

South Wales Gas Pipeline Project
Site 04.22
Land East of Llanedi
Llanedi
Carmarthenshire

Archaeological Watching Brief

for

Rhead Group

**National Grid** 

on behalf of

CA Project: 9150 CA Report: 13317

Event No.: DAT108789

July 2014

# South Wales Gas Pipeline Project Site 04.22

# Archaeological Watching Brief

CA Project: 9150 CA Report: 13317 Event No: 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 04.22, Land East of Llanedi, Llanedi, Carmarthenshire

NGR: SN 5891 0691

Type: Watching Brief

Date: 5-12 June 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 watching brief 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.

A single pit was found cut into a colluvial deposit on a plateau overlooking the River Loughor, just east of the village of Llanedi. The pit contained mixed charred cereals suggestive of a post-Roman date and these remains indicate that cereal processing of this date likely occurred in the vicinity.

## 1. INTRODUCTION

- NACAP Land and Marine Joint Venture (NLMJV), on behalf of National Grid, 1.1 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 June 2007 CAP carried out an archaeological watching brief at Site 04.22, Land East of Llanedi, Llanedi, Carmarthenshire (centred on NGR: SN 5891 0691; Fig. 1). The objective of the watching brief was to record all archaeological remains exposed during the pipeline construction. The site has also been referred to as Site OEA 34a.
- 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* (RSK 2007) and associated *Written Statements of Investigation* (WSIs) and *Method Statements*.

## The site

- 1.4 The site is located within a field on a plateau overlooking the River Loughor which flows 1km to the east (Fig. 1). The village of Llanedi is 250m west of the site and the site lies at 120m AOD.
- 1.5 The underlying solid geology of the area is mapped as the Rhondda Member (Sandstone) of the Carboniferous Period; no superficial deposits are recorded within

the site, although superficial deposits of Devensian Till are to be found downslope of the site (BGS 2014).

## Archaeological background

- 1.6 No archaeological remains were identified within the site during the preliminary Archaeology and Heritage Survey (CA 2006).
- 1.7 An earthwork 250m south of the site may be of early medieval date (PRN 49273) and the HER records that the churchyard attached to the medieval Llanedi parish church may have early medieval origins (PRN 674), although the HER entry for this considers such dating to be unlikely (PRN 49273). A farm, named as Pen-y-Fedw-Fach, is recorded from 1812, and lies in a derelict state 175m north-east of the site (PRN 28179). Pentre-Fartin cottage (PRN 24307), which is recorded on early 20th-century maps, and a late 19th-century farmhouse, Glyn Wallis (PRN 28178), lie 450m to the north-east and south-east of the site respectively.

## 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;
  - 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 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 Historic Environment 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.

1.11 The archive is currently held by CA at their offices in Kemble. Subject to the agreement of the legal landowner, the finds will be deposits 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 (FIG. 2)

- 2.1 This section provides an overview of the watching brief results; detailed summaries of the recorded contexts, finds and environmental samples (palaeoenvironmental evidence) are to be found in Appendices A, B and C. Full, original versions of the specialist reports are contained within the archive. In addition to the remains described below, unstratified post-medieval and early modern pottery was recovered.
- 2.2 The natural geological substrate, recorded as degraded shale and probably a Till deposit (see section 1.5, above), was overlain by layer 34A1002, a possible subsoil, which was itself cut by a pit.
- 2.3 Pit 34A1005 was oval in plan with a rounded profile and was 1.2m long, 0.9m wide and 0.2m deep. It contained a sequence of three fills, collectively numbered as deposit 34A1004. The lowest layer was a thin lens of charcoal which lined the pit base. This was overlain by a scorched sand with charcoal flecks, which filled most of the pit and which was itself overlain by a charcoal-rich brown fill.
- 2.4 A sample from the pit fill yielded a fairly rich charred plant assemblage comprising cereals, including frequent bread-type wheat and oats as well as smaller quantities of barley and rye. This mixed grain deposit probably derives from burnt domestic

waste, perhaps having been cleaned out of an oven or hearth. The concentration of charred grain and weed seeds suggests that it was the result of deliberately or accidentally burning of mixed processed cereals that had originally been destined for human or animal consumption (Appendix C). This assemblage also suggests a post Roman date for the deposit based on comparison with better dated cereal assemblages found along the pipeline route (see Appendix C).

