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# **A470 TRUNK ROAD PENTREFELIN TO BODNANT IMPROVEMENT, CONWY: ARCHAEOLOGICAL ASSESSMENT**

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**GAT Project No. G1946**

**Report No. 675**



Prepared for **TACP, Cardiff**

Revision 4  
April 9<sup>th</sup> 2008

By R.T.J. Evans and G.H. Smith



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Cover: Streamside meadows east of Croesau, looking west – Offline Route Option

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# **A470 PENTREFELIN TO BODNANT WEST LODGE TRUNK ROAD IMPROVEMENT, CONWY**

## **ARCHAEOLOGICAL ASSESSMENT**

### **SUMMARY**

*An archaeological assessment was carried out in advance of road widening and improvement of the A470 trunk road between Pentrefelin and Bodnant, Conwy. Two route options were studied, an Online and an Offline option. The study area lies in a part of the Conwy valley occupied by a number of farms of historic interest representing a farming landscape with a field pattern little changed from the 18<sup>th</sup> century, but with some fragments of landscape and possible trackways surviving from earlier periods. At the south-west it adjoins the registered historic landscape of the Lower Conwy Valley (Cadw 1998b). At the south-east it adjoins the registered historic park and garden of Bodnant of Grade 1 status (Cadw 1998c).*

*The assessment involved consultation of existing records, maps, documents and aerial photographs and a field search. Existing records identified four archaeological or historic features in the Gwynedd Historic Environment Record (HER) that were within the study area of which only one was directly relevant to the proposed new road construction. The field search identified five archaeological or historic features that actually lay within the construction area that require mitigation.*

*One hedge was identified as of possible early (pre-1750) origin, falling within the criteria of importance set down in the Hedgerow Regulations 1997 and requiring mitigation. Five hedges were identified as being of some significance but falling outside the regulations.*

*Four areas of the route were identified as having above average potential for the presence of undiscovered archaeological remains. It is recommended that a comprehensive watching brief be maintained during soil stripping operations in these areas.*

## **1 INTRODUCTION**

Gwynedd Archaeological Trust was asked by TACP (Cardiff) to carry out an archaeological assessment in advance of road improvement south of Llansanffraid Glan Conwy from Pentrefelin to Bodnant, a distance of approximately 2.8km between SH80457490 and SH78857190. Two route options were to be studied, one closely following the existing road – the Online Option, the other taking a new route across open country for part of the way – the Offline Option.

The road crosses the middle part of the main Conwy valley, an area of sparse settlement but a rich pasture and former arable landscape with a scatter of farms of sub-medieval or



possibly medieval origin. There are few traces of landscape features predating the 18<sup>th</sup> century because of wholesale reorganisation of the field pattern about that time, to that of the present, generally rectangular fields.

## **2 SPECIFICATION AND PROJECT DESIGN**

The general study area was defined on maps supplied by NEWTRA on which three route options were shown. The basic requirement was for a desk-top study and field search of the proposed road improvement area, in order to assess the impact of the proposals on the archaeological and historic features within the area concerned. The importance and condition of known archaeological remains were to be assessed, areas of archaeological or historic potential and new sites to be identified. Hedgerows of archaeological or historic importance were to be identified. Measures to mitigate the effects of the construction work on the archaeological resource were to be recommended.

Gwynedd Archaeological Trust's proposals for filling these requirements were as follows:

- Desktop study
- Field Walkover
- Initial Report

The desktop study comprised the whole of the study area but by the time of the field walkover, the route options were reduced to two, the Online and Offline Options, and these were the subject of study. These options overlap for parts of the route at the north and south.

## **3 METHODS AND TECHNIQUES**

### **3.1 Desk top study**

This comprised the consultation of maps, documents, computer records, written records and reference works, which form part of the Historic Environment Record (HER), located at GAT, Bangor. The archives held by the Conwy Record Office, Llandudno and of the University of Wales, Bangor, were also consulted. Information about listed buildings was consulted by means of Cadw records held in the Gwynedd HER and by consultation of CARN (Core Archaeological Index), which is the online index of the Royal Commission on Ancient and Historic Monuments, Wales.

Sites, buildings and find spots listed in the GAT HER were identified (Fig. 1) within about 500m of the route were identified to give background information relevant to understanding the area, and those directly on the easement route, which might be physically affected by construction.

### **3.2 Field Search**

This was undertaken on 20<sup>th</sup> June 2007. The two routes options were walked over and notes and photographs taken.

The archive is stored with GAT as Project No. G1946

### **3.3 Report**

The available information was synthesised to give a summary of the archaeological and historic background and of the assessment and recommendations, as set out below. The separate features, their evaluation and recommendations are listed separately, and a summary of the overall assessment is given at the end.

The criteria used to assess the importance of hedgerows affected by the scheme were those set out in The Hedgerow Regulations 1997. Consideration was also given to a discussion of proposed revisions to these criteria set out in a subsequent paper (DEFRA 1999).

The criteria used for assessing the value of any features found and of the scale and significance of impact are based upon those used in the Design Manual of Roads and Bridges (DMRB 2007). These and the definitions of categories used for field evaluation techniques and mitigation are set out in Appendix 3.

## **4 ARCHAEOLOGICAL RESULTS**

### **4.1 Topographic description**

The Conwy Valley is a steep-sided, U-shaped, glacially scoured valley following a natural geological feature, the junction between Ordovician beds of slate on the west side and Silurian shales on the east side (Smith and George 1961).

The Conwy Valley can be regarded as having three main zones in terms of past land use, first the valley floor, second the high mountainous uplands, which rise abruptly on the west side of the valley towards its mouth, north of Tal-y-bont and thirdly the lower plateau to the east side of the valley. The area of the present road improvement scheme lies within the main valley floor but in an area of slightly raised undulating land along the valley side, rather than on the flood plain.

The area of the road improvement is presently all permanent pasture but agriculturally is all classified as of Grade 3, Good to Moderate Agricultural Potential (MAFF 1977). It is likely to have been used for arable farming in the historic past and as such would be likely to have attracted farming and possibly settlement in prehistory.

## 4.2 Archaeological and historical background

As a whole there are relatively few recorded prehistoric sites or finds in the Conwy valley itself, these being mainly confined to the uplands and those mainly on the uplands to the west. The exceptions are two Neolithic chambered tombs, both in slightly raised valley lowland. One, at Dolgarrog, is now destroyed but the other is a Scheduled Ancient Monument (PRN 2475), near Bryniau, 1km west of the route options, at SH 79297475 (Figs 1 and 2). This tomb is known in local tradition as Allor Moloch – ‘Altar of Terror’. Two other possible chambered tombs in the valley, recorded in the 18<sup>th</sup> and 19<sup>th</sup> century at Tal-y-cafn and Ty’n y groes no longer exist and their sites have not been located so their validity is uncertain.

Burial monuments of the second millennium BC are quite frequent in the uplands to the west of the Conwy valley and a number are known on the plateau to the east. None are known within the valley itself apart from a mound at Bryn yr Odyn, just south of Llanrwst, although this is an uncertain site and could be a natural feature. However, aerial photographic study of other similar valleys, such as the Tanat Valley north of Welshpool, has identified quite numerous features of the 2<sup>nd</sup> millennium and earlier, now surviving as subsoil features such as ditches (Gibson 1998). The same could be true in the Conwy Valley, an area that has not yet been the subject of a similar survey.

Settlement activity in the 1<sup>st</sup> millennium BC in this area is known mainly in the higher land around the valley with only two examples known from the lower ground. These are not on the valley floor but on ground raised slightly, at about 75m OD, near Rowen. The absence of settlement remains on the plateau to the east is notable, where it might be expected. However, the presence of three defended enclosures of that period there suggests that evidence of accompanying open settlements may be masked by the result of prolonged cultivation. The effects of this are amply demonstrated by the fact that one of the defended enclosures, a major hillfort at Cefn Coch, Maenan, has been totally levelled. Other archaeological sites are therefore almost certain to exist as subsoil features, with no upstanding earthworks remaining. Use of the better land in the valley bottom for cultivation, as in the areas crossed by the Offline Route Option, would have similarly masked any archaeological remains.

The Conwy valley floor was occupied in the Roman period when there was a major auxiliary fort at Caerhun (*Canovium*), occupied in the 1<sup>st</sup> and 2<sup>nd</sup> centuries AD, close to the west side of the River Conwy, 2.5km south-west of the study area. The site seems to have been chosen to take advantage of the river for transport. Recent geophysical survey (Hopewell 2003) has demonstrated the presence of a considerable attendant settlement (*vicus*) outside the fort and it can be presumed that the valley was well used during that period. It is clear that there must have been a Roman road down the west side of the valley providing a link to the fort at Bryn y Gyfeiliau, Capel Curig. It has also been suggested that there was a road down the east side of the valley via Capel Garmon and Pentrefoelas leading to the fort at Wroxeter. There is also some evidence for an east-west Roman road crossing the southern part of the study area at NGR SH 79797258 (PRN

17,652-6), running between *Canovium* and *Varis*, thought to be at St Asaph, Flintshire (Fig. 1).

During the medieval period the two main historic settlements of the area were Conwy to the north on the west bank of the River Conwy, an essentially English Borough until the 16<sup>th</sup> century, and Llanrwst to the south at the probable head of navigation and possibly the first fording point on the river. The town has medieval origins and was partially destroyed by Owain Glyndwr about 1400 and did not recover fully for two centuries. From the 17<sup>th</sup> century it became an important and prosperous market town for the local wool trade. The current bridge across the Conwy at Llanrwst dates from 1633 and replaces an earlier one that had become precarious by that time (Soulsby 1983, 172-3).

Three buildings of historic value lie within the study area although not directly affected by any proposed road construction (Fig. 1). The first, at the north is a mill, Felin Isaf (NGR SH 80277491), a Grade II listed building with its associated grain drying kiln, grist mill and corn mill is located on the small tributary flowing north-eastwards towards the river Conwy and entering the river at Llansanffraid Glan Conwy. The buildings appear to be post-medieval in date (Gwynedd HER) but form an important group. The second is an 18<sup>th</sup> century farmhouse Ty Isaf, Grade II\* listed, 200m west of the combined route options. The third is a 19<sup>th</sup> century Baptist chapel, Salem and adjoining house Ty Capel, both Grade II listed, in Pentrefelin, 100m east of the combined route options.

Although well settled, the development area was not served by a main road before the early 19<sup>th</sup> century, when the present A470 was constructed. Prior to the turnpike road improvements the area would have been crossed by a network of winding tracks suitable for travel on horseback or foot, but little else. A number of these tracks are probably still in evidence in the study area, continued as later minor roads, including that which crosses the A470 at Croesau.

At Tal y Cafn 1km south of the study area, there was a once an important harbour and ferry crossing, which operated, perhaps since Roman times, but certainly since medieval times before it was replaced by the present bridge in 1872. This was protected on the western bank by a medieval castle motte at Bryn Castell (NGR SH 78537191, PRN 658). In 1759 a turnpike trust had constructed a road on the western bank of the Conwy from the Tal-y-Cafn ferry to Conwy, and 10 years later an attempt was made to connect Tal-y-Cafn with Bangor through Aber, but the mountainous nature of the terrain made this impossible (Dodd 1925, 132). The Conwy Valley Railway, opened in 1863, runs alongside the river at this point. This was an important location for the trans-shipment of goods onto the railway with a freight depot and hotel situated here. There is now no trace of the depot but the station remains. Crossing the A470 at this point is a lane that runs to the village of Eglwysbach. This road was possibly the main route towards Chester, through Denbigh, Llansannan, and Llangernyw until the early 19<sup>th</sup> century, surviving as a minor road today.

