

Lower Basildon

Vertical flow reed bed: Municipal effluent



Project

Lower Basildon,
Thames Water

Location

Lower Basildon, Berkshire

Project type

New build

Wastewater type

Municipal effluent

Completion date

August 2013

Treatment

Passive vertical flow

Need

Lower Basildon WwTW is owned and operated by Thames Water and is situated within the grounds of Beale Park seven miles North West of Reading. The works serves a PE 166 (2011 – Average). Sewage is collected by gravity and conveyed to a coarse screen within a small rectangular chamber at the works. Screened sewage is then passed to six buried soak-away units. These tend to pool and flood during periods of high load.

The existing site has historically had no discharge consent, however, in 2011 the Environmental Agency (EA) introduced an indicative discharge consent of 30/45/5 (BOD/SS/NH3 mg/l) for groundwater. The groundwater consent was considered 'tight' and hence an indicative 95%ile new river discharge consent of 40/60 (BOD/SS mg/l) was also proposed to be effective from March 2014. The existing WwTW at Lower Basildon was unable to meet the requirement of either of the proposed consents and therefore Thames Water accepted the need for renewal of the current works under the quality driver for the future discharge to the River Thames.

Population Equivalents	2011 Average	2026 Average	2026 Summer Peak
Domestic	166	171	225
Trade	0	0	0
Total	166	171	225
DWF (m ³ /d)	26	24	31

Measured and predicted Population Equivalent loads



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The scope that was required to be delivered by the subcontractor for Lower Basildon sewage treatment works include outline design, detailed design and construction of a new sewage works adjacent to the existing Lower Basildon site, constructed and commissioned to the 2026 design horizon. The works was to be designed and constructed by the subcontractor as a 'turn-key' package as per the requirements of

all applicable Thames Water standards. ARM Ltd was requested by Thames water contractor Black and Veatch to provide a suitable solution bearing in mind no power availability on site.

Solution

The lack of power on site eliminated the potential for an aerated system which would minimise area requirements, so a passive treatment solution was sought. ARM Ltd installed a 40 m³ septic tank followed by a COPASAC chamber (with bypass), a siphon chamber for batch flow generation and a 684 m² passive, vertical flow reed bed system which would discharge into the local water course.

Benefits

The waste water treatment system installed provides Thames Water with the required no power solution for achieving the new consents specified by the EA based on loads predicted for 2026. Secure treatment has been provided with a minimal carbon footprint which is aesthetically appropriate for its location within a visitor park.

