

A5 BETHESDA BY-PASS, GWYNEDD

ARCHAEOLOGICAL ASSESSMENT

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REPORT NO. 59

GAT 1138

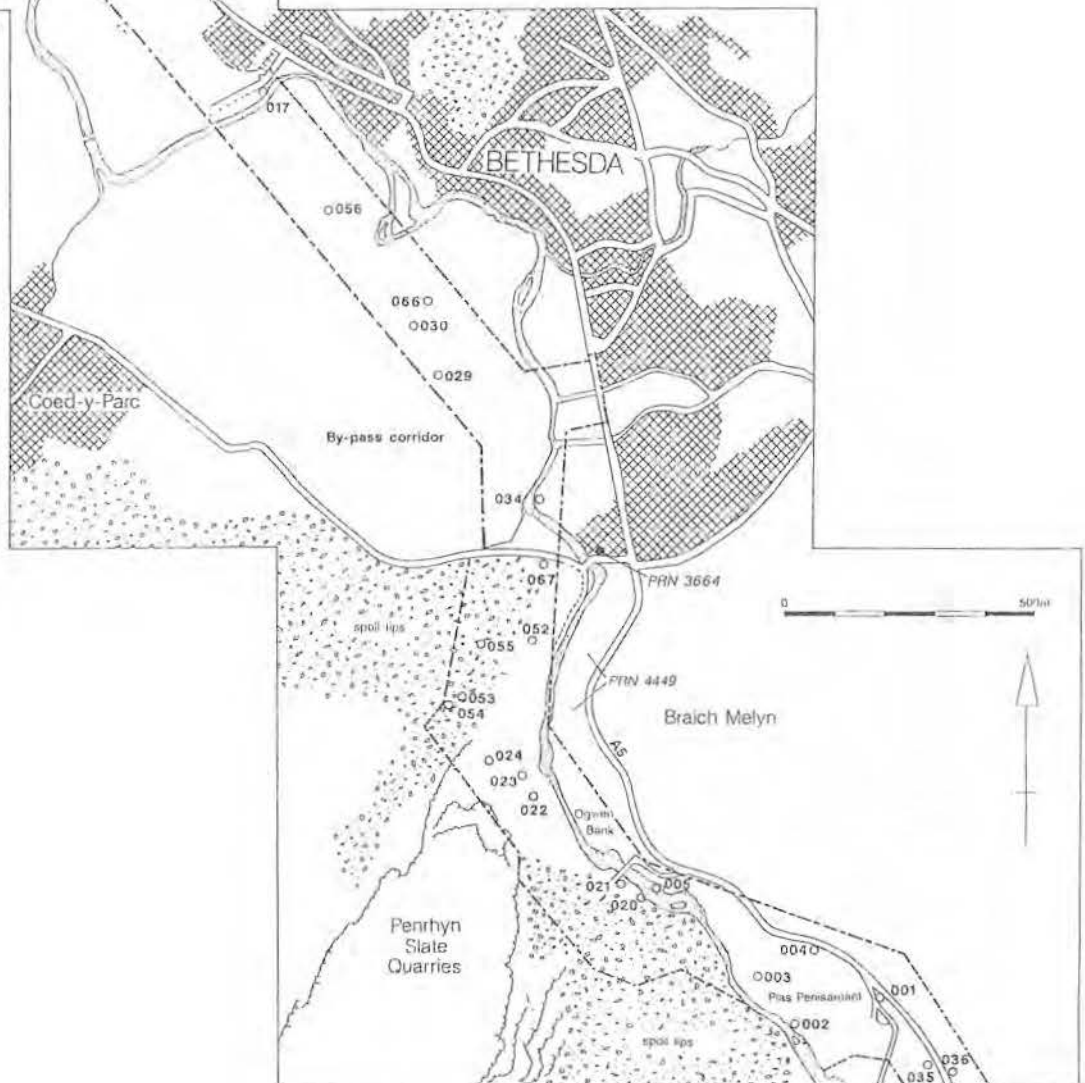
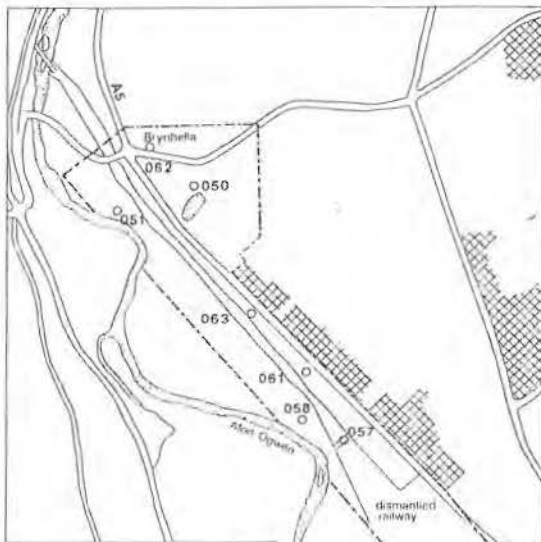
Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

