
A487 (T) Road Improvement Scheme: **Ty-Cerrig, Gwynedd**



DMRB Archaeological Assessment

GAT Project No. 2095

Report No. 824

August, 2009

Archaeological Assessment: **A487 (T) Ty-Cerrig**

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Prepared for
Ymgynghoriaeth Gwynedd/Gwynedd Consultancy

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A487 (T) Road Improvement: **Ty-Cerrig**

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A487 (T) TY CERRIG, GARNDOLBENMAEN ROAD IMPROVEMENTS

CULTURAL HERITAGE ASSESSMENT (G2095)

1. INTRODUCTION

1.1 Overview

This report on Cultural Heritage covers three areas of assessment forming three sub-topics:

Archaeological Remains

Historic Buildings

Historic Landscapes

The report follows guidance provided in DMRB Volume 11, Section 3, Part 2: Cultural Heritage (June 1993, revised August 2007).

1.2. Project identification

Gwynedd Archaeological Trust has been asked by Ymgynghoriaeth Gwynedd/Gwynedd Consultancy, to conduct an archaeological assessment on a proposed road widening project at Ty Cerrig, Garndolbenmaen (located between SH 49204330 and SH 49704320; as detailed in Ymgynghoriaeth Gwynedd/Gwynedd Consultancy 1424_GA_04 Alignment Option 2 Plan LS A1 (1)). The road improvement measures 650.0m in length and is orientated on a general east-west alignment, following the route of the existing A487 (T). The alignment of the Proposed Scheme is shown on Figure 1.

1.3 Purpose of the report

The purpose of this report is to provide information on the assessment of the significance of environmental effects of the proposed scheme on the cultural heritage of the area, and the measures proposed to mitigate or enhance such effects.

The cultural heritage report has been prepared by Gwynedd Archaeological Trust by an experienced and qualified archaeologist.

1.4 Scheme description

The proposed scheme is located south of Garndolbenmaen between the villages of Bryncir and Dolbenmaen between SH 49204330 and SH 49704320 on both the north and south sides of the A487(T), between Bryncir to the northwest and Dolbenmaen to the east. Following a safety assessment of the road between these two points, it was determined that a stretch some 650.0m in length no longer met the relevant safety standards. Therefore, the aim of the scheme is to improve the safety of road users at this location by widening the said stretch of road.

The proposed works will affect a corridor approximately 20.0m in width; 10.0m on the north side and 10.0m on the south side of the current A487 (T), and is intended to increase the flow of traffic by widening the road throughout the study area. The land adjacent to the scheme is not included within any designated areas, and falls outside the Snowdonia National Park boundary.

Three minor roads currently join the A487 (T) within the study area. To the west of the scheme a road to the farmstead of Rhwngddwryd joins the road from the north, while to the south of this and forming a cross-road, the road to Ty-Cerrig joins the A487 (T). Further to the east a third minor road joins the A487 (T) from the south which leads to the waterworks plant. All of these junctions have been redesigned into the proposed scheme, and as a result will be widened at their intersections with the main road.

1.5 Regulatory / Policy Framework

The European Union Council Directive 85/337/EEC, amended by Directive 97/11/EC, requires the preparation of an Environmental Impact Assessment (EIA) for certain types of projects likely to have significant effects on the environment. This helps to ensure that the predicted effects and the scope for reducing them are properly understood by the relevant authorities, statutory consultees and general public. The Highways (Assessment of Environmental Effects) Regulations, 1999 (SI No. 369) interpret these Directives. Under these Regulations, a highway scheme such as a motorway widening or new bypass may require an Environmental Impact Assessment (EIA). In accordance with the Schedules to the Regulations and Directive it has been determined that an EIA is required for this highway scheme.

The framework for the protection of archaeology in Wales within the planning process is provided by Welsh Office Circular 60/96 'Planning and the Historic Environment: Archaeology' in conjunction with Planning Policy Wales and Welsh Office Circular 61/96 'Planning and the Historic Environment: Historic Buildings and Conservation Areas',

Currently the Unitary Development Plan (UDP 2001-2016) remains the adopted strategic development plan, implemented in July 2009. The UDP embodies policies relating to transport and the countryside within Gwynedd and the Snowdonia National Park, including nature conservation, tourism, recreation and agriculture.

The UDP (Policy B7) state that the developer will be required to commission either an archaeological assessment and/or field evaluation in order to determine the archaeological impact of a proposed development. Appropriate mitigation should also be recommended. This report fulfils these requirements.

LANDMAP (**Landscape Assessment and Decision-Making Process**) is the methodology promoted and supported by Countryside Council for Wales (CCW) and Welsh Unitary Authorities for assessing the diversity of landscapes within Wales. It identifies and explains their most important characteristics and qualities - whether they are ordinary, but locally important landscapes, or nationally recognised spectacular landscapes. Carried out at a Unitary Authority level, information is recorded about an area's geological, ecological, visual, cultural and historic character. The combination of these layers of information makes it possible to assess the richness or complexity of landscapes at a national and local level.

LANDMAP draws attention to the most important elements of the landscape and helps decision-makers to make informed judgements. These, in turn, strengthen Wales's diverse landscape heritage. It provides a consistent framework for collecting landscape information, primarily for landscape planners. Through studying information about an area's landscape, decision makers can understand what makes it distinctive, helping identify a sense of place.

It is intended to provide an input to decisions which are made concerning conservation or improvements or about the effect of proposed developments in the landscape. There are no *LANDMAP* historic areas in the vicinity of the proposed development

1.6 Previous work

No previous work has been carried out in the study area, either by Gwynedd Archaeological Trust or by any other archaeological organisation. A field visit was conducted on 20th August 2009 to determine the nature of any archaeological receptors identified during the desk-top assessment, and to identify any receptors not depicted on archival sources.

1.7 Method Statement

The current assessment work has been carried out in accordance with the methodology within DMRB Volume 11, Section 3, Part 2 Cultural Heritage (June 1993, revised August 2007) and as described below.

1.7.1 Desk based study

The desk-based assessment involved a study of the Historic Environment Register (HER) information for the study area. This included an examination of the core HER, and secondary information held within the record which includes unpublished reports, the 1:2500 County Series Ordnance Survey maps, and the National Archaeological Record index cards. The National Monuments Record (NMR) was checked for sites additional to the HER. Secondary sources were examined, including the Inventories of the Royal Commission on Ancient and Historical Monuments for Wales, and works held within the regional libraries and the University of Wales Bangor library. Indices to relevant journals, including county history and archaeology society journals and national society journals such as *Archaeologia Cambrensis* were checked. Pre-afforestation RAF aerial photographs were consulted at RCAHMW. Information about Listed Buildings and Scheduled Ancient Monuments was obtained from Cadw: Welsh Historic Monuments.

1.7.2 Field survey

This part of the assessment involved visiting the study area and assessing the sites identified during the desk-based study. Any additional sites noted were also assessed.

The aims of this stage of the work are to:

- verify the results of the desk based assessment
- identify any further archaeological sites which may exist as above ground features
- photograph and record the present condition of all sites noted.

The field survey was carried out in good weather on 20th August 2009. The fields to the north and south of the scheme were inspected for archaeological remains; however the land immediately to the south of the A487 (T) was occasionally overgrown with vegetation making inspection particularly difficult.

1.7.3 Report

Following completion of the stages outlined above, a report was produced following DMRB guidelines.

2. TOPOGRAPHIC AND HISTORIC BACKGROUND

2.1 Introduction

This section provides an overview of the topographic and historic background to the area of the proposed development and is relevant to all three assessment sub-topics. Archive material consulted during the desktop study provided some dating evidence for known sites, and maps of successive dates made it possible to understand how the landscape had developed. Ordnance Survey map coverage of the area was good. The tithe maps (1840's) provided some additional information and included the arrangement of individual fields which could be compared and contrasted with the OS maps. The location of sites described in the text are shown on Fig. 2, and the location of features within, or in close proximity to, the development corridor are shown in figure 3 and 4.

2.2 Topographic description

The A487 (T) and the land to the south of the road is located on the flat flood plain of the Afon Dwyfor, with the current road standing at a consistent 95.0m above sea level throughout the study area. The land to the immediate south of the road is flat pasture land, incorporating enclosed sheep and cattle grazing. The sides of the road are overgrown with brambles, interspaced occasionally with young trees, gorse bushes, and long grass. To the north of the road the topography gently undulates and slopes uphill away from the flood plain.

The floodplain cuts through an area of primarily Ordovician rocks, and are 'contiguous with the complex syncline of Snowdonia which extends north-eastwards in the upland areas above Penmaenmawr and Conwy, and westwards to form the greater part of the Llyn peninsula' (Bassett & Davies, 1977). The study area also lies close to areas of contemporaneous igneous rocks to the east and a small band of intrusive igneous rocks to the west.

2.3 The Archaeological Background (see figure 2)

2.3.1 Prehistoric and Roman (up to 400AD)

To the southeast and approximately 1.2km from the western end of the proposed scheme stands the probable bronze-age standing stone of Beudy Cil-Haul (PRN 192 (302,488)). The stone is an elongated glacial boulder measuring some 1.8m in height and 0.8m square, secured in place with packing stones.

Further evidence of prehistoric activity can be found to the northwest of the western end of the scheme, a prehistoric burnt-mound known as Glan-Dwyfach (PRN 154 (NPRN 302,420)) is located on the eastern bank of the Afon Dwyfor, and approximately 1.33km from the proposed works. Burnt mounds are generally regarded as being bronze-age in date; however their utilisation carries through to the medieval period. It is believed that they were used as a form of cooking food, although the possibility of a ritualistic purpose exists.

There are known settlement sites of the prehistoric period in the vicinity of the proposed scheme. Approximately 670.0m to the north of the scheme is a stone built prehistoric hut circle (PRN 150 (NPRN 302,459)) measuring approximately 25 feet in diameter. The hut is cut into the slope to the north and terraced out to the south, and a hollow in the ground 33 yards to the west-north-west may in fact be a second robbed out hut. Further to the northeast, approximately 560.0m from the A487 (T) on the northeast slope of an isolated knoll is a prehistoric stone built rectangular hut platform (PRN 188 (PRN 15,203)) measuring 8.6m by 5.0m. The platform is orientated east-north-east by west-south-west and despite some stones existing within the wall face, the majority of the feature has been robbed.

To the north and approximately 740.0m away from the centre of the scheme is the remains of a prehistoric hut circle (PRN 150 (NPRN 57,178)), measuring 25.0 feet in diameter and being in close proximity to the modern St. David's church of Garndolbenmaen. The hut is cut into the slope to the north and terraced out to the south, with only some stones remaining of the wall on the southern edge. A hollow some 33 yards to the west-north-west may in fact represent a second, robbed out hut circle.

There is a fair amount of archaeological evidence indicating Roman remains within the area, including four separate locations of domestic hut groups. The closest site is the enclosed hut group of Tyn y Caeau (PRN 145 (NPRN 302,459)) located approximately 280.0m to the north of the road, and comprising a rectangular stone building heavily robbed to the northeast, and two hollows representing round huts. Further to the northeast and approximately 620.0m from the current road is the stone built hut circle of Craig y Llan (PRN 172 (15,092)), the walls of which have collapsed to approximately 2.0m in width, with the entrance being located either to the north-north-east or south-south-west.

