



Nantygawr Lead Mine, Powys
ARCHAEOLOGICAL GROUND SURVEY

N.W.Jones and P. Frost
October 1997

Survey undertaken on behalf of Welsh Water Elan Trust

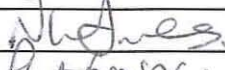
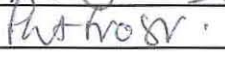
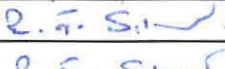

The Clwyd-Powys Archaeological Trust
7a Church Street, Welshpool, Powys, SY21 7DL
tel (01938) 553670, fax (01938) 552179
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CPAT Report Record

Report and status

CPAT Report Title	Nantygaw Lead Mine, Powys: Archaeological Ground Survey		
CPAT Project Name	Nantygaw Lead Mine		
CPAT Project No	738	CPAT Report No	248
Confidential (yes/no)	draft/final		

Internal control

	name	signature	date
prepared by	N.W.JONES		24/10/97
	P.FROST		24/10/97
checked by	R.J.SILVESTER		24/10/97
approved by	R.J.SILVESTER		24/10/97

Revisions

no	date	made by	checked by	approved by

Internal memo

The Clwyd-Powys Archaeological Trust

7a Church Street Welshpool Powys SY21 7DL

tel (01938) 553670, fax 552179

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1 INTRODUCTION

- 1.1 The Clwyd-Powys Archaeological Trust (CPAT) was invited by Welsh Water Elan Trust to provide an estimate for an archaeological ground survey of the former lead mine at Nantygaw. This followed on from work already undertaken by CPAT on three other metal mine sites (Dalrhiw, Nant y Car South and Cwm Elan; Jones and Frost 1996) within the Elan Estate during 1994, funded by Cadw: Welsh Historic Monuments.
- 1.2 The aim of the present survey was to provide a series of accurate ground plans of Nantygaw to the same format as those in the previous report, together with a basic description of the site and its more significant features.
- 1.3 The survey was undertaken by the authors over a three day period during October 1997 using a Leica TC500 EDM with Penmap survey Software. The survey results were digitally enhanced using AutoCAD12, adding additional detail from the 1st and 2nd edition Ordnance Survey 6", and locating the site correctly on the National Grid. Scaled plots were then used to provide a base for the final publication drawings. The 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 contours published on modern OS maps. The survey area is indicated by the extent of the contour information.

2 LOCATION, TOPOGRAPHY, GEOLOGY

- 2.1 The site is located on remote moorland at around 400m OD, 12km south-west of Rhayader (SN 874 606). The mine is sited on the north-east side of the Nant y Carw stream which falls steeply into the Rhiwnant Valley to the east (fig. 1).
- 2.2 Nantygaw (PRN 5512) is the most westerly of three mines within the Rhiwnant Valley, located 1.1km upstream of Dalrhiw (PRN 5511) and Nant y Car South (PRN 18994), which lie on opposing banks of the stream.
- 2.3 The solid geology comprises Silurian rocks of the Tarranon and Llandovery series (George 190, 38). Mineralisation in the form of galena (lead ore) with chalybite gangue was located in a north/south striking vein.

3 HISTORICAL BACKGROUND

- 3.1 A brief history of the mine is given by George Hall (1993, 86-7). He refers to the first direct evidence to Nantygaw when it was included in the List of Mines in the *Mining Journal* in 1883, although the original discovery may have occurred in 1877. At this time, it appears to have been included in land leased by C.W. Seacombe, who also mined at Nant y Car. In September 1886, he sold his lease to the Builth Lead Mining Company, whose chairman and managing director was Thomas J. Bewick. Reports in 1888 refer to an adit and a level being worked, with the dressing of ore commencing in November of that year. An annual report in April 1890 referred to delays due to frost, drought and shortage of labour and the output was declining. The company was wound-up in 1893.
- 3.2 The property appears to have been in the possession of George Green of Aberystwyth for a short time. Green (1824-1895) owned the Cambrian Foundry, and supplied mining equipment to mines in mid-Wales and further afield. Green patented his "self-acting dressing machinery", which included crusher rolls, jiggers, buddles and classifiers, installed in purpose-built mills, which were powered by water wheels. The remains of the Green's processing mill survive at Nantygaw, although they are difficult to interpret.
- 3.3 The Nantygaw Mining Company Ltd was registered in December 1893. No reports were published and little is known of the workings although 50 men employed, suggesting a reasonably sized enterprise. However, the company went into liquidation in 1897 despite the large returns.

