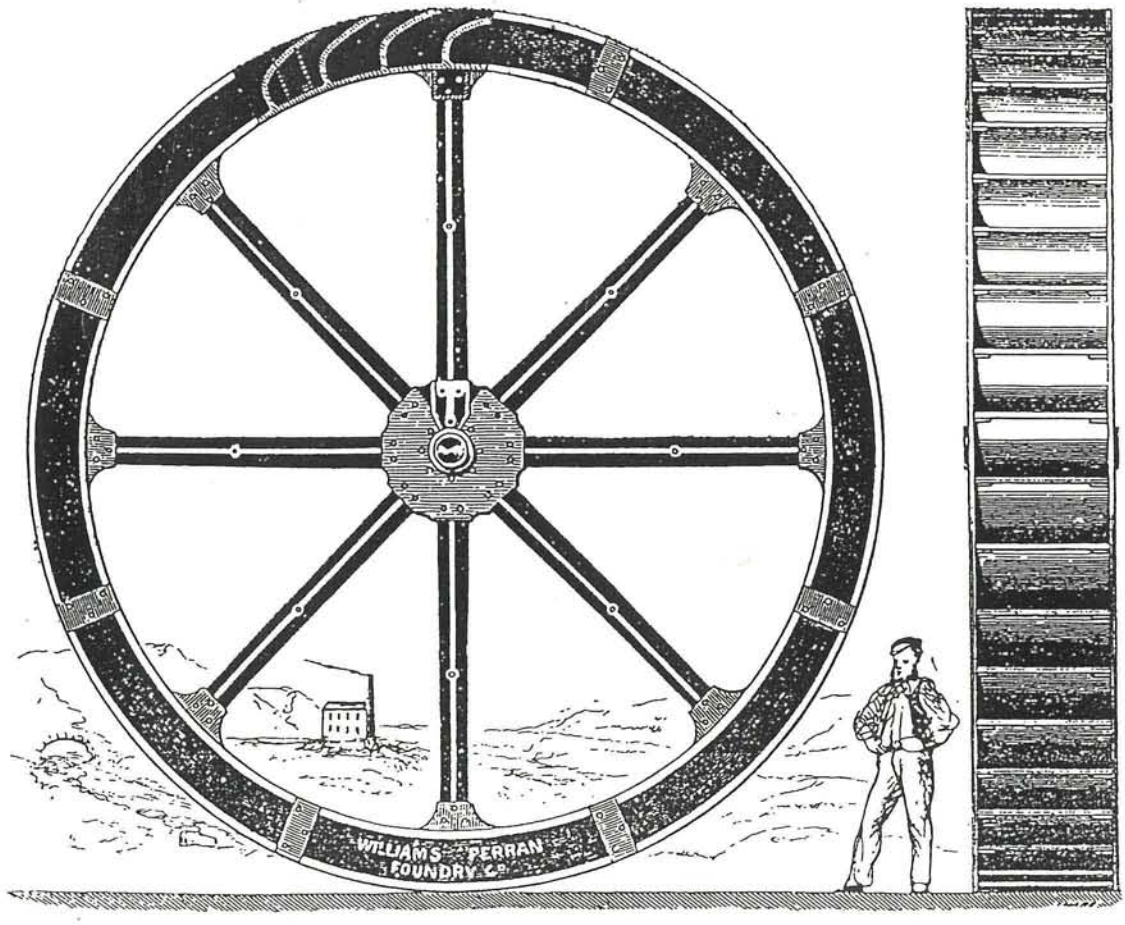
THE CLWYD-POWYS ARCHAEOLOGICAL TRUST

Powys Metal Mines Ground Survey 1994



CPAT Report No 111.1

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Powys Metal Mines Ground Survey 1994

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Survey undertaken with financial assistance from Cadw: Welsh Historic Monuments

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INTRODUCTION

Funding

The survey work described in this report was carried between May and October 1994 with financial assistance from Cadw: Welsh Historic Monuments (Project CPAT 40) as a follow-up to a rapid survey of metal mines undertaken in 1993 (Walters 1994), partly as private research and partly with financial assistance from Powys County Council.

Project Design

The 1994 survey work took as its brief the list of recommendations included in the report on the 1993 survey (Walters 1994, 14, Table 2). Largely because of limitations imposed by available funding survey work was limited to 13 of the 19 sites where measured ground surveys were recommended (survey of Dyfyngwm being integrated with that of Pen Dylife). Of the remaining sites, Tyisaf had been substantially damaged by agricultural clearance following the rapid survey in 1993 and survey work at Fedw was hindered by forestry. A strong case can still be made for survey work at Cyfarthfa and Nantygarw which unfortunately could not be covered due to a shortage of time and resources. The supposed Bronze Age workings at Nantyricket have yet to be located, and further work needs to be done before a survey can be undertaken.

The present study was restricted to ground survey of earthworks, buildings and other structures, topographical information. No attempt has been made to record underground workings and detailed recording of the elevation of buildings and other standing structures has been restricted to a photographic record for the time being. Many of the buildings are in a vulnerable state and it is therefore to be hoped that more detailed recording of individual structures, and in some instances consolidation work, will be undertaken in the near future.

The study of individual sites include references to the most readily available published and manuscript sources, a more detailed appraisal of the documentary research being judged to go beyond the immediate project brief.

The primary objective of the project has been to provide ground plans and basic interpretations of field evidence to assist with current Scheduled Ancient Monument enhancement programmes by Cadw, and in order to define areas of archaeological sensistivity for planning control and landscape management purposes.

Survey methods

Basic site surveys were carried out by EDM total station and PenMap [versions 2.9 and 3.1] software running on a GRiD SL 386 portable computer. Processed survey data were subsequently imported into AutoCAD 12 and integrated with some ancillary detail digitized from early editions of the OS, detailed in the individual site reports. In some instances this includes information from outside the survey areas. Contours in the accompanying illustrations are those generated by PenMap from survey data and are expressed in metres OD by means of a best-fit with spot-heights and contours on published OS maps. With the exception of East Van, the survey area of individual sites is indicated by the extent of contour information. Because of the general level of complexity, plans of individual mine sites have been subsequently drawn up by hand from plots generated by AutoCAD.

Presentation of this report

This report is a preliminary report on the work undertaken, and is intended for limited circulation only. The text provides a basic description and interpretation of the sites derived from field observation. Plans of individual sites are reproduced at a scale of 1:1,000 to display the results of the ground surveys, with additional overall plans for each site at a scale of 1:2,500, with the exception of Cwm Orog (1:3,000) and Pen Dylife (1:5,000).

Reference

Walters, M. 1994. Powys Metal Mines Survey 1993, CPAT Reports No 89.

Acknowledgements

We are grateful ot the owners of each site for granting access for carrying out survey work and to Mr Bennett-Evans for providing information about Nantiago Mine, in the form of personal recollections. The aerial photographs shown at the end of the report are by Chris Musson and are reproduced by kind permission of RCAHMW, and helpful advice and encouragement was given at early stages in the project by Dr Stephen Hughes and David Percival of RCAHMW. We also gratefully acknowledge the invaluable assistance of our colleagues, Mark Walters, who provided advice on interpretation, and Wendy Owen and Brian Hart who assisted with the survey work. The illustrations in this report are by Brian Williams.

Craig-y-Mwyn Mine

PRN 8438 **NGR** SJ07422852 SJ02NE

Ores	Lead	**Date**	17th-18th cent/1845-1880
District	Montgomeryshire	**Community**	Llanrhaeadr-ym-Mochnant
Condition	Damaged	**Landuse**	Pasture A
Threat	Farming		

Description

1. Location

1.1 The main mine workings appear as a huge open-cast on the eastern slopes of Y Clogydd, clearly visible to the west of the road from Llanrhaeadr-ym-Mochnant to Pistyll Rhaeadr. The dressing floors lie on the valley floor c.5km north-west of the village, while the hushing evidence is located on the slopes of Y Clogydd and Moel Mawr on the southern edge of the Berwyn Mountains.

2. Geology

2.1 Solid geology - Ordovician Llangynog formation shales, slates and tuffs. Four recognised mineral veins include galena and sphalerite with calcite, quartz and barytes gangue minerals.

3. The Survey

3.1 The survey is principally restricted to the recording of the hushing system and other mining features on the hilltop above the open-cast (see Plate 1), and excludes the dressing floor areas, the incline and the lower workings. The survey has been divided into three sections to describe separately the hushings, the trials, levels and other workings and finally non-mining features.

3.2 The Hushing System

3.2.1 The evidence for hushing consists of a series of leats drawn from various sources in a boggy valley c.300m W of the open-cast. The leats feed a system of reservoirs of varying size, which in turn supply a complex of hushing channels along the edges of the open-cast.

3.2.2 A mine plan of 1855 (Williams 1985, 76) identifies three 'miners' pools' to the west of the main mine workings. The survey identified two pools located within the shallow valley mentioned above, both completely silted.

3.2.3 The upper pool (PRN 18386) is defined by a bank c.0.6m high damming the valley to create a pool c.510m sq in area. A leat (PRN 18387) flows from the SE corner contouring around the hillside E to feed the main hushing system.

3.2.4 The lower pool (PRN 18388) has an area of c.265m sq similarly defined by a bank 0.7m high. From the SE corner, a leat (PRN 18389) follows the contours E towards Level No.1 (PRN 18369). Further downslope another leat (PRN 18390), with its source in a boggy area to the west, leads in a similar direction. It would seem likely that they fed hushing channels which have been obliterated by later workings.

3.2.5 At the point where the lower leat (PRN 18390) crosses the stream below the lower pool, a hushing channel (PRN 18392) is directed from the stream to the SE. The channel increases in size as it progresses downslope to a maximum of c.5.9m wide and 0.9m deep. It is possible that the leat masks an earlier dam across the stream to feed the hushing channel.

3.2.6 There was no clear evidence for the third 'miners pool', although above the upper pool the stream had been dammed to direct water into a higher leat (PRN 18385) which is also fed by a further leat (PRN 18384), also leading from the stream. This leat contours E for c.295m with evidence of two former courses at its eastern end. The upper of these turns steeply downslope into a probable early hushing channel. It would seem likely that this leat fed the substantial hushing channel (4.5m wide and 1.35m deep) running SW-NE into the open-cast and subsequently blocked by later workings.

3.2.7 The most substantial hushing channels appear to have been fed by three large reservoirs. The northernmost reservoir (PRN 18357, Bick's Pond A) is defined by a large bank c.1.3m high and 3.8m wide enclosing an area of 365m sq with the site of a sluice along the SE side. This reservoir has been partly infilled by the construction of the modern farm track. There is no clear evidence of a leat sytem feeding the reservoir, although a short section of leat appears to feed in from the SW and there is a possible inlet channel to the NW.

3.2.8 The second reservoir (PRN 18358) has been largely destroyed by the modern farm track, with earthwork banks surviving only on the SE and NE sides. It is possible that leat PRN 18385 had been used to feed the reservoir. A further leat (PRN 18374) not necessarily associated with the reservoir, curiously flows from N to S away from the open-cast, apparently feeding into leat PRN 18387.

3.2.9 The third reservoir (PRN 18359, Bick's Pond B) may originally have been considerably larger than it now appears, with possible infilling by the spoil tips SE of a building (PRN 18360). The reservoir is clearly defined by an earthwork bank along the S and E sides, measuring 1.3m high and 4m wide at its greatest extent. Faint traces of a leat are visible feeding into the SW corner and a leat and hushing channel emanate from the NE corner.

3.2.10 Hushing along the S edge of the open-cast is also fed from two other sources. Leat PRN 18373 flows SE of the reservoir PRN 18359 with a small rectangular reservoir (c.8 x 3.5m) along its length (PRN 18368). Further E lies another rectangular reservoir (PRN 18364) measuring 10 x 5m. A leat flows from the NE corner, but there is no evidence of a feeder leat.

3.2.11 A separate system of leats and reservoirs fed hushing S of the open-cast along the eastern moorland slopes. The open-cast below, and the spoil fan at its base, provide further evidence for hushing. The only leat (PRN 18372) feeding into this area can be traced N of enclosure PRN 18379 with no evidence of its source. A sub-rectangular reservoir (PRN 18367) c.7.5m x 6.7m along the course of the leat would have provided a reservoir and controlled the flow of water.

3.2.12 Two small irregular reservoirs (PRN 18365-6) appear to be fed by the above leat, with an outflow to the SE.

3.3 Other Mining Features

3.3.1 Only one shaft (PRN 18375) is located on the high ground above the open-cast. It is presumed that this shaft was sunk by Henning, the mining agent for Powys Estates, in 1747 (Williams 1985, 89). A possible platform for winding gear is evident on the N side of the shaft. There is no evidence to suggest that ore was raised or dressed at

this location. Williams (1985, 89) suggests that the shaft connects to No. 1 Level (PRN 18369).

3.3.2 The substantial level (PRN 18369) on the eastern slopes of the plateau, with extensive spoil tips below, is documented as No. 1 Level on the Powys Estates' mine plan of 1855 (Williams 1985, 76). The spoil tips suggest that the ore was sorted before being lowered to the tramway (PRN 18377) below. Above the level are two areas of collapse.

3.3.3 Substantial trials consisting of at least four small shafts and a collapsed level (PRN 18370) are located SW of No. 1 Level. The collapsed level appears on the OS 1889 map. Further shallow trials (PRN 18371) exist to the SE and along the edge of the opencast.

3.3.4 A separate area of trials (PRN 18376) is located to the west of the main opencast.

3.3.5 The remains of a rectangular stone building (PRN 18360) lie adjacent to and possibly within the original extent of the large pond PRN 18359. The dry stone walls are 0.5m thick and generally only survive to basal layers. The building measures c.12m x 4m overall, with the addition of an outbuilding against the N wall. Internally, the collapse suggests it is divided into two rooms. It is assumed that this is the house and smithy recorded in 1751 as a two-roomed building (Powys MS 21712, NLW).

3.3.6 A small roughly square enclosure (PRN 18362) c.10m across lies SE of the reservoir PRN 18359, defined by low earthwork banks c.0.35m high and 1.3m wide, with an entrance on the SW side. It is uncertain whether this feature is related to the mining activity.

3.3.7 A large sub-rectangular enclosure (PRN 18363) measuring c.31.8m x 19.3m is situated between the two leats PRNs 18372 and 18373. The earthwork banks survive best on the N and W sides, 0.4m high and 0.8m wide. A track leads to the entrance on the S side, adjacent to a possible building platform within the enclosure, measuring c.12 x 6.5m.

3.3.8 A possible building platform and enclosure (PRN 18378) lie 40m east of the shaft (PRN 18375). The platform measures c.21.4m x 6.8m with a sub-division 6.4m from the southern end. Low dry-stone walls define the platform surviving to a height of c.0.5m. The general lack of tumbled stone would suggest that the walls were originally only slightly higher, unless substantial robbing has occurred. The E wall lies on top of the field boundary (PRN 18381).

3.3.9 A palimpsest of tracks (PRN 18393) lead uphill towards the platform, presumably forming the original access to the site. The original track (PRN 18391) from Tan-y-graig and the dressing floor area leads upslope from the SE, partly obscured by the modern farm track.

3.3.10 To the SW, a track (PRN 18382) runs south and presumably leads to the early 18th century Cubil Smelting House (PRN 18319) located by Williams (1985, 69) in Cwm Glanhafon on the W slopes of Craig Rhiwarth at SJ063268.

3.3.11 At the northern extent of the survey a series of low platforms (PRN 18356) may be associated with the mining activity.

3.4 Other features

3.4.1 A series of old field boundaries are evidence of a former, presumably post-medieval field system. Some of the

boundaries appear to be contemporary with certain mining features, while others appear to post-date them.

3.4.2 The main field boundary (PRN 18381) runs roughly N-S, pre-dating the possible building platform and enclosure PRN 18378. From the SE corner of the platform another boundary bank (PRN 18380) runs downslope to the east, apparently post-dating leats PRN 18389 and 18390. In the NE angle between the two boundaries is a small enclosure or sheepfold (PRN 18379) measuring c.10.2 x 7m.

3.4.3 Further S, a boundary (PRN 18382) diverges to the SW, following the track to the Cubil Smelter at SJ063268 and track PRN 18394 runs off it. It is evident that of the palimpsest of tracks S of the platform, the latest follows the boundary, while the other are overlain by it.

3.4.4 A sheepfold (PRN 18530) of dry stone wall construction was recorded on the 1889 OS map.

4. Conclusions

4.1 The hushing remains form one of only two such sites in Powys, and are potentially of an early date. The system of leats and reservoirs is one of the most extensive in Wales, and as such is worthy of statutary protection.

References

Powys Mines Ground Survey 1994, Archive Plans 1-3

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Bick, D., 1990. The Old Metal Mines of Mid Wales, Parts 4 & 5. The Pound House, Newent, 2nd edition. Part 5, 36-8

Williams, R.A., 1985. The Old Mines of the Llangynog District, British Mining 26. Northern Mines Research Society, Sheffield.

OS 1889 1st edition 1:2500 Montgomeryshire Sheet V.1

OS 1889 1st edition 1:2500 Montgomeryshire Sheet V.5

Cwm Elan Mine

PRN 5945 **NGR** SN90006510 SN96NW

Ores	Lead/Zinc	**Date**	1796-1877
District	Radnorshire	**Community**	Rhayader
Condition	Damaged	**Landuse**	Pasture A
Threat	Farming/Erosion		

Description

1. Location

1.1 The mine site is located on the valley slopes to the W of the Nant Methan stream. The Nant Methan valley lies to the W of the Garreg-ddu Reservoir, part of the Welsh Water Elan Valley Estate, c.10km W of Rhayader.

2. Geology

2.1 Solid geology - Silurian Llandoverian rocks. Two documented veins include galena and sphalerite.

3. The Survey

3.1 Early Workings

3.1.1 The early workings (PRN 18452) are assumed to have resulted from the discovery of lead ore during the cutting of a drainage leat c.1796. They consist of a series of open-cuts on the southern side of the site to the N and S of the stream that flows NE from the slopes of Cefn Cwm-coel into the Nant Methan. The earthwork remains of two building platforms (PRN 18475 and PRN 18476), presumably relating to earlier mining activity, are located in the vicinity of these early workings on the S bank of the stream. Possibly early processing is indicated by small tips surrounding the platforms. A third building platform (PRN 18491) is located to the N of the stream, east of the track leading from the magazine. Platform PRN 18453 is located further east.

3.1.2 Evidence of the 18th century workings are probably buried beneath the large spoil tips created by the larger 19th century operations.

3.2 19th Century Workings

3.2.1 The main shaft (PRN 18467), sunk to 72m, has its pumping beam still in situ. The stone-lined bob-pit (PRN 18468) is well preserved and lies to the N. A level runs in westwards from the top of the shaft.

3.2.2 The pumping wheelpit (PRN 18469), measuring c.14 x 4m, is aligned with the bob-pit and main shaft and is documented as containing a 36 x 4ft wheel (Hall 1993, 80-81). It is assumed that water was carried on launders to the wheelpit from the leat to the W (PRN 18483), although no evidence survives. Water was emitted from the wheelpit through an archway and was presumably re-used by the crusher wheelpit, although no evidence of culverting or laundering remains. Ironwork associated with the pumping system is scattered around the site, particularly around the pumping wheelpit. Pumping rods and their supports are aligned with the bob-pit and shaft.

3.2.3 A second shaft (PRN 18464) lies c.40m to the W, and remains open with a level cut in westwards from the top of the shaft.

3.2.4 A trial level (PRN 18460) is cut in westwards beneath Graig Ddu to the S of the stream which flows eastwards into the Nant Methan.

3.2.5 To the SE of the early workings, a collapsed drainage adit (PRN 18449) cuts in westwards from the Nant Methan and has a building platform (PRN 18448) on its S side.

3.2.6 Ore raised at the main shaft was loaded into a bank of three ore bins (PRN 18470), only one of which survives more or less intact. The ore bins are located on top of the large tips of development waste, the result of sinking the shaft. Tramways would presumably have carried the ore across the spoil tips to the top of the crusher house (PRN 18478).

3.2.7 The crusher house walls survive to almost their full height and the large support beams that held two sets of crushing rolls lean against the E wall (see Plate 2).

3.2.8 The crusher house wheelpit (PRN 18477) measures c.14 x 4m and survives to its full height, with the axle for the waterwheel lying on the crusher house floor. The wheel also powered a Blake's stone crusher, Collom's patent jiggers and a circular buddle supplied by the William Thomas Foundry, Llanidloes, in the 1870s (Hall 1993, 80).

3.2.9 Water emits from the arch of the crusher wheelpit to feed a small wheelpit (PRN 18479) c.6 x 1m which powered the buddle (PRN 18480) below. The survey suggests that water could be diverted to flow downhill and along the S side of the small wheelpit if the buddle was not operating. Areas of fine buddle tailings wash downhill to the E and S of the buddle. The wooden supports for a launder, carrying water to the buddle from the wheelpit, remain in situ.

3.2.10 A large platform area to the north of the crusher room presumably formed shelter for the stone crusher. To the E of this area, the stone bases for jiggers (PRN 18481) are located. A large spoil tip of jig waste remains between the crusher house and the smithy.

3.2.11 Lead waste would presumably have been laundered to a series of rectangular settling pits (PRN 18454) c.65m to the NE. Three parallel rows containing at least ten pits with interconnecting leats remain in this area. The earthworks have in places been considerably damaged by the placing of animal feed pens.

3.2.12 The stone-built single room magazine (PRN 18466) c.6 x 5m remains on the SW of the mine site away from the late 19th century activity. Tracks run out to the magazine from the main areas of working.

3.2.13 The smithy (PRN 18482) consists of a two-roomed single storey building c.14 x 7m, constructed in stone with a smaller extension c.4 x 6m on its E wall. The fireplace of the smithy area is on the N wall of the E room. The other room probably served as a stores. The lean-to may have been a coal store. A track leads to the front of the smithy from the mine office. The smithy overlies an earlier enclosure (PRN 18459) and a leat (PRN 18474).

3.2.14 Two detached houses remain in the valley bottom. The stone-built former mine manager's house and office (PRN 18455) is contemporary with the other structural remains. To the immediate E of this, a red brick house of similar size and design (PRN 18456) was built in the 1890s by the Birmingham Corporation Waterworks to house one of their estate workers.

3.2.15 An old boundary bank (PRN 18457) crosses the site N-S.

3.3 Water Sources

3.3.1 The upper leat (PRN 18483) is recorded as an 'old water course' by the Ordnance Survey in the 19th century. Cut in 1876 by the New Cwm Elan Company, it runs for nine miles from Llyn Cerrigllwydion Isaf (SN84407000) and was presumably primarily intended to power the pumping wheel.

3.3.2 Two leats (PRN 18462 and PRN 18463) are fed by the E-W stream, which appears to be dammed twice below the level (PRN 18460). PRN 18463 runs into the site towards the main shaft area, to the W of the bob-pit. It is presumed that the leat was laundered to provide additional power for the crusher house wheel below. Evidence of the course of PRN 18462 as it runs N towards the pumping wheel is lost to a Quarry (PRN 18465).

3.3.3 A leat (PRN 18473) appears from the large spoil tip to the S of the smithy, crosses above the smithy and cuts down to the lower dressing floor areas (PRN 18454). It may be a continuation of leat PRN 18463. A possible leat (PRN 18474) runs northwards contouring below PRN 18473 and is interrupted by the smithy which post-dates it.

3.3.4 Evidence of a possible early lower leat (PRN 18472) off the E-W stream is lost to the magazine (PRN 18466) and later spoil tips.

3.3.5 Two small reservoirs (PRN 18675) are located to the NE of the houses on the W bank of Nant Methan.

3.3.6 A leat (PRN 18451) is dammed off the Nant Methan above the mine and enters the site from N. It crosses the lower dressing floors areas and continues to cut across the early workings and is presumed to be the early channel cut through the lead veins in 1796. The leat continues to run parallel to an old boundary (PRN 18450) and can be traced entering the Henfron Plantation. Its course continues in the direction of the Garreg-ddu and Caban-coch Reservoirs.

3.3.7 The courses of two leats were located on the E bank of the Nant Methan. The lower leat (PRN 18383) flows initially through a stone culvert (PRN 18447). Both this and a higher leat (PRN 18446) follow the contours outside the survey area and could be traced flowing in a N-S direction towards the Garreg-ddu Reservoir. The source of both leats is now lost, but they may have provided clean water to an area now lost to the reservoirs.

4. Conclusions

4.1 The structural remains on the site appear to relate to one period of mining and investment dating from the 1870s. The Cwm Elan Mining Company was formed in 1871 and large-scale operations were continued by the New Cwm Elan Company from 1875 (Hall 1993, 80-81).

4.2 The major structures and many of the earthworks are particularly well preserved and form an important example of late 19th century mining technology. As such, the site as a whole is deserving of statutary protection.

References

Powys Mines Survey 1994 Archive Plan 4-6

Hall, G.W., 1993. Metal Mines of Southern Wales. Griffin Publications. Herefordshire.

OS 6" Sheet SN96NW

Cwm Orog Mine

PRN 5925 **NGR** SJ05202730 SJ02NE

Ores	Lead/Silver/Zinc/Barytes	**Date**	Prehistoric?/1747-1909
District	Montgomeryshire	**Community**	Llangynog
Condition	Damaged	**Landuse**	Pasture A
Threat	Farming		

Description

1. Location

1.1 The mine site is located on the northern slopes of Craig Rhiwarth about 2km NW of Llangynog. The dressing floor areas at the western end of the mine lie to the E side of the B4391 Llangynog to Bala Road and the workings run eastwards uphill towards the hillfort of Craig Rhiwarth (PRN 1466) for c.650m.

2. Geology

2.1 Solid geology - Ordovician slates and shales. An ENE-WSW vein included galena and sphalerite with a N-S barytes cross-cut.

3. The Survey

3.1 Workings

3.1.1 Early workings (PRN 18396) appear as linear cuts and small depressions on the northern slopes below Craig Rhiwarth Hillfort.

3.1.2 A track (PRN 18405) runs downhill, cutting through the hillfort ramparts to an area of trials (PRN 18406).

3.1.3 To the W of the trials, a run of collapsed stopes (PRN 18401) are probably outcrops on the main vein. An open collapse between the open-cuts appears to fall into the level below, and has previously been misinterpreted as a shaft.

3.1.4 A series of levels are driven into the hillside along the entire length of the mine site. It was not possible to date the majority of these workings, although the latest are located uphill from the aerial ropeway top station and the head of the incline at the top (E) end of the site. Not all of the levels are described individually below.

3.1.5 Five levels (PRNs 18397-18400, 18402) were identified in the area above the aerial ropeway top station. A small area of waste fans out from the top level PRN 18397, possibly an 18th century venture, and the larger areas of spoil lie N of levels PRN 18398 and 18400.

3.1.6 Ore was carried out of these levels by a tramway (PRN 18407) connecting to the aerial ropeway top station (PRN 18408).

3.1.7 A small building (PRN 18404) probably a shelter or store is located near the entrance of level PRN 18400.

3.1.8 The large level PRN 18399 appears to have superseded level PRN 18402, being driven in below it to meet the main vein. A small building (PRN 18403) is located between these two levels.

3.1.9 Two substantial levels (PRNs 18416 and 18419) with stone revetted entrances lie near the mid-point of the workings. The masonry walls of a rectangular building (PRN 18643) c.3 by 2.75m remain sunk in the ground to the E of the large spoil mound from level PRN 18416. A further level (PRN 18417) is located to the SW, with a small building platform (PRN 18668) downhill of it.

3.1.10 The drainage adit surveyed by the OS in 1889 to the NW of Waen Cottage and further evidence of workings to the N of the modern fence-line remain outside of the survey area.

3.2 Processing

3.2.1 The main 19th century processing area lies at the W end of the site. However, earlier processing may be associated with building PRN 18420 and the adjacent platform PRN 18423. A track leads downslope from the area, cut by the later tramway PRN 18411, to a roughly circular depression (PRN 18424) which is a possible ore-bin.

3.2.2 The dressing floors (PRN 18444) lie at the bottom of the hillside, although most of the processing area has been levelled. The remains of large masonry piers (PRN 18445) on the W side of the dressing floor supported a tramway carrying ore from the lower terminus of the aerial ropeway to the crusher house (PRN 18443).

3.2.3 A waterwheel pit (PRN 18442), c.8 x 2.5m externally, drove the crusher rolls and possibly powered a buddle. Parts of the cast-iron waterwheel remains embedded in the wheelpit (see Plate 3).

3.2.4 The waterwheel was fed by a leat (PRN 18435) running into the site from the N, diverted from the Cwm Orog stream. The line of a possible leat or drain (PRN 18439) lies further to the W.

3.2.5 Two concrete bases are all that remain visible on the dressing floor area alongside the crusher house. Retaining walls form a series of platforms above the bases.

3.2.6 A modern track cuts through the dressing floor areas and leads up to Waen Cottage. Below the track, lines of several parallel settling pits (PRN 18437) are passed to the W by the tailrace from the wheelpit (PRN 18664). A short length of old mine entrance track (PRN 18440) is located west of the settling pits.

3.2.7 A possible leat (PRN 18438) runs in from the N below the stream and the settling pits.

3.2.8 The foundations of the smithy (PRN 18436), which includes a standing fireplace, remain to the N of the modern track.

3.3 Transport

3.3.1 The site provides unique evidence of three different systems of transporting ore, demonstrating improving technology.

3.3.2 The earliest system of transport consists of four tramways which contour the hillside to facilitate the carriage of

ore downhill, via a series of long ore-slides. The ore-slides would have been constructed in timber, and little trace remains. The difference in their associated structural features suggest that they relate to different periods of activity. Not all of the tramways need necessarily to have been in contemporary use.

3.3.3 The highest contour tramway (PRN 18410) runs S and W from the top of the incline. The tramway has been disturbed by the later barytes workings (PRN 18676) which appear as two open-cuts with a level (PRN 18414) driven in to the western cut. Two levels (PRN 18415-18416) below the tramway are surrounded by spoil from the barytes vein. Barytes was mined from 1915 to meet the demands of World War 1. The tramway terminates in a substantial ore-slide (PRN 18421), headed by a semi-circular stone ore-chute (PRN 18644). The base of the ore-slide is c.20m E of building PRN 18420.

3.3.4 A second tramway (PRN 18411) contours W from midway along the site, presumably serving the level above (PRN 18419). Ore was loaded into a sub-rectangular stone ore-bin (PRN 18422) to be sorted and then transported W along the tramway. At the W end of the tramway, ore was tipped into a stone-lined chute (PRN 18645) constructed on exposed bedrock, and thence downhill via ore-slide PRN 18429. A pier base (PRN 18583) midway down the ore-slide would have bridged it over tramway PRN 18412, which may therefore be contemporary.

3.3.5 Tramway PRN 18412 runs W from the semi-circular stone ore-bin (PRN 18427), located SW of the incline terminus. A platformed sorting area lies in front of the ore-bin with a revetment wall surviving where ore was loaded onto the tramway. At the W end of the tramway, lie the earthwork remains of an ore-slide (PRN 18432), where ore appears to have been loaded into ore-bin PRN 18652.

3.3.6 The lowest, and possibly earliest tramway (PRN 18413) appears to have been associated with a possible ore-bin PRN 18430 and building platform (PRN 18431). They were presumably connected by a short ore-slide (PRN 18661).

3.3.7 The two upper tramways and ore-slides were probably superseded by the construction of the incline (PRN 18409). The steep bed of the incline appears as a track c.2.1m wide running E-W parallel to the modern fence-line from the upper levels of the mine. Ore was presumably unloaded from the trucks at the base of the incline onto the short tramway (PRN 18677) leading to ore-bin PRN 18427.

3.3.8 The aerial ropeway (PRN 18408) was presumably the more recent means of transporting ore from the upper levels westwards and downhill to the dressing floors. The foundation of the upper winding terminus remains to the N of the main level. Earthwork evidence and stone foundations remain of the platforms that supported the pillars carrying the ropeway downhill to its lower terminus platform (PRN 18441).

4. Conclusions

4.1 Although the overall preservation of the site varies considerably, elements within it may be considered of national importance. In particular, the varying methods of transporting the ore to the dressing floors provide important examples of changing technology. The contour tramways are also notable as forming a system of transport unique to this orefield. Scheduling of the whole site is therefore recommended to preserve the remaining features.

4.2 Although early, probably 17th century workings are located on the northern slopes of the Craig Rhiwarth Hillfort, there is no certain evidence of ancient workings contemporary with the hillfort. Powys Estate manuscripts record mining at Cwm Orog from 1706 (Powys MS 3029, National Library of Wales) and documentary evidence suggests

that various trials had taken place with very little success prior to 1751 (Powys MS 21712, National Library of Wales).

4.3 Williams (1985, 99-101) suggests that No.1 Level referred to in a 1922 Geological Survey is located in the area of PRN 18398 or 18400. The No.2 Level of this survey would be PRN 18402, which was superseded by the main No.2 Level PRN 18399.

4.4 Level PRN 18416 is probably the Level 3 referred to in the 1922 Geological Survey.

4.5 Williams (1980, 96-7) refers to a report in the 1870 Mining Journal which states that No1-4 levels were being driven into the hillside. No.1 and No.2 Level were reportedly connected and working by 1872 when the Cwm Orog Silver-Lead Mining Company was formed. No.4 Level of this group was downhill of No.3 and west of the barytes lode. Hughes' Level probably refers to the drainage adit alongside the stream that remains outside of the survey area.

4.6 The 1870 Mining Journal refers to the stream being diverted to power the waterwheel (PRN 18442) and the dressing floor being under construction.

4.7 The incline appears to have been self-acting. Any certain evidence of a crossing point may have been lost in the field of improved pasture which now lies on the other side of the modern fence-line.

4.8 The aerial ropeway may have been installed by the Cwm Orog Mines Ltd., who worked the site from 1908-1911. Mining returns (Burt et al 1990, 55-56) record 42 people employed in 1908, considerably more than in previous years.

4.9 The site was reportedly worked for roadstone c.1912 from the quarry PRN 18434.

References

Powys Mines Survey 1994 Archive Plan 7-10

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OS 1887 1st edition 1:2500 Montgomeryshire Sheet IV.8

Dalrhiw Mine

PRN 5511 **NGR** SN88506070 SN86SE

Ores	Copper/Lead	**Date**	1850-1881
District	Brecknock	**Community**	Llanwrthwl
Condition	Damaged	**Landuse**	Pasture A
Threat	Farming		

Description

1. Location

1.1 The mine site is located on the valley floor below Craig y Dalrhiw on the southern bank of the Rhiwnant stream, which flows north-westwards into the Caban-coch Reservoir, part of the Welsh Water Elan Valley Estate c.12km to the SW of Rhayader.

2. Geology

2.1 Solid geology - Silurian rocks of the Tarannon and Llandovery series. A N-S vein contained chalopyrite and galena.

3. The Survey

3.1 The original 19th century access to the mine site appears to have been from the N bank of the Rhiwnant stream across a footbridge (PRN 18529) via Nant y Car South Mine. A modern farm track now leads across the site from E-W, cutting through some of the mine features.

3.2 The modern track passes N of a trial level (PRN 18484) cut southwards into the hillside of Craig y Dalrhiw. The stonework remains of a three-sided building (PRN 18485), possibly a shelter, remain at its entrance. The trial level is recorded on the OS 1905 2nd edition map.

3.3 The main shaft (PRN 18487) is located on the southern hillslopes at the top of the site. An area of development spoil from the sinking of the shaft remains to the E of the shaft. The main shaft is connected to a drainage adit (PRN 18503) on the S bank of the stream. Hall (1993, 85-6) records the original Dalrhiw Company beginning operations by driving a level in 1851 and sinking a shaft from uphill to meet the level.

3.4 Ore appears to have been wound from the shaft by a horse whim located to the S. The whim circle (PRN 18489) is c.7.5m in diameter.

3.5 The stonework remains of the bob-pit alongside the main shaft are aligned to the large wheelpit (PRN 18502) which presumably pumped the shaft via flat rods on wooden stanchions; the track beds (PRN 18506) of this system can be traced running uphill.

3.6 The stone-built pumping wheelpit (PRN 18502) c.28 x 5m survives to almost its full height and appears to have housed a 52 x 5ft waterwheel (Hall 1993, 85). A water channel runs from the N corner of the wheelpit to the Rhiwnant stream.

3.7 The remains of three stonebuilt ore-bins (PRN 18490) are located to the N of the main shaft (see Plate 4), built against a tip of development waste. The remaining stonework suggests a possible small building on the eastern end of the ore-bins. A considerable area of waste remains to the front of the ore-bins. The stonework remains of a building (PRN 18491) are located to the W of the ore-bins. The ore was presumably hand sorted in this area before being directed to the crusher house (PRN 18493). On the east side of the ore-bins, building platform PRN 18680 is located.

3.8 The masonry ruins of the crusher house (PRN 18493) and its wheelpit (PRN 18492) remain downslope of the ore-bins. The base of a possible building extension or the slab floor of a washing area lie against the N side of the crusher house. The size of the crusher house c.3 x 3.75m internally is small compared to the other large structural remains on the mine site.

3.9 The stonework remains of a small wheelpit (PRN 18504) c.10 x 2.5m max. survives on the valley floor, possibly powering jigs on the stone-slabbed floor (PRN 18505) along its N side. Stone slabs form a storage tank which is filled with jig waste on this floor alongside the wheelpit wall. There are considerable fine tailings associated with jig processing spread over this area on the S bank of the stream. There is no evidence to suggest that buddles were in use. The stone tank, although small, ressembles larger leaching tanks, generally square-shaped and originally lead-lined which have been located on copper mine sites. The tanks were used to treat copper oxide with sulphuric acid to produce copper sulphate. The copper was then precipitated from the solution with scrap iron. Similar tanks are located at Bryntail Mine (PRN 1842).

3.10 The collapsed stonework remains of the mine office or mine manager's house (PRN 18500), are located on the S bank of the stream. The main building (c. 12.3 x 7m) consists of two rooms with a central chimney and two doorways on the north side. Attached to the E end of the building is a later structure, possibly the smithy (PRN 18501), measuring c. 6.85 x 7m, with the hearth at the eastern end. A terraced area runs down to the stream and the footbridge (PRN 18529). East of the foorbridge, on the south bank of the stream, the rectangular building PRN 18682 is located near adit entrance PRN 18503.

3.11 Two leats were located entering the site from the W. The lower leat (PRN 18497) is fed from the Rhiwnant stream, while the source of the upper leat (PRN 18495), which can be followed contouring below Craig y Dalrhiw, remains unlocated within the confines of this survey. The upper leat enters the site above the ore-bins. Presumably it was culverted beneath the ore bins to power the crusher house wheel. It may also have fed downhill into a pond (PRN 18496) where it appears to run out to supplement the flow in the lower leat. A leat presumably took the water from the crusher house wheelpit to the main waterwheel via a wooden launder. A sluice on leat PRN 18681 would have controlled the flow of water either to the waterwheel, or directed it into a stream to the E.

3.12 The remains of a stone-walled enclosure (PRN 18499) lie N and W of the pumping wheelpit. A second enclosure (PRN 18498), consisting of low earthwork banks lies further W, cut by the modern farm track.

3.13 A track (PRN 18494) runs into the site from the W uphill of the upper leat (PRN 18495), and towards the shaft.

4. Conclusions

4.1 The structural and earthwork remains appear to represent one phase of mining activity spanning possibly 30 years. The main features are generally well preserved and when seen in conjunction with the adjacent Nant y Car South mine, form an area of significant mining remains worthy of statutary protection.

References

Powys Mines Survey 1994 Archive Plan 11-2

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OS 1905 2nd edition 6" Brecknockshire Sheet 1V.S.W./Radnorshire Sheet XX1.S.W.

East Van Mine

PRN 5937 **NGR** SN94908850 SN98NW

Ores	Lead	**Date**	1871-1883
District	Montgomeryshire	**Community**	Llanidloes
Condition	Damaged	**Landuse**	Pasture A
Threat	Farming		

Description

1. Location

1.1 The mine site lies to the NW of Pen-y-Castell Hillfort, c.4km N of Llanidloes and E of the Llyn Clywedog Reservoir. The survey was restricted to the engine house and chimney site, located to the E of Pwll-yr-Ebol Farm. on the N bank of Nant Gwyden (see Plate 5).

2. Geology

2.1 Solid geology - Silurian Gwestyn shales. Shaft sunk to search for galena on the eastern end of the Van Vein.

3. The Survey

3.1 The rectangular engine house (PRN 18330), c.15 x 11m, is constructed of local shale with brick quoins and comprises the boiler house (PRN 18626) and bedding for a horizontal engine. The house survives only to the engine plinth level. Bick (1990, 45) documents the sinking of a shaft and the installation of a 24 x 4ft horizontal engine which was at work by 1872. The engine bed suggests a horizontal cylinder engine of rotative design. The interior detail reveals a flywheel pit alongside the engine seating. Four iron support rods remain embedded alongside the E wall of the engine house. The masonry remains of a bob-pit (PRN 18627) lie to the S and shaft side of the engine house. Power from the horizontal engine would have been transmitted to the winding wheel via a crankshaft.

3.2 The boiler house to the W of the engine bed was built to house a 30 x 7ft cylindrical boiler (Bick 1990, 45).

3.3 To the S of the boiler house foundations, a platform (PRN 18667) terraced into the slope may be the site of a coal store.

3.4 The brick chimney (PRN 18331) survives to full height. The octagonal stack is supported by a square plinth.

3.5 The engine shaft (PRN 18332), now filled with debris, lies to the S of the winding pit. There is no evidence to suggest the headgear arrangements for the shaft. The shaft is surrounded by considerable spoil tips.

3.6 To the W of the engine house, the former brick-built mine stables and possibly smithy (PRN 18333) remain intact with a modern extension, now having an agricultural use.

3.7 To the N of the engine house and chimney, a level (PRN 18329) runs northwards into the hillside.

3.8 The shafts and levels that formed part of the East Van workings remain outside of the survey area to the N and E

of the engine house and chimney.

4. Conclusions

4.1 The site reflects entirely the mining activity of the East Van Mining Company Ltd from 1870-1882.

4.2 The intact chimney is a rare survival in the Powys ore-fields and this together with the engine house remains should be considered for statutary protection.

References

Powys Mines Survey 1994 Archive Plan 13-4

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Gwestyn Mine

PRN 5943 **NGR** SN89408610 SN88NE

Ores	Copper/Lead	**Date**	17th/18th century-1879
District	Montgomeryshire	**Community**	Llanidloes Without
Condition	Damaged	**Landuse**	Pasture A
Threat	Farming		

Description

1. Location

1.1 The mine site lies on the hillside to the E of Gwestyn Farm in an upland area S of the Llyn Clywedog Reservoir. The workings slope downhill northwards to Nant Gwestyn.

2. Geology

2.1 Solid geology - Lower Silurian rocks of Gwestyn formation. Mineralisation on an ENE vein includes chalcopyrite, galena and sphalerite with gangue minerals.

3. The Survey

3.1 The site consists entirely of earthworks, with no masonry surviving above ground. The main features consist of a series of shafts and collapsed workings (PRN 18354), sunk to meet an E-W vein in an area of intense mining activity, possibly mainly reflecting 17th and 18th century working. The workings are cut by a modern fence-line and the modern track that runs from the road to Gwestyn Farm. The shafts are of varying size and depth and have suffered considerable collapse and fresh falls were visible during the time of survey. The run of shafts begin in an area of forestry at the SW and continue to run eastwards and downhill increasing from shallow shafts to larger 19th century workings.

3.2 The largest shaft (PRN 18351) is probably that sunk during the 1850s under the management of Captain Pearce (Bick 1990, 33-34). It has the appearance of a deep shaft, possibly 100-200ft, and was probably drained by the stone-lined drainage adit (PRN 18673) on the Gwestyn Brook to the N, outside of the survey area. The shaft appears to have been powered originally by a horse whim (PRN 18352) S of it. Earthwork evidence suggest a whim circle of c.10m dia. on a raised platform. PRN 18351 appears to be one of only two deep shafts on the mine site. Bick (1990, 75) refers to Pearce's Shaft and Young's Shaft being sunk in the 1850-60s period and both being pumped out by a 30ft waterwheel, powered by a leat off the Gwestyn Brook. A letter (DD/WY/5335) from Capt. James Paull to John Taylor dated 4.12.1860 refers to an inspection of the mine, when he was unable to visit the underground workings as the waterwheel was idle. He was informed by the agent Capt. Pearce that the engine shaft had reached the 38 fathom level. The machinery at the mine consisted of a 36" wheel, 3ft 6" wide with a line of 9" rods. A carpenters' shop, smithy and offices were also on site.

3.3 The second shaft PRN 18590 is possibly Young's Shaft documented by Bick (1990, 34) and lies W of PRN 18351. It appears on the OS 1st edition map of 1886 immediately E of the fence-line as a substantial shaft but the shaft and its surrounds had suffered severe fresh collapse during the duration of the survey. Any evidence of the possible capstan circle recorded by Bick has now disappeared.

3.4 To the E of the main shaft (PRN 18351), lie the disturbed earthworks of the engine house (PRN 18350) that appears on the OS 1st edition map of 1886. The engine appears to have pumped the shafts by means of a flat rod system. Little remains of the structure and no plan is discernible. The engine was presumably erected on the site due to the irregularity in operating the waterwheel when the water level was low in the Gwestyn Brook. The waterwheel was sited outside of the survey area, on land sloping down to the brook.

3.5 To the N of the engine house area, the earthwork foundations remain of a two-roomed building (PRN 18348) c.9 x 4m which appears on the 1st edition OS of 1886 and is possibly the mine office.

3.6 To the NW of the main mining area, a rectangular earthwork is all that remains of the magazine (PRN 18346) recorded by the OS 1886 survey.

3.7 The reservoir (PRN 18347) appears on the OS 1st edition map of 1886 and survives as a substantial earthwork c.10.6 x 7.4m internally, with banks up to 1.3m high. Leat PRN 18685 appears to have fed the reservoir from the west, via a sluice on its north-west corner.

3.8 To the E of the engine house remains lie the earthworks of a reservoir (PRN 18349), c.10 x 15m, falling into two levels. Evidence remains of the inlet and outlet sluices and the drainage appears to run off downhill in the direction of the Gwestyn Brook and the levels and shafts that lie outside the survey area.

3.9 The low earthworks of a large reservoir (PRN 18344) c.32 x 14m max. survive S of the modern farm track on the western end of the site. The inlet and outlet sluices can be identified with faint traces of a leat (PRN 18345) flowing E, but there is no certain evidence of how the reservoir was filled.

3.10 To the W of the main shaft (PRN 18351) several linear cuts (PRN 18353) ressemble possible settling pits.

3.11 The site is cut E-W by numerous trackways (PRN 18343) many of which are overlain by later mining activity. Some of the trackways are presumably the old drovers' roads over the ridge on which the site lies. A substantial linear channel (PRN 18589) cuts through the workings in an E-W direction and appears to be only interrupted by the modern farm track.

3.12 Two old boundary banks (PRNs 18683-4) are located north of the mine office.

3.13 To the E of the present road, earthwork evidence and aerial photographs suggest further workings and two levels cut in to the S off Nant Gwestyn, all of which are outside of the survey area.

4. Conclusions

4.1 The future management of the site should be carefully considered since part of the earthworks have already been the subject of forestry plantation. Particular consideration should be made regarding the safety of the site since it was apparent at the time of the survey that several areas were actively subsiding and possibly in danger of serious collapse.

References

Powys Mines Survey 1994 Archive Plan 15-7

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OS 1st edition 1886 1:2500 Montgomeryshire Sheet XL1.14

Llandrindod Mine

PRN 18978 **NGR** SO06605930 SO05NE

Ores	Lead	**Date**	18th century-1872
District	Radnorshire	**Community**	Llandrindod Wells
Condition	Damaged	**Landuse**	Pasture A
Threat	Farming		

Description

1. Location

1.1 The mine site is located E of the A483 and NE of the village of Howey. The linear earthworks run in a N-S direction for c.500m, N of Llwynceubren Farm and W of Broomy Hill.

2. Geology

2.1 Solid geology - Igneous rock. Single mineral vein includes galena and sphalerite.

3. The Survey

3.1 The earthworks of a series of shafts, trials and collapsed workings of varying size (PRN 18300) follow the line of a N-S vein for at least 500m. Further workings are identified on the OS 1st edition to the S of the survey area. They are now mostly destroyed.

3.2 The latest workings consist of two large shafts towards the S end of the site. The large shaft (PRN 18304) N of the modern quarry area has the earthwork remains of a possible horse whim circle (PRN 18687) on its southern perimeter. The whim platform has been cut by a more modern farm track.

3.3 The largest shaft (PRN 18305) lies to the S of the modern quarry. An old field boundary (PRN 18323) runs downhill and is cut by the shaft and its associated features. The shaft appears to have been powered by a horse whim (PRN 18306), the circle for which is c.8m diameter, and located to the SE of the shaft. The earthwork evidence in this area of the mine would suggest later and more large-scale activity.

3.4 The workings appear to have been naturally drained by the adit level (PRN 18301) in the valley bottom to the W, marked 'spring' on the OS 1st edition 1889.

3.5 Earthworks suggest two levels driven in from the W on the sloping hillslopes SE of the drainage adit (PRN 18301). The smaller level (PRN 18302) appears along the line of shafts and the larger level (PRN 18303) lies to the east of the modern field boundary. The earthwork remains of an old field boundary (PRN 18322) slope E-W between the two levels.

3.6 The SE corner of the site contains the earthwork remains of buildings and features possibly associated with early processing. Evidence suggests three platform areas and a possible ore-bin (PRN 18686) to the W of them (PRN 18307) immediately W of the modern forestry fence-line. Disturbances and scatters of large stone within the forestry to the E suggest that archaeological features may have been lost to tree planting.

3.7 The sub-rectangular enclosure (PRN 18308) c.10 x 12m appears to be contemporary with the field boundary (PRN 18309) which crosses its SW perimeter.

3.8 The substantial earthwork remains of a field boundary (PRN 18310) runs N-S parallel to an area of linear earthworks. These appear to be possible settling pits (PRN 18311) for collecting waste and two small shafts in the area to the W of the sub-rectangular enclosure PRN 18308.

3.9 The remains of a building (PRN 18312) c.10 x 5m is located to the W of the large shaft PRN 18305.

3.10 The earthwork remains of a small building (PRN 18313) c.7 x 3m lie on the edge of the modern field boundary to the S of the main workings, with a further possible building platform (PRN 18324) on the S side of the same field boundary.

3.11 At least three shafts lie to the SW of these buildings on the southern extremity of the mine, where evidence has been lost to improved pasture and farm tracks.

3.12 On the valley floor to the W of the line of shafts are the remains of the dressing floor area (PRN 18637). Spoil tips (PRN 18328) to the N of the drainage adit contain evidence of jig waste.

3.13 The stonework remains of a rectangular building c.10 x 5m with a southern doorway (PRN 18314) survive to basal layers. The building had been constructed on an existing mound of spoil and must post-date the processing in this area.

3.14 To the S of the stone building and the spoil tips, a leat (PRN 18316) traverses the area in an NW-SE direction connecting to a small reservoir on its W extremity beyond the survey area. The levels suggest that the water is flowing westwards out of the reservoir (PRN 18315) into the leat, but there is no clear evidence of how the reservoir is filled. The leat is cut by the water channel from the drainage adit (PRN 18301) which must post-date the leat and reservoir. The reservoir is recorded on the OS 1st edition 1889.

3.15 To the E and uphill from the drainage adit a track runs downhill to feed a possible ore-bin (PRN 18317).

3.16 An area of stone quarrying (PRN 18318), possibly contemporary with the mine, is located E of the dressing floors and S of the present field boundary.

3.17 A series of old field boundaries were recorded within the survey area, most of which appear to pre-date the main mining activity.

3.18 The main boundary (PRN 18310) runs N-S parallel to the line of workings. A small platform or enclosure (PRN 18327) is defined on three sides by the boundary. A second platform (PRN 18326) lies to the N.

4. Conclusions

4.1 The state of preservation of the earthworks is generally good, except for those areas destroyed by recent quarrying and the construction of farm tracks. The future management of the site should be given some consideration to prevent further damage to the archaeology. The stability of the main workings is uncertain and the question of safety should therefore be considered, particularly with respect to the public footpath which runs through

the site.

4.2 There is no evidence to suggest the installation of power sources other than the horse whim circle. Ore was presumably raised from the other shafts by windlasses. The more northerly shafts which run in such close proximity appear to be fairly shallow and probably earlier.

References

Hall, G.W., 1993. Metal Mines of Southern Wales. Griffin Publications. Herefordshire

OS 1st edition 1889 1:2500 Radnorshire Sheet XX111.13

Powys Mines Survey 1994 Archive Plan 18-21

Nant y Car South Mine

PRN 18994 **NGR** SN88606090 SN86SE

Ores	Copper/Lead/Zinc	**Date**	18th century-1883
District	Brecknock	**Community**	Llanwrthwl
Condition	Damaged	**Landuse**	Pasture A
Threat	Farming		

Description

1. Location

1.1 The mine site is located on the valley floor on the N bank of the Rhiwnant stream, which flows NW into the Caban-coch Reservoir, part of the Welsh Water Elan Valley Estate c.12km to the SW of Rhayader.

2. Geology

2.1 Solid geology - Silurian rocks of the Tarannon and Llandovery series. Mineralisation includes galena and sphalerite.

3. The Survey

3.1 The main access to the mine appears to have been the disused trackway which runs into the valley from Rhiwnant Farm. On approaching the site, the track diverges; the initial track (PRN 18628) runs downhill to cross the Rhiwnant stream by a footbridge to the Dalrhiw Mine and the upper and later extention of the track (PRN 18508) continues along the contours to the Nant y Garw Mine.

3.2 A track (PRN 18511) crosses the mine site to the mouth of the collapsed level (PRN 18527) and continues towards a sheepfold (PRN 16585) and the stream.

3.3 The rectangular main shaft (PRN 18515), which is lined with masonry resting on timber lintels, remains open and fenced off. The shaft is now flooded and a timber ladder and shoring are visible below the water line.

3.4 The stonework that formed the foundations for a winding arrangement (PRN 18514) remains on the western side of the shaft and the bob-pit (PRN 18516) lies to the E, now partly collapsed.

3.5 The main wheelpit (PRN 18522) powered the crusher house (PRN 18523) and a flat-rod system to pump main shaft. The wheel appears to have transferred power to a fly-wheel on its S side. Part of the wall of the fly-wheel pit protrudes above spoil tips alongside the wheelpit. The bed of the flat-rod arrangement (PRN 18521) can be traced east of the wheelpit, in a narrow stone-lined culvert on an alignment with the shaft. The stone-built wheelpit (PRN 18522), c.18 x 5m, is buttressed on its SE corner.

3.6 A tramway (PRN 18517) runs from the shaft complex to a bank of two or possibly three stone-built ore-bins (PRN 18518) with picking floors in front. The area to the front of the ore-bins contains a considerable amount of jig tailings, indicating that jiggers were in use. Ore would have been raked out of the ore bins; suitable small rock would be jigged and larger rock directed to the crushers.

3.7 An incline (PRN 18519) can be traced running S from the ore-bins towards the large spoil tips. Two large spoil tips fan out towards the stream and development spoil fans out from the main shaft.

3.8 The crusher house (PRN 18523) has four remaining beam ends in situ on its E and loading wall indicating that two crusher rolls were operating (see Plate 6). The stone walls of the crusher house survive to c.4.3m high. Ore was transported from the ore-bins and loaded into the crusher via a ramp (PRN 18528).

3.9 The remains of a series of platforms (PRN 18526), presumably for jigs, lie to the NE of the crusher house, with further jig waste covering the area to the front of the crusher house.

3.10 Two circular buddles (PRN 18525) c.8.5m diameter are located to the E of the crusher house with stone revetment walls surrounding them. The flow of water from the crusher wheelpit emits from a culvert (PRN 18689) into the buddle area.

3.11 The main leat (PRN 18510) is largely stone-lined, entering the site from the W, fed from the Rhiwnant stream. Below the collapsed level (PRN 18527), which runs in northwards from track PRN 18511, the leat turns SE downhill to a stone platform (PRN 18458) which would have supported a wooden launder to the wheelpit. A sluice presumably controlled the flow of water at this point, directing it either to the waterwheel or leat PRN 18524. Leat PRN 18524 continues east, passing to the north of jigging and buddling areas. Water finally returned to the Rhiwnant stream.

3.12 Uphill of level PRN 18527, a second area of collapse is probably caused by the level below.

3.13 Three drainage adits run in northwards from the stream. To the S of the sheepfold, a drainage adit (PRN 18512) cuts in to the W of the footbridge. A second adit (PRN 18513) cuts in below the spoil tips. The adits served to drain the workings below the main shaft. A third adit (PRN 18507) is located further upstream and would suggest workings on a parallel vein.

3.14 A culvert (PRN 18520) which presumably runs from under the waste tips is located on the bank of the stream, but of unknown source.

3.15 A path (PRN 18690) runs uphill from the collapsed level, PRN 18527 to an area of scattered large stones, which appear to have collected from natural falls off the hillside above. Amongst the stone are several three-sided shelters (PRN 18509). It is assumed that they provided shelter for those employed in dressing stone for building use.

4. Conclusions

4.1 The structural and earthwork remains appear to relate largely to one phase of mining activity between perhaps the 1850s and 1880s. The state of preservation is generally very good, particulary of features associated with the dressing floors, and when taken together with the adjacent Dalrhiw Mine this forms an area deserving of statutary protection.

References

Powys Mines Survey 1994 Archive Plan 12 and 22

Nant yr Eira Mine

PRN 725 **NGR** SN82708730 SN88NW

Ores	Lead/Copper/Silver	**Date**	Prehistoric-1883
District	Montgomeryshire	**Community**	Llangurig
Condition	Damaged	**Landuse**	Forestry
Threat	Forestry		

Description

1. Location

1.1 The mine site remains on the edge of the Hafren Forest to the E of Plynlimon, in a clearing on the NE bank of the Nant yr Eira.

2. Geology

2.1 Solid geology - Ordovician rocks of the Lower Van formation gritstones. Mineralisation includes chalcopyrite and galena.

3. The Survey

3.1 The purpose of the survey was to record the surviving features of the site that appear to relate in general to the 19th century workings and to link these findings to the 1988 excavation and survey area (Timberlake, 1990) of the prehistoric open-cut and tips, which already form a Scheduled Ancient Monument (Mg 226). The open-cut (PRN 18531) is a deep rock-cut linear feature 95 x 6 x 7m deep (Timberlake, 1990). The vein has been worked out from the surface. Documentary evidence refers to lead ore being cleared out of this early cut in the 19th century (Bick 1977, 29). An 1859 plan (DD/WY/5334) shows the re-worked open-cut, a level and a smithy.

3.2 Bronze Age Workings

3.2.1 Excavations of the potentially early spoil tips by Oliver Davies (1938, 55-60) in 1937 led to the discovery of hammerstones and muller-querns. Surface layers of charcoal and burnt stone suggested fire-setting. As a result of this early evidence, the site was examined for dating evidence in 1988, by the Early Mines Research Group (Timberlake 1990, 15-21). Two trenches (PRN 18692) were excavated, again revealing charcoal, and hammerstones were recovered from the lower layers. Radiocarbon dating from wood samples by the British Museum gave dates within the Early Bronze Age, c2000-1500 Cal. BC.

3.2.2 The stream now flows naturally N-S through the open-cut, but the course of the stream appears to have been diverted to the W of the opencut in the 19th century to allow further working. A channel (PRN 18694) on the west banks of the open-cut is the suggested course of the diverted stream. The 19th century tips probably overlie prehistoric tips in the area to the SE of the opencut.

3.3 19th Century Workings

3.3.1 The mine was worked by the Snow Brook Mining Company from 1858 until 1887, when mining operations were

suspended. During this period, Bick (1990, 29) documents 33 tons of lead ore being recovered from clearing out the open-cut. The cut does not appear to have been worked any further.

3.3.2 The main shaft (PRN 18546) and large spoil tip lies in the forestry to the E. A raised trackway (PRN 18642) connects the shaft to the mine site.

3.3.3 The main tramway (PRN 18534), constructed of mine waste, would have transported ore from the re-worked open-cut. It terminates in a platform area and two ore-bins (PRN 18535) N of the crusher house (PRN 18537). To the N of the ore-bins, a the collapsed stone walls of a sunken shelter (PRN 18369) survive c.1m high in parts. The platform area in front of the ore-bins facilitated the carriage ore presumably via a wooden chute to the crushers.

3.3.4 The leat (PRN 18533), partly stone revetted, runs parallel to and N of the main tramway (PRN 18534) from the open-cut. A low wall of mine waste c.1m wide descends to a "bridge" on the S of the open-cut, which appears to have carried the stream by launder across to feed the crusher house leat. Pier-base PRN 18696 indicates the bridging site. The leat terminates above the crusher house wheelpit (PRN 18536) which it must have powered via a launder.

3.3.5 Bick (1977, 28-29) refers to a 38 x 3ft waterwheel and 24" crusher coming up for sale in the 1860s. The substantial stone walls of the crusher house (PRN 18537) and wheelpit (PRN 18536) complex have partly-dressed stone quoins. The crusher house abutts the wheelpit on its E side (see Plate 7). Also adjoining the wheelpit and crusher house wall is a platform area (PRN 18461) into which ore was fed by a chute which appears in the crusher house wall. A substantial raised square platform area c.12 x 10m (PRN 18538) adjoins the crusher house complex on its S side, where a drainage culvert appears to emerge from under the higher sorting platform area. An area of fuel-ash slag on the platform surface suggests the use of a portable steam engine. Two iron tie-rods survive on the S wall of the raised platform and two appear to have been sited on the W wall also.

3.3.6 The tailrace from the wheelpit arch (0.7m high x 0.7m wide) is channelled out of the NW corner of this sorting area and possibly ran in a culvert along the W side of the platform. It appears also to have fed the buddle (PRN 18539) via a launder. The buddle survives as a circular earthwork c.4.6m diameter with a 0.6m wide bank around it, W of the large platform area. Buddle waste lies to the S and W of the feature.

3.3.7 A second buddle (PRN 18543) c.4m wide with its central support post still in situ lies alongside the forestry fence on the S.E extremity of the mine site. Buddle waste surrounds the area and the circumference of the buddle is defined by protruding gritstone blocks. The buddle was presumably fed by a raised launder.

3.3.8 The tailrace from the crusher wheelpit appears to have fed two reservoirs (PRN 18541) which fed water via a stone culvert (PRN 18352) towards the jig platforms (PRN 18542) and the second buddle (PRN 18543). There are three possible jig platform areas (PRN 18695) and a mound of jig waste on the S bank of the stream. A further spoil mound is located on the SW bank of the stream.

3.3.9 To the S of the platform area (PRN 18538), a second wheelpit (PRN 18540) c.5.2 x 1.3m internally, is located. A launder may have carried the leat over the reservoirs (PRN 18541) to power an overshot wheel. Presumably this wheel powered the jiggers. The tailrace may have been culverted out into the stream. The wheelpit is abutted by grassed-over mounds of jig waste. To the W of the wheelpit PRN 18540, on the SW bank of the stream, a large spoil tip remains possibly indicating the site of a blocked level (PRN 18640).

3.3.10 The collapsed stone walls of a building, probably the mine office or smithy (PRN 18544) survive to 1m high at best. A doorway is located in the W wall and evidence of a fireplace or chimney remains on the SE corner.

3.3.11 The original access was via a track (PRN 18641) that now emerges from the forestry on the eastern side of the mine.

3.3.12 An area of quarrying (PRN 18697), probably for stone for the mine buildings, is located on the N side of the tramways. Further N of this quarry an a second area of quarrying (PRN 18693) is located.

3.3.13 A trial pit N of the open-cut, is located outside the survey area.

3.3.14 A small enclosure (PRN 18545) c.2.5m sq lies to the E of the site. A large 19th century tip below the mine track (PRN 18641) obscures the NW corner of the enclosure, which is possibly a sheepfold.

4. Conclusions

4.1 The site as a whole provides an important example of diverse mining techniques relating to widely differing period of exploitation. The Bronze Age workings are already protected as a Scheduled Ancient Monument and it is recommended that the existing area be extended to include those features of 19th century date.

