



**Excavations**

**Reference Details:**

**Client** London  
 Underground +++ **Main Contractor** for contract 110 (Station North Greenwich + 2 tunnels) McAlpine-Wayss & Freytag-Bachy Joint Venture +++  
**Subcontractor for DYWIDAG anchors** Bachy Limited +++  
**Consultants** Mott MacDonald (Station) - Benaim-Works JV +++  
**Architects (Station)** Alsop, Lyall & Störmer

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**DSI Services** Supply of 575 prefabricated DYWIDAG Strand Anchors 5-0.6".



**DYWIDAG strand anchors installed in an impressive excavation project**

**Great Britain: "Jubilee Line" extension to the London underground system - New station "Greenwich North"**  
 A massive 2 1900 m civil engineering project is under way in London to extend the underground system by some 16 route kilometres. Known as the Jubilee Line Extension, the new route will service 12 stations and will run from the West End via the South Bank, Docklands and the Greenwich Peninsula to Stratford in the East End.

In September 1994 DSI UK completed the supply of 575 ground anchors at the construction site of a spectacular new station in North Greenwich.

In effect, North Greenwich will be a huge 358 m long x 28 m wide submarine, a 150,000 tonne reinforced concrete hull totally immersed in saturated ground to a depth of 20 m. When completed, only modest entrances and ventilation towers will give a hint of the cavernous space down below with its suspended concourse and pairs of slender columns propping straight from the base slab to roof.

A massive secant pile wall provides temporary support for the open cut station excavation. Sealed into the London clay, the wall is propped at low level by tubular shores and tied back near ground level by the rows of DYWIDAG ground anchors.

The 25 metre long anchors each comprised 5 x 15.2 mm diameter 300 kN strands with a bond length of 9 metres; manufactured entirely at DSI UK's Southam factory, the anchors were coiled and delivered to site ready for installation. The project was successfully completed in March 1998.