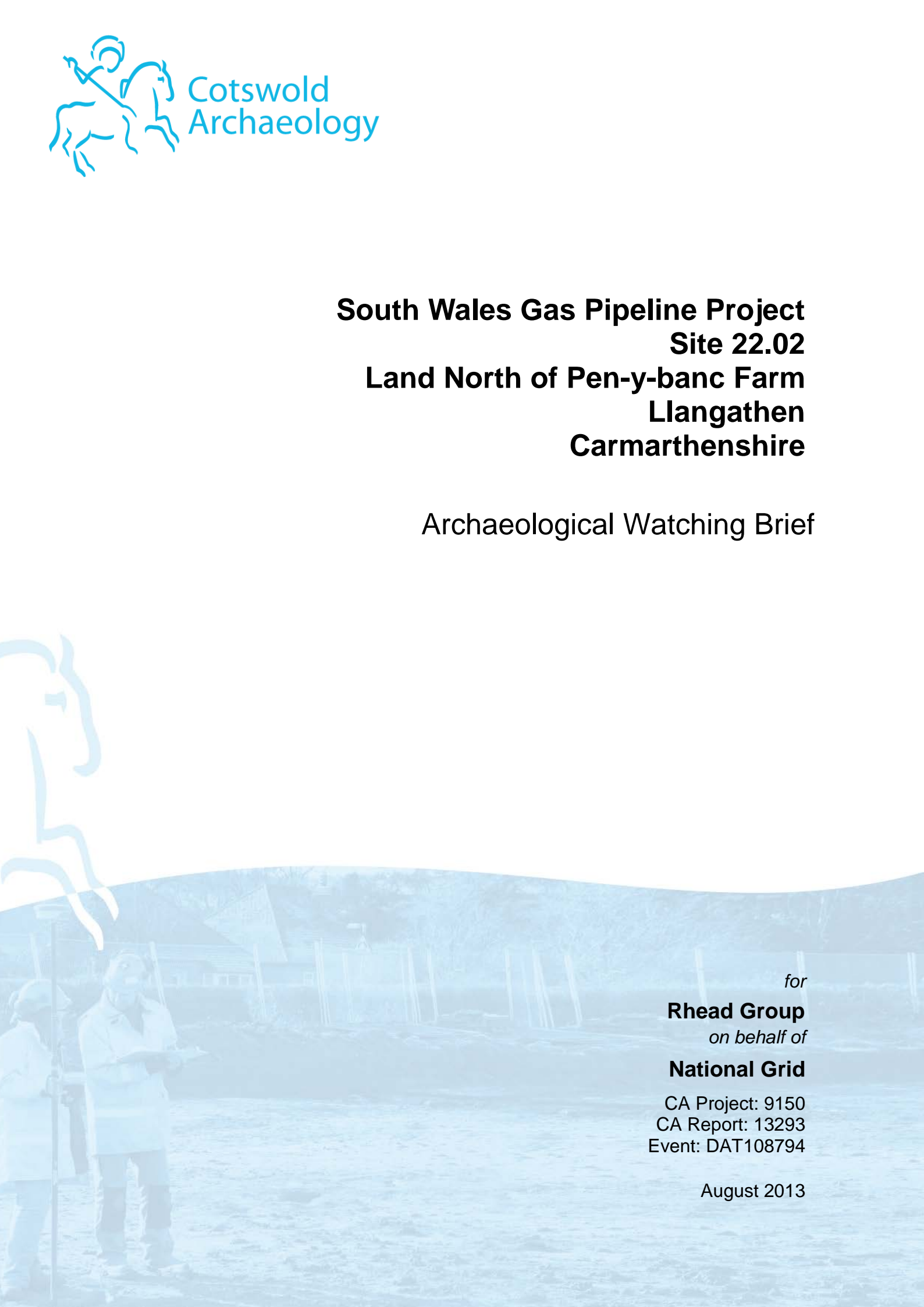


**South Wales Gas Pipeline Project
Site 221
Land West of Maes-y-Lan
Llanddowror
Carmarthenshire**

Archaeological Watching Brief



for
Rhead Group
on behalf of
National Grid


CA Project: 9150
CA Report: 13148
Event: DAT108864

July 2013

South Wales Gas Pipeline Project Site 221

Archaeological Watching Brief

CA Project: 9150
CA Report: 13148
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 221, Land West of Maes-y-Lan, Llanddowror, Carmarthenshire
NGR:	SN 2604 1418
Type:	Watching Brief
Date:	4–9 May 2006
Location of Archive:	To be deposited with RCAHMW (original paper archive) and Carmarthenshire Museum (digital copy of paper archive; accession number CAASG 2008.0282)
Site Code:	MHA06

An archaeological watching brief was undertaken by Cotswold Archaeology during groundworks associated with 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.

An early medieval pit with charred cereal remains was found and, along with undated pits in the vicinity, perhaps formed part of a settlement of this date, further remains of which may lie beyond the excavated area. Ditches found on the site probably formed part of medieval or later field boundaries.



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 Cotswold Archaeology (CA; then Cotswold Archaeological Trust) during 2005–2007 with some additional excavation work carried out by Cambrian Archaeological Projects (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 In April 2006 Cotswold Archaeology (CA) carried out an archaeological watching brief at Site 221, Land West of Maes-y-Lan, Llanddowror, Carmarthenshire (centred on NGR: SN 2604 1418; Fig. 1). The objective of the watching brief was to record all archaeological remains exposed during the pipeline construction.

