

SMR
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PORT DINORWIC BYPASS
ARCHAEOLOGICAL ASSESSMENT

YMDDIRIEDOLAETH ARCHAEOLEGOL GWYNEDD CYF

GWYNEDD ARCHAEOLOGICAL TRUST LTD

PORT DINORWIC BYPASS - ARCHAEOLOGICAL ASSESSMENT

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1. BACKGROUND

The Welsh Office Highways Directorate is proposing to build the Port Dinorwic (Y Felinheli) by-pass across land to the south of the town. The proposed route extends for approximately 5 kilometres from Griffiths Crossing on the present A487 south of Port Dinorwic northwards to the Vaynol Estate roundabout, and climbs and descends the north-facing slope of the edge of the Arfon Plateau, from approximately 25m to 90m (Fig. 1). The route passes through an area of boulder clay and morainic drift, which overlie igneous bedrock.

In February 1991 the Gwynedd Archaeological Trust submitted a proposal to assess the archaeology along the route, as follows;

Stage 1 Desk-top assessment

Stage 2 Fieldwalking

Stage 3 Geophysical survey

Stage 4 Trial trenching

Stage 5 Preparation of report

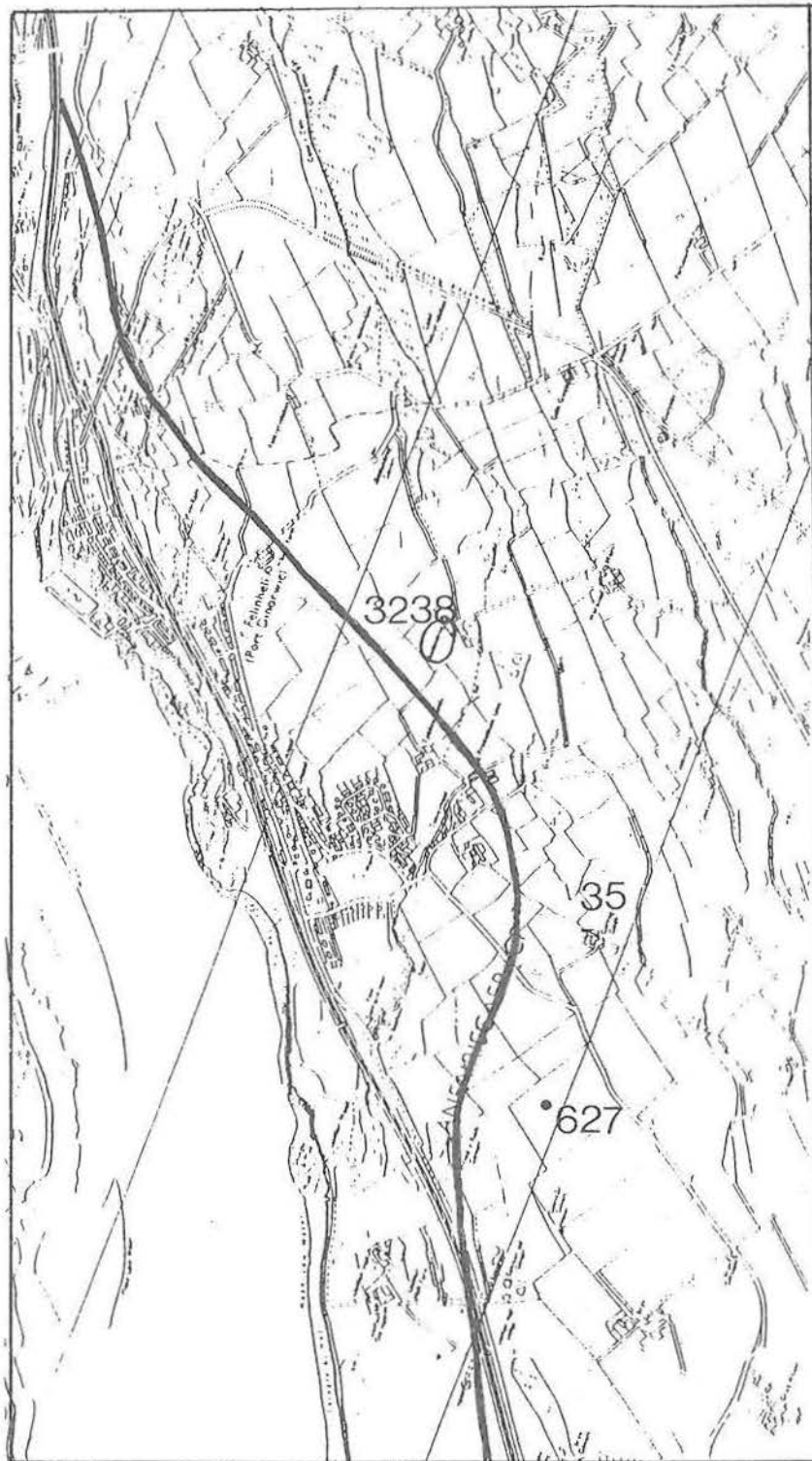


Fig. 1

Map showing the proposed route of the Bypass and SMR sites in the vicinity.

2. DESK-TOP ASSESSMENT

The County Sites and Monuments Record (SMR)

The SMR contains 4 sites in the vicinity of the new road, none of which were directly affected by the proposed route (Fig 1). The sites were:

PRIMARY RECORD

NUMBER (PRN)	SITE TYPE	GRID REFERENCE
627	Burial chamber	SH 51546604
35	Roman coin hoard (whereabouts unknown)	SH 520661
3238	Medieval settlement (placename)	SH 52706670
631	Standing stone	SH 41966827

Tithe Survey

A search of the field names affected by the route revealed a full list of names for the parish of Llanfair-is-gaer. The survey for the parish of Pentir however did not contain a listing of apportionment field names. Field patterns on the 1840 Tithe maps are still easily recognised on current 1:10000 Ordnance Survey sheets. Surprisingly few small fields have been incorporated into larger field systems since 1840. A full list of field names will be incorporated into the archive held by GAT.

