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DYFED ARCHAEOLOGICAL TRUST LTD

REPORT ON THE ARCHAEOLOGICAL WATCHING BRIEF ON THE LLYN CRAIG-Y-  
PISTYLL TO BONTGOCH WATER SUPPLY SYSTEM, 20-21 NOVEMBER, 1993  
(CON 92/15)

Client: Wallace Evans/Dwr Cymru

Project Officer: N D Ludlow

Report by: N D Ludlow

Dated: 10 April 1994

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(CON 92/15)

1.0 INTRODUCTION

1.1 Content and scope of the watching brief

1.2 Purpose and methodologies of the watching brief

2.0 ARCHAEOLOGY

2.1 Summary

2.2 Register of archaeological sites and areas of archaeological interest

2.3 Archaeological areas subject to the watching brief

3.0 LLAWR-Y-CWM-BACH LEAD MINE (5497)

3.1 Site History

3.2 Site Description

3.3 The Watching Brief

3.4 Discussion

4.0 THE FINDS

5.0 ARCHIVE DEPOSITION

6.0 ACKNOWLEDGEMENTS

7.0 LIST OF SOURCES CONSULTED

8.0 FIGURES

8.1 Annotated engineer's plans (reduced from 1:5000) showing areas of archaeological interest

8.2 Plan of Llawr-y-cwm-bach lead mine 20-21 November 1993

8.3 Llawr-y-cwm-bach lead mine: Northern section of pipeline trench through slime pits and adit

8.4 Detail from Ordnance Survey 1:2500 First Edition, Cardiganshire, Sheet VII.2 (1886)

## 1.0 INTRODUCTION

Details of a new water supply system from Llyn Craig-y-pistyll to Bontgoch were forwarded by Wallace Evans, on behalf of Dwr Cymru, to Dyfed Archaeological Trust on 13 August 1992.

Following their acceptance of recommendations, Wallace Evans commissioned an archaeological watching brief to be carried out on any archaeological sites affected by the scheme prior to and/or during the work as part of the mitigation strategy. An archaeological report on the results of the watching brief was also commissioned.

Dyfed Archaeological Trust's Field Section were accordingly advised of the proposed schedule of works on 19 November 1993.

Note: This scheme was not subject to a preliminary archaeological desk top assessment.

SMR Amendments and Additions to Llyn Craig-y-Pistyll to Bontgoch Report

Project Record 30684

Amendments

No amendments

New PRN's

No new PRN's.

Jenny Hall, SMR Officer

13 July 1995

## 1.1 Content and scope of the watching brief

An archaeological watching brief is defined by the Institute of Field Archaeologists as a formal programme of observation and investigation conducted during an operation carried out for non-archaeological reasons - normally a development or other construction project - within a specified area where archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive.

The watching brief will be intended to allow, subject to resources, the preservation by record of archaeological deposits in advance of their disturbance or destruction and to provide an opportunity, if necessary, for the watching archaeologist to alert all interested parties to the presence of an archaeological find for which the resources allocated to the watching brief are insufficient to support satisfactory treatment.

The watching brief is not intended as a substitute for contingent excavation.

The client will be supplied with 3 copies of an archaeological report of the results of the watching brief. The report will be fully representative of all the information recovered. Normally it should be read in conjunction with the desk-top assessment for the scheme which provides the historical framework for the watching brief. A copy of the report will also be deposited with Dyfed Sites and Monuments Record.

## 1.2 Purpose and methodologies of the watching brief

The purpose of the watching brief is to undertake as complete a record as possible of any archaeological features affected by the client's scheme of works. In the case of larger archaeological sites it will seldom be possible or necessary to undertake a record of the entire site; the record will be undertaken only on those areas of the site that may be affected.

The primary stage of the watching brief for any scheme normally involves consultation of the desk-top assessment for the scheme and/or consultation of Dyfed Sites and Monuments Record, which is maintained by Dyfed Archaeological Trust's Curatorial Section, for those sites affected by the scheme.

The client will normally advise Dyfed Archaeological Trust's Field Section of any changes in the proposed works resulting from their consultation of the desk-top assessment, and of any sites which may still be affected by the scheme. The client will also provide the Field Section with a proposed schedule of works in order that a full field study may be performed on any affected site prior to the commencement of the works.

Work on or around those affected sites will be subject to the watching brief. The work will be closely observed by an archaeologist from the Field Section who will also undertake a full drawn, written and photographic record of any archaeological features which may be disturbed by the scheme, and any artefact or find exposed during the works. Recording will be carried out where necessary and when convenient: it is the Field Section's aim to minimise any disruption to the client's schedule. However, if archaeological features may be lost during the scheme, it may be necessary for the Field Section to request a postponement of the works in order that the archaeology may be recorded. Larger areas affected may require fuller excavation and/or survey.

