

**South Wales Gas Pipeline Project  
Site 28.14  
Land North-East of Bail y Llwyd  
Manordeilo and Salem  
Camarthenshire**

Archaeological Watching Brief

*for*  
**Rhead Group**  
*on behalf of*  
**National Grid**

CA Project: 9150  
CA Report: 13305  
Event: DAT108816

September 2013

# South Wales Gas Pipeline Project Site 28.14

## Archaeological Watching Brief

CA Project: 9150  
CA Report: 13305  
Event: DAT102846

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date	11 February 2015
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date	
issue	01

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Fig. 1 Site location plan (1:25,000)

Fig. 2 Plan and Section of Burnt Mound 28.14.003 (1:50 and 1:20)

## 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

<b>Project Name:</b>	South Wales Gas Pipeline Project
<b>Location:</b>	Site 28.14, Land North-East of Bail y Llwyd, Manordeilo and Salem, Carmarthenshire
<b>NGR:</b>	SN 6812 2806
<b>Type:</b>	Watching Brief
<b>Date:</b>	2 July 2007
<b>Location of Archive:</b>	To be deposited with RCAHMW (original paper archive) and Carmarthenshire Museum (digital copy of paper archive; accession number CAASG 2008.0282)
<b>Site Code:</b>	MHA06

An archaeological watching brief was undertaken by Cambrian Archaeological Projects 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.

A Middle Bronze Age burnt mound, radiocarbon-dated to 1440–1270 cal. BC, was recorded near to a small tributary of the River Towy. No associated water troughs or hearths were found although the mound was not fully excavated.



## 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 In July 2007 CAP carried out an archaeological watching brief at Site 28.14, Land North-East of Bail y Llwyd, Manordeilo and Salem, Carmarthenshire (centred on NGR: SN 6812 2806; 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 Framework Document* (AFD) (RSK 2007) and associated *Written Statements of Investigation* (WSIs) and *Method Statements*.
- The site**
- 1.4 The site is located within a field at approximately 80m AOD, off the summit of a south-east facing ridge of high ground overlooking the Towy valley (Fig. 1). The field within which it located is alongside a small tributary of the River Towy.

- 1.5 The underlying solid geology of the area is mapped as the Nantmel Mudstone Formation of the Ordovician Period with no overlying superficial deposits (BGS 2013).

### ***Archaeological background***

- 1.6 No archaeological remains were identified within the site during the preliminary *Archaeology and Heritage Survey* (CA 2006). Work during the construction of the pipeline exposed two burnt mounds 1km to the north-east of the site at Site 28.23 (CA 2014; PRNs 107279-80) and two further burnt mounds 500m south-west of the site at Sites 28.08 and 28.08a (CA 2013a). In addition, an undated pit was found 150m south-west of the site at Site 28.12 (CA 2103b). The burnt mound on the current site was first exposed during machine stripping of the easement.

### ***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 The post-excavation work was undertaken following the production of the UPD (GA 2012) and included re-examination of the original site records. 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.

- 1.10 The archive from the watching brief is currently held by CA at their offices in Kemble. A digital copy of the paper archive will be deposited with Carmarthenshire Museum under accession number CAASG 2008.0282. The original paper archive will be deposited with the RCAHMW.

## 2. RESULTS (FIG. 2)

- 2.1 This section provides an overview of the watching brief results; detailed summaries of the recorded contexts, environmental samples (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.

- 2.2 The natural mudstone substrate was overlain by burnt mound 28.14.003. This was roughly circular in plan, 6m in diameter and comprised a 0.15m-thick layer of burnt stones and charcoal within a silty clay matrix. Samples from this material contained large amounts of fuelwood charcoal derived from a mixture of sources including oak, alder, hazel, hawthorn group and holly. Fragments of this charcoal produced Middle Bronze Age radiocarbon dates of 1440–1270 cal. BC and 1450–1290 cal. BC (Beta-396752 and 396753). These dates are statistically consistent and may represent the same event.

### *Discussion*

- 2.3 The Middle Bronze Age date for the burnt mound correlates with other examples from the pipeline, the majority of which have returned Bronze Age dates. No trough or hearth was found in association with the mound, but this may reflect the fact that only 50% of the mound was excavated, or it may be that such features lie just beyond the excavated area. Burnt mounds are typically situated alongside watercourses and the current example is less than 20m south-west of a tributary of the River Towy. The discovery of comparable mounds to the north-east and south-

west (see *Archaeological Background*, above), suggests that the valley sides may have been well populated with such features.

