



### Severn Valley Landslip



#### PROJECT SUMMARY

NAME: Severn Valley Landslip - Ironbridge

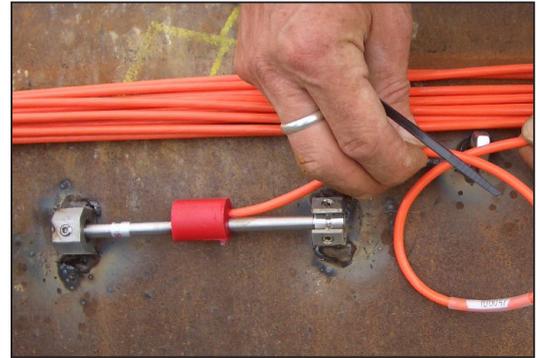
YEAR: 2008

CLIENT: Telford & Wrekin Council

MAIN CONTRACTOR: Birse Construction

CONSULTANT: MWH

INSTRUMENTATION SPECIALIST: Southampton University



#### OVERVIEW

The River Severn flows through the Ironbridge Gorge which is located to the south of Telford in Shropshire and is a World Heritage Site. The Gorge is thought to have originated some 10,000 years ago and is deeply incised in rocks of the Upper Carboniferous and Silurian age, which are prone to land sliding. There have been a number of failures through its history. The valley sides rise steeply from 40m at river level to over 140m on the plateau above.

A recent slip had occurred in the Halesowen Formation. This area is particularly susceptible to movement as it includes more silty strata and less sandstone than elsewhere. Buildings and roads were affected by the landslide.

Considerable investigative work was undertaken by Telford and Wrekin Council on this landslide to develop appropriate management plans to anticipate and mitigate the effect on the land usage. This included 'stitching' strategic locations within the area of failure using tubular steel sections which were placed into the hillside and then filled with concrete.

#### MONITORING

Although the tubular piles were used mainly to stabilise the landslide, monitoring was also carried out on piles at strategic locations within the slope.

Monitoring involved measuring the bending of the tubular piles which was done by placing vibrating wire strain gauges on the upslope and down slope sides of the piles along the length of the pile.

Lateral displacement was also measured by the inclusion of inclinometer casing within additional piles.

Automatic data acquisition was carried out by Southampton University by connecting the vibrating wire sensors into a data logger which could be accessed remotely through a GSM modem.

#### PRODUCTS USED

##### VWS-2000

Surface mounted strain gauges which measure strain in the pile.

##### VW2106

Vibrating wire readout which can be used with all vibrating wire sensors.

##### GeoLogger GL

Used for automatic data acquisition of all types of sensors.