

**GLAMORGAN-GWENT ARCHAEOLOGICAL TRUST
CONTRACTS SECTION**

**ARCHAEOLOGICAL DESK TOP STUDY
TAWE VALE PROJECT**

October 1992

TAWE VALE PROJECT

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Summary

Two main spheres of archaeological importance were identified during the survey, environmental archaeology and industrial archaeology.

The environmental archaeology is to be found in the floodplains of the Nant-y-Fendrod and the River Tawe. Borehole data indicates that peats and other organic materials are preserved in the waterlogged deposits laid down in marshy ground associated with the Nant-y-Fendrod: these will be destroyed through desiccation if the area is drained and the information they contain will be lost. These deposits can be expected to preserve a record of the interaction of man with the landscape, set in the context of the development of the river-valley. The areas of palaeoenvironmental importance are marked on Figure 1.

The industrial archaeology is concentrated mainly towards the southern and eastern fringes of the site. This is the edge of the Llansamlet coalfield, which was of great importance at the beginning of the Industrial Revolution in the development coal-mining into a major industry through the investment of outside capital. A number of monuments are preserved, representing both pithead installations and communications. The Gwernllwynchwyth engine-house is already scheduled as an Ancient Monument (Gm 430): an area of adjacent land containing the remains of associated tramroads and leats will be recommended to Cadw for inclusion in the Schedule (Figure 3).

Acknowledgements

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The fieldwork was carried out by E M Evans in October 1992.

This report was written by E M Evans with the assistance of other members of the Trust's staff, in particular M Lawler.

1 INTRODUCTION

1.1 Development Proposal

Swansea City Council proposes to develop 436 acres of land in the Lower Tawe Valley for housing, leisure, commercial, industrial, hotel and community use. Swansea City Council has commissioned the Glamorgan-Gwent Archaeological Trust (Contracts Section) to carry out an Archaeological Desk-Top Study of the affected area as part of an Environmental Statement to accompany the application.

1.2 Specification for the report

A specification was drawn up by GGAT (Contracts Section), and is given in full in Appendix 6. The desk-top study was to include: consultation of the county Sites and Monuments Record; examination of documentary and cartographic material held in appropriate archives; examination of aerial photographs; and a site visit. On the basis of this work, a summary of the archaeological resource was to be prepared, and the implications of the development proposal identified. During the course of the work, an examination of existing borehole data was added, as this appeared to be the only way in which the archaeological potential of most of the low-lying area could be assessed.

1.3 Scope of the Report

The report describes the physical environment (Section 2), and then summarises the known and likely archaeological resource (Section 3). Appropriate measures of mitigation or preservation are then recommended (Section 4). References are listed in the bibliography, and detailed data are given in a series of appendices.

1.4 Site Identification

Sites previously recorded in the county Sites and Monuments Record are referred to by their Primary Record Numbers (PRN). New sites have been numbered in a new sequence, with the prefix TV. All sites in the vicinity of the development are shown on Figure 2. The spelling of placenames follows the most recent Ordnance Survey series, except in the case of the two former manor houses which are referred to in the form given in the RCAHM (Wales) Glam Inv IV i. Hence the mansion Gwernllwyn-chwyth is spelled with a hyphen, whereas Gwernllwynchwyth Engine House appears in the modern spelling without a hyphen.

2. PHYSICAL ENVIRONMENT

2.1 Topography

The site is bounded to the northwest by the River Tawe, apart from a small section on the west bank of the river; to the northeast as far as Walters Road by the main Swansea-Neath railway line; and southwards from there by the M4 motorway. The southern boundary at the east is formed by the Neath Road and the remainder of the site is bounded by Swansea Enterprise Park.

Most of the site lies on the floodplain of the River Tawe; indeed, since the Tithe map shows that in 1846 the tip of the northwest corner enclosed by the Tawe belonged to the parish of Llangyfelach rather than that of Llansamlet, it seems likely that part was deposited within historical times. Much of the area is below the 15m contour, apart from the southern side around Church Road and Peniel Green Road where Llansamlet village was built, and to the north of Tre-gof Farm.

Much of the survey area is currently under pasture, although the lower-lying parts are marsh. Areas of modern tipping occur throughout, but most are concentrated on the marshes.

2.2 Geology

Most of the site is covered by alluvium. The ridge upon which Llansamlet village was built is formed from glacial sand and gravel, whose surface forms mounds between which alluvium has been deposited. The higher ground north of Tre-gof Farm is also composed of glacial drift. Underlying the superficial geology are the Upper Coal Measures. The Bethel Fault runs through the survey area: the Four Foot vein is recorded as lying at a depth of 15 yards (c 15m) in Gwern Pit to the east of the fault, and at 80 yards (c 80m) in Round Pit to the west (Strachan 1907, 77; 134).

3. SUMMARY OF ARCHAEOLOGICAL RESOURCE

Environmental archaeology

Examination of borehole data held by Swansea City Council indicates the presence of peats and other preserved environmental material in the valley of the Nant-y-Fendrod, although not extending continuously over the area. These deposits have the potential to provide information on the environmental history of this area and man's interaction with it, from earliest times to the present. No comparable data was available for the area of the Tawe floodplain in the northwest corner of the site, but it seems likely that similar conditions also existed here, except where the river bed has moved in historic times (see above, Section 2). The areas of potential paleoenvironmental importance are shaded on Figure 1.

Prehistoric

Prehistoric activity in the area is represented by a possible cairn on Summerhouse Hill to the south of the survey area (PRN 2666 at SS 697967).

Roman

No evidence has been located for Roman activity in the area.

Medieval

No direct evidence for medieval activity has been found within the area, but medieval occupation can be inferred in a number of cases. It is probable that the 17th-century manor house of Fforest (Upper Forest Farm; PRN 402) replaced a medieval predecessor. It is also possible that the unlocated watermills (PRNs 398 and 399) and church PRN 405, may have lain within the area.

Post-medieval

This period is by far the best represented. Land-use in the post-medieval period was dominated by agriculture in the floodplain and industry on the higher ground at the south. The industrialisation increased over the period, and was mostly connected with coal-mining.

Coal-mining and associated communications

Coal-mining in this area developed from the second half of the 18th century (Fagg 1981-2). The northern edge of the Llansamlet

coalfield lies within the development area; this coalfield was important for the history of the capitalisation of the coal industry. Although much of the early industrial landscape has been completely obliterated, there remains a small but important section which has not been touched since the end of the eighteenth century.

Four collieries, Felin Fran (PRN 1891), Gwern (PRN 1812), Round Pit (PRN 1811) and Watch Pit (TV12) lay within the survey area. A fifth, Oak Pit (PRN 1904), may have lain in the extreme southeastern corner, but its position is difficult to pinpoint exactly from old map evidence, and no trace of it survives on the ground.

