

Case Study:

Sludge Plant, Stoke Bardolph

Client:

NMC Nomenca on behalf of
Severn Trent Water

Sector:

Infrastructure

Services Provided:

Piling

Location:

Stoke Bardolph, Nottingham

Value:

£650,000

Year:

2015



Having successfully completed the Waste Water Treatment projects at both Minworth and Stoke Lyme Valley for North Midland Construction, Van Elle were approached to discuss design and installation options for the piling at Stoke Bardolph, a huge plant on the east side of Nottingham.

Although a large open site with the works spread over a considerable area, loose granular material had been discovered down to about 4m and the requirement for such a thick and extensive piling platform made it more cost effective to use some of our lighter fleet to carry out the work. This also enabled the final settlement tanks to be excavated prior to commencement of the piling as the rigs could drill safely whilst sat on the resultant incline.

The project consisted of piles for a new 8 lane aeration, activated sludge plant (ASP) and 8No. final settlement tanks (FST).

Van Elle opted for two different rigs which were ideally suited to the task at hand; the Soiltec S45 and the Hütte HBR205. Both have proven themselves on similar projects in the past and are reliable with relatively low bearing pressures yet are extremely powerful and versatile, able to safely work from a sloped location which wouldn't have been possible for a larger rig.

Once the site had been de-watered, Van Elle first carried out 12No. tension pull-out tests on working piles to check both the rock level and that our design performed to the project specification. The results were excellent and proved that our proposed solution was ideal for the project requirements.

We were then able to begin the piling for the activated sludge plant. This is a series of large tanks which were piled on a grid pattern .

In the photo to the left, the base has been cast and the bars to reinforce the walls can be seen protruding up to 15m into the air.

As the piles were to act in pure tension, the structural tendon was provided by employing a central 40mm Dywidag pre-stressing steel threadbar which could be anchored into the slab by utilising a plate detail threaded onto the main bar

In total 1056No. 350mm diameter piles were installed with a single bar and a rocket socket of 3.6m.

The value of the project was roughly £650k which was split equally between the ASP and FSTs.

