

**Turbines on land east  
of Rhydargaeau Road,  
Rhydargaeau,  
Peniel, Carmarthenshire.**

Archaeological Appraisal



*By*

Richard Scott Jones (*BA, MA, MCIfA*)

April 2015

HRSWales  
Report No: 158

# ARCHAEOLOGICAL APPRAISAL

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By

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*On behalf of:*

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*Date:* March 2015

HRSW Report No: 158

**H e r i t a g e**  
Recording Services Wales

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## **Executive Summary**

*The following report presents the results of a rapid archaeological appraisal undertaken by Heritage Recording Services Wales (HRS Wales), for two proposed wind turbines on land east of Rhydargaeau, Peniel, Carmarthenshire, one centered on OS grid reference SN 4481 2618 and the other centred on SN 4492 2616.*

*The wind turbines will have a maximum height of 36.6m to blade tip when the rotor blades are in a vertical position. The site will be accessed from the public highway using a temporary trackway. Existing field boundaries comprise stock fencing without hedges and no vegetation will be lost through access works. The Turbines will be delivered on a standard HGV vehicle with no significant temporary increase in traffic movements on the local road network. No abnormal indivisible loads will be required to the site.*

*The concrete turbine foundations will measure approximately 7.0m x 7.0m x 1.6m deep and will be installed within a 2/3 day period using a small tracked excavator. The foundation will be backfilled so that only approximately 3m x 3m will be visible above ground. The wind turbines will be erected on site approximately three weeks after the pouring of the foundations, taking a further 1 to 2 days, dependent on weather conditions. A 50 tonne crane will be used to lift the tower sections, nacelle and blades into place.*

*A proposed service cable trench from the turbines will run alongside the proposed access tracks in a service trench.*

*Following consultation by HRS Wales with Dyfed Archaeological Trust (DAT), it was agreed that the archaeological dimension would include an archaeological appraisal of all undesignated sites up to a 2km radius from the proposed turbines and all designated sites up to a 5km radius. A Project Specification was submitted and approved by DAT on 24<sup>th</sup> March 2015.*

*In summary, the appraisal and site visit has identified no direct physical impact from the proposal on any designated or undesignated heritage assets.*

*However, in view of the fact that the HER database has a record of a Bronze Age round barrow positioned 170m east from Turbine 2, it is considered that there is a moderate chance that there are also sub surface remains within the immediate area of the proposed development pertaining to the prehistoric periods. In view of the fact that both the two fields where the turbines and access tracks are to be sited have been repeatedly ploughed over the decades, any possible sub surface remains may have been damaged or else destroyed. However, although this may well be the case, it is also speculative and as such this does not negate the possibility of any prehistoric remains becoming exposed during any proposed groundwork. As such, as a recommendation only, it is suggested that any groundwork for the proposed turbine bases, the access tracks and the service cable trenches should be undertaken under archeological watching conditions should any presently unknown sub-surface archaeological remains become exposed.*

*With regards to indirect effects, the methodology and the ZTV maps predicted that only two (2) Scheduled Ancient Monuments (SAMs) needed to be appraised on their own individual merits.*

*The appraisal predicted that the designated Bronze Age round barrow known as Crug-rhyd-hir (SAM Ref:*

*CM319) and the medieval Norman motte of Pant Glas (SAM Ref: CM121) will not be significantly affected by the proposed turbines. The indirect visual magnitude of effect on both of these monuments setting is considered to be Negligible and the overall significance of effect would therefore be Minor and also temporary for the lifetime of the turbines.*

*With regards to the potential indirect effects from the turbines on the RHL of the Tywi Valley, the proposed turbines will be positioned over 4km away from this registered historic landscape. As such, it is predicted that the indirect effect from the proposed turbines on this RHL will not be significant and it is predicted that the magnitude of the effect will be Negligible and therefore of only Minor significance.*

*With regards to potential cumulative effects, the inclusion of the proposed turbines on land near Rhydargaeau, in conjunction with operational and planned cumulative turbine sites within the 5km radius would only have a Negligible magnitude and therefore a Minor significance on any designated sites within the 5km radius.*

## 1 Introduction

- 1.1 The following report presents the results of an archaeological appraisal undertaken by Heritage Recording Services Wales (HRS Wales) for two proposed wind turbines on land east of Rhydargaeau, Peniel, Carmarthenshire, one centered on OS grid reference SN 4481 2618 and the other centred on SN 4492 2616.
- 1.2 The specific objectives of the appraisal were to:
- Identify the cultural heritage baseline within and in the vicinity of the proposed turbines;
  - Consider the application site in terms of its archaeological and historic environment potential;
  - Assess the potential and predicted effects of the construction and operation and decommissioning of the turbines on the baseline cultural heritage resource within the context of relevant legislation and planning policy guidelines; and
  - Propose measures, where appropriate, to mitigate against any predicted significant adverse effects.
- 1.2 The appraisal comprised two main elements:
- i) An archaeological appraisal of all Historic Environment Record (HER) sites within a 2km from the proposed turbine positions and a site visit of the application area.
  - ii) Direct and In-direct Assessment of predicted effects on all designated and undesignated High Value sites (Scheduled Ancient Monuments, Listed Buildings, Parks and Gardens, Conservation Areas and Historic Landscapes) within the application area and within a 5km radius.
- 1.3 The Technical Appendices for this Chapter contains the following information:
- *Appendix I:* Figures;
  - *Appendix II:* Photographs and photomontage;
  - *Appendix III:* Gazetteer of all known HER sites up to 2km radius and all designated sites and undesignated High Value sites up to 5km radius from the proposed turbine locations.
- 1.4 The appraisal entailed a site visit and an appraisal of all readily available primary historical and archaeological documentary sources for the immediate application area and an appraisal focusing on the indirect effect of the proposed turbines on the setting of designated sites (Scheduled Ancient Monuments, Listed Buildings, Parks & Gardens, Conservation Areas and Registered Historic Landscapes) and undesignated high value sites within a 5km radius from the position of the proposed turbines. The study of the application area assessed the direct and indirect impact of the proposed development on known heritage assets and also the potential for hitherto unknown heritage assets. It also appraised the known heritage assets within a 2km radius of the proposed application area, in order to inform the assessment of the application area, in accordance with Welsh Office Circulars 60/95 and 60/96, '*Planning and the Historic Environment: Archaeology*'.
- 1.5 All works were undertaken in accordance with the ClfA's Standards and guidance: for an *archaeological desk based assessment (ClfA 2014)*.

### **The site**

- 1.6 The proposed wind turbines are to be positioned in an uplands position within enclosed improved fields bordered by hedge banks and post and wire fencing at a height of approximately 225m AOD. approximately 2.2km northeast of the village of Peniel and 6km northeast of Carmarthen, Carmarthenshire (National Grid Reference: SN 4481 2618 (Turbine 1) and SN 4492 2616 (Turbine 2). These grid references are approximate to within 10 meters.
- 1.7 The application study area as a whole is entirely an area of enclosed improved fields with 18<sup>th</sup> and 19<sup>th</sup> century boundaries, predominantly hedge-banks. The immediate red line study area covers approximately 3.6 hectares.
- 1.8 The proposed development site is not located within any Registered Historic Landscape (RHL), the nearest RHL being that of the *Tywi Valley* (HLW (D) 5), which lies approximately 4km to the south. The proposed turbine locations are not within any Conservation Area (CA), the nearest CA being positioned within Carmarthen town. The proposed turbines will not be within any Registered Park and Garden (P&G). The nearest P&G is *Bishops Palace, Abergweli PGW (Dy) 59(CAM)*, which also lies approximately 5.1km to the south, There are no Scheduled Ancient Monuments (SAMs) or Listed Buildings (LBs) within the proposed development red line area.
- 1.9 However, within the 5km radius assessment area there are several heritage assets, both designated and undesignated. In total there are nine (9) Scheduled Ancient Monuments (SAMs). These designated sites include three (3) Bronze Age Round Barrows, one prehistoric Standing Stone, one (1) Iron Age Fort, two (2) Iron Age Defended Enclosures, one (1) Medieval cross marked stone and one (1) Medieval Norman Motte.
- 1.10 Within the 5km radius there are also 21 Listed buildings, of which 4 are Grade II\* Listed.

### **Development Proposals**

- 1.11 The wind turbines will have a maximum height of 36.6m to blade tip when the rotor blades are in a vertical position.
- 1.12 The Site will be accessed from the public highway using temporary track-ways approximately 3.5m wide. Existing field boundaries comprise hedge-banks and no vegetation will be lost through access works. The Turbines will be delivered on a standard HGV vehicle with no significant temporary increase in traffic movements on the local road network. No abnormal indivisible loads will be required to the site.
- 1.13 The concrete turbine foundations will measure approximately 7.0m x 7.0m x 1.6m and will be installed within a 2/3 day period using a small tracked excavator. The foundation will be backfilled so that only approximately 3m x 3m will be visible above ground. The wind turbines will be erected on site approximately three weeks after the pouring of the foundations, taking a further 1 to 2 days,

dependent on weather conditions. A 50 tonne crane will be used to lift the tower sections, nacelle and blades into place.

- 1.14 A service trench from each turbine will run alongside each proposed access track.

### **Geology**

- 1.15 The geology of the application area is generally of undifferentiated Ashgill Rocks, consisting of sandstones, mudstones and siltstones.

## **2 Planning Policy Context and Legislation**

### **2.1 Ancient Monuments and Archaeological Areas Act 1979**

- 2.2 Under the Ancient Monuments and Archaeological Areas Act 1979 (1979 Act) (Ref. 1), the Welsh Assembly Government and Cadw are required to compile and maintain a Schedule of monuments considered to be of national importance. The statutory consent of Cadw is required before any works are carried out which would have the effect of demolishing, destroying, damaging, removing, repairing, altering, adding to, flooding or covering up a Scheduled Ancient Monument (SAM). In addition, impacts of development works upon the setting of a SAM form an important consideration in the granting or refusal of planning consent to conduct development works. There are no Scheduled Ancient Monuments within the proposed development area (red line boundary). However, there are nine (9) SAM sites within 5km of the proposed turbine location.

### **2.3 Town and Country Planning Act 1990**

- 2.4 Other known sites of archaeological/heritage significance can be entered onto county-based Sites and Monuments Records (many now called Historic Environment Records) under the 1990 Town and Country Planning Act. Historic hedgerows are protected under the Hedgerow Regulations 1997. A hedgerow is historic if it marks a parish or township boundary which pre-dates 1850 AD, incorporates an archaeological feature or is part of or incorporates an archaeological site, marks the boundary of (or is associated with) an estate or manor which predates 1600 AD or forms an integrated part of a pre-parliamentary enclosure.

### **2.5 Planning (Listed Building and Conservation Areas) Act 1990**

Under the Welsh Office Circular 61/96, 'Planning and the Historic Environment: Historic Buildings and Conservation Areas' and the 'Planning (Listed Buildings and Conservation Areas) Act 1990 (Ref. 1) and the Historic Buildings and ancient Monuments Act of 1953 (Ref.1), listed buildings are categorised as Grades I and II in decreasing order of special architectural and historic importance. These buildings are of acknowledged importance to the nation's built heritage. Section 66 of the Planning (Listed Buildings and Conservation Areas) Act 1990 requires planning decision makers to have special regard to the desirability of preserving listed buildings, their settings or any features of special architectural or historic interest which they possess. There are no listed buildings within the proposed development area. However, there are twenty-one (21) LB sites within the 5km radius from the proposed turbine locations.

- 2.6 Conservation Areas may be designated under the Planning (Listed Buildings and Conservation Areas) Act 1990. Section 72 of the 1990 Act requires decision makers on applications for planning consents to pay special attention to the desirability of preserving or enhancing the character or appearance of the area. As a matter of policy, planning decision makers must take into account the potential effects of development on the setting of Conservation Areas. There are no Conservation Areas within the proposed development area.
- 2.7 **Welsh Office Circular 60/96 (Planning and the Historic Environment: Archaeology)**
- 2.8 This guideline establishes the principles and framework within which archaeological matters are a material consideration within the planning process. It identifies how sites are preserved and recorded, and the role of local authorities and the Welsh Office working through Cadw. It states:
- 2.9 *Archaeological remains should be seen as a finite and non-renewable resource, in many cases highly fragile and vulnerable to damage and destruction...They are part of our sense of national identity and are valuable both for their own sake and for their role in education, leisure and tourism'.* (Paragraph 3, Ref 1).
- 2.10 Welsh Office Circular 60/96 places emphasis on the need for early consultation with the appropriate authorities (Paragraph 11) and includes information on the need for formal Environmental Assessments in some circumstances (Paragraph 12, Ref 1).

### **3 Methodology and Consultations**

#### **3.1 Consultations**

- 3.2 Following consultation by HRS Wales with Dyfed Archaeological Trust (DAT), it was agreed that the archaeological dimension would include an archaeological appraisal of all undesignated sites up to a 2km radius from the proposed turbines and all designated sites up to a 5km radius. A Project Specification was submitted and approved by DAT on 24<sup>th</sup> March 2015.

#### **3.3 Methodology of Baseline Survey**

- 3.4 In accordance with the ClfA's *Standards and guidance*, the purpose of a desk-based assessment, likewise with an appraisal, is to gain information about the known or potential archaeological resource within a given area or site (including the presence or absence, character and extent, date, integrity, state of preservation and relative quality of the potential archaeological resource), in order to make an assessment of its merit in context, leading to one or more of the following:
- the formulation of a strategy to ensure the recording, preservation or management of the resource;

- the formulation of a strategy for further investigation, whether or not intrusive, where the character and value of the resource is not sufficiently defined to permit a mitigation strategy or other response to be devised; and
- The formulation of a proposal for further archaeological investigation within a program of research.

3.5 The other aim of the appraisal was to evaluate the potential direct effect of the proposed development on all cultural heritage features within the bounds of the application area, gather archaeological HER data for sites up to 2km from the proposed turbine locations and to assess the potential indirect effect on the setting of all high value designated sites (Scheduled Ancient Monuments (SAMs), Listed Buildings (LBs), Registered Historic Landscapes (RHL) and other high value undesignated sites considered to be of national importance and worthy of scheduling) within a 5km radius from the proposed turbine locations. A further aim was to evaluate the potential impact of the proposal on hitherto unknown buried archaeological remains in the proposed development area.

3.6 All work was conducted in compliance with the *Codes of Practice* of the Chartered Institute for Archaeologists (CIfA 2014).

3.7 The appraisal considered the following:

- the nature, extent and degree of survival of archaeological sites, structures, deposits and landscapes within the study area;
- the history of the site;
- the potential impact of the proposed development on the setting of known sites of archaeological importance; and
- a methodology for non intrusive survey and/or intrusive evaluation to determine the location, extent, date, character, condition, significance and quality of any surviving archaeological remains liable to be threatened by the proposed development.

3.8 In considering the above, the following repositories were consulted as part of the research assessment

- Dyfed Archaeological Trust (DAT) – HER database;
- Royal Commission on Ancient and Historic Monuments of Wales (RCAHMW), Aberystwyth – NMR, aerial Photos, maps, archives;
- National Library of Wales (NLW), Aberystwyth – maps, archives;
- Cadw – SAM Listings, Listed Buildings;
- County Records Office – Maps, plans; and

3.9 The following cartographic sources were included in the study:

- OS Surveyors drawing (1811);
- Tithe apportionment and parish map of Llanllawddog (1842);
- Ordnance Survey 1<sup>st</sup> Edition map of 1888 (1:10560);
- Ordnance Survey 2<sup>nd</sup> Edition map of 1907 (1:10560);
- Ordnance Survey Edition map of 1953 (1:10560);
- RAF Aerial Photo 1946

### 3.10 Photographs

3.11 Aerial photos consulted spanned the years 1946 – 2013.

3.12 All photographs appropriated during the site walkover were undertaken using a 10MP Olympus SLR in SHQ JPEG format and where considered necessary RAW file format were also appropriated.

3.13 Following the results of the desk based element, the potential for further archaeological work was considered in order to assess the viability for further study of the assessment results and to provide an indication of the relative importance of the material in any subsequent decision-making and mitigation strategies.

### 3.14 Assessment of Direct Impact Methodology

3.15 The system employed to evaluate the cultural value and direct effects of the proposed development on the archaeological resource is based on the site significance value scale as set out in the Design Manual for Roads and Bridges (DMRB, Volume 11, Section 3, part 2 HA 208/07) (Ref. 2).

3.16 The value of all the known and potential assets that may be affected by the Development should be ranked, whether they are archaeological remains, historic buildings or historic landscapes. The value of each asset has been ranked according to the following scale:

- *Very High* - World Heritage Sites (including nominated sites). Assets of acknowledged international importance. Assets that can contribute significantly to acknowledged international research objectives;
- *High* - Scheduled Monuments (including proposed sites). Undesignated assets of schedulable quality and importance. Assets that can contribute significantly to acknowledged national research objectives;
- *Medium* - Designated or undesignated assets that contribute to regional research objectives;
- *Low* - 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;
- *Negligible* - Assets with very little or no surviving archaeological interest; or
- *Unknown* - The importance of the resource has not been ascertained.



3.17 The following list provides an indication as to the predicted effect the Development will have on individual archaeological features. Potential impacts, direct and indirect, have been assessed in terms of their longevity, reversibility and nature (beneficial / neutral / adverse):

- **Permanent impacts** are those that persist beyond the predicted operational lifetime of the Development. All direct impacts are considered to be permanent;
- **Temporary impacts** arise as a result of the presence of elements of the Development but which would be removed by the dismantlement of those elements. Temporary impacts can be short-term (e.g. construction phase impacts); or long-term (arising from the long-term presence of the development affecting the setting of a receptor);
- **Reversible impacts** are those that are removed by the decommissioning / dismantling of the Development;
- **Irreversible impacts** are those that persist beyond the lifetime of the Development. All permanent and direct impacts are irreversible;
- **Beneficial impacts** are those that contribute to the value of a receptor through enhancement of desirable characteristics or the introduction of new, positive attributes. In terms of cultural heritage, beneficial impacts include those that add to an appreciation of the receptor and/or its setting;
- **Neutral impacts** occur where the development can be accommodated comfortably by the receptor while neither contributing to nor detracting from the value of the receptor; and
- **Adverse impacts** are those that detract from the value of a receptor through a reduction in, or disruption of, valuable characterising components or patterns, or the introduction of new inappropriate characteristics. In terms of cultural heritage, adverse impacts include those that detract from an appreciation of the receptor and/or its setting, or compromise views to or from the receptor.

3.18 The magnitude of the effect needs to be viewed in conjunction with the value of the monument, in order to appreciate the overall significance of any effect on a given archaeological feature. The magnitude of the effect (degree of change) can also be negative or positive, and should be ranked without regard to the value of the asset. The total destruction of a Low Value asset will have the same magnitude of impact on the asset as the total destruction of a High Value asset; the value of the asset is factored in when the significance of the effect is assessed.

