Have any questions?
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Project Report

Retaining Wall, Sheet Pile

Housing Development, Stockport

SUB-CONTRACTOR
ESS (CE) Ltd

DESIGNER
JIG Consulting Ltd

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Requirement

As part of the development of new retirement living apartments, a sheet pile retaining wall was required to provide long-term ground retention and stability. The retaining structure formed a critical element of the overall build, supporting adjacent ground and safeguarding the integrity of the development.

Due to the permanent nature of the works and the load demands associated with the retaining wall, a reliable, high-capacity ground anchoring solution was required. Vulcan Earth Anchors were specified within the original design to provide effective tie-back support to the sheet piling, ensuring long-term performance while minimising disruption to surrounding ground conditions.

Ground conditions on site comprised made ground over firm clay, presenting challenges that required careful consideration during both design and installation. The solution needed to achieve high design loads while remaining practical to install within site constraints.

Testing

To confirm suitability and optimise anchor selection, site testing was carried out at an early stage of the project. This testing phase was essential to validate the performance of the Vulcan Earth Anchors within the prevailing ground conditions and to ensure the correct anchor sizes were specified to meet the required loads.

The anchors were designed to accommodate various working loads, with maximum design loads of up to 350 kN. Early-stage testing provided confidence in the anchor performance and allowed the design team to proceed with certainty, reducing risk and ensuring compliance with project requirements.

Solution

Anchor Systems supplied Vulcan Earth Anchors AS-400, installed in conjunction with 30 mm diameter threaded bars, to provide the required tie-back support to the sheet pile retaining wall.

Installation was carried out using a 13-tonne and 15-tonne excavator fitted with hydraulic breakers, enabling the anchors to be installed efficiently despite challenging ground conditions. The versatility of the Vulcan Earth Anchor system allowed the installation team to adapt to site constraints without the need for bespoke or non-standard components.

The installed anchors delivered high load capacity, reliable performance, and long-term stability, making them ideally suited to this sheet piling application. By using a mechanical ground anchor solution, the project benefited from a robust, proven system that avoided the need for more invasive traditional anchoring methods.

This project demonstrates the effectiveness of Vulcan Earth Anchors as a permanent ground anchoring solution for sheet piling and retaining wall applications, particularly where demanding loads and variable ground conditions are present.