A.P.A.C. Ltd.

Archaeological Perspectives Analysis Consultancy

Watching Brief

HAFOD ARCH (CLYDACH RAILROAD)

WB/BRY/10

Prepared for:

Blaenau Gwent County Borough Council

By:

Dr. N Phillips (A.P.A.C. Ltd)

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Cover Photograph: DSCO1540 Completed south face.

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1 Non Technical Summary

In October 2010, Dr. N. Phillips of A.P.A.C. Ltd was contacted by Mr F Olding, Heritage Officer for Blaenau Gwent County Borough Council; in relation to proposed work to be undertaken at the Hafod Arch on the former Clydach railroad.

The proposed work was to be undertaken to repair and consolidate the arch; concern having been expressed as to its state of dilapidation. The cause of its disrepair was understood to be general weathering of the entire structure with particular concern being given to water ingress; especially in the area of the arch.

As the structure is a scheduled ancient monument, and the work would require invasive measures, Mr F Olding, identified the need for an archaeological watching brief to be carried out during excavation of the structure. In order for the proposal to progress Mr F Olding approached Dr N Phillips to provide archaeological watching brief cover during excavation work and this offer was accepted.

This report records the excavation work that was undertaken during the project. It also includes a description of an item of wood with two rail spikes still attached.

2 Introduction

2.1 Location and scope of work

The location of the site is north of the A465 Heads of the Valley Road, just east of Brynmawr, at the top of the Clydach Gorge. The site; Hafod Arch on the Clydach railroad; known locally as the 'dram road', is listed Cadw Ref: MM263 (BLG) and located at Grid Ref: 3202 2122, fig 01.

The Clydach railroad is cut into the rock face on its northern, uphill side, Plate 01 and embanked along its southern, downhill edge. Where it crosses the gully cut by the Nantmelyn stream, it is carried on a stone revetted causeway pierced by the Hafod Arch and a smaller storm arch, fig 02, Plate 02.

The causeway was constructed of rough dressed sandstone blocks with an earth and rubble infill. Plate 03 shows a 560mm deep section along the west edge during the excavation of the relief drainage channel, fig03.

> The causeway also has some dressed quoins and voussoirs and patches of dressed replacement stone. The bed of the tramroad is grassed over, and it is not certain whether any sleepers or rails may survive below ground. The parapets to the causeway are in cock and hen construction,' (BG 005).

The Hafod Arch is towards the eastern edge of a raised causeway. The north edge of the causeway carries a later, cast iron service pipe on raised brick towers, Plate 04. Construction of these later towers had an impact on the arch possibly requiring alterations and repairs to be made. Plate 05, 00003 (AH) shows a set of steel lintels bridging a narrowed arch on the north side. The lintels were removed during consolidation work and not replaced, Plate 01.

The initially proposed work would involve excavation of an area of the former track bed, directly overlying the Hafod Arch, on the former Clydach railroad. The excavation, to the depth of the arch top, would be undertaken to consolidate the fill above the arch, which was suspected to have weakened due to water ingress; thereby threatening the arch itself.

Further initial work was suggested on the 24th November 2010, following a site visit by Mr A Hallum (Capita Symonds), consultants for the work, (email Hallum 25/11/2010). The further work involved excavation of a drainage ditch across the track bed to the west of the causeway, in order to stem the water flowing to the arch top, Plate 06.

The groundwork involved in this watching brief consisted of excavation using a small tracked mechanical digger.

2.2 Geology and topography

The geology of the area is exposed to dramatic effect by the River Clydach as it cuts a steep and narrow gorge west/east, from the South Wales Coal Plateau at Brynmawr to the fertile Usk valley at Gilwern. On route, it exposes coal measures, clay beds and ironstone before eroding its way deeply through the carboniferous limestone beneath.

The site itself runs across a side gully to the main gorge where the Nantmelyn stream has cut through the ironstone sequence, Plate 07.

3 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

3.1 Archaeological and historical background

Both the geology and topography of this area can probably account for the human interest it has attracted. This is certainly the case from the period of the industrial revolution, although, there is evidence of earlier human impact such as various cairns or the Iron Age presence indicated by the forts of Craig y Gaer to the north of the gorge and possibly, Dinas, to the east.

Documentary evidence of industrial exploitation in the gorge dates from 1606 with the Hanburys of Pontypool establishing, amongst their other interests; The Clydach Furnace, a few hundred metres E (Rees. 268. 1968). It is however, possible that Hanbury had established a furnace in the area by 1590 (ibid).

Industrial interest certainly focused on the exposed stratigraphy of coal, clay, ironstone and limestone, (BGS 1990), supplemented by the availability of exploitable power provided by the River Clydach and the tree clad slopes of the gorge

Topographically, the steepness of the gorge provided an advantage to the early ironworking and lime-burning industries, in that blast furnaces and lime kilns could be efficiently built into the valley sides, ‘facilitating the charging of materials from above and their withdrawal from below’ (Parry 2008).

Today the gorge is the focus of an important communication route as evidenced by the expansion works currently in progress on the A465 Heads of the Valley road. Earlier evidence of the exploitation of this route can be seen from the Merthyr, Tredegar and Abergavenny Railway 1862, tram roads and inclines dating from the 18th century, which cut into, and precipitously tower over, the gorge.

> The Clydach Railroad was built under powers provided by the Brecknock and Abergavenny Canal Act, and connected coal and iron ore mines, limestone quarries and ironworks at the head of the Clydach Gorge with the canal at Gilwern. It was designed by the canal company engineer, John Dadford. Work began in 1793 and was completed in the following year. It was constructed with a gentle gradient for the whole length of the Gorge, so that waggons could descend by gravity with brakes and be hauled back by horses. This was distinctive from tramroads built shortly afterwards which had level

sections linked by inclined planes. Iron edge rails were used, on both iron and wooden sleepers, (BG 005).

The railroad fell out of use gradually during the middle of the nineteenth century as traffic went instead by the Monmouthshire Canal's tramroads to the south. The tramroad probably closed in the 1860s. (ibid.).

4 Aims and Objectives

4.1 Watching Brief

The aim of the watching brief was to preserve by record, within the resources available, any archaeological deposits uncovered during groundwork.

The watching brief would also ensure that: in the event of archaeological resources of significance, being discovered and requiring treatment beyond the remit of the watching brief; then steps would be implemented to ensure that their treatment would be undertaken within the standards recommended by the IFA.

4.2 Watching Brief Methodology

Fieldwork

Groundwork at the site entailed two periods of excavation. The first on the 30th of November 2010 involved the excavation of a 600mm wide trench across the western end of the causeway in order to provide drainage away from the arch, fig 02, Plate 06.

The second period of groundwork took place over two days, 26th & 27th July 2011 and involved the excavation of the material directly on top of the arch; in order to access the fabric of the arch for consolidation, fig 03, Plate 08.

During both instances of fieldwork, the watching brief consisted of an archaeological fieldworker being present during groundwork at the site.