3.19 The magnitude of the effect was ranked according to the following scale:

- **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; or
- **No Change:** No change

3.20 Assessing the significance of the effects of the scheme brings together the value of the resource and the magnitude of the effect for each cultural heritage asset, using the matrix illustrated in the Table 1. The adverse or beneficial significance of effect has been expressed according to the following scale: Major; Moderate; Minor; or Negligible.

3.21 For the purpose of satisfying this assessment, those effects that are rated as 'moderate', 'major' or 'major/moderate' based on Table 1, are considered to be 'significant'.

Table 1. Matrix of Significance Criteria						
		Magnitude of Effect				
		No Change	Negligible	Minor	Moderate	Major
Value	Very High	Negligible	Minor	Moderate / Major	Major	Major
	High	Negligible	Minor	Moderate / Minor	Moderate / Major	Major
	Medium	Negligible	Negligible / Minor	Minor	Moderate	Moderate / Major
	Low	Negligible	Negligible / Minor	Negligible / Minor	Minor	Moderate / Minor
	Negligible	Negligible	Negligible	Negligible / Minor	Negligible / Minor	Minor

### 3.22 Site Inspection

3.23 The site visit set the context of the assessment, identifying:

- The location and character of archaeological sites and features within the proposed development area and all high value sites up to a 5km radius from the centre of the site that fall within Zones of Theoretical Visibility (ZTV).
- The current site condition.

### 3.24 Assessment of Indirect Impact Methodology

3.25 In terms of indirect effects concerned with issues of setting, there are no established definitive criteria or methodologies for assessing the setting of listed buildings or scheduled monuments, a concept that was introduced by the Planning (Listed Buildings and Conservation Areas) Act 1990. The requirement to assess the potential effects of a development on the setting of designated heritage features, such as scheduled monuments, conservation areas, historic landscapes, parks & gardens and listed buildings, is outlined in Planning Policy Wales (2011).

3.26 There are no established definitive criteria or methodologies for assessing the setting of listed

buildings or scheduled monuments, a concept that was introduced by the Planning (Listed Buildings and Conservation Areas) Act 1990. In the absence of more detailed advice on setting in Wales, the requirement to assess the potential effects of a development on the setting of designated heritage features, such as scheduled monuments, conservation areas and listed buildings, has to turn to the Government's recent guidelines by English Heritage, *The Setting of Heritage Assets (2011)*(Ref 3).

3.27 English Heritage guidance refers to setting as:

3.28 *"...the surroundings in which an asset is experienced. All heritage assets have a setting, irrespective of the form in which they survive and whether they are designated or not. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance, or may be neutral.*

3.29 *The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which we experience an asset in its setting is also influenced by other environmental factors such as noise, dust and vibration; by spatial associations; and, by our understanding of the historic relationship between places. For example, buildings that are in close proximity but not visible from each other may have a historic or aesthetic connection that amplifies the experience of the significance of each. They would be considered to be within one another's setting.*

3.30 *Setting will, therefore, generally be more extensive than curtilage and its perceived extent may change as an asset and its surroundings evolve or as understanding of the asset improves.*

3.31 *The setting of a heritage asset can enhance its significance whether or not it was designed to do so. The formal parkland around a country house and the fortuitously developed multi-period townscape around a medieval church may both contribute to the significance.*

3.32 *The contribution that setting makes to the significance does not depend on there being public rights or an ability to access or experience that setting. This will vary over time and according to circumstance. Nevertheless, proper evaluation of the effect of change within the setting of a heritage asset will usually need to consider the implications, if any, for public appreciation of its significance."*  
(Planning Policy Statement 5 (PPS5), March 2010, Planning for the Historic Environment: Historic Environment Planning Practice Guide (2010) (Ref: 3).

3.33 The aim in assessing the setting of an archaeological site, particularly one that is designated, such as a listed building, a scheduled monument or further still an historic landscape, is to prevent it becoming isolated from its surroundings.

3.34 For the purposes of this assessment, a setting is considered to have two principal dimensions -

"immediate or near setting" and "wider or far setting", although some features, by nature of their location and surroundings, may not have a wider setting.

- *immediate/near setting* - ancillary land used with the building or monument, or within the curtilage of the building, e.g. the garden of a listed building or the rear gardens of buildings around the outskirts of a conservation area. Citation boundaries can be an indication of the immediate setting; and
- *wider/far setting* - an area around the cultural heritage feature, which may be built environment or part of the countryside and which may or may not be functionally linked or contemporaneous with the age of the feature, but which contributes to the special interest and understanding of the feature.

- 3.35 There is no requirement under current statute, guidance or even case law that the wider setting should extend to the extreme limit of visibility, although the extent of a setting will tend to widen with the importance of the principal heritage feature. Regard should be given to views from the cultural heritage feature towards the Proposal, views from the Proposal towards the cultural heritage feature and views from any other relevant location. However, visibility is only the necessary starting point and, thereafter, it must be determined just what of relevance is visible in the heritage feature and its setting, what relationships exist between these visible elements and what weight or importance should be attributed to the whole (Ref. 4).
- 3.36 Further to this approach, regard must be given to the fact that setting is primarily governed by function and even nationally important heritage features may have narrow settings.
- 3.37 Landscapes and land-use often change over time, and thus an assessment of the setting of a designated site within the wider landscape requires a balance to be achieved between the concept of its original historic setting and its development as part of the modern day landscape.
- 3.38 The study has considered the physical attributes of each site and its setting in terms of topography, its original economic function and natural resources, historic resonance with land-use, connections and communications with neighboring features of the historic landscape and inter-visibility between them, as well as cultural associations and issues of public perception. The assessment has also examined what peripheral effect the wind turbine would have on the historic views from each site, and on public appreciation of them as features of special historic and architectural interest.
- 3.39 Assessing the significance of the indirect effects of the scheme brings together the value of the resource and the magnitude of the effect for each cultural heritage asset, using the same matrix illustrated in the Table 1. The adverse or beneficial significance of effect has been expressed according to the following scale: Major; Moderate; Minor; or Negligible.

- 3.40 For the purpose of satisfying this assessment, those effects that are rated as 'moderate', 'major' or 'major/moderate' based on Table 1, are considered to be 'significant'.
- 3.41 The value of archaeological sites have been assessed in accordance with the value scale as set out in the Design Manual for Roads and Bridges (DMRB, Volume 11, Section 3, part 2 HA 208/07) (Ref. 2).
- 3.42 All designated Scheduled Ancient Monuments (SAMs), undesignated sites of schedulable quality and Grade I and Grade II\* Listed Buildings have been assessed as being High Value sites and as such are of National importance.
- 3.43 All Grade II Listed Buildings have been assessed as being Medium Value sites and as such are assessed as being of Regional Importance.
- 3.44 In order to aid and inform the assessment of the potential indirect effect of the proposed development on heritage assets within the 5km radius, a Zone of Theoretical Visibility (ZTV) map has been produced (see Figures 14 - 19 in Appendix I). By examining the ZTV map, specific sites, where impacts were visually predicted, were targeted and each identified site was assessed on its own merits. Photo-montages were produced where considered necessary and where possible.
- 3.45 As part of the indirect effect assessment the cumulative effect of the proposed development was assessed in conjunction with other known wind turbine sites within the 5km radius (see Figures 18 and 19 in Appendix I).

## **4 Baseline Conditions**

### **4.1 Previous Archaeological Works**

- 4.2 Other than general field work that has taken place in the wider landscape over the decades in the region, there has been no archaeological work undertaken within the immediate study area (red line boundary) itself.

### **4.3 Carmarthenshire Historic Landscape – LANDMAP**

- 4.4 The proposed application area falls entirely within one (1) historic Landscape character area within the LANDMAP survey region of Carmarthenshire. This region of the Carmarthenshire region survey was surveyed in 2003.
- 4.5 The Carmarthenshire Historic Landscape was defined at Level 3 according to LANDMAP methodology (Ref 6). The application area falls within one (1) identified historic landscape character area. This area is listed below followed by a detailed description of its characteristics and value to the Carmarthenshire Historic Landscape as a whole.

*Trelech (LANDMAP Ref id: CRMRTL42474)*

4.6 This character area was surveyed at Level 3 in 2003 and is described as a Carmarthenshire rural agricultural environment, with regular and medium field-scapes and marginal land. Trelech is a very large historic landscape character area covering 22,270 hectares in extant, with hedge-banks forming the traditional boundary type. Significant archaeological interests are confined to relict earthworks, documents, buried and dry remains and relic monuments of the Prehistoric, Roman, Medieval and post medieval periods. There are Scheduled Ancient Monuments (SAMs) and Listed Buildings (LBs) within this historic character area. There are no Registered Parks & Gardens. There are however Conservation Areas. This character area also houses the south-eastern tip of the *Drefach and Felindre* Registered Historic Landscape.

4.7 The area is considered of *high* value historically and is generally in fair condition. The trend and existing management of the area were not assessed. According to LANDMAP evaluation, the landscape is considered to have Moderate integrity, outstanding survival, Moderate rarity and is generally of High value overall. The following table lists the principle evaluation criteria for this character area. The overall evaluation of this landscape concludes that it is a high value landscape, which scores Moderate in two categories and Outstanding in another. The areas Condition and Potential criteria have not been assessed.

Table 2 - LANDMAP Evaluation Criteria (Ref id: CRMRTL42474)					
Integrity	Survival	Condition	Rarity	Potential	Overall Evaluation
<i>Moderate</i>	<i>Outstanding</i>	-	<i>Moderate</i>	-	<i>High</i>

#### 4.8 Registered Historic Landscape – Tywi Valley (HLW (D) 5)

4.9 The following text offers a summary description of the Registered Historic Landscape (RHL) of the *Tywi Valley*, which lies approximately 4km to the south of the proposed turbine locations.

“The principal significance of the valley is as setting for a unique group of planned parks and gardens, and its historic, artistic associations with the Picturesque and there is a widespread popular sense of the Tywi valley as a cherished landscape.

The area was also the heartland of Ystrad Tywi. Much of this territorial unit remained in Welsh control under Lord Rhys and his descendants until late in the 13th century, albeit one heavily fought over. The legacy of stone castles as well as earth and timber mottes and planted medieval boroughs still dominate the landscape.

*Principal area designations:*

A small area on the central southern side of the valley is within the Brecon Beacons National Park. The area of the headwaters is within the Cambrian Mountains Environmentally Sensitive Area. The area includes: Dinefwr Estate, Dryslwyn Meadows and part of the Cwm Doethie-Mynydd Mallaen Sites of Special Scientific Interest; Dinefwr Castle, Dryslwyn Castle and Llanstephan Castle Guardianship Sites; Moridunum Demetarum Roman fort and town Scheduled Ancient Monuments; Carmarthen (various), Llandeilo, Llandovery, Llangadog, Llangathen (Aberglasney) and Llansteffan Conservation Areas.

*Contents and significance:*

A long, narrow river valley of renowned scenic quality from its source in the south of the Cambrian Mountains to its estuary in Carmarthen Bay, containing ancient route corridors and the setting for an unrivalled group of planned landscapes.

*The area includes:*

Iron Age forts; Roman forts; medieval castles and mottes; post-medieval gentry houses, designed parks and gardens; highly cherished and celebrated historic artistic Picturesque landscapes”.

- 4.10 One of the historic landscape character areas (HLCAs) that make up the central southern end of the Tywi Valley historic landscape is the *Abergwelli and Llanegwad* HLCA. This HLCA falls within the 5km radius from the proposed turbine locations at Rhydargaeau. The following text describes this HLCA:

“Abergwelli and Llanegwad character area is a large area north of the River Tywi. To the south it is dominated by three bluffs overlooking the river, the eastern of which was occupied by the large hillfort at Merlin's Hill. This may have been the centre of a large territory (taking in most of Area 183) and might have approached oppidum status - it has been suggested that the population was forcibly cleared to the new Roman town of Moridunum (Williams 1988, 11). However, there is no demonstrable physical evidence for any Iron Age field systems in the area. Much of the area's subsequent development was affected by its association with the main Roman road into West Wales, which forms the southern limit of the area (see below). During the historic period most of the area lay within the southern half of the commote, and later hundred, of Wigidada (Rees 1932). This was acquired by King Henry I soon after the establishment of the castle at Carmarthen (James 1980, 23) and was held from the crown as the part of the 'Honour' of Carmarthen. The eastern part of the area, east of the River Cothi, lay within the commote/hundred of Cetheiniog, which was held of the independent Welsh lordship of Cantref Mawr until 1284 when the two areas were united with the establishment of the county of Carmarthen. The relative homogeneity of the present landscape may represent

a historical unity of land-use - much of the area lies above 200 m and may always have been pasture. The church and borough of Abergwili was a possession of the Bishops of St Davids and the 'Bishop's mill' lies within this area; there is no evidence, however, for extensive episcopal agricultural holdings. The south-eastern part of the area belonged within Maenor Frwnws, an extensive grange belonging to Talley Abbey which extended into Area 191 (Richards 1974, 119). It may have formed part of the original grant by Rhys ap Gruffydd during the 1180s-90s and is mentioned in 1324 and 1589 (ibid.). The later Manorial Roll of Talley, of 1633 (Owen 1894, 92-107), gives the location and extent of most of Talley's granges but Maenor Frwnws was omitted, possibly due to its having been split up. Neither its tenurial, agricultural or pastoral customs are known, but it is likely that, in common with most other granges, land was let and farmed by tenants who established the precursors to the modern farms. Within the curtilage of the grange lies St Michael, Llanfihangel-uwch-Gwili ('Llanfihangel Llechweilir') which, however, was always a chapel-of-ease to Abergwili parish and therefore a possession of St Davids Cathedral (Ludlow 1998). A possible Knights Hospitaller holding is reflected in the place-name Yspty Ifan but this has yet to be established. No gentry estates appear to have developed from Talley land within this area and the nearby Wern-drefi house, from the 17th century, appears not to occupy former monastic land (Jones 1987, 196). There were, however, a number of early gentry houses within the area including Castell Pigyn, which belonged to the bishop in 1561 (Jones 1987, 26) but was later privately owned. Gilfach-y-berthog is said to date from 1327 and was possibly the home of Llewelyn Foethus who established a chapel near Allt-y-ferin, Cwmgwili was in existence by c.1460, Hendre Hedog belonged to the Lloyds of Llansteffan in 1575, Allt-y-gôg, Gelli-fergam, Hengil and Pen-y-banc Ucha had been established by 1600, and Beili-glas, Esgair-holiw, Pant-yr-ystrad and Pen-y-banc Issa by at least the 17th century (Jones 1987). None of these was the centre of a large estate and there are no estate landscapes within this area. Industry has left its mark in Felingwm where a number of mills, of varying function, were powered by the fast-flowing Cothi, and a number of former lead mines were sunk in the area of the bluffs overlooking the Tywi. Twentieth century development has been minimal, but modern development has occurred along the A485 road, resulting in linear development and small nucleations at Peniel and Rhydargaeau.

Despite its very large size, this historic landscape area is coherent, comprising as it does rolling hills of enclosed pasture and dispersed farms. From the junction of the valley floor of the River Tywi to the south at 15 m above sea level, this area rises steeply to over 100 m, and continues to rise in a series of rounded hills interspersed with deeply incised valleys to over 240 m. Valley sides are steep and often cloaked with ancient deciduous woodland. However, most of this area is enclosed under rich pasture, with the vast majority improved grazing and very little rough grazing and unimproved land. Fields are small- to medium-sized and irregular. Boundaries are universally of earth banks topped with hedges. Hedges are generally well maintained at lower levels, though gaps are opening in some examples. At higher altitudes there is a tendency for them to be neglected and here there is some



dereliction. Wire fences supplement most boundaries. Distinctive hedgerow trees are present, but not common. The old established settlement pattern is predominantly one of dispersed farms, with clustering at White Mill and Felingwm-uchaf. Modern ribbon development has taken place along main roads. Within this area are three important routeways. The most important is the east-west corridor along the southern limits in the Tywi valley along the interface between the alluvium and the solid geology of the north side of the river. Here the A40(T) - which in 1999 was upgraded as part of the Carmarthen eastern bypass - is based on a turnpike route, which in turn follows the course of the Carmarthen to Llandovery Roman road. Running close to the western boundary of the area is the north-to-south A485 Carmarthen to Llandeilo road which also follows the general course of a Roman road. The B4310 runs north-to-south across the eastern section of the area.

Recorded archaeology from such a large landscape area takes in a range of sites from all periods. However, notable sites include the large hillfort at Merlin's Hill and the Roman road. Prehistoric and Medieval archaeology relates primarily to agricultural land-use but Post-Medieval features include chapels, mills and lead mine shafts.

St Michael, Llanfihangel-uwch-Gwili, a landmark church with Medieval origins and an unusual early 17th-century tower is Grade B listed. Few of the gentry houses retain early fabric but Cwmgwili, mentioned in c.1460, now mainly 18th century but with 16th- or 17th-century features, is Grade II listed. Gilfach-y-berthog was extensively remodelled in 1692 and is Grade II\* listed, with Grade II listed stables and barn. The 18th- and 19th-century White Mill is Grade II listed. Gelli-fergam, mentioned in the late 16th-century is now a substantial double-piled house with a walled garden. Esgair-holiw retains no early features but is associated with a former water-mill. Traditionally farms are stone-built, two-storey, three-bay and generally of 19th century date and in the vernacular tradition, though there are examples in the more 'polite' Georgian style. Farms have one or two ranges of stone-built, 19th century outbuildings, very occasionally arranged semi-formally around a yard, together with modern agricultural buildings. Modern dwellings tend to be in small estates at Peniel and Rhydargaeau, in ribbon development alongside the A485, or as dispersed houses which are mostly situated alongside the main roads. This modern development is in a variety of styles and materials.

The boundary of this area to the south against Ystrad Tywi is very well defined at the foot of the valley floor. To the north there is similar good definition where high common land enclosed by Act of Parliament in the 19th century provides a distinctive landscape signature. The area to the southeast is very similar in character to this area, but generally of lower altitude - there is no clear-cut boundary between the two. Areas to the east and west have yet to be defined, but they contain many similar components to Abergwili-Llanegwad Parish historic character area".

