

Minehead Return Liquors ETP



The 'neat' solution to reducing the biological loading on the Minehead STP

Installation of a low cost and easily maintainable, low footprint submerged membrane plant to treat return liquors at the Minehead Sewage Treatment Works, which allowed Wessex Water to avoid a costly upgrade to the main plant.

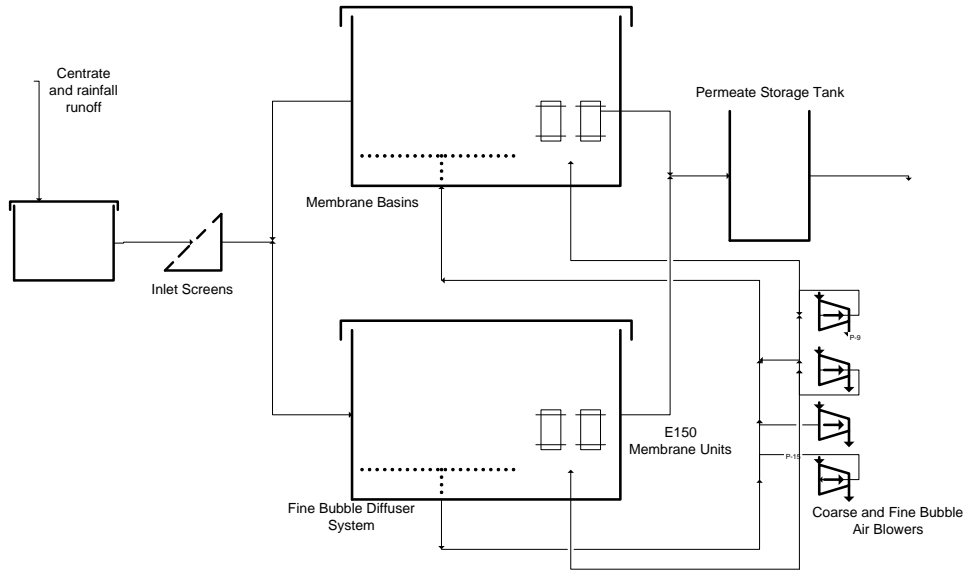
Plant Description:

- Membrane units and fine bubble diffusers in the one tank
- Standard storage tanks utilised
- Compact construction with MLSS running up to 20,000mg/L
- FFT of 260m³/d
- Influent BOD of 3000mg/L
- System complete with odour control unit

Current Status:	Commissioned in February 2002
Client:	Wessex Water
Brief Description:	Biological treatment of return centrate prior to sending back to the head of the works.

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Process Description:

Centrate and a small amount of rainfall runoff is combined and allowed to flow to a balancing tank of capacity 200m³.

Flow from the balancing tank is forwarded through 3mm perforated plate inline strainers before being distributed equally between the two membrane bioreactors.

Located within each MBR are two (2) no. E150 Kubota membrane units, and approx. 90 no. Sanitaire fine bubble disc diffusers.

Four (4) no. air blowers are supplied in a 3 duty – 1 common standby arrangement. All are variable speed drive and the two duty blowers providing air to the fine bubble system are controlled by Dissolved Oxygen Probes located in each tank.

Permeate from the membranes is collected in a Permeate storage tank and a reserve is kept to allow for backflushing of the air diffuser system.

A chemical makeup system is provided at the inspection platform to allow for easy biannual chemical clean.

An odour control system is provided as standard for all equipment on site. No odour is expected from the MBR unit.

The two membrane basins are standard Permastore designs and are 5.5m height and 5.5m diameter.

The system is operated in fixed level control and the flux design is conservative due to the variable nature of the incoming flow.

Design data

Flow to full treatment	260 m ³ /d
BOD load	781 kg/d
Nitrogen load	42 kg/d

Plant data

Design Flux – average	0.54m ³ /m ² .day
No of membrane units	4 x E150
No of fine bubble diffusers	180

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