All excavation was undertaken with a small tracked mechanical digger operated by an employee of Grosvenor Construction, contractors appointed by Capita Symonds.

During excavation, the stratigraphic record and initial contexts were noted, with a brief description given where appropriate, Appendix 1.

A location survey of the second excavation was made using a Topcon GPT 3007, Reflectorless Total station fig 03. The data collected was linked to the standing structure for a local datum which allowed it to be used with the plans drawn up by Plowman Craven & Associates: supplied by Mr A Hallum.

The site was photographed at various stages to provide a record of the work. All photographs taken have been given a unique number and listed in the appendix of this report, Appendix 2.

Two complete sets of the photographs have been included in the archive: 1 set annotated 1 set original format.

Finds excavated, were collected and retained by the archaeologist, Appendix 3.

4.3 Watching Brief Results

Soils and ground conditions

The site and weather conditions for the first phase of excavation were very poor with heavy snowfall and extreme cold. The cold had been present for a few weeks prior to the work and the ground was frozen quite solidly. Lighting was also poor as regards photography.

In contrast, the second phase was blessed with very hot dry weather which made the work much more productive. Unfortunately, photographic recording was now affected by very bright sunlight and associated shadows across the restricted field of excavation.

Description

Brackets: [ ] *within the text denote a context number which can be cross-referenced in Appendix 1.*

Trench 1

The first trench showed; as was expected, that the general stratigraphy over the site was one of redistributed layers. Although there was a suggestion of different construction, events visible from the various deposit layers, contexts [101] – [106], fig 03, Plate 03. With the exception of the upper tarmac, context [100], it probable that the layers merely record different sources of fill material during construction, rather than different periods of construction. In the stratigraphic matrix, appendix 1a the contexts [101]-[106] have been shown to be contemporary.

The southern edge of trench 1 abutted the revetment wall of the causeway, context [107], fig 03, Plate 09. As the revetment wall supports and contains the fills, contexts [101] – [106] it must obviously predate the later albeit during the same construction period.

Context [108] is made up of a single dressed stone within the line of the southern revetment, fig 02, Plate 10. As stone [108] was beneath the limit of the excavation, it was not possible to further investigate its purpose.

Trench 2

Within the second trench, there was a different sequence across the majority of the excavation, with a large expanse of concrete revealed over the arch section. The concrete did not however extend the full width of the causeway, fig 04, Plate 11. The north edge of the trench revealed a uniform rubble fill on top of the arch fabric [112], whereas the south edge included more humic material [109], [110], [113] and [114], figs 04 & 05, Plates 12, 13 & 14. It was not possible to reach context [112] along the southern half of the track bed because the area was covered by an earlier repair in the form of a concrete platform [111], fig 04 Plate 15.

Along the south edge of the track way; west of the concrete platform and extending beyond the limit of the trench, was a beam of wood [109]. The wood was situated under a deposit of dark grey sandy soil [113] which yielded the only ceramics from the site: two sherds of 20th c domestic china.

The beam, fig 05 Plates 16 &17 was in a very poor state; completely saturated and very soft, becoming fibrous; its form almost entirely dependent on the surrounding soil, for shape. The exposed length measured just less than 1 metre in length with a width of 0.2m and a thickness of 0.13m. The wood had two identifiable, tooled slots passing right through the thickness. Three other holes may have been tooled but their irregular shape put into question their form.

The beam had 6 wooden dowels of varying diameter which also passed through the beam. The dowels were retained finds bag 02.

The beam also had two machine made iron rail spikes Plates 18 & 19, one of which was retained as find 01. The spikes measure 0.144m/5 inch in length. They are square section at 0.017m/$^{5/8}$ inch and tapered from one side only to form the point. A head has been formed by folding the shaft over 0.039m x 0.029m. The folded head is then used to tie the rail in place.

A further square section cut nail was recorded close to the two large versions but going into the beam from the side. Plate 20 *annotated*. The third nail had a smaller cross section at 0.005m, not retained.

The beam itself sat partially on a ledge of yellow mortar [110], figs 04 & 05. The mortar layer can be seen in Plates 14 and 21 with a similar example on the north wall, Plate 11. It was assumed that this layer was cut through [115], at some time in the past to put in the concrete platform [111].

The platform itself [111] figs 04 & 05, Plates 11 & 15 did not extend over the full width of the track stopping some 2.6m shorts of the north revetment wall. Excavation in the un-concreted area north uncovered [112] the top of the barrelling for the arch.

One other context [114] fig 05, Plates 13 & 14 was found under [110]. This lens of burnt material was only present in a narrow area along wall [107] but extended beyond the excavation; west. The lens of material was also on top of [106] which was the only recognisable context from trench 1 apart from the walls [107].

5 Discussion and Interpretation

5.1 Reliability of field investigation

Removal of the surface [100] from the site was undertaken prior to the start of the watching brief on trench 2. However, judging by the disturbance found during excavation, resulting from earlier intrusions; possibly relating to the service pillars, probably little of value had been left.

In addition, the extreme difference in lighting and ground condition made it particularly difficult to match the deposition sequence across both trenches, making any colour comparison severely compromised. That said, the differing textures and fills from both trenches showed little sign of contemporaneity above the [106] context.

Of the parts of the excavation that did, impact on undisturbed soils, there was no evidence of any archaeological resources present.

5.2 Overall interpretation

The watching brief recorded very little in the way of significant archaeological resources during this watching brief. One possible exception being the beam of wood; which although probably not in situ, may have been discarded during the repair work involving the construction of the concrete platform. Its position, in relatively recent deposit [113] against the wall [107] would tend to support this interpretation.

It is probable that the beam may have been one of the railroad sleepers. The rail spike is clearly identifiable as a type produced today by the firm Glasgow Steel Nail, for use on heritage rail products. The modern version of this type of cut nail; ‘Clyde Rail Spike’ has been produced by machine for over 200 years.

6 Acknowledgements

Thanks to the staff of Grovesnor Construction, Andy Hallum of Capita Symonds and Frank Olding of Blaenau Gwent County Borough CouncilHeritage for their assistance..

7 Bibliography and references

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Rees, W., 1968 *Industry Before the Industrial Revolution.* University of Wales Press. V1.

Standard and Guidance for an archaeological Watching Brief (IFA 2001).