#### **4.11 Heritage Assets within 5km radius (Historic Environment Records (2km) and Designated Sites (5km))**

- 4.12 Within the 2km radius from the proposed turbine locations there are a total of 59 sites recorded within the Historic Environment Record (HER). The age range of these sites varies from the Bronze Age through to the Post Medieval periods

##### ***Prehistoric Periods*** (*Palaeolithic, Mesolithic, Neolithic, Bronze Age*)

- 4.13 There are no known prehistoric sites within the application red line site itself.
- 4.14 However, within the prescribed 2km radius from the proposed turbine location, there are eighteen (18) known prehistoric sites. Thirteen (13) of these sites are Bronze Age round barrows, one of this total number of HER sites however is a round barrow cemetery site positioned approximately 1.4km to the east of the proposed turbine locations. This barrow cemetery group is situated on a local highpoint in the landscape and close to and intervisible with, another prehistoric monument complex at Meini Gwyn (PRN: 42531). This barrow cemetery consists of a group of four barrows: PRN's: 1720 / 1721 / 12802 / and 42505. The position of one round barrow lies only 170m east of the proposed Turbine No.2, but in 2001 it was reported that there is no longer any trace of this barrow. A recent site visit to the area as part of this study, has confirmed this, the area in question having been heavily ploughed over the decades.
- 4.15 Another four (4) prehistoric sites within the 2km radius are Bronze Age Standing Stones, one of which has been assessed from place-name evidence only. Three (3) of these standing stones form part of the Meini Gwyn complex (PRN: 42531), which consists of a group of quartz boulders (PRNs: 1726,1727,1728), 2 round barrows PRN'S: 12803 and 42515 and a possible ring barrow PRN: 42506
- 4.16 Within the 2km - 5km radii from the proposed turbine positions, there are a further four (4) designated prehistoric sites.

1) *Crug-y-rhyd-hir round barrow* (SAM Ref: CM319) – Positioned approximately 2.6km northeast of proposed Turbine 2.

2) *Bwlch-Bychan Round Barrow* (SAM Ref: CM119) – Positioned approximately 4.2km west-north-west of proposed Turbine 1.

3) *Banc Round Barrow* (SAM Ref: CM120) - Positioned approximately 4.4km west-north-west of proposed Turbine 1.

4) *Ffos-y-Maen Standing Stone* (SAM Ref: CM189) - Positioned approximately 3.9km

northwest of proposed Turbine 1.

### ***Iron Age and Romano-British period***

- 4.34 There are no known Iron Age or Romano-British period sites within the application site red line study area recorded within the regional HER, nor within the National Monuments Record database.
- 4.35 Within the 2km radius there are only two (2) known HER database record associated with the Iron Age and Romano-British periods. These sites include a Defended Enclosure (PRN: 1719) known as Croes Arthur, positioned approximately 1.7km east of proposed Turbine 2, and the position of a cropmark possibly associated with part of a former Roman road that linked Carmarthen to Llnafair Clydogau (PRN: 33942). This cropmark is positioned approximately 1.8km northwest of proposed Turbine 1.
- 4.35 Within the 2km – 5km radii, there are three designated scheduled sites:
- 1) *Merlins Hill Hillfort* (SAM Ref: CM231) – A single massive rampart crowns a visually distinctive, flat-topped hill, creating a roughly triangular enclosure, about 300m east-west by 180m, the group falling away steeply on all sides but the east, an entrance at the north of this eastern facade is elaborated by a 'barbican' outwork about 24m across. Investigation of eroding sections has suggested an Iron Age date for the enclosure. This designated site is located approximately 4.6km to the south from proposed Turbine 2.
  - 2) *Parc y Gaer Defended Enclosure* (SAM Ref: CM382) - Parc-y-Gaer defended enclosure comprises a triangular-shaped enclosure, measuring 60 meters and up to 70 meters transversely, located on a narrow inland promontory above the confluence of two streams. The enclosure is defended by steep slopes on the north-west and south sides, with a linear bank and ditch defending the north-east side. The bank measures 60 meters in length, 3 meters in height and 12 meters in width and the rock cut ditch measures 3 meters in width and 2 meters in depth. An entrance was located at the south end of the bank. This designated site is located approximately 2.5km southeast from proposed Turbine 2.
  - 3) *Caerau Clyngwyn Defended Enclosure* (SAM Ref: CM376) – This defended enclosure is defined by natural slopes on two opposing sides and artificial slopes on the remaining sides. This designated site is located approximately 4.4km southwest from proposed Turbine 1.

4.37 There are no designated Roman sites within the 5km radius.

#### **4.38 Medieval Periods**

4.39 The HER records no known medieval sites within the application red line area itself. However, within the 2km radius there are three (3) known medieval data-points. All of these are undesignated sites and all are considered to be of medium value. Each of these three sites is associated with Capel y Groes, which is positioned approximately 2km to the south (PRN'S: 1740 / 1741 and 49239)

4.40 Within the 2km - 5km radii from the proposed turbine positions, there are two (2) designated medieval sites. These sites are:

1) *Pant-Glas Castle Mound* (SAM Ref: CM121) – Pant Glas Castle Mound is a small scarped platform secured by the construction of a bank, with no apparent ditch. This designated site is located approximately 2.6km to the west from proposed Turbine 1.

2) *Cross-Incised Stone in Churchyard* (SAM Ref: CM165) - This stone, known as Five Saints stone, stands in the churchyard of St Celynin, Ceitho, Gwyn, Gwyno and Gwynoro's Church, Llanpumsaint (NPRN 309902). It is a rough pillar stone 0.5m high, 0.3m wide and 0.2m thick, bearing an incised linear Latin ring-cross, dated to the 7th-9th centuries. This designated site is located approximately 4km to the northwest from proposed Turbine 1.

#### **4.41 Post-Medieval periods**

4.42 Within the HER database there are no post-medieval sites recorded within the application red line area itself. Most, if not all of the field boundaries, predominantly hedge-banks, were probably founded in either the 18<sup>th</sup> century or else in the early - mid 19<sup>th</sup> century.

4.43 As would be expected, this chronological period marks the greatest number of known sites within the wider study area, a total of thirty-one (31) post medieval sites are located within the 2km radius. Site types include: 2 Blacksmiths Workshops, 1 Bridge, 5 Chapels, 1 Corn mill, 9 Cottages, 1 Dwelling, 1 Farmhouse, 2 Farmsteads, 1 Gravel Pit, 1 Mansion, 1 Public House, 5 Quarries and 1 Water well. For further details of these sites see Appendix III.

4.46 Within the 2km radius from the proposed turbine locations, there are no Listed Buildings.

4.47 Within the 2km – 5km radius, there are a further twenty-one (21) designated Listed Building sites. Seventeen (17) of these listed sites have a Grade II listing. However four (4) have a Grade II\* Listing. All of these designated sites are spread fairly evenly across the 5km radius. With regard to the Grade II\* Listed sites, these sites are listed below. For the location and details of all of the other Grade II LBs please see the Site Gazetteer in Appendix III.

1) *Gilfach y Berthog (LB No. 9738)* – This house is a Grade II\* listed property positioned approximately 4.5km southeast of proposed Turbine 2.

2) *Felin Wen (White Mill) (LB No. 9720)* – This mill is a Grade II\* listed property positioned approximately 4.9km south of proposed Turbine 2.

3) *Cwmgwili (LB No. 9387)* - This house is a Grade II\* listed property positioned approximately 3.8km southwest of proposed Turbine 2.

4) *Capel Panteg and attached vestry to left (LB No. 22268)* - This chapel is a Grade II\* listed property positioned approximately 3.5km southeast of proposed Turbine 2.

#### **4.48 Modern Period**

4.49 Within the HER database there are no modern sites recorded within the application red line area study area.

#### **Unknown Period**

4.51 Within the HER database and within the 2km radius there are five (5) sites described as being of unknown period (PRN's: 5364 / 10736 / 10737 / 11244 / 12216)

#### **4.52 Cartographic Sources**

*OS Surveyors drawing (1811)(Figure 4)*

4.53 This early OS surveyor's map shows the red line study area as an unclosed piece of land bordered only by the same roads that appear circling the site today.

*Tithe Map and Apportionment of the parish of Llanllawddog (1842) (Figure 5)*

4.54 Although the earlier OS Surveyors drawing showed very little of interest in the area of the proposed turbine location, the Tithe Map of 1842 for the Llanllawddog parish is far more informative. The Tithe map shows that the red line study area was divided up into five individual fields, all belonging and occupied by one Benjamin Richards who lived in a cottage called Blaenpant, which was once positioned on land at the far west end of the study area, now occupied by Welsh Water and a small reservoir.

Table 4 - Tithe Apportionment details for Llanllawddog parish within Application Area				
Tithe No.	Name	Owner	Occupier	Details
<b>Blaenpant</b>				
1398	Blaenpant	Benjamin Richards	Benjamin Richards	No details given
1409	Part of Blaenpant-	Benjamin Richards	Benjamin Richards	No details given
1410	Blaenpant	Benjamin Richards	Benjamin Richards	No details given
1411	Part of Blaenpant	Benjamin Richards	Benjamin Richards	No details given
1412	House & Garden and yard	Benjamin Richards	Benjamin Richards	No details given

*OS First Edition map 1:10560 (1888) (Figure 6 )*

- 4.55 This first published Ordnance Survey map series shows the application area much as it is on the Tithe map of 1842, with the property of Blaenpant to the west still in use as a roofed dwelling.

*OS second Edition map 1:10560 (1907) (Figure 7)*

- 4.56 Although the red line study area is still much the same as on earlier map series, the former property of Blaenpant at the far west end of the area is now depicted as being unroofed and in ruin.

*OS 1953 Edition map 1:10560 (Figure 8)*

- 4.58 No great change from the earlier edition map.

*Aerial Photos (Figure 9)*

- 4.59 Aerial photos investigated as part of the desk based work included vertical sheets from the RAF 1946 vertical photograph series. These early aerial photos show the application site much as it is today. Analysis of the application red line area shows that the fields had been recently ploughed, but there was no evidence of any cropmarks or other features..

Table 5. RAF Vertical Aerial Photos consulted				
Sheet No.	Sortie	Frame No.	Date	Type
-	106G/UK/1471	2340	04/05/1946	RAF

## 4.60 Site Visit

- 4.61 The field visit to the site walked all of the fields and the perimeter of the red line study area and along the route of the proposed access track and service cable trenches, noting the character and form of all of the boundaries. These all appeared to be either 18<sup>th</sup> century or else mid 19<sup>th</sup> century turf or

earth banks with occasional drystone wall topped with hedgerow and modern post and wire fencing.

- 4.62 In the area of the proposed turbines, the access tracks and service trenches no surface features were readily evident. It was also noted that the two fields had both been recently ploughed.

#### 4.69 Sites noted within the Application Area

- 4.70 Within the application area, the regional HER database and the NMR database recorded no known archaeological sites present.
- 4.71 However, the cartographic study identified a total of twelve (12) new sites. The majority of these are field boundaries identified from the cartographic work and many confirmed by the site visit. A list of all the sites identified is given below in Table 6 (see also Figure 10).

Table 6. Heritage Assets within application site				
Site No.	PRN	Site Type	Condition	Source & period
1		Hedgebank	Still Present	Tithe Map 1842
2		Hedgebank	Absent	Tithe Map 1842
3		Hedgebank	Still present	Tithe Map 1842
4		Hedgebank	Still present	Tithe Map 1842
5		Hedgebank	Still present	Tithe Map 1842
6		Field entrance	Still present	Tithe Map 1842
7		Hedgebank	Absent	Tithe Map 1842
8		Hedgebank	Still present	Tithe Map 1842
9		Hedgebank	Absent	Tithe Map 1842
10		Hedgebank	Still present	Tithe Map 1842
11		Hedgebank	Absent	Tithe Map 1842
12		House Site (Blaenpant)	Absent	Tithe Map 1842

#### 4.72 Significance of the remains

- 4.73 In terms of rarity with regards to sites within the application area, the site visit identified no significant sites. Except for the position of the former farmhouse of Blaenpant just outside of the red line area to the far west, the only other sites identified were 18<sup>th</sup> and 19<sup>th</sup> century field boundaries.

## 5 Assessment of Effects

### Direct Physical Effects

- 5.1 The desk based appraisal and site visit has identified no direct physical impact from the proposal on any known heritage assets within the red line study area.

### Indirect non-physical Effects

- 5.2 Indirect physical effects associated with the development are not considered to be of sufficient magnitude in this instance to warrant separate assessment. There are no known sites within the development site boundary that include fragile deposits (for example waterlogged organic remains) that might be affected by changes in hydrology or from increased erosion. In terms of dislocating certain features from their attendant landscapes, the development will inevitably however introduce a visual component, which is considered under indirect visual effects below.

### Indirect Visual Effects

- 5.3 Within the 5km radius from the proposed turbine locations, the assessment has identified a total of thirty (31) designated sites. Nine (9) of these designated sites are individual Scheduled Ancient Monuments (SAMs), twenty-one (21) are Listed Buildings (LBs) and one (1) is the Registered Historic Landscape of the *Tywi Valley*. Each of these designated sites has been appraised in terms of the indirect effect of the proposed development on their setting. To aid this appraisal, Zone of Theoretical Visibility (ZTV) maps were produced at both hub height and at blade tip (see Figures 14 - 17).
- 5.4 The ZTV maps predict that only seven (7) of the SAM sites and only one (1) LB site will potentially have visibility of the proposed turbines.

#### **SAMs sites within 5km radius with ZTV predicted visibility of turbines**

- 1) *Crug-y-rhyd-hir Round Barrow* (SAM Ref: CM319) – Proposed Turbine 2 lies approximately 2.6km east-north-east.
- 2) *Pant Glas Castle Mound* (SAM Ref: CM121) – Proposed Turbine 1 lies approximately 2.6km west.
- 3) *Ffos-y-maen Standing Stone* (SAM Ref: CM189) – Proposed Turbine 1 lies approximately 3.9km northwest.
- 4) *Bwlch Bych Round Barrow* (SAM Ref: CM119) - Proposed Turbine 1 lies approximately 4.5km northwest.
- 5) *Banc Round Barrow* (SAM Ref: CM120) - Proposed Turbine 1 lies approximately 4.5km northwest.
- 6) *Caerau Clyngwyn Defended Enclosure* (SAM Ref: CM376) - Proposed Turbine 1 lies approximately 4.6km southwest.
- 7) *Merlins Hill Hillfort* (SAM Ref: CM231) - Proposed Turbine 2 lies approximately 4.6km south



### **LB sites within 5km radius with ZTV predicted visibility of turbines**

1) *Ffos-y-maen House and Byre* (LB No. 26930) - Proposed Turbine 2 lies approximately 3.5km northeast.

- 5.5 The ZTV map also predicts that part of the Registered Historic Landscape (RHL) of the *Tywi Valley*, which lies approximately 4km south of the proposed development will also have slight visibility of the turbines, but this will be confined to the north facing slopes and will be very minor.
- 5.6 Due to the height of the proposed turbines, only 36.5m to blade tip, it has been predicted that any designated sites over 3km away from the proposed turbine positions, will not be *significantly* indirectly affected by the proposal, unless there is evidence that the turbine positions will have an indirect impact on a site's potential group setting or potential intervisibility lines of sight, such as those between prehistoric burial sites and Iron Age hillforts, or landscape parks, where views into the wider landscape played an important role in their original setting. In this instance, there are no such sites within the prescribed radius that will have visibility of the proposed turbines. As such, only designated sites and undesignated sites of schedulable quality that fall within the 3km radius have been appraised further with regards to indirect visual effects. All other designated sites over 3km away, which the ZTV maps predict would have visibility will either be screened from intervening landscape and urban components, such as woodland, hedgerows and buildings, or else the scale of the turbine at this distance would have only a *Negligible* magnitude of effect and therefore of only *Minor* significance.
- 5.7 This means that only two (2) Scheduled Ancient Monuments (SAMs) are to be appraised further on their own individual merits.
- 5.8 With regards to the potential indirect effects from the turbines on the RHL of the *Tywi Valley*, the proposed turbines will be positioned over 4km away from this registered historic landscape. As such, it is predicted that the indirect effect from the proposed turbines on this RHL will not be significant and it is predicted that the magnitude of the effect will be *Negligible* and therefore of only *Minor* significance.

### **59 Designated Sites indirectly affected**

#### **Scheduled Ancient Monuments (SAMs) indirectly affected within 3km radius**

- 1) *Crug-y-rhud Round Barrow* (SAM Ref: CM319) – Proposed Turbine 2 lies approximately 2.6km east-north-east.
- 2) *Pant Glas Castle Mound* (SAM Ref: CM121) – Proposed Turbine 1 lies approximately 2.6km west.

## **Assessment of Scheduled Ancient Monuments (SAMs) Indirectly affected**

### **1) Crug-y-rhud Round Barrow (SAM Ref: CM319)**

#### *Location and Context*

- 5.10 This Bronze Age Round Barrow is positioned on the summit of a hill at a height of approximately 292m AOD, approximately 2.6km northeast of proposed Turbine 2.

#### *The Site*

- 5.11 This designated monument is a mutilated cairn approximately 18m in diameter and approximately 0.6m high. A second stone pile feature nearby is thought to be a clearance cairn.

#### *Setting*

- 5.12 This round barrow is positioned in a lone rural uplands setting with enclosed fields to the north, east and south. Immediately northeast of this cairn is a tall radio mast which has already significantly affected the setting of this cairn.

#### *Assessment of Effects*

- 5.13 The proposed turbines will lie over 2.6km to the southwest from this monument. The ZTV maps predict that both turbines will be visible from this monument when looking toward this monument from the northeast looking southwest. However, given the distance from the turbines and intervening landscape components, the prominence of the proposed turbines will be greatly diminished and as such the predicted effect will not be of any significance.
- 5.14 As such, given these effects, although the sensitivity of this monument is considered to be high value (of national and regional importance) the indirect visual magnitude of effect on this monuments setting is considered to be *Negligible* and the overall significance of effect would therefore be *Minor* and also temporary for the lifetime of the turbines.

### **2) Pant Glas Castle Mound (SAM Ref: CM121)**

#### *Location and Context*

- 5.15 This Norman motte is positioned on a small scarped platform secured by the construction of a bank, with no apparent ditch. at a height of approximately 119m AOD, It is positioned approximately 2.6km west of the proposed turbine locations.

#### *The Site*

- 5.16 Pant Glas castle earthwork dates from the 11<sup>th</sup> – 12<sup>th</sup> century. However, it is generally considered to have been built on a previous Iron Age settlement.

#### *Setting*

- 5.17 This earthwork is set in a defensive position toward the summit of a spur looking east and south

along a narrow valley with the Nant Brechfa to the east. The earthwork itself is set within woodland.

#### *Assessment of Effects*

- 5.18 The proposed turbines will lie over 2.6km to the east from this monument. The ZTV map predicts that the turbines will be visible from this monument. However, given the distance from the turbines and the fact that this designated site is positioned within woodland, the turbines will not be visible from this earthwork. As such, it is predicted that it is unlikely that the setting of this monument will be significantly affected by the proposal.
- 5.19 Given the above considerations, although the sensitivity of this monument is considered to be high value (of national and regional importance) the indirect visual magnitude of effect on this monument's setting is considered to be *Negligible* and the overall significance of effect would therefore be *Minor* and also temporary for the lifetime of the turbines.