- 3.4 Some activity continued until 1899, when all work was abandoned due to the construction of the Elan Valley Reservoirs. All mining within the catchment area of the dams was stopped in order to prevent any contamination to the reservoirs.
- 3.5 The site has recently been protected as a Scheduled Ancient Monument No. Br 233 (POW).

4 THE SURVEY (figs 2 and 3)

- 4.1 Access to the mine was achieved via a trackway (PRN 18508) from Nant y Car South, which follows the contours below Craig Rhiwnant.
- 4.2 The earliest workings appear to be associated with a level (PRN 12124), now collapsed, driven northwards close to the end of the original site access track (PRN 12133). Some stone walling is visible revetting the level entrance. From the level a track (PRN 12134) would have taken ore to be loaded into a row of ore-bins, of which two survive (PRNs 12144 and 12145). Two other possible ore-bins (PRNs 12123 and 12143) survive elsewhere on the site. The 1st edition Ordnance Survey 6" of 1886 shows the level and a weir with a leat running from it to a building, presumably the wheelpit, now buried beneath spoil, although the location coincides with walling (PRN 12128) visible alongside the stream.
- 4.3 The majority of features now visible relate to a later phase of activity following the sinking of a shaft (PRN 12116) and the construction of the Green's Processing Mill (PRN 12115). The shaft, which measures 2.75 x 2.4m, is stone lined with a timber frame surrounding the top. An area of collapse to the south allows a view into the shaft head, showing part of the timber pump-rods still in place. Along the south side is a sub-rectangular bob-pit (PRN 12117) up to 5.1m long and 1.85m wide at the east end. A single roomed building (PRN 12129), measuring 5.0 x 3.1m internally, is built into the side of development waste tips to the east of the shaft. A roughly circular levelled area c. 3.8m in diameter lies 25m north-east of the shaft and may represent the remains of a whim circle (PRN 12127). A possible trial level (PRN 12131) is located on the south side of the stream.
- 4.4 Power was provided by a substantial wheelpit (PRN 12141; pl. 1) 117m to the east, the flat-rods presumably being carried on stantions for which some fixing bolts are still visible along the north side of the stream. The wheelpit measures 10.5 x 3.25m and survives to a height of 3.7m. The wheel appears to have been located on the north side of the wheelpit where some fixing bolts survive alongside a small platform (PRN 12140). There is no surviving evidence for a leat supplying the wheel and it would seem likely that water was drawn directly from the stream c. 55m to west, where there is a small waterfall, and laundered to the wheelpit. Several fixing bolts and a timber post along the north side of the stream may be associated with the launder. The tail-race presumably flowed directly over the entrance to a drainage adit (PRN 12142) which was cut in beneath the wheelpit and remains open for some considerable distance. The workings of the wheelpit are no longer clear although the balance-box (PRN 12152), measuring 1.4 x 0.6m, survives at the south-east corner. It is likely that some structural evidence relating to the transfer of power to the flat-rods has been lost due to collapse along the south side. Within the main structure of the wheelpit, three narrow rectangular slots, now infilled, show the position of a flywheel and gearing mechanism.
- 4.5 The Green's Processing Mill (PRN 12115; pl. 2) lies on higher ground 70m north-west of the shaft, with a track (PRN 12132) leading to it. Power for the mill was presumably provided by water, although no wheelpit is visible. A leat was constructed in 1893 to carry water from Llyn Carw (fig. 1) 2km to the west (Bick 1991, 22), although this lies outside the area of the present survey, and a short length of leat (PRN 12151) is visible to the north-west of the mill. The surviving remains consist of three adjoining stone buildings (PRNs 12153-5), each of which would have housed machinery for different stages in the processing of the ore. The upper building (PRN 12153) measures 11.35 x 9.7m externally with walls surviving to a height of 4.3m. This substantial structure, which presumably housed the rolls crushers, is filled and surrounded by rubble with some suggestion of an internal wall dividing the building lengthways. The next building (PRN 12154) consists of a stone revetted platform measuring 15.7 x 11.35m with evidence of timber launders surviving. The final part of the structure (PRN 12155) is now partly buried by spoil, but consists of a stone revetted platform measuring c. 15 x 13.1m, with the remains of a machine base in the middle and a series of timber tanks and launders along the north-east external wall. To the south of the mill are large tips of jig and fine waste.