ARCHIVE COVER SHEET

Site Name:	Hafod Arch, Brynmawr
Site Code:	WB/BRY/10
PRN:	-
NPRN :	-
SAM:	MM263 (BLG)
Other Ref No:	A.P.A.C. Ltd Report No. 122
NGR:	S0 202 122
Site Type:	Industrial
Project Type:	Watching Brief
Project Officer:	Neil Phillips
Project Dates:	November 2010 – August 2011
Categories Present:	N/A
Location of Original Archive:	A.P.A.C. Ltd
Location of duplicate Archives:	Brynmawr Museum
Number of Finds Boxes:	1
Location of Finds:	Brynmawr Museum
Museum Reference:	#####
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Restrictions to access:	None

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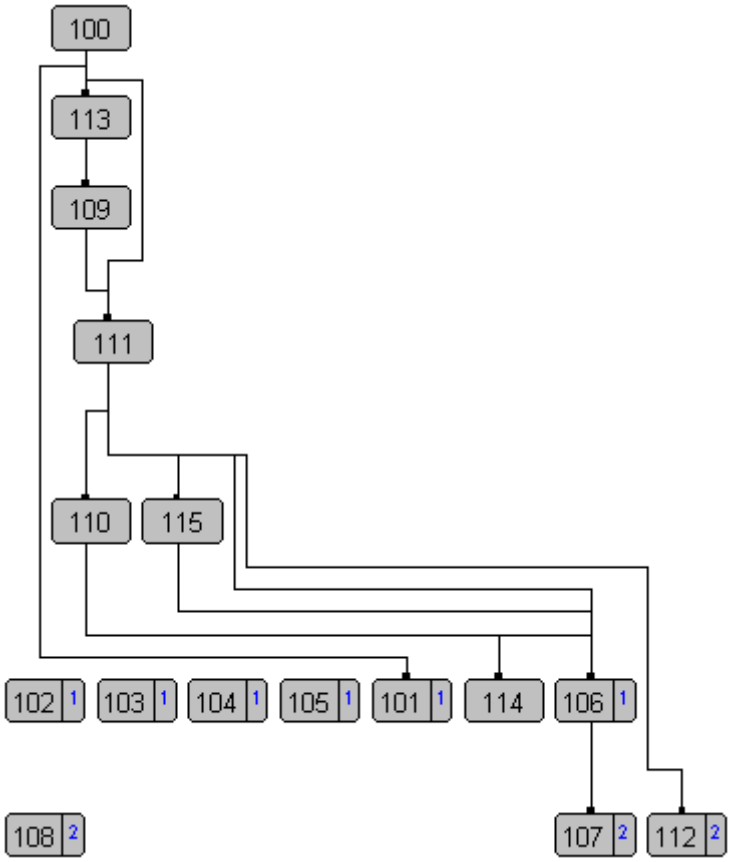
Site: Hafod Arch Clydach Railroad		Grid Ref: 32022122		Site No: WB/BRY/10	Alternate No:	
CONTEXT	AREA	FEATURE	DESCRIPTION	FINDS	PHOTOGRAPHS	
100	T1	Surface	Tarmac, surviving only around trench 1	0	DSC09631, DSC09634,	
101	T1	Deposit	Grey sandy loam with large amount of small, angular stone. 0.1m thickness	0	DSC09628, DSC09631, DSC09632, DSC06634,	
102	T1	Deposit	Orange sand with larger angular rocks. Thickness varies; 0.02-0.18m	0	DSC09628, DSC09631, DSC09632, DSC06634	
103	T1	Deposit	Black ferrous sand with small angular rock. Thickness varies from0.03-0.2m	0	DSC09628, DSC09631, DSC09632, DSC06634	
104	T1	Deposit	Lens of red coarse sand/gravel	0	DSC09628, DSC09631, DSC09632, DSC06634	
105	T1	Deposit	Brown sand/silt with large angular yellow limestone rocks, Lens	0	DSC09628, DSC09631, DSC09632, DSC06634	
106	T1& T2	Deposit	Coarse gravel/sand with large amount of dark grey/black angular stone. Thickness 0.2m	0	DSC09628, DSC09631, DSC09632, DSC06634, DSC00137, DSC01302, DSC01325, DSC01326, DSC01327, DSC01328, DSC01329, DSC01330, DSC01331, DSC01332, DSC01333, DSC01334,	
107	T1& T2	Structure	Embankment walls	0	DSC01306, DSC01307, DSC01308, DSC01309, DSC01310, DSC01311, DSC01312, DSC01313, DSC01314, DSC01315, DSC01316, DSC01317, DSC01318, DSC01319, DSC01325, DSC01326, DSC01327, DSC01328, DSC01329, DSC01330, DSC01541, DSC01542, DSC01543,	
108	T2	Structure?	2 Large angular rocks. Possibly structural	0	DSC09628, DSC09629, DSC09630, DSC09633,	
109	T2	Structure?	Wooden beam	1&2	DSC01301, DSC01302, DSC01303, DSC01304, DSC01305, DSC01306, DSC01307, DSC01308, DSC01309, DSC01310, DSC01311, DSC01312, DSC01313, DSC01314, DSC01315, DSC01316, DSC01317, DSC01318, DSC01319, DSC01321, DSC01322, DSC01323, DSC01324, IMGP0473, IMGP0472	
110	T2	Structure	Yellow mortared layer. < 0.25 beneath presumed tarmac surface.	0	DSC01325, DSC01327, DSC01329, DSC01330, DSC01333	
111	T2	Concrete	Concrete floor 3.6m x 2m x 0.4m. 2.6m from north embankment wall.	0	DSC01325, DSC01330, DSC01332, DSC01333	
112	T2	Structure	Squared stone blocks on end, forming the barrel of the arch	0	DSC01330, DSC01331, DSC01332, DSC01333	
113	T2	Deposit	Dark grey sandy soil, between [109] and [107]	3	DSC01310, DSC01311, DSC01312, DSC01313, DSC01321, DSC01322, DSC01323, DSC01324,	
114	T2	Deposit	Grainy residue of ash and charcoal	0	DSC01321, DSC01322, DSC01323, DSC01324,	
115	T2	Cut	Cut for work to lay 111			


100
113
109
111
110
115
102 1
103 1
104 1
105 1
101 1
114
106 1
108 2
107 2
112 2

