

### AVON CYCLEWAY, BRISTOL

Client: **South Gloucestershire Unitary Authority**  
Engineers: **WS Atkins**  
Main Contractor: **Christiani & Nielsen**

#### **Requirements**

A cycle route on the Avon Ring Road around Bristol was to be widened and refurbished by Christiani & Nielsen as part of the national Cycle Way scheme which will create a countrywide network of interconnected, traffic-free, cycle routes and footpaths.

A section of the route contained a potentially unstable embankment that needed to be stabilised to prevent any possibility of future collapse which may endanger cyclists or pedestrians.

The system used to secure the embankments also had to satisfy South Gloucestershire Unitary Authority's requirement for an approved method which did not use grout and would therefore protect the environment in a sensitive area.



*The load plates remain visible on three rows of Duckbill MR2 stainless steel anchors following installation to secure the embankment.*

#### **Solution**

To ensure the stability of the route-side slopes, Duckbill mechanical ground anchors were specified by project engineers, WS Atkins, as they provided a rapid, cost-effective solution to the problem while complying with the Authority's other requirements.

In total, 130 stainless steel Duckbill MR2 anchors with 16mm high yield bars were driven 4m into the clay soils, using a special drill rig, by sister company, WT Specialist Contracts Ltd.

The anchors were proof tested to 40kN before being set to a working load of 20kN and terminated with 350mm<sup>2</sup> load plates.

In addition, Duckbill DB68 geotextile anchors were used to secure geogrids that will aid the growth of vegetation, to grip the top soil and prevent surface erosion, and enable cyclists and pedestrians to use the finished route in safety.



*The completed cycle route with geogrids and top soil in place on the fully stabilised embankment.*