

Landslide barriers at A83 Rest and be Thankful in Scotland and their first event 2015

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Rest and be Thankful is a part of the road A83 in northern Scotland and has a long history of landslides. In 2007, the site was closed for several weeks after a shallow landslide. A kind of mudslides deposited 400 *tons* of material on the road. In early September 2009, a further event resulted in 1070 *tons* of material slipping onto the road at the same place, forcing its closure for 48 hours. No one was hurt in either incident, but these slides pose a serious threat to the country's main rural routes (Gibson, 2010). The site has then been the subject of study and is included in the recent Scottish Roads Network Landslides Study produced by Transport Scotland. The study identified the A83 at *Rest and be Thankful* as one of the most risk sites for debris flow and/or landslides – a fact confirmed by the events that have occurred.

The development of flexible debris flow and landslide barriers is more recent but has reached a point where they may be designed, specified and installed with confidence. Indeed, installations are now quite common in European alpine areas, California, Japan and Korea in particular. The standard system SL-150 of company Geobruigg with a height of 3.5 *m* was installed in 2011, the design parameters as well as the calculation of the structural system were checked by WSL to fulfil newest research results out of a 3 year research project (Bugnion et al, 2011 and 2012).

In 2015, the first event happened to the barrier SL-150. Storm Desmond released on Saturday 5th December during daytime a first slide of around 150 m^3 into the barrier, afterwards around night time a second slide with 100 m^3 impacted the same barrier and some smaller slides followed. In total 300 m^3 of material were captured successfully by that SL-150 barrier and the major transport route in this area remained open while storm Desmond. No failure at the barrier happened, only the so called energy absorbers got activated. A big success of the past research project in which originally the loading approach and the system itself were developed. The maintenance work at the barrier itself will now be to clean up, and to re-install the energy absorbers. Then the barrier is ready again for new events.

References

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