Appendix 2

Digital Photographic Record

Photo No	Date	Time	Camera	File	Size	MB	Area	View	Description	Figure
DSC09624	30/11/2010	10.07	DSC-F828	Jpg	2592x1944	2.1	TR1	E	Beginning of excavation work, Trench 1	
DSC09625	30/11/2010	10.07	DSC-F828	Jpg	2592x1944	2.2	TR1	N	View from the arch towards the Nanymelyn cut.	Fig 02
DSC09626	30/11/2010	10.07	DSC-F828	Jpg	2592x1944	2.3	TR1	W	Beginning of excavation work, Trench 1	Fig 03
DSC09627	30/11/2010	1024	DSC-F828	Jpg	2592x1944	2.1	TR1	W	South part of TR1 at final depth. Ground frozen	Fig 03
DSC09628	30/11/2010	10.3	DSC-F828	Jpg	2592x1944	2.3	TR1	S	Buried section of south retaining wall in trench	Fig 03
DSC09629	30/11/2010	10.3	DSC-F828	Jpg	2592x1944	2.2	TR1	V	Buried section of south retaining wall in trench vertical 1	Fig 03
DSC09630	30/11/2010	10.31	DSC-F828	Jpg	2592x1944	2.2	TR1	V	Buried section of south retaining wall in trench vertical 2	Fig 03
DSC09631	30/11/2010	10.31	DSC-F828	Jpg	2592x1944	2.3	TR1	W	Section 1	Fig 03
DSC09632	30/11/2010	10.31	DSC-F828	Jpg	2592x1944	2.3	TR1	W	Section 2	Fig 03
DSC09633	30/11/2010	10.37	DSC-F828	Jpg	2592x1944	2.3	TR1	V	Buried section of south retaining wall in trench vertical 3	Fig 03
DSC09634	30/11/2010	11.1	DSC-F828	Jpg	2592x1944	2.3	TR1	W	Section 1	Fig 03
DSC09635	30/11/2010	11.1	DSC-F828	Jpg	1944x2592	2.2	TR1	S	View across finished trench, water logging	Fig 03
DSC09636	30/11/2010	11.15	DSC-F828	Jpg	2592x1944	2.1	TR1	V	Parts of the revetment wall removed for drainage from trench 1	
DSC09637	30/11/2010	11.27	DSC-F828	Jpg	2592x1944	2.3	TR1	N	View from the Heads of the Valley 1	
DSC09638	30/11/2010	11.27	DSC-F828	Jpg	2592x1944	2.3	TR1	N	View from the Heads of the Valley 2	
DSC01296	26/07/2011	7.36	DSC-F828	RAW	3264x2448	17	TR2	SW	Initial clearing over the arch. Tarmac already removed	Fig 04
DSC01297	26/07/2011	7.37	DSC-F828	RAW	3264x2448	17	TR2	W	Initial clearing over the arch. Top of concrete [111]	Fig 04
DSC01298	26/07/2011	7.37	DSC-F828	RAW	3264x2448	17	Site	SW	Overview, showing reconstruction of northern revetment	Figs 02 & 04
DSC01299	26/07/2011	7.38	DSC-F828	RAW	3264x2448	17	Site	N	Nantmelyn cut through the ironstone	Fig 02
DSC01300	26/07/2011	7.38	DSC-F828	RAW	3264x2448	17	TR2	W	Secondary clearing over the arch.	Fig 04
DSC01301	26/07/2011	9.26	DSC-F828	RAW	3264x2448	17	TR2	V	Sequence 1 Beam [109]	Figs 04 & 05
DSC01302	26/07/2011	9.26	DSC-F828	RAW	3264x2448	17	TR2	V	Sequence 2 Beam [109]	Figs 04 & 05
DSC01303	26/07/2011	9.26	DSC-F828	RAW	3264x2448	17	TR2	V	Sequence 3 Beam [109]	Figs 04 & 05
DSC01304	26/07/2011	9.27	DSC-F828	RAW	3264x2448	17	TR2	V	Sequence 4 Beam [109]	Figs 04 & 05
DSC01305	26/07/2011	9.27	DSC-F828	RAW	3264x2448	17	TR2	V	Sequence 5 Beam [109]	Figs 04 & 05
DSC01306	26/07/2011	9.28	DSC-F828	RAW	3264x2448	17	TR2	S	Beam [109] measured photograph 1	Figs 04 & 05
DSC01307	26/07/2011	9.28	DSC-F828	RAW	3264x2448	17	TR2	S	Beam [109] measured photograph 2	Figs 04 & 05
DSC01308	26/07/2011	9.28	DSC-F828	RAW	3264x2448	17	TR2	S	Beam [109] measured photograph 3	Figs 04 & 05
DSC01309	26/07/2011	9.29	DSC-F828	RAW	3264x2448	17	TR2	S	Beam [109] measured photograph 4	Figs 04 & 05
DSC01310	26/07/2011	9.3	DSC-F828	RAW	3264x2448	17	TR2	S	Beam [109] measured photograph 1a	Figs 04 & 05
DSC01311	26/07/2011	9.3	DSC-F828	RAW	3264x2448	17	TR2	S	Beam [109] measured photograph 2a	Figs 04 & 05

Digital Photographic Record

DSC01312	26/07/2011	9.31	DSC-F828	RAW	3264x2448	17	TR2	S	Beam [109] measured photograph 3a	Figs 04 & 05
DSC01313	26/07/2011	9.31	DSC-F828	RAW	3264x2448	17	TR2	S	Beam [109] measured photograph 4a	Figs 04 & 05
DSC01314	26/07/2011	9.32	DSC-F828	RAW	3264x2448	17	TR2	W	Beam [109] measured photograph \full length	Figs 04 & 05
DSC01315	26/07/2011	9.32	DSC-F828	RAW	3264x2448	17	TR2	W	Beam [109] measured photograph detail of iron rail spikes	Figs 04 & 05
DSC01317	26/07/2011	9.33	DSC-F828	RAW	3264x2448	17	TR2	W	Excavation second cut trench 2 overview	Figs 04 & 05
DSC01318	26/07/2011	9.59	DSC-F828	RAW	3264x2448	17	TR2	S	Beam [109] Sequence 1 detail of thickness	Figs 04 & 05
DSC01319	26/07/2011	9.59	DSC-F828	RAW	3264x2448	17	TR2	S	Beam [109] Sequence 1 detail of thickness (flash used)	Figs 04 & 05
DSC01320	26/07/2011	11.09	DSC-F828	RAW	3264x2448	17	TR2	NE	Arch clearing with hand tools	Figs 04 & 05
DSC01321	26/07/2011	11.46	DSC-F828	RAW	3264x2448	17	TR2	W	Section with beam [109] removed. Remains still in section	Fig 05
DSC01322	26/07/2011	11.46	DSC-F828	RAW	3264x2448	17	TR2	W	Section with beam [109] removed. Remains still in section (flash used)	Fig 05
DSC01323	26/07/2011	11.48	DSC-F828	RAW	3264x2448	17	TR2	W	Section with beam [109] removed. Remains still in section cleared (flash used)	Fig 05
DSC01324	26/07/2011	11.48	DSC-F828	RAW	3264x2448	17	TR2	W	Section with beam [109] removed. Remains still in section cleared	Fig 05
DSC01325	26/07/2011	14.13	DSC-F828	RAW	3264x2448	17	TR2	S	Concrete [111] exposed	Figs 04 & 05
DSC01326	26/07/2011	14.13	DSC-F828	RAW	3264x2448	17	TR2	S	View of south wall [107] with [110] yellow mortar and possible [108]	Figs 04 & 05
DSC01327	26/07/2011	14.14	DSC-F828	RAW	3264x2448	17	TR2	SW	Overview of south wall of TR2	Figs 04 & 05
DSC01328	26/07/2011	14.15	DSC-F828	RAW	3264x2448	17	TR2	W	Detail of SW corner of TR2. [110], with [109] removed	Figs 04 & 05
DSC01329	26/07/2011	14.58	DSC-F828	RAW	3264x2448	17	TR2	N	View over TR2 showing concrete [111] and arch top [112]	Figs 04 & 05
DSC01330	26/07/2011	14.59	DSC-F828	RAW	3264x2448	17	TR2	N	Detail TR2 showing concrete [111] , arch top [112] and [110]	Figs 04 & 05
DSC01331	27/07/2011	8.48	DSC-F828	RAW	3264x2448	17	TR2	V	Detail of [112] after clearing 1	Figs 04 & 05
DSC01332	27/07/2011	8.49	DSC-F828	RAW	3264x2448	17	TR2	E	Detail of [112] after clearing 2	Figs 04 & 05
DSC01333	27/07/2011	8.49	DSC-F828	RAW	3264x2448	17	TR2	W	Detail of [112] after clearing 3	Figs 04 & 05
DSC01335	27/07/2011	9.34	DSC-F828	RAW	3264x2448	17	TR2	S	View under the arch	Fig 02
DSC01336	27/07/2011	9.34	DSC-F828	RAW	3264x2448	17	Site	S	View under the arch showing butt joint	Fig 02
DSC01337	27/07/2011	9.35	DSC-F828	Jpg	2592x1944	17	Site	S	View under the arch showing step joint north east side	Fig 02
DSC01539	20/08/2011	8.4	DSC-F828	Jpg	2592x1944	3.4	Site	W	View along track to the west of the bridge	Fig 02
DSC01540	20/08/2011	8.4	DSC-F828	Jpg	2592x1944	3.5	Site	E	View along track, east over the bridge	Fig 02
DSC01541	20/08/2011	8.43	DSC-F828	Jpg	2592x1944	3.6	Site	W	View over south revetment showing Hafod arch and storm arch	Fig 02
DSC01542	20/08/2011	8.45	DSC-F828	Jpg	2592x1944	3.6	Site	S	View over north revetment showing Hafod arch	Fig 02
DSC01543	20/08/2011	8.49	DSC-F828	Jpg	2592x1944	3.7	Site	S	Northern side of Hafod arch showing butt to rock face and finished work	Fig 02
DSC01544	20/08/2011	8.49	DSC-F828	Jpg	1944x2592	3.7	Site	S	Northern side of Hafod arch showing butt to rock face and finished work Detail	Fig 02
IMGP0472	24/08/2011	17.49	WG7	Jpg	2592x1944	1.2	Find 1	V	Iron rail spike from [109] view 1	
IMGP0473	24/08/2011	17.49	WG7	Jpg	2592x1944	1.2	Find 1	V	Iron rail spike from [109] view 2	