- 4.6 It is clear that other processing activities were undertaken on the site, some, if not all of which may have been contemporary with the main mill. The remains of a small circular buddle (PRN 12126), 6.5m in diameter, lie partly buried by waste between the mill and the shaft. Two buildings to the east of the mill are of uncertain function. Both consist of stone walls with a thin cap suggesting that the buildings were of timber construction above this base, with concrete floors. The western building (PRN 12120) measures 16.5 x 4.1m overall and stands to 0.7m. Internal partitions divide it into three rooms, possibly suggesting a barracks. The eastern building measures 13.5 x 4.85m overall and survives to a height of 1.5m. There is a single internal division with the larger eastern room containing a rectangular slot suggesting the position of machinery. An intermittent rock-cut ledge running along the north side of the track east of the buildings suggests the line of an iron pipe (PRN 12137), although the function is unknown. A jig platform (PRN 12122) measuring 3.5 x 3.5m lies to the south adjacent to the track, with a second platform (PRN 12130), probably also for jiggling, located east of the shaft.
- 4.7 A leat (PRN 12147) 1.6m wide contours eastwards, surviving only to the east of the level, although possibly originally leading from the processing mill. The leat leads to the edge of a steep scarp where fixing bolts presumably mark the position of a launder. It would seem likely that the leat carried slimes from the processing mill to a settling pit (PRN 12139) measuring 12.9 x 4.9m. A small reservoir (PRN 12146) measuring 6.35 x 5.4m alongside the leat may be another settling pit.
- 4.8 The mine smithy (PRN 12118; pl. 3) consists of a rectangular platform measuring 10.1 x 8.55m, with the chimney and hearth set centrally within it. The chimney (PRN 12119) survives to its full height of 4.2m. A short length of leat (PRN 12125) runs south and east of the smithy as far as the level. It is possible that beyond this the leat followed the line of the track (PRN 12134).
- 4.9 The mine office (and possibly manager's house) lies at the east end of the site. The building (PRN 12138), which measures 8.6 x 5.25m is divided into two rooms and consists of stone foundations 0.4m high with a concrete cap, suggesting a timber superstructure. A grassy area on the south side of track PRN 12132 may have been a garden associated with this building and the possible barracks.
- 4.10 The mine magazine (PRN 12148; pl. 4) is located at some distance to the east, with a track (PRN 12149) leading to it. The building survives intact but without a roof, measuring 5.0 x 3.3m and standing to 3.3m high.