1.3 The watching brief was carried out in accordance with professional codes, standards and guidance documents (EH 1991; IfA 1999a, 1999b, 2001a, 2001b and IfA Wales 2008). The methodologies were laid out in an *Archaeological Management Plan* (AMP) (RSK 2006) and associated *Written Statements of Investigation* (WSIs) and *Method Statements*.

The site

1.4 The site is located within two adjacent fields at approximately 65m AOD on the south-facing side of a coombe overlooking a small tributary of the River Coran (Fig. 1). The village of Llanddowror lies at the base of a valley, 600m northwest of the site.

- 1.5 The underlying solid geology of the area is mapped as the Robeston Wathen Limestone and Sholeshook Limestone of the Ordovician Period; no superficial deposits are recorded (BGS 2013).

Archaeological background

- 1.6 No archaeological remains were identified within the site during the preliminary *Archaeology and Heritage Survey* (CA 2005). A standing stone (PRN 11752), recorded by the Dyfed Archaeological Trust HER as being of Bronze Age date, stands 400m west of the site whilst a Bronze Age round barrow (PRN11753) is located 230m south-west of the site. The location of a former medieval water mill (PRN 12612) is recorded 150m south of the site although its precise location is unclear.
- 1.7 An evaluation of the site and its environs was undertaken by CA in 2005–6 as part of the pre-construction pipeline works (Figs 2 and 3, insets). The evaluation followed the identification of possible features during a preceding geophysical survey (BCC 2005 and identified three ditches (CA 2009, Evaluation Site 21, trenches 74, 76 and 77). The results of this evaluation are reported on below.

Archaeological objectives

- 1.8 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

- 1.9 The fieldwork followed the methodology set out within the *WSI* (NLM 2006). An archaeologist was present during intrusive groundworks comprising stripping of the pipeline easement to the natural substrate (Fig. 1).
- 1.10 Where archaeological deposits were encountered written, graphic and photographic records were compiled in accordance with CA Technical Manual 1: *Fieldwork Recording Manual*.

1.11 The post-excavation analysis and reporting 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 2012a) 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 2005);
- Dyfed Archaeological Trust HER data (received May 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.

1.12 The archive from the watching brief is currently held by CA at their offices in Kemble and will be deposited with the RCAHMS. A digital copy of the archive will go to Carmarthenshire Museum under accession number CAASG 2008.0282.

2. RESULTS (FIGS 2 AND 3)

2.1 This section provides an overview of the watching brief results; detailed summaries of the recorded contexts from the watching brief, palaeoenvironmental evidence and radiocarbon dates are to be found in Appendices A, B and C. Full, original versions of the specialist reports are contained within the archive.

Evaluation (Figs 2 and 3, insets)

Trench 74

2.2 The natural substrate was cut by ditch 7403, which was north-west/south-east aligned with a V-shaped profile and was 1m wide and 0.3m deep. No finds were recovered from its fill.

Trench 76

- 2.3 The natural substrate was cut by ditch 7605, which was east/west aligned with a U-shaped profile and was 1.8m wide and 0.45m deep. It had been re-cut by ditch 7603. No finds were recovered from these ditches

Trench 77

- 2.4 The natural substrate was cut by ditch 7703/7705, which was north-west/south-east aligned with a U-shaped profile and was 0.9m wide and 0.35m deep. No finds were recovered from this ditch.

Site 221

- 2.5 The natural geological substrate (221002), consisting of orange-brown clay with stone, was cut by two ditches and several pits/postholes. These comprised two groups of features, an easternmost group (Fig. 2) and a westernmost group (Fig. 3).
- 2.6 The easternmost features included a ditch and three pits (Fig. 2). Ditch 221012 was a north-west/south-east aligned cut with a V-shaped profile which was up to 1.6m wide and 0.55m deep. It contained a natural infill. Adjacent to the ditch were the three pits. Pit 221016 was oval in plan with steep sides and a flat base and was 1.75m long, 0.9m wide and 0.3m deep. It contained a single clay silt fill, 221017. Pit 221018 was similar in shape, although slightly larger, and contained a thin primary fill, 221023 (Fig. 2, section AA). This primary fill was overlain by charcoal-rich secondary fill 221022, a sample from which contained abundant charred grain, including six-row hulled barley, bread wheat-type and oats, along with charred weed seeds and a small quantity of burnt bone, unidentifiable to species. Radiocarbon dates obtained from grains in this deposit suggest that the pit dates to the early medieval period (470–640 and 530–650 cal. AD; SUERC-54693 and -54694). The upper fill of the pit (221019) was a homogenous silty clay deposit. Pit 221020 was circular in plan with a bowl-shaped profile and was 0.45m wide and 0.1m deep. It contained a silty clay fill.
- 2.7 The westernmost features also included a ditch and three pits (Fig. 3). Ditch 221003 was east/west aligned with a V-shaped profile and was 0.55m–0.8m wide and up to 0.3m deep. It had filled naturally. To the north were three small pits (221024, 221026 and 221028). These were circular or oval in plan with bowl-shaped profiles and were 0.3m to 0.55m wide and up to 0.3m deep. All contained single silty clay fills.