To the southeast of the scheme are two hut group locations, the closest being approximately 510.0m away from the road and comprising two heavily robbed circular huts (PRN 170 (302,487)), measuring 3.3m and 5.0m in diameter. Various earthwork hollows in proximity to the huts suggests the presence of other heavily robbed roundhouses. Further to the southeast lies the enclosed Roman hut group of Craig y Tyddyn, situated 740.0m from the eastern end of the proposed scheme (PRNs 165 (NPRNs 302,486)). The site has the slight remains of an enclosure wall measuring 30.0m in diameter, and enclosing two roundhouses measuring 8.3m and 4.0m in diameter, to the west and southeast of the enclosure respectively.

Approximately 790.0m to the southeast of the western limit of the proposed road improvement and in close proximity to the Craig y Tyddyn hut group (PRNs 165 (NPRNs 302,486)), is the site of a Roman fortlet (PRN 164 (NPRN 95,306 (SAM CN046))) on the side of a steep sided narrow ridge. The west end is occupied by a roughly trapezoidal enclosure, while on the east a bank of earth and rubble measuring 2.6m in height exhibits the remains of an external revetment cutting across the ridge. The remainder of the defences is formed by a rubble wall faced on both sides with laid blocks, measuring generally 4.0m in thickness but increasing to 5.30m to the west, and surviving up to 6.0m in height.

The current A487 (T) may follow the line of the original Roman Road from Segontium to Pen Llystyn to Tomen Y Mur (PRN 17558).

2.3.2 Medieval (400AD – 1485 AD)

The study area lies within the medieval cantref of Dolbenmaen in the commote of Eifionydd, and formed part of the medieval township of Dolbenmaen (PRN 7,341 (NPRN 64,408)). To the east of the village and approximately 800.0m east of the western end of the proposed scheme is the grade II listed medieval parish church of St. Mary (PRN 2,367 (NPRN 43,776 (listed building no. 4278)). The church lies on a small by-passed section of the main road and stands within an irregularly shaped graveyard, and is approached through a grade II listed lych gate (listed building no. 21522). The medieval history of Dolbenmaen is further demonstrated by the castle mound (motte) (PRN 161 (NPRN 93,540 (SAM no. CN063) located to the south of the village and lying some 800.0m to the east of the western end of the proposed scheme. The castle mound and ditch stand on a low ridge running parallel to the river Dwyfor at a fordable crossing point on an important route way. 'Its architects may have been Norman or Welsh and its early history is uncertain. Later it formed the maerdref (administrative centre) of the commote of Eifionnydd and is thought to have been one of the royal residences of the Welsh Princes until it was abandoned by Llywelyn Fawr around 1230 in favour of the newly constructed Criccieth Castle. The motte itself is 36m in diameter and about 6m high. Some loose masonry is all that remains to indicate the presence of any buildings on the flattened top of the mound. The possible site of a bailey, if one existed, is now covered by farm buildings and Plas Dolbenmaen which itself dates to the 16th to 18th centuries (GAT HER).

The surviving traces of medieval settlement are characterised by the presence of rectangular long hut platforms. One of these has been recorded (Craig y Llan) approximately 670.0m due northeast of the western end of the proposed scheme (PRN 184 (NPRN 15,092)). The walls of this domestic building are faced with large stones and average 0.7m in thickness, parts of which have been rebuilt as a modern sheep-fold.

2.3.3 Post-Medieval and later (1485 AD to the present day)

The 1840's tithe schedule registers some of the land to the north of the proposed scheme as belonging to a local tenant farmer of Rhwngyddwryd called John Williams, however the majority of the land was owned by William Ormsby-gore of Glyn Cywarch and Brogyntyn. The said gentleman acquired the lands through his marriage to Mary Jane Ormsby in 1815, who was the sole heiress of the Brogyntyn estate situated in the parish of Selatyn near Oswestry, who in turn inherited the lands from her grandfather William Owen, who is documented as purchasing the lands around Bryncir in 1736 (Brogyntyn estate records, 1951).

To the east of the proposed scheme in the village of Dolbenmaen are several post-medieval buildings of note. The closest is situated approximately 700.0m to the east of the western end of the scheme, and is Plas Holland, the old rectory affiliated with the medieval church of St. Mary. The building is mostly modern but has a northern wing dating to circa. 1700 and has gabled dormers and a very large chimney. Further post-medieval buildings within the village include the vicarage (PRN 5,259) and domestic dwellings, as well as Plas Dolbenmaen (PRN 5,257 (NPRN 16,741 (listed building no. 4280)), a two-storey early 18th Century house and associated barns (PRN 12,603 (NPRN 31,429 (listed buildings no. 4281)).

To the north of the scheme lies the post-medieval farmstead of Rhwngyddwryd (NPRN 16,802), and further to the north again (approximately 470.0m) lies the Welsh Calvinistic Methodist Jerwsalem Chapel of Garndolbenmaen (NPRN 6,814). This building was founded and built in 1780, and was altered or rebuilt in 1874/75 and 1915, being constructed in the simple round-headed style with gable entry (RCAHMW).

2.3.4 Industry

The vast majority of industry to have taken place in the vicinity of the study area is farming. The flat and fertile lands to the north and south of the improvement scheme are particularly well suited to grazing pasture, and the field systems are depicted as having changed very little between the 1840's tithe map, first (1889), second (1900) and third (1915) OS maps and the modern day OS maps. Indeed, the 1840's tithe schedule lists the common usage of the lands around the scheme as being occupied by either meadow or arable land, as can be seen today.

Approximately 840.0m to the southeast of the western end of the proposed scheme is the Tyddyn Mawr post-medieval slate quarry (PRN 20,201), and further gravel quarries have been excavated up to the present day to the north at Bryncir. To the southeast and approximately 1.2km from the western end of the scheme is the post-medieval mine of Beudy Cil-Haul (PRN 21,533) and the post-medieval quarry of Ysgubor Gerrig (PRN 20,204), responsible for the extraction of manganese and slate respectively.

2.4 Conclusions

Much of the area within and around the proposed scheme comprises the featureless flood plain of the Afon Dwyfor. There are consequently no known medieval or earlier settlements or ritual sites closer than 280.0m to the road, however the wealth of prehistoric, Roman and medieval sites spread across the landscape within 2.0km of the proposed scheme significantly increases the chances of unknown archaeological material within the area. Indeed, the existence of water-courses in the area also increases the chances of finding prehistoric features such as burnt mounds. However, the construction of the existing A487(T) may well have impacted upon a greater width than currently utilised, and this might have affected the potential for the survival of remains within the development area.

2.5 Existing statutory protection

No listed buildings are located within the 20.0m north to south buffer zone along the study area, however the following listed buildings lie within 500.0m of the A487 (T) study area:

Ty-Newydd Farmhouse grade II (listed building no. 21563)

No Scheduled Ancient Monuments lie within 500.0m of the proposed scheme.

The eastern part of the scheme lies within 300.0m of the official Snowdonia National Park boundary.

3. ARCHAEOLOGICAL REMAINS

This section describes sites which are near enough to the development corridor to be affected by its construction. In practice, this includes all sites recorded during the fieldwork phase of the project. This work intensively examined a corridor, approximately 20.0m wide centred on the present road. It has been assumed that the improvement works will not affect the land outside of the 20.0m buffer corridor, however any deviation outside of this zone whether by the improvement works or for access, ancillary works etc will require the recreation of an updated assessment report. The archaeological remains are initially presented as a gazetteer representing the baseline conditions. Mitigatory measures and the impact of the scheme on the archaeological assets is then examined.

3.1 Assessment Methodology

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 1 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

Very High	<ul style="list-style-type: none"> • World Heritage Sites (including nominated sites). • Assets of acknowledged international importance. • Assets that can contribute significantly to acknowledged international research objectives. <p>(Previously Category A)</p>
High	<ul style="list-style-type: none"> • Scheduled Monuments (including proposed sites). • Undesignated assets of schedulable quality and importance. • Assets that can contribute significantly to acknowledged national research objectives. <p>(Previously Category A)</p>
Medium	<ul style="list-style-type: none"> • Designated or undesignated assets that contribute to regional research objectives. <p>(Previously Category B)</p>
Low	<ul style="list-style-type: none"> • Designated and undesignated assets of local importance. • Assets compromised by poor preservation and/or poor survival of contextual associations. • Assets of limited value, but with potential to contribute to local research objectives. <p>(Previously Category C)</p>
Negligible	<ul style="list-style-type: none"> • Assets with very little or no surviving archaeological interest. <p>(Previously Category D)</p>
Unknown	<ul style="list-style-type: none"> • The importance of the resource has not been ascertained. <p>(Previously Category E)</p>

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

Major	Change to most or all key archaeological materials, such that the resource is totally altered. Comprehensive changes to setting.
Moderate	Changes to many key archaeological materials, such that the resource is clearly modified. Considerable changes to setting that affect the character of the asset
Minor	Changes to key archaeological materials, such that the asset is slightly altered. Slight changes to setting
Negligible	Very minor changes to archaeological materials, or setting
No Change	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 XX2.3, a basic matrix combining archaeological value and magnitude of impact.

Table 3: Determination of Significance of Effect

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

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 Baseline Conditions

This section comprises a gazetteer of the archaeological remains identified in the assessment. Refer to Figures 3 and 4 for the location of the individual sites.

1. Drainage ditches NGR: SH 49294 43181 Plate 1 PRN: 31015

Archaeological value: Negligible

Three drainage ditches run northeast to southwest across the field, measuring approximately 1.50m in width, 0.60m in depth and in the region of 300.00m in length. The ditches are filled with long grass and are first depicted on the 1970-80's 1:10,000 Ordnance Survey map, however clear evidence can be seen of their existence on aerial photographs from 1946 and 1972 (106G/UK/1467.3173 and 72-269.151 respectively). The ditches appear to form a network of drainage gullies with feature 2, undoubtedly introduced because of the inherent problems of deluge with being situated on the floodplain of the nearby watercourse to the west. It is likely that the proposed works will have negligible impact upon this feature.

2. Drainage gullies NGR: SH 49298 43245 PRN: 31016

Archaeological value: Negligible

At least four drainage gullies can be identified on both the 1946 and 1972 aerial photographs (106G/UK/1467.3173 and 72-269.151 respectively), running northwest to southeast across the field. Although, only one could be identified during the field evaluation stage measuring approximately 1.20m in width, 0.10m in depth and 70.00m in length, however the aerial photographs depict the gullies as running the entire width of the field, some 200.00m. These gullies appear to form a network of drainage channels with feature 1. It is likely that the proposed works will have negligible impact upon this feature.

3. Field boundary NGR: SH 49412 43272 Plate 2 PRN: 31017

Archaeological value: Low

A field boundary wall to the south of the current A487 runs northwest to southeast and measures approximately 1.20m in height and 0.70m in width. It is constructed of large sub-rounded and sub-angular cobbles, comprising 60-70% of the wall's composition bonded by earth. The boundary is first depicted on the 1840's tithe map for the parish of Dolbenmaen and later on the 1889 OS county series map, although the actual age of the boundary and indeed of the wall is unknown. This feature is likely to be severely affected by the proposed works, and it is recommended that the wall is recorded prior to demolition, and reconstructed as the boundary for the widened road.