5 CONCLUSIONS

- 5.1 Nantygaw is a mine site of considerable significance and interest to industrial archaeologists and mine historians. Its remote location has aided in the preservation of the main structures and features which together help to formulate a picture of lead mining technology towards the end of the nineteenth century.
- 5.2 In particular, the Green's Processing Mill, shaft, wheelpit and smithy provide surviving examples unique within Powys, if not Wales as a whole. Although the present survey has recorded the ground plan of such features, more detailed building recording should be considered before the structures suffer from further decay.
- 5.3 The condition of several structures, notably the wheelpit, shaft and smithy chimney are becoming increasingly unstable as time progresses. Although much of the main site is now covered with spreads of waste it would seem likely that this is actually aiding the preservation of those features buried beneath.

6 ACKNOWLEDGEMENTS

- 6.1 Thanks are due to Alec Baker of the Welsh Water Elan Trust and the Trust Rangers for providing transport. The publication drawings are by Brian Williams.

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GAZETTEER OF FEATURES

PRN	Type	Name	Form
12115	Dressing floor	Nantygaw Green's Processing Mill	Structure
12116	Shaft (lead)	Nantygaw Shaft	Structure
12117	Bob-pit	Nantygaw Shaft Bob-pit	Structure
12118	Smithy	Nantygaw Smithy	Structure
12119	Chimney	Nantygaw Smithy Chimney	Structure
12120	Building	Nantygaw Building 1	Building
12121	Building	Nantygaw Building 2	Building
12122	Jig-platform	Nantygaw Jig platform	Structure
12123	Ore-bin ?	Nantygaw Ore-bin 1	Structure
12124	Level	Nantygaw Level	Earthwork
12125	Leat	Nantygaw Leat 1	Earthwork
12126	Buddle	Nantygaw Buddle	Earthwork
12127	Whim circle?	Nantygaw Whim Circle	Earthwork
12128	Wall	Nantygaw Wall	Structure
12129	Building	Nantygaw Building 3	Structure
12130	Jig-platform?	Nantygaw Platform	Structure
12131	Trial level?	Nantygaw Trial Level	Earthwork
12132	Trackway	Nantygaw Track 1	Earthwork
12133	Trackway	Nantygaw Track 2	Earthwork
12134	Trackway	Nantygaw Track 3	Earthwork
12135	Trackway	Nantygaw Track 4	Earthwork
12136	Trackway	Nantygaw Track 5	Earthwork
12137	Leat?	Nantygaw Pipeline?	Earthwork
12138	Building	Nantygaw Office	Building
12139	Settling pit	Nantygaw Settling Pit	Earthwork
12140	Platform	Nantygaw Wheelpit platform	Structure
12141	Wheelpit	Nantygaw Wheelpit	Structure
12142	Adit	Nantygaw Adit	Earthwork
12143	Ore-bin?	Nantygaw Ore-bin 3	Earthwork
12144	Ore-bin	Nantygaw Ore-bin 2	Earthwork
12145	Ore-bin?	Nantygaw Ore-bin 4	Earthwork
12146	Reservoir	Nantygaw Reservoir	Earthwork
12147	Leat	Nantygaw Leat 2	Earthwork
12148	Magazine	Nantygaw Magazine	Building
12149	Trackway	Nantygaw Magazine Track	Earthwork
12150	Garden?	Nantygaw Garden	Earthwork
12151	Leat	Nantygaw Leat 3	Earthwork
12152	Balance-box	Nantygaw Wheelpit Balance-box	Structure
12153	Building	Nantygaw Processing Mill Building 1	Structure
12154	Building	Nantygaw Processing Mill Building 2	Structure
12155	Building	Nantygaw Processing Mill Building 3	Structure