Other Maps and Manuscripts

Special attention was paid to Bodandreg Farm (PRN 3238). The modern farm name is the same as that of the 13th century township known in this area, probably first mentioned in an Edwardian extent of 1296. The township was divided into 3 gafaelion (gafael refers to a holding of land held by a family group) called gafael Cadell ap Llywarch, gafael Madog ap Llywarch and the gafael of Iowerth ap Llywarch. Six tenants are listed in this township belonging to the three gafaelion. Land was also held by three other named individuals not members of the gafaelion. No surviving settlements or settlement patterns associated with the Medieval township can now be identified.

The Vaynol Estate map of 1777 (VAYNOL 4056) was also examined. None of the field names appear to be of archaeological significance. As the native settlement location and distribution patterns of townships of this period are poorly understood there is no basis on which to attempt to identify any such sites. However evaluation trenches have been excavated on the line of the road in the fields to the north of Bodandreg farm.

The 1st (1888/9), 2nd (1900) and 3rd (1916) editions of the OS 25" maps held in the Gwynedd Archives were consulted in order to establish which field boundaries had been removed in the last century. Four fields contained removed boundaries, Nos. 14, 2, 13 and 9, which were also identified by geophysical survey (see below). A rectangular structure was shown between fields 2 and 14, although it was outside the present brief to investigate.

Aerial photography

The Trust has taken its own set of aerial photographs of the route of the road and no sites are visible on any of these. The Royal Commission on Ancient and Historical Monuments in Wales were contacted regarding aerial photographs taken of the area. The Commission's collection contains no photographs showing sites along the line of the route except for a small rectangle in the west corner of field 2 which was interpreted as the result of muck-spreading activities. Arrangements to examine the private collection of Mrs. Mary Aris have not come to fruition.

Other Sources

The Trust's attention was drawn to a local metal detector operator who has been working in the area of Carreg Goch farm for some years. This is no doubt because of the Roman coin hoard from the vicinity discovered in the last century. He confirmed that after four years of detecting he had found nothing of any antiquity in the area.

Mr. Jones of Carreg Goch mentioned that a millstone found in the area was still to his knowledge in a garden of a local house. This has not yet been located.

Mr. O. Owen of Bodandreg farm mentioned that he had found a coin in field 7 when he was a boy, although he has since lost it. The

coin he described may have been a barbarous radiate. He has also regularly ploughed up large bones in field 8.

3. FIELDWALKING

The entire route of the bypass was intensively walked in order to locate surviving archaeological features and to identify suitable areas for geophysical survey. Most of the route lay under high quality pasture interspersed with arable, with some areas of woodland on the lower slopes and outcrops on the plateau edge.

Four fields, all within Bush Farm, showed potential archaeological features, as summarised below:

Field 13 Low stony banks running the length of natural outcrop

Field 9 Cultivation ridges and lynchets.

Field 11 Low linear ridges.

Field 10 Hut circle and possible enclosure (Fig. 2).
 (see trench H).