Hafod Arch, Clydach Railroad		Grid Ref: 3202 2122	Site No:	Alternate No:	Site No: WB/BRY/11	
Find no:	Area	Context	Description		Init	Date
1	TR1	109	1 iron nail, 0.14m long with folded head and square section shaft. The shaft is .016 wide and tapered on two sides towards the point. The head measures 0.04m x 0.03m Photographs : IMGP0472 & IMGP4703		NP	27/07/2011
2	TR1	109	6 wooden dowels taken from wooden beam [109]. The dowels had no obvious purpose		NP	27/07/2011
3	TR1	113	Two small sherds of china. 1 cup 1 plate 20th c		NP	27/07/2011

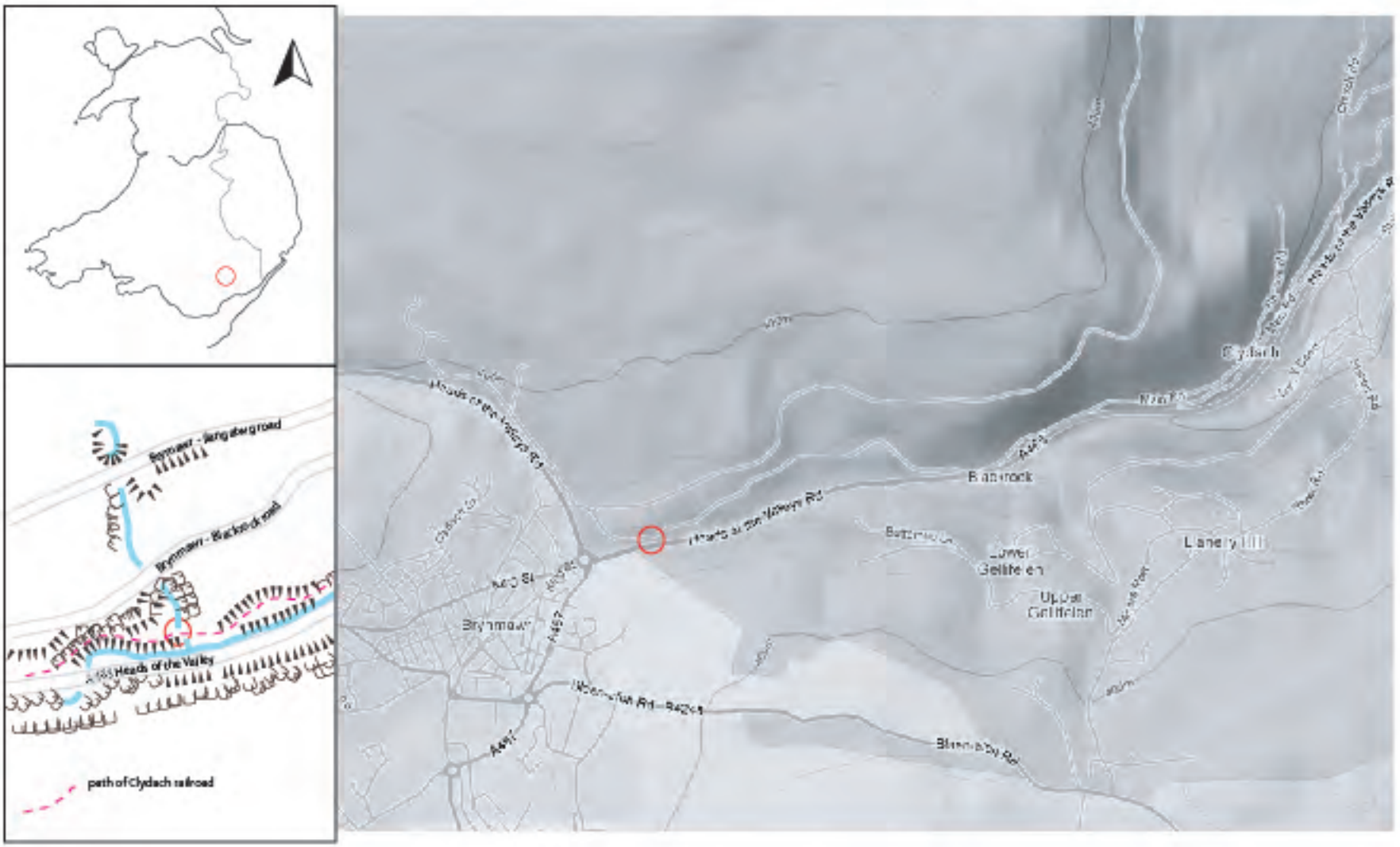


Fig 01: Location

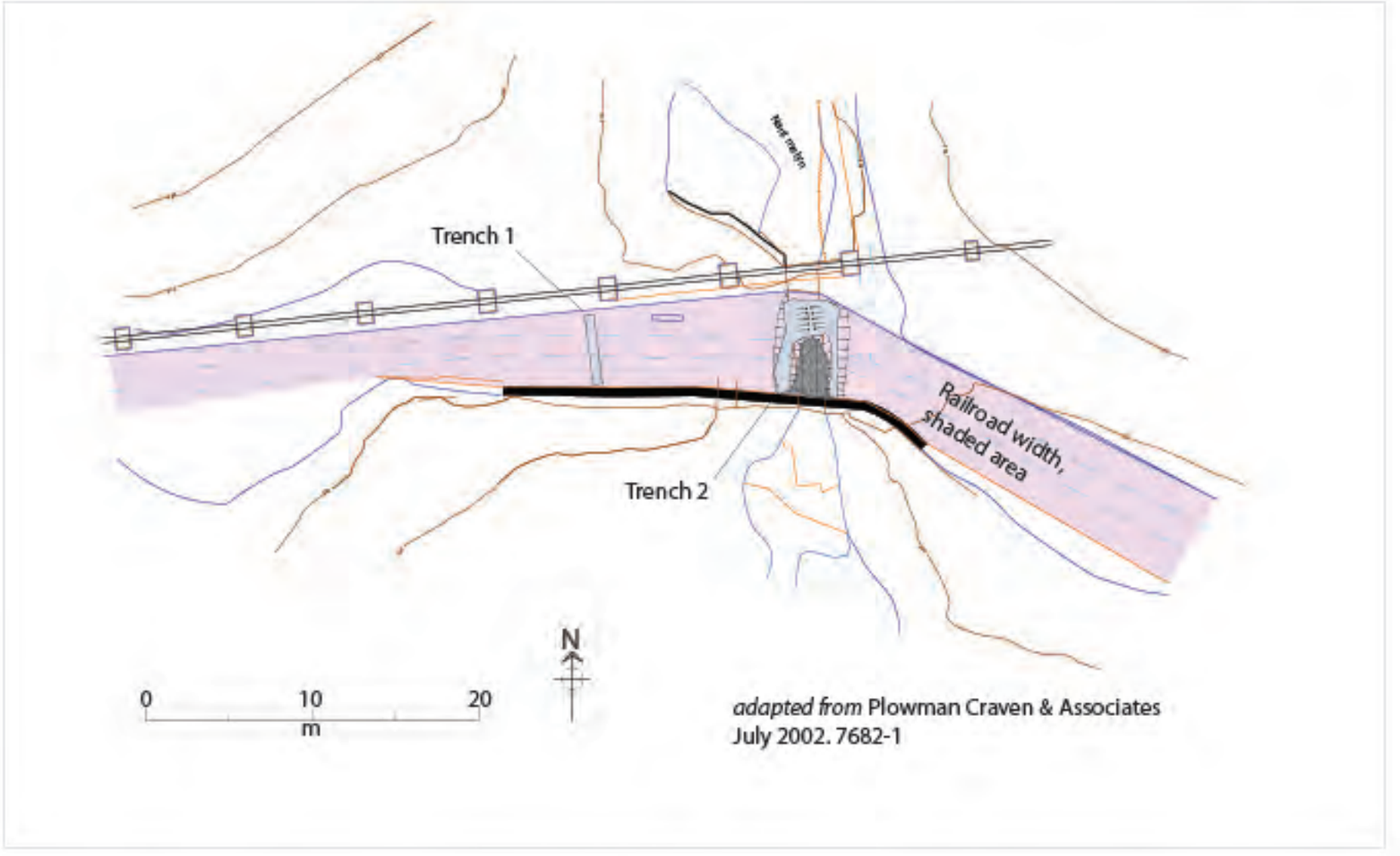
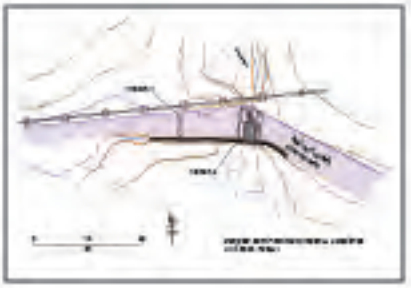
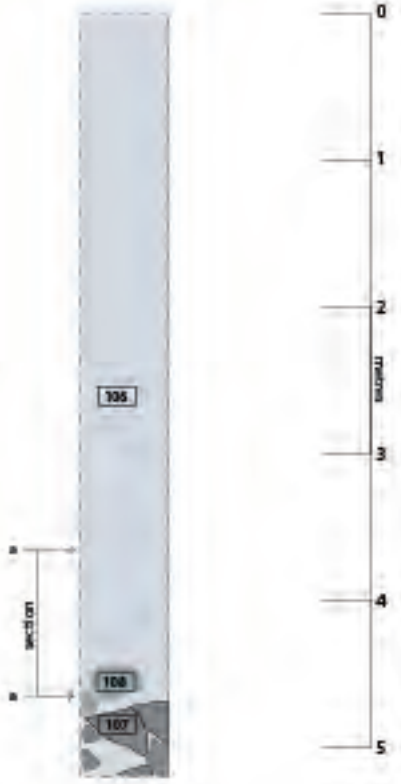


Fig 02: Trench layout



Plan view



1 metre section, west edge

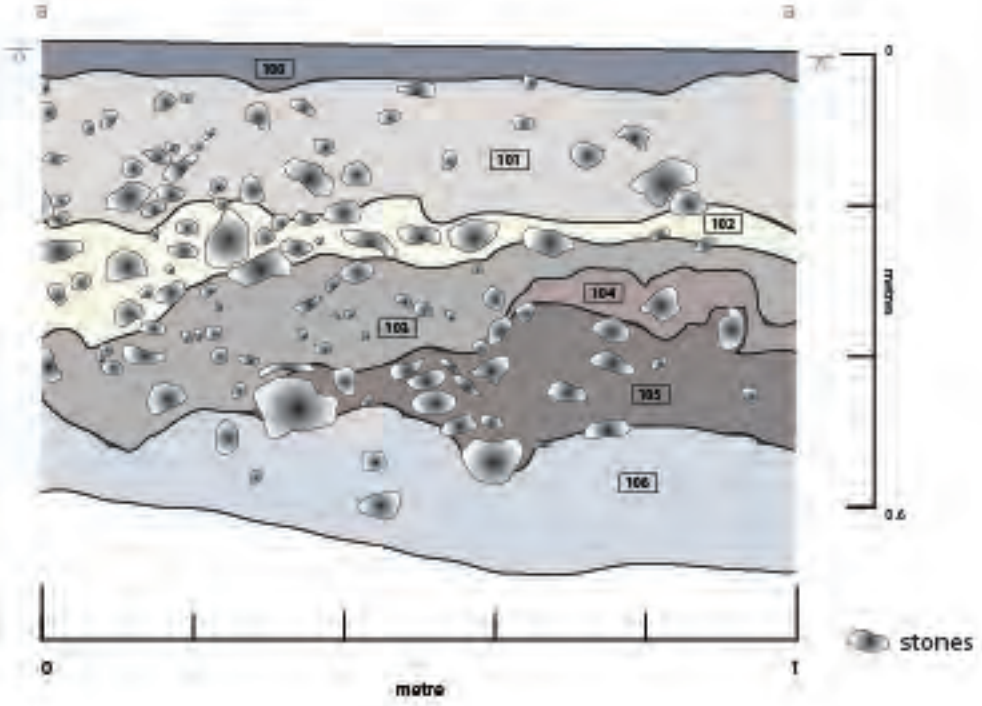
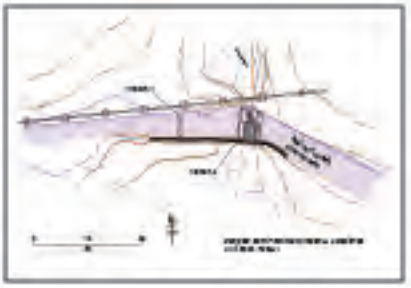


