CASE STUDY

Castleward, Derby

RESIDENTIAL

CLIENT

Lovell East Midlands

TECHNIQUES

Continuous Flight Auger (CFA) Piles

RBeam

ACHIEVEMENTS

CFA piling and 1,700 linear metres of precast foundation beams installed across apartment blocks and low-rise housing, delivering a low-vibration, high-efficiency solution

Project Brief

Roger Bullivant Limited (RBL) was appointed by Lovell East Midlands to provide a piling and precast foundation solution for two multi storey apartment blocks and several low rise housing units forming part of Derby's Castleward regeneration scheme.

Given the urbanised, city-centre environment surrounded by existing buildings, live infrastructure, and tight working boundaries, Lovell required a foundation solution that offered low vibration.

RBL's residential team proposed Continuous Flight Auger (CFA) piling for both the apartments and the low rise plots. This was selected due to its low noise and low vibration characteristics, ensuring compliance with the site's environmental constraints. To complement the piling works, RBL also installed its precast foundation system, RBeam, a preferred solution regularly adopted by Lovell across their regional developments.

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Key Issues & Requirements

- Variable ground conditions comprising made ground overlying stiff clay and weathered Mercia Mudstone. Piles were designed to found in stiff clay/mudstone layer.
- City centre constraints with strict vibration limits due to proximity of existing structures.
- Programme efficiency essential to support wider regeneration sequencing and maintain progress on a multi phase build schedule.

Solutions

- Deployment of RB 7000 Series Rig: The largest rig in the RBL fleet was utilised, enabling the installation of the required pile lengths up to 16m with the chosen diameters.
- Collaborative Foundation Design: RBL worked closely with Lovell's Technical team to refine layouts and engineer an optimised system, proposing two CFA pile diameters, 300mm and 350mm.
- CFA Pile Engineering: CFA piles were designed with maximum safe working loads between 425kN and 600kN.
- 1,700 linear metres of RBeam were installed across the apartment blocks and housing. Factory produced precast beams ensured high quality, efficient concrete use, and reduced on site concrete deliveries.
- Localised beam level changes were incorporated to accommodate client drainage, reducing substructure build up and saving time and materials.

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