

A497 ABERERCH TO LLANYSTUMDWY  
ROAD IMPROVEMENTS

ARCHAEOLOGICAL ASSESSMENT

REPORT NO. 60

GAT 1142

Ymddiriedolaeth Archaeolegol Gwynedd  
Gwynedd Archaeological Trust

# A497 ABERERCH TO LLANYSTUMDWY ROAD IMPROVEMENTS

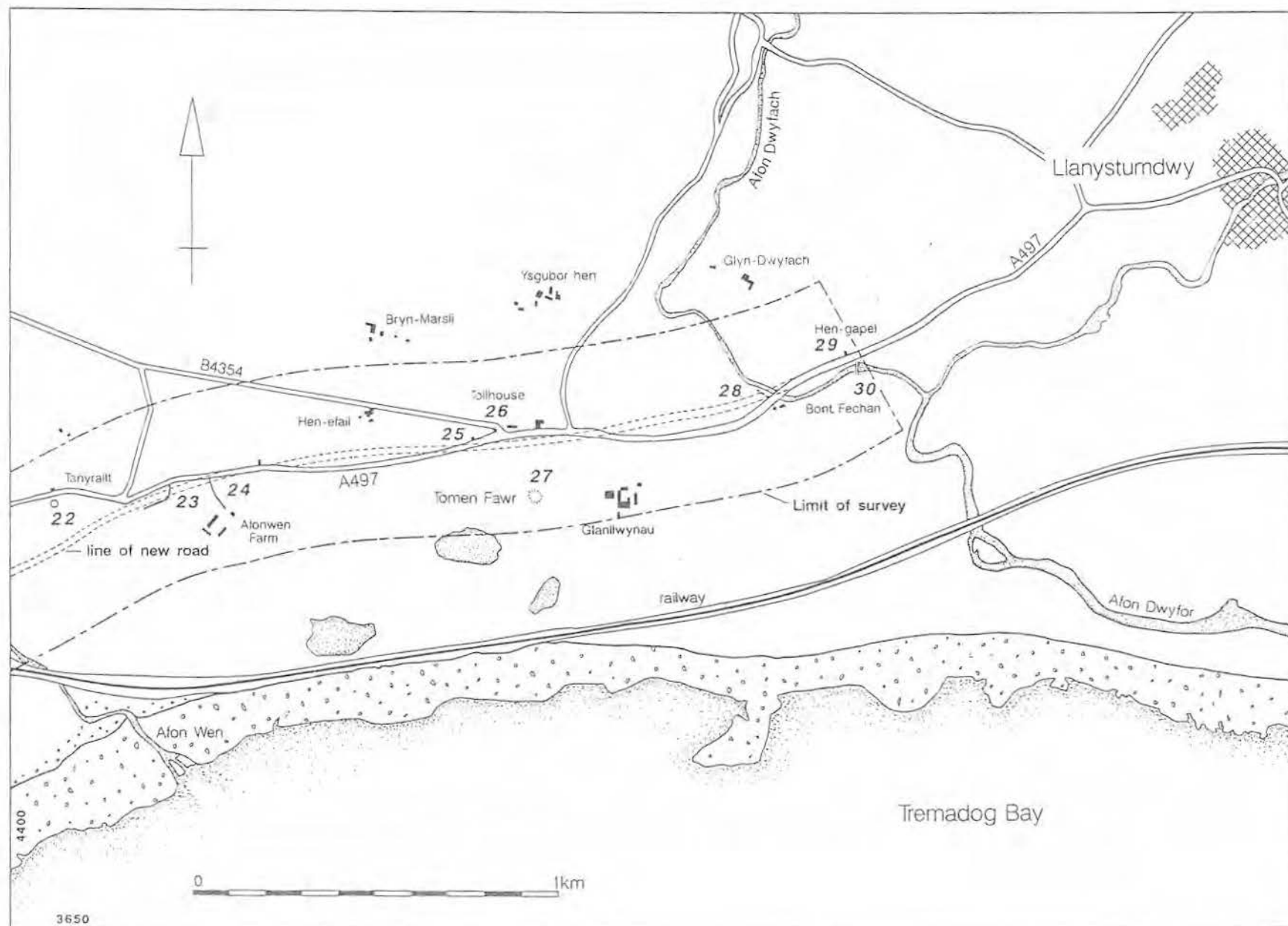
## ARCHAEOLOGICAL ASSESSMENT

for Acer Environmental

Gwynedd Archaeological Trust Report No. 60



Fig 2. Location of sites in survey area (east).



## **1. INTRODUCTION**

Gwynedd County Council Highways and Transport Department is proposing to improve (widen and straighten) approximately seven kilometres of the A497, running from Abererch to Llanystumdwy in the south of Llŷn.

The proposed route broadly follows the existing A497 but with an improved alignment. The extent of the area of interest is a strip 500 m wide centred on the proposed route.

The proposals are to be accompanied by an Environmental Assessment, which is being prepared by Acer Environmental. Gwynedd Archaeological Trust was contracted by Acer Environmental to undertake the archaeological assessment of the route, to be presented as part of the Environmental Statement.

## **2. ASSESSMENT BRIEF**

A report was requested from Gwynedd Archaeological Trust, assessing the likely archaeological impact of the plans and suggesting mitigatory measures. A brief for the work was supplied, and appears as Appendix I to this report.

The basic requirement was for a desk-top survey and field search of the corridor of interest in order to assess the impact of the proposals on the archaeological and heritage features within the road corridor and close enough to it to be affected. The importance and condition of known archaeological remains were to be assessed and areas of archaeological potential and new sites to be identified. Measures to mitigate the effects of the road scheme on the archaeological resource were to be suggested.

Gwynedd Archaeological Trust's proposals for fulfilling these requirements were accepted by Acer Environmental. They appear in full in Appendix II to this report. The main aims were:

- a) to identify and record the cultural heritage of the area to be affected by the proposals;
- b) to evaluate the importance of what was identified (both as a cultural landscape and as the individual items which make up that landscape); and
- c) to propose ways in which damage to the cultural heritage can be avoided or minimised.

This was to be achieved through 1) a desk-top study and initial fieldwork, followed by 2) additional fieldwork where identified as appropriate.

This report covers the work done under stages 1 and 2 with recommendations for stages 3 and 4.

N.B. Full details of ancillary areas likely to be affected by the road works, such as vehicle parking and turning areas, materials storage areas etc., have not yet been supplied. Experience shows that these areas are as likely to suffer damage as the actual landtake for the road. Assuming that all such areas fall within the corridor of interest, they will have been covered, but possibly not in as much detail as might be desirable.

## **3. THE ARCHAEOLOGICAL BACKGROUND**

No settlement or burial sites are known from the prehistoric period within or near the corridor of interest, but finds probably dating to this time suggest that the area was settled. Two holed stones, possibly loom weights, were found at different times near Penbryn Neuadd (PRN 2263, Site No 4 on Gazetteer) and in the park at Broom Hall finds of a polished stone axe and two axe-hammers were made. None of these finds is securely dated but all are of prehistoric type - the polished stone axe Neolithic, the axe-hammers possibly Bronze Age and the loom weights

could be from any early period.

Finds or sites of the Romano-British period are at present entirely lacking, but there are many hut groups of the period known in Llŷn suggesting that the whole area was well settled.