Discussion

- 2.8 The presence of at least one early medieval pit represents a significant finding and it is possible that part of a settlement (possibly of low intensity or short duration) has been revealed. The other undated pits may have formed part of this settlement and it is possible that further remains survive beyond the easement. The charred grain assemblage from the pit is comparable to those found at other sites along the pipeline, such as at Site 293 (CA 2013a), which returned similar early medieval radiocarbon dates, and at Sites 04.22 (CA 2014) and 201 (CA 2013b). At these sites the charred grains are associated with features interpreted as crop-drying ovens.
- 2.9 Although pit 221018 was not interpreted as such during excavation and there was no record made of any *in situ* burning, it is not unreasonable, given the profile of the feature, that it could also have been a crop-drying oven. The clean nature of the grain and relative lack of intrusive weeds is also suggestive of grain processing, although the presence of burnt stones and animal bone would be unusual in such a feature and may indicate a more domestic function. Rackham (Appendix B) presents the arguments regarding the interpretation of the pit as the remnants of a field kiln. The crop-drying ovens on other sites have typically been in isolated locations, with no associated settlement features, as at Site 221, although it is possible that this perception is an artificial construct caused by the narrow viewport offered by the pipeline strip.
- 2.10 The north-west/south-east aligned ditches found during the evaluation and excavation correspond with the alignment of the current field boundaries. The east/west aligned ditch found in the evaluation was probably a continuation of that found in the subsequent excavation and corresponds to a boundary depicted on the 1st Edition Ordnance Survey Map. Together, all of these ditches probably relate to a medieval or later field system.

3. PROJECT TEAM

Fieldwork was undertaken by Kelly Saunders assisted by Greg Crees, Simon Ratty, Carina Summerfield and Richard Watts. This report was written by Jonathan Hart with 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 CA by Clifford Bateman and the post-excavation work was managed for CA by Karen Walker.



4. REFERENCES

- BCC (Bartlett-Clark Consultancy) 2005 *Milford Haven to Aberdulais Proposed Gas Pipeline: Archaeogeophysical Survey 2005*
- BGS (British Geological Survey) 2013 *Geology of Britain Viewer*. Online resource at <http://mapapps.bgs.ac.uk/geologyofbritain/home.html> accessed 23 April 2013
- Britnell, W. 1984 'A 15th-century corn drying kiln from Collfryn, Llansantffraid Deuddwr, Powys', in *Medieval Archaeology* **XXVIII**, 190-194
- CA (Cotswold Archaeology) 2005 *Milford Haven to Aberdulais Gas Pipeline: Archaeology and Heritage Survey*. CA typescript report **04147**
- CA (Cotswold Archaeology) 2009 *Milford Haven to Aberdulais Natural Gas Pipeline: Archaeological Evaluation*. CA typescript report **09078**
- CA (Cotswold Archaeology) 2013a *South Wales Pipeline Project Site 293, Land South-West of Felindre, Mawr, Swansea*. CA typescript report **13241**
- CA (Cotswold Archaeology) 2013 *South Wales Pipeline Site 201, Land North of Gwempa, Llangyndeyrn, Carmarthenshire*. CA typescript report **13341**
- CA (Cotswold Archaeology) 2013 *South Wales Pipeline Project Sites 24.06 and 24.07, Land North-East of Gurrey Cottage, Llandeilo, Carmarthenshire*. CA typescript report **13274**
- CA (Cotswold Archaeology) 2014 *South Wales Pipeline Project Site 04.22, Land East of Llanedi, Llanedi, Carmarthenshire*. CA typescript report **13317**
- 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*
- Giorgi, J. and Martin, G. 2009 'Assessment Report for the Archaeobotanical Remains', in NLM 2012a
- Greig, J, 1991 'The British Isles', in W van Zeist, K Wasylikowa and K-E. Behre (eds) *Progress in Old World Palaeoethnobotany*. Rotterdam, 229-334
- 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, Reading

- IfA (Institute for Archaeologists) 2001b *Standard and Guidance for an Archaeological Watching Brief*
- 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) 2006 *Milford Haven to Aberdulais Natural Gas Pipeline: Archaeological Management Plan*. Nacap Land and Marine Final, RSKENSr Environmental Ltd
- 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

Context No.	Fill of	Context interpretation	Description	L (m)	W (m)	Depth (m)
221000		Topsoil	Brown-grey clay silt			0.15
221001		Subsoil	Brown clay silt			0.1
221002		Natural	Orange-brown clay with stone			
221003		Ditch	E/W aligned, v-shaped profile		0.65	0.25
221004	221003	Ditch fill	Mid brown silty sand		0.65	0.25
221005		Ditch	Part of 221003		0.8	0.25
221006	221005	Ditch fill	= 221004		0.8	0.25
221007		Ditch	Part of 221003		0.55	0.3
221008	221007	Ditch fill	Lower fill of ditch: yellow-brown silty sand		0.55	0.2
221009	221007	Ditch fill	Upper fill of ditch: = 221004		0.55	0.1
221010		Ditch	Part of 221003		0.6	0.2
221011	221010	Ditch fill	= 221004		0.6	0.2
221012		Ditch	NW/SE aligned, v-shaped profile		1.6	0.55
221013	221012	Ditch fill	Yellow-brown silty clay		1.6	0.55
221014		Ditch	Part of 221012		1.5	0.5
221015	221014	Ditch fill	= 221013		1.5	0.5
221016		Pit	Oval in plan with steep sides and flat base	1.75	0.9	0.3
221017	221016	Pit fill	Mid orange-brown clay silt	1.75	0.9	0.3
221018		Pit	Oval in plan with steep sides and flat base	2.5	0.9	0.45
221019	221018	Pit fill	Upper fill: mid brown silty clay	2.5	0.9	0.3
221020		Pit	circular in plan with bowl-shaped profile		0.45	0.1
221021	221020	Pit fill	Yellow-brown silty clay		0.45	0.1
221022	221018	Pit fill	second fill: brown/black silt with charcoal	2.5	0.9	0.1
221023	221018	Pit fill	Primary fill: mid red sandy silt	2.5	0.9	0.05
221024		Pit	Oval in plan with bowl-shaped profile	0.55	0.35	0.3
221025	221024	Pit fill	Yellow-brown silty clay	0.55	0.35	0.3
221026		Pit	Circular in plan with bowl-shaped profile		0.3	0.1
221027	221026	Pit fill	Yellow-brown silty clay		0.3	0.1
221028		Pit	Circular in plan with bowl-shaped profile		0.3	0.2
221029	221028	Pit fill	Yellow-brown silty clay		0.3	0.2