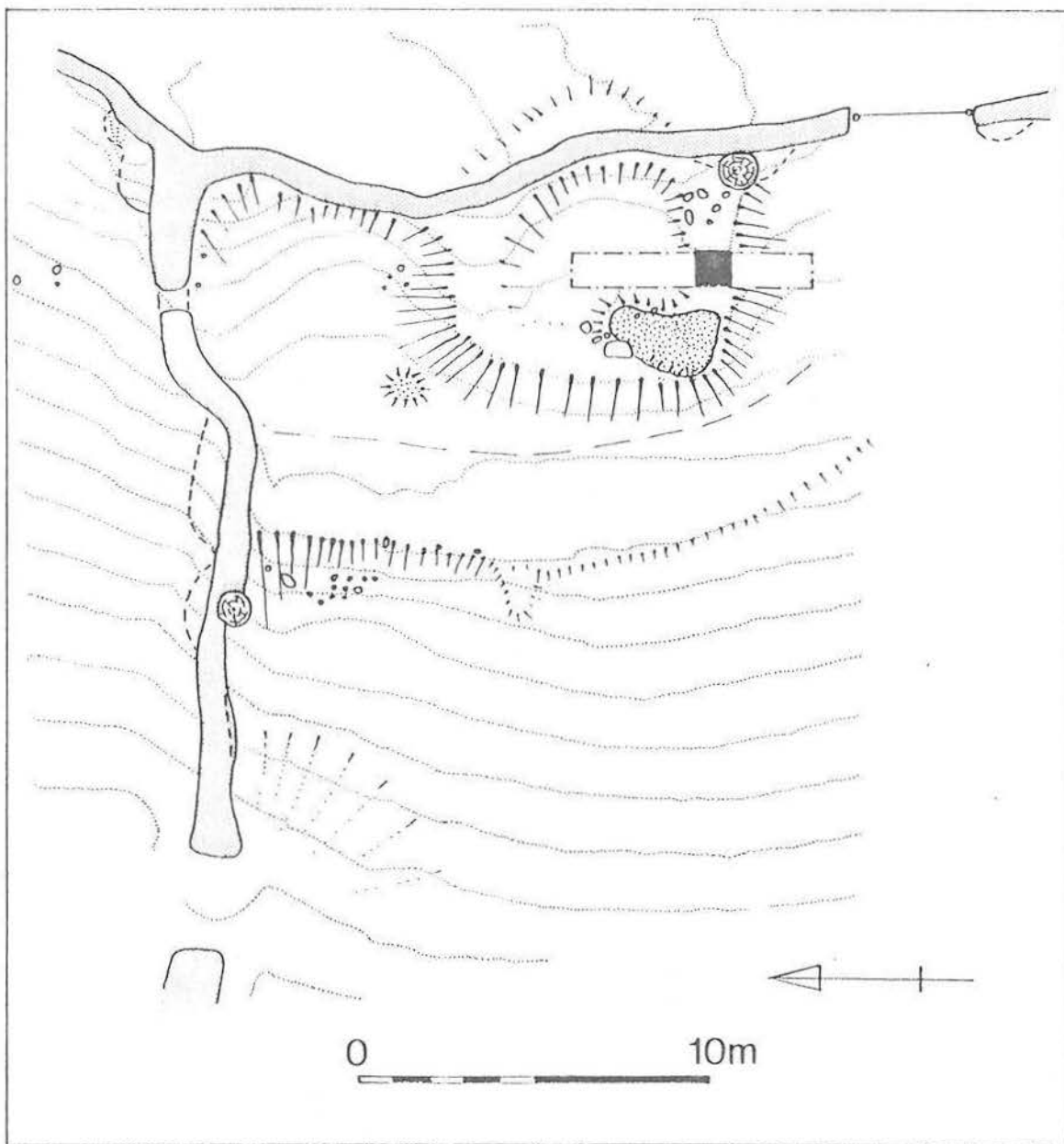


Fig. 2

Plan of hut circle and possible enclosure.

The proposed route also passes through an abandoned egg production unit and the "Incline Cottages" and associated industrial buildings, all of which are to be demolished and should be fully recorded.

A more detailed description of the route can be found in the archive held by GAT.

3. GEOPHYSICAL SURVEY

The survey was carried out by Geophysical Surveys of Bradford in August and October with the intention of investigating 20% of the road corridor (Fig. 3). The approximate centre-line of the road was established by GAT, and in most cases a 20 m wide sample was surveyed using a Fluxgate Gradiometer and Resistance meter, which can detect features to a depth of 1m. The igneous and/or metamorphic basal geology complicated the interpretation of the geophysics results to a degree where only a handful of sites could be identified. The report recommended that further investigation be carried out in these areas, and also in those areas of high magnetic disturbance. The complete report is held in the archive by GAT.

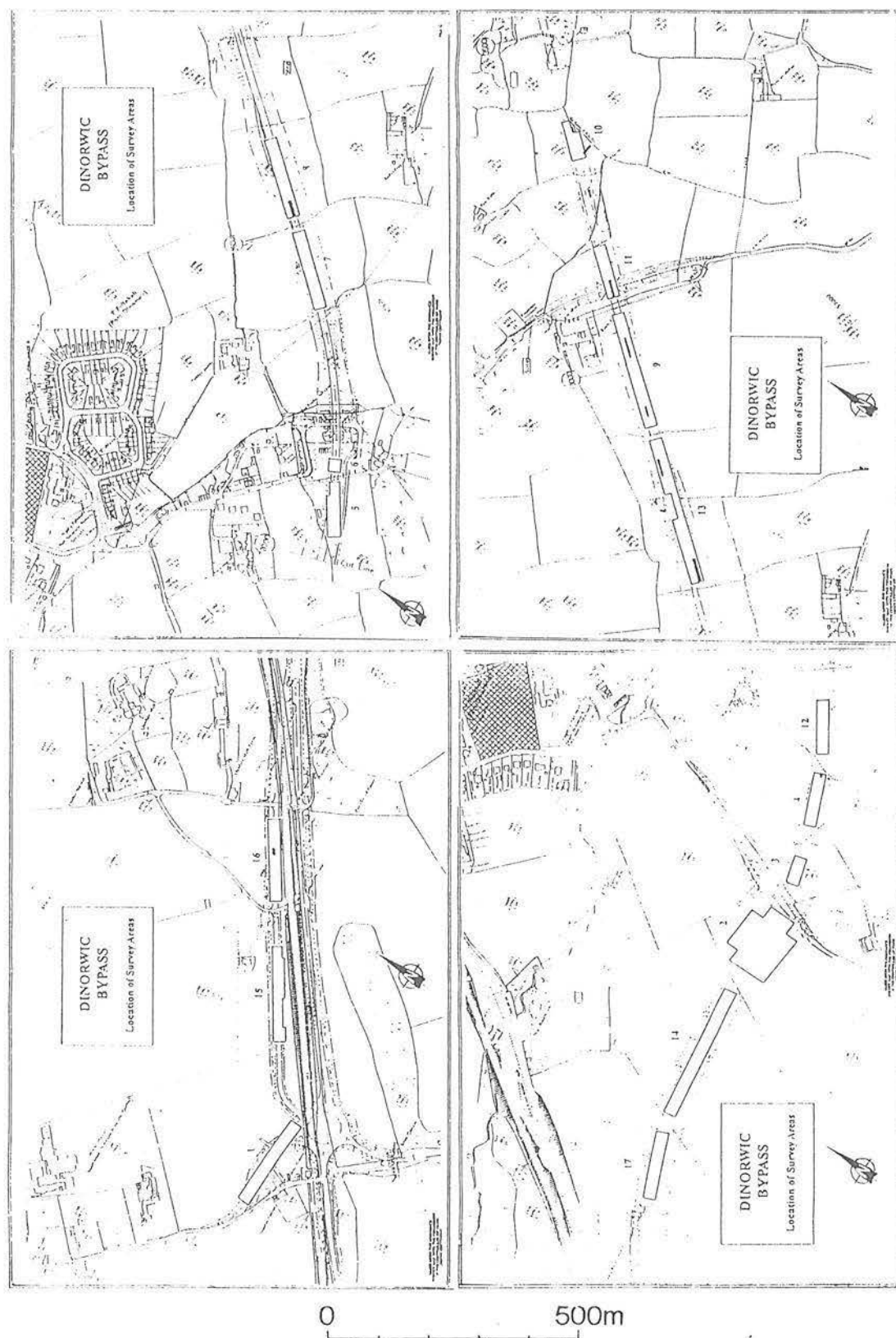


Fig. 3

Map showing geophysical sample areas and trial trenches.

