

CASE STUDY

Yarm Viaduct, Yarm



INFRASTRUCTURE

CLIENT

AmcoGiffen

TECHNIQUES

Jack Down Piling

ACHIEVEMENTS

Delivered on time
Delivered on budget

Project Brief

Roger Bullivant Limited's (RBL) Northeast region was approached by AmcoGiffen to provide vital engineering works to support the existing Yarm Viaduct. This historic Grade II listed structure completed in the mid-19th century, serves as a critical railway link over the River Tees. Spanning 43 majestic arches, this iconic structure has played a vital role in the UK's rail infrastructure.



INFRASTRUCTURE



Key Issues/Requirements

- ✚ Structural Integrity: The project aimed to address the structural weaknesses of the viaduct's foundations, necessitating the installation of 656, 178mm diameter Steel Tubular Piles to depths of up to 13 meters.
- ✚ Ground Conditions: The area featured soft clays overlying sandstone.
- ✚ Environmental Considerations: The age and structural condition of the viaduct had to be considered. Proximity to residential properties and woodlands required an approach that would minimize noise and vibration during construction.
- ✚ Heritage Preservation: As a Grade II listed structure, any work undertaken needed to safeguard the historical significance and integrity of the viaduct.

Solutions

- ✚ Jack Down Piling Technique: This method was selected for its quiet and vibrationless installation process, significantly reducing the risk of disturbance to the existing structure and surrounding community.
- ✚ Installation Design: Steel transverse beams were strategically placed through the existing brickwork piers which were supported by piled reinforced concrete caps.
- ✚ Hydraulic Jack Piling Rigs: These small, powerful hydraulic rigs were connected to a structural spreader beam which provided the reaction required to jack the piles to the required depths and installation resistance. This approach utilised the existing structure as a reaction load, ensuring efficient and reliable installation.
- ✚ Collaboration with Main Contractor: Working alongside AmcoGiffen, RBL's team of specialist engineers utilised their expertise to execute the project within the required 16 week program while adhering to the highest safety and efficiency standards.
- ✚ The successful installation of the works has strengthened the Viaduct's foundations and has showcased RBL's commitment to specialist engineering practices and historical preservation. As a result, the project ensured the continued service of this vital transportation link in the UK while minimising disruption to the local community.



ROGER BULLIVANT