Gwern Pit, Oak Pit and Watch Pit were developed shortly after the middle of the 18th century, and Round Pit was in production by the first decade of the 19th century. Felin Fran was opened only at the end of the 19th century: the shaft within the survey area had been closed by 1917, although a colliery of this name with its entrance north of the survey area was in production until 1965. Of the other pits, Oak Pit and Watch Pit appear to have ceased production between 1773 and 1786. Round Pit is still marked as a colliery on the 1879 1st ed 25" OS map (surveyed 1877), but probably went out of use at around that date, and the site is shown on the 1897 edition as occupied by Round Pit Brickworks, with an iron foundry immediately to the east. Gwern Pit went through a number of vicissitudes and finally ceased production (as Samlet Colliery) in around 1930. The positions of Watch Pit and Oak Pit were located by S Hughes in the course of fieldwork and documentary research for RCHAM (Wales) and his thesis.

The only above-ground structures remaining at any of these pits are at Gwernllwynchwyth, where the Engine House (PRN 1884; Hughes and Reynolds 1989, 6, no 3) has been most extensively studied. This structure, built between 1772 and 1782 for a rotary engine, is of particular importance because of its early date, and is a Scheduled Ancient Monument (Gm 430). Earlier, however, the pit was being pumped by a "water-engine", for which power was supplied by leats. Other leats running through the area supplied power to other pits and industrial installations in Llansamlet. Three of these (TV8-10) have been located by S Hughes (pers comm) in the area to the south. A hollow-way (TV11) may form part of the same early industrial landscape, but there is no clear evidence either way.

The collieries were served by a network of communications which was upgraded, replaced and finally abandoned in response to changes in coal output. The earliest was the waggonway (PRN B55) constructed by the London-based entrepreneur Chauncey Townsend (Reynolds 1977) who had leased the right to mine coal under the Gwernllwynchwyth estate from 1750. This waggonway, started in 1756, was a wooden construction, probably a single track with passing places, and a branch was added to serve Townsend's pits

to the west of the Bethel Fault. It reached Gwernllwynchwyth in the later 1770s (Hughes 1983b, Appendix 2: Archaeology of the Llansamlet Railway - Cwm Pit, Gwern Pit and the lower Gwernllwynchwyth Pits branch).

It was replaced in the following decade by Townsend's son-in-law and successor John Smith, who constructed the canal which bears his name (PRN C16) between 1783 and 1785. A waggonway (TV7) connected the eastern end of this canal with the Gwernllwynchwyth Pit (Hughes 1983b, 97), originally running between SS 6932 9788 and SS 6966 9798.

The third early route was the tramroad (PRN B57) built by John Scott to carry coal from his pit to the northeast of the survey area (Reynolds 1980). Part of the route of this was later re-used by the Swansea Valley Railway (PRN D04), another section is fossilised in the line of a track leaving the A48 at SS 6873 9733, and a third (SS 6932 9788 to SS 6965 9821) appears on aerial photographs, but is not apparent on the ground.

A tramroad linking the Felin Fran Colliery to the Swansea Vale railway (PRN B58) appears on the 1899 edition of the OS 25" map, but had apparently gone out of use by 1917, when it was marked as "Old Tramway".

In addition to the above-ground communications, some of the pits were connected below ground. Oak Pit and Watch Pit were connected by a water level which ran below the survey area, but it is likely to have been at a sufficient depth to be unaffected by any development (S Hughes pers com).

Other industries

A mill leat (appearing as "Mill Lade" on the 1879 and 1899 OS maps and "Mill Race" on the 1919 edition) ran through the survey area from SS 6825 9907 to 6773 9830, cutting off the bend of the river, with a weir near its northern end and another at its southern end near Upper Forest Farm. This leat (TV4) served the Upper Forest Mills (PRN 1213) to the south of the survey area next to the river and on the south side of Pant-y-blawd Road opposite Upper Forest Farm. They consisted of a grist mill and iron forge, the latter added in 1696 (Hughes 1984, 14). In 1729 they appear on Emmanuel Bowen's map as "Forging Mills", together with the leat. Copper rolling and slitting was added by the end of the 18th century (Hughes 1983a, 6), and the water-power available was estimated in 1844 as being 40 horse power (Reynolds 1982, 9). In 1845, the site was acquired by Hallam and Madge, who built the first tinsplate works in the Lower Swansea Valley on the site. Upper Forest continued to produce tinsplate until 1958. Judging from aerial photograph evidence, the leat appears to have ceased to be a functional waterway between 1960 and 1978.

A gravel pit (TV6) is marked on the 1879 edition OS map immediately south west of Round Pit, at SS 6870 9750. In the 1899 edition it is marked as "disused", but record of gravel extraction is still preserved in the placename "Pwlllygrafel" (gravel pit).

Another activity preserved in placename evidence is lime burning. The Tithe plan shows a landholding called "Tir Odyn Galch". This was split into two parts, one immediately west of the gravel pit with a frontage on the main road to Neath, and the other in the bend of the Nant-y-fendrod north of Pant-y-blawd Road. It seems most likely that the kiln itself was situated in the former: a building on the road frontage with the name of "Twyn-yr-odyn House" appears on the OS 25" maps from 1879. The exact position of the kiln has not, however, been located.

The land on the western bank of the Tawe was occupied by the Midland Tinplate works (TV1), which were founded on the site of the Tircanol colliery in 1879.

Domestic Architecture and agricultural settlement

The survey area contains the sites of two mansions, Fforest (PRN 402) which belonged to the Popkin family and Gwernllwyn-chwyth (PRN 1184) which was probably built by John Smith.

Fforest still stands as the farmhouse of Upper Forest Farm, but in a ruinous state. The main block of the farmhouse is of late 17th century construction, to which a service wing was added shortly after. A survey has been carried out by the Royal Commission on Ancient and Historic Monuments (Wales), which classes it among the sub-medieval houses (No 13), and it is of lateral chimney plan (RCAHM Glam Inv IV i, 154-6).

Gwernllwyn-chwyth, which was demolished in 1965, was a late 18th century mansion of double-pile plan. Its main interest lay in the use of facing brick, probably the first occasion in which this method of construction was used in Glamorgan (RCAHM Glam Inv IV i, 279-82: Renaissance houses No 34).

An isolated farmstead, Tre-gof Farm (TV5), at SS 6890 9845, can be traced back to 1846, when it appears on the Tithe Map, which also shows a cottage adjacent to the farm proper. None of the currently visible buildings can be shown to be earlier than the 19th century, and the placename "Tre-gof" does not appear in the 17th century surveys. There is, however, a possibility that there may have been earlier occupation on this site, perhaps under a different name.

Another cottage (TV3) appears on the Tithe plan at approximately SS 6790 9845, in an enclosure made from field 539, between the mill leat (TV4), Tygwyn Road and Pant-y-blawd Road. No further information is available on this structure.

Undated

In the aerial photographs of 1978 and 1982, a feature appears on the alluvium in the bend of the river centred at SS 6785 8955. It took the form of a parchmark, a pale-coloured band of approximately the same width as Tygwyn Road, running in an arc forming nearly half a circle of approximately 250m (TV1). No interpretation can be suggested for this feature.

