



R1 Cwmyoy Landslip

Geotechnical Inspection Report

1 Introduction

A landslip has removed the highway verge of a single lane carriageway, R1 at Cwmyoy, Monmouthshire. The landslip has left a vertical drop off the edge of the highway of approximately 3m before a steep, further estimated 25m slope into the River Honddu watercourse, a tributary of the River Monnow.

Monmouthshire County Council (MCC) highlighted the problem to WSP on Friday 30th January 2026, following a period of wet weather and requested WSP undertake a site inspection.

The site is located at approximate Ordnance Survey National Grid Reference SO (3)29020, (2)23626 (what 3 Words location /// shadows.talkative.grad).



2 Site Inspection

Geotechnical Engineers from WSP carried out an initial inspection on the afternoon of the 30th January 2026. The weather during the inspection was overcast and wet. A prolonged wet weather period had occurred proceeding the inspection and prior to the failure. A second inspection was undertaken on the morning of the 03rd February 2026 along with members of MCC.

The edge of carriageway failure (landslip) has occurred on a steep wooded slope with the River Honddu watercourse at the toe of the slope. The landslip has removed a significant volume of material from the slope resulting in a vertical face off the edge of the highway approximately 3m high over a distance of around 15m along the edge of the carriageway.

During the initial inspection the backscarp was approximately 1m from the edge of the carriageway at the rear of the hedge and fence. A number of trees had fallen across the road which were being removed at the time of the inspection (cut off to the hedge line).



During the second inspection undertaken on 03/02/2026 the backscarp had regressed to the edge of the carriageway, totally removing the fence and hedge line.



During the first visit the slip bowl contained a significant mass of saturated slipped debris containing large trees which had the potential to impact the road.



During the second visit, a significant amount of this slipped debris, including the majority of the trees had failed downslope into the river.



The following descriptions are based on the most recent (second visit 03-02-2026) rather than the conditions that existed on the site on the initial inspection.

Below the edge of the carriageway there is a 3m vertical drop where some saturated debris remains in the slip bowl.



The backscarp has exposed road surfacing and slightly undermined the road in places overlying weathered mudstone materials. Water was noted issuing from the backscarp particularly on the upstream side.



Below the vertical failed section, a slacker slope exists, where some of the slip debris has remained. This material is saturated (very soft, no strength) and has significant tension cracking throughout.



Below the mid slope, less steep section, the slip continues very steeply (estimated around 70 degrees) for around 25m down to the river.



The slip debris width increases below the crest, reaching 30 to 40m at the toe. It was evident that the slip widens below a break in the slope, generally extending upstream of the upper slip bowl. It was also evident during the inspection that tension cracks extended into a flat area immediately adjacent to the slip (break of slope), which from historical records looks like a potential former road alignment, located at a lower level than the existing.



Immediately following the slip, debris would have formed a toe in the river channel, which would have restricted the channel in this area and subsequently has been eroded removing support for the remaining slip debris on the slope. This mechanism continues keeping the landslip active.



During the inspection a more competent sandstone band was visible in the face of the slip, slightly below the break in slope.



On the downstream side of the debris flow, a “wall” structure is present at the toe of the slope along the edge of the river, but no access was possible to definitely confirm the extents of any damage and or scour. It

should be noted that there was no evidence of a wall at the base of the slipped section.



The carriageway along the failed section is located in topographical low and standing water was noted on the uphill side, during the inspection water was actively flowing across the road into the slip bowl further saturating and destabilising the slip debris below.



The slip remains active, with ongoing debris flows observed. A significant failure of the landslip occurred sometime between both inspections.

3 Slip Triggers

The landslip failure has occurred below the highway on an over steep heavily vegetated slope following or during a period of prolonged heavy rainfall event.

During the inspections, the watercourse at the toe of the slope was in 'spate'.

Two potential options for the initiation of this failure are considered likely and could be the result of both:

- Water has entered the crest of the slope from the road above (over ground and/or groundwater below the carriageway), this has saturated the materials on the slope and triggered the slip at the crest of the slope. This has then loaded / overridden the steeper lower section of the slope causing this to fail into the river below.

- The river has scoured the toe of the slope, this removes slope support causing the materials to fail, this then progressively removes the support for the higher sections of the slope allowing the failure to regress back to the road.

Active water issues were noted in the backscarp, which were continuing to saturate debris remaining within the slip bowl suggesting water ingress from the crest was likely to be a contributing factor. No drainage features (pipes) were identified in the area of the failure. Surface water flows were also forming scour channels through the materials on the slope (gully features).



No access was available at the base of the slip due to current river level, flow and debris accumulation to assess any scour at the toe of the slope or confirm any continuation of the wall located further downstream.

The geological materials exposed at the site are well known for their ongoing weathering and deterioration over time, particularly when exposed.

Either side of the slip and at a slightly lower level is a flat area which may have been the alignment of a former road. This feature is missing



from the area of the failure (and wasn't noted in the debris on the first visit) which may suggest that the hillside has previously failed along this stretch and the highway has been previously realigned.

Geology

The British Geological Survey (BGS) 1:50,000 geological sheet 214, 2004, British Geological Survey (BGS) and the BGS online viewer indicates the site to be located on strata of the Freshwater West Formation, (St. Maughans formation – Lower Devonian age) comprising interbedded sandstone and mudstone.