By the time of the 1<sup>st</sup> edition OS map of 1838 the road certainly existed although the line was much more winding than that shown on the 1875 Ordnance Survey map (Fig. 6). The

generally late period of this road is shown by the way that it cuts the 18<sup>th</sup> century field pattern for most of its route. This means that it was crossing new land, providing greater potential for survival of earlier archaeological remains than would have been the case if it was a route of much earlier origins and continued in use.

The Conwy Valley Railway was constructed as far as Llanrwst in 1863. In the vicinity of the study area the railway line follows the west bank of the river Conwy. In 1868 the line was extended to Betws y Coed. By 1879 the line had again been extended up the Lledr Valley, through the longest single track tunnel in the United Kingdom to arrive in Blaenau Ffestiniog. The railway provided a valuable means of transporting roofing slates from Blaenau into a rapidly expanding worldwide market.

At the south edge of the study area, at the side of the river there is a small quay - Cei-cae-gwyn, shown on the 1875 OS map, when it was probably still in operation, served by two roads, from the south and south-east, before the building of the new road around Bodnant that later became the A470 (Fig. 10). The name, meaning 'White field quay', indicates that its main function was to unload agricultural lime but no doubt included the transport of other goods too because close by, just west of Bodnant quay, were an iron furnace, a corn mill and a saw mill.

Bodnant House was originally a large farmhouse 'Bodnod', and takes its name from that of the medieval township and so could have medieval origins. It belonged to the Lloyd family from at least the late 16<sup>th</sup> century, and later of William Hanmer, Esq. and then of Colonel John Forbes who built a new house near by in 1792 (Lewis 1849). The grounds contain some magnificent mature trees that may have been planted by Forbes or even earlier. The house was bought by Henry Pochin, a wealthy industrialist, in 1874. He subsequently enlarged and re-styled the house and engaged a landscape architect, Edward Milner, who changed the surrounding fields into landscaped parkland as well as carrying out works to the gardens and grounds. Subsequently the old turnpike road that passed close to the house was re-routed by means of a long embankment around the west side of the grounds where it is today, as the A470 road (Figs 8-9). Lodges were also built along the surrounding roads at the perimeter of the estate park.

The gardens at Bodnant (Fig. 1) (within NGR SH 8072) laid out by Milner are a Grade 1 Registered Historic Garden (Cadw 1998c). They overlook the Conwy valley from the east, north of Tal-y-cafn.

The farmhouse of Penrhyd (NGR SH 79107190) just south of the study area has a gatehouse in an interesting arts and crafts idiom (Hubbard 1986, 158) and is a Grade II Listed Building.

A large area immediately to the south-west of the study area (Fig. 1) has been recognised as of specific historic value and is the registered historic landscape of the Lower Conwy Valley, ref. no. HLW (Gw) 4 (Cadw 1998b. 81-3).

### **4.3 General Archaeological Assessment**

The route is described and assessed in natural topographic zones from north to south,

Online Route Option: zones L1 to L4.

Offline Route Option: zones M1 to M3.

Zone L4 is common to both routes.

#### **ONLINE ROUTE OPTION**

##### **L1 Pentrefelin to Graig**

The road generally follows the contours of the hill slopes to the east at about 80m OD. It is gently undulating and terraced in places on the western side. The proposed new road will cut across the bend east of Graig by cutting into the hillside. The pasture is on a moderate slope to both east and west (Figs 14-15). There are no discernable earthwork features, and the area does not have any specific potential in terms of the topography of the area, although the quality of the land would suggest that it would have been attractive to settlement, and centuries of ploughing could have hidden earlier features. Evidence from aerial photographs in other valleys such as the Clwyd, Tanat and Upper Severn has revealed the presence of prehistoric features in similar locations to this (Gibson 1998).

##### **L2 Graig to Croesau**

The proposed new route will cut across the fields north-east of Croesau where a new access road to Bodnant will also be built alongside the new road. These are medium sloping pasture fields with only one feature of note, which may be affected by the road construction. This is a small prominent local knoll (F3, Fig. 7) just west of Fridd-y-foel and this has the potential for use as a Bronze Age burial site, although there is no sign of a burial mound.

Croesau is a substantial farmhouse, part of the Bodnant Estate. It is located on a plateau where the A470 is crossed by a minor road orientated northwest-southeast, at which point the present road has been cut slightly into the bedrock (Fig. 9). The house clearly takes its name from the cross-roads, suggesting some antiquity to the roads. The road is bounded in this area by a mixture of hedge banks, hedgerows, hedgerows with trees and iron railings of the type placed by the former Denbighshire County Council.

##### **L3 Croesau to Bodnant North Lodge**

The road slopes down south from Croesau and bends westwards, rising again to the junction with the road to Bodnant. Along this section there is a stretch of dry stone walling of local shale with outcrops of bedrock (Fig. 9). The road begins to pass through woodland at this point and hedgerows are integrated with lengths of dry stone walling.

The new access road for Bodnant as part of the Online Route Option will run through the fields at the east side of the A470 here. The field is medium sloping pasture and under tall

grass for hay, making visibility of features impossible but it has no specific potential for early settlement or other activity. However, the line of the road improvement and of the new Bodnant access road will cut through a meandering tree-lined hedge that is the community boundary (Llansanffraid/Eglwysbach) and therefore possibly medieval in origin and a valuable historic hedge (H3, Fig. 7-9).

#### **L4 Bodnant to Tal-y-Cafn**

There was a milestone on the turnpike road running south here by Bodnant House in 1875 (F7, Fig. 8). This was probably of slate with a cast iron name plate fixed to it, and a similar example exists south of Llanrwst on the A470 (Smith 2005, 10). The milestone seems to have been moved to the new road that was subsequently constructed to the west, the present A470 where it was marked on the 1900 map (F7, Fig. 9) and is now partly hidden in undergrowth at the east edge of the present road (Fig. 15). The stone has had its name plate removed, either by the County Council for safe-keeping, or stolen.

The new western route for the trunk road around Bodnant involved building quite a large embankment to carry the road around the quite steep slope along the valley side here. The road descends steeply down the hill slope towards the River Conwy to a height of about 20m OD, turning southwards as it reaches the River Conwy floodplain. Along this section are a number of late 19<sup>th</sup> or early 20<sup>th</sup> century wooden gates associated with the estate at Bodnant which lies adjacent to the road on the east side at this point (Fig. 7), a substantial lodge house, Bodnant West Lodge, with a wrought iron gateway can be seen at NGR SH 79707230 (F8, Fig. 2). The southern section of this road adjacent to the railway line is substantially embanked and terraced (Fig.6) until it reaches Tal-y-cafn. The farmhouse of Penrhyd (NGR SH 79107190), with its Grade II listed gatehouse, overlooks the road to the south-east.

### **OFFLINE ROUTE OPTION**

#### **M1 Pentrefelin to south-east of Graig**

The road follows the existing alignment for 200m before diverging southwards across a small field, formerly part of Bryn Maenan Farm, and now an architectural antiques store. This is in the floor of a small stream valley and although there are no visible features it has some potential for the presence of prehistoric 'burnt mound' type activity.

The road then crosses a medium sloping field and cuts into a higher scarp slope and these have low archaeological potential.

#### **M2 South-east of Graig to Fridd y foel**

This section of the route takes a new line across open countryside. This is undulating and topographically varied but mainly sloping to the west where there is a stream which has cut a narrow ravine. The main field boundaries are up and down slope and some of these are straight and some curving. All the fields are presently pasture but all are improved and most probably used for arable in the past. The curving boundaries are almost certainly the earliest and may represent the boundaries of farm holdings, possibly when

individual holdings were created in what would have then been woodland. These are of some historical value although not falling within the statutory criteria of importance in the Hedgerow Regulations (1997) which require documentary evidence of date of such boundaries. The first (H4, Fig. 6) is at the north of this zone and is probably the original historic boundary of Bryn Maenan Farm. The second (H5, Fig. 7) is at the south and was probably the original boundary of Meusydd Farm (Maesydd, 1875: Ordnance Survey; Meysudd, 1841: Tithe Map, – ‘Fields’). The remaining boundaries are later subdivisions. The proposed new road line crosses meadows close to the stream channel and these have medium potential for the presence of prehistoric ‘burnt mound’ type activity.

West of Meusydd the route crosses close to a small but unusually prominent natural knoll (F11, Fig. 7). The summit of this has a scatter of shale fragments. These may just be the result of cultivating over a natural outcrop, but the topographic location has potential for use as a Bronze Age burial site and the stony summit may be the remains of a burial cairn or mound. It therefore deserves to be avoided or watched briefly and recording if damage or destruction is expected.

Between Fridd-y-foel and Meusydd, the route crosses a small marshy side stream and this has medium potential for prehistoric Burnt Mound type activity.

Fridd-y-foel is a cottage, probably a pre-1750 smallholding. It was called Fridd-y-foel (Rough pasture of the Bare [hill]) in 1875 (Fig. 7) but in the 1841 Tithe survey was Bettwsygynt (Oratory/Chapel of the wind). The latter may be just a romantic name, but as a roadside house with a well, could have been a rest-stop of some kind. It lies alongside a road that probably predates the turnpike road. This and the hedges alongside it have been identified as of historic interest as Hedge H1 (Fig. 7).

### **M3 Fridd-y-foel to Bodnant North Lodge**

After Fridd-y-foel the route crosses a long, curving, tree-lined hedge (H6, Fig. 7), that may be an early boundary to the plough-land of Croesau Farm, to judge by the overall field pattern as it was in 1841, on the Tithe map. The route then crosses this field, which is sloping and so has low potential for prehistoric activity and was under a tall grass hay crop, so its surface was not visible.

The route then joins back on to the existing A470 route, taking the same line as the Online Route Option and is described under L4 above.

## **4.4 The Archaeological Survey**

The features are described by the two route options, numbered from north to south and their locations shown on Figure 2.



## **THE ONLINE ROUTE OPTION**

### **Feature F1    Trackway**

*SH 80317456*

*Period: Post-medieval*

*Category: C*

*Impact magnitude: No change*

*Impact significance: Neutral*

*Impact likelihood: None*

Hollow-way in field north-west of Graig. Continues to the east as a terrace around the hill contour, then disappears, probably ploughed out. Probably a former internal farm track connecting the farmhouse of Ty Isaf to Graig.

***Recommendations for further assessment: None***

***Recommendations for mitigatory measures: None***

### **Feature F2    Trackway/Terrace**

*SH 80397464*

*Period: Post-medieval*

*Category: C*

*Impact magnitude: No change*

*Impact significance: Neutral*

*Impact likelihood: None*

Narrow, double-scarped linear terrace running around the contours on the hillside, close to the junction between the old road to Graig and the present A470. Possibly a former farm track to Ty Isa, before the present line of the A470 was built to by-pass Graig (built between 1841 and 1875).

***Recommendations for further assessment: None***

***Recommendations for mitigatory measures: None***

### **Feature F3    Local knoll (topographic feature)**

*SH 80197352*

*Period: Prehistoric?*

*Category: U*

*Impact magnitude: Major*

*Impact significance: Neutral-Large (adverse)*

*Impact likelihood: Likely*

A small natural knoll just west of Fridd-y-foel, which was occupied by a small area of woodland in 1875 (Fig. 7). It has low potential for prehistoric burial activity.

