

Swanage Wastewater Treatment Plant



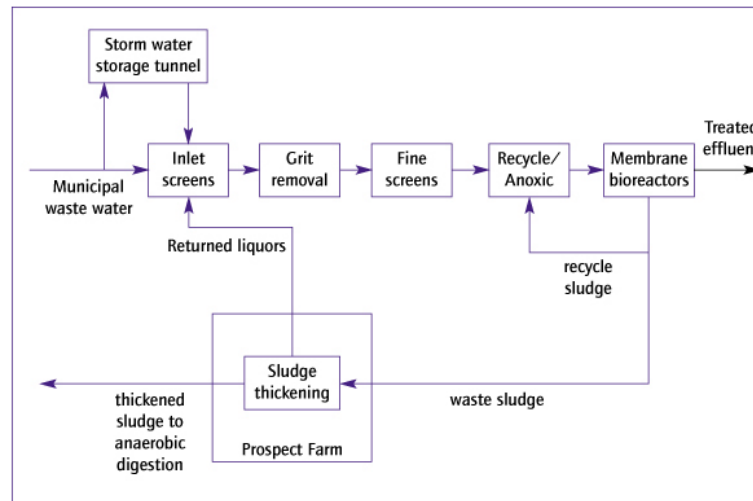
Plant Description:

- Designed to treat effluent from a summer population of 23,000.
- An Environmentally sensitive area located in a picturesque bay, with nearby bathing beach.
- 12,700m³/d flow to full treatment.

Current Status:	Works commissioned Summer 2000
Client:	Wessex Water Services Limited
Population served:	23,000
Consent:	40:60 BOD:SS (Alarm level at 30ntu/Turbidity)
Performance:	5:5:5 BOD:SS:Ammonia
Brief Description:	Complete underground works comprising preliminary works and submerged membrane bioreactor treatment plant

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Swanage Wastewater Treatment Plant



Process Description:

Preliminary treatment is carried out by 6mm drum screens and grit removal in Grit King[®] separators. The flow is then pumped through 2mm fine screens to a central flow split tank and on to full secondary treatment. Submerged membrane filtration process within an activated sludge aeration tank carries out the compact secondary treatment. The aeration provided serves to oxidise BOD and ammonia, and also produces a cross flow effect across the membrane surfaces to minimise membrane fouling. Since the process requires no primary or secondary settlement stage a high activated sludge strength is possible and space requirements are considerably reduced.

The fully disinfected effluent is eventually pumped to a sea outfall.

Surplus sludge can be removed from the process at up to 2% dry solids. This is pumped to a remote site where it is thickened by centrifuge to 6% before being sent by road tanker for anaerobic digestion. Foul air from the process buildings (arising from mainly screenings handling area) are passed through a two stage packed tower scrubber system using sodium hydroxide and sodium hypochlorite reagents.

Design data

Design Horizon	2,016
Flow to full treatment	12,700m ³ /d
BOD% load	1,524kg/d
Ammonia load	200kg/d

Project Status

Commissioned	July 2000
Operated by	Wessex Water

Plant data

Aeration tank volume	1260m ³
MLSS	12000-18000mg/l
No of membrane units	132xE150
Membrane surface area	15840m ²

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