

Beckton DLR Depot Expansion, East London



The Beckton DLR Depot Expansion, located in East London, forms a vital part of Transport for London's (TfL) strategic upgrade of the Docklands Light Railway (DLR) network. With passenger demand continuing to rise across East London, the project enables the introduction of the new B23 trains, by expanding the depot's maintenance capacity and facilities.

Bauer Technologies was contracted by Morgan Sindall Infrastructure, working on behalf of TfL, to deliver specialist piling works forming the foundations for new maintenance and stabling facilities. This complex infrastructure upgrade demanded technical precision, sustainable construction practices, and close collaboration to meet an ambitious programme schedule.

Scope of Works

Secant Wall: Installation of 193 linear metres of 750mm diameter CFA piles forming the hard/firm secant wall for the under-train inspection pit, to depths of up to 18m, toeing into Thanet Sands.

Bearing Piles: Installation of 332 CFA diameter CFA bearing piles, with several installed through temporary liners to prevent contamination pathways, extending to depths of up to 26.74m.

Obstruction Removal: A number of RC-obstructed pile locations required predrilling using Rotary Techniques to enable CFA pile construction.

Testing: Included three working test piles (up to 1,800kN), Pile Integrity testing (bearing) and Thermal Integrity Profiling (TIP) (Secant).

Project Challenges and Solutions

The Beckton DLR Depot Extension, which is located at the former Beckton Gas Works brownfield site, presented a series of significant geotechnical and environmental challenges that demanded careful planning and technical consideration at tender stage. The ground conditions transitioned from soft alluvium to stiff clay - becoming dense sand with calcrete bands in the Lambeth Group. Deep CFA piles were

installed to depths of up to 27 metres, terminating in the very dense Thanet Sand formation beneath the Lambeth Group. This complex ground profile required detailed interpretation and close monitoring throughout construction to ensure full design compliance.

Historic industrial activity at the site introduced additional challenges - in the form of ground contamination - which was carefully managed through a range of control measures, including the establishment of a barrier room, enhanced PPE protocols, continuous gas monitoring, drilling through temporary liners and increased occupational health screening against known contaminants. Bauer Technologies worked closely with TfL, Arcadis, Morgan Sindall Infrastructure and Environment Agency to ensure safe CFA drilling into the London Basin aquifer, developing an appropriate methodology to mitigate potential contamination pathways and maintain environmental protection.

The project's split-level platform required advanced pre-construction planning to coordinate differing working levels and ensure efficient and safe constructability. In addition, following industry-wide disruption caused by the collapse of a previous contractor on the project, the project team maintained progress through close stakeholder collaboration, reprogramming, and a collective focus on meeting the revised delivery schedule without compromising safety or quality.

Sustainability and Innovation

Bauer Technologies implemented a series of sustainability measures aligned with TfL's net-zero objectives, combining material optimisation, equipment efficiency, and digital innovation to minimise environmental impact and enhance operational performance.

The CFA concrete mix was redesigned as a four-hour mix to improve workability and reduce waste, maintaining concrete consistency and reducing CFA system blockages and downtime.

Complementing this, a low-carbon C35 guidewall mix - incorporating optimised aggregates and superplasticisers - was used to further lower embodied carbon. The site team also prioritised fuel and equipment efficiency through the deployment of modern CFA rigs and plant, helping to reduce HVO fuel consumption and emissions on the site.

Digitalisation played a key role in sustainability improvements, with the use of Microsoft Co-Pilot for processing back-office tasks, improving data handling and efficiency, while reducing engineering resource demand.

Additionally, Bauer maintained a strong focus on health and welfare, ensuring comprehensive contamination monitoring, strict PPE compliance, and continued attention to hydration and clean welfare provision, all contributing to a safe and supportive working environment.