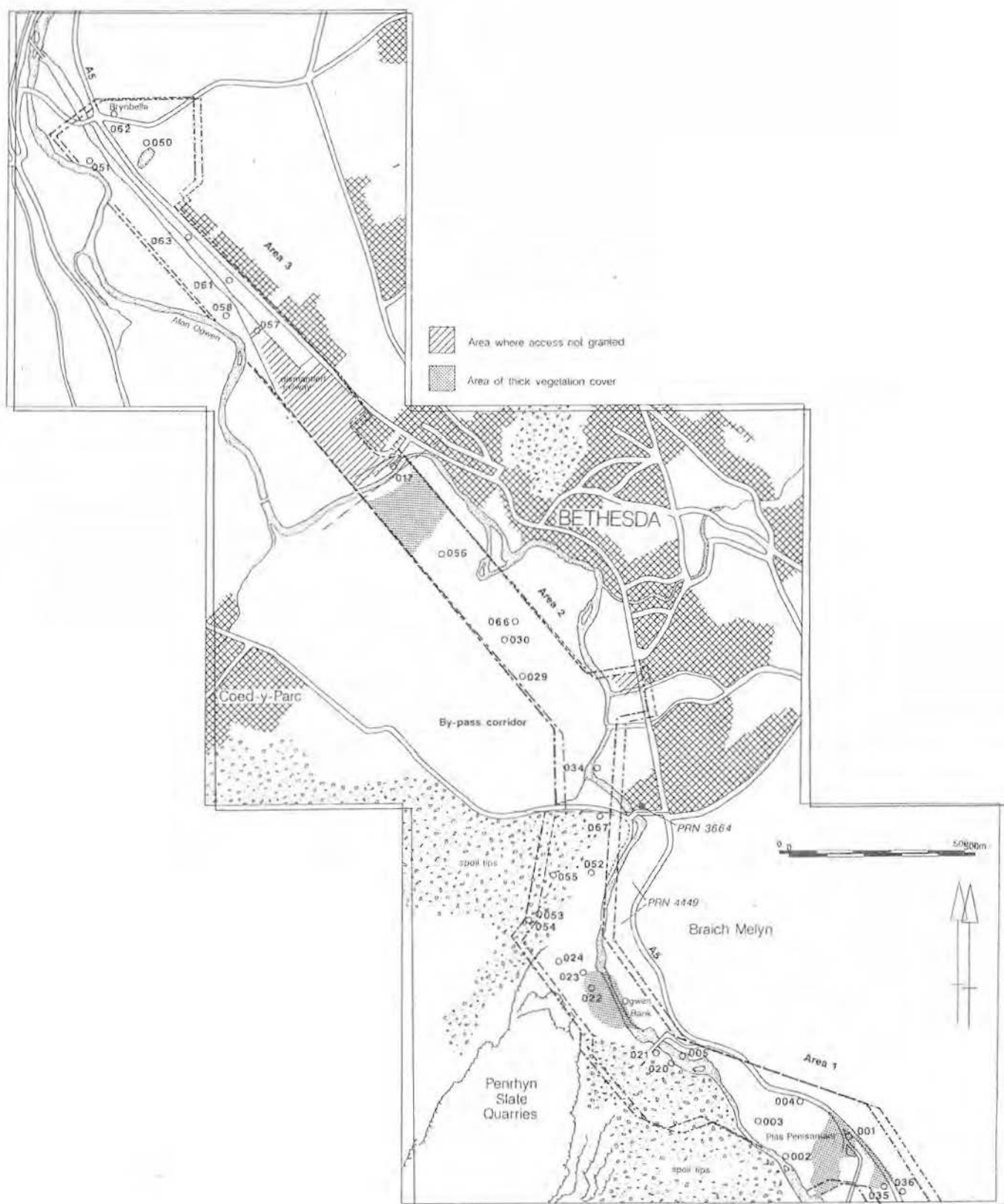
A5 BETHESDA BY-PASS, GWYNEDD

ARCHAEOLOGICAL ASSESSMENT

for The Appleton Group

Gwynedd Archaeological Trust Report No. 59





1. INTRODUCTION

The Welsh Office Highways Directorate is proposing to build a by-pass for Bethesda as part of a series of improvements to the A5 trunk road in North Wales. The proposed route passes to the west of the town and extends for approximately 3 kilometres from near Plas Penisarnant on the present A5 south of Bethesda, northwards to rejoin the A5 at Brynbella crossroads. The proposal involves the building of a single carriageway road, 7.3 m wide, with an estimated landtake of up to 50m wide and the construction of several access roads serving the town and local areas. A series of cuttings and embankments will be constructed involving considerable ground disturbance within the proposed road corridor.

Gwynedd County Council have retained the Appleton Group as Environmental Consultants to carry out an Environmental Impact Assessment and to produce an Environmental Statement. The Gwynedd Archaeological Trust (GAT) Contracts Section has been commissioned by the Appleton Group to carry out an archaeological assessment of the affected area and to produce a report of the results for incorporation into the Environmental Statement.

2. ARCHAEOLOGICAL BACKGROUND

The proposed route follows the general direction of the River Ogwen which forms the boundary between the parishes of Llandegai and Llanllechid, on the one hand, and Bethesda on the other. Bethesda parish, formed in the 19th century, was previously part of Llanllechid, a large parish extending from the coast to the mountains near Capel Curig. The area contains notable monuments which include Pen Dinas prehistoric hillfort and Cochwillan, a 15th century hall-house. The parish of Llanllechid is also noted for its extensive stone walled prehistoric/Romano-British hut settlements. At one time these were even more numerous than they are now but, unfortunately, modern field clearance has resulted in the reduction of many of these sites so that now, in many cases, little survives above ground.

The Gwynedd County Sites and Monuments Record identifies no known archaeological sites actually within the corridor of archaeological interest. However, two sites are listed immediately adjacent to the affected area. Tyn Twr (PRN 3664) (SH62616600) is identified as the site of a possible medieval tower and is located within 30m of the proposed route at Pont y Twr on the eastern bank of the River Ogwen. In addition, recent research and limited excavation here suggests that substantial stone walls surviving on the site may be the remains of a medieval building.

Ogwen Bank Gardens (PRN 4449) (SH6265), located just south of Tyn Twr also on the eastern bank of the River Ogwen, is identified by the Welsh Historic Gardens Trust as being of interest although at present little is known about its origin and history.