***Recommendations for further assessment: Geophysics/Evaluation excavation***

***Recommendations for mitigatory measures: Full excavation depending on results of further assessment***

#### **Feature F4    Trackway**

*SH 80107350*

*Period: Post-medieval*

*Category: C*

*Impact magnitude: Minor*

*Impact significance: Neutral-Slight (Adverse)*

*Impact likelihood: Certain*

This meandering minor road, probably a continuation of an earlier trackway of pre-turnpike date, and is of interest as a relict part of the landscape (Fig. 11).

***Recommendations for further assessment: None***

***Recommendations for mitigatory measures: Watching brief and detailed recording***

#### **Feature F5    Trackway/Droeway**

*SH 80187326*

*Period: Post-medieval*

*Category: C*

*Impact magnitude: No change*

*Impact significance: Neutral*

*Impact likelihood: None*

Double-walled track or droeway lined with ancient trees. A tapering walled corridor, evidently designed to connect Croesau Farm with a well or cattle drinking place (Feature F6) at the south end of the corridor. Present on the 1841 Tithe map. Not hollowed in any way so probably not an ancient relict track, and this accords with its regular, straight plan.

***Recommendations for further assessment: None***

***Recommendations for mitigatory measures: None***

#### **Feature F6    Well/Pond**

*SH 80207321*

*Period: Post-medieval*

*Category: C*

*Impact magnitude: No change*

*Impact significance: Neutral*

*Impact likelihood: None*

At the south end of track/Droveyway F5, above and presumably a cattle drinking place and therefore dating to before 1841 as the droveyway was present by that date. Marked on the 1875 map (Fig. 8) and on the 1900 map marked as 'Well' (Fig. 9).

***Recommendations for further assessment: None***

***Recommendations for mitigatory measures: None***

## **Feature F7 Mile Stone**

*SH 80107305*

*Period: Post-medieval*

*Category: C*

*Impact magnitude: No change (reinstatement)*

*Impact significance: Neutral*

*Impact likelihood: Likely*

On the east side of the A470 road just south of the junction with the Bodnant minor road. A mile stone set up by the Turnpike Trust. Originally on the turnpike road that runs through Bodnant to Eglwysbach. Later moved to the new road (the present A470) when this was built between 1875 and 1900 to by-pass Bodnant. It is a neatly cut limestone slab with an angled top, 1m high (above ground), 0.60m wide and 0.15m deep (Fig. 15). It has a chamfered rectangular recess in the face for a probably cast iron plaque with the inscription. The plaque is missing with just the attachment holes left. A similar turnpike mile stone with plaque intact still survives on the A470, just south of Pont yr Afanc, south of Bettws-y-coed where it has been re-erected after recent road improvements.

It is a relict of the historic landscape and of particular relevance to the road scheme as a piece of historic road furniture. It may be that the plaques along this road were deliberately removed for safekeeping, by the County Council during previous road works. If so they should be replaced or if not replicas should be made and replaced. It would be good practice to move the mile stone back to its original position on the old Turnpike road, where it would be more visible, accessible and appreciated.

***Recommendations for further assessment: None***

***Recommendations for mitigatory measures: Removal, renovation and re-erection***

## **Feature F8 Bodnant West Lodge**

*SH 79707230*

*Period: Post-medieval*

*Category: B*

*Impact magnitude: Minor (Setting)*

*Impact significance: Neutral-Slight (Adverse)*

*Impact likelihood: Likely*

West Lodge to Bodnant Hall, built after 1874. This is not a listed building but is an integral part of the Grade 1 listed historic landscape of Bodnant Hall and Gardens and should be retained and its setting safeguarded.

***Recommendations for further assessment: None***

***Recommendations for mitigatory measures: Avoidance***

## **THE OFFLINE ROUTE OPTION**

### **Feature F9 Former field boundary/Plough headland**

*SH 80447404*

*Period: Post-medieval*

*Category: C*

*Impact magnitude: Negligible*

*Impact significance: Neutral-Slight (Adverse)*

*Impact likelihood: Likely*

A long low linear ridge and hollow oriented up and down slope in the centre of the field, approximately parallel to the field boundaries. Possibly a former headland from the limit of ploughing where the field becomes rockier, although now generally improved.

***Recommendations for further assessment: None***

***Recommendations for mitigatory measures: None***

### **Feature F10 Track**

*SH 80377402*

*Period: Post-medieval*

*Category: C*

*Impact magnitude: No change*

*Impact significance: Neutral*

*Impact likelihood: Unlikely*

A hollow-way cut through the scarp slope at the edge of the field, where the steeper slope of the stream ravine starts. There is no sign of a continuation so it is probably just an access for cattle to the stream, rather than a route of any wider use.

***Recommendations for further assessment: None***

***Recommendations for mitigatory measures: None***

## **Feature F11 Local knoll/Cairn**

*SH 80427373*

*Period: Prehistoric?*

*Category: U*

*Impact magnitude: No change-Major*

*Impact significance: Neutral-Large (Adverse)*

*Impact likelihood: Unlikely*

A small prominent natural local knoll, its summit marked by a scatter of shale fragments. Possibly a denuded prehistoric cairn. It may lie just outside the proposed road easement, in which case it will not be affected.

***Recommendations for further assessment: None/Geophysical survey/Trial trenching***

***Recommendations for mitigatory measures: Avoidance/Full excavation depending on the results of further assessment.***

## **Feature F12 Relict field boundary, Strip-field?**

*SH 80427365*

*Period: Medieval-Post-medieval*

*Category: C*

*Impact magnitude: Negligible*

*Impact significance: Neutral-Slight (Adverse)*

*Impact likelihood: Unlikely*

A distinct, gently curving low but wide linear ridge in the centre of the field, oriented up and down slope approximately parallel to the field edges at either side. Probably an earlier field subdivision but not shown on the Tithe map of 1841 or on later maps and so belongs before 1841. The curving boundaries of this field may indicate ox-ploughing of former strip fields and therefore is possibly of medieval origin.

***Recommendations for further assessment: None***

***Recommendations for mitigatory measures: Watching brief and detailed recording***

## **4.5 The Hedgerow Survey**

A difference must be discerned between the historical and archaeological value of hedges. The criteria for importance as defined by the regulations (1997) mean that a hedgerow must be a historic boundary or be a direct part of an important archaeological monument, building or field system. However, there can be lesser degrees of importance as there can be for archaeological features generally; and so the categories of importance as defined for archaeological features (Appendix 3.1) have been used. Field boundaries themselves can also be of archaeological or historic value even though they may be banks or walls rather than hedges. In the area being assessed, as described above, the majority

of the fields are laid out on a sub rectangular pattern, deriving from an 18<sup>th</sup> century agricultural improvements. In the southern part of the study area some more unusual shaped boundaries may well reflect landscaping features related to the laying out of Bodnant gardens in the latter part of the 19<sup>th</sup> century. The natural topography also affects field layout. Within the study area this is particularly apparent to the east of the stream through Pentrefelin in the northern section of the study area, and to the east of the A470 between Graig and Croesau (Fig. 16).

A number of curvilinear boundaries are suggestive of relict historic trackways and landscape division. The looped minor road that runs from Croesau to Graig appears originally to have followed the hedgerow along a more direct route to Ty'n y celyn farm, and just outside the study area a number of paths follow sinuous routes along field boundaries to the burial chamber west of Bryniau. Whilst the antiquity of some of these routes cannot be proved it is probable that some of the later boundaries, which do not seem to fit the rectilinear pattern, reflect earlier landscape divisions. These partially continue as minor roads west and east of Croesau (Fig. 11).

The locations of each of the hedges, although linear features, are given as a single grid reference at the point where the hedges meet the existing A470 road.

### **Hedge H1**

*SH 80307340*

*Period: Pre-1750*

*Category: C*

*Impact magnitude: Minor*

*Impact significance: Neutral-Slight (Adverse)*

*Impact likelihood: certain*

This hedgerow lies along the route from Croesau to Meusydd was probably part of a pre-turnpike track. The hedges that lie alongside it could be of an early origin although there is nothing in their appearance that suggests they are ancient and without documentary evidence of an early date are not important in terms of the Hedgerow Regulations (1997). They are of the form of hedge banks, although with evidence of dry stone walling in places.

***Recommendations for further assessment: None***

***Recommendations for mitigatory measures: Watching brief and detailed recording***

### **Hedge H2**

*SH 79707275*

*Period: Post 1750*

*Category: C*

*Impact magnitude: Minor*

*Impact significance: Neutral-Slight (Adverse)*

*Impact likelihood: Likely*

The hedgerow at this point contains trees within it and shows evidence of landscaping suggestive of estate management (Fig.8), and date to after the later 19<sup>th</sup> century construction of this part of the road at this point. This probably relates to Bodnant House located adjacent to this point. Whilst the hedgerows are probably somewhat late in date in this area they form an important part of the setting and landscape of Bodnant but are not important in terms of the Hedgerow Regulations (1997).

***Recommendations for further assessment: None***

***Recommendations for mitigatory measures: None***

### **Hedge H3**

*SH 80307339*

*Period: Pre 1750*

*Category: A*

*Impact magnitude: Minor*

*Impact significance: Slight-Moderate (Adverse)*

*Impact likelihood: Likely*

A tree-lined hedge bank that continues the line of a small stream that together form the community boundary between Llansanffraid Glan Conwy and Eglwysbach and therefore possibly medieval in origin and an important boundary according to the criteria of the Hedgerow Regulations (1997).

***Recommendations for further assessment: None***

***Recommendations for mitigatory measures: Watching brief and detailed recording***

### **Hedge H4**

*SH80447395*

*Period: Pre 1750?*

*Category: C*

*Impact magnitude: Minor*

*Impact significance: Neutral-Slight (Adverse)*

*Impact likelihood: Certain*

Tree-lined curving hedge-bank. Possibly an early boundary to Bryn Maenan Farm. A possibly medieval boundary although without supporting documentary evidence not important in terms of the Hedgerow Regulations (1997).

***Recommendations for further assessment: None***

***Recommendations for mitigatory measures: Watching brief***

## **Hedge H5**

*SH80357348*

*Period: Pre 1750?*

*Category: C*

*Impact magnitude: Minor*

*Impact significance: Neutral-Slight*

*Impact likelihood: Certain*

Tree-lined curving hedge-bank continuing the line of a small stream and possibly forming an early boundary to Meusydd Farm. A possibly medieval boundary although without supporting documentary evidence not important in terms of the Hedgerow Regulations (1997).

***Recommendations for further assessment: None***

***Recommendations for mitigatory measures: Watching brief***

## **Hedge H6**

*SH80297338*

*Period: Pre 1750?*

*Category: C*

*Impact magnitude: Minor*

*Impact significance: Neutral-Slight (Adverse)*

*Impact likelihood: Certain*

A tree-lined curving hedge-bank possibly an early boundary of Croesau Farm (Fig. 7). Not valuable in terms of the Hedgerow Regulations (1997) but of local historic interest.

***Recommendations for further assessment: None***

***Recommendations for mitigatory measures: Watching brief***

## **5 SUMMARY OF SIGNIFICANCE OF IMPACT**

This provides a summary of the assessment of heritage elements of the two proposed route options, described as the Online and the Offline Option. This summary follows the guidance in WelTAG version 5 (WAG 2007) and uses the approach recommended in DMRB 2007. It also takes into account recommendations for assessment of historic landscapes (CADW 2007).

### **5.1 ONLINE ROUTE OPTION**

#### ***1. Description***



This route option involves improvement of the existing road and relatively small impact on the landscape through road widening and minor new works to by-pass two bends. The immediate study area has few recorded surviving archaeological features, largely because it is all farmland and most prehistoric archaeological sites do not survive as above-ground features. The rich farmland of the valley would have been well-used in prehistory and presence of Neolithic tombs in the valley suggests that there is a whole early landscape still to be identified. However, the whole landscape is largely historic, partly of 19<sup>th</sup> century parkland and estate farms and partly a patchwork of small hedged fields little changed since the 18<sup>th</sup> century and probably earlier.