## 2.0 ARCHAEOLOGY

### 2.1 Summary

The Llyn Craig-y-pistyll - Bontgoch water supply system was not subject to an archaeological desk top assessment and has not been properly fieldwalked; this report is intended in part to incorporate information normally contained within the desk top assessment. The reference numbers referred to in this report are those allocated on Dyfed Archaeological Trust's Sites and Monuments Records. The abbreviation Clouson refers to Clouson, B., and Partners, 1988, Cambrian Mountains: Metal Mines Project, Inventory of Sites; Protheroe Jones refers to Protheroe Jones, R., 1992, Dyfed Archaeological Trust Ceredigion Metal Mines Survey, Record Forms.

The pipeline passes E-W along the upland valley of the Afon Leri from Craig-y-pistyll reservoir, dammed in 1880, to the village of Bontgoch (Elerch) 3.5 km to the W, at an average altitude of 230m. The entire region is designated an Environmentally Sensitive Area and land use is wholly as upland pasture. However, the environs of Bontgoch village display much physical evidence for former ploughing, and consultation of the Tithe Maps for Llanbadarn Fawr parish (1845) and Llanfihangel Genau'r Glyn parish (1847) confirm that arable farming was practiced along the valley floor of the Afon Leri. On higher ground grazing predominated, the area being predominantly one of sheepwalks. The pattern of enclosures shown on the Tithe Maps survives to the present day.

The area was, during the 18th and 19th centuries, one of the centres of the Cardiganshire lead mining industry and the pipeline passes close to or through no less than 4 former lead mine sites - Craig-y-pistyll (25970), Llawr-y-cwm-bach (5497), Llanerchclwydau (25847) and Llanerch/Pontgoch (25848). Its excavation significantly affected only Llawr-y-cwm-bach mine which is, within this report, the site subjected to the watching brief.

## 2.2 Register of archaeological sites and areas of archaeological interest

9863. Neolithic/Bronze Age Findspot. In 1979 a Neolithic or Bronze Age knife was found beside Craig-y-pistyll reservoir (Briggs, 1979).

25970. Craig-y-Pistyll Lead Mine. Described as a lead/copper mine of 0.25 ha, and displaying 2 levels downstream of Craig-y-pistyll dam (Clouston 1988, No B40). There appears to be no further evidence for the presence of a mine here. Not mentioned by Protheroe Jones.

9145. John Horridge's Leat. Leading south off from the Afon Leri is John Horridge's 1840 leat to Cwmsebon Lead Mine. Llyn Craig-y-pistyll reservoir to the E was created in the 1880s when the dam was built by John Taylor to increase water flow along the leat, which he had extended. The leat is still visible here as an earthwork/ditch.

The pipeline crosses the Afon Leri at SN 712 854, 16m S of the outlet for the leat to Llawr-y-cwm-bach lead mine. The leat is traceable as an earthwork.

26578. Llawr-y-Cwm-Hen Farm. The pipeline passes 8m S of Llawr-y-cwm-hen farmhouse, possibly marked on the Ordnance Survey surveyors drawing of 1833-4 but named Llawr-y-cwm-bach. However, not marked on the 1845 Tithe Map of Llanbadarn Fawr parish.

5497. Llawr-y-Cwm-Bach Lead Mine. See below, 3.0.

26579. Llawr-y-cwm-bach Farm. Farmhouse, still inhabited. Possibly marked, as Llawr-y-cwm-mawr, on the Ordnance Survey surveyors drawing of 1833-4. Not named, but shown as cottage and garden on the 1845 Tithe Map for Llanbadarn Fawr parish.

26580. Ty-Hen Farm. The pipeline passes 20m S of Ty-hen farmhouse, marked on the Ordnance Survey surveyors drawing of 1833-4. The building is derelict, the walls surviving to a height of 2m.

A possible former garden plot is situated S of the house.

A field adjacent to the former Llanerchclwydau lead mine (below, 25847) is named Cae Dan Gwaith Mwyn - 'field below ore workings' - on the 1845 Tithe Map for Llanbadarn Fawr parish.

25847. Llanerchclwydau Lead Mine. The pipe trench passes S of the dumps of the former Llanerchclwydau lead mine. As no disturbance to the body of the mine was envisaged, no watching brief was mounted on trench excavation here. Llanerchclwydau mine was a small operation but significant in being one of Cardiganshire's few confirmed pre-1700 workings. It was active in the 17th century and in 1698 was the centre of litigation between the landowner - the Gogerddan estate - and the lessees, after which it appears not to have been worked. The mine occupied 0.30 ha. Two old levels ascending the hillside still survive, as do the small spoil dumps. 2 shafts have been filled. Copper ore has been observed on the dumps leading to speculation on the possibility



of Bronze Age copper working/prospecting on the site. (Clouston No B35; Protheroe Jones Sheet No 59)

26581. Bwn Bryncastell. Field Name. 'Castle' element of field name marked on the 1845 Tithe Map for Llanbadarn Fawr parish. There is no further evidence for such a structure here.

26582. Llanerchclwydau Farm. Llanerchclwydau farm is marked, with a neighbouring dwelling Tan-y-bont Coch (now gone), on the 1845 Tithe Map for Llanbadarn Fawr parish.

26583. Cae'r Odyn. Field Name. 'Kiln' element of field name marked on the 1845 Tithe Map for Llanbadarn Fawr parish. No kiln was observed here.