Three areas showed possible archaeological features (Fig. 4):

Field 13

The results contained a variety of anomalies, including those associated with geological features, a ferrous (water) pipeline, an old field boundary and possible archaeological features.

A poorly defined arc of readings, highlighted on the interpretation diagram, could be associated with a sub-circular feature of archaeological interest. However interpretation is hampered by complicating factors as outlined above.

Field 9

Some of the magnetic anomalies from this area are of a different character to those found in the other survey samples. However, the general noisy background is a result of geological factors.

There are a series of linear anomalies which appear to be associated with ditches or trackways. Some of the anomalies may coincide with former field boundaries and/or land drains, but an archaeological origin is likely.

Field 11

In this field there are a series of rather poorly defined low earthworks which may be archaeologically significant.

The magnetic results also indicate the presence of rather poorly defined linear anomalies. Unfortunately they have no clear alignment, and thus it is difficult to say whether they are of archaeological interest.

4. TRIAL TRENCHES

Areas for trial trenching were selected according to the results of the geophysical and field surveys (Fig. 3). Originally much larger areas were to be opened but access to the land by machine was initially denied because the land was prime pasture and was damp and boggy. Most of the trenches were therefore dug by hand, with turves and soil placed on tarpaulin and the area fenced off in fields carrying stock, necessary precautions which impeded progress to some extent. A small tracked digger was allowed onto fields 9, 11 and 8 once the ground had frozen. A total of 15 trial trenches were excavated, opening an area of 235m².

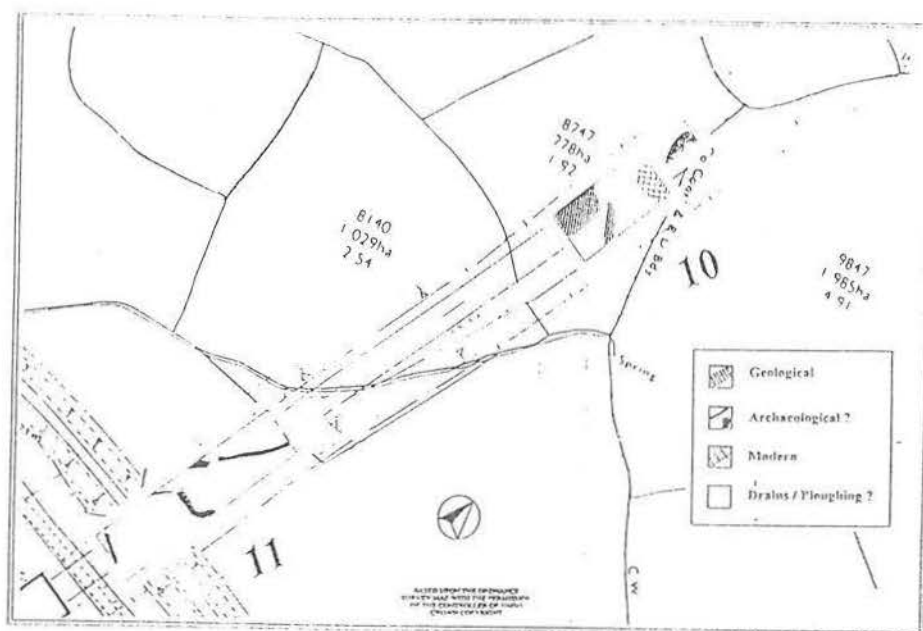
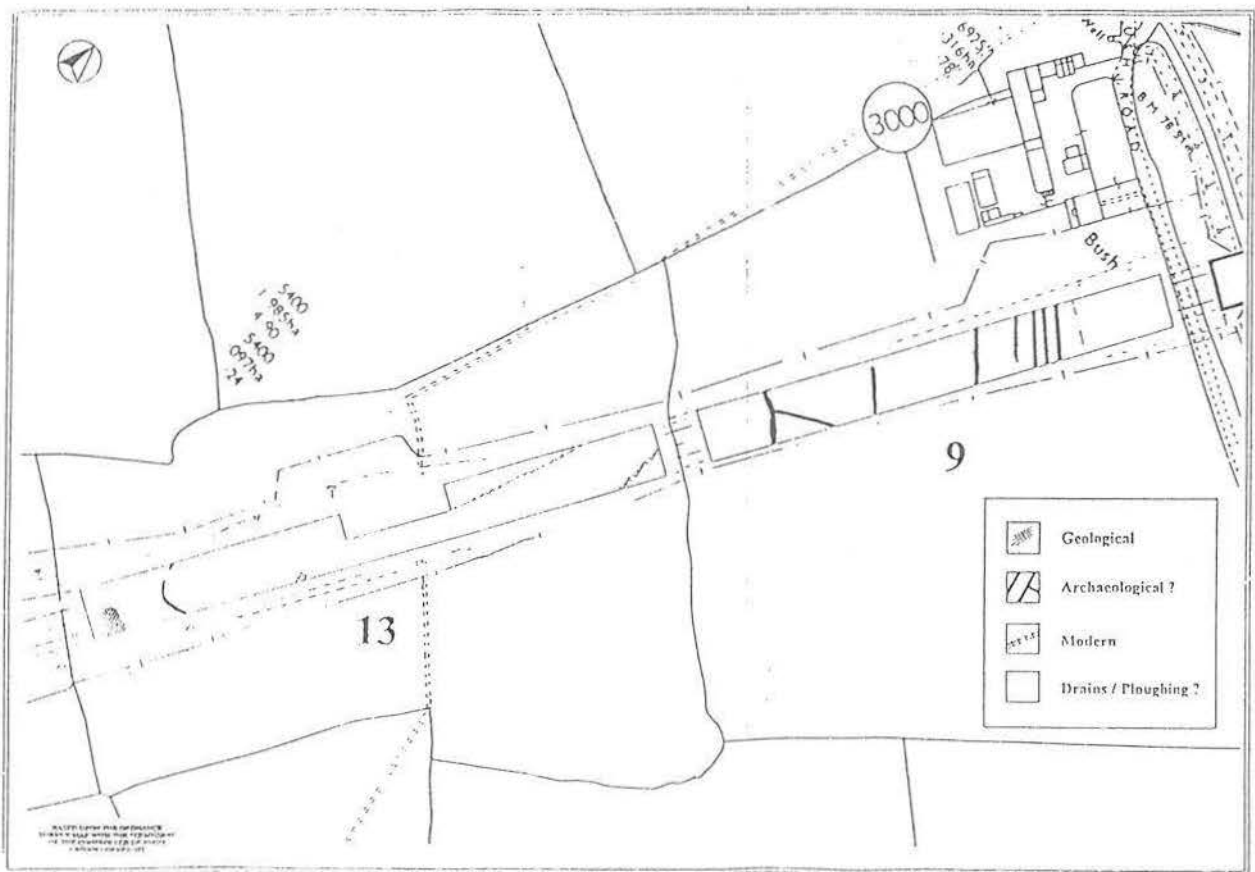


