Stockport Sheet Pile Wall

Well-rounded design support creates an effective and efficient solution for new residential structure

Aarsleff were contracted to install 143m of sheet piling for a new residential structure in Stockport, near Manchester. On the site of a former car wash, the development plans to create 73 one- and two-bedroom apartments and will aim to create affordable housing for local residents.

The provided cross sections of the building and proposed layout of the sheet pile wall were complex and meant our engineers needed to dedicate time to more deeply understand the scheme through conversations with our client and site visits.

It was initially proposed that the sheets be driven using a Movax attachment to an excavator, which is effective in soils of low to medium strength. Borehole investigations indicated a hard stratum of sandstone at 7.9m below ground level. To ensure the most efficient delivery, it was identified that designed pile toe level must be above this 7.9m level, which our design engineers achieved through an effective and economic design.

Following on from the retaining wall installation, the apartment buildings will be founded on continuous flight auger piles. The initially proposed piling platform levels (PPLs) influenced Aarsleff's sheet pile wall design, and in some areas meant that pile toe level had to be below the Sandstone band. To avoid that, Aarsleff proposed that the CFA PPLs were raised in some areas to reduce the temporary retaining height and hence brought sheet pile toe level above the Sandstone band. This will allow for more seamless transitions on site whilst also ensure we could offer the more economical solution to our client.

Speaking on the project, Alex Boyle, said, "The delivery of the sheet piling works at King St West, Stockport provided a specific challenge with regards to the potential of dense sandstone and general obstructions. Install methodology was adapted from Movax to a leader rig which would be capable of both pre-augering and drive piles by vibratory techniques. Due to the value engineering achieved in the design phase which shortened pile lengths, piles did not need to be driven into the band of dense sandstone and the ground conditions correlated closely to that noted within the GI. There were instances of obstructions, an existing water tank approx. 1m below ground level required removal. Also, along the West elevation, a masonry wall was buried which required on-site design adaptation to pile around while respecting the site boundary and maintaining enough space for the essential proposed parking spaces."

AARSLEFF

Data

- 143m of sheet pile wall from 3-9m

Client

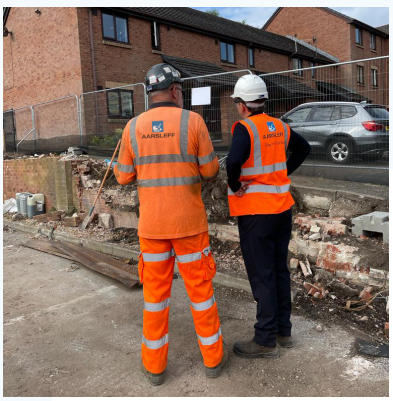
Hargreaves Contracting Limited

Type of contract

Design and build contract

Construction period

June - July 2023



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