#### **5.20 Summary of Indirect Effects on Designated sites within 5km**

- 5.21 Within the 5km radius from the proposed turbine locations, the assessment identified a total of thirty (31) designated sites. Nine (9) of these designated sites are individual Scheduled Ancient Monuments (SAMs), twenty-one (21) are Listed Buildings (LBs) and one (1) is the Registered Historic Landscape of the *Tywi Valley*. Each of these designated sites was appraised in terms of the indirect effect of the proposed development on their setting. To aid this appraisal, Zone of Theoretical Visibility (ZTV) maps were produced at both hub height and at blade tip (see Figures 14 - 17).
- 5.22 The ZTV maps predicted that only seven (7) of the SAM sites and only one (1) LB site will potentially have visibility of the proposed turbines.
- 5.23 The ZTV map also predicted that part of the Registered Historic Landscape (RHL) of the *Tywi Valley*, which lies approximately 4km south of the proposed development will also have slight visibility of the turbines, but this will be confined to the north facing slopes and will be very minor.
- 5.24 Due to the height of the proposed turbines, only 36.5m to blade tip, it was predicted that any designated sites over 3km away from the proposed turbine positions, will not be *significantly* indirectly affected by the proposal, unless there was evidence that the turbine positions will have an indirect impact on a site's potential group setting or potential intervisibility lines of sight, such as those between prehistoric burial sites and Iron Age hillforts, or landscape parks, where views into the wider landscape played an important role in their original setting. In this instance, there were no such sites within the prescribed radius that will have visibility of the proposed turbines. As such, only designated sites and undesignated sites of schedulable quality that fell within the 3km radius appraised further with regards to indirect visual effects. All other designated sites over 3km away,

which the ZTV maps predict would have visibility will either be screened from intervening landscape and urban components, such as woodland, hedgerows and buildings, or else the scale of the turbines at this distance would have only a *Negligible* magnitude of effect and therefore of only *Minor* significance.

- 5.25 This meant that only two (2) Scheduled Ancient Monuments (SAMs) were appraised further on their own individual merits.
- 5.26 The appraisal predicted that the designated Bronze Age round barrow known as Crug-rhyd-hir (SAM Ref: CM319) and the medieval Norman motte of Pant Glas (SAM Ref: CM121) will not be significantly affected by the proposed turbines. The indirect visual magnitude of effect on both of these monuments setting is considered to be *Negligible* and the overall significance of effect would therefore be *Minor* and also temporary for the lifetime of the turbines.
- 5.27 With regards to the potential indirect effects from the turbines on the RHL of the *Tywi Valley*, the proposed turbines will be positioned over 4km away from this registered historic landscape. As such, it is predicted that the indirect effect from the proposed turbines on this RHL will not be significant and it is predicted that the magnitude of the effect will be *Negligible* and therefore of only *Minor* significance.
- 5.28 A summary table giving the results of the appraisal is shown in Table 7 below.

Table 7. Summary of Significance of Indirect Effects on Designated Sites					
Site Ref	Site Name	Site Type	Distance turbine	Magnitude effect	Significance of Effect
SAM Ref: CM319	Crug-y-rhyd-hir round barrow	Round Barrow	2.6km NE	Negligible	Minor (Temporary)
SAM Ref: CM121	Pant Glas Earthwork	Motte	2.6km W	Negligible	Minor (Temporary)

## 5.29 Undesignated Sites indirectly affected

- 5.30 There are no undesignated sites within the 2km radius that are considered to be of high value and therefore of schedulable quality and importance and therefore it is predicted that there will be no undesignated medium value archaeological sites indirectly affected to any significant degree. The predicted magnitude of indirect effect on all of these medium value sites is considered to be

*Negligible* and therefore of only *Minor* significance.

## **6 Mitigation**

- 6.1 The best mitigation for the impact of any development on the archaeological resource is to avoid direct physical impacts upon all known archaeologically significant sites and features. Where avoidance is not considered possible or where the existence, exact location or extent of a feature is uncertain, additional mitigation measures may be required. A number of mitigation measures can be undertaken in advance of a planning application that will both inform, and potentially reduce or remove the need for archaeological mitigation at a later date. These options are outlined below:

### *Preservation In situ*

- 6.2 This is the preferred option for all significant cultural heritage features and can be achieved by avoiding direct physical impact upon known features through careful consideration at the design stage. In this instance, there are no known archaeological sites that will be directly impacted upon by the proposed turbines.

### *Evaluation*

- 6.3 If there is an unavoidable impact upon a known archaeological site, or where it is uncertain if there will be an impact because the existence, exact location or extent of the or any archaeology is not known, then an archaeological evaluation (before the submission of the development scheme for planning approval) may be advisable in order to assess the presence or absence of archaeological features and their vulnerability from the development. The results of the evaluation can then inform decisions as to whether to re-design the scheme in order to avoid the features or to mitigate the development impact through 'preservation by record' (see 'excavation' below). In this instance, it is considered that an evaluation is unnecessary.

### *Excavation*

- 6.4 Where previously identified archaeological features cannot be avoided by the development, or are considered to be of insufficient importance to warrant preservation *in situ*, then 'preservation by record' can be undertaken to excavate and record archaeological deposits before development commences. Such mitigation may also be required as a condition of granting planning consent. In this instance, no archaeological sites will be directly impacted upon by the proposed development.

### *Watching brief*

- 6.5 Development impact upon minor sites, or where the absence of archaeological features has not been established by other methods, can be mitigated against by undertaking an archaeological watching brief to record any unforeseen archaeological features that may be encountered during construction. This can however, result in delays during construction while archaeological recording is undertaken.

- 6.6 In this instance, the primary HER database records have shown that there are several prehistoric sites within the vicinity of the proposed turbines, access track and service cable trench locations. Although the site visit to the site found no surface remains of any archaeological sites, the fact that there are numerous Bronze Age sites only 1km to the east as well as the position of a Bronze Age round barrow 170m to the east, which appears to have been ploughed away over the decades, then there is a *moderate* possibility that there could well be buried remains and sub surface deposits relating to the prehistoric periods in the immediate area of the proposed turbine and access track locations.
- 6.7 Given the presence of these prehistoric sites in the immediate vicinity, it is recommended that any groundwork for the proposed turbine bases, the access tracks and the service cable trenches be undertaken under strict archeological watching conditions should any presently unknown sub-surface archaeological remains become exposed.
- 6.8 Apart from the complete re-positioning of the proposed turbines to another location, there are presently no mitigation measures available to reduce any potential *indirect* effects on the heritage resource.

## 7 Assessment of Cumulative Effects

- 7.1 Within the 5km radius from the proposed application site, there are only two (2) cumulative wind turbine sites. Both of these sites are operational.
- 7.2 For details of each of these cumulative sites see Table 8 overleaf.

Table 8. Cumulative Sites within 5km radius from the proposed Rhydargaeau Wind Turbines				
Site Name	Number of Turbines	Blade Height	Turbine distance	Planning Stage
Land near Pentremawr wind turbine	1	36.4m	1.5km W	Operational
Pentresite House Wind Turbine	1	26.5m	350m SSE	Operational
Land at Ystradcorwg Wind Turbine	1	42m	2.2km NNE	In planning
Land at Trefynys Wind Turbine	1	42m	2.9km SW	In planning

- 7.3 The largest of the operational turbine sites within the 5km radius is the turbine on land near Pentremawr, Rhydargaeau, positioned approximately 1.5km to the west of the proposed turbines. This turbine is 36.4m high to blade tip. This turbine is visible from the proposed turbines, but it

does not dominate views and the inclusion of the proposed turbines in conjunction with this turbine will not have any significant effect on any designated or undesignated sites.

- 7.4 The other operational turbine at Pentresite House lies only 350m to the south-south-east of the proposed turbines. This turbine is a relatively small turbine, being only 26.5m in height to blade tip. Due to the relatively small scale of this turbine, it is predicted that the cumulative effect from this turbine with the proposed turbines will be of *Negligible* magnitude and therefore of *Minor* significance on any designated or undesignated sites within the 5km radius.
- 7.5 Two other proposed turbines are still in the planning process. These two proposed turbine sites are both 42m in height to blade tip. Both these turbines are to be positioned over 2km away from the proposed turbines on land east of Rhydargaeau. It is predicted that both of these planned turbines in conjunction with the proposed turbines on land east of Rhydargaeau will have a *Negligible* magnitude and therefore a *Minor* significance on any designated or undesignated sites within the 5km radius.

## **8 Assessment of Residual Effects**

- 8.1 The long-term residual effects of the proposed development are considered to be neutral with regard to direct effects on cultural heritage.
- 8.2 There will be no loss of known cultural heritage assets, due to the position of the proposed turbine, access track, cable trench and electrical box.
- 8.3 Taking into account the known baseline and the archaeological mitigation, the residual direct effect on the archaeological resource is assessed to be of a *No Change* magnitude and therefore of *Negligible* significance. In terms of the residual in-direct effect on all of the assessed designated sites, this will inevitably only be temporary and only lasting the lifetime of the wind turbine. As such, the residual effect is considered to be *Negligible* and temporary, therefore of *Minor* significance.

## **9 Summary of Effects and Conclusions**

### **9.1 Direct Effects and Conclusions**

- 9.2 In summary, the appraisal and site visit has identified no direct physical impact from the proposal on any designated or known undesignated heritage assets.
- 9.3 The HER database has a record of a Bronze Age round barrow positioned only 170m east from Turbine 2. Although there is no longer any *surface* evidence for this barrow, it likely having had plough damage over the decades, there is still very likely sub-surface remains marking its position. As such, it is considered that there is a *moderate* chance that there are also sub surface remains within the immediate area of the proposed development pertaining to the prehistoric periods. In view of the fact that both the two fields where the turbines and access tracks are to be sited have been repeatedly ploughed over the decades, any possible sub surface remains may have been

damaged or else destroyed. However, although this may well be the case, it is also speculative and as such this does not negate the possibility of any unknown prehistoric remains becoming exposed during any proposed groundwork. As such, as a recommendation only, it is suggested that any groundwork for the proposed turbine bases, the access tracks and the service cable trenches should be undertaken under archaeological watching conditions should any presently unknown sub-surface archaeological remains become exposed.

## 9.5 Indirect Effects and Conclusions

- 9.6 Due to the height of the proposed turbines, only 36.6m to blade tip, it was predicted that any designated sites over 3km away from the proposed turbine positions, will not be *significantly* indirectly affected by the proposal, unless there was evidence that the turbine positions will have an indirect impact on a site's potential group setting or potential intervisibility lines of sight, such as those between prehistoric burial sites and Iron Age hillforts, or landscape parks, where views into the wider landscape played an important role in their original setting. In this instance, there were no such sites within the prescribed radius that will have visibility of the proposed turbines. As such, only designated sites and undesignated sites of schedulable quality that fell within the 3km radius appraised further with regards to indirect visual effects. All other designated sites over 3km away, which the ZTV maps predict would have visibility of the turbines will either be screened from intervening landscape and urban components, such as woodland, hedgerows and buildings, or else the scale of the turbines at this distance would have only a *Negligible* magnitude of effect and therefore of only *Minor* significance.
- 9.7 This meant that only two (2) Scheduled Ancient Monuments (SAMs) were appraised further on their own individual merits.
- 9.8 The appraisal predicted that the designated Bronze Age round barrow known as Crug-rhyd-hir (SAM Ref: CM319) and the medieval Norman motte of Pant Glas (SAM Ref: CM121) will not be significantly affected by the proposed turbines. The indirect visual magnitude of effect on both of these monuments setting is considered to be *Negligible* and the overall significance of effect would therefore be *Minor* and also temporary for the lifetime of the turbines.
- 9.9 With regards to the potential indirect effects from the turbines on the RHL of the *Tywi Valley*, the proposed turbines will be positioned over 4km away from this registered historic landscape. As such, it is predicted that the indirect effect from the proposed turbines on this RHL will not be significant and it is predicted that the magnitude of the effect will be *Negligible* and therefore of only *Minor* significance.
- 9.10 With regards to potential cumulative effects, the inclusion of the proposed turbines on land near Rhydargaeau, in conjunction with planned and operational cumulative turbine sites within the 5km



radius would only have a *Negligible* magnitude and therefore a *Minor* significance on any designated sites within the 5km radius.

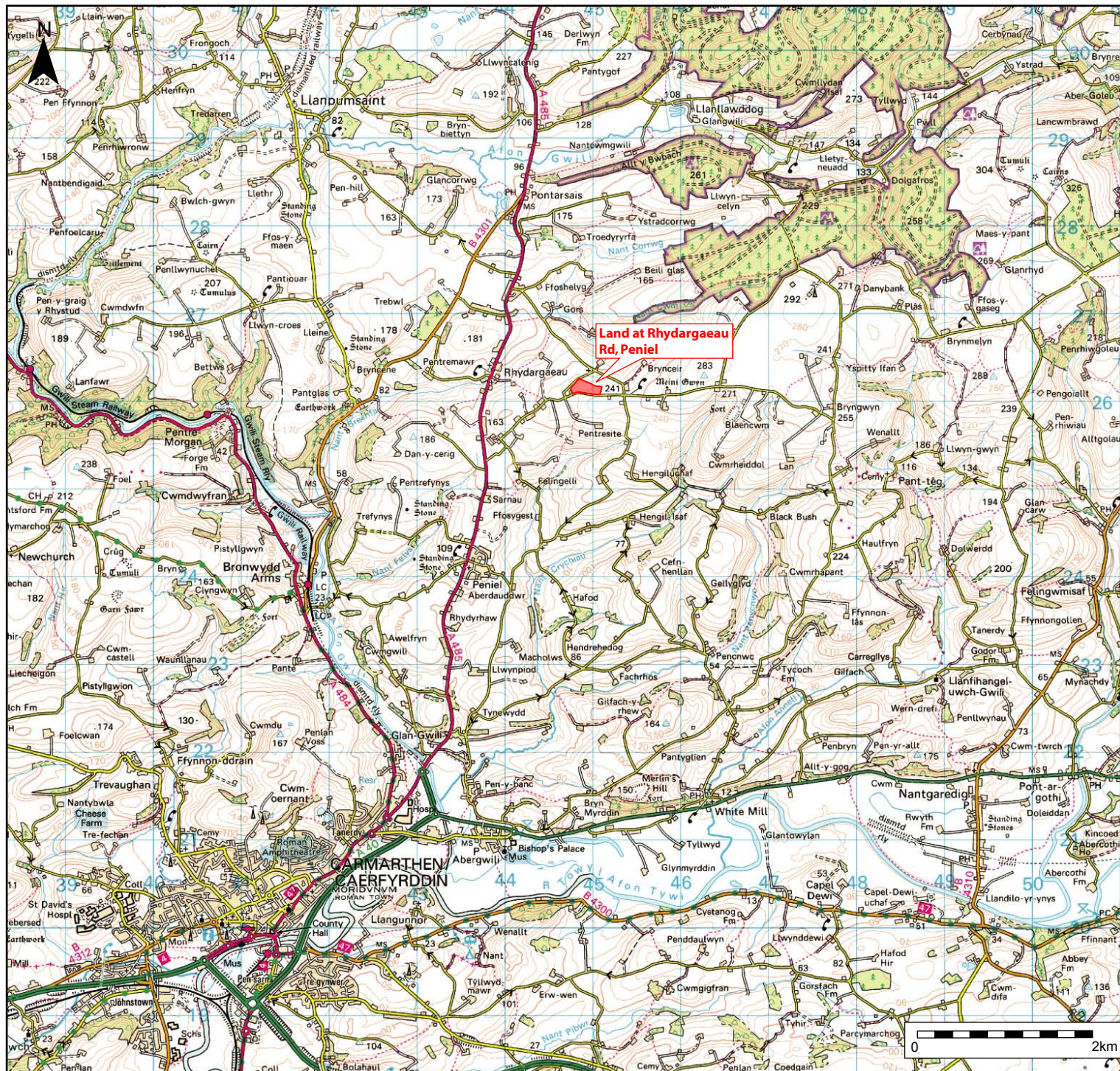
## 10 References

- Ref 1 Welsh Office Circular 60/96 (Planning and the Historic Environment: Archaeology)
- Ref 2 *Design Manual for Roads and Bridges* (DMRB, Volume 11, Section 3, part 2 HA 208/07)
- Ref 3 *The Setting of Heritage Assets*, (2011), *English Heritage Guidance*.
- Ref 4 Colcutt, S 1999, *The setting of Cultural Heritage Features*.
- Ref 5 Samuel Lewis in 'A *Topographical Dictionary of Wales*' (1833).
- Ref 6 Carmarthenshire LANDMAP Historic Landscape
- Ref 7 Rees, W. 1932. Wales & Border in the 14<sup>th</sup> Century NW map Sheet.
- Ref 8 Register of Landscapes of Outstanding Historic Interest in Wales, 1998.

# **APPENDIX I:**

## **Figures**





#### Legend

■ Study Area

Approximate Scale (at A4): 1:60,000

Date: March 2015

Prepared by:

**Heritage**  
Recording Services Wales

Client:

Force 5 Energy Ltd.

