

NAME:

Ashford Wastewater Treatment Works

LOCATION:

Ashford, Kent, U.K.

PLANT SIZE:

537 L/second

INFRASTRUCTURE:

Three NTFs; six-lane DBSF; water tanks; combined pumping station; power supply/control system parts; standby generator; and piping.



The Ashford Consent Compliance Scheme is the first of three improvement projects at Ashford WTW.



New infrastructure, including three NTFs, increased tertiary treatment capacity to keep the facility's level legal.

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By Caitlin Cunningham

Capacity for Consent

A U.K. wastewater plant enhances its treatment process as part of a regional sludge initiative

The first of three improvement projects at Southern Water's Ashford Wastewater Treatment Works (WTW), Kent, U.K.—the Ashford Consent Compliance Scheme—has reached completion, according to engineering, consulting and construction company Black & Veatch. The quality-driven plan, part of the East Kent Sludge Framework, called for the WTW to produce effluent to a higher standard, thus improving overall water quality in the Great Stour River.

In 2004, the Environment Agency of England and Wales tightened consent levels under the Urban Waste Water Treatment Directive, requiring that the WTW achieve 20 mg/L suspended solids (SS), 15 mg/L biological oxygen demand (BOD) and 5 mg/L ammonia (NH₃). Effective Oct. 1, 2007, the WTW had to meet new summer consent levels: 20 mg/L SS, 10 mg/L BOD and 3 mg/L NH₃.

Ashford WTW needed to provide tertiary treatment with nutrient removal. The existing process plant's current level, however, fell short in terms of meeting regulatory requirements. Additional treatment capacity was needed.

New Infrastructure

Black & Veatch staff constructed and commissioned the \$11-million treatment capacity project for client 4Delivery, a capital program-assistance consortium comprised of Southern Water suppliers United Utilities, Costain and MWH. Work began on the \$1.4-billion East Kent Sludge Framework initiative in 2005, and the overall plan is scheduled for completion in 2010.

Implementing the consent plan portion involved providing:

- Three nitrifying treatment filters (NTFs), each 20 m in diameter with a retained height of 5.5 m.
- A six-lane deep-bed sand filter (DBSF)—each lane 13 m long, 3 m wide and 5 m high—plus a dirty wash water tank and filtered effluent tank.
- A combined NTF feed, recirculation and DBSF feed pumping station measuring 17 x 6.5 x 6.5 m, with 5.4 m below ground level.
- A high-voltage power supply, electrical installation and control system. The scheme required a new 450-m run of 11-kV cable, 11-kV switchboard, 800-kVA transformer and dedicated motor control centers for the pumping station and DBSF.

- A standby power-supply generator rated at 630 kVA and with a fuel storage tank sufficient for 80 hours running time.
- Various elements of interconnecting pipework, including 275 ln m of 1,050-mm concrete pipe, 250 ln m of ductile iron pipe ranging from 150 to 800 mm in diameter and 150 ln m of fabricated steel pipe ranging from 700 to 1,000 mm in diameter.

Timeline, Teamwork & Takeover

4Delivery had established a 45-day deadline for project completion. The target finish date was met, and operational takeover began on Feb. 4, 2008.

"The East Kent Sludge Framework is the combination of projects at Ashford, Allington and Aylesford. It is a great achievement to obtain completion of one of the larger and key schemes, Ashford Consent Compliance," said Martin Charlton, director for Black & Veatch Water Europe's Southern Project Centre. "This scheme has been very challenging with aggressive timescales."

"The whole project was conducted in a very professional manner, with Black & Veatch providing continuous support and resolutions to problems as they arose," said Geoff Joy, Southern Water's Sludge Treatment Centre section leader at Ashford. "Teamwork between Southern Water, 4Delivery and Black & Veatch was paramount to the successful outcome of this project, with as little interruption to the operations on site as possible."

4Delivery honored the Ashford Consent Compliance Scheme team as its November 2007 Team of the Month, noting participants' substantial efforts toward achieving consent. "The team worked incredibly hard to secure the performance of the plant when the consent for ammonia had to be reduced significantly," said Greg Mullett, a 4Delivery project manager. "Performance of the plant since takeover has been excellent." **WWD**

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