4. Conifer plantation NGR: SH 49433 43261 Plate 3 PRN: 31018

Archaeological value: Negligible

A small plantation of Scots Pine is located in the northeast corner of the field, immediately adjacent to barn feature 5 and to the south of the current A487 (feature 10). Such small plantations are traditionally indicative of old drovers' routes, however it seems unlikely that these trees are of adequate antiquity to be so. However, if the plantation is to be felled by the proposed works it is recommended that their location be recorded prior to felling.

5. Field boundary wall NGR: SH 49428 43200 PRN: 31019

Archaeological value: Low

A dry-stone wall runs northeast to southwest across the field. The wall measures 0.90m in height and 1.0m in width, and is constructed from medium sized sub-rounded local river cobbles and medium sized sub-rounded glacial boulders. The wall is bonded by soil and is overgrown with vegetation. The field boundary is first depicted on the 1889 OS county series map, and appears to have been created post 1840's as it is not represented on the tithe map for the parish of Dolbenmaen. This wall should only be affected negligibly at its northern extremity by the proposed works.

6. Field boundary wall NGR: SH 49607 43189 PRN: 31020

Archaeological value: Low

A field wall runs northeast to southwest measuring 0.90m in height and 1.20m in thickness. The wall is constructed from medium sized sub-rounded river cobbles and is heavily overgrown with grass. The wall divides a field from a single carriage lane (feature 14) leading to Ty-Cerrig and is first depicted on the 1840's tithe map and later on the 1889 first edition county series OS map, although the actual age of the boundary and field wall is unknown. The wall will only be affected marginally at its northern extremity by the road improvement scheme.

7. The current A487 NGR: SH 49585 43234 Plate 4 PRN: 31021

Archaeological value: Negligible

The current road is first depicted on the 1840's tithe map for the parish of Dolbenmaen, however the road may possibly follow the line of the Roman Road from Segontium to Pen Llystyn to Tomen Y Mur (PRN 17558), and despite the modern road having probably disturbed any archaeological remains in the vicinity, it provides an opportunity to test this theory and as such archaeological personnel should be present during ground-works.

8. Field boundary wall NGR: SH 49619 43194 PRN: 31022

Archaeological value: Low

A field wall runs northeast to southwest measuring 1.0m in height and 1.50m in width, constructed from medium and large sized sub-rounded and sub-angular cobbles. The wall divides the field from a single carriage lane (feature 14) leading to Ty-Cerrig and the boundary is first depicted on the 1840's tithe map, and later on the 1889 first edition county series OS map. The actual age of the boundary and the wall is unknown. Only the very northern extremity of this wall will be affected by the road improvement scheme.

9. Field boundary wall NGR: SH 49704 43202 Plate 5 PRN: 31023

Archaeological value: Low

A dry-stone single-skin wall runs northeast to southwest and divides the southern edge of the current A487 with the fields. It measures 1.10m in height and is 1.0m wide at its base, tapering to 0.50m in width at its apex. The wall is constructed from medium sized sub-rounded river cobbles and is capped with concrete, which secures wooden posts holding wire fencing in place. The field boundary is first depicted on the 1840's tithe map and later on the 1889 first edition county series OS map, however the actual age of the wall and boundary is unknown, although the wall appears to be a fairly modern rebuild. The wall is likely to be largely affected by the proposed works, and it is recommended that the wall be reconstructed in its new location to resemble its original form.

10. Field boundary wall NGR: SH 49770 43173 Plate 6 PRN: 31024

Archaeological value: Negligible

A field-wall runs northeast to southwest and measures 1.10m in height and 0.40m in width. The wall divides the field from a single carriage lane which leads to the modern waterworks building. The wall is constructed of large angular cobbles cemented in place. The wall is approximately 40.0m in length and butts onto an earlier field boundary wall which runs northwest to southeast, and follows the line of

the original field boundary as first depicted on the first edition 1889 OS county series map. However, this wall does not follow the original boundary line and appears to be contemporary with the single carriage lane (feature 14) to the east, which is first depicted on the 1970-80's 1:10,000 OS map. This feature is a modern wall, and despite the probability of being largely affected by the proposed works, is of negligible archaeological value.

11. Current road to waterworks NGR: SH 49782 43131 PRN: 31025

Archaeological value: Negligible

A single-carriage tarmac lane runs northeast to southwest for approximately 40.0m, before turning to run northwest to southeast for approximately 230.0m. The track is 4.0m in width and leads to the modern waterworks building to the south of the study area. This feature is not depicted on any maps until the 1970-80's 1:10,000 OS map, and appears to be a modern track constructed for the sole purpose of access to the waterworks building. The track is likely to be affected negligibly by the proposed works, and is also of negligible archaeological value.

12. Field boundary wall NGR: SH 49814 43230 PRN: 31026

Archaeological value: Low

A dry-stone field-wall runs southwest to northeast away from the current A487, measuring 0.70m in height and 1.0m in width. The wall is constructed from medium and large sized angular cobbles, and has wooden stakes with wire fencing driven into it. A part of the wall has suffered from collapse, and is overgrown in places with vegetation. The wall divides two fields and is first represented on the 1840's tithe map and later on the first edition 1889 OS county series map, although the actual age of the boundary and wall is unknown. The proposed works will likely only affect the southern extremity of this feature.

13. Current road to Rhwngddwryd NGR: SH 49662 43300 PRN: 31027

Archaeological value: Medium

A single-carriage tarmac lane runs southwest to northeast away from the current A487. The lane leads to Rhwngddwryd farm, and measures 3.0m in width. The lane is first depicted on the 1840's tithe map for the parish of Dolbenmaen, although the actual age of the track is unknown it is probably contemporary with the farm buildings which are believed to originate from the early 18th Century (www.coflein.gov.uk). It is likely that the proposed works will only affect a small part of the southern extremity of the track.

14. Current road to Ty Cerrig NGR: SH 49608 43183 PRN: 31028

Archaeological value: Medium

A single-carriage tarmac lane runs northeast to southwest away from the current A487. The lane leads to the village of Ty-Cerrig, and measures 3.0m in width. The lane is first depicted on the 1840's tithe map, however the actual age of this feature is unknown. The road will only be affected negligibly at its northern extremity where it joins the current A487 road.

15. Field boundary wall NGR: SH 49716 43206 Plate 7 PRN: 31029

Archaeological value: Low

A field wall runs northwest to southeast and divides the current A487 road from the fields to the north. The wall runs parallel with the road and measures 1.0m in height and 1.0m in width. The wall is constructed from medium and large sized sub-rounded cobbles, bonded by an earth core. The boundary is first depicted on the 1840's tithe map, although the actual age of the wall is unknown. It appears likely that the proposed works will have a significant affect upon the wall, and it is recommended that the boundary is reconstructed in its new location to resemble the form of the original boundary.

16. Field boundary wall NGR: SH 49648 43245 PRN: 31030

Archaeological value: Low

A dry-stone field-wall runs southwest to northeast away from the current A487, measuring 1.0m in height and 1.0m in width. The wall is constructed from medium sized sub-angular cobbles and small sized sub-rounded glacial boulders. The wall is in a good state of repair and divides the road to Rhwngddwryd farm from the fields to the east. The boundary is first depicted on the 1840's tithe map along with the road (feature 17), although the actual age of the wall is unknown. The proposed scheme is likely to only affect the southern extremity of this feature.

17. Field boundary wall NGR: SH 49634 43237 Plate 8 PRN: 31031

Archaeological value: Low

A field boundary wall runs southwest to northeast away from the current A487, measuring 1.0m in height and 1.20m in width. The wall is constructed from an earth bank and medium sized sub-rounded cobbles, and runs for approximately 25.0m before being replaced by a modern dry-stone wall. This boundary divides the road to Rhwngddwryd farm from the fields to the west and is first depicted on the 1840's tithe map along with the road (feature 17), although the actual age of the boundary and clawdd wall is unknown. The proposed scheme will likely affect up to 40% of this feature, and thus an archaeologist should be present during removal of the wall, and a basic record should be taken. It is also recommended that any parts of the boundary to be replaced are done so with the original clawdd wall being recreated.

18. Field boundary wall NGR: SH 49469 43309 PRN: 31032

Archaeological value: Low

A field-wall runs southwest to northeast away from the current A487, measuring 0.60m in height and 0.50m in width. The wall is constructed from large and medium sized sub-rounded cobbles and is overgrown with grass and vegetation. This boundary divides two fields and is first represented on the 1840's tithe map, although the actual age of the boundary and wall is unknown. The wall will only be affected negligibly at its southern extremity.

19. Current road to Garndolbenmaen NGR: SH 49286 43355 PRN: 31033

Archaeological value: Medium

A tarmac road which runs southwest to northeast away from the current A487, it begins as a twin-carriage road narrowing to a single-carriage road. The track measures approximately 6.0m in width as a single-carriage, and has undoubtedly been widened upon the junction with the current A487. The track is first depicted on the 1840's tithe map, however it leads to the Jerwsalem Chapel of the Welsh Calvinistic Methodist denomination (NPRN 6,814), which was constructed in 1780 (RCAHMW) and is approximately 450.0m north of the current A487. It is very probable that this road is either contemporary with, or predates this chapel. The proposed works will only affect the junction between this feature and the current A487 and thus any archaeological deposits will most likely have already been disturbed during road widening.

20. Trackway NGR: SH 49611 43118 PRN: 31034

Archaeological value: Medium

A trackway is depicted on the first edition 1889 OS map running north to south away from the current road to Ty-Cerrig (feature 18), and terminating at a stone farm building some 180.0m to the south of the A487. The track is labelled as a footpath, and its dimensions are depicted as being 2.0m in width and 155.0m in length. This feature appears to have gone out of use at the end of the 19th century as it is not depicted on either the second (1900) or third (1915) edition OS maps. Indeed, no visible remains could be observed of this feature during the field search. This feature is depicted as being approximately 20.0m from the current A487 and as such should not be disturbed by the proposed works.

21. Trackway NGR: SH 49610 43339 PRN: 31035

Archaeological value: Medium

A trackway is depicted on the first edition 1889 OS map running southeast to northwest, connecting the current road to Rhwngddwryd farm (feature 17) with the farmstead itself. This track is labelled as a footpath and appears to have been intended to create a shortcut from the farmstead to the A487 across the field. The 1889 OS map depicts the track as being 1.0m in width and 240.0m in length, however the feature appears to have gone out of use before the end of the 19th Century as it is not shown on the second (1900) or third (1915) edition OS maps, and no visible evidence could be seen of its existence during the field search. This feature is depicted as being approximately 15.0m from the current A487 and thus any remains of it should not be affected by the proposed works.

22. Trackway NGR: SH 49484 43360 PRN: 31036

Archaeological value: Medium

A trackway is depicted on the first (1889), second (1900) and third (1915) edition county series OS maps running southwest to northeast, connecting the current A487 with the farmstead at Rhwngddwryd. The track is depicted as being 4.0m in width and 215.0m in length, but is not shown on the 1970-80's or modern OS maps suggesting it went out of use at some point in the mid 20th

Century, indeed no visible signs of the track could be identified during the field search. If any remains of this feature exists then approximately 10.0m of its southern extremity will be affected by the proposed works, and thus archaeological personnel should be present at this point during ground-works to watch for any trace of its existence.

