Cotswold Archaeology

South Wales Gas Pipeline Project
Site 28.23
Land West of Aber-Marlais Park
Llansadwrn
Carmarthenshire

Archaeological Excavation

for

Rhead Group

on behalf of

National Grid

CA Project: 9150
CA Report: 13307
Event: DAT108818

May 2014

South Wales Gas Pipeline Project
Site 28.23

Archaeological Excavation

CA Project: 9150
CA Report: 13307
Event: DAT102846

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GLOSSARY

CA – Cotswold Archaeology

CAP – Cambrian Archaeological Projects

CPAT – Clwyd Powys Archaeological Trust

DAT – Dyfed Archaeological Trust

GGAT - Glamorgan Gwent Archaeological Trust

FTP – Felindre to Brecon gas pipeline

HER – Historic Environment Record

MHA – Milford Haven to Aberdulais gas pipeline

NAL – Network Archaeology Ltd

NLMJV – Nacap Land & Marine Joint Venture

UPD – Updated Project Design

SUMMARY

Project Name:	South Wales Gas Pipeline Project
Location:	Site 28.23, Land West of Aber-Marlais Park, Llansadwrn, Carmarthenshire
NGR:	SN 6853 2898
Type:	Excavation
Date:	18 May–7 July 2007
Location of Archive:	To be deposited with RCAHMW (original paper archive) and Carmarthenshire Museum (material archive and digital copy of paper archive; accession number CAASG 2008.0282)
Site Code:	MHA06

An archaeological excavation was undertaken by Cambrian Archaeological Projects during groundworks associated with the construction of gas pipelines (part of the South Wales high pressure gas pipeline scheme) between Milford Haven and Aberdulais, and Felindre and Brecon, which were conducted between 2005 and 2007.

Two burnt mounds were found alongside a length of a stream, 140m-long, feeding a tributary of the River Marlais. A further area of burnt mound-type activity may have been represented by a pit with burnt stones and charcoal found *c*. 70m to the south of these, also alongside the stream. The better-preserved of these mounds included two troughs and a possible hearth and was associated with Early Bronze Age radiocarbon dates. The other mounds were undated.

To the south of the mounds, two brick-producing kilns were excavated. Late medieval or early post-medieval roof tiles were used in the construction of the kilns whilst brick wasters within the kiln chambers suggest that bricks were last fired within them during the late 16th to late 17th centuries. The kilns may have been associated with the former Abermarlais House, a manor house with early 14th-century origins, demolished and rebuilt in 1803, with this latter building having been demolished in the 1970s.

1. INTRODUCTION

1.1 NACAP Land and Marine Joint Venture (NLMJV), on behalf of National Grid, commissioned RSK Environment (part of the RSK Group) to manage the archaeological works (non-invasive surveys, desk based assessment, evaluation, watching brief, and open area excavation) on a 216km-long section of pipeline from Milford Haven (Pembrokeshire) to Brecon (in Powys). The high pressure gas pipeline (part of the 316km long pipeline route from Milford Haven to Tirley in Gloucestershire) was required to reinforce the gas transmission network. The archaeological work performed in advance of this pipeline was undertaken in a number of sections by a number of archaeological companies. The westernmost section of 122km, from Milford Haven to Aberdulais, was investigated by CA (then Cotswold Archaeological Trust) during 2005–2007 with some additional excavation work carried out by CAP. The section of 89km, from Felindre to Brecon was investigated by CA during 2006–2007 and CAP during 2007. Assessment reports on the works were completed in January 2012 (NLM 2012a, 2012b) and the current reporting stage was commissioned in February 2013.

1.2 Between 18 May and 7 July 2007 CAP carried out an archaeological excavation at Site 28.23, Land West of Aber-Marlais Park, Llansadwrn, Carmarthenshire (centred on NGR: SN 6853 2898; Fig. 1). The objective of the excavation was to record all archaeological remains exposed during the pipeline construction.

1.3 The excavation was carried out in accordance with professional codes, standards and guidance documents (EH 1991; IfA 1999a, 1999b, 2001a, 2001b, 2001c and IfA Wales 2008). The methodologies were laid out in an *Archaeological Framework Document* (RSK 2007) and associated *Written Statements of Investigation* (WSIs) and *Method Statements*.

The site

1.4 Site 28.23 is located within a field alongside the west bank of a small tributary of the River Marlais, which joins the River Towy 1km east of the site (Fig. 1). The site comprises three separate areas and lies at 80m AOD on the side of the River Towy valley slope with the ground level falling away fairly gently to the south and east and higher ground to the west. The underlying solid geology of the area is mapped as the Nantmel Mudstones Formation of the Ordovician Period with no superficial deposits recorded (BGS 2013).

Archaeological background

1.5 No archaeological remains were identified within the site during the preliminary *Archaeology and Heritage Survey* (CA 2006). The site is located just south of the demesne of the former Abermarlais House (PRN11484), a dwelling which originated in the early 14th century as a fortified manor house (DA 2013; Fig. 1). The estate was emparked in the 18th century (PRN4883) and the manor house was demolished in 1803 and replaced with a new house, itself demolished in the 1970s.

1.6 The site was the subject of an archaeological evaluation undertaken in 2007 in advance of the pipeline construction works. This evaluation recorded a brick-built kiln (CA 2009, Evaluation Site 28.23, trenches 1–4) and this was subsequently recorded during the excavation.

Archaeological objectives

1.7 The objectives of the archaeological works were:-

- to monitor groundworks, and to identify, investigate and record all significant buried archaeological deposits revealed on the site during the course of the development groundworks; and
- at the conclusion of the project, to produce an integrated archive for the project work and a report setting out the results of the project and the archaeological conclusions that can be drawn from the recorded data.

Methodology

1.8 The fieldwork followed the methodology set out within the *WSI* (RSK 2007 Appendix B). An archaeologist was present during intrusive groundworks comprising stripping of the pipeline easement to the natural substrate (Fig. 1).

1.9 Some of the drawn sections associated with burnt mound 2823122 and associated features did not appear to match the drawn plans and these have therefore not been reproduced, although they are retained in the archive.

1.10 The post-excavation work was undertaken following the production of the UPD (GA 2012) and included re-examination of the original site records. Finds and environmental evidence was taken from the assessment reports (NLM 2012b) except where the UPD recommended further work, in which case the updated reports were used. The archaeological background to the site was assessed using the following resources:-

- the *Archaeology and Heritage Survey* which was undertaken in advance of the pipeline construction and which examined a 1km-wide corridor centred on the pipeline centre line, including the then existing HER record (CA 2006);
- Dyfed Archaeological Trust HER data (received July 2014); and
- other online resources, such as Google Earth and Ordnance Survey maps available at http://www.old-maps.co.uk/index.html.

All monuments thus identified that were relevant to the site were taken into account when considering the results of the fieldwork.

1.11 The archive and artefacts from the watching brief are currently held by CA at their offices in Kemble. Subject to the agreement of the legal landowner the artefacts will be deposited with Carmarthenshire Museum under accession number CAASG 2008.0282, along with a digital copy of the paper archive. The original paper archive will be deposited with the RCAHMW.

2. RESULTS (FIGS 2–9)

2.1 This section provides an overview of the excavation results; detailed summaries of the recorded contexts, finds, environmental samples (palaeoenvironmental evidence) and radiocarbon dating are to be found in Appendices A, B, C and D. Full, original versions of the specialist reports are contained within the archive.

2.2 Archaeological remains were found within three areas of the same field and comprised two burnt mounds and a pair of brick kilns, along with associated features. The natural geological substrate (2823101) comprised orange and green clay with occasional stones.

Bronze Age

Burnt mound 2823122 (Figs 2–4)

2.3 The burnt mounds were both found on the west bank of the small stream which formed the eastern field boundary. The most northerly burnt mound was 2823122. This mound sealed feature 2823142, a sub-rectangular cut which was 1.6m long, 0.6m wide and 0.35m deep with steep sides and a flat base. A similar feature (2823137) was found immediately north of the burnt mound and both were probably troughs associated with the mound. Both of these troughs were filled with burnt

stones mixed with charcoal-rich silty clay which included charred fuelwood. Charcoal fragments from trough 2823137 were radiocarbon dated to 1880–1660 and 1740–1530 cal. BC (SUERC-55516 and -55515), date ranges within the Early Bronze Age.

2.4 A patch of scorched substrate was identified close to the eastern edge of trough 2823142. This may have been the site of a hearth, although no structure survived. An adjacent posthole with packing stones, posthole 2823123 (Fig. 3, section AA), probably supported part of a related structure. Pits 2823125 and 2823133 were found close to the mound. Both had steep bowl-shaped profiles and were up to 0.85m wide and 0.3m deep (Fig. 3, sections BB and CC). They contained dark fills with burnt stones and charcoal, samples from which yielded fuelwood charcoal.