On behalf of:

Mr H. Jenkins

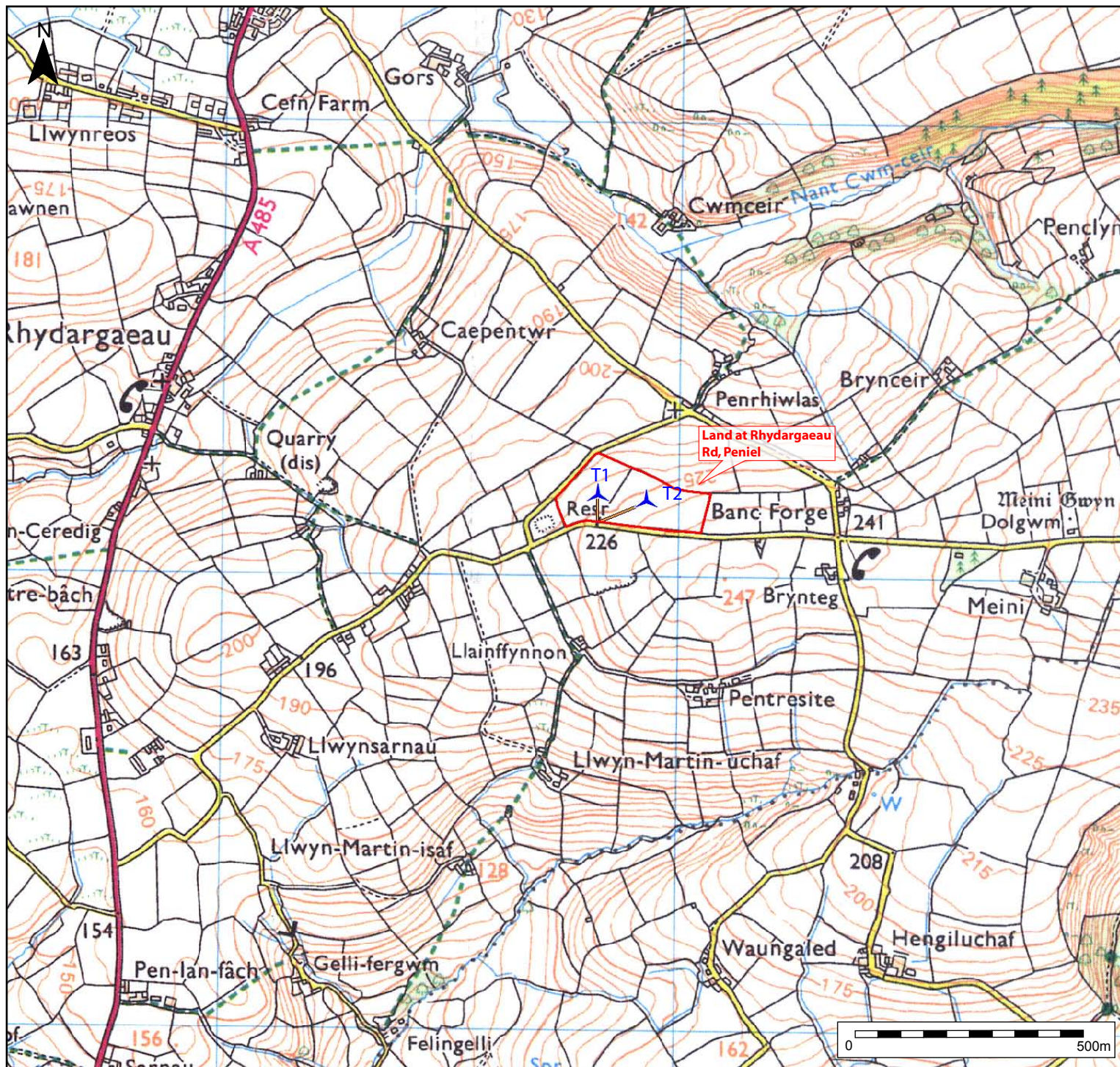
Project Title:

Land at Rhydargaeu Road,  
Peniel

Figure 1.

Site Location





#### Legend

- Study Area
- ▲ Proposed turbine locations
- Access tracks

Approximate Scale (at A4): 1:20,000

Date: March 2015

Prepared by:



Client:

Force 5 Energy Ltd.

On behalf of:

Mr H. Jenkins

Project Title:

Land at Rhydargaeau Road, Peniel

Figure 2.

Site Plan





#### Legend

- Study Area
- ▲ Proposed turbine locations
- Access tracks

**Approximate Scale (@ A4):** 1:2,500

**Date:** March 2015

**Prepared by:**



**Client:**

Force 5 Energy Ltd.

**On behalf of:**

Mr H. Jenkins

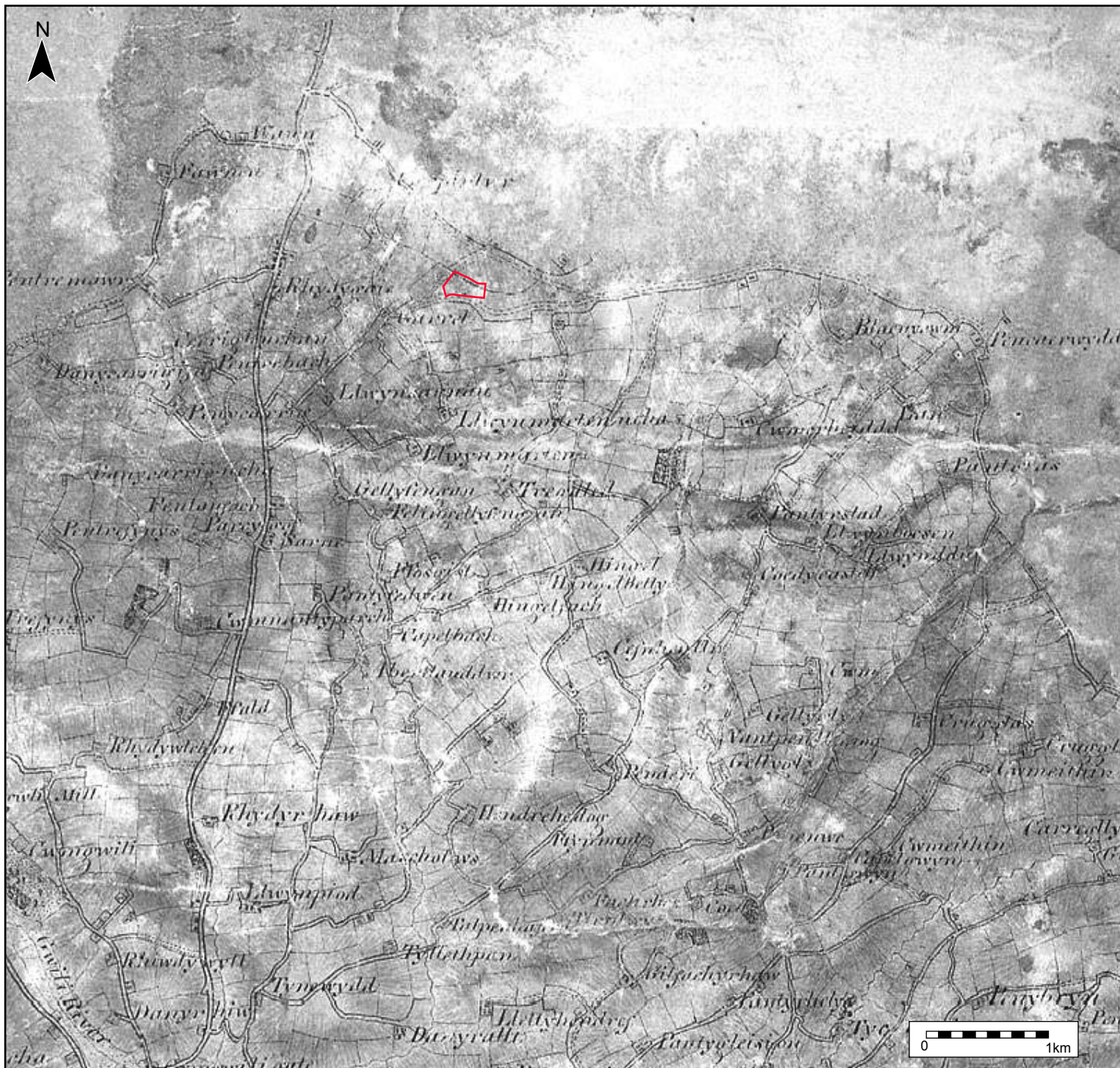
**Project Title:**

Land at Rhydargaeau Road,  
Peniel

**Figure 3.**

Aerial Photo (2013)





## Legend

Study Area

Approximate Scale (@ A4): 1:50,000

Date: March 2015

Prepared by:



Client:

Force 5 Energy Ltd.

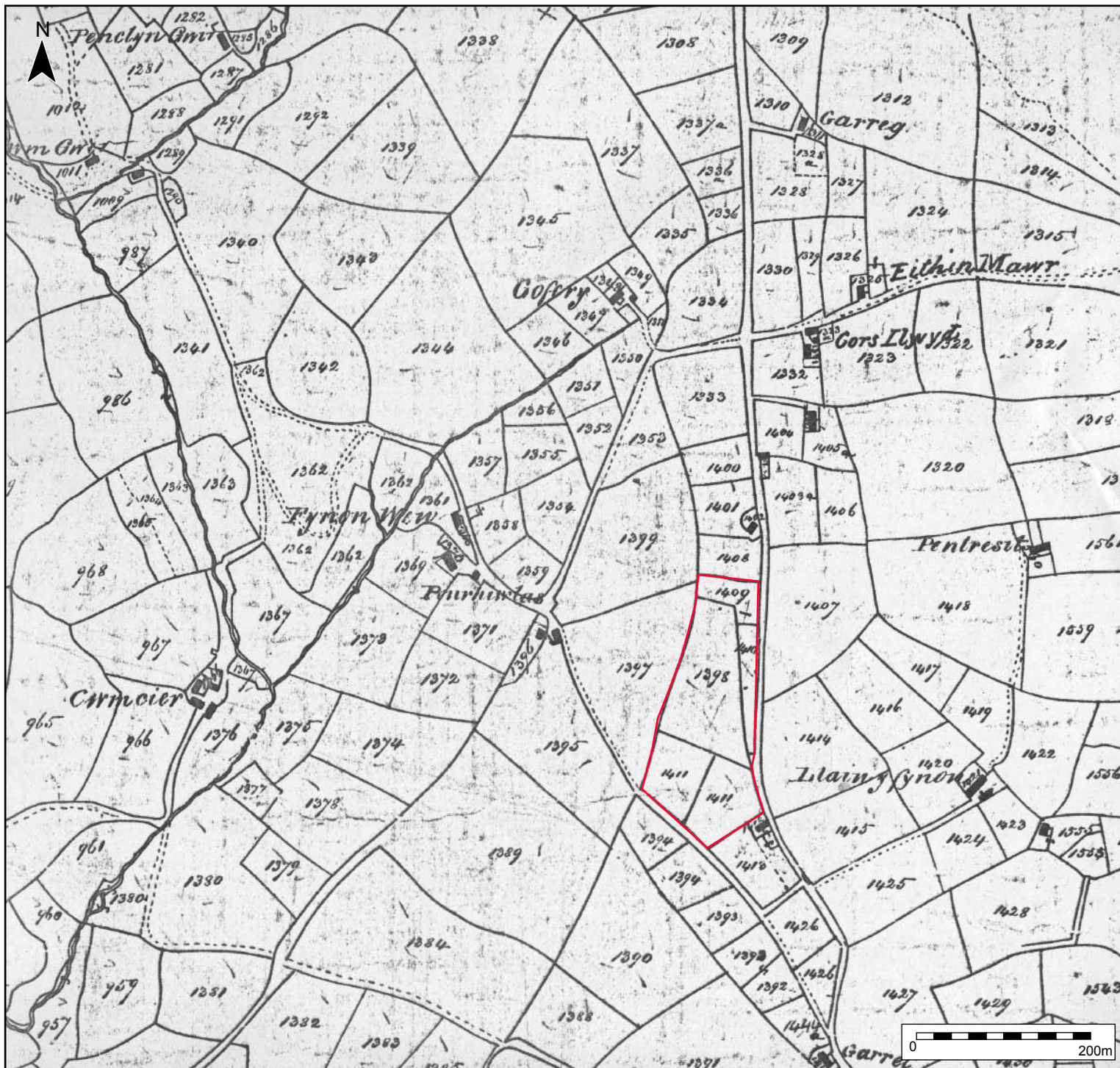
On behalf of:

Mr H. Jenkins

Project Title: Land at Rhydargaeau Road, Peniel

Figure 4. OS Surveyors Drawing (1811)





#### Legend

Study Area

Approximate Scale (@ A4): 1:6,000

Date: March 2015

Prepared by:

**Heritage**  
Recording Services Wales

Client:

Force 5 Energy Ltd.

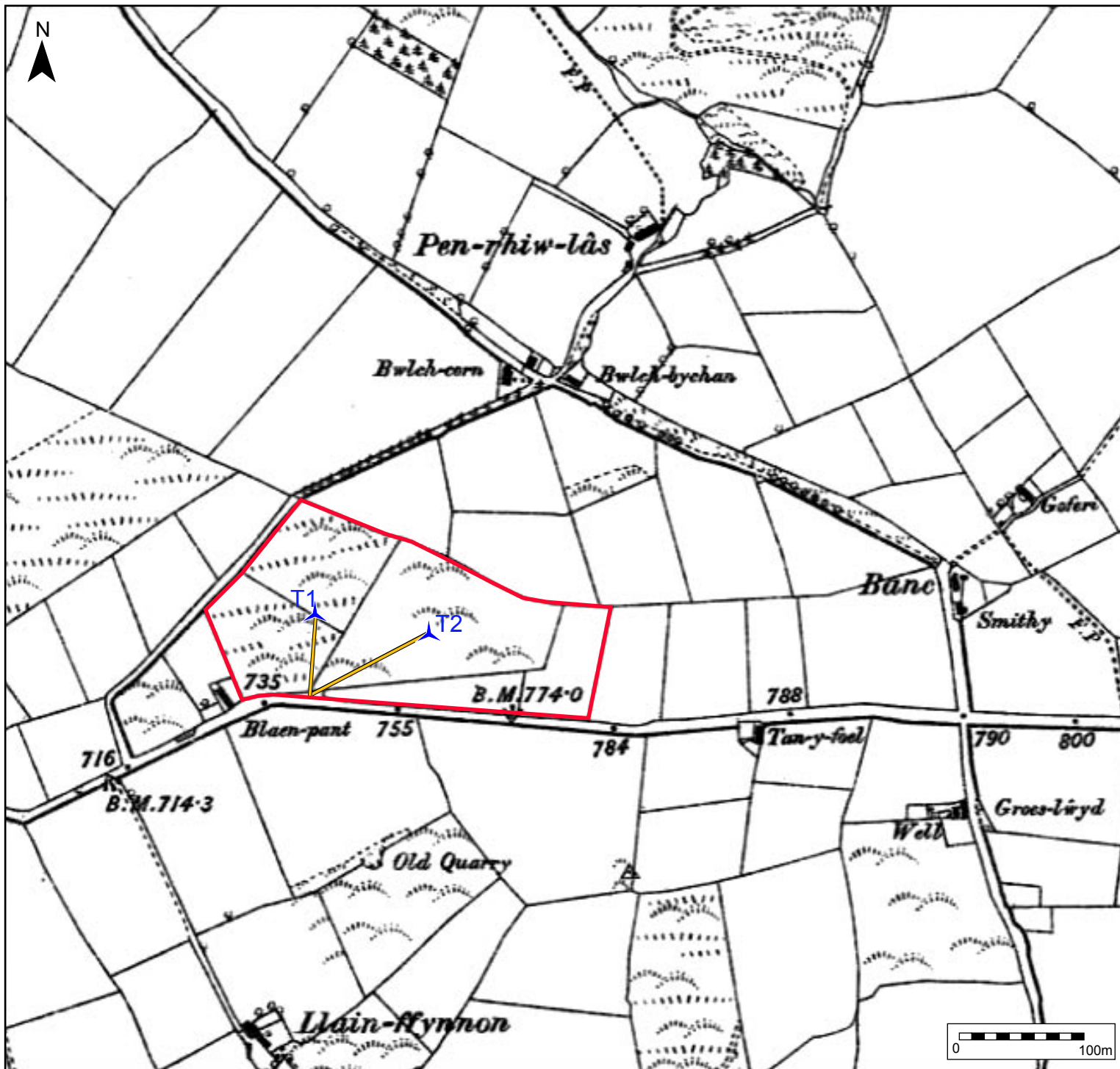
On behalf of:

Mr H. Jenkins

Project Title: Land at Rhydargaeau Road,  
Peniel

Figure 5. Llanllawddog Tithe Map (1842)





#### Legend

- Study Area
- ▲ Proposed turbine locations
- Access tracks

Approximate Scale (@ A4): 1:5,000

Date: March 2015

Prepared by:

**Heritage**  
Recording Services Wales

Client:

Force 5 Energy Ltd.

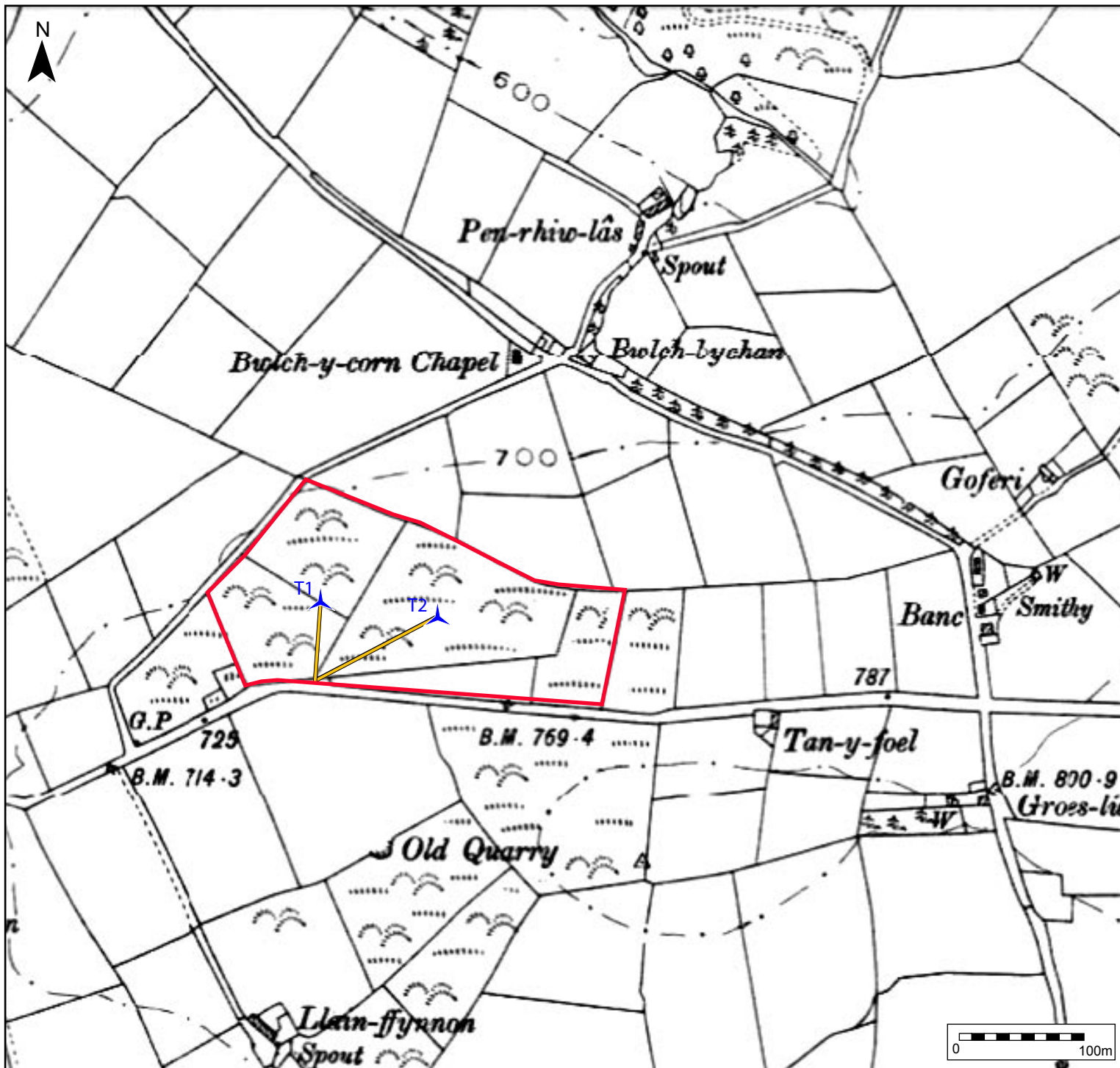
On behalf of:

