Company Profile

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BAUER Technologies Ltd

BAUER Technologies Ltd is a specialist geotechnical contractor, providing innovative, sustainable solutions and optimised designs for retaining structures, piled foundations, cut-off walls and ground improvement installations.

Bauer Technologies is the wholly owned UK subsidiary of BAUER Spezialtiefbau GmbH, the contracting entity of the BAUER Group and is the only geotechnical contractor in the world accredited with BRE BES 6001 sustainability certification (November 2021).

The BAUER Group is known the world over for the highest standards in the execution of geotechnical works and specialist equipment manufacturing. Bauer Technologies is fully supported by the technical and R&D departments of its parent company, in addition to having access to worldwide industry expertise, equipment and personnel. Close links with Bauer's global network allows Bauer Technologies to draw upon the full depth of experience and product range to develop the most efficient solutions for clients.

We encourage clients to engage with our team at the earliest possible opportunity, to maximise the value that we can bring to geotechnical projects. The following pages provide brief summaries from some of our key projects in the UK.

To view these projects in more detail please visit our website: bauertech.co.uk/en/projects.

Contact:
info@bauertech.co.uk ▪ www.bauertech.co.uk

Bauer Technologies specialises in the design and installation of:

- Large dia. bored piles
- Large dia. CFA piles
- Displacement piles
- Plunge column piles
- Retaining walls (diaphragm walls and pile walls)
- Deep soil mixing
- Rigid inclusions
- Stone columns
- Vibro compaction
- Grouting

Bauer Technologies Mission Statement 2024:
To be the UK's leading contractor, bringing competitive solutions to our clients through innovation and sustainability.

Ardersier Energy Transition Facility Project Scotland

The Ardersier Energy Transition Facility Project, located near Inverness in the Scottish Highlands, represents a transformative and highly ambitious development that significantly supports the UK's renewable energy objectives.

Central to this groundbreaking redevelopment is the construction of a 660-metre-long quay wall, an essential piece of infrastructure meticulously designed and expertly delivered by Bauer Technologies. The quay wall is pivotal in enabling the port to support the large-scale vessels required for offshore wind installation projects.

Bauer Technologies constructed a double diaphragm quay wall system with a 42 m-deep front wall and a 27 m-deep rear anchor wall, providing a durable foundation for port operations. Dredged sand from the site was reused in concrete via an on-site batching plant, reducing emissions and material imports. Eco-friendly bentonite fluids were also employed. An on-site steel yard enabled efficient reinforcement cage assembly, cutting waste and improving timelines. Bauer Technologies reduced the project's carbon footprint by repurposing spoil on-site and using eco-friendly practices. Innovative methods included 3D modelling for precise alignment, factory-style cage assembly to streamline logistics, and full-scale trial panels to validate diaphragm wall construction.

This redevelopment highlights Bauer Technologies' expertise in complex infrastructure, blending innovation, sustainability, and collaboration. Supporting the offshore wind industry, it sets a benchmark for balancing economic growth with environmental responsibility.

Rivenhall Integrated Waste Management Facility, Essex

The Rivenhall Integrated Waste Management Facility (IWMF) is a pioneering project aimed at significantly enhancing waste management and energy recovery in the Essex region.

The project was led by Indaver NV, with Hitachi Zosen Inova serving as the main contractor. Bauer Technologies was entrusted with the critical task of executing the foundation works necessary for constructing this advanced waste-to-energy power plant.

Bauer Technologies' scope included preliminary static load testing on CFA piles and guide wall construction during advance works. For the contiguous wall, 167 rotary bored piles (1200 mm diameter, up to 27 m deep) were installed. The capping beam involved 171 rotary bored piles (900 mm diameter, up to 20.85 m). In the waste bunker and boiler area, 256 piles (900 mm, up to 42.28 m) were installed, and 740 bearing piles (450-900 mm, up to 25.15 m) were constructed using both CFA and rotary techniques. Load testing included 14 working pile tests (2 static, 12 dynamic).

Bauer prioritised environmental responsibility through local sourcing, efficient logistics, and reduced material waste.

The Rivenhall Integrated Waste Management Facility is set to become a cornerstone in the UK's waste management and renewable energy landscape. Bauer Technologies' expertise in complex foundation works has been pivotal in advancing this project, showcasing their ability to overcome significant logistical and technical challenges.

Teesside Monopile Facility, UK

Widely recognised as the largest monopile manufacturing facility for offshore wind turbines in the world, and costing between £ 200 - £ 300 million, the Teesside plant is being constructed across a sprawling 90-acre site.

When complete, the facility will be at the forefront of manufacturing monopiles of unprecedented scale - up to 120 m in length, 15.5 m in diameter, and weighing a staggering 3,000 tonnes.
Bauer Technologies, in collaboration with Keller, undertook the foundation work for the facility, commissioned by principal contractor K2 Construction Management, representing the client, SeAH Wind Ltd.

