

**Phosphate levels targeted for discharge
to tributaries of the Wensum River near
Fakenham**

The 1,500 population Bio-Bubble installed for Anglian Water Services at Sculthorpe, Norfolk, has a 10 year exemplary record for discharging extremely high quality Effluent. The Treatment works location adjacent to the Syderstone Common nature reserve; a SSSI reserve most notable for a population of natterjack toads, one of only two inland sites in the UK where the rare toad is still found.

Formula A flows to the works (2,387 m³/day) receives full biological treatment, the final effluent from the Bio-Bubble then discharges to pools at the head of the River Tat, which is a tributary of the Wensum River. It is these pools that are directly connected to the underlying chalk aquifer that provide the perfect habitat for the rare toads. The final effluent passes from the Bio-Bubble through a large reed bed, sized to attenuate the 120 litre / second discharge from the Advanced Aeration reactors, with typical analysis results < 5 mg/l BOD, < 5 mg/l Suspended Solids and near zero mg/l ammonia has meant there are no complaints back from the natterjacks !!

Over recent years a great deal of investment has been targeted at significantly reducing the amount of phosphate present in waste water from treatment works in the region, as part of a bid to protect the large wetland area known as The Norfolk Broads. The River Wensum is a tributary of the River Yare, a feeder river to the broads, and the DWF of 306 m³ each day from this site, albeit one of many sources of phosphate, is large enough that the Environment Agency now require a phosphate level in the final effluent of < 1 mg/l. The Bio-Bubble can biologically remove circa 30% of the phosphate levels, however, to achieve a 1mg/l level it was necessary to install a package ferric sulphate dosing system.

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