2.5 Trough 2823142 and the possible hearth location were sealed by burnt mound 2823122. This was not fully exposed but was broadly oval in plan, up to 3.4m wide and 0.15m deep, and consisted of two layers of burnt stones and charcoal within dark silty clay which had accumulated within a slight natural hollow (Fig. 4).

Burnt mound 2823103 (Figs 5–7)

2.6 The second burnt mound, 2823103, was located 140m to the south of the mound 2823122. It consisted of a 1.4m-wide spread of burnt stone and charcoal. To its immediate west were three oval features recorded on site as pits (features 2823102, 2823109, Fig. 6, sections DD and EE; and feature 2823105). These contained further burnt stones and charcoal and were generally quite irregular. These may represent further accumulations of burnt mound material into natural hollows rather than having been pits. A smaller but otherwise comparable feature was found to the south-west (2823107). Very small quantities of charred barley grains were recorded from pits 2823102 and 2823109, along with hazel nutshell fragments in the latter (Carruthers and Rackham, below).

Other features

2.7 Pit 2823118 (not illustrated) was located 8m west of two post-medieval kilns (see below). Its fills contained frequent charcoal and burnt stones and it may represent a further area of burnt mound-type activity 70m south-east of burnt mound 2823103. Pit 2823159 was also found near the kilns (Fig. 8). It was oval in plan, 1.2m long, 0.65m wide and 0.2m deep with gently sloping sides and a concave base. It had two brown silty clay fills, neither of which contained finds but it was found within the

entrance of a probably post-medieval boundary ditch and may have been of a different period.

Late medieval/early post-medieval (Figs 8 and 9)

2.8 The late medieval/early post-medieval period saw the construction of two adjacent brick-built kilns within the southern part of the site (Kilns A and B). These may have been associated with a pair of ditches to their west, which included an entrance.

Kiln A

2.9 The larger of the two kilns, Kiln A, had been built into a rectangular construction cut 6m long, 3m wide and 0.45m deep. The kiln itself was orientated north-east/south-west and was brick/tile-built, with its walls (2823149 to the north-west and 2823177 to the south-east) comprising a double skin of bricks. Internally, the walls were edged by further bricks laid to form a lattice-work arrangement allowing for the circulation of air. These walls survived to height of three courses. The rear (north-eastern) extents of the side walls butted directly against the rear of the construction cut with no evidence of any former rear walling. Throughout the build, the walls had been lined externally, up to the top of the construction cut, with a layer of clay (2823114), which had subsequently baked red, and with a dark, humic deposit almost certainly representing former turves (2823113). These deposits were probably intended to insulate the kiln.

2.10 Internally, the main chamber was floored with 0.2m thickness of compacted clay and gravel 2823176. The south-western end of the chamber was bisected by brick wall 2823175, dividing the chamber in two and thus forming two fire boxes. Two brick-lined flues extended south-westwards from these fire boxes. The northernmost flue led to a small square pit, 2823162, which had vertical sides and a flat base and had been used to collect raked-out material. A small ditch (2823198) linked the two exterior ends of the flues and may have been for drainage. A surface (2823209), made from large river cobbles, was probably part of a working surface around the southern side of the kiln.

2.11 Within the kiln, charcoal and ashy layers 2823172, 2823173 and 2823194 overlaid the floor and these relate to the use of the kiln. These deposits were overlain by brick rubble deposits which filled the remainder of the kiln structure and which relate to its demolition. Further demolition material within ditch 2823198 included a large

number of coxcomb ridge tiles, a type used from the medieval period into the 17th century.

Kiln B

2.12 The smaller kiln was located immediately to the north-west of Kiln A and on the same alignment. Its construction cut, 2823147, was 2.7m long, 1.2m wide and 0.4m deep with vertical sides and a flat base. The kiln was a single brick/tile-built structure comprising a narrow chamber with a short flue to the south-west. Its external walls, 2823186 and 2823187, were constructed using similar methods to the larger kiln with clay and turf lining between them and the construction cut. Four postholes (2823181, 2823203, 2823205 and 2823207; not illustrated) at the end of the flue had tapered bases suggesting that they been formed by driven posts, perhaps part of a windbreak around the flue.

2.13 The floor of the main chamber was formed by a layer of compacted clay and gravel (2823183). This was overlain by scorched clay and charcoal deposits (2823179, 2823178 and 2823145) relating to the use of the kiln. A small number of brick wasters from the last firing of the kiln were also present and are of late 16th to late 17th-century form.

2.14 These deposits were overlain by brick rubble backfills representing material from the kiln's demolition and this material included ridge tiles and flat tiles with peg-holes dateable to the 16th or 17th centuries.

Boundary ditches

2.15 Two north-west/south-east aligned ditches, 2823154 and 2823156, formed a boundary 2m west of the kilns, with an entrance facing the kilns themselves. The ditches were 0.5m wide and 0.15m deep with U-shaped profiles and were filled by grey-brown silty clays with charcoal. Although undated by finds, it seems likely that these ditches formed a boundary associated with the kilns.

Discussion

Bronze Age

2.16 The burnt mounds are typical of others excavated along the route of the pipeline, which are often oval in plan and sometimes associated with water troughs and/or hearths. The Early Bronze Age radiocarbon dates associated with mound 2823122 are comparable to radiocarbon dates obtained from a number of other mounds

along the pipeline. Neolithic and Iron Age examples have also been recorded along the pipeline and elsewhere and the date of the other mound at this site is therefore uncertain. The radiocarbon date ranges from the trough overlap but, although insufficient data are present to allow the duration of use of the site to be estimated. The presence of at least two troughs, one of which was sealed by the mound, and of at least one other burnt mound to the south, suggests some duration to the activity. This activity was most probably episodic (as evidenced by the presence of two distinct mound layers and two troughs at mound 2823122) and the presence of at least two, possibly three mounds along this water course provides an indication of the likely density of burnt mounds within the wider landscape. The fuelwood assemblage recovered from the palaeoenvironmental samples was consistent with those at other burnt mounds along the pipeline, comprising mainly of oak, alder and hazel.

2.17 The dominance of burnt stone and lack of food remains or cultural debris is typical of the other burnt mounds found along the pipeline. A few charred barley grains and hazel nutshells were recovered and may indicate nearby domestic activity, but these could potentially have derived from features not directly associated or contemporary with the burnt mounds.

Post-medieval

2.18 The kilns were used for the manufacture of bricks, probably using locally sourced clay (Appendix B). Underfired hand-made bricks recovered from the chambers of the kilns indicated that the bricks being produced were orange in colour, tile-like in shape and of late 16th to late 17th-century date (Appendix B). It should be noted that these few bricks were wasters relating to the last firing of the kilns, and that the kilns might therefore be significantly earlier.

2.19 Both kilns utilised large numbers of late medieval or early post-medieval coxcomb ridge roof tiles as insulation within their linings. These tiles were either surplus stock used to construct the kilns, or could have derived from demolition of part of a former building but in either case were most probably imported from the Severn Valley (see Appendix B). There was no indication that these roof tiles had been fired in the kilns, and overall the impression is of two kilns constructed partially using re-cycled late medieval/early post-medieval materials to produce building materials during the late 16th to late 17th centuries. The small assemblage of North Devon Gravel Tempered Ware pottery, recovered from the topsoil is broadly dateable to the 16th to 18th

centuries (Courtney, below). As the site is located just to the south of the demesne of Abermarlais Manor house, it is possible that the kilns were used for work on the house or associated structures. No structures are depicted in the location of the kilns on the 1887 1st Edition Ordnance Survey map of the area, indicating that they were demolished prior to this.

3. PROJECT TEAM

Fieldwork was undertaken by Cambrian Archaeological Projects. This report was written by Luke Brannlund and Christopher Leonard with comments by Jonathan Hart and illustrations prepared by Daniel Bashford. The archive has been compiled by Jonathan Hart and prepared for deposition by Hazel O'Neill. The fieldwork was managed for CAP by Kevin Blockley and the post-excavation was managed for CA by Karen Walker.

4. REFERENCES

BGS (British Geological Survey) 2013 *Geology of Britain Viewer*. Online resource at http://mapapps.bgs.ac.uk/geologyofbritain/home.html accessed 9 Decemberr 2013

CA (Cotswold Archaeology) 2006 *Felindre to Tirley Gas Pipeline: Archaeology and Heritage Survey*. CA typescript report **05140**

CA (Cotswold Archaeology) 2009 Felindre to Brecon Natural Gas Pipeline: Archaeological Evaluation. CA typescript report **09079**

Carruthers, W. 2008 'Assessment Report for Charred Plant Remains' in NLM 2012b

Courtney, P. 2009 'Assessment Report for Medieval and Later Pottery', in NLM 2012b

Courtney, P. and McSloy, E. 2013 *Post-Roman Pottery from the Milford Haven to Aberdulais and Felindre to Brecon Gas Pipeline,* Cotswold Archaeology typescript report

DAT (Dyfed Archaeological Trust) *Historic Landscape Characterisation: Towy Valley.* Online resource at http://www.dyfedarchaeology.org.uk/HLC/HLCTowy/Towyvalleymap.htm accessed 9 December 2013

EH (English Heritage) 1991 *The Management of Archaeological Projects* 2

GA (Groundwork Archaeology) 2012 *Milford Haven to Aberdulais and Felindre to Brecon High Pressure Gas Pipelines: Updated Project Design*

IfA (Institute for Archaeologists) 1999a *Guidelines for Finds Work*. IfA, Birmingham

IfA (Institute for Archaeologists) 1999b *Standard and Guidance for Finds and Ecofact Studies and Curation*. IfA, Reading

IfA (Institute for Archaeologists) 2001a *Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials*.