Fig. 4
Geophysical results - field 13, field 9 and field 11.

5. RESULTS

FIELD 4

Trench O 4 x 1m

A 4m trench was hand dug through an anomaly in the geophysics results. There were no archaeological features recorded in the trench.

No further work is required.

FIELD 8

Trench K Buarth Mawr 25 x 1m

Although the geophysics results did not locate any features in this field it was trenched because of its proximity to Bodandreg Farm. A 25m machine dug trench was opened to reveal bedrock in the southern third of the trench and a modern ploughsoil 0.3m deep overlying undisturbed orange natural in the rest of the trench.

No further work is required.

FIELD 9 Maes y Cur

Field 9 shows traces of cultivation in the form of very low ridges and furrows running downslope and a series of low lynchets running across the slope. There were also tracks made by tractors

and shallow unidentifiable ditches, possibly old animal tracks. The geophysical survey identified archaeological features running parallel to the features on the ground, which have been partly surveyed using a total station. The three linear parallel features shown in the geophysics plot on the north side of the field have been identified on the 3rd edition (1916) OS 25" map as a field boundary. The boundary does not appear on the 2nd edition (1900) 25" map and was probably put up in WW1 (see trench F, below).

Trench C 15 x 1m

Trench C was hand dug to a depth of 0.75m, though modern ploughsoil (0.4m) and into the natural subsoil. There were no identifiable archaeological features found in the trench. It seems likely that the geophysics results from the southern part of the field were natural features.

No further work is required.

Trench F 25 x 1m Fig. 5

Trench F was machine dug to a depth of 0.5m, with two ditches excavated to a depth of 2m. In the southern part of the trench three parallel field drains 0.2m across, 0.3m deep and 1.2m apart were recorded cut squarely into the natural subsoil. Two other, less well-defined, drains were recorded in the middle of the trench. The most prominent features in the trench were two steep "V" shaped ditches. Ditch 1 was 1.7m deep and 2.4m wide at the

top. There was a small slot in the base of the ditch filled with redeposited natural, above which was a fill of grey turves. Ditch 2 was 0.8m deep and 2.8m wide at the top. It was 2.2m north of and running parallel to ditch 1. The fill contained traces of turves but far less than ditch 1, the rest being dark grey-brown stone-free silt. A third possible ditch lay 3m north of ditch 2. The three ditches were picked up by the geophysical survey. As mentioned above, there is a field boundary shown on the 3rd edition 25" OS map (1916) that corresponds exactly with the excavated ditches. The boundary would have been of turf, earth and possibly wood and ditched on either side. The ditch on the outer side was deeper and steeper and when the boundary was removed it was simply dumped into the ditch that had been dug to create it. There is no trace of the ditch on the surface and it is not respected by the visible remains of the field system on the surface. This suggests that the cultivation marks post date WW1, and pre-date 1955, when the farm was bought by the present owners.

No further excavation is required, although a complete survey of the features within the line of the bypass is needed. Aerial photographs in low sunlight would be ideal.

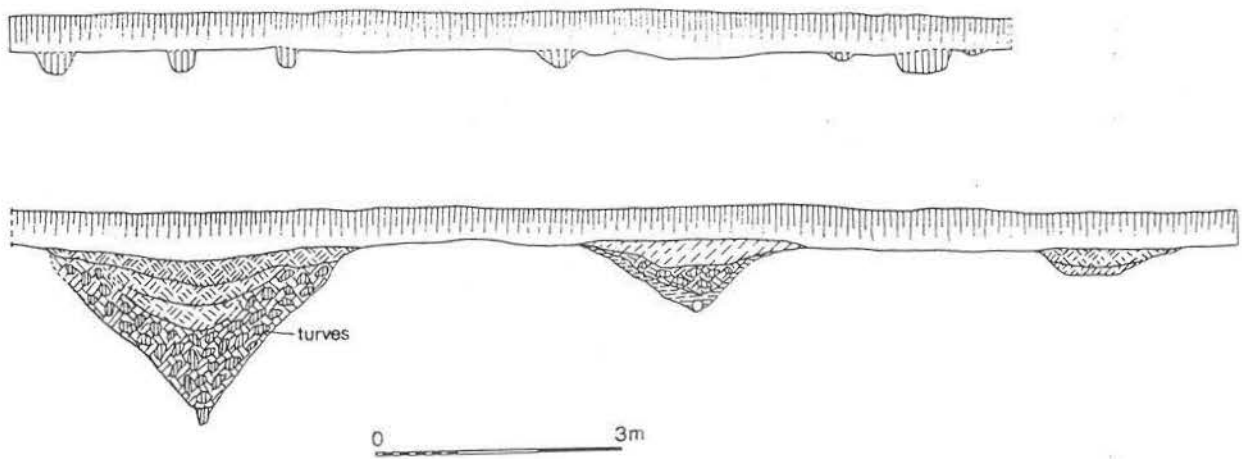


Fig. 5

Field 9 - trench F, section across ditches.

