

A533 Chester Road Bridge Replacement, Cheshire



The M56/A533 Expressway Bridge, constructed in 1971, had come to the end of its serviceable life and needed replacing. The new structure ensures a life span of over 120 years and maintains safety in both the short and long term.

The bridge - situated between junctions 11 & 12 of the M56 - is a vital local link, providing access across the M56 to Runcom from Preston Brook & Northwich. The replacement was a new 67m, two-span concrete bridge, including a single two-lane carriageway and a combined footpath/cycleway.

Amey/Sir Robert McAlpine JV appointed Bauer Technologies, on behalf of National Highways, to undertake piling work on both sides of the motorway and central reservation, as part of the National Highways improvement scheme for motorways in the northwest. Bauer Technologies built upon the relationship forged with the Amey/Sir Robert McAlpine JV (ASRM JV) delivery team during the 2020 piling works on the M6 J19.

The contract to install the rotary bored piles for the A533 bridge replacement was

awarded in late December 2021, with Bauer's scope of works commencing during March 2022 and, following the installation of the working platform, progressed with a quick programme duration of 5 weeks.

All works were planned using the Bauer VSI software to visualise the optimum set up for each platform, detailing space requirements for the piling rig, crane and ancillary equipment. This was then transferred into Bauer's works execution plan, task briefings and induction, to ensure all site personnel had the correct information for working in an extremely high-risk environment.

All permanent piles were 1180mm dia, with drilled rock sockets into the underlying mudstone of varying lengths, to function as bearing piles for the new bridge structure. Piles, designed by Bauer Technologies, 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 BG26 rig, was to install a 900mm retaining wall, allowing

construction of the east abutment at a lower level from the upper A533 road. All equipment was then fully demobilised, the diameter changed and was moved to the west abutment. This was followed by remobilisation and installation of all piles. With this scope of works complete, there was further demobilisation and movement to the central pier, where piles were installed between the two 50mph running lanes of the M56. The final demobilisation and remobilisation was into the east abutment, to complete Bauer's scope of works.

Bauer's team completed works on time, to budget and to the satisfaction of ASRM JV and National Highways. Further to completion of Bauer's works, once the abutments and central pier are constructed, the main concrete bridge deck - which will be assembled offline in a nearby compound - will then be transported to its final position, using a self-propelled modular transporter. Once the replacement bridge has been opened to traffic, the existing bridge will be demolished, and the surrounding area fully reinstated with vegetation.

Client:

National Highways

Principal Contractor:

Amey / Sir Robert McAlpine JV (ASRM JV)

Piling Contractor:

BAUER Technologies Limited

Contract Period:

March 2022 to April 2022

Scope of Works:

- Installation of 45 No. 1180mm dia rotary bored bearing piles for the Central Pier and East/West Abutments

- Installation of 17 No. 900mm dia rotary bored piles for temporary retaining wall on the east abutment

Equipment Used

- Bauer BG 26 Piling Rig