IfA (Institute for Archaeologists) 2001b *Standard and Guidance for Archaeological Excavation*

IfA (Institute for Archaeologists) 2001c *Standard and Guidance for Field Evaluation*

IfA Wales (Institute for Archaeologists of Wales/Cymru) 2008 *Introducing a Research Framework for the Archaeology of Wales,* online resource at http://www.archaeoleg.org.uk/intro.html accessed December 2008

NLM (Nacap Land and Marine) 2006 *Milford Haven to Aberdulais Natural Gas Pipeline: Scheme of investigation for a programme of archaeological works*

NLM (Nacap Land and Marine) 2012a *Milford Haven to Aberdulais High Pressure Gas Pipeline: Archaeology Assessment of Potential for Analysis*

NLM (Nacap Land and Marine) 2012b *Felindre to Brecon High Pressure Gas Pipeline: Archaeology Assessment of Potential for Analysis*

RSK (RSKENSR) 2007 *Felindre to Tirley Natural Gas Pipeline: Archaeological Framework Document, v7*. Nacap Land and Marine Final, RSKENSR Environmental Ltd

Schmidl, A., Jaques, D. and Carrott, J. 2009 'Assessment Report for Charcoal' in NLM 2012b

Vince, A. G. 1985 'The Ceramic Finds' in R. Shoesmith (ed.) *Hereford City Excavations: the finds.* CBA Research Report **56**, 34–83

Ward, G.K. and, Wilson, S.R. 1978 'Procedures for Comparing and Combining Radiocarbon Age Determinations: a critique', in *Archaeometry* **20**, 19–31

APPENDIX A: CONTEXT DESCRIPTIONS

Evaluation Trench 1

Context No.	Fill of	Interpretation	Description	L (m)	W (m)	Depth (m)
28/23/T1-01		Topsoil	Mid brown silt			0.25
28/23/T1-02		Construction cut	NE/SW aligned. Vertical sides and flat base		3.0	0.4
28/23/T1-03	28/23/T1-02	Wall	Mid brown-red bricks laid on end			
28/23/T1-04	28/23T1-02	Backfill	Mid brown-red silty sand with occasional charcoal flecks		0.1	0.2
28/23/T1-05		Subsoil	Mid brown-red silty clay			0.4
28/23/T1-06	28/23/T1-02	Fill	CBM rubble		3.0	0.4
28/23/T1-07		Natural	Mid brown-green clay			
28/23/T1-08	28/23T1-02	Layer	Black silty sand with common charcoal		0.65	0.2
28/23/T1-09	28/23T1-02	Fill	Collapsed brick superstructure		3.0	0.1
28/23/T1-10	28/23T1-02	Cut	Black silty sand with common charcoal		0.65	0.2

Trench 2

Context No.	Fill of	Interpretation	Description	L (m)	W (m)	Depth (m)
28/23/2-1		Topsoil	Mid grey-brown silty clay			0.4
28/23/2-2		Subsoil	Mid grey-brown clay			0.2
28/23/2-3		Natural	Light grey clay			

Trench 3

Context No.	Fill of	Interpretation	Description	L (m)	W (m)	Depth (m)
28/23/T3/01		Topsoil	Mid brown silt			0.15
28/23/T3/02		Subsoil	Mid yellow-brown silt			0.25
28/23/T3/03		Natural	Mid brown-yellow silty clay			

Trench 4

Context No.	Fill of	Interpretation	Description	L (m)	W (m)	Depth (m)
28/23/T4/01		Topsoil	Mid brown silt			0.1
28/23/T4/02		Subsoil	Mid brown-red silt			0.25
28/23/T4/03		Natural	Bands of yellow-grey clay and orange-brown silty clay and gravel			

Excavation

Context No.	Fill of	Interpretation	Description	L (m)	W (m)	D (m)	Spot date
2823100		Topsoil	Brown clay silt with stones			0.3	
2823101		Natural	Orange and green clay with occasional stones				
2823102		Pit	Oval in plan with shallow bowl-shaped profile	1.5	0.5	0.1	
2823103		Burnt Mound	Black silt with stones and charcoal		1.4	0.15	
2823104	2823102	Pit fill	Dark grey-black silty clay with stone and charcoal	1.5	0.8	0.1	
2823105		Pit	Oval in plan with irregular profile	1.6	0.8	0.15	

2823106	2823105	Pit fill	Dark brown-grey clay silt with charcoal and stone	1.6	0.8	0.15	
2823107		Pit	Sub-circular in plan with bowl-shaped profile	0.3	0.25	0.4	
2823108	2823107	Pit fill	Mid yellow-brown clay-silt with charcoal and stones	0.3	0.25	0.4	
2823109		Pit	Sub-circular in plan with steep sides and concave base	0.75	0.5	0.2	
2823110	2823109	Pit fill	Mid brown-grey silty clay with stones	0.75	0.5	0.2	
2823111			Context not used				
2823112	2823121	Layer	Mid brown clay silt with frequent CBM fragments and kiln lining	3.5	3.3	0.4	
2823113	2823121	Wall lining	Black organic deposit		0.1	0.3	
2823114	2823121	Wall lining	Dark brown scorched clay		0.05	0.3	
2823115	2823121	Layer	=2823112 in eastern firebox	0.5	0.6	0.4	
2823116	2823121	Layer	=2823112 in western firebox	0.55	0.75	0.35	
2823117	2823118	Pit fill	Upper fill: burnt stones within a light yellow-brown clay silt with common charcoal	1.4	0.25	0.1	
2823118		Pit	Oval in plan with gently sloping sides and flat base	1.4	1.25	0.15	
2823119	282118	Pit fill	Lower fill: mid orange-brown silty clay with frequent charcoal flecks and occasional small stones	1.0	1.0	0.05	
2823120	2823121	Fill	Light brown sandy silt with occasional stones and CBM			0.3	
2823121		Construction cut	Rectangular in plan	5.0	3.0	0.45	
2823122		Burnt mound	Black silt clay with stones and charcoal burnt stone	3.4	2.6	0.15	
2823123		Posthole	Circular in plan with bowl-shaped profile		0.2	0.1	
2823124	2823123	Posthole fill	Dark grey-brown silt with charcoal		0.2	0.1	
2823125		Pit	Circular in plan with bowl-shaped profile		0.85	0.3	
2823126	2823125	Pit fill	Mid brown silt		0.85	0.1	
2823127	2823123	Posthole fill	Pale orange-grey silty clay with charcoal and stone		0.2	0.1	
2823128	2823125	Pit fill	Pale blue-yellow silty clay with charcoal and burnt stone		0.65	0.1	
2823129	2823125	Pit fill	Pale yellow-blue silty clay with charcoal and stone		0.85	0.15	
2823131		Layer	Peat at N end of site				
2823132		Burnt mound	Pale orange clay with charcoal	1.55	1.1	0.1	
2823133		Pit	Circular in plan with bowl-shaped profile		0.75	0.3	
2823134	2823133	Pit fill	Upper fill; grey-orange silt clay with charcoal and stone		0.65	0.1	
2823135	2823133	Pit fill	Lower fill; yellow-grey/blue silty clay with charcoal and stone		0.6	0.1	
2823136	2823133	Pit fill	Upper fill; pale brown-grey silty clay		0.75	0.1	
2823137		Trough	Rectangular in plan with steep sides and flat base	1.5	1	0.25	
2823138	2823137	Trough fill	Pale blue silty clay with burnt stone and charcoal	1.5	0.9	0.15	1880–1660 cal BC 1740–1530 cal BC
2823139	2823137	Trough fill	Upper fill; dark brown silty clay with charcoal and burnt stone	1.5	0.1	0.1	