FIELD 10

Trench H 7 x 1m Fig. 6

Trench H was excavated across the hut circle in order to confirm its identification (PRN 3461³). The hut lies on the corner of the parish boundary and has excellent views of the Menai Straits and Anglesey. The hut was initially surveyed by taped offsets and contoured using the total station (Fig. 2). The sub-circular hut has an external diameter of 10m, and survives because of its location in the field corner. Above average preservation could be envisaged because of clearance dumped over much of the southern half of the hut. A field wall built over the hut has been curved to sit on the rear wall. It is possible that a second structure lies immediately to the north of the hut although there are no surface features visible. The line of a circular enclosure with a diameter of 25m can be extrapolated from the plan of the hut and field walls, and there are traces of an earthwork arc in the field immediately to the east of the site.

Trench H was excavated across the south wall of the hut and into the centre. The field clearance stones about 0.4m deep, were removed to reveal a stone wall 1m wide with coursed inner and outer facings surviving to a height of 0.35m. Outside the hut was an area of collapse over grey gritty silty-clay containing flecks of red pottery and charcoal. Immediately inside the hut was a very compacted light orange-brown ground surface which petered out after 0.5m. A single sherd of black burnished ware and two small sherds of badly degraded orange-brown pottery were found in

the ground surface, which also contained burnt clay and flecks of charcoal. Towards the centre of the hut there was a possible flooring of small stones and in the centre of the hut, at the north end of the trench the ground became less stony and had more topsoil and roots. This layer contained charcoal and small areas of grey-black ash, and several sherds of coarse and heavily gritted red and grey pottery with mica tempering. One piece (017) had a possible finger impression and another (015) was part of a base. Frances Lynch of UCNW Bangor felt that the sherds were similar enough to have come from one vessel, possibly a straight sided pot that had thinner walls at the top. Pottery of this type is unusual in hut sites in Gwynedd but a late prehistoric date is considered possible. There was more pottery in the trench but this was left for future excavation. Plastic sheeting was laid down before the trench was backfilled.

It is recommended that the entire width of the road in this area be excavated, and further geophysical survey is undertaken in a strip around the perimeter of the excavation.

Trench I Cae Mawr Uchaf 13 x 1m

A 13m trench was opened across what appeared to be a mound with a ditch and bank running around it. The "bank" was revealed to be outcropping rock under natural orange sandy silt. The "ditch" was of natural origin and contained 0.28m of 19th century midden material under 0.31m of ploughsoil. The "mound" contained a 0.6m depth of black organic soil with small and medium sized angular stones, and no finds below the turfline.

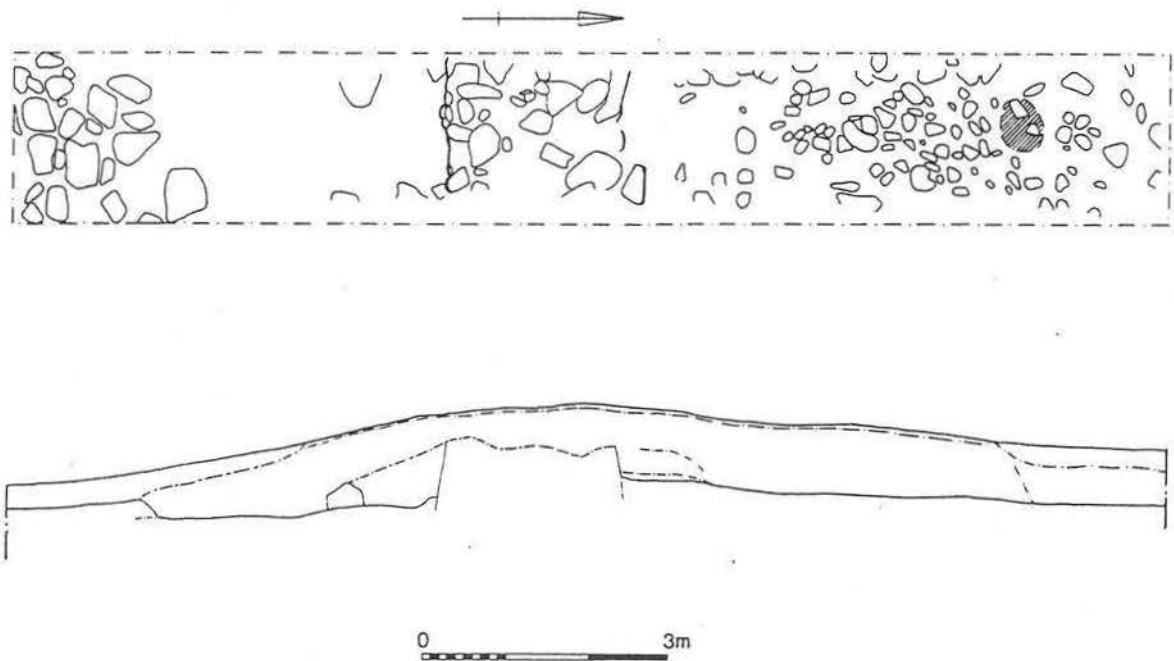


Fig. 6
Field 10 - trench H, plan and section

Trench L

A 1 x 1m pit was dug through a positive lynchet built up against a drystone wall at the bottom of the field. There was a 0.6m depth of colluvium containing modern finds lying against the wall, below which was a 50mm dark brown buried soil (sampled). The wall was built on the buried soil.

No further work is required.

Trench J

A 4 x 1m trench was excavated across what appeared to be a low bank c. 2m wide running downslope. There were no features recorded in the trench and the bank appears to be of natural origin.

No further work is required.