APPENDIX B: PALAEOENVIRONMENTAL EVIDENCE BY JAMES RACKHAM

Animal or Human Bone

A small amount of unidentifiable burnt bone (0.3g) was recovered from the sample from fill 221022 of pit 221018. A high concentration of charred cereal remains and weed seeds in this deposit suggests that this was probably domestic animal bone.

Environmental soil samples

A single environmental sample (221001) was taken from the charcoal rich secondary fill of early medieval pit 221018 (Table 1). The sample was processed in the manner described in the assessment report (Giorgi and Martin 2009) with the additional refloating of the dried <2mm sample residue that had been retained whose flot volume is indicated in Table 2 as '2nd flot'. This second flot was then sorted for charred macrofossils and the residue re-dried and checked with a magnet to recover any further magnetic material. Charred plant remains were only sorted and quantified from a fraction (6.25%) of both the first and second flots because of the large size of the cereal assemblage, although the remaining fractions of both flots (93.75%) were scanned and the presence and approximate abundance of identifiable remains recorded (Table 3). The archaeological finds from the sample included a little burnt stone, coal, a little burnt bone and a magnetic component (Table 2) composed of sediment concretions and mudstone crumb possibly, but not certainly, burnt. This combined with the rich charred plant assemblage in the flot would suggest a domestic rubbish context, or perhaps crop processing activities.

Table 1 Bulk environmental sample from Site 221

sample no	context no	feature	description	processed wt kg	processed vol l	date
221001	221022	221018	Charcoal rich pit fill	44	40	cal AD 530-650 (oat) cal AD 470-640 (barley)

Table 2. Data for the environmental sample from Site 221

sample no	context no	processed vol l	1st flot vol ml	2nd flot vol	residue wt g	pottery	burnt clay	burnt stone	coal	flint	magnetic	burnt bone	comments
221001	221022	40	300+100	170	nd			E	D		A+0.2g	D	

* abundance rating – E= 1-10 items; D=11-50, C=51-100, B=101-200, A=>200; nd – no data

Charred Plant remains (John Giorgi)

The charred plant remains in the sample from the 6th–7th century AD fill 221022 of pit 221081 consisted almost entirely of charcoal and a rich burnt grain assemblage (a high concentration of almost 274 items per litre of processed soil) plus only very small numbers of wild plant/weed seeds and traces of cereal chaff. Grain preservation was variable, just over 50% of the quantified remains not being identifiable, although the well-preserved grains showed *Avena* (oats) and *Hordeum vulgare* (barley) to be the two best and almost equally represented cereals followed by *Triticum aestivum* type (free-threshing wheat) with a ratio of 4:4:2. Twisted and hulled barley grains provided evidence for the presence of six-row hulled barley amongst the cereal remains. The absence of wheat chaff meant that it was not possible to establish whether the free-threshing wheat grains were from hexaploid and/or tetraploid species although the very rounded squat morphology of the well-preserved

wheat grains displaying a flat dorsal side are more characteristic of hexaploid *Triticum aestivum* (bread type wheat) rather than tetraploid *Triticum turgidum* (rivet wheat).

Table 3 Site 221. The charred plant remains

	Flot	1 st		2 nd	
	Feature type	PIT	PIT	PIT	PIT
	Feature no.	221018	221018	221018	221018
	Context number	221022	221022	221022	221022
	Sample number	221001	221001	221001	221001
	Proc. Vol. (l)	40			
	Vol. flot (ml)	400		194	
	% flot sorted and quantified	6.25%		6.25%	
	% flot scanned		93.75%		93.75%
Cereal grains					
<i>Triticum aestivum</i> type	free-threshing wheat	25	++++		+++
<i>T. cf. aestivum</i> type	?free-threshing wheat	9		5	
<i>Triticum</i> spp.	wheat	13		3	
<i>cf. Triticum</i> spp.	?wheat	10		3	
<i>Hordeum vulgare</i> L.	barley hulled twisted	13	+++++	3	+++
<i>H. vulgare</i> L.	barley hulled straight	4		1	
<i>H. vulgare</i> L.	barley hulled indet.	62		4	
<i>H. vulgare</i> L.	barley indet	31		4	
<i>cf. H. vulgare</i> L.	?barley	7			
<i>Avena</i> spp.	oat	48	+++++	13	+++++
<i>cf. Avena</i> spp.	?oat	51		8	
Cerealia indet.	Indeterminate grains (estimate)	227	+++++	122	+++++
Cereal chaff					
Avena spp.	oat floret fragments		+		
Other plants					
<i>Chenopodium album</i> L.	fat hen		+		
<i>Chenopodium</i> spp.	goosefoot etc	5	++		
<i>Atriplex</i> spp.	orache	2	+		
<i>Spergula arvensis</i> L.	corn spurrey		+		
<i>Persicaria maculosa</i> Gray	redshank		+		
<i>P. lapathifolia</i> (L.) Gray	pale persicaria		+		
<i>Persicaria</i> sp.	knotweed	9	++	2	++
<i>Polygonum aviculare</i> L.	knotgrass		+		
<i>Fallopia convulvulus</i> (L.) A Love	black bindweed		+		
Rumex spp.	dock		+		+
Polygonaceae indet.	knotweed		+		+
<i>Raphanus raphanistrum</i> L.	wild radish		+		
<i>Medicago/Trifolium</i> spp.	medicks/clovers		+		
<i>cf. Galeopsis</i> spp.	?hemp-nettle		++		
<i>Anthemis cotula</i>			+		
<i>Tripleurospermum inodorum</i> (L.) Sch. Bip.	scentless mayweed		+		
<i>Carex</i> spp.	sedge		+		
Poaceae indet.	Indet. grasses (large)		+		+
Herbaceous stem fragments	culm basal nodes/tubers, nodes etc.		+		+
Indet seeds			+		+
Charcoal		+++++			
Total nos. of items		516		168	
Item density (per litre of processed soil)		273.6 (projected estimate)			