23. Field boundary wall NGR: SH 49538 43250 Plate 9 PRN: 31037

Archaeological value: Low

A field wall runs northwest to southeast and divides the current A487 road from the fields to the north. The wall runs parallel with the road and measures 1.0m in height and 1.0m in width. The wall is constructed from medium and large sized sub-rounded cobbles, bonded by an earth core. Further to the western extremity of the wall there is an increase in the frequency of large sub-rounded glacial boulders incorporated into, and on top of, the main wall. The boundary is first depicted on the 1840's tithe map, although the actual age of the wall is unknown. It appears likely that the proposed works will have a significant affect upon the wall, and it is recommended that the boundary is reconstructed in its new location to resemble the form of the original boundary.

24. Stone clearance cairn NGR: SH 49387 43297 Plate 10 PRN: 31038

Archaeological value: Low

To the north of the road at the western end of the proposed scheme is a cairn comprised of loosely piled large angular and sub-rounded glacial boulders some 5.0m in length and 3.0m in width. The stones appear to be a field clearance cairn of unknown age. It is likely that the proposed works will result in the partial or complete removal of the stones.

25. Hedgerow NGR: SH 49815 43187 Plate 11 PRN: 31039

Archaeological value: Low

To the north of the road at the eastern end of the scheme is a hedge running northwest to southeast, comprised mainly of hawthorn trees, occasionally interspersed with bramble and fern. The hedge is approximately 2.0m high, and although the actual age of the hedge is unknown, under The Hedgerow Regulations 1997 a hedgerow is considered "important" if it is greater than 30 years old and is recorded in a document held at the relevant date at a Record Office as an integral part of a field system pre-dating the Inclosure Acts. The hedgerow itself is not identified on any of the early maps, however the boundary with the road is depicted as far back as the 1840's tithe map, and as such the hedgerow must be considered to be of historical significance. It seems likely that the proposed works will require the removal of up to 60.0m of the hedgerow.

26. Sites of unknown archaeological potential

Archaeological value: Unknown

There is some potential for the discovery of previously unknown buried archaeological sites in proximity to the proposed works, and an intermittent watching brief is recommended during ground-works to observe for these.

3.5 Magnitude of Impacts (Change) and Significance of Effects Prior to and with Mitigation

This section of the report assesses the impact on each site identified in the baseline survey (Section 3.3 above), recommends mitigation measures and then reassesses the impact on the sites after the implementation of the mitigation measures. The classification of impacts uses the definitions set out in Section 3.2 of the report following guidelines given in DMRB Vol. 11 2007. All impacts would occur within the construction phase and would be direct and permanent.

1. Drainage ditches NGR: SH 49294 43181 PRN: 31015 PRN: 31015

Archaeological value: Negligible

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Minor

There is a possibility that the proposed works will affect the most northern extremity of this feature.

Significance of effect prior to mitigation: Slight adverse

Recommended Mitigation Measures: Basic recording

A basic record should be taken of the ditches.

Magnitude of impact with mitigation: Negligible

The site would be recorded ensuring preservation by record

Significance of effect with mitigation: Neutral

2. Drainage gullies NGR: SH 49298 43245 PRN: 31016

Archaeological value: Negligible

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Minor

There is a possibility that the proposed works will affect the most northern extremity of this feature.

Significance of effect prior to mitigation: Slight adverse

Recommended Mitigation Measures: Basic recording

A basic record should be taken of the ditches.

Magnitude of impact with mitigation: Negligible

The site would be recorded ensuring preservation by record

Significance of effect with mitigation: Neutral

3. Field boundary clawdd wall NGR: SH 49412 43272 PRN: 31017

Archaeological value: Low

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Major

It is likely that the wall be demolished in its entirety by the proposed works.

Significance of effect prior to mitigation: Moderate adverse

Recommended Mitigation Measures: Basic recording and reinstatement/relocation

A basic record should be taken, and the wall should be reinstated at its new location.

Magnitude of impact with mitigation: Moderate

The feature would be preserved by reinstatement several metres to the south of its current location.

Significance of effect with mitigation: Neutral or slight adverse

4. Conifer plantation NGR: SH 49433 43261 PRN: 31018

Archaeological value: Negligible

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Major

It is likely that the feature will be destroyed by the proposed works.

Significance of effect prior to mitigation: Slight adverse

Recommended Mitigation Measures: Basic recording

If the site is to be affected a basic record should be made in advance of destruction.

Magnitude of impact with mitigation: Minor

The site would be recorded ensuring preservation by record

Significance of effect with mitigation: Neutral or slight adverse

5. Field boundary wall NGR: SH 49428 43200 PRN: 31019

Archaeological value: Low

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Minor

The proposed scheme is only likely to affect the northern most extremity of the feature.

Significance of effect prior to mitigation: Slight adverse

Recommended Mitigation Measures: Basic record

If the site is to be affected a basic record should be made in advance of destruction.

Magnitude of impact with mitigation: Negligible

The site would be recorded ensuring preservation by record

Significance of effect with mitigation: Neutral

6. Field boundary wall NGR: SH 49607 43189 PRN: 31020

Archaeological value: Low

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Minor

It is likely that the feature will only be affected marginally at its northern most extremity.

Significance of effect prior to mitigation: Neutral or slight adverse

Recommended Mitigation Measures: Basic recording

If the site is to be affected a basic record should be made in advance of destruction.

Magnitude of impact with mitigation: Negligible

The site would be recorded ensuring preservation by record

Significance of effect with mitigation: Neutral or slight adverse

7. The current A487 NGR: SH 49585 43234 PRN: 31021

Archaeological value: Negligible

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Minor

The road will be widened throughout the study area, but very little of the historic character of the road will be altered.

Significance of effect prior to mitigation: Slight adverse

Recommended Mitigation Measures: Watching brief during ground-works

Due to the possibility of the current road following the line of the Roman road, archaeological personnel should be present during ground-works.

Magnitude of impact with mitigation: Negligible

A watching brief will mitigate for the possibility of buried archaeological remains.

Significance of effect with mitigation: Neutral

8. Field boundary wall NGR: SH 49619 43194 PRN: 31022

Archaeological value: Low

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Minor

The northern extremity of this feature will be affected by the proposed works.

Significance of effect prior to mitigation: Slight adverse

Recommended Mitigation Measures: Basic recording

A basic record should be taken prior to demolition.

Magnitude of impact with mitigation: Negligible

The site would be recorded ensuring preservation by record

Significance of effect with mitigation: Neutral or slight adverse

9. Field boundary wall NGR: SH 49704 43202 PRN: 31023

Archaeological value: Low

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Major

It is likely that a significant part of the wall will be demolished by the proposed works.

Significance of effect prior to mitigation: Moderate or slight adverse

Recommended Mitigation Measures: Basic recording and reinstatement/relocation

The wall should have a basic record taken of it, and should be reinstated at its new location.

Magnitude of impact with mitigation: Moderate

The feature would be preserved by reinstatement several metres to the south of its current location.

Significance of effect with mitigation: Neutral or slight adverse

10. Field boundary wall NGR: SH 49770 43173 PRN: 31024

Archaeological value: Negligible

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Major

It seems likely that a large part of this wall will be demolished by the proposed improvement works.

Significance of effect prior to mitigation: Slight adverse

Recommended Mitigation Measures: Basic recording

If the site is to be affected a basic record should be made in advance of destruction.

Magnitude of impact with mitigation: Moderate

The site would be recorded ensuring preservation by record

Significance of effect with mitigation: Neutral or slight adverse

11. Current road to waterworks NGR: SH 49782 43131 PRN: 31025
Archaeological value: Negligible

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Minor

Only the northern extremity of the road will be affected by the proposed works.

Significance of effect prior to mitigation: Neutral or slight adverse

Recommended Mitigation Measures: Basic record

A basic record should be taken of the feature prior to the commencement of the proposed works.

Magnitude of impact with mitigation: Negligible

The site would be recorded ensuring preservation by record

Significance of effect with mitigation: Neutral

12. Field boundary wall NGR: SH 49814 43230 PRN: 31026
Archaeological value: Low

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Minor

It is likely that only the southern extremity of the feature will be affected by the proposed works.

Significance of effect prior to mitigation: Neutral or slight adverse

Recommended Mitigation Measures: Basic recording

If the site is to be affected a basic record should be made in advance of destruction.

Magnitude of impact with mitigation: Negligible

The site would be recorded ensuring preservation by record

Significance of effect with mitigation: Neutral or slight adverse

13. Current road to Rhwngddwryd NGR: SH 49662 43300 PRN: 31027
Archaeological value: Medium

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Minor

It is likely that the proposed works will only affect the southern extremity of the track.

Significance of effect prior to mitigation: Slight adverse

Recommended Mitigation Measures: Basic recording

If the site is to be affected a basic record should be made in advance of destruction.

Magnitude of impact with mitigation: Negligible

The site would be recorded ensuring preservation by record

Significance of effect with mitigation: Neutral or slight adverse

14. Current road to Ty Cerrig NGR: SH 49608 43183 PRN: 31028
Archaeological value: Medium

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Minor

It is likely that the proposed works will only affect the northern extremity of the track.

Significance of effect prior to mitigation: Slight adverse

Recommended Mitigation Measures: Basic recording

A basic record should be made of the site in advance of destruction.

Magnitude of impact with mitigation: Negligible

The site would be recorded ensuring preservation by record

Significance of effect with mitigation: Neutral or slight adverse

15. Field boundary wall NGR: SH 49716 43206 PRN: 31029
Archaeological value: Low

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Major

It is likely that the proposed works will require a large part of this wall to be demolished.

Significance of effect prior to mitigation: Moderate or slight adverse

Recommended Mitigation Measures: Basic recording and reinstatement/relocation

The wall should have a basic record taken of it, and should be reinstated at its new location.

Magnitude of impact with mitigation: Moderate

The feature would be preserved by reinstatement several metres to the north of its current location.

Significance of effect with mitigation: Slight adverse

16. Field boundary wall NGR: SH 49648 43245 PRN: 31030
Archaeological value: Low

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Minor

It is likely that the proposed works will only affect the southern most extremity of this feature.

Significance of effect prior to mitigation: Neutral or slight adverse

Recommended Mitigation Measures: Basic recording

A basic record should be made of the site in advance of destruction.

Magnitude of impact with mitigation: Negligible

The site would be recorded ensuring preservation by record

Significance of effect with mitigation: Neutral or slight adverse

17. Clawdd field boundary wall NGR: SH 49634 43237 PRN: 31031
Archaeological value: Low

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Moderate

It seems likely that the proposed works will involve the demolition of approximately 40% of the wall.

Significance of effect prior to mitigation: Slight adverse

Recommended Mitigation Measures: Basic recording and reinstatement where applicable

The wall should have a basic record taken, and be reinstated if any sections are to be replaced.

Magnitude of impact with mitigation: Minor

The site would be recorded ensuring preservation by record

Significance of effect with mitigation: Slight adverse

18. Field boundary wall NGR: SH 49469 43309 PRN: 31032
Archaeological value: Low

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Minor

It is likely that the proposed works will only affect the southern most extremity of the feature.