7066. Llyn Lloew Elerch Farm. Post-medieval farmhouse noted by the RCAHM in 1976. Not depicted on the Ordnance Survey original drawings of 1833-4, but is shown on the Tithe Survey map of 1837 as Llyn-loyw.

25848. Llanerch (Pontgoch) Lead Mine. The pipeline passes immediately N of a shaft marked on the Ordnance Survey 1:2500 First Edition of 1886, part of the former Llanerch lead mine, a small operation from the third quarter of the 19th century. In 1856 4.40 tons of ore were produced, the only year for which detailed figures are available. Liscombe & Co in 1869-70 say that 'little work has been done, the mine having been opened to 15 fathoms deep only, and the produce to that depth did not repay the adventurers for their outlay. The principal lode is a caunter, containing small quantities of lead ore and blende.' In 1898 the mine was owned by J Evans with a total workforce of 2, both underground; the following year, under Mrs Evans, work was suspended and the mine was not worked again. The site covers less than 0.10 ha but no visible evidence survives. Lead concentrates on the site are minimal. (Clouston No B47; Protheroe Jones Sheet No 60)

### 2.3 Archaeological areas subject to the watching brief

The Llyn Craig-y-pistyll - Bontgoch water supply system affected only one site to the extent that a watching brief was deemed necessary - the former lead mine at Llawr-y-cwm-bach (5497) where the pipeline passed through the southern section of the site. Its excavation took place 20-21 November 1993.

At Llawr-y-cwm-bach the section through the affected part of the site was measured, drawn and photographed. Also the opportunity was taken to produce a measured ground plan of the mine complex.

### 3.0 LLAWR-Y-CWM-BACH LEAD MINE (5497)

SN 7067 8539; Clouson No B36; Protheroe Jones Sheet No 61

Consultation between Wallace Evans and Dyfed Archaeological Trust's Curatorial Section in November 1992 emphasised the necessity of minimising disturbance to Llawr-y-cwm-bach mine, a well preserved 19th century lead mine. Proposals to re-route the pipeline further south to avoid the slime pits - when disturbed a major pollution hazard in addition to being of great archaeological significance (see below) - however proved impractical due to the proximity of the Afon Leri; it was instead decided that the pipeline should follow the course of the existing trackway through the site where its effect would be least. However, two slime pits - in an unusually intact condition - were partially removed.

#### 3.1 Site History

The history of Llawr-y-cwm-bach lead mine is rather obscure. It was established before 1845 when it was offered for sale by the Cardigan United Mining Co.. Two years after its reopening in 1848 'a very beautiful little waterwheel and lift of pumps' were installed. The mine was, from 1859-1875, run as a private venture leased from the Gogerddan estate by C E Hayward & Co.

In 1851 production at the mine stood at 1.20 tons of lead ore, no silver ore being produced. The figure had climbed to 66.00 tons of lead ore, and 210.00 ozs. of silver ore, by 1860. It was never to reach this peak again - in 1879 production was down to just 16.50 tons of lead ore.

Liscombe's survey of 1869-70 states that Llawr-y-cwm-bach 'is situate about 8 miles north-east of Aberystwith, and is worked by means of an adit, and 2 levels below it, at the respective depths of 16 and 26 fathoms. Between these levels and the adit considerable ore ground has been taken away, making good returns'.

Hayward's son took over the mine in 1876; the following year provides the earliest employment figures: 6 worked underground and 2 on the surface. By 1882 only 1 person was employed at the mine. Llawr-y-cwm-bach mine closed down the following year.

#### 3.2 Site Description (Fig. 8.2)

Llawr-y-cwm-bach is one of Ceredigion's most intact lead mines, situated on a series of 2 dressing floors leading down to the level north bank of the Afon Leri, averaging 240m above sea level.

The mine has been subject to examination by Dyfed Archaeological Trust as part of its Ceredigion Mines Survey (Protheroe Jones 1992) in addition to a rapid survey on 20-21 November 1993.

The site has been stripped of all its machinery and plant but many of the features, and structures, shown on the Ordnance Survey 1:2500 First Edition of 1886 still survive (cf. figs. 8.2

and 8.4). The leat from Craig-y-pistyll supplying the wheelpits is readily traceable as are a number of shafts, run-in levels and waste tips. On the upper level were situated the winding engine house, crusher house, and a fine ore slide that recieved ore discharged from the kibbles, with an adjoining angle-bob pit. The engine shaft lay to the side of the latter. All are substantially intact though ruinous and are of local shale construction. The west, south and east walls of the crusher house, in particular, stand almost complete and display their original openings. The NW corner of the winding engine house features a well-preserved fireplace and flue while the adjacent wheelpit, though gone, still displays its timber bearings and holding bolts. 120m to the east lay the magazine, a building still in agricultural use.

A fine pair of mid 19th century crushing rolls were retrieved from the crushing house, which was also surveyed, prior to the demolition of the housing in 1975. The crushing machine was water powered and the cast iron rolls measure 0.70m in diameter and 0.38m in width. They are displayed at Llywernog Museum.