Item frequency: + =1-10; ++=11-50; +++=51-150; ++++=151-250; +++++=>250 items.

The virtual absence of oat chaff (other than a few un-diagnostic floret fragments) meant that it was not possible to reliably establish whether the oats were from cultivated species, *Avena sativa* (common oat), *Avena strigosa* (bristle oat) and/or wild oats (*Avena fatua*). Grain morphology can only tentatively be used to separate out the different oat species with an initial scan of the well-preserved remains showing a wide range in size from 3mm to 7mm, other morphological characteristics tentatively suggesting a better representation of common oat although some of the smaller grains could be from bristle oat.

There was only a limited species range represented by small numbers of wild plant/weed seeds although most of the identifiable remains show a fairly consistent pattern, suggesting the cultivation of sandy acidic soils, for example *Spergula arvensis* (corn spurrey), *Raphanus raphanistrum* (wild radish) (both acid soil indicators), *Chenopodium album* (fat hen) and a number of Polygonaceae. Several of these weeds, for example *Chenopodium album*, *Spergula arvensis*, *Fallopia convolvulus* (black bindweed) and *Raphanus raphanistrum*, may also point to the spring-sowing of cereal crops. Occasional records for *Anthemis cotula* (stinking chamomile) could suggest the use also of calcareous or heavier soils for growing crops. All these cereals are typical crops from the early medieval period onwards (Greig 1991, 314). These three cereals have been recorded together at a number of sites along the route of the pipeline, for example at post-Roman Sites 201 (CA 2013b) and 4.22 (CA 2014) and at post-medieval Site 24.06 (CA 2013c), all of which also produced weed evidence for the cultivation of sandy soils. The charred plant remains consists virtually entirely of cleaned cereal grain which may have been accidentally burnt while being dried (possibly in an oven) before storage or milling and/or as a result of cooking accidents, with the debris subsequently dumped into the pit. The few weed seeds may be from persistent contaminants of the crop and/or from crop-processing waste used as fuel. The grains may have been cultivated separately or possibly grown together as dredge (spring barley and oats) given the almost equal amounts of these two cereals in the sample.

Discussion

The sampled site sits at approximately 68m OD on the south facing upper slopes of a hill that rises to 90m OD 800m to the east. The site lies on the edge of a plateau on the west side of the hill which is currently an area of arable cropping on freely draining slightly acid loamy soils (<http://www.landis.org.uk/soilscapes/>) just over 200m to the north west of Maes-y-lan farm. It is probable that this whole plateau landscape has been farmed for some time but there are no records in the HER for sites on the plateau lands on top of the hill (CA 2005). The radiocarbon dates place the feature in the late 5th to early 7th century AD. Pit 221018 is a fairly isolated feature located within 2.5m of an undated ditch and 20m from the nearest pit (221016), again undated.

At first glance the assemblage from the sample would seem to reflect a domestic character. A little burnt bone, a rich assemblage of charred 'cleaned' cereal grain and a little burnt stone is suggestive of domestic rubbish, but an absence of other features nearby other than the undated ditch and a small pit 20m away would suggest a very low intensity occupation. Traces of early medieval buildings could easily have been removed during the stripping of the site, but any other pits might have been expected to survive as negative features in the stripped surface. It is possible that any settlement focus lies beyond the pipeline easement a few metres to the north. A limited range of weed seeds might suggest some crop processing debris in the deposits and it is possible that the feature reflects all that remains of a 'field kiln' for processing the harvested crops in the field before returning to the farm for storage. The site located on the southern edge of the plateau would have been on the margins of any arable fields and in a suitable place for threshing and winnowing a crop. Also if the crops are being processed in the field they may well have been kiln dried before being returned to the farm for storage. At this period the buildings and structures on a farm may have been limited and the crop was more easily processed in the field. Although

field kilns are recorded historically and examples dated back to the 15th century (Britnell 1984) none are documented as early as the 5th–7th centuries AD, although other examples may occur along the pipeline. The cereals (free threshing wheat, barley and oats) are typical of sites of post-Roman date in Wales and mirror other early medieval sites on the pipeline.

The site may therefore either indicate domestic occupation, of perhaps a low intensity or short duration, that has left very limited evidence, or be on the periphery of an early medieval settlement located north of the easement, or may represent part of, or have been associated with, an early field kiln similar to examples from the Roman and medieval periods on the pipeline, and previously excavated medieval examples.