Settlement of the area during the Medieval period is fairly well documented, but limited physical evidence exists. Medieval sites in the area which survive include the remains of a settlement within the township of Botach, located recently in Broom Hall park, Penarth Fawr Medieval house and Tomen Fawr ring-work. Of these, only the last is within the corridor of interest, but obviously all have a bearing on the Medieval settlement of the area.

Tomen Fawr now stands in isolation; all the surrounding fields having been repeatedly ploughed over a long period of time. A field name, *Cae Carreg* (stony field), suggests that features associated with the castle mound once existed but have been ploughed out. The mound itself is a good example of a Norman ring-work, later re-used by the Welsh princes and eventually serving as the centre for the township of Ffridd-lwyd. The township was later given to the Cistercians and became a grange of Aberconwy Abbey, but came back to the Crown through an exchange. Traces of a possible rectangular structure survive within the ring-work, and small depressions in the grass may indicate the positions of gateposts.

Following his conquest of Wales in the late 13th century, Edward I made a tour of the various castles and townships in Gwynedd. On the night of 9th August 1284 he stayed at 'Penaghen' on his way from Pwllheli to Caernarfon. This name may clearly be identified with the modern Penychain, a farm and headland south-east of Butlins holiday camp, and this is interesting because it is some distance from Tomen Fawr and in the next township. There must clearly, therefore, have been a house or castle in Penychain township which could accommodate the royal retinue.

No Medieval buildings survive within the corridor of interest, but Bont Fechan, at the extreme eastern end, probably dates from early in the 17th century. It is listed Grade II and is well preserved, having been widened and reconstructed in 1780 and further repaired in 1889.

Houses and farms in various states of repair dating from the 18th century onwards are found throughout the corridor of interest, one building of particular interest being the old toll cottage (site No 26 in Gazetteer) which is listed Grade II.

Thus, although as might be expected, the surviving sites of archaeological and historical interest largely date from the later periods, the area has most probably been settled throughout prehistory and the potential exists for the discovery of sites relating to these early periods.

#### **4. METHODS AND TECHNIQUES**

##### **Desk-top Study**

Consultation of maps, computer records, written records and reference works, which make up the Sites and Monuments Record, was undertaken at the Trust. Records (including early Ordnance Survey maps, tithe maps and schedules and reference works - see bibliography) were also consulted in the library and the archives of the University College of North Wales, Bangor, and the County archives at Caernarfon. Aerial photographs were inspected at the offices of Gwynedd County Council and the Countryside Commission for Wales. This work exhausted all the available time, but by no means all possible routes of enquiry, and much more research could be undertaken, particularly into the Medieval period, should time become available.

##### **Field Search**

This was undertaken during the week 26th - 30th July 1993 by two members of Trust staff. When time is limited, usual Trust practice for road schemes is to cover the whole corridor to



the most detailed level possible where no preferred route is notified, but where a preferred or proposed route is given, to cover the areas most likely to be affected very thoroughly and the areas unlikely to be affected in limited detail. This was the procedure followed in this case.

The whole length of the preferred route was walked where possible (not where it passed through standing crops, marsh or impenetrable scrub), with the exception of some small areas which could be more effectively viewed from raised ground nearby. Neighbouring fields within the corridor of interest were visually inspected without being walked over. Conditions were generally good for fieldwalking, most of the land being under pasture and the weather mainly dry.

Farmers were generally absent, but where available were consulted in case they held any information pertaining to their land.

Sites identified were marked on 1:10,000 maps as accurately as possible without surveying. Forms were filled in assessing each site, and detailed notes made of the more important. Some photographs were taken but as the weather was overcast and results were not likely to be particularly good, little time was spent on this. A complete photographic record of the sites will in any case need to be made at a later stage.

A departure from the Trust's usual practice was made in respect of field walls. Stone walls which appear to be of some age are normally treated as individual sites and numbered in the Gazetteer. In this case, however, as a very large proportion of the field boundaries along the route are 'Llyn' walls, a typical local style of building with smallish regular blocks and a turf core, still used today and extremely hard to date, walls were treated as a separate category, and only a representative sample need be recorded.

## Report

Prior to writing the report, all available information (a considerable amount) was sifted and the various threads drawn together, and the points of greatest interest and relevance selected. All information, including field names where available, was transferred onto maps at a scale of 1:1,000 for ease of reference. The sites were then assessed and allocated to the categories listed below (and see Appendix II) according to their face value; further investigation may result in sites being moved into different categories.

## Categories

### *Category A - Preservation in situ*

Sites of such importance that it is recommended that they remain preserved and protected *in situ*.

### *Category B - Detailed recording.*

Sites for which preservation *in situ* is the preferred option, but appropriate detailed recording might be an acceptable alternative if damage or destruction cannot be avoided.

### *Category C - Recording by photograph and description.*

Sites capable of being adequately recorded quickly, by written description and photograph, and in some cases survey by Electronic Distance Measuring equipment. These include most landscape features such as walls and tracks, and in most cases the majority of sites fall in this category. Where an EDM survey is thought to be necessary or desirable, this is noted in the Gazetteer.

### *Category D - Watching brief sites.*

Sites are allocated to Category D where finds or features may be expected (e.g. significant place-names, geophysical anomalies which have not been satisfactorily identified, or areas near existing sites) but no work is thought to be necessary in advance of the work. The whole route will need to be the subject of a watching brief as some sites will not even be suspected until

topsoil stripping reveals them, and sites which have already been recorded in advance of the work will require further recording during it.

*Category E - Sites needing further investigation.*

Sites the importance of which is as yet undetermined and which will require further work before they can be allocated to categories A - C are temporarily placed in this category, with specific recommendations for further evaluation. By the end of the assessment there should be no sites remaining in this category.

## 5. RESULTS

### Desk-top Study

Archive material for the desk-top study was plentiful, and results suggest that the area was of some historical importance, especially in the Medieval period. Eight known sites and three areas of interest were identified in the vicinity. These are:

Sites: PRN 2263 Findspot of holed stone (prehistoric)  
PRN 2272 Findspot of axehead (prehistoric)  
PRN 1825 Site of Medieval township of Botach  
PRN 2270 Gravel mound, probably natural in origin  
PRN 1329 Tomen Fawr, Medieval ring-work (castle mound)  
Tan-yr-Allt, 18th-century house formerly listed Grade III  
Old Toll House, Grade II listed building  
Bont Fechan, Grade II listed building (17th-century bridge)

Areas: Q15 Small quarry south of Bodriala  
PRN 4405 Broom Hall park and gardens  
Area surrounding Tomen Fawr where associated remains may occur

None of these sites appear to be directly affected by the landtake for the proposed route except that the northern edge of the area surrounding Tomen Fawr, bordering the present road, will be clipped, and details were not supplied of how Bont Fechan is likely to be affected. Of the rest of the sites, those very close to the proposed route are included in the Gazetteer, and the rest are not. Included are:

PRN 2263 Findspot of holed stone (No 4)  
Tan-yr-Allt (No 13)  
Toll House (No 26)

Good information about field and farm names was generally available, but the names themselves were not very helpful. Names were not available for some of the most interesting locations, and only one or two of what were available appeared to be significant. There seemed to have been many changes in field boundaries in the intervening time between the drawing up of 19th-century and modern maps; this may be a fairly recent phenomenon, but it may have been going on for centuries. More research would help.