## Discussion

2.5 The pit lies on the western periphery of Llanedi and probably dates to the post-Roman period (it was initially recorded as a post-medieval pit within the preliminary report, but the post-medieval finds were unstratified and not from the pit; see Appendix B). The remains within it are suggestive of processed cereals. No *in situ* burning was noted and although the scorched sand perhaps derived from a cropdrying oven, the pit may have been used for the disposal of domestic waste. The remains indicate that post-Roman cereal processing activities likely occurred in the vicinity, with resulting waste products being accidently preserved on the edge of Llanedi.

## 3. PROJECT TEAM

Fieldwork was undertaken by Cambrian Archaeological Projects. This report was written by Jonathan Hart with illustrations prepared by Daniel Bashford. The archive has been compiled 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

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#### **APPENDIX A: CONTEXT DESCRIPTIONS**

Context	Fill of	Interpretation	Description	L (m)	W (m)	Depth
No.						(m)
34A1001		Topsoil	Orange-brown sandy silt			0.3
34A1002		layer	Orange-brown silt (subsoil?)			0.3
34A1003		Natural	Green-grey shale			
34A1004	34A1005	Pit fill	Several fills recorded as one: initial charcoal lens across base, overlain by scorched red-brown sand with charcoal flecks, overlain by charcoal-rich brown 'soil'	1.2	0.9	0.2
34A1005		Pit	Oval in plan with bowl-shaped profile	1.2	0.9	0.2

#### **APPENDIX B: THE FINDS**

## Pottery (Courtney 2009)

Unstratified post-medieval and early modern pottery was recovered from the site, totalling 20 sherds (291g).

#### APPENDIX C: THE PALAEOENVIRONMENTAL EVIDENCE BY JAMES RACKHAM

One environmental sample was taken from the fill of an isolated pit (Table 1). The pit deposits contained no dating evidence although unstratified post-medieval pottery and clay tobacco pipe fragments are recorded from the site. The pit was not fully excavated but an environmental sample was collected from deposit 1005. The sample was processed in the manner described in the assessment report (Carruthers 2008). The dried residue was refloated and the second float noted on Table 2, and the residue checked for magnetic material and archaeological finds. No archaeological finds are recorded as having been recovered from the sample, although the residue included abundant burnt stone. The magnetic component of 60g is composed almost entirely of fired mudstone, which along with the burnt stone and charred plant remains suggests either *in situ* burning or the dumping of charred remains and mineral fire debris into the pit.

Table 1. Bulk environmental sample from Site 4.22

context	description	Wt kg.	Vol. I.	Date
34A1005	Pit fill	6.3	nd	undated

Table 2. Data for the environmental sample from Site 4.22

context	Wt (g)	Residue wt (g)	1 <sup>st</sup> flot vol (ml)	2 <sup>nd</sup> flot vol (ml)	Burnt stone	Magnetic*
34A1005	6.3	1184	80	<1	В	60.2

<sup>\*</sup>quantities - E=1-10; D=11-50; C=51-100; B=101-200; A=200+ items

## Botanical analysis (Wendy Carruthers)

The sample produced a charred plant assemblage that gives some indication as to the date of the pit so full analysis was undertaken in an effort to refine the dating and make a contribution to the broader project wide synthesis of cereal crops and charcoal assemblages along the pipeline route and .