The archaeological and historic assessment of the Online Route Option is summarised in Table 1. The characteristic features of the landscape affected are hedges and tracks adjoining the road. There are also a Post-medieval cattle-watering pond (F6), a turnpike road milestone (F7) and a gatehouse (F8) belonging to an important historic landscape (Bodnant). There is one zone of archaeological potential cut by a short new section of road, a prominent knoll (F3) where there is good potential for prehistoric activity, such as burial.

***Table 1 Online Route Option: Summary of archaeological assessment***

<b><i>Feature code</i></b>	<b><i>Type</i></b>	<b><i>Value</i></b>	<b><i>Magnitude of impact</i></b>	<b><i>Significance of impact (adverse)</i></b>	<b><i>Seven point Scale value</i></b>
F1	Track	C	No change	Neutral	0
F2	Track	C	No change	Neutral	0
F3	Knoll	U (D-A)	Major	Neutral - Large	0 to -3
F4	Track	C	Minor	Neutral/Slight	0 to -1
F5	Track	C	No change	Neutral	0
F6	Pond	C	No change	Neutral	0
F7	Milestone	C	No change	Neutral	0
F8	Building	A	Minor (setting)	Neutral/Slight	0 to -1
H1	Hedge	C	Minor	Neutral	0 to -1
H2	Hedge	C	Minor	Neutral	0 to -1
H3	Hedge	A	Minor	Slight/Moderate	-1 to -2

## ***2. Value***

The assessment identified 11 features and their value. Most of these were trackways and hedges, which were of low value. One feature was of low value - a turnpike road milestone. Two were of high value a hedge (H3) that fulfilled the criteria of the Hedgerow Regulations (1997) and a gatehouse of Bodnant - a Grade 1 listed historic landscape. The one feature (F3) of unknown value but in a topographic location that

indicates archaeological potential needs further evaluation before its value can be understood, so could be between Nil and High.

### ***3. Impact magnitude***

The proposed development would result in no change or only minor impact on most of the identified features. Those that would have some significant impact are the turnpike road milestone, the Bodnant gatehouse and the feature of archaeological potential (F3), which would all receive major impact. The impact on the gatehouse (F8) would be confined to impact on its setting.

### ***4. Significance of impact***

The significance of impact is mainly Neutral to Slight. The exception is only that on the historic hedge (H3), of slight to moderate significance and on the feature of archaeological potential (F3), which could be found to be Neutral or of High significance after further investigation.

### ***5. Overall assessment summary***

Overall the significance of impact of the Online Route Option on the heritage of landscape, buildings, monuments and finds is Neutral to Slight, or where higher can be easily mitigated. This particularly refers to the one feature of archaeological potential identified (F3). The cumulative effect is also relatively low because it represents only slight changes to the existing road. However, this could still have a significant effect on the historic landscape unless care is taken to create boundaries of hedges and walls that match in with the present landscape, much of which is unchanged since the 18<sup>th</sup> century.

## **5.2 OFFLINE ROUTE OPTION**

### ***1. Description***

This route option involves improving the present road at the north and south but over half of the route takes a completely new line across open countryside. The immediate study area has few recorded surviving archaeological features, largely because it is all farmland and most prehistoric archaeological sites do not survive as above-ground features. The rich farmland of the valley would have been well-used in prehistory and presence of Neolithic tombs in the valley suggests that there is a whole early landscape still to be identified. However, the whole visible landscape is largely historic, partly of 19<sup>th</sup> century parkland and estate farms and partly a patchwork of small hedged fields and farms little changed since the 18<sup>th</sup> century and probably earlier.

The archaeological assessment of the Offline Route Option is summarised in Table 2. The characteristic features of the landscape affected by the proposed road improvements are tracks and hedges of which several are crossed by the line of the road, some of greater

historic interest than others, although all contributing to the overall landscape setting. The central part of the route crosses undulating landscape of grass meadows and small woods bordering the nearby stream. This is an area where there is significant potential for the presence of new archaeological sites. Two features at the south relate to the Grade 1 listed historic landscape and garden of Bodnant. These are a turnpike milestone (F7) and a gatehouse (F8).

**Table 2 Offline Route Option: Summary of archaeological assessment**

<b>Feature code</b>	<b>Type</b>	<b>Value</b>	<b>Magnitude of impact</b>	<b>Significance of impact (adverse)</b>	<b>Seven point Scale value</b>
F1	Track	C	No change	Neutral	0
F2	Track	C	No change	Neutral	0
F4	Track	C	Minor	Neutral/Slight	0 to -1
F5	Track	C	No change	Neutral	0
F6	Pond	C	No change	Neutral	0
F7	Milestone	C	No change	Neutral	0
F8	Building	A	Minor (setting)	Neutral/Slight	0 to -1
F9	Relic boundary	C	Negligible	Neutral/Slight	0 to -1
F10	Track	C	No change	Neutral	0
F11	Knoll	U (up to A)	No change-Major	Neutral-Large	0 to -3
F12	Relic boundary	C	Negligible	Neutral/Slight	0 to -1
H1	Hedge	C	Minor	Neutral	0 to -1
H2	Hedge	C	Minor	Neutral	0 to -1
H3	Hedge	A	Minor	Slight/Moderate	-1 to -2
H4	Hedge	C	Minor	Neutral/Slight	0 to -1
H5	Hedge	C	Minor	Neutral/Slight	0 to -1
H6	Hedge	C	Minor	Neutral/Slight	0 to -1
M1	Zone of potential	U (up to A)	Up to Major	Up to large	0 to -3
M2	Zone of potential	U (up to A)	Up to Major	Up to large	0 to -3

## 2. Value

The value of the majority of the features, particularly linear features like tracks and hedges, are low. The exceptions include a small prominent knoll (F11) which has high potential for prehistoric activity such as burial, and so could be of high value. There is also one hedge (H3) that is of national importance in terms of the criteria of the

Hedgerow Regulations (1997) and therefore of high value. The gatehouse (F8) is also of high value as part of a Grade 1 listed landscape but only its setting will be affected. The part of the route that runs through open countryside crosses land that adjoins a stream. This area is of unknown archaeological potential but can be assessed as of medium to high archaeological potential because such topographic areas have often been found to have been used for Neolithic and Bronze Age cooking activities (burnt mounds). Such features are fairly common in the landscape, so not individually of high value, but cumulatively, and with the possibility of nearby settlement being found are of high value.

### ***3. Impact magnitude***

The route would have no change or only minor impact on most of the identified features. The exceptions are on the historic hedge (H3) and on the feature of unknown value but archaeological potential (F11). However, the exact line of the route may bypass the latter feature. The greatest impact is on the open countryside crossed, which involves areas of possible high archaeological potential (Zones M1 and M2). This comprises a considerable part of the whole route.

### ***4. Significance of impact***

The majority of the features have neutral or slight adverse significance of impact. The exception is the historic hedge (H3), which is of slight to moderate significance. The greatest significance of impact is likely to be on the areas of open countryside (Zones M1 and M2) crossed by the route. The potential for several sites of moderate to high value shows that impact could be of high significance. Further evaluation of the route would be needed in this area to allow a better assessment.

### ***5. Overall assessment summary***

Overall the scale of impact of the Offline Route Option on the heritage of **known** landscape, buildings, monuments and finds is Neutral to Slight. However, there is an element of **unknown** potential in a large part of the route and this involves the **possibility** of a High scale of impact. This involves only below ground archaeology, which can be mitigated by further assessment, but this may indicate that further excavation and recording is needed.

Although the offline route would impact on new areas of potential archaeology, it would at the same time have some positive effect in bypassing and therefore by preservation of part of the original turnpike road between Graig and Croesau.

## **6 RECOMMENDATIONS**

The area of the proposed improvements adjoins two areas of recognised historic value. On the west it adjoins the registered historic landscape of the Lower Conwy Valley (Cadw 1998b). On the east it adjoins the registered Grade 1 historic park and garden of

Bodnant (Cadw 1998c), which also contains several listed buildings. The changes to the road should also take into account the historic nature of the surrounding landscape and the setting of the historic garden and park of Bodnant. The area has particular historic value, which raises the potential for the discovery of new archaeological or historic features within areas where the proposed new road crosses undeveloped farmland. The recommendations for further assessment or mitigation are summarised in Table 3.

### 6.1 Online Route Option

This route has low impact overall with a few features that can be mitigated by watching brief and recording except in the case of one topographic feature F3, which requires further assessment. There is only a low potential for archaeological remains but if these are present could be of High value and would require full excavation and recording.

### 6.2 Offline Route Option

This route has a considerably greater impact than that of the Online Route. There are several minor features that can be mitigated satisfactorily by watching brief and recording. However, the area of open land crossed by the route has considerable potential for the presence of new archaeological features. There is one specific topographic feature, a knoll (F11) which might have archaeological activity on it but which may be avoided by the route. There are also two topographic zones, M1 and M2 where some additional assessment needs to be carried out by geophysical survey and trial excavation. If archaeological remains are found further excavation would be required. The zones are shown on Fig. 2, and are as follows:

**Zone M1** In the valley area around Pentrefelin where the route crosses the stream. Despite the fact that there has been a significant amount of development in this area, in undisturbed areas there is the potential for earlier prehistoric activity, particularly the presence of burnt mounds (Neolithic/Bronze Age cooking areas).

*Value of possible features: Up to High*

*Impact magnitude: Up to Major (Adverse)*

*Impact significance: Up to Large (Adverse)*

*Impact likelihood: Certain*

**Zone M2** In the central area of the route, where the undulating landscape close to the stream may have been favourable to prehistoric settlement or burnt mounds (Neolithic/Bronze Age cooking areas) that have been obscured by later agriculture. The greatest potential is close to two small side streams that the route will cross, west of Meusydd and east of Fridd-y-foel.

*Value of possible features: Up to High*

*Impact magnitude: Up to Major (Adverse)*

*Impact significance: Up to Large (Adverse)*

*Impact likelihood: Certain*

**Table 3 Summary of recommendations**

<b><i>Further assessment/Mitigation</i></b>	<b><i>Online Route Option Heritage Features</i></b>	<b><i>Offline Route Option Heritage Features</i></b>
Geophysical survey and Trial excavation	Knoll F3	Zones M1 and M2
Avoidance/Geophysical survey and Trial excavation	Nil	Knoll F11
Watching brief and detailed recording	Track F4, Hedges H1 and H3	Track F4, Hedges H1 and H3
Watching brief and basic recording	Nil	Relict bank F12, Hedges H4, H5 and H6
Removal and re-instatement	Milestone F7	Milestone F7
Avoidance	Bodnant West Lodge F8	Bodnant West lodge F8

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Tithe Maps for the parishes of Eglwysbach and Llansanffraid Glan Conwy c.1841 (Conwy Archives Service, Llandudno)

## **APPENDIX 1**

**List of sites within the study area of the road improvement scheme recorded in the Gwynedd Historic Environment Record, with their record numbers**

### **1. Archaeology and buildings**

PRN 17,652 Part of Roman Road CANOVIVM-VARIS



## **APPENDIX 2**

### **List of buildings within the study area of the road improvement scheme of special architectural or historic interest recorded by Cadw (1998a)**

#### **Llansanffraid Glan Conwy**

Felin Isaf Mill House, Pentrefelin, 19<sup>th</sup> century, Grade II Listed  
NGR: SH 80277494

Oat Kiln at Felin Isaf, Pentrefelin, Grade II\* Listed  
NGR: SH 80267496

Salem Welsh Baptist Chapel, 19<sup>th</sup> Century, Grade II Listed  
Ty Capel adjoining Salem Baptist Chapel, Grade II Listed  
NGR: SH 80537452

Ty- Isaf, 18<sup>th</sup> century, Grade II\* Listed

There are a number of listed structures just outside the study area to the south and east that have been mentioned here for convenience.