2823140		Alluvium	Pale brown silt clay beneath burnt mound 2823122	0.7	0.65	0.15	
2823142		Trough	Oval in plan with steep sides and flat base	1.6	0.6	0.35	
2823143	2823142	Trough fill	Lower fill; blue-yellow silty clay with burnt stone and burnt charcoal		0.95	0.25	
2823144	2823142	Trough fill	Upper fill; dark brown-black silty clay with charcoal and burnt stone		1	0.1	
2823145	2823147	Layer	Black silt and charcoal deposit in flue	1.7	0.35	0.05	
2823146			Context not used				
2823147		Construction cut	Oval in plan with vertical sides and flat base	2.7	1.2	0.4	
2823148	2823147	Layer	Mid brown clay silt with frequent CBM fragments	2.2	0.55	0.35	
2823149	2823121	Wall	West wall: two layers of unbonded red bricks with air gaps				
2823150			Context not used				
2823151			Context not used				
2823152		Ditch	N/S aligned with moderately steep sides and concave base	0.5	0.5	0.15	
2823153	2823152	Ditch fill	Light grey-brown silty clay with occasional charcoal flecks and small stones	0.5	0.5	0.15	
2823154		Ditch terminus	Part of 2823152	0.85	0.4	0.05	
2823155	2823154	Ditch fill	=2823153	0.85	0.4	0.05	
2823156		Ditch terminus	N/S aligned with gently sloping sides and concave base		0.5	0.05	
2823157	2823156	Ditch fill	=2823153		0.5	0.05	
2823158			Context not used				
2823159		Pit	Oval in plan with gently sloping sides and concave base	1.2	0.65	0.2	
2823160	2823159	Pit fill	Lower fill: light brown-grey clay silt with common small stones	0.7	0.25	0.05	
2823161	2823159	Pit fill	Upper fill: mid grey-brown silty clay with occasional small stones	1.2	0.65	0.15	
2823162		Pit	Square in plan with vertical sides and flat base	0.7	0.7	0.35	
2823163	2823162	Pit fill	Upper fill: mid brown silt with frequent CBM fragments	2.4	1.2	0.05	
2823164	2823162	Pit fill	Mid brown clay silt with charcoal, small stones and CBM	0.7	0.7	0.05	
2823165	2823162	Pit fill	Mid yellow-brown silt clay with occasional charcoal, stones and CBM	0.7	0.7	0.15	
2823166	2823162	Pit fill	Lower fill: dark brown/black clay silt with frequent charcoal	0.7	0.7	0.05	
2823167		Posthole	Sub-circular in plan with vertical sides and concave base	0.2	0.2	0.35	
2823168	2823167	Posthole fill	Mid brown clay silt with occasional charcoal and CBM fragments	0.2	0.2	0.35	
2823169	2823121	Layer	=2823112 in western flue	1.65	0.4	0.15	
2823170	2823121	Layer	=2823112	1.05	0.65	0.1	
2823171	2828147	Layer	Mid brown silty clay with frequent CBM fragments	1	0.35	0.05	

2823172	2823121	Layer	Dark brown-black silty clay with frequent charcoal	1.2	0.65	0.05	
2823173	2823121	Layer	Dark brown-black charcoal-rich silty clay with frequent CBM fragments	1.5	0.8	0.1	
2823174			Context not used				
2823175	2823121	Wall	Centre wall: single layer of unbonded bricks with air gaps		0.85	0.35	
2823176	2823121	Floor	Compacted clay and gravel floor surface	4.9	2.8	0.2	
2823177	2823121	Wall	East wall of kiln: same as 2823149		0.35	0.45	
2823178	2823147	Layer	Black silt with frequent charcoal	0.5	0.2	0.05	
2823179	2823147	Layer	Orange-brown clay sand with occasional CBM fragments	0.65	0.55	0.2	
2823180	2823147	Layer	=2823148 in flue	1.7	0.35	0.05	
2823181		Posthole	Circular in plan with vertical sides and concave base	0.1	0.1	0.1	
2823182		Posthole fill	Mid brown clay silt with common CBM and occasional charcoal	0.1	0.1	0.1	
2823183	2823147	Floor	Compacted mid grey clay and gravel	2.0	1.1	0.1	
2823184	2823147	Wall lining	=2823113		0.05	0.3	
2823185	2823147	Wall lining	=2823114		0.05	0.3	
2823186	2823147	Wall	North wall of kiln: same as 2823149	2.0	0.2	0.2	
2823187	2823147	Wall	South wall: same as 2823149	2.0	0.2	0.3	
2823188	2823147	Deposit	Mid dark brown clay silt with CBM fragments filling gaps between wall bricks				
2823189	2823147	Deposit	=2823188				
2823190	2823147	Flue wall	Single layer of brick in English bond	0.7	0.2	0.1	
2823191	2823147	Flue wall	=2823190	0.7	0.2	0.1	
2823192	2823121	Flue wall	Western flue. Same as 2823190	1.25	0.1	0.2	
2823193	2823121	Flue wall	Eastern flue. Same as 2823190	1.3	0.2	0.2	C16–17
2823194	2823121	Layer	Light greyish brown compacted ash	0.9	0.5	0.1	
2823195	2823193	Layer	CBM fragments in mid brown clay silt matrix	1.3	0.2		
2823196		Construction cut	= Part of 2823121				
2823197	2823198	Gully fill	Mid brown clay-silt with occasional CBM fragments and charcoal flecks	2.0	0.45	0.25	
2823198		Gully	Curvilinear in plan with V-shaped profile.	2.0	0.45	0.25	
2823199	2823200		Backfill of evaluation trench 1				
2823200			Cut of evaluation trench 1				
2823201			Context not used				
2823202			Scorched natural below kiln				
2823203		Posthole	Circular in plan with vertical sides and concave base	0.05	0.05	0.05	
2823204	2823203	Posthole fill	Mid brown clay silt with occasional CBM fragments and charcoal flecks	0.05	0.05	0.05	
2823205		Posthole	Circular in plan with vertical sides and concave base	0.05	0.05	0.05	

2823206	2823205	Posthole fill	Mid brown clay silt with occasional CBM fragments and charcoal flecks	0.05	0.05	0.05	
2823207		Posthole	Circular in plan with vertical sides and concave base	0.05	0.05	0.05	
2823208	2823207	Posthole fill	Mid brown clay silt with occasional CBM fragments and charcoal flecks	0.05	0.05	0.05	
2823209		Surface	Layer of grey igneous cobbles adjacent to kiln	2.7	1.3		
2823210		Pit	Irregular oval in plan with vertical sides and flat base	1.0	0.5		
2823211	2823210	Pit fill	Mid brown clay silt with occasional CBM fragments and charcoal flecks	1.0	0.5		
2823212		Construction cut	Eastern flue of kiln. Part of 2823121	1.3	0.45	0.15	
2823213	2823147	Wall foundation	Dark grey silty clay	1.3	0.2	0.05	
2823214	2823147	Bonding material	Light yellow-grey clay				
2823215	2823147	Bonding material	=2823214				

APPENDIX B: THE FINDS

Tiles (Courtney 2009)

312 fragments of ridge tile were recovered from the kiln site, weighing 31.8kg. The fabrics range from soft to hard and orange to brick red. Some of the softer orange tiles have thin white bands visible representing poor mixing of the clay. The tiles are around 15mm in thickness at the edges, and all have sanded undersides and knife-finished edges. Knife-cut coxcombs are attached along the ridge. The tiles have a partial splashed glaze, usually dark brown and often metallic in appearance, applied to the upper part of the tile. One tile had an imprint from a small hooved animal, probably a young sheep or goat. Inclusions are similar in all the tiles and appear, under x20 binocular microscope, to include occasional quartz grains and very fine glistening particles (?mica).

The uniformity of manufacturing technique and inclusions suggest a common source for the tiles, which were possibly bought and transported along the Severn as a batch. In the Severn region ridge tiles were normally made by potters, rather than at floor-tile centres (Vince 1985). Coxcombs are generally a feature of the medieval period in the Severn Valley but were still produced in North Devon and at Stroat, Gloucestershire, into the 17th century. The Stroat crests were hand-moulded with three thumb impressions at the trough, one on either side and one on top (Vince 1985).

Two joining glazed tile fragments clearly come from a rare gable end tile used to infill the ridge at the gable, the glazed area is recessed and the tile shaping finished with a knife. Two rather more worn fragments probably come from one or more similar tiles. Eight fragments come from unglazed flat tiles in a hard orange fabric with similar inclusions to the glazed tiles. These had two pierced holes for nails at one end, knife-finished edges and sanded bases. They are 180mm–190mm in diameter and at least 250mm in length. They appear to have been intended for use with iron nails. See Courtney (2009) for full quantification tables.

Bricks (Courtney 2009)

A sample of the bricks left in the clamp kiln was examined. By their very nature these will have been rejects. The bricks appear to be variously underfired, ranging from virtually unfired to a fired but soft texture scratchable by a fingernail. The barely fired clay appears to be off-white in colour with patches of pale orange, firing to a deep orange colour, at least on the surface of the bricks. Occasional quartz grains can be seen with a x20 binocular microscope. They have been hand-made presumably using simple wooden moulds, and their sides and 'lower' surface sanded. One unfired brick has an animal imprint, probably a cat. They are tile-like in shape measuring about 3.8mm–4.2mm in thickness. They are variable in width, even within the same brick, measuring about 85mm–105mm and 190mm–212mm.

