 15,000

16,500 litres capacity (Min.)

### Aeration Section 1 :

|                |                       |
|----------------|-----------------------|
| Volume:        | 3740 litres           |
| Air Supply:    | 200 litres per minute |
| Diffusers:     | 1600mm                |
| Growth Media : | 400 square metres     |

### Aeration Section 2 :

|                |                       |
|----------------|-----------------------|
| Volume:        | 8410 litres           |
| Air Supply:    | 200 litres per minute |
| Diffusers:     | 1600mm                |
| Growth Media : | 400 square metres     |

### Aeration Section 3 :

|                |                       |
|----------------|-----------------------|
| Volume:        | 3750 litres           |
| Air Supply:    | 200 litres per minute |
| Diffusers:     | 1600mm                |
| Growth Media : | 400 square metres     |

|                      |   |
|----------------------|---|
| <b>Clarifier:</b>    | 3740 litres capacity                                    |
| <b>Irrigation:</b>   | Chlorination 3740l                                      |
| <b>Disinfection:</b> | As per site evaluation report<br>(Normally 3740 litres) |

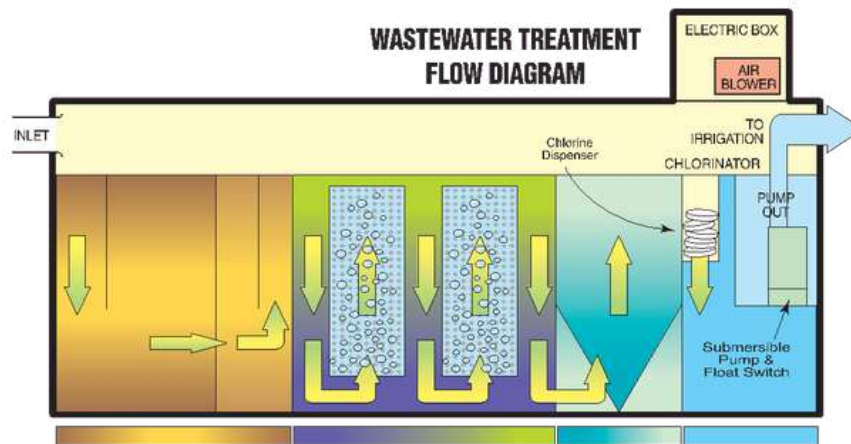
## Eco-Septic Outback Specifications

| Description        | Specification                           |
|--------------------|---|
| Number of persons  | 100EP – 15,000L/Day                     |
| Tanks              | 1 x Fibreglass Eco-Septic Tank - Custom |
| Blower             | 3 x 200 litres per minute               |
| Irrigation Pump    | Twin Pumps - 32m Head                   |
| Septic Section     | 20,000 litres                           |
| Aeration Section 1 | 3740 litres                             |
| Aeration Section 2 | 3740 litres                             |
| Media              | 800 square metres                       |
| Diffusers          | 2 x 1600m <sup>2</sup>                  |
| Disinfection       | Chlorination                            |

## TECHNICAL PROCESS DESCRIPTION

This is a general breakdown of our wastewater treatment unit.

The wastewater unit works on the combined principles of primary settling plus aerobic and tertiary treatment.



As you can see in the above diagram all your household wastewater and effluent enters the tank through the inlet shown here on the left side of tank.

This settles into the septic zone (identified by the orange & yellow shaded area).

Towards the top of the baffle wall which separates the septic and aeration compartments, there is an outlet which enables the effluent to trickle into the aeration / treatment zone. The aeration / treatment zone is the blue shaded area of the diagram.

From this, the effluent is filtered over a mass of growth media plates. The growth media acts as a bacteria-breeding ground, which sounds quite nasty but is actually a very important and proficient function of the wastewater unit.

The growth media (illustrated as the grey checked areas) enables the bacteria to break down.

Once the organic impurities have been absorbed within the aerobic culture of microorganisms, the water passes to the clarification zone. At this stage the water has been recycled into clean, clear, odorless water.

The clarification zone is the secondary sedimentation process.

Before the water is released from the tank it is circulated through the chlorinator. The chlorinator is as the name suggests – a chlorine based chamber that acts as a final back up and safeguard to catch and kill any nasties that may have escaped through the aeration and clarification processes.

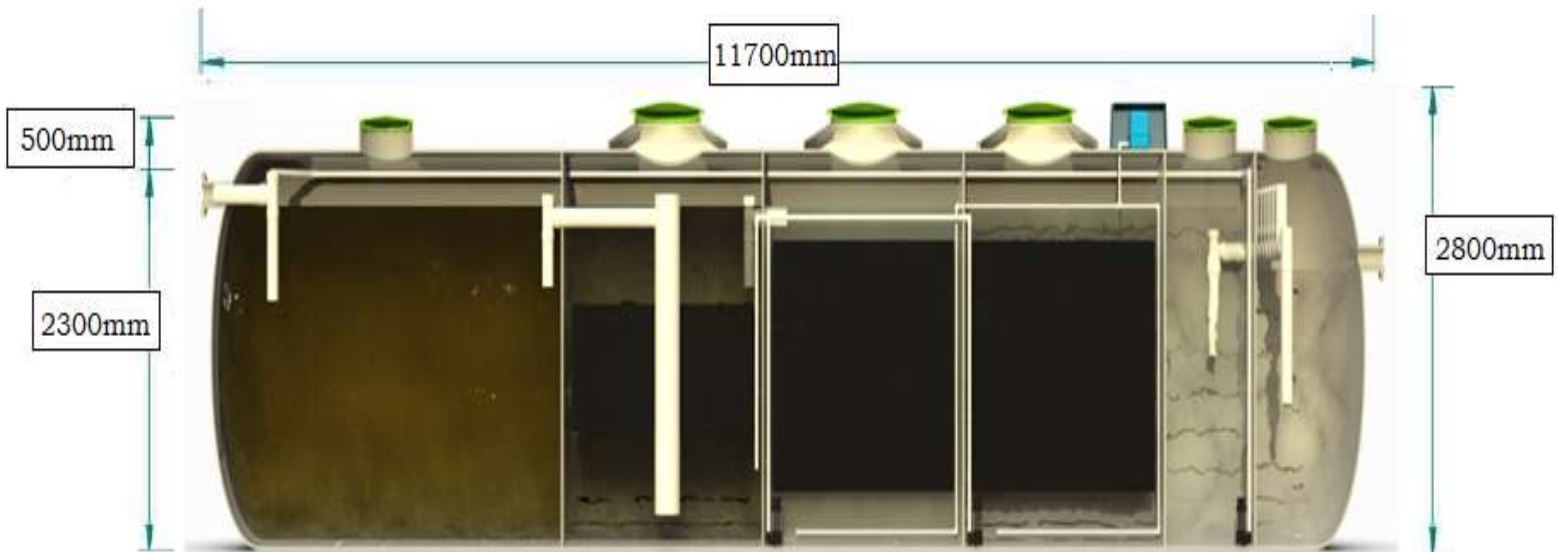
## TECHNICAL PROCESS DESCRIPTION (Cont)

The free residual chlorine concentrations are greater than 0.2mg/L and less than 2.0mg/L. This is a special grade chlorine so that when pumped onto the garden, any residual chlorine breaks down rapidly and allows for excellent plant growth.

Chlorine tablets are replenished at quarterly service interval and is the only chemical used in this process.

The Maxi Outback System is a 100 person capacity treatment system

## TANK AND DIMENSIONS



TANK DIAMETER - 2300mm