#### Methods

Sorting was carried out using an Olympus SZX7 stereoscopic microscope. Flots were first separated into 3 fractions (minimum mesh 250 microns) to facilitate sorting. All modern material (primarily stones and rootlets) was removed prior to measuring the flot volume. Stace (2010) and Zohary and Hopf (2000) were used for nomenclature. It should be noted that some changes to the identification and interpretation may be made once all of the project wide botanical data has been gathered together.

#### Results

The state of preservation was reasonably good, although surface erosion, silt impregnation and distortion during charring caused some problems in identifying cereal grains. A single uncharred bramble seed (*Rubus* sect. *Glandulosus*) was present, but this may well be a contaminant. The species identified are presented in Table 3.

#### Interpretation

This mixed oat/wheat/barley grain deposit probably derives from burnt domestic waste, perhaps having been cleaned out of an oven or hearth. The concentration of charred grain and weed seeds (Table 3) was fairly high (85.4 fragments per litre), suggesting that it was the result of deliberately or accidentally burning mixed processed cereals that had originally been destined for human or animal consumption. The ratio of oats to wheat to barley grains was roughly 10: 4: 3. The oats appeared to have been mainly common oat (*Avena sativa*) judging from grain morphology (not a reliable method of identification without the presence of chaff), but the only chaff identified was from wild oats (*A. sterilis*; 3 floret bases). Amongst the large number of indeterminate small oat grains quite a few slender, straight-grained wild-type oats were observed, so the crops had probably been quite badly contaminated with wild oats. Separate crops may have been deposited (perhaps from an accumulation of spillage from drying different crops in a hearth or oven), or some maslins such as oat/barley dredge may have been grown.

A number of small-seeded weeds were present, including persicaria (*Persicaria maculosa/lapathifolia*), knotgrass (*Polygonum aviculare*) and grasses (Poaceae). These may have been weed contaminants remaining in poorly processed crops, or burnt processing waste deposited in a fairly mixed, charcoal-rich pit fill. Weeds such as corn spurrey and persicary are characteristic of a rich arable soil and garden weed plant community (order Polygono-Chenopodietalia, Ellenburg 1988), with corn spurrey belonging to the sub-group indicative of acidic soils (alliance Spergula-Oxalidon). Since the local soils are fairly poor and acidic it is likely that manuring would have been taking place.

**Table 3**. Charred plant remains from sample 34A1005.

		1 <sup>st</sup> & 2 <sup>nd</sup>
	Context type	Pit fill
	Context no.	1005
	Sample no.	
	Wt .proc. soil kg.	6.3
	Vol. flot ml.	80
TAXA	COMMON NAME	
CEREAL GRAINS		
Triticum aestivum type	bread-type wheat grain	79
Hordeum vulgare L.	straight hulled barley grain	8
Hordeum vulgare subsp. vulgare	twisted hulled six-row barley	9
Hordeum vulgare L.	indeterminate barley grain	42
Avena cf. sativa-type	cf. common oat-type grain	25
Avena sp.	indeterminate oat grain	148
Avena sp.	Sprouted oat grain	21
Secale/ Triticum sp.	rye/wheat grain	5
Cerealia indet	indeterminate grains	169
CHAFF FRAGMENTS		
Avena sterilis	wild oat floret bases	3
OTHER		
Polygonum aviculare L.	knotgrass achene CDGo	2
Persicaria maculosa/lapathifolia	redshank/pale persicaria CD	17
Rumex acetosella L.	sheep's sorrel achene EoGCas	1
Spergula arvensis L.	corn spurrey seed Cs	1
Plantago lanceolata L.	ribwort plantain seed Go	1
Centaurea cf. nigra L.	cf. common knapweed GDY	1
Carex sp.	sedge nutlet MGw	1
Poaceae	small grass seed CG	5
TOTAL		538
CHARRED ITEMS PER LITRE		85.4