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Powys Mines Survey 1994 Archive Plan 23

Nantiago Mine

PRN 5944 **NGR** SN82608630 SN88NW

Ores	Lead/Silver/Zinc	**Date**	1846-1917
District	Montgomeryshire	**Community**	Llangurig
Condition	Damaged	**Landuse**	Pasture A
Threat	Farming/Erosion		

Description

1. Location

1.1 The mine site is located E of Plynlimon, c.1.5km N of the Wye Valley Mines in the Nant Iago valley, a tributary of the River Wye.

2. Geology

2.1 Solid geology - Ordovician mudstones and shales of the Lower Van formation. Mineralisation on a main ENE-WSW vein includes galena and sphalerite.

3. The Survey

3.1 The survey revealed an area of mining activity not previously identified. Nantiago West (PRN 18588) appears to represent trials by the Nantiago Company in the valley of the River Wye at SN81508630. The main shaft and its stone built bob-pit (PRN 18549) are located at SN81508630. The shaft and bob-pit were powered by a waterwheel; the stone wheelpit (PRN 18547), measuring c.8.5 x 1.5 x 2m deep internally, is located at SN81258650. The wheel is fed by a leat (PRN 18548) which runs off the River Wye. The masonry walls of a mine office or stores (PRN 18550), c.4 x 5.7m externally, survive to c.1.5m high at SN81208645. The OS has recorded a second shaft at SN81508630, but this remained unlocated in the dense moorland. Also recorded further to the west is a level at SN80358580, which may also relate to Nantiago Mine.

3.2 Upstream of these workings, the river is dammed by a substantial stone-revetted earthwork dam (PRN 18551) c.11m high x 12m wide x 100m long. The water was diverted at this point to feed the main leat (PRN 18576) of the Nantiago Mine. In 1860, The Mining Journal (Vol.30) reported the completion of a leat two miles long, which was to power the pumping, winding and crushing machinery.

3.3 The earthwork and structural remains on the main mine site date from the mid-19th century to the end of production in 1913. A modern farm track runs along the eastern perimeter of the dressing floor areas and forms the E boundary of the survey.

3.4 Engine Shaft (PRN 18578), located at the NW corner of the site was sunk to 30 fathoms below the adit level (PRN 18566), and remains uncapped with part of the pump rod system in situ. The foundations of the winding house or drum house (PRN 18706) are located on the N side of the shaft. A concrete structure on the NW side (PRN 18458) may also be associated with winding. A second concrete structure (PRN 18705) with two deep slots presumably supported the pump rods is located on the S side of the shaft. Various ironwork lies around the shaft area, including the winding wheel for the wooden A-frame. A winch complete with wheel and cable remains in an area of spoil to the

N of the shaft. The shaft area is unsafe and a chasm of severe collapse to the E reveals deep workings.

3.5 Immediately to the N of the shaft complex, a wheelpit (PRN 18579) c.12.5 x 3.75m remains in a state of collapse with timbers and support rods in situ. The overshot wheel was fed from a reservoir (PRN 18580) via a wooden launder. The rock-cut reservoir was fed directly by the stream, which it dammed, and possibly also from the main leat (PRN 18576).

3.6 To the E of the shaft, two quarries (PRNs 18581 and 18630) presumably provided stone for construction.

3.7 The main leat also fed the larger wheelpit (PRN 18575), which is located SE of the shaft complex, separated by the modern farm track. Leat PRN 18577 provided an additional source of water, with a system of wooden launders carrying the water to the overshot wheel. The wheelpit, cut into the rock face, is c.18 x 2.95m wide. The 1860 Mining Journal reported the cutting of the wheelpit, "nearly half of the wheelpit is cut out of solid rock which will save the expense in masonry work". In November 1860, The Mining Journal (Vol.31) reported the purchase of a 40ft pumping wheel from Esgairlle Mine, presumably for this large wheelpit. A letter (DD/WY/5352) dated 13.1.1859 from Captain Pearce to Williams refers to the sum of two to three thousand pounds being invested in new machinery. In 1873, a new 60ft wheel was installed (Mining Journal, July 1873, Vol.43). The surrounding timber framework survives with iron support rods in situ. The balance box, which acted as a breaking device for the pump rods, was sited on the S side of the wheelpit indicated by the rock-cut depression (PRN 18629). The N side of the wheelpit shows scouring on the masonry, where the crankshaft connected to the pumping rods once turned. The pier-base (PRN 18703) located between the shaft and the wheelpit presumably supported the pump rods. The 1860s-1880s mining operations were directed by William Lefaux, until he died penniless in 1888, when mining operations were abandoned until 1900.

3.8 The ore was brought out from the level (PRN 18566) which was driven in northwards from an area of quarrying (PRN 18567), probably for stone for the mine buildings. The ore was transported S to the dressing floor areas.

3.9 The early dressing floor area (PRN 18562) appears to have been platformed on timber supports above the natural bed of the stream. Spoil heaps remain on the west bank of the stream in this area and above them is a bank of ore-bins (PRN 18565). The ore was brought out of the level (PRN 1856) and transported to the ore-bins via tramway PRN 18569. The OS map of 1963, presumably based on a much earlier survey, suggests that the stream was diverted behind the ore-bins.

3.10 In 1846, a wheelpit housed a 12 x 2ft breast shot wheel (Bick 1990, 27) which is reported to have poorly powered the pitwork, crushing and early dressing machinery. A small stone-built wheelpit c.11 x 3.3m (PRN 18561) is located on the early dressing floor area (PRN 18562) on the E bank of the stream partly cut into bedrock, with the remains of its adjoining crusher house (PRN 18632). It appears to have been fed by a leat (PRN 18563) whose source is the storage reservoir (PRN 18564) fed by leat PRN 18570 dammed on the Nant Iago stream. An early leat (PRN 18633) may be associated with this reservoir but is cut by the later quarry. Adjoining the N wall of the wheelpit are the basal remains of the crusher (PRN 18632), which was loaded via a possible tramway.

3.11 S of the wheelpit, a collapsed level (PRN 18560) is located, presumably for bringing ore out to the early dressing floors below track PRN 18585 which runs in to the northern end of the early dressing floors. Further downstream a possible collapsed adit (PRN 18559) is located below the second track (PRN 18586) which leads in to the early dressing floor area from the modern farm track. In April 1860, The Mining Journal (Vol.30) reported a new road being made to run one and a half miles out to Nantiago Mine from the main Llangurig to Aberystwyth Road, to transport ore and materials. The original road is the route of the modern farm track and probably entered the mine at the early dressing floor area as track PRN 18586. A bridge and a date-stone remain along the route.

3.12 The new Nantiago Mining Company was registered in 1900 and a few months later The Mining Prospectors Syndicate bought shares, providing an increase of capital. In 1900, a new 56ft pumping wheel was erected by John Mills & Co. of Llanidloes and a new three-storey processing mill (see Plate 8/9). The wheel was erected at the large wheelpit (PRN 18575), replacing the previous 60ft wheel. The new dressing plant (PRN 18556) and crusher house (PRN 18557) remains downstream of the old dressing floor area. A Crossley Gas Engine was installed on site in the early 20th century to assist the pumping wheel (Bick 1990, 58). The mine site was sold to Llanidloes Mining and Machinery Company Ltd in 1913 and mining continued during the war.

3.13 Documentary evidence for the new plant lists 2 pelton wheels, stone breaker, rolls, trommels and 6 four-compartment jigs (Bick 1990, 58). The dressing floor area (PRN 18556) is platformed above the stream, and evidence remains of the stream being culverted and diverted away from the timber platforms. The high level of the stream in winter has washed debris over the processing area masking the features. Much of the machinery and support rods remain in situ on the wooden floor area. One collapsed trommel remains visible and others are now covered by debris brought down by the stream as the water level has risen. A concreted floor area c.12.75 x 7m on the E side of the dressing floor has several support rods in situ.

3.14 A pelton wheel survives in situ supported by a timber frame above the stone and concrete wheelpit (PRN 18635). The wheel presumably powered the crushing rolls by belt drive. Parts of a second pelton wheel lie on the dressing floors. Power was provided by water under pressure of gravity via iron pipes. The primary source was from leat PRN 18572, which terminates in a wooden tank (PRN 18636). From there water was sluiced either into the iron pipe (PRN 18636) or diverted to flow directly into the stream via leat PRN 18574. A track (PRN 18634) runs out to service the sluice. An additional source of water was provided, when pressure was low, from the main leat (PRN 18576) via a second iron pipe (PRN 18573), although this would divert water from the pumping wheelpit. The high pressure wheels powered all the machinery at the new plant.

3.15 The crusher house (PRN 18557) stands on the W bank of the stream. The crusher complex, constructed in stone and concrete, forms part of the three-storey processing mill built in 1900, and remains fairly intact although much of the stonework has collapsed. Ore was brought in to the top of the crusher house along the tramway (PRN 18569), which can be traced from the main level (PRN 18567). A rock-cut stairway leads to the upper floors of the building from the wooden floors of the pelton wheel area. An original mine track (PRN 18587) runs downhill towards the pelton wheel site from the modern track.

3.16 Beyond the S wall of the crusher house a platformed area contains the remains of wooden jiggers (PRN 18558).

3.17 The wooden launders (PRN 18698) which appear to have carried slurry from the processing area to the settling pits (PRN 18553) remain fairly intact. The launders follow the line of the stream passing a platform area (PRN 18555) whose function is undetermined.

3.18 On the W bank of the stream, downstream of the dressing floor, two large spoil tips of jig waste remain alongside the jig platforms (PRN 18558). Immediately above the northernmost tip are a run of three small settling pits (PRN 18554). The slimes are directed from the lower pit S to the Nant Iago stream via leat PRN 18700.

3.19 A leat (PRN 18574) which emerges from the pelton pipeline sluice enters the Nant Iago at the same point. Several cast-iron pipes, similar to the pelton pipes remain in along the line of the leat. Their function is undetermined. A short length of leat (PRN 18701) runs parallel to PRN 18574 as it reaches the stream.

3.20 Two rectangular settling pits c.12.1 x 5.4m and 10.5 x 9.7m (PRN 18553) are located on the SE bank of the Nant Iago stream at the S end of the site.

3.21 A concrete capped shaft (PRN 18552) remains fenced off on the southern extremity of the site, and is probably the air shaft.

3.22 Three building platforms (PRN 18571, 18716 and 18717), which include the foundations of the mine manager's house or office and possible stores are located on a level terraced area to the NE of the large wheelpit (PRN 18575). A track (PRN 18707) runs downhill to the front of the buildings from the modern farm track. An area of quarrying (PRN 18582) may have provided stone for the mine buildings. Barrack housing was erected further downstream on the former site of the Wye Valley Mines (PRN 18979 and PRN 8474) to provide lodging for itinerant miners.

3.23 Track PRN 18584 runs towards the basal remains of the smithy (PRN 18568) c.11.5 x 4m and continues towards the wheelpit PRN 18575. To the north of the modern farm track, the track that runs out to Engine Shaft appears to be a continuation of PRN 18584.

4. Conclusions

4.1 The surviving remains would appear to belong to two main periods of activity. Features clearly belonging to the earlier phase, dating c. 1846 to 1880s, relate mainly to the original dressing floors and consist of the ore-bins, crusher and wheelpit and adjacent platforms, together with winding and pumping equipment associated with the main shaft. The later phase consists of the substantial processing plant of 1900, together with its ancillary features. This structure is a rare survival of a late machine driven mill and is the best preserved within the Powys orefields. Accordingly, it is recommended that the whole mine site should be considered for protection as a Scheduled Ancient Monument.

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Powys Mines Survey 1994 Archive Plan 24-7

Pen Dylife Mine

PRN 18591 **NGR** SN85509350 SN89SE

Ores	Lead/Silver/Zinc/Copper	**Date**	Pre 17th to 1920s
District	Montgomeryshire	**Community**	Llanbrynmair
Condition	Damaged	**Landuse**	Pasture A
Threat	Farming		

Description

1. Location

1.1 The workings are located on an E-W ridge south of the later 19th century mine workings on the Llechwedd du and Esgairgaled Veins at Dylife (PRN 5648), c.16 km NW of Llanidloes. Prior to the 19th century, workings in the area of Dylife Mine were mainly on the Dylife Vein, east of Dyfngwm Mine (PRN 5942) at Pen Dylife.

2. Geology

2.1 Solid geology - Silurian mudstones and shales of the Gwestyn and Frongoch formation. Mineralisation on the Dyfyngwn and Dylife Veins includes galena, chalcopyrite, sphalerite and gangue minerals.

3. The Survey

3.1 The survey is principally restricted to recording evidence of early hushing and other mining features on the Dylife Vein. The vein ran E-W along the crest of a ridge immediately S of the old coach road (PRN 18654), which now forms part of the long distance public footpath, Glyndwr's Way. The old coach road passes the Roman fortlet of Penycrocbren (PRN 1378) and the c.1700 Gibbet Mound (PRN 1379) W of it.

A modern farm track now leads into the area. The original entrance track is surveyed as PRN 18650 running to the line of shafts. It branches N of the boundary bank to a track (PRN 18649) leading to Boundary Shaft (see Plate 10).

3.2 Hushing Evidence

3.2.1 The main evidence for hushing consists of a substantial channel, PRN 18623, which runs into the site from the W. Water appears to have been gathered from an area of open moorland and collected along the line of a boundary bank (PRN 18614), before cutting through the bank and downslope to the SE. The substantial boundary bank is c.3-4m max. wide and up to c.1.2m high.

3.2.2 S of the boundary bank, the hushing channel is disturbed by a small irregular enclosure (PRN 18624).

3.2.3 The channel appears to be interrupted by a possible reservoir (PRN 18662) as it runs downhill towards the line of the vein. The channel is traced S of the modern fence-line, where it is disturbed by the line of collapsed shafts (PRN 18660). Having flushed out the vein in this area, the channel (PRN 18623) can be traced running S to the edge of the opencast.

3.2.4 The low earthwork banks of a small reservoir (PRN 18659) has a leat (PRN 186650 running off SW, which joins

the hushing channel, PRN 18623.

3.2.5 Downhill of the line of shafts, possible hushing reservoirs (PRN 18657) are located on the moorland above the Dyfngwm opencast. Two hushing channels (PRN 18647 and 18648) run off into the opencast.

3.2.6 E of these channels, a substantial hushing channel (PRN 18625), which may be a continuation of PRN 18623, runs off further S into the opencast. A possible trial level on an exposed vein (PRN 18656) is located on the N edge of the channel as it enters the opencast. Track PRN 18646 runs downhill and crosses the line of the hushing channel.

3.2.7 N of the line of shafts, which now remain as large collapsed workings, three low-level earthwork banks (PRNs 18609-11) appear to have stored water by damming natural water channels. There is no evidence for associated leats or hushing channels.

3.2.8 To the E of Penycrocbren (PRN 1378), the earthwork banks of a reservoir (PRN 18603) c.27 x 7m survive as three sides of an enclosure retaining water on the upslope side. A leat, PRN 18600, runs W from the reservoir following the line of shafts. The remaining course of the leat is lost as it is cut by the later shafts and a farm track.

3.2.9 S of reservoir PRN 18603, a second large reservoir (PRN 18596) c.40 x 13m has two leats entering the NW and NE corners.

3.2.10 Several water channels (PRN 18651), appear as natural drainage channels on the hillslopes now, but were probably originally formed by water after it had flushed the vein.

3.3 Later mining evidence

3.3.1 The Dylife Vein has been worked by a line of levels, shafts and open-cuts (PRN 18660) of varying size and depth which run E-W across the mountain ridge. The workings are disturbed by modern farm tracks.

3.3.2 The deepest shaft is Boundary Shaft, located at the SE end of the boundary bank (PRN 18614). A modern fence-line now cuts through the complex, but the old boundary bank can be followed running N-S. The collapsed stonework of a Cornish Engine House (PRN 18607), which housed a 60" pumping engine remain on the N side of the shaft. The site of the boiler house (PRN 18606) is located to the E side of the engine house. NW of the engine house complex, a reservoir (PRN 18608), stored water for the boilers. A leat appears to have fed the reservoir from the W. Spoil tips fan out to the S of the complex, and fuel ash slag forms a large part of the eastern tip. The shaft was sunk by the Dylife Company in the mid-19th century on the W extremity of their workings on the Dylife Vein and worked until the 1880s. Track PRN 18649 leads to the complex presumably connecting with the other Dylife workings. The Dyfngwm Mine was successfully working the vein to the W of the boundary at this time. In 1873, the new Dylife Company deepened Boundary Shaft to c.900ft.

3.3.3 The line of a "pulley" (PRN 18710) is culverted beneath the coach road E of Penycrocbren. The cable was powered by a waterwheel in the valley at SN86329400 to wind at Boundary Shaft (PRN 18605) almost a mile over the hill.

3.3.4 To the E of Boundary Shaft, the workings are cut by the farm track. Three large shafts are located N of the track; Shaft PRN 18599 is a large circular depression, filled with debris, including a car; Shaft PRN 18598 is further E with surrounding tip; Shaft PRN 18597 is fenced off with the bed of a possible incline (PRN 18601) to the N. Building platform PRN 18602 is located N of the large shafts and to the east of them, a run of small shafts and trials

are located south side of the modern track.

3.3.5 Immediately W of Boundary Shaft, a line of large opencuts and collapsed workings extend westwards for c.450km. Track PRN 18650 appears to be the old mine track to these workings.

3.3.6 In the area where the hushing channel (PRN 18623) cuts the shaft line, two large shafts (PRNs 18615 and 18617) have horse whim circles (PRNs 18616 and 18618) to the S of them.

3.3.7 S of the whim shafts, tracks run SW towards Dyfngwm, including the original mine track (PRN 18646) leading to Dyfngwm Lead Works (OS 1903 6" Mont. Sheet XXXIII.S.E.).

3.3.8 The "Dyfngwm Lead Works" site, as it appears on the OS 1st edition now consists of an area of collapsed building rubble (PRN 18619) to the S of a collapsed level (PRN 18620).

3.3.9 The concrete base (PRN 18666) that is located S of the level may have supported a winding drum for the incline (PRN 18658), which would have connected with the Dyfngwm works in the valley. A small area of quarrying (PRN 18669) for building stone, presumably for the mine, is located in this area.

3.3.10 The earthwork banks of a large enclosure (PRN 18621) c.33 x 31m with an entrance along the E side, lie on the S side of the hill between the run of shafts and the Dyfngwm valley site. The enclosure appears on the OS 1903 map with a track connecting it to the collapsed buildings area. Its function is not known, although several of these features have been recorded on remote mine sites and they may be corals for horses.

3.3.11 S of the line of shafts that now appear as collapsed workings, a shaft PRN 18612 with surrounding tips, has a level (PRN 18613) to the S of it. Tips suggest that ore was brought out via this level, sorted and separated. A large tip of jig waste is located S of the level and the platform PRN 18653, may have been the base for jiggers.

3.3.12 Level, PRN 18592 and adjoining spoil tip, remains E of the boundary fence.

3.3.13 NW of the line of shafts, the collapsed level, PRN 18594 appears to have been a trial on the W extremity of the vein.

3.3.14 A series of superimposed trackways (PRN 18595) were surveyed N of the boundary bank, running E-W along the ridge.

3.3.15 N of the tracks there remains an area of trial workings (PRN 18593) that appear as linear cuts and shallow depressions.

4. Conclusion

4.1 The earthwork remains provide evidence for mining activity over a considerable time period. The earliest activity is presumed to be that of prospective hushing at a number of locations within the site. The main evidence consists of small leats and reservoirs with associated hushing channels, much of which may have been lost to later activity. It is quite possible that the large open-cuts above Dyfyngwm were originally worked by hushing, although clear evidence is now lacking. These hushing remains are one of only two such sites within Powys, and as such are of considerable importance. The remains of other mining activity, while perhaps of less overall significance, are part and parcel of the mining landscape as a whole, and consideration should be give to the statutary protection of the whole area.

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Powys Mines Survey 1994 Archive Plan 28-32

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OS 1st edition 1887 1:2500 Montgomeryshire Sheet XXX111.12

OS 1st edition 1887 1:2500 Montgomeryshire Sheet XXX111.16

OS 1903 6" Mont. Sheet XXXIII.S.E

Penyclun Mine

PRN 5938 **NGR** SN93008730 SN98NW

Ores	Lead	**Date**	1845-1887
District	Montgomeryshire	**Community**	Llanidloes Without
Condition	Damaged	**Landuse**	Pasture A
Threat	Subsidence/Farming		

Description

1. Location

1.1 The Penyclun Mine site lies to the E of the B4518 from Llanidloes to Staylittle road, E of Llyn Clywedog Reservoir. The old workings on the Van Vein run from the south-eastern slopes of the Penyclun Hillfort downhill to a stream which flows eastwards towards the former dressing floor areas, contouring the site on its southern perimeter.

2. Geology

2.1 Solid geology - Ordovician rocks of the Lower Van formation. A single ENE vein includes galena and sphalerite with barytes and witherite gangue minerals.

3. The Survey

3.1 The present survey was restricted to the area around the engine house and the deep brick-lined engine shaft (PRN 18334), which remains uncapped and fenced off with its surrounding mound of development spoil downslope.

3.2 The shaft appears to be drained by the adit (PRN 18335) to the SE. Water still flows naturally from this adit into the stream below.

3.3 The two-storey engine house c.5.5 x 4m (PRN 18338) survives to its full height of c.8m to the SE of the adit. It stands roofless, but its timber lintels remain in situ and its architectural features are still discernible (see Plate 11). Bick (1990, 40-41) suggests a rotative engine in operation for pumping and winding relating to the post 1863 ventures by Jehu Hitchins. The bob wall is the W wall. No conclusive evidence remains of the transfer of power presumably by a flat-rod system supported on stanchions. There is no evidence to suggest a flywheel pit. The smallness of the house itself and the cylinder door aperture of only c.1.4m wide suggests a very small engine. The structural remains of the engine house complex are stone-built with brick quoins and appear contemporary with the 1860s mine workings.

3.4 The basal remains of the boiler house measuring c.13 x 4m (PRN 18339) survive to c.1m high and adjoin the N wall of the engine house. A doorway at the west end links them.

3.5 The chimney (PRN 18340) stands to the E of the engine house, linked to the boiler house by a flue. The stack stands on a 2.13m square plinth, but is leaning badly due to subsidence.

3.6 To the SE of the engine house complex, a stone-lined wheelpit (PRN 18341) is aligned to the engine shaft uphill. Although water now runs through following a natural course from the adit, its source of power appears to have been

from two reservoirs (PRN 18336/18337), the earthwork banks of which remain to the west of the wheelpit. The wheelpit appears to pre-date the engine house complex and presumably powered a winding or pumping arrangement via the drainage adit (PRN 18335). The reservoirs may later have provided water for the engine condenser and the boiler. A letter (DD/WY/5335) from James Paull at Goginan Mine to John Taylor Junior (mining engineer) dated 6.12.1860, refers to his visit to Penyclun. The engine level has been driven to intersect the main lode, a new eastern shaft has been commenced and a wheelpit has been cut below the engine house for the purpose of erecting a new 60ft wheel to drain the mine. Paull suggests that a reservoir should be made in the valley, a little to the north to provide water for the pumping wheel and for the crushing and dressing of ore.

3.7 A building platform (PRN 18711) is evident uphill of the wheelpit and off the S wall of the engine house. Two iron bolting rods protrude in this area.

3.8 To the N of the engine house complex, the earthworks of a large building platform (PRN 18342) are possibly the site of a former mine office, workshop complex or earlier dressing floor areas. Considerable spoil tips lie all along the N bank of the stream.

3.9 A letter (DD/WY/5352) dated March 1853 refers to Mr Lefaux's request for the farm buildings, sited uphill of Engine Shaft, to be included in the mine lease. He wanted to convert the farmhouse and buildings to labourer's cottages and build another housestead in another position. If this was not agreable, he would build cottages in the field between the two levels that he had driven. The letter refers to the completion of a smelting house on the site. From April 1853, the farm was included in the lease and by 1861, according to a letter (DD/WY/5336), the farmhouse was in a poor state and Mr Lefaux was obliged to contribute fifty pounds out of mining royaties towards its repair. There is no evidence to suggest the farmhouse was ever converted to lodgings or any further reference to the smeltmill.

3.10 The 1870s dressing floors (PRN 18670) were located E of the engine house complex at SN93338750; adit PRN 18673 was located on the west side of the dressing floors with a small rectangular building or coe (PRN 18676) adjoining it. Trials on the slopes of the hillfort and the second main shaft (PRN 18671), which was located at SN93138750 all lie beyond the survey area. both referred to in the 1860 letter from James Paull.

3.11 A 30yr lease (DD/WY/5300) to mine lead, copper, zinc, calamine and black jack was taken out by James Paull on 24.1.1890.

3.12 A lease (DD/WY/5348) between Sir Watkin William Wynn and Isaac Breeze Jones of Llanidloes dated 6.11.1933, allowed the latter to work thw waste tips for the removal of barium mineral.

4. Conclusions

4.1 The standing structures present a now rare example of a small, two-storey, beam engine house and are worthy of statutary protection. The engine house itself, together with the chimney, are presently in need of urgent remedial work to prevent further deterioration and collapse. Of particular concern are to wooden lintels in the engine house, the loss of which would certainly result in the collapse of much of the surviving structure.

4.2 The spoil mound around the engine shaft consists of waste excavated as the shaft was sunk. The ore was presumably brought out at adit level. The shaft was presumably naturally drained to a certain depth by the adit, while the pumping wheel was later installed to pump the workings and the engine house complex superceded or supplemented the water power.

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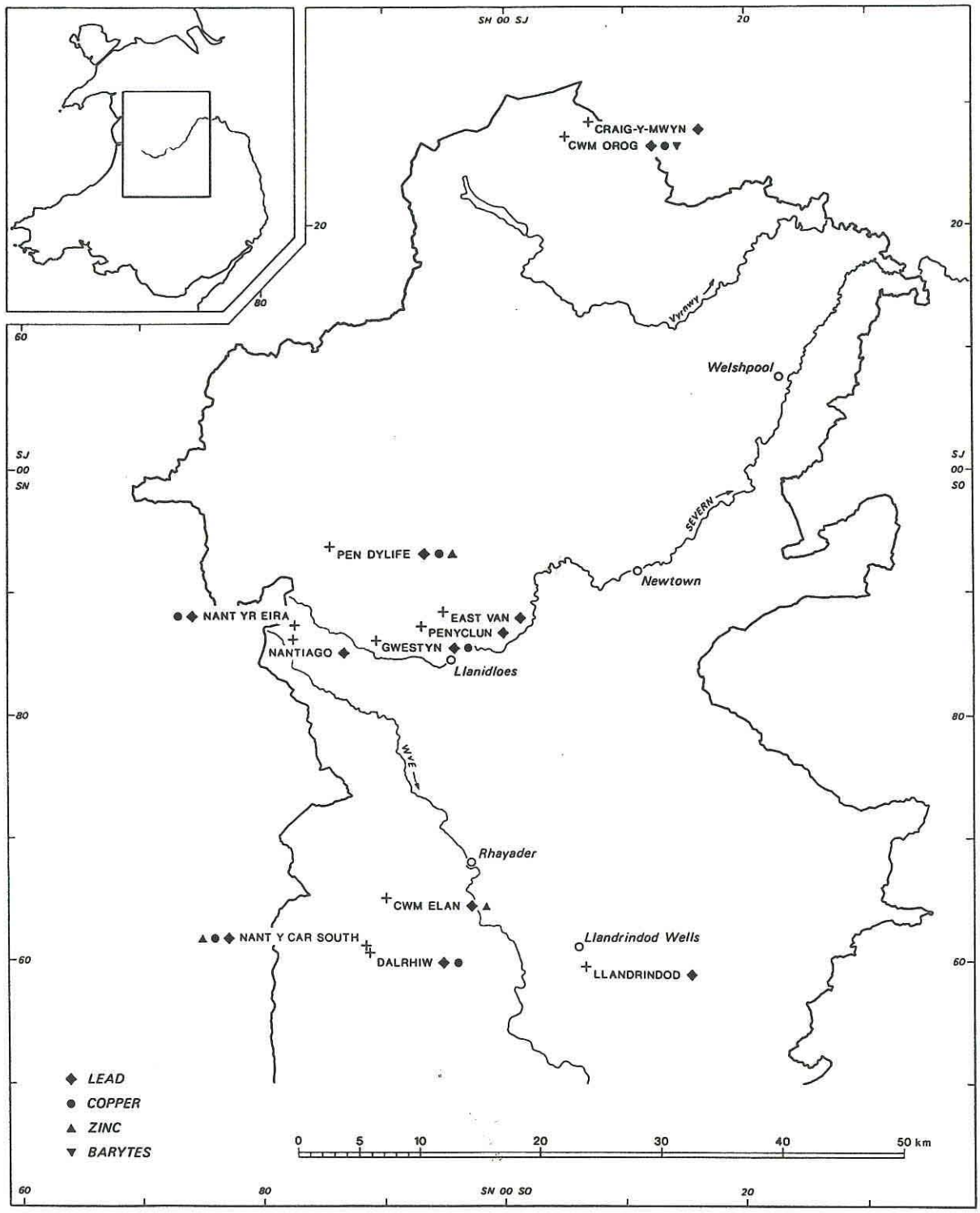
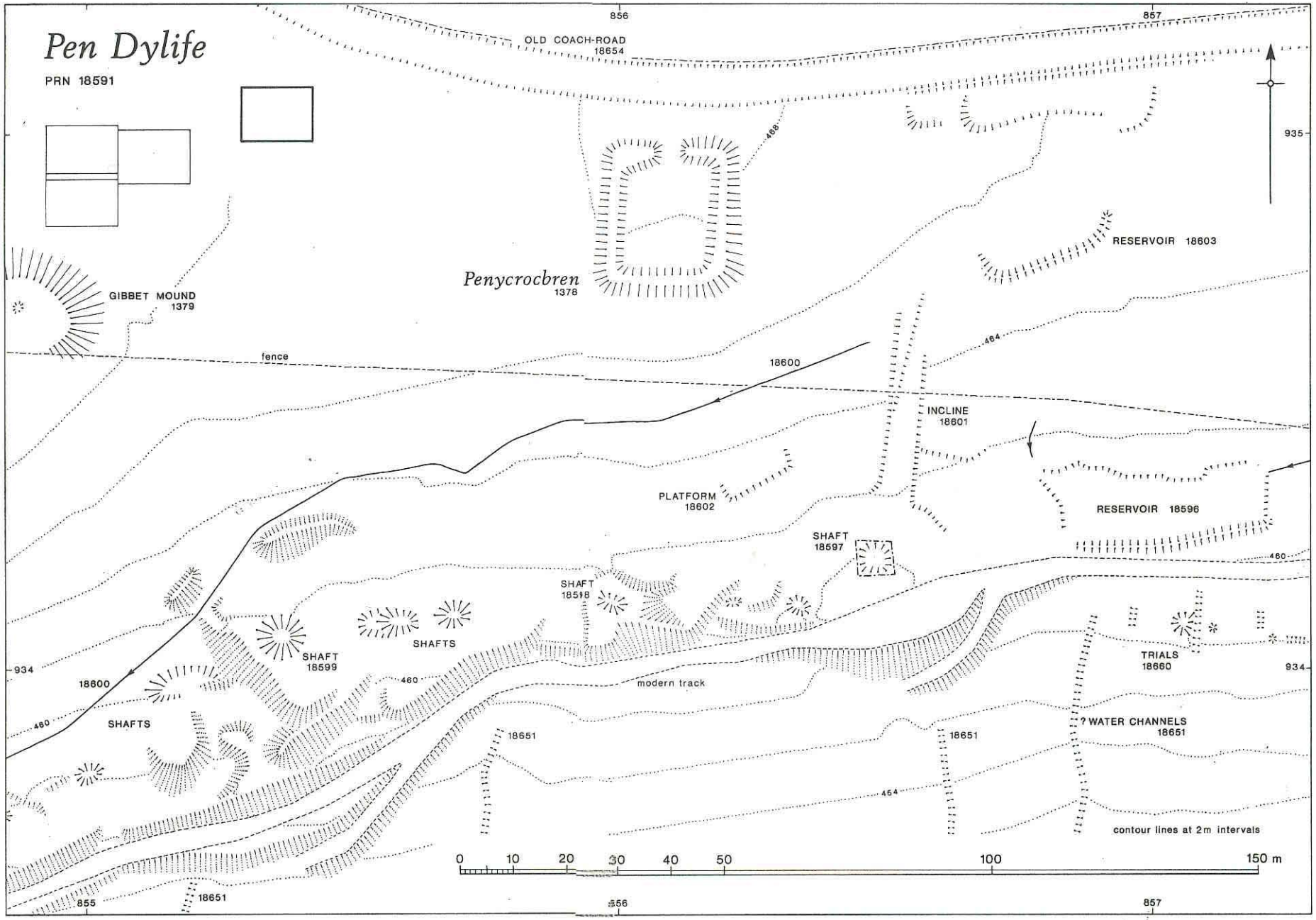
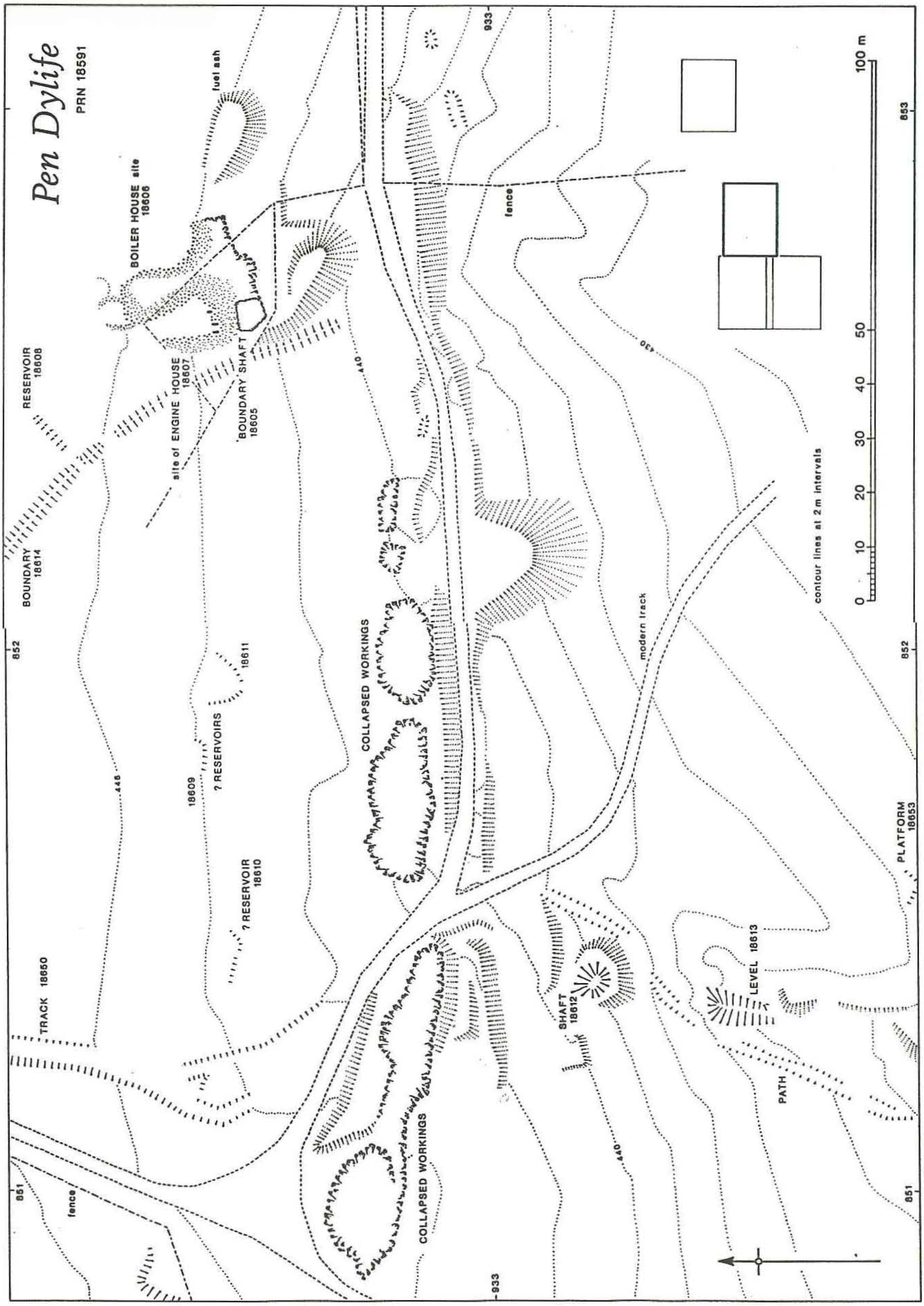
Powys Mines Survey 1994 Archive Plan 33-4


SN 00 SJ
20
CRAIG-Y-MWYN
CWM OROG
Vyrnwy
Welshpool
SEVERN
Newtown
PEN DYLIFE
NANT YR EIRA
EAST VAN
PENYCLUN
GWESTYN
NANTIAGO
Llanidloes
WYE
Rhayader
CWM ELAN
NANT Y CAR SOUTH
DALRHIW
Llandrindod Wells
LLANDRINDOD
LEAD
COPPER
ZINC
BARYTES
0 5 10 20 30 40 50 km
SN 00 SO




Pen Dylife
PRN 18591
fuel ash
BOILER HOUSE site
18606
RESERVOIR
18608
site of ENGINE HOUSE
18607
BOUNDARY SHAFT
18605
BOUNDARY
18614
18611
? RESERVOIRS
18609
COLLAPSED WORKINGS
? RESERVOIR
18610
TRACK 18650
fence
COLLAPSED WORKINGS
SHAFT
18612
LEVEL 18613
PATH
PLATFORM
18653
modern track
fence
446
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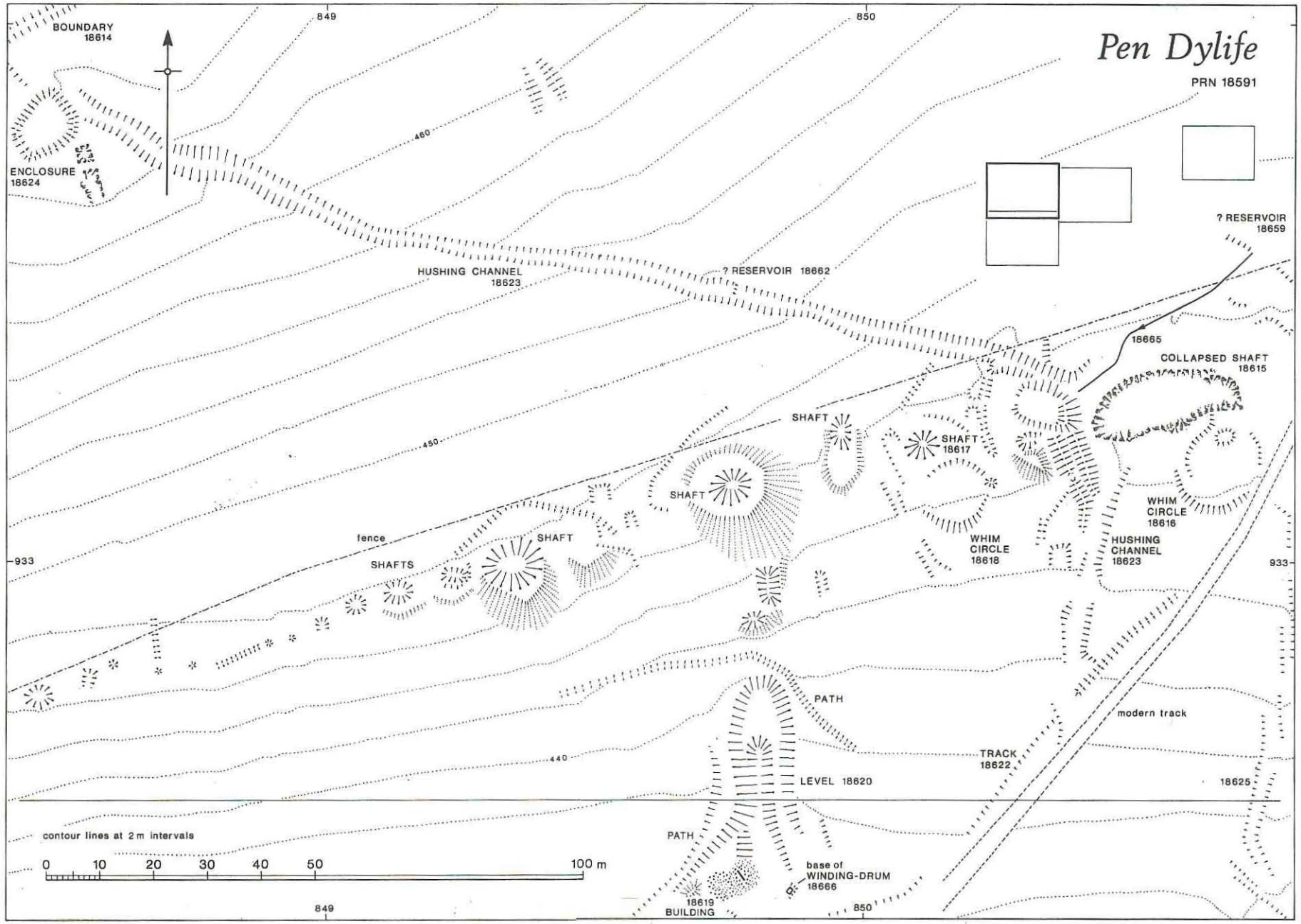
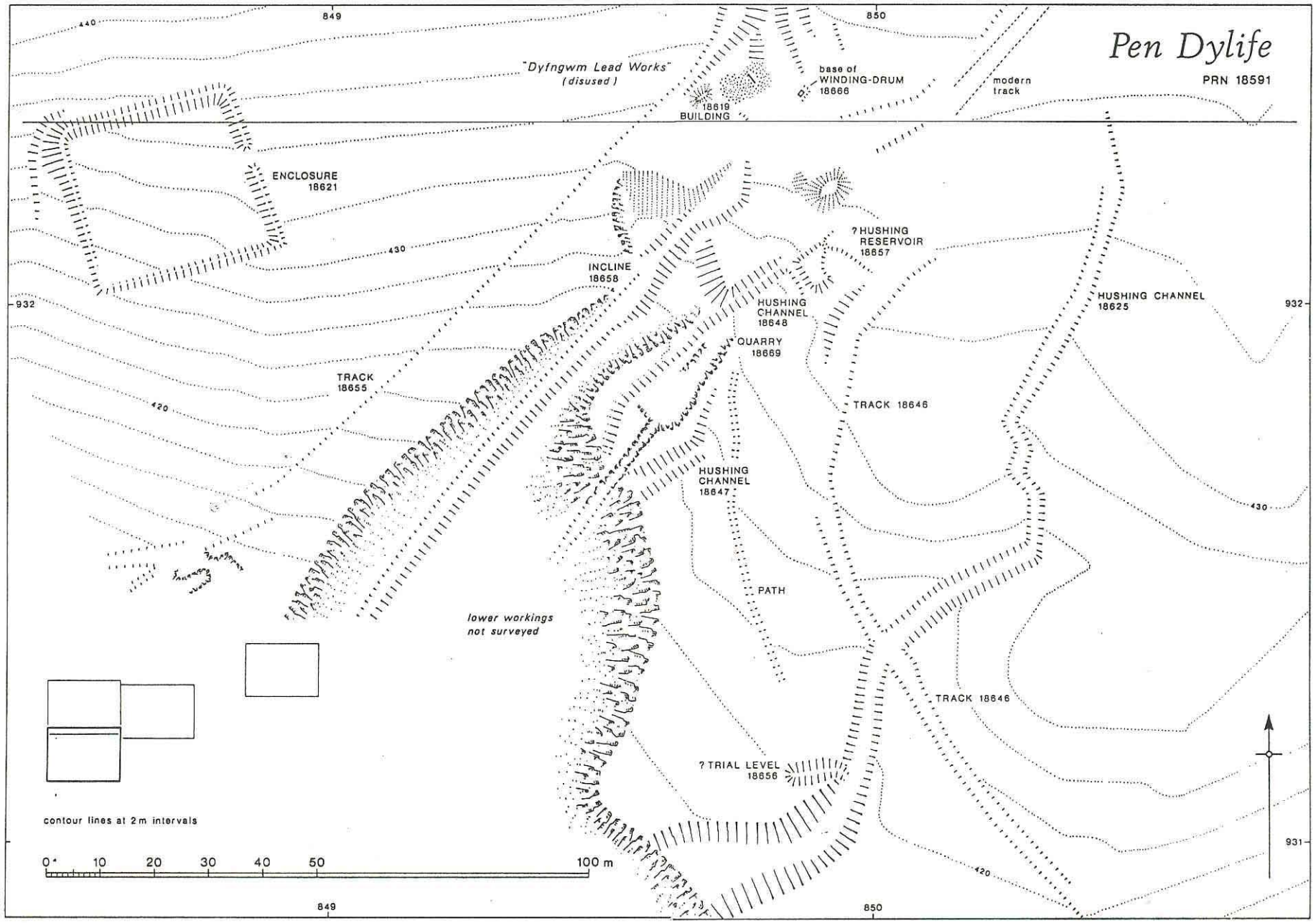
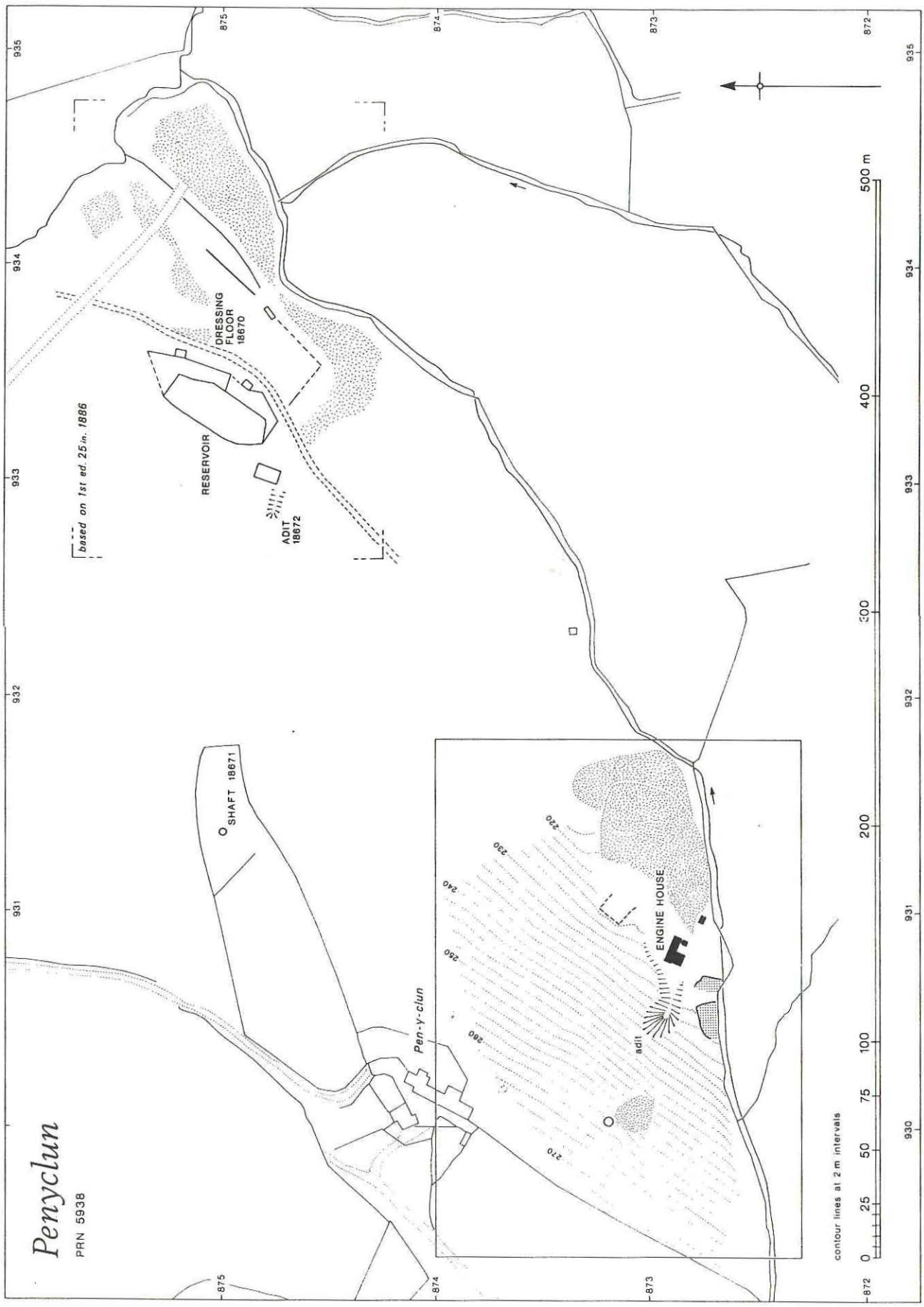
430
933
852
853
851
contour lines at 2 m intervals
0 10 20 30 40 50 100 m






Penyclun
PRN 5938
based on 1st ed. 25 in. 1886
DRESSING FLOOR 18670
RESERVOIR
ADIT 18672
SHAFT 18671
Pen-y-clun
ENGINE HOUSE
adit
220
230
240
250
260
270
contour lines at 2 m intervals
0 25 50 75 100 200 300 400 500 m
872
873
874
875
930
931
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934
935

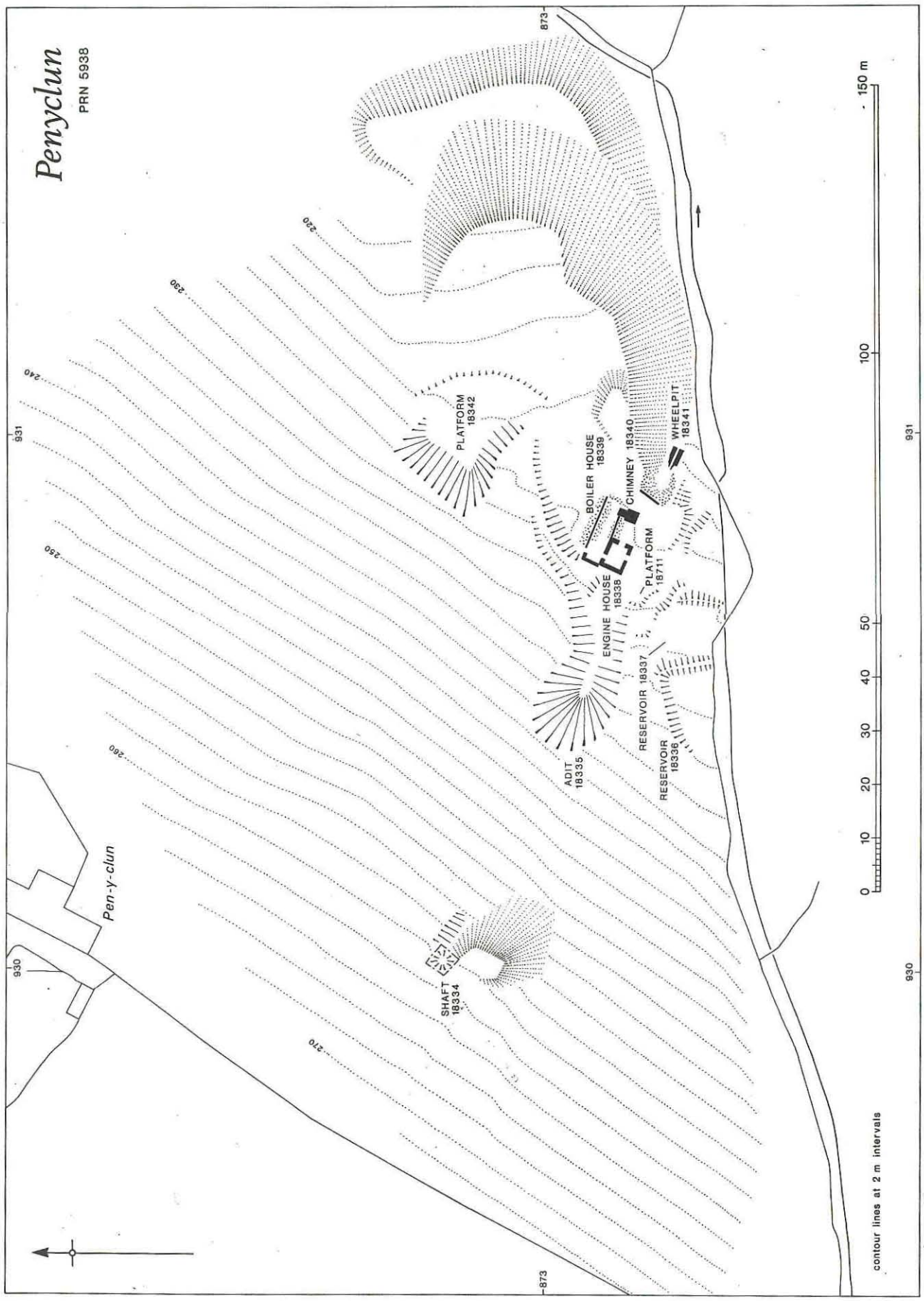

Penyclun
PRN 5938
Pen-y-clun
PLATFORM 18342
BOILER HOUSE 18339
CHIMNEY 18340
WHEELPIT 18341
ENGINE HOUSE 18338
PLATFORM 18711
RESERVOIR 18337
RESERVOIR 18336
ADIT 18335
SHAFT 18334
873
931
930
220
230
240
250
260
270
0 10 20 30 40 50 100 150 m
contour lines at 2 m intervals

Plate 1: Craig y Mwyn (PRN 8438). Open cut and hushing remains. Photo RCAHMW (935097-53). Crown copyright.

Plate 2 Cwm Elan (PRN 5945). Crusher house from E. Photo CPAT (283-14)

Plate 3: Cwm Orog (PRN 5925). Crusher house wheelpit. Photo CPAT (275.3A)

Plate 4: Dalrhiw (PRN 5511). Bank of three ore bins. Photo CPAT (285.16)

Plate 5: East Van (PRN 5937). Engine house and chimney from SW. Photo CPAT (274.24)

Plate 6: Nant y Car South (PRN 18994). Crusher house from E. Photo CPAT (194.3)

Plate 7: Nant yr Eira (PRN 725). Crusher house and wheelpit from N. Photo CPAT (195.5)

Plate 8: Nantiago (PRN 5944). Three-storey processing mill constructed c.1900. Photo CPAT (193.1)

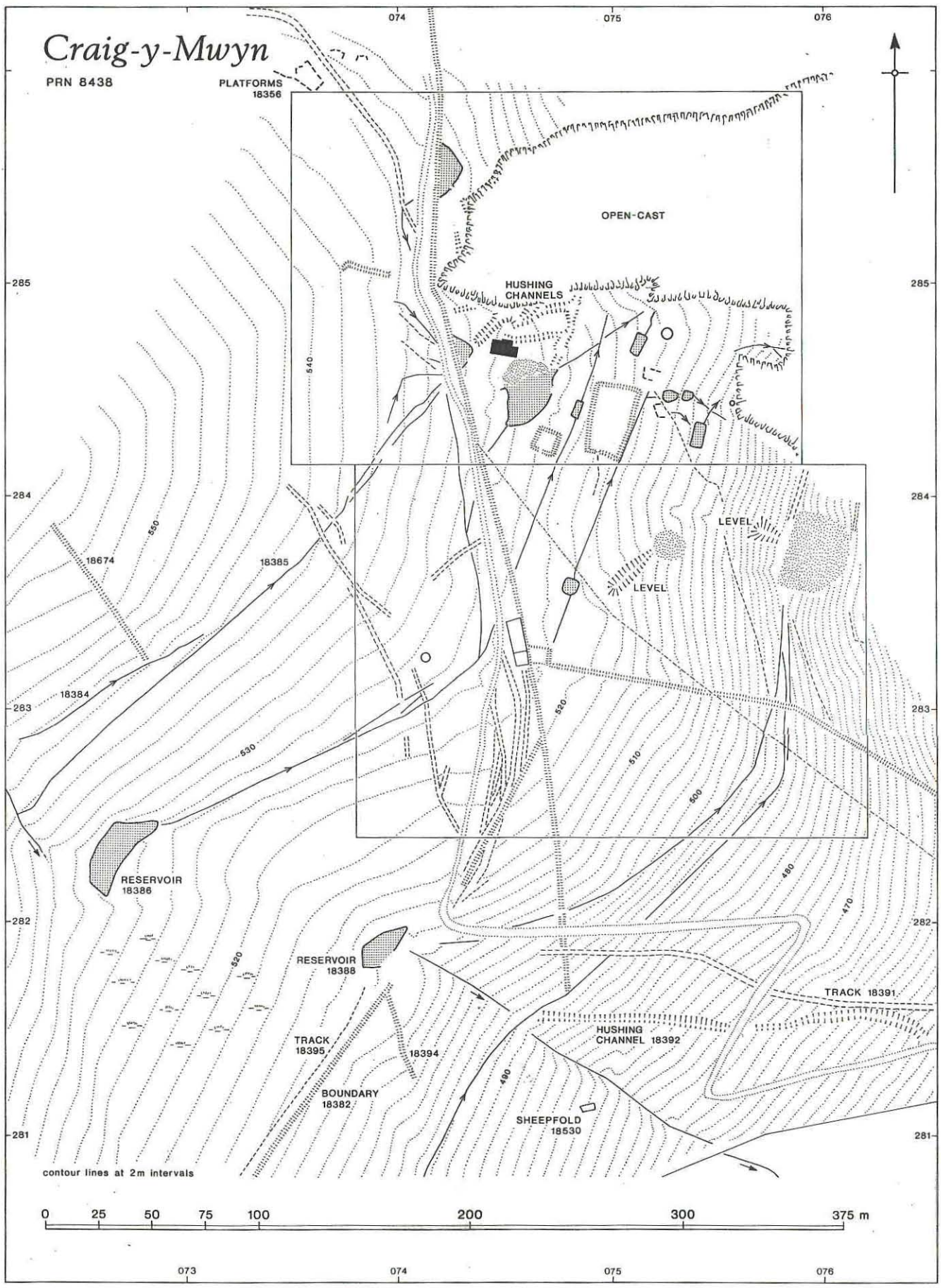
Plate 9: Nantiago (PRN 5944). Dressing floor showing pelton wheel and trommels. Photo CPAT (195.35)

Plate 10: Pen Dylife (PRN 18591). AP from NE showing Boundary Shaft, main hushing channel and western workings. Photo RCAHMW (925090-53). Crown copyright.