Beneath the crusher house on the middle level, 2.5m below, lay a complex of settling tanks, the outlines of which are discernible in the turf. Two buddles either side of a waterwheel lay 2m below this level; the western buddle ring has gone but the eastern, and part of the wheelpit lining, still partly survive.

On the valley floor are a number of features and it is this area that is affected by the pipeline. A square building of uncertain function survives, though in a ruinous condition, and displays a fireplace and flue on its S wall, an entry through the W wall and a larger blocked opening through the N wall. The building is partially constructed on an artificial bank (see below, 3.3). To the E of this bank lies a run-in deep adit, averaging 1.5m deep, and a further slighter bank and hollow.

W of the building lies a series of slime pits. Slime pits have become uncommon features in Cardiganshire and these were in an unusually good condition; the northernmost, in particular, was a fine example revetted with masonry. Their form and alignment is rather different from that depicted on the Ordnance Survey 1:2500 First Edition of 1886, the southernmost pit - the least well-defined - being in outline a long rectangle aligned E-W and divided into 2, or possibly 3, compartments.

### 3.3 The Watching Brief (Fig. 8.3)

The excavation of the pipe trench through the N and central slime pits, banks and adit permitted examination of the cut sections of these features. The trench averaged 3.5m in depth and the N section was examined.

Slime pits normally contain a residue of very fine crushed unrecoverable ore (a major pollution hazard) and the section through the N pit displayed a sequence of fine silty residues alternating with gleyed organic deposits - the latter presumably natural build up, possibly indicating periods of disuse? The sequence averaged 0.25m in depth.

The westernmost bank - upon which the building was constructed - was seen to have been established over the topsoil horizon and is in 2 stages, a fine soil deposited over a coarse shale core. This feature does not appear to be spoil from the mine, nor is it shown as a pre-mine hedgebank on the 1845 Tithe Map for Llanbadarn Fawr parish - function? E of the adit a lower bank was constructed entirely of shale.

Below these features the section displays a sequence of deposits the lowest of which are black organic shale gravels, evidence that the entire valley floor has been crossed by the Afon Leri in the past. Above these a 2m thick soil has developed, but areas of clay deposit suggest further periods of inundation.

### 3.4 Discussion

Llawr-y-cwm-bach is a well preserved mid-19th century lead mine possessing a range of remarkably intact structures. It was possible to recover evidence of former industrial activity in the contents of the slime pits, and to perform a limited survey of the standing buildings and earthwork features.

All man-made features observed relate to the mine and no evidence for any earlier activity on the site was encountered. However, environmental evidence, and the changing course of the Afon Leri, were furnished by the excavation of the pipe trench. Confirmation of the fertility and suitability of the valley floor for agriculture was obtained.

#### 4.0 THE FINDS

No artefacts were discovered during the watching brief.

#### 5.0 ARCHIVE DEPOSITION

The full watching brief archive will be deposited at the National Monuments Record, housed with the RCAHM, Aberystwyth.

#### 6.0 ACKNOWLEDGEMENTS

Dyfed Archaeological Trust's Field Section acknowledges the invaluable assistance provided by the Curatorial Section, in particular Emyr Morgan. Thanks are offered to Teifion Rees of Dwr Cymru, and R I Wicks (project manager) and Tony John of Wallace Evans.

## 7.0 LIST OF SOURCES CONSULTED

unpublished

Dyfed Archaeological Trust Sites and Monuments Record

National Library of Wales, Vol 28, 'Court Grange Estate in the County of Cardigan belonging to the Right Honourable the Earl of Lisburne mapped by T Lewis, 1778'.

'The Parish of Llanbadarn Fawr', Tithe map and apportionment, 1845.

'The Parish of Llanfihangel Genau'r Glyn', Tithe map and apportionment, 1847.

Ordnance Survey, Original Survey Drawings, Sheet 336, 1833-4, 2" to a mile.

Protheroe Jones, R., 1992, Dyfed Archaeological Trust Ceredigion Metal Mines Survey, Record Forms, Sheet Nos. 59, 60, 61.

published

Bick, D., 1988, *The Old Metal Mines of Mid-Wales*, Part 3, pp 32-33.

Briggs, C. S., 1979, *Ceredigion* Vol. 8, p 478.

Burt, R., Waite, P., Burnley, R., n.d., *The Mines of Cardiganshire*, pp 62-64.

Clouston, B., and Partners, 1988, *Cambrian Mountains: Metal Mines Project*, Inventory of Sites, B35, B36, B40, B47.

Hague, D.B., Hughes, S.R., Richards, E.T., 1975, *Archaeology in Wales*, Vol 15, p 81, No 134.

Liscombe & Co., c.1869-70 & 1989, *The Mines of Cardiganshire, Montgomeryshire and Shropshire*, p 20, 25.

