

## LARGEST MUNICIPAL SEWAGE TREATMENT WORKS



### Largest Trickling Filter Media contract with smallest carbon footprint

One of the UK water companies needed to update the Secondary Treatment System at one of their large municipal Sewage Treatment Works. The work, run by contractors Carillion Water, was part of a £12.5M AMP4 contract to upgrade the system and Carillion opted for a modular plastic media trickling filter solution, awarding the contract to supply the 21,000 cubic meter of BIOdek 150m<sup>2</sup>/m<sup>3</sup> media to 2H Water Technologies.

This represented the largest single order for plastic media in Europe and reflects 2H's ability to deliver robust and reliable water treatment solutions.

Transporting this volume of media to site would have required 333 articulated trucks! Due to the flexibility of 2H's assembly technology, however, the media was constructed on site using the 2H unique thermal welding process which delivers a consistent high quality and significantly reduces the manufacturing costs. This avoided the use of adhesives and eliminated the emission of organic solvents.

As a result the carbon footprint was significantly reduced, by 89,300kg CO<sub>2</sub>, contributing considerably to the environmental aims of the project. A quest for further environmental protection measures on the contract led to the decision to change the material of construction of the media from PVC to Polypropylene (PP). This prevented the 120 tonnes of solvent required to chemically weld the PVC from entering the atmosphere on the site. There was also a saving on generating the electrical power required to run four gluing machines and their associated ventilation systems which would have added a further 19,000kg CO<sub>2</sub> to the atmosphere.

The site facility to house the PP welding machines was constructed using a marquee standing on a hardcore base topped with asphalt. The four welding machines were installed inside the marquee and connected to a generator and compressor sited outside providing the power and air to run the welding machines and light the working area. Part of the area inside the marquee was used for storage of the foils that were to be welded into the finished modules. The power supply for on-site production created 32,300 kg CO<sub>2</sub> discharge however the production on site gave an overall saving of 249,700kg CO<sub>2</sub>.

The modules, ready for installation in the concrete tanks, were strapped to pallets which were stored on the 2,000 square metre area allocated to storage adjacent to the production facility. The media was installed in the 8 tanks above a support system of dwarf walls and concrete lintels. The modules were moved across the site by truck, still on their pallets and then lifted by crane into the tank for installation.

*"2H's solution was ideal to address the stringent levels of environmental compliance required for this project. With such large filters (30.5 metres in diameter) it was crucial to identify a solution that worked efficiently at high loading. BIOdek plastic structured cross flow media's high active surface area is ideally suited to form deep beds. Each of the eight Trickling Filters contains a 3.6m deep bed of plastic media.*

**Bob Lorenzo, Regional Director, Carillion Water**

*"The need to improve levels of biological treatment efficiency will be achieved by 2H's proven BIOdek media technology with eight Trickling Filters operating in parallel. At the same time, the structured cross flow nature of the BIOdek ensures that all the available surface area is utilised for the process. We are very pleased to win such a significant order"*

**John Gattley, Managing Director, 2H Water Technologies Ltd**

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