## Notes on cereal taxonomy

As noted above, the best-preserved oats were typical of common oats (*Avena sativa*), being large (c. 4.5 - 6mm), plump, with the widest point of the grain being closest to the embryo end. Long hairs were often visible on the surface of the grains. For the oat chaff, the sucker-mouth scar on the floret base was characteristic of wild oat (*Avena sterilis*). The bread-type wheat grains were quite variable in size (c. 3.5-5mm long), either indicating a fairly genetically diverse crop or the mixing of grain from different crops. In general, the grains were on the small side, perhaps indicating poor soils or an early date. Features such as the very rounded profile, flat dorsal side, wide and round embryo depression indicated that a hexaploid free-threshing wheat (bread-type; *Triticum aestivum*-type) rather than tetraploid free-threshing wheat (rivet-type; *Triticum turgidum*-type) was probably present, although this cannot be confirmed using grain morphology alone (Jacomet 2006). Where grains were well-enough preserved it was clear that hulled barley was present, and the frequent twisted grains indicated that some, if not all, was six-row hulled barley (*Hordeum vulgare* subsp. *vulgare*)

## Charcoal (Dana Challinor)

Thirty fragments of charcoal were examined from context 34A1005, following standard procedures. Three taxa were positively identified; *Quercus* sp. (oak), *Corylus avellana* (hazel) and *Prunus* sp. (cherry/blackthorn). The *Prunus* fragments exhibited wide rays (4-6+ seriate), which is consistent with the native *P. spinosa* (blackthorn), but this cannot be differentiated anatomically from the introduced species, *P. domestica* (plum).

The condition of the charcoal was quite poor, with heavy encrustation and infusion of sediment. There were also some high levels of vitrification observed in the oak fragments and charred fungal hyphae in the blackthorn/plum. The latter characteristic indicates that the wood was not completely fresh when burnt as the fungus only attacks dead or dying wood in aerobic conditions (Marguerie and Hunot 2007, 1419). The charcoal assemblage is likely to have derived from the same activity as the charred plant remains: domestic waste from a hearth or oven. Clearly oak was the primary fuelwood, with smaller quantities of hazel and blackthorn/plum.

Table 4. Charcoal from the undated pit at Site 4.22

	Context number	34A1005
Quercus sp.	oak	22 (hr)
Corylus avellana L.	hazel	3
Alnus/Corylus	alder/hazel	2
Prunus sp.	cherry type	2
Indeterminate		1
Total		30