Bauer Technologies designed and constructed over 6800 foundation piles for the facility.

This included the installation of approximately 1600 of the heaviest loaded foundation piles using rotary bored techniques, 1050 mm in diameter, to depths of approximately 35 m below ground level.

This required the deployment of multiple rigs. Bauer also managed all aspects of rotary bored pile works, encompassing 16 non-working anchor piles; 4 non-working test piles; 64 working anchor piles; 16 working test piles, and a total of 1636 rotary bored piles. In addition, pre-drilling for over 5200 CFA pile locations through a firm slag layer to a depth of 10.5 m was accomplished using rotary bored techniques.

Delta Junction, Wednesbury, UK

The Wednesbury to Brierley Hill Metro extension route's planning, design, and execution fall under the jurisdiction of the Midland Metro Alliance, acting on behalf of Transport for West Midlands (TfWM).

Main contractor MPB Structures, as part of the Midland Metro Alliance (MMA) and on behalf of TfWM, appointed Bauer Technologies as the piling contract for the project.

Specifically, Bauer was contracted to instal 4 no. x 54.5 m 1000 mm rotary bored piles, using 37 m of 1180 mm casing. These piles were crucial for supporting the abutment of the access road flyover bridge, over the depot access road, mitigating potential settlement issues due to back-filled mine workings in the area.

The project was a showcase for Bauer Technologies, to demonstrate its commitment to sustainability by employing various initiatives, including: the use of low carbon concrete and redesigned pile cages which reduced delivery wagons to the site by a staggering 50%.

The Delta Junction piling works played a pivotal role in supporting the Metro Extension project, showcasing Bauer Technologies' innovative solutions, commitment to sustainability, and ability to navigate complex construction challenges.

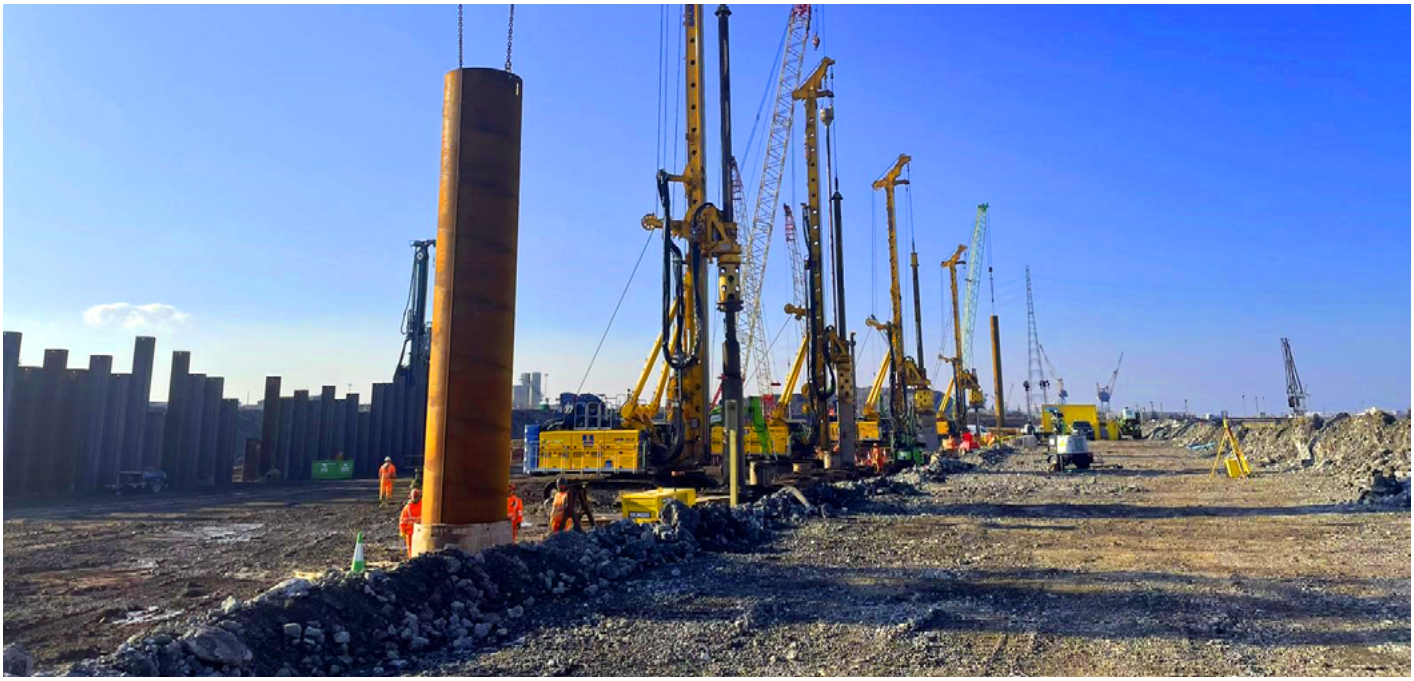
South Bank Quay, Teesside

The South Bank Quay is part of the Teesworks Freeport project, which secured £ 107 million in the UK Investment Bank's first ever investment. With immediate access to the River Tees and the North Sea, the 1 km quay will provide global firms with 500 acres of development land.