4. RECOMMENDATIONS

* Monuments marked with an asterisk combine together, and with Gwernllwynchwyth Engine House, to form a remarkably well-preserved coal-mining landscape of the later 18th/early 19th century, in which the value of the group is greater than that of its constituent parts. For this reason, the shaded areas in Figure 3 are being recommended to Cadw for scheduling as an Ancient Monument under the Ancient Monuments and Archaeological Areas Act of 1979. Together with Scott's Pit and Smith's Canal, they have great potential for presentation to the public as an archaeological heritage area.

Areas of palaeoenvironmental potential

It is recommended that a programme of examination of the buried deposits should be devised and agreed with the Council's archaeological advisers, with the object of investigating the evolution of the lower Tawe basin in order to understand settlement patterns and their environmental circumstances. It is recommended that the alluvial stratigraphy should be investigated by means of machine-cut trial pits and auger holes; and that a palaeoenvironmental sampling programme should be undertaken to establish a chronological and ecological framework for the alluvial sequence. The analyses recommended for determining the chronological framework are radiocarbon dating for peats and archaeomagnetic determination for sediments; and for determining the ecological framework they are pollen analysis, plant macrofossil analysis and molluscan analysis (if the conditions are suitable).

TV1 Midland Tinsplate Works

We note that this area is excluded from allocation of land for specific purposes marked on the plan provided. If ground disturbance should take place, archaeological field evaluation would be required to assess the information potential of this site.

TV2 Parchmark

The position, size and form of this parchmark suggests that it is unlikely to have an archaeological origin. Nevertheless, an watching brief should be carried out by a suitably qualified person on any groundworks.

PRN 402 Upper Forest Farm

The preferred option in this case is preservation in situ, but we recognise that the structural condition of this building may be

such as to make it impossible. Any other course of action will depend on the treatment of the site. At the moment, it seems likely that any underlying archaeology will be protected over most of the site by the tipping which has taken place, but there is a risk that they may be damaged if it is removed. In any case, further archaeological field evaluation will be required to assess the scope of any earlier occupation of the site, and the extent to which they are protected by the tipping.

TV3 Cottage

Limited archaeological field evaluation evaluation will be required to assess the character and date of occupation on this site.

TV4 Mill leat

It is recommended that this monument, which has associations with the earliest phases of the iron-working, copper-working and tinplate industries in Swansea, is retained as a feature of the new development. We suggest that a scheme for its management be agreed with the Council's archaeological advisers. As retention will involve renovation, it is recommended that this should be undertaken in conjunction with a programme of archaeological recording by suitably qualified persons. If it is not possible to retain this monument, a programme of archaeological recording and selective excavation should be undertaken by suitably qualified persons in advance of any destruction.

TV5 Tre-gof Farm and Cottage

Limited archaeological field evaluation will be required to assess the character and date of occupation on this site.

PRN 1891 Felin Fran Pit Colliery

The archaeological potential of this area is low. We note, however, that the pithead area of this colliery is excluded from allocation of land for specific purposes marked on the plan provided. If ground disturbance should take place, a watching brief by a suitably qualified person should be sufficient response unless significant underground workings are discovered, in which case recording should be carried out by appropriately qualified persons in advance of any destruction. See below for the possible bridge abutment on the site, which forms part of the railway siding.

PRN B58 Felin Fran Siding (including possible bridge abutment on colliery site)

It is recommended that this monument is retained and utilised as a feature of the development. We suggest that a scheme for its management be agreed with the Council's archaeological advisers. Any modification involving ground disturbance or the demolition of built structures along the route should be undertaken in conjunction with a programme of archaeological recording, supplemented as necessary with excavation, and carried out by suitably qualified persons. If it is not possible to retain this monument, a programme of archaeological recording and selective excavation should be undertaken by suitably qualified persons in advance of any destruction.

TV6 Gravel Pit

The archaeological potential of this area is very low. No further action is required.

PRN 1811 Round Pit colliery, later Roundpit Brickworks

The archaeological potential of this area is low. A watching brief by a suitably qualified person should be sufficient response unless early underground workings or levels are discovered, in which case recording should be carried out by appropriately qualified persons in advance of any destruction.

PRN 1812 Gwern Pit (later Llansamlet) Colliery

The archaeological potential of this area is low. A watching brief by a suitably qualified person should be sufficient response unless early underground workings or levels are discovered, in which case recording should be carried out by appropriately qualified persons in advance of any destruction.

PRN C16 Smiths Canal

It is recommended that this monument, an important relic of the early industrialisation of the coalfields in the Swansea area, is retained and utilised as a feature of the development, although we understand that it is unlikely for reasons of maintenance to be restored as an open water course. We suggest that a scheme for its management be agreed with the Council's archaeological advisers. Any works involving ground disturbance should be undertaken in conjunction with a programme of archaeological recording, supplemented as necessary with excavation, and carried out by suitably qualified persons. If it should not be possible to retain this monument, a programme of archaeological recording

and selective excavation should be undertaken by suitably qualified persons in advance of any destruction.

TV7 Feeder Waggonway to Smith's Canal

It is recommended that this monument, an important relic of the early industrialisation of the coalfields in the Swansea area, is retained and utilised as a feature of the development. We suggest that a scheme for its management be agreed with the Council's archaeological advisers. Any works involving ground disturbance should be undertaken in conjunction with a programme of archaeological recording, supplemented as necessary with excavation, and carried out by suitably qualified persons. If it should not be possible to retain this monument, a programme of archaeological recording and selective excavation should be undertaken by suitably qualified persons in advance of any destruction.

PRN B57 Scott's Tramroad

It is recommended that the area between the line of the Swansea Valley Railway and M4 motorway should be surveyed to establish the exact position of any remaining indications of the line of this tramroad, and that this line should be avoided by development. If this is not possible, any works involving ground disturbance should be undertaken in conjunction with a programme of archaeological recording, supplemented as necessary with excavation, and carried out by suitably qualified persons. If it should not be possible to retain this monument, a programme of archaeological recording and selective excavation should be undertaken by suitably qualified persons in advance of any destruction.

PRN D04 Swansea Valley Railway

It is recommended that this monument should be retained and utilised as a feature of the development. We suggest that a scheme for its management be agreed with the Council's archaeological advisers. Any works involving ground disturbance or the demolition of built structures along the route should be undertaken in conjunction with a programme of archaeological recording, supplemented as necessary with excavation, and carried out by suitably qualified persons. If it should not be possible to retain this monument, a programme of archaeological recording and selective excavation should be undertaken by suitably qualified persons in advance of any destruction.

*** PRN B55 Townsend's waggonway**

It is recommended that this monument, an important relic of the early industrialisation of the coalfields in the Swansea area, is retained and utilised as a feature of the development. We suggest that a scheme for its management be agreed with the Council's archaeological advisers. Any works involving ground disturbance should be undertaken in conjunction with a programme of archaeological recording, supplemented as necessary with excavation, and carried out by suitably qualified persons. If it should not be possible to retain this monument, a programme of archaeological recording and selective excavation should be undertaken by suitably qualified persons in advance of any destruction.