Two larger hand-made brick fragments were recovered from the façade of the kiln 2823121. One measured 55mm–60mm in thickness and was at least 135mm in width and 195mm long. It was poorly fired and off-white to orange in colour. The second was orange in colour and measured 60mm in width. It had an accidental brown glaze over one of the two large surfaces which indicate that it had been sanded (quartz sand being composed of silica; while potash in the fuel acted as a flux). These bricks were probably specialist types made for some structural function.

The bricks were presumably made from local clay, almost certainly dug up in the immediate vicinity of the kiln, such tile-like bricks are difficult to date precisely but originated in the late 16th century, with examples from western Britain dating to after *c*. 1680.

Post-Roman pottery (Courtney and McSloy 2013)

Three sherds (14g), all in North Devon Gravel-Tempered Ware (NDGT) were recorded from topsoil within evaluation Trench 3. A sherd which was notably thinly-potted was tentatively identified as coming from a cup. These sherds are dateable to the 16th to 18th centuries.

APPENDIX C: THE PALAEOENVIRONMENTAL EVIDENCE BY JAMES RACKHAM

The soil samples were processed in the manner described in the assessment report (Table 1; Carruthers 2008). The residues were located dried, refloated, sorted for finds and checked with a magnet. All the data recorded in Table 2 was collected during the re-processing of the sample residues.

Table 1 Environmental samples from Site 28.23

sample no	context no	feature	description	Wt kg.	Vol. l.*
2823001	2823106	2823105	Pit/tree bowl fill	20	30
2823002	2823103	0-5cm	Burnt mound	10	10
2823003	2823103	5-10cm	Burnt mound	10	10
2823004	2823103	10-15cm	Burnt mound	10	10
2823005	2823104	2823102	Pit fill	28	25
2823006	2823110	2823109	Pit fill	34	40
2823007	2823119	2823118	Pit fill	10	15
2823008	2823117	2823118	Upper pit fill		15
2823009	2823129	2823125	Pit fill	10	12
2823010	2823130	2823122	0-5cm NW burnt mound	23.5	20
2823011	2823130	2823122	5-10cm SE burnt mound	20	20
2823012	2823134	2823133	Upper pit fill	10	12
2823013	2823138	2823137	SW quad upper trough fill	21	15
2823014	2823139	2823137	SW quad lower trough fill	18	15
2823015	2823138	2823137	NE quad upper trough fill	11	15
2823016	2823139	2823137	NE quad lower trough fill	9	15
2823017	2823132	2823122	Soil beneath burnt mound B	20	
2823018	2823122/32	2823122	Burnt mound B	monolith	
2823019	2823140		Buried soil/alluvium beneath burnt mound	6	8
2823020	2823143	2823142	Lower trough fill	10	15
2823021	2823144	2823142	Upper trough fillll	nd	14
2823022	2823145	2823147	Layer, kiln B	nd	4
2823023	2823164	2823162	Pit fill	9	15
2823024	2823172	2823121	Layer, kiln A	8	10
2823025	2823113	2823121	Wall lining - kiln A	0.75	

*volume recorded in the field – not accurate

Table 2 Data for the environmental samples from Site 28.23

Sample	Context	Wt. (kg)	Res. wt. (g)	1st Flot vol. (ml)	2nd Flot vol. (ml)	Pottery	Burnt clay (g)*	Burnt stone (g)#	Coal (g)*	Magnetic (g)	Comments
2823001	2823006	20	5640	170	10	-	-	5257	+	8	
2823002	2823103	10	4400	300	5	-	-	4210	+	3.2	1st 50mm
2823003	2823103	10	5105	500	10	-	-	4764	+	1	2nd 50mm
2823004	2823103	10	3780	400	3	-	-	3584	+	0	3rd 50mm
2823005	2823104	28	9259	300	7.5	-	+	8713	+	1	
2823006	2823110	34	5583	100	3	-	-	4845	+	0.4	
2823007	2823119	10	1984	50	1	-	+	++++	-	0	
2823009	2823129	10	3457	500	10	-	-	3333	-	0	
2823010	2823130	23.5	12261	800	<1	-	-	11485	-	0	1st 50mm
2823011	2823130	20	6020	400	13	-	-	5474	-	0.6	2nd 50mm
2823012	2823134	10	4495	100	3	-	-	++++	-	0	
2823013	2823138	21	9200	1200	16	-	-	5369+	-	0	
2823014	2823139	18	6293	800	13	-	-	5798	+	0	
2823015	2823138	11	4190	1000	11	-	-	3711	+	0	
2823016	2823130	9	4395	400	8	-	-	3905	-	0	
2823017	2823132	20	2511	200	5	-	+	2362	-	0	
2823019	2823140	6	2012	1500	5	-	-	1959	-	0	
2823020	2823143	10	963	70	1	-	-	919	-	0	
2823023	2823162	9	938	40	1	-	27	+++	-	3.4	
2823024	2823172	8	2000	150	5	-	-	1456	-	0.4	850g poorly fired brick
2823025	2823113	0.75	30	5	-	-	+	-	-	2.4	

* += material present but too small to warrant weighing
# + indicates more material from the sample but quantification not known although general level indicated by number of '+'

Archaeological finds from the burnt mound samples and associated features are limited to burnt stone, a little fired earth and coal, and the occasional magnetic component (Table 2). The abundance of burnt stone in the burnt mound samples and associated troughs and pits is typical of such sites, comprising up to 98% of the sample residue or 50% of the unwashed sample. Deposit 2823132 beneath the main mound deposit 2823122 has a much lower burnt stone content, 12% by weight of whole sample, reflecting that this probably represents the soil layer upon which the mound was dumped. The two sample spits through context 2823122 produced 49% burnt stone by weight in the upper spit and 27% in the lower spit suggesting that this lower spit may also include some of the underlying soil, although at the location where the monolith was taken there is a sharp boundary suggesting little mixing. The dated trough to the north of the mound produced deposits with 32–43% burnt stone. The three spits samples from mound 2823103 contained 42%, 47% and 35% burnt stone by weight down through the spits, while in the nearby tree throw and pits burnt stone comprised 16 –33% of the sample. Charcoal component of these samples ranged from 2–5ml of charcoal per kilogram of deposit in the burnt mounds, but was higher in the dated trough with between 4.5–9ml per kilogram. Localised concentrations of charcoal are evident from the monolith sample where the sampled part of mound deposit 2823122 is particularly rich in charcoal, but it is difficult to attach any interpretable archaeological significance to these variations.

The residues of only three of the four kiln samples were found. Two of these produced burnt stone, all three a small magnetic component, contexts 2823162 and 2823113 a little poorly fired clay, while context 2823172 produced 850g of poorly fired brick of similar character to that described by Courtney (2009).

Charred plants *(Wendy Carruthers and James Rackham)*

Apart from charcoal charred plant remains in the samples are very rare (Table 3). Charred barley grains were recorded from pits 2823102 and 2823109, along with hazel nutshell fragments in the latter but all were in very small quantities. One of the samples from the post-medieval kilns, 2823023, the fill of a small regular pit fill at the east end of Kiln A produced a single fragment of charred hazel nutshell.

Table 3 Charred plant remains - Site 28.23

	Flot	1st & 2nd	1st & 2nd	1st & 2nd	1st & 2nd
	context type	Pit fill	Pit fill	Buried soil	Pit fill
	context no.	2823104	2823110	2823140	2823164
	sample no.	2823005	2823006	2823019	2823023
	wt. proc. soil (Kg)	28	34	6	9
	Vol. flot (ml)	307.5	103	1505	41
Plants					
cf. *Hordeum vulgare* var. *nudum*	cf naked barley	1			
cf *Hordeum* sp.	cf barley	1	1		
Cerealia	indet grain frags.	2	2		
Corylus avellana L.	hazel nutshell frags $		4/-	2/-	1/-
Charcoal*	>2mm/<2mm frags	5/5	5/5	5/5	3/5
Total nos of items		**4**	**7**	**2**	**1**

* abundance rating 1 = 1-10 items; 2=11-50, 3=51=100, 4=101-200, 5=>200

$ count/weight g.