Korean steel manufacturer SeAH Wind Ltd's £ 400 million offshore wind monopile manufacturing factory will house up to three manufacturers to support the development of next-generation offshore wind projects.

Main contractor GRAHAM, on behalf of client Teesworks, appointed Bauer Technologies to undertake the piling and foundation works for the project.

Specifically, Bauer Technologies, constructed the 156 no. King Piles required to form the new quay wall.



Plot 9a, First Street, Manchester

Main contractor BAM Construct UK, on behalf of Ask Developments and its JV partner, The Richardson Family, appointed Bauer Technologies to design and install CFA piles, to act as bearing piles, and a contiguous piled wall for the Plot 9A development of the First Street project.

Bauer's scope of work was divided into two Phases; Phase I saw Bauer install 76 no. 600 mm CFA piles, and 168 no. 750 mm CFA contiguous wall piles, as well as 5 no. 750 mm dia CFA tower crane piles, with additional reinforcement included in the 600 mm wall, to cater of the crane large base to the south of the building footprint. For Phase II, Bauer installed 114 no. 600 mm diameter CFA bearing piles, and 1 no. working test pile, taken to 3450 kN Design Verification Load (DVL), once the basement area had been excavated by others.

All works were completed with adherence to the site's "Sustainable 1st" plan, something that Bauer Technologies was able to achieve, being the first geotechnical contractor in the world to be accredited the BES 6001 sustainability certificate.

A465 Heads of the Valleys, Wales

Main contractor Future Valleys (FVC), on behalf of main client Welsh Assembly Government, appointed Bauer Technologies, to undertake piling work for the project.

Bauer's scope included the installation of 109 no. piles, with diameters including 900 mm, 1180 mm, and 1350 mm, which equated to 1973 linear meters and 2495 m^3 concrete. All works conducted were done so from restricted, narrow platforms, which were constructed in such a way that traffic on the A465 was not interrupted.

The varied geology across the project brough a number of challenges and, whilst works were programmed in line with tender stage information, on site it soon became apparent that the final design consisted of much deeper and larger piles, in ground conditions that consisted of notably strong Quartzitic Twrch Sandstone and grit stone.

Despite the incredibly challenging geology and the scale and complexity of the project, Bauer's team completed works on time, to budget and to the satisfaction of the main contractor.

Lockwood Beck, Woodsmith Project, North Yorkshire

Located in Whitby, North Yorkshire, Woodsmith Mine is the UK's deepest mine, and will see large quantities of polyhalite mined for global distribution.

Bauer was appointed by tunnelling contractor, STRABAG International, to install a secant piled shaft, together with the bearing/ tension piles required for the overground shaft equipment.

Bauer's scope of works was carried out over two separate visits; the first saw Bauer install the secant piled shaft: 30 no. 900 mm bored piles were installed, to 25 m deep, through mudstones to form a new access shaft to the material transport tunnel.

The second visit saw Bauer install of 8 nr 880 mm dia bored piles, to 21 m, for overground shaft equipment.

One of these had to be installed on a 12° rake, which was a first for Bauer Technologies!

A533 Chester Road Bridge Replacement, Cheshire

Amey/Sir Robert McAlpine JV appointed Bauer Technologies, on behalf of National Highways, to undertake piling work on both sides of the motorway and the central reservation, as part of the National Highways improvement scheme for motorways in the northwest.

Bauer's scope of work was the installation of rotary bored piles for the A533 bridge replacement. All permanent piles in the new structure were 1180 mm dia., with drilled rock sockets into the underlying mudstone of varying lengths, to function as bearing piles for the new bridge structure.

Piles were designed by Bauer Technologies and were detailed to enable safe installation while working in close proximity to this busy stretch of motorway, which remained open throughout project works.

The first section of works, using a BG 26 rig, was the installation of a 900 mm retaining wall, which allowed construction of the east abutment at a lower level from the upper A533 road. All equipment was then demobilised, the diameter changed and was moved to the west abutment. This was followed by remobilisation and installation of all piles.

The final demobilisation & remobilisation was into the east abutment, to complete Bauer's scope of works.

Delta Junction - Metro Extension, West Midlands

The Wednesbury to Brierley Hill Metro Extension project is an 11 km extension that branches off the current West Midlands Metro line, just east of the Wednesbury Great Western Street Metro stop.

Bauer Technologies' scope of works was to stabilise historic granular and cohesive embankment fill material, to settlements under the planned Delta Junction approach ramp.