An idea of the Medieval background of the area was obtained from the various sources consulted. It was noted that the ring-work at Tomen fawr probably represents the centre of the township of Ffridd-lwyd, but that the centre of the township of Penychain has not been identified, although Edward I is known to have stayed somewhere in the area, indicating that there was a house capable of accommodating the royal retinue. Gresham places the township centre in an area now eroded by the sea, for various reasons, which include place name associations, the fact that the best land in the township is in the suggested area, and the fact that no known remains or record of the settlement's location survive. This suggested location is not far from the large area of earthworks observed in the field (site 20).



Some features were noted from aerial photographs, but those which could be identified on the ground appeared to be natural. Most fell outside the corridor of interest, in any case.

Apart from the two listed buildings and 18th-century house noted, several other farms and houses appear on maps going back to the early 19th century. There do not appear to be any buildings of major architectural importance within the corridor apart from those listed, but several farms have excellent agricultural buildings of some age.

### Field Search

Sites already noted from documentary sources were identified in the field and marked on the map if necessary; it was noticed that some houses and cottages had disappeared. None of these were thought to be of particular interest.

A number of previously unrecorded sites was identified, some of which seem likely to be extremely interesting (see Gazetteer). The total of sites allocated numbers in the Gazetteer was 30.

Apart from these, many 'Llyn' walls were noted; these were not individually allocated to categories (see above) but some of them are very fine. They are difficult to date but scrutiny of old and recent maps and comparison with field notes does not seem to suggest that these walls are any more likely to occur along field boundaries which have not changed within the last 200 years than those which have; in fact it seems likely that many of the extant walls were built within the last 200 years. Several will be affected by the road works and all these should be recorded under a watching brief; a representative sample should be recorded in greater detail, to Category C level.

Other sites of interest within the corridor but which seem unlikely to be damaged by the road as proposed were mostly buildings, chiefly farms whose group value is enhanced by their associated outbuildings and walls. These were not included in the Gazetteer, but a list of them, with grid references, is added for reference.

### Gazetteer of Archaeological Sites numbered from west to east

1. *Track, south of Cemlyn SH39753631 Category C*  
Shown on the tithe map of the 1880s as the road; the present route of the A497 is new. The ground drops steeply away to the south and the track is revetted.
2. *Cemlyn (house) SH39763635 Category C*  
Does not seem to have any particular architectural merit and does not appear on maps before 1888; presumably therefore about 100 years old.
3. *Track, south-east of Cemlyn SH39773633 Category C*  
Short length of track associated with the house and probably of similar age; walled both sides. Leads off the old road rather than the new one.
4. *Findspot, near Penbryn Neuadd SH39723646 Category D*  
Two perforated stones, possibly loom weights and probably prehistoric in date, were found here at different times. One was complete, the other broken; the complete one is now lost.
5. *Large hollow west of Bodriala centred SH40103645 Category D*  
This is shown on the tithe map and appears on the engineers' plans for the road improvements; it takes the form of most of three sides of a sub-square shape, the longest side being about 150 m long. Water lies in part of it and it is very thickly overgrown, and thus difficult to appreciate on the ground. It is most likely to be a topographical feature - an abandoned curve of the river - but the possibility of its being a moat cannot yet be completely ruled out.
6. *Track, Bodriala SH40173651 Category C*  
Track leading away from Bodriala to the south-west, walled both sides. This is typical of many farm tracks in the area but is not a particularly good example.

- Bodriala appears on the 1888 Ordnance Survey 6" map.
7. *Track, south-west of Efail-bach SH40433650 Category C*  
Another short length of walled track, not very well preserved.
  8. *Enclosure, south-west of Efail-bach SH40453643 Category D*  
Small walled enclosure, shown as woods or orchard on the tithe map. Now contains a few trees but appears to be waste ground.
  9. *Bank SH40453637 Category E*  
Low, wide bank which runs more or less along the line where, from the map, a field boundary might once have been. However, no such boundary appears on the tithe map, and the bank has the appearance of a track. It could even be part of an old road, but if so it had fallen out of use by the 1880s, when the tithe map was drawn up.
  10. *Track, south of Gorwel SH40653635 Category C*  
The first part of the track leading to Glan-y-Morfa, this is revetted above and below and has already been damaged, probably by machinery used for boreholes.
  11. *House, south of Gorwel SH40653634 Category B*  
The age of this building is uncertain, but it is definitely shown on the tithe map of the 1880s. It appears to be older than 19th century, however. It is a small house, derelict, and in a very fragile condition, but still with most of its structural features discernible. It would be very likely to collapse if exposed to excessive vibration etc.
  12. *Possible track, Glan-y-Morfa SH40903632 Category C*  
An overgrown gate from the road appears to have tracks leading away from it to east and west, with some stone revetting on the downhill side. Long disused and overgrown, EDM survey would probably be required to follow their routes. Glan-y-Morfa is shown on the 1819 Ordnance Survey manuscript map.
  13. *Tan-yr-Allt, formerly listed Grade III SH41203639 Category A*  
An 18th-century, two-storey house.
  14. *Enclosed wood, SH41383643 Category C*  
A small, walled, triangular enclosure containing old trees, marked as 'coed' on the 1880s tithe map.
  15. *Earthworks, south-east of Tanclogwyn SH41703656 Category E*  
An area of earthworks possibly including house platforms, which would probably be Medieval in date. Part of the area is damp but the earthworks seem too confused to be all connected with drainage. There are scattered large boulders, some of which appear to form lines.
  16. *Track, Glan Morfa SH41883662 Category C*  
Entrance track to Glan Morfa, walled; a fine example. Glan Morfa is shown on the 1819 Ordnance Survey manuscript map.
  17. *Hollow way, north-east of Glan Morfa SH42003667 to 42113671 Category B*  
Track or old road, ploughed out in the field immediately east of Glan Morfa but clearly visible as a hollow way alongside a natural scarp in the north-east corner of this field; difficult to trace where it crosses the stream but again clearly visible, as a slighter hollow, in the field east of the stream. Possibly Medieval or early Post-Medieval in date.
  18. *Hut circles, near Pont Llwyn-Gwyn SH42793688 Category B*  
Two circular banks in a low-lying, marshy area beside the stream appear to be hut circles, of Romano-British or possibly earlier date. One has already been damaged, being bisected by a gas pipeline, and the whole area has been very much churned up, probably by boreholing machinery.
  19. *Track, Tyddyn Berth SH43613729 Category C*  
Another walled farm track. Tyddyn Berth appears on the 1819 map.
  20. *Earthworks, south-east of Tyddyn Berth SH43753732 Category B*  
A large area of substantial earthworks. These appear too massive and too confused in plan to be connected with drainage, and only a small area of the field to the west of them is wet. They may well, therefore, represent settlement remains, perhaps from the Medieval period; and as this site is not at all far away

from the sea-edge site, now eroded, suggested by Gresham as the most likely spot for the main settlement of the township of Penychain, it is possible that it could turn out to be very interesting.