FIELD 11

Trench G Cae Carreg Boeth 25 x 1m

A 25m trench was machine dug in response to the results of the field and geophysical surveys. The geophysical survey picked up a linear feature in the north part of the sample which has been identified by Mrs. Williams of Bush Farm as a 6" ceramic waterpipe. The trench was therefore dug in the southern part of the field. The ploughsoil was 0.25m deep and lay directly onto

brown-orange natural subsoil. There were no features in the trench.

No further work is required.

FIELD 13 Buarth Gwyn/Bryn Glas

Field 13 was originally two fields with the boundary removed in the last half of the 19th century. It has been regularly ploughed and sown with winter barley. The ploughsoil is particularly rich in modern pottery and glass, a result of spreading seaweed from the ballast of ships exporting slate from Port Dinorwic in the last century. A large outcrop covers the western central portion of the field, on which are several low stony banks (see trenches D and E, below).

Trench A 20 x 1m Fig. 9

A 20m trench was dug by hand and machine to reveal a ditch 2m wide under modern ploughsoil coinciding with the linear anomaly in the geophysical survey. The feature loses definition towards the southern end of the trench where bedrock begins to outcrop. Half of the ditch was sectioned to a depth of 0.8m, revealing a stoney yellowish-brown fill of silt and stones, most being under 0.08m but with occasional very large pebbles of 0.4m. There were no finds from the fill.

No further work is required.

Trench B Bryn Glas 40 x 2m Fig. 13

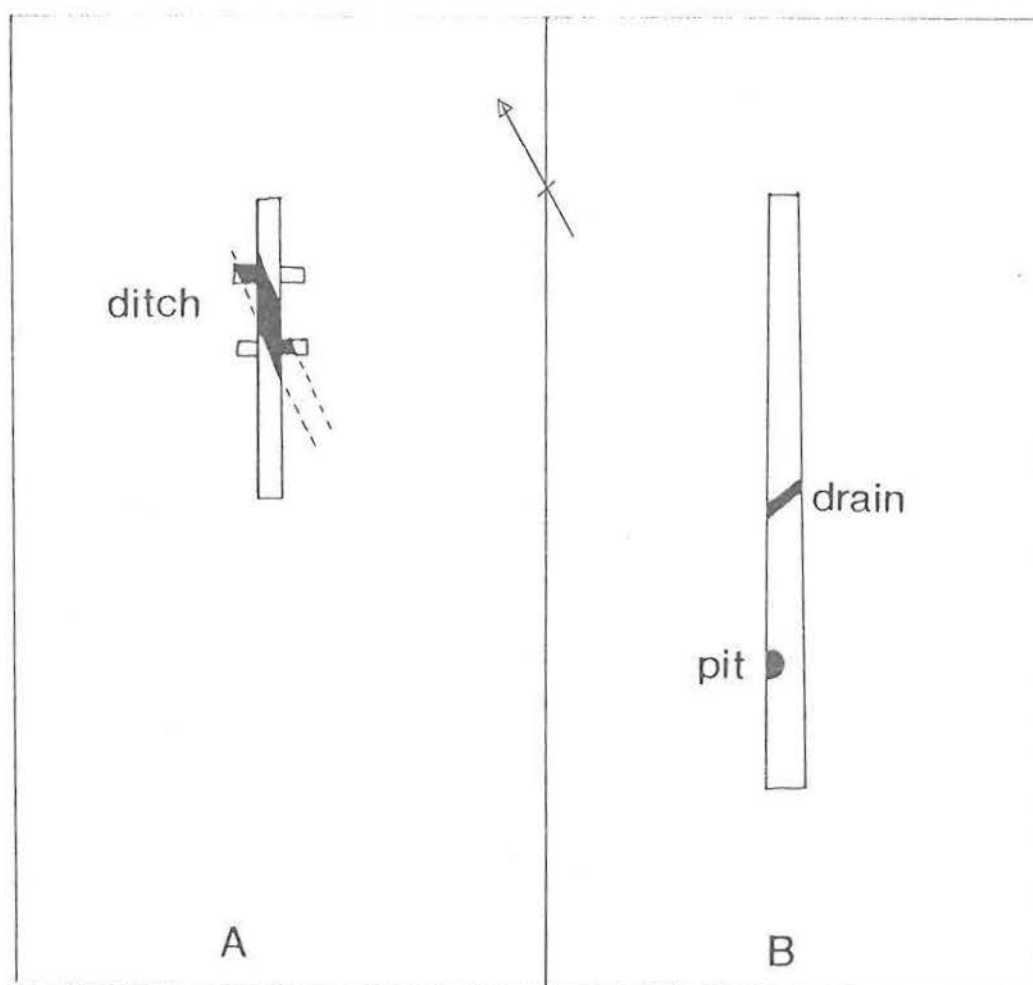
A 40m trench was machine dug to locate the possible circular feature indicated by the geophysical survey, no trace of which was found. A partly ploughed out field drain 0.4m wide with a stony fill was revealed about half way down the trench. The drain could not be sectioned because of a shortage of time, although there was modern pottery amongst the top stones.

An irregularly shaped pit with a diameter of about 1m was also found in the southern part of the trench. The fill was light brown/slightly grey flecked with rust coloured mottles, and was virtually stone free. There was no cut for the pit visible in the section, and there was no time to section it.

It is recommended that an area of about 100m² be opened by machine in this area to clarify the nature of the pit and any associated features.

Trench D 4 x 1m

Trench D was hand dug across a low stony bank 1.5m wide running north-south along the crest of the outcrop. A low stone wall 0.5m across was found to be built directly onto the bedrock, with collapse 0.5m wide on the east side. The stone incorporated into the wall was rounded and sub-rounded as well as angular chunks of bedrock.



0 20m

Fig. 7
Field 13 - trench A and trench B

Trench E 3 x 1m

Trench E was dug across a low stony bank 1.2m wide that appeared to be connected perpendicularly to the bank trench D was dug across. The excavation revealed bedrock immediately under the turf and a possible line of walling, although far less certain than trench D.

It is recommended that a more detailed survey of the outcrop is undertaken and further trenches excavated to clarify the nature of the banks.