Significance of effect prior to mitigation: Neutral or slight adverse

Recommended Mitigation Measures: Basic recording

A basic record should be taken of the feature prior to demolition.

Magnitude of impact with mitigation: Negligible

The site would be recorded ensuring preservation by record

Significance of effect with mitigation: Neutral or slight adverse

19. Current road to Garndolbenmaen NGR: SH 49286 43355 PRN: 31033
Archaeological value: Medium

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Negligible

The proposed works is likely to only affect the southern extremity of the road if at all.

Significance of effect prior to mitigation: Neutral or slight adverse

Recommended Mitigation Measures: Basic recording

A basic record should be taken prior to the commencement of works.

Magnitude of impact with mitigation: Negligible

The site would be recorded ensuring preservation by record

Significance of effect with mitigation: Neutral or slight adverse

20. Trackway NGR: SH 49611 43118 PRN: 31034
Archaeological value: Medium

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: No change
The proposed works should avoid the feature.

Significance of effect prior to mitigation: Neutral

Recommended Mitigation Measures: Avoidance
It should be possible for this feature to be avoided by the proposed works.

Magnitude of impact with mitigation: No change
The site would be avoided.

Significance of effect with mitigation: Neutral

21. Trackway NGR: SH 49610 43339 PRN: 31035
Archaeological value: Medium

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: No change
The proposed works should avoid the feature.

Significance of effect prior to mitigation: Neutral

Recommended Mitigation Measures: Avoidance
It should be possible for this feature to be avoided by the proposed works.

Magnitude of impact with mitigation: No change
The site would be avoided.

Significance of effect with mitigation: Neutral

22. Trackway NGR: SH 49484 43360 PRN: 31036
Archaeological value: Medium

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Minor adverse
It seems likely that if any remains of this feature exist, its southern extremity will be disturbed by the proposed works.

Significance of effect prior to mitigation: Slight adverse

Recommended Mitigation Measures: Watching brief
It is recommended that archaeological personnel be present during ground-works in this area to observe for and record, any archaeological remains of the trackway.

Magnitude of impact with mitigation: Negligible
Any remains of the track will have a basic record taken and thus ensure preservation by record.

Significance of effect with mitigation: Neutral or slight adverse

23. Field boundary wall NGR: SH 49538 43250 PRN: 31037
Archaeological value: Low

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Major adverse
It is likely that the proposed works will require a large part of this wall to be demolished.

Significance of effect prior to mitigation: Moderate or slight

Recommended Mitigation Measures: Basic recording and reinstatement/relocation
The wall should have a basic record taken of it, and should be reinstated at its new location.

Magnitude of impact with mitigation: Moderate
The feature would be preserved by reinstatement several metres to the north of its current location.

Significance of effect with mitigation: Slight adverse

24. Stone clearance cairn NGR: SH 49387 43297 PRN: 31038
Archaeological value: Low

Magnitude of impact prior to mitigation: Up to major
It seems likely that the proposed scheme will require the partial or complete removal of the feature.

Significance of effect prior to mitigation: Slight adverse

Recommended Mitigation Measures: Basic recording
The cairn should have a basic record taken prior to removal

Magnitude of impact with mitigation: Moderate
The feature would be recorded ensuring preservation by record

Significance of effect with mitigation: Slight adverse

25. Hedgerow NGR: SH 49815 43187 PRN: 31039
Archaeological value: Low

Magnitude of impact prior to mitigation: Moderate
It seems likely that the proposed scheme will require the partial removal of the feature.

Significance of effect prior to mitigation: Slight adverse

Recommended Mitigation Measures: Basic recording
The cairn should have a basic record taken prior to removal

Magnitude of impact with mitigation: Moderate
The feature would be recorded ensuring preservation by record

Significance of effect with mitigation: Slight adverse

26. Sites of unknown archaeological potential
Archaeological value: Unknown

Magnitude of impact prior to mitigation: Up to major
Previously unknown sites could be destroyed by the scheme

Significance of effect prior to mitigation: Up to moderate adverse

Recommended Mitigation Measures: Watching Brief

There is a possibility that there are undiscovered sites within the area affected by the scheme. A watching brief is recommended during topsoil stripping in areas of higher archaeological potential (i.e. away from the steeper slopes).

Magnitude of impact with mitigation: Up to major

Any undiscovered sites would be recorded at the appropriate level. The recovery of new information would provide a degree of mitigation.

Significance of effect with mitigation: Up to Moderate adverse

3.6. Summary of significance of effects

Archaeological remains were discovered at 25 sites within, or very close to, the 20.0m wide development corridor. Based upon designs provided by Gwynedd Consultancy, it appears likely that 23 of these sites will be affected by the proposed works in some way. However, only 9 sites are considered to be under a major or moderate impact threat from the scheme prior to mitigation. These sites consist of a hedgerow and field boundary wall (features 25 and 17 respectively) which will be moderately impacted upon, and a stone clearance cairn (feature 24), a copse of conifers (feature 4), and five field boundary walls (features 3, 9, 10, 15, and 23). Mitigation in all cases will involve at the very least, recording in advance of destruction ensuring preservation by record. Indeed, it is recommended that the five field boundary walls are reinstated as close to their original location as possible. The significance of effects after mitigation will range from neutral/slight to slight.

The remaining 16 sites may be affected by ancillary or access works. In all cases the preferred mitigation would be avoidance. If this is not possible the sites should be recorded to an appropriate level in advance of destruction thus ensuring preservation by record. Six of the sites consist of field boundaries, while five of the sites are roads, and one trackway. If affected, significance of effect after mitigation would range from negligible to neutral/slight. None of the features identified require any further assessment.

The probability of discovering unknown buried archaeological remains is slight, as the development corridor most likely runs through an area previously disturbed by the construction of the current A487 (T). However, there is the possibility of such remains existing and features being hidden beneath vegetation. Therefore, an intermittent watching brief is recommended during initial topsoil stripping. Any newly discovered archaeological remains should be recorded to an appropriate level in advance of destruction.

4.0 HISTORIC BUILDINGS

4.1 Assessment Methodology

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

4.2 Impact definitions

4.2.1 Assessment of the value of archaeological assets

The evaluation of the value of the built heritage resource uses the categories and criteria shown in table 4

Table 4: Guide for Establishing the Value of Historic Buildings

Criteria for Establishing the Value of Historic Buildings	
Very	• Structures inscribed as of universal importance as World Heritage Sites.

High	<ul style="list-style-type: none"> • Other buildings of recognised international importance.
High	<ul style="list-style-type: none"> • Scheduled Monuments with standing remains. • Grade I and Grade II* (Scotland: Category A) Listed Buildings. • Other listed buildings that can be shown to have exceptional qualities in their fabric or historical associations not adequately reflected in the listing grade. • Conservation Areas containing very important buildings. • Undesignated structures of clear national importance.
Medium	<ul style="list-style-type: none"> • Grade II (Scotland: Category B) Listed Buildings. • Historic (unlisted) buildings that can be shown to have exceptional qualities in their fabric or historical associations. • Conservation Areas containing buildings that contribute significantly to its historic character. • Historic Townscape or built-up areas with important historic integrity in their buildings, or built settings (e.g. including street furniture and other structures).
Low	<ul style="list-style-type: none"> • ‘Locally Listed’ buildings (Scotland Category C(S) Listed Buildings). • Historic (unlisted) buildings of modest quality in their fabric or historical association. • Historic Townscape or built-up areas of limited historic integrity in their buildings, or built settings (e.g. including street furniture and other structures).
Negligible	<ul style="list-style-type: none"> • Buildings of no architectural or historical note; buildings of an intrusive character.
Unknown	<ul style="list-style-type: none"> • Buildings with some hidden (i.e. inaccessible) potential for historic significance.

4.2.2 Magnitude of impacts

The magnitude of impact or change is graded using the criteria shown in table X.2

Table 5: Factors in the Assessment of the Magnitude of Impacts

Factors in the Assessment of Magnitude of Impacts	
Major	Change to key historic building elements, such that the resource is totally altered. Comprehensive changes to the setting.
Moderate	Change to many key historic building elements, such that the resource is significantly modified. Changes to the setting of an historic building, such that it is significantly modified.
Minor	Change to key historic building elements, such that the asset is slightly different. Change to setting of an historic building, such that it is noticeably changed.
Negligible	Slight changes to historic buildings elements or setting that hardly affect it
No change	No change to fabric or setting.

4.2.3 The significance of effect

The significance of the effect of the proposed scheme is considered in terms of the magnitude of the impact arising from the proposed scheme in relation to the value or sensitivity of the receptor. This is determined using the following matrix

Table 6: Significance of effects matrix

	Very High	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
Archaeological Importance	High	Neutral	Slight	Moderate or Slight	Moderate or Large	Large or Very Large
	Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
	Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Moderate or Slight
	Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight
	No Change	Negligible	Minor	Moderate	Major	
	Magnitude of impact					

4.3 Regulatory/Policy Framework

4.3.1 Designations

No designations are in place within the development corridor, however the eastern end of the scheme is less than 300.0m from the official Snowdonia National Park boundary.

4.3.2 World Heritage Sites

The Convention Concerning the Protection of the World Cultural and Natural Heritage, UNESCO 1972, created a World Heritage List. Sites on the list are defined as:

works of man or the combined works of nature and man, and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological point of view.

There are no world heritage sites in the vicinity of the scheme.

4.3.3 Conservation Areas and Listed Buildings

Conservation Areas and Listed Buildings are statutory designations. The areas and buildings (or structures) themselves are protected, and their settings. There is only one listed building, Ty-Newydd Farmhouse grade II (listed building no. 21563), in the vicinity of the proposed scheme.

4.3.4 Register of Landscapes, Parks and Gardens of Historic Interest in Wales

There are no Landscapes, Parks and Gardens of Historic Interest in the vicinity of the proposed scheme.

4.3.5 Policy Framework

The proposed scheme lies within the county of Gwynedd. Currently the Unitary Development Plan 2008 (UDP) remains the adopted strategic development plan having superseded the Gwynedd Structure Plan (1991-2006). The UDP embodies policies relating to transport and the countryside within Gwynedd and the Snowdonia National Park, including nature conservation, tourism, recreation and agriculture. Policy D22 states that “any development or redevelopment in close proximity to a ‘listed building’ and having a bearing on its setting and character will be carefully controlled”. In addition the Eryri Local Plan provides a detailed planning statement for development within the Snowdonia National Park.

4.3.6 LANDMAP

LANDMAP (Landscape Assessment and Decision-Making Process) is the methodology promoted and supported by Countryside Council for Wales (CCW) and Welsh Unitary Authorities for assessing the diversity of landscapes within Wales. There are no LANDMAP Historic Aspect Areas in the vicinity of the scheme.

4.4 Baseline Conditions

This section comprises a gazetteer of the historic buildings identified in the assessment. Refer to figure 3 and 4 for the location of the individual sites.

27. Barn NGR: SH 49440 43258 Plate 12 PRN: 31040

Archaeological value: Negligible

A small barn measuring approximately 4.0m by 10.0m and constructed of an oak frame and corrugated iron sheet is located to the south of the current A487 (feature 10). The structure is in a fairly advanced state of disrepair, and is close to collapse. The northern section has already collapsed and the iron sheeting is heavily rusted. The barn is not depicted on any maps until the modern Ordnance Survey map and is of negligible archaeological value. However, if the structure is to be demolished in its entirety by the scheme, it is recommended that a basic record be taken prior to demolition.