21. *Railway embankment SH43803740 Category C*  
The railway connecting the Porthmadog-Pwllheli line with Caernarfon via the Afonwen junction, built in 1867, ran along a substantial embankment in this low-lying area. The embankment is fenced off and well overgrown with scrub, hence inaccessible, but it is unlikely that there would be anything to note at this stage.
22. *Possible old pond, south of Tanyralit SH44143766 Category C*  
This circular depression in an arable field may be merely a low-lying damp patch, but could be an old pond. If so it should be recorded.
23. *Bank, north-west of Afonwen Farm SH44383765 Category E*  
A low, wide bank with dips either side runs parallel with the road for a short distance in a field of recently re-seeded grass north-west of Afonwen Farm. It is most likely to be an old road or track, but should be definitely identified.
24. *Track, Afonwen Farm SH44553771 Category C*  
Another example of a walled farm track, in this case leading to Afonwen Farm, which is shown on the 1819 map.
25. *Tynffridd SH45273783 Category C*  
House, age uncertain but shown on maps from 1880s at least.
26. *Toll House, Grade II listed SH45323787 Category A*  
Single-storey toll cottage with loggia porch supported on monolithic square-hewn uprights, many other original features.
27. *Area of interest surrounding Tomen Fawr, PRN 1329 Category E*  
The northern part of this area of interest, which is roughly centred on the ring-work, SH45443768, will be affected by the proposed road works. The area was identified as being likely to contain evidence of activity associated with the ring-work, but it has been subjected to repeated ploughing and is still in arable cultivation.
28. *Track, north of Bont Fechan Farm SH46173797 Category C*  
A track running alongside the river and disappearing under the modern bridge. Large trees growing out of its wall suggest considerable antiquity. Requires EDM survey.
29. *Hen Gapel SH46283807 Category E*  
A house, but of strange construction, and the name (old chapel) is suggestive. The name appears on maps from the 1880s but the building may be shown earlier.
30. *Bont Fechan, bridge Grade II listed SH46313804 Category A*  
Early 17th-century bridge renovated in 1780 and 1889, remaining in good repair. Details of work in the immediate area have not been supplied, but the bridge should not be damaged.

*Sites of interest within the road corridor but unlikely to be affected by present plans*

Penbryn Neuadd (house) SH39703645  
Bodriala (farm) SH40153645  
Efail-bach (house) SH40523649  
Gorwel (house) SH40633640  
part of Broom Hall park, East and West Lodges SH41603672  
Tanclogwyn (house) SH41633660  
Glan Morfa (farm; particularly barn) SH41863650  
Llymgwyn (farm) SH42353692  
Pont Llwyn-gwyn (bridge) SH42703679  
Capel Bryn Bachau (chapel; building dated 1888 but appears on earlier maps) SH43153698  
Cottage next to Capel Bryn Bachau SH43183699  
Tyddyn Berth (farm; also entrance track) SH43603735  
Melin Ffridd-Lwyd (mill; old building remains amongst industrial additions) SH43903761

Lôn Goed (road with plantations of trees either side) starts SH43953765  
 Tanyralt (house) SH44113769  
 Ty'n Lôn (derelict house & outbuilding) SH44673777  
 Hen-efail (farm) SH44973789  
 Tomen Fawr (medieval ring-work) SH37944544  
 Glanllynau (farm) SH45553765  
 Bont Fechan Farm (nursery) SH46103793

### Sites by Category

#### *Category A - Preservation in situ*

- 13. Tan-yr-Allt
- 26. Toll House
- 30. Bont Fechan

#### *Category B - Detailed recording*

- 11. House
- 17. Hollow way
- 18. Hut circles
- 20. Earthworks

#### *Category C - Recording by photograph and description*

- 1. Track
- 2. Cemlyn
- 3. Track
- 6. Track
- 7. Track
- 10. Track
- 12. Possible track
- 14. Wood
- 16. Track
- 19. Track
- 21. Railway embankment
- 22. Possible old pond
- 24. Track
- 25. Tynffridd
- 28. Track

#### *Category D - Watching brief sites*

- 4. Findspot
- 5. Natural hollow
- 8. Small enclosure

#### *Category E - Sites needing further investigation*

- 9. Bank
- 15. Possible house platforms
- 23. Bank
- 27. Area of interest surrounding Tomen Fawr
- 29. Hen Gapel

## 6. INTERPRETATION

The whole route is of archaeological interest. The greatest number of extant sites relates to the Post-Medieval period, but the presence of sites and finds in the area from earlier periods suggests that more detailed investigation may reveal more, typically less well-preserved, evidence from these periods.

The area is mainly low-lying coastal farmland, the chief topographical features being



connected with the several rivers and streams which meander across it towards the sea. It is clear that these have changed their courses through time, leaving river cliffs some way from the present course, abandoned meanders, etc. The drainage pattern is further complicated by many man-made drains and watercourses.

With the exception of the areas now occupied by Butlins holiday camp and Broom Hall and its park, the landscape now basically consists of fairly small farms, each with its complex of outbuildings, the fields being mainly under improved pasture, although there is an appreciable acreage of arable land south of the road in the eastern half of the corridor. All the pasture has obviously been ploughed at intervals, some of it frequently; field boundaries have moved since maps were drawn late in the last century, and the present line of the A497 is modern and has already been improved in places. The railway, built in 1867, must have altered the field pattern considerably, and continuing reclamation west of the Penychain headland and erosion east of it cause gradual changes. Overall, the landscape is dynamic and its history is complicated and difficult to follow.

This does not mean, however, that it is without interest. Despite the changes, many of the field boundaries are the same as on the earliest maps, and several of the farmhouses, farm buildings and field walls are of a considerable age. The 'Llyn' walls are both attractive and typical of the area, and there are scattered mature trees.

The hut circles (site No 18) could be Romano-British, or earlier; the finds near Penbryn Neuadd and at Broom Hall testify to a prehistoric presence in the area. It is interesting that the field in which the hut circles are located is at present extremely wet, too wet for comfortable habitation, and this suggests that the changes in drainage and shifts in the river's course shown by the topography may have continued until relatively recently.

Concrete Medieval remains to back up the evidence from documentary sources are so far scarce, but some more information may be forthcoming from the earthwork sites noted. The large earthworks near Tyddyn Berth (site No 20) are located fairly close to the area identified by Gresham in *Eifionydd* as the most likely situation for the township centre for Penychain. The possible house platforms near Tanclogwyn (site No 15) may be the site of a Medieval farm, and the hollow way near Glan Morfa may well go back to this period and represent an early road.

The evidence for changing field boundaries and road courses is interesting too, suggesting changes in farming practice perhaps representing fuller exploitation of this low-lying area with improving technology.

Farms within the area of interest date from various periods, some appearing on the earliest maps and others not until late in the 19th century, these latter presumably exploiting gaps in the existing settlement pattern. A few farms and houses marked on early maps seem to have now disappeared.

Even now farming practice in the area is subject to change. Although most of the fields within the corridor are improved pasture, there is a large arable area south of the present road at the east end of the route. This includes the area around Tomen Fawr, which is recorded in 1979 as being permanent pasture, only occasionally ploughed.

Archaeological potential is roughly constant along the corridor except for the area occupied by Butlins holiday camp; and the arable area referred to above within which, Tomen Fawr lies. This latter has been the subject of regular ploughing so that it is inevitable that any surface or sub-surface archaeological remains will have been damaged.

The potentially important prehistoric and Medieval sites noted during fieldwork seem to cluster in the middle section of the corridor, but this is unlikely to be significant and all areas except for the two noted should be given equal weight.



The sites themselves are unlikely to exist in isolation, and the areas surrounding, for instance, the hut circles (site No 18), possible house platforms (15) and earthworks (20) may well contain information relating to the contemporary landscape and land use. The area surrounding the hut circles appears never to have been ploughed, although it has been recently churned up by heavy machinery.