Fig 03: Trench 1



Plan view
5.2 x 6.3 metre

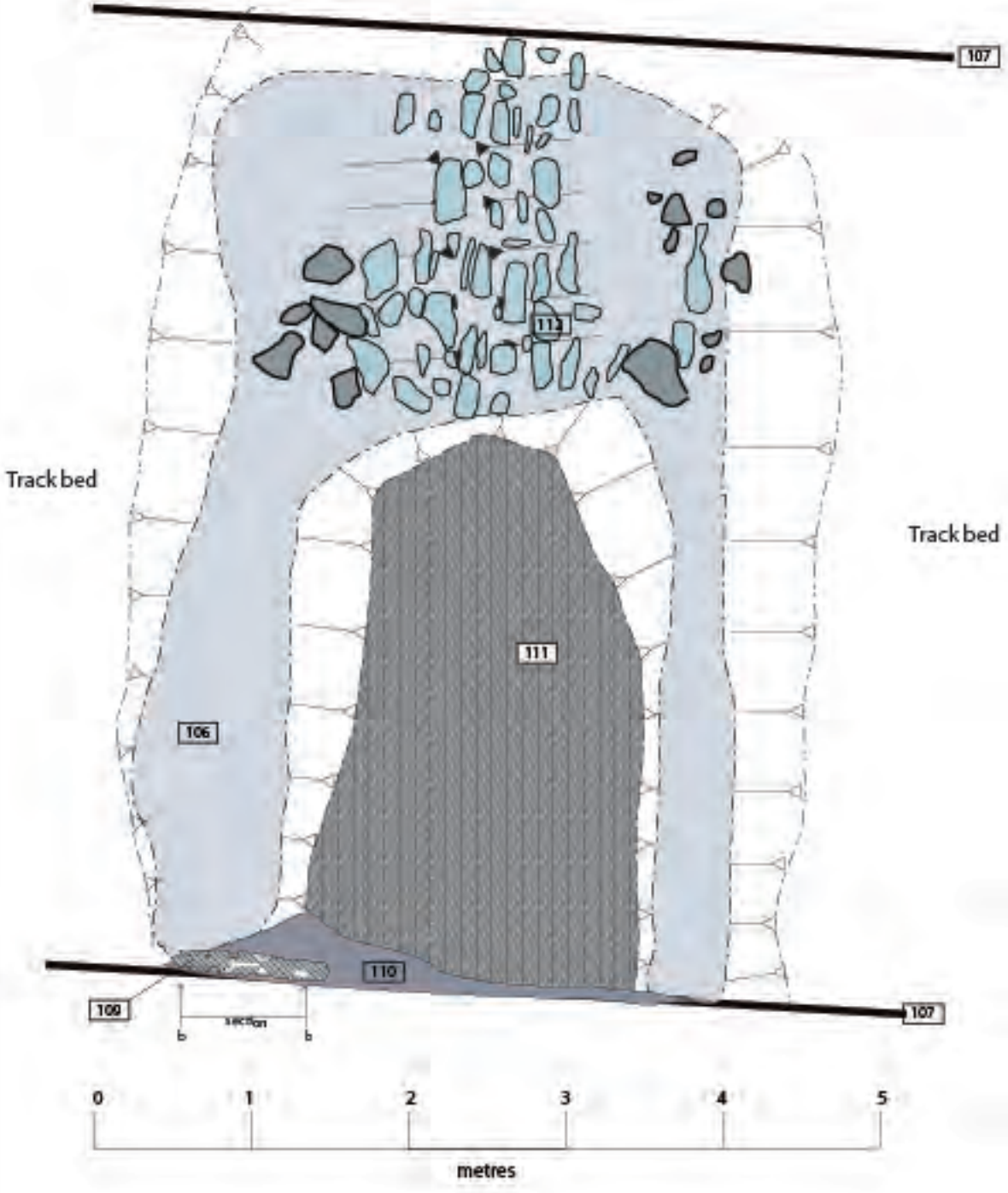
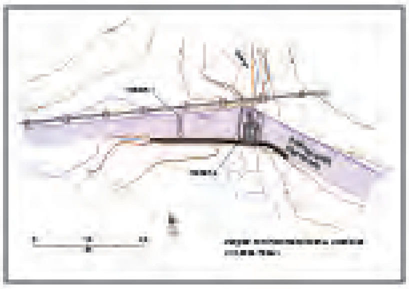


Fig 04: Trench 2



1 metre section, west edge

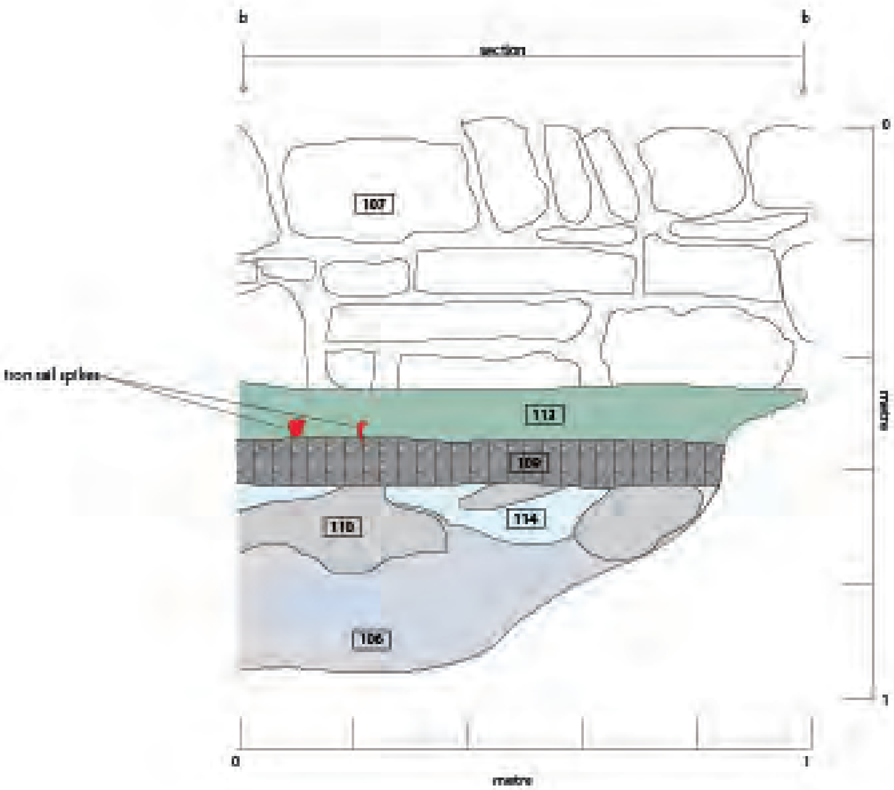


Fig 05: Trench 2

Plate 01: Northern side of Hafod arch showing butt to rock face and finished work