#### **Eglwysbach**

Penrhyd Gatehouse, 20<sup>th</sup> century arts and crafts style, Grade II Listed  
NGR: SH 79007187

Barn at Old Bodnod, Grade II Listed  
NGR: SH 80287209

Bodnant House, Grade II Listed  
NGR: SH 80007250

Pin Mill, Bodnant, Grade II\* Listed  
NGR: SH 78977224

The Poem, Bodnant, 19<sup>th</sup> century mausoleum, Grade II Listed  
NGR: SH 79957190

Walls and steps retaining upper house terrace, Bodnant Gardens, Grade II Listed  
NGR: SH 79907229

Semi-circular steps and walls leading to Canal Terrace, Bodnant Gardens  
NGR: SH 79907229

Walls and steps retaining croquet terrace, Grade II Listed

NGR: SH 79907229

Hen Fodnant, 16<sup>th</sup>-17<sup>th</sup> century house, Grade II Listed  
NGR: SH 80237209

### **CADW parks and Gardens Register**

Bodnant Garden is listed as Grade 1 in the Cadw Register of Parks and Gardens in Wales (Register Number: PGW (Gd) 5 (CON))

## APPENDIX 3

### Definitions of terms for assessment and mitigation

#### 3.1 Introduction

The assessment was carried out in accordance with the methodology within DMRB volume 11 (2007). The assessment of archaeological remains considers the potential for direct effects, such as destruction or loss of part of a feature, and indirect effects, including: visual intrusion, severance from linked or associated features or landscape elements, changes in setting, or loss of amenity where the public have access.

#### 3.2 Impact Definitions

In order to assess the importance of sites and to allow the appropriate mitigatory action to be proposed for each, a framework of categories, defined in DMRB Vol. 11 2007, will be used to define the importance of each site and the magnitude and significance of impact caused by the proposed scheme on each site.

##### *3.2.1 Assessment of the value of archaeological assets*

All archaeological sites should be assessed for value, and allocated to one of the categories listed below. The allocation of a site to a category defines the value of the archaeological resource of that site. The categories listed in table 2.3 replace the classification of archaeological importance categories that were used in DMRB 1994. The previous classification is still utilised within SAM definitions and ASIDOHL reports and the equivalent categories are noted in Table 1.

**Table 1: Factors for assessing the value of archaeological assets**

<b>Very High</b>	<ul style="list-style-type: none"><li>• World Heritage Sites (including nominated sites).</li><li>• Assets of acknowledged international importance.</li><li>• Assets that can contribute significantly to acknowledged international research objectives.</li></ul> (Previously Category A)
<b>High</b>	<ul style="list-style-type: none"><li>• Scheduled Monuments (including proposed sites).</li><li>• Undesignated assets of schedulable quality and importance.</li><li>• Assets that can contribute significantly to acknowledged national research objectives.</li></ul> (Previously Category A)
<b>Medium</b>	<ul style="list-style-type: none"><li>• Designated or undesignated assets that contribute to regional research objectives.</li></ul> (Previously Category B)
<b>Low</b>	<ul style="list-style-type: none"><li>• Designated and undesignated assets of local importance.</li><li>• Assets compromised by poor preservation and/or poor survival of contextual associations.</li></ul>

	<ul style="list-style-type: none"> <li>• Assets of limited value, but with potential to contribute to local research objectives. (Previously Category C)</li> </ul>
<b>Negligible</b>	<ul style="list-style-type: none"> <li>• Assets with very little or no surviving archaeological interest. (Previously Category D)</li> </ul>
<b>Unknown</b>	<ul style="list-style-type: none"> <li>• The importance of the resource has not been ascertained. (Previously Category E)</li> </ul>

### 3.2.2 Magnitude of impacts

The definition of impacts on the cultural heritage are defined as follows (DMRB Volume 11, 2007).

**Table 2: Factors in the Assessment of Magnitude of Impacts**

<b>Major</b>	Change to most or all key archaeological materials, such that the resource is totally altered. Comprehensive changes to setting.
<b>Moderate</b>	Changes to many key archaeological materials, such that the resource is clearly modified. Considerable changes to setting that affect the character of the asset
<b>Minor</b>	Changes to key archaeological materials, such that the asset is slightly altered. Slight changes to setting
<b>Negligible</b>	Very minor changes to archaeological materials, or setting
<b>No Change</b>	No change

The value of an archaeological asset refers to both the physical remains and information inherent in the site. If a site is excavated in advance of destruction the physical remains will be destroyed but the information will have been retained. This is termed “Preservation of Archaeological Remains by Record” in Planning and the Historic Environment: Archaeology (Welsh Office Circular 60/96). It should be noted that even though this is seen as a valid mitigatory measure, preservation *in situ* is the preferred option.

### 3.2.3 The significance of effect

The significance of effect is derived from the importance of the resource and the magnitude of the impact upon it. Archaeological value Unknown sites are not included because they would have been reassigned to another category by the end of the assessment and evaluation.

**Very large** - A serious impact on a site of international or national importance with little or no scope for mitigation. These effects represent key factors in the decision making process.

**Large** - Lesser impacts on sites of national importance and serious impacts on sites of regional importance, with some scope for mitigation. These factors should be seen as being very important considerations in the decision making process.

**Moderate** - Moderate or minor impacts on sites of regional importance and minor to major impacts on sites of local or minor importance. A range of mitigatory measures should be available.

**Slight** - Negligible impacts on sites of regional, local or minor importance and minor and moderate impacts on minor or damaged sites. A range of basic mitigatory measures should be available.

**Neutral** - No perceptible effect or change to sites of all categories.  
The significance of effect will be determined using Table 3, a basic matrix combining archaeological value and magnitude of impact.

**Table 3: Determination of Significance of Effect**

	<b>Very High</b>	<b>Neutral</b>	<b>Slight</b>	<b>Moderate or Large</b>	<b>Large or Very Large</b>	<b>Very Large</b>
<b>Archaeological Value</b>	<b>High</b>	Neutral	Slight	Moderate or Slight	Moderate or Large	Large or Very Large
	<b>Medium</b>	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
	<b>Low</b>	Neutral	Neutral or Slight	Neutral or Slight	Slight	Moderate or Slight
	<b>Negligible</b>	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight
		<b>No Change</b>	<b>Negligible</b>	<b>Minor</b>	<b>Moderate</b>	<b>Major</b>
<b>Magnitude of impact</b>						

### 3.3 Definition of Mitigation Measures

The alignment of the Proposed Scheme avoids as far as possible sites of archaeological interest. Where a site is affected, mitigation measures would be required in accordance with the guidelines in DMRB Volume 10 and Interim Advice Note (IAN) 81/06.

The following are the basic categories of archaeological mitigation measures which will be used. Additional details may be added in regard to the setting of archaeological sites. The detailed recording, basic recording and watching brief options fulfil the “preservation by record” option described in Welsh Office Circular 60/96.

**None** - No impact, so no requirement for mitigation measures.

**Detailed recording** - Detailed recording requires a photographic record, surveying and the production of a measured drawing prior to the commencement of the works on site. Archaeological excavation works may also be required, depending upon the particular feature and the extent and effect of the impact.

This may entail full excavation and recording where a known site will be destroyed or partially destroyed by the scheme. Some built sites would require dismantling by hand, to provide a detailed record of the method of construction and in the case of a listed structure, the salvage of materials for re-use and re-building.

For wider areas of high archaeological potential there are three main options:

**Geophysical Survey** - This can be used, where appropriate, as an initial non-intrusive assessment technique allowing areas of archaeological activity to be recognised. Magnetometer survey is the preferred first option in most cases, because it allows large areas to be surveyed quickly and can detect a wide range of archaeological features. Resistivity may be used as a secondary option. It should be noted that not all archaeological features can be detected using geophysical survey and absence of positive results does not prove that there is no archaeology present. Geophysical survey should be followed by one of the following options.

**Trial Trenching** - This can be adopted as a staged mitigation process involving assessment and then wider excavation where necessary. A series of trenches would be excavated within a designated area in order to provide a sample of the buried archaeology. A minimum of 5% area coverage is usually specified. The results from geophysical survey can be used to allow accurate positioning of a proportion of the trenches over specific archaeological features. All archaeological features uncovered during the process would be assessed. Significant features would then be excavated and fully recorded.

**Strip map and sample** - This technique involves the examination of machine-stripped surfaces to identify archaeological remains. The process of machine stripping would be supervised by an archaeologist. Once stripping has been undertaken, areas of archaeological potential would be identified and cleaned by hand. Sample areas would be cleaned by hand in apparently negative areas to act as a control. Where complex archaeological deposits are identified during stripping, these would be identified at an early stage in order to formulate a defined area of work. This technique relies upon the recognition of features by plan, and excavation of features would be kept to a level required to assess the nature and importance of the remains. This would be followed by full excavation where appropriate.

**Basic recording** - Recording by photograph and description requires a photographic record and written description prior to the commencement of works on site. A measured survey may be required in certain cases.



***Watching brief*** - Observation of particular identified features or areas during works in their vicinity. This may be supplemented by detailed or basic recording of exposed layers, structures or sections.

***Avoidance*** - Features which may be affected directly by the scheme, or by the construction of the scheme, should be avoided.

***Reinstatement and/or relocation*** – The feature should be reinstated with archaeological advice and supervision.

### **3.4 Definition of Likelihood of Impact**

The direct impact of the proposed development on each site is estimated as follows:

***None*** - There is no construction impact on the site.

***Unlikely*** - This category indicates sites that fall on the margins of the study area, but are unlikely to be directly affected.

***Likely*** - Sites towards the edges of the study area, which may not be directly built on, but which are likely to be damaged in some way by the construction activity.

***Very Likely*** - Sites very close to the road line that might be within the construction easement, access roads or compounds.

***Certain*** - Sites actually within the road line.

***Unknown*** - This is used when the location of the site is unknown, but thought to be in the vicinity of the proposed development.