Areas which appear to contain nothing of particular interest at present, especially where there has been occasional but not too frequent ploughing, are very likely in fact to contain sites not readily observed in the field. The number of 'new' sites noted during the fieldwalking exercise points up the dangers of writing off apparently uninteresting areas.

## **7. PROPOSALS FOR FURTHER WORK AND MITIGATORY MEASURES**

### **A. Areas recommended for Geophysical Survey**

1. Geophysical survey should be undertaken in the immediate vicinity of the possible hut circles near Pont Llwyn Gwyn (18) to establish the extent and nature of these and related features.
2. Geophysical survey should be undertaken in the area of earthworks south east of Tyddyn Berth (20) where the proposed route crosses these features, to establish their nature and extent beyond the surface features.
3. Geophysical survey should be undertaken on, and in the vicinity of the earthworks and possible house platforms south east of Tanclogwyn (15) to establish their nature and extent beyond the surface features.
4. Geophysical survey should be undertaken on the line of the proposed route north of Tomen Fawr (27) to investigate the possibility of activity associated with the medieval ring-work Tomen Fawr.

### **B. Areas requiring trial trenching or further assessment**

1. Following, and dependent on, the results of geophysical survey at or in the vicinity of sites 18, 20, 15 and 27 as indicated above, trial trenching may be required to clarify the nature and extent of the surface remains and/or features identified through geophysical survey.
2. Trial excavation will be required to establish the character of the two banks identified as sites 9 and 23 before further action can be recommended.
3. Further documentary work is required on 'Hen Gapel' (29).

### **C. Areas recommended for systematic test pit excavation**

1. If no results are forthcoming from geophysical survey in the vicinity of Tomen Fawr (27) then test pit excavation will be required along the line of the preferred route here.
2. As indicated in the project specification, test pit excavation will be required along the line of the preferred route where no information is forthcoming from other sources.

## Proposals for mitigatory measures

### *Category A sites - preservation in situ*

The three sites in Category A are the two listed buildings, the toll cottage (site No 26) and Bont Fechan (site No 30), and Tan-yr-Allt, the 18th-century house formerly listed Grade III. The two houses do not appear to be directly affected by the proposed route, but details were not supplied of the work affecting the bridge. It should definitely not be altered or damaged in any way.

In all cases, even if the buildings and their immediate surroundings are not damaged, thought should be given to the possible effects of increased or closer traffic vibration on the structures.

### *Category B sites - detailed recording*

These sites lie on or close to the line of the preferred route. If preservation *in situ* is not possible then detailed recording, which may involve full excavation, will be necessary.

11. The fragile state of this building means that even if it is not directly damaged, collapse is likely but detailed recording will be necessary and controlled demolition is preferable to collapse.

17. This hollow way should be recorded in detail (EDM survey, photographs, description) prior to damage/destruction, and sections dug and recorded across any parts to be destroyed.

18. Hut circles near Pont Llwyn Gwyn. It has been recommended that geophysical survey and trial excavation be undertaken to establish the nature and full extent of these sites. If preservation *in situ* is not possible and all or part of this site is to be damaged or destroyed then detailed recording, involving excavation will be necessary.

20. Earthworks south-east of Tyddyn Berth. If preservation *in situ* is not possible then, following the results of geophysical survey and trial trenching as outlined above, full recording, involving excavation, will be required on that part of the site affected by the proposed route.

### *Category C sites*

Recording by photograph and description before work begins will suffice in most cases, followed by a watching brief during damage/destruction. In some cases measured drawings and EDM survey may also be required.

## 8. WATCHING BRIEF

It is imperative that a watching brief be maintained during construction to identify new information emerging at this stage and that provision be made for adequate recording of this information.

## 9. BIBLIOGRAPHY

Aerial photographs held by the Countryside Council for Wales  
Aerial photographs held by Gwynedd County Council  
Bassett, T. M., and Davies, B. L., 1977 *Atlas of Caernarfonshire*  
Bulletin of the Board of Celtic Studies  
Cadw: Welsh Historic Monuments Listed buildings information  
Davies, Dewi *Welsh place-names and their meanings*  
Davies, Elwyn (ed.), 1975 *A Gazetteer of Welsh Place-names*  
Gresham, C.A., 1973 *Eifionydd*  
Gwynedd Archaeological Trust, 1990 *Report of Survey of Broom Hall Park*  
Gwynedd Sites and Monuments Record  
Journal of the Caernarvonshire Historical and Record Society Nos 17 & 19  
Ordnance Survey maps: 2" manuscript for first 1" edition, 1819

1" 1913

6" sheets surveyed 1887-88 and revised 1913-14

1:10,000 surveyed 1975-77, revised 1981, publ. 1982

Plans at 1:1,000 provided by Gwynedd County Council

Royal Commission on Ancient and Historical Monuments in Wales, *Inventory*,  
Caernarvonshire Vols. II (1960) and III (1964)

Tithe maps and schedules dated between 1839 and 1889 for the parishes of Abererch,  
Llanarmon & Llanystumdwy

## Non Technical Survey

An initial assessment of the proposed route has identified a number of actual and potential new sites. Recommendations are proposed for further assessment to clarify the extent and nature of potential sites and geophysical survey and trial trenching is likely to increase the number of actual sites. Initial recommendations are also proposed for mitigatory strategies for known sites ranging from preservation *in situ* where at all possible to the provision of a watching brief during road construction.

Sites and find spots identified within the route corridor range from early prehistory to the post-medieval period. Potentially the most significant sites, however, are the possible iron age/Romano-British hut circles at Pont Llwyn Gwyn (18) and the earthwork features at Tanclogwyn (15) and Tyddyn Berth (20) which may throw light on medieval settlement in the area.

The 18th century house, Tan Yr Allt (13), the toll house (26) and the bridge, Bont Fechan (30) should all be preserved *in situ*. The house (11) south of Gorwel, in a fragile condition, requires detailed recording in advance of its apparently inevitable demolition.

Geophysical survey and trial excavation will be required to identify the full extent and nature of the hut circle site at Pont Llwyn Gwyn (18), the earthworks at Tanclogwyn (15) and Tyddyn Berth (20) and to investigate the possibility of medieval activity in the vicinity of Tomen Fawr (27). Proposals for detailed recording, as appropriate, which may include excavation, can then be prepared if preservation *in situ* is not possible. The hollow way (17) will also require detailed recording in advance of destruction.

Further assessment by trial trench is required of the two banks (9, 23) to assess their significance before mitigatory measures can be recommended and at Hen Gapel (29) further documentary work is required.

Systematic test pit digging will be required along the line of the route to identify further sites for which there is no evidence at present available.

A number of agricultural, domestic and industrial features were identified, including old trikes, field boundaries and a railway embankment which can be adequately recorded by photograph and description in advance of destruction.

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 level of known archaeological remains in the area it is imperative, therefore, that an adequate watching brief be maintained during the ground disturbance and that provision be made for the adequate recording of any sites which are identified at this late stage in the development. In particular the vicinity of the findspots of two probably prehistoric stone implements near Penbryn Neuadd (4); the hollow feature west of Bodniala (5) and the walled enclosure (8) will need to be observed.