*** TV8 Leat**

It is recommended that this monument, an important relic of the early industrialisation of the coalfields in the Swansea area, is retained and utilised as a feature of the development. We suggest that a scheme for its management be agreed with the Council's archaeological advisers. Any works involving ground disturbance should be undertaken in conjunction with a programme of archaeological recording, supplemented as necessary with excavation, and carried out by suitably qualified persons. If it should not be possible to retain this monument, a programme of archaeological recording and selective excavation should be undertaken by suitably qualified persons in advance of any destruction.

*** TV9 Chauncey Townsend's Great Leat**

It is recommended that this monument, an important relic of the early industrialisation of the coalfields in the Swansea area, is retained and utilised as a feature of the development. We suggest that a scheme for its management be agreed with the Council's archaeological advisers. Any works involving ground disturbance should be undertaken in conjunction with a programme of archaeological recording, supplemented as necessary with excavation, and carried out by suitably qualified persons. If it should not be possible to retain this monument, a programme of archaeological recording and selective excavation should be undertaken by suitably qualified persons in advance of any destruction.

*** TV10 Leat and dam**

It is recommended that this monument, an important relic of the early industrialisation of the coalfields in the Swansea area, is retained and utilised as a feature of the development. We suggest that a scheme for its management be agreed with the Council's

archaeological advisers. Any works involving ground disturbance should be undertaken in conjunction with a programme of archaeological recording, supplemented as necessary with excavation, and carried out by suitably qualified persons. If it should not be possible to retain this monument, a programme of archaeological recording and selective excavation should be undertaken by suitably qualified persons in advance of any destruction.

TV11 Hollow-way

The information potential of this feature is low. Any works involving its complete or partial obliteration should be preceded by a programme of archaeological recording undertaken by suitably qualified persons.

TV12 Watch Pit Colliery

As the position of this pit is currently not visible in the field, we assume that it has been capped, but the nature of the capping is unknown. If works involving ground disturbance are proposed for this area, we suggest that as a first step a geophysical survey be carried out to locate the top of the shaft and any associated buildings: this information should then be used to determine what further action is necessary.

PRN 1904 Oak Pit Colliery

If works involving ground disturbance are proposed for the area in which this colliery may be located, we suggest that as a first step a geophysical survey be carried out to determine whether this is the case and, if so, locate the top of the shaft and any associated buildings. This information should then be used to determine what further action is necessary.

PRN 1184 Gwernllwyn-chwyth

The archaeological potential of this area is very low. No further action is required.

PRN 1884 Gwernllwynchwyth Engine House

We understand that a management plan for this monument and its associated outbuildings has been agreed with Cadw.

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Appendix 1: Sites of archaeological interest in the survey area not previously entered on the County Sites and Monuments Record

	Site	Grid Reference
TV1	Midland Tinsplate Works	
TV2	Parchmark	SS 6785 8955
TV3	Cottage	SS 6790 9845
TV4	Mill leat	SS 6825 9907- 6773 9830
TV5	Tre-gof Farm and Cottage	SS 6890 9845
TV6	Gravel Pit	SS 6870 9750
TV7	Waggonway	SS 6933 9790- 6966 9798
TV8	Leat	SS 6959 9789
TV9	Chauncey Townsend's Great Leat	SS 6978 9780- 6987 9786
TV10	Leat and dam	SS 6976 9788- 6993 9793
TV11	Hollow-way	SS 6972 9793- 6976 9783
TV12	Watch Pit Colliery ¹	SS 6970 9790

1. This pit was originally included under the PRN allocated to Gwernllwynchwyth Engine House. However, as more recent research suggests that the pit lay on a different site, it has been given a separate designation here.

Appendix 2: Sites on the County Sites and Monuments Record

Sites within the development area

PRN	Grid Reference	Type	Date	Description
402	SS 6760 9830	Mansion	PM	Upper Forest Farm
1068	SS 6860 9768	Bridge	PM	Smiths Canal Bridge, Llansamlet
1184	SS 6972 9805	Mansion	PM	Gwernllwyn-chwyth
1811	SS 6905 9765	Colliery	PM	Round Pit colliery, later Roundpit Brickworks
1812	SS 6948 9770	Colliery	PM	Gwern Pit (later Llansamlet) Colliery
1884	SS 6976 9795	Colliery	PM	Gwernllwynchwyth Engine House ²
1891	SS 6915 9846	Colliery	PM	Felin Fran Pit Colliery
1904	SS 6975 8790	Colliery	PM	Oak Pit Colliery
B55	SS 68 97	Tramway	PM	Townsend's waggonway
B57	SS 697 983 -	Tramway	PM	Scotts Tramway
B58	SS 6915 9848	Tramway	PM	Felin Fran Siding
C16	SS 681971 - SS 691977	Canal	PM	Smiths Canal
D04		Railway	PM	Swansea Valley Railway

Sites within 1 km of the development area

397	SS 6856 9775	Church	Med	Llansamlet Parish Church
402	SS 6745 9753	Manor House	PM	Upper Forest Farm
840	SS 6737 9789	Bridge	PM	Wychtree Bridge
845	SS 6750 9775	Works	PM	Dyffryn Tinsplate Works
849	SS 6972 9830	Colliery	PM	Scotts Pit (Venture Pit) Colliery
1148	SS 703987	Dwelling	PM	Cottage, Heol Las
1186	SS 674997	Mansion	PM	Glyn-collen House
1213	SS 6761 9825	Forge	PM	Upper Forest Forge
1572	SS 6937 9752		PM	Railway Arches (SWR)
1810	SS 684977	Colliery/Works	PM	Charles Pit Colliery /Aber Tinsplate Works
1813	SS 6935 9715	Colliery	PM	Park Pit Colliery
1814	SS 6935 9715	Colliery	PM	Cwm Level Colliery
1865	SS 6983 9861	Dwelling	PM	Heol Las Farm
1881	SS 6875 9734	Railway Stn	PM	Llansamlet Midlands Railway Station

2. This number was also given by the SMR to Watch Pit, which had mistakenly been located at the same point. It has been numbered TV12 for this report.

