



monmouthshire
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Monmouthshire County Council
Review of Landslips within the County
December 2013- February 2014

Introduction

The County of Monmouthshire suffered a period of extreme weather between December 2013 and February 2014. These extreme conditions were experienced nationally and the recorded rainfall was widely reported as having exceeded all previous records. Within Monmouthshire the extreme rainfall gave rise to the flooding of dwellings, gardens, agricultural land and carriageways. Severely saturated ground became unstable and many embankment slips occurred which gave rise to either the closure or restricted use of the carriageways affected. Monmouthshire County Council had suffered similar difficulties in 2012/2103 and had applied to Welsh Government (WG) for assistance under the Emergency Financial Assistance Scheme (EFAS), however at that time WG could not provide any assistance.

Affected Areas

A photographic record of some of affected sites follows which provides an insight into the nature of the failures. Further more detailed information on all sites is listed in the appendices.

Appendix 1 lists the sites affected by the extreme weather in 2013/14. Details of the sites affected in 2012/13 but still awaiting attention are also detailed in Appendix 2.

White House Cottage

B4347 Near Grosmont

View looking South



This section of the B4347 has suffered from significant ground movements brought about by the extreme wet weather conditions experienced within the County. The road is closed to traffic. The retaining wall running parallel with the edge of the carriageway near the barn conversion in the background is also cause for concern.

View looking North



The photograph shows detail of the failure present in the road. The road has been closed to traffic for safety reasons and the available diversions require the public to divert several miles. Repair cost estimates for this section of the B4347 are in the order of £62,000

Duffryn Cottages

B4347 Near Grosmont

View looking West



On this section of the B4347 there has been settlement in excess of 1.0m. The ground movements have damaged the retaining wall causing shear failures at a number of locations along it. Edge support to the carriageway has been removed and there is tension cracking apparent in the surfacing. There is over 150m of retaining wall affected. Repair costs are in the order of £380,000

Further view of retaining wall damage

View looking West



Detail of damage



The extent of the ground movement can be clearly seen in this photograph

View of retaining wall showing extent of ground movement





Ground movement at carriageway edge

Forestry Area

B4347 Near Grosmont



This section of the B4347 lies between White House Cottage and Dyffryn Cottages and whilst not as dramatic a failure as the other two areas it will still require a significant investment to repair the failure. The route is currently closed to traffic.

View looking South



The effect on the highway profile can clearly be seen with significant loss of support at the carriageway edge where the embankment has slipped away. Likely repair costs for this section of the B4347 are Circa £60,000

Ruthlin Mill Near Skenfrith

Route R38

View looking North



On the R38 at Ruthlin Mill the tension cracking is clearly evident. However the slip zone extends above and below the carriageway affecting orchards on the up slope and third party structures downslope. The route is closed to traffic. Budget costing for the required works is £46,000

Close up of Tension cracking at Ruthlin Mill

Views looking North





Effect on third party structure at Ruthlin Mill
downslope of carriageway



Upper Cwm Farm Brynderi

Route R35

View looking South



An extensive slip area has formed on route R35 requiring the carriageway to be closed to traffic. The carriageway is affected over a length of some 20.0m and a shift in level approaching of 0.6m is present. Likely repair cost will be in the order of £71,000.

View looking North



Detailed view of backscar highlighting vertical shift and exposure of the sub grade to weathering action

Pant Farm Bryn Deri

Route C19.1

View looking West



Gabion Basket retaining wall undercut by stream resulting in collapse of retaining wall structure and carriageway. Route closed awaiting permanent repair approximate cost £25,000

Near the Boat Inn Redbrook

Route C48.1

View looking North



The C48.1 local access road had to be closed when in excess of 750t of material including mature trees moved down slope. It was also necessary to close the popular Wye Valley walk which is a significant tourist attraction in order to protect the public. Both the road and footway remain closed. Repair costs are circa £32,000

View looking South along route



Near Chapel House

Tintern

Culvert on Route C 53.9

View looking East



The damage to the third party wing wall of the culvert can clearly be seen. This damage is representative of the damage suffered directly by the culvert structure upstream. A temporary bridge access has needed to be installed prior to permanent works being implemented. Lilely costs Circa £130,000

Culvert on Route C59.3

Temporary Bridge Access

View looking East



Near Livox Quarry Entrance

A 466

View looking South



Although the images are not dramatic the tension cracking that can be clearly seen within the carriageway extends for nearly 200m along the route and movement is

clearly taking place. The A466 has a history of ground movements due to the nature of the route construction and the geology of the area.