Mr H. Jenkins

Project Title: Land at Rhydargaeau Road,  
Peniel

Figure 6. OS First Edition Map (1888)





#### Legend

- Study Area
- ▲ Proposed turbine locations
- Access tracks

Approximate Scale (@ A4): 1:5,000

Date: March 2015

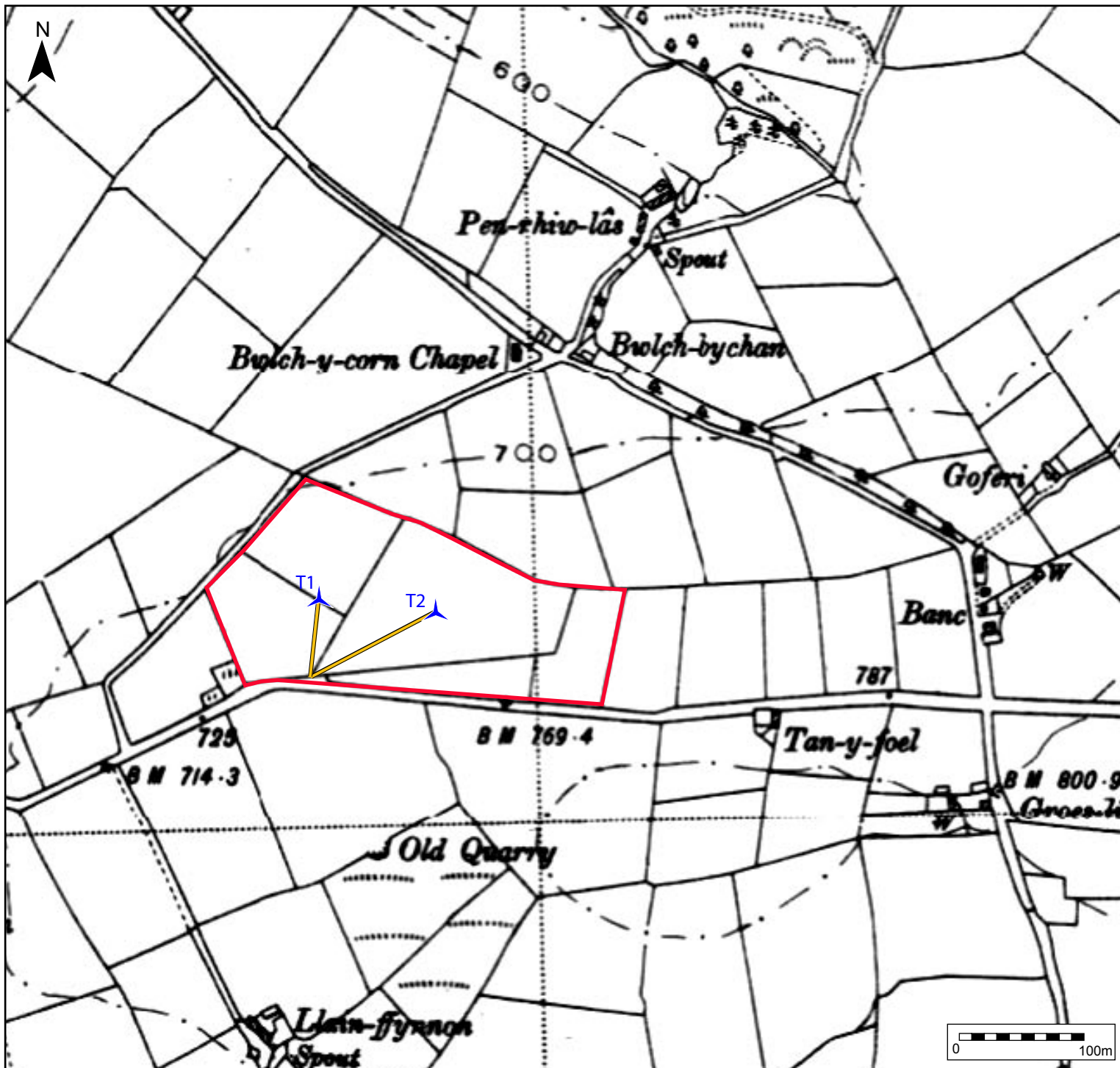
Prepared by: 

Client: Force 5 Energy Ltd.

On behalf of: Mr H. Jenkins

Project Title: Land at Rhydargaeau Road, Peniel

Figure 7. OS Second Edition Map (1907)



#### Legend

- Study Area
- ★ Proposed turbine locations
- Access tracks

Approximate Scale (@ A4): 1:5,000

Date: March 2015

Prepared by:

**Heritage**  
Recording Services Wales

Client:

Force 5 Energy Ltd.

On behalf of:

Mr H. Jenkins




Project Title: Land at Rhydargaeau Road,  
Peniel

Figure 8. OS 1953 Edition Map





#### Legend

-  Study Area
-  Proposed turbine locations
-  Access tracks

**Approximate Scale (@ A4):** 1:20,000

**Date:** March 2015

**Prepared by:**



**Client:**

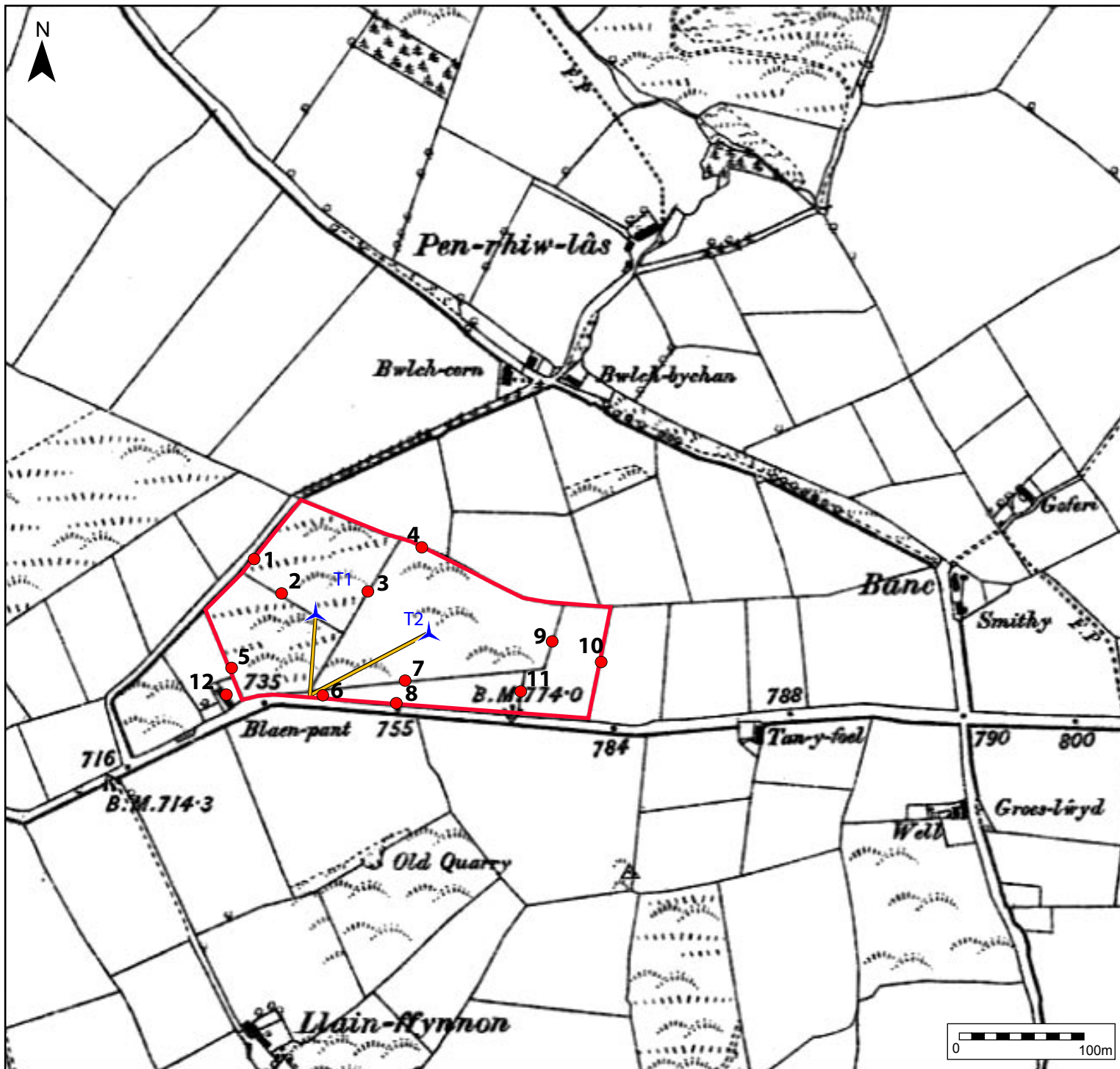
Force 5 Energy Ltd.

**On behalf of:**

Mr H. Jenkins

**Project Title:** Land at Rhydargaeau Road,  
Peniel

**Figure 9.** RAF Aerial Photo (1946)



#### Legend

- Study Area
- ▲ Proposed turbine locations
- Access tracks
- Heritage Asset

Approximate Scale (@ A4): 1:5,000

Date: March 2015

Prepared by:



Client:

Force 5 Energy Ltd.

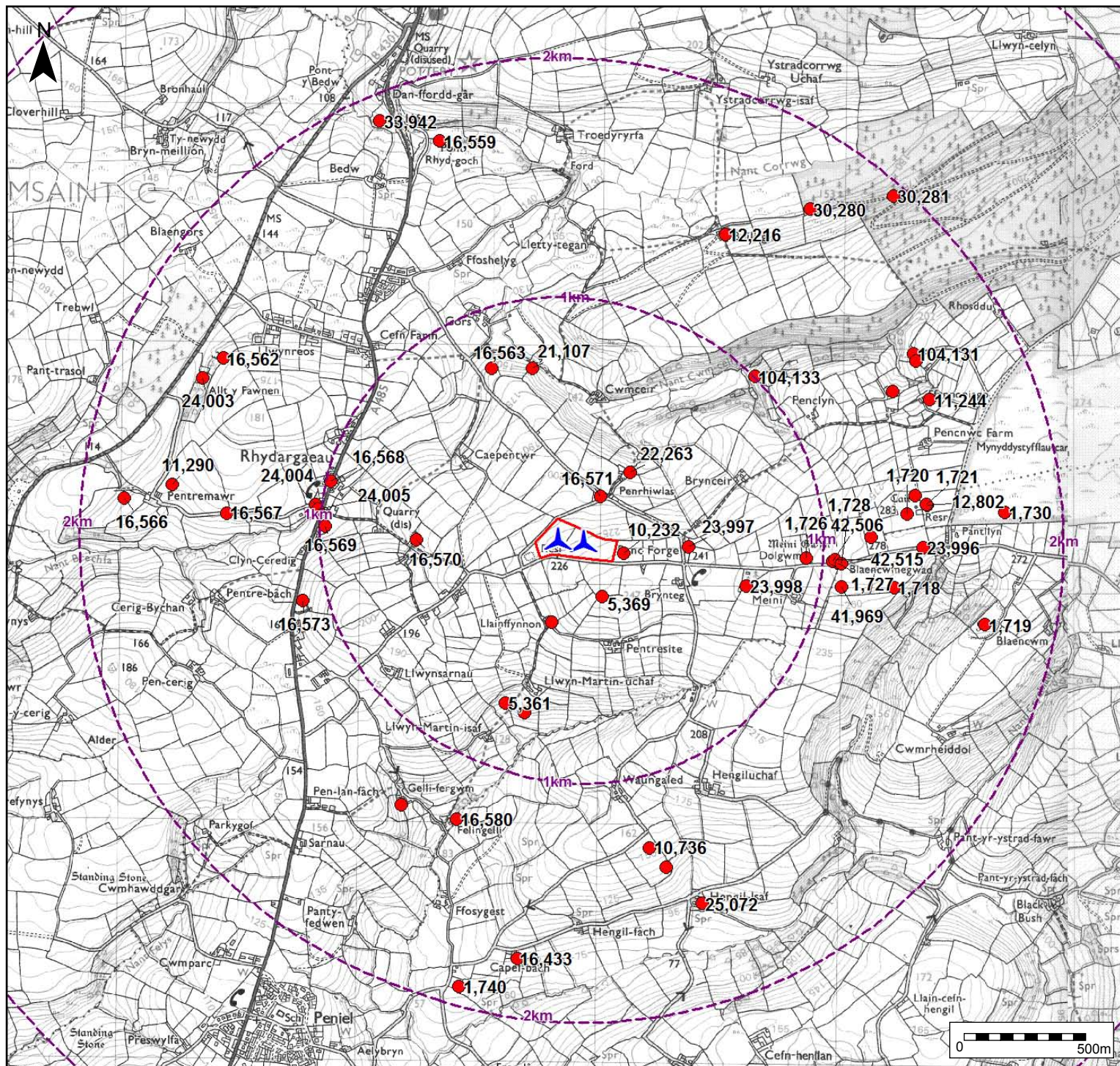
On behalf of:

Mr H. Jenkins

Project Title: Land at Rhydargaeau Road, Peniel

Figure 10. Heritage Assets within study area





#### Legend

- Study Area
- ▲ Proposed turbine locations
- Buffer Zone (km)
- Historic Environment Record (HER) datapoint

Approximate Scale (@ A4): 1:25,000

Date: March 2015

Prepared by:

**Heritage**  
Recording Services Wales

Client:

Force 5 Energy Ltd.

On behalf of:

Mr H. Jenkins

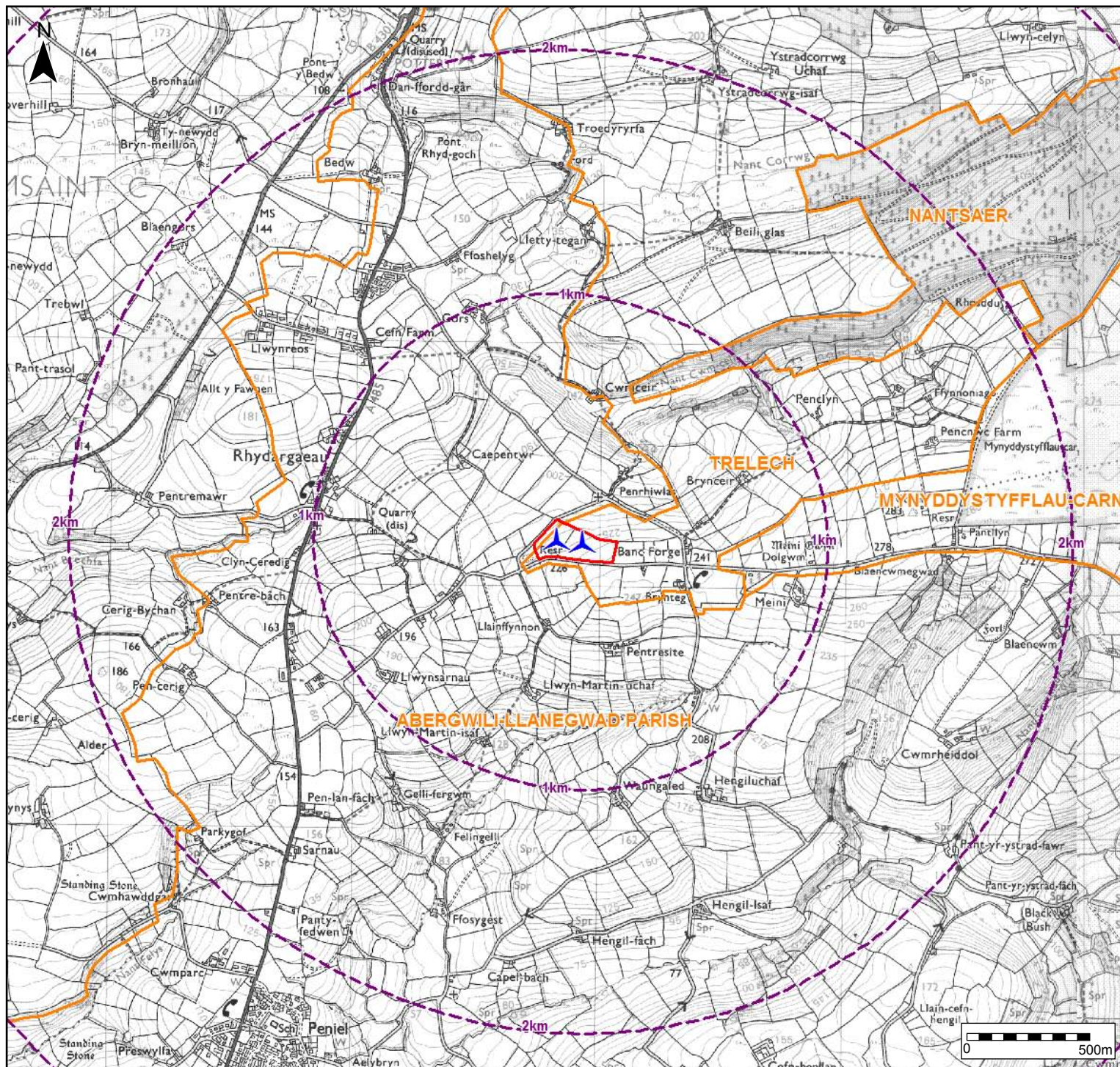
Project Title:

Land at Rhydgareau Road,  
Peniel

Figure 11.

HER Sites within 2km radius





#### Legend

- Study Area
- ▲ Proposed turbine locations
- Buffer Zone (km)
- LANDMAP - Historic Landscape

Approximate Scale (@ A4): 1:30,000

Date: March 2015

Prepared by:



Client:

Force 5 Energy Ltd.

