

## Bedford Pumps contribute to £145m upgrade at Minworth STW

Bedford Pumps Ltd in partnership with Severn Trent Water, made a considerable contribution to a £145m upgrade at Minworth STW, Severn Trent's largest Sewage Treatment Works.

The plant located in Sutton Coldfield, Birmingham, has undergone substantial upgrading and renovation work. This includes a new Inlet Works, Primary Settling Tanks, increased ASB capacity, an Interstage Pumping Station and provision for future Biological Nutrient Removal.

Minworth STW covers approx 500 ha of land to the east of Birmingham and currently treats waste from the equivalent of 2.5 million people (1.75 m from the direct population and a further 750,000 due to tankered imports). To deal with this influx a major part of the extensive works was the construction of a new Settled Sewage Pumping Station on site. The sewage (on average 500 ml/d) arrives at the inlet via two large sewers where it is screened and settled. Pumps are then used to remove the sludge and transfer it to another part of the site for treatment.

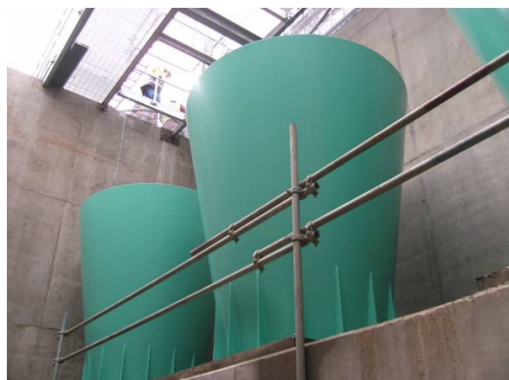
Paul Fisher, project manager at Severn Trent states that "the inlet channel is like a major canal or a good size river rather than the usual sewer main pipe" and needs to handle a "pretty frightening" 30 m<sup>3</sup>/sec flow during maximum storm flow conditions. Bedford Pumps, chosen for their extensive knowledge and expertise in the field, worked alongside Severn Trent to provide the best possible pumping solution to contend with this.

Initially Severn Trent carried out a Whole Life Cost assessment of various pumps types (Screw Pumps, Submersible Volute Pumps, Conventional Lineshaft Bowl Pumps and Submersible Bowl Pumps). It was found that by a clear margin (a saving of £1.4M) submersible bowl units were the best option. The assessment took into account Civil Cost, M & E Cost, Power Consumption and Maintenance. With the decision made, Severn Trent then approached Bedford Pumps to assist with design.

Bedford Pumps then submitted no less than nine options, and two of these were selected for final Whole Life Cost analysis. This method is defined by the Office of Government Commerce (OGC) as "A technique to establish the total cost of ownership. It is a structured approach that addresses all the elements of this cost and can be used to produce a spend profile of the product or service over its anticipated life-span". This identified a £1.4M cost saving in favour of the bowl pumps.



**Fig 1. Bedford Pumps mixed flow pumps**



**Fig 2. Canisters in place**



**Fig 3. Pump installation at Minworth**