3. THE ASSESSMENT BRIEF

The archaeological assessment brief was designed by the Gwynedd Sites and Monuments Record and follows agreed standard procedures for Trunk Road assessments as contained within its "Programme of Archaeological Work for Road Schemes". A copy of the brief is reproduced here:

- 1) A desk-top assessment of all known sites on or near to the route, including a placename analysis, study of available aerial photographic collections, tithe and other relevant early maps, and any other relevant documentary sources.
- 2) Fieldwalking the entire route to locate and record any existing earthworks, or to locate (if the land is arable) surface scatters of archaeological material.
- 3) From map evidence, it is likely that there is only a short length of the proposed

route (c.1000m) on topographical and land use criteria which might be susceptible to geophysical survey techniques. A 20% sample of this would give a total area some 200m x 50m (assumed corridor width) of 1ha. Geophysical survey of selected areas on the route at this level should still be able to pick up traces of any settlements and/or other sites. The precise areas will be decided during the fieldwork stage, and allowance should be made for a maximum geophysical survey of 1ha.

4) Test pit digging of areas indicated by the geophysical survey as being of archaeological importance, and also regular test pits of the rest of the route, as appropriate.

5) Production of an assessment report, containing a summary of finds made and of further potential.

FURTHER WORK

This will obviously be dependent on the results of the assessment and will be decided in discussion with Cadw who will draw up a brief for any further work considered necessary.

It was subsequently determined by Welsh Office Highways that Stages 1 and 2 would be carried out as defined in the project brief and that an initial summary report would be produced at this stage incorporating recommendations for geophysical survey and test pit digging. A full report identifying any possible further work would then be produced on completion of these later assessment stages.

4. METHODS AND TECHNIQUES

STAGE 1 - Desk-Top Study

Available early estate, tithe and O.S. maps and other documents were consulted at the Gwynedd County Sites and Monuments Record (SMR), the Gwynedd Archives (Caernarfon), and the University archive at the University College of North Wales (Bangor). Aerial photographic collections were inspected at the Countryside Council for Wales (Bangor) (CCW), and at the Gwynedd County Council Highways Department. Selected reference works were also consulted. Cymdeithas Archaeoleg Llandegai a Llanllechid (Llandegai and Llanllechid Archaeological Society) (CALL) was consulted and oral evidence was also received from several local sources.

List of Maps Consulted

- 1768 Penrhyn Estate Maps - Llanllechid and Llandegai parishes, 1" to 4 chains (UCNW)
- 1840s Tithe Map - Llanllechid and Llandegai parishes, and relevant schedules (Gwynedd Archives)
- 1841 Penrhyn Estate Map - Llandegai parish, 1" to 4 chains (UCNW)
- 1855 Penrhyn Estate Map - Llanllechid parish, 1" to 4 chains (UCNW)
- 1914 1:2500 O.S (Gwynedd Archives)
- 1963 1:10560 O.S 6" to the mile, (SMR)
- 1975 1:10000 O.S (SMR)
- undated Penrhyn Estate Map (SMR)

Other Documents and References

- Royal Commission on Ancient and Historical Monuments in Wales (Caernarfonshire Inventory) - Vol I (1956), Vol II (1960), Vol III (1964)
- Pennants Tours of Wales (1778)

- A description of Caernarfonshire (1809-1811)
- A Gazetteer of Welsh Placenames (University of Wales, 1975)
- Welsh Names and Their Meanings, D.Davies
- Atlas of Caernarfonshire, T.M Bassett and B.L Davies - 1977
- Report of Cymdeithas Archaeolegol Llandegai a Llanllechid - 1976
- Welsh Historic Gardens Trust, Newsletter 5, - 1992
- Archaeology in Wales 17, 1977
- Hynsfiaethau Llandegai a Llanllechid - Hugh Derfel Hughes 1866
- A History of the North Wales Slate Industry - Lindsay - 1974
- Aerial Photographic Collection - Countryside Council for Wales - 1980's (colour)
- Aerial Photographic Collection - Gwynedd County Council - 1986 (black and white)

STAGE 2 - Field Survey

For the purposes of the archaeological assessment, the corridor of archaeological interest was taken as corresponding to the "Extent of Survey Contract Area and DGM" as marked on the Land Ownership Plan supplied by Gwynedd county Council (Drawing No.HT 208/12C). This corridor averaged between 100 and 150m in width.

Contact was made with all landowners and tenants within the corridor area and, with their consent, access was gained to the majority of the land within the assessment area.

Unfortunately, consent was not granted for access to land owned by Bethesda Football Club, comprising a large block of land measuring some 470m long by 80m wide in Area 3 (see Figure 2) and a small block of land approximately 75 by 50m to the north of St Pius Church .

Areas of the corridor of interest for which access was gained were fieldwalked by a two person team in 25m transects (where terrain and vegetation allowed). Surface features and structural remains, (of both archaeological and historical interest) were identified, and areas appropriate for future geophysical and systematic test pit excavation were also noted. No arable land fell within the limits of the survey area.

Sites and features identified were located on 1:2500 plans, as supplied by Gwynedd County Council, and their positions subsequently transferred to enlarged copies of O.S 1:10000 (1975) area maps. Calculation of locations was accomplished, where necessary, by triangulation with 30m survey tapes and paced out measurements.

Each site/feature was photographed with black and white negative film at 35mm format and written descriptions and sketches were made on standard GAT field survey forms.

In general, the weather conditions under which the survey was carried out were good and access and line of sight in the area of interest was reasonable. However, Area 2, the majority of which is located in Coed Bryn Meurig, presented problems as dense low undergrowth, particularly bracken cover, obscured the ground surface over large areas. Dense vegetation further hindered visibility in Area 1 in a part of Penrhyn Quarry and at Plas Penisarnant. It is possible that features relevant to this survey have not been identified due to these constraints. (The affected areas are indicated on a map overlay accompanying site location plan Figure 2.)