Charcoal *(Dana Challinor)*

Two samples of charcoal from trough 2823137 were selected for analysis as examples of the fuel used at burnt mound 2823122. The charcoal assessment (Schmidl *et al*. 2009) had previously recorded stemwood and roundwood of oak, with alder and alder/hazel from this trough. Standard identification techniques were followed. Both assemblages were abundant with reasonably large fragments, but there was some heavy orange staining/infusion obscuring anatomical characteristics. This is likely to be due to the depositional environment in which the water table fluctuated and iron rich salts were deposited. There were also some uncharred wood fragments (some of *Quercus* sp., oak) which may represent ancient waterlogged preservation (or intrusive root fragments). Four taxa were positively identified: *Quercus* sp. (oak), *Alnus glutinosa* (alder), *Corylus avellana* (hazel) and Maloideae (hawthorn group). Occasional oak fragments exhibited tyloses, indicating the presence of heartwood. Moderate to strong ring curvature was recorded in both samples, and most taxa, indicating the use of branchwood or relatively young trunks, but no very small twigs or complete stems were recovered. High levels of vitrification were observed in some oak fragments. The two quadrants of the trough produced similar charcoal assemblages, primarily of alder with oak and hazel. Although alder prefers flushing water, next to streams, it would have happily grown in the waterlain environment of Site 28.23. Its proximity and easy availability is probably the major factor in the selection of the species for fuel, as it is not traditionally considered a good fuelwood (Edlin 1949). Oak and hazel woodland was generally dominant in the region and was commonly used in burnt mound deposits elsewhere along the pipeline.

Table 4 Charcoal from burnt mound layer at Site 28.23

	Site	28.23	28.23
	Feature type	trough fill	trough fill
	Feature number	2823137	2823137
	Context number	2823138	2823138
	Sample number	2823013	2823015
Quercus sp.	oak	7 (hr)	9 (hr)
Alnus glutinosa Gaertn.	alder	16 (r)	12 (r)
Corylus avellana L.	hazel	3 (r)	4 (r)
Alnus/Corylus	alder/hazel	4	2
Maloideae	hawthorn group		1
Indeterminate			2
Total		**30**	**30**

s=sapwood; h=heartwood; r=roundwood; (brackets denotes presence in some fragments only)

Monolith 2823018

The monolith was taken through the deposits of burnt mound 2823122. The upper part of the sequence is composed of burnt mound material, dominated by charcoal and heated/burnt stone, 2823122. The deposit below is a heavily mottled slightly sandy silt with flecks of charcoal and some soil structure, 28231321. Its context suggests an inwash or overbank alluvial deposit that later underwent some soil development. The basal deposit is a waterlain clayey silt, which suggests a standing water environment or more probably an alluvial flood deposit derived from overbank flooding and the deposition of very fine grained sediments on the stream floodplain. This does not appear to be the 'natural' but could be a glacial rather than Holocene deposit.

Discussion

The dominance of burnt stone and lack of food remains or cultural debris is typical of the other burnt mounds along the pipeline. Burnt mound 2823103 is one of the smallest along the pipeline with an area of approximately 1.8 m^2 and a volume of approximately 0.19m^3. On the basis of the density of burnt stone in the column samples it has an approximate total weight of 0.11 tonnes of burnt stone, the smallest weight of burnt stone for all the features identified as burnt mounds. Mound 2823122 is also fairly small with an approximate areal extent of 4.33m^2 within the excavated area, but truncated on the south side by a field drain it may have been as much as 5m^2. With an average thickness of 0.0885m for the mound, this reflects an approximate volume of 0.38m^3 within the excavated area, or on an assumption of a total areal extent of 5m^2 about 0.44m^3. With an approximate average density of burnt stone per litre of deposit of 546g the total weight of burnt stone in the whole mound, excluding any loss from truncation through ploughing and weathering, must have been in the order of 0.24 tonnes. This, although a little over twice the size of 21823103, is still a small mound by comparison with others excavated along the pipeline.

The two burnt mound sites lie at the bottom of a north-east facing slope on the west side of a small stream flowing north. Although both sites lie about 20m from the modern stream and field boundary there are slight suggestions from the topography that the stream may have been closer to the sites in the past. A pollen diagram (Rackham *et al* in prep) has been produced for an organic sequence just a few metres north of burnt mound

2823122 in an area formerly rough grazing and almost certainly part of a former course of the stream. The sequence does not extend as far back as the dates produced from the trough next to mound 2823122 but it does show a largely wooded landscape in the early 1st millennium BC. The woodlands are primarily oak and hazel, with alder in damp areas, and almost certainly fringing the stream course. This suggests that the landscape contemporary with the burnt mounds was probably still largely wooded, although some cereal pollen and grasses in the early 1st millennium BC perhaps indicates a patchwork of pasture and arable in the area, at least in the late Bronze Age. Unfortunately the sequence does not extend back to the early Bronze Age of trough 2823137 but we can assume that human activity in the area is likely to have been less rather than more, and the landscape must still have been heavily wooded.

APPENDIX D: THE RADIOCARBON DATING BY SEREN GRIFFITHS

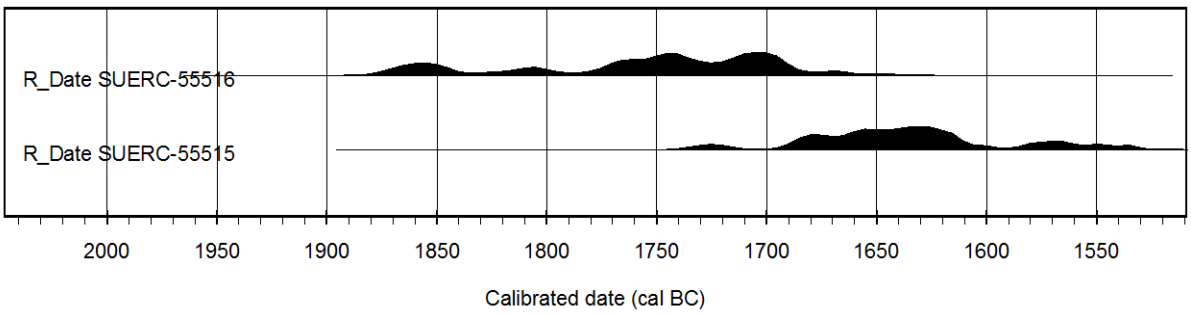
For the analysis, radiocarbon measurements were produced on short-life, single entity charred plant remains. Samples with the 'SUERC-' laboratory code were pretreated using an acid-base-acid process. Samples were combusted and graphitized and then dated by Accelerator Mass Spectrometry (AMS). The results are conventional radiocarbon ages, quoted according to the international standard set at the Trondheim Convention. The results have been calibrated using IntCal13, and OxCal v4.2. The date ranges have been calculated using the maximum intercept method, and have the endpoints rounded outward to 10 years.

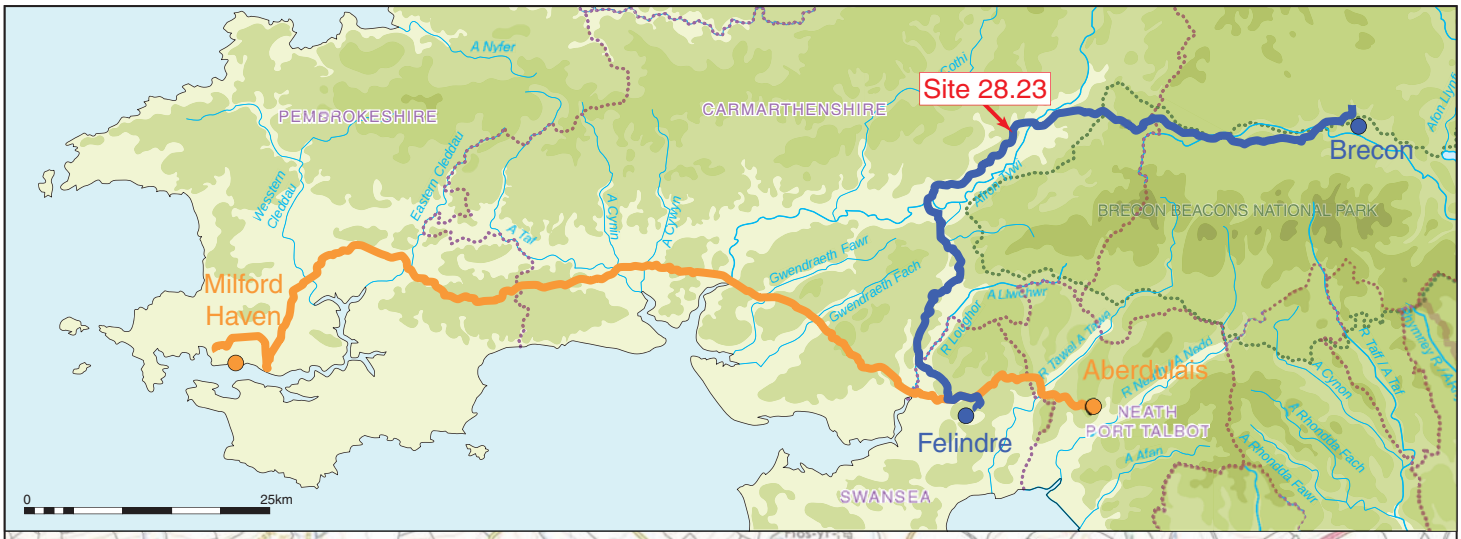
Two radiocarbon results produced on shortlife samples from trough 2823137 were statistically inconsistent (T'=4.7; T'5%=3.8; df=1; Ward and Wilson 1978; Fig. 10), and indicate that activity at the site occurred over a period of some time between 1740–1530 cal BC (95% confidence; SUERC-55515) and 1880–1660 cal BC (95% confidence; SUERC-55516).