1882	SS 6802 9730	Railway Stn	PM	Llansamlet GWR Railway Station
1883	SS 6938 9738	Chapel	PM	Bethel Chapel
1885	SS 703981	Colliery	PM	Emily Pit Colliery
1886	SS 7031 9845	Dwelling	PM	Birchgrove House
1888	SS 699 989	Colliery	PM	Brothers Pit Colliery
1890	SS 7002 9860	Watermill	PM	Heol Las Woollen Mill
1897	SS 686970	Colliery	PM	Cwm Pit Colliery
1900	SS 686969	Colliery	PM	Seren Pit Colliery
1901	SS 689965	Colliery	PM	Eight Pit Colliery
1903	SS 684971	Colliery	PM	Park Pit colliery
1905	SS 684977	Colliery	PM	Church Pit Colliery
1907	SS 695969	Colliery	PM	Trallwyn Mine
1917	SS 701979	Colliery	PM	East Pit Colliery
1918	SS 705 976	Colliery	PM	Heol Ddu/Coed Saeson Pit Colliery
2666	SS 697967	Cairn(?)	P	Possible cairn, Summerhouse Hill
2755	SS 6789 9907	Dwelling	PM	Ynys-Forgan Farm
2809	SS 6868 9985	Dwelling	PM	Ynystanglws Farm
A86	SS 69 96	Trackway	U	Green lane
C03	SS 661945	Canal	PM	Swansea Canal
D07		Railway	PM	GWR S Wales Railway
D31		Railway	PM	Unfinished mineral railway, Clydach - Gwaun-Cae-Gurwen
D33		Railway	PM	Swansea District Line

Sites in the vicinity of the development area, but not precisely located

PRN	Area centred on	Type	Date	Description
398	SS 6842 9796	Mill	Med	Manorial Watermill
399	SS 6942 9868	Mill	Med	Manorial Watermill
401	SS 6808 9730	Mill	Med	Manorial Watermill
405	SS 6887 9755	Church	Med	Gwernllwyn Parish Church

Appendix 3:

Maps and Documents Consulted

Note: The archives of Swansea City Council, Swansea Museum, Swansea Public Library, University College Swansea, and West Glamorgan County Council were consulted for relevant documents, but a greater use was made of the extensive body of material which has already been published and analysed.

Ordnance Survey

Glamorgan Sheets XV6, XV10, XV11: First edition 1879; Second edition 1899; Edition of 1917; revisions of 1035, 1940, 1945.

Swansea City Archive

Tithe Map for the Parish of Llansamlet, western sheet dated 1846, eastern sheet undated.

West Glamorgan Record office

Tithe apportionment for the Parish of Llansamlet

Printed Sources

Bowen, E 1729

New and accurate map of South Wales
(facsimiled Glamorgan Archives Service)

Baker, C & Francis, GG
1870

Surveys of Gower and Kilvey

Appendix 4:

Aerial Photographs Consulted

The collection of the Central Registry of Air Photographs, Welsh Office, was examined.

Sorties:	Scale:	Date:	Frame Numbers:
RAF 106G/UK 1231	1:4800	10.3.46	5041-5043, 5059-5061
106G/UK 1419	1:9900	15.4.46	4099-4101
106G/UK 1625	1:9600	07.7.46	1285-1288
CPE/UK 1997	1:9800	13.4.47	4148-4151
CPE/UK 2107	1:4800	28.5.47	5189-5192
540/748	1:6000	21.5.52	5379-5382
58/RAF/3506	1:9999	21.4.60	0107-0109
Ordnance Survey	1:23600	11.6.78	106-108
Meridian Airmaps Ltd	1:10,000	16.4.81	001 (NW corner of site only)

Standing Conference on
Regional Policy in Wales
(W Glamorgan)

113 92	1:500	12.5.92
105 92	1:500	10.6.92

Features appearing here but not elsewhere were TV2 centred at SS 6785 8955 which appeared on photographs of the Ordnance Survey and Meridian Airmaps sorties. RAF sortie 58/RAF/3506 and the Ordnance Survey sortie provided information about the recent condition of TV4.

Appendix 5:

Summary of archaeological implications of borehole data held in the Engineers Department, Swansea City Council

Borehole logs and related data for the area of the survey and the Enterprise Zone immediately to the south were examined to see whether there was any evidence for waterlogged organic deposits which would be destroyed by desiccation if the area is drained. These are of particular importance in alluvial deposits, as hardly any work has been done on such areas in Wales (Caseldine 1990, 17-8), and their development and the effects of man's interreaction with them are very poorly understood.

Two sets of boreholes indicated the presence of such deposits. One was the series sunk by Thyssen in 1986 for the proposed National Garden Festival site, and the other was sunk by Exploration Associates (S3187) west of the Nant-y-Fendrod immediately south of the survey area.

Garden Festival site.

Borehole No 5 was sunk through the Felin Fran siding embankment, the makeup for which extended downwards for 4m from ground level at 13.78m aOD. Below the makeup, from 4.00 to 4.70m was a dark grey silt, and from 4.70 to 5.30m light grey silty clay banded with peat, below which the glacial deposits occurred.

Borehole No 6 was sunk to the north of Smith's Canal from a ground level of 11.49m aOD. The uppermost 2.6m aOD was makeup, below which (2.60 - 3.45m aOD) was peat followed by two layers of silt (3.45 - 3.80m and 3.8 - 4.20m) and one of silty clay (4.20 - 5.80m) before the glacial deposits.

W of Nant-y-Fendrod

Boreholes No 4 and 5 were sunk very close together, both from a ground level of 7.58m. The uppermost metre of borehole No 4 was makeup; below this from 1.00 to 4.50m aOD was dark grey clay, followed by silty clayey sand containing wood fragments from 4.50 to 6.00m and then the glacial deposits. Borehole No 5 contained makeup for 1.30m, below which was grey-brown silty organic clay with pockets of peat (1.30 - 3.50m) followed by grey silty clayey sand with bands of yellow-brown clay (3.50 - 4.40m) before the glacial deposits. Although no organic remains were noted in the sand in the log for borehole No 5, the general summary of results identified this as being the same layer as the sand with wood fragments in borehole No 4.

Appendix 6:

Site Visit

TV1 Midland Tinsplate Works

This site has been reclaimed and is now largely planted with bushes and small trees. There do not appear to be any above-ground remains of the works, although it is difficult to be certain of this as the density of the vegetation precluded detailed investigation of the site.

TV2 Parchmark

Nothing of this possible feature was visible on the ground.

PRN 402 Upper Forest Farm (Fforest)

This building is in a ruinous condition. Detailed inspection was not undertaken for safety reasons, but the exterior of the ground floor appeared to be buried by tipping which had raised the level of the surrounding land, and parts of the walls of the upper floor had collapsed.

TV3 Cottage

To the east of Upper Forest Farm the Tithe Map shows a cottage and garden enclosed from field 539 to the south of the mill leat. No trace of this was visible on the ground.

TV4 Mill leat

This watercourse now for the most part follows the line of Tygwyn Road and is extensively silted and blocked. The line is, however, visible along the full length. No traces of the route variation marked on the Tithe map are now visible on the ground, although the northern end of the course showed on the 1981 Meridian Airmaps aerial photograph. Traces of a revetment are visible in places. At the northern end of the east side this was of rubble, but elsewhere where it was noted it was of timber and iron, formed from horizontal planks revetted at the front by a row of spaced vertical iron stakes. In places the timbers had disappeared, leaving only the iron stakes. Neither of the weirs marked on the 19th century OS maps was visible.