## Appendix 1



# A497 IMPROVEMENT BETWEEN ABERERCH - LLANYSTUMDWY ENVIRONMENTAL ASSESSMENT

## BRIEF FOR ARCHAEOLOGICAL ASSESSMENT REPORT

### 1.0 INTRODUCTION

- 1.1 In January 1993 Gwynedd County Council requested Acer Environmental to advise on the environmental impacts of proposals to improve the A497 from Abererch to Llanystumdwy
- 1.2 It was recognised by the County Council, that to carry out a full Environmental Assessment (EA) leading to the preparation of an Environmental Statement (ES) a number of specialist environmental surveys would be required. The archaeological assessment report would constitute one of these surveys, consisting of a desk study with additional fieldwork where necessary. The other environmental surveys to be investigated by other consultants and not forming part of this brief, include noise and vibration, agriculture, ecology, soil quality, water quality, air quality, landscape and visual impacts and community impacts.

### 2.0 LOCATION AND NATURE OF SCHEME

- 2.1 The A497 is a popular tourist route located in north-west Wales. The proposed improvements involve a section of the road between the villages of Abererch to the west, and Llanystumdwy to the east and approximately 7km in length.
- 2.2 The proposed solution is for a 7.3m wide single carriageway with 1 metre hard strips and 2.5m wide verges, with a much improved alignment providing overtaking opportunities. The proposed route would broadly follow the existing A497 road corridor however some sections would be off-line and a new roundabout is proposed at the junction with the Abererch road.
- 2.3 Details of the proposed road construction are yet to be confirmed however it is likely that there could be damage or destruction of archaeological or historical remains.

### 3.0 PROGRAMME

- 3.1 The Environmental Statement is to be prepared to accompany a planning application to be submitted to the Planning Authority in October 1993. In accordance with this programme, the archaeological assessment report must be completed by August 13th 1993.

#### 4.0 SCOPE OF WORK

- 4.1 The impact of the route alignment and junction alterations upon archaeological elements within the landscape will be assessed. The archaeological elements and heritage features within the road corridor, and of such proximity to the corridor as to be subject to the impact of the route, are to be assessed. The impacts of the route alignment are to be defined and quantified with recommendations for mitigating measures.

The work is to be undertaken in two stages:

- an initial site visit and desk study (outlined in section 5.0) as a lump sum fee; and
- additional field survey work where identified as appropriate, to be the subject of a separate commission.

- 4.2 There are three principal types of impact on archaeological sites and heritage features:

- Direct physical impact such as demolition, landtake or damage to the archaeological remains and buildings, caused by vibration or disturbance of the soil. Vibration and settlement, as a result of construction and traffic flows, may affect historic buildings and in extreme cases, archaeological deposits. Remedial measures to mitigate noise or subsidence can cause damage to historical buildings and archaeological sites.
- Indirect physical impact such as alterations to the water table level or atmospheric and groundwater pollution, which by affecting the microclimate, ground conditions and ecological balance of a site may have a detrimental affect on archaeological or heritage features.
- Loss of amenity where increased noise level, visual intrusion or visual obstruction detract from the setting or enjoyment of features or the coherence of the historical landscape.

- 4.3 The assessment work carried out to date has been undertaken as part of the Landscape Report prepared by Cobham Resource Consultants in August 1991. Information from local authorities and literature surveys was used to establish the history of the area and to locate archaeological sites, listed buildings, Scheduled Ancient Monuments and conservation areas. This identified a number of historical features. Although no designated sites would be directly affected by land take, the data collected are to be reviewed as part of the Environmental Statement and an assessment of the indirect impacts or effects on non-designated features are to be assessed.

## 5.0 METHODOLOGY : DESK STUDY

### 5.1 *Sources of information*

- 5.1.1 The following sources of information are to be investigated and the resulting survey data to be used as the basis for the report. The general study area should cover all features of archaeological and historical interest with the vicinity of the proposals with a more detailed study area within a 500m corridor either side of the proposed route.
- 5.1.2 Published and archived data sources including the Sites and Monuments Register, aerial photographs, ordnance survey, geological and topographical maps, parish and estate maps, historical documents, evaluation and excavation reports.
- 5.1.3 Consultation with relevant statutory bodies ( Cadw Welsh Historic Monuments), local government officers, heritage officers, local museums, and societies, libraries, academic institutions, and specialists as appropriate.
- 5.1.4 Patterns of past topography, settlement and land use with appropriate mapping, should be described to identify the location, extent, date and character of recorded archaeological sites, deposits or features within the study area.
- 5.1.5 Areas or sites where any archaeological remains are likely to have been destroyed by past and present buildings and features are to be noted.
- 5.1.6 Documentary information is to be verified by a site visit at an early stage in the assessment. The consultant must liaise with Acer Environmental in this matter in order that access to the land and route can be arranged.
- 5.1.7 If the desk study does not allow a confident assessment to be made, those sites which need further investigation in the field are to be identified. Appropriate field evaluation techniques, such as geophysical survey, auger survey, field walking, test pit excavation and trial trenching are to be proposed (including outline specifications). The objective being to ensure where possible that non-destructive field evaluation techniques are proposed.

### 5.2 *Evaluation and Assessment*

- 5.2.1 The importance and condition (quality and state of preservation) of known archaeological remains will be assessed, using existing plan and survey information.
- 5.2.2 Areas of archaeological potential are to be assessed, taking into consideration the relative importance of each site, or group of sites, to the understanding of the archaeological landscape.

- 5.2.3 The sites are to be graded, as far as possible, indicating which may be the more important sites or which may contain a higher density of remains, using the criteria given in DOE circular 15/88. Relevant constraints should be noted (e.g. Conservation Areas, contaminated land) and sites which might require specific consents under the law (e.g. Scheduled Ancient Monuments, Listed Buildings, cemetery sites) should be highlighted.
- 5.2.4 The scale and nature of the project and construction methods to be used should then be considered to establish the degree of impact on the archaeological resource. Mitigation measures to minimise potential damage to archaeological and heritage resources should also be proposed.
- 5.2.5 The relationship between archaeological and other environmental factors such as recreation should also be considered and the need to inform or consult local residents or the general public about specific sensitive areas. In order to avoid duplication and to enable integration of information, consultations with other specialists working on the environmental assessment may be required while preparing the report.

## 6.0 REPORT FORMAT

- 6.1 The survey and assessment information gathered by the desk study and brief walkover survey is to be summarised and along with recommendations for further investigation, incorporated into a detailed report with appropriate illustrative material. A preliminary draft of this report will be produced, if required, to allow comments to be incorporated into the final draft.
- 6.2 A non-technical summary of the report is required, in accordance with the European Community Directive 85/337.

## 7.0 REPORT PREPARATION

- 7.1 The project will be carried out in accordance with the code of conduct of the Institute of Field Archaeologists. The following EA legislation and regulations will be considered and complied with:

- European Community Directive 85/337
- Town and Country Planning (Assessment of Environmental Effects) Regulations 1988 (No 1199)
- Highways Act 1980 sub-section 105A (2)
- Department of Transport Circular HD 18/88
- Department of Environment Circular 15/88
- New Roads and Street Works Act 1991, Ch22,19.

## 8.0 FEE PROPOSAL FORMAT

- 8.1 An indication of the team structure proposed to implement the survey work and prepare the report is to be provided. The CVs of key personnel within the team structure and details of recent EA work carried out by the consultants are to be included.
- 8.2 A statement of detailed methodology and programme are to be submitted on the basis of this brief. The fee quote will be broken down as follows:
- the fee for the desk study and initial site visit, together with the production of the report; and
  - an indication of costs for the more extensive field investigation, identifying techniques as required.