Plate 11: Penyclun (PRN 5938). Engine house and chimney from NE. Photo CPAT (276.21)

Plate 12: Nant y Garw (PRN 5512). Dressing floors. Photo CPAT (285.27)

Plate 13: Nant y Garw (PRN 5512). Smithy. Photo CPAT (285.33)


Craig-y-Mwyn
PRN 8438
PLATFORMS 18356
OPEN-CAST
HUSHING CHANNELS
LEVEL
LEVEL
18674
18385
18384
RESERVOIR 18386
RESERVOIR 18388
TRACK 18395
18394
BOUNDARY 18382
SHEEPFOLD 18530
HUSHING CHANNEL 18392
TRACK 18391
540
550
530
520
510
500
490
480
470
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076
285
284
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282
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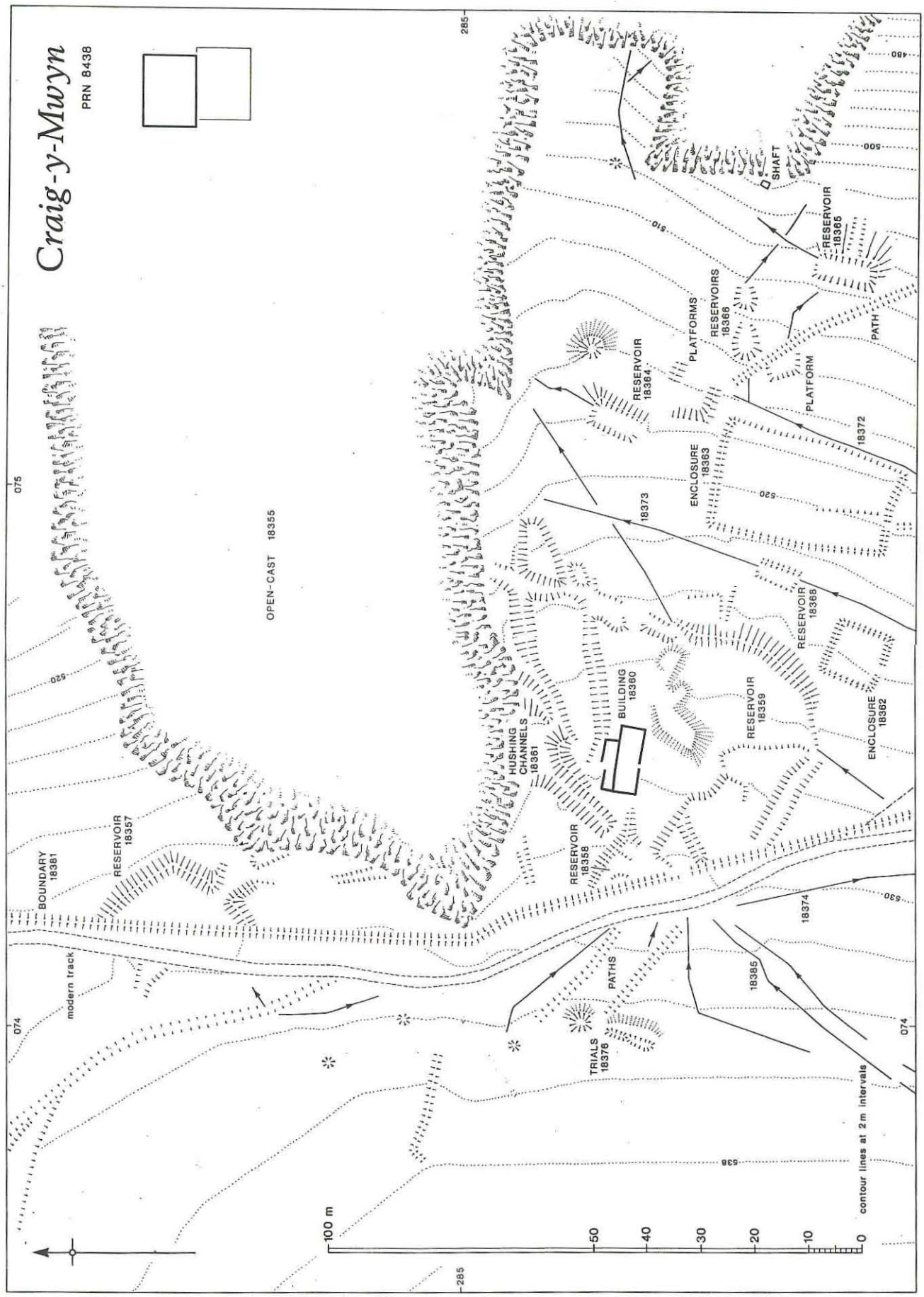
contour lines at 2m intervals
0 25 50 75 100 200 300 375 m
073
074
075
076


Craig-y-Mwyn
PRN 8438
OPEN-CAST 18355
BOUNDARY 18381
RESERVOIR 18357
modern track
HUSHING CHANNELS 18361
RESERVOIR 18358
BUILDING 18360
RESERVOIR 18359
ENCLOSURE 18362
RESERVOIR 18368
PLATFORM
18372
18373
ENCLOSURE 18363
RESERVOIR 18364
PLATFORMS
RESERVOIRS 18366
RESERVOIR 18365
SHAFT
PATH
18374
18385
PATHS
TRIALS 18376
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100 m
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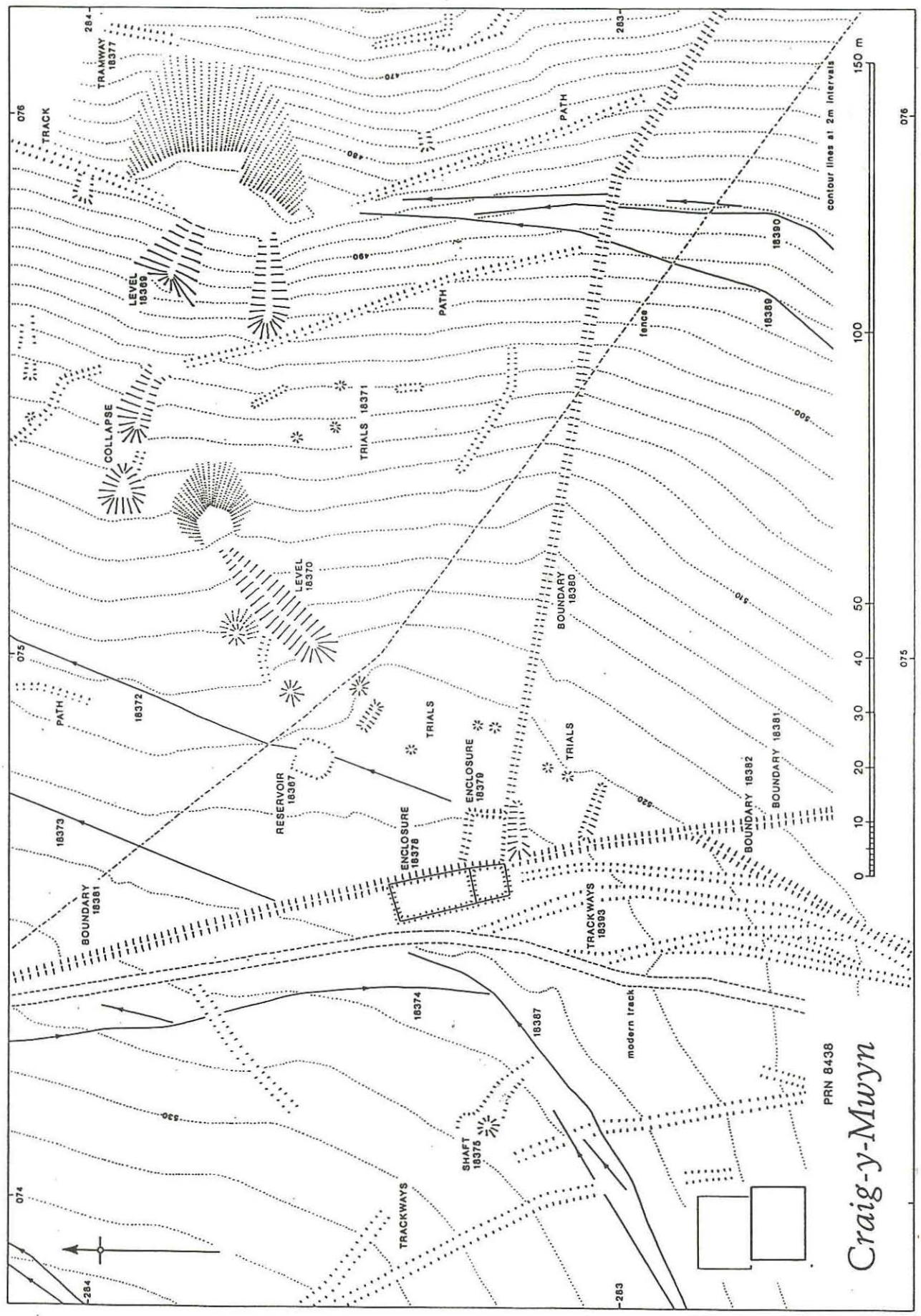
Craig-y-Mwyn
PRN 8438
TRAMWAY 18377
TRACK
LEVEL 18369
COLLAPSE
TRIALS 18371
LEVEL 18370
PATH
18372
RESERVOIR 18367
TRIALS
ENCLOSURE 18379
ENCLOSURE 18378
BOUNDARY 18381
18373
BOUNDARY 18380
TRIALS
BOUNDARY 18382
BOUNDARY 18381
TRACKWAYS 18393
modern track
18374
18387
SHAFT 18376
TRACKWAYS
PATH
fence
18390
18389
contour lines at 2m intervals
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074
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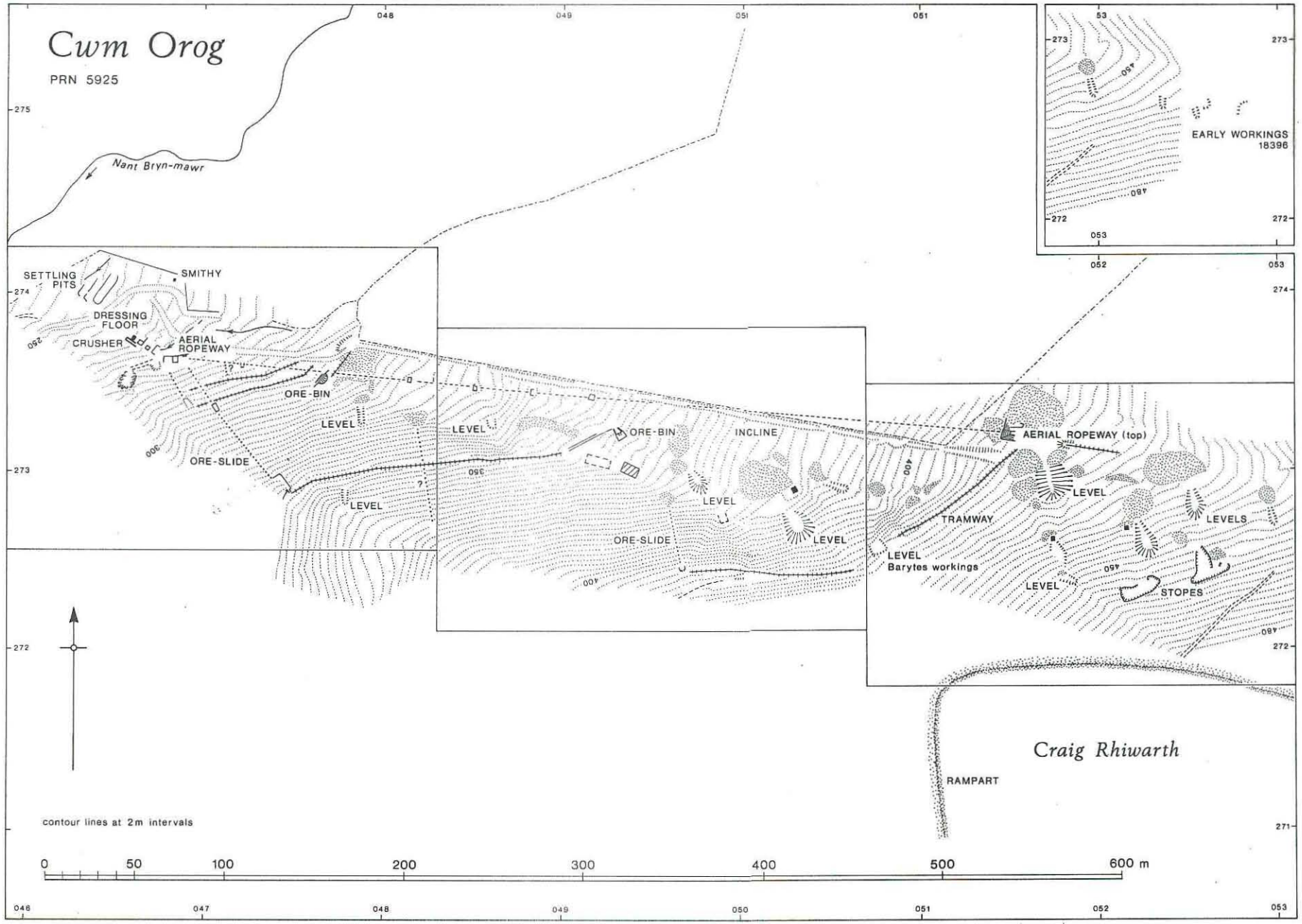

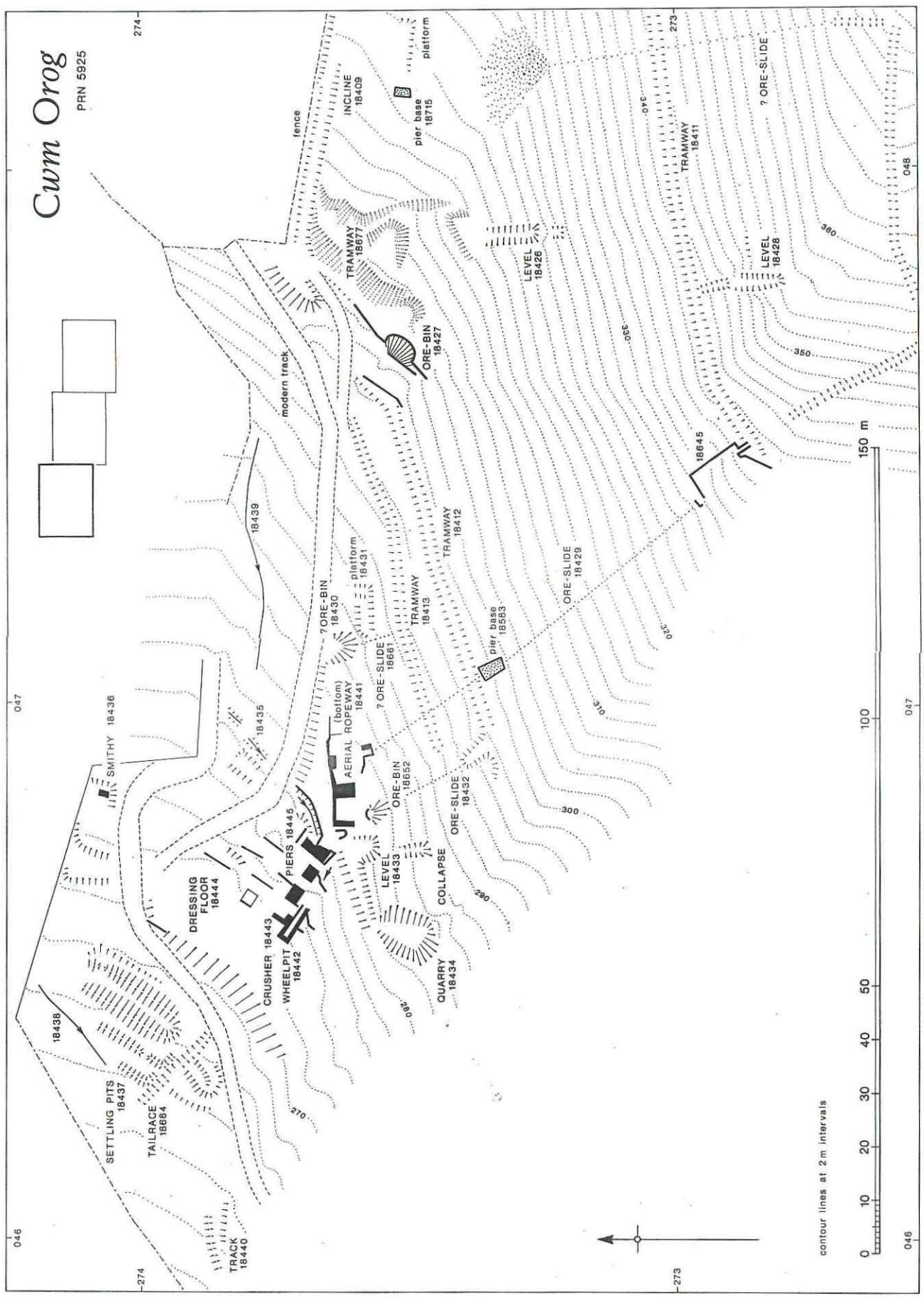
Cwm Orog
PRN 5925
fence
INCLINE 18409
pier base 18715
platform
TRAMWAY 18411
? ORE-SLIDE
TRAMWAY 18677
ORE-BIN 18427
LEVEL 18426
LEVEL 18428
modern track
18439
18645
? ORE-BIN 18430
platform 18431
TRAMWAY 18412
TRAMWAY 18413
pier base 18583
ORE-SLIDE 18429
? ORE-SLIDE 18661
(bottom) AERIAL ROPEWAY 18441
SMITHY 18436
18435
ORE-BIN 18652
ORE-SLIDE 18432
PIERS 18445
LEVEL 18433
COLLAPSE
DRESSING FLOOR 18444
CRUSHER 18443
WHEELPIT 18442
QUARRY 18434
18438
SETTLING PITS 18437
TAILRACE 18664
TRACK 18440
046
047
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340
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100
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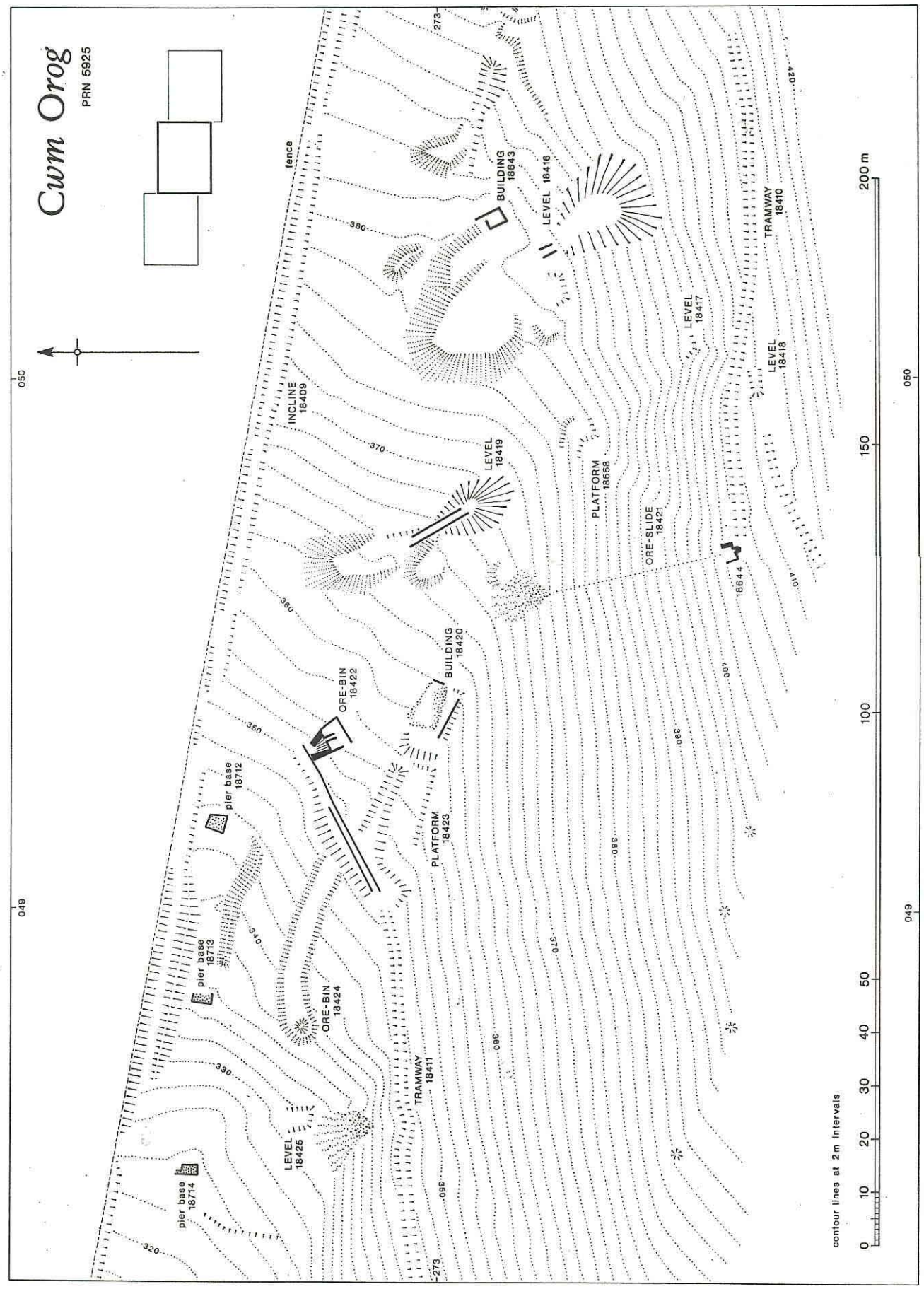
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INCLINE 18409
LEVEL 18419
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ORE-SLIDE 18421
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TRAMWAY 18410
LEVEL 18418
18644
ORE-BIN 18422
BUILDING 18420
pier base 18712
pier base 18713
ORE-BIN 18424
PLATFORM 18423
TRAMWAY 18411
LEVEL 18425
pier base 18714
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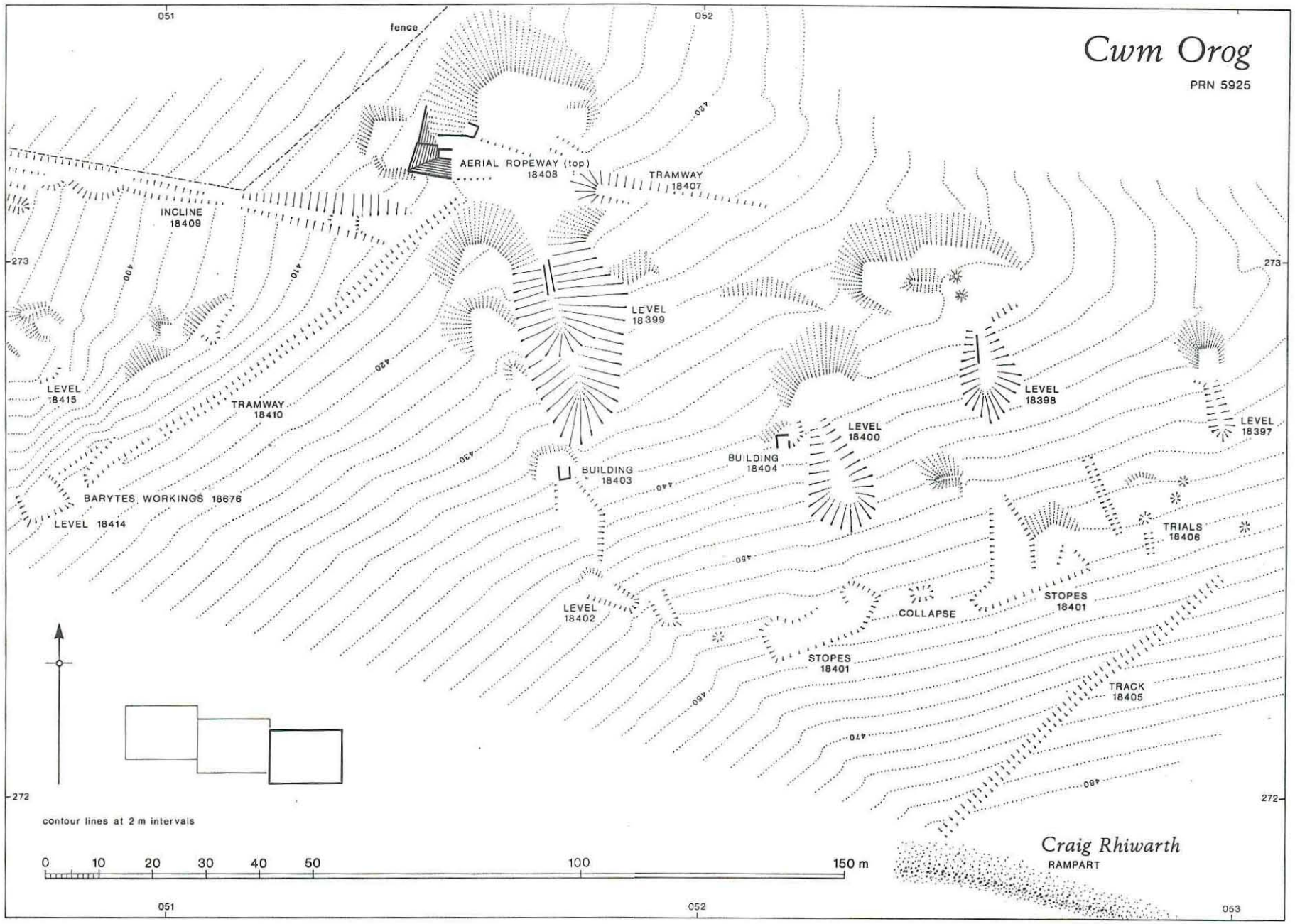


Cwm Elan
PRN 5945
RESERVOIRS 18675
HOUSE
MINE OFFICE
old river course
SETTLING PITS
Nant Methan
PUMPING WHEELPIT
SMITHY
CRUSHER
JIG PLATFORMS
ORE-BINS
BUDDLE
MAGAZINE
EARLY WORKINGS
adit
PLATFORM 18448
contour lines at 2m intervals
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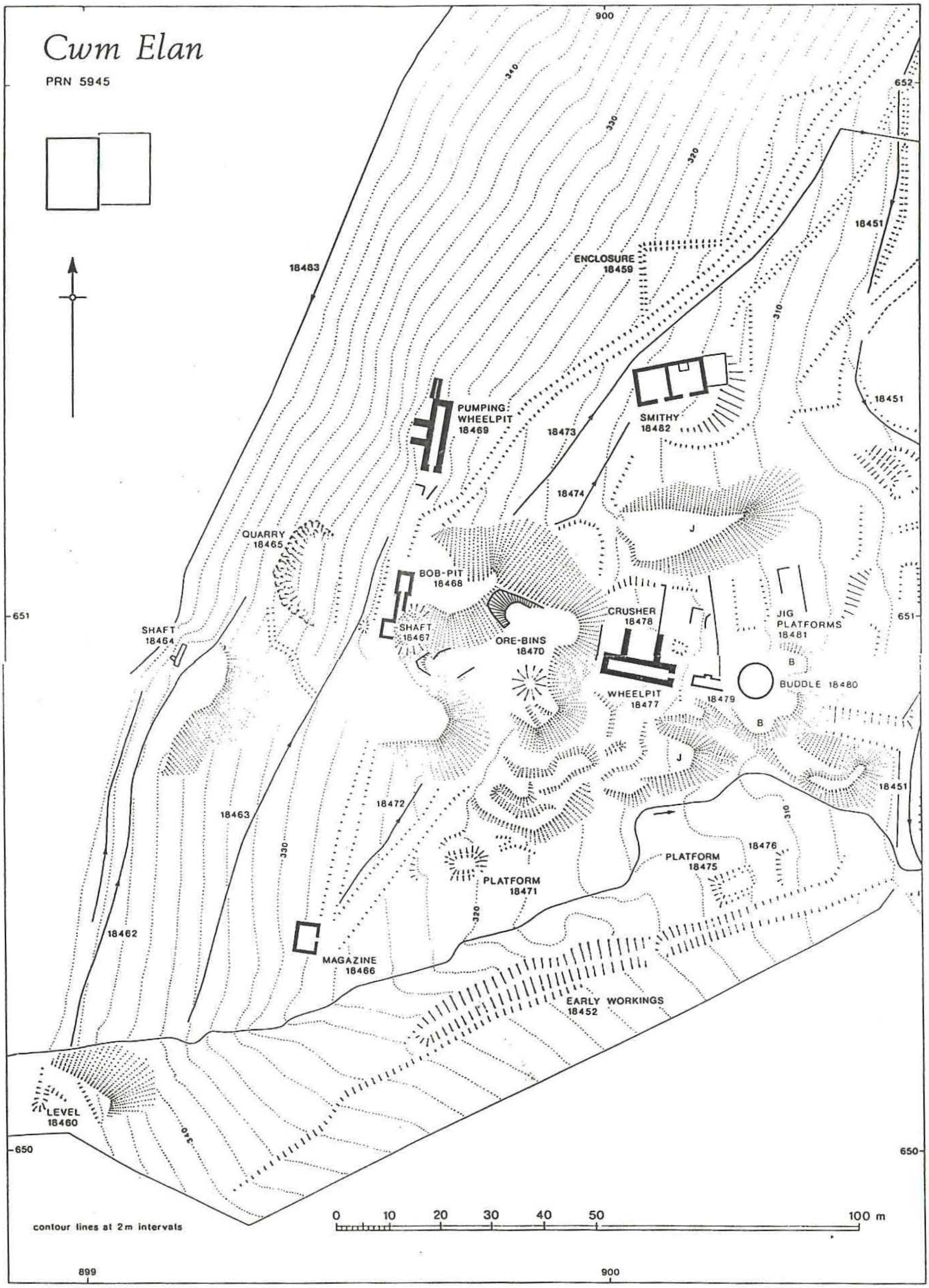
899
900
901
902
903
649
650
651
652
653
654


Cwm Elan
PRN 5945
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651
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340
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310
18483
18451
ENCLOSURE 18459
PUMPING WHEELPIT 18469
18473
SMITHY 18482
18474
J
QUARRY 18465
BOB-PIT 18468
SHAFT 18464
SHAFT 18467
ORE-BINS 18470
CRUSHER 18478
JIG PLATFORMS 18481
B
WHEELPIT 18477
18479
BUDDLE 18480
18463
18472
18476
PLATFORM 18475
PLATFORM 18471
18462
MAGAZINE 18466
EARLY WORKINGS 18452
LEVEL 18460
contour lines at 2m intervals
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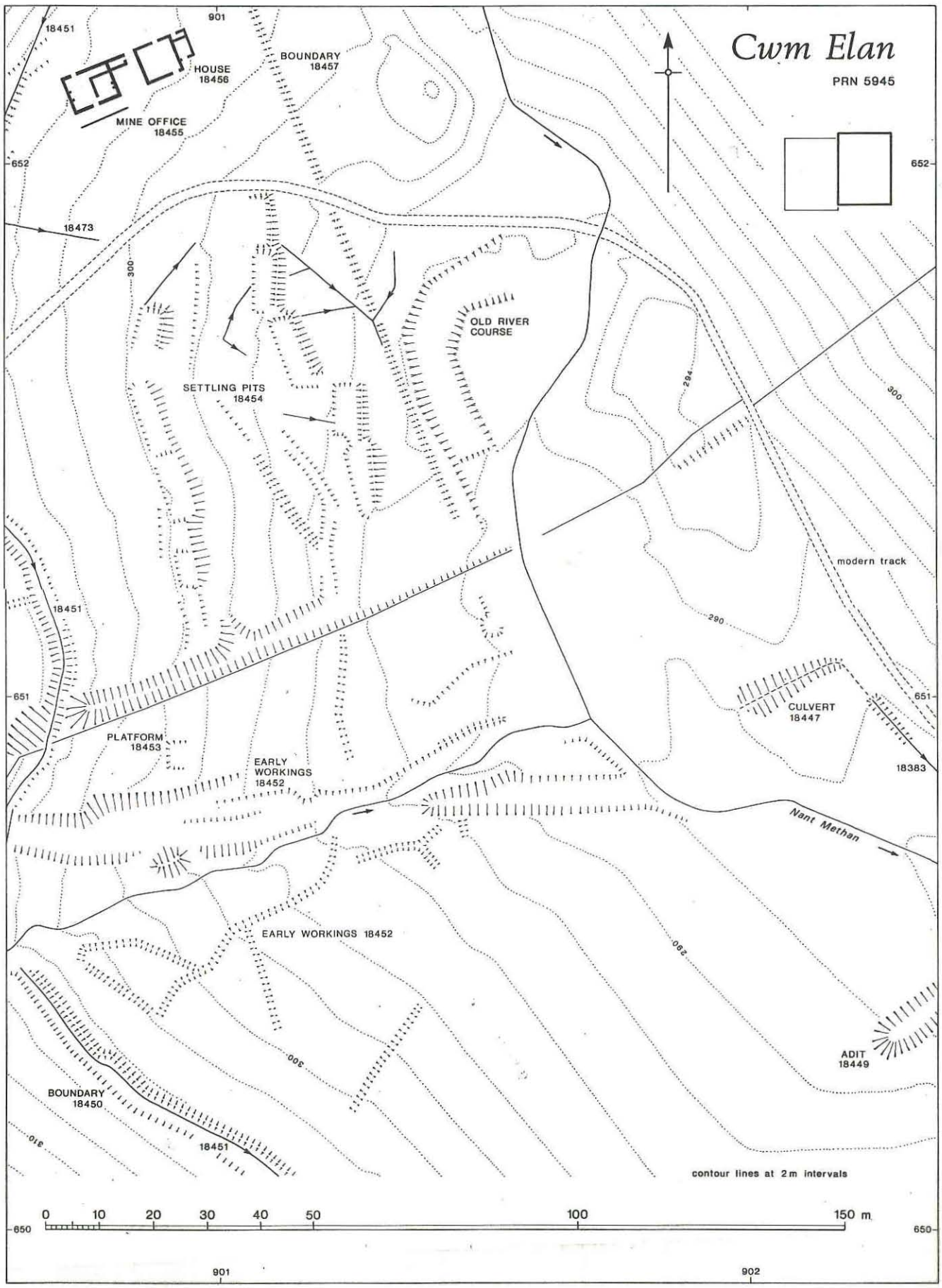
Cwm Elan
PRN 5945
HOUSE 18456
MINE OFFICE 18455
BOUNDARY 18457
OLD RIVER COURSE
SETTLING PITS 18454
PLATFORM 18453
EARLY WORKINGS 18452
EARLY WORKINGS 18452
BOUNDARY 18450
CULVERT 18447
ADIT 18449
modern track
Nant Methan
18451
18473
18383
901
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650
300
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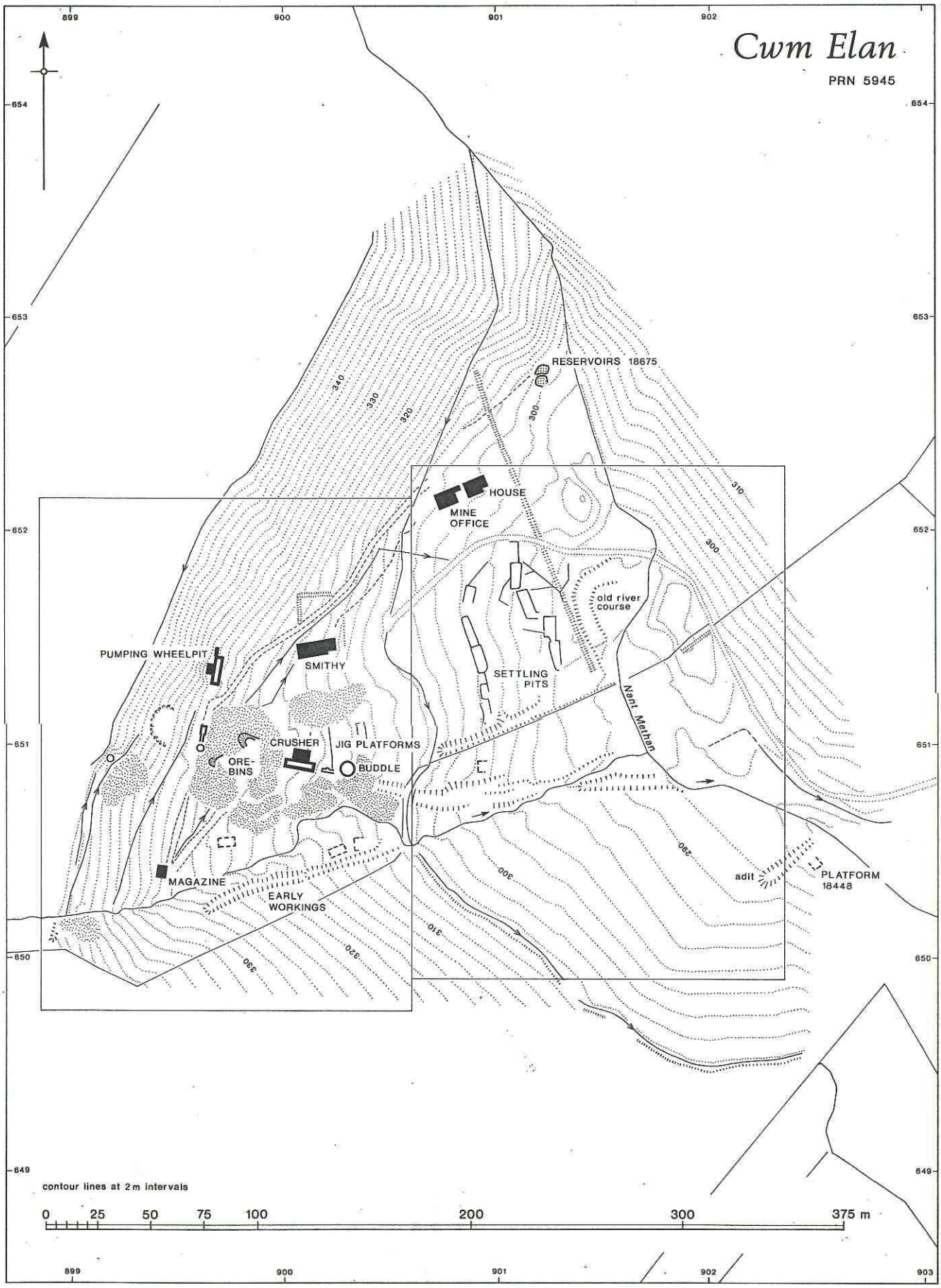
310
contour lines at 2m intervals
0 10 20 30 40 50 100 150 m


Cwm Elan
PRN 5945
RESERVOIRS 18675
HOUSE
MINE OFFICE
old river course
PUMPING WHEELPIT
SMITHY
SETTLING PITS
Nant Methan
CRUSHER
JIG PLATFORMS
ORE-BINS
BUDDLE
MAGAZINE
EARLY WORKINGS
adit
PLATFORM 18448
contour lines at 2 m intervals
0 25 50 75 100 200 300 375 m
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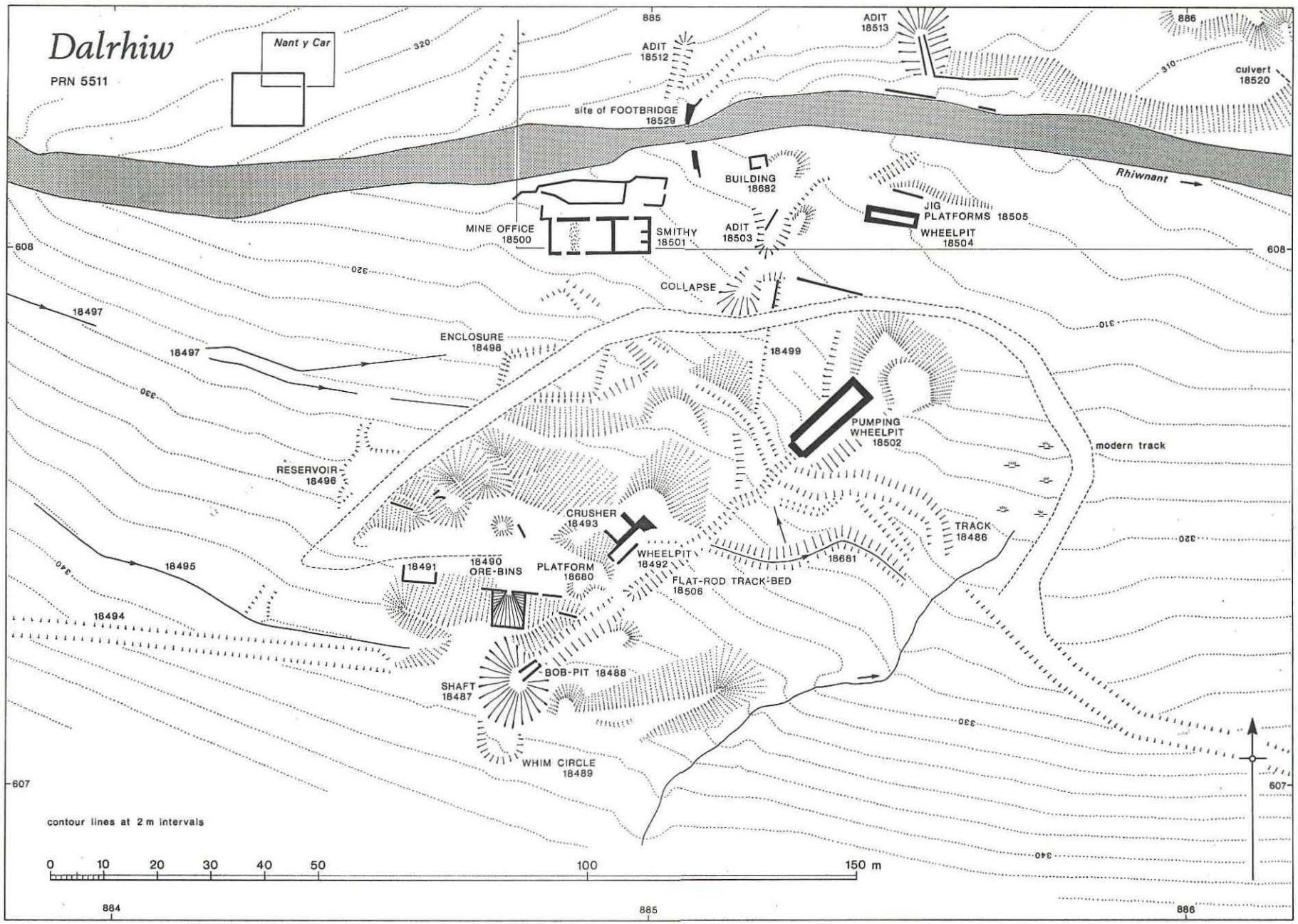
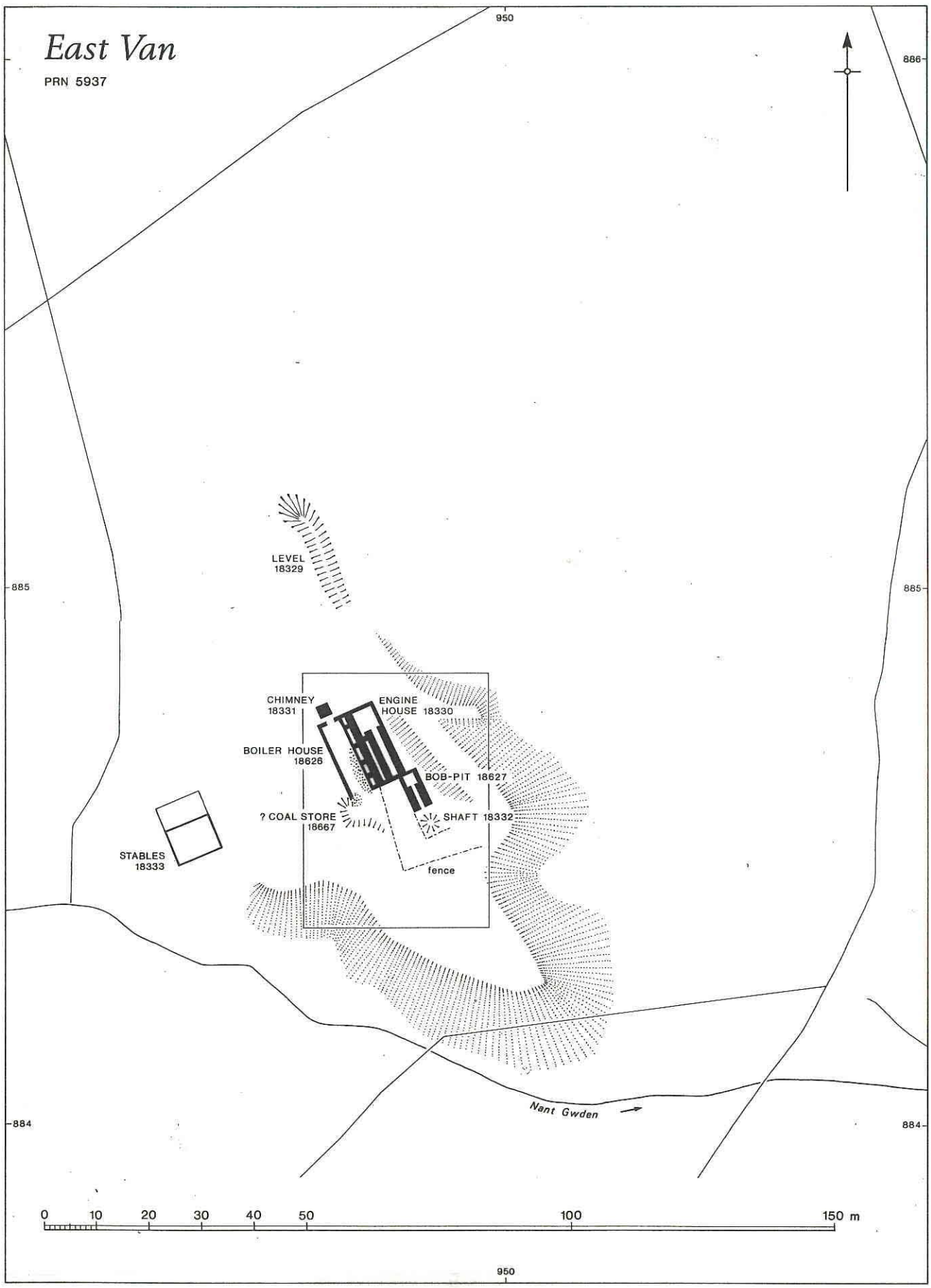
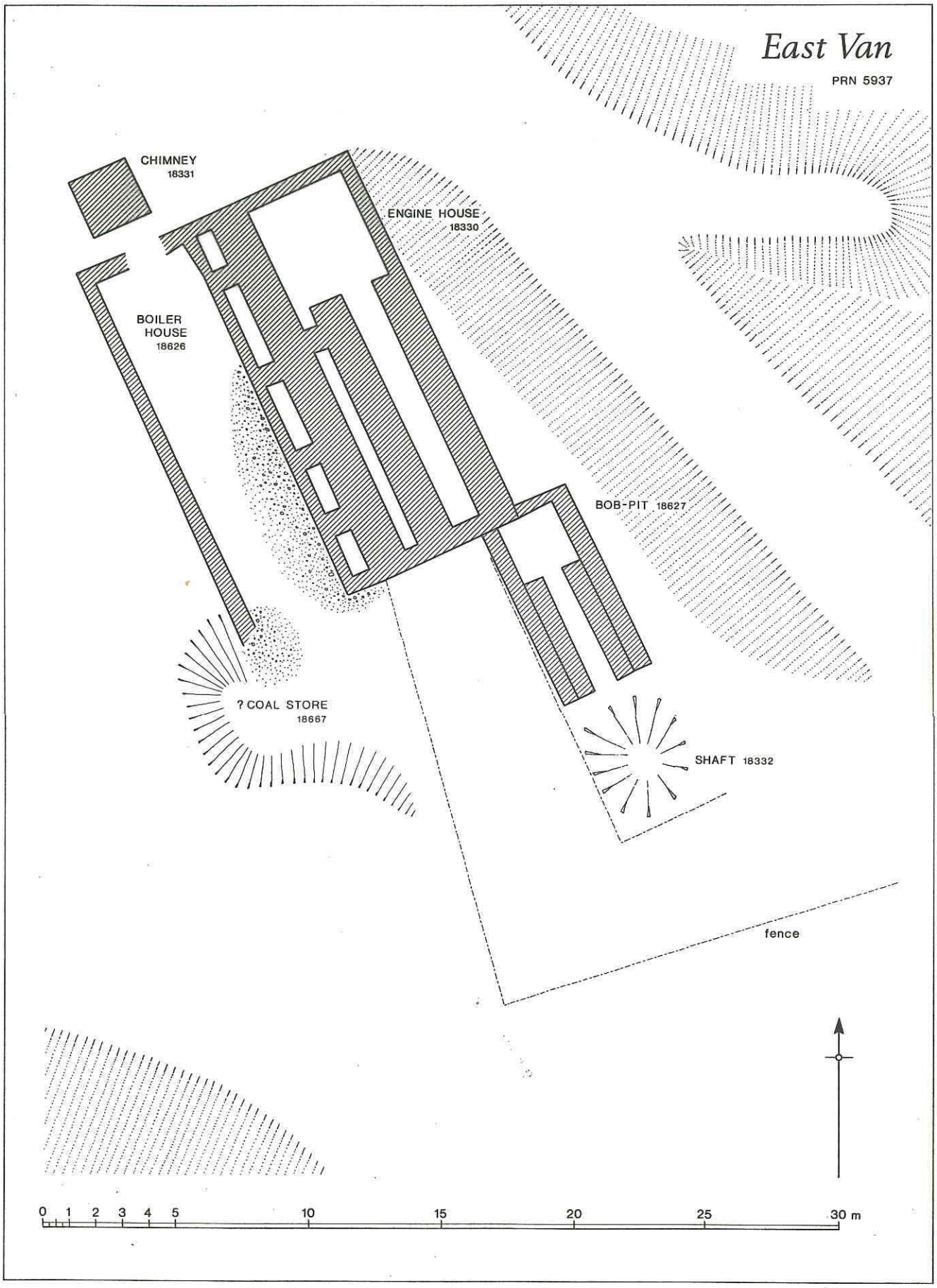
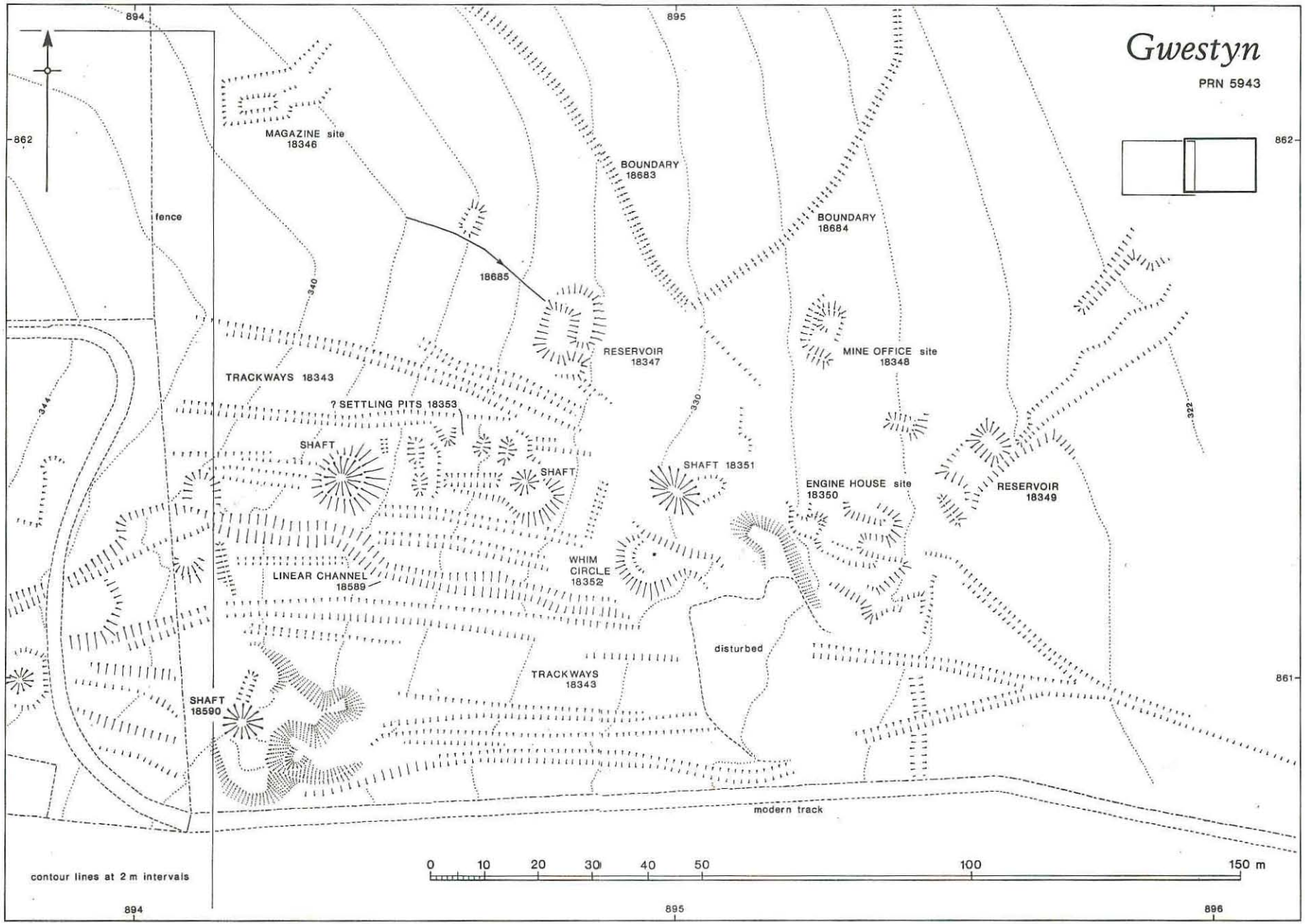
900
901
902
903
649
650
651
652
653
654

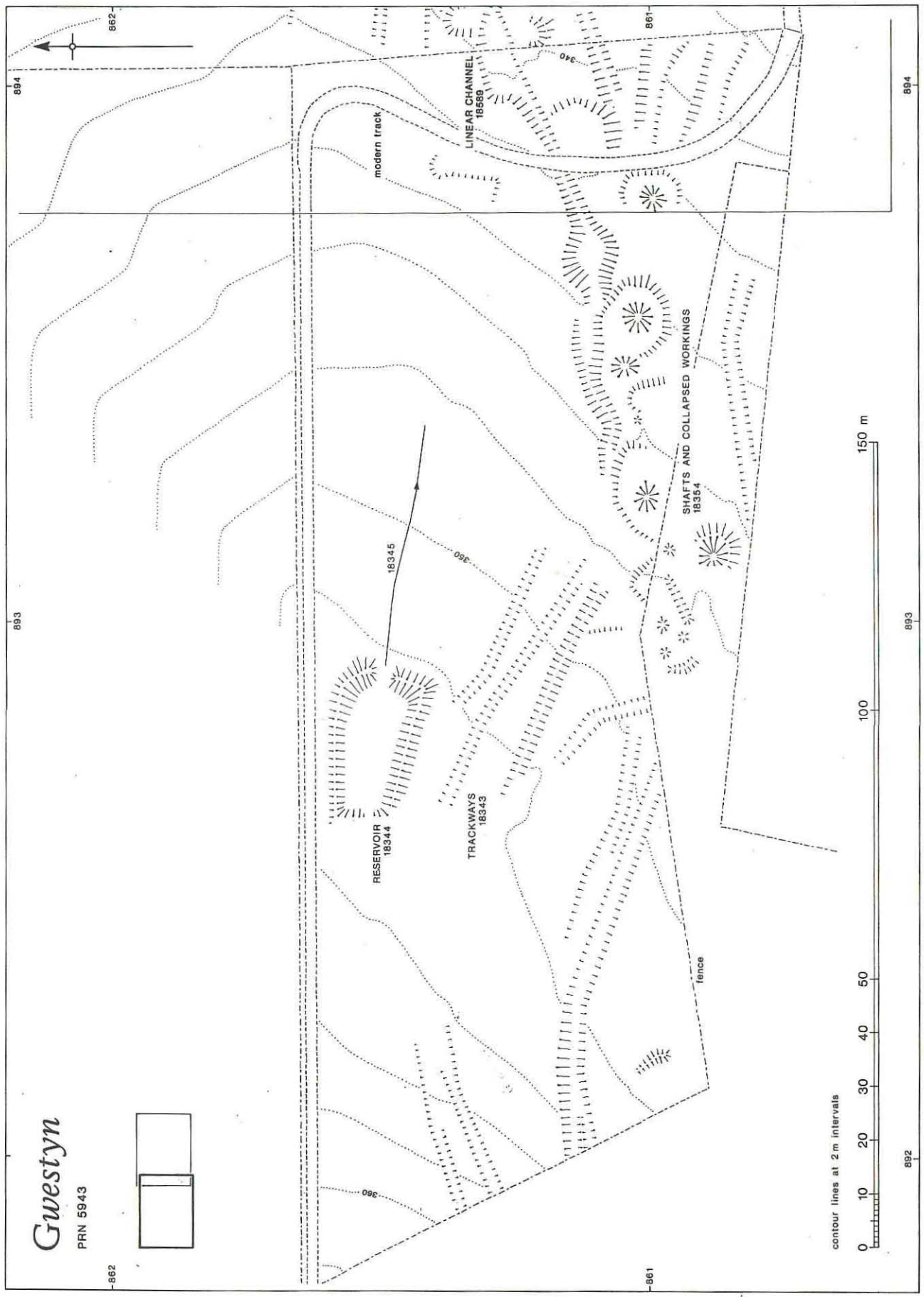



East Van
PRN 5937
950
886
885
884
LEVEL
18329
CHIMNEY
18331
ENGINE
HOUSE 18330
BOILER HOUSE
18626
BOB-PIT 18627
? COAL STORE
18667
SHAFT 18332
fence
STABLES
18333
Nant Gwden
0 10 20 30 40 50 100 150 m

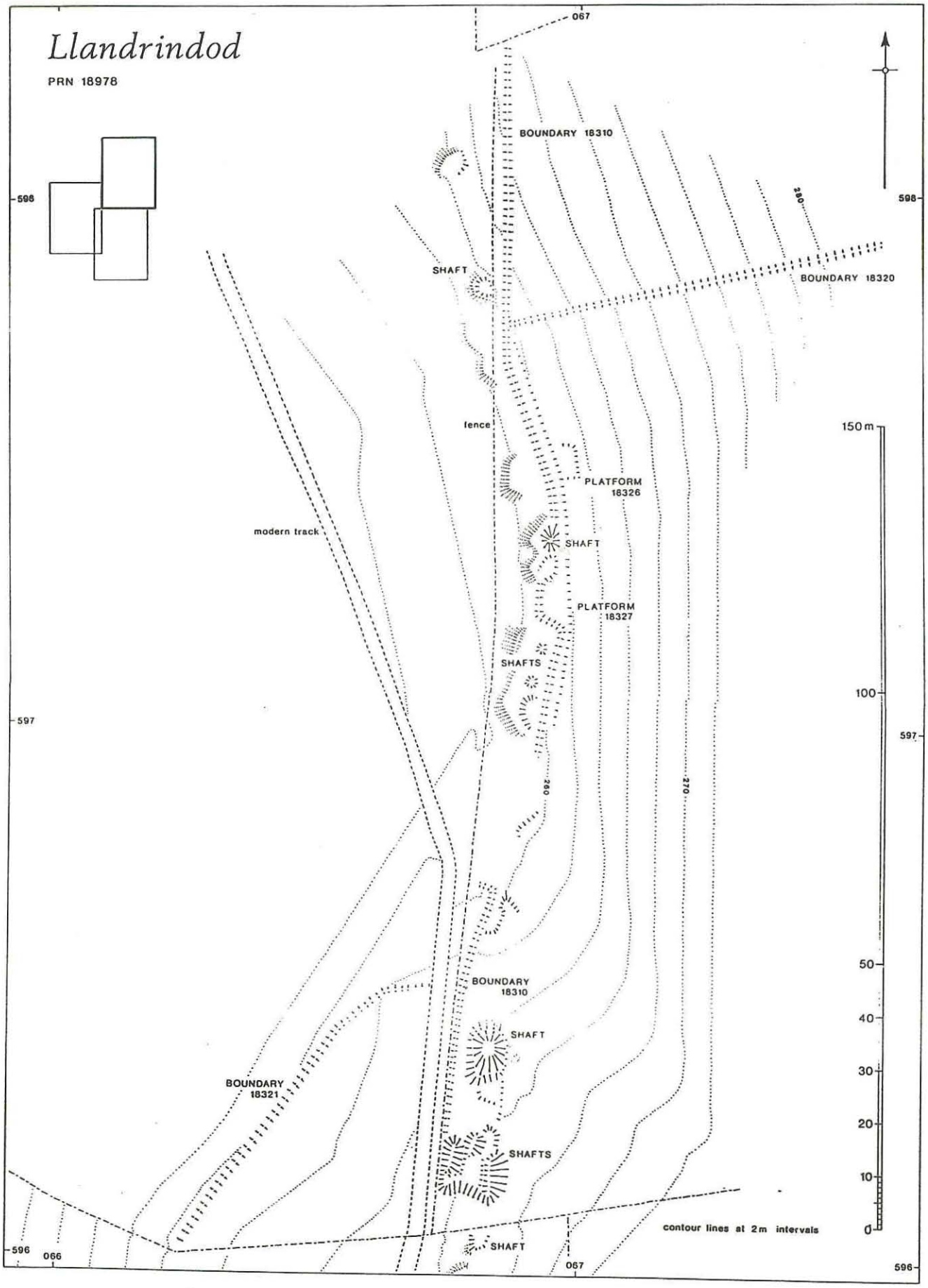

East Van
PRN 5937
CHIMNEY
18331
ENGINE HOUSE
18330
BOILER
HOUSE
18626
BOB-PIT 18627
? COAL STORE
18667
SHAFT 18332
fence
0 1 2 3 4 5 10 15 20 25 30 m

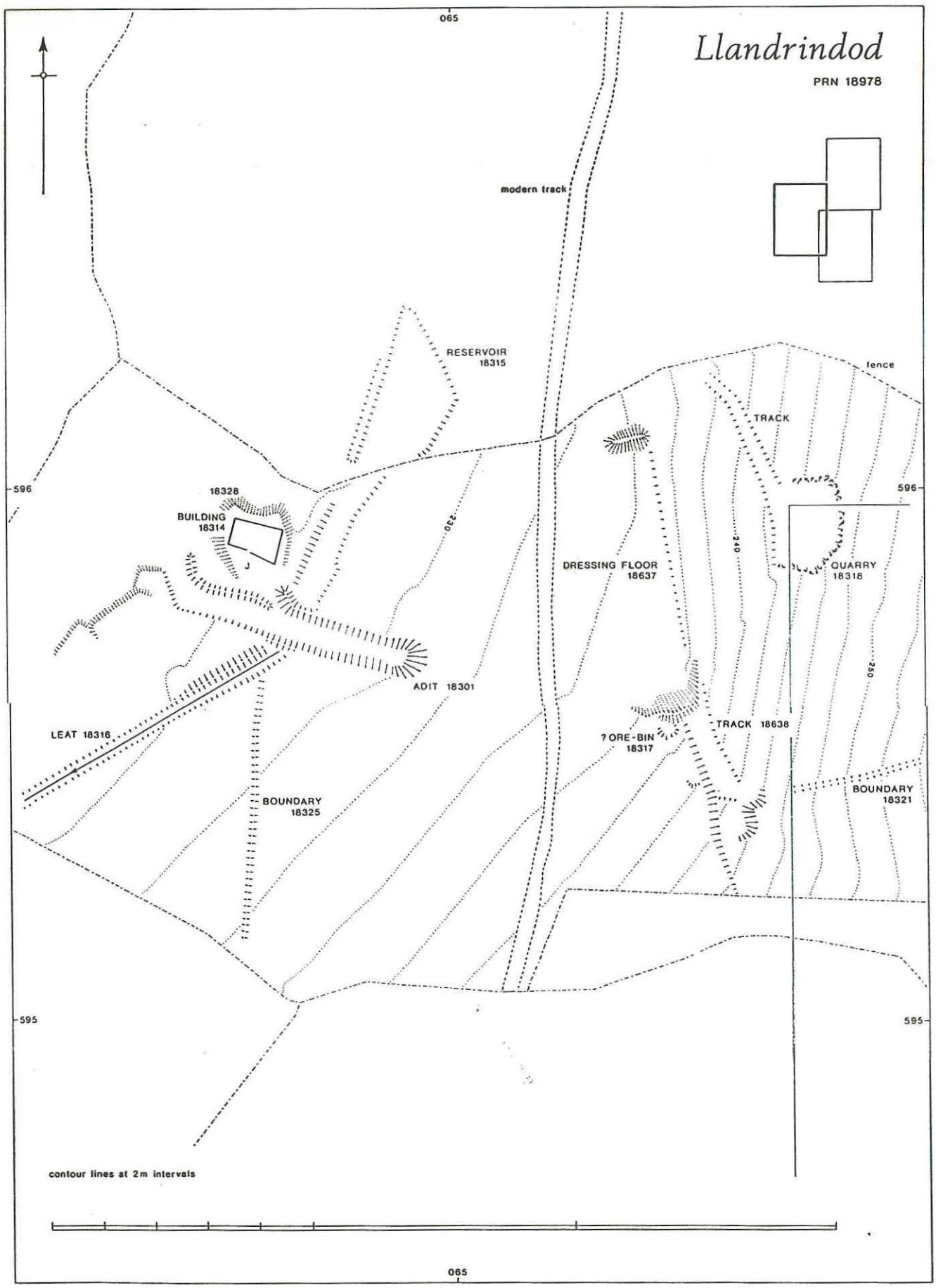

Gwestyn
PRN 5943
ADIT
18873
Nant Gwestyn
MAGAZINE
?SETTLING PITS
MINE OFFICE
ENGINE HOUSE
disturbed
330
340
350
360
contour lines at 2 m intervals
0
25
50
75
100
200
300
400
500 m
861
862
863
892
893
894
895
896
897

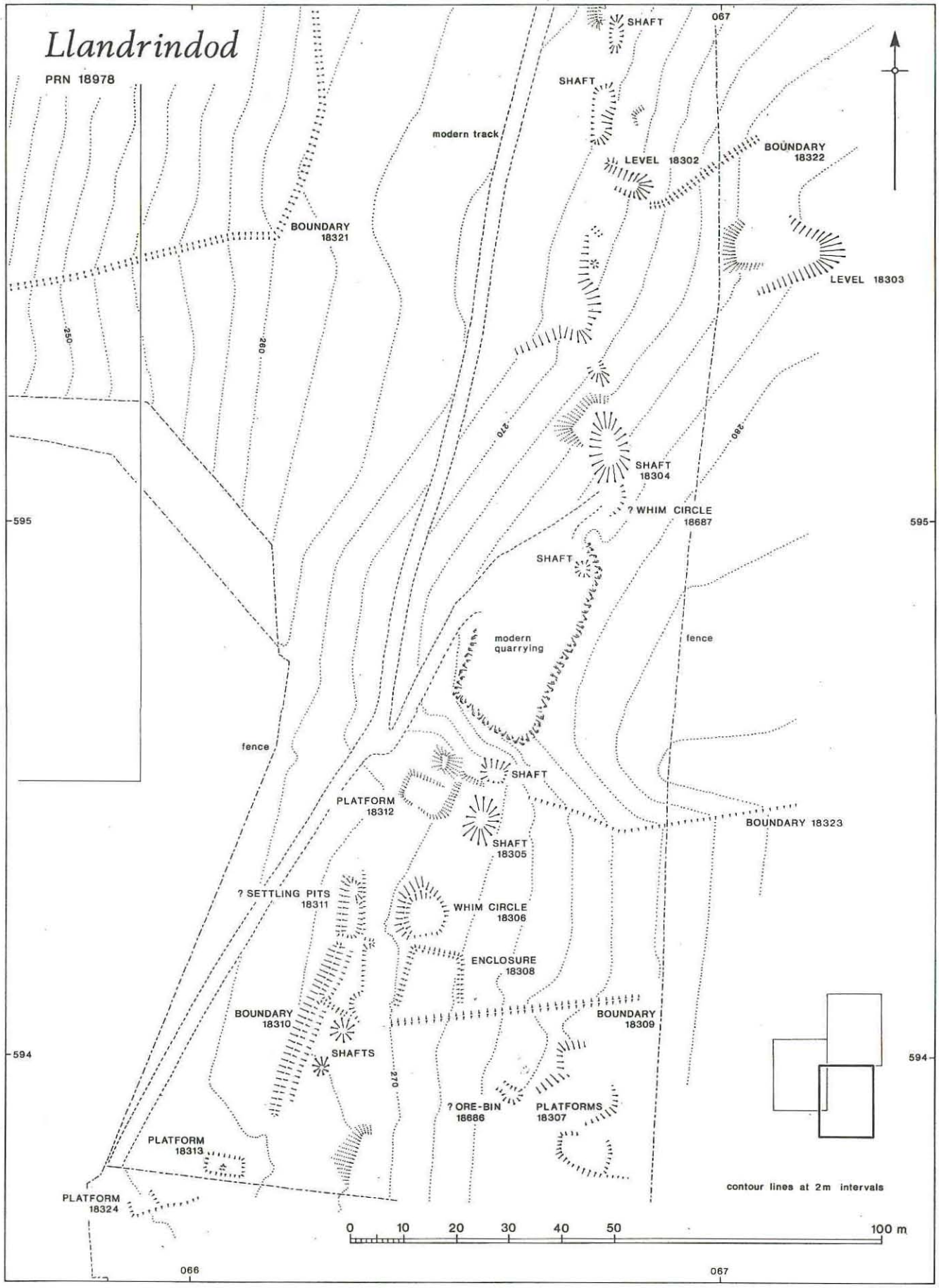


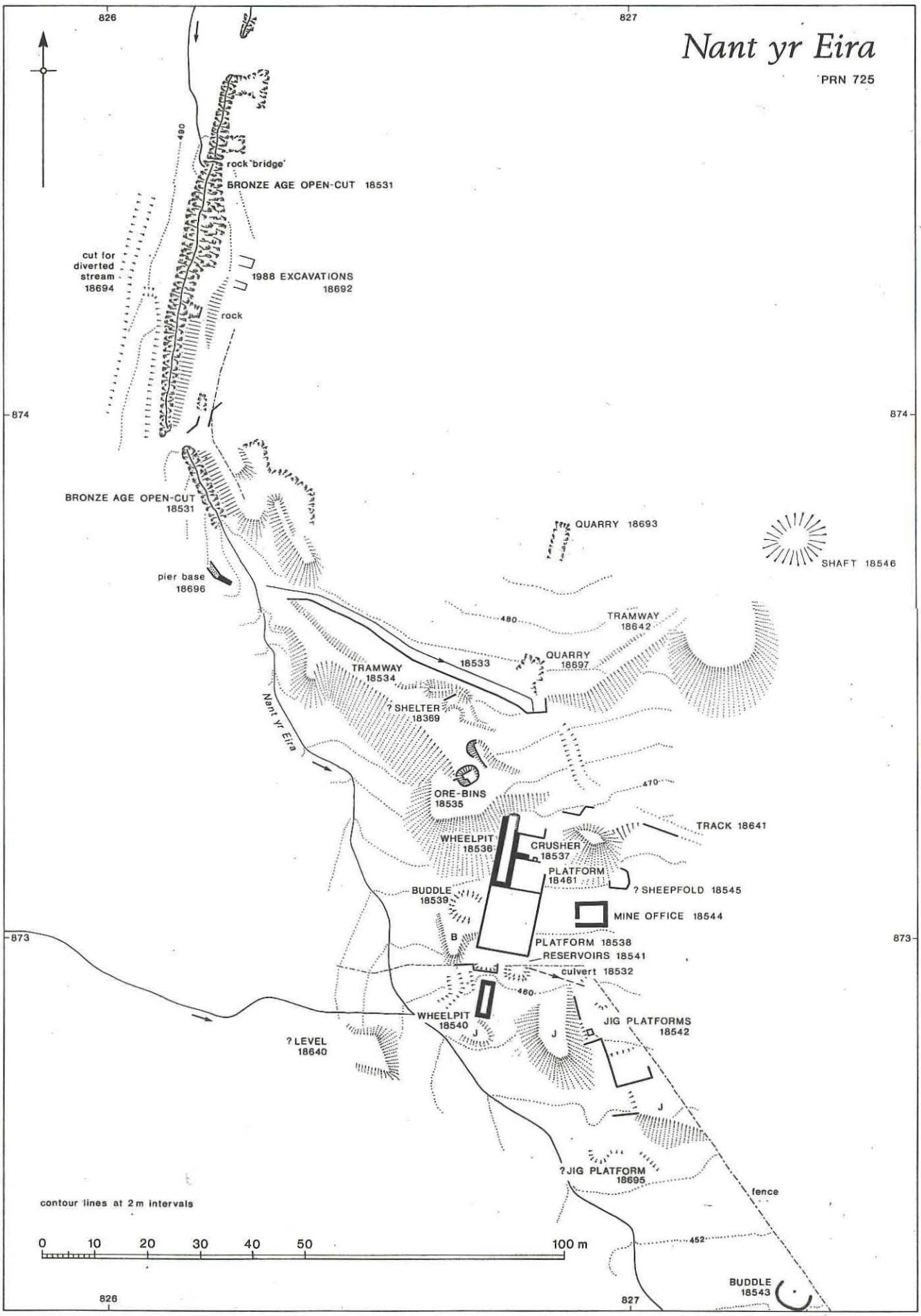

Gwestyn
PRN 5943
LINEAR CHANNEL 18569
modern track
SHAFTS AND COLLAPSED WORKINGS 18354
18345
RESERVOIR 18344
TRACKWAYS 18343
fence
340
360
862
861
894
893
892
0 10 20 30 40 50 100 150 m
contour lines at 2 m intervals

