



**Systems Geotechnique Limited.**

Endeavour House,  
Abbotsfield Road,  
St. Helens,  
Merseyside,  
WA9 4HU.

Tel: 01744 818009  
Fax: 01744 818060



## **Alfreton Cutting, Derbyshire**

December 2002 / January 2003

Framework Contractor: Birse Rail

As part of embankment emergency works at Alfreton, Derbyshire, Systems Geotechnique were contracted by Birse Rail to install an anchored bored piled retaining wall running the whole length of the toe of an unstable 100m long slope.

After site clearance, dewatering and preparation of the Green Zone work area by the earthworks package contractor, our piling plant and equipment was moved from the main site access and over the railway to the work location during a T(iii) possession.

In total, 273No., 350mm diameter piles were constructed to a depth of 7.5m through the fill of the embankment and into the underlying mudstone. After drilling each pile, using rotary percussive air flush methods, a two-section reinforcement cage comprising 8T25 bars was placed and the bore concreted.

Two of our Klemm KR708 limited access rigs carried out this work in eight weeks, with materials and consumables being moved over the track during weekend possessions.

A Twintech TD308 rig was used to install 46No. 150mm diameter, double corrosion protection 32mm GEWI bar tension piles in extremely restricted working conditions. The tension pile scheme, which is to give additional support to the retaining wall, was proposed and designed by Systems Geotechnique, with the Engineer (Hyder) adopting the final scheme after approval by Railtrack.

Upon completion of the wall and tension piles, a capping beam was cast to structurally connect these elements. Once these principal stabilisation works were in place, the slope was returned to its original profile and the site reinstated.