5. RESULTS

STAGE 1 - The Desk-Top Survey

Gwynedd County Sites and Monuments Record (SMR)

Inspection of the County Sites and Monuments Record revealed two sites in the vicinity of the development area, neither of which are directly affected by the proposed route, these sites, as discussed in section 2 of this report are as follows:

NUMBER (PRN)	SITE TYPE	NGR
3664	MEDIEVAL TOWER at TYN TWR	SH62616600
4449	OGWEN BANK GARDENS	SH62606550

Placename Study

A study of documentary and map evidence for field names and/or place names with possible historical or archaeological significance was carried out for the area of interest. This exercise revealed the names "Castell" and "Tan y Castell" occurring on map evidence in the vicinity of the woodland known as Coed Bryn Meurig (SH63076603). Tan y Castell, a field name meaning 'below the castle', is first documented on the 1768 Penrhyn Estate Map showing field boundaries and field names. The name 'Castell' (castle) is attached to derelict buildings located to the west of Tan y Castell on the 1:2500 Ordnance Survey Sheet 1914 edition as well as the Penrhyn Estate map of the same period.

No other place name evidence was identified as significant.

Other Evidence from Documentary and Map Sources

Features identified from map evidence during the desk-top survey as sites of possible archaeological and/or historical interest included a large oval shaped enclosure (SH62026607) (site no.056, see gazetteer below) which was marked on the 1841 Penrhyn Estate map. This feature did not appear on the 1768 Penrhyn Estate map which suggests that the feature was constructed some time between these two dates. The landowner was consulted and he also believed that this was a fairly recent feature.

The route of the proposed by-pass utilises land at present part of Penrhyn Slate Quarry. The affected area is now the site of quarry waste tips, however, it seems likely that the tips have buried many earlier quarry transport and power facilities dating to at least the early part of the 20th century. From comparisons of map evidence from the 1914 1:2500 O.S sheet, the 1963 1:10560 edition, and the 1975 1:10000 O.S edition, it would seem that earlier quarry features in this area remained largely unchanged until 1963. Thereafter until the latest survey of 1975, these features were systematically buried under waste from the main pit working. A number of significant structures remain on the most recent map evidence, notably the hospital (see site 052 in gazetteer) and school complexes, both of which will be directly affected by the proposed route.

Aerial Photography

Aerial photographic collections at the Gwynedd County Council (GCC) and the Countryside Council for Wales (CCW) were studied to identify any possible sites within the area of the survey undetected by map and documentary work. Three possible sites of interest were identified by this exercise:

1. (GCC) An area of possible ridge and furrow was identified at the southern extent of the road corridor just east of the present A5 road in pasture between the A5 and the River Ogwen (SH636502). This potential feature was identified during the field survey stage as a terrace in the hillside probably the route of an old trackway (site no.004 in gazetteer).
2. (GCC) A large dark square feature (SH62016606) was located to the west of the survey area on cultivated land adjacent to Bryn-derwen-bach. The feature was not identified during the field survey.
3. (GCC) A further area of possible ridge and furrow was identified in cultivated land to the

south of the River Ogwen at Station Road SH61086607. Located just to the west of the area of interest it could not be traced into the route corridor due to dense bracken cover in this area.

Other Sources

The presence of several 'cerrig cannans' located in Parc Meurig was brought to the attention of GAT by Gwenno Caffell of the Cymdeithas Archaeoleg Llandegai A Llanllechid (Llandegai and Llanllechid Archaeological Society) (CALL). (see site 066 in gazetteer).

STAGE 2 - The Field Survey (Fig 2)

For the purposes of the survey and for ease of reference between the text and the location maps, the archaeological corridor of interest was divided into three survey areas (Areas 1 - 3). (see map overlay Figure 2)

To assess the relative importance of each site and allow the appropriate mitigatory action to be applied, a framework of categories has been used as suggested in the non-statutory Criteria for Scheduling Ancient Monuments and/or Criteria for Listed Buildings laid out in Annex 3 of PPG 16. The categories are as follows:

Category A - Preservation in situ.

Sites that, due to the level of archaeological importance are recommended to remain preserved and protected in situ.

Category B - Detailed recording.

Sites for which preservation in situ is the preferred option, but detailed recording (either by full excavation or standing building analysis and controlled demolition) may be an acceptable alternative if damage or destruction cannot be avoided.

Category C - Recording by photograph and description.

An adequate record can be achieved by written description and photograph, and survey by Electronic Distance Measuring equipment (where appropriate), if damage is inevitable.

Category D - Watching brief sites.

This category is to deal with those sites whose presence is suspected (e.g from place name evidence) or whose nature is still unclear following detailed assessment (e.g minor geophysical anomalies).

Category E - Sites requiring further investigation.

Sites, the importance or function of which are as yet undetermined, and which will need further investigation before they can be allocated to the relevant category.

GAZETTEER OF SITES

(sites are described from south to north along the proposed route)

AREA 1

036. Possible Hut Circle - Category E (SH6498563280)

Located on a rocky slope close to the present A5 on its east side in Area 1 is the site of a possible hut circle. Stones protruding through the turf cover form a semi-circular shape

surrounding a shallow scoop. Maximum diameter 4.5m. The area is overgrown with bracken and definition was poor.

035. Terracing - Category C (SH6505063230)

Located immediately west of the present A5 in Area 1 at the southern extent of the route corridor is a well preserved terrace. The feature is an average 5.0m wide and extends for c. 30m parallel to the A5. The terrace was defined by stone revetting which was visible but generally turfed over. It would appear to be an old road or farmers' track. The feature can be traced further along the A5 in Area 1 and is identified on the location map as site no. 004.