The fee quote is to be provided with a breakdown of fee, programme of work and forecast of weekly expenditure.



## Appendix 2

# Project Design for Initial Archaeological Assessment of

## A497 ABERERCH - LLANYSTUMDWY

### Stage 1 Desk-based Assessment

### Stage 2 Field Search

Prepared for Acer Environmental

---

#### 1. INTRODUCTION.

Gwynedd County Council is proposing improvements to the main A497 road between Abererch and Llanystumdwy, and has asked Acer Environmental to advise on the environmental impacts of the proposals. This design is for a specialist study which will form part of the full Environmental Assessment. The proposed route would follow broadly the existing A497 corridor, with an altered alignment, and would be approximately 7 km in length. The area of interest to be appraised is 500m wide, centred on the intended route.

(In addition to the actual route, it is essential that details of borrow pits, temporary work compounds, dumping areas, temporary access and any other earth-moving operations carried out in connection with the road scheme are made known as early as possible and subjected to the same level of archaeological assessment. Any changes to these areas, or new areas as they are identified, should be notified, and again be subject to full archaeological assessment. Experience has shown that these associated workings are often more destructive of the archaeology than the actual road construction.)

#### 2. THE ROUTE AND ITS ARCHAEOLOGICAL BACKGROUND.

The proposed route lies within an area of general archaeological and historical interest. The most significant site of archaeological interest is the Scheduled Ancient Monument Tomen Fawr, an important medieval commotal centre, towards the east end of the proposed route. Also near the route is the parkland of Broom Hall (built in c. 1823, and on the Cadw/ICOMOS Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales). There is also evidence for prehistoric settlement around Broom Hall and Penbryn Neuadd, and medieval settlement at Botach (again in the grounds of Broom Hall) and possibly Penychain. More recently, in historical terms, there is the toll gate north-west of Glanllynau, and the route will bisect the important 19th-century railway from Caernarfon to Afon Wen.

#### 3. THE ASSESSMENT BRIEF.

For Environmental Assessment it is necessary to identify "significant adverse effects" on the cultural heritage. There are three principal types of impact on archaeological sites and cultural features - direct physical impacts such as landtake or demolition; indirect impacts such as alterations to the water-table; and loss of amenity.

The aims of this assessment, therefore, are

- a) to identify and record the cultural heritage of the area to be affected by the proposals;

- b) to evaluate the importance of what has been identified (both as a cultural landscape and as the individual items which make up that landscape); and
- c) to propose ways in which damage to the cultural heritage can be avoided or minimised.

The full archaeological assessment is to comprise two parts, 1) an initial site visit and desk study; followed by 2) additional field work, preferably utilising non-destructive techniques, where identified as appropriate. This project design is intended to cover the work required under part 1, which will include recommendations for part 2.

#### 4. STAGE 1 DESK-BASED ASSESSMENT.

The scope of the first stage of assessment, the desk-based study, should include consideration of the following:

**General published works** - Royal Commission Inventory, Gresham's work, especially *Eifionnydd*, published records of Extents and litigation from the 13th and later centuries.

**National Monuments Record** - contains information on sites which was not published in the Inventory, and information that has come to light since.

**Aerial photographs** - collections covering this area are held by the Countryside Council for Wales, Gwynedd County Council, the Royal Commission, the Welsh Office Aerial Photographs library, Cyngor Dosbarth Dwyfor, ADAS (Cambridge), Cambridge University and possibly others.

**Listed buildings** - the full list of Listed Buildings is held by Cadw.

**Local authorities** - for information on Conservation areas and other related planning constraints.

**Gwynedd Archives** - is an invaluable source of information of all kinds, including many of the items listed below.

**Tithe maps** - tithe map coverage of the is area is thought to be good.

**Estate surveys** - it is not known what estate surveys might be relevant to this area at present, although Gresham refers to a number.

**Ordnance Survey maps** - 1st edition and unpublished 2" manuscript maps show much topographical detail missing from later editions.

**Local society records** - we are unsure whether there is a well-established and active Society in the vicinity.

**Geotechnical data** - any boreholes, trial pits etc. already carried out in connection with the scheme should be examined for archaeological data.

**Oral evidence** - as appropriate and available will be used.

**UCNW Archives** - the college hold a considerable number of estate plans, papers and surveys as well as other maps and documents.

The above list is not intended to be exhaustive, but indicates the wide range of sources available.

This section will include a full study of the available place-name evidence, looking at field names and farm names, as well as patterns of past topography, settlement and land use in an attempt to identify the location, extent, date and character of archaeological sites and features of

cultural heritage interest within the study area. Some form of landscape analysis will also be undertaken (looking at variations in field patterns etc.), so that the sites can be put into their proper landscape context. Areas where any archaeological remains are likely to have been destroyed by past and present buildings and features are also to be noted.

## **5. STAGE 2 FIELD SEARCH.**

This part of the assessment will involve a team of two persons (the minimum number allowed under Health and Safety Regulations) walking the entire length of the route in both directions and recording (short description, photograph, map position) all sites encountered. This would not involve walking through any field which had a crop on it, and would not involve any ground disturbance. The aim of this stage of the work is twofold: firstly to verify the documentary information; and secondly to identify any further archaeological sites which exist as above ground features, any artefact scatters (if the agricultural regime allows) and any areas likely to contain buried features which should be assessed by other means.

N.B. This assumes that access will not be a problem, and that members of Trust staff carrying out fieldwork will be able to obtain a list and map showing owners and tenants as well as way-leave passes or similar from Acer Environmental.

## **6. REPORT.**

Following the completion of work on stages 1 and 2 as outlined above, a report will be produced for submission to Acer Environmental. The report will be revised and finalised in the light of comments received. The final format of the report will be subject to discussion between GAT and Acer Environmental but at present it is suggested that it will present a full list of all field data, incorporating this where appropriate with previously available information about the archaeology of the area, referring where necessary to the fuller site archive.

A non-technical summary of the report will also be produced, listing the sites and areas of principal interest and concern, and summarising the recommendations.

A computerised database will be established if considered necessary or desirable, cross-referenced to the maps, descriptions, photographs and report recommendations. To assess the importance of sites and to allow the appropriate mitigatory action to be carried out for each, it is proposed that a framework of basic categories be established, and that each site is allocated to a particular category, graded according to its relative importance using the non-statutory Criteria for Scheduling Ancient Monuments as laid out in Annex 3 of PPG 16, and/or criteria for Listed Buildings. The following five categories are suggested.

### **Category A - Preservation *in situ*.**

This would include sites of such importance that it is recommended that they remain preserved and protected *in situ*.

### **Category B - Detailed recording.**

This would include sites for which preservation *in situ* is the preferred option, but detailed recording (either by full excavation or standing building analysis and controlled dismantling) might be an acceptable alternative if damage or destruction cannot be avoided.

### **Category C - Recording by photograph and description.**

Sites in this category will probably form the majority. They will include most landscape features such as walls, tracks etc, many of which will be recent in origin. An adequate record of

these can be achieved by written description and photograph, and possible survey by Electronic Distance Measuring equipment.

#### **Category D - Watching brief sites.**

This category is meant to deal with possible 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). 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.

#### **Category E - Sites needing further investigation.**

Sites whose importance or nature are as yet undetermined (e.g. slight earthwork features), and which will require further work before they can be allocated to categories A - C, should temporarily be placed in this category, with recommendations as to what further field evaluation techniques are considered necessary. By the end of the assessment it is intended that there will be no sites remaining in this category.