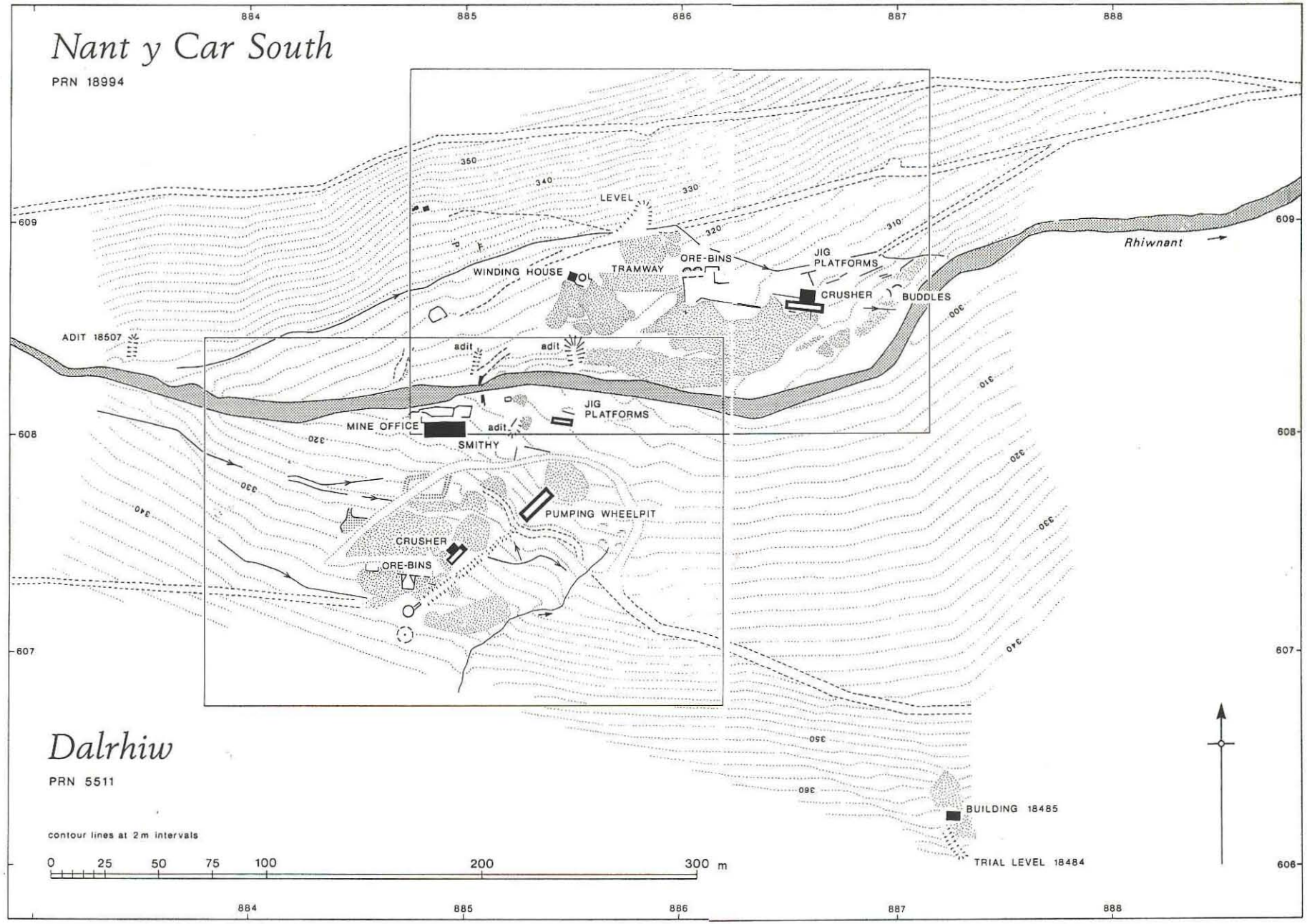

Llandrindod
PRN 18978
065
066
067
598
597
596
595
594
593
280
270
LINE OF SHAFTS 18300
DRESSING FLOOR
230
240
250
260
adit
?ore bin
LEVEL
LEVEL
modern quarry
?SETTLING PITS
?ore bin
contour lines at 2 m intervals
0 25 50 75 100 200 300 375 m
064
065
066
067

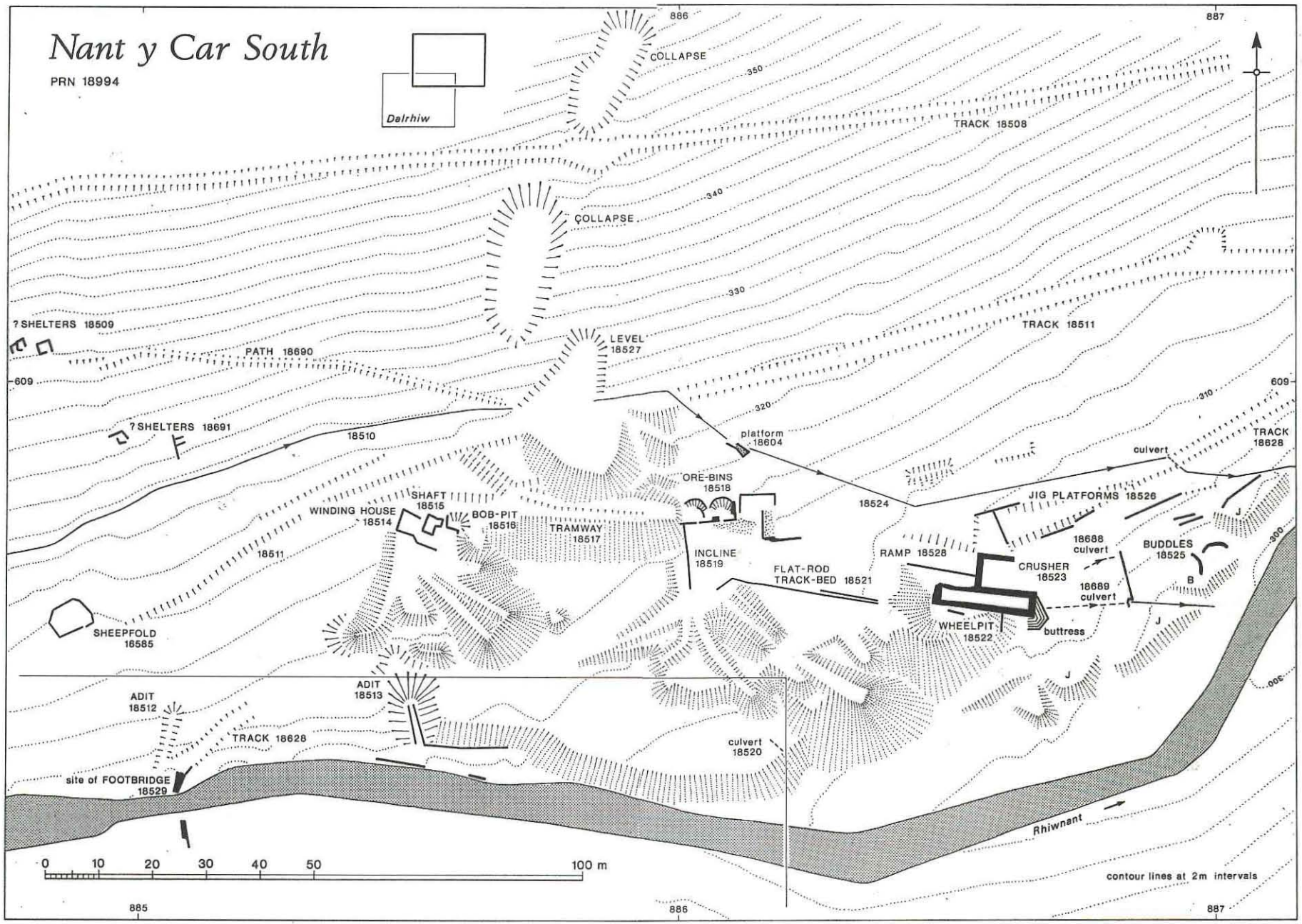

Llandrindod
PRN 18978
067
598
BOUNDARY 18310
280
SHAFT
BOUNDARY 18320
fence
PLATFORM 18326
modern track
SHAFT
PLATFORM 18327
SHAFTS
597
260
270
BOUNDARY 18310
SHAFT
BOUNDARY 18321
SHAFTS
SHAFT
596
066
067
contour lines at 2m intervals
150 m
100
50
40
30
20
10
0

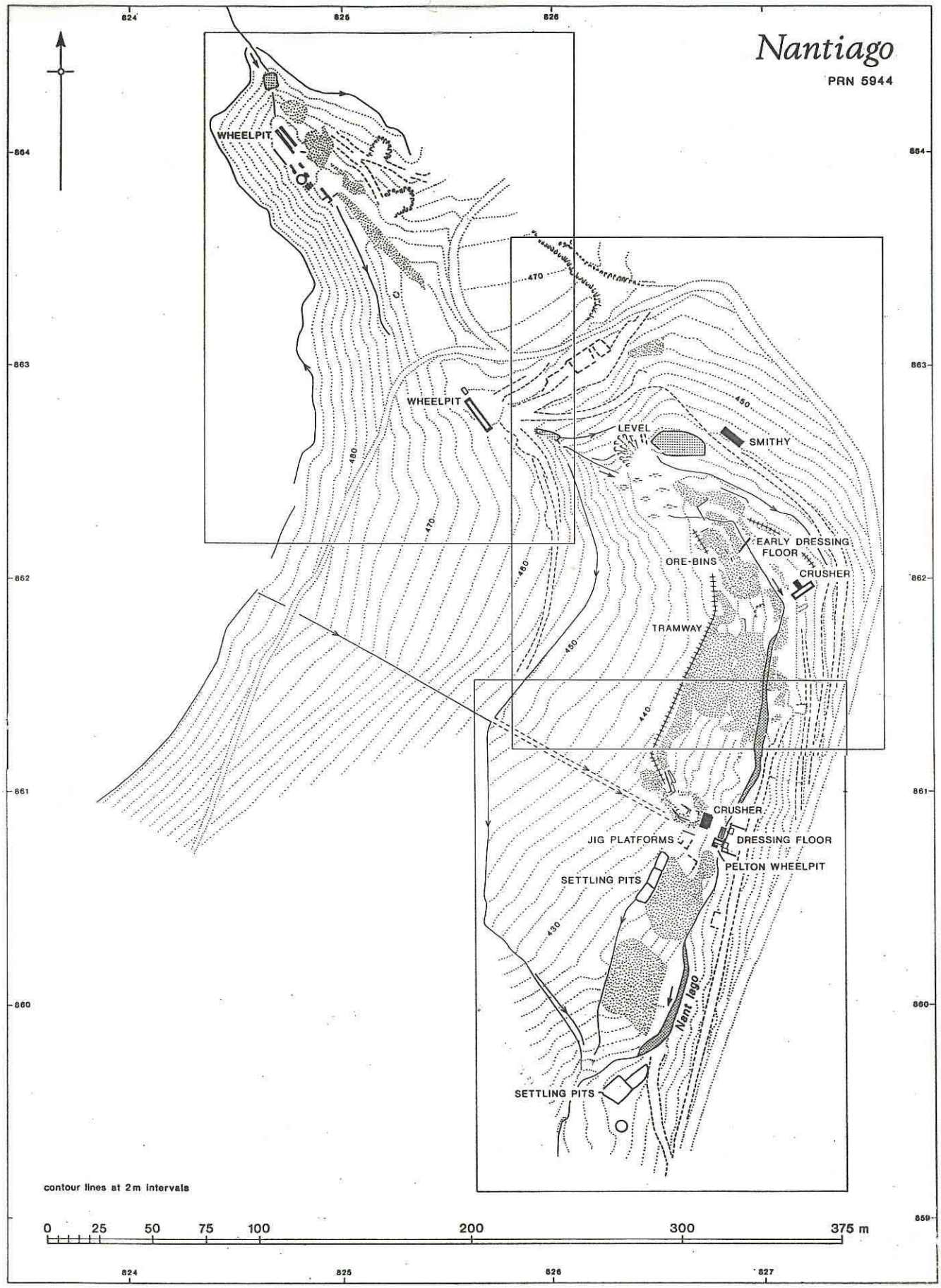

Llandrindod
PRN 18978
065
modern track
RESERVOIR
18315
fence
TRACK
596
18328
BUILDING
18314
J
230
240
DRESSING FLOOR
18637
QUARRY
18318
250
ADIT 18301
LEAT 18316
?ORE-BIN
18317
TRACK 18638
BOUNDARY
18325
BOUNDARY
18321
595
contour lines at 2m intervals
065

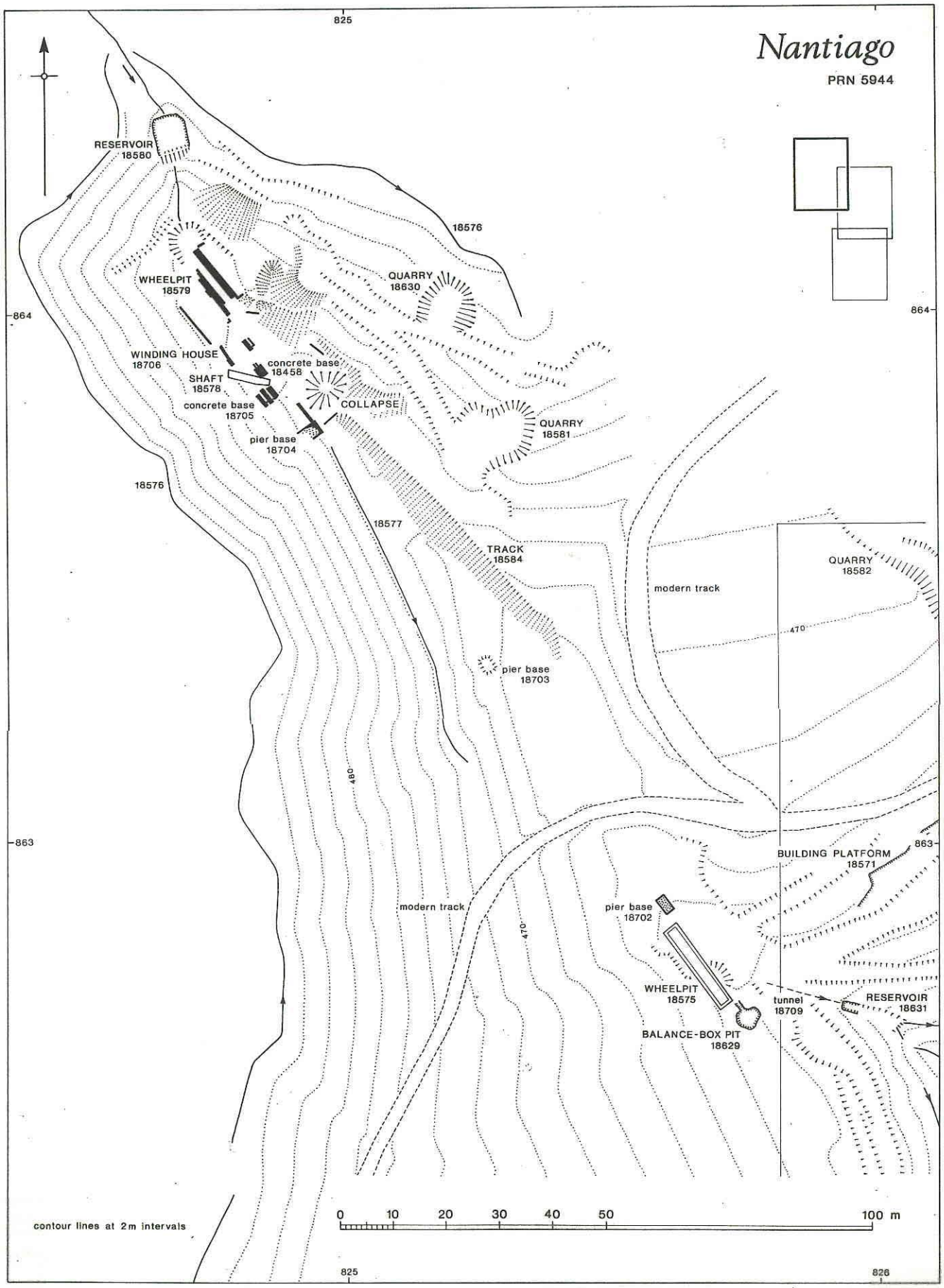

Llandrindod
PRN 18978
SHAFT
067
SHAFT
modern track
LEVEL 18302
BOUNDARY 18322
BOUNDARY 18321
LEVEL 18303
250
260
270
280
SHAFT 18304
? WHIM CIRCLE 18687
595
595
SHAFT
modern quarrying
fence
fence
SHAFT
PLATFORM 18312
BOUNDARY 18323
SHAFT 18305
? SETTLING PITS 18311
WHIM CIRCLE 18306
ENCLOSURE 18308
BOUNDARY 18310
BOUNDARY 18309
594
SHAFTS
594
270
? ORE-BIN 18686
PLATFORMS 18307
PLATFORM 18313
PLATFORM 18324
contour lines at 2m intervals
0 10 20 30 40 50 100 m
066
067

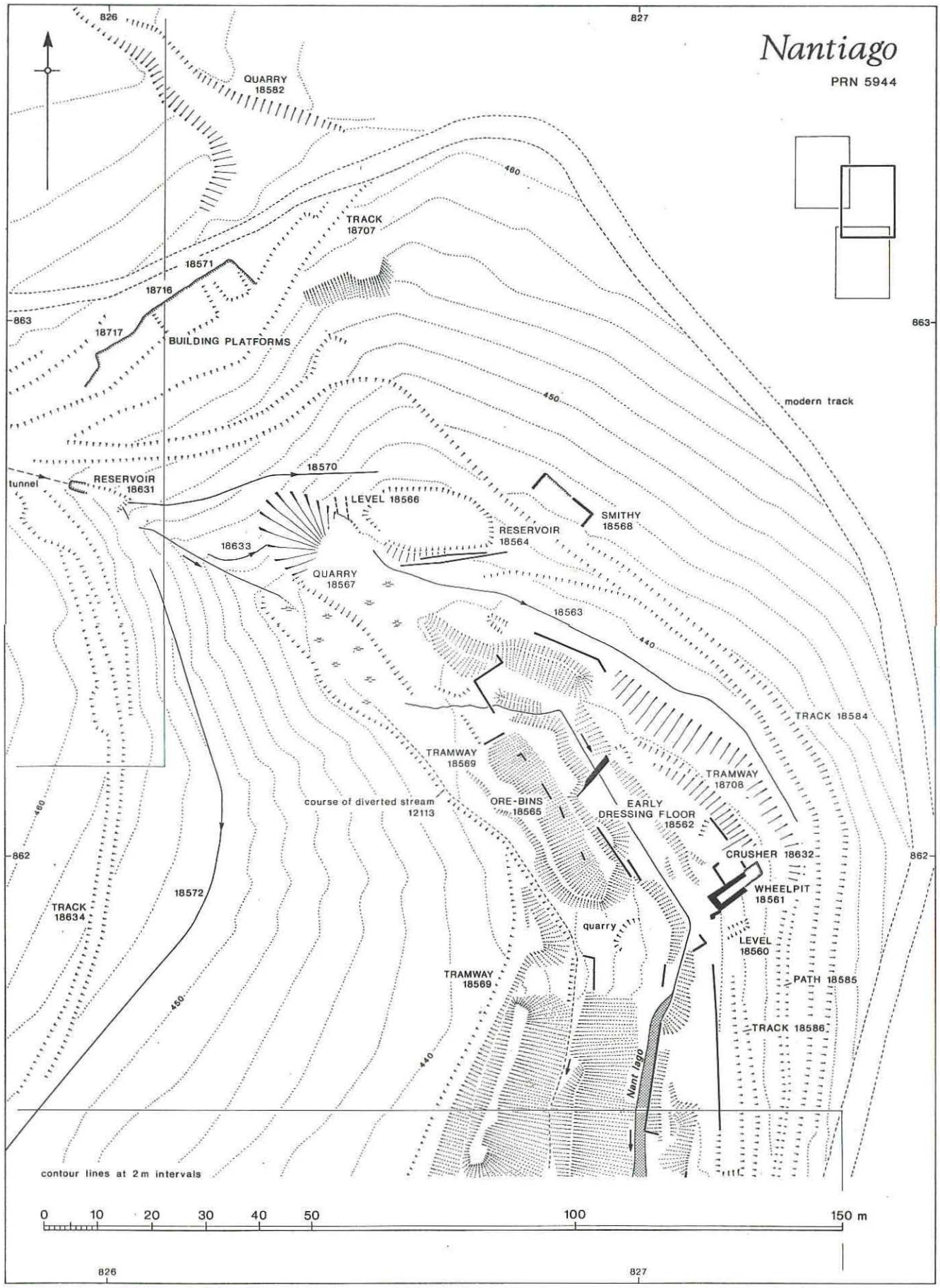

Nant yr Eira
PRN 725
826
827
874
873
490
480
470
460
452
rock 'bridge'
BRONZE AGE OPEN-CUT 18531
cut for diverted stream 18694
1988 EXCAVATIONS 18692
rock
BRONZE AGE OPEN-CUT 18531
pier base 18696
QUARRY 18693
SHAFT 18546
TRAMWAY 18642
TRAMWAY 18534
18533
QUARRY 18697
? SHELTER 18369
Nant yr Eira
ORE-BINS 18535
TRACK 18641
WHEELPIT 18536
CRUSHER 18537
PLATFORM 18461
? SHEEPFOLD 18545
BUDDLE 18539
MINE OFFICE 18544
B
PLATFORM 18538
RESERVOIRS 18541
culvert 18532
WHEELPIT 18540
JIG PLATFORMS 18542
? LEVEL 18640
? JIG PLATFORM 18695
fence
BUDDLE 18543
contour lines at 2 m intervals
0 10 20 30 40 50 100 m

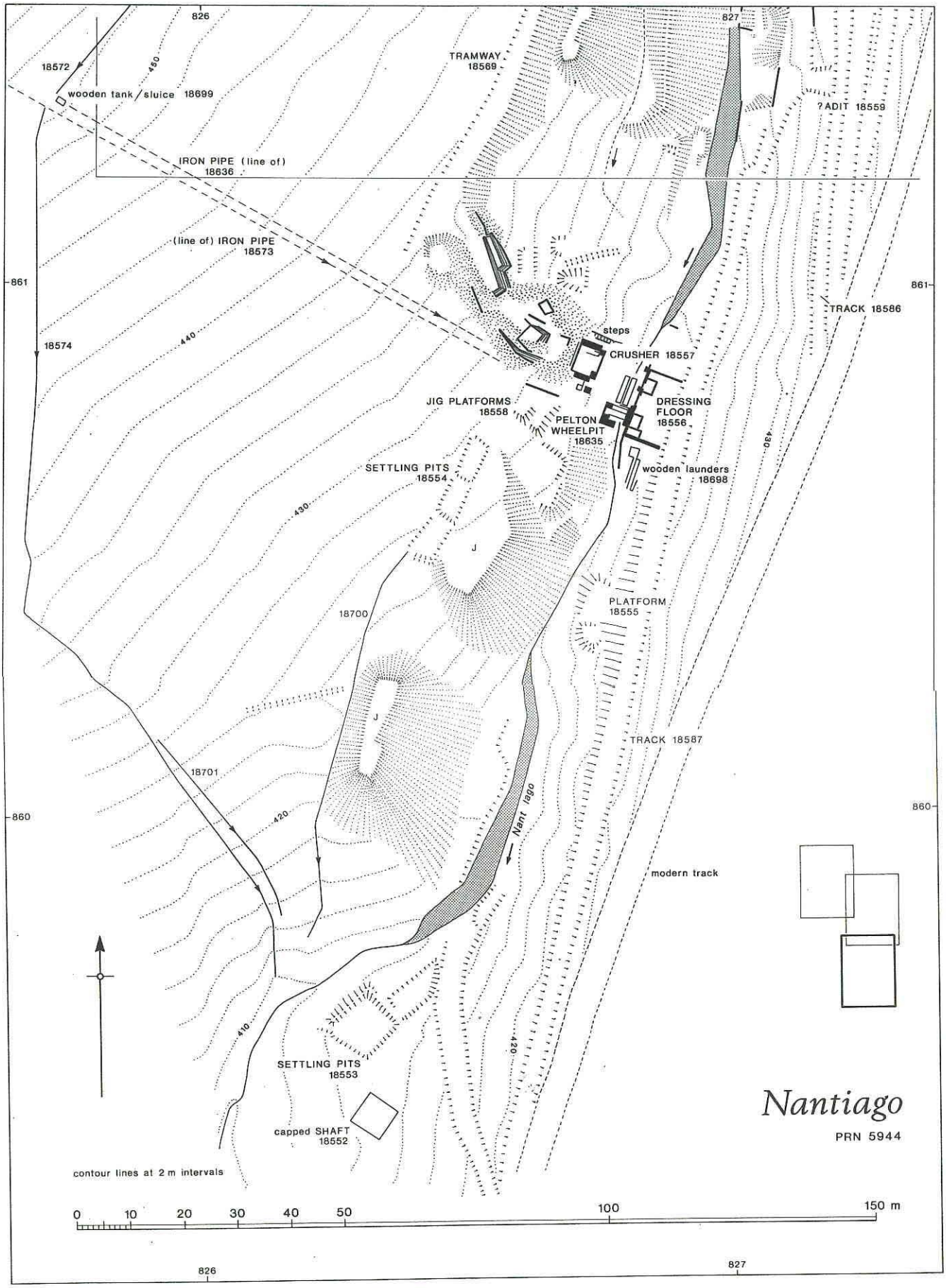


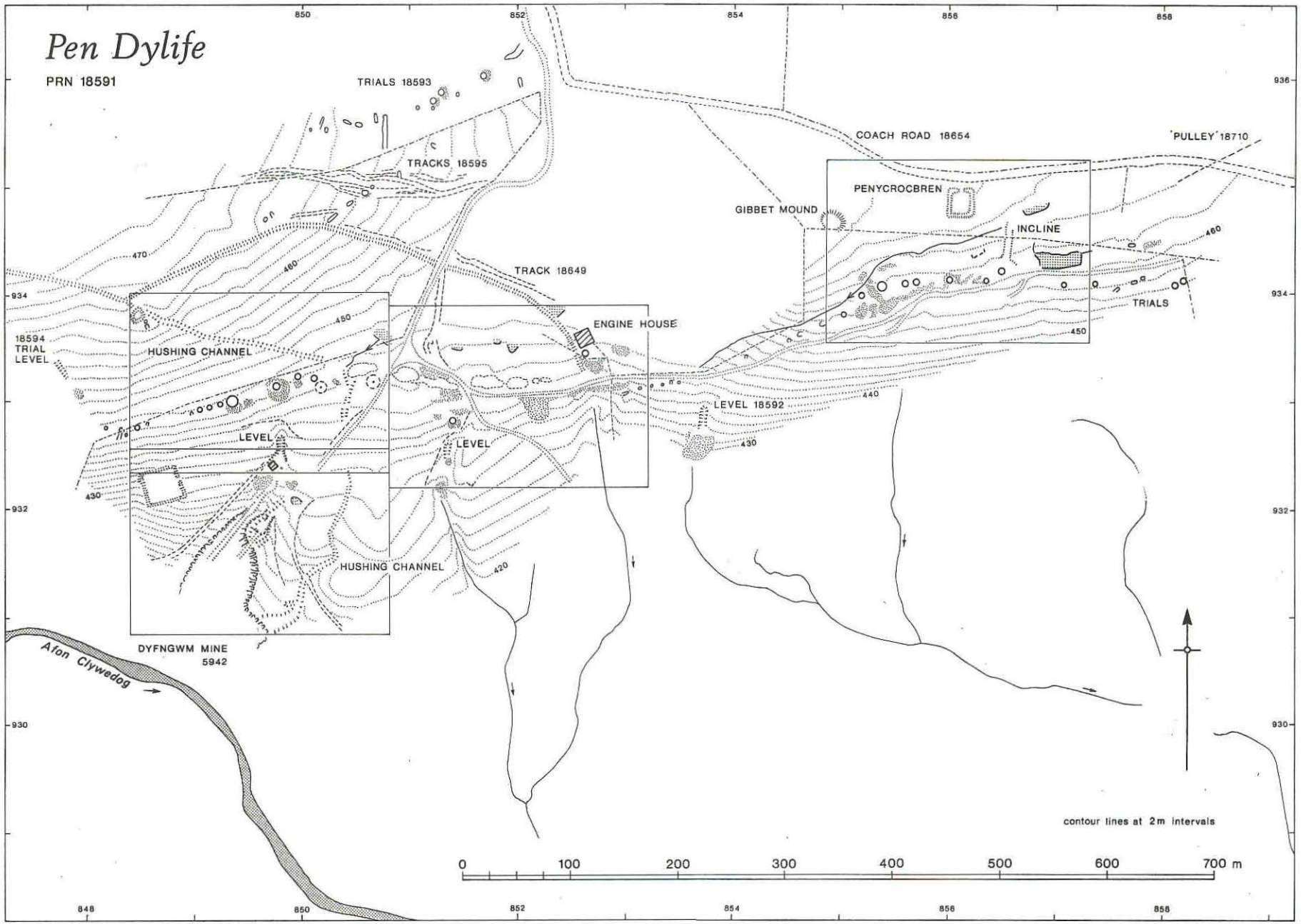


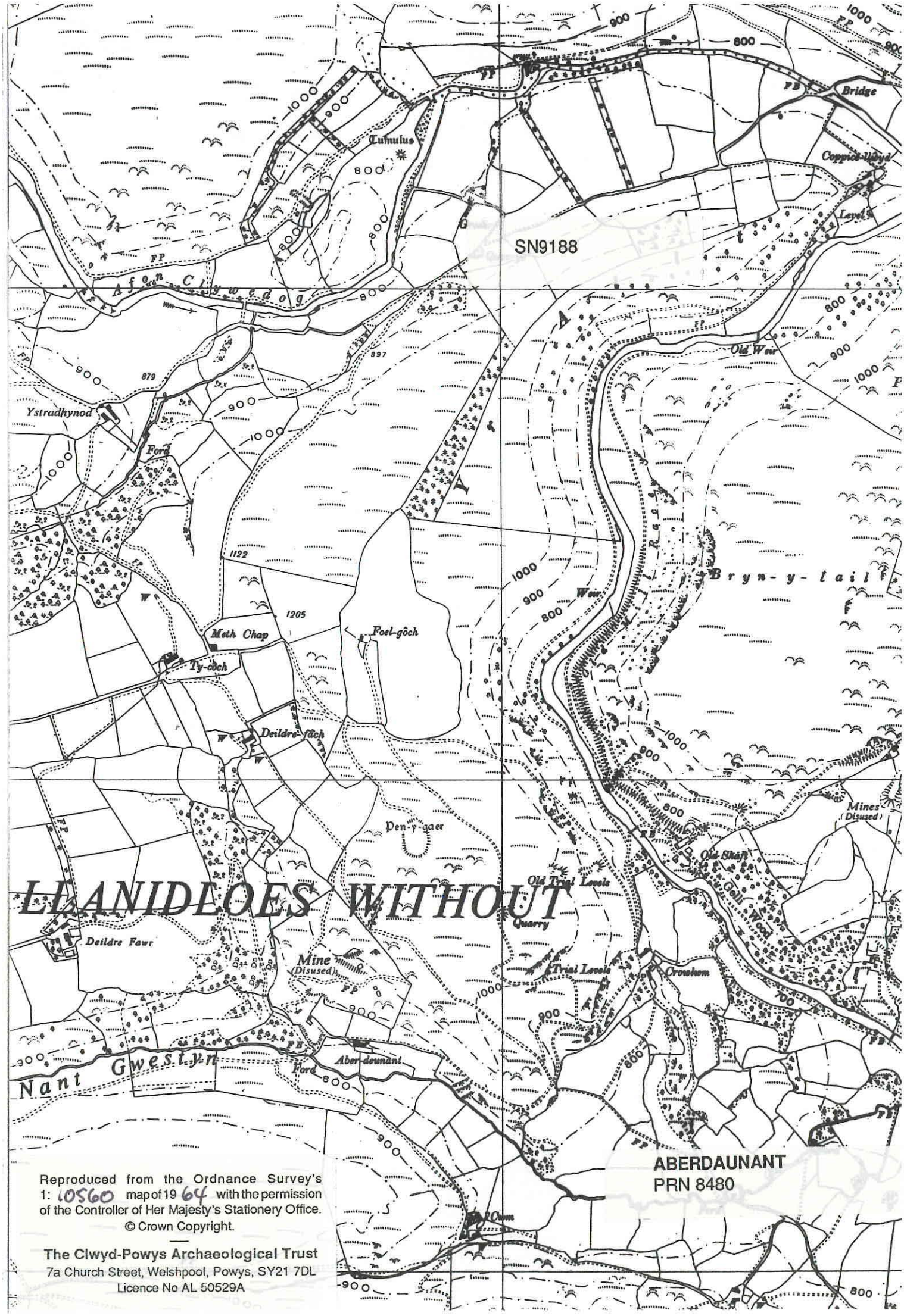

Nantiago
PRN 5944
WHEELPIT
WHEELPIT
LEVEL
SMITHY
EARLY DRESSING FLOOR
ORE-BINS
CRUSHER
TRAMWAY
CRUSHER
JIG PLATFORMS
DRESSING FLOOR
PELTON WHEELPIT
SETTLING PITS
Nant Iago
SETTLING PITS
470
460
450
440
430
824
825
826
827
863
862
861
860
859
contour lines at 2m intervals
0 25 50 75 100 200 300 375 m


Nantiago
PRN 5944
825
826
864
863
RESERVOIR 18580
18576
WHEELPIT 18579
QUARRY 18630
WINDING HOUSE 18706
concrete base 18458
SHAFT 18578
concrete base 18705
COLLAPSE
pier base 18704
QUARRY 18581
18577
TRACK 18584
pier base 18703
QUARRY 18582
modern track
470
480
BUILDING PLATFORM 18571
pier base 18702
WHEELPIT 18575
tunnel 18709
RESERVOIR 18631
BALANCE-BOX PIT 18629
contour lines at 2m intervals
0 10 20 30 40 50 100 m


Nantiago
PRN 5944
826
827
863
862
460
450
440
QUARRY 18582
TRACK 18707
18571
18716
18717
BUILDING PLATFORMS
modern track
tunnel
RESERVOIR 18631
18570
LEVEL 18566
SMITHY 18568
RESERVOIR 18564
18633
QUARRY 18567
18563
TRACK 18584
TRAMWAY 18569
TRAMWAY 18708
course of diverted stream 12113
ORE-BINS 18565
EARLY DRESSING FLOOR 18562
CRUSHER 18632
WHEELPIT 18561
18572
TRACK 18634
quarry
LEVEL 18560
TRAMWAY 18569
PATH 18585
TRACK 18586
Nant Iago
contour lines at 2 m intervals
0 10 20 30 40 50 100 150 m


826
827
18572
wooden tank / sluice 18699
TRAMWAY 18569
?ADIT 18559
IRON PIPE (line of) 18636
(line of) IRON PIPE 18573
861
TRACK 18586
18574
steps
CRUSHER 18557
JIG PLATFORMS 18558
DRESSING FLOOR 18556
PELTON WHEELPIT 18635
SETTLING PITS 18554
wooden launders 18698
430
440
450
18700
PLATFORM 18555
TRACK 18587
18701
860
Nant Iago
modern track
410
420
SETTLING PITS 18553
capped SHAFT 18552
contour lines at 2 m intervals
0 10 20 30 40 50 100 150 m
Nantiago
PRN 5944





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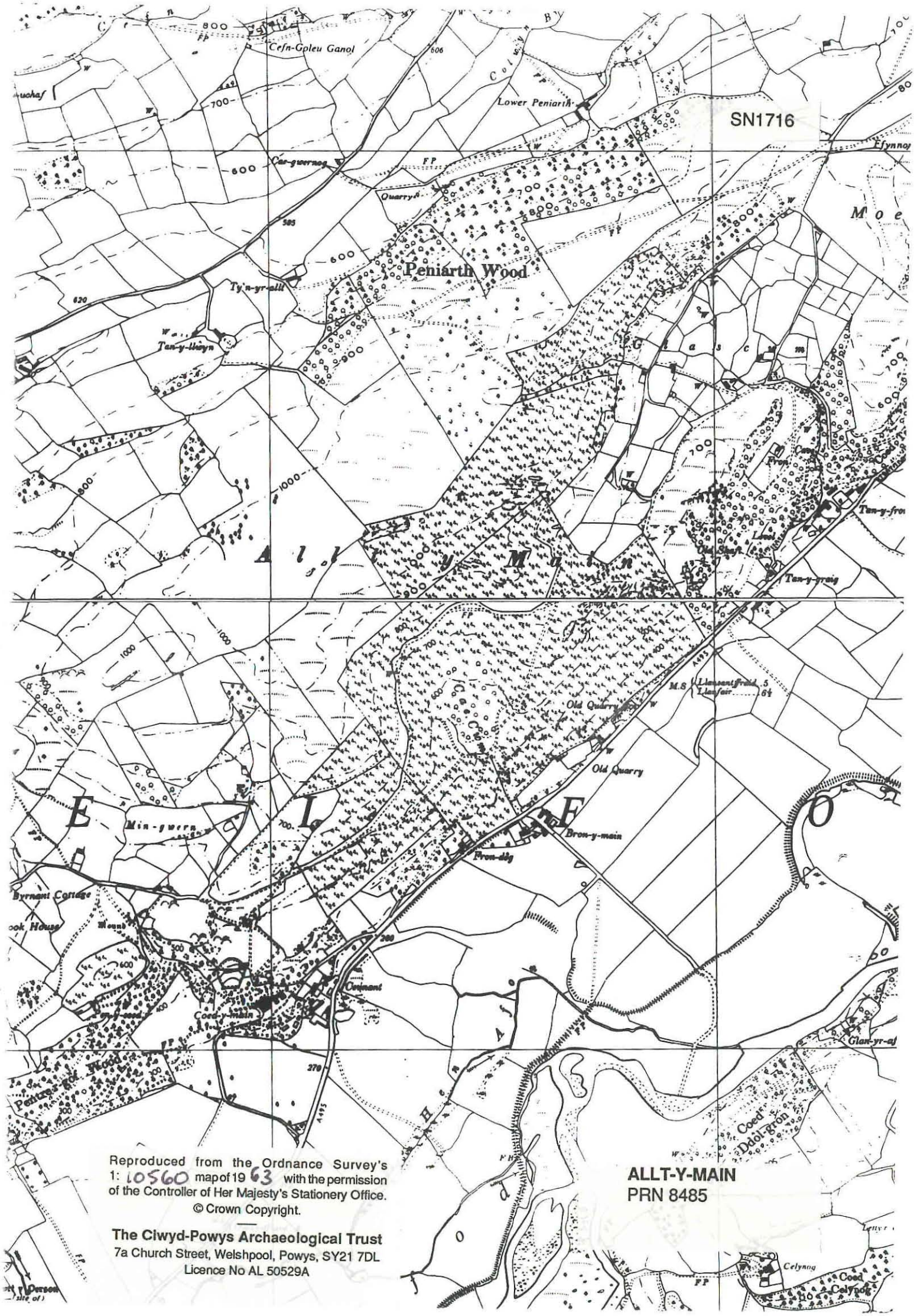

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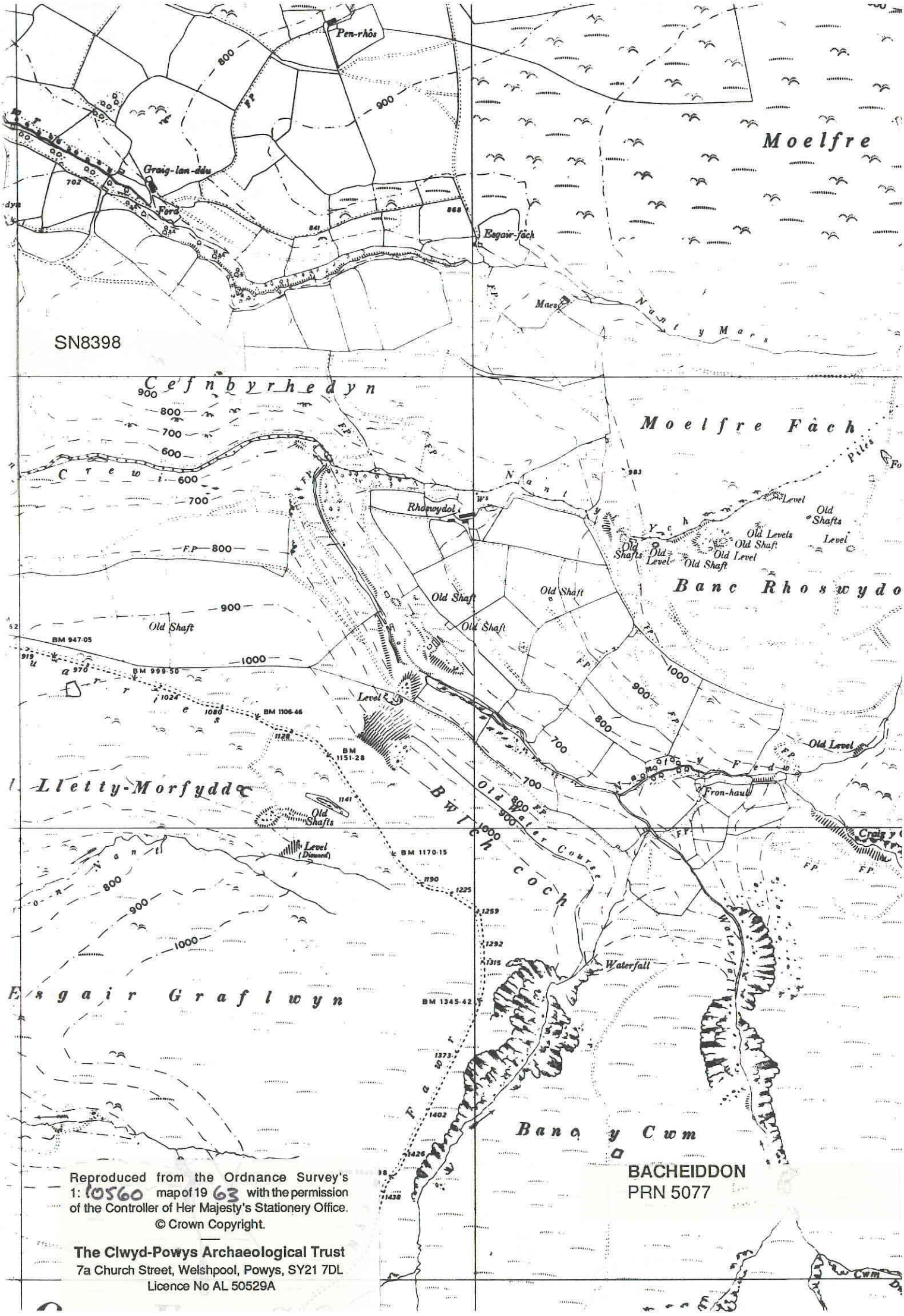

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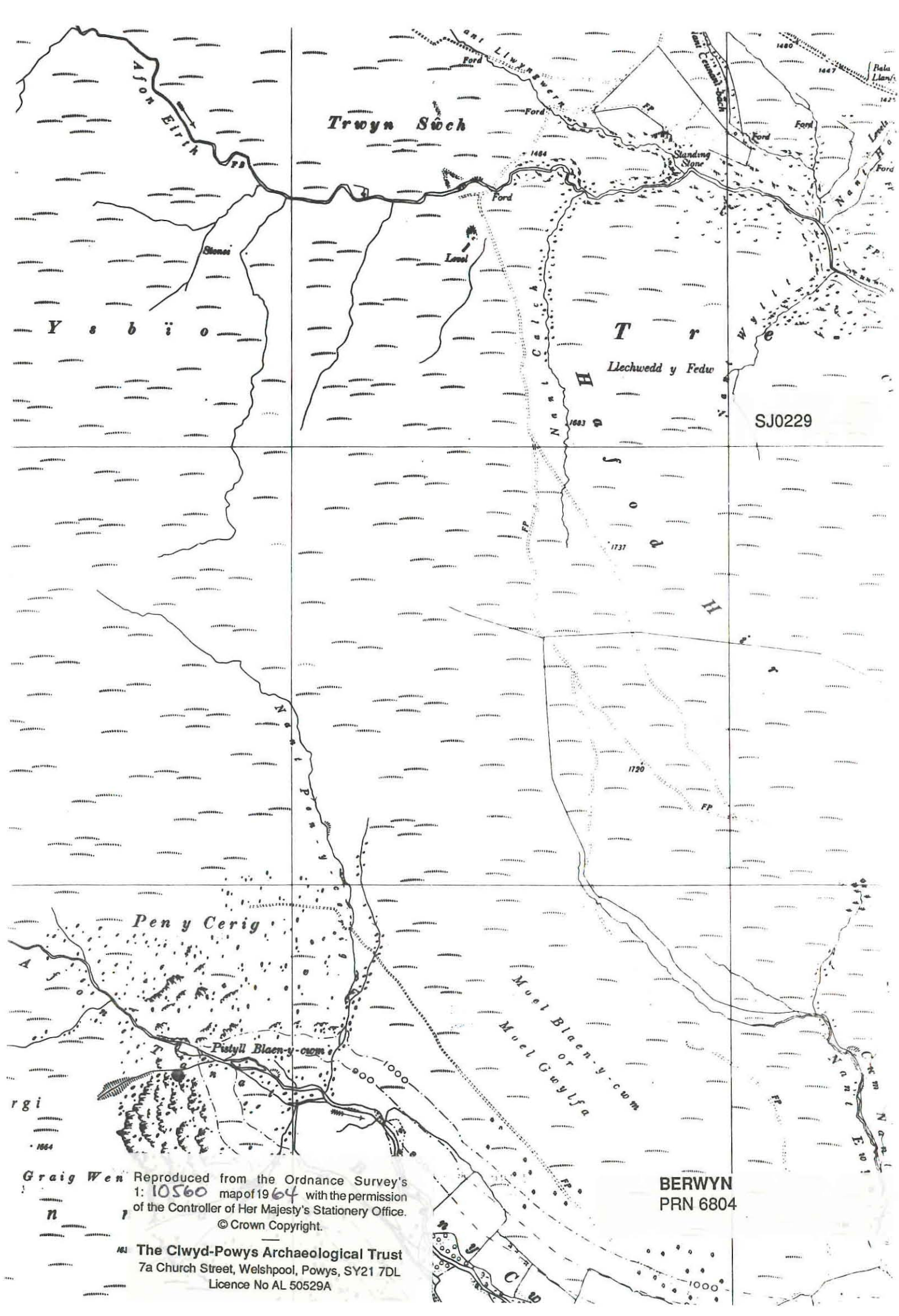

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BERWYN
PRN 6804

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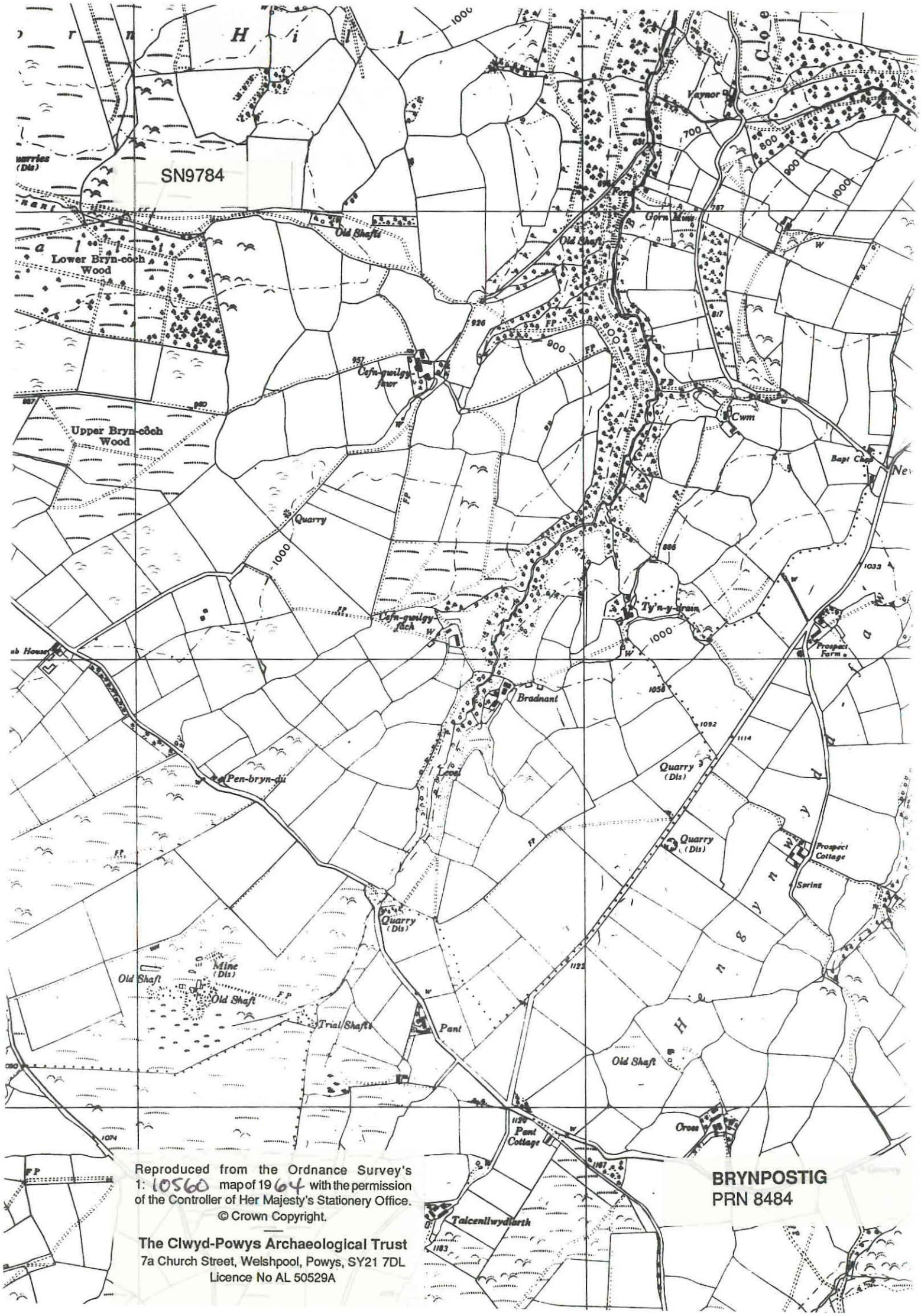
BRYNFEDWEN
PRN 8461



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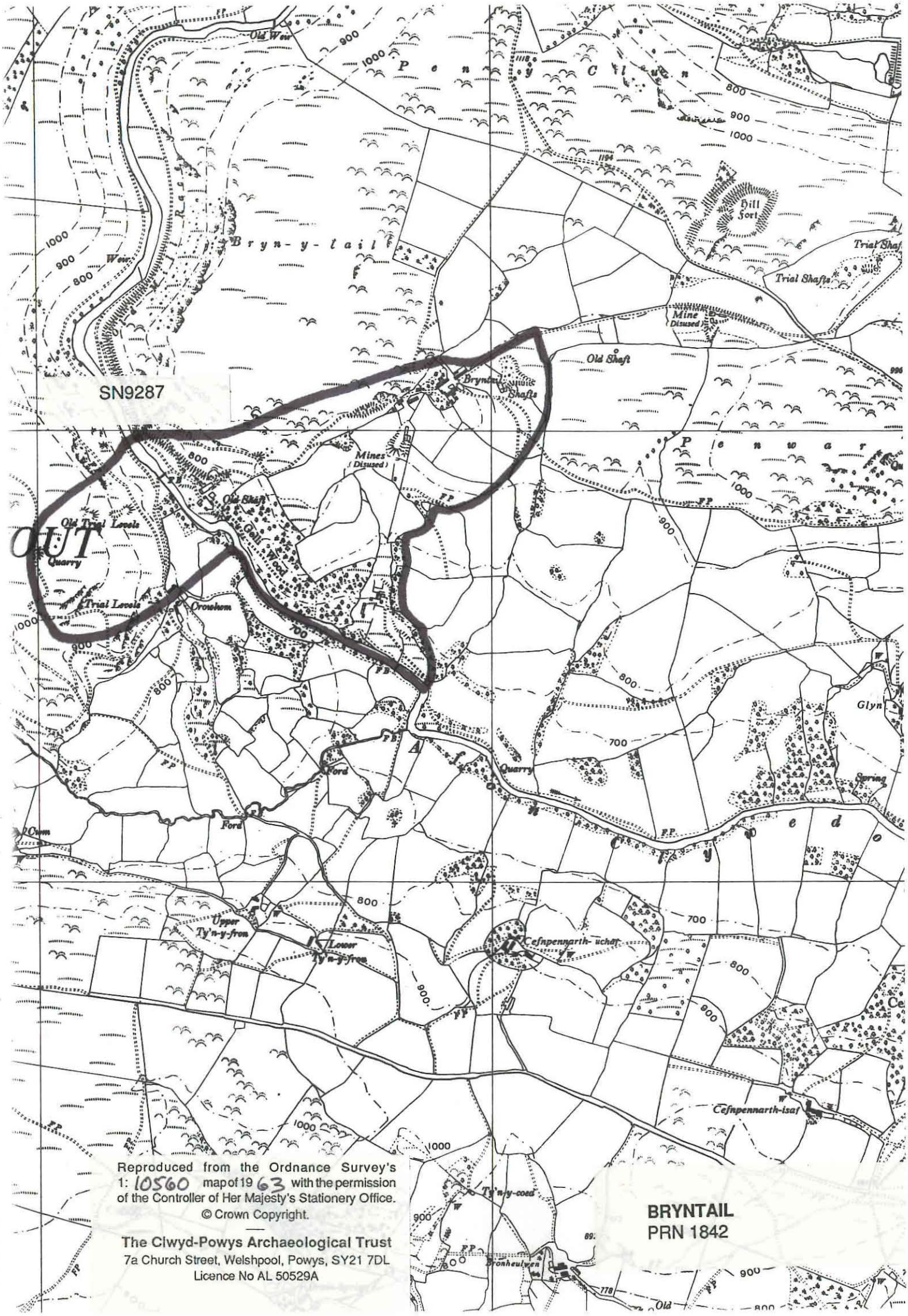
BRYNPOSTIG
PRN 8484



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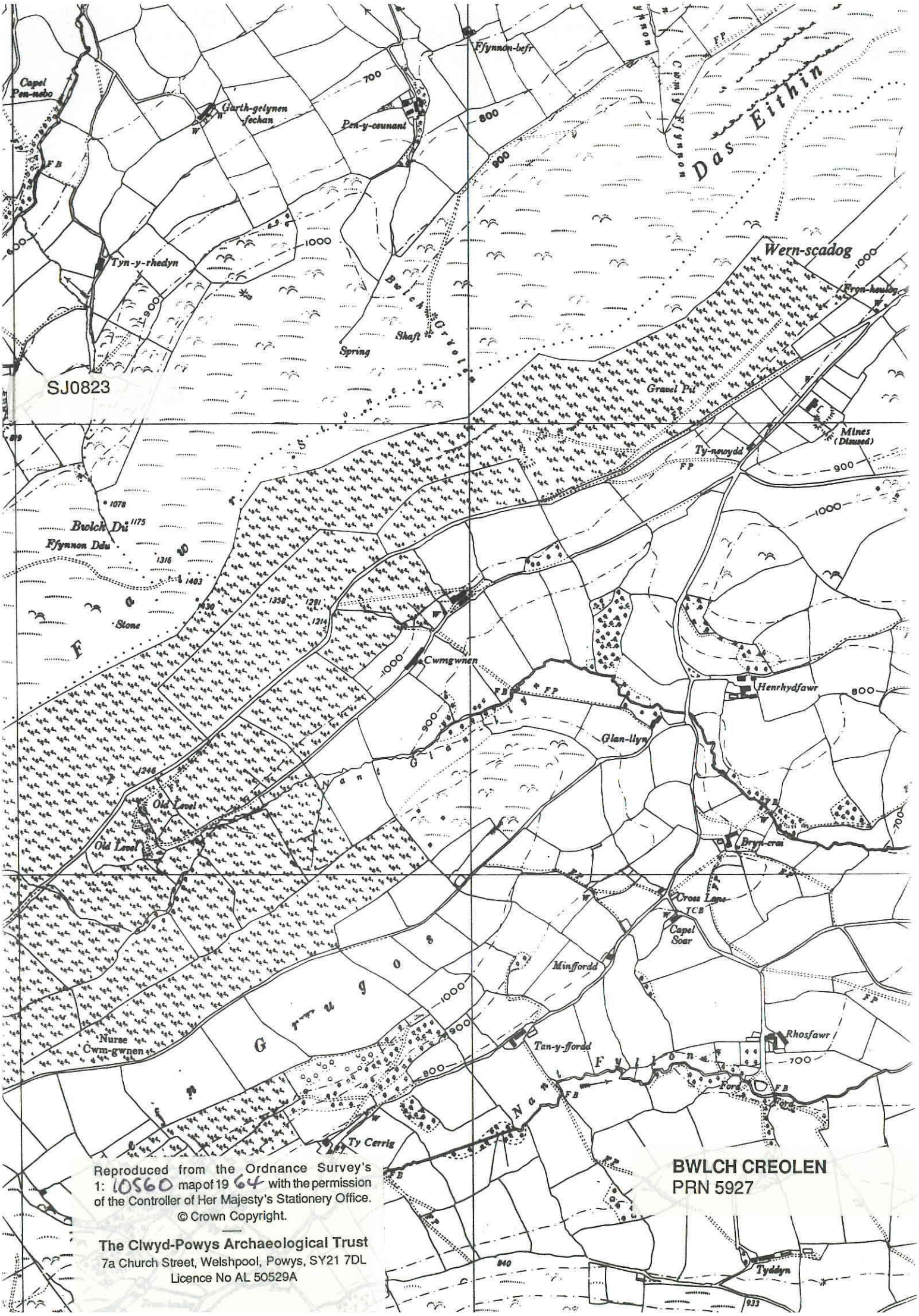

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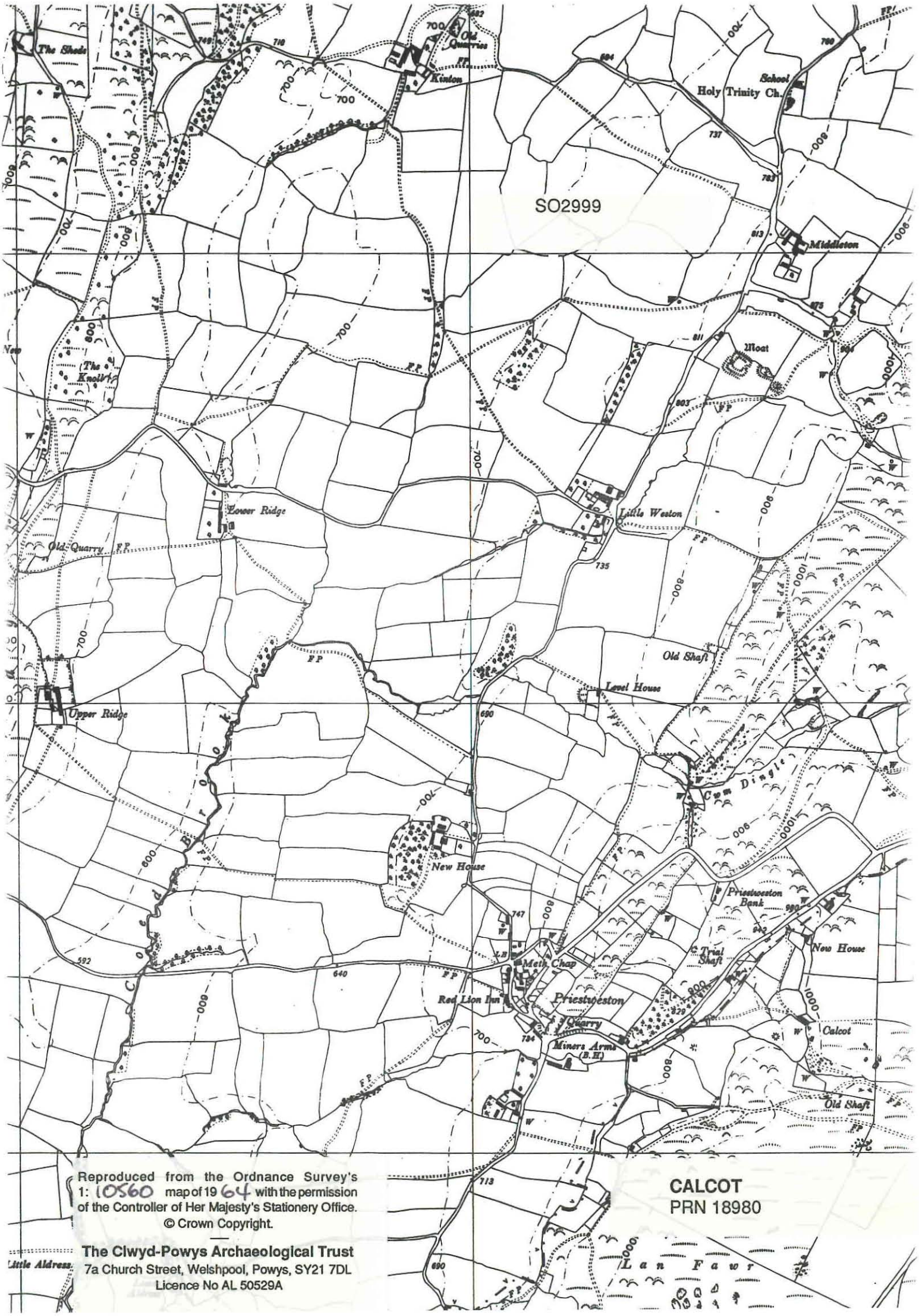
BWLCH CREOLEN
PRN 5927