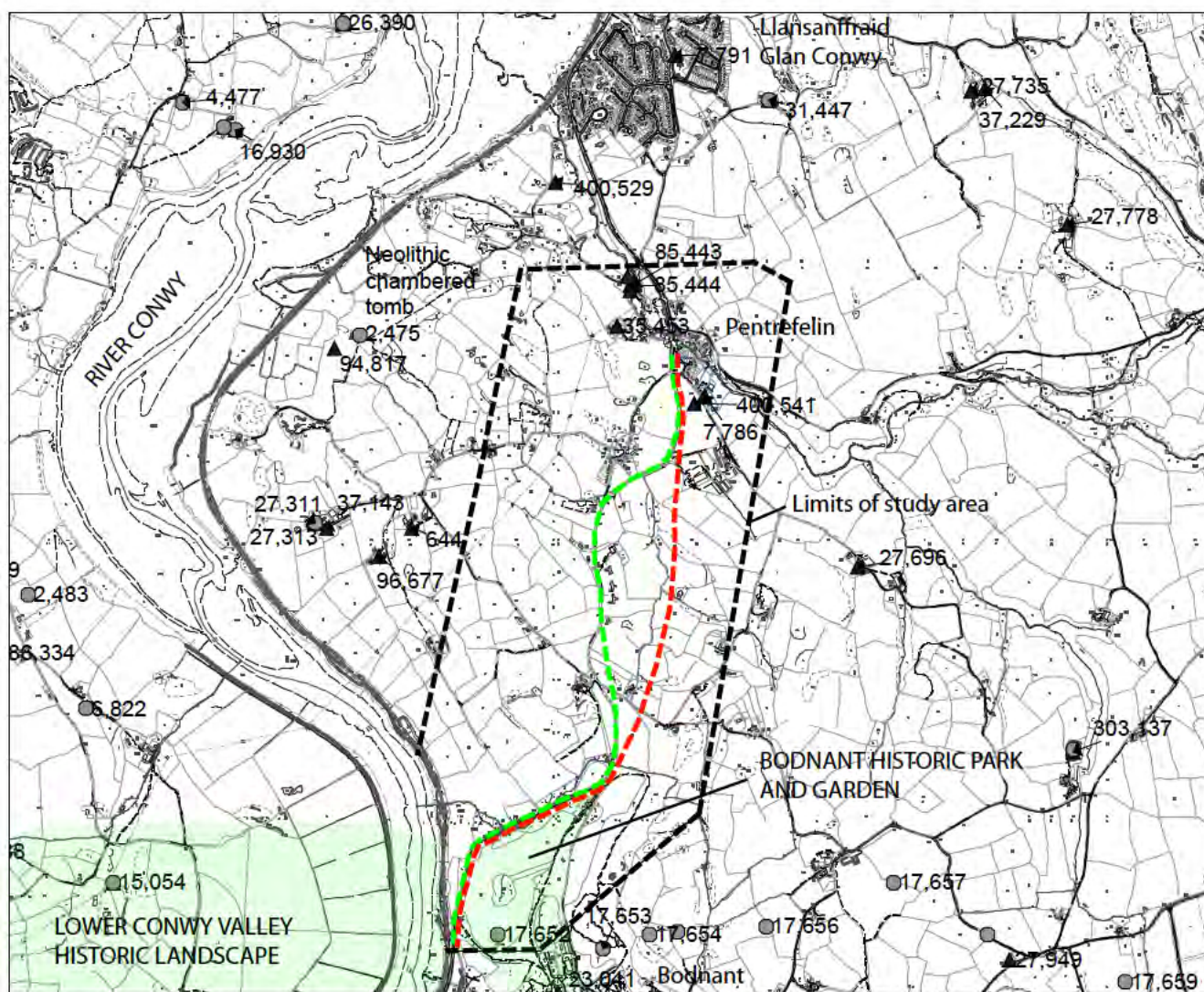


Fig. 1 Location plan. GREEN: Online Route Option. RED: Offline Route Option. Archaeological and Historic features in the vicinity of the road improvement area recorded in the Gwynedd Historic Environment Record (circles) or the CARN database of the Royal Commission on Historic and Ancient Monuments in Wales (triangles). Not to scale.







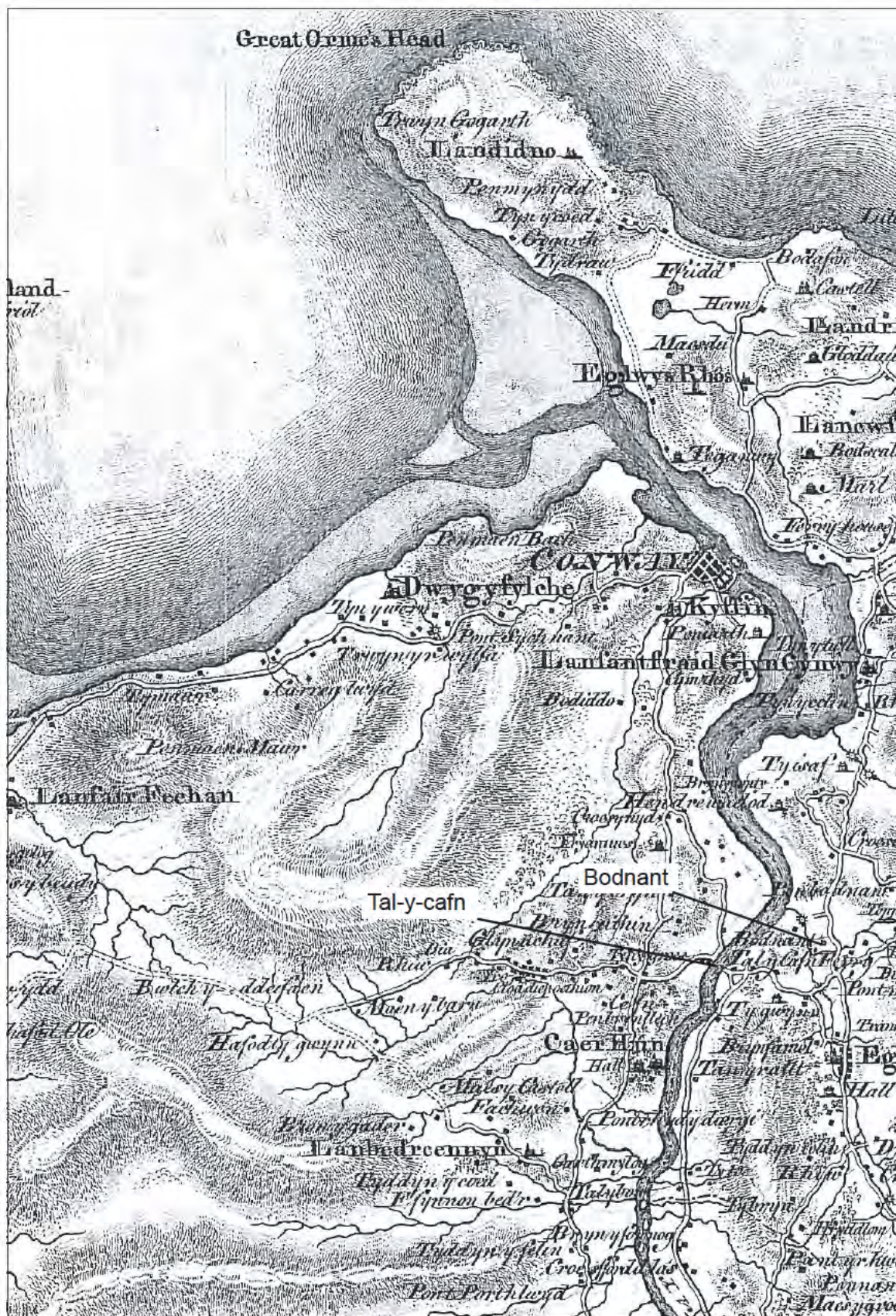


Fig. 3 Part of John Evan's map of North Wales of 1797 showing the turnpike road via Tal-y-cafn to Conwy before the construction of the present A470 road west of Bodnant.



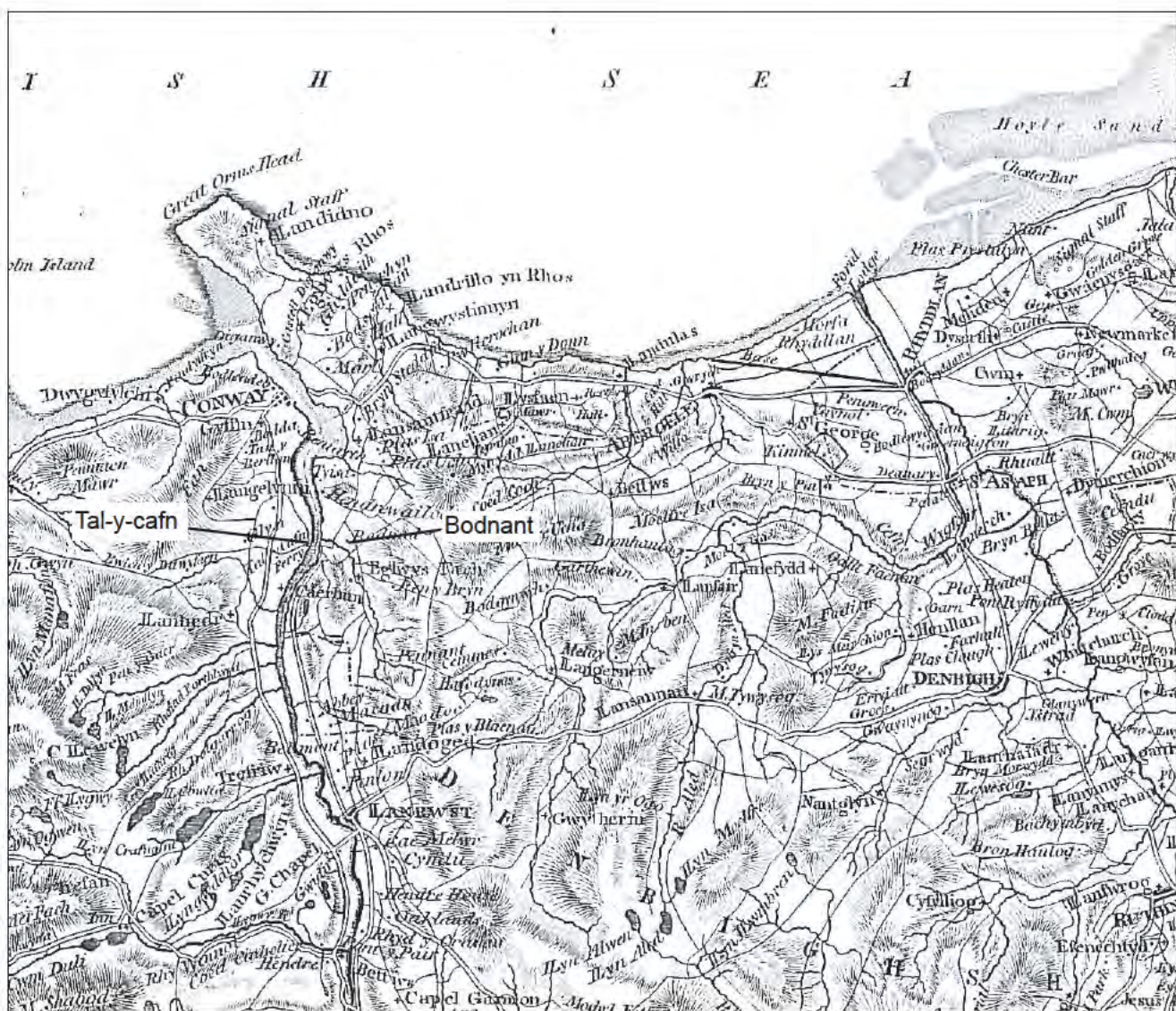


Fig. 4 Part of Furnival's map of North Wales of 1814 for Edward Viscount Clive and Sir W.W. Wynn showing the turnpike road crossing via Tal-y-cafn, before the construction of the A470 road through Bodnant



