

## ROADTRAIN<sup>®</sup> WITH TERTIARY TREATMENT PROVIDES CLASS A WATER FOR NEBO JUNCTION

### CASE STUDY



Nebo Junction Roadtrain<sup>®</sup>, a classic example of repurposing and reusing. This project involved augmentation of an existing Hydroflux Epco Roadtrain<sup>®</sup> that started life in Glenden 1982 on a different site 300km North, then relocated in the 1990's to a truck marshalling yard in the Northern Territory, most recently resold yet again back to the Nebo Junction Accommodation village three hours west of Rockhampton.

The 150m<sup>3</sup> / day plant augmentation also increased treatment quality to allow for 100% effluent reuse to flush toilets, water gardens and wash laundry.

The Roadtrain<sup>®</sup> treatment system included:

- Flow balance
- Aeration
- Clarification
- Tertiary treatment through micro filtration

The plant is based on the intermittent aeration treatment process.

The incoming sewage is balanced in the balance tank and controlled via forward flow pumps into the aeration tank.

During the intermittent aeration phase the bacteria enter an aerobic state to oxidise the carbonaceous pollutants.

When the blowers cycle off the tank enters into the anaerobic state and bacteria convert nitrites to nitrates.

Mixed liquor is decanted from the tank via a control float and discharged into the acquiescent zone of the clarifier where treatment is split into a sludge train and an effluent train.

For the sludge train, suspended solids settle out of solution into the bottom of the hopper to be airlifted back into the aeration tank to seed active bacteria into the biological treatment process.

Once per week sludge is decanted out of the base of the hopper for disposal to maintain a vibrant biological community. Scum is also skimmed off the top of the clarifier and returned to the aeration tank for further treatment.

For the effluent train, an additional clarifier cell is added to the existing site to increase suspended solids removal, effluent is decanted off, behind a scum baffle, via the effluent weir trough and discharged into holding tanks.

Forward flow pumps then push effluent through the ultrafiltration package to achieve the highest A+ quality of tertiary treatment.

As effluent discharges the tertiary treatment cell it is further sterilised through high intensity ultraviolet radiation and chlorination prior to delivery into the effluent re-use reticulation throughout the camp.