The project saw the first Deep Soil Mixing (DSM) project for Bauer Technologies; knowledge and experience was successful transferred from other Bauer subsidiaries and Bauer's head office specialists, to the UK project delivery team, allowing Bauer Technologies to provide an optimised ground improvement design tailored to client requirements. Bauer's scope of works included a preliminary Zone Load Test, as well as regular wet grab sampling and verification coring of completed DSM columns.

The ground improvement was installed by means of Ø 2000 mm Deep Soil Mixing (DSM) columns, to maximum design depth of 11.50 m, using a BG 45 piling rig and associated grout mixing plant.

Audley Square Redevelopment, London

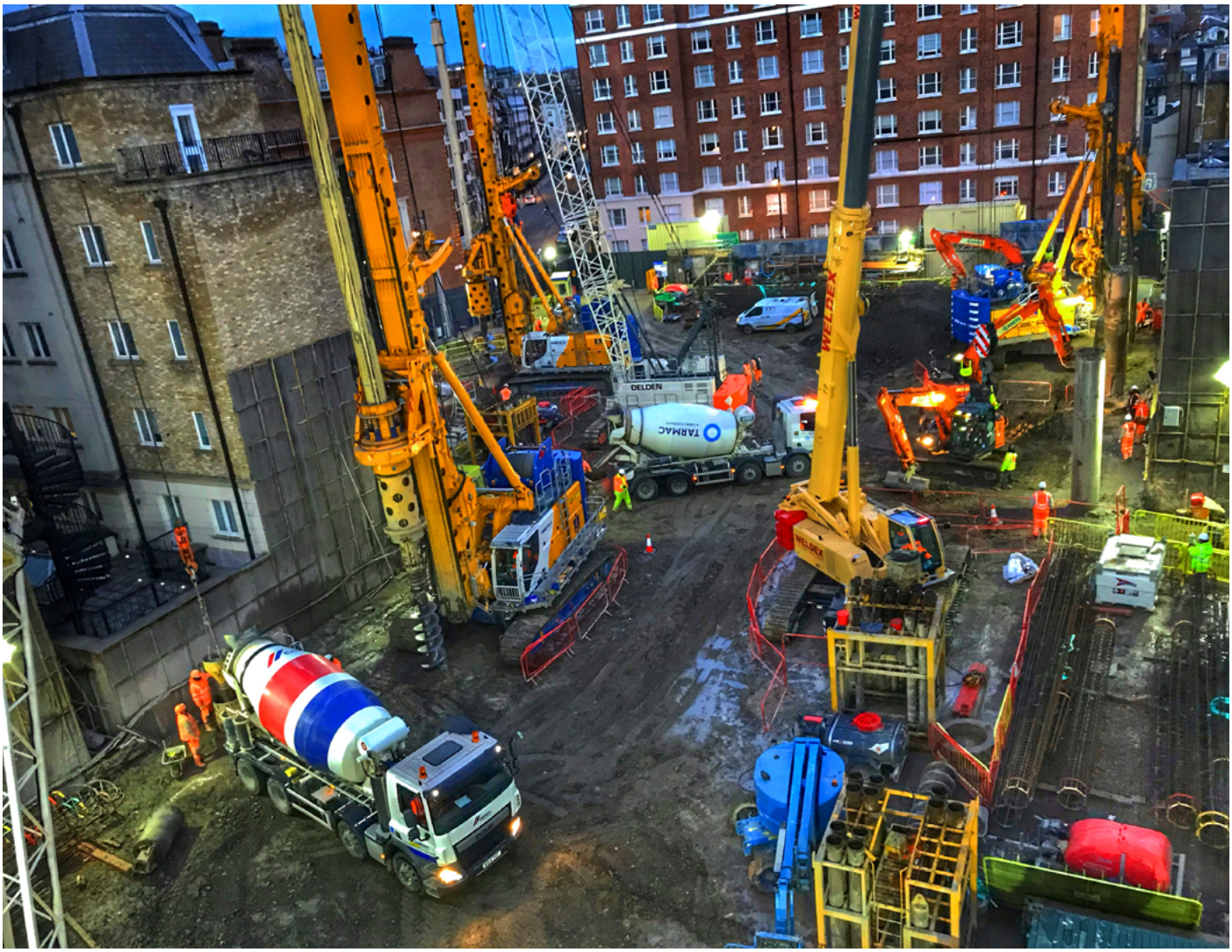
The project's principle contractor, Careys Civil Engineering, awarded the piling and foundation works to Bauer Technologies in 2021.

Specifically, Bauer was contracted to construct a secant wall around the perimeter of the development. This saw Bauer install 245 liner metres of guidewall and 432 no. 780/880 mm piles, with design depths up to 54 m. In addition, some 18 no. kingposts were installed in selected primary piles to facilitate propping of adjacent structures during the excavation of the basement.

