

CASE STUDY

STOREX Self Storage Facility, Boord Street, Greenwich



COMMERCIAL

CLIENT

Aztec Construction on behalf of EQT Real Estate (STOREX)

TECHNIQUES

Continuous Flight Auger (CFA) Piles

ACHIEVEMENTS

Early contractor engagement enabling optimisation of pile design and capacity

Use of low-carbon concrete and HVO-powered piling rig to reduce environmental impact

Project Brief

Roger Bullivant Limited (RBL) was appointed by Aztec Construction, on behalf of EQT Real Estate, to design and install the piled foundations for a new STOREX self-storage facility on Boord Street, Greenwich.

The 11-storey structure will be part of a wider mixed-use regeneration scheme within the Greenwich Peninsula area, consisting of new residential buildings, student accommodation and commercial units. The storage facility provides approximately 8,300 sq m of storage space and has been designed to act as a buffer against noise and air pollution for neighbouring developments.

The site occupies a former industrial brownfield location close to Millennium Way. Due to the variable and soft strata and significant structural loads, a piled foundation solution was required.

RBL were involved early in the project lifecycle to provide advice on CFA pile capacities based on the anticipated ground conditions. This early collaboration allowed the structural engineer to develop an efficient foundation design that maximised pile performance.



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Key Issues & Requirements

- Highly variable ground conditions, including alluvial sands, peats and clays over River Terrace deposits of flint gravels and silty sands.
- Lambeth Group strata encountered to depths of up to 25m below ground level, comprising variably granular and cohesive materials.
- High pile design actions, with compression loads of up to 1,755kN (DA1C1) and 1,428kN (DA1C2), alongside horizontal pile head loads of 53kN.
- Requirement for selected piles to resist tensile forces of up to 375kN (DA1C1).
- Challenging ground conditions necessitating a DC3 concrete classification in accordance with BRE Special Digest 1 to achieve a 50-year design life
- Restricted site footprint within a densely developed urban environment.

Solutions

- CFA piles were ideally suited to the scheme as they do not require temporary casing to support unstable bores, can be installed below the water table, and perform well in variable strata including dense sands and hard clays, where displacement piling was not suitable.
- Drawing on experience across the Greenwich Peninsula, including the installation of CFA piles in similar Lambeth Group geology, RBL designed a solution comprising 129 No. 500mm diameter CFA piles, installed to depths of up to 26m. The availability of a high-quality site investigation enabled the scheme to be designed without the need for preliminary pile testing, reducing programme duration and site congestion.
- Installation was carried out using RBL's 7000-series CFA piling rig, powered by HVO fuel to reduce carbon emissions compared to conventional diesel. The rig's on-board monitoring system allowed real-time recording of pile installation parameters and concrete consumption.
- The pile design was completed in accordance with Eurocodes, with appropriate partial factors selected to remove the requirement for maintained load testing. This allowed the full site footprint to be released immediately upon completion of piling, supporting efficient progression of follow-on trades.
- To align with RBL's sustainability objectives, a low-carbon concrete mix was developed in collaboration with supply chain partners. The mix met the DC3 exposure classification requirements while maintaining excellent pumpability and workability to facilitate reinforcement installation.
- Quality assurance was maintained throughout, with 100% of piles integrity tested and concrete cube testing undertaken to verify performance and compliance.



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