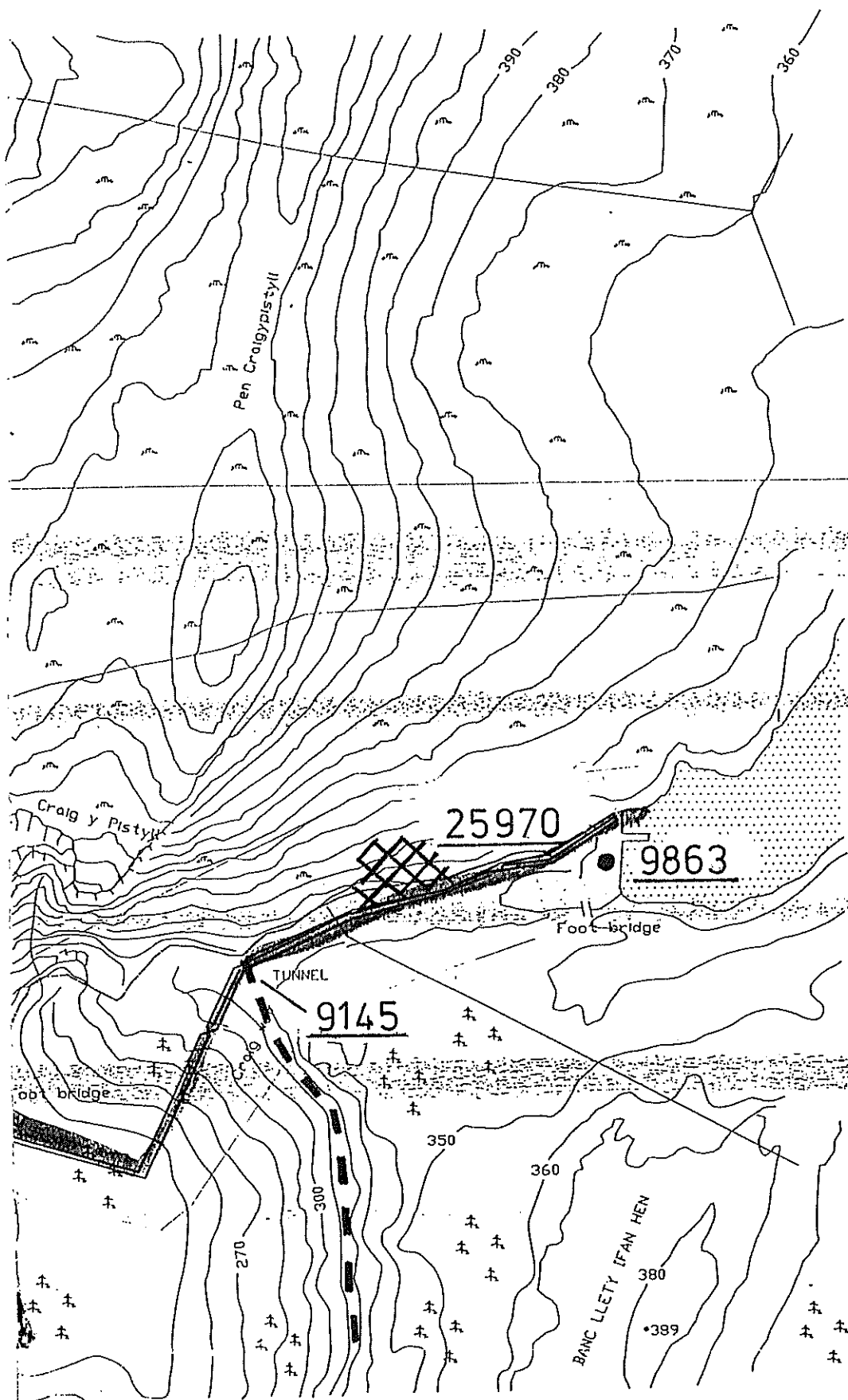
Ordnance Survey, 1:2500 First Edition, Cardiganshire, Sheets IV.13, VII.1, VII.2 (1886).

Ordnance Survey, 1:2500 Second Edition, Cardiganshire, Sheets IV.13, VII.1, VII.2 (1904).

Ordnance Survey, 1837, *Index to Tithe Survey*, Old Series, Sheet 59, 1" to a mile.

Rees, W., 1932, *South Wales and the Border in the XIV century*, NW Sheet.

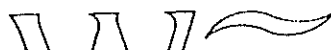
Tucker, M., 1977, *Transactions of the Cardiganshire Archaeological Society* Vol. VIII, No. 2, p 218.