The report will specifically include the following:

- 1) A copy of the agreed Project Brief.
- 2) The results of the assessment to date in the form of one or more route plans, showing positions of all sites, sensitive landscape areas and other information as appropriate.
- 3) A full list of all sites in route or number order with brief description.
- 4) A full list of categories and sites included in each.
- 5) A methodology explaining the allocation of sites to particular categories.
- 6) A map showing areas of greater and lesser archaeological potential.
- 7) A methodology explaining how these areas have been defined.
- 8) An interpretation of the results, placing all sites in their historical and economic context.
- 9) A representative sample of the photographic survey, showing views of the sites considered to be of particular interest.
- 10) A full bibliography of sources consulted.
- 11) Other archaeological information which has been recorded during the course of the work.
- 12) Recommendations for what further assessment work (i.e. geophysical survey and trial trenching) is required to complete the assessment (see sections 12 and 13 below).
- 13) An initial assessment (pending the results of any further archaeological assessment work required) will be made of what mitigation measures might be needed to minimise potential damage to the archaeological and cultural heritage resource).

A draft report will be submitted to Acer Environmental for comment by 13th August (see below). A date for completion of the final report will be agreed at that time.

The report will be prepared using Wordstar 7 word-processing software which can be converted to Word for Windows which is used by Acer Environmental.

Once a final report has been agreed, it is intended that copies will be lodged with the county Sites



and Monuments Record on the understanding that this will become a public document after an appropriate period of time (generally not exceeding six months).

## **7. ARCHIVE.**

A full archive including plans, photographs, written material and any other material resulting from the project will be prepared. All plans, photographs and descriptions will be labelled and cross-referenced, and lodged in an appropriate place (to be decided in consultation with Acer Environmental and the County Sites and Monuments Record) within six months of the completion of the project.

## **8. MONITORING.**

The project will be monitored by Acer Environmental. If required, the following monitoring meetings could be arranged:

- 1) A preliminary meeting at the start of the work.
- 2) A progress meeting during the fieldwork stage.
- 3) A meeting to discuss the draft report before final submission.

However, due to the tight time-scale allowed for this work, it may be more sensible if regular liaison is maintained by telephone. It is difficult to see how regular liaison with other specialists can be accommodated for the same reason. We would welcome comments from Acer Environmental on this.

## **9. STAFF.**

The project will be carried out under the supervision of the Trust's Projects Manager Mr Roland Flook, A.I.F.A., B.A. (Hons) History. He has been working in field archaeology for ten years now since graduating, mainly in south-east England and on the Continent, but he has been in Gwynedd since 1989. His principal projects before joining the Trust were urban excavations, but since then he has been involved in rural excavation and landscape survey projects, recently moving across to the management side.

It is envisaged that the main part of the work will be carried out by Ms Margaret Mason, M.A. (Cantab) Archaeology, M.A.(Birm) Practical Archaeology. She has worked in archaeology and in publishing since graduating, the former in Bath and the latter in Warwickshire, Wiltshire and Gwynedd. She has worked on a variety of projects, most recently on a number of Environmental Assessments (Rhosgoch and Trysglwyn wind farms on Anglesey, and on the A470 Blaenau Ffestiniog to Betws y Coed road improvements) as well as completing reports on excavations now in press. In addition to Ms Mason, a further person from the Trust's staff experienced in fieldwork will carry out the stage 2 field search.

The Trust is currently involved at one stage or another in carrying out the archaeological sections of six Environmental Assessments in Gwynedd, all road schemes on behalf of the Welsh Office, including the whole of the A5 across Anglesey.

## 10. TIMING.

The lengths of the various stages are as follows:

Stage 1 Desk-based assessment will take 2 weeks.

Stage 2 Fieldwork will take 1 week.

The report will take a further 1 week.

(The archive will take a further week but can be done after the report has been prepared and submitted).

As it is intended that the same person will undertake all stages of the work, there will be a total of **4 weeks** from start to production of report. The timing for this assessment and report are are centred on the deadline of **13th August** for the production of a draft report. To achieve this deadline, work on the desk top study will have to begin on Monday, 19th July. The Trust would therefore appreciate being notified by Friday, 16th July, if it has won the contract so that it can make the necessary arrangements for the following week.

A forecast of weekly expenditure can be obtained from comparing the above with the preceeding section 10, equating the desk top study with weeks 1 and 2, the fieldwork with week 3, the report with week 4, and the archive work with week 5.

## INDICATIVE SCALE OF STAGES 3 & 4

### 11. STAGE 3 GEOPHYSICAL SURVEY.

The extent and positioning of this stage of the archaeological assessment will depend on the results of the previous two stages. However, some indication can be given of the likely scale of work required.

Geophysical survey will be required in the following instances:

- 1) in areas around known sites and artefact scatters;
- 2) where a field or farm name is indicative of past human activity (be it settlement, ceremonial or other);
- 3) where the presence of surface features suggests past human activity;
- 4) areas where there is another reason (e.g. oral evidence) to believe there is buried evidence for past human activity.

On top of this, in previous schemes the sampling of "blank" areas has been applied: however, in this case we propose that a more cost-effective and possibly more productive assessment of these areas might be achieved through trial trenching (see below).

### 12. STAGE 4 TRIAL TRENCHING.

Trial trenching will be required in either of two sets of circumstances:

- 1) Areas which have been defined as being of potential importance (through desk-top study, fieldwalking or geophysical survey) but which need further work to clarify their nature, extent and importance.
- 2) Some areas may not be susceptible to evaluation by any of the methods proposed above (desk-top, fieldwalking, geophysical survey): in these cases, the only other alternative method of evaluation available is trial trenching. It is therefore proposed that a programme of trial trenching will be required in areas that still appear to be blank after the previous methods have been applied. Increasingly the experience of colleagues elsewhere is that this is an essential part of the evaluation procedure, as trial trenching reveals many sites that otherwise would have been destroyed without any form of record.

### 13. INDICATIVE COSTINGS FOR STAGES 3 & 4.

#### Stage 3. Geophysical survey

An average cost of geophysical survey is as follows (prices current April 1993):

£550 per ha for magnetometer survey, and £650 per ha for resistivity survey:

on top of which there are standard charges of £120 per week (sub-contractors' T & S), + VAT at 17.5%, plus GAT laying-out costs.

#### Stage 4. Trial trenching

The simplest way of costing trial trenching work would seem to be on a cost per area basis. The following figures assume a field team of three people working with a Hymac. It is estimated that a team can trial trench an area of c. 1000 sq. m per week (e.g. a trench c. 1 m wide x 1 kilometre long down length of proposed road, or equivalent), depending on soils, local conditions, access, weather etc.

3 people team = £1200 + £100 (T & S):	£1300
hymac = ( @ £18.50 /hr) 37 hr week = £685 + £75 per job/week =	£ 760
+ materials @	£ 40

Total = c. £2,100 per 1000 sq. m

As far as timing and access are concerned, it may be possible to carry out the work at the same time as the geological boreholes. Again, prices are current at April 1993.

N.B. These figures do not include administration and overheads @ 15%.

Gwynedd Archaeological Trust,  
Garth Road,  
BANGOR,  
Gwynedd. LL57 2SE

Tel: 0248 352535