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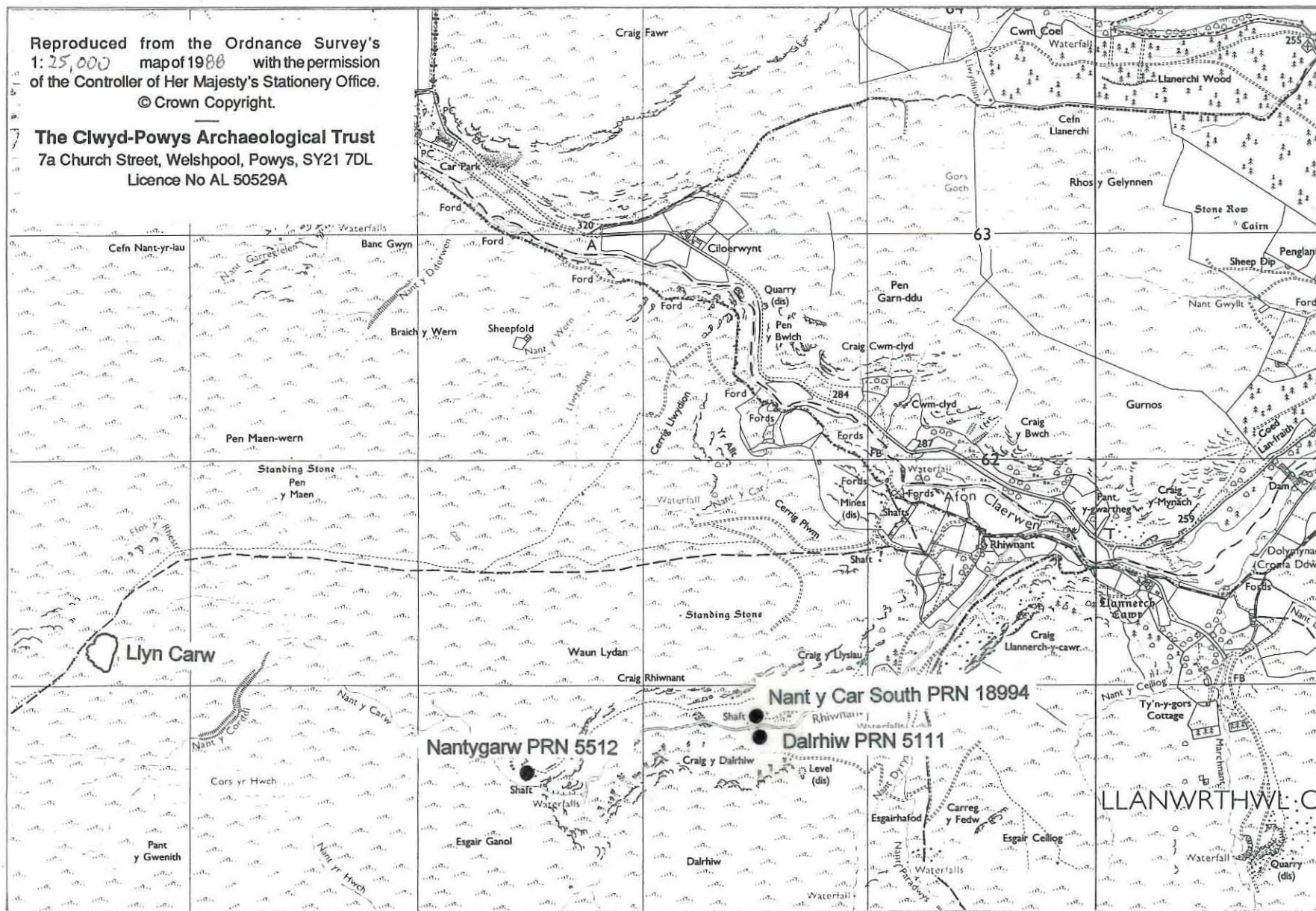
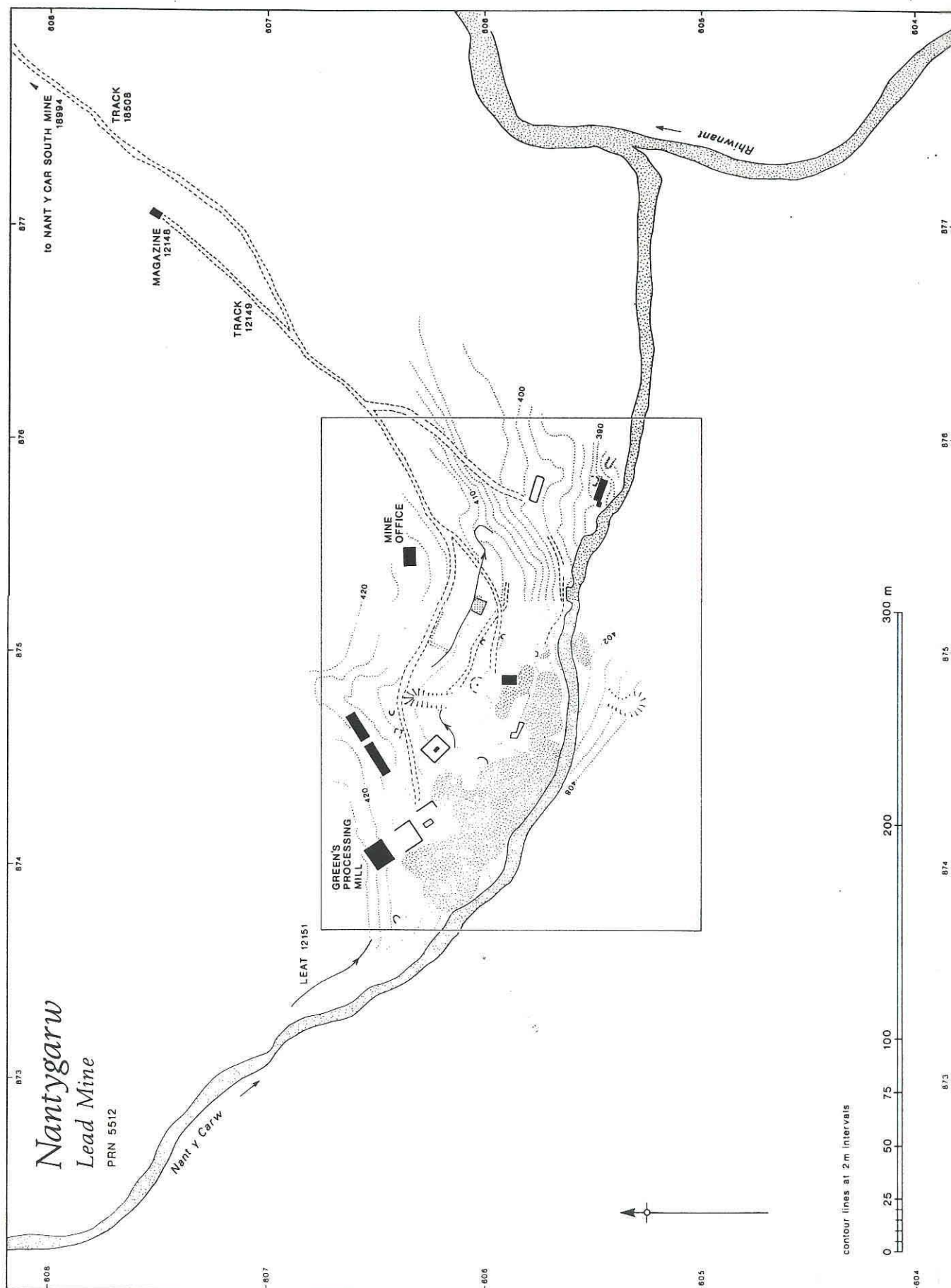