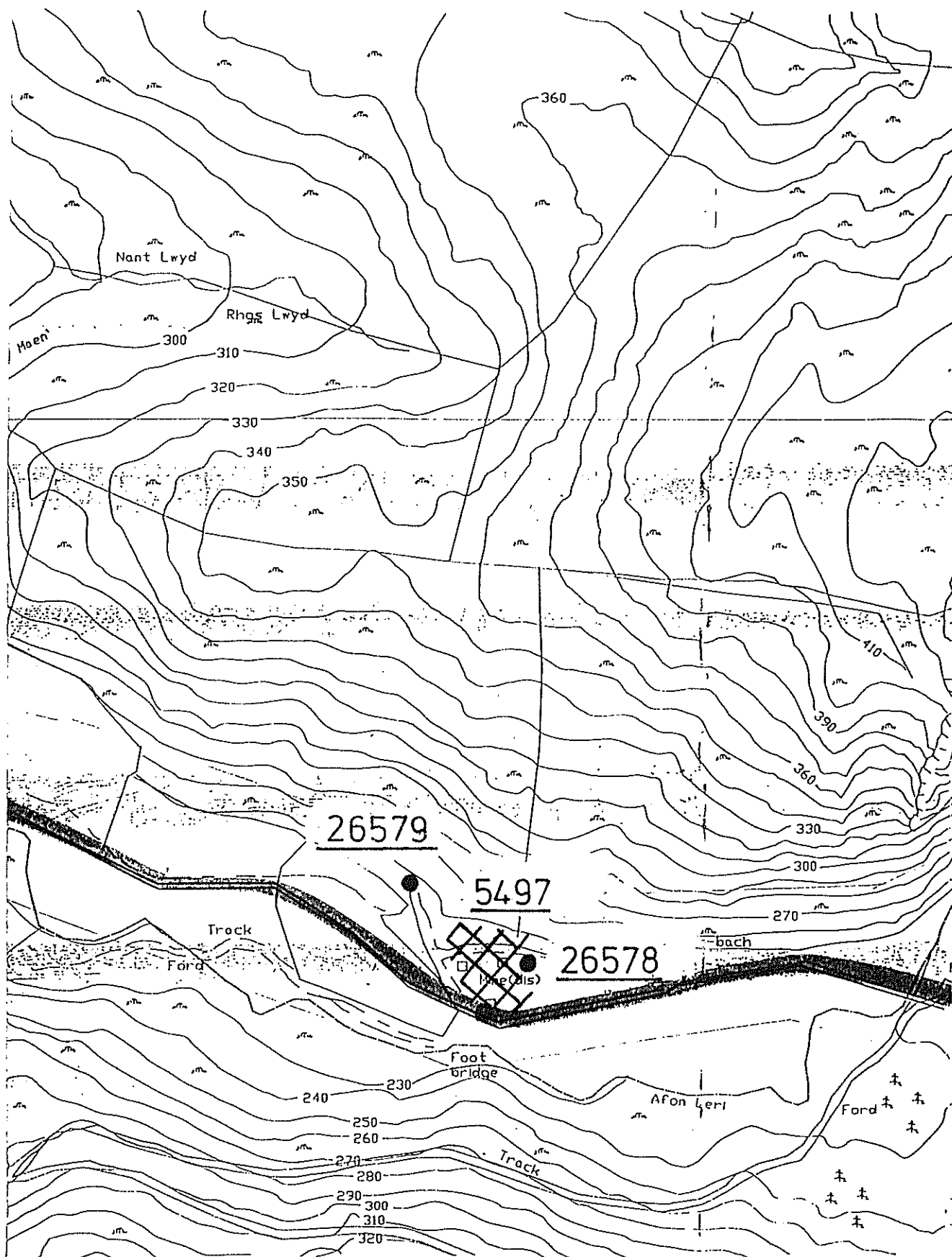
8.1 Annotated engineer's plans (reduced from 1:5000) showing areas of archaeological interest