TV5 Tre-gof Farm and Cottage

This farm complex has been abandoned and is falling into ruin. Two farmhouses are extant. The earlier appears to be entirely of sandstone rubble construction with brick dressings, although the

fabric is largely obscured by render, and would appear to be of 19th century date. The second farmhouse is a modern bungalow. All the farm buildings are of modern concrete and corrugated iron construction, with the exception of a barn of sandstone rubble with brick dressings. The cottage marked on the Tithe map immediately to the south of the farm complex is represented only by a stump of sandstone rubble masonry mostly covered in ivy and a slight earthwork platform.

PRN 1891 Felin Fran Colliery

This site is marked by low earthworks covered by brambles. No topographic detail could be distinguished apart from a length of wall possibly forming a bridge abutment for the tramway described below.

PRN B58 Felin Fran Siding

This monument appears for most of its length as a low embankment running across the marshy ground between Felin Fran Pit and Llansamlet village. For the most part, this embankment is in good condition and can be traced easily between SS 6910 9765 and SS 6913 9819 where it gives way to a cutting. From SS 6910 9765 to 6914 9839 where it meets Walters Road it is followed by a footpath. Between Walters Road and Nant-y-bran is a copse through which the line of the tramroad is not apparent, but on the northern bank of the Nant-y-bran is length of wall which appears to be an abutment for the tramroad bridge.

TV6 Gravel Pit

No trace of this feature was visible.

PRN 1811 Round Pit Colliery and Brickworks

The site of Round Pit is now occupied by a car-repair business. No above-ground remains survive.

PRN 1812 Gwern Pit (Samlet Colliery)

The site of this colliery is now occupied by Peniel Green Auto Repairs. No above-ground remains survive, apart from areas of tipping alongside the Swansea Vale railway line.

PRN C16 Smith's Canal

Between SS 6860 9768 (the position of the bridge which was demolished in about 1980; PRN 1068) and the point at which it is

crossed by the Felin Fran siding, SS 6910 9775, this monument is visible on the ground as a slight depression, rather marshier than the surrounding terrain. East of this section, an attempt was made to follow the line but was abandoned as the marshy nature of the whole area made it extremely difficult and unsafe. Examination of the most recent aerial photographs of this area (OS 78-085) taken in 1978 shows that the line was still visible as far as the Swansea Valley Railway, and as there does not appear to have been any tipping in this area, there is no reason to suppose that it has been subject to further degradation.

TV7 Feeder Waggonway to Smiths Canal from Gwernllwynchwyth

This feature appears in the field on the opposite side of Gwernllwynchwyth Road from the Engine House, as a slight earthwork enhanced by differences in vegetation, running from the crossing of the Swansea Vale and Great Western Railways at the east to the gate into Gwernllwynchwyth Road at the west (SS 6955 9895 to 6966 9798). A continuation eastwards to Smith's Canal appears on the air photographs, but could not be traced on the ground because of the difficulties of the terrain. The gap in the Swansea Vale embankment as it crosses the line of this waggonway presumably represents the site of an overbridge.

PRN B57 Scott's Tramroad

No traces of this feature were seen on the ground within the survey area, with the exception of the lane on the northern side of the A48 at SS 6873 9733 which follows the course of the tramroad, but where none of its features are preserved. The section north of Smith's canal, although showing clearly on air photographs taken in May and June of this year, is not easily distinguishable on the ground from other slight earthworks which seem to be associated with the water channels in this area.

PRN D04 Swansea Valley Railway

The cutting which formed the western end of the that section of the railway within the survey area has to a large extent been filled in by dumping. The embankment/terrace to the east is in a fairly good state of repair to the GWR bridge but has been removed to the north.

PRN B55 Chauncey Townsend's Wagonway

The survey area contains a short but very well-preserved section of this wagonway, in the form of a terrace which lies part of the way up the hillside to the east of Gwernllwynchwyth Road and lying south of the Engine House (SS 6959 9789 to 6967 9793).

TV8 Leat

A short section of leat lies alongside Townsend's Waggonway B55 on its southern, uphill side immediately east of the present mainline railway (previously Great Western), but disappears after some thirty metres (SS 6959 9789).

TV9 Chauncey Townsend's Great Leat

A section of this leat, which seems originally to have led to Pwll Mawr colliery to the south (S Hughes pers com), appears on the west of Gwernllwynchwyth Road, immediately south of a field boundary which it follows west-east for just over 100 metres (SS 6978 9780 to 6987 9786). It takes the form of a ditch about 1m deep and a couple of metres wide, and is choked for most of its length with brambles. Traces of it disappear soon after reaching the pylon, but Hughes believes that it originally followed the boundary further.

TV10 Leat and dam

A second leat ran roughly east-west to the north (downhill) of Townsend's Great Leat east of Gwernllwynchwyth Road (SS 6976 9788 to 6993 9793). This takes the form of a (mostly) dry ditch defined by slight banks, mostly some 1m wide and about 0.4m deep. To the east of the stream it is rather deeper and wider and still partly holds water.

TV11 Hollow-way

What appears to be a hollow-way runs northwest-southeast down the hillside following the eastern boundary of the field to the east of Gwernllwynchwyth Road (SS 6972 9793 to 6976 9783). This probably represent the line of a road, but was not identified as such on any of the early maps consulted.

TV12 Watch Pit Colliery

No trace of this feature was visible on the ground.

PRN 1904 Oak Pit Colliery

No trace of this feature was visible on the ground.

PRN 1184 Gwernllwyn-chwyth

This house has been completely demolished. The only standing structure is a wall of sandstone rubble provided with buttresses

on its eastern side, probably to be identified with the garden wall.

PRN 1884 Gwernllwynchwyth Engine House

This monument is in a poor state of repair. We understand that the planning permission which has already been granted for this area includes provisions for the remains of the engine house and its outbuildings to be consolidated and made accessible to the public.

Appendix 7:

Specifications of Work Undertaken

1. Objectives

1.1 Assessment of existing archaeological information to determine the extent, character and significance of archaeological interests in both local regional and wider contexts and the likely effects of the proposed development on such interests by means of documentary study and field visit to form part of an Environmental Assessment.

1.2 Identification of areas or features requiring Field Evaluation, where there is good reason to believe that present archaeological knowledge is insufficient for recommendations for further work or mitigatory measures to be included as part of the Environmental Assessment.

2. Documentary Searches

2.1 Collation of information pertaining to sites recorded in County Sites and Monuments Record (SMR).

2.2 Searches of relevant cartographic sources for additional archaeological information and collation of information relating to archaeological interests.

2.3 Analysis of aerial photographic coverage for additional archaeological information and collation of information relating to archaeological interests.

2.4 Analysis of relevant historic documents for additional archaeological information and collation of information relating to archaeological interests.

3. Fieldwork

3.1 Site visit to check present condition of visible archaeological features identified through the execution of 2.1 - 2.4 and to assess factors that may have influenced the condition and/or visibility of these features.