Plate 02: View over south revetment showing Hafod arch and storm arch

Plate 03: Section 1

Plate 04: Beginning of excavation work, Trench 1

Plate 05: Earlier repair, Metal lintels.

Plate 06: Nantmelyn cut through the ironstone

Plate 07: View across finished trench, water logging

Plate 08: Excavation second cut trench 2 overview

Plate 09: Buried section of south retaining wall in trench

Plate 10: Buried section of south retaining wall in trench vertical 2

Plate 11: View over TR2 showing concrete [111] and arch top [112]

Plate 12: Beam [109] Sequence 1 detail of thickness

Plate 13: Section with beam [109] removed. Remains still in section cleared

Plate 14: Detail of SW corner of TR2. [110], with [109] removed

Plate 15: Concrete [111] exposed

Wooden beam/sleeper

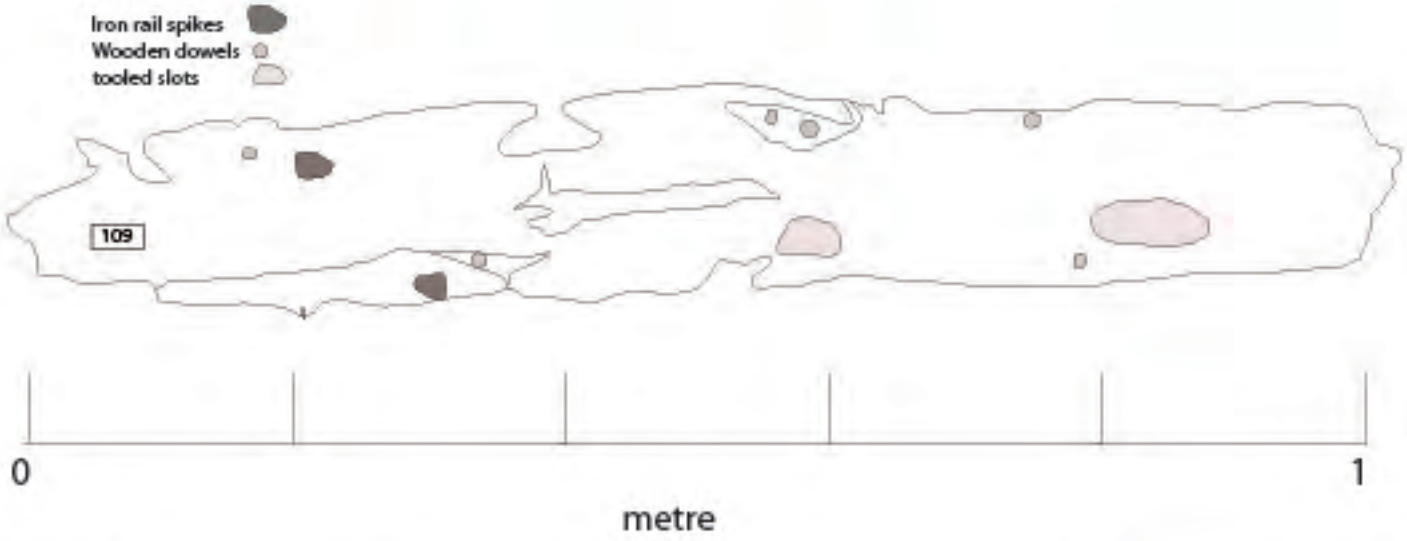


Plate 16: Beam [109]. Composite image

Plate 17: Beam [109] Sequence 1 detail of thickness (flash used)

Plate 18: Iron rail spike from [109] view 1

Plate 19: Iron rail spike from [109] view 2

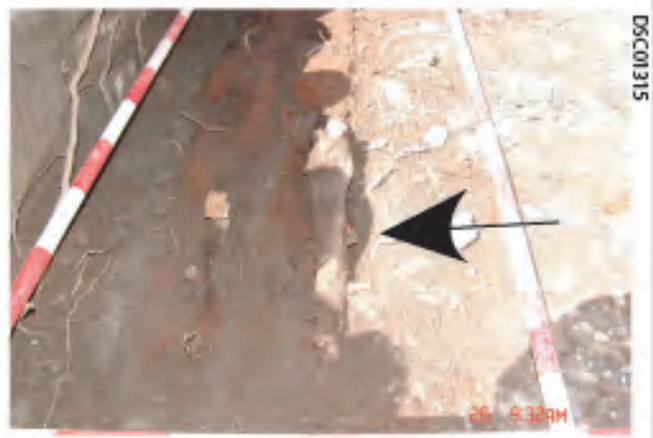


Plate 20: Beam [109] measured photograph detail of iron rail spike

Plate 21: View of south wall [107] with [110] yellow mortar and possible [108]

Plate 22: Detail TR2 showing concrete [111], arch top [112] and [110]

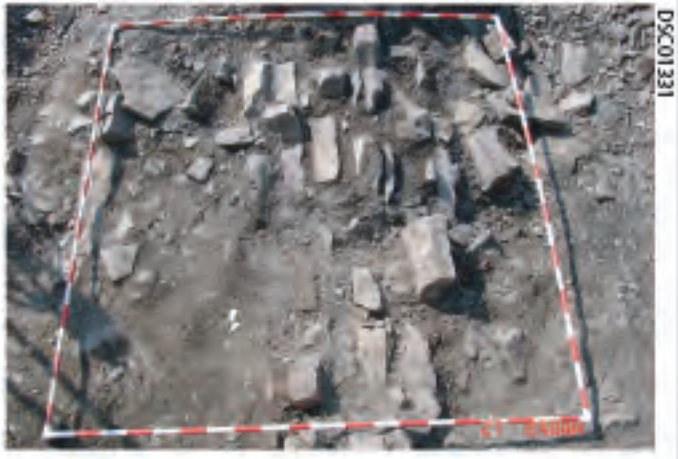


Plate 23: Detail of [112] after clearing 1

Plate 24: Detail of [112] after clearing 2