



## South Wales RIGS Group Site Record

### RIGS Description

**SECTION A**

General	South Wales
<b>Site Name:</b> FIBUA quarry and track section	<b>File Number:</b> Site_RAW_JRD_20
<b>RIGS Number:</b> 713	<b>Surveyed by:</b> RA Waters and J R Davies
<b>Grid Reference:</b> SN 8900 3938 to 8914 3932	<b>Date of Visit:</b> 27 <sup>th</sup> August 2007
<b>RIGS Category:</b> Scientific	<b>Date Registered:</b>
<b>Earth Science Category:</b> Stratigraphical, palaeontological, sedimentological	<b>Owner:</b> MoD/Army/SENTA <b>Planning Authority:</b> Powys County Council
<b>Site Nature:</b> Partly filled quarry and adjacent track section.	<b>Documentation prepared by:</b> R A Waters
<b>Unitary Authority:</b> Powys County Council	<b>Documentation last revised:</b>
<b>OS 1:50,000 Sheet:</b> 160	<b>Photographic Record:</b> Attached
<b>OS 1:25,000 Explorer Sheet:</b> 187	
<b>BGS 1:50,000 Sheet:</b> E213	
<p><b>RIGS Statement of Interest:</b></p> <p>The FIBUA quarry and track section is part of a network of sites demonstrating the evolution of the south-east margin of the Lower Palaeozoic Welsh Basin during the mid to late Silurian. It has been proposed as a RIGS as it provides a semi-continuous section through the mid -late Silurian succession in the south-western part of the Myddfai Steep Belt. Although it is situated on the MOD Sennybridge Training Area (SENTA), where access is restricted, it is considered a key site with unique features, for interpreting the stratigraphy, sedimentology and palaeontology of this time interval.</p> <p>The rocks present, the Cwm Graig ddu, Aberedw and Fibua formations, record a major lowering of sea level, followed by a major sea level rise. A bed of conglomerate at the base of the Fibua Formation is unique to the site and enables the succession to be correlated with that of the same age but of different facies, to the SW in the Sawdde gorge GCR site (Siveter 2000). Also present are a type of graptolite fossil, previously unknown from this interval, that aid the correlation of the succession.</p> <p>The site provides a key section for those interested in scientific research into the stratigraphy, palaeontology and sedimentology of the mid to late Silurian along the Myddfai Steep Belt., It is not considered suitable for students because of it location on SENTA.</p>	

### Geological setting/context:

FIBUA Quarry and track section is a semi-continuous section through the contact between the early and late Ludlow progradations along the middle part of the Myddfai Steep Belt (Barclay et al. 2005). The succession contrasts with that to the NE at Cwm Graig ddu (Schofield et al 2004) and that to the SW in the Sawdde gorge GCR site (Schofield et al 2009). Several features are unique to the site.

The following formations are present:

Fibua Formation	8 m +
Aberedw Formation	78 m
Cwm Graig ddu Formation	45 m+

The Cwm graig ddu Formation is exposed in scattered outcrops in the track leading to the quarry. It comprises thinly bedded sandstones and mudstones. The sandstones are burrowed and locally laminated and cross-laminated. The contact with the overlying Aberedw Formation is not seen.

The Aberedw Formation comprises thin to medium bedded platy, intensely bioturbated muddy sandstones and sandstones with shaly partings. Bedding planes are spaced at 1-10 cm intervals, but locally the formation is massive. Fragmentary brachiopod material is locally present. A few jointed parallel sided sheet sandstones up to 3 cm thick punctuate the succession.