The bearing piles, necessary to support the super structure, were constructed within the perimeter wall and comprised 95 no. 1200 mm, 1350 mm and 1800 mm, with depths up to 57 m. To facilitate a top-down construction approach, 24 no. plunge columns were installed in selected piles.

Prior to commencing piling works, some advanced works were also undertaken by Bauer. These included the installation of 2 no. 1200 mm preliminary test piles, using the bi- directional O-Cell method. Obstruction coring and old pile removal was also performed, as some pile locations were obstructed with in-ground features, including existing slabs, old piles, and concrete thrust blocks.

The nature and complexity of the project meant it was not without significant challenges. Site congestion was the biggest issue that had to be addressed. There were often three piling rigs, three handling cranes and piling attendant equipment, such as cranes and dumpers working within the relatively small site (approx. 2800 m^2 area). In addition, there were other subcontractors on site, with a full complement of equipment also working within the limited site area.



NESS Energy Project, Aberdeen

The project was undertaken by ACCONIA, on behalf of Aberdeen City, Moray & Aberdeenshire Councils, who awarded the piling & foundations contract to Bauer Technologies in 2020.

Specifically, Bauer Technologies was required to install a hard/hard secant wall comprising of 172 no. 1060/1180 mm diameter piles to depths of 30 m, which will create the waste reception bunker. 227 no. bearing piles measuring 900 mm diameter and 222 no. bearing piles 600 mm diameter were installed across the 7 buildings - Bunker, Tipping Hall, Admin, Boiler, Air Cooler Condenser, Bottom Ash and Flue Gas, together with bearing piles for the temporary tower crane.

In addition, a significant pile test programme was undertaken, consisting of 3 no. preliminary piles tests, 5 no. working pile tests, 10% of piles cross hole sonic logging with the remaining 90% integrity tested. The project was complex from a geotechnical perspective with ground conditions challenging, typical of that found in the North East of Scotland, with several industrial obstructions encountered, which were overcome using Bauer-designed coring tools.

Notwithstanding the shutdown period due to COVID-19, Bauer completed works in September 2020, in line with programme, to budget and, most importantly, with an excellent safety record.

M6 Cheshire

The redevelopment of the motorway section was undertaken by joint venture, Amey Sir Robert McAlpine, who awarded the piling and foundation works to Bauer Technologies.

Specifically, Bauer was required to install 124 no. abutment CFA piles (62 per abutment), each measuring 900 mm x 13 m, and 60 no. pier rotary bored piles, each measuring 900 mm x 16 m. 2 no. preliminary test piles and 2 no. working test piles were also required.

The importance of the transport link meant work had to be undertaken with the motorway live. Narrow lanes and 50 mph speed restrictions were applied to the 1.5 km section of M6 carriageway in both directions between the exit and entry slip roads. Safety throughout this project was paramount.

Ensuring the safety of workers was critical and of particular importance where work required rigs to pile in the central reservation.

Bauer mobilised to site early June 2020, with works completed in 4 weeks successfully and safely, on time, to budget and to the satisfaction of the client.

Werrington Grade Separation, Peterborough

Network Rail's Werrington Grade Separation will see increased capacity in journeys between London and Edinburgh on the East Coast Main Line (ECML).

The Site was split generally into North (Phase I) & South (Phase II); Morgan Sindall Infrastructure PLC awarded both phases to Bauer Technologies upon successful completion of Phase I.

Phase I of the project saw Bauer install 183 no. piles, required for the TBM Launch Pit, which was increased in length to aid later construction of a syphon for the Werrington Brook that passed through the site.

Phase II involved work on the Stamford Under Bridge (UB). The Under bridge consisted of 120 no. piles, to allow the top-down construction; this bridge ultimately takes the new Stamford Line around the dive- under structure.

The Cock Lane Footbridge (CLFB) was completed as part of the Stamford UB package, and whilst the Cock Lane Footbridge needed only 4 no. piles, it required some of the most intensive planning on the project, due to the tight working area and the 400 kV overhead lines that ran through the site.

The South Wall was split in 2 sections, to allow for the Stamford Line to be slewed over the Stamford UB during Christmas 2019. The initial West Wall consisting of 281 no. piles followed on from the Stamford UB and CLFB in July 2019. The line of the wall along the Stamford line dictated that the rig and the crane were required to work under strict conditions, which was up to 3 m from the running line and between live overhead line masts and bases.

Both phases were completed on time and to budget and to the complete satisfaction of the client.

Basement, Central London

A basement project in Central London required Bauer Technologies to construct 574 no. of Ø 880/780 mm secant wall piles, at depths varying from 11 m to 28.5 m, as well as 51 no. of Ø 1300/1200 mm bearing piles with plunge columns, at depths varying from 26.85 m to 44.6 m.