001. Slate Structure - Category C (SH6514063140)

A small building constructed of slate blocks was located in dense woodland to the west of the present A5 road in Area 1. Measuring 2.5m by 2.5m by 1.80m, a low entrance was located within the south-facing wall. Walls remain to their full height. The structure is roofed with slate. Its present use is domestic recreation.

002. Low Earth Bank - Category C (SH6510062965)

An earth bank 5.0m wide, 0.40m high, and 47.5m in length, is located in pasture to the east of the River Ogwen running parallel to the river in Area 1. The feature fades out gently at both ends. At a point towards its northern extent the bank has been cut by a narrow drainage trench from the adjacent pasture leading onto a narrow stream terrace between the bank and river. At this point it was possible to inspect the make-up of the bank material and depth of deposit on the stream terrace. Approximately 0.50m of mid-brown ploughsoil overlay river deposits at the maximum height of the bank. Approximately 0.15m of the same ploughsoil overlay river deposits on the stream terrace. The feature appears to represent a form of flood defence of unknown date.

004. Old Trackway/Road Route - Category C (SH6524063000)

The line of a former track or road can be clearly traced, benched into a steep slope immediately west of the present A5 in Area 1. The route runs approximately parallel with the road descending across the slope from south to north. Its width varies from 5.0m to c.10.0m, increasing towards the top of slope. The feature was located on aerial photographs during the desk-top survey stage of this assessment. Subsequent study of the O.S 1:2500 1914 edition map shows a track leading from Penisarnant Farm through woodland to the north and stopping abruptly one side of the field boundary dividing the woodland from pasture from where the route is visible on the ground.

003. Cairn/Outcropping - Category E (SH6520062890)

Located in flat pasture between the A5 and the River Ogwen in Area 1 is a small oval mound rising from a distinctly level area. Measuring 7.5m by 7.0m and c. 0.80m in height a few stones were visible protruding through the turf cover. It was not possible to ascertain its exact nature. The feature is possibly natural outcropping, however the uniform nature of the anomaly and gentle sloping of its sides requires further assessment prior to final interpretation.

005. Weir - Category C (SH6523062700)

A weir with a series of stepped catch-ponds is located to the south of Pont Ogwen in Area 1. The weir itself is marked on the 1914 O.S 1:2500 edition map but its origin is presently unclear. It appears unlikely that it will be disturbed during construction of the proposed road. However, should this change, an archaeological response will be necessary.

020a. Waste Tip Revetting, Penrhyn Quarry - Category C (SH6533062700)

At the base of waste tips lining the River Ogwen on its western bank in Area 1 are various examples of stone revetting designed to prevent the tips spreading .

020b. Slate Plinths - Category C (SH6533062700)

A series of plinths of slate block construction are located alongside the river bank adjacent to site 020a. Each measuring c. 1.5m x 2.0m x 1.5m, the plinths are spaced between two and three metres apart. They are most likely an industrial feature, constructed for the support of a leat or aqueduct system.

021. Tank - Category C (SH6534062640)

A brick built structure 10.0m in length, 2.0m in width, and 0.75m high is located on the west bank of the River Ogwen at Pont Ogwen. A flat roof of large slate slabs retains two cast-iron inspection covers in situ. Within the structure are pipework and tap fittings and it was noted that a brick-built dividing wall separates the structure in two.

The southern end of the feature is partially filled with debris, the northern end is flooded. It was not possible to ascertain the depth of the tanks. Study of the quarry area on the O.S 1:2500 1914 edition revealed a thin channel marked leading from a sluice gate at the nearby weir to the tank. (Quarry industrial feature).

022. Wall - Category C (SH6553062480)

Located within an area of dense Rhododendron growth was a short length of slate block wall. 2.0m in length, 0.80m in width and 0.30m exposed height. This structure is probably associated with the quarry.

023. Engine House - Category B (SH6555062450)

Located 150m east of Bryn-Llwyd is a large stone-built building, with a collapsed roof, surrounded by high tip material on the west and north sides. The structure houses a turbine engine which survives in good condition with an identification plate mounted on one side giving the date of manufacture as 1918. The building itself is dated 1929 from an inscribed stone above the entrance. A large pipeline (0.40m diameter) leads from the engine into dense undergrowth to the south. The function of the engine in relation to the quarry power system is not certain at the present time. The particularly good state of preservation of the equipment within the structure is of interest and justifies detailed recording. It is recommended that permission from the quarry should be sought to have these features removed and conserved.

024. Buildings, Bryn-Llywd, Penrhyn Quarry - Category C (SH6560062400)

A small complex of stone-built buildings is located within the proposed area of disturbance at Penrhyn Quarry. Probably former farm buildings, the date and origins are not established at this time.

054. Waste Tip Revetting, Penrhyn Quarry - Category C (SH623106572)

Stone revetting at the base of waste tips to the north-west of Bryn-Llywd, is associated with the location of one of the numerous quarry railway routes which previously crossed this area. The revetting stands to a height of 1.5m.

053. Rectangular Structure - Category C (SH623206575)

A small building 5.0m x 3.0m, constructed of slate blocks, is located alongside a former railway route in Penrhyn Quarry (site no.055). No roof remains, but one gable end is intact. Walls remain to an average height of 2.0m. (Industrial feature)

055. Quarry Railway and Incline - Category C (SH6233065830)

The route of this former rail-line is traceable as a c. 4.0m wide bench in waste tip material. It is visible from the new quarry access road to a point overlooking the old school buildings at Pont y Twr. At this point it becomes indistinct due to disturbance of the tip.

The site of a possible former incline is located mid-way along the rail route descending towards the north-east. This is badly disturbed by collapsed tip material.