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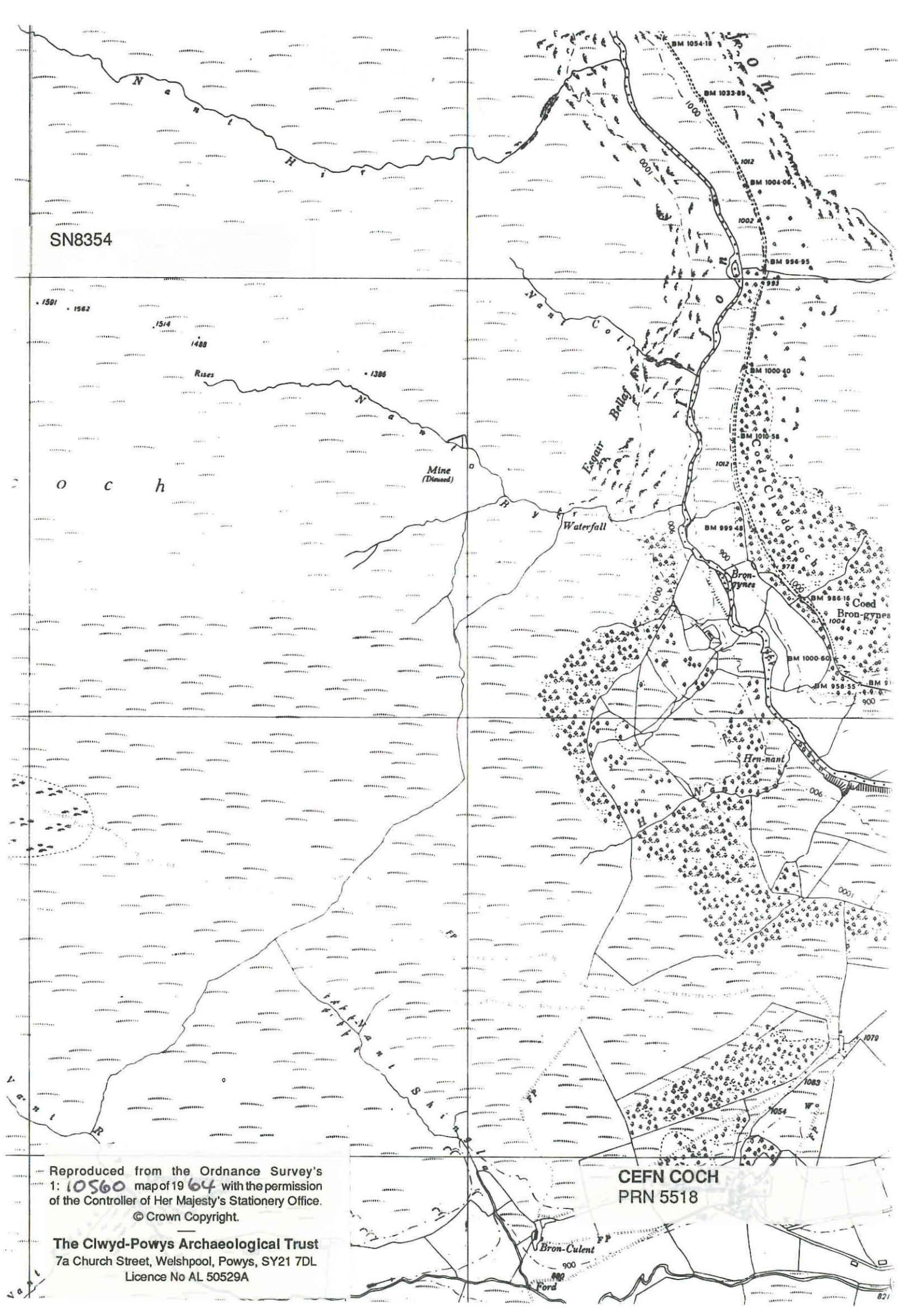
CALCOT
PRN 18980



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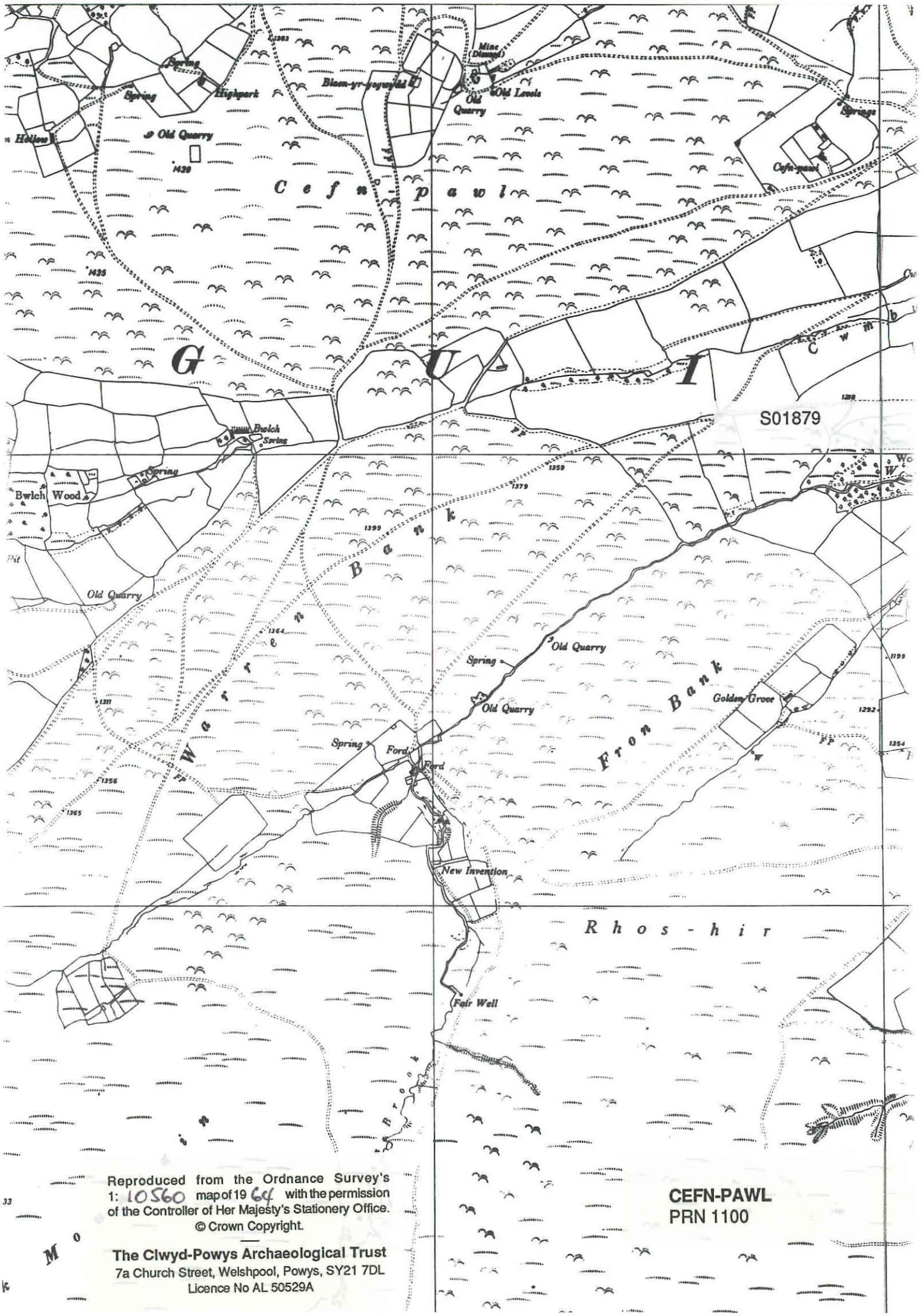

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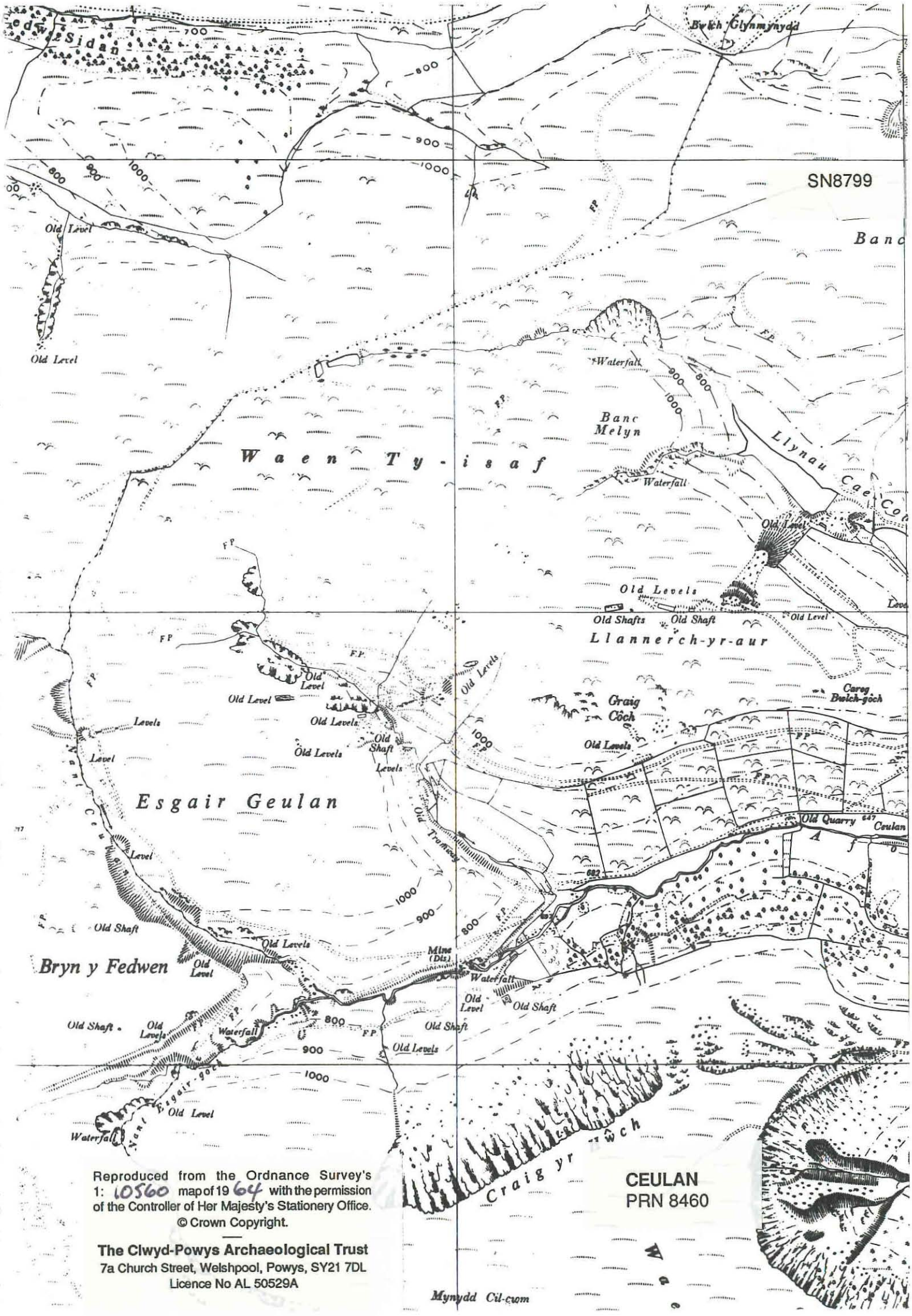
CEFN-PAWL
PRN 1100



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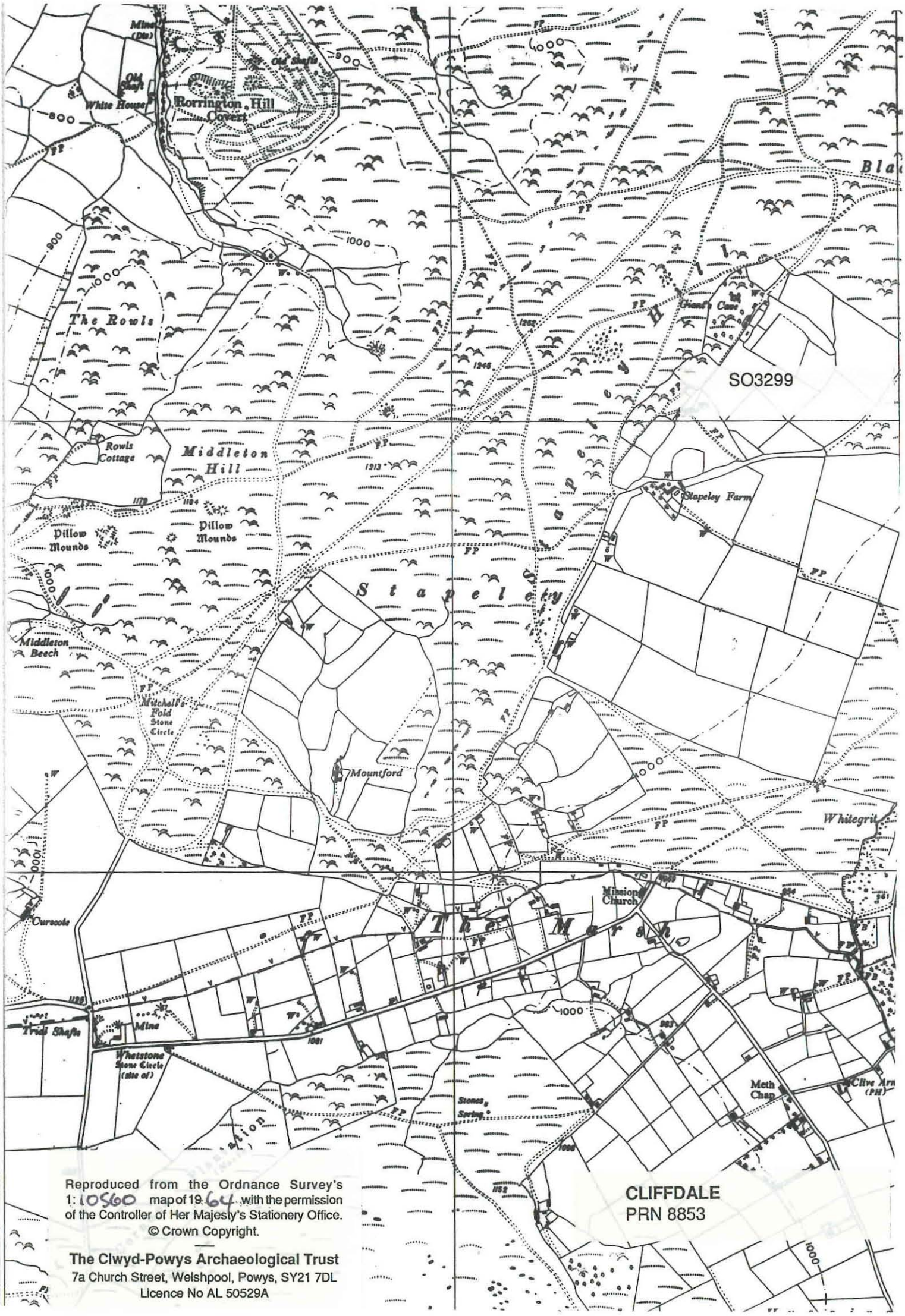

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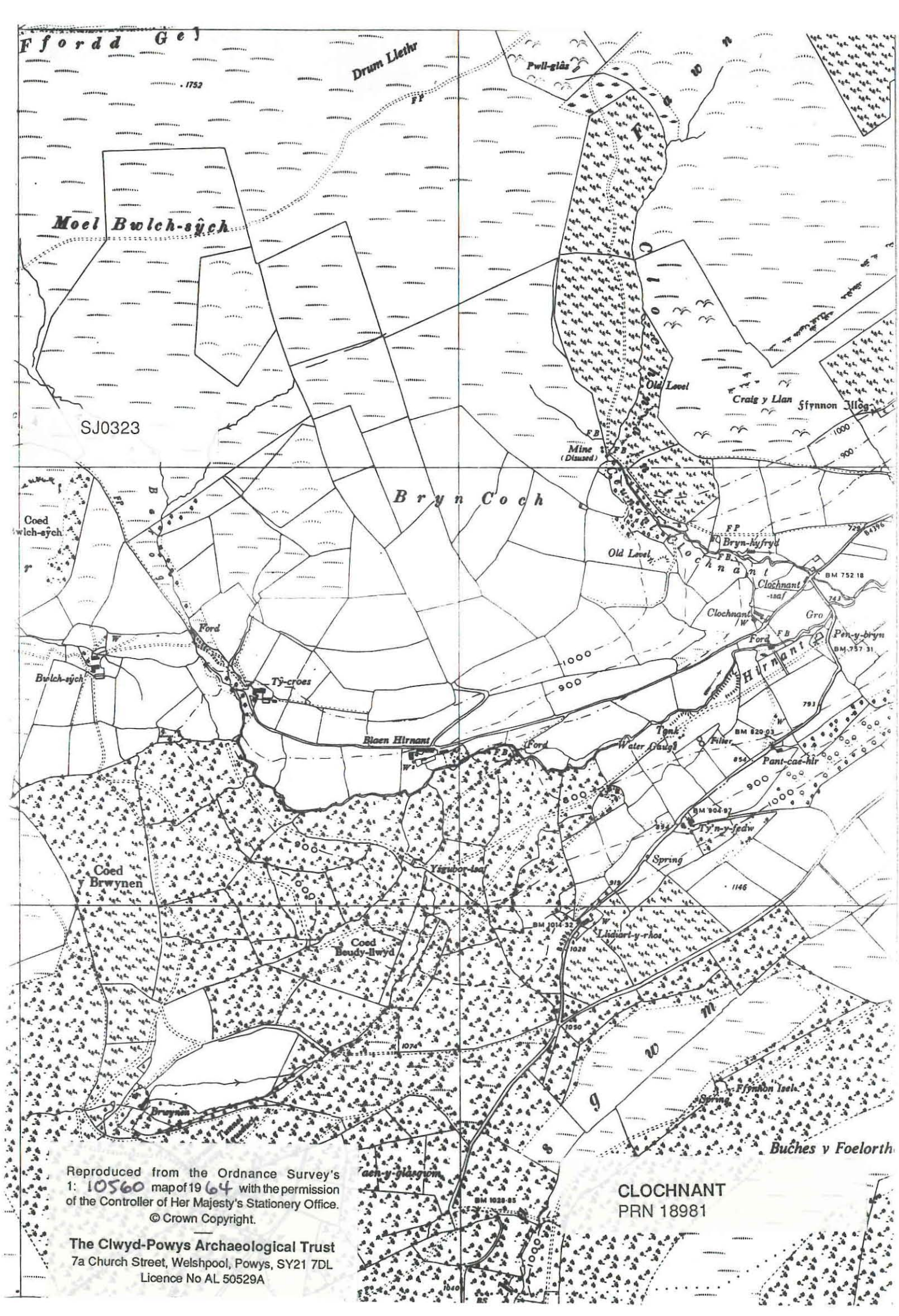

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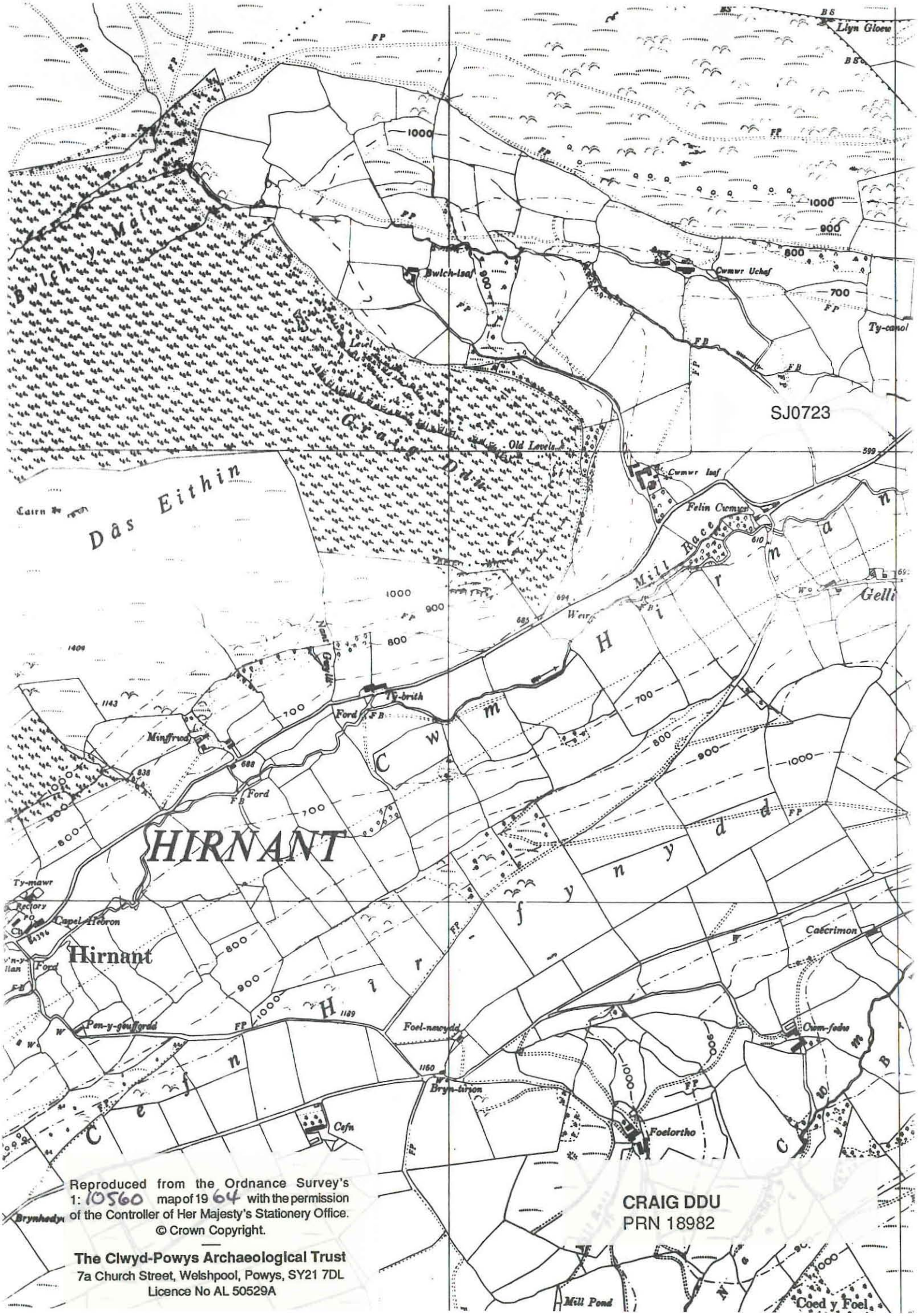
CLOCHNANT
PRN 18981



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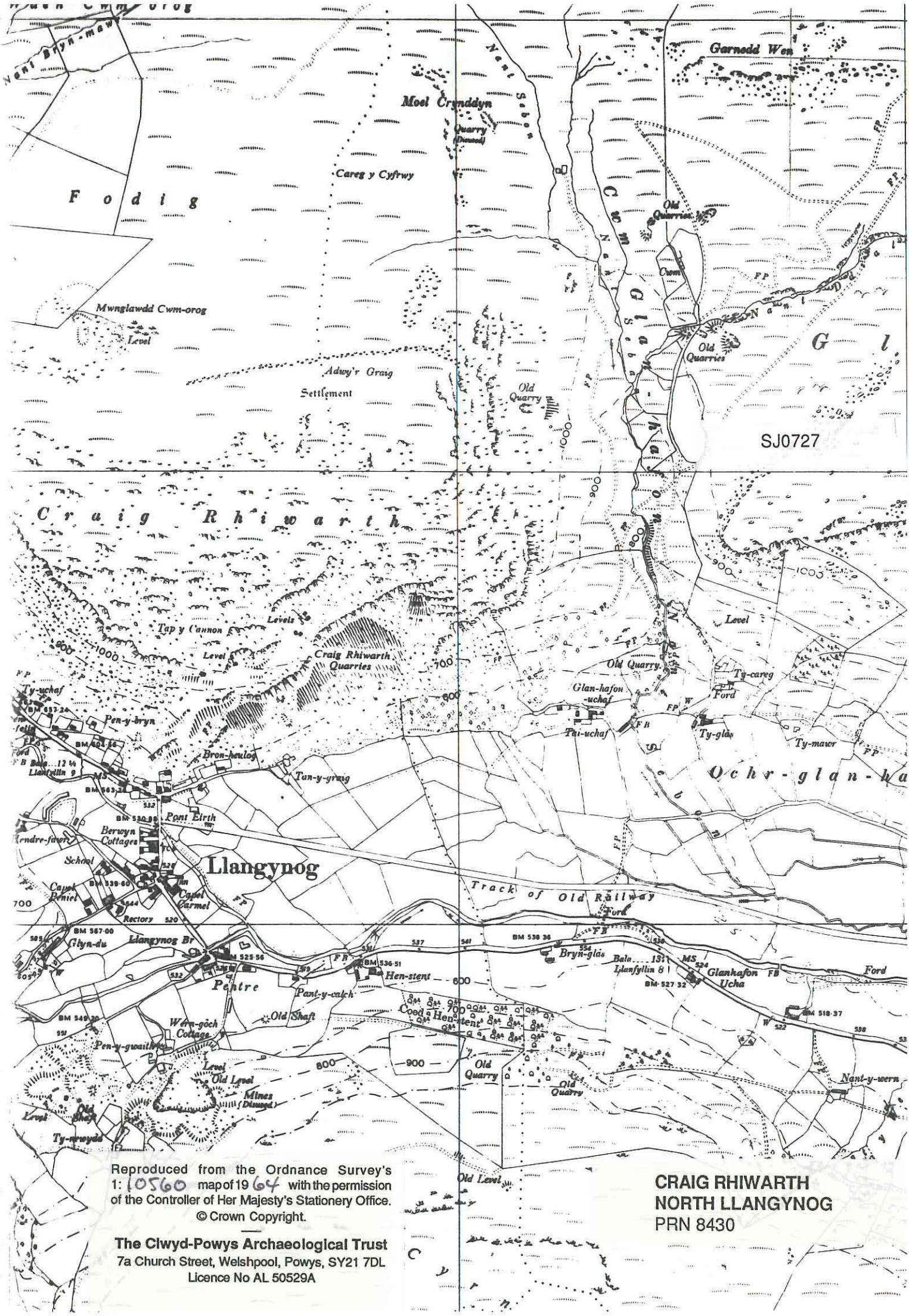

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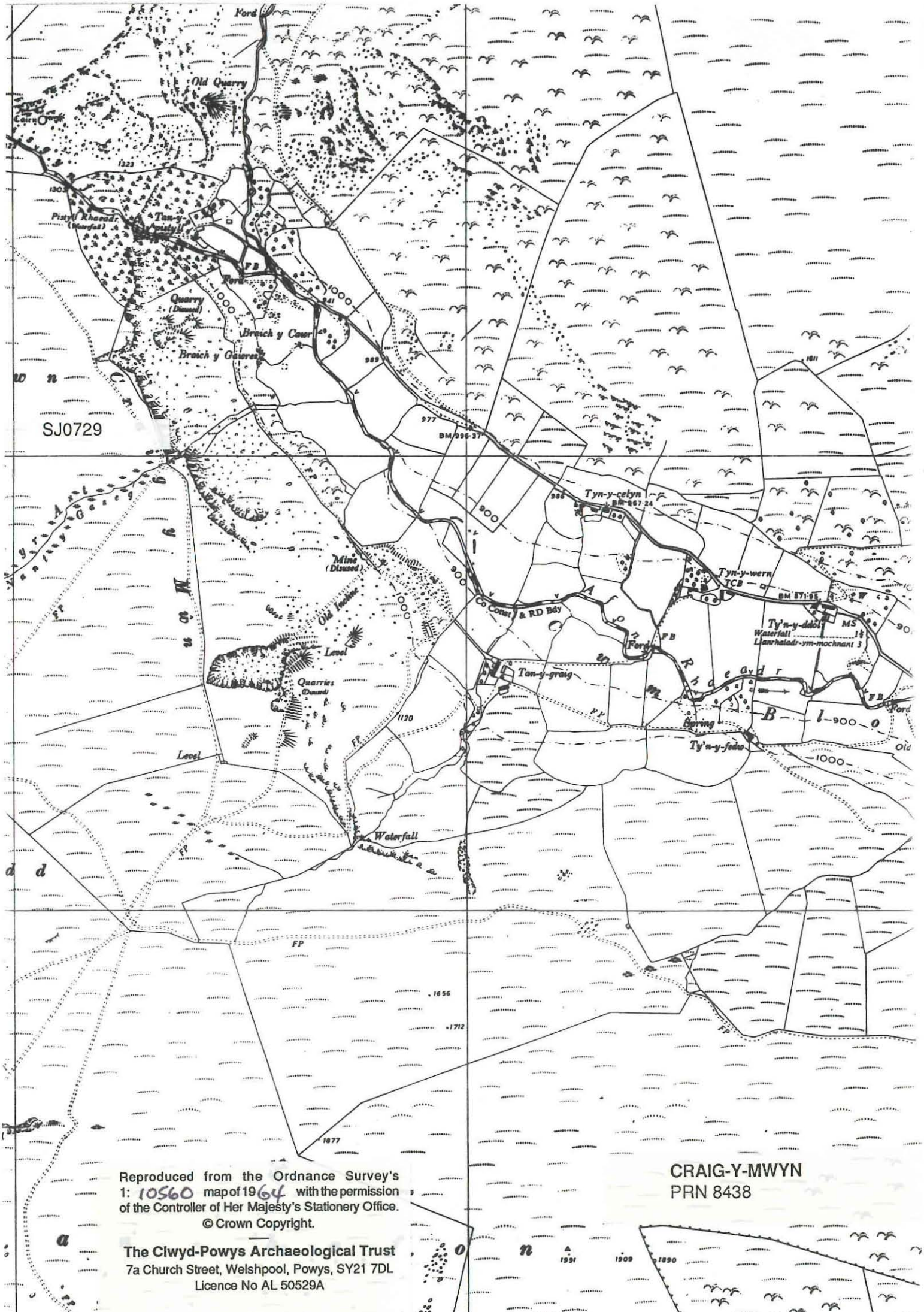
CRAIG RHIWARTH
NORTH LLANGYNOG
PRN 8430



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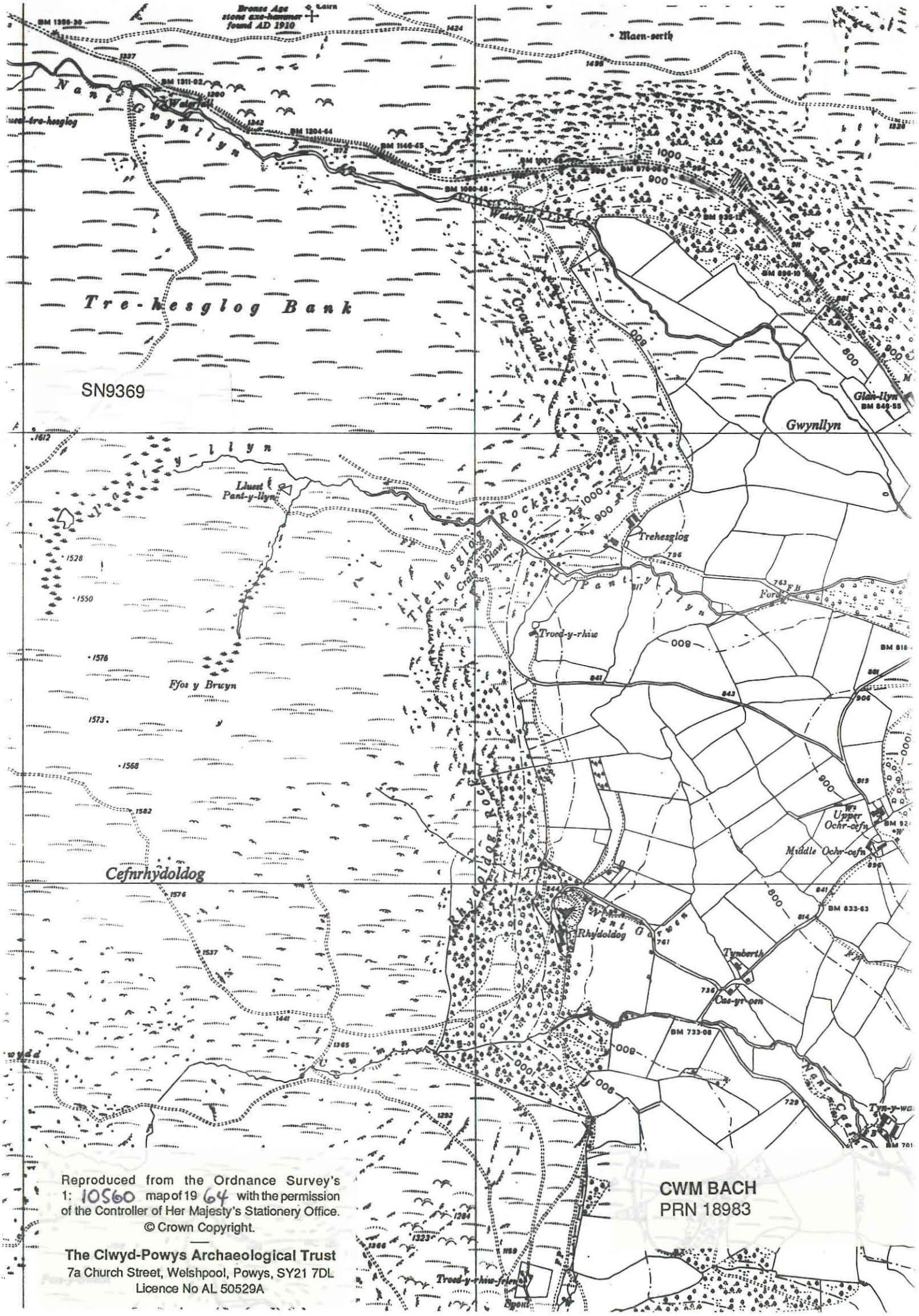

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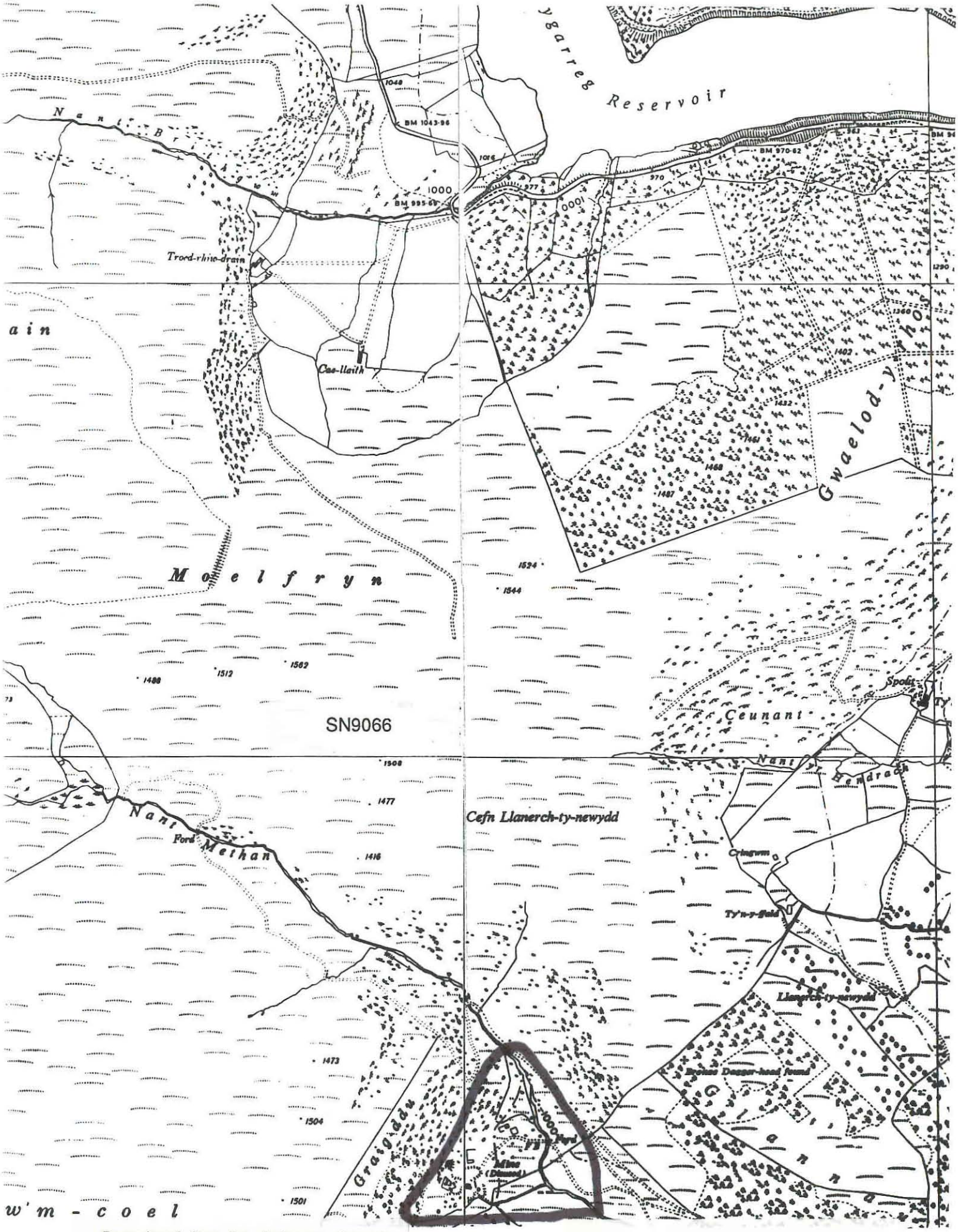

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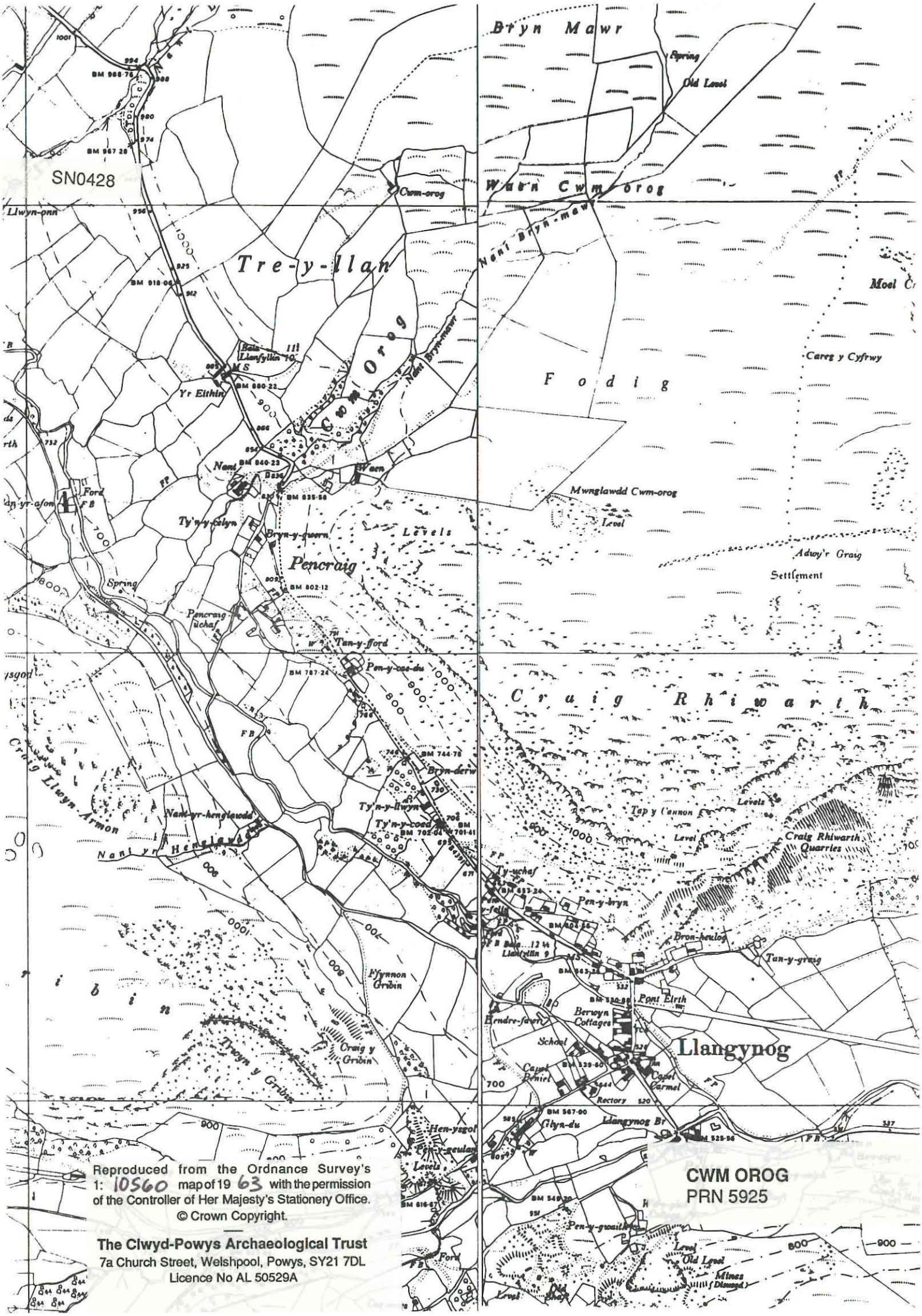
CWM ELAN
PRN 5945



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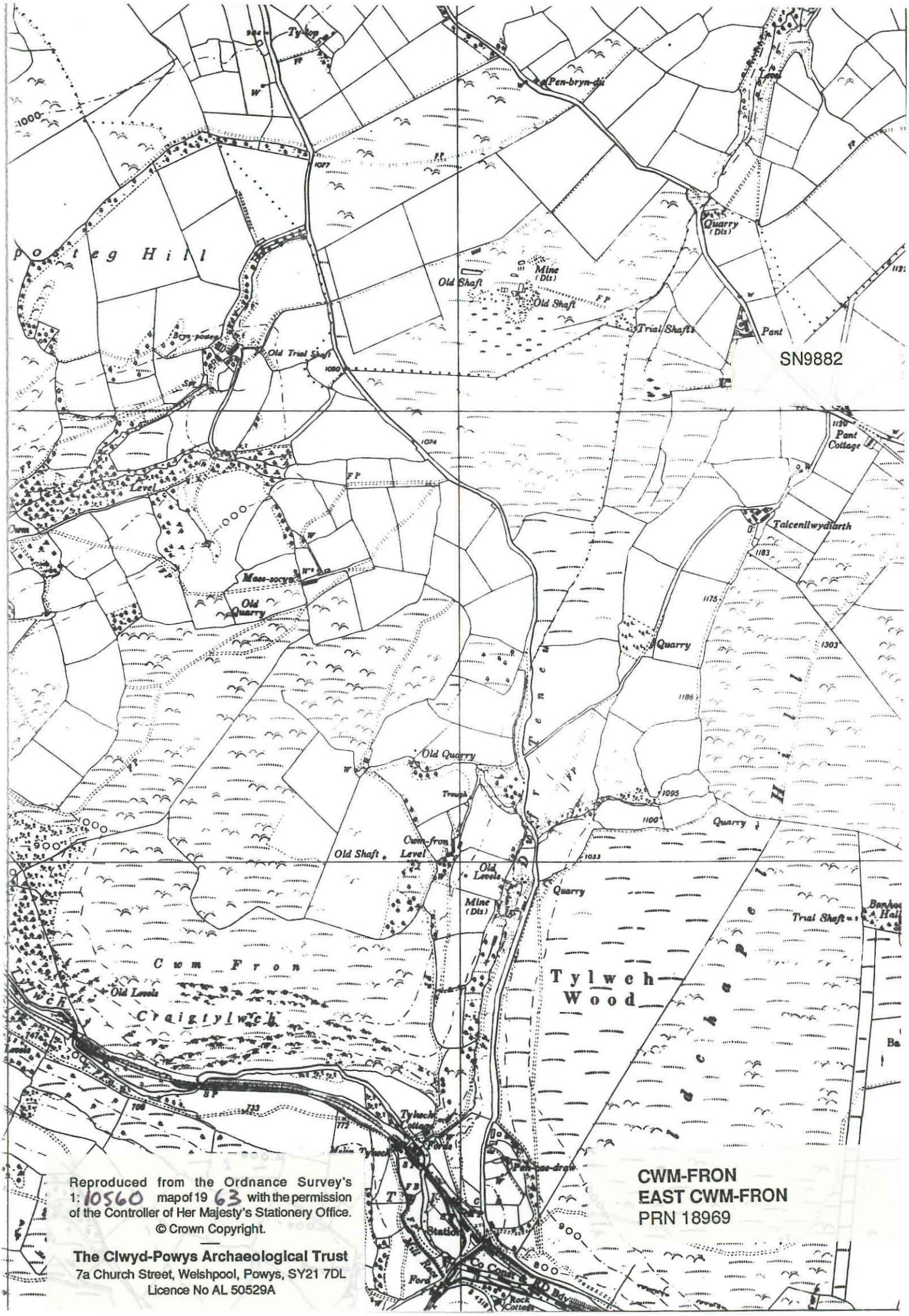
CWM OROG
PRN 5925



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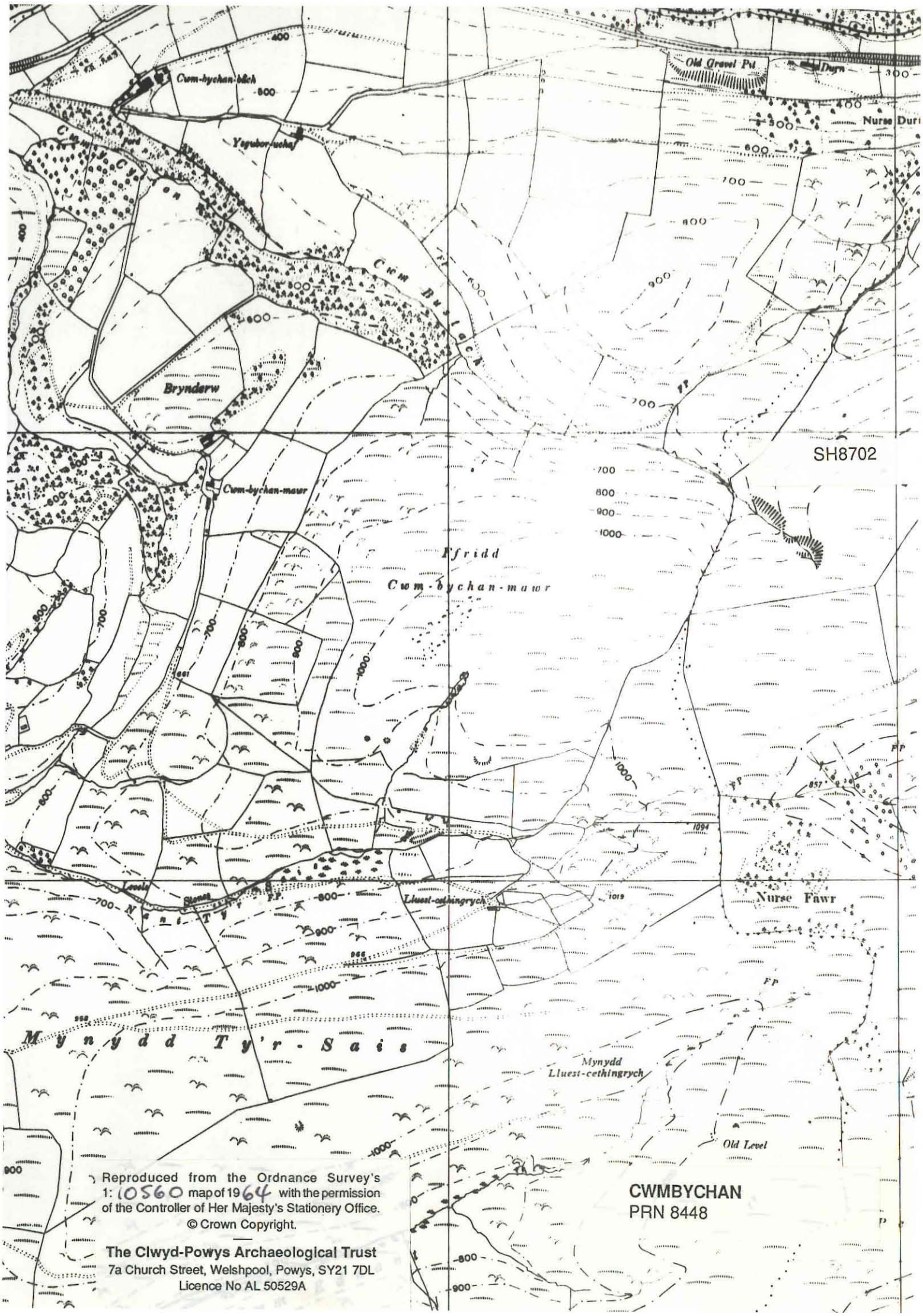
CWM-FRON
EAST CWM-FRON
PRN 18969



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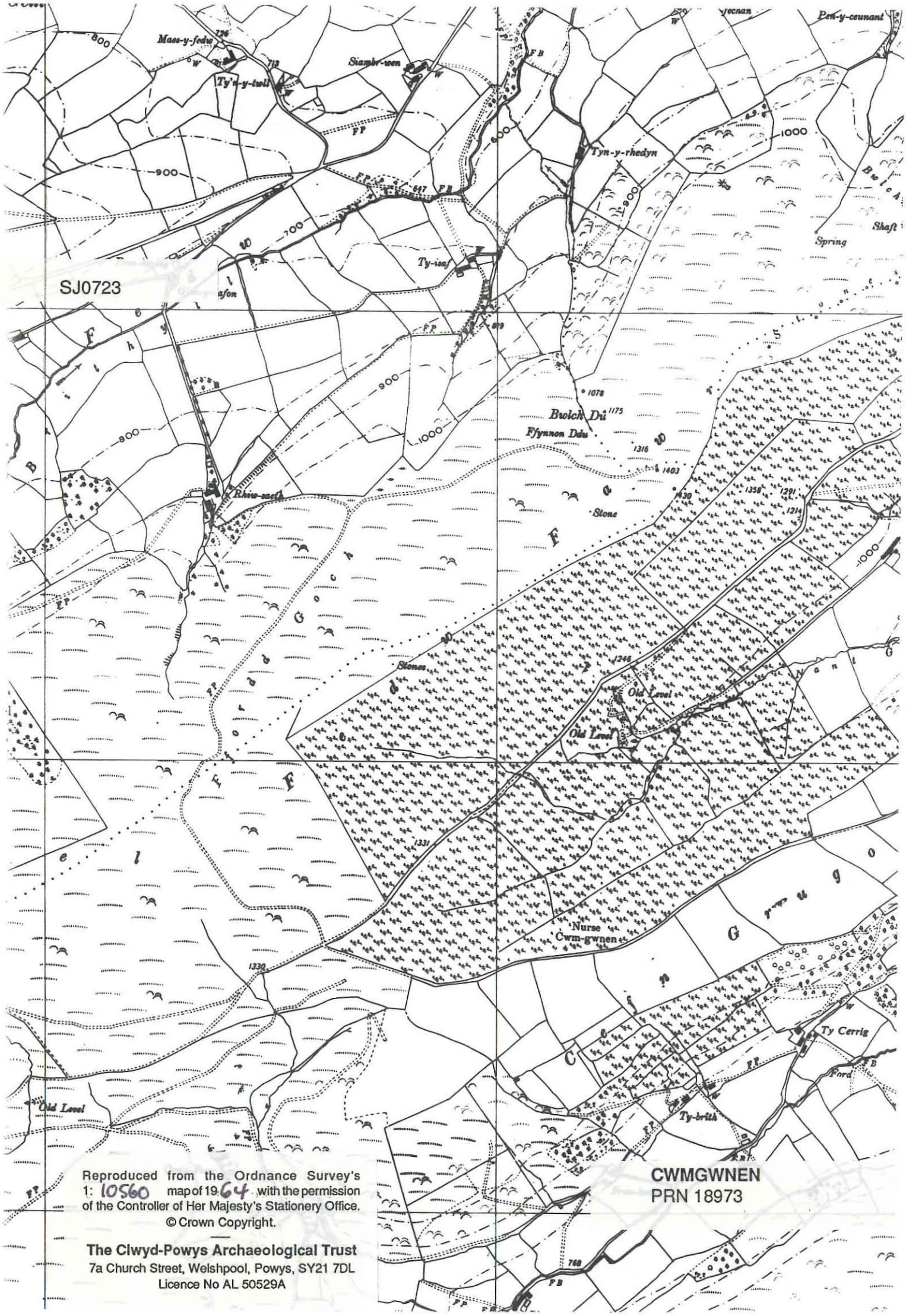

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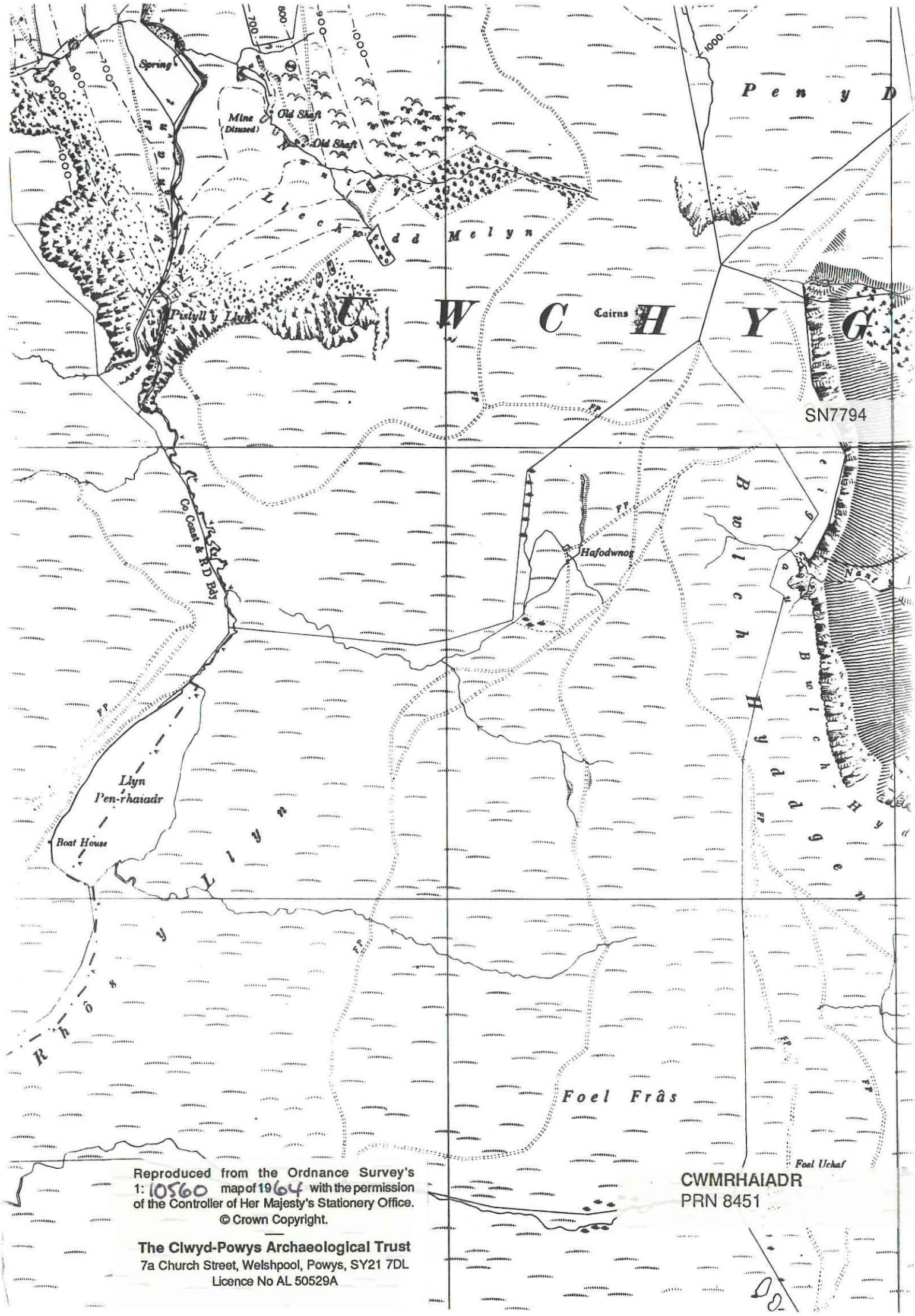

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PRN 8451

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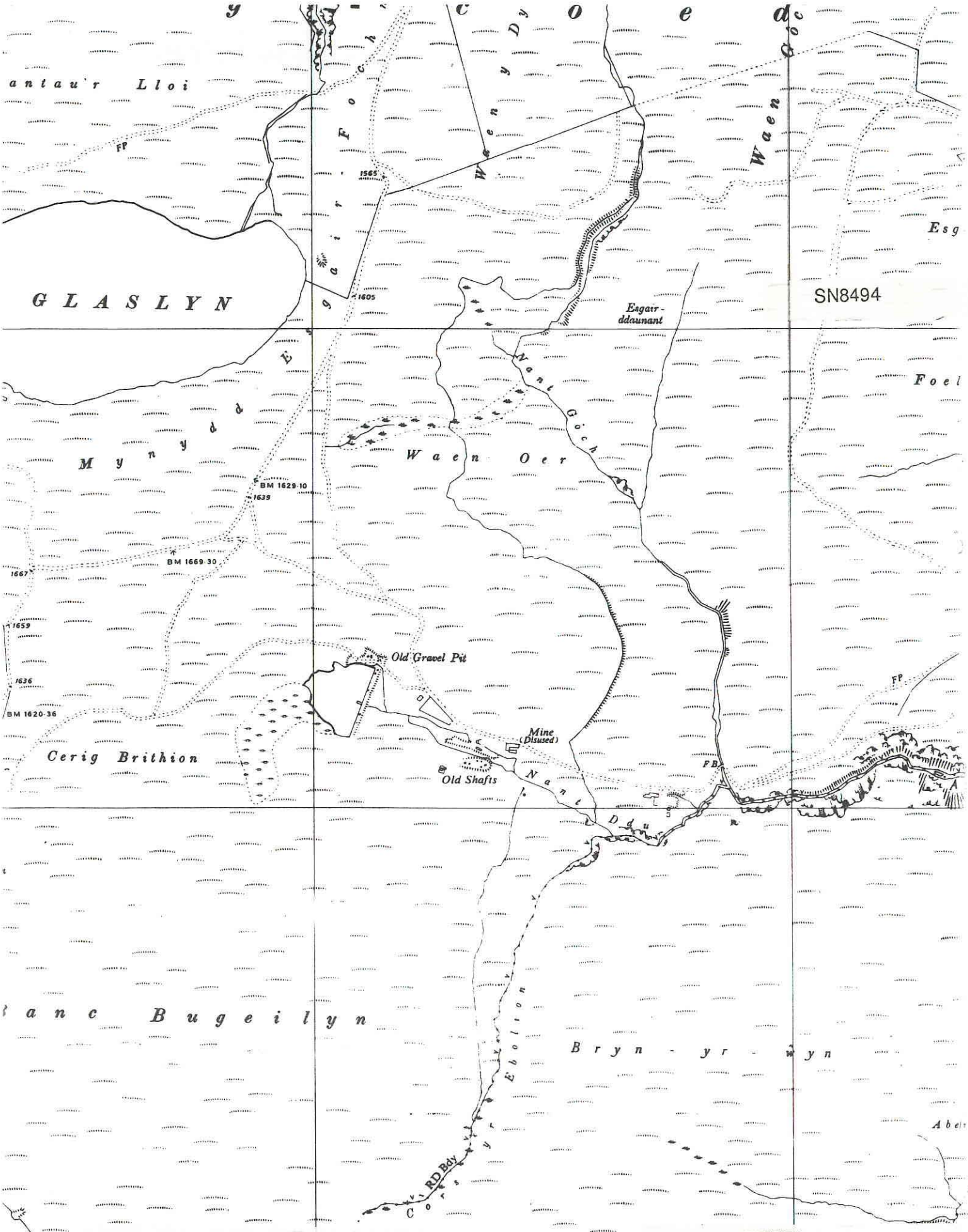

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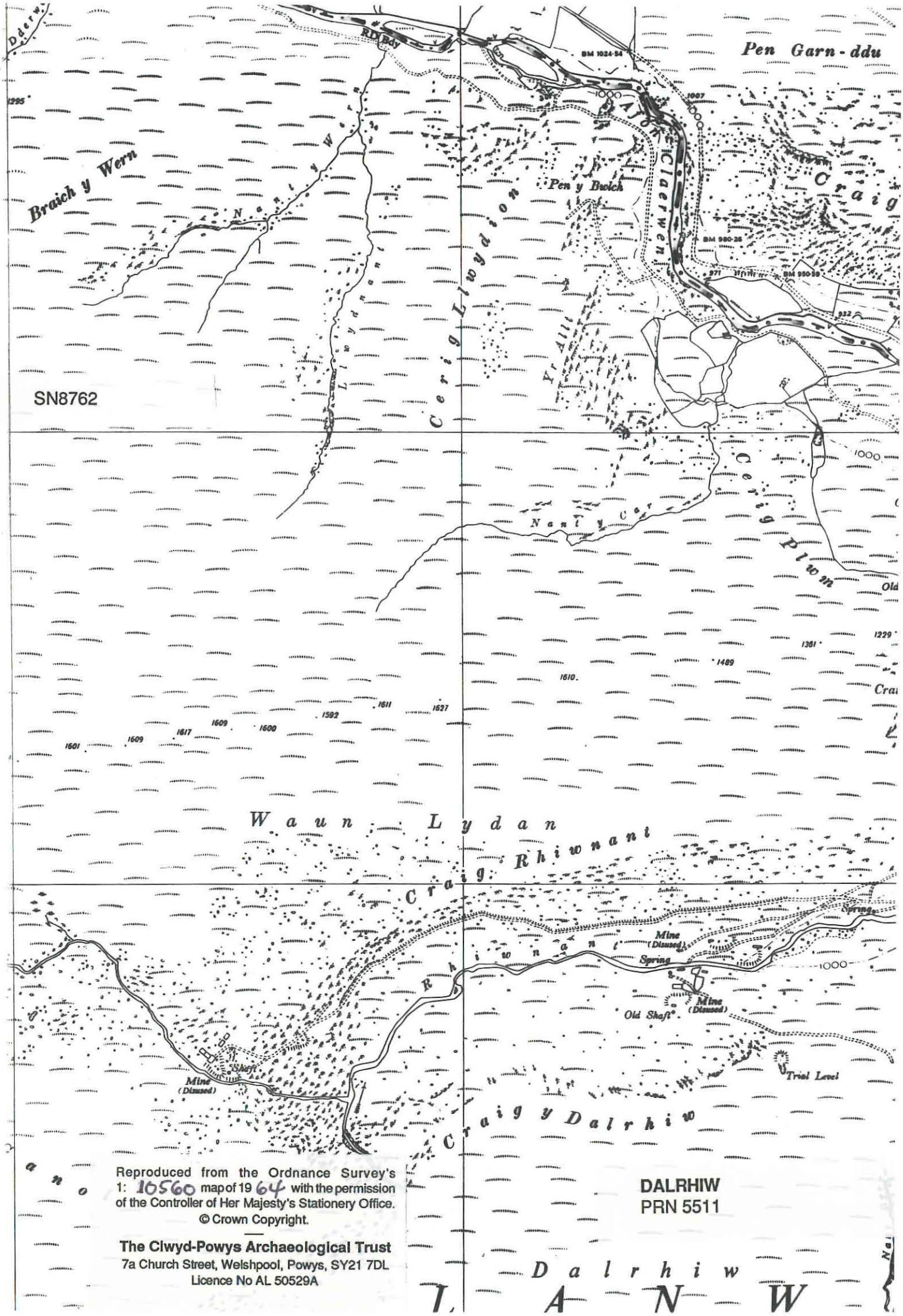
CYFARTHFA
NANT DDU
PRN 8497