3.2 Identification of unknown archaeological features or sites.

3.3 Rapid recording of archaeological features or sites (eg sketch plotting and photographs).

4. Consultations

4.1 Liaison with other consultees undertaking related studies as part of the Environmental Assessment.

4.2 Liaison with local historical societies and other relevant independent expertise.

5. Assessment

5.1 Assessment of the importance of information acquired from the execution of 2-4.

5.2 Assessment of the impact of the development proposals on defined archaeological interests.

6. Report

6.1 Client - Synthesis of data gathered through the execution of 2-5 together with inclusion of supporting evidence in appendices as appropriate and identification of areas or features of archaeological interest onto scale drawings and/or listing of such features by eight figure National Grid References. Identification of legal constraints (eg scheduled ancient monuments, listed buildings etc) relating to archaeological interests.

6.2 Academic - Digest report of significant archaeological information in appropriate outlet (eg regional/national journal or bulletin).

6.3 Other - Initial notification of sites without statutory protection which may satisfy the Secretary of State's criteria for national importance which are a prerequisite for statutory protection.

7. Archive

7.1 Preparation of an ordered archive of records made during the assessment, but excluding matters affected by confidentiality or copyright.

7.2 Deposition of the assessment archive with an appropriate organisation, preferably the County SMR.

8. Staff

8.1 The project will be managed by the Trust's Principal Archaeological Officer (Contracts) AG Marvell who is a member of the Institute of Field Archaeologists validated at Member grade and carried out under the supervision of Dr EM Evans, a Project Manager with the Trust. who is also a member of the Institute of Field Archaeologists validated at Member grade.

9. Insurance

9.1 The Trust is comprehensively insured (including substantial Professional Indemnity) to undertake a project of this kind. (Details are available on request.)

Appendix 8:

Catalogue of research archive

1. Correspondence relating to commissioning of report
2. Copy of the report
3. Annotated drafts of report
4. Notes and transcripts
5. Photos