View looking North



Tension cracking can clearly be seen extending across the centreline of the A466. The scale of the potential problem and the probable method of repair indicates that some £535,000 may be required to effect a solution here.

Near Old Station Tintern

A466

View looking South



The image shows a typical failure of the carriageway footpath which runs intermittently for 130m over a length of some 280m. Budget costings for the repair works are Circa £263,000

The Hafod Llanelly Hill

Route C 272.2

View looking West



The Tension cracking within the carriageway runs for some 50m and the movement of material downslope can be seen in the attitude of the adjacent fence line. Repair to the route may be in the order of £100,000

Appendix 1 Extreme Weather Sites 2013/14

Site	Route	Current Road Status	Location	Description	Work	Budget Cost 's	Scheme totals	Work Status	Remarks
1	B4347	Closed	Nr Whitehouse cottage NP7 8LR	Carriageway Failure	PB -GI/options survey Ops Site works	9,103.26 1,150.00 1,500.00 50,000.00	61,753.26	Survey & GI complete. Design imminent	
2	B4347	Closed	Nr Duffryn Cottages / Forestry Slip NP7 8LG	Embankment/ Road Failure	PB -GI/options GI survey Ops Site works - Duffryn Site works - forestry	15,678.81 20,000.00 2,000.00 1,500.00 350,000.00 50,000.00	439,178.81	survey complete / GI at tender / sites currently monitored site works cost will depend on GI results	
3	R38	Closed	Bell Lane Skenfrith, Near Ruthlin Mill NP7 8UL	Embankment Failure	PB -GI/options survey Ops site works	3,000.00 1,500.00 1,000.00 40,000.00	45,500.00	Currently monitored	Improved drainage only / No bank stabilisation in estimate
4	R35	Closed	Near upper cwm farm Brynderi NP7 8TG	Embankment/Wall Failure	PB -GI/options GI survey Ops site works	8,906.70 10,000.00 700.00 1,500.00 50,000.00	71,106.70	GI works to be undertaken shortly	
5			Various	Inspections by PB until end of March		5,000.00	5,000.00		
6	A4136	Open / Light controlled	Staunton Rd/Mayhill various locations - Uphill (1) and downhill (2) partial embankment failure and partial wall failure (3)		PB -GI/options GI survey Site works (1) Site works (2) Site works (3)	9,000.00 10,000.00 1,500.00 20,000.00 15,000.00 75,000.00	130,500.00	all sites currently monitored	
7	C19-1	Closed	Near Pant Farm NP7 8PU	Retaining Wall Failure	Site works	25,000.00	25,000.00		
8	C48-1	Closed	Near The Boat Inn Lone NP25 4AJ	Embankment failure and partial failure of retaining wall	PB -Inspections Site works	1,500.00 30,000.00	31,500.00		
9	R61	Open / light controlled	Near Brookside shed, Trostery court NP15 1JH	Embankment Failure	Site Works	25,000.00	25,000.00		
10	C53-9	Open	Chapel House Culvert, Tintern	Partial failure of culvert	Temp Deck ALD Ops Culvert units Hydrological study Site works	5,750.00 9,329.00 1,293.36 42,000.00 1,000.00 70,000.00	129,372.36	Temporary bridge/road in place.	
						Total Estimated Repair Cost's £	963,911.13	(including estimate for design/supervision cost's)	

Appendix 2 Extreme Weather Sites 2012/13

Site	Route	Current Road Status	Location	Description	Work	Budget Cost 's	Scheme totals	Work Status	Remarks
1	C53-3	Open	Tintern Cross	Partial failure of Wall	Site works	16,000.00	16,000.00	Works design and tendered, delayed due to poor weather conditions and high river levels	
2	A466	Open	Old Station Tintern and Livox Quarry	Potential failure of footway and road	PB - GI/options GI Ops Site works -old station site works - livox	16,877.60 50,000.00 1,500.00 230,000.00 500,000.00	798,377.60	Preliminary GI undertaken, full GI programmed for 14/15	
3	off R91	Open	Cleddon	Blocked culvert which needed to be dug out to remove blockage	PB - Design Ops Siteworks	13,237.31 1,500.00 30,000.00	44,737.31	Temporary road in place. Replacement designed and programmed for 14/15	
4	C272-2	Open	The Hafod Lanelly Hill	Embankment/Road Failure	PB - GI/options GI Site works	9,087.16 10,000.00 80,000.00	99,087.16	GI programmed for 14/15	
Total Estimated Repair Cost's £							958,202.07	(including estimate for design/supervision cost's)	