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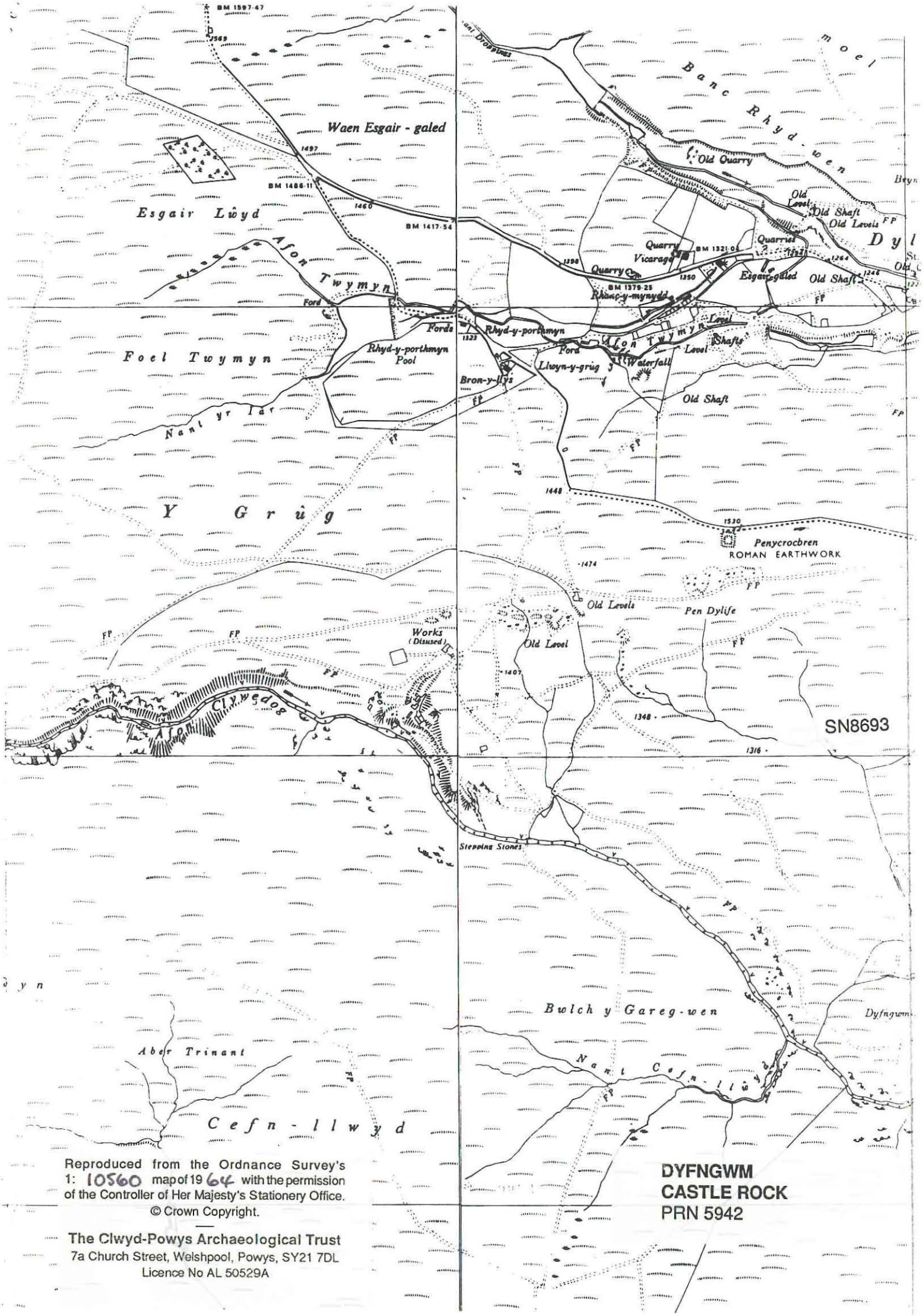
DALRHIW
PRN 5511



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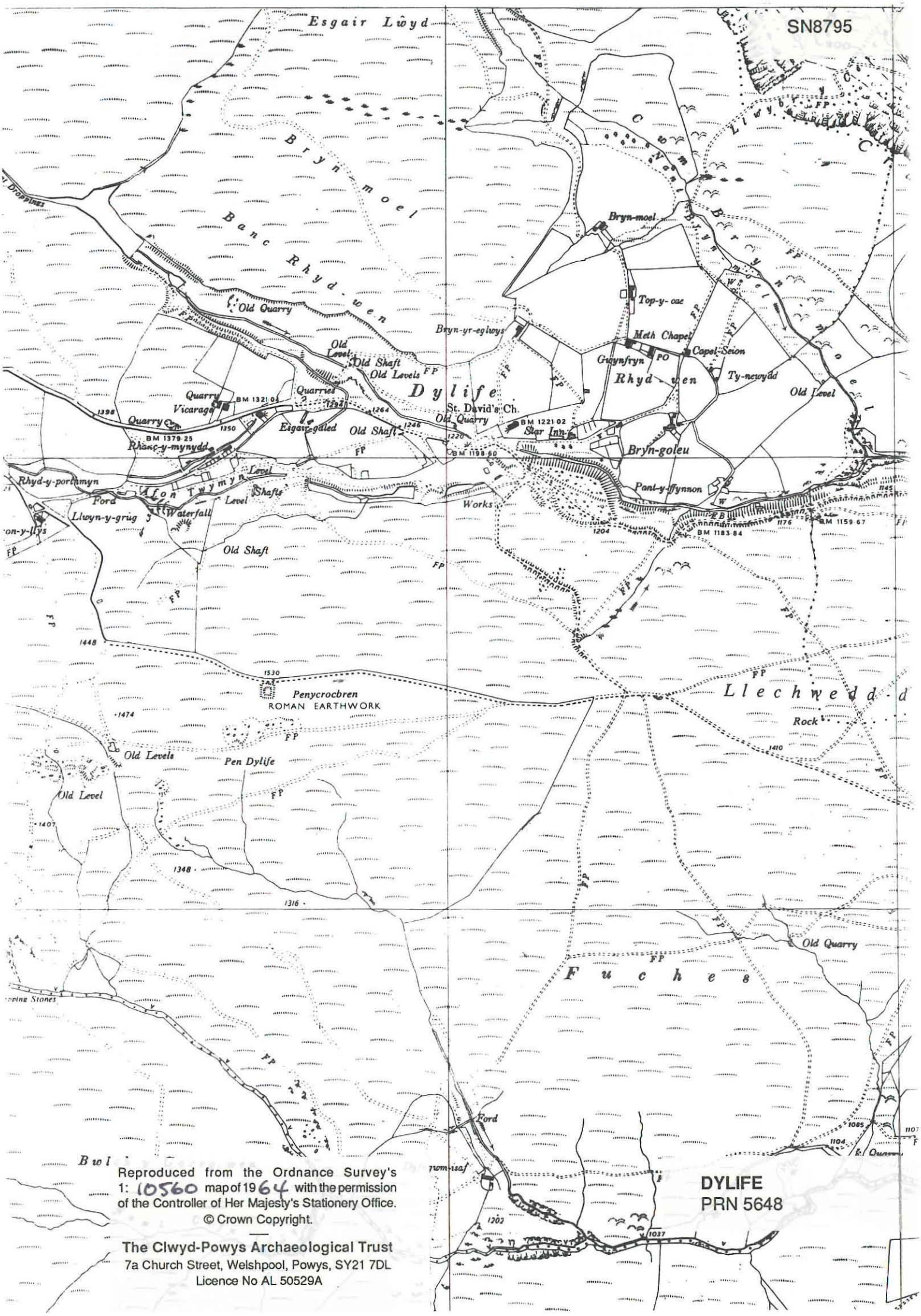
DYFNGWM
CASTLE ROCK
PRN 5942



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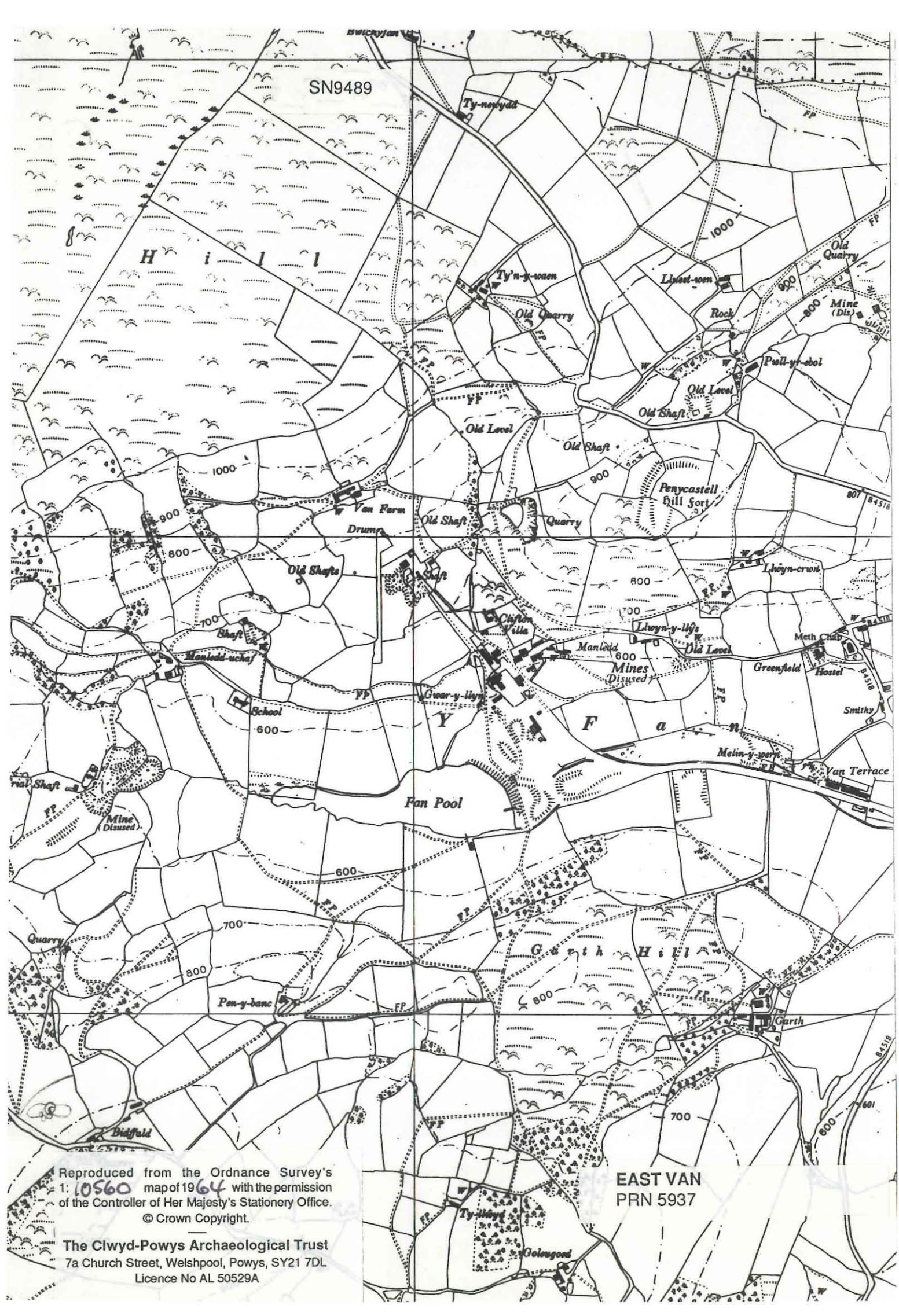
DYLIFE
PRN 5648



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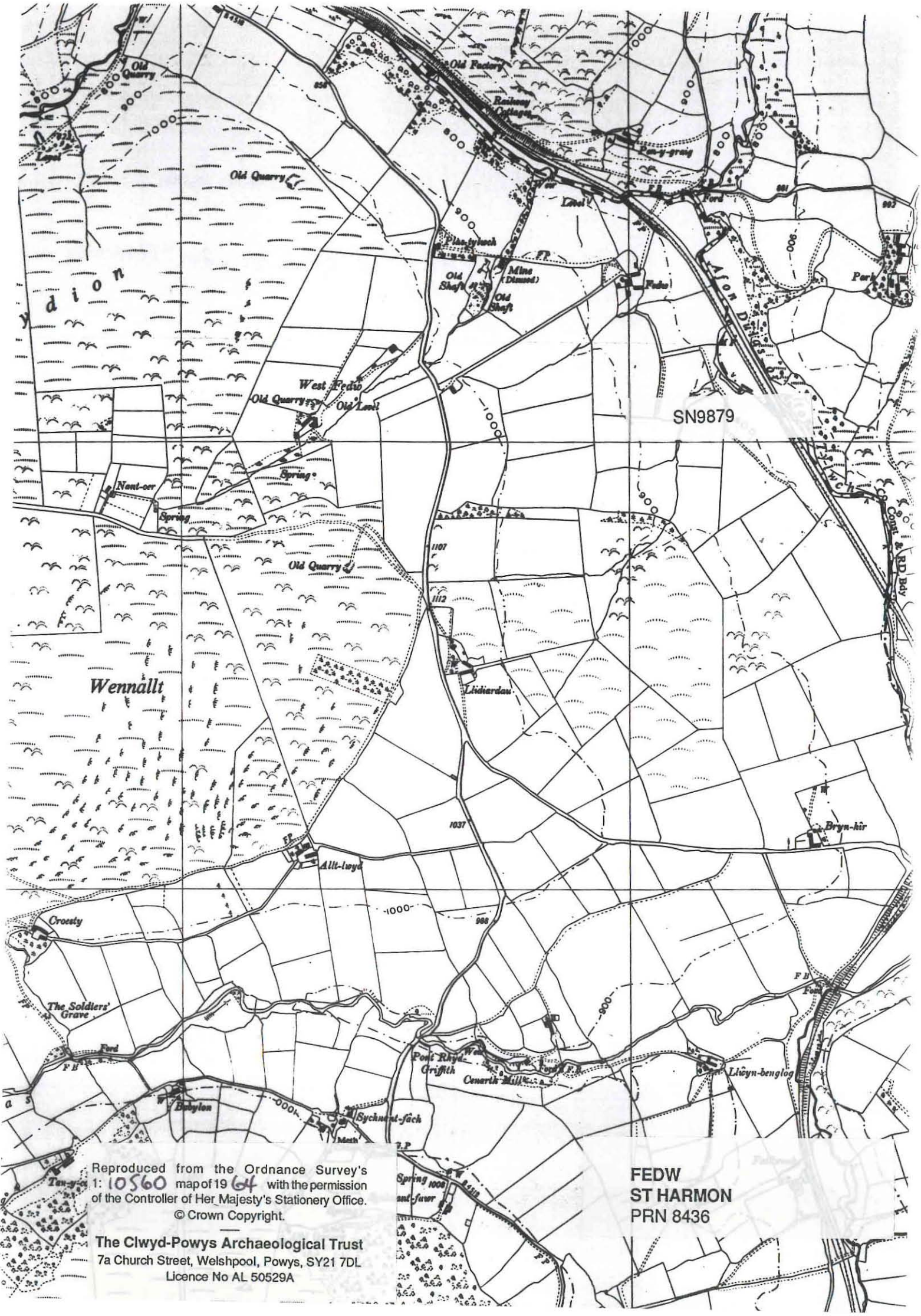

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FEDW
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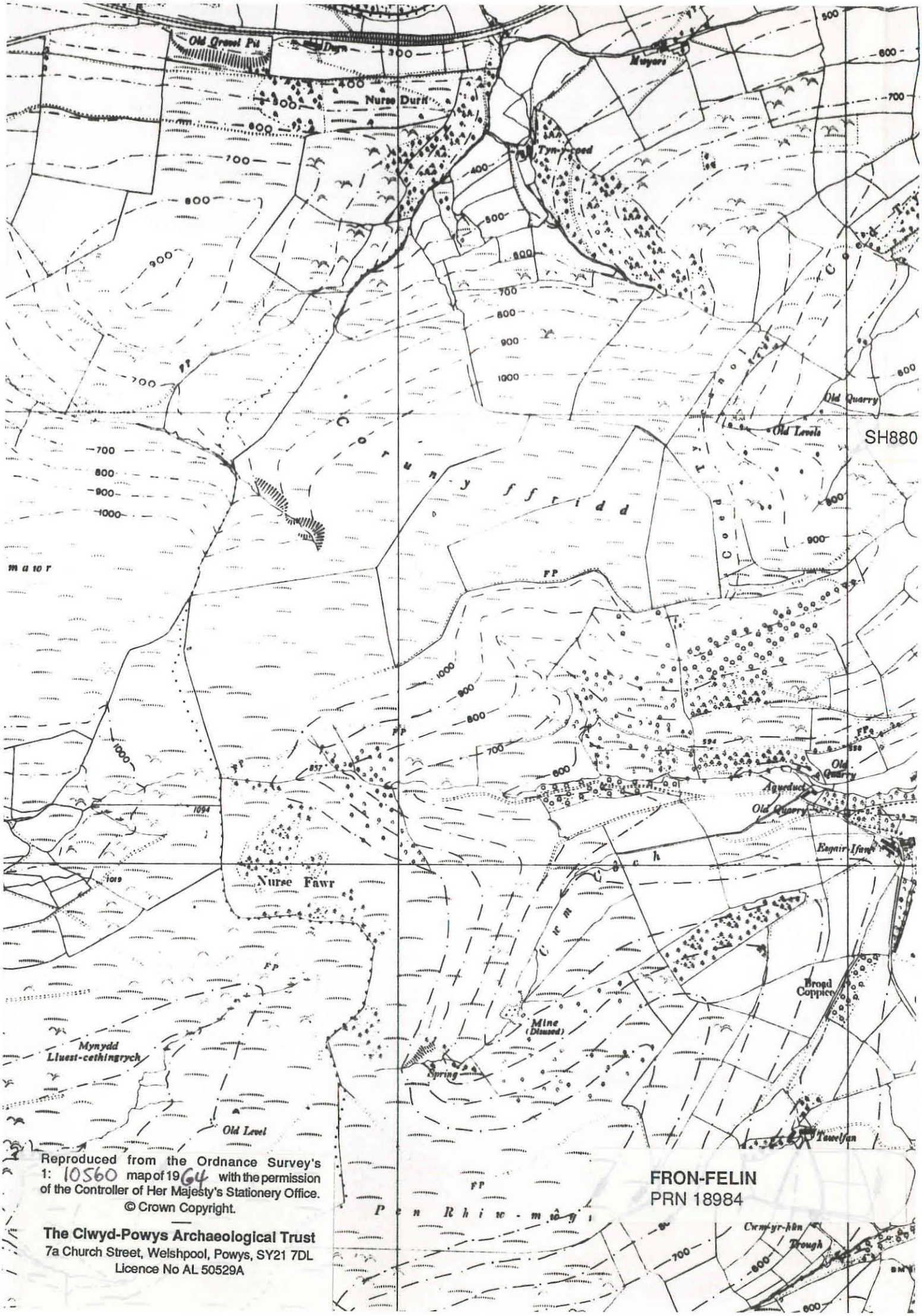

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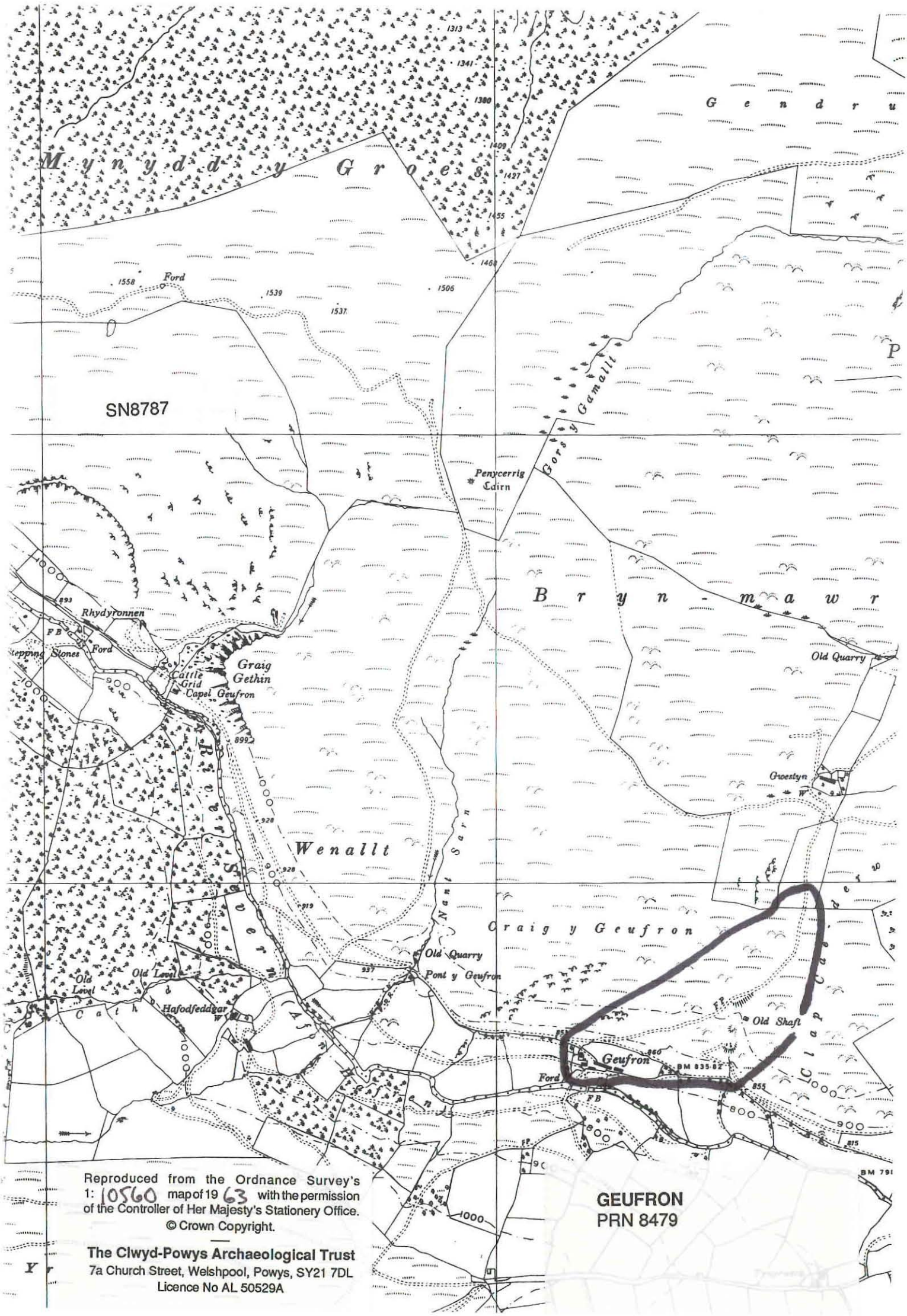

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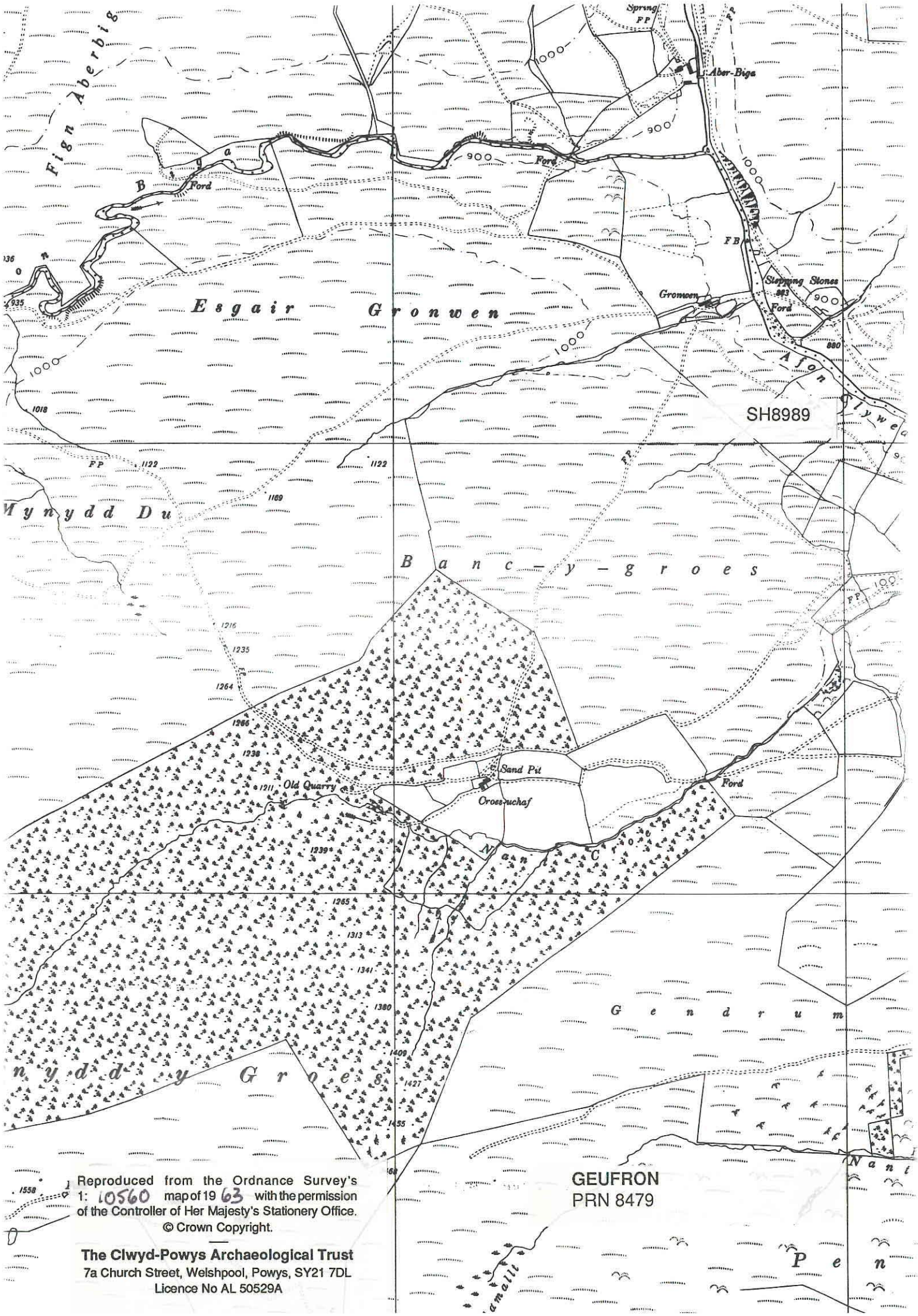

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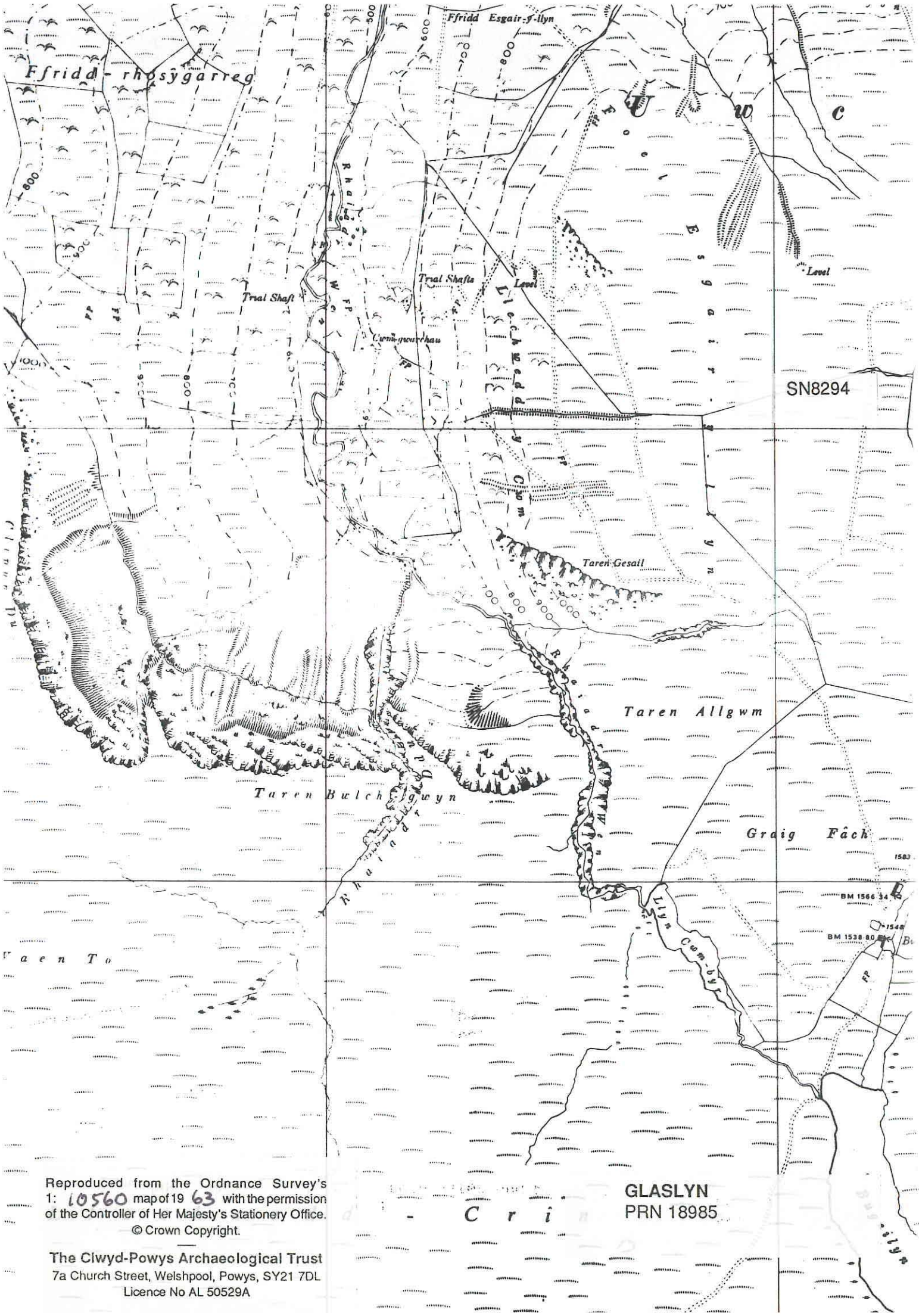

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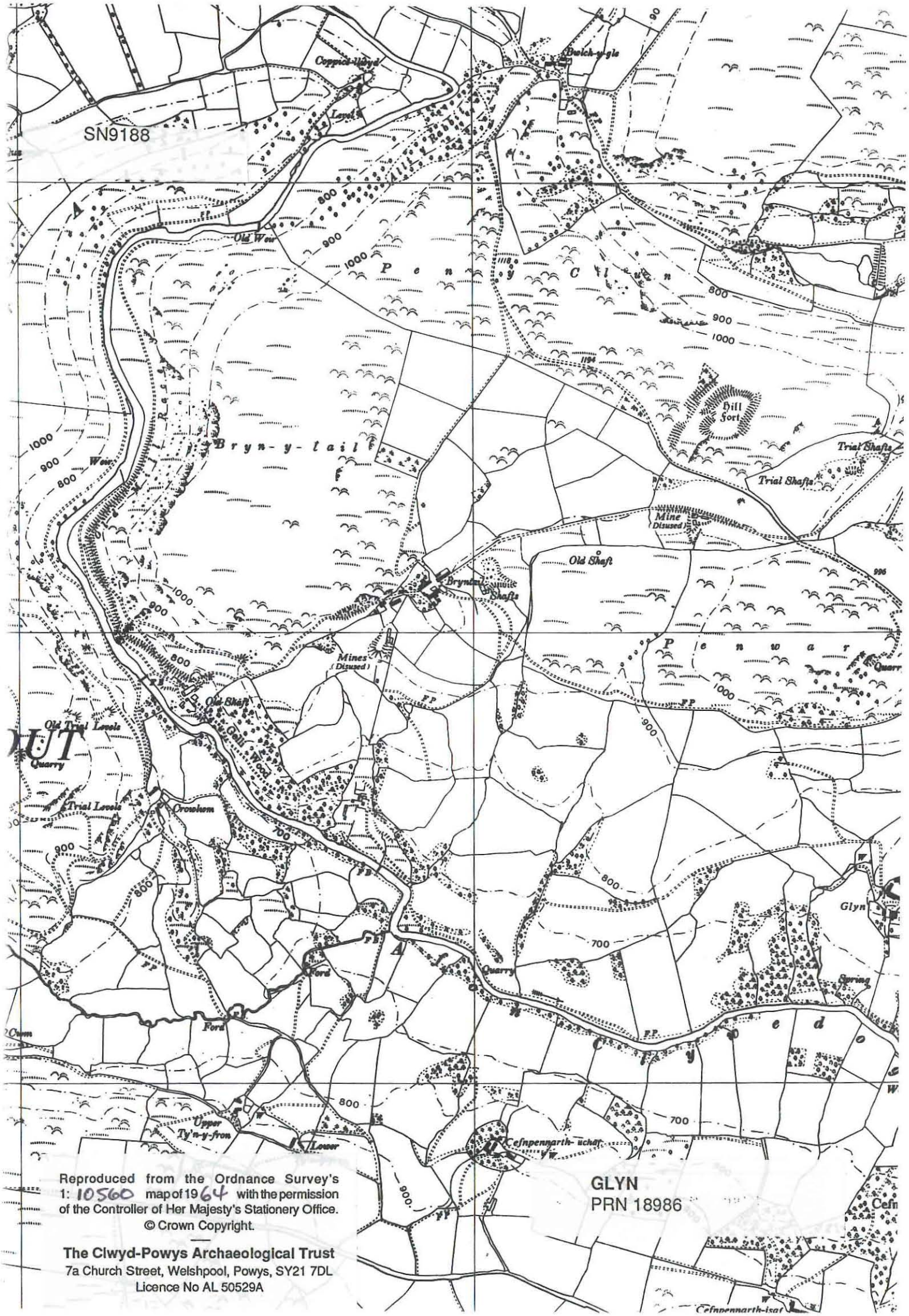

GLYN
PRN 18986

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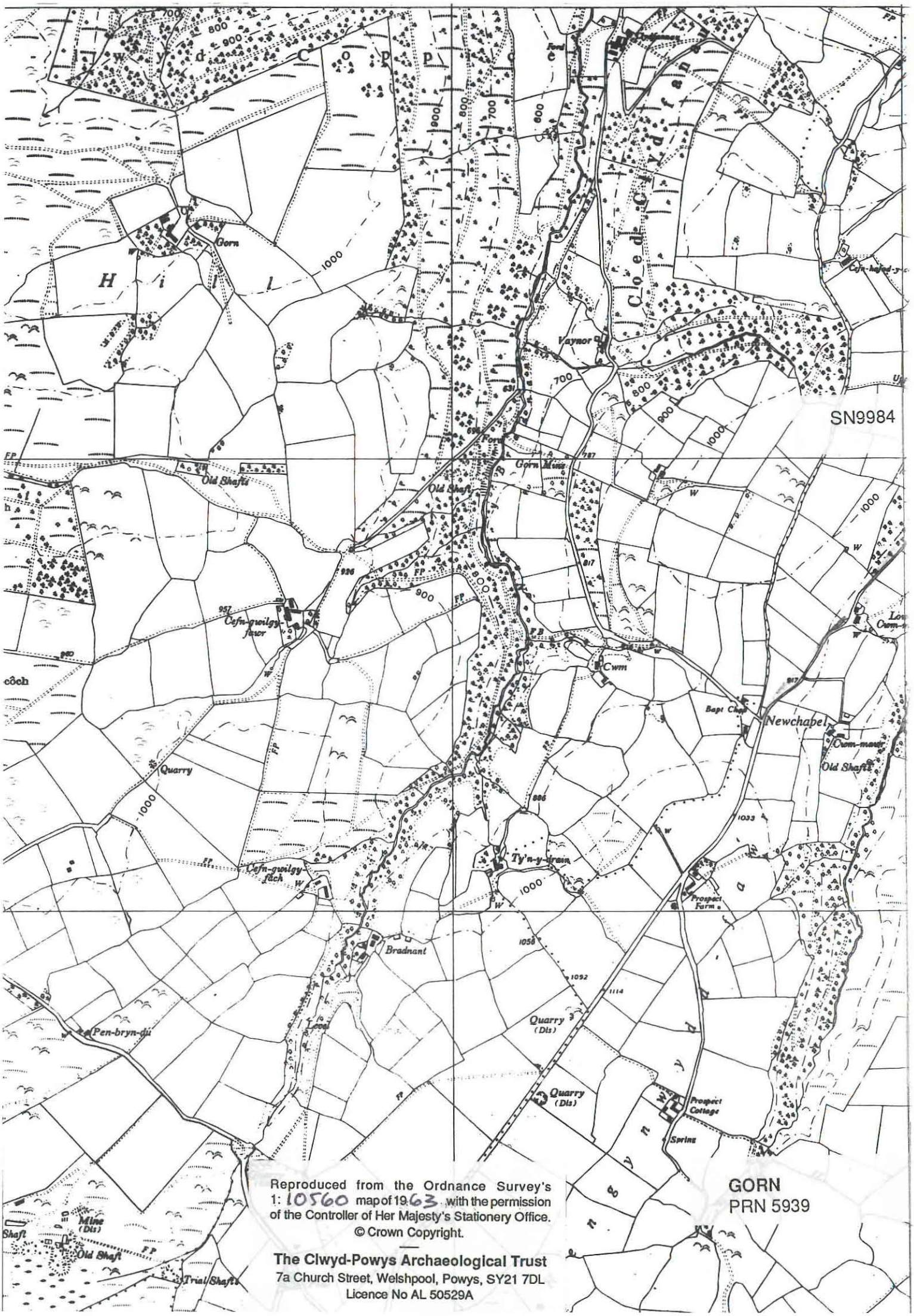

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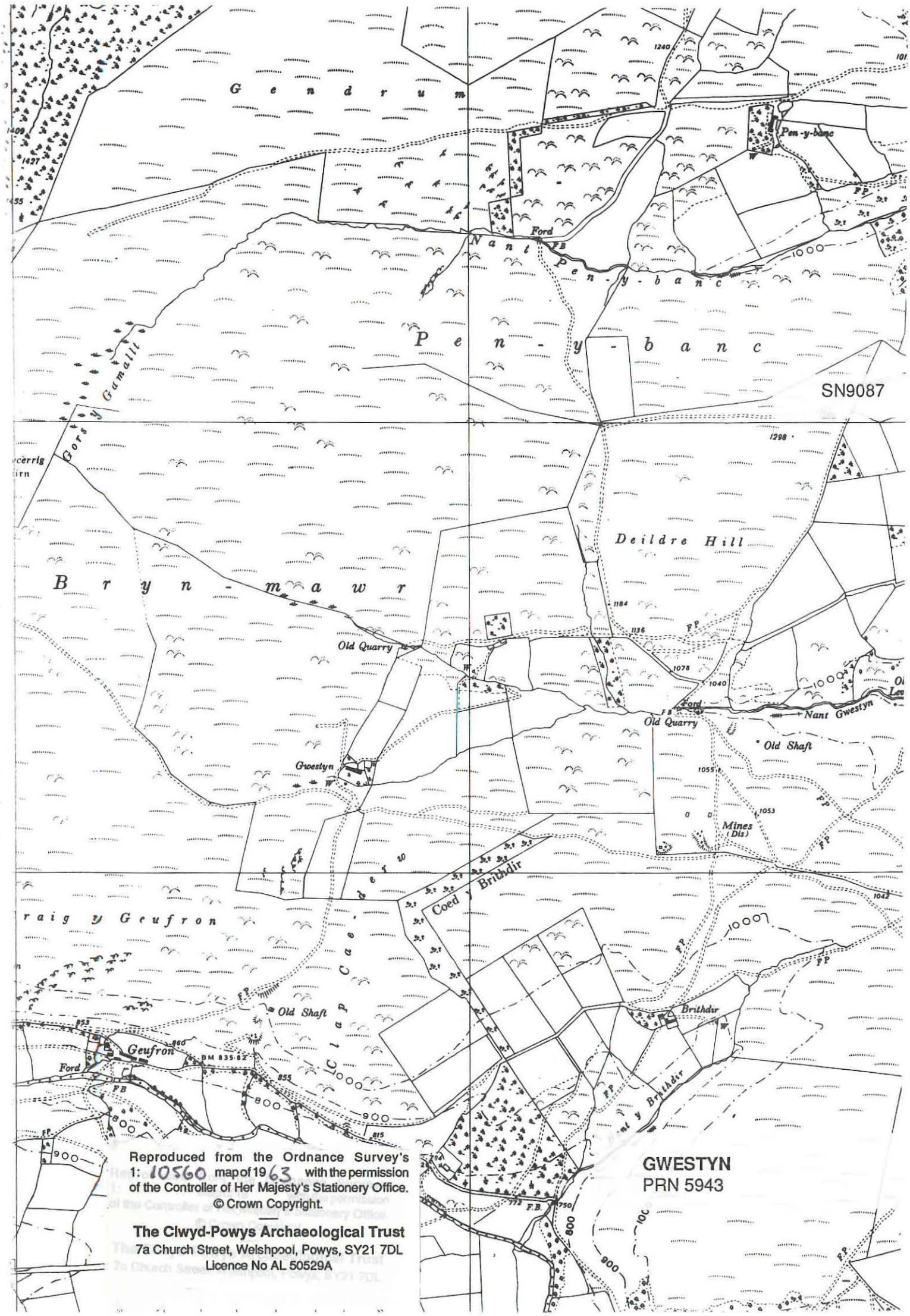

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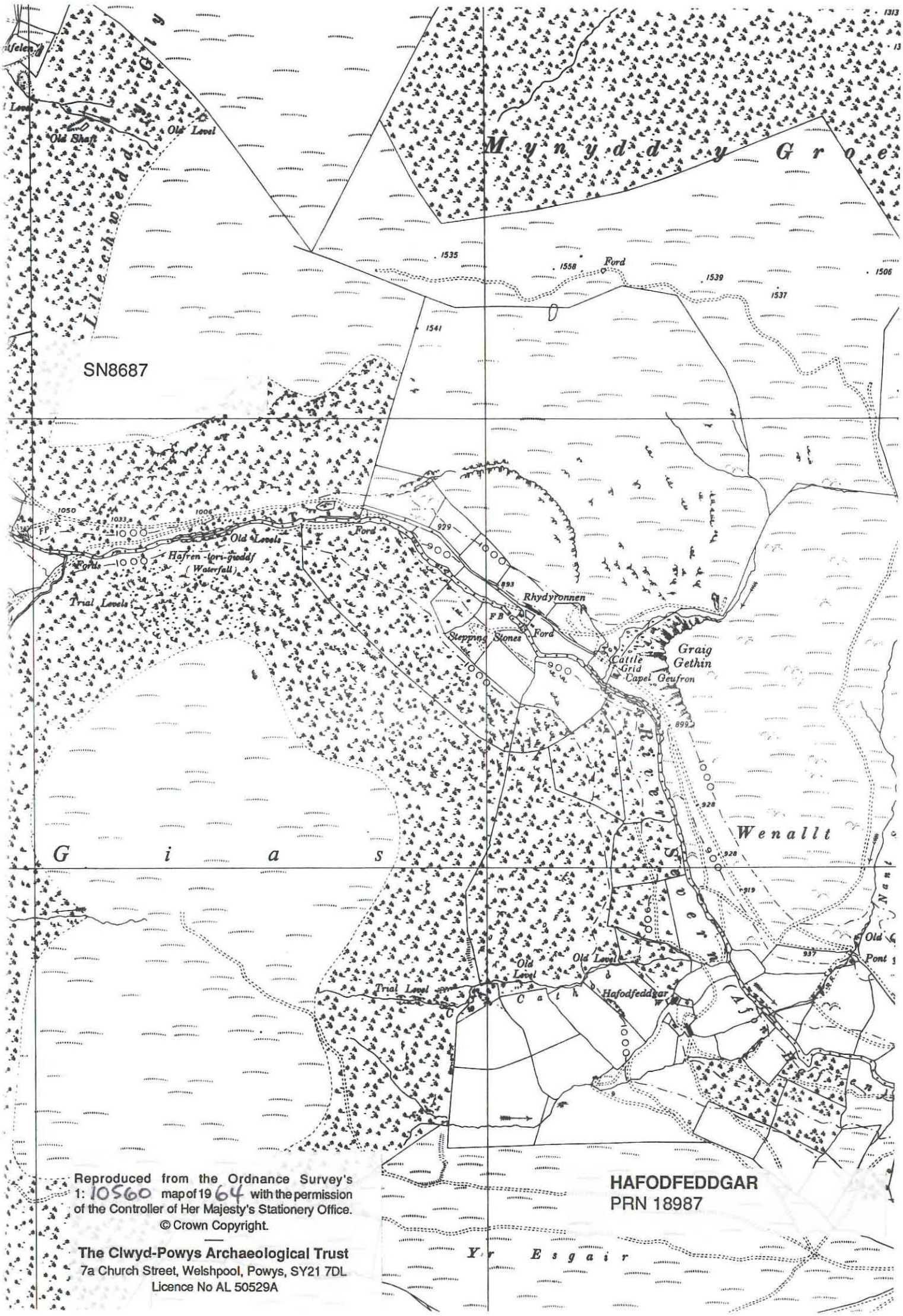

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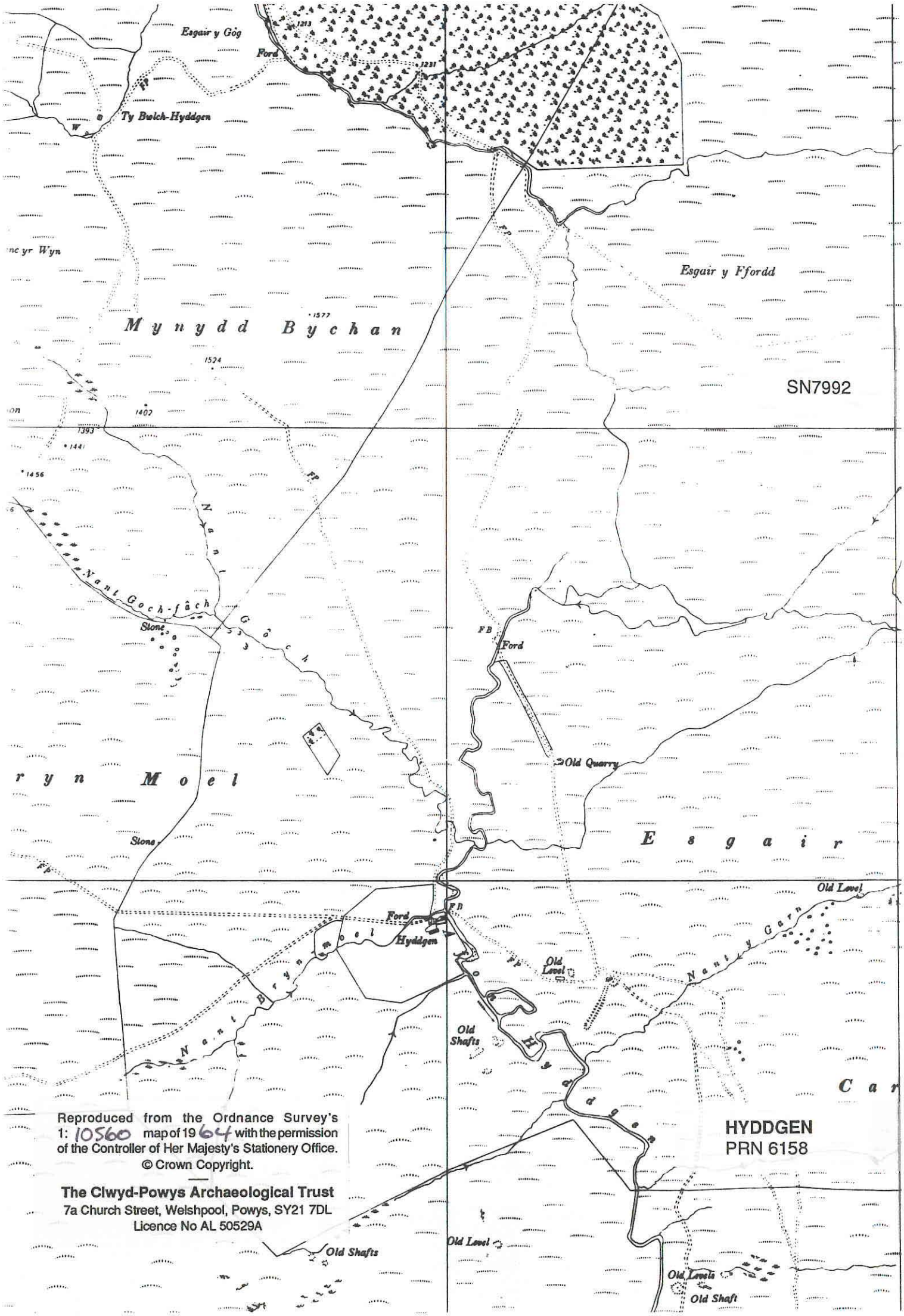
HAFODFEDDGAR
PRN 18987



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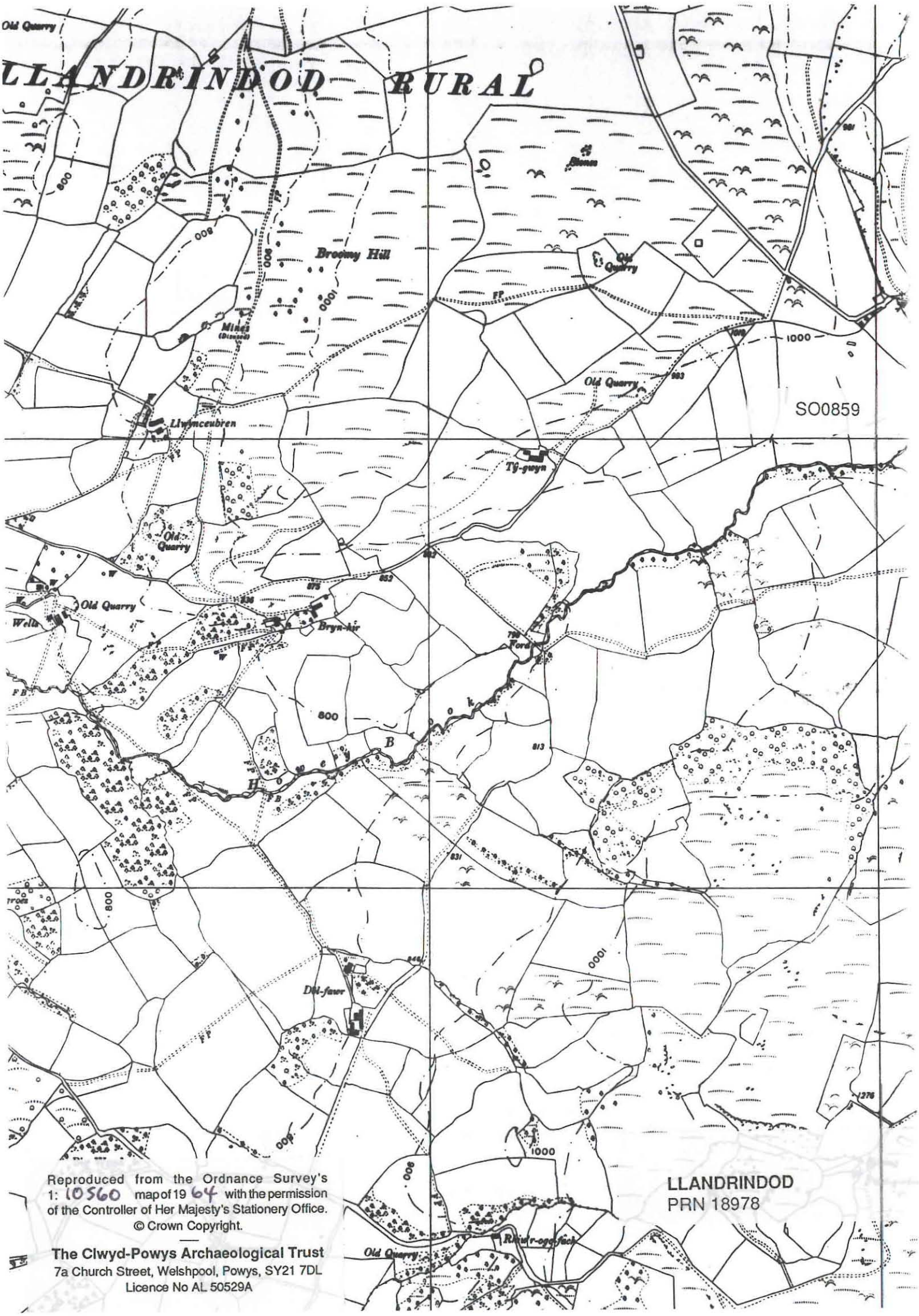

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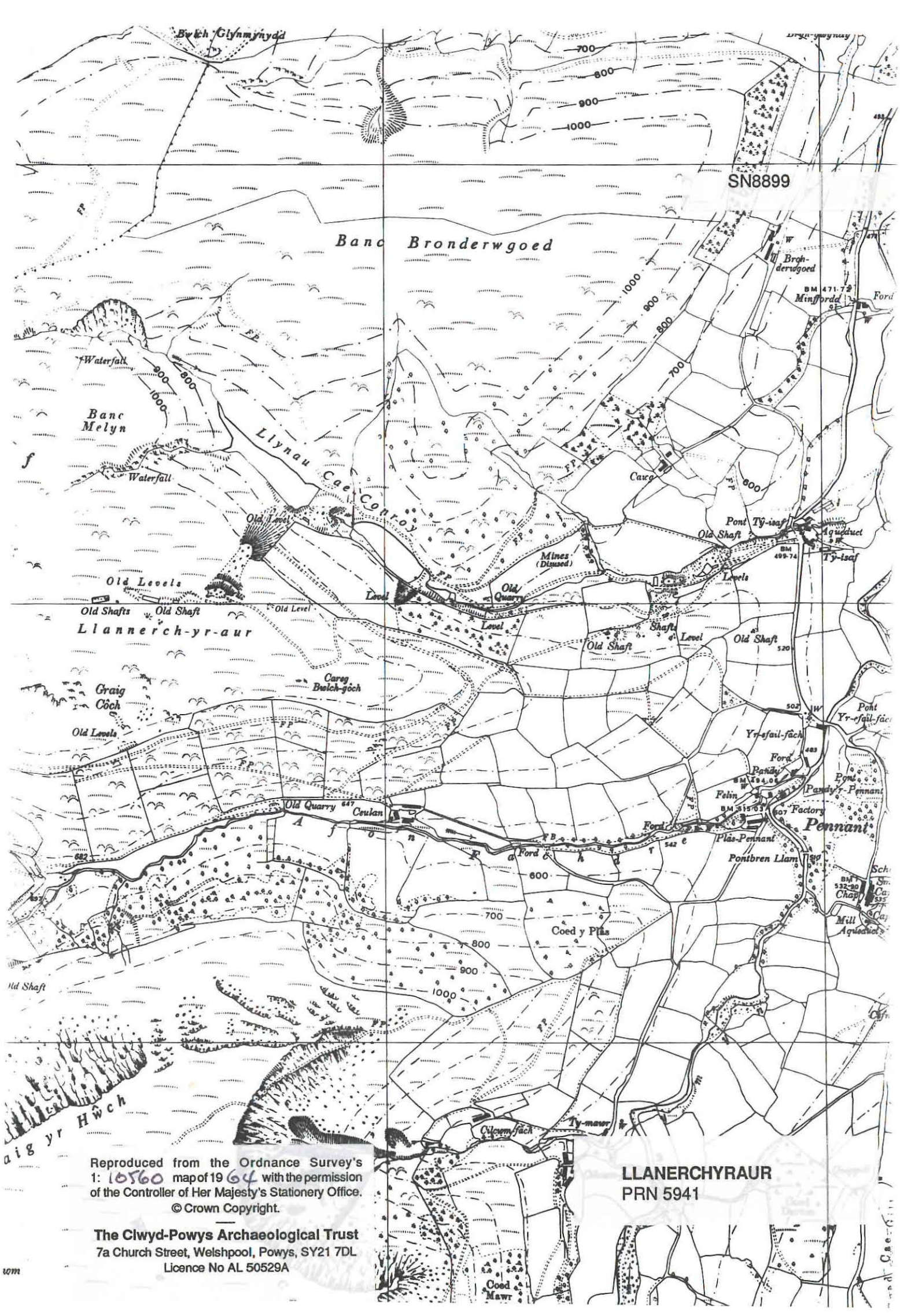

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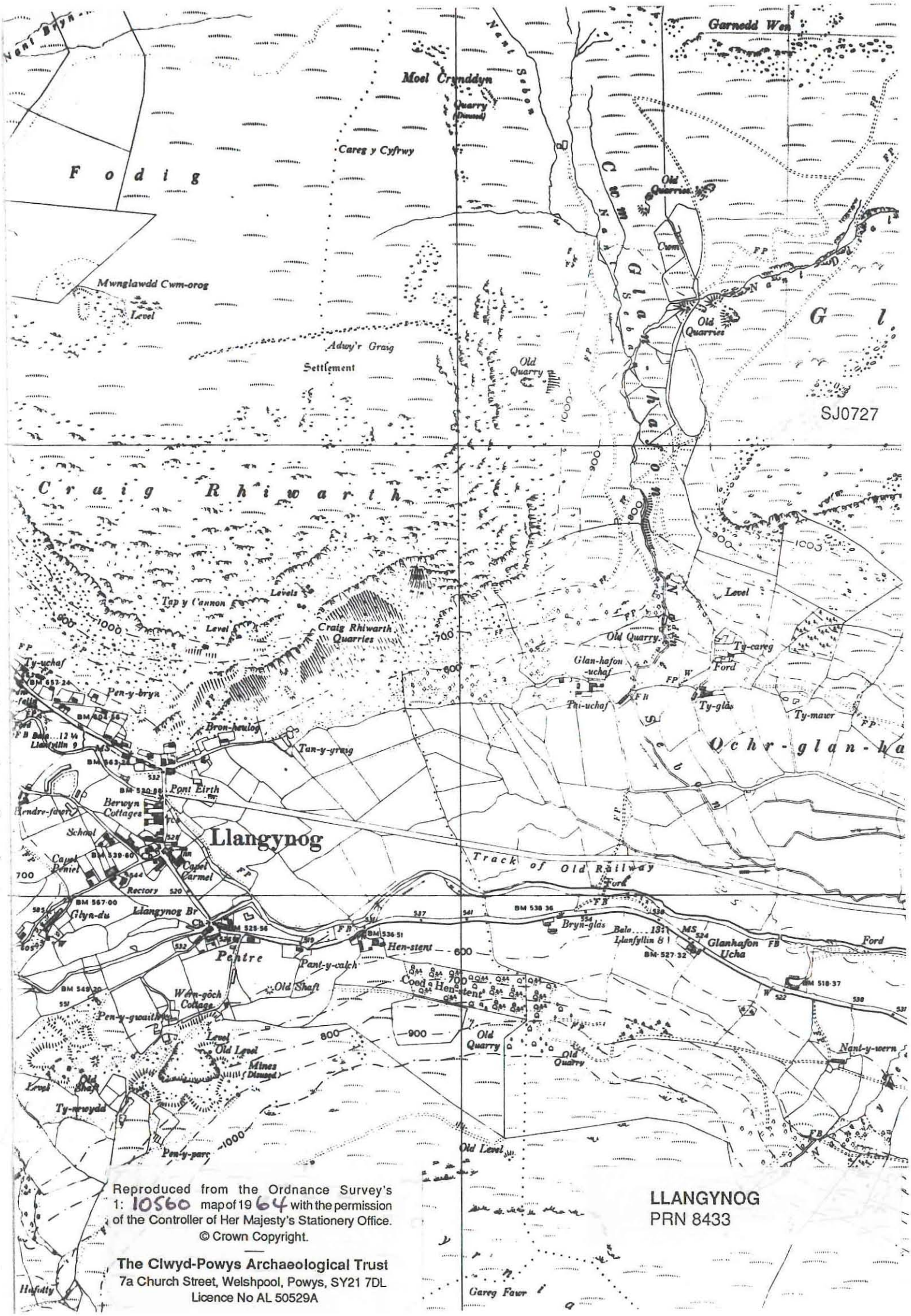
LLANERCHYRAUR
PRN 5941



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LLANGYNOG
PRN 8433

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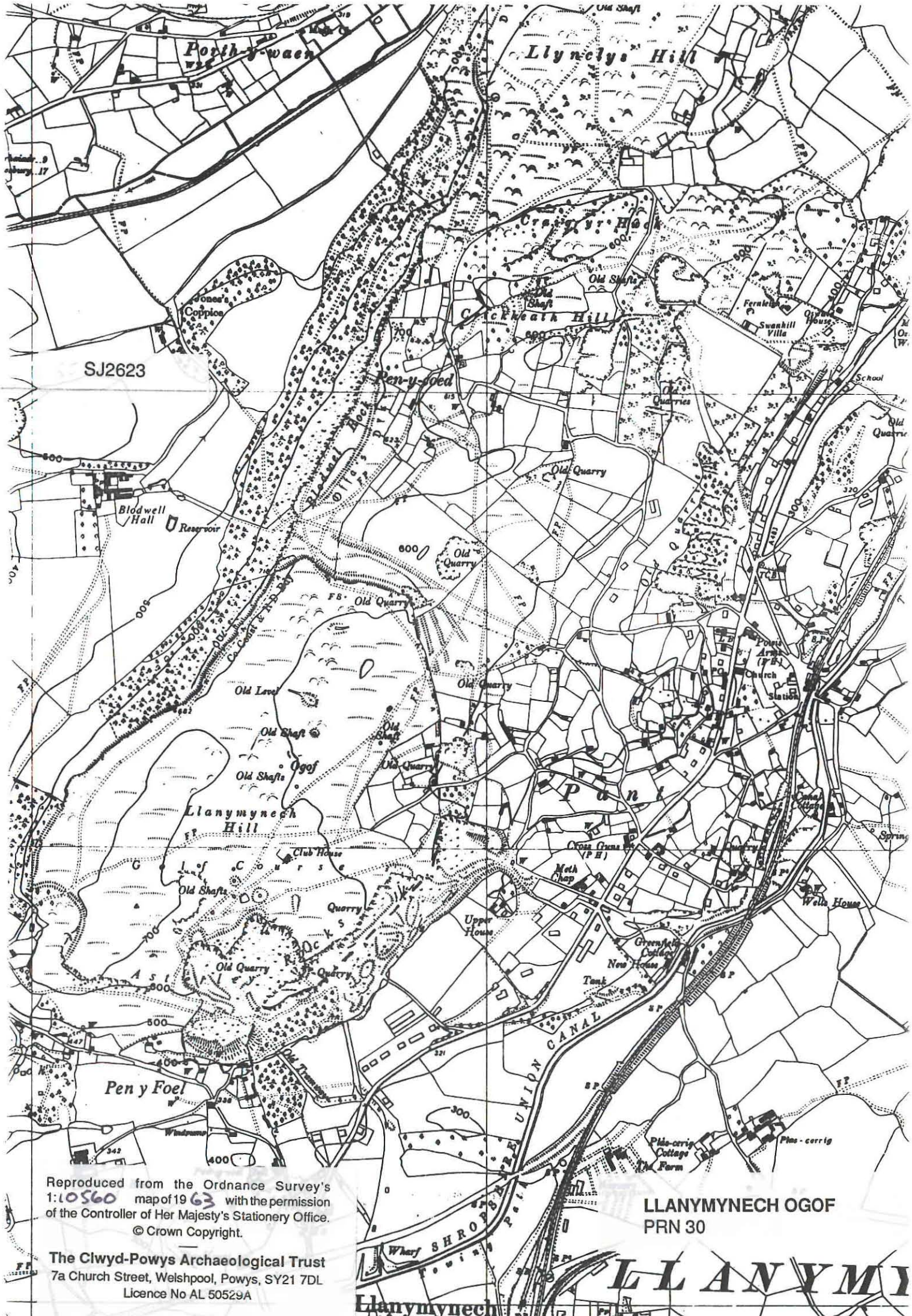

