

ANOTHER ROADTRAIN[®] PACKAGED SEWAGE SYSTEM IN THE TORRES STRAITS—MABUIAG ISLAND

CASE STUDY



Based on successful Roadtrain[®] installations at Masig and Erub Is, a 100 m³/d system was installed at Mabuiag Island, located in the Torres Straits.

The Roadtrain[®] treatment system included:

- Mixed Equalisation Tank
- Fine Screening for solids removal
- Pre-Anoxic zone
- Rotating Biological Contactor
- De-oxygenation tank
- Secondary Clarification
- Chem P removal
- UV Disinfection
- Sludge Digestion
- Sludge Drying Beds
- Controls and SCADA

The plant is to be protected by a primary settling tank, will provide for primary removal of BOD, suspended solids and TOG.

The biological system consists of a pre-anoxic tank, for nitrate removal, a single RBC unit equipped with 3 internal cascades, for BOD and ammonia oxidation, and a de-oxygenation tank for the removal of residual oxygen from the RBC unit, generating a low oxygen feed for the

pre-anoxic tank.

Effluent from the RBC unit flows to the de-oxygenation tank, which allows the residual oxygen from the RBC reactors to be dissipated. By deoxygenating the treated sewage before it enters the anoxic stage the efficiency of the anoxic tank is increased, as no oxygen is present to interfere with denitrification.

This deoxygenated sewage is then recycled to the anoxic tank, where the nitrates generated in the RBC reactors is reduced to nitrogen gas. The recycle also acts to dilute the incoming settled sewage to improve treatment efficiencies. An effective recycle rate of 5 to 10 times the incoming settled sewage rate is required to achieve the BOD, ammonia and total nitrogen concentration.

The systems are ideal for remote locations, where a robust process and mechanical design along with minimal operator attendance is required.

Item	Value
Capacity	100 m ³ /d
Process	RBC Based
BOD Limit	20 mg/L
TSS Limit	30 mg/L
TN Limit	15 mg/L 50%ile
TP Limit	8 mg/L 50%ile
Faecal Coliforms	150 cfu/100mL
Year	2002