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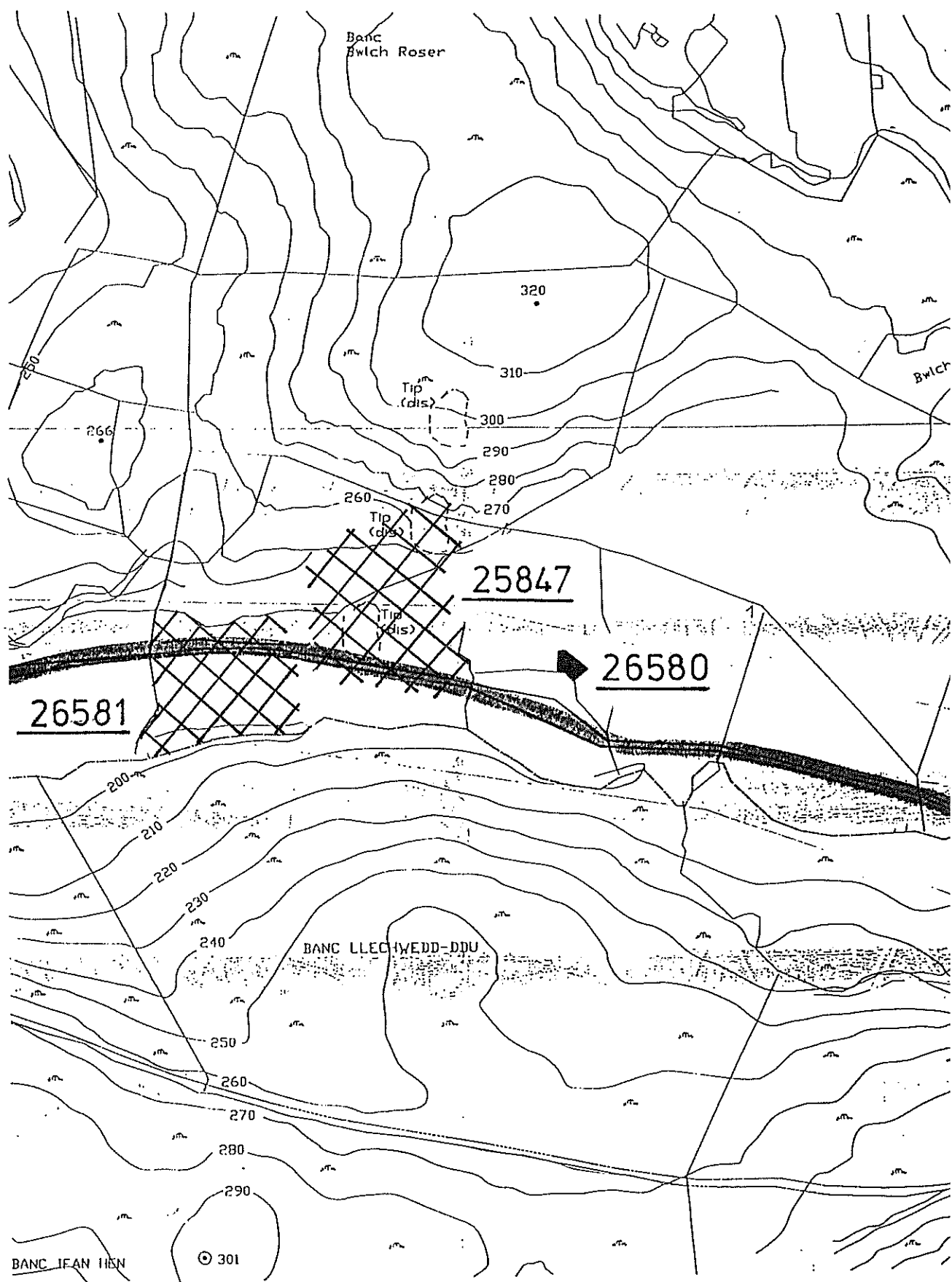