Fig. 1 Location 1:25,000



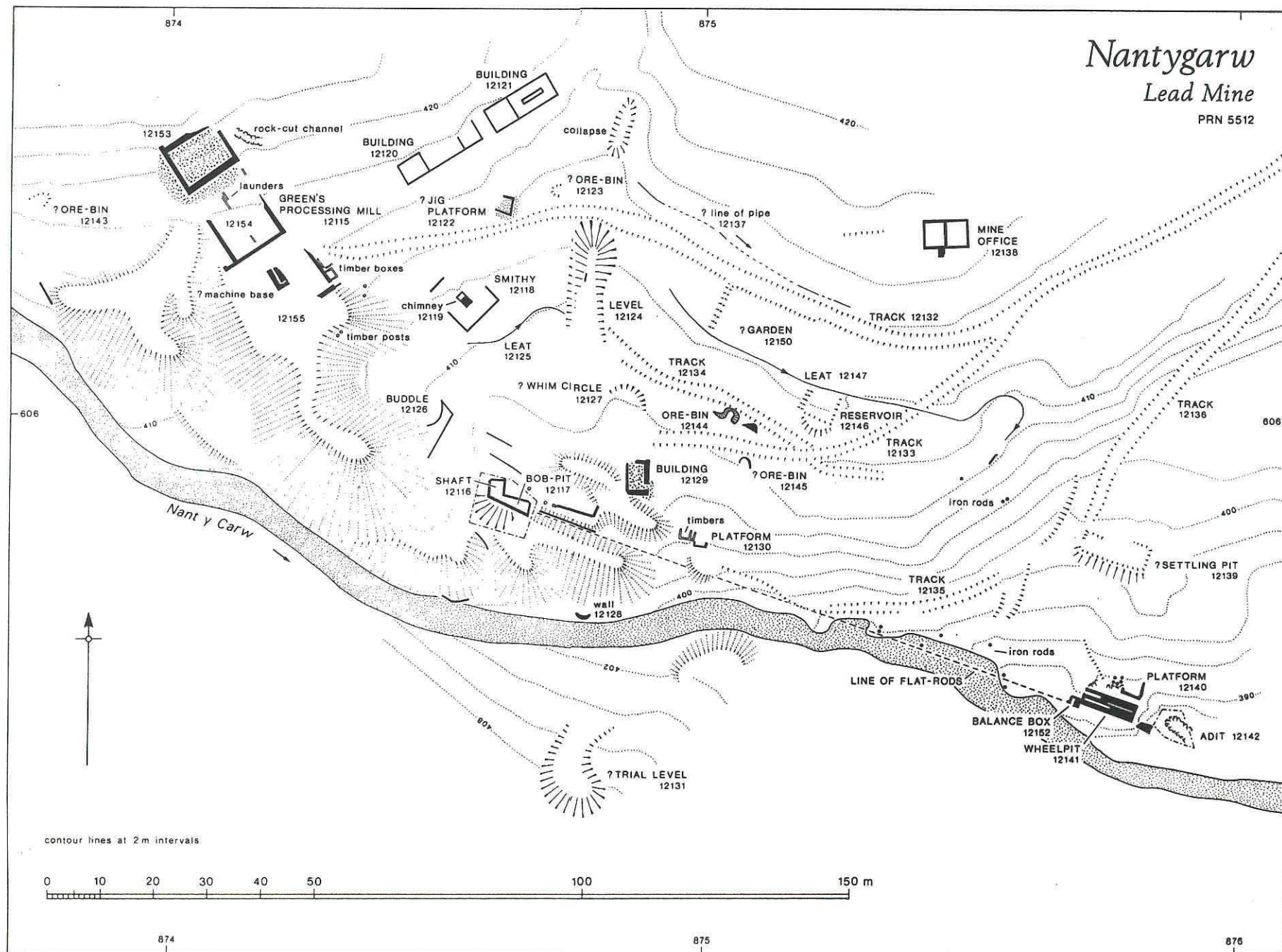




Plate 1 Wheelpit (PRN 12141) from NW. Photo CPAT 644.6



Plate 2 Smithy (PRN 12118) from S. Photo CPAT 644.13



Plate 3 Greens Processing Mill (PRN 12115) from SE. Photo CPAT 644.17



Plate 4 Magazine (PRN 12148) from SW. Photo CPAT 644.19