052. Penrhyn Quarry Hospital Buildings - Category A/B (SH36245065850)

The ruined remains of Penrhyn Hospital survive in woodland 100m west of the present main quarry access road at Pont y Twr. The main two storey building, built in 1842, survives with little damage although the roof has been stripped and timber work is generally collapsed. The interior is partially filled with rubble and no surviving internal features are apparent. Two smaller buildings nearby are in a similar condition. Time was not available during the survey for more than a brief appraisal of the extant remains. The hospital, one of only three examples constructed in North Wales for quarry workers, constitutes an important part in the history of Penrhyn Quarry and that of the North Wales slate industry as a whole. Efforts should be made to preserve and consolidate this important structure. At the very least detailed recording will be required before it is destroyed or disturbed.

067 Tyn Twr School - Category C (SH62506595)

A large slate built two storey building with a small outbuilding at the rear. It is marked on the 1914 OS as a school. It would appear from initial documentary work and consultation with CALL that this is the school was founded in 1830 and was maintained by the quarry workers.

AREA 2

034. Possible Rectangular Structure - Category E (SH6610062480)

Located c. 15m from the eastern bank of the River Ogwen on grazing land, is a line of stones 5.9m long and c. 1.0m wide, visible within a patch of dense, low vegetation. A further linear feature, seen in relief only, is visible at right angles to the line of stones. Further assessment will be required.

029. Sub-Circular Stone Structure - Category E (SH6633062315)

A sub-circular stone structure approximately 10.0m in diameter is located 15m to the north of Bryn Meurig house. There is much collapse of the thick dry-stone walls which survive to varying heights. The eastern side of the exterior walling survives to a maximum height of 3.0m. The western side is heavily overgrown but appears to have utilised rock outcropping on the site for foundation of the wall. The interior is partially filled with collapsed masonry and garden refuse and therefore the layout of any internal features was obscured.

The owner, Mr Owen, has informed GAT that it was formerly an 'Ice House'. Probable construction date is sometime in the 19th century. Mr Owen also stated that he had recently filled in a 'cave' located in the interior fearing someone might fall down it. This element of the feature is now sealed by garden refuse and could not be inspected.

030. Field Enclosure?/Structure? - Category B (SH6640062220)

To the north of Bryn Meurig in dense woodland is an enclosed square field notable for the very substantial stone walls forming its west and southern boundary. The enclosed area measures 23m by 22.5m. The west and southern boundary walls are particularly substantial with a thickness of c. 2.9m. There is a significant difference in the external and internal ground

surface levels on the western side. The external height is up to 2.3m, internal height 1.7m. Other walls are constructed to a height of c. 1.5m. A narrow entrance is located near the SW corner on the southern boundary. Two large doorjamb stones form an entrance 1.0m wide. The reason for such massive construction, on what appears now to be merely a small, insignificant enclosure, is not clear, however, the enclosure forms part of a more extensive complex which does include dwellings.

066 Cerrig Cannon - Category B (SH62306645)

The site of a 'cerrig kannan' located near Bryn Meurig house was brought to the attention of the Trust by G. Caffell of CALL. The kannan comprises at least three stone slabs, possibly natural outcrops, containing patterns of more than one hundred small bored holes with narrow connecting. The holes were filled with gunpowder which was ignited by fuses laid in the channels. The minimum area of the feature is reckoned to be 20m by 12m though heavily overgrown. Unfortunately the landowner was unable to find the feature when the site was visited. The kannan should be cleared and thoroughly recorded before destruction or disturbance.

056. Enclosure/ Sheep Pen - Category C (SH6662062100)

Large oval shaped stone-walled enclosure. Measuring c. 30m by 10m, with walls 1.5m high and 0.80m in width. The feature first appears on the Penrhyn Estate Map of 1841. It was not included on the 1768 Estate Map which suggests it was constructed sometime between these dates.

017. River-Crossing Abutments - Category C (SH6680061900)

Located either side of the River Ogwen at Station Road, Bethesda are large bridge abutments constructed of slate blocks. Possibly an abandoned project for a river crossing, no documentary evidence for a crossing at this point has been located. The slate construction suggests a construction date of not earlier than the 18th century.

AREA 3

057. Railway Underpass - Category C (SH61626719)

An underpass is located on the route of the former Bangor and Bethesda railway line (the route of which is being used for the proposed by-pass). Walls of well constructed dressed stone cut the railway embankment to form a passageway c.2.5m wide.

058. Quarry Scoop - Category C (SH61546723)

A small quarry scoop 4.0m in length, 2.0m wide and c.1.0m in depth is located 15m to the west of the railway embankment in Area 3.

061. Site of 'Navy Oaks' - Category C (SH61586728)

Located in fields along the southwest side of the Bangor Road is a series of well spaced mature oak trees extending from opposite Ystrad Awel to opposite Maes Coed. Their historical background was made known to GAT by Gwenno Caffell of CALL. They were apparently planted at the direction of the Royal Navy for the production of timber suitable for manufacturing ships' ribs. For this purpose the trees would have been trained to form heavy curved branches. A number of examples survive, though some only as large stumps.

063. Possible Structure - Category E (SH61456742)

Located on rough grazing land immediately to the east of the old railway embankment in Area 3 is a low linear grassed bank associated with a shallow depression. The bank, 5.0m in length,

0.30m high and 1.2m wide is oriented at right angles to the railway embankment and appears to be cut or overlaid by the embankment material. Immediately to the west there is a very shallow depression, 7.0m in diameter, outlined by well spaced stones protruding the turf cover. The remains possibly represent a demolished rectangular structure, although further assessment is required to establish the nature of this feature.

