

PIPE JACKING CASE STUDY

Chester Northgate Tunnelling, Chester City Centre



www.pipejacking.org

PROJECT	Chester Northgate Tunnelling Chester City Centre
CLIENT	Vinvi PLC/Cheshire West & Chester City Council
CONTRACTOR	V J Donegan & Co Ltd
PIPE SUPPLIER	FP McCann
TUNNELLING MACHINE	Herrenknecht AVN1000XC/AVN1200TC
VALUE	£2,900,000



PROJECT OVERVIEW

V J Donegan & Co Ltd collaborated with Vinci PLC and Cheshire West & Chester City Council to develop a solution for a new surface water outfall from the Northgate Development Phase 1 in Chester City Centre to the River Dee. Given the city's historic significance, the project presented several challenges that required specific solutions. Before contract award, V J Donegan & Co Ltd provided upfront consultancy, including recommendations for shaft locations, drive lengths, and ground investigations. They worked closely with the council's archaeological team during excavation and undertook daily monitoring of highways, monuments, adjacent buildings, and the medieval city walls, which required special approval for tunnelling. To minimize disruptions, they implemented a city-wide clockwise diversion for traffic during the construction phase.

DESCRIPTION OF WORKS

The project involved the construction of various structures, including four drive shafts with diameters of 5.50m and 6.00m to depths ranging from 5.0m to 12.0m in glacial till and sandstone. Additionally, three reception shafts with a diameter of 5.00m were constructed to depths varying from 8.0m to 12.0m in the same materials. To construct four 1200mm diameter tunnels totalling 590m, pipejacking was employed using a Herrenknecht AVN1200TC MTBM, while two 1000mm diameter tunnels totalling 225m were constructed using a Herrenknecht AVN1000XC MTBM. These structures were completed using advanced construction techniques and technologies to ensure high levels of safety and efficiency during the project.

CO₂ SAVING

The CO₂ savings of the pipe jacking elements compared to typical open cut construction were 6000 CO₂e. Source: <http://www.pipejackingcarboncalculator.org>

FURTHER INFORMATION: www.donegan.co.uk