APPENDIX C: RADIOCARBON DATES BY SEREN GRIFFITHS

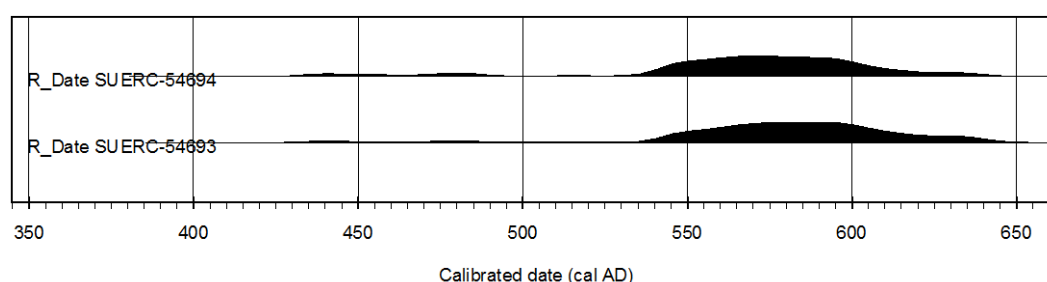
For the analysis, radiocarbon measurements were produced on short-life, single entity charred plant remains. Samples with the 'Beta-' laboratory code were pretreated as detailed here <http://www.radiocarbon.com/>. Samples with the 'SUERC-' laboratory code were pretreated using an acid-base-acid process. 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.

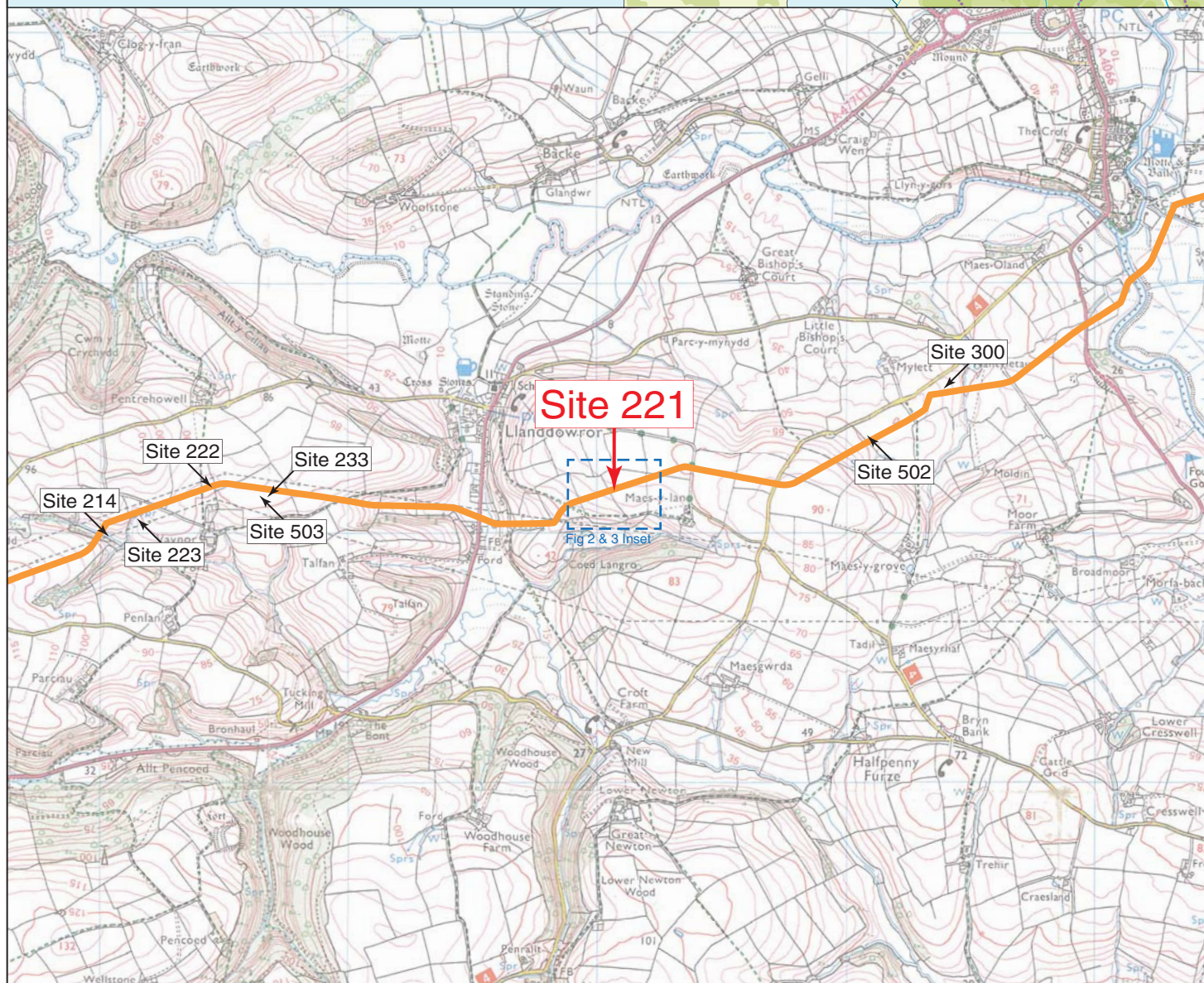
Two radiocarbon dates were produced on a barley grain and an oat grain from pit 221018 context 221022 (Fig. 4). These results are statically consistent ($T'=0.1$; $T'5\%=3.8$; $df=1$; Ward and Wilson 1978), and could be of the same actual age. If these results represent the same 'archaeological event', a weighted mean taken prior to calibration suggests this activity occurred in the 6th or 7th centuries cal AD, most probably in the second half of the 6th century cal AD.