On behalf of:

Mr H. Jenkins

Project Title:

Land at Rhydargaeau Road, Peniel

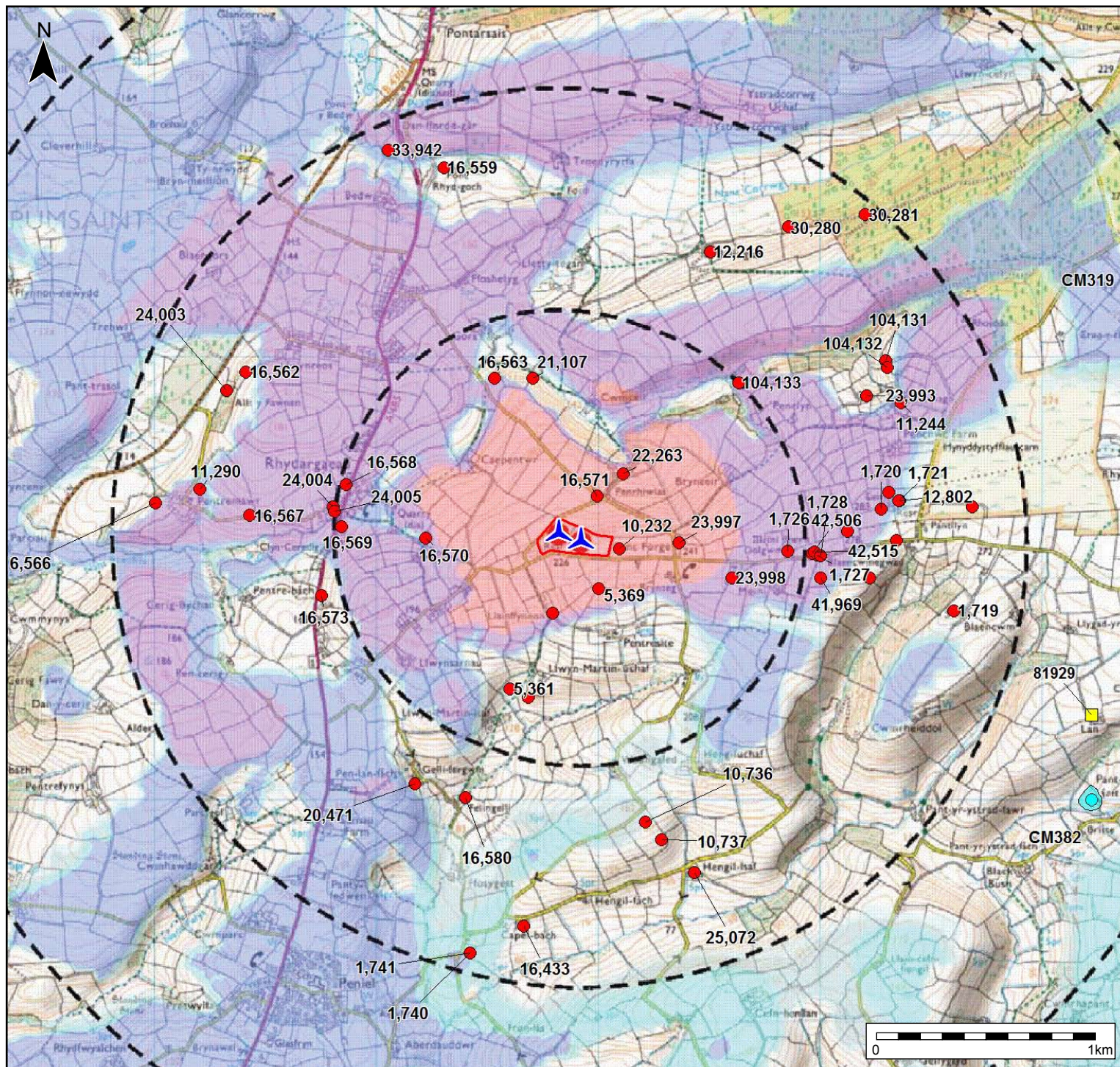
Figure 12.

LANDMAP - Historic Landscape Character Areas









#### Legend

- Study Area
- ▲ Proposed turbine locations
- Buffer Zone (km)
- HER Site

#### Zones of (Theoretical) Visual Influence (by vertical angle of view)

The vertical angle is the sectional angle the site forms when viewed from a specific location. The edge of the coloured area defines the visual envelope within the Local Study Area.

>3.0°	Areas where views of the development are likely to have <b>higher</b> magnitude of impact
1.0-3.0°	
0.3-1.0°	
0.2-0.3°	
0.1-0.2°	
0.0-0.1°	Areas where views of the development are likely to have <b>lower</b> magnitude of impact

This computer method helps define the measure of visual impact the proposed scheme might have by linking potential visual impact to the vertical angle subtended at the viewpoint by the top and bottom extremities of the area being viewed. This gives a measure of how much of a given field of view is occupied by the area when viewed from different locations. This method automatically takes into account what effect distance has on impact (i.e. an object close to the viewer occupies a far greater vertical angle than something hundreds of metres away).

The computation also takes account of the curvature of the earth. The ZVI values were calculated on a 25m grid across the study area and points of the same value were linked to produce 'contours' of potential 'visual magnitude'. The model does not take into account man made structures or vegetation. The 'actual' Zone of Visual Influence will therefore be modified by the effects of intervening woodland, hedgerows, buildings, and minor landform features.

Approximate Scale (@ A4): 1:20,000

Date: March 2015

Prepared by:  
**Heritage**  
Recording Services Wales

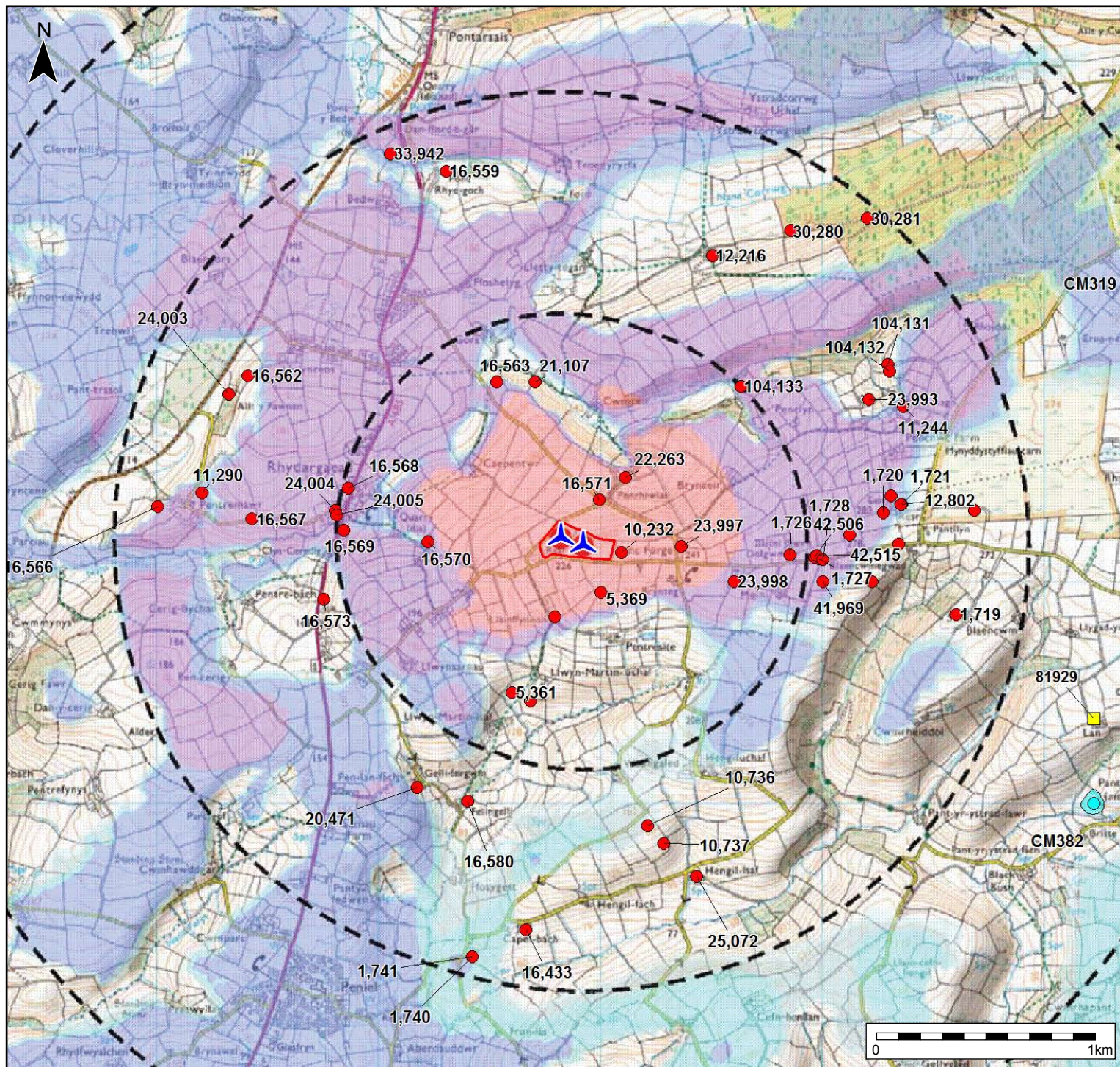
Client:  
Force 5 Energy Ltd.

On behalf of: Mr H. Jenkins

Project Title: Land at Rhydargaeau Road, Peniel

Figure 14.  
ZTV at Hub Height and HER Sites at 2km





#### Legend

- Study Area
- ▲ Proposed turbine locations
- Buffer Zone (km)
- HER Site

#### Zones of (Theoretical) Visual Influence (by vertical angle of view)

The vertical angle is the sectional angle the site forms when viewed from a specific location. The edge of the coloured area defines the visual envelope within the Local Study Area.

>3.0°	Areas where views of the development are likely to have <b>higher</b> magnitude of impact
1.0-3.0°	
0.3-1.0°	
0.2-0.3°	
0.1-0.2°	
0.0-0.1°	Areas where views of the development are likely to have <b>lower</b> magnitude of impact

This computer method helps define the measure of visual impact the proposed scheme might have by linking potential visual impact to the vertical angle subtended at the viewpoint by the top and bottom extremities of the area being viewed. This gives a measure of how much of a given field of view is occupied by the area when viewed from different locations. This method automatically takes into account what effect distance has on impact (i.e. an object close to the viewer occupies a far greater vertical angle than something hundreds of metres away).

The computation also takes account of the curvature of the earth. The ZVI values were calculated on a 25m grid across the study area and points of the same value were linked to produce 'contours' of potential 'visual magnitude'. The model does not take into account man made structures or vegetation. The 'actual' Zone of Visual Influence will therefore be modified by the effects of intervening woodland, hedgerows, buildings, and minor landform features.

Approximate Scale (@ A4): 1:20,000

Date: March 2015

Prepared by:

**Heritage**  
Recording Services Wales

Client:

Force 5 Energy Ltd.

On behalf of:

Mr H. Jenkins

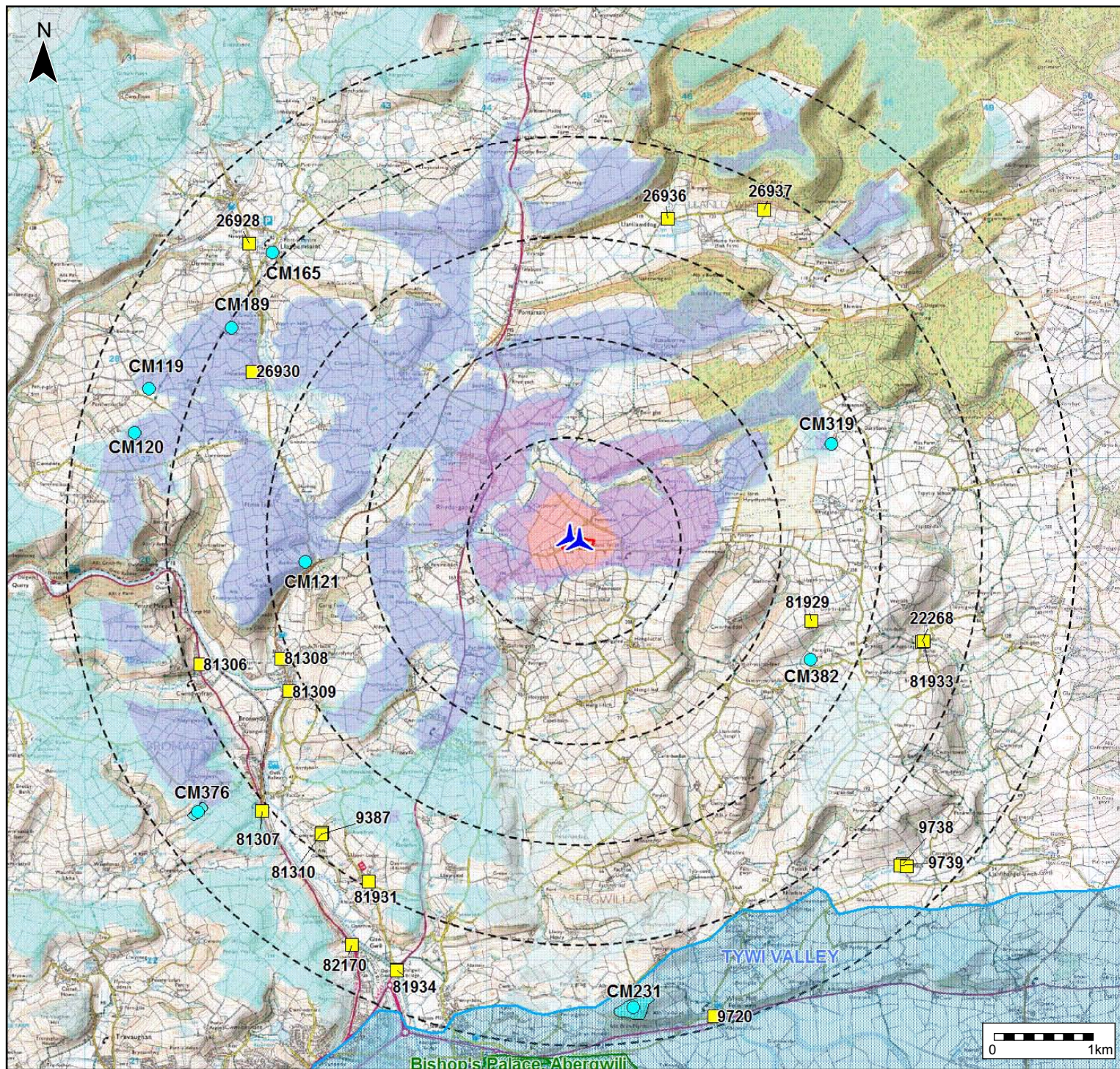
Project Title:

Land at Rhydargaeau Road,  
Peniel

Figure 15.

ZTV at Blade Tip and HER Sites at 2km





### Legend

- Study Area
- ✈ Proposed turbine locations
- Buffer Zone (km)
- Scheduled Ancient Monument (SAM)
- Scheduled Area
- Listed Building (LB)
- Registered Historic Landscape - Tywi Valley
- Registered Park & Garden (P&G)

### Zones of (Theoretical) Visual Influence

(by vertical angle of view)

The vertical angle is the sectional angle the site forms when viewed from a specific location. The edge of the coloured area defines the visual envelope within the Local Study Area.

- $>3.0^\circ$  Areas where views of the development are likely to have higher magnitude of impact
- $1.0-3.0^\circ$
- $0.3-1.0^\circ$
- $0.2-0.3^\circ$
- $0.1-0.2^\circ$
- $0.0-0.1^\circ$  Areas where views of the development are likely to have lower magnitude of impact

This computer method helps define the measure of visual impact the proposed scheme might have by linking potential visual impact to the vertical angle subtended at the viewpoint by the top and bottom extremities of the area being viewed. This gives a measure of how much of a given field of view is occupied by the area when viewed from different locations. This method automatically takes into account what effect distance has on impact (i.e. an object close to the viewer occupies a far greater vertical angle than something hundreds of metres away).

The computation also takes account of the curvature of the earth. The ZVI values were calculated on a 25m grid across the study area and points of the same value were linked to produce 'contours' of potential 'visual magnitude'. The model does not take into account man-made structures or vegetation. The 'actual' Zone of Visual Influence will therefore be modified by the effects of intervening woodland, hedgerows, buildings, and minor landform features.

Approximate Scale (@ A4): 1:50,000

Date: March 2015

Prepared by:  
Heritage  
Recording Services Wales

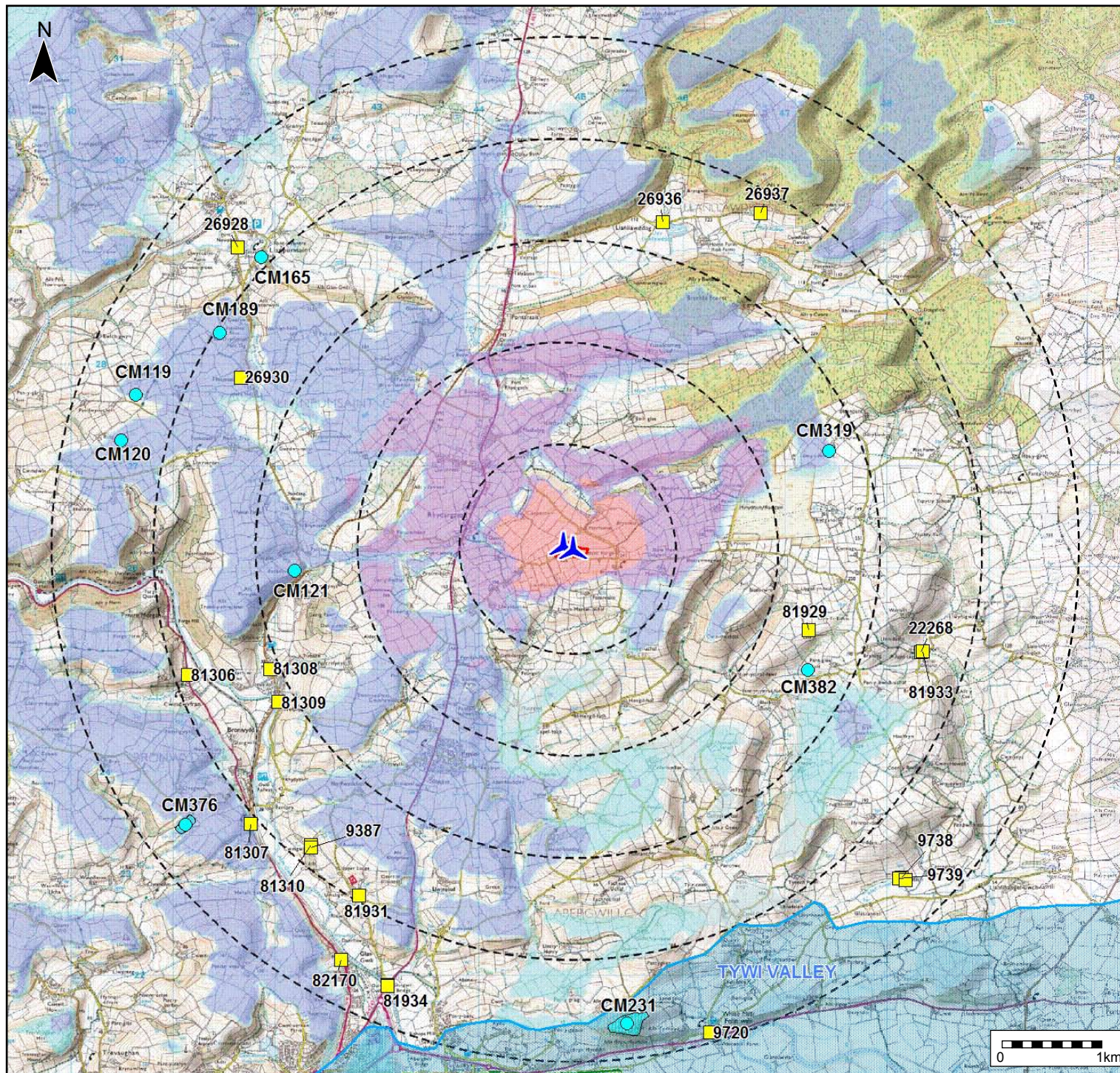
Client:  
Force 5 Energy Ltd.

