

# CARRIAGEWAY BETWEEN SARON AND CYFFYLLIOG, WALES

**Council seeks creative solutions after landslip destroys road**

<b>PROJECT</b>	Highway repair work
<b>CLIENT</b>	Denbighshire County Council
<b>PRODUCT</b>	Trief GST2A
<b>SIZE</b>	55 metres

Denbighshire County Council (DCC) asked for help from Brett Landscaping when two substantial landslips destroyed part of a rural unclassified road.

Approximately 55m of single carriageway road between Saron and Cyffyliog needed to be rebuilt quickly after it had fallen away, down a slope into the river below.

Around a metre of the width of the carriageway was lost in the landslip – reducing it to three metres. Although the depth of the landslide was relatively shallow the trees and shrubs below were displaced due to the sheer mass of soil. The damaged section of road required a new foundation, along with precast retaining wall units complete with anchors to provide lateral stabilisation to the retaining wall and soil nails on the steep embankment below.

DCC contacted the team at Brett to discuss options for installing a kerb containment system that could be used in conjunction with the structural and geotechnical design proposals to reinstate the road.

Engineers at the Council and specialists at Rock Engineering were able to talk through the different containment design options with Brett's expert design team - who have experience in this type of protection - to come up with a working solution that was feasible to implement in this restricted location.

Brett recommended doweled Trief GST2A units to be positioned in front of the precast retaining wall. The wall would protect it and the parapet from impact damage and deflect any stray vehicles from going off-road and down the steep slope. The Trief profile works by trapping the tyre of impacting vehicles and ensuring that they do not leave the carriageway. The retaining wall units were in pre-formed sections to aid in the speed of the installation. DCC decided this was a more feasible and cost-effective approach to installing crash barriers which was an initial consideration of the engineer.



Brett's Trief GST2A doweled kerbs were used to anchor the kerbs to a new reinforced kerb foundation which provided a greater level of resistance to impact. The GST2A units were chosen over other pre-cast units due to their size and profile being effective to resist impact from the large farm vehicles that use the road regularly.

Usually Trief would require a minimum 230mm backing of concrete haunching but the extra structural reinforcement meant this was not essential. The Trief kerbs were cast against the reinforced concrete retaining wall units – each one of which was strengthened by a ground anchor providing the lateral resistance.

As there is a solid connection between kerb and wall any impact on the kerb would deflect the force into the wall and anchor. These forces, in turn, would be reduced by the dowel introduced into the kerb.

Part of the work also involved Brett helping to ensure that the width of the carriageway was not impaired too significantly once the installation was completed.

Jamie Gledhill, Engineering Technical Manager at Brett Landscaping, said:

**"We were pleased to be able to provide design support and find a solution for DCC and Rock Engineering. Brett's Trief Containment kerbs have a proven record in protecting structures, verges and pedestrians from vehicular incursion and Brett has a history of finding solutions for our customers."**

To view our full Trief range please visit [brettlandscaping.co.uk](http://brettlandscaping.co.uk)