4.5 Magnitude of Impacts (Change) and Significance of Effects Prior to and with Mitigation

This section of the report assesses the impact on each site identified in the baseline survey (Section 2 above), recommends mitigation measures and then reassesses the impact on the sites after the implementation of the mitigation measures. The classification of impacts uses the definitions set out in Section 2 of the report following guidelines given in DMRB Vol. 11 2007. All major impacts occur within the construction phase and will have a permanent affect.

27. Barn NGR: SH 49440 43258 PRN: 31040
Archaeological value: Negligible

Recommendations for further assessment: None

Magnitude of impact prior to mitigation: Major

It seems very likely that the proposed works will involve the demolition of this feature in its entirety.

Significance of effect prior to mitigation: Slight adverse

Recommended Mitigation Measures: Basic recording

It is recommended that a basic record be taken of this feature prior to demolition.

Magnitude of impact with mitigation: Moderate

Basic recording will ensure preservation by record.

Significance of effect with mitigation: Neutral or slight adverse

4.6. Summary of significance of effects

One historic structure will be affected by the proposed improvement works to the A478 (T). This feature is a barn (feature 24) which is constructed of oak framing and corrugated iron sheet. The feature is currently close to collapse, and it seems likely that the proposed works will require the demolition of the barn. The structure may date to the modern period, however it is possible that it was considered too ephemeral to include on the historic OS maps. Basic recording should negate its loss, thus resulting in only a neutral or slight significance of effect.

5.0 HISTORIC LANDSCAPE

5.1 Assessment Methodology

This sub-topic follows guidance provided in DMRB Volume 11, Section 3, Part 2: Cultural Heritage (June 1993, revised August 2007). The proposed scheme does not fall within any designated historic landscapes. The data compiled for the Archaeological Remains and Historic Buildings sub-topics has been used alongside LANDMAP cultural data and map regression to form the basis of historic landscape characterisation and analysis.

5.2 Impact definitions

5.2.1 Assessment of the value of archaeological assets

The evaluation of the value of the historic landscapes uses the categories and criteria shown in table X.1.

Table 7: Guide for Establishing Value of Historic Landscapes

Criteria for establishing the value of Historic Landscape Character Units	
Very High	<ul style="list-style-type: none"> • World Heritage Sites inscribed for their historic landscape qualities. • Historic landscapes of international value, whether designated or not. • Extremely well preserved historic landscapes with exceptional coherence, time-depth, or other critical factor(s).

High	<ul style="list-style-type: none"> • Designated historic landscapes of outstanding interest. • Undesignated landscapes of outstanding interest. • Undesignated landscapes of high quality and importance, and of demonstrable national value. • Well preserved historic landscapes, exhibiting considerable coherence, time-depth or other critical factor(s).
Medium	<ul style="list-style-type: none"> • Designated special historic landscapes. • Undesignated historic landscapes that would justify special historic landscape designation, landscapes of regional value. • Averagely well-preserved historic landscapes with reasonable coherence, time-depth or other critical factor(s).
Low	<ul style="list-style-type: none"> • Robust undesignated historic landscapes. • Historic landscapes with importance to local interest groups. • Historic landscapes whose value is limited by poor preservation and/or poor survival of contextual associations.
Negligible	<ul style="list-style-type: none"> • Landscapes with little or no significant historical interest.

5.2.2 Magnitude of impacts

The magnitude of impact or change is graded using the factors shown in table 8

Table 8: Magnitude of Impact: Summary of Factors

Factors in the Assessment of Magnitude of Change	
Major	Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental changes to use or access; resulting in total change to historic landscape character unit.
Moderate	Changes to many key historic landscape elements, parcels or components, visual change to many key aspects of the historic landscape, noticeable differences in noise or sound quality, considerable changes to use or access; resulting in moderate changes to historic landscape character.
Minor	Changes to few key historic landscape elements, parcels or components, slight visual changes to few key aspects of historic landscape, limited changes to noise levels or sound quality; slight changes to use or access: resulting in limited changes to historic landscape character.
Negligible	Very minor changes to key historic landscape elements, parcels or components, virtually unchanged visual effects, very slight changes in noise levels or sound quality; very slight changes to use or access; resulting in a very small change to historic landscape character.
No change	No change to elements, parcels or components; no visual or audible changes; no changes arising from in amenity or community factors.

5.2.3 The significance of effect

The significance of the effect of the proposed scheme is considered in terms of the magnitude of the impact arising from the proposed scheme in relation to the value or sensitivity of the receptor this is determined using the following matrix

Table 9: Significance of effects matrix

	Very High	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
Importance	High	Neutral	Slight	Moderate or Slight	Moderate or Large	Large or Very Large
	Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
	Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Moderate or Slight
	Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight
	No Change	Negligible	Minor	Moderate	Major	
Magnitude of impact						

5.3 Designations

The proposed scheme does not fall within any designated Landscapes, Parks and Gardens of Historic Interest.

5.4 Baseline Conditions

28 Ty-Cerrig Historic Landscape Character Unit: Definition, Description and Significance

PRN: 31041

An area some 5.0km in diameter can be seen for the purposes of this evaluation, as a discrete historic landscape character unit known as the eastern Eifionydd (www.landmap.ccw.gov.uk). The area consists of the consistent landscape of the floodplain of the Afon Dwyfor and surrounding foothills of the drainage basin. The cultural landscape includes lands recovered by William Alexander Madocks in the early 19th Century, and as such has a strong regency tradition affiliated with Madocks, which persisted through the 19th Century.

The dominant cultural context within the area is rural farming, primarily enclosed sheep and cattle farming. However, the area can also be seen within an industrial and urban context, typified by an assortment of mines and quarries, as well as townships dating back to the medieval period and most likely beyond. The classes considered of particular importance to the landscape character of this area are agricultural, rural crafts, minerals and mining, trade, retail and commercial, urban settlements, communication and transport, and tourism.

The existence of trackways criss-crossing the landscape appears to be typical of the area

The eastern Eifionydd character unit should be seen in the context of a wider landscape. The cultural aspect area is described by CCW as follows:

Eastern Eifionydd: This large area contains several disparate historic landscape elements (including different field patterns, some relict archaeological sites, a major and some minor roads, scattered settlement) which appear to form a single area. It is low-lying and contains a number of small rivers and streams.

Key elements of the character unit can be summarised as buildings and boundaries associated with rural enclosed farming, mine and quarry workings and a multi-period transport corridor. The area retains reasonable coherence and is, in parts, well-preserved as a post-medieval farming landscape.

Value of Gelli-gemlyn Historic Character Unit: Medium

5.5 Magnitude of Impacts (Change) and Significance of Effects Prior to and with Mitigation

This section of the report assesses the impact on the historic character unit identified in the baseline survey, recommends mitigation measures and then reassesses the impact on the sites after the implementation of the mitigation measures. The classification of impacts uses the definitions set out in Section 5.2 of the report following guidelines given in DMRB Vol. 11 2007. All major impacts occur within the construction phase and will have a permanent affect.

28. Ty-Cerrig Historic Landscape Unit PRN: 31041

Value: Medium

Magnitude of impact prior to mitigation: Minor

There will be no direct physical impact on any historic buildings or their settings. At least six boundaries will be at least partially demolished if not in their entirety, five of which are earth and stone walls which are typical to this area of the eastern Eifionydd. The destruction of these walls within the development corridor will undoubtedly have an adverse impact upon the character unit, and as such it is recommended that these are reinstated to accommodate the improved road. There will be a minor physical impact on the current A487 (T) within the character area but this will be negligible within the wider landscape because the historic transport link will be retained thus maintaining its context and coherence.

Significance of effect prior to mitigation: Slight adverse

Recommended Mitigation Measures: Sympathetic design

Boundary walls which are to be demolished partially or within their entirety should be reinstated where possible. Furthermore, the wall boundaries which run parallel with the A487 (T) should be reinstated to accommodate the road improvements.

Magnitude of impact with mitigation: Negligible

There will inevitably be a detrimental affect on the historic character area as noted above. However, relevant mitigation should negate the impacts of the proposed development.

Significance of effect with mitigation: Neutral/slight adverse

5.6. Summary of significance of effects

The area around the proposed scheme can be seen as a discrete historic character unit containing multi-period remains, post-medieval rural farm systems, industrial remains and a transport corridor. There will be a slight adverse significance of effect on all key elements of the landscape both before and after mitigation. Mitigation would consist of sympathetic design which would negate the overall impact of the scheme.

6. SUMMARY

Table 10 (below) shows a summary of the value of cultural assets, proposed mitigation measures and the significance of impacts with and without mitigation for all three sub-topics. Detailed summaries are provided at the end of each sub-topic in the report. The value of Cultural Heritage assets across the three sub-topics ranges from negligible to medium with no assets identified with High or Very High value and most with Low or Negligible value. There is a possibility that further assets will be discovered during groundworks although the potential for the discovery of High or Very High value archaeological remains must be seen as low.

No assets are of sufficient value to require any changes to the general alignment of the scheme. The principal mitigation measures are the recording of archaeological remains at an appropriate level in advance of destruction, the use of appropriate materials such as stone and earth bank walls within the scheme, and avoidance of outlying sites by access and ancillary works. The scheme with mitigation has been assessed as producing a neutral significance of effect on 25% of assets, a neutral/slight adverse significance of effect on 54%, a slight adverse significance of effect on 18% and a moderate adverse significance of effect on 4%.

