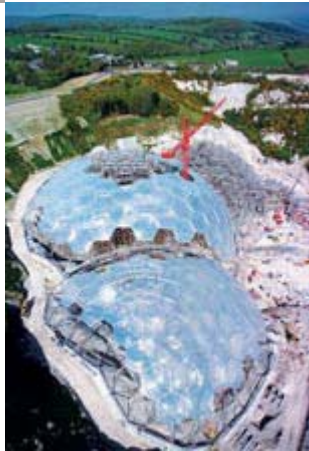


**Excavations****Reference Details:**

**Owner** The Eden  
Project Main contractor  
+++ **Main Contractor**  
JV McAlpine +++

**Geotechnical engineer**  
John Grimes Partner  
+++ **Geotechnical**  
**subcontractor** Saxton  
Deep Drillers

**DSI Services** Supply of  
2,000 *GEWI*® Bolts and  
DYWI® Drill Hollow  
Bars 50 DSI Permanent  
Ground Anchors and 40  
Temporary DSI Soil  
Nails.



## The New Garden of Eden built with DYWIDAG Rock Bolts and Ground Anchors

**In the last two years a 60 m deep former china clay pit just outside St.Austell in Cornwall was transformed into a unique 21<sup>st</sup> century Biosphere**

The site, which has the size of 35 soccer fields, features two so-called biomes, huge greenhouses, each consisting of 4 interconnected domes. Like honeycombs these domes were connected with each other to form a curved natural space. The up to 55 m tall domes shelter two climate zones: a humid tropical climate and a warm tempered environment.

Geology on the site required stabilization of the quarry faces and tying down the foundation ring beam using double corrosion protected ground anchors.

The stabilization of the quarry faces involved the installation of over 2,000 DYWIDAG rock bolts and soil nails. In the harder sections conventional *GEWI*® rock bolts were installed with open-hole drilling. Where softer bottom layers were encountered, a mixture of bolting and nailing was used with DYWI® Drill Hollow Bar Anchors. This system enables simultaneous drilling and grouting, ensuring injection of grout over the full depth of the borehole. In areas where the surface of the slope was unstable shotcrete tied back by rock bolts was used for additional face enhancement.

To facilitate the work on faces up to 12 m above ground level, the drill platforms were mounted on telescopic hydraulic arms.

The biggest greenhouse of the world opened in March 2001.