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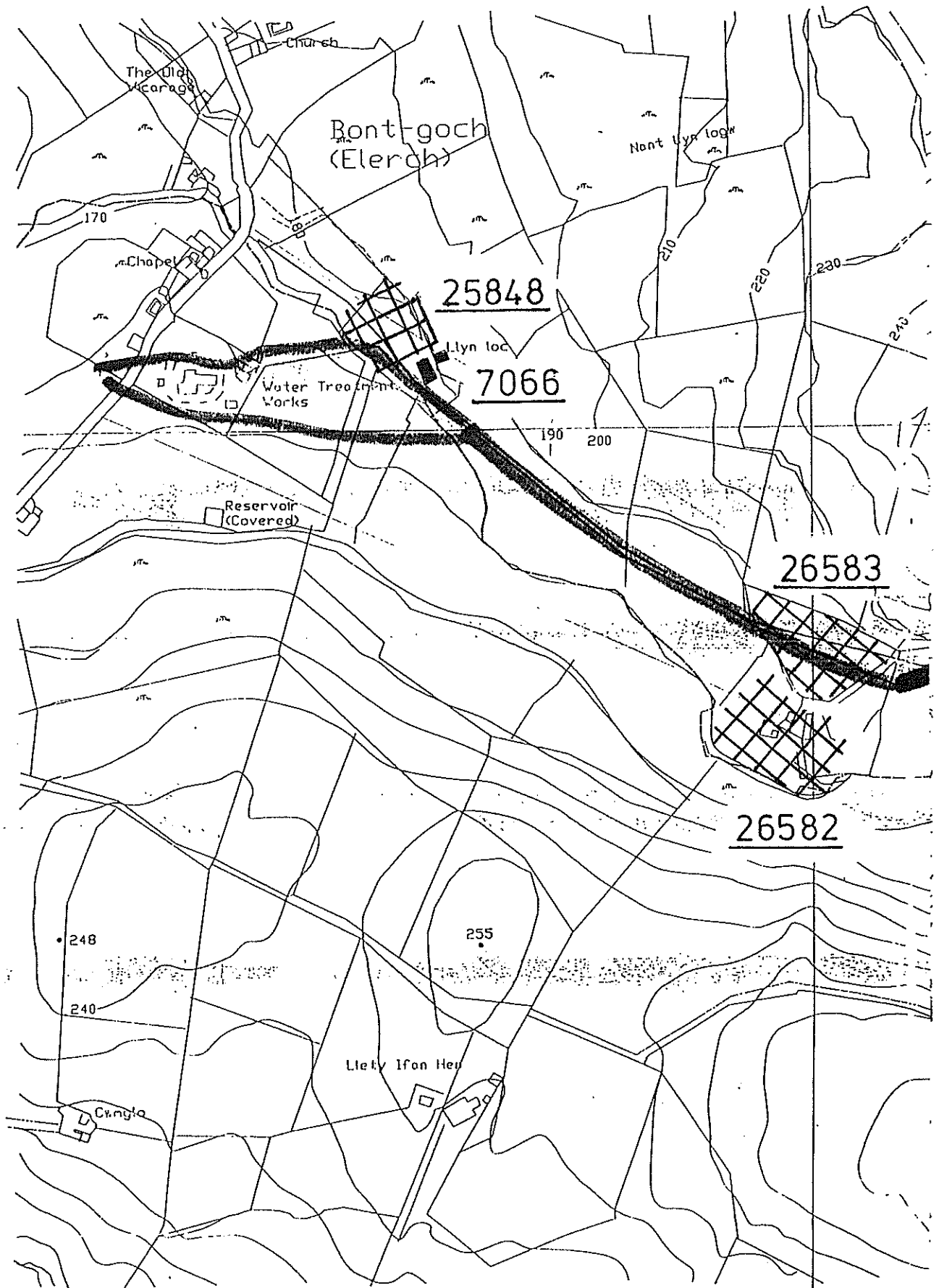
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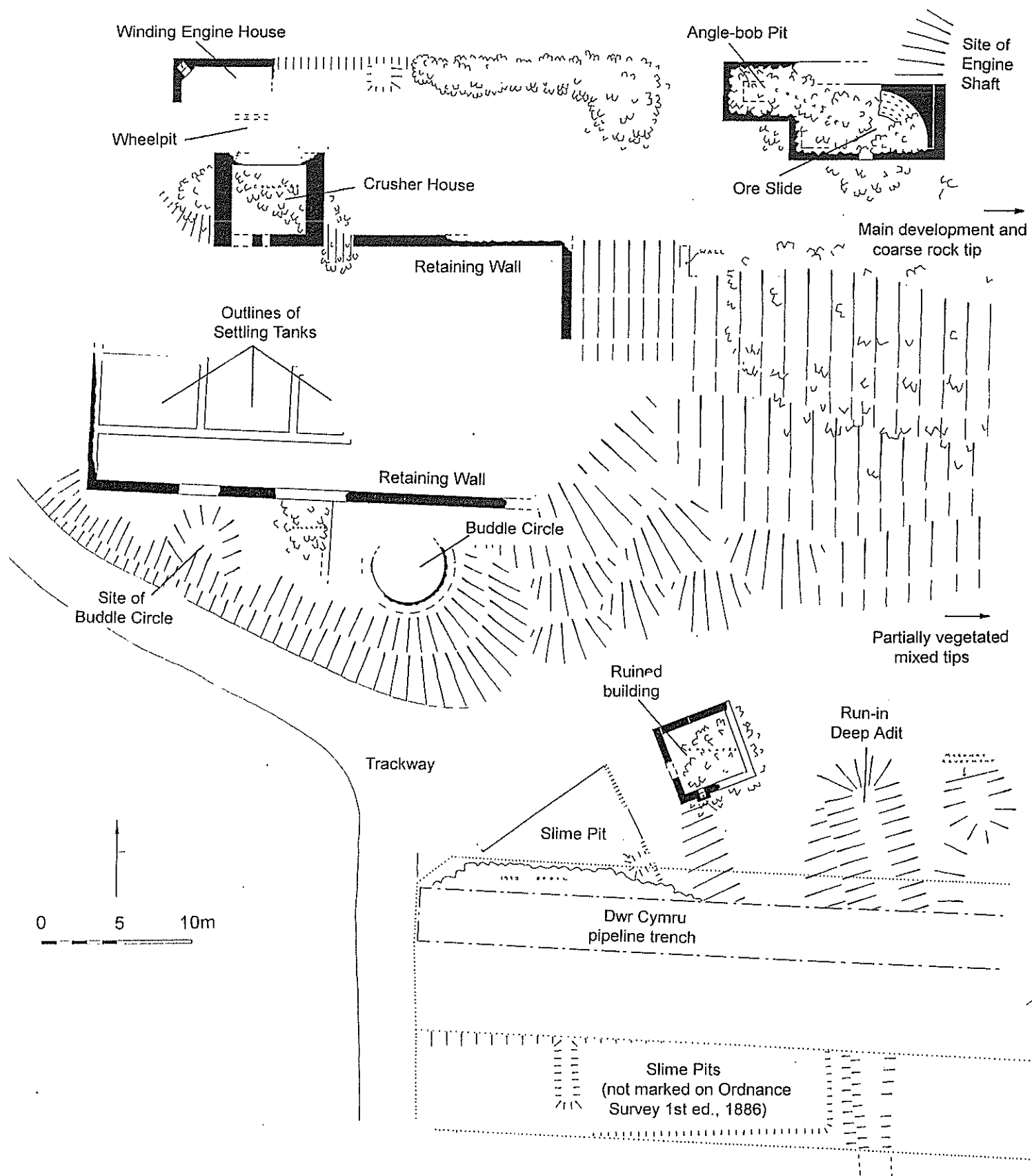
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8.1 Annotated engineer's plans (reduced from 1:5000) showing areas of archaeological interest

8:2. Llawr-y-cwm-bach Lead Mine (5497),  
20-21 November 1993



# Northern Section of Pipeline Trench through Slime Pits and Adit