### 3. PROJECT TEAM

Fieldwork was undertaken by CAP. This report was written by 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 19 August 2013
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- 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 (RSKENSUR) 2007 *Felindre to Tirley Natural Gas Pipeline: Archaeological Framework Document, v7*. Nacap Land and Marine Final, RSKENSUR Environmental Ltd

## APPENDIX A: CONTEXT DESCRIPTIONS

Context No.	Interpretation	Description	W (m)	Depth (m)
28.14.001	Topsoil	Mid grey-brown silty clay		0.3
28.14.002	Subsoil	Mid red-brown silty clay		0.3
28.14.003	Burnt mound	Burnt stones within black silty clay matrix with frequent charcoal flecks	6.0	0.15
28.14.004	Natural	Mudstone		

## APPENDIX B: THE PALAEOENVIRONMENTAL EVIDENCE BY JAMES RACKHAM

A single sample was taken from a burnt mound deposit 28.14.003. The deposit was 0.15m thick (with an average thickness of 0.06m) while the sample is recorded as the top 5cm of the deposit.

**Table 1** Samples from Site 28.14

sample no	context no	feature	description	Wt kg.	Vol. l.
2814001	BM12	28.14.003	Burnt mound deposit 0-5cm	19	16

The sample was processed in the manner described in the assessment report (Carruthers 2008), with the additional refloating of the dried sample residue whose flot volume (2nd flot) is indicated in Table 2. The second flot was then sorted for charred macrofossils and the residue for other finds.

**Table 2** Data for the sample from Site 28.14

sample no	context no	pro-cessed wt kg	1st flot vol ml	2nd flot vol	residue wt g	burnt stone	magnetic
2814001	BM12	19	1000	34	9610	abundant	0.4

The sample residue contained abundant fire-cracked mudstone, but also a few pebbles, less usual in these deposits. The flot contained only charcoal and no macrofossil remains were identified from either the 1<sup>st</sup> or 2<sup>nd</sup> flots.

### Charcoal (*Dana Challinor*)

A single sample was submitted for charcoal analysis. The sample produced abundant charcoal, with some large fragments and a reasonable component of non-oak taxa. Fifty fragments, from a range of sieve sizes, were randomly selected and identified following standard procedures. The condition of the charcoal was quite good. Five taxa were positively identified; *Quercus* sp. (oak), *Alnus glutinosa* (alder) *Corylus avellana* (hazel), *Maloideae* (hawthorn group) and *Ilex aquifolium* (holly) (Table 3).

**Table 3.** Charcoal from burnt mound feature at site 28.14

	Feature type	burnt mound
	Context number	BM12
	Sample number	2814001
<i>Quercus</i> sp.	oak	18 (srb)

<i>Alnus glutinosa</i> Gaertn.	alder	11 (r)
<i>Corylus avellana</i> L.	hazel	1r
<i>Alnus/Corylus</i>	alder/hazel	7
Maloideae	hawthorn group	10 (r)
<i>Ilex aquifolium</i> L.	holly	1
Indeterminate		2

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

A number of fragments showed some evidence for ring curvature, including an almost complete oak stem of 9 years growth and radius of 11mm. There was also a very large fragment of oak burrwood, which usually forms in one of two ways; naturally in trees of some age or through pollarding. One fragment of hawthorn group charcoal exhibited insect tunnels with a small, asymmetrical shape.

In contrast to some of the other burnt mound assemblages identified along the pipeline, the charcoal from BM12 was more mixed, with 38% oak and 23% alder. Only one fragment was confirmed as hazel, but it is possible that more was represented in the 15% undifferentiated alder/hazel category. Nonetheless, the increased quantity of alder suggests a wet environment in the vicinity as the tree favours wet ground, especially near rivers and streams. Holly also grows well in moist, though well-drained, soil conditions. In addition to the burning of oak branch/relatively immature wood, the use of burrwood indicates that a tree of some age had been burned, since burrs only form as the tree ages and/or as a result of having been previously pollarded.