Health, Safety and Collaboration

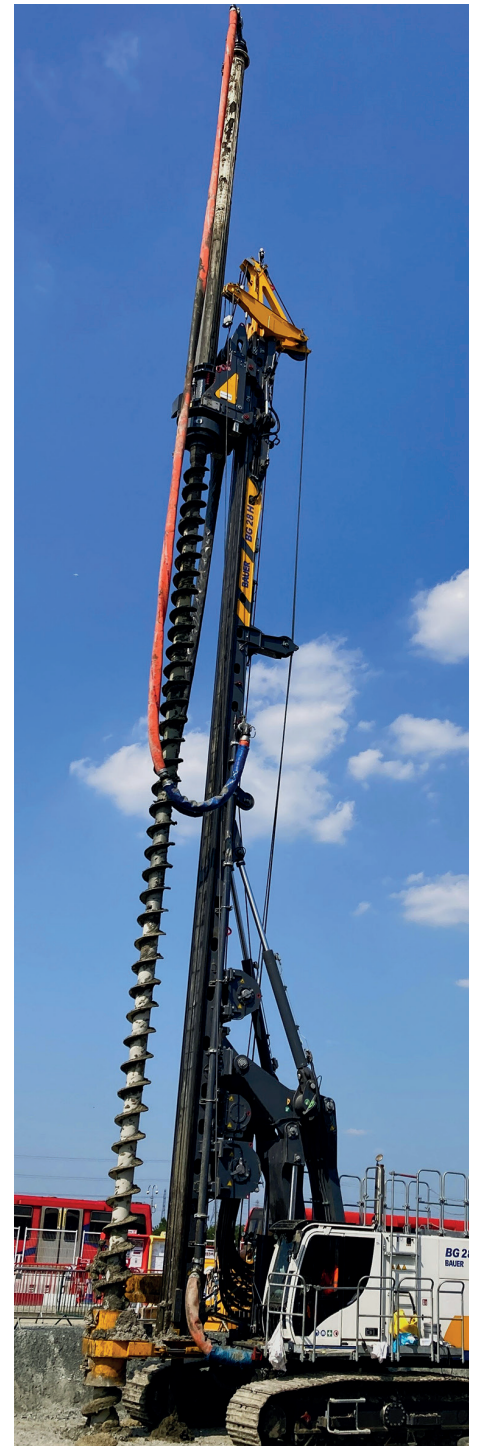
With over 11,000 safe working hours recorded, and zero major incidents, health and safety remained a central focus throughout the works. Bauer's proactive culture of continuous improvement, supported by Morgan Sindall Infrastructure's collaborative safety management approach, ensured that lessons learned and good practices were shared across teams.

The Bauer Technologies and Morgan Sindall Infrastructure partnership, and TfL exemplified effective collaboration, balancing programme pressures, sustainability, and worker wellbeing while maintaining engineering excellence.

Conclusion

The successful completion of the Beckton DLR Depot Expansion piling works highlights Bauer Technologies' technical expertise, sustainability leadership, and collaborative ethos in delivering complex infrastructure projects.

Working alongside Morgan Sindall Infrastructure, Bauer overcame challenging ground and environmental conditions to deliver a safe, efficient, and low-carbon solution. The project underpins the future of the Docklands Light Railway network, supporting the maintenance of TfL's new train fleet and strengthening London's sustainable transport infrastructure.



Principal Contractor:

Transport for London

Contractor:

Morgan Sindall Infrastructure

Contract Period:

14 weeks (June – September 2025)

Bauer's Scope of Works:

- 193linm of 750mm CFA secant wall.
- 168No 7m Primary, 166No 17.6m Secondary including 12No Inclometers and 42No Thermal Integrity Profiling (TIP)
- 332nr 600mm CFA bearing piles up to 27m
- 3 nr Working Test Piles – max test load 1800kN; DVL – 1244kN

- Environmental Sleeving and Obstruction Removal

Equipment Used:

- Bauer BG28H in CFA Mode
- BG30 in Rotary Mode
- Concrete Pump and Agitators
- 60t Crane
- CFA Ancillary equipment