The base of the Fibua Formation is defined by a 0.27 m-thick, poorly cemented, brown weathered, well sorted granule conglomerate. The clasts are mainly quartz with some acid volcanic and other igneous rocks. A very thin sandstone with shelly debris occurs in the upper part. The conglomerate is sharply overlain by grey silty mudstones with streaky laminae and thin beds of silt and sandstone up to 5 mm thick. The sandstones are locally to 1 cm thick and exhibit low amplitude ripples. One 5 cm-thick sandstone occurs about 4 m above the base. Scattered sand-filled vertical burrows are seen as are occasional small brachiopods. Also present are a few sub-mm anoxic laminated hemipelagites containing rare examples of the graptolite *Bohemograptus bohemicus* possibly suggesting the *Bohemograptus* proliferation interval of late Ludlow age.

The Cwm Graig ddu and Aberedw formations represents the upper part of the early Ludlow progradation. The former records the transition from mid ramp to distal shelf facies deposited by low concentration turbidites and storm-driven event beds, while the latter is the acme of the progradation, manifested by intensely burrowed mid shelf sandstones. The late Ludlow transgression is represented by the Fibua Formation with the resultant deepening seeing the re-introduction of mixed oxic/anoxic mid ramp mudstones. The basal conglomerate is probably an event bed recording the passage of the regression/transgression in an offshore setting.

## References:

BARCLAY, W J, DAVIES, J R, HUMPAGE, A J, WATERS, R A, WILBY, P R, WILLIAMS, M and WILSON, D. 2005. *Geology of the Brecon district - a brief explanation of the geological map. Sheet explanation of the British Geological Survey. 1:50 000 Sheet 213 Brecon (England and Wales).* (Keyworth, Nottingham: British Geological Survey).

SCHOFIELD, D I, DAVIES, J R, JONES, N S, LESLIE, A B, WATERS, R A, WILLIAMS, M, WILSON, D, VENUS, J, HILLIER, R D. 2009. *Geology of the Llandovery district – a brief explanation of the geological map. Sheet explanation of the British Geological Survey. 1:50 000 Sheet 212 Llandovery (England and Wales).*

SIVETER, D J. 2000. Sawdde Gorge. In Aldridge, R.J., Siveter, David J., Siveter, Derek J., Lane, P.D., Palmer, D. and Woodcock, N.H. (2000) *British Silurian Stratigraphy. Geological Conservation Review Series No. 19*, Joint Nature Conservation Committee, Peterborough.

**SECTION B**

<b>PRACTICAL CONSIDERATIONS:</b> Please score Accessibility and Safety Red Amber or Green			
<b>Accessibility:</b>		X	
Comment: Site is on the MOD Sennybridge Training Area (SENTA) and in Impact area which is subject to live firing. Access is only available on non firing days with SENTA permission.			
<b>Safety:</b>		X	
Comment: Access only allowed after MOD safety briefing.			
<b>Conservation status:</b> Unknown			

<b>OWNERSHIP/PLANNING CONTROL:</b> <b>Owner/tenant:</b> Ministry of Defence/Army/SENTA <b>Planning Authority:</b> Powys County Council <b>Planning status/constraints/opportunities:</b> Unknown
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<b>CONDITION, USE &amp; MANAGEMENT:</b> <b>Present use:</b> Disused quarry used as an Army rubbish dump which has now been largely filled and soiled over. Rest of site is a section on the access track to the quarry <b>Site condition:</b> Faces are low and quarry floor is free of vegetation. <b>Potential threats:</b> Further tipping by SENTA <b>Site Management:</b> Agreement should be sought from SENTA that the site is preserved as it is with no further tipping.
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<b>SITE DEVELOPMENT:</b> <b>Potential use (general):</b>  <b>Potential use (educational):</b> The site provides a key section for those interested in scientific research into the stratigraphy, palaeontology and sedimentology of the mid to late Silurian along the Myddfai Steep Belt. It is not considered suitable for students because of it location on SENTA.
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<b>Other comments:</b>
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## Photographic Record



General view of the quarry.



Junction between the Aberedw and Fibua formations with basal conglomerate at base of latter (by hammer head)



Platy bedded bioturbated sandstones of the Aberedw Formation



Thinly bedded silt and sand striped mudstones of the Fibua Formation