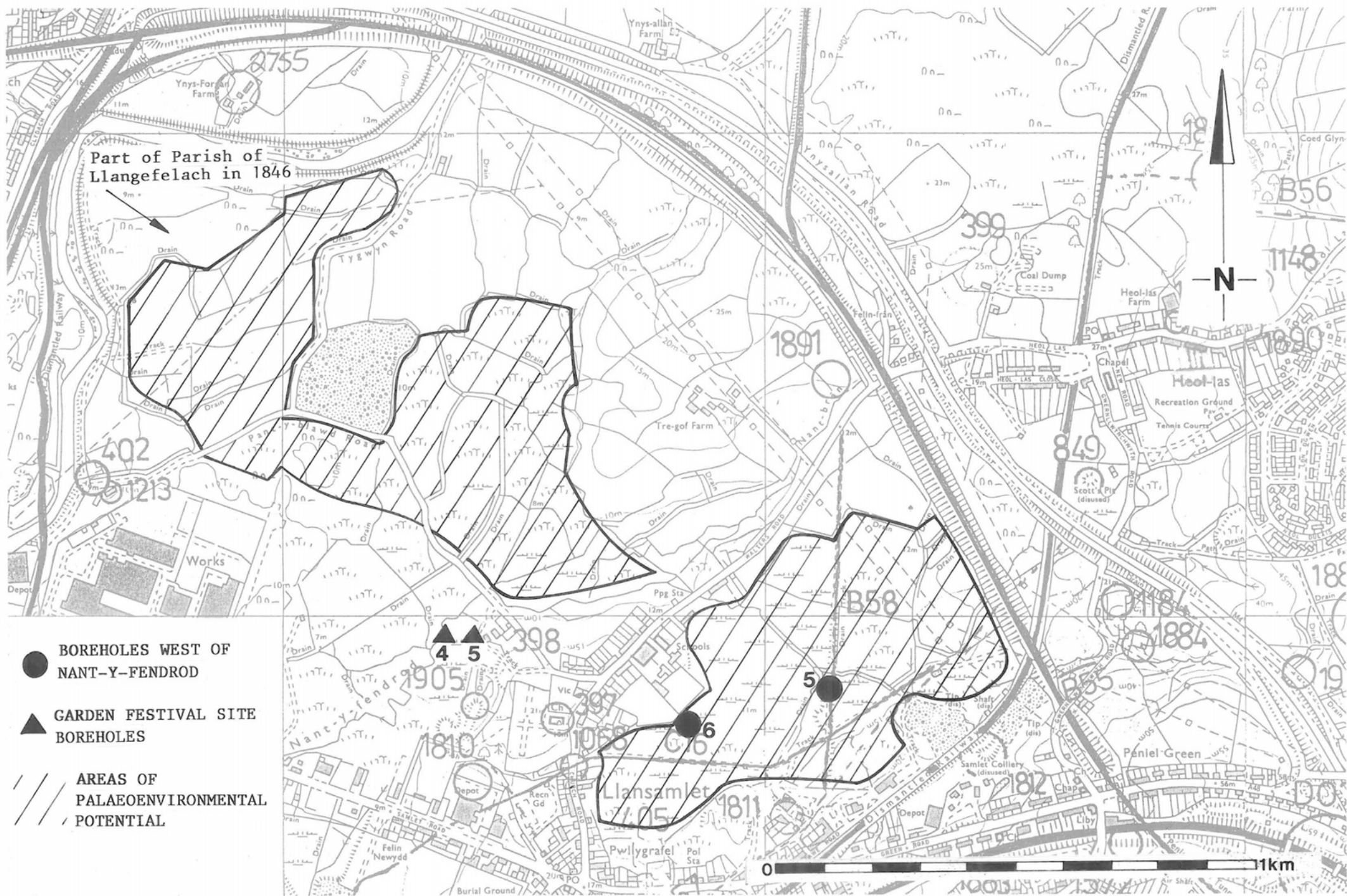


Fig. 1 AREAS OF PALAEOENVIRONMENTAL POTENTIAL

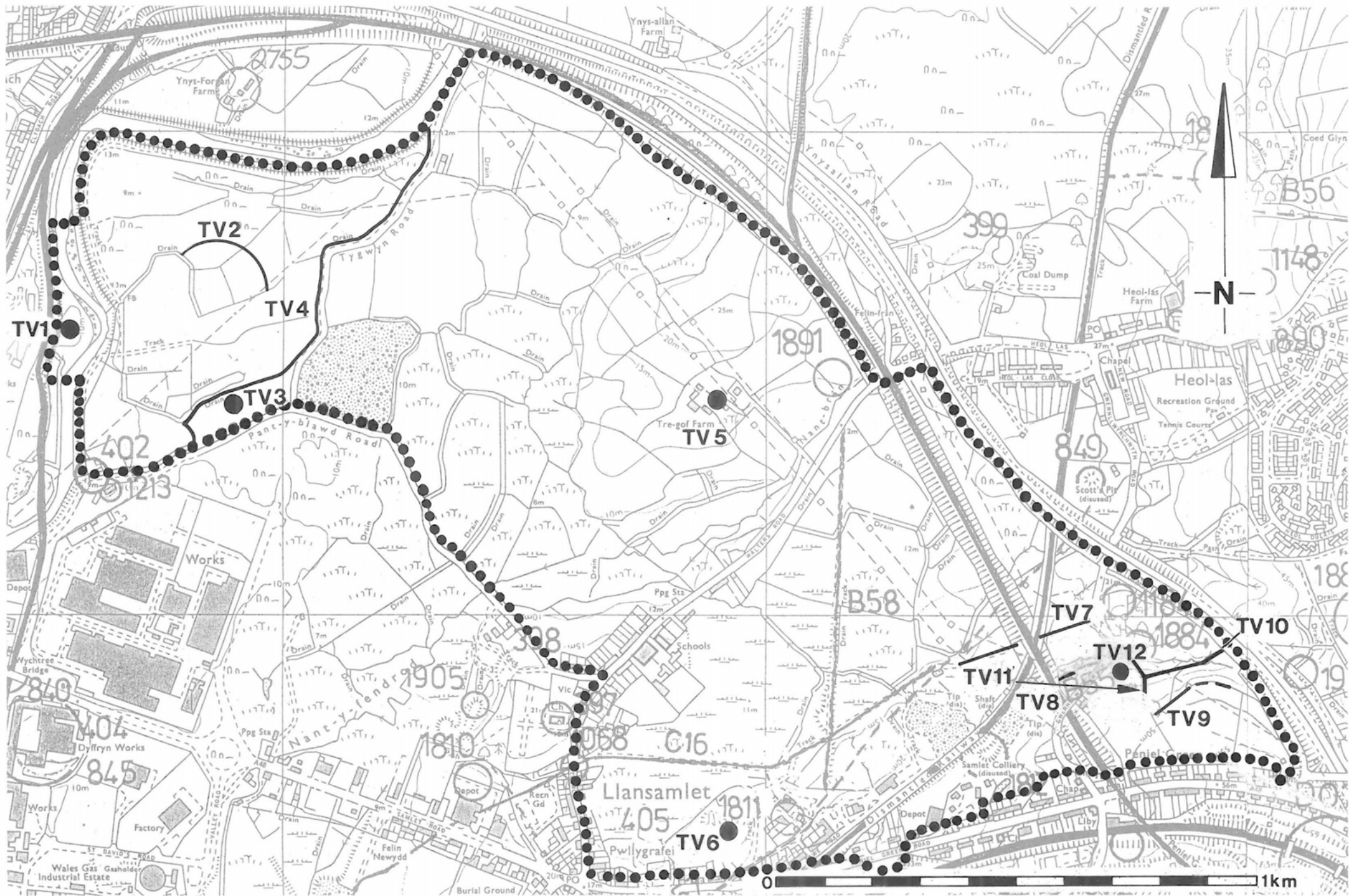


Fig. 2 SITES OF ARCHAEOLOGICAL INTEREST IN THE SURVEY AREA

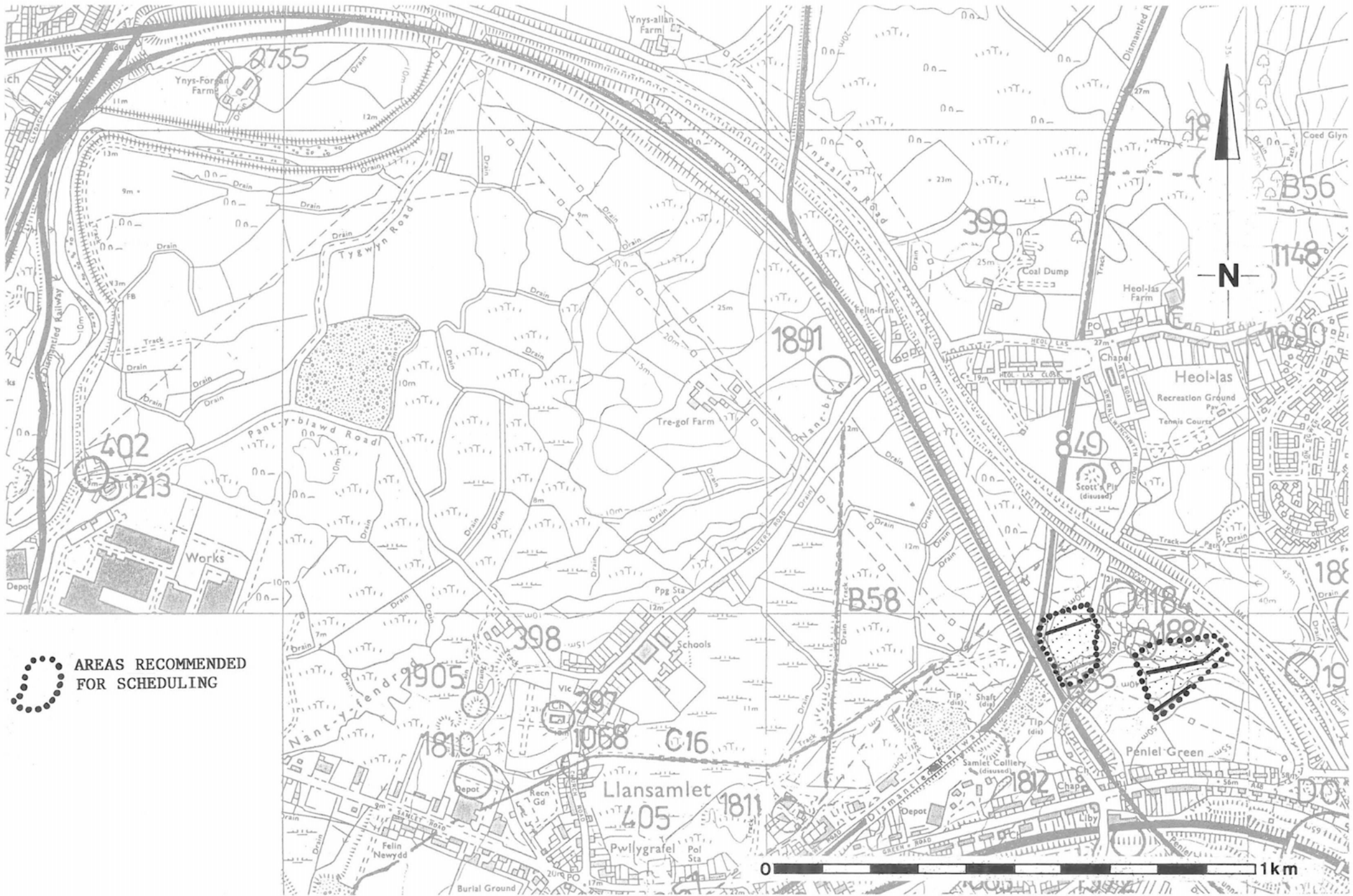


Fig. 3 AREAS RECOMMENDED FOR SCHEDULING