Cintec International Ltd, Cintec House, 11 Gold Tops, Newport, South Wales NP20 4PH
Telephone: ++44(0) 1633 246614 Email: hqcintec@cintec.co.uk Website: www.cintec.co.uk

Shore Road retaining wall, Swanage, Dorset

In 2008 Dorset County Council contacted Cintec International Ltd to ask them to submit a solution to an already structurally failing retaining wall on the main sea front road in the town of Swanage. To ensure public safety without a total blockade of the highly trafficked road a traffic management system and barricades had been installed before Cintec visited the site.

As can be clearly seen in the photograph to the left a horizontal fracture had developed in the wall approximately one metre above pavement level with the wall above trying to “fold” at that point due to the forces of the retained ground.

The wall was found to be 600mm in thickness and an average height of 3.75m.

No soils information was available at that time so assumptions were made for an anchor design entailing the use of both ground anchors to resist horizontal forces and vertical anchors to resist the shear forces.

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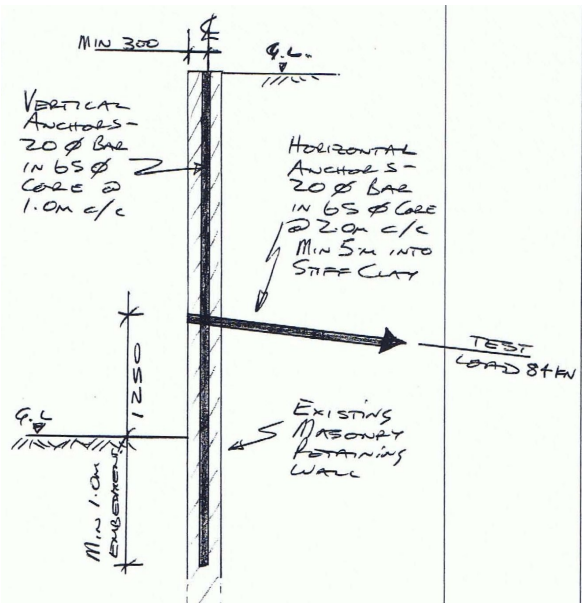
In order to accelerate the process of restoring structural integrity to the wall the client agreed to proceed on the basis of the initial design without soils data. But to ensure the effectiveness of the solution it was decided to install the first ground anchor and carry out a load test to the theoretical working load and to the calculated test load which incorporated the safety factor.

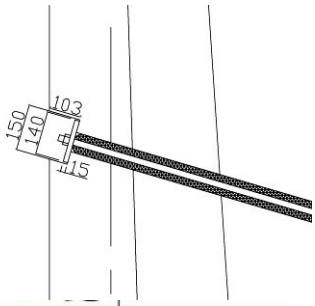
The working load of 56kN held for 5 minutes showed a load loss of 1% and the test load of 6.5%.

Limiting the load loss to 5% gave an ultimate load of 74kN per anchor for an 8.00m long anchor. From drilling logs it was shown that there was 5 metres of undisturbed soil behind 3 metres of fill.

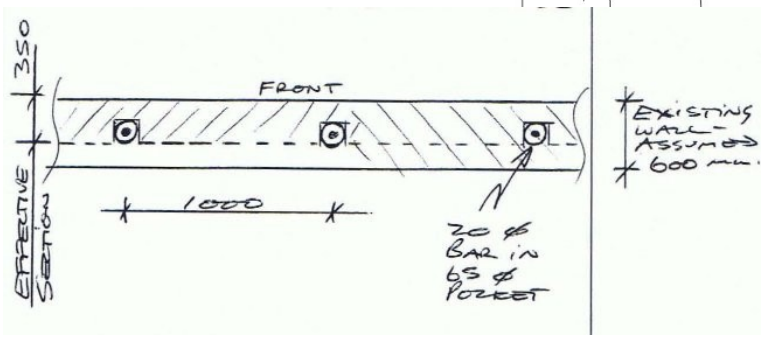
The anchors were required to be 9 metres long with a 6 metre embedment.



A front plate was designed for the anchor to assist in restraint of the wall which was recessed for concealment.



Vertical anchors were installed at 1.00m centres in 65mm diamond core drilled holes.



As may be seen from the photograph of the same wall below the solution was a complete success with the wall remaining in a structurally stable condition some 11 years later.