The scope of works included the geotechnical pile design, as well as construction of 336 linear meters of guide wall. Eleven out of the 51 plunge column piles were installed through an existing basement, using permanent liners. For the secant pile wall design Bauer co-operated closely with the client's design team to develop a secant pile wall configuration in compliance with the project specification. The depth of the secant pile wall primary piles was 11 m, whilst the secondary piles reached to 28.5 m, allowing for excavation of a 22 m deep basement.

Work was being undertaken in a residential area, which meant Bauer's site team had to work in strict compliance with noise limits and working hours specified in the applicable Section 61 consent.

Despite the logistical complexities of the site, all piling works were completed to the full satisfaction of the main contractor and without lost time or accident, within budget and two weeks ahead of schedule.

A19/A1058, Newcastle

Bauer Technologies was awarded the piling contract for the A19/A1058 Junction Improvement project in Newcastle, by Sisk Lagan JV, the Main Contractor responsible, on behalf of Highways England.

The scheme involved upgrading the existing roundabout to a 3-level interchange. Bauer's scope of works was to install 583 no., contiguous rotary bored piles, with diameters ranging from 600 to 1500 mm. The piles, which were up to 31 m long, were founded in sandstone bedrock to form contiguous pile walls, creating the trough for the A19 'dive under'. A number of the retaining wall piles also act as hybrid design elements by carrying the load of three major single span bridges across the underpass.

The project was incredibly challenging and involved Bauer working within a live, major roundabout with a heavy volume of traffic. In order to manage the associated risks efficiently, Bauer worked closely with SLJV & Highways England in order to implement stringent health & safety processes.

Also, Bauer participated in Highways England's "Raising the Bar" scheme which is designed to raise standards in Efficiency, Quality and Health & Safety.

Piling works were carried out in two phases, both phases being completed on time and on budget.

Woodsmith Mine, North Yorkshire Moors

Woodsmith Mine, located in Whitby, North Yorkshire, is a deep potash and polyhalite mine. The project involved Anglo American constructing the UK's deepest mine, will allow the extraction of large quantities of Polyhalite for global distribution.

Bauer Technologies was appointed to install up to 3120 m deep diaphragm wall shafts, with diameters between 8 m and 35 m. To guarantee the specified vertical tolerance of 200 mm, the site team had to combine various survey methods, which were documented in a 3D BIM model.

In addition, as part of the works, a large quantity of bentonite slurry had to be reconditioned in a complex de-sanding plant and by use of specially designed polymer-based additives. Specifically, the service shaft headgear chamber was 60 m deep, 35 m dia; the production shaft headgear chamber was 60 m deep, 32 m dia; and the production shaft main shaft was 120 m deep, 8 m dia. The shafts were formed by 2.8 m wide and 1.2 m thick panels - 48 for the service shaft, 44 for the production shaft headgear chamber and 14 for the deep main shaft.

Notwithstanding the often-extreme weather, the ground conditions at the Woodsmith site were challenging. Variable lamination through which Bauer had to cut the diaphragm wall panels for the shafts was classed as weak to medium-strong.

The intermittent nature of the geological lamination made the cutting process technically challenging and required Bauer to deploy several combinations of cutter wheel configurations to optimise performance.

Work on the first panel demanded three cutters on the project: two MC 96 machines and an MC 128 carrying HDS 120 hose drum systems and BC 40 cutter units. Two BE 500 and one BE 550 de-sanding units fitted with BDS 125 de-silters and a BD 90 decanter were used.

Bauer completed its scope of works successfully, with all works completed to the agreed programme.

Battersea Power Station, London

Bauer Technologies was awarded the £ 30 m piling contractor for Phase 2, working directly for the Battersea Power Station Development Corporation (BPSDC) to design and construct the rotary bored piling within the envelope of the existing 1930's Power Station building.

Bauer's scope of works included the design of permanent and temporary works piled foundations; 500 no., 880 and 1180 mm dia secant piles in two secant walls; 125 no., contiguous wall piles; 400 no., bearing piles (750 mm to 2400 mm dia between 35 m and 65 m deep) and 80 no., temporary piles for temporary structures and tower cranes.

Prior to constructing the main works piles, substantial existing traditional concrete foundations and piles were removed at new pile locations using specialist piling equipment.

The successful delivery of the piling works overcame challenges that included the presence of existing foundations (including piles), headroom and space constraints, strict building movement tolerances, asbestos contamination, scour features in the London Clay, logistics management and coordinating work with both enabling and follow on contractors.

Principal Place, London

Bauer Technologies was awarded the £ 4.86 m foundations contract for Principal Tower, a 50-storey luxury residential establishment in Central London, by Multiplex, on behalf of its Client, a joint venture between Brookfield Office Properties and Concord Pacific.

Bauer was appointed to install the piled foundations and secant walls for the Principal Tower, which was particularly challenging, as Bauer worked under restricted space conditions, next to a live railway,

strict load restriction zones and in amongst other trades on site.