Sample	Context	Feature	Lab. Ref	Sampled material	Result	$\delta^{13}C$	Calibrated date (95% prob)
221001	221022	221018	SUERC-54693 (GU34691)	Oat grain	1486 \pm 29	-23.9	Cal AD 530–650
			SUERC-54694 (GU34692)	Barley grain	1496 \pm 29	-21.4	Cal AD 470–640

Dating undertaken by Scottish Universities Environmental Research Centre

Fig. 4 The calibrated radiocarbon dates from Site 221





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



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PROJECT TITLE

South Wales Pipeline. Site 221, Land West of
Maes-y-Lan, Llanddowror, Carmarthenshire

FIGURE TITLE

Site location plan

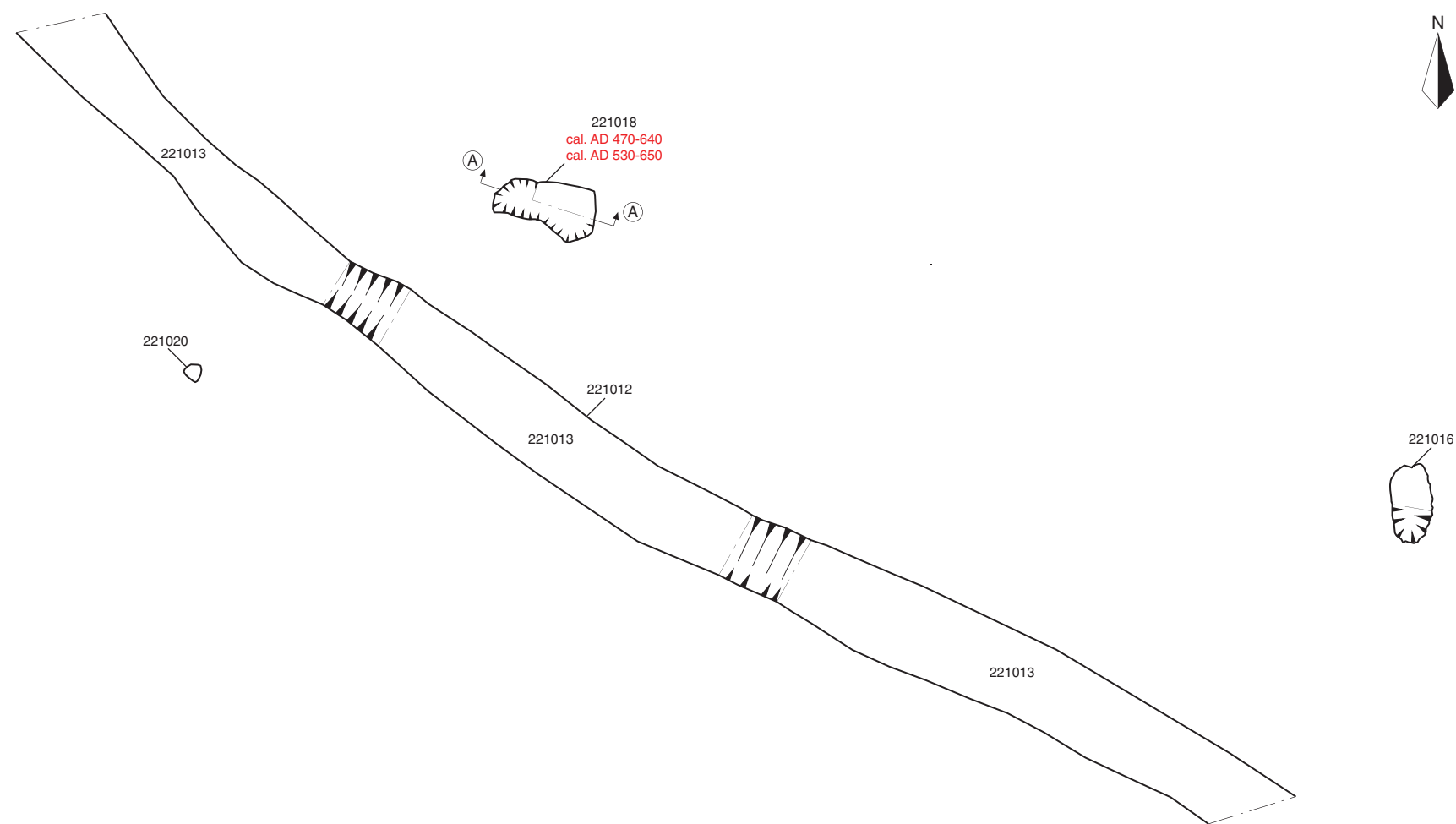
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FIGURE NO.