FIELD 16

Trench N 5 x 1m

A 5m trench was excavated across an anomaly shown on the geophysical results. The ploughsoil was 0.3m deep and there were no features observed in the trench.

No further work is required

5. RECOMMENDATIONS

There are no obvious ways to initiate protective or mitigatory measures to preserve the archaeological remains and the recommendations therefore relate solely to further fieldwork (Fig. 8).

1. Because of the presence of possible prehistoric pottery, the hut must be fully recorded by area excavation, and further geophysical work be undertaken around the perimeter of the excavation. There are no deposits of peat in the immediate area of the hut, although there is an area of bog to the south of Bodandreg Farm. A burnt mound has been recently found on the periphery of the bog. The bog may need to be probed by auger to establish its depth and pollen sampled if appropriate.

2. Field 13. The low banks must be surveyed in detail and further trenches excavated to clarify their date and function.

3. Field 13. The pit in trench B requires further investigation with machine dug trenches.

4. Field 9. The field system requires a complete survey by total station.

5. The incline cottages and associated industrial buildings are to be recorded by photographs, plans, elevations and written records. Some archive work will be necessary before recording. The abandoned egg production unit also requires a level 2 photographic record.

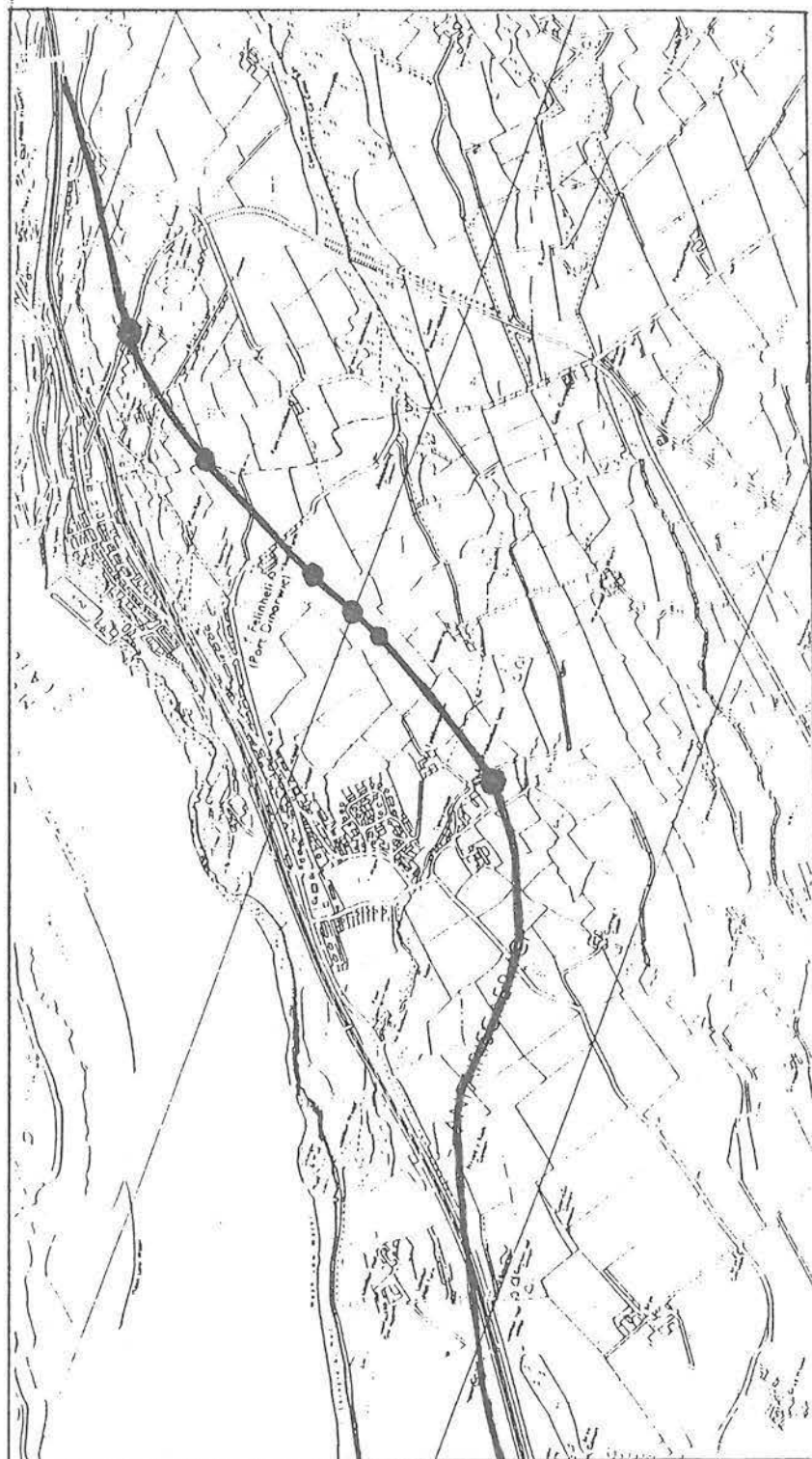


Fig. 8

Areas of recommended future work.

6. The areas of high magnetic disturbance recorded by the geophysical survey should be trial trenched by machine. This affects Areas 1 and 5 particularly.

7. Individual field boundaries crossed by the route must be photographed and an elevation drawn, showing construction technique and tree species. Ideally a section through each boundary is required. This will enable the process of enclosure to be understood at an archaeological level. There is a possibility that some boundaries are prehistoric in origin, and it would be useful if they could be identified.

8. The limits of the road have been expanded in certain areas, particularly to the north of field 10. The full extent of the land affected by the road has not been examined. These additional areas may require geophysical survey and trial trenching.

9. The whole route requires a detailed photographic record as the road will alter the landscape fairly dramatically. A new set of aerial photographs taken in low sunlight is also needed.

20.12.91.