Some 81 no. 1500 mm bored piles, up to 55 m deep were installed, including 8 no. permanent casings with bitumen slip coating, 14 no. large section plunge columns, and 10 no. king posts. 32 no. 880 mm bearing piles, up to 33 m deep, were also installed as well as 214 no. 880 mm secant wall piles (150 linear metres), up to 33 m deep including 24 no. king posts.

Bauer drew upon its specialist foundations contractor knowledge to carry out project-specific plant modifications, which allowed a BG 40 piling rig to install heavy duty pile casings of up to 2000 mm dia, whilst standing on sensitive temporary works structures with strict load restrictions.

In the second phase, Bauer used a 350-tonne mobile crane to lift its BG 30 piling rig into the partially excavated secant wall box to allow the remaining bearing piles to be installed after completion of archaeological excavation works by the Museum of London.

Eastern Bay Link Flyover, Cardiff

The £ 57.3 m Eastern Bay Flyover is a critical component of the Cardiff Eastern Bay Link (EBL), funded and managed by the Welsh Government, with Dawnus Ferrovial Agroman Joint Venture (DFAJV), the Main Contractor, awarding the piling contract to Bauer Technologies.

Bauer Technologies commenced piling works in March 2016, installing 252 no. 1200 mm rotary bored piles, with depths up to 32 m, using Bauer's own BG 30 and BG 39 piling rigs. Casing vibrators were used to place and extract single wall casings up to 17 m long. Bauer also carried out three pile-maintained load tests using Osterberg cells.

Work was undertaken adjacent to a live railway line, and without striking any of the numerous live services in the piling area. Risk assessments & associated mitigation measures allowed the piling team to install piles without interruption to rail traffic, a very important aspect of the project. Bauer's performance resulted in the early handover of completed pile groups.

M8/M73/M74 Improvements - Structure 105 - Braehead Railway Bridge, Scotland

Bauer Technologies was awarded a £ 3.5 m sub-contract by Ferrovial Lagan JV (FLJV) to install foundation piles for structures on the new motorway, including the 8 no. 2.0 m dia foundation piles for the Braehead Railway Bridge.

A challenging project, planned in great detail, in close cooperation with main contractor and Network Rail, to ensure minimum disruption to rail services. All piles had to be constructed within 4 x 54-hour railway possessions (closures). Key to assuring delivery was to verify the design and the construction method.

This was demonstrated by construction of a sacrificial test pile of the same diameter as the works piles, fitted with a 660 mm diameter Osterberg Cell.

The design test load for the pile was 28.7 MN but it was finally tested to failure, achieving a maximum sustained gross bi-directional applied load of 39.5 MN. Directly after the successful test piling the 8 no. 2 m diameter rotary bored piles. up to 18.7 m deep were installed. The first 54-hour possession was scheduled for Easter weekend. At their closest the piles were within 2 m of the nearest rail and 1 m away from an OHLE stanchion.

Bauer added value using experience of previous work on similar projects. Fundamental in Bauer installing the piles for Structure S105 in less than 50% of the allowed construction time: only 2 of the 4, 54-hour possessions were required for completione.

Manufacturing Facility, Bradford

Bauer Technologies was awarded the piling contract by JN Bentley, on behalf of the main client, BASF.

The work was undertaken with the chemical plant in operation, so the project team faced several challenges. Bauer had to install a number of rotary bored piles in close proximity to BASF's existing chemical storage tanks, carrying inherent risk, as well as influencing construction sequence.

On-site, Bauer had to react quickly and professionally to changed ground conditions, by modifying the envisaged construction method and then optimising performance under the revised constraints. For example, mine workings within the bedrock were encountered, requiring temporary casings to be lengthened from 6 m to 15 m. By working closely with JN Bentley, the disruption and delay to the programme was minimised.

Bauer used its BG 30 and BG 40 rigs to drill 880 mm dia piles, with rock sockets up to 25 m long in Coal Measure Sandstones, Siltstones and Mudstones.

Acton Dive Under, London

Bauer Technologies secured the contract for the piling works for the £ 30 m Network Rail (on behalf of Crossrail) Acton Dive Under project in West London.

The £ 4 m project awarded by BAM, saw Bauer installing 950 lnm of secant and contiguous pile walls, consisting of 1400 no. CFA piles in diameters of 600 mm, 750 mm and 900 mm. The piles, which were up to 16 m deep, were installed between live railway lines, using a CFA adapted Bauer BG 28 drilling rig.

US Embassy, London

Bauer Technologies was awarded the contract to undertake the piling and diaphragm walling works for the new US Embassy in London.

The US Dept of State Bureau of Overseas Buildings Operations (OBO) Construction Contractor, BL Harbert, and Prime Sub-Contractor, Sir Robert McAlpine, selected Bauer for the early site work.Bauer constructed a diaphragm wall and deep base-grouted piles, and despite the complex and large-scale nature of the project, completed within an extremely tight 3-month schedule. Bauer mobilised several rigs, including 2 no. BG 40s; 2 no. BG 28s and 2 no. diaphragm wall grabs.

