

Hotwells Road

Client :
Wilcon Homes

Engineer :
HM Geotechnics

Location :
Bristol

Date :
2001



This prime development site close to the centre of Bristol and overlooking the floating harbour area and the SS Great Britain, required major investment in a complex geotechnical solution to enable the client to realise its full potential.

The works comprised the excavation of a steeply dipped sandstone rock slope and support to the excavated slope to provide an area of 63m x 20m for development of 28 luxury flats.

Geotechnically, the concept involved forming a stitch line of closely spaced, steeply inclined drill holes (essentially a pre-split line without the explosives), which defined the new slope position.

Support for the new cut rock slope was provided by a series of dowels immediately behind and parallel to the stitch line, together with three rows of shallow inclined anchors installed via temporary earthwork platforms. The highest of these platforms was some 20m higher than the adjacent road.

The dowels are 63.5mm diameter Gewi bars and the seven strand rock anchors provide a capacity of 105T per anchor.

At 300mPa, the quartzitic sandstone present is some of the strongest in England and especially abrasive. However the mudstone proved more fragmented than expected and had required pre-grouting.

As the new rock face was exposed in the excavation, the design was modified to suit. A total of 150 double corrosion anchors, each up to 20 metres long, were installed, along with drains at various levels of excavation.