

# Hartshill WwTW Fisheries Directive Project

## £6.5m project to renew, expand & meet new ammonia consent

by  
Harold Crompton

**H**artshill, Warwickshire, Severn Trent's wastewater treatment works, serves a number of rural communities to the west of Nuneaton with a population equivalent of 79,000. It is an activated sludge plant, operating until the current improvements with six aeration lanes, eight final settlement tanks (FSTs) and associated RAS/SAS pumping facilities for recirculated and surplus sludge. Discharge is to a local stream. It is necessary to meet the new ammonia consent for the plant that comes into force in March 2005, requiring a reduction of  $\text{NH}_3$  from 15mg/l to 5-10 mg/l in accordance with the Fisheries Directive. Other consent values – BOD 15mg/l and SS 30mg/l, are unchanged.



Hartshill: New intermediate pumping station allocates flow between new & existing works

courtesy Biwater Treatment

The  $\text{NH}_3$  target will be met by installing a new, parallel nitrifying activated sludge plant (identified as ASP2) to supplement the existing facility (ASP1), in addition, all mechanical and electrical assets of ASP1 are being renewed.

Principal structures in ASP2 are three dual-pass diffused aeration lanes, three final settlement tanks with scum removal, and RAS/SAS pumping provision. Nitrification will be achieved by the addition of an anoxic tank. ASP2 has sufficient capacity to treat a flow of 2235m<sup>3</sup>/h.

The combined design flow for ASP1 and ASP2 is 77 MLD FFT at a loading of BOD 3800kg/d,  $\text{NH}_3$  1,200 kg/d.

Allocation of flow between the new and existing works will be handled by a new intermediate pumping station, normally on a 70/30 basis. Provision has also been made for flow splits of 60/40 and 85/15.

In ASP1, all six of the aeration lanes are being retained and updated. Four of the final settlement tanks will also be refurbished, but the remaining four will be demolished and superseded by the three tanks in ASP2. Sludge pumping facilities are being renewed completely.

In a departure from usual practice, Severn Trent's own engineering department has designed the process for Hartshill, with *Biwater Treatment* taking turnkey responsibility for all M & E design and construction. The project was awarded along with two others at (Packington and Buxton) that are structured in a similar manner.

The Hartshill contract is valued at £6,560,384 and includes the manufacture, delivery and erection, installation, commissioning and testing of all process, mechanical, civil, electrical, instrumentation and control equipment associated with construction of the plant. Contract conditions are in accordance with ICE



Hartshill: ASP2 aeration lanes, fitted with diffuser grids of varying densities.

courtesy Biwater Treatment

Measurement Version issue 7th Edition, with Severn Trent's amendments. Work began in the autumn of 2002.

To ensure continuity of treatment, the contract required construction and commissioning of ASP2 to be completed before the asset renewal of ASP1 could begin. In April 2004, this target had been

achieved, with the new plant fully operational and 60% of the renewal work already completed. Anticipated completion date was July 2004. ■

Note: *The author of this article, Harold Crompton, is a Project Manager at Biwater Treatment.*