h=heartwood; r=roundwood; brackets denotes presence in some frags only

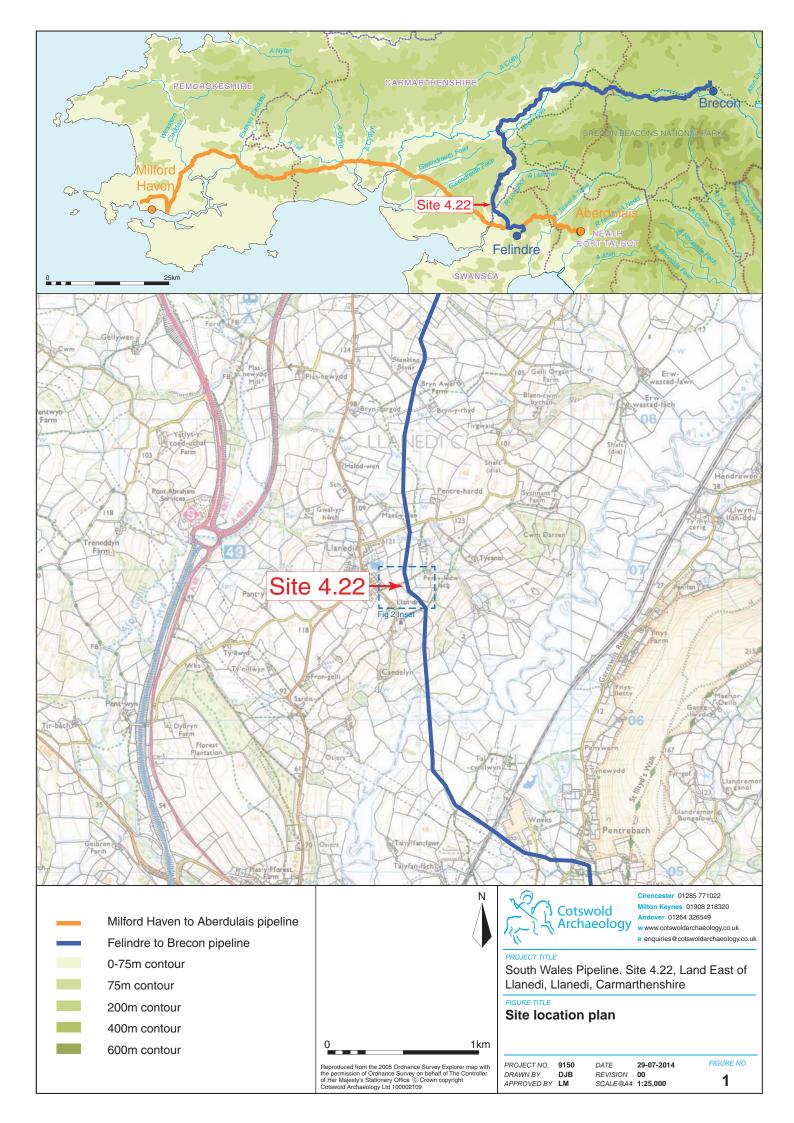
#### **Discussion**

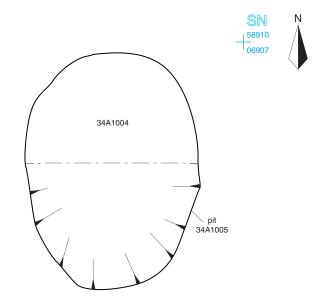
The environmental assemblages from the only feature recorded at this site would suggest a 'domestic' context for the remains, perhaps waste discarded from an oven or hearth. The feature is undated but the abundance of oats and bread type wheat is characteristic of the medieval and later periods. Dated sites studied along the pipelines have produced data that allows some consideration of the date of the deposit. Immediate post-Roman assemblages from 25.08 are dominated by hulled barley (Rackham *et al* 2015a) and those from a similar date at site 293 are dominated by hulled barley, but with significant oats and free threshing wheat (Rackham *et al* 2014). A 6-7th century assemblage at site 221 produced similar quantities of oat and barley with free threshing wheat also present (Rackham *et al* 2015b), while a 7-9th century assemblage from site 512 is dominated by barley, but with oats and a little free-threshing wheat (Rackham *et al* 2105c), while a similar date assemblage from site 201 is dominated by oats (Rackham *et al* 2015d). Medieval samples broadly in the period 8-12th century AD from sites 25.07 and 251 are completely dominated by oats (Rackham *et al* 2015e, 2015f), while a post-medieval assemblage from an oven at Site 24.06 is dominated by bread type wheat with oat and rye present (Rackham *et al* 2015g). On the basis of these data, and Roman and prehistoric sites along the pipeline, and accepting that these sites do not necessarily represent a reliable crop history for the post-Roman period, we can confidently date the deposit to the post-Roman period.

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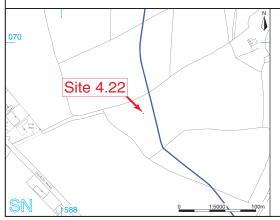




# Section AA







pipeline centreline

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PROJECT TITLE

South Wales Pipeline. Site 4.22, Land East of Llanedi, Llanedi, Carmarthenshire

FIGURE TITLE

# Plan and section of pit 34A1005

 PROJECT NO.
 9150
 DATE
 29-07-2014

 DRAWN BY
 DJB
 REVISION
 00

 APPROVED BY
 LM
 SCALE@A4
 1:20

FIGURE NO.