051. Entrance to Small Tunnel - Category E (SH61206762)

Located close to the east bank of the River Ogwen on a pronounced stream terrace in the north of Area 3 was a tunnel entrance. The opening measured c.1.0m high and 0.50m wide and constructed with slate blocks. The roof was constructed with large slates which are overgrown with grass cover. The tunnel slopes noticeably down from the open entrance. Its function is unknown at present and further assessment is required.

050. Well? - Category C (SH61336766)

A possible well is located at the northern corner of the quarry pit east of the present A5 near Brynbella Crossroads. A short pathway (3.0m long), lined on each side with large stones, leads to a rectangular, slate-lined, well or spring. The well measures 1.0m x 0.70m. An overflow(?) trench, itself lined and covered by slate, leads from the well towards the lip of the quarry pit to the south (c.10m away). The background and significance of this feature is at present unknown.

062. Cerrig Cannan - Category B (SH612506775)

The location of an inscribed cerrig kannan was brought to the attention of GAT by Gwenno Caffell of CALL. The feature comprises a large stone outcrop some 15m high with a more or less flat top into which a pattern of holes and narrow channels have been cut. The purpose of the holes was to take a charge of gunpowder which was ignited by means of fuses laid in the narrow channels producing controlled explosions similar in effect to a gun salute. Various inscriptions are also visible cut into the stone, the most prominent of these is : **PV REX..CJ 28 1838**. The top of the outcrop is heavily overgrown and it is likely that much of the kannan remains obscured beneath it. This feature should be cleared and recorded in detail before destruction or disturbance.

SITES LISTED BY CATEGORY OF ARCHAEOLOGICAL RESPONSE

Category A - preservation in situ

-052 Penrhyn Hospital

Category B - detailed recording

- 023 Engine House
- 062 Cerrig Cannan (Brynbella Crossroads)
- 030 Field Enclosure/Structure?
- 066 Cerrig Cannan (Bryn Meurig)

Category C - recording by photograph and written description

- 035 Field Terrace/Track
- 001 Slate Structure
- 002 Low Earth Bank
- 004 Track
- 005 Weir
- 020a Revettment
- 020b Plinths
- 021 Tank

- 022 Wall Remains
- 054 Revettment
- 053 Rectangular Structure
- 055 Former Quarry Railway
- 056 Oval Enclosure
- 017 Abutments (R.Ogwen)
- 057 Railway Underpass
- 058 Quarry Scoop
- 061 'Navy' Oaks
- 050 Well
- 024 Building Remains at Bryn Llwyd
- 067 School

Category D - Watching brief

None specifically entered in this category at this stage

Category E - sites requiring further investigation

- 036 Possible Hut Circle
- 003 Cairn/Outcrop?
- 034 Possible Rectangular Structure
- 029 Ice House
- 063 Possible Structure
- 051 Tunnel Entrance

6. INTERPRETATION

The Ogwen valley in the vicinity of Bethesda is rich in evidence of prehistoric land-use including, cairns of the early bronze age, and settlements, enclosures and field systems of the later prehistoric and Romano-British periods. No certain sites in these categories were identified within the corridor of the proposed development, although the possible small hut circle (036) and cairn (003) will require further investigation to establish their character and significance.

The outcrop of rock on the east bank of the Ogwen at Pont Twr adjacent to the present house of Tyn Twr (PRN 3664) falls immediately outside the study corridor. It is, however, one of the most potentially interesting sites in the area. The precise status of this site has yet to be established but there are indications that a tower stood here or close by before the 15th century and recent small scale assessment of the present slate built structure on the rock has recovered 13th century pottery from within its dilapidated interior. Every effort should be made to avoid disturbance to this site during road construction or associated works.

The majority of new sites identified during the assessment of the route are to be associated with relatively recent agricultural and industrial activities. Given the origins and growth of Bethesda, and its inextricable association with the development of the Penrhyn Quarries and the activities of the Penrhyn estate in this area, it is appropriate that this should be so.

Bethesda, the quarries and their environs are an industrial and social landscape of great interest and the evidence for this is disappearing as requirements change. It is particularly important, therefore, that significant elements of this landscape be preserved and, where preservation is not possible, that those elements at risk should be recorded in advance of destruction.

Within the route corridor, the Penrhyn Quarry Hospital (052) is a particularly important monument of the slate industry, the turbine (dated 1918) within the engine house (023) east of Bryn Llwyd is well preserved and the Cerrig Cannans (062 & 066) are interesting relics of local social life associated with the quarry. Other features include miscellaneous slate structures and revettment walls, bridge abutments and remnants of the quarry railway and

school.

Agricultural and estate features include enclosures and sheep pens and an ice house (029) at Bryn Meurig. This probable 19th century structure will require assessment to establish its character and state of preservation before further action can be recommended.

A complex of fields and dwellings (030), although falling largely outside of the route corridor, should be treated as a whole and recorded in detail. If disturbance in this area is likely to extend outside the corridor, then limited excavation will be required to supplement and interpret the structural recording.

An interesting relic of wider social history survives in the stand of mature oaks (061) at Ystrad Awel, planted on the instructions of the Royal Navy as a future source of raw material in the production of ships ribs.

7. MITIGATORY MEASURES AND FURTHER ASSESSMENT

ASSESSMENT:

(A) Areas Still Requiring Initial Assessment

1. the southeast quarter of Area 3
2. a small area between St Pius Church and the football field.

As mentioned earlier, permission for access to carry out this initial assessment was refused in these two areas. A large part of the affected section of Area 3 contains the dismantled railway line, however, in both these areas it is possible that features remain so far unidentified. The initial field survey stage should be carried out in these areas as soon as possible.

(B) Areas Recommended for Geophysical Survey

Much of the corridor is encumbered by woodland or quarry tips and is therefore unsuitable for geophysical survey. Should further assessment of site 003 show this to be a cairn, then geophysical survey of the minimum area of up to one hectare is recommended in the immediate vicinity.