The plan indicates a superficial deposit Alluvium (clay, sand and gravel) to be present at the toe of the site. No superficial deposits are indicated in the area of the slip so residual materials should be expected.

No faults or folds are shown in the area of the site. Several faults are noted in the wide area, likely related to the regional Neath Disturbance to the south of the site.

According to the BGS sheet, no Made Ground is present on the site. Whilst not shown on the map Made Ground was observed on site during the inspection, in the form of road surfacing materials.

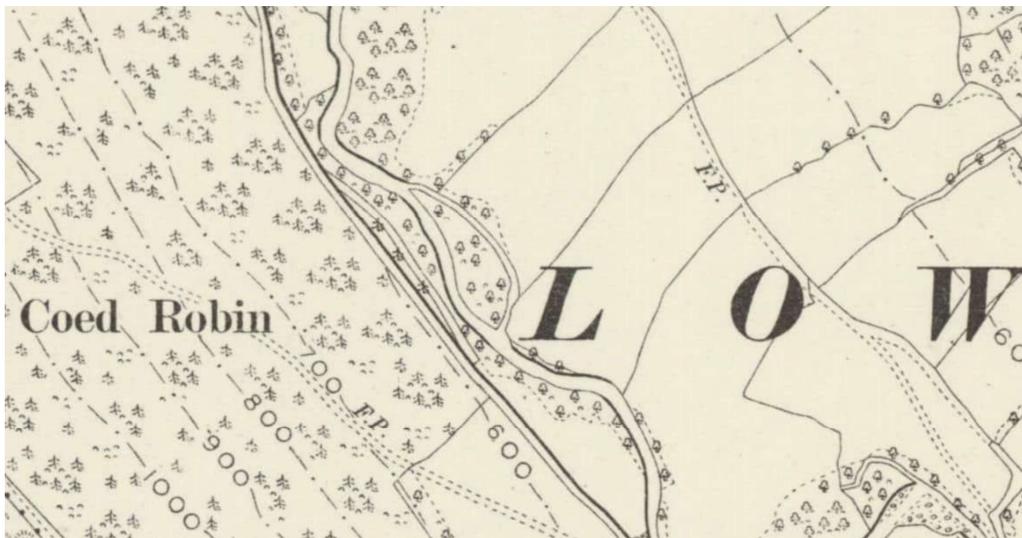
4 Other Sources of Information

A check of the BGS borehole database indicates that there are no exploratory holes available in the area of the site.

Historical OS mapping available online from the National Library of Scotland shows the site to be slightly different on the 1887 OS six inch map, the highway shown appears to have more bends and be located to the east of the current alignment.



The 1902 OS six inch map shows a new straight road alignment and a further track (abandoned?) to the east side of the new alignment. This suggests that there may have been an issue with this section of the road, and the road realigned.



The 1922 OS six inch map contains a trace of the former road, but it is no longer distinct.

Satellite images on Google Earth have been viewed. The available data shows no changes to the site, the area of the recent slip largely obscured by trees.



A check of the Welsh Government's information indicates the area is not within a Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC) or Area of Outstanding Natural Beauty (ANOB). The river is not shown as a Main River. There are no listed buildings in the immediate area of the site.

5 Immediate Actions Required

The immediate actions required to make the site safe have been undertaken by MCC, including fully closing the road to traffic and installing a fence around the crest of the slope.

It is recommended that a line of sand bags are placed along the crest of the slip at the edge of the road to stop surface water from the highway overtopping.

The area of the slip, the road closure / barriers / fence should be inspected periodically, particularly following significant rainfall events.

Due to the steep vertical face under the existing road edge, it is essential that vehicles and pedestrians are excluded from the area as a failure of the slope will continue to regress and undermine the road surfacing.

6 Proposed Investigations

(i) Topographic survey

To accurately establish the extents and landslip, a topographical survey will be required including the surrounding environs. The survey will provide information to produce conceptual remedial options and ultimately detailed design to be produced. This should include the fields to the west of the failure (should a road diversion be proposed). Due to the access difficulties to the slope / toe in the area of the failure, a remote surveying method (lidar/drone) will likely be required.

(ii) Statutory Undertakers

Enquires should be made with existing Statutory Undertakers to establish the presence of any plant / equipment at the site so these can be considered during the design and remediation of the site.



(iii) Ecology

An ecological survey should be undertaken to assess the site and any impacts the ecology of the area may have on the design / construction phases of the scheme. This should include the adjacent hedgerow and fields to the west of the road.

(iv) Ground Investigation

A Ground Investigation (GI) should be undertaken at this site to include the area to the west of the road, to ascertain the ground conditions for any remedial works.

(v) Landowners

Works at the site, including the Ground Investigation and other surveys will require access to the road and the fields to the west of the road.

7 Recommendations and Programme

It is recommended that the investigations proposed above in Sections 5 & 6 are undertaken.

The greatest geotechnical risk is that the slope below the road will continue to fail, particularly following periods of heavy rain and undermine the road (short to medium term), extending the area for repair.

The failed slope could also deposit material into the watercourse channel restricting flow.

It is recommended that the site is:

- repaired as early as possible to prevent the site deteriorating further.
- inspected periodically to determine if the slip failure has regressed further or the cracking in the carriageway appears.



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