## Discussion

The site has been dated to the Middle Bronze. The assemblages from the sample are typical of burnt mounds. The residue of mudstone, much of it burnt, represented over 50% of the original unprocessed sample, and a relatively large charcoal component was present, approximately 5% of the original sample volume. The small magnetic component suggests that the deposits included minimal mineral debris from any hearths. No charred food items such as hazel nutshells or cereals were found in the flots and no other charred plant macrofossils were recorded. The sample contained only the residue of the fuel used to heat the stones, and the burnt stones themselves. The burnt mound is approximately 29sq metres in area with an average thickness of 0.06m. A broad estimate of the weight of burnt stone in the mound can therefore be calculated from the weight of residue in the sample (although the volume of sample has had to be estimated from the weight). This gives an estimate of the total weight of burnt stone in the mound as just over 1 tonne, indicating a fairly small mound. This figure is not robust since it is based upon a single sample of approximately 16 litres (less than 1% of the whole volume of the mound) but is a reasonable order of magnitude guide. Charcoal concentrations are fairly high indicating 52 ml of charcoal per kilogramme of deposit. The charcoal at this burnt mound shows a wider range of fuels being exploited than most of the mounds studied along the pipeline. It is difficult to account for this but it may reflect the local availability of wood resources, with the higher alder count suggesting alder growth along the small tributary of the River Towy that runs alongside the field with the burnt mound, while the hawthorn group and holly might suggest exploitation of woodland edge or hedgerow trees. The presence of oak burrwood might also suggest hedgerows or wood-pasture (Rackham 1980), with standard trees in the hedges or wood-pasture being pollarded or subject to limb loss. A wood-pasture would favour the holly and hawthorn group of trees too.

Rackham, O. 1980 *Ancient Woodland*. Edward Arnold

## APPENDIX C: THE RADIOCARBON DATING BY SEREN GRIFFITHS

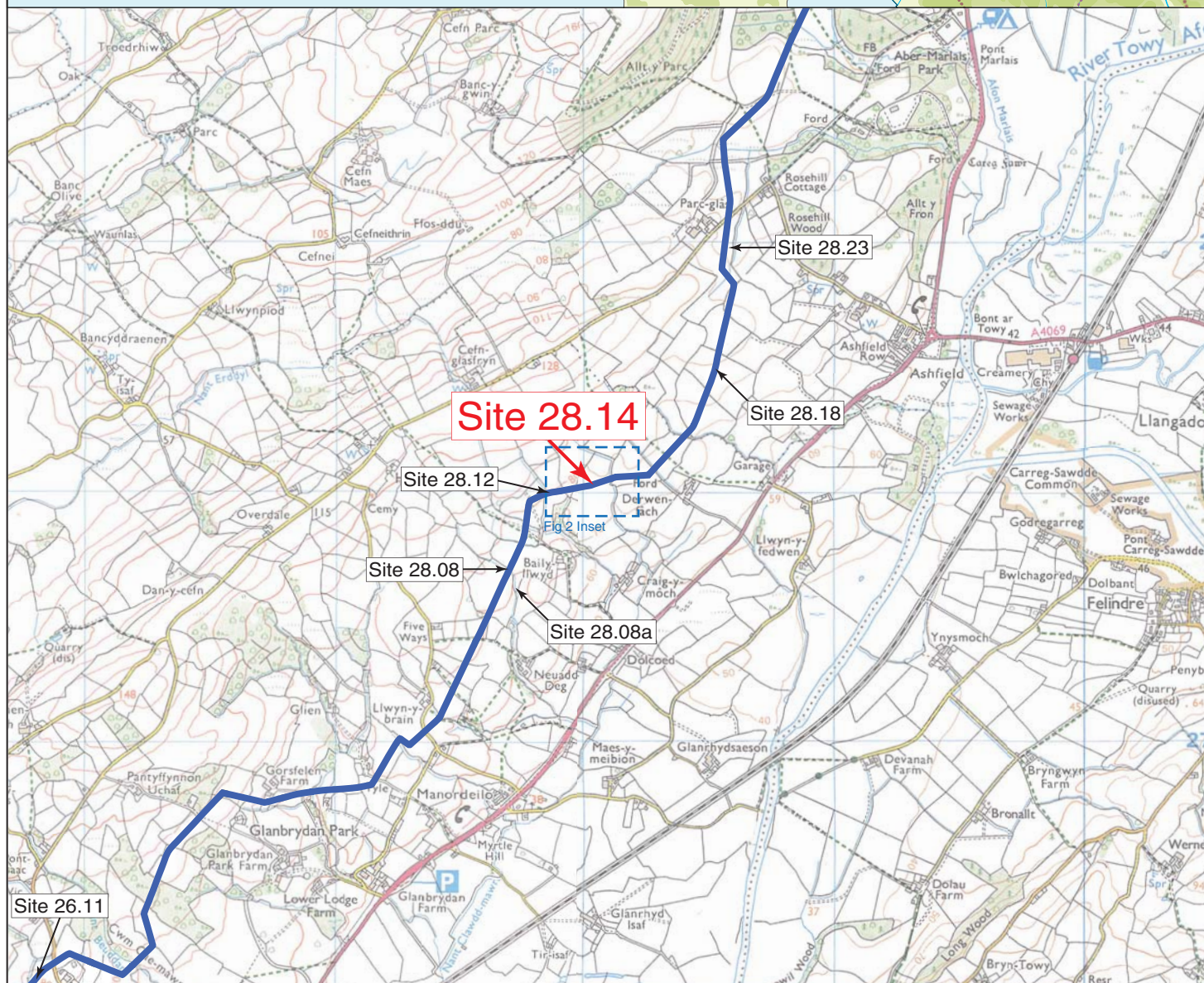
For the analysis, radiocarbon measurements were produced on short-life, single entity charred plant remains. Samples with the 'Beta-' laboratory code were pretreated as detailed here <http://www.radiocarbon.com/>. Samples were combusted and graphitized and then dated by Accelerator Mass Spectrometry (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 statistically consistent results (Beta-396753 and Beta-396752;  $T'=0.2$ ;  $T'5\%=3.8$ ;  $df=1$ ) were obtained from the burnt mound at site 28.14 and date the use of this burnt mound to 1440–1270 cal. BC (95% probability; Beta-396752) and 1450–1290 cal. BC (95% probability; Beta-396753).