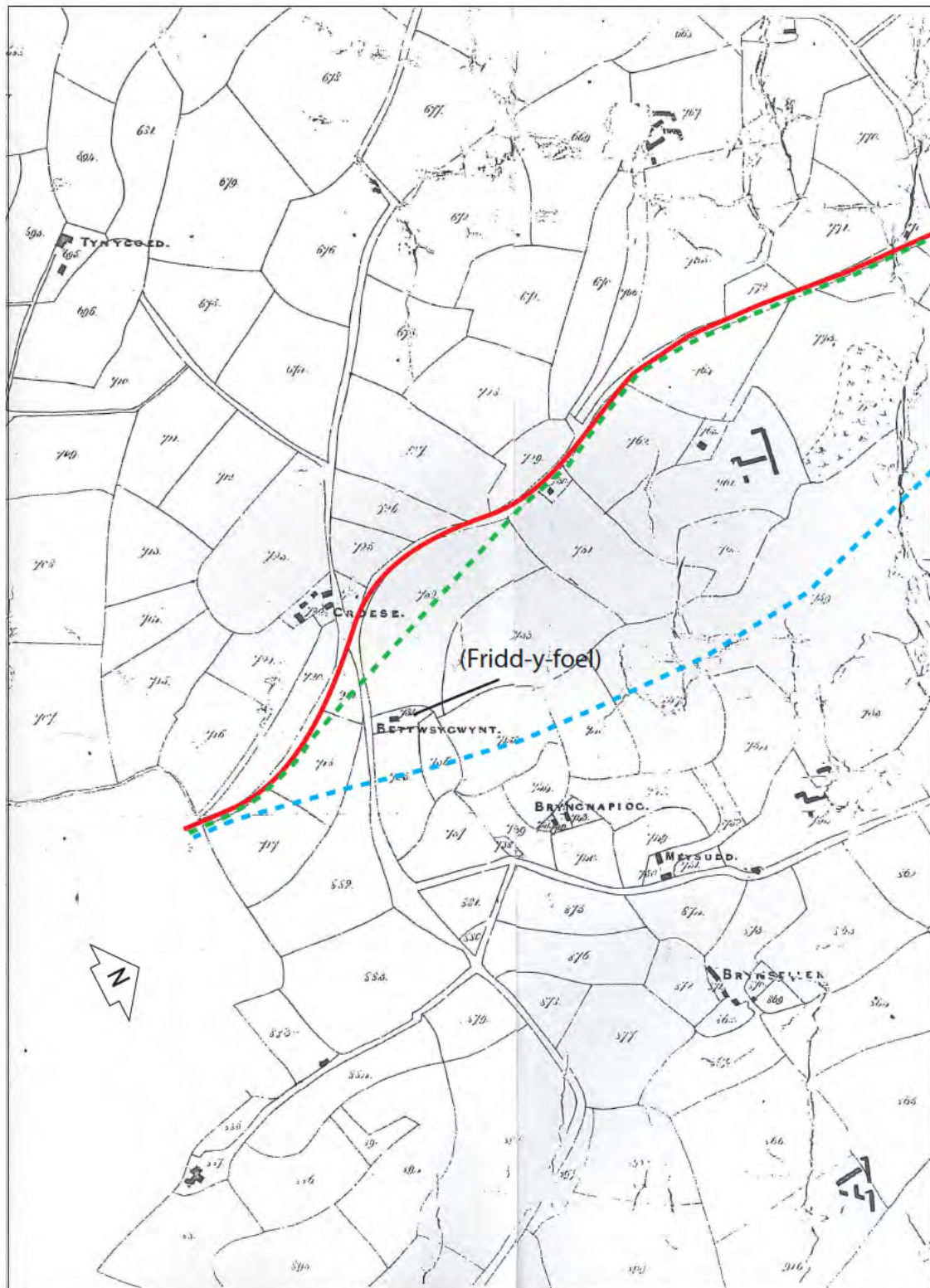


Fig. 5 Part of the Tithe map of Llansanffraid Glan Conwy parish, 1841, after the Turnpike road (Red) had been constructed through Croesau and showing the position of the proposed route options. Green: Online Route Option. Blue: Offline Route Option



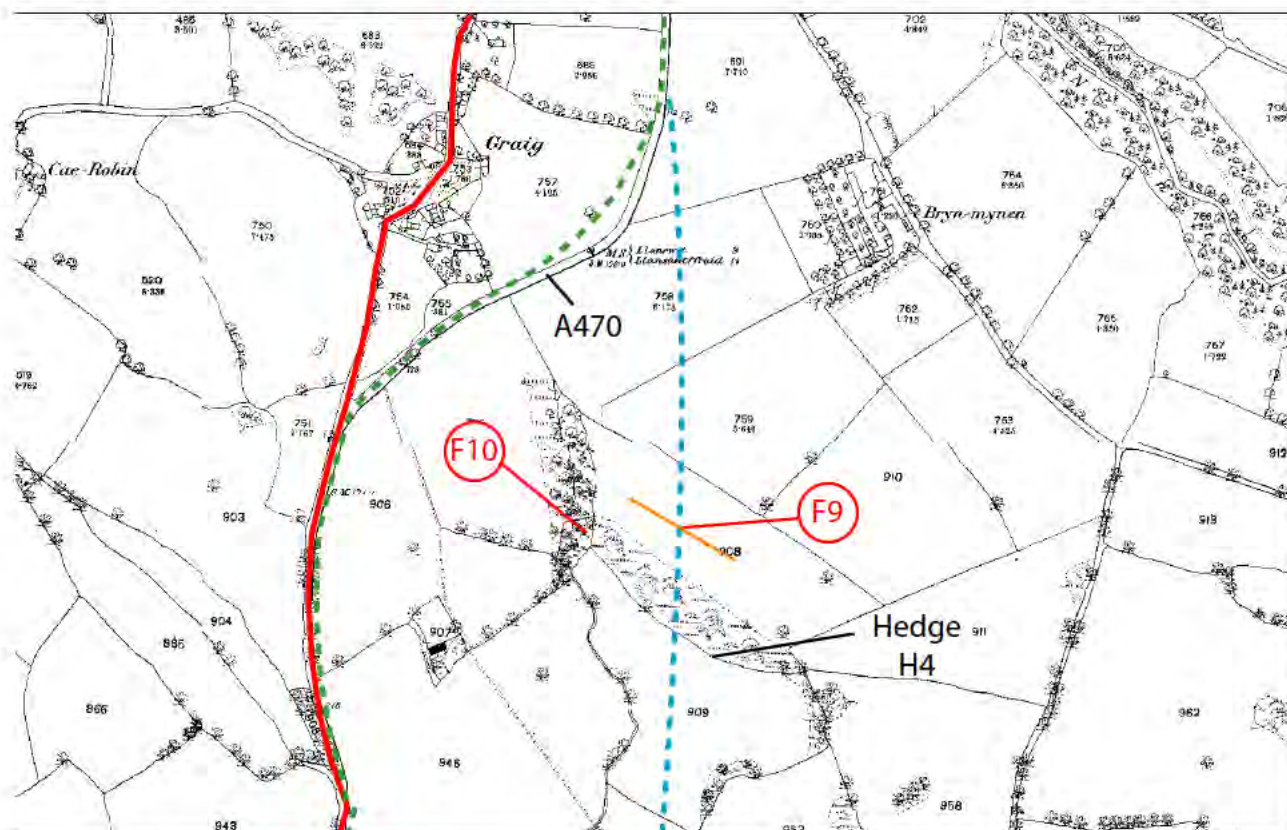


Fig. 6 Part of the Ordnance Survey 1:2500 map of 1875 showing the turnpike road (Red) through Graig, the later route and the proposed new road lines, Green: Online Route Option, Blue: Offline Route Option

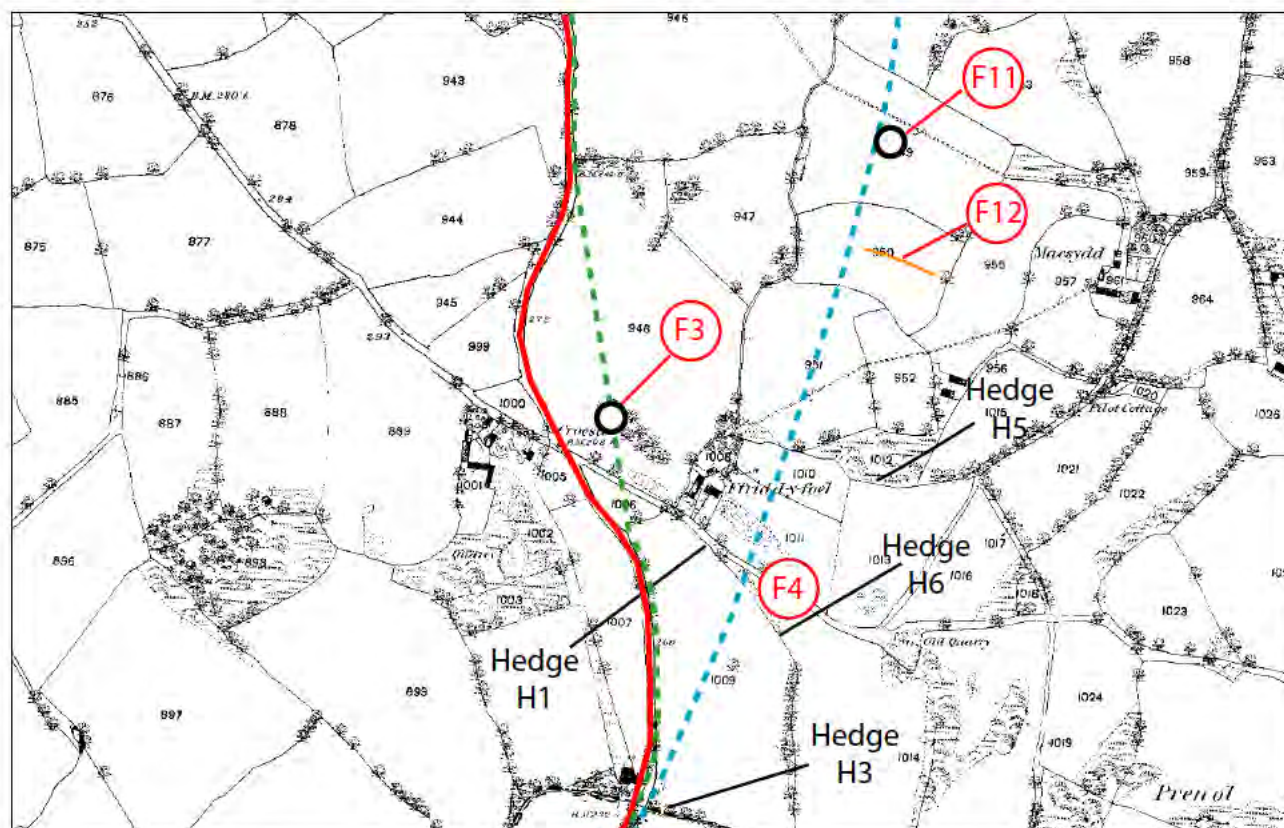


Fig. 7 Part of the Ordnance Survey 1:2500 map of 1875 showing the turnpike (A470) road (Red) through Croesau and the proposed new road lines, Green: Online Route Option, Blue: Offline Route Option