(C) Areas Recommended for Systematic Test Pit Excavation

It is very likely that there are further sites surviving along the corridor which have not been detected because they lack above ground or visible remains. Geophysical survey and systematic test pit excavation are the two main techniques available for locating such sites. As the scope for geophysical survey along the proposed road route is limited, it is recommended that the opportunities for test pit digging be maximised. The southeastern half of the route is inappropriate for this method also, therefore systematic test pit excavation is recommended in the areas where feasible and accessible from opposite Bryn-derwen-bach to the Brynbella Crossroads.

(D) Trial Trenching and Further Assessment Work

1. Trial trenching to assess possible rectangular structure 034
2. Trial trenching to assess nature of the possible cairn 003
3. Trial trenching to assess possible structure 063
4. Trial trenching to assess possible hut circle 036
- 5 further documentary search will be required to establish the nature and function of the tunnel at 051
6. Trial excavation and clearance to assess survival and character of probable ice house 029

MITIGATORY MEASURES:

(A) Sites Recommended for Preservation in Situ

052 - Penrhyn Quarry Hospital

(B) Sites Requiring Detailed Recording (if Preservation in Situ Not Possible)

023 - Turbine and Engine House

062 - Cerrig Cannan (Brynbellla Crossroads)

066 - Cerrig Cannan (Bryn Meurig)

It is recommended that in addition to detailed recording, should site 023 be at risk, then the turbine should be removed to a safe environment.

With respect to site 030, the substantial field walls, these should be set within the wider context of contiguous enclosures and dwellings. Although the latter fall outside the study corridor, the site of these houses deserves full recording as an integrated whole.

(C) Sites Requiring Basic Non-Intrusive Recording

1. Because of time constraints, the recording of sites identified by the survey has necessarily been cursory, concerned mainly with the salient features, the location, and possible initial interpretation and date. All identified sites will therefore require further more detailed recording by photograph and written description and, on occasion, the production of a scale drawing before they are destroyed or disturbed.

(D) Watching Brief Recommendations

1. As noted earlier, several significant areas were heavily obscured with dense undergrowth, particularly Area 2 which is largely located in Coed Bryn Meurig, and some parts of Area 1 within Penrhyn Quarry and at Plas Penisarnant. It is therefore quite possible that further sites remain to be identified in these areas. It is recommended that watching briefs be carried out once the vegetation has been cleared and before ground disturbance takes place so that any further archaeology which may come to light can be recorded.

2. The whole route will need to be the subject of a watching brief following topsoil stripping as some sites will inevitably only become apparent at this stage.

NON-TECHNICAL SUMMARY

The majority of archaeological features identified within the study corridor are industrial and agricultural features of the 18th century and later and as such are an integral part of the important industrial and social landscape that comprises Bethesda itself, the slate quarries and the Penrhyn Estate.

The Quarry Hospital (052) is important and preservation in situ is recommended. Features relating to the industrial and social life of the quarry which will require detailed recording and/or removal if preservation in situ is not possible are the engine house and the turbine (23) and the cerrig cannans (062 and 066).

Trial excavation will be necessary to establish the character of a possible hut circle (036), possible cairn (003) and two rectilinear features (034, 063) before further action can be recommended. Similarly, the possible 'ice house' (029) near Bryn Meurig will require further clearance and assessment to establish its character and function. In addition, the tunnel entrance (051) will require further documentary work to ascertain its origin and function.

Other features reflecting past agricultural and industrial activity and estate management will require more detailed recording by photograph and description than was possible at this stage of the assessment, in advance of their destruction. These include the quarry school, revetment walls, bridge abutments, trackways, sheep pens, agricultural enclosures, and a stand of mature oak trees planted to provide a resource of timber for the Royal Navy (061).

The complex of enclosures and dwellings near Bryn Meurig (030) will require detailed recording as a unit, with a provision for limited excavation and additional documentary search, should disturbance extend beyond the corridor at this point.

Although falling outside of the study corridor, the possible site of Twr Abercaseg (PRN 3664) at Pont Twr is a potentially important local monument with evidence of medieval activity which might reflect the former presence of a structure here in the middle ages. Disturbance here during the works associated with the road construction should be avoided.

It is recommended that geophysical survey be undertaken in the vicinity of the possible cairn 003, dependent on the results of trial excavation. Otherwise, the potential for recovering new information by this technique is limited.

All of the assessment techniques employed so far, map and documentary evidence and field survey, rely on the detection of some form of visible remains of the sites for identification. However, it is very likely that there are further sites surviving along the corridor which have no above ground or visible remains and geophysical survey and systematic test pit excavation are the two main techniques available for locating such sites. As the scope for geophysical survey along the proposed road route is limited because of the terrain, geology and density of woodland, it is recommended that the opportunities for systematic test pit digging be maximised. Even so more than half of the route is inappropriate even for this method, particularly the southeastern end of the corridor through the quarry and Coed Bryn Meurig. Therefore, systematic test pit excavation should be carried out where feasible and accessible in the area from opposite Bryn-derwen-bach to the Brynbella Crossroads.

As with all large development schemes, the potential for further discoveries once ground disturbance commences is a possibility. This is particularly so with the present proposal, taking into account the high level of known archaeological remains in the general area. It is imperative therefore, that an adequate watching brief be maintained during the ground disturbance and that some provision be made for the adequate recording of any sites which are identified at this late stage in the development.

This report is a summary of recommendations arising out of the documentary and fieldwalking stages of an assessment of the route corridor. Final recommendations for further action and mitigatory strategies will emerge on completion of the programme of trial trenching, geophysical survey and further assessment outlined above.