Context	Feature	Sampled material	Laboratory ref	Measured age	$\delta^{13}C$	Calibrated date (95%)
28.14.003	Burnt mound	<i>Alnus</i> sp. charcoal	Beta-396752	3100 +/-30	-24.6	1440–1270 cal. BC
28.14.003	Burnt mound	<i>Corylus</i> sp. charcoal	Beta-396753	3120 +/-30	-24.5	1450–1290 cal. BC

Dating undertaken by Beta Analytic, Miami





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

0 1km

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#### PROJECT TITLE

South Wales Pipeline. Site 28.14, Land North-East of Bail y Llwyd, Manordeilo and Salem, Carmarthenshire

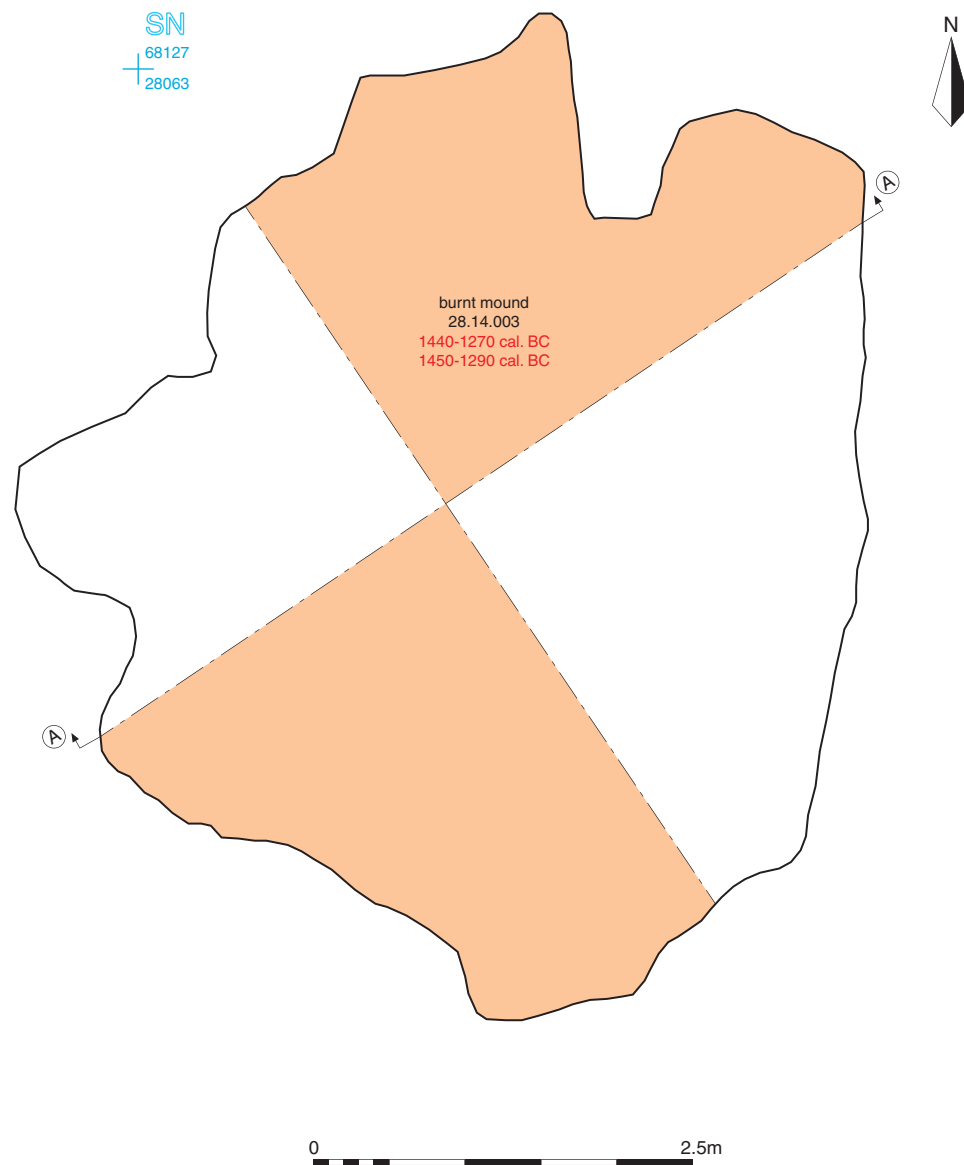
#### FIGURE TITLE

### Site location plan

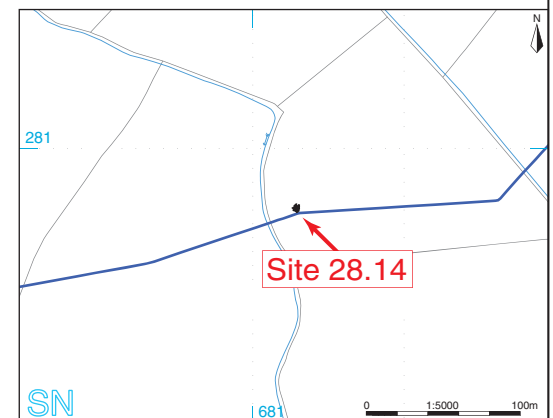
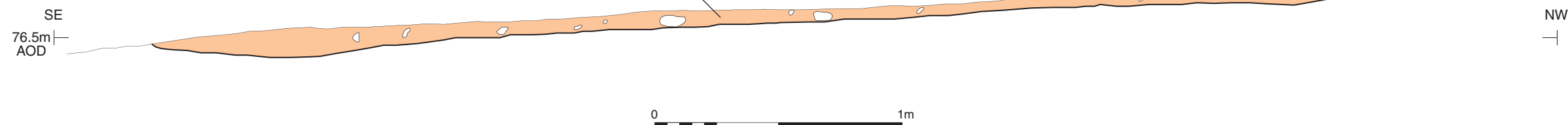
PROJECT NO. 9150 DATE 22-08-2013  
DRAWN BY DJB REVISION 00  
APPROVED BY PJM SCALE@A4 1:25,000

FIGURE NO.

1



Section AA



- pipeline centreline
- burnt mound

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FIGURE TITLE  
**Plan and section of burnt mound  
28.14.003**

PROJECT NO.	9150	DATE	22-08-2013	FIGURE NO.
DRAWN BY	DJB	REVISION	00	2
APPROVED BY	PJM	SCALE@A3	1:50 1:20	