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LLANYMYNECH OGOF
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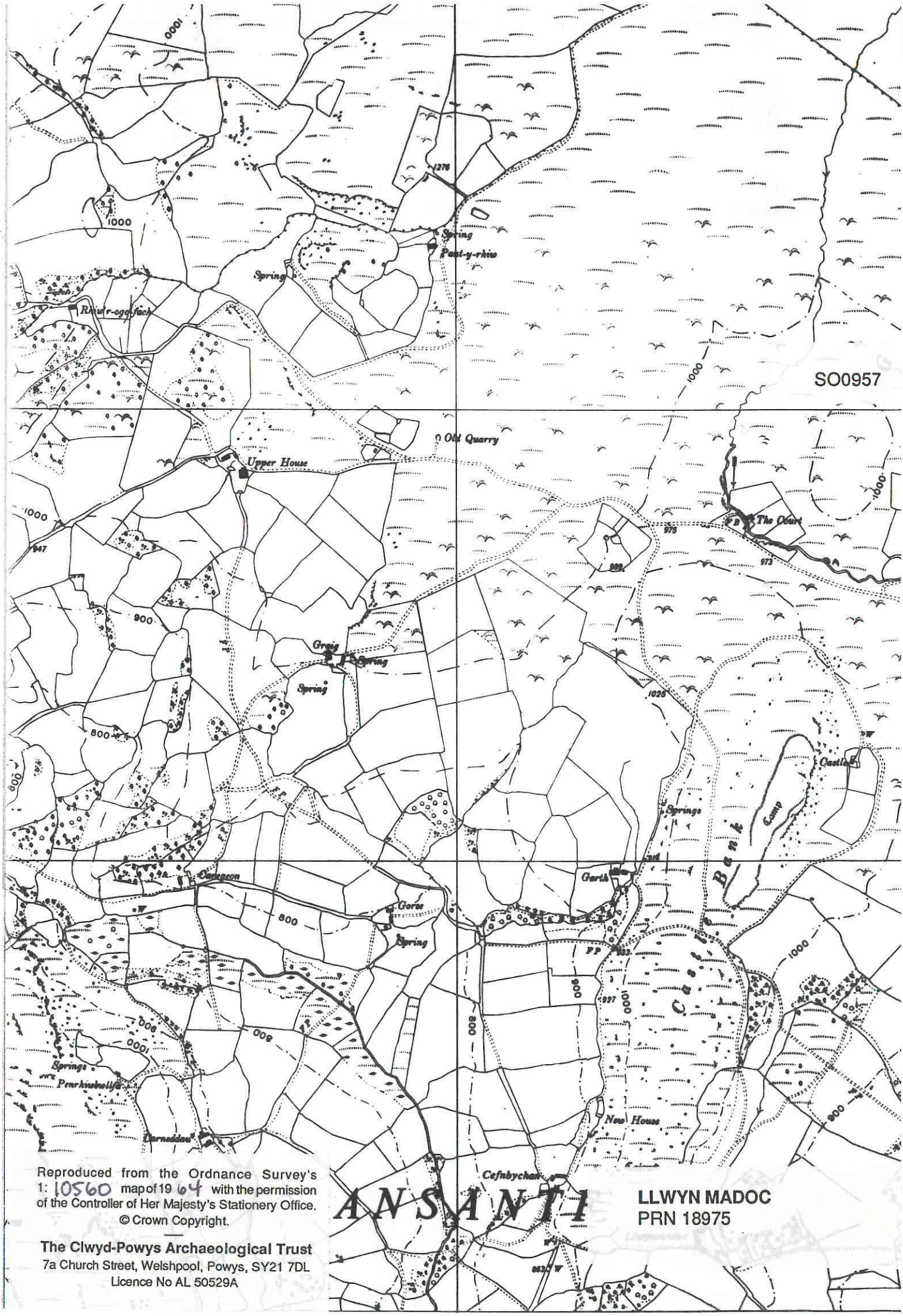

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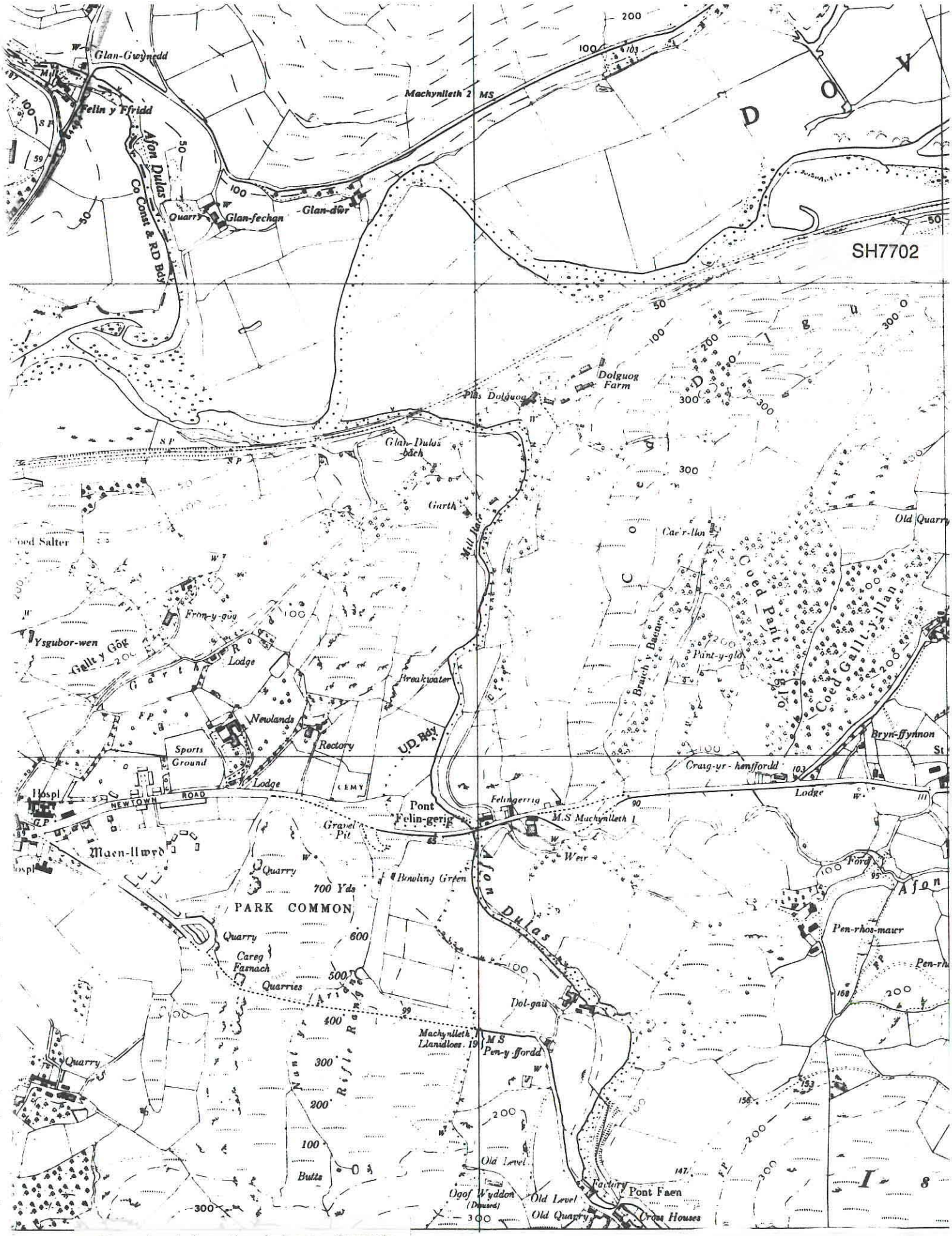

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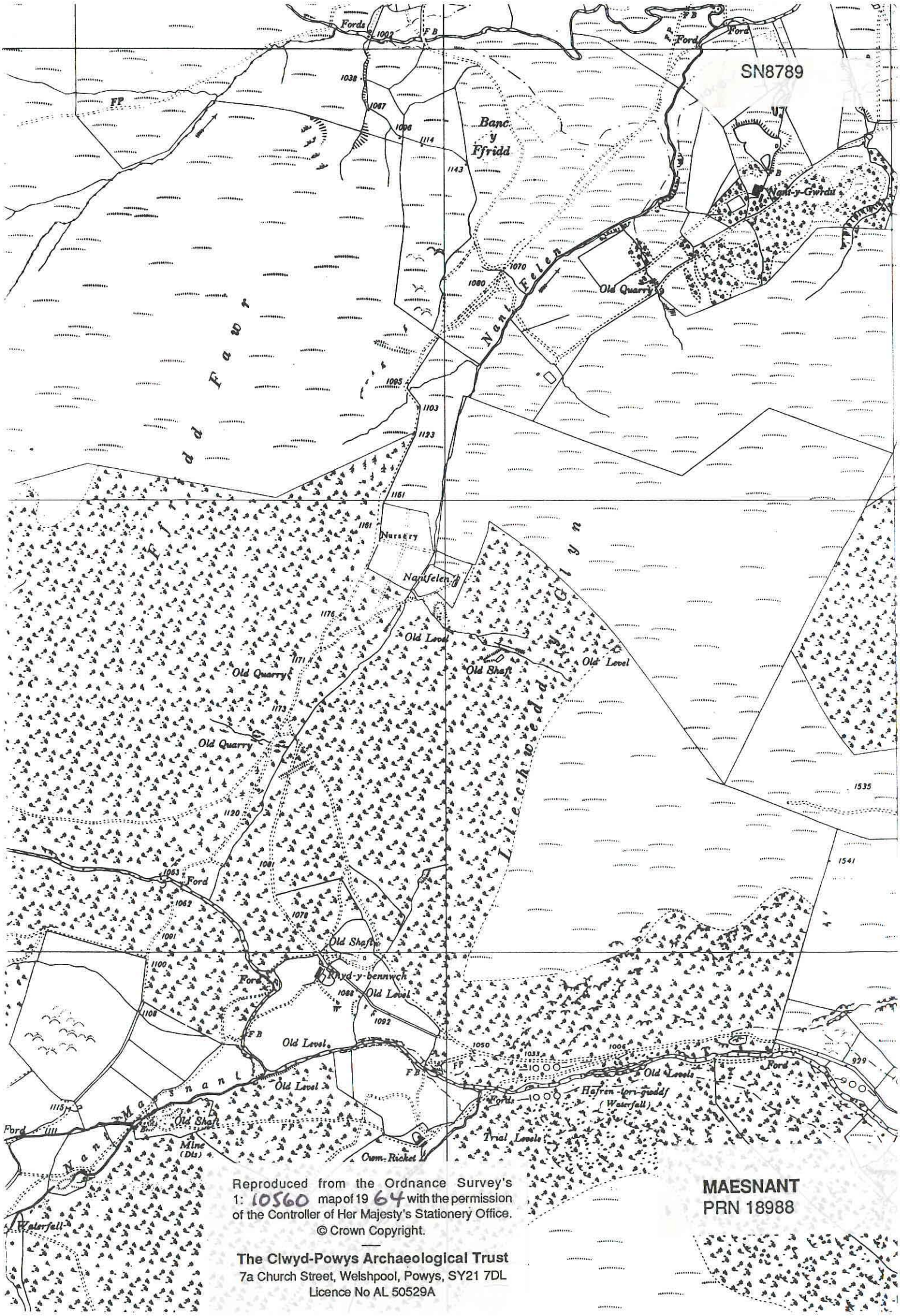
MACHYNLLETH PARK LODGE
WITCHES CAVE
PRN 8458



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MAESNANT
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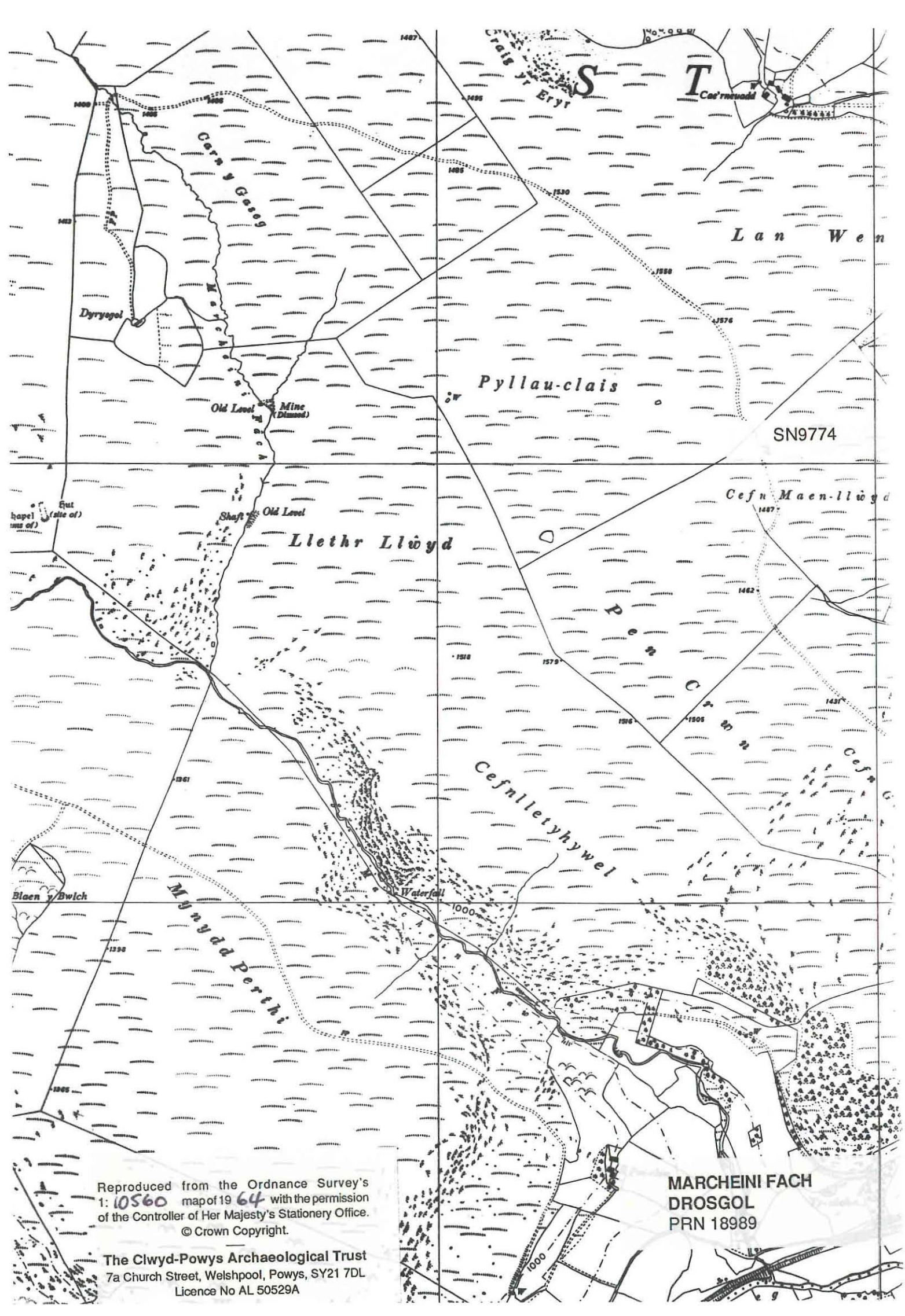

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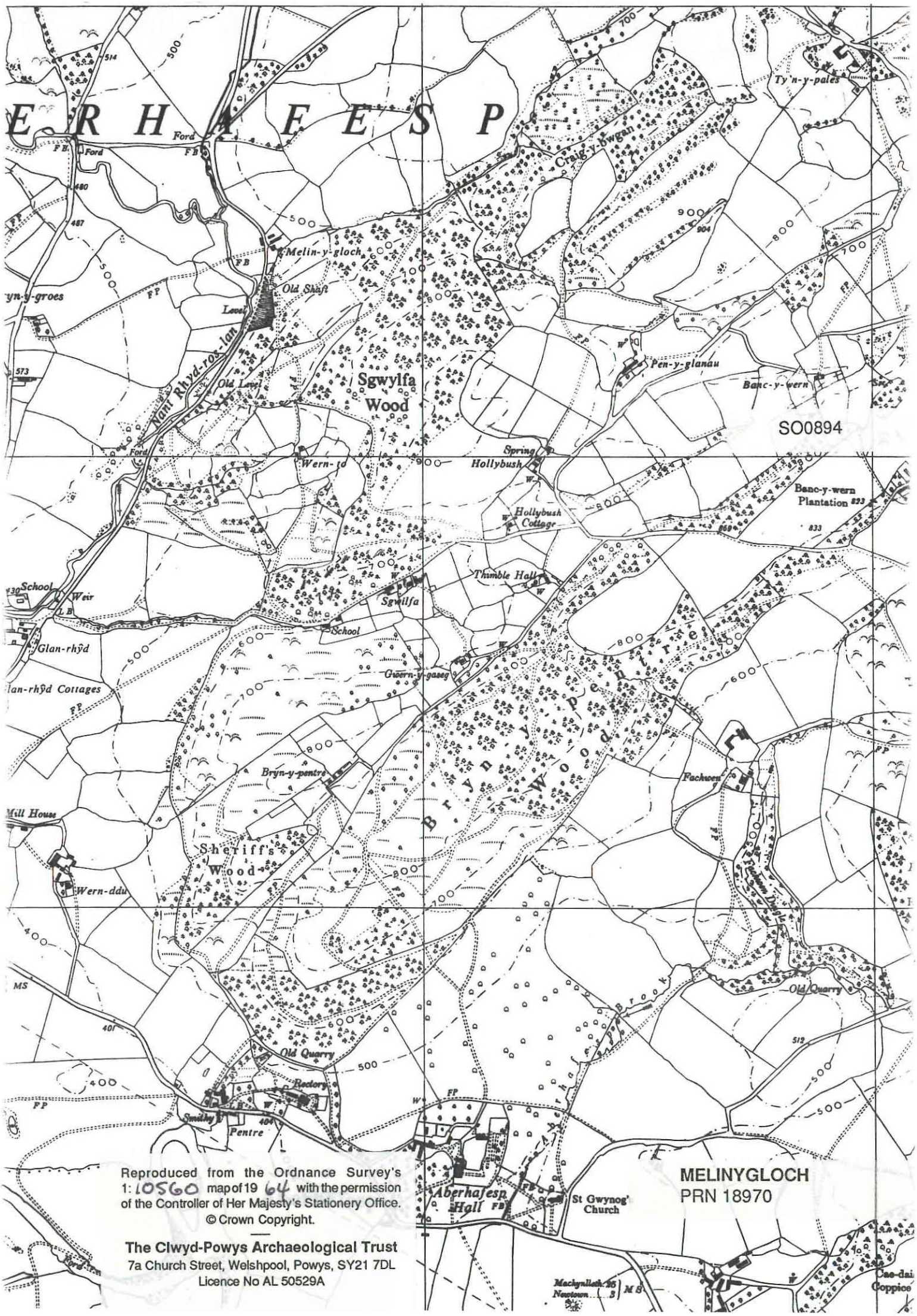

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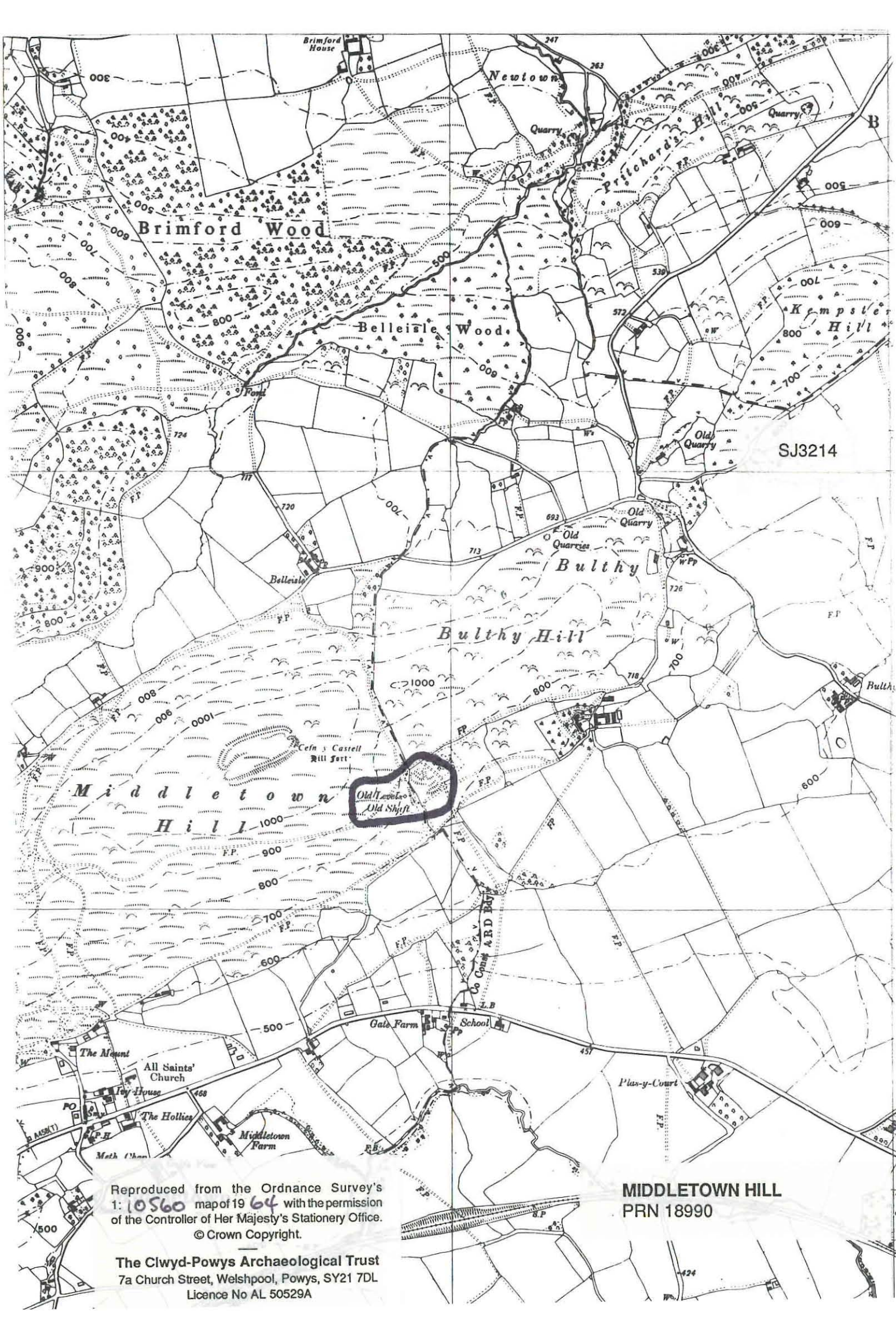

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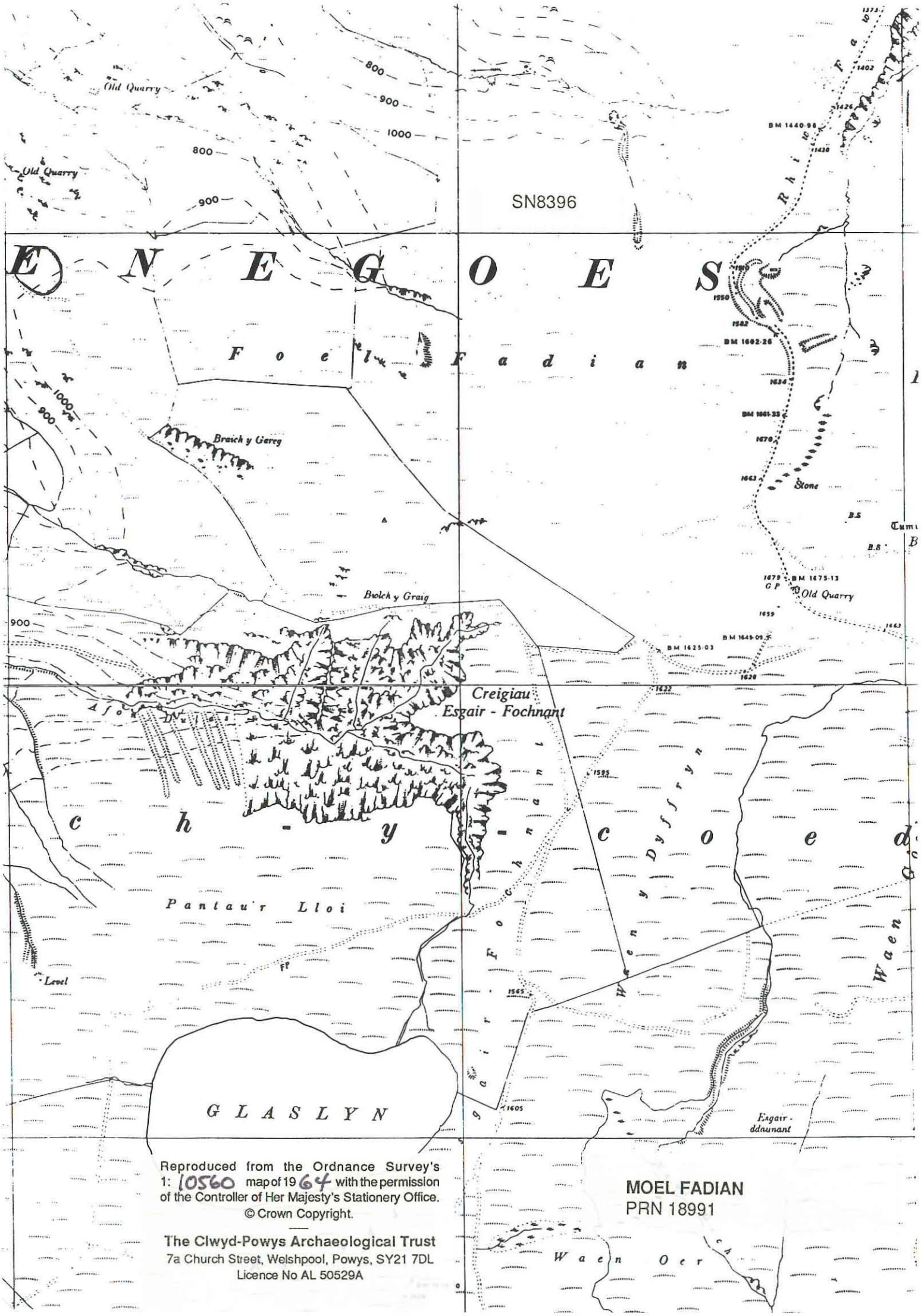

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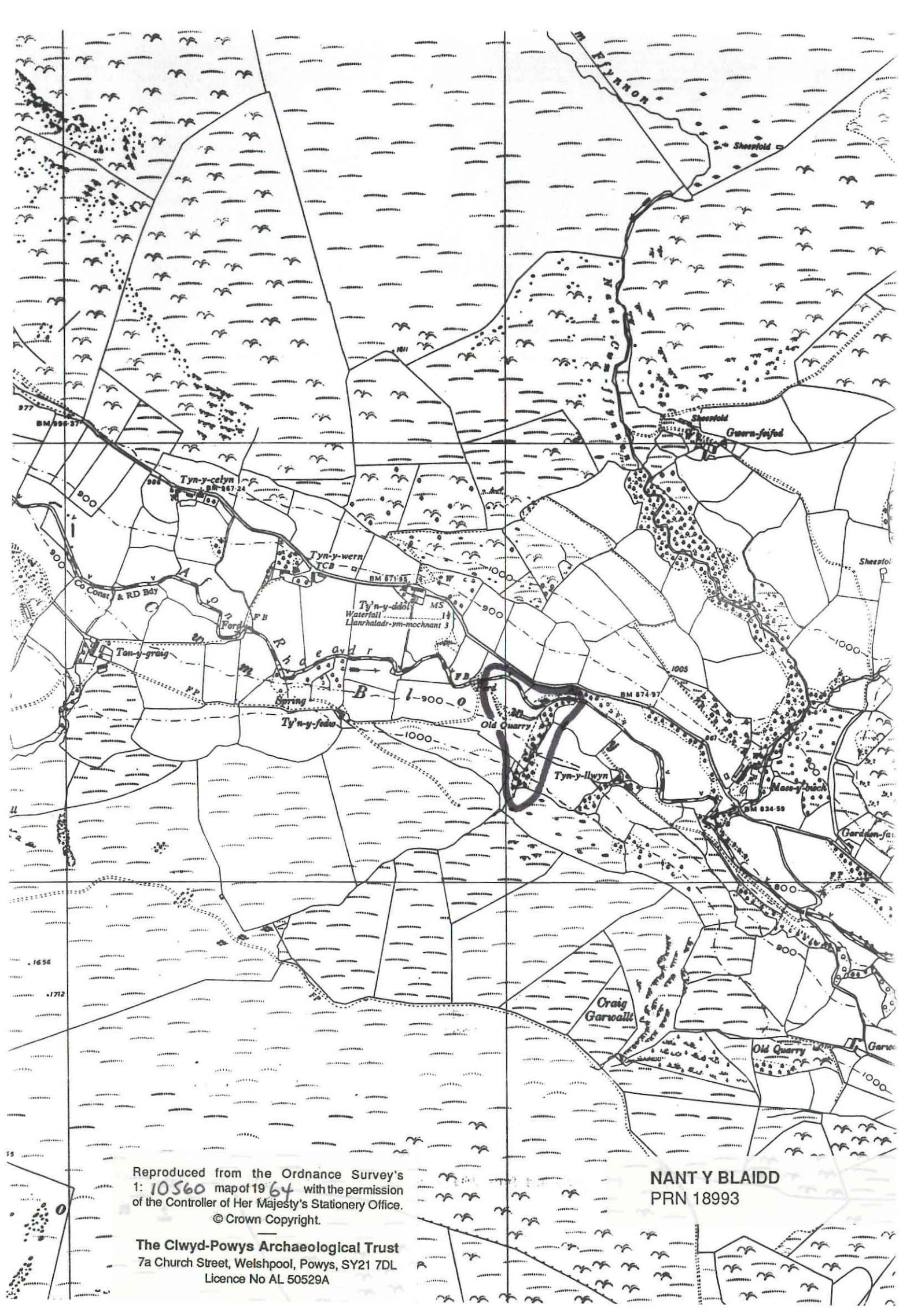

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NANT Y BLAIDD
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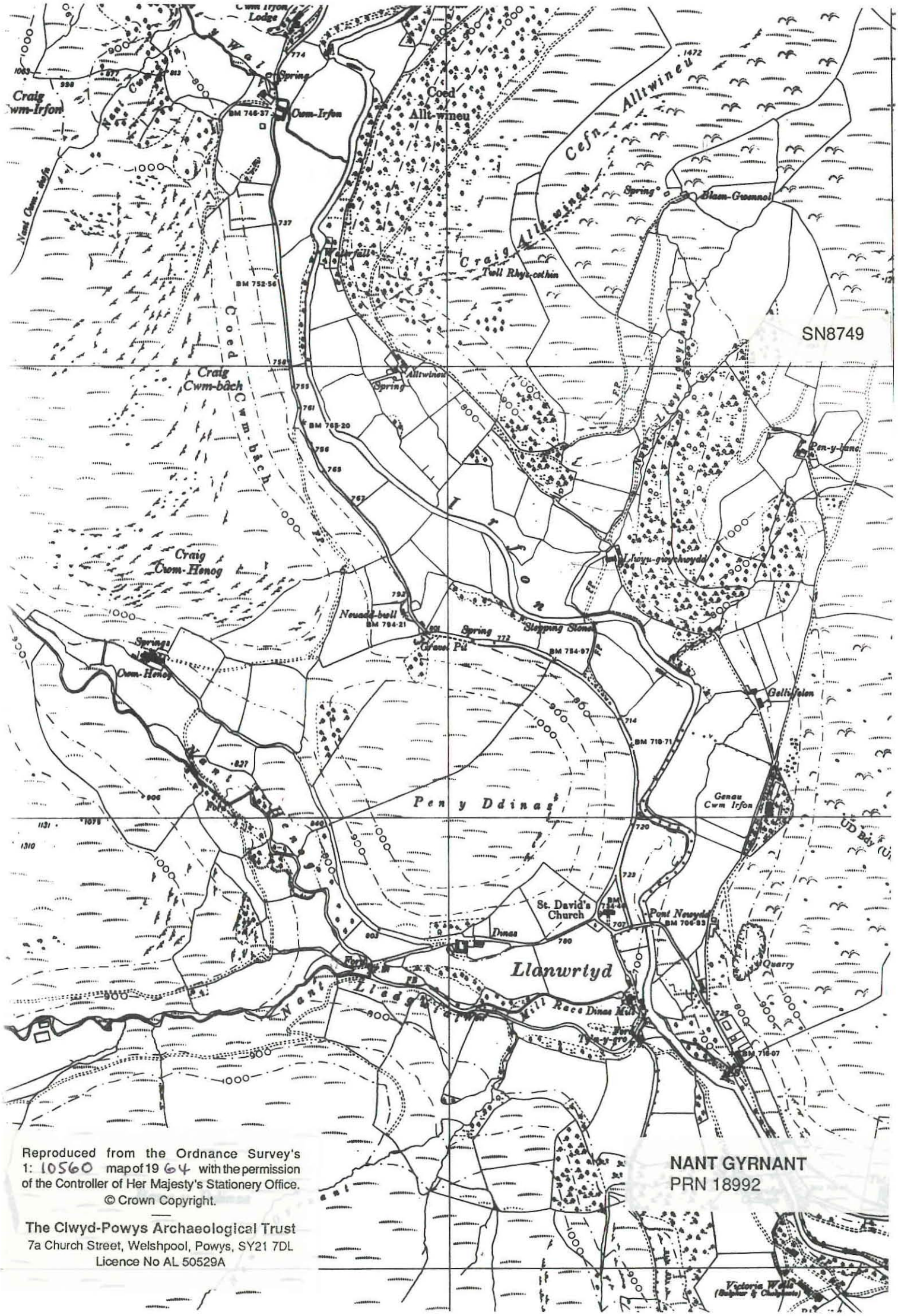

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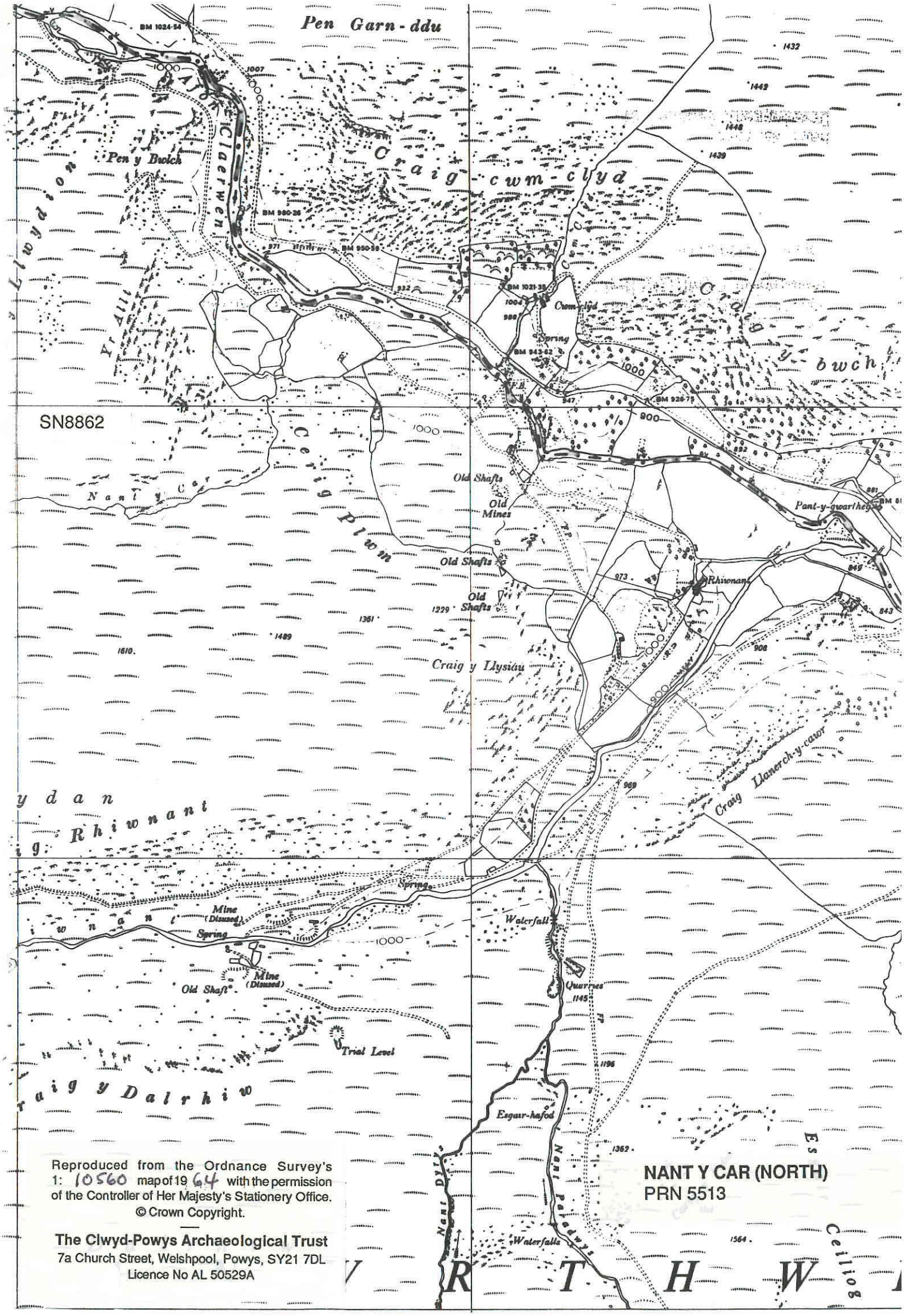

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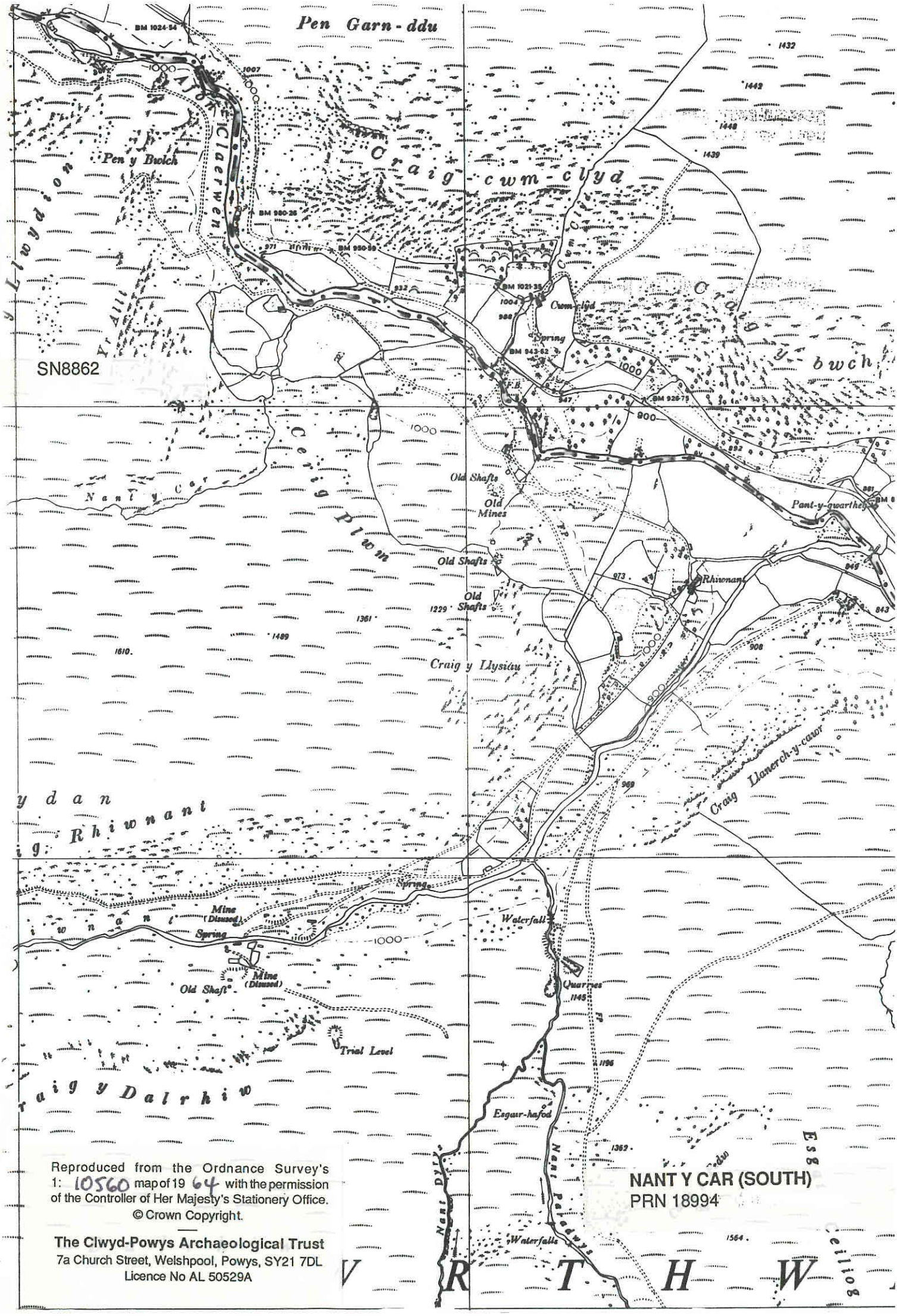

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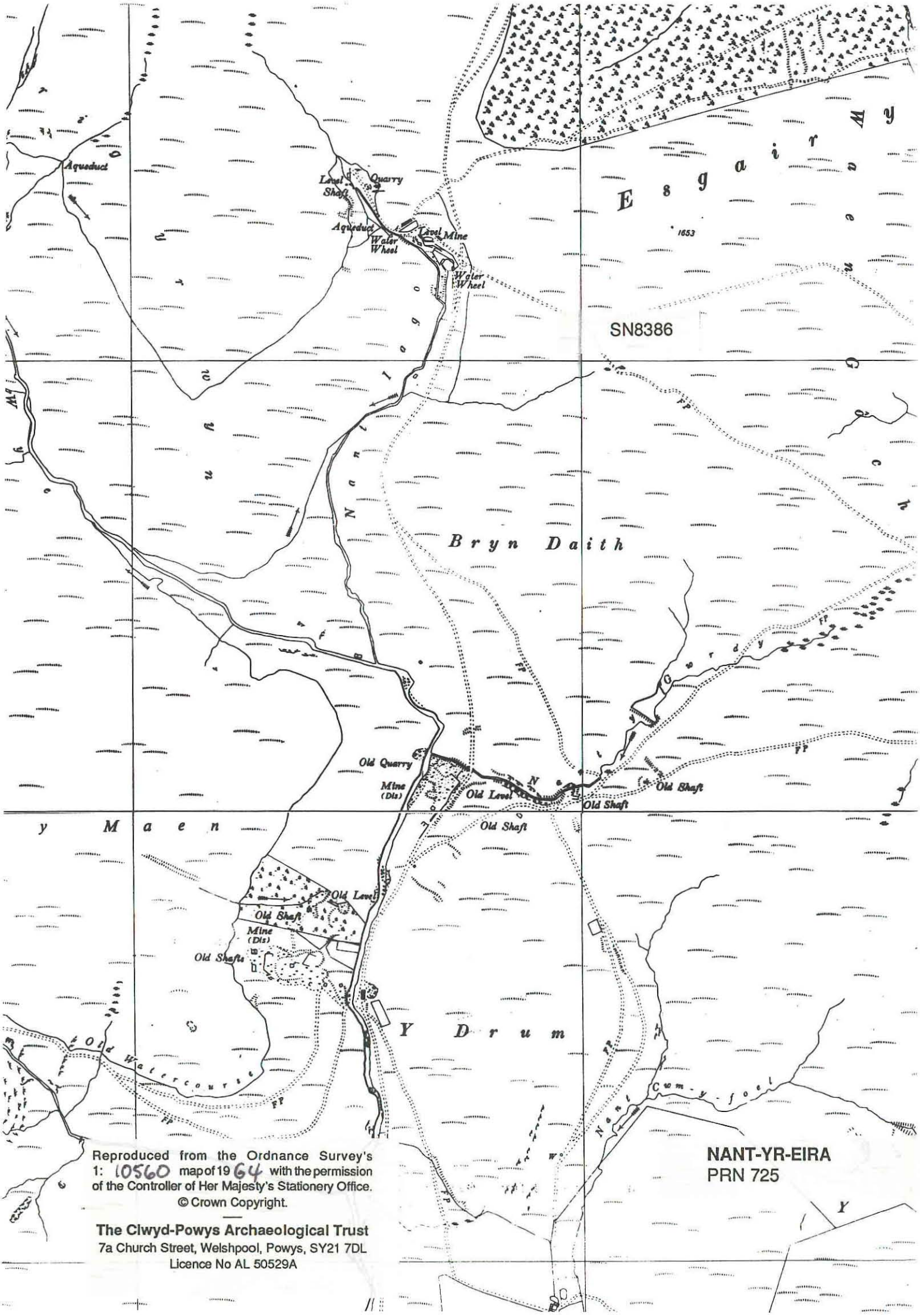

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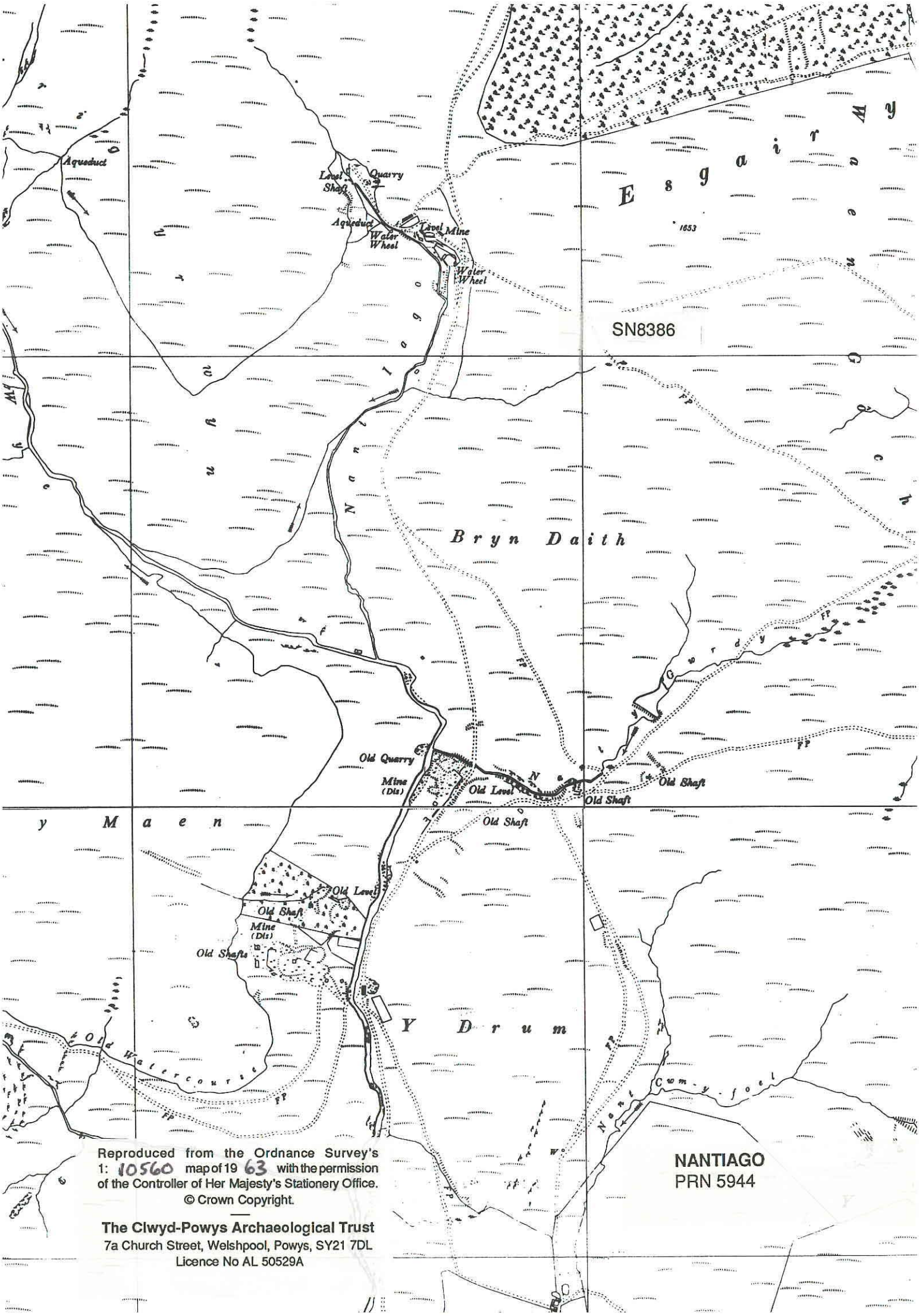

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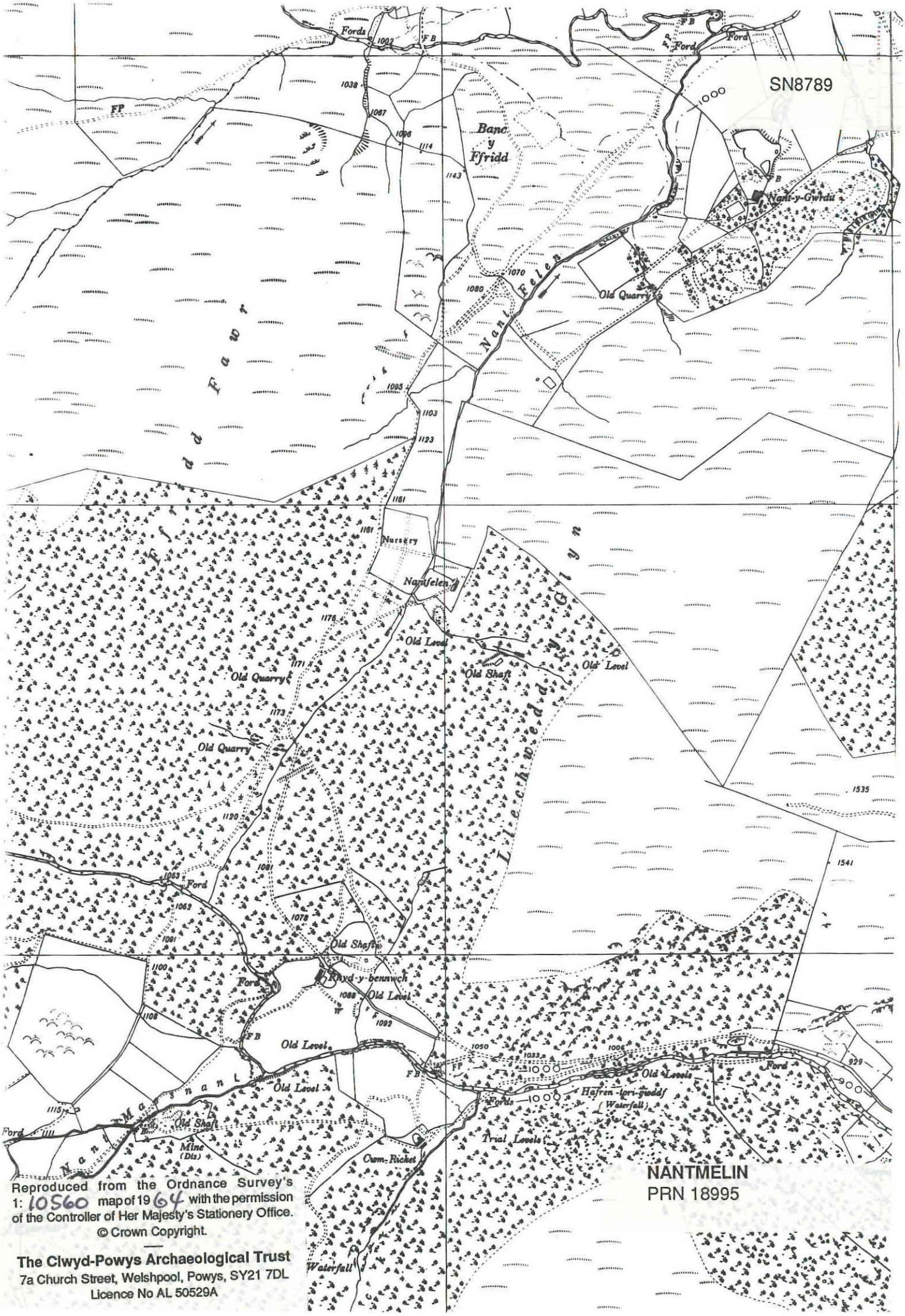

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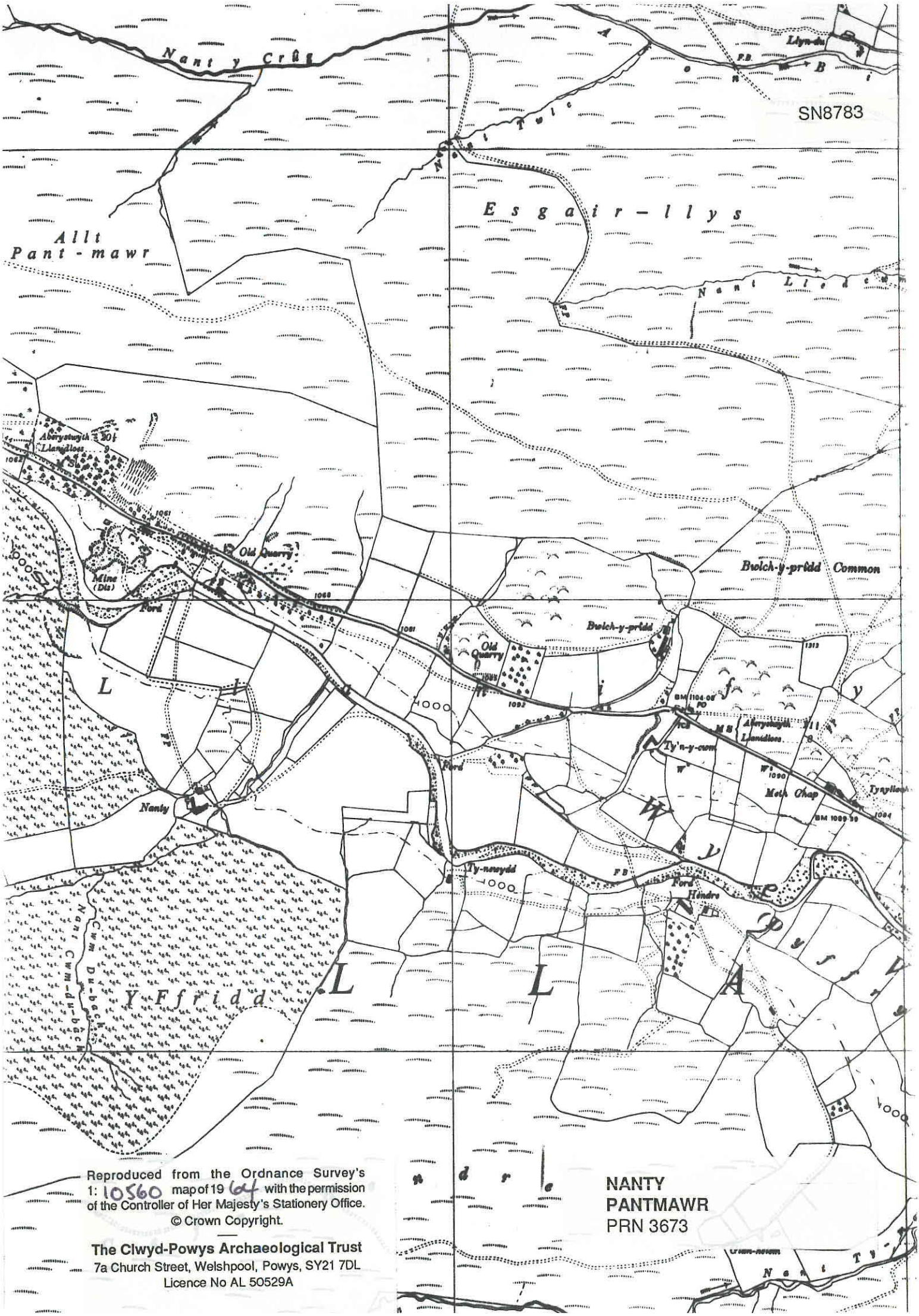

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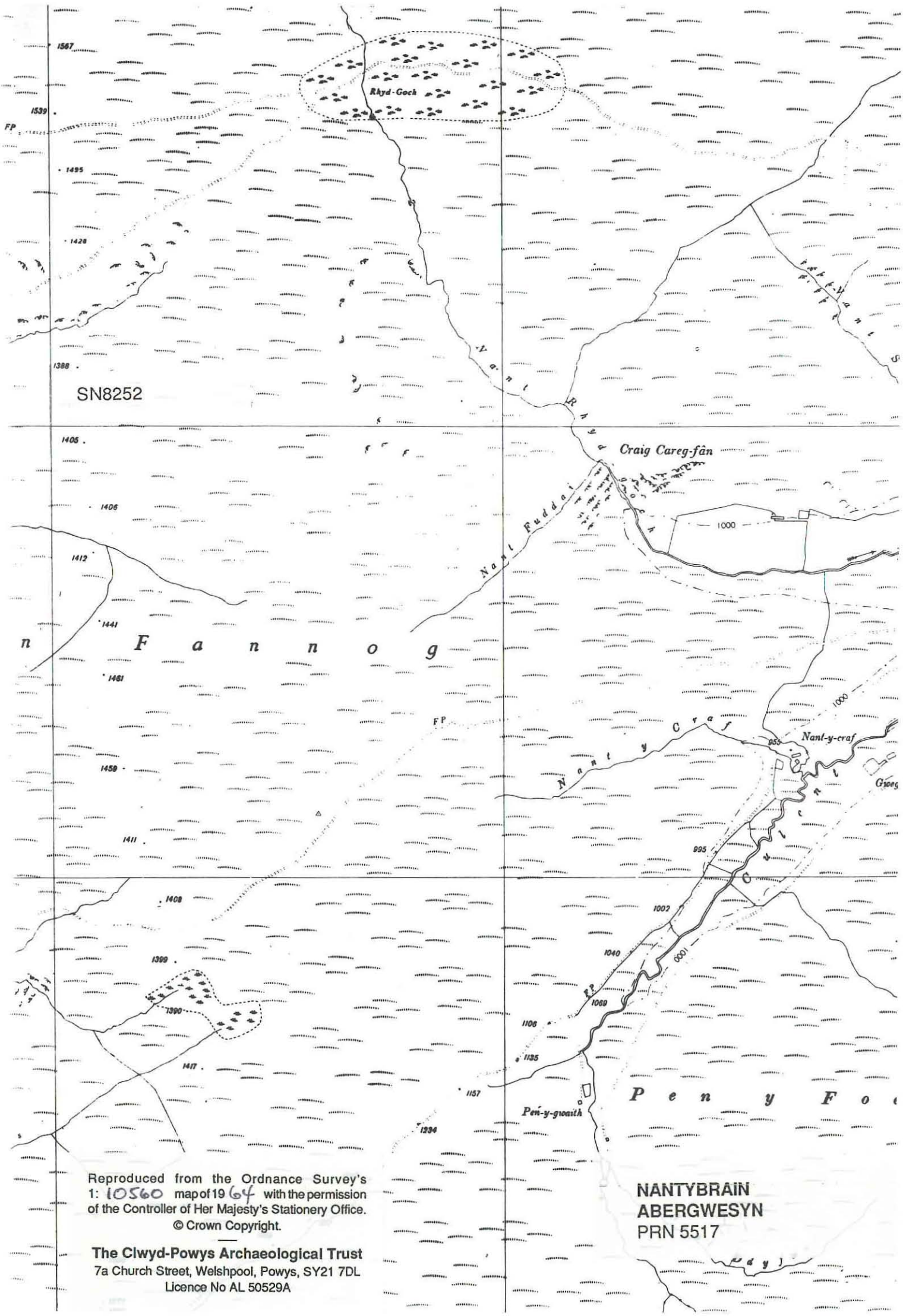
NANTY PANTMAWR
PRN 3673



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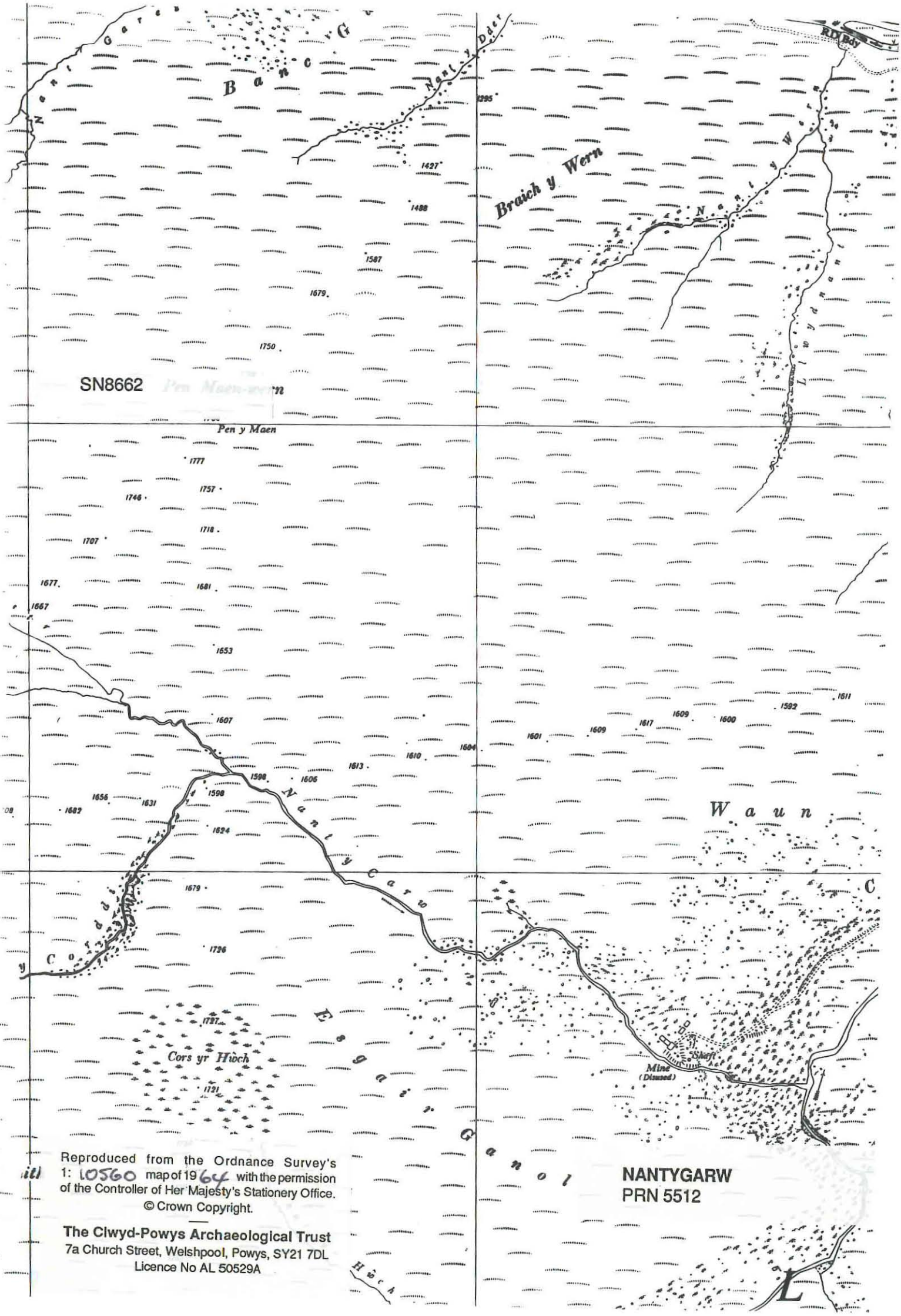
NANTYBRAIN
ABERGWESYN
PRN 5517