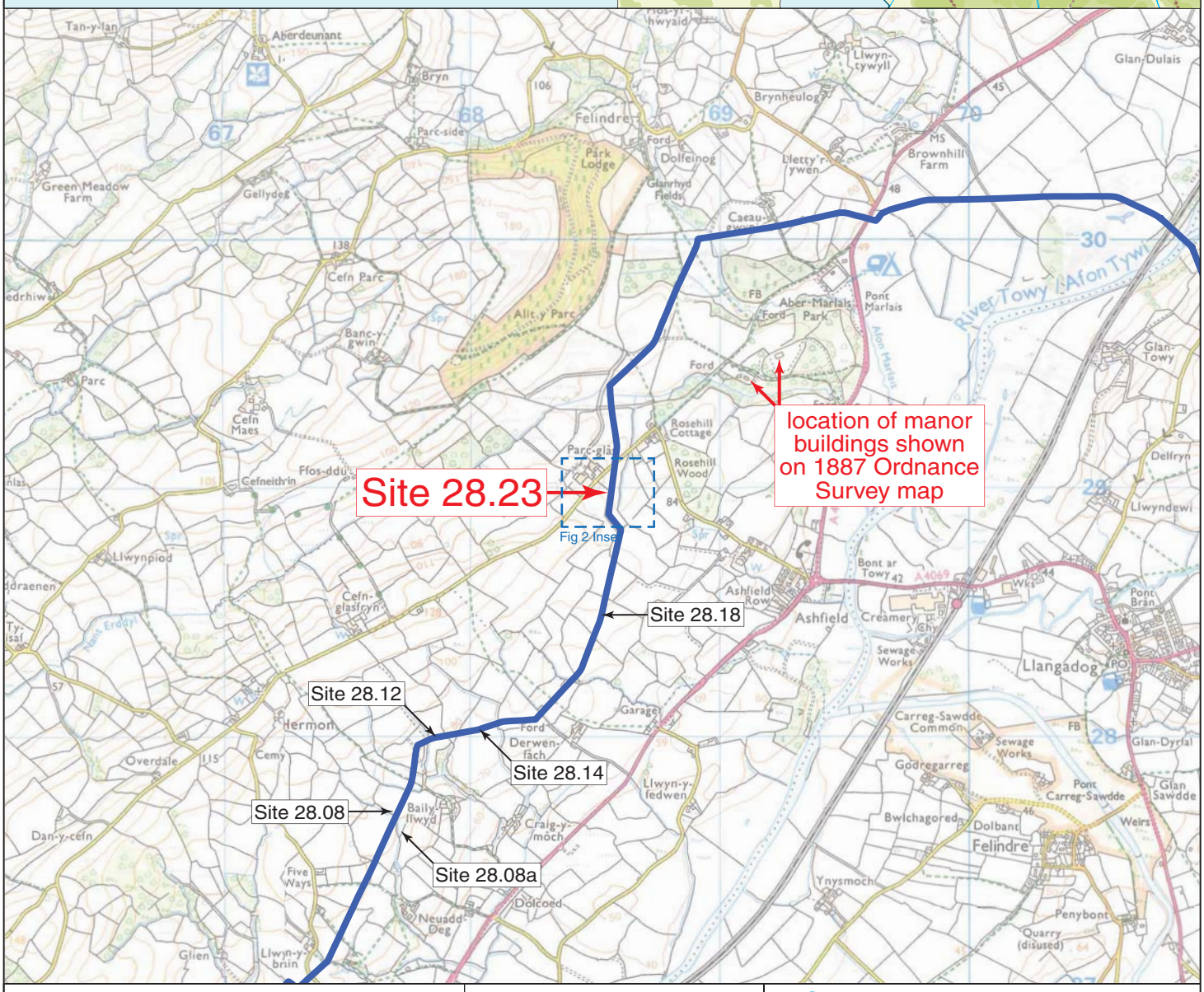
Context	Feature	Sample type	Laboratory ref.	Measured age	δ 13C	Calibrated age (95%)
2823138	Trough 21823137	*Corylus* sp. charcoal	SUERC-55515 (GU35201)	3347±30	-24.6	1740–1530 cal BC
2823138	Trough 21823137	*Alnus* sp. charcoal	SUERC-55516 (GU35202)	3439±30	-27.5	1880–1660 cal BC

Dating undertaken by Scottish Universities Environmental Research Centre

Fig. 10 The calibrated radiocarbon dates from site 28.23







- Milford Haven to Aberdulais pipeline
- Felindre to Brecon pipeline
- 0-75m contour
- 75m contour
- 200m contour
- 400m contour
- 600m contour

N

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PROJECT TITLE

South Wales Pipeline. Site 28.23, Land West of Aber-Marlais Park, Llansadwrn, Carmarthenshire

FIGURE TITLE

Site location plan

PROJECT NO.	9150	DATE	11-23-2014	FIGURE NO.
DRAWN BY	DJB	REVISION	00	1
APPROVED BY	LM	SCALE@A4	1:25,000	

pipeline centreline

burnt mound

2005-6 evaluation trench

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PROJECT TITLE

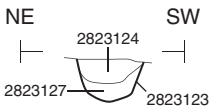
South Wales Pipeline. Site 28.23, Land West of Aber-Marlais Park, Llansadwrn, Carmarthenshire

FIGURE TITLE

Plan of burnt mound 2823122 and associated features

PROJECT NO.	**9150**	*DATE*	**15-04-2014**	*FIGURE NO.*
DRAWN BY	**DJB**	*REVISION*	**00**	**2**
APPROVED BY	**LM**	*SCALE@A3*	**1:20**	

Section AA



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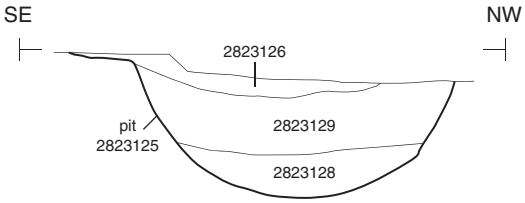

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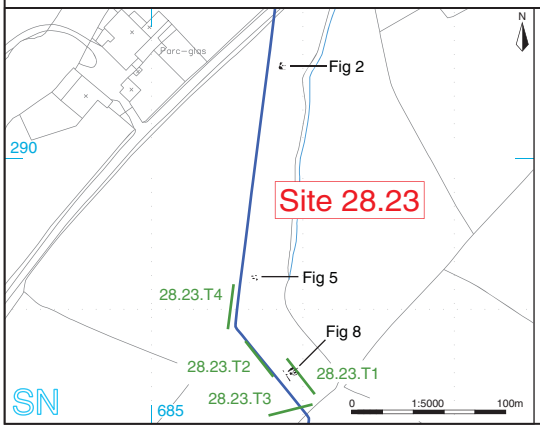

pipeline centreline

burnt mound

2005-6 evaluation trench

Cotswold Archaeology

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PROJECT TITLE

South Wales Pipeline. Site 28.23, Land West of Aber-Marlais Park, Llansadwrn, Carmarthenshire

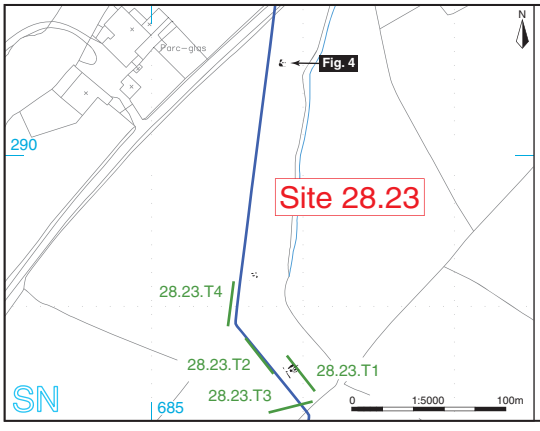
FIGURE TITLE

Sections through posthole 2823123 and pits 2823125 and 2823133

PROJECT NO.	9150	DATE	16-04-2014	FIGURE NO.
DRAWN BY	DJB	REVISION	00	3
APPROVED BY	LM	SCALE@A4	1:20	

4

Burnt mound 2823122, looking west (Scales 2m & 1m)



