South Wales RIGS Group Site Record
RIGS Description

SECTION A

General	South Wales
Site Name: Nevill Hall	**File Number:** AH_01
RIGS Number: 724	**Surveyed by:** AJ Humpage
Grid Reference: SO 28420 14358	**Date of Visit:** 9 February 2011
RIGS Category: Scientific	**Date Registered:** Unknown
Earth Science Category: Geomorphological, Sedimentological	
Site Nature: Pasture farmland and woodland	**Documentation prepared by:** AJ Humpage
Unitary Authority: Monmouthshire CC	**Documentation last revised:** 19 August 2011
OS 1:50,000 Sheet: 161	**Photographic Record:** See images attached to this report
OS 1:25,000 Explorer Sheet: OL 13	
BGS 1:50,000 Sheet: 232 (Abergavenny)	

RIGS Statement of Interest: This site forms part of a network of important scientific sites within the South Wales RIGS area associated with ice front stillstand and readvance in glaciated valleys and post-glacial fluvial development.

This site comprises three components:

- Nevill Hall moraine feature and section;
- cemented outwash gravel section
- post-glacial abandoned river channels and scroll marks on floodplain.

This site may mark the location of a significant re-adjustment in the mass balance of the Usk valley glacier. Downstream, the ice advanced to the Usk end moraine but features indicate much of this ice may have stagnated and down wasted in situ. The Nevill Hall moraine is part of a complex in the Abergavenny area which may indicate the location of a new stable and active ice margin (Thomas and Humpage 2007), a situation which may have developed at a time soon after traditionally considered the acme of the Late Devensian glaciation. The outwash, on the upstream side of the moraine, is a high energy deposit of large cobbles deposited as the ice front retreated from the moraine feature. It is cemented by post-glacial calcareous cement. The floodplain west of the moraine exhibits well-developed abandoned channel features and indications of multiple floodplain surfaces associated with a migrating post-glacial Holocene Usk river system and its tributary of the Nant Iago.

Geological setting/context:

The glacial evolution of the middle and lower Usk valley is not well understood, but as this area lies on the margin of the Devensian ice sheet, it is increasingly being recognised as an important area to research system responses to environmental change (Carr et al 2007).

Extensive glacial deposits have been mapped (BGS 1990) and a series of cross-valley morainic features, indicating minor re-advances or stillstands of the ice front have been identified (Lewis and Thomas 2005), following on from work by Elis-Gruffydd (1972, 1977). However, without absolute dating, the exact correlation and chronology of deglaciation is still poorly understood.

Traditionally, the Usk valley glacier was assumed to reach its maximum extent c 20-22ka and to have disappeared, along with the Welsh ice cap by c.16ka (Thomas 1997). However, more recently, doubt has been cast on this model based on dating evidence from the uplands around Abergavenny, which suggests deglaciation may have been initiated earlier than traditionally thought. Coleman and Parker (2007) suggest ice free conditions may be prevailing in the uplands above Abergavenny as early as 19420+/-64 Cal BP

If this is the case, and further research is required, then the Usk glacier may have initially advanced rapidly, (possibly by surging) to the Usk end moraine but then after a relatively short period of time and a series of minor fluctuations, may have established a more sustainable, new stable ice margin at the entrance to the more confined middle Usk valley at Abergavenny, leaving the area south of Abergavenny towards Usk to downwaste largely in situ.

References:

British Geological Survey (1990). *Abergavenny. England and Wales Sheet 232.Solid and Drift Geology. 1:50,000.* British Geological Survey, Keyworth, Nottingham.

Carr, S.J., Coleman, C.G., Humpage, A.J. and Shakesby, R.A. (2007). *Quaternary of the Brecon Beacons: Field Guide*. Quaternary Research Association, London.

Coleman C.G and Parker A.G (2007) Waun Ddu Bog. In: S.J. Carr, C.G. Coleman, A.J. Humpage and R.A. Shakesby (Eds). *Quaternary of the Brecon Beacons: Field Guide*. Quaternary Research Association, London.

Elis-Gruffydd, I.D. (1972). *The Glacial Morphology of the Upper Usk Basin (South Wales) and its right-bank Tributaries*. Unpublished Ph.D. Thesis. University of London.

Elis-Gruffydd, I.D. (1977). Late Devensian glaciation in the Upper Usk Basin. *Cambria*. 4 46-55.

Humpage, A.J. (2007). Cross-valley moraine and sandur sediments, Nevill Hall. In: S.J. Carr, C.G. Coleman, A.J. Humpage and R.A. Shakesby (Eds). *Quaternary of the Brecon Beacons: Field Guide*. Quaternary Research Association, London.

Lewis, C.A. and Thomas, G.S.P. (2005) The Upper Wye and Usk Regions. In: C.A. Lewis and A.E. Richards (Eds). *The Glaciations of Wales and Adjacent Regions*. Logaston Press, Logaston, Herefordshire.

Thomas, G.S.P. (1997). Geomorphology of the Middle Usk valley. In: S.G Lewis and D. Maddy (Eds). *The Quaternary of the South Midlands and Welsh Marches: Field Guide*. Quaternary Research Association, London.

Thomas, G.S.P. and Humpage, A.J. (2007). The glacial geomorphology of the lower and middle Usk valley. In: S.J. Carr, C.G. Coleman, A.J. Humpage and R.A. Shakesby (Eds). *Quaternary of the Brecon Beacons: Field Guide*. Quaternary Research Association, London.

SECTION B

PRACTICAL CONSIDERATIONS:
Please score Accessibility and Safety Red Amber or Green

Accessibility:			X
Comment: Easily accessible where crossed by public rights of way allowing features to be viewed. Otherwise, permission will be required.			
Safety:			X
Riverside footpath is eroding in places			

Conservation status:

The cemented gravel section lies on the boundary of the Usk River SSSI, otherwise there are no other known conservation designations on this RIGS.

OWNERSHIP/PLANNING CONTROL:

Owner/tenant: Unknown / various

Planning Authority: Monmouthshire County Council

Planning status/constraints/opportunities: There are no known planning constraints or opportunities

CONDITION, USE & MANAGEMENT:

Present use: Farmland/ private woodland

Site condition: Good

Potential threats: Potential redevelopment of Nevill Hall hospital. River erosion of cemented gravels

Site Management: stabilisation of river channel and footpath may be required where cemented gravels are being eroded.

SITE DEVELOPMENT:

Potential use (general): detailed scientific research and geomorphological mapping, would benefit this site

Potential use (educational): Good accessible site to view section through morainic deposits

Other comments:

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Photographic Record

View looking north showing the section through the Nevill Hall moraine.

?Sheared sand and gravel in Nevill Hall moraine section.

Cemented coarse gravel fluvial-glacial outwash deposit upstream of Nevill Hall moraine.

Aerial photograph shewing the spread of abandoned channel features within the Holocene floodplain surface highlighted in red.