

Permanent Riverbank Flood Defence Sheet Pile Works

River Aire at Chapel Haddlesey

Sheet Piling UK was appointed to handle a two-phase flood mitigation sheet piling project at the village of Chapel Haddlesey – one of the at-risk flood communities on the River Aire, which suffered greatly as a result of Storm Ciara, in February 2020.

That storm event led to the wettest conditions on record, with the River Aire catchment experiencing 3.5 times the average monthly rainfall. During the incident, the flood embankment, close to the village, was severely damaged. Following the negative and distressing impacts on local residents along the Lower Aire, a £10m flood defence scheme was approved.

The piling contractor's role was to shore up the flood defences, by creating a permanent sheet pile solution that could be installed into the riverbank, to strengthen its resilience and help prevent such flood events occurring in the future.

The project was undertaken for Cheetham Hill Construction, who were awarded the contract by the Environment Agency.

During both phases of the project, the piling contractor carried out sheet pile installation within restricted access locations that required the use of conventional piling methods. The available access made it impossible to operate various types of equipment, including leader rigs, excavators with side-grip vibratory hammers and the contractor's unique long-reach leader rigs.

It was, therefore, essential to use a 110Te lattice boom crawler crane, crane-suspended vibratory hammer, mobile elevating work platforms (MEWPs) and temporary works' piling gates, as the only feasible installation solution.



Sheet pile installation details

The piling contractor's experienced in-house design team drew up a schedule of works, adopting their usual solutions-driven mindset. Embracing the challenge of poor access and the need to work alongside water, at the river's side, they also devised a schedule that not only delivered the required health and safety compliance but also helped safeguard wildlife habitats and the local environment.

Phase one of this climate change mitigation project has seen the contractor installing 183 six and 12-metre-long VL603 sheet piles into the riverbank at Chapel Haddlesey. Here, the company's knowledge and expertise in conventional – as well as more modern piling methods – has proved invaluable.

Phase two involves the installation of 69 pairs of 18-metre-long EZ26-700 sheet piles. These are tied back to a row of anchor piles, installed at the crest of the embankment using a tie-bar system.

Using this methodology, the riverbank and flood defences will be considerably strengthened, delivering added peace of mind to local homeowners and businesses in the local area.

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