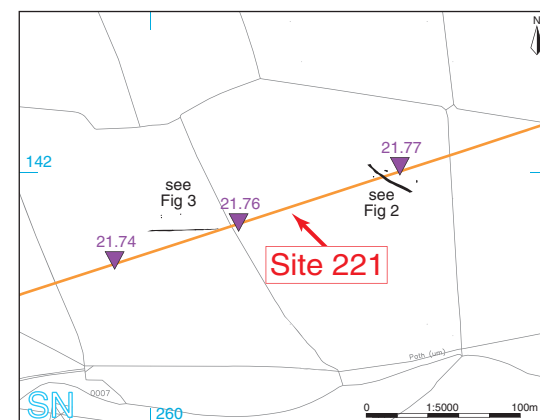
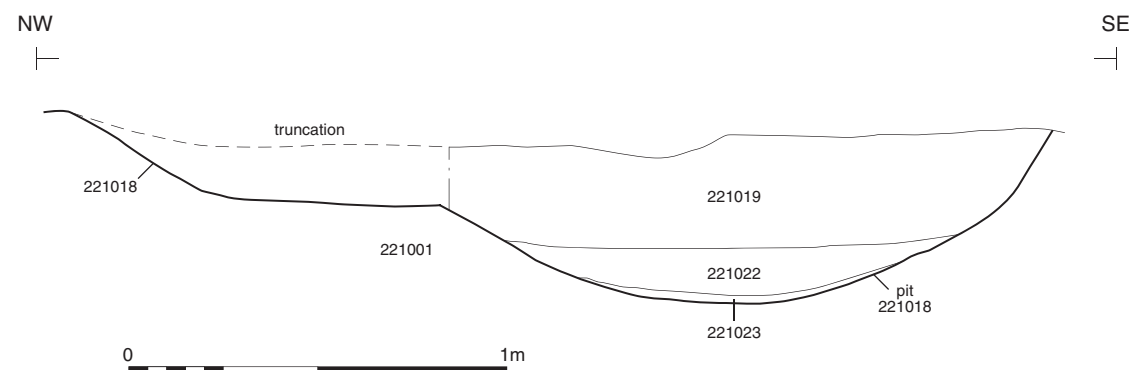
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SN
26137
14183

0 5m

Section AA



- pipeline centreline
- 2005-6 evaluation trench

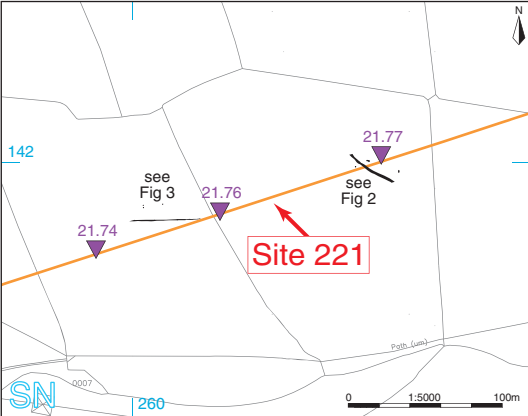
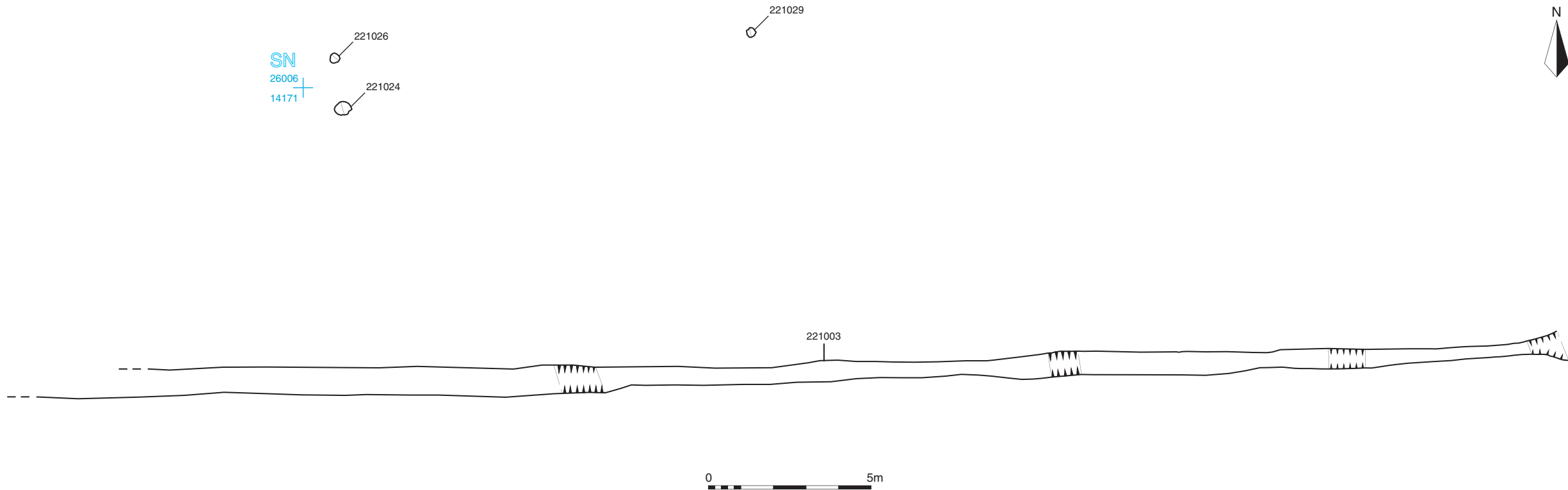
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PROJECT TITLE
South Wales Pipeline. Site 221, Land West of Maes-y-Lan, Llanddowror, Carmarthenshire

FIGURE TITLE
Plan and section of easternmost archaeological features

PROJECT NO.	9150	DATE	12-07-2013	FIGURE NO.
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APPROVED BY	PJM	SCALE@A3	1:150 1:20	



— pipeline centreline
▼ 2005-6 evaluation trench

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PROJECT TITLE
South Wales Pipeline. Site 221, Land West of Maes-y-Lan, Llanddowror, Carmarthenshire

FIGURE TITLE
Plan of westernmost archaeological features

PROJECT NO.	9150	DATE	12-07-2013	FIGURE NO.
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APPROVED BY	PJM	SCALE@A3	1:150	