pipeline centreline

2005-6 evaluation trench

Fig. ? photograph locator

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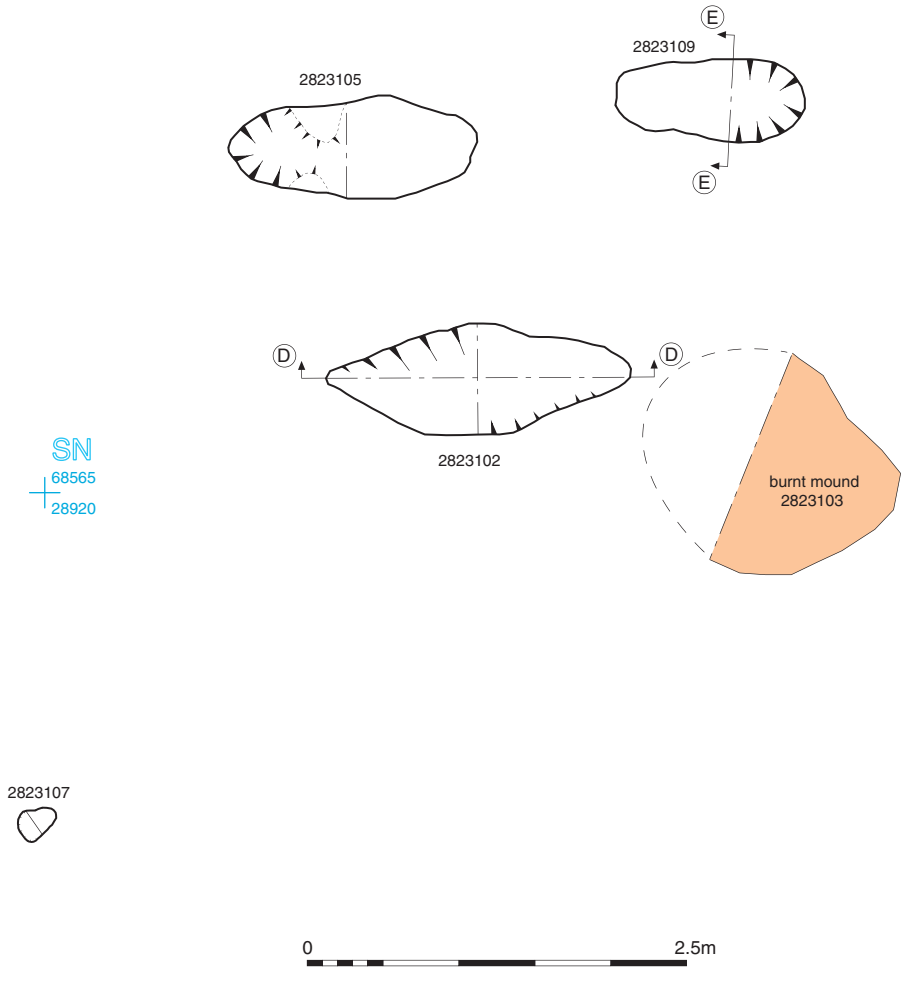
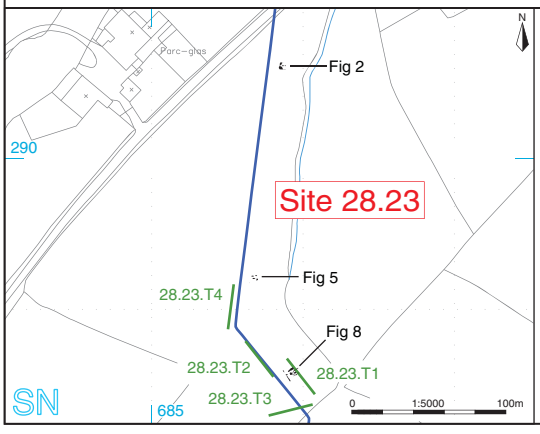
PROJECT TITLE
South Wales Pipeline. Site 28.23, Land West of Aber-Marlais Park, Llansadwrn, Carmarthenshire

FIGURE TITLE
Photograph

PROJECT NO.	9150	DATE	16-04-2014	FIGURE NO.
DRAWN BY	DJB	REVISION	00	4
APPROVED BY	LM	SCALE@A4	N/A	





pipeline centreline

2005-6 evaluation trench

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PROJECT TITLE

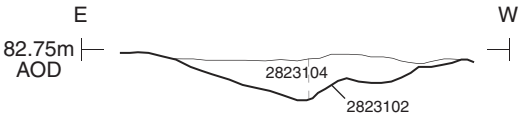
South Wales Pipeline. Site 28.23, Land West of Aber-Marlais Park, Llansadwrn, Carmarthenshire

FIGURE TITLE

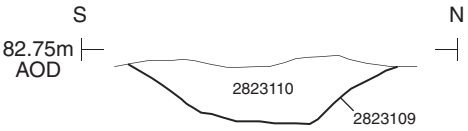
Plan of burnt mound 2823103 and associated features

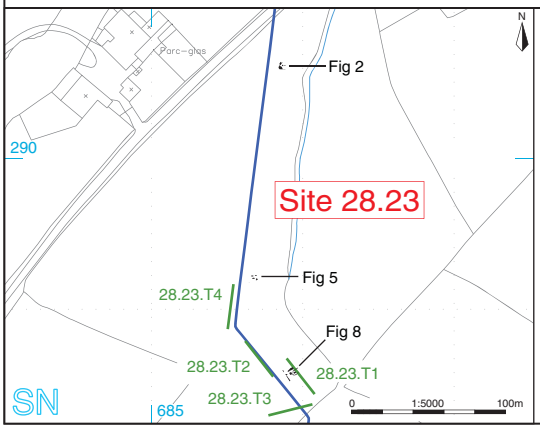
PROJECT NO.	9150	DATE	24-04-2014	FIGURE NO.
DRAWN BY	DJB	REVISION	00	5
APPROVED BY	LM	SCALE@A4	1:50	

Section DD



Section EE





pipeline centreline

2005-6 evaluation trench

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PROJECT TITLE

South Wales Pipeline. Site 28.23, Land West of Aber-Marlais Park, Llansadwrn, Carmarthenshire

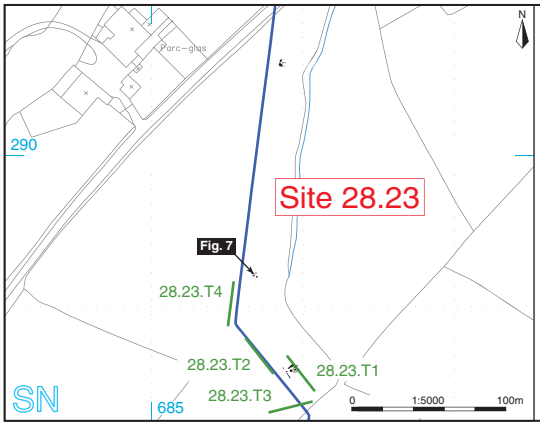
FIGURE TITLE

Section through features 2823102 and 2823109

PROJECT NO.	**9150**	*DATE*	**24-04-2014**	*FIGURE NO.*
DRAWN BY	**DJB**	*REVISION*	**00**	**6**
APPROVED BY	**LM**	*SCALE@A4*	**1:50**	

7

Burnt mound 2823103, looking south-east (scale 2m)



pipeline centreline

2005-6 evaluation trench

Fig. ? photograph locator

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PROJECT TITLE

South Wales Pipeline. Site 28.23, Land West of Aber-Marlais Park, Llansadwrn, Carmarthenshire

FIGURE TITLE

Photograph

PROJECT NO.	9150	DATE	16-04-2014	FIGURE NO.
DRAWN BY	DJB	REVISION	00	7
APPROVED BY	LM	SCALE@A4	N/A	

pipeline centreline
brick
degraded brick
turf lining
clay lining
2005-6 evaluation trench

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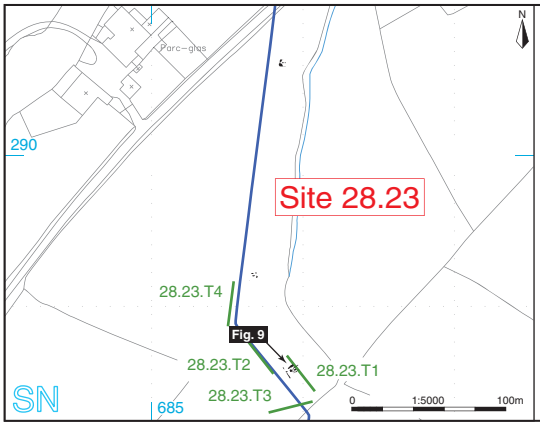
PROJECT TITLE
South Wales Pipeline. Site 28.23, Land West of Aber-Marlais Park, Llansadwrn, Carmarthenshire

FIGURE TITLE
Plan of Kilns A and B and associated features

PROJECT NO.	9150	DATE	16-04-2014	FIGURE NO.
DRAWN BY	DJB	REVISION	00	8
APPROVED BY	LM	SCALE@A3	1:40	

9

Kilns A and B, looking south-east (scales 1m & 2m)



pipeline centreline

Fig. ? photograph locator

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PROJECT TITLE

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FIGURE TITLE

Photograph

PROJECT NO.	9150	DATE	24-04-2014	FIGURE NO.
DRAWN BY	DJB	REVISION	00	9
APPROVED BY	LM	SCALE@A4	N/A	