

Potential onsite wastewater treatment works

Canterbury City Council's strategic housing sites

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ST Connect have been appointed to advise Canterbury City Council (CCC) on the potential scope and scale of the wastewater treatment assets required to unlock land for housing development within the local district.

ST Connect have taken both bottom-up and top-down approaches to identifying potential solutions. Unfortunately, the bottom-up approach has been subject to significant delays due to outstanding data from the Environment Agency (EA). Despite numerous follow-ups with the EA, there is currently no view for when the required data will be made available.

This interim report will focus on the outputs from the top-down approach.

South West Canterbury (ca. 3,000 dwellings)

The scale of the proposed development is well suited (from an economics perspective) to support an onsite WwTW for treating the foul sewage generated by the ca. 9,000PE (population equivalent) catchment.

The most obvious constraint will be the point of outfall from the final effluent pipeline into the Great Stour, as there is no notable point of connection within the redline boundary of the development parcel. However, a pipeline could be laid from the western parcel to the Great Stour, outfalling near the Milton Manor Roundabout (subject to obtaining the appropriate forms of consent).

A WwTW of this scale would likely be delivered in two or more phases, owing to the expected multi-year buildout of the development. The parameters in the table below could be expected:

Parameter	Value
Footprint	4,000m ²
Maximum building height	6.5m (7.7m including gantries)
Delivery cost	£8-10million – assuming delivery in 2 phases
Total Phosphorus emissions	0.1-0.2mg/l
Total Nitrogen emissions	8-10mg/l
Delivery timescale	36 months to phase 1

East Canterbury (ca. 3,000 dwellings)

The scale of the proposed development is well suited (from an economics perspective) to support an onsite WwTW for treating the foul sewage generated by the ca. 9,000PE catchment.

A potential point of discharge of final effluent into the environment would be into the Nail Bourne on the eastern boundary of the southern parcel. Further validation would be required from Natural England; however, the downstream water catchment appears to bypass the Stodmarsh Lakes and therefore may be outside of their Nutrient Neutrality requirements. For the avoidance of doubt, any WwTW serving this site would still require a discharge permit from the Environment Agency.

A WwTW of this scale would likely be delivered in two or more phases, owing to the expected multi-year buildout of the development. The parameters in the table below could be expected:

Parameter	Value
Footprint	4,000m ²
Maximum building height	6.5m (7.7m including gantries)
Delivery cost	£8-10million – assuming delivery in 2 phases
Total Phosphorus emissions	0.1-0.2mg/l
Total Nitrogen emissions	8-10mg/l
Delivery timescale	36 months to phase 1

Littlebourne (300 dwellings)

The scale of the proposed development is not ideally suited for a high-performance onsite WwTW, owing to the economic constraints imposed by the water sector’s economic regulator, Ofwat. Ofwat don’t permit companies to charge water customers higher tariffs compared with the local Statutory Undertaker (Southern Water). However, there are potential economic mechanisms which may be available for a site of this size.

There is no notable point of connection into the water environment within the redline boundary of the development parcel. However, a pipeline could be laid from the eastern boundary to the Nail Bourne, outfalling near Bekesbourne Lane (subject to obtaining the appropriate forms of consent).

A WwTW of this scale would be delivered in a single phase (see figure 1 below). The parameters in the table below could be expected:

Parameter	Value
Footprint	1,500m ²
Maximum building height	6.5m (7.7m including gantries)
Delivery cost	£1.9 – £2.1million
Total Phosphorus emissions	0.3mg/l
Total Nitrogen emissions	8-10mg/l
Delivery timescale	33 months



Figure 1 Small WwTW example