Table 10 Summary of mitigation and assessment of significance of effects (all effects are in the construction phase and are permanent)						
Site name and number	Value	Assessment without mitigation		Proposed mitigation	Assessment with mitigation	
		Description	Significance		Description	Significance
ARCHAEOLOGICAL REMAINS						
1. Drainage ditches	Negligible	Possible partial destruction by the scheme and/or associated ancillary works	Slight adverse	Basic record	Preservation by record	Neutral
2. Drainage gullies	Negligible	Possible partial destruction by the scheme and/or associated ancillary works	Slight adverse	Basic record	Preservation by record	Neutral
3. Field boundary clawdd wall	Low	Possible total destruction by the scheme	Moderate adverse	Basic recording and reinstatement/relocation	Preservation by record and reinstatement	Neutral or slight adverse
4. Conifer plantation	Negligible	Possible total destruction by the scheme	Slight adverse	Basic record	Preservation by record	Neutral or slight adverse
5. Field boundary wall	Low	Possible partial destruction by the scheme and/or associated ancillary works	Slight adverse	Basic record	Preservation by record	Neutral
6. Field boundary wall	Low	Possible partial destruction by the scheme and/or associated ancillary works	Neutral or slight adverse	Basic record	Preservation by record	Neutral or slight adverse
7. The current A487 (T)	Negligible	The road will be widened throughout the study area	Slight adverse	Watching brief	Watching brief will ensure the identification of unknown, buried archaeological remains	Neutral
8. Field boundary wall	Low	Possible partial destruction by the scheme and/or associated ancillary works	Slight adverse	Basic record	Preservation by record	Neutral or slight adverse
9. Field boundary wall	Low	Possible total destruction by the scheme	Moderate or slight adverse	Basic recording and reinstatement/relocation	Preservation by record and reinstatement	Neutral or slight adverse
10. Field boundary wall	Negligible	Possible total destruction by the scheme	Slight adverse	Basic record	Preservation by record	Neutral or slight adverse
11. Current road to waterworks	Negligible	Possible partial alteration by the scheme and/or associated ancillary works	Neutral or slight adverse	Basic record	Preservation by record	Neutral or slight adverse
12. Field boundary wall	Low	Possible partial destruction by the scheme and/or associated ancillary works	Neutral or slight adverse	Basic record	Preservation by record	Neutral or slight adverse
13. Current road to Rhwngddwryd	Medium	Possible partial alteration by the scheme and/or associated ancillary works	Slight adverse	Basic record	Preservation by record	Neutral or slight adverse
14. Current road to Ty-Cerrig	Medium	Possible partial alteration by the scheme and/or associated ancillary works	Slight adverse	Basic record	Preservation by record	Neutral or slight adverse
15. Field boundary wall	Low	Possible total destruction by the scheme	Moderate or slight adverse	Basic recording and reinstatement/relocation	Preservation by record and reinstatement	Slight adverse
16. Field boundary wall	Low	Possible partial destruction by the scheme and/or associated ancillary works	Neutral or slight adverse	Basic record	Preservation by record	Neutral or slight adverse

Table 10 (continued) Summary of mitigation and assessment of significance of effects (all effects are in the construction phase and are permanent)						
Site name and number	Value	Assessment without mitigation		Proposed mitigation	Assessment with mitigation	
		Description	Significance		Description	Significance
ARCHAEOLOGICAL REMAINS ctd						
17. Clawdd field boundary wall	Low	Possible partial destruction by the scheme and/or associated ancillary works	Slight adverse	Basic recording and reinstatement where applicable	Preservation by record and reinstatement	Slight adverse
18. Field boundary wall	Low	Possible partial destruction by the scheme and/or associated ancillary works	Neutral or slight adverse	Basic record	Preservation by record	Neutral or slight adverse
19. Current road to Garndolbenmaen	Medium	Possible partial alteration by the scheme and/or associated ancillary works	Neutral or slight adverse	Basic record	Preservation by record	Neutral or slight adverse
20. Trackway	Medium	No change	Neutral	Avoidance	It should be possible to avoid this feature	Neutral
21. Trackway	Medium	No change	Neutral	Avoidance	It should be possible to avoid this feature	Neutral
22. Trackway	Medium	Possible partial destruction by the scheme and/or associated ancillary works	Slight adverse	Watching brief	Watching brief will ensure the identification of unknown, buried archaeological remains	Neutral or slight adverse
23. Field boundary wall	Low	Possible total destruction by the scheme	Moderate or slight	Basic recording and reinstatement/relocation	Preservation by record and reinstatement	Slight adverse
24. Stone clearance cairn	Low	Possible partial or total destruction by the scheme	Slight adverse	Basic record	Preservation by record	Slight adverse
25. Hedgerow	Low	Possible partial destruction by the scheme and/or associated ancillary works	Slight adverse	Basic record	Preservation by record	Slight adverse
26. Sites of unknown archaeological potential	Unknown	Previously unknown sites could be destroyed by the scheme	Up to moderate adverse	Watching brief	Watching brief will ensure the identification of unknown, buried archaeological remains	Up to moderate adverse
HISTORIC BUILDINGS						
27. Barn	Negligible	Possible total destruction by the scheme	Slight adverse	Basic record	Preservation by record	Neutral or slight adverse
HISTORIC LANDSCAPES						
28. Ty-Cerrig Historic Character Unit	Medium	Historic transport link modified, slight impact on setting of rural farming boundaries	Slight adverse	Sympathetic design	Boundary walls which are to be demolished partially or within their entirety should be reinstated where possible. Furthermore, the wall boundaries which run parallel with the A487 (T) should be reinstated to accommodate the road improvements.	Neutral or slight adverse

7. BIBLIOGRAPHY

7.1 Unpublished sources

Tithe maps and schedules for the parish of Dolbenmaen 1840's.

Gwynedd Historic Environment Record

7.2. Published sources

Bassett T.M. & Davies B.L. 1977, *Atlas of Caernarvonshire*

Cadw: Welsh Historic Monuments 1998, *Conwy, Gwynedd and the Isle of Anglesey. Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales. Part 1: Parks and Gardens*

Cadw: Welsh Historic Monuments 1995, *Ganllwyd Buildings of special Architectural or Historic interest*

Crocker A. 2000, Early water turbines in the British Isles *Industrial Archaeology Review* XXII:2

Hopewell, D. 2007 *Roman Roads in North-West Wales (Revision 4)*, Gwynedd Archaeological Trust

Hopewell, D. 2000 A470 Cardiff to Glan Conwy Trunk Road: Gelligemlyn Improvement Gwynedd Archaeological Trust report number 400

Margary, I. D. 1967 *Roman Roads in Britain*,

Pennant T. 1991, *A Tour in Wales 1770* Vol I

Pennant T. 1991, *A Tour in Wales 1770* Vol II

Roberts B. 1979, *The Geology of Snowdonia and Llyn: An Outline and Field Guide*

7.3 Cartographical sources

Ordnance Survey maps:

1889 First Edition County Series XXXIV.01.1

1900 Second Edition County Series XXXIV.01.2

1915 Third Edition County Series XXXIV.01.3

7.4 Aerial Photographs

Sortie: 106G/UK/1467 Date: 03/05/1946 Frames: 3173

Sortie: 106G/UK/1469 Date: 04/05/1946 Frames: 4266

Sortie: Cardiff 72-269 Date: 18/07/1972 Frames 151

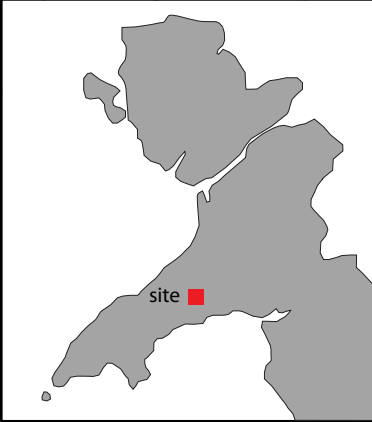
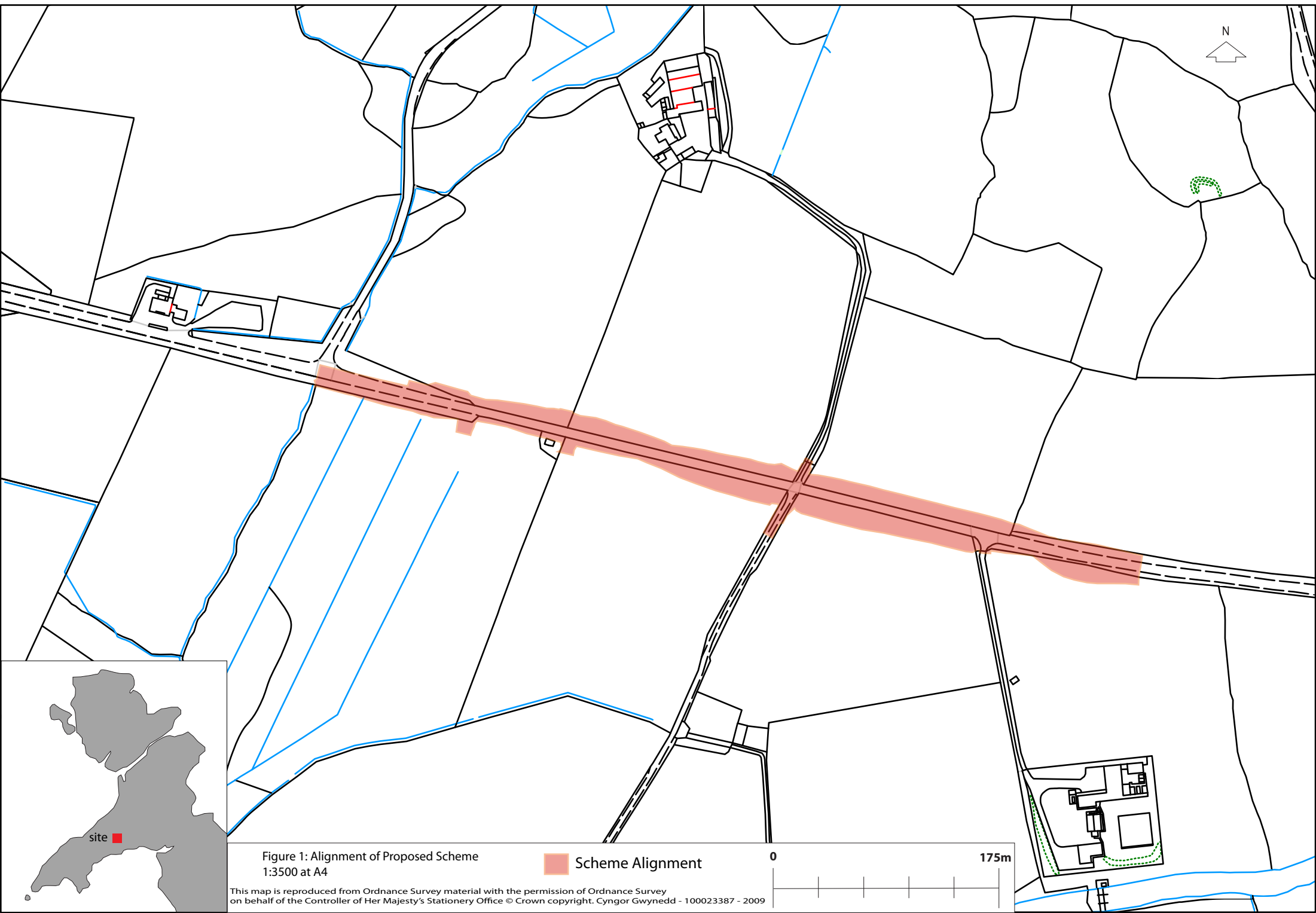