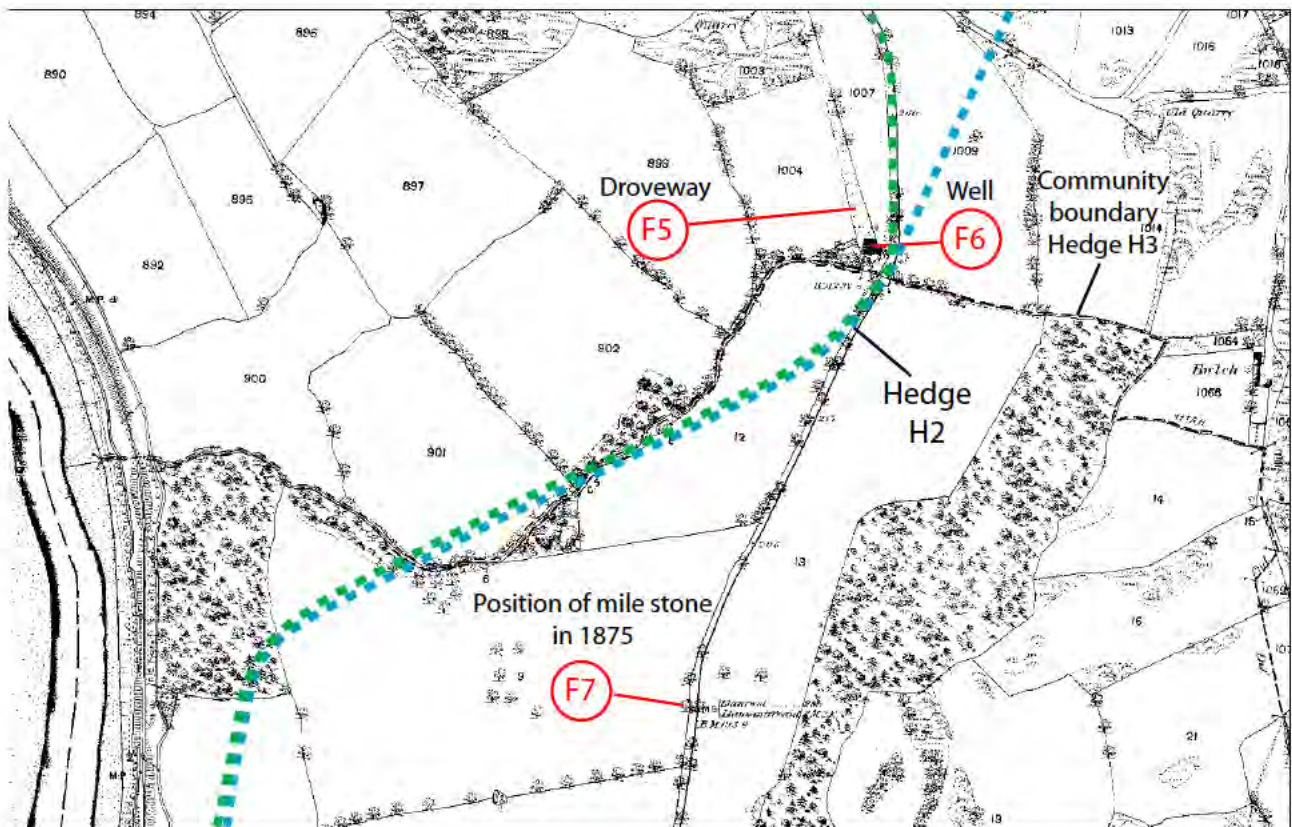


Fig. 8 North edge of Bodnant Park in 1875. From Ordnance Survey 1:2500 1875 (not to scale).  
Green: Online Route Option, Blue: Offline Route Option

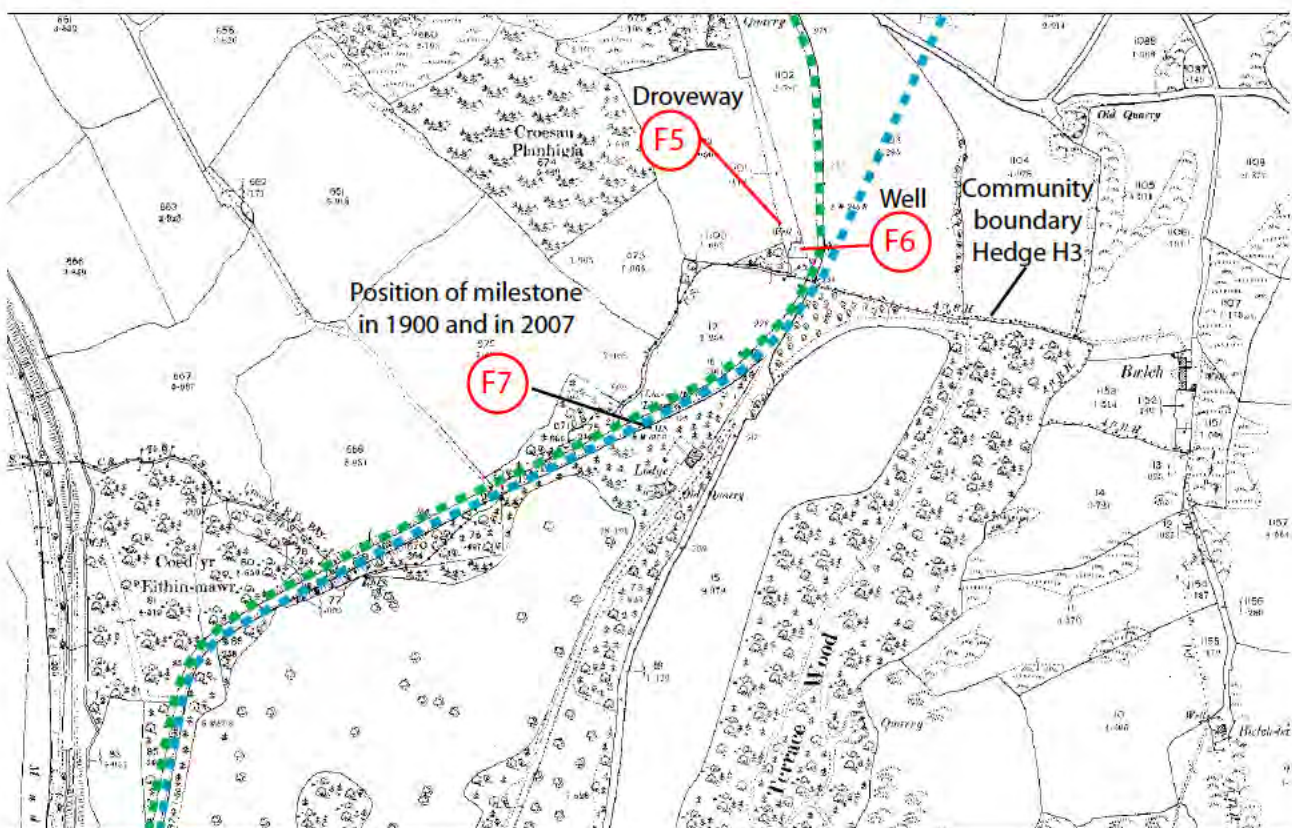


Fig. 9 North edge of Bodnant Park in 1900. From Ordnance Survey 1:2500 1900 (not to scale).  
after landscaping and construction of the by-pass road at the west.  
Green: Online Route Option, Blue: Offline Route Option



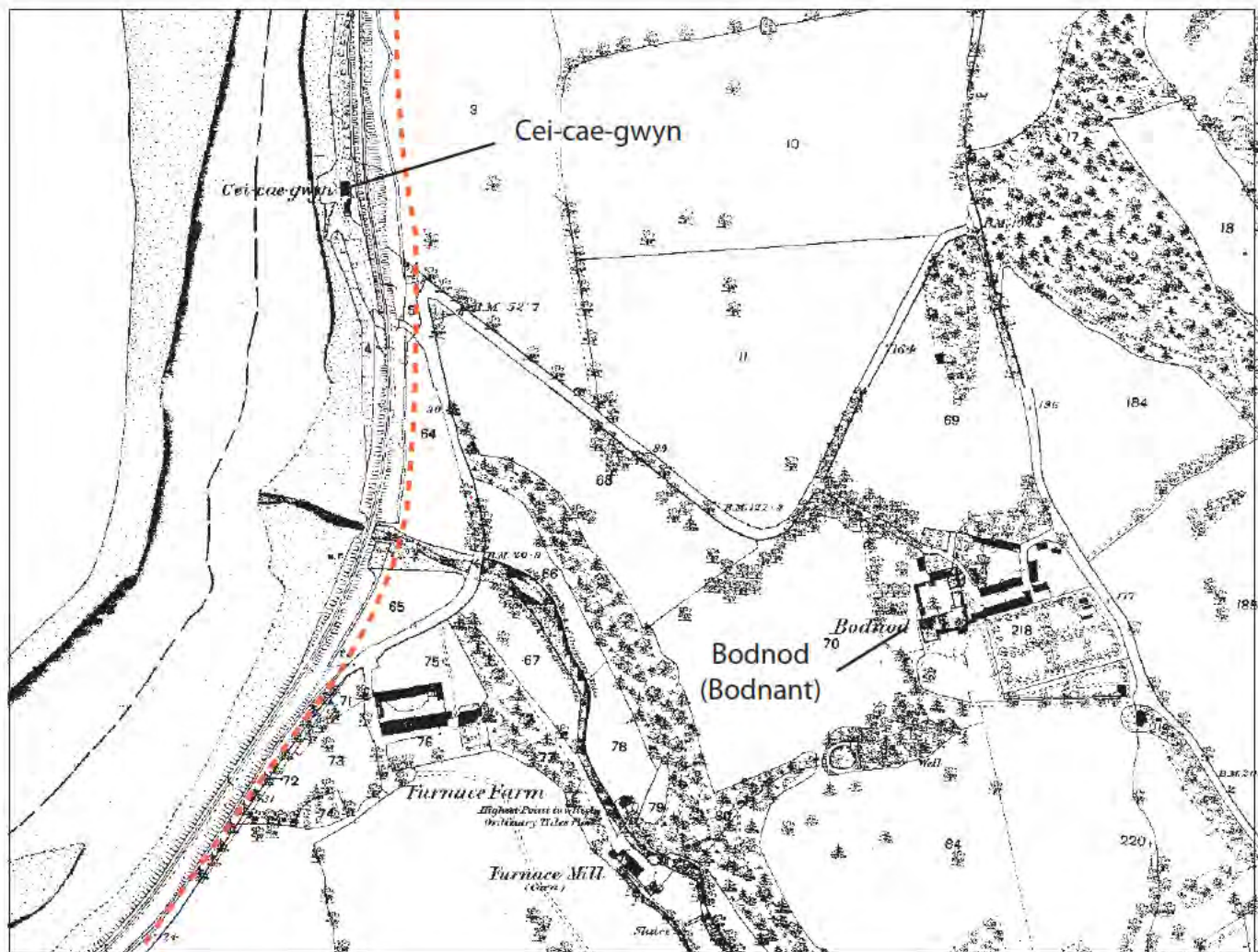


Fig. 10 Bodnant in 1875, before construction of the by-pass road (the present A470 - Red) and before the landscaping of Bodnant Park and before changes to the house and construction of the west lodge by Pochin. The Online and Offline Route Options both follow the line of the present A470 at this point.  
From the Ordnance Survey 1:2500 map of 1875, not to scale





Fig. 11 Online Route Option. The descent north of Croesau showing hedgerows with mature trees.  
From the south-west



Fig. 12 Online Route Option. Crossroads at Croesau, showing the old Denbighshire County Council metal fencing, and cutting for the Turnpike road. From the south. 2m scale





Fig. 13 Online Route Option. Walling north of Bodnant, showing exposed bedrock



Fig. 14 Online and Offline Route Options. Droveway Feature F5, from the north. 2m scale





Fig. 15 Online and Offline Route Options. Turnpike mile stone Feature F7, from the north-west. 1m scale



Fig. 16 Online and Offline Route Options. Bodnant West Lodge. Feature F8, from the south-west





Fig. 17 Online and Offline Route Options. 'Estate' hedgerows and woodland on the west side of A470 at Bodnant, from the north-east. Scale with 50cm divisions



Fig. 18 Offline Route Option. Topographic zone M2. General view of streamside meadows, from the north-east.



Fig. 19 Offline Route Option. Knoll. Feature F11, from the north-east. 2m scale



Fig. 20 Offline Route Option. Relict field boundary F12 (to left of scale), from the north-west.  
2m scale







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