

# Project Report

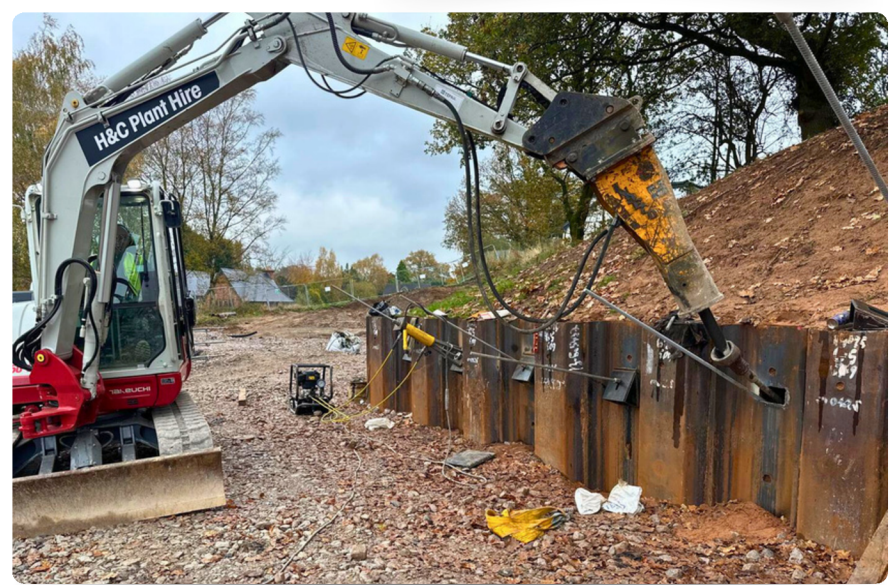
DESIGNER	CLIENT
JIG Consulting Engineers Ltd	ESS (CE) Ltd
CONTRACTOR	INSTALLER
PH Property Holdings	ESS(CE) Ltd

## Requirement

The project involved the construction of a high-specification private residential dwelling in the village of Prestbury, Cheshire. During the early stages of the build, two separate sheet pile walls were installed to facilitate excavation and support the surrounding ground. These walls required reliable anchoring systems to maintain structural integrity and ensure the safety of the ongoing works.

The upper retaining wall was part of the permanent works and therefore required a durable and long-term solution that could provide consistent lateral support throughout the lifespan of the structure. Meanwhile, the lower wall was intended as a temporary measure to allow safe excavation without relying on traditional internal props, which would obstruct access and complicate other construction operations within the footprint of the basement.

- Key requirements included:
- High load-bearing capacity for both permanent and temporary anchoring.
  - Minimal disruption to ongoing site works.
  - Rapid installation to meet the project timeline.
  - Adaptability to sandy ground conditions encountered on site.



# Dale End, Sheet Piling

## Solution

To address these demands, Vulcan Earth Anchors were specified and installed by ESS (CE) Ltd, working alongside the structural consultants JIG Consulting Engineers Ltd. After evaluating the load requirements and ground conditions, the AS-90 model Vulcan anchor was selected as the most appropriate system. Each Vulcan Earth Anchor was assembled with a 20mm diameter galvanised threaded bar, extending up to 12 metres in length, along with angled load plates and load nuts to deliver secure and adjustable resistance against lateral forces. The system was engineered to proof load each anchor to 150kN, locking off at 100kN to ensure ongoing stability.

In total, 21 anchors were installed to an average depth of 11 metres. Prior to full deployment, three test anchors were installed at 10 metres and successfully tested to 175kN – significantly above the specified performance requirement. These strong results were attributed to the favourable sandy stratum identified during the ground investigation, which allowed the anchors to achieve excellent load transfer and holding capacity. The installation was carried out using a 8-tonne excavator fitted with a hydraulic breaker and sectional drive rods, allowing for fast and controlled deployment of the anchor system with minimal disturbance to the site.

The combination of quick installation, and reliable performance made Vulcan Earth Anchors the ideal solution for this sheet piling application. Both temporary and permanent structures were stabilised effectively, delivering outstanding outcomes for the client while preserving workflow efficiency across the build.