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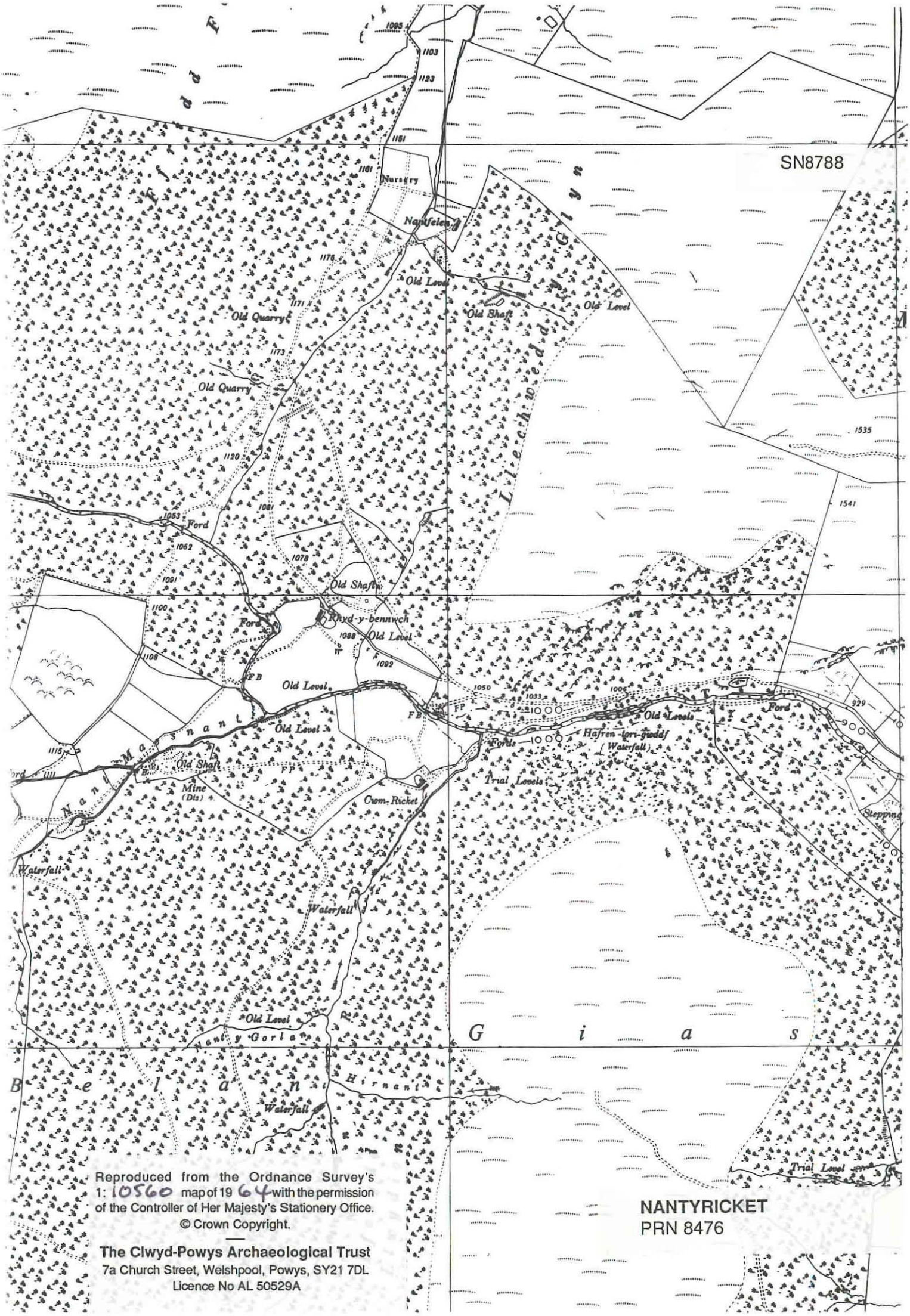

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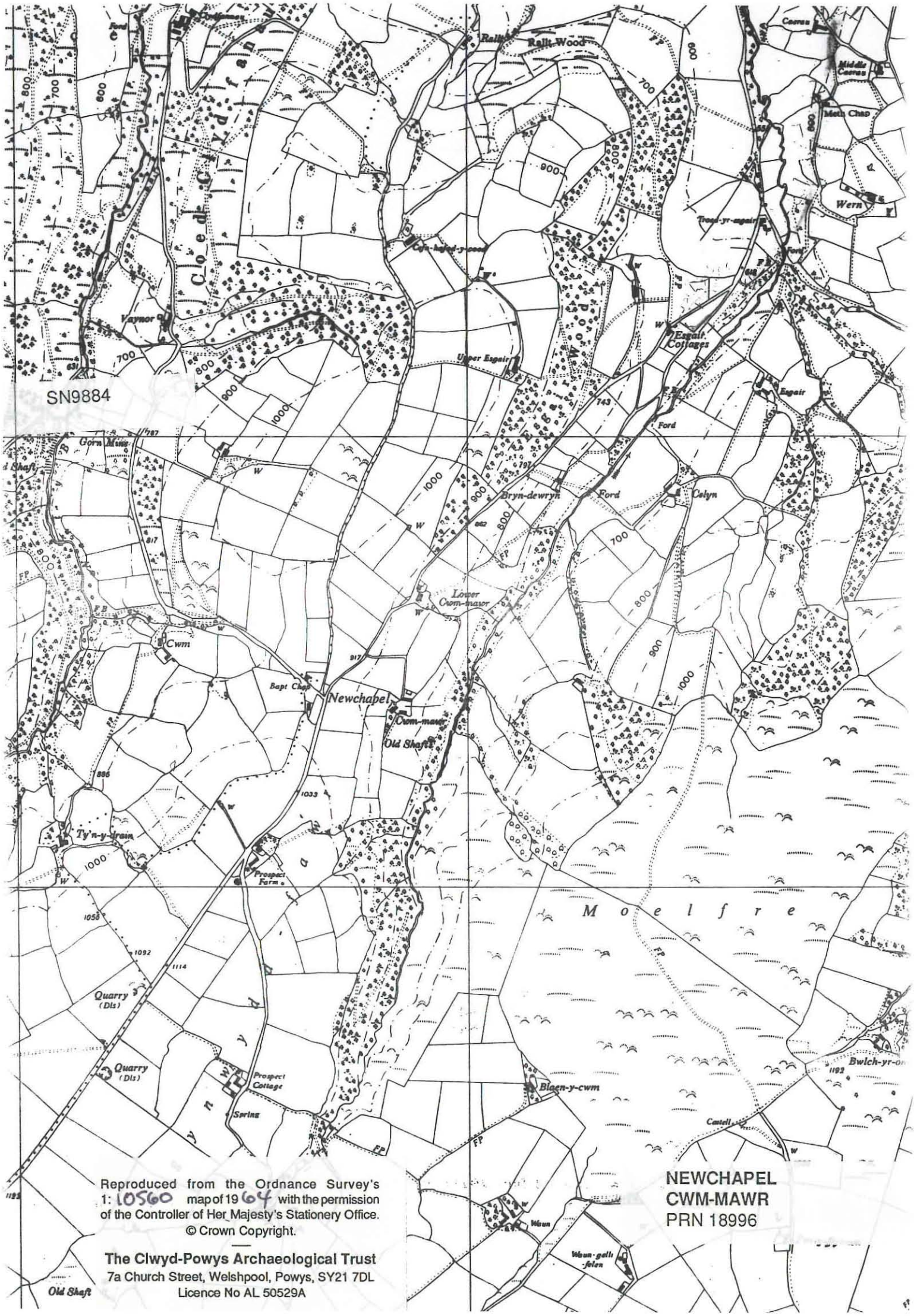
NANTYRICKET
PRN 8476



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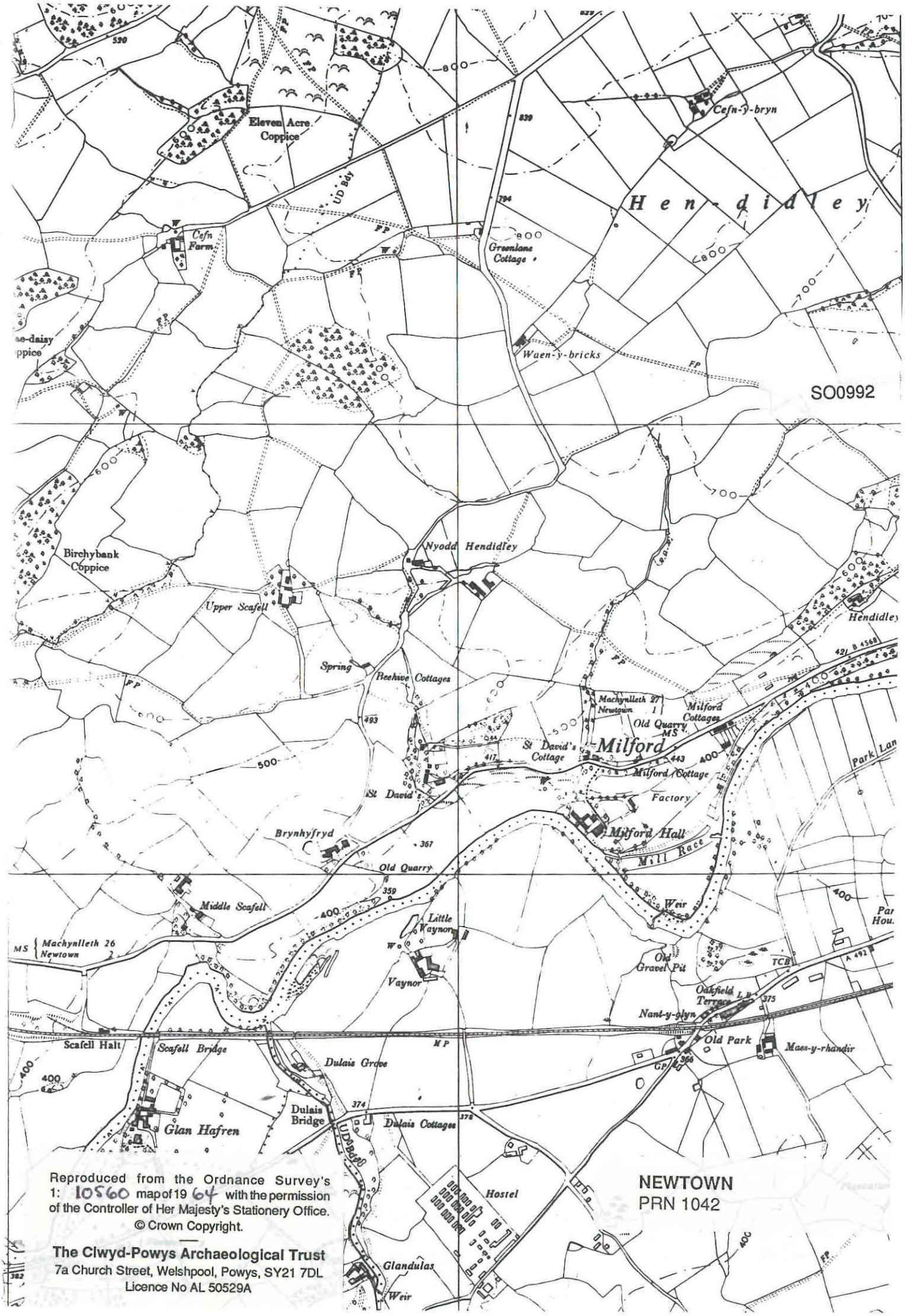
NEWCHAPEL
CWM-MAWR
PRN 18996



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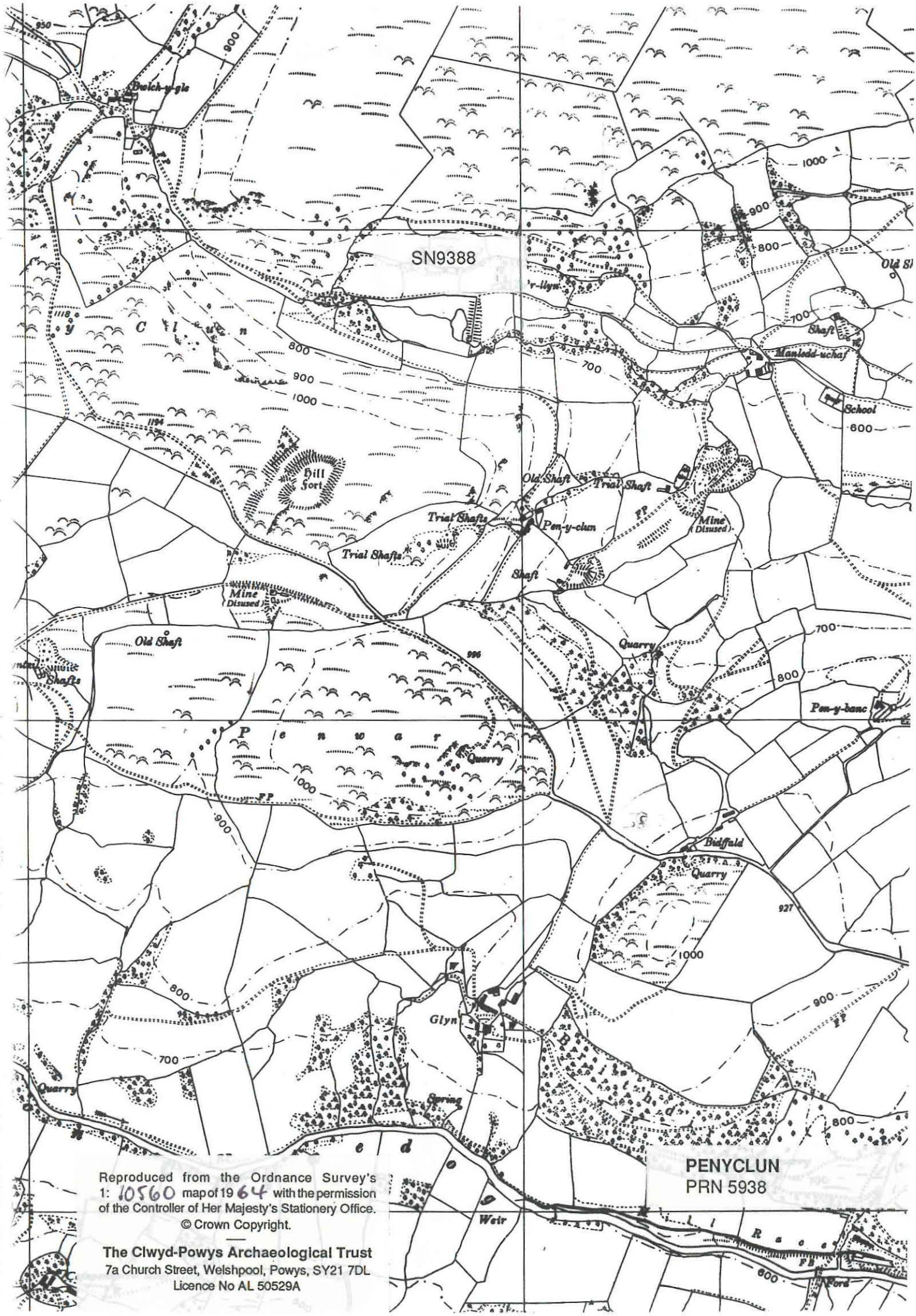

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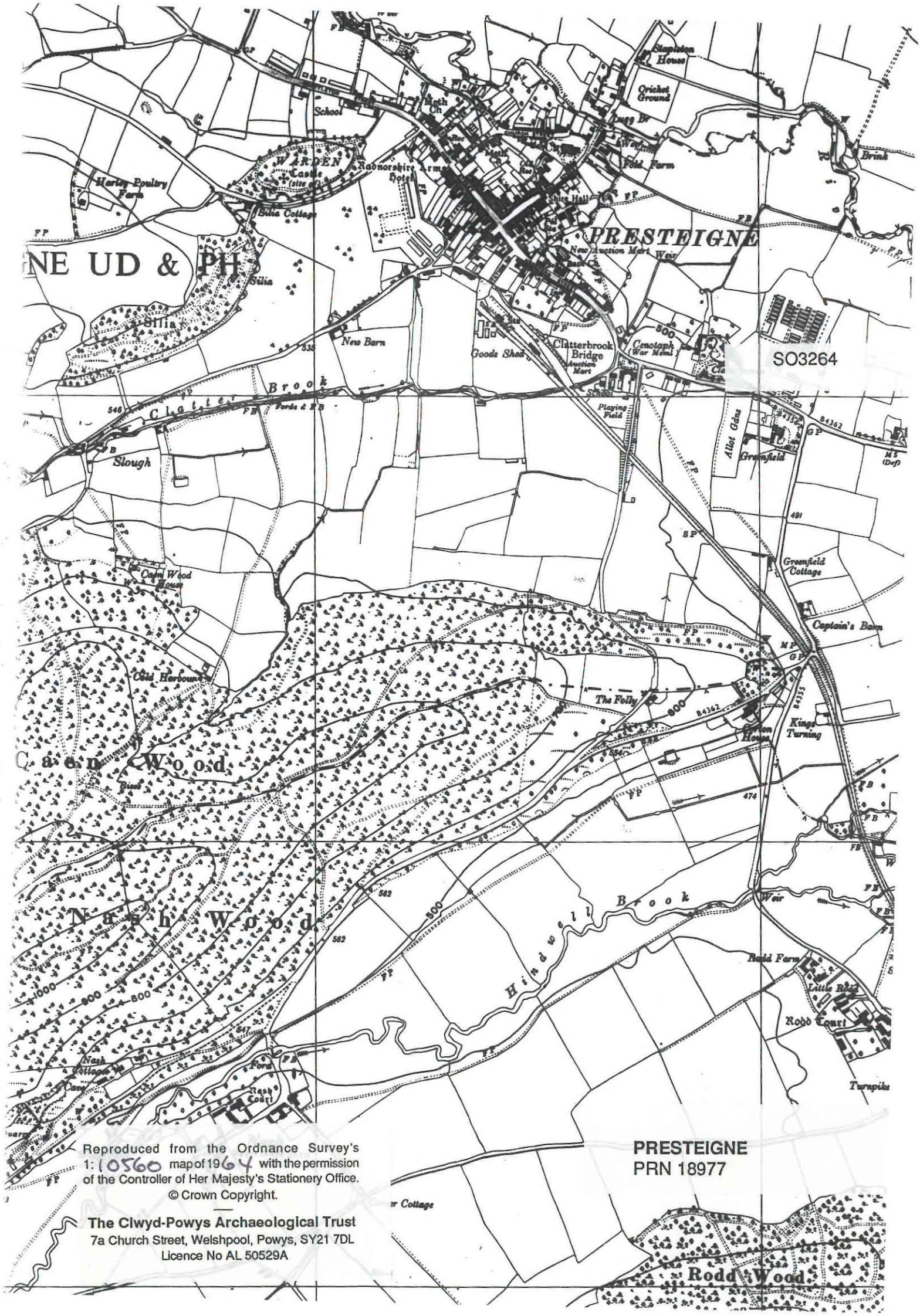

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PRESTEIGNE
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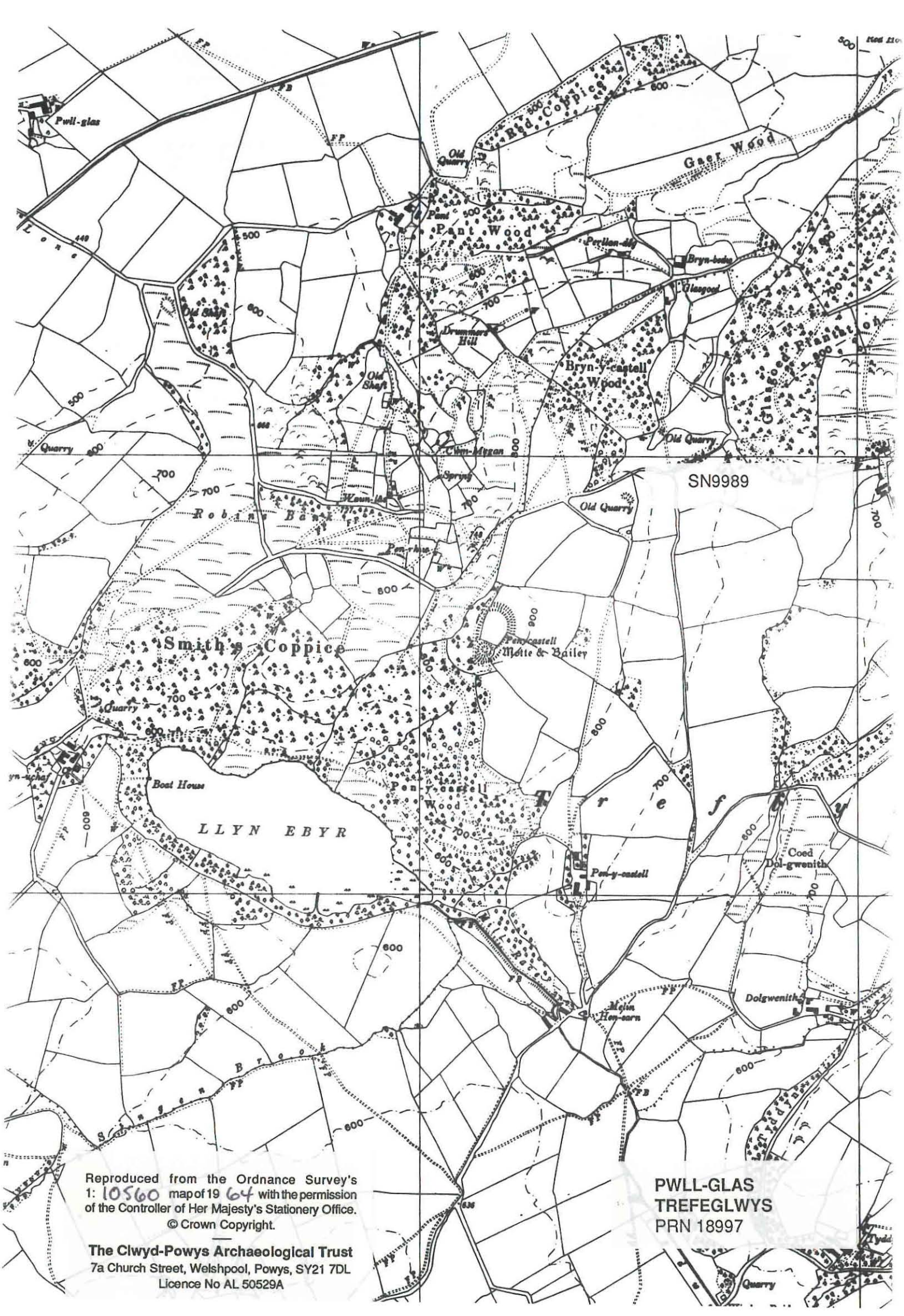

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PWLL-GLAS
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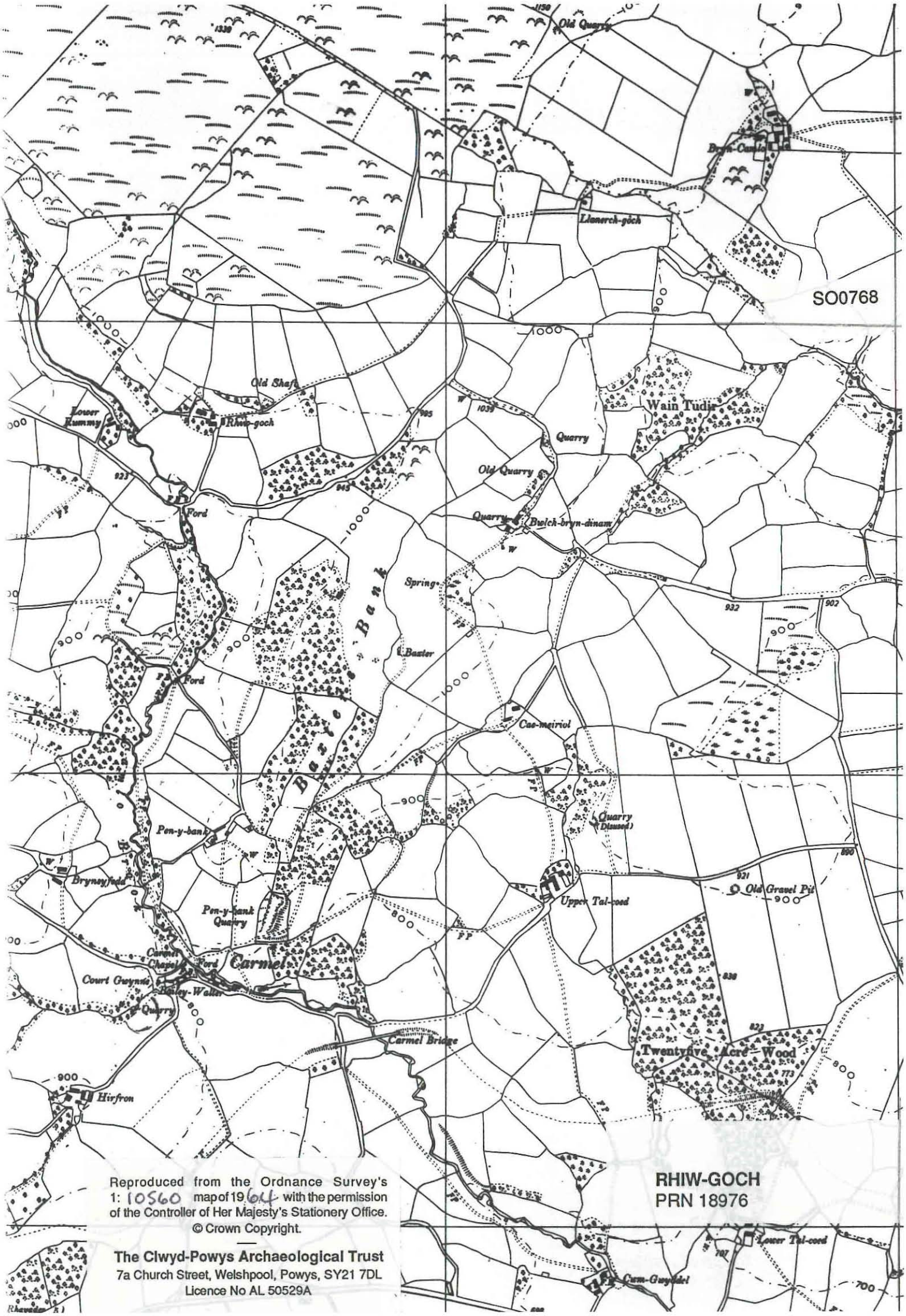

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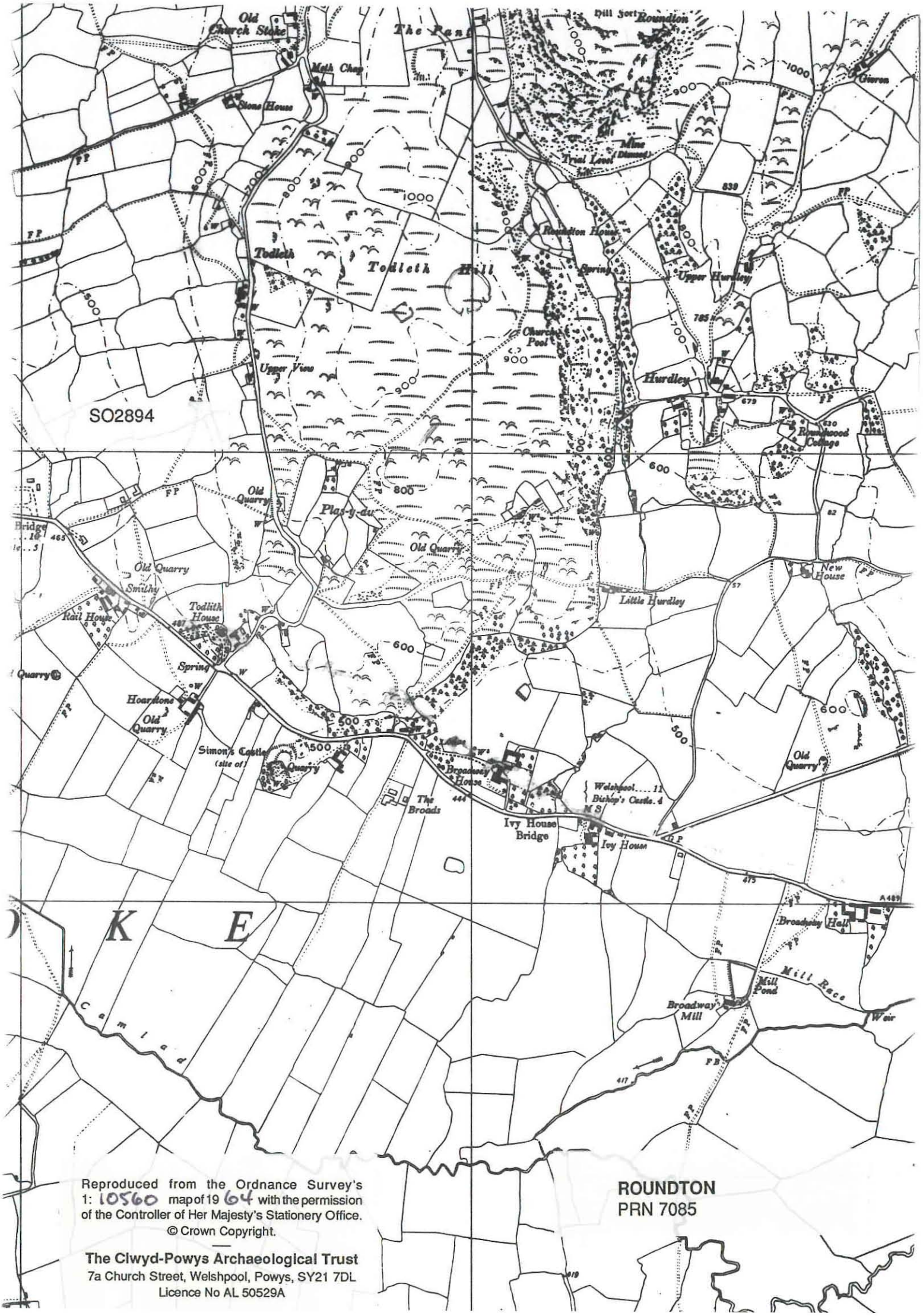

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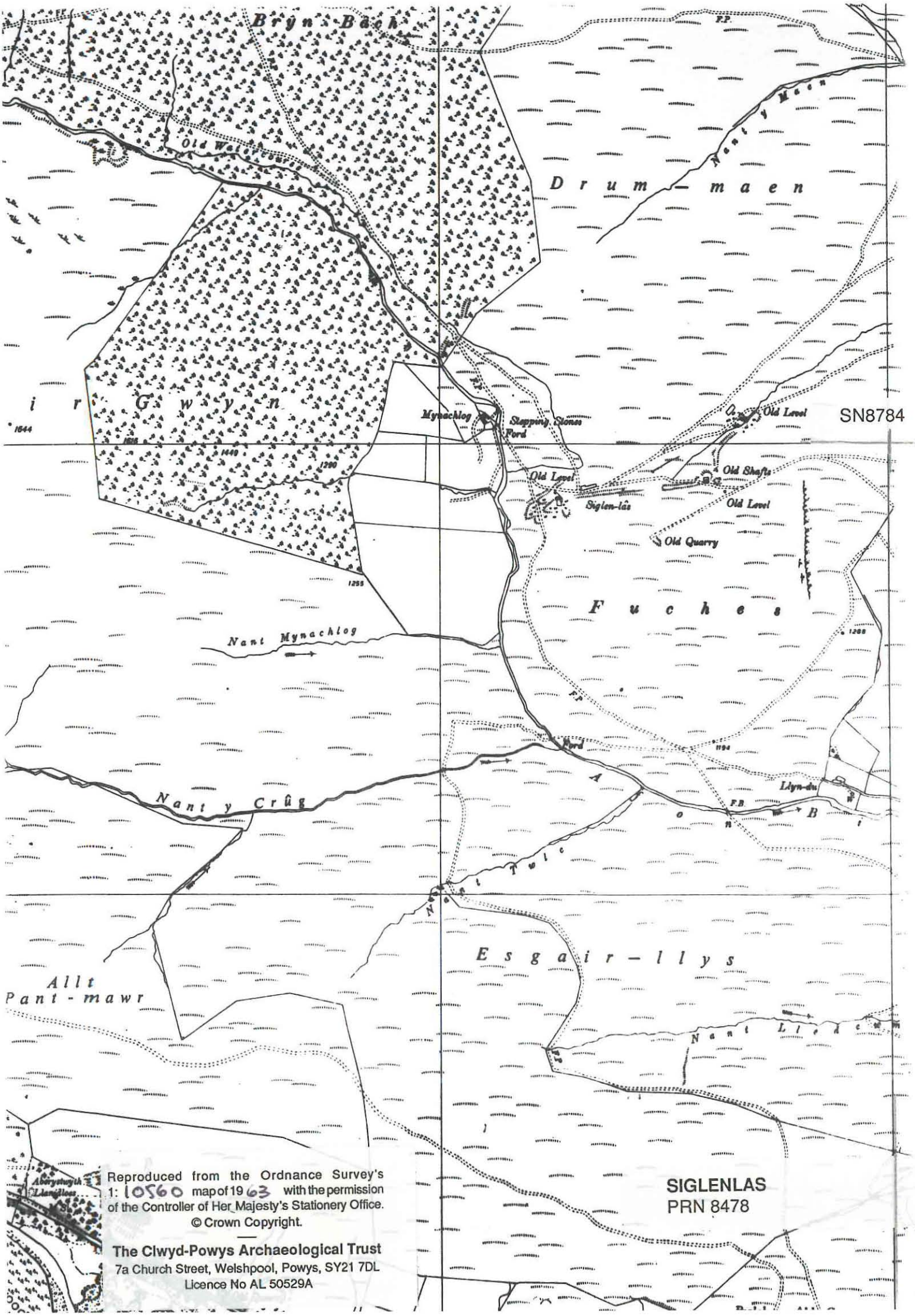

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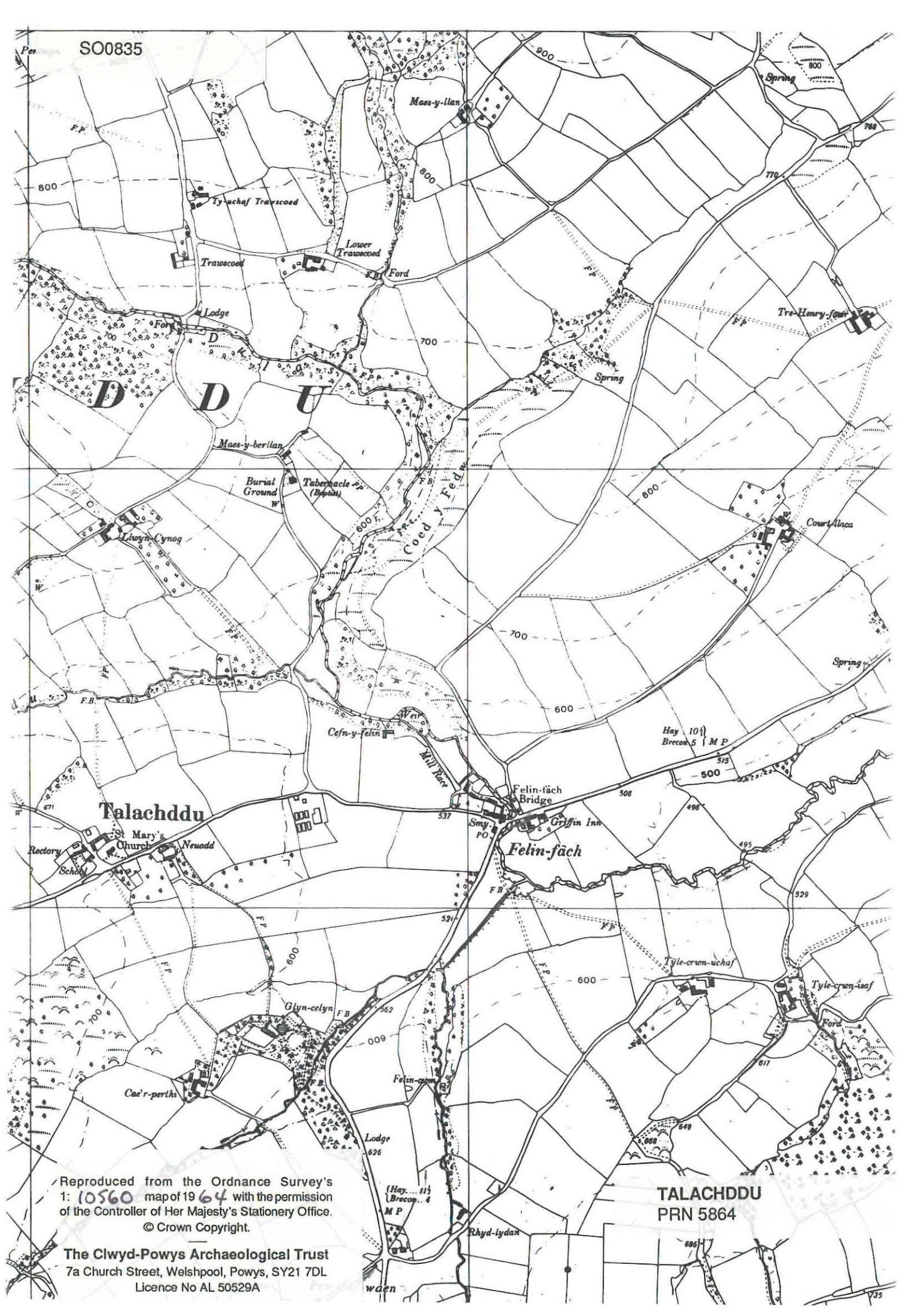

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TALACHDDU
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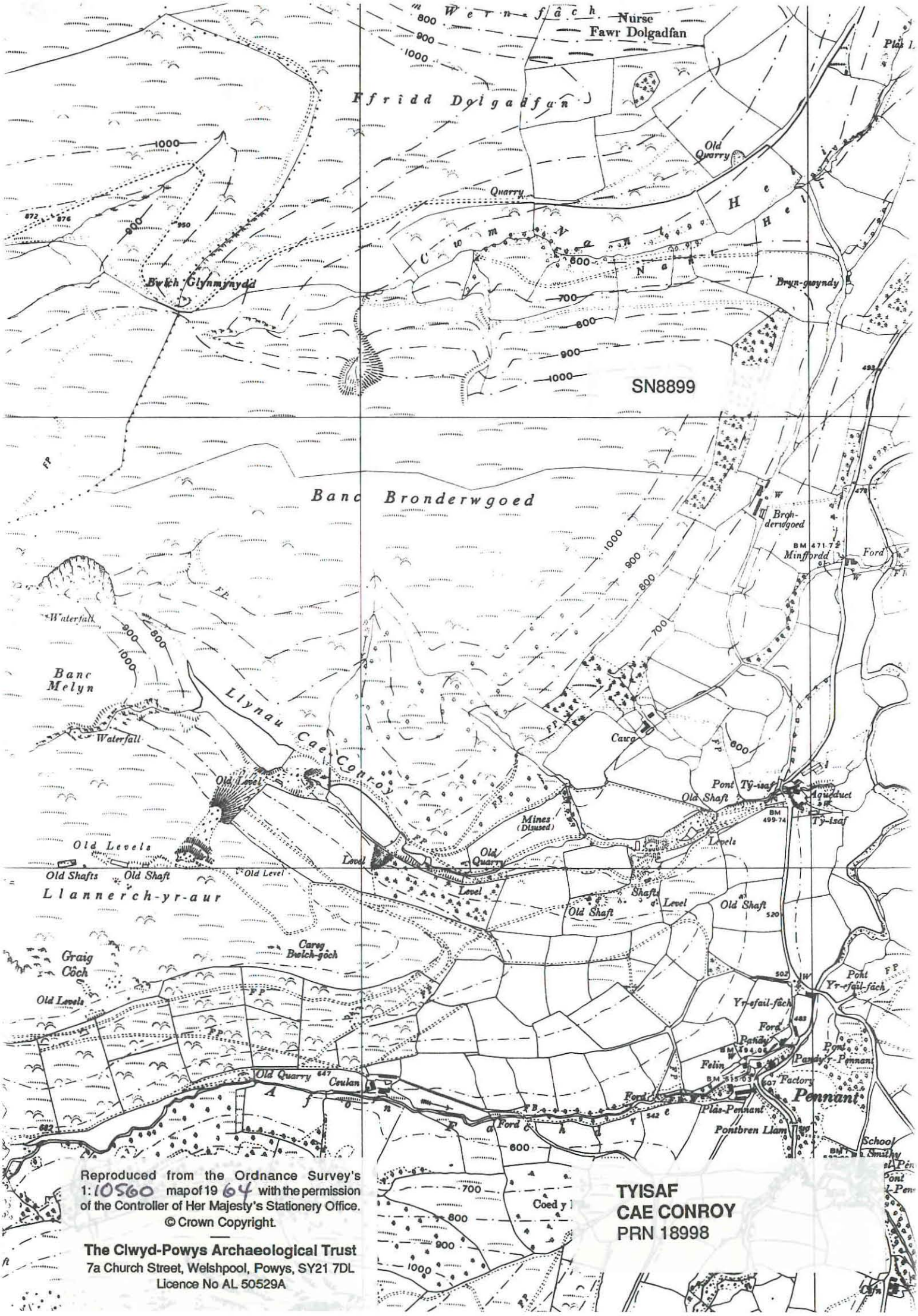

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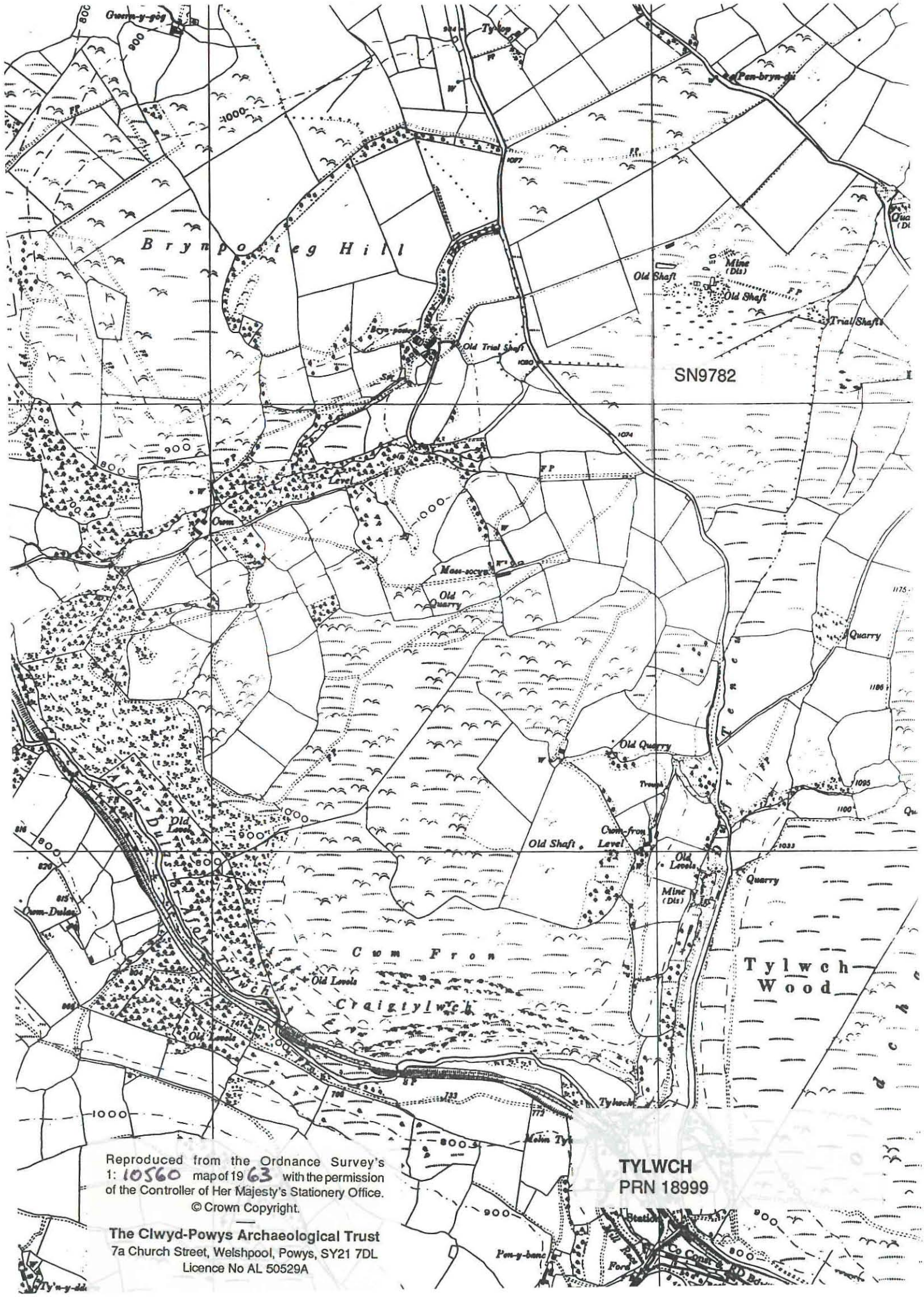

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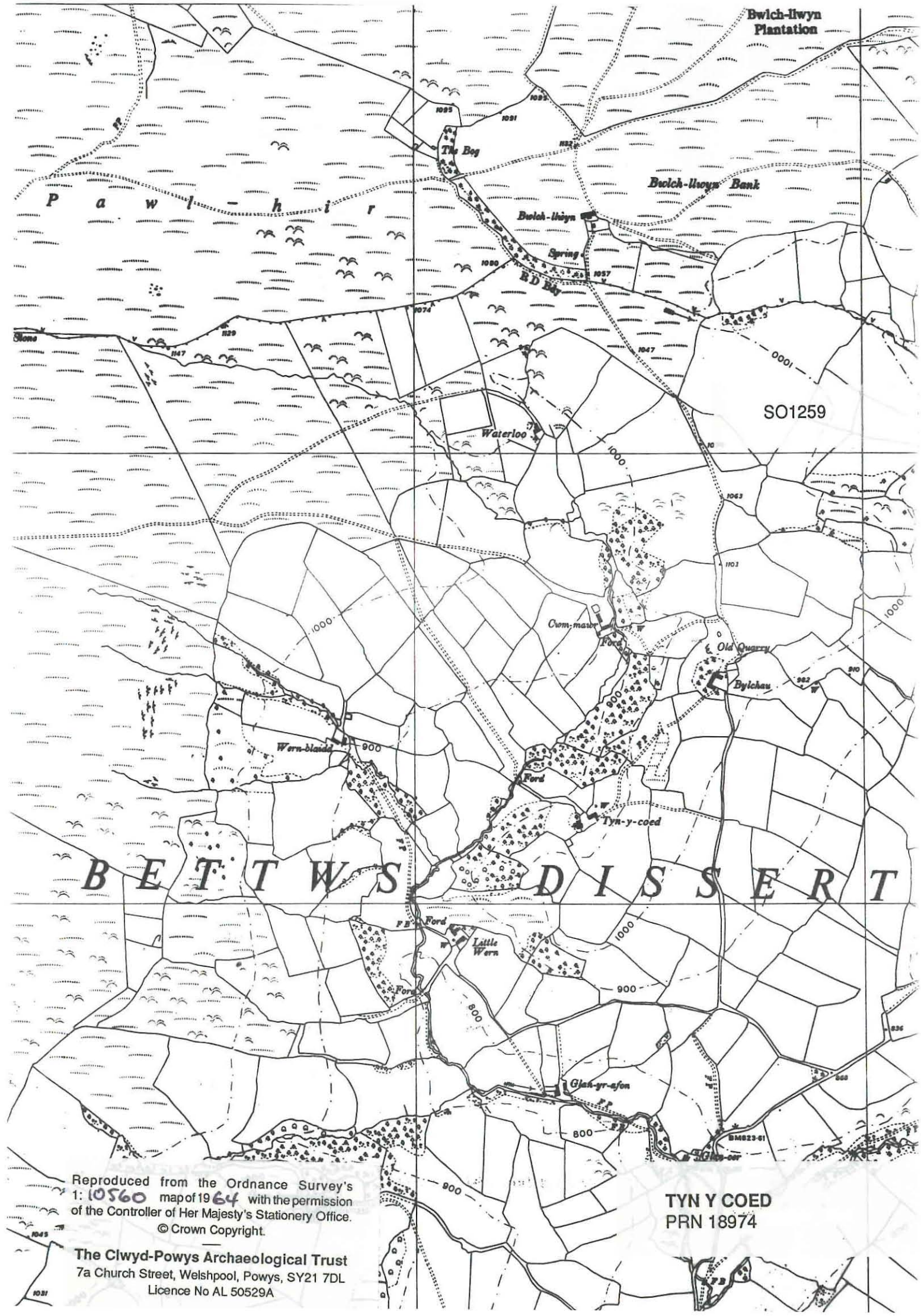

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TYN Y COED
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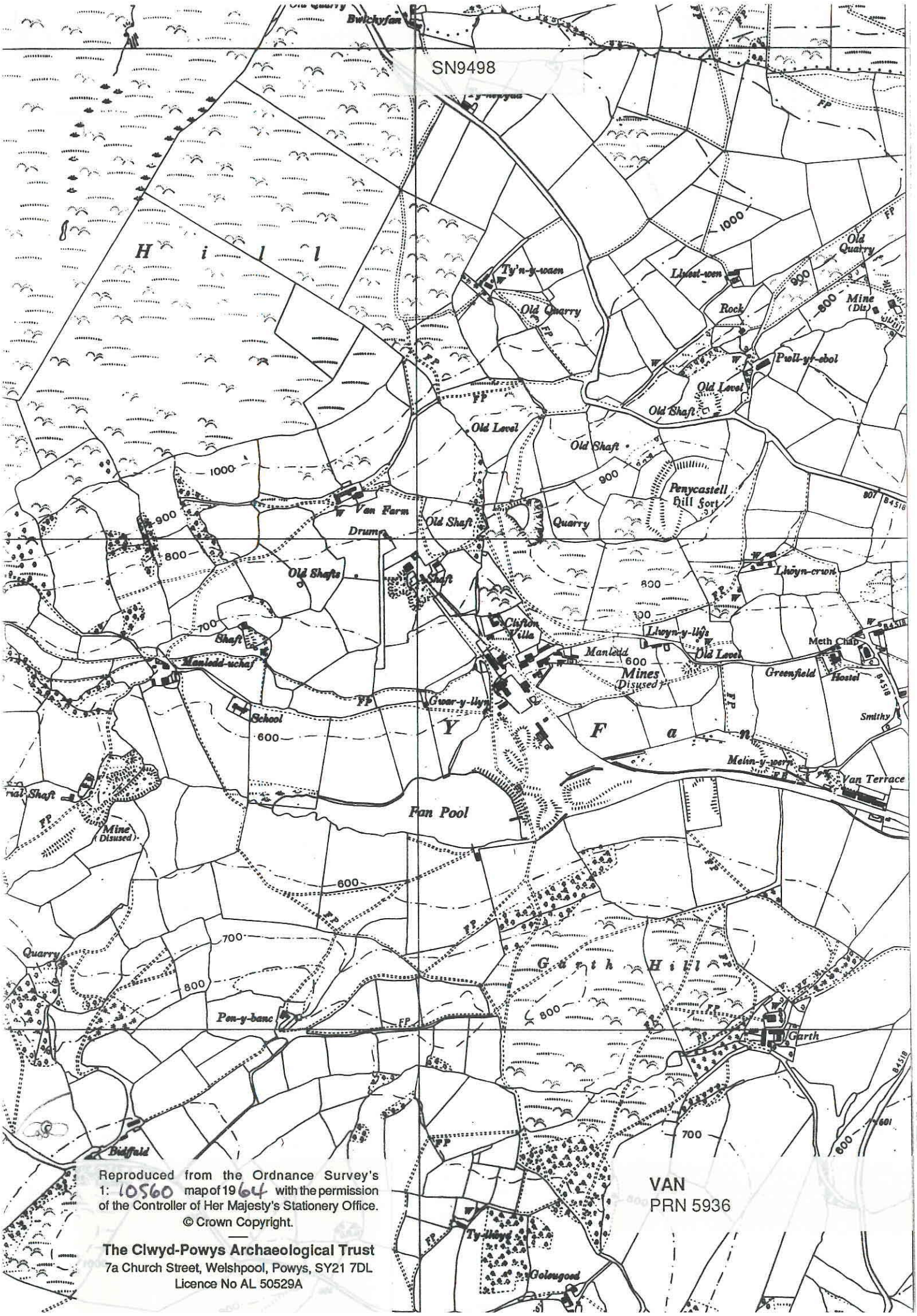

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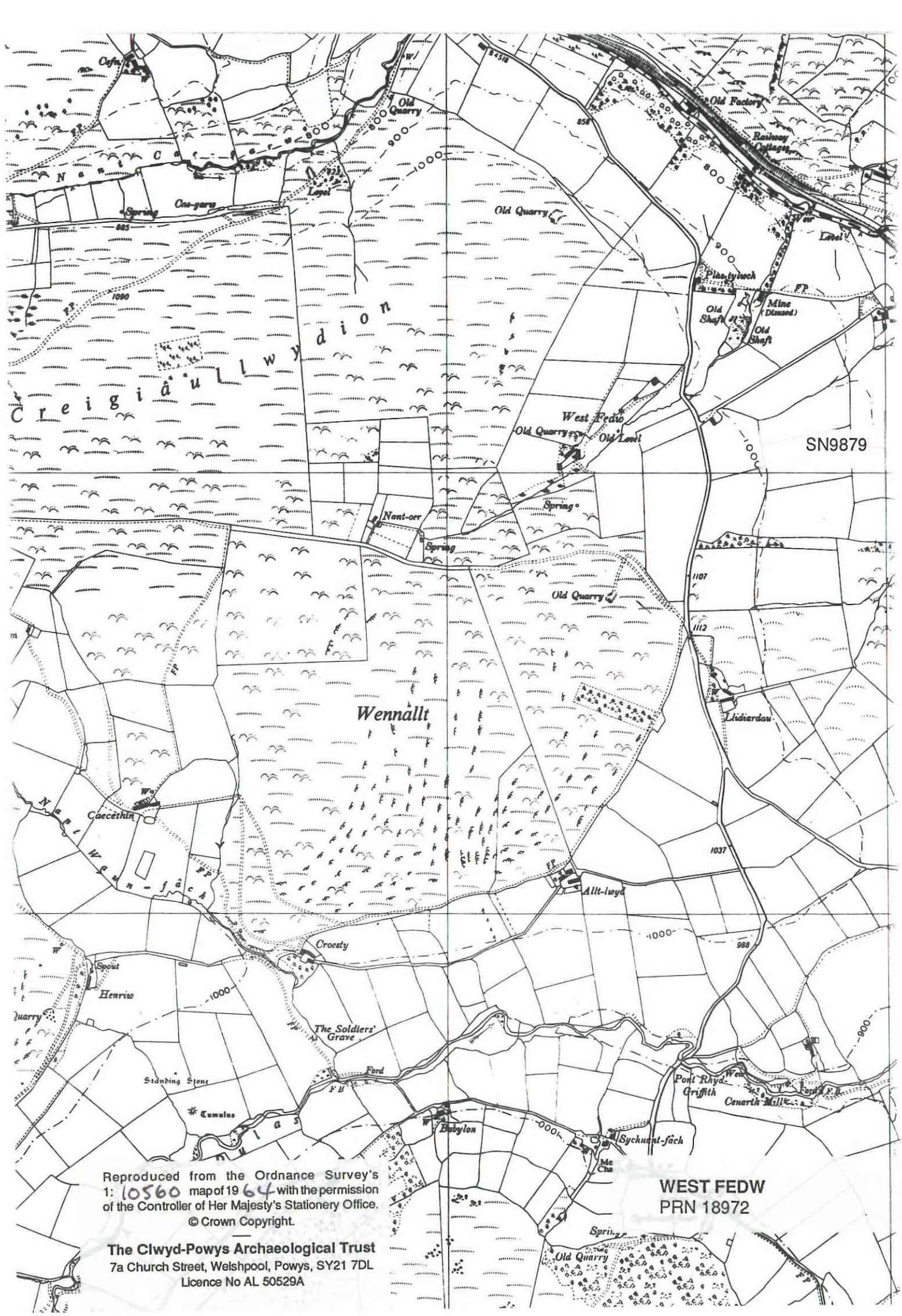

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WEST FEDW
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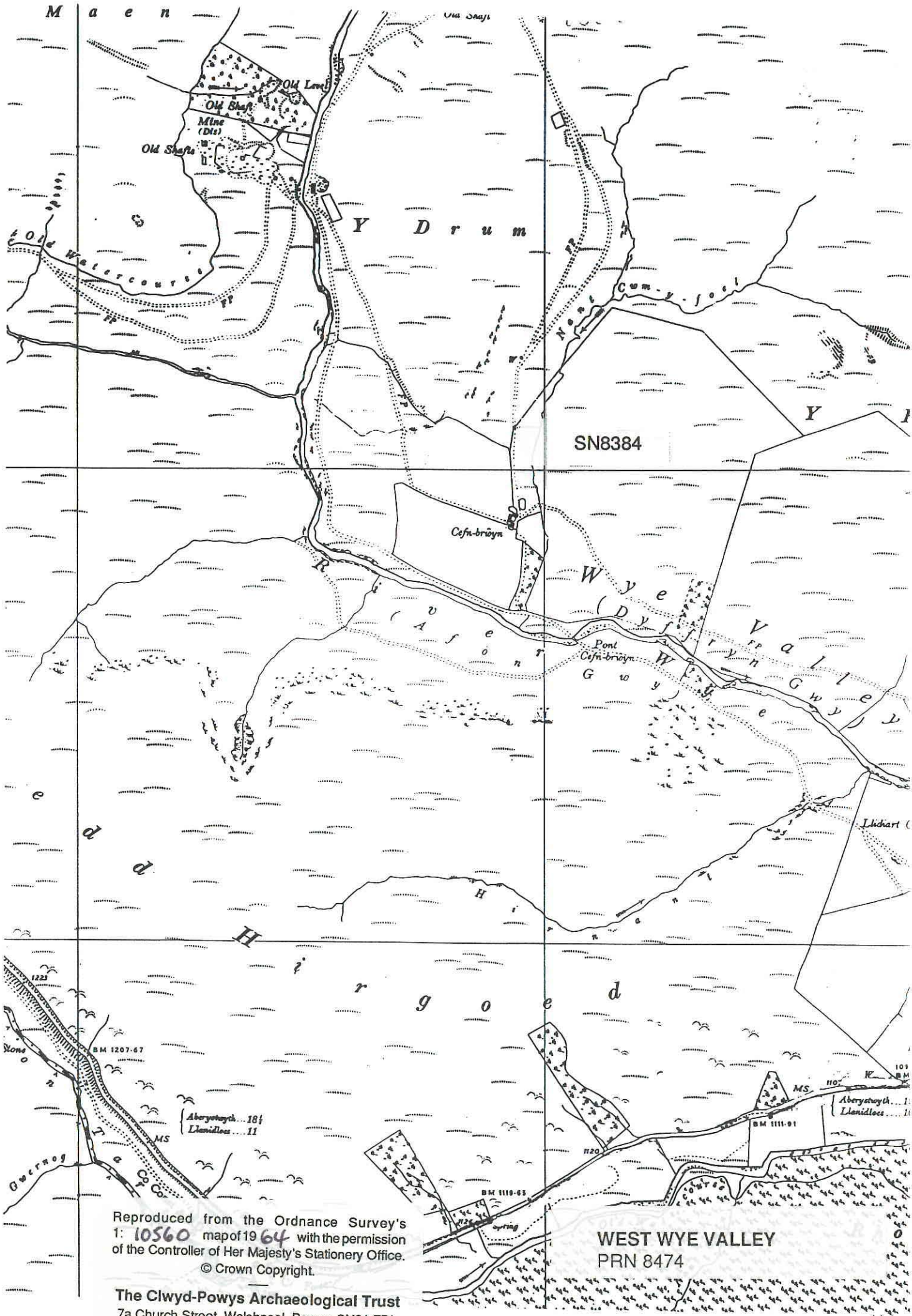

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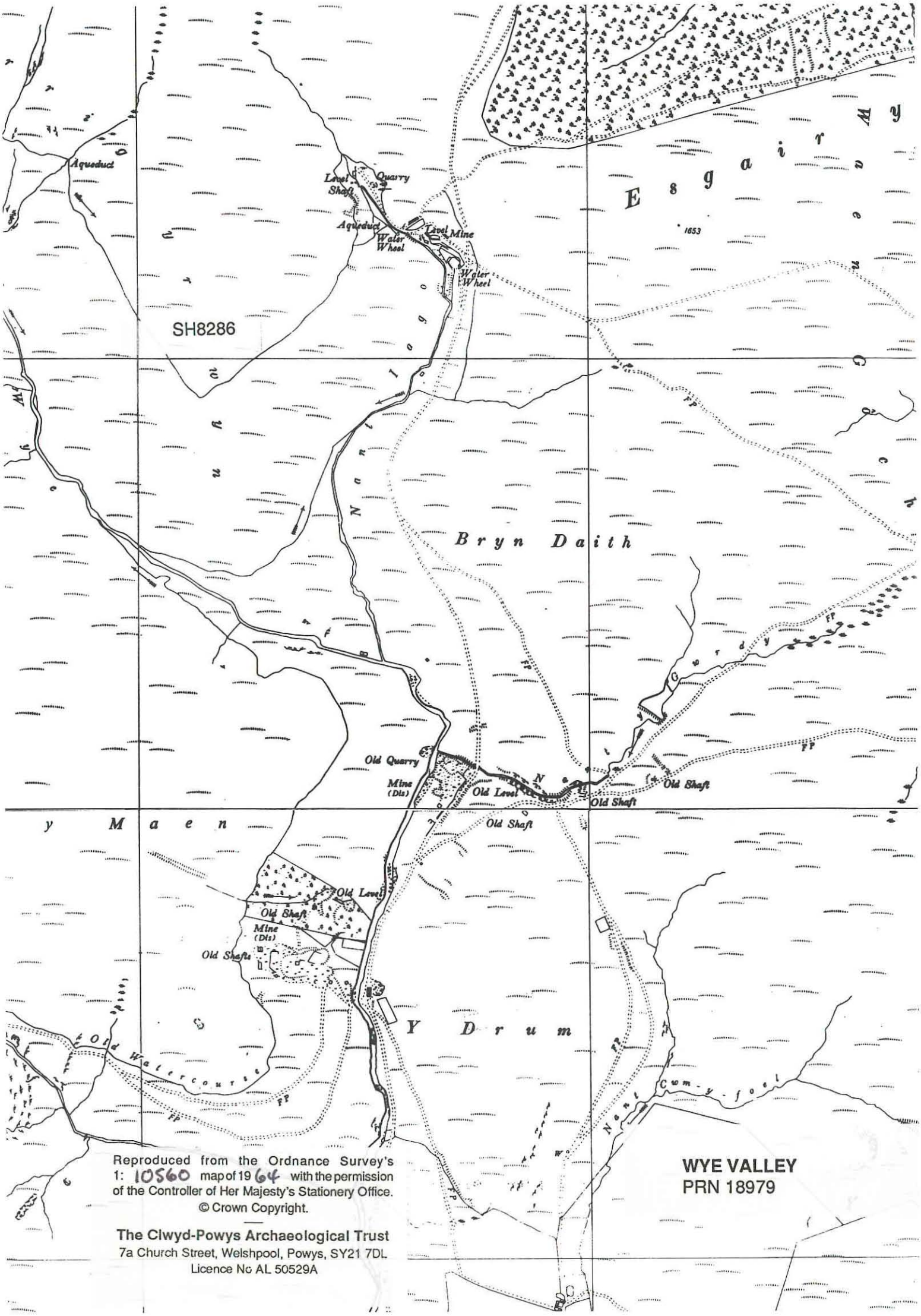

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