Whitechapel Station - Cambridge Heath and Durward Street Shafts - Crossrail Advanced Station Works

Bauer Technologies successfully completed Crossrail Advance Works Contract C511 at Whitechapel Station, London.

Bauer's scope of works included the construction of a circular diaphragm wall shaft at Cambridge Heath, and a more regular shaped diaphragm wall box at Durwood Street.

The main contractor for the project was BAM/Kier Joint Venture. Both sites had challenging working constraints. Other works included pile probing and pile removal.

Liverpool Street Station - Moorgate Shaft - Crossrail Advanced Station Works

Bauer Technologies successfully completed the Crossrail Advance Works Contract C501 at Moorgate, London, after being awarded the contract by main contractor BAM/Kier Joint Venture.

The project included extensive pile probing and removal, using the Bauer Technologies developed ‘Annulus Cutter’.

The scope of the project consisted of the construction of 3 no. 2.4 m diameter future over site development piles and the construction of a diaphragm wall box. Geothermal loops were also installed within the diaphragm wall panels.

Tottenham Court Road Station Upgrade, London

Bauer Technologies performed large diameter (2 m+) piling to below 65 m depth; diaphragm walling 1 m thick x 41 m deep; 11 no. plunged columns installed into large diameter 48.5 m deep piles; piles of diameter 2.4 m and various secant pile walls for main contractor Vinci / BAM Joint Venture, on behalf of the client, London Underground Limited.

The project presented a number of challenges, including:

- Construction of 2 m diameter bearing pile with permanent liner in a ‘D Shape.
- Design and installation of a new bespoke plunged column frame 23 m long, equipped with laser guides, which for the first time in the UK bears on “naked soil”, rather than a steel casing clamping the frame in place. The plunge columns were by far the heaviest and longest that the industry had seen for some time, with a mixture of 600 x 600 and 700 x 700 columns up to 33 m long being installed.
- Installation of a diaphragm wall within a working area of 25 m x 30 m, surrounded by London traffic.

Pembroke Jetty, Pembroke

Bauer Technologies completed these extremely complex works on a 50-year-old jetty on the Severn Estuary at the site of the a 2000 MW, Combined Cycle Gas Turbine Power Station, to support the Leibherr LGD 1750 crane and its 387.5 tonne superlift, required for the safe off-loading of five 400-tonne gas turbines as part of the stations' construction.

Bauer chose its rotary system for the job, using thick-walled casing with tungsten carbide cutting teeth rotated to pile toe level, using Bauer's powerful BG 28 rig. For the marine piles, 1220 mm dia casing was fitted with Bauer cutting teeth, to ensure penetration through boulders. The works were carried out 24 hrs a day, 7 days a week, in order to complete the piling and ensure the deadline was met; this was driven by the departure schedule of the ships delivering the gas turbines from Rotterdam.

Pembroke Power Station, Pembroke

Bauer Technologies completed the contract for the installation of the piled foundations at Pembroke CCGT. Each unit consisted of a variety of sub-structures covering a total area of 40,000 sqm.

The scope of the piling contract comprised the construction of the piling platform; preliminary trial bores, to verify ground conditions and rock head level in the piling area; a preliminary pile testing regime including a fully instrumented test pile; construction of 2,307 no. 600 mm reinforced CFA piles; 421 no. 900 mm unreinforced CFA piles and installation of 10 no. 1200 mm dia. steel liners to 10 m depth at the condensate pit, including all associated piling attendances (setting out, provision of attendant plant, spoil disposal, platform maintenance).

Waste to Energy Facility, Newhaven

Bauer Technologies executed a circular shaped diaphragm wall and foundation barrettes for the facility in Newhaven for Hochtief UK.

Several options and alternative technical solutions were proposed and offered during the tendering phase, before Hochtief, in joint venture with von Roll (Switzerland), awarded the project to Bauer Technologies.

Palm Paper Project, Kings Lynn

Bauer Technologies was awarded the contract for the piled foundations of Europe's largest paper machine.

The scope of the project was to install a secant pile wall (hard/hard) and foundation piles to support the machine hall area, developed and designed by BHM INGENIEURE Engineering and Consulting GmbH. Bauer completed the works on time and to budget.

Severn Power CCGT, Newport

Bauer Technologies was awarded the £ 15 million contract for the piled foundations of the power station, which consisted of two power generating units, each a variety of structures covering an area of 60,000 sqm.

The scope of the piling contract involved the construction of the piling platform; a preliminary pile testing regime; the erection of an on-site concrete batching plant; the installation of the piled foundations, comprising 439 no. 620 mm diameter bored piles; 426 no. 880 mm diameter bored piles and 711 no. driven cast iron ductile piles.

To view these projects in more detail please visit our website:
bauertech.co.uk/en/projects

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