Figure 1: Alignment of Proposed Scheme
1:3500 at A4

 Scheme Alignment



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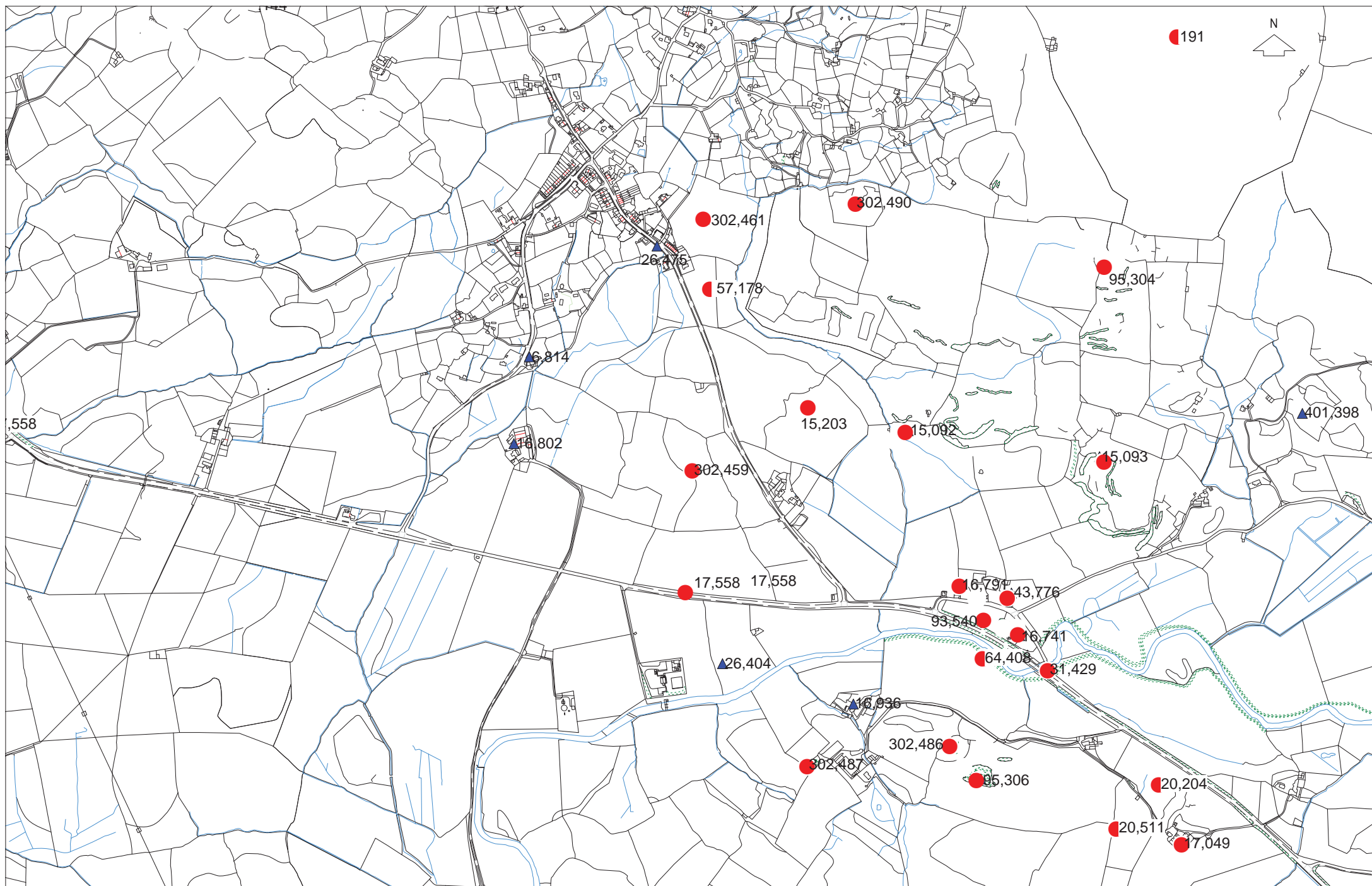
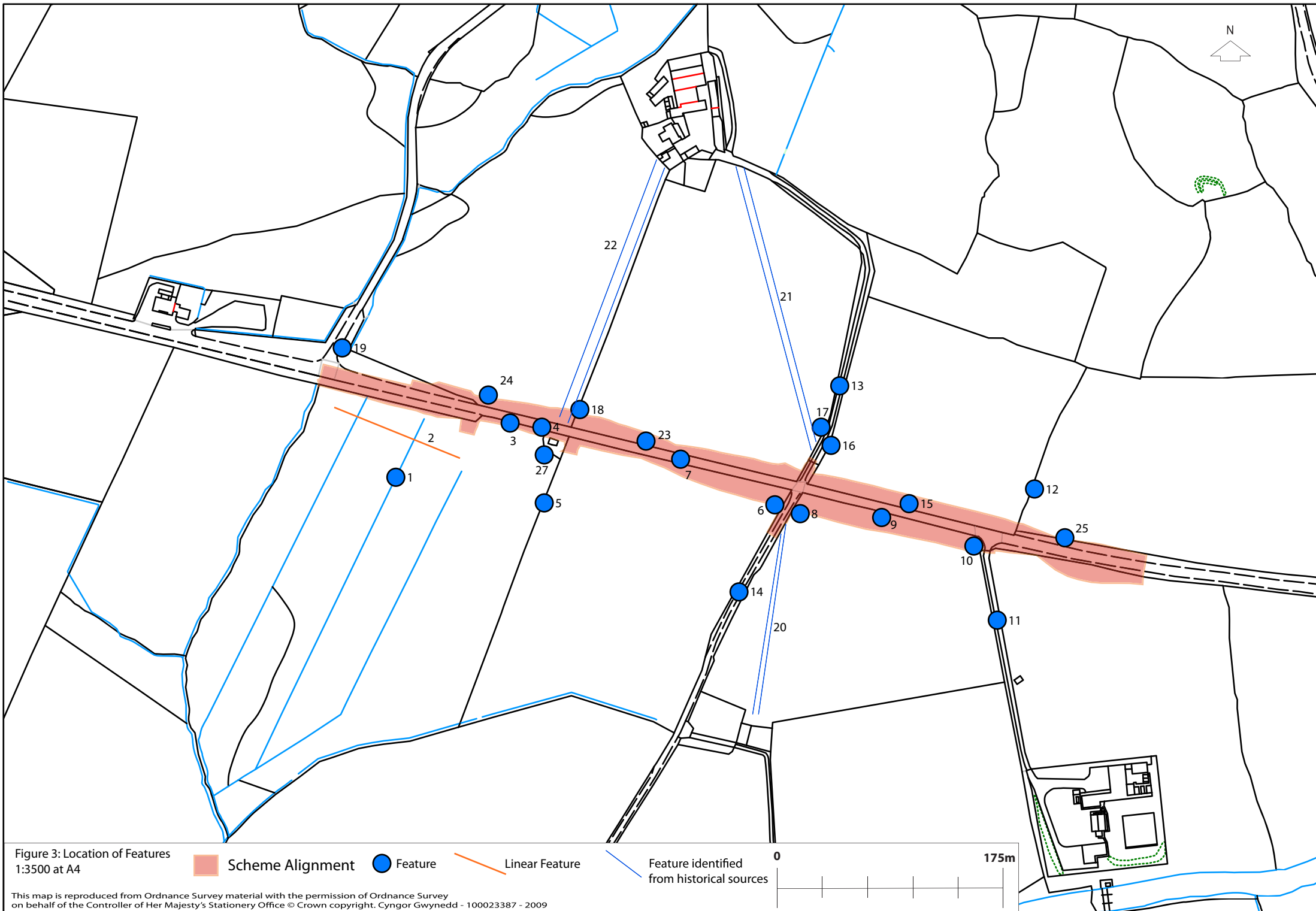


Figure 2: Archaeological sites in the vicinity
1:11000 at A4

- HER and RCAHMW Sites (NPRN)
- ▲ RCAHMW Sites (NPRN)



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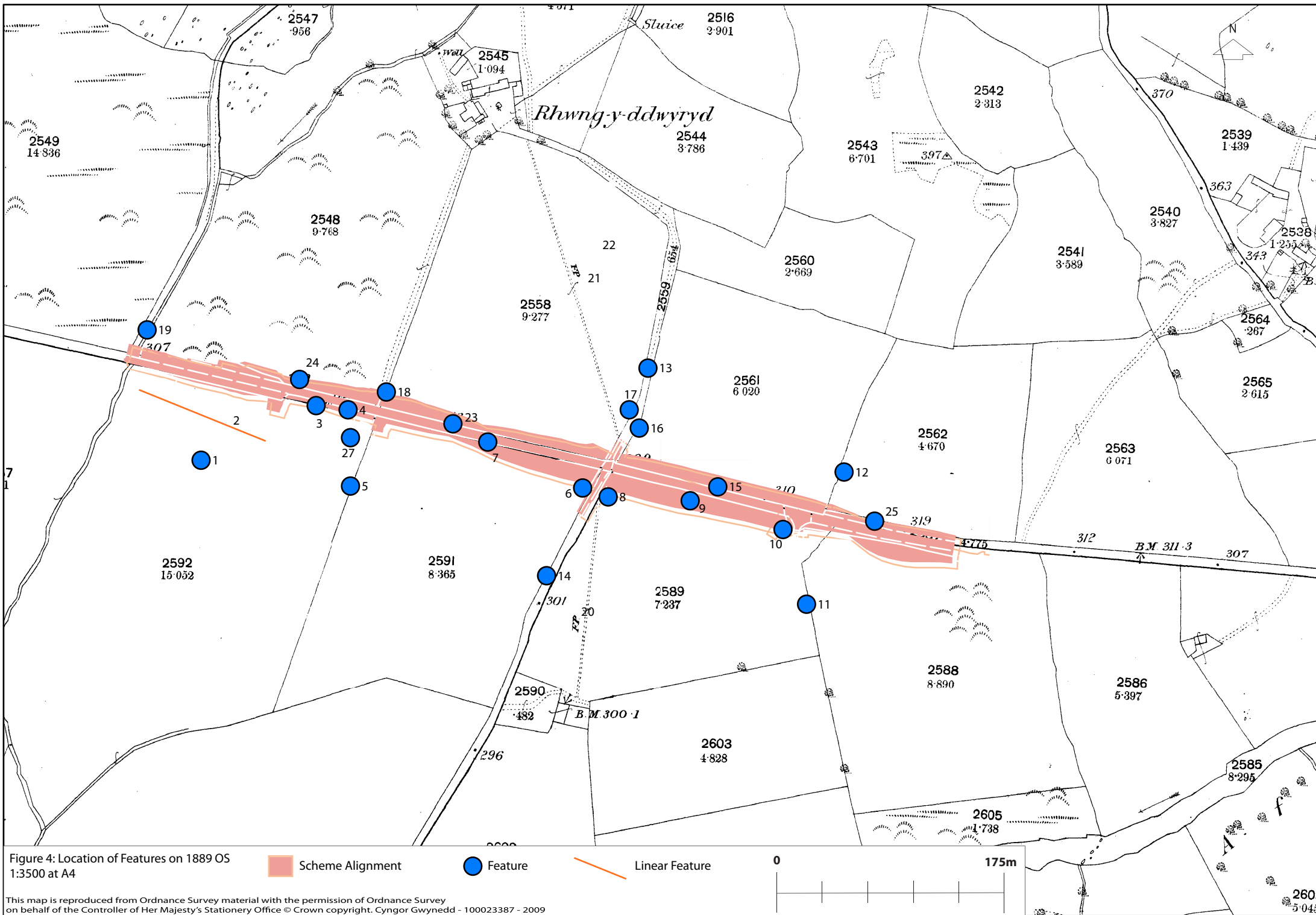




Plate 1: Drain feature 1 from the north



Plate 2: Field boundary feature 3 from the east



Plate 3: Conifer plantation feature 4 from the west



Plate 4: The current A487 (T) feature 7 from the east



Plate 5: Field boundary wall feature 9 from the south



Plate 6: Field boundary wall feature 10 from the west



Plate 7: Field boundary wall feature 15 from the north



Plate 8: Field boundary wall feature 17 from the east



Plate 9: Field boundary feature 23 from the northeast



Plate 10: Stone cairn feature 24 from the west



Plate 10: Hedgerow feature 25 from the southwest



Plate 11: Barn feature 27 from the south



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