On behalf of: Mr H. Jenkins

Project Title: Land at Rhydargaeau Road, Peniel

Figure 16. ZTV at Hub Height and Designated Sites at 5km





#### Legend

- Study Area
- ★ Proposed turbine locations
- Buffer Zone (km)
- Scheduled Ancient Monument (SAM)
- ▭ Scheduled Area
- ▭ Listed Building (LB)
- ▭ Registered Historic Landscape - Tywi Valley
- ▭ Registered Park & Garden (P&G)

#### Zones of (Theoretical) Visual Influence (by vertical angle of view)

The vertical angle is the sectional angle the site forms when viewed from a specific location. The edge of the coloured area defines the visual envelope within the Local Study Area.

- ▭ >3.0° Areas where views of the development are likely to have higher magnitude of impact
- ▭ 1.0-3.0°
- ▭ 0.3-1.0°
- ▭ 0.2-0.3°
- ▭ 0.1-0.2°
- ▭ 0.0-0.1° Areas where views of the development are likely to have lower magnitude of impact

This computer method helps define the measure of visual impact the proposed scheme might have by linking potential visual impact to the vertical angle subtended at the viewpoint by the top and bottom extremities of the area being viewed. This gives a measure of how much of a given field of view is occupied by the area when viewed from different locations. This method automatically takes into account what effect distance has on impact (i.e. an object close to the viewer occupies a far greater vertical angle than something hundreds of metres away).

The computation also takes account of the curvature of the earth. The ZVI values were calculated on a 25m grid across the study area and points of the same value were linked to produce 'contours' of potential 'visual magnitude'. The model does not take into account man made structures or vegetation. The 'actual' Zone of Visual Influence will therefore be modified by the effects of intervening woodland, hedgerows, buildings, and minor landform features.

Approximate Scale (@ A4): 1:50,000

Date: March 2015

Prepared by:  
**Heritage**  
Recording Services Wales

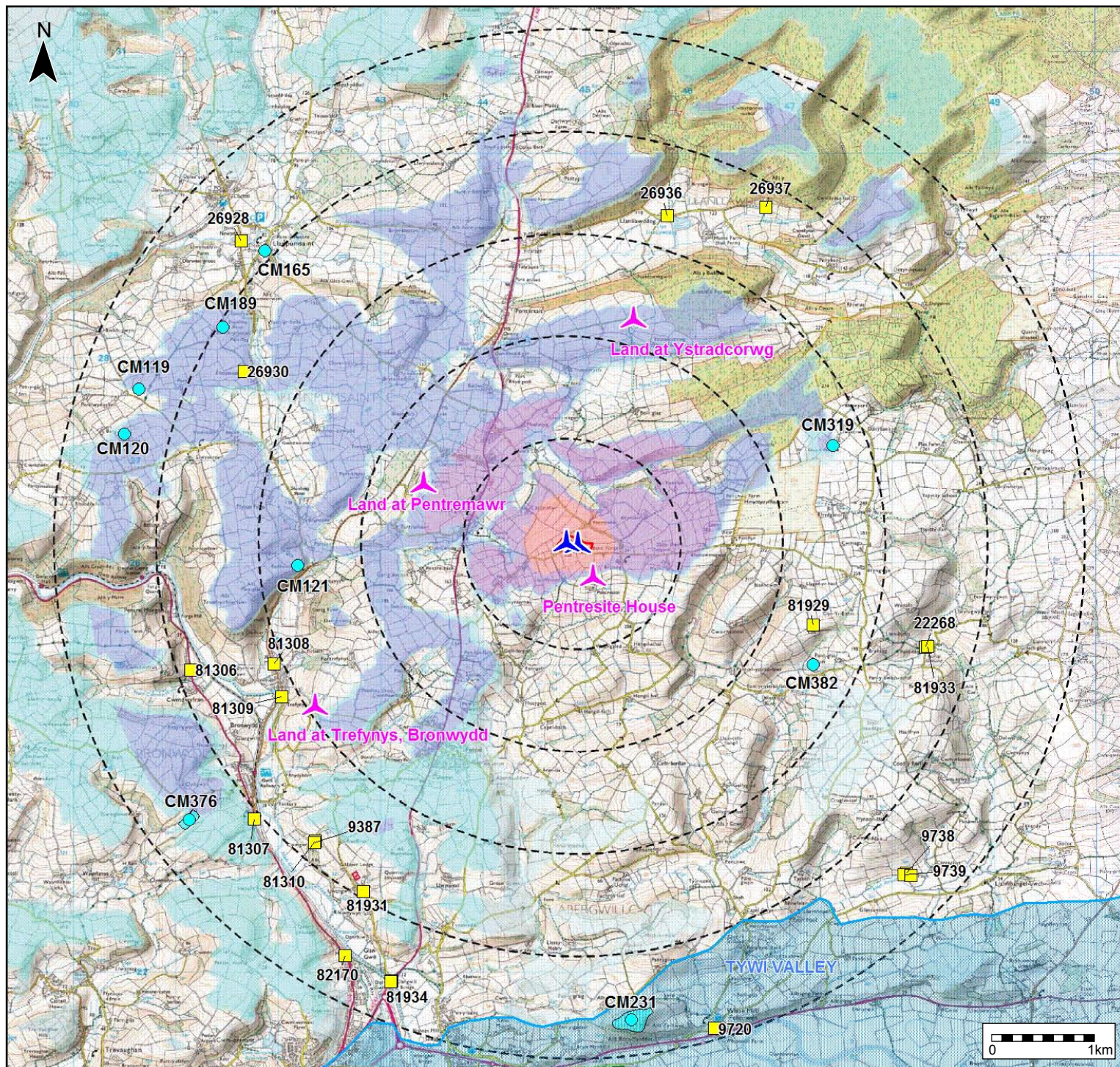
Client:  
Force 5 Energy Ltd.

On behalf of: Mr H. Jenkins

Project Title: Land at Rhydargaeau Road, Peniel

Figure 17. ZTV at Blade Tip and Designated Sites at 5km





### Legend

- Study Area
- ▲ Proposed turbine locations
- ▲ Cumulative sites
- Buffer Zone (km)
- Scheduled Ancient Monument (SAM)
- Scheduled Area
- Listed Building (LB)
- Registered Historic Landscape - Tywi Valley
- Registered Park & Garden (P&G)

### Zones of (Theoretical) Visual Influence (by vertical angle of view)

- The vertical angle is the sectional angle the site forms when viewed from a specific location. The edge of the coloured area defines the visual envelope within the Local Study Area.
- >3.0°** Areas where views of the development are likely to have **higher** magnitude of impact
  - 1.0-3.0°**
  - 0.3-1.0°**
  - 0.2-0.3°**
  - 0.1-0.2°**
  - 0.0-0.1°** Areas where views of the development are likely to have **lower** magnitude of impact

This computer method helps define the measure of visual impact the proposed scheme might have by linking potential visual impact to the vertical angle subtended at the viewpoint by the top and bottom extremities of the area being viewed. This gives a measure of how much of a given field of view is occupied by the area when viewed from different locations. This method automatically takes into account what effect distance has on impact (i.e. an object close to the viewer occupies a far greater vertical angle than something hundreds of metres away).

The computation also takes account of the curvature of the earth. The 2d values were calculated on a 25m grid across the study area and points of the same value were linked to produce 'contours' of potential 'visual magnitude'. The model does not take into account man made structures or vegetation. The 'actual' Zone of Visual Influence will therefore be modified by the effects of intervening woodland, hedgerows, buildings, and minor landform features.

Approximate Scale (@ A4): 1:50,000

Date: March 2015

Prepared by:

**Heritage**  
Recording Services Wales

Client:

Force 5 Energy Ltd.

On behalf of:

Mr H. Jenkins

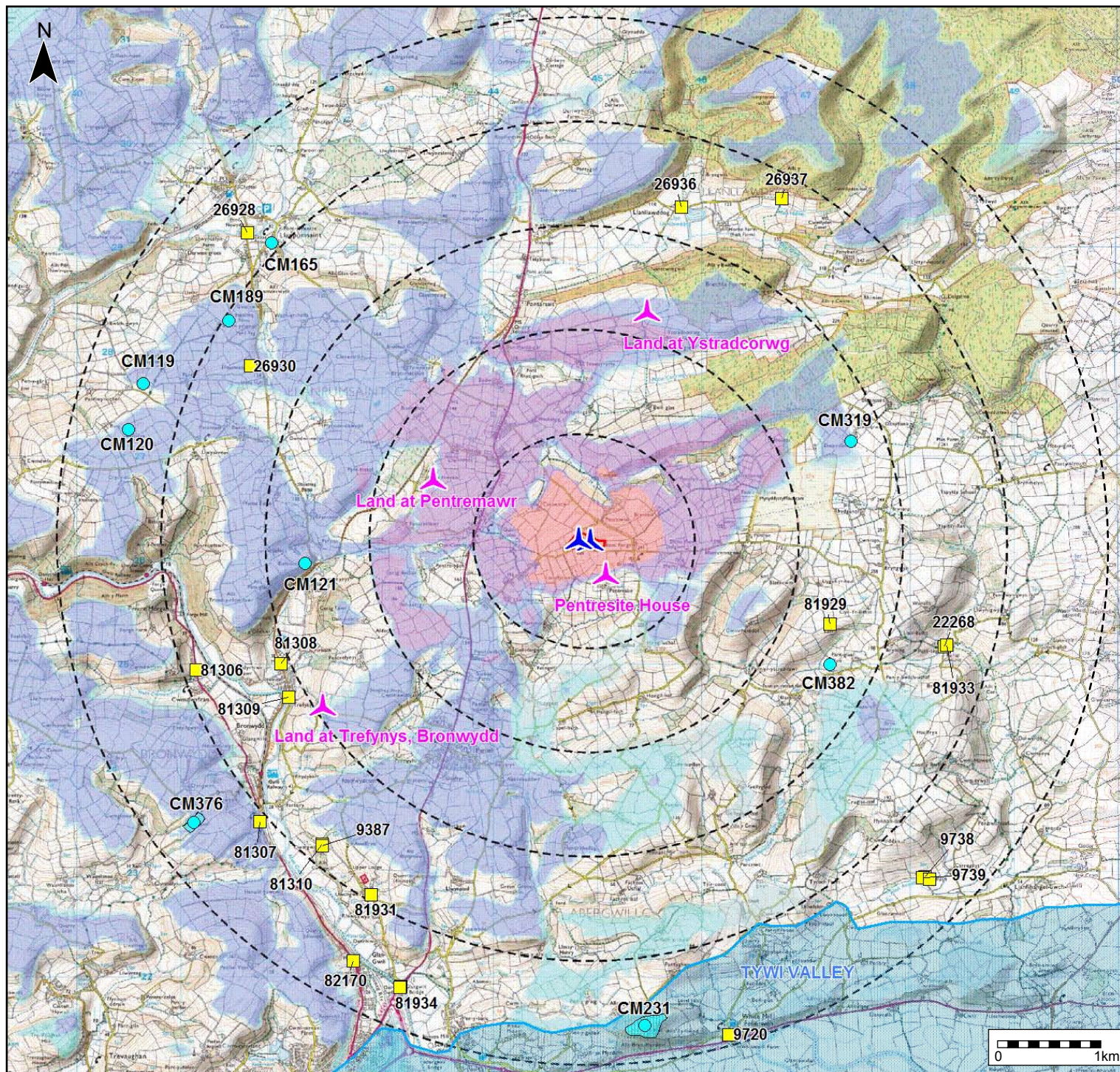
Project Title:

Land at Rhydargaeau Road, Peniel

Figure 18.

Cumulative Sites and ZTV at Hub Height within 5km





### Legend

- Study Area
- ▲ Proposed turbine locations
- ▲ Cumulative sites
- Buffer Zone (km)
- Scheduled Ancient Monument (SAM)
- ▭ Scheduled Area
- Listed Building (LB)
- Registered Historic Landscape - Tywi Valley
- Registered Park & Garden (P&G)

### Zones of (Theoretical) Visual Influence (by vertical angle of view)

The vertical angle is the sectional angle the site forms when viewed from a specific location. The edge of the coloured area defines the visual envelope within the Local Study Area.

- >3.0° Areas where views of the development are likely to have **higher** magnitude of impact
- 1.0-3.0°
- 0.3-1.0°
- 0.2-0.3°
- 0.1-0.2°
- 0.0-0.1° Areas where views of the development are likely to have **lower** magnitude of impact

This computer method helps define the measure of visual impact the proposed scheme might have by linking potential visual impact to the vertical angle subtended at the viewpoint by the top and bottom extremities of the area being viewed. This gives a measure of how much of a given field of view is occupied by the area when viewed from different locations. This method automatically takes into account what effect distance has on impact (i.e. an object close to the viewer occupies a far greater vertical angle than something hundreds of metres away).

The computation also takes account of the curvature of the earth. The 2d values were calculated on a 25m grid across the study area and points of the same value were linked to produce 'contours' of potential 'visual magnitude'. The model does not take into account man made structures or vegetation. The 'actual' Zone of Visual Influence will therefore be modified by the effects of intervening woodland, hedgerows, buildings, and minor landform features.

Approximate Scale (@ A4): 1:50,000

Date: March 2015

Prepared by: **Heritage**  
Recording Services Wales

Client: Force 5 Energy Ltd.

On behalf of: Mr H. Jenkins

Project Title: Land at Rhydargaeau Road, Peniel

Figure 19. Cumulative Sites and ZTV at Blade Tip within 5km



## **APPENDIX II:**


### **Photo plates**



*Plate 1. Spliced view of proposed location of Turbine 1. Looking west-north-west to north-north-west.*



*Plate 2. Spliced view of proposed location of Turbine 1. Looking north to northeast.*

<b>Project Title:</b> Rhydargaeau Road Wind Turbines	<b>Photo Plates No.</b> 1 and 2	
<b>Date taken:</b> March 2015		
<b>Photographer:</b> Richard Scott Jones		



*Plate 3. Spliced view of proposed location of Turbine 1. Looking northeast to east.*



*Plate 4. Spliced view of proposed location of Turbine 1. Looking south to southwest.*

<b>Project Title:</b>	Rhydargaeau Road Wind Turbines	<b>Photo Plates No.</b> 3 and 4	
<b>Date taken:</b>	March 2015		
<b>Photographer:</b>	Richard Scott Jones		






*Plate 5. Spliced view of proposed location of Turbine 2. Looking northwest to northeast.*



*Plate 6. Spliced view of proposed location of Turbine 2. Looking northeast to southeast.*

<b>Project Title:</b>	Rhydargaeau Road Wind Turbines	<b>Photo Plates No.</b>	5 and 6	
<b>Date taken:</b>	March 2015			
<b>Photographer:</b>	Richard Scott Jones			

SE

S

SW



*Plate 7. Spliced view of proposed location of Turbine 2. Looking southeast to southwest.*

W

NW



*Plate 8. Spliced view of proposed location of Turbine 2. Looking west to northwest.*

**Project Title:** Rhydargaeau Road Wind Turbines

**Date taken:** March 2015

**Photographer:** Richard Scott Jones

**Photo Plates No.**

7 and 8

**Heritage**  
Recording Services Wales



*Plate 9. View of proposed access position leading to Turbine 2. Looking northeast.*



*Plate 10. View of proposed access position leading to Turbine 1. Looking north.*

<b>Project Title:</b> Rhydargaeau Road Wind Turbines	<b>Photo Plates No.</b> 9 and 10	
<b>Date taken:</b> March 2015		
<b>Photographer:</b> Richard Scott Jones		

## **APPENDIX III:**

### **Site Gazetteer**

## APPENDIX III

### Site Gazetteer

*of*

**Historic Environment Record (HER) Sites within 2km from turbine location**

**&**

**Scheduled Ancient Monuments (SAMs) and Listed Buildings (LBs) within 5km radius**

#### A) Historic Environment Record (HER) Sites within 2km from turbine location

<b>PRN:</b>	1718	<b>Type:</b> Round Barrow	<b>Period:</b> Bronze Age	<b>NGR:</b> SN46222600
<b>Name:</b>	CRUG BLAEN CWM EGWAD			
<b>Summary:</b>	No archaeological traces of a monument exists in the area indicated by the grid reference, nor in the immediately surrounding area. Site destroyed. NB. 2001.			
<b>Community:</b>	Abergwili		<b>Site Status:</b>	
<b>PRN:</b>	1719	<b>Type:</b> Defended Enclosure	<b>Period:</b> Iron Age	<b>NGR:</b> SN46602585
<b>Name:</b>	CROES ARTHUR;CWMRHEIDDOL			
<b>Summary:</b>	A large enclosure of some 1.3 hectares situated along a northwest facing scarp slope. It is irregular in shape with a maximum length north to south of 185m and a maximum width east to west of 84m.			
<b>Community:</b>	Abergwili		<b>Site Status:</b>	
<b>PRN:</b>	1720	<b>Type:</b> Round Barrow	<b>Period:</b> Bronze Age	<b>NGR:</b> SN46272631
<b>Name:</b>	BULL HALL CRUG;PEN Y CNWC;CRUGIAN			
<b>Summary:</b>	A farmer ploughed up a large quartz stone ~1.0m long in this field about 2 years ago: it has been dumped onto the cairn. The cairn is a turf covered mound about 0.6m in height and about 15.0m in diameter. There is a trig point on the north side. ER Evans			
<b>Community:</b>	Llanllawddog		<b>Site Status:</b>	
<b>PRN:</b>	1721	<b>Type:</b> Round Barrow	<b>Period:</b> Bronze Age	<b>NGR:</b> SN46352635
<b>Name:</b>	PEN Y CNWC;CRUGIAN			
<b>Summary:</b>	Only very slight traces of this barrow remain and it is barely visible in the field. The field is regularly ploughed and the barrow has thus been severely denuded. NB. 2001.			
<b>Community:</b>	Llanllawddog		<b>Site Status:</b>	
<b>PRN:</b>	1726	<b>Type:</b> Standing Stone	<b>Period:</b> Bronze Age	<b>NGR:</b> SN45852612
<b>Name:</b>	MEINI GWYN			
<b>Summary:</b>	Standing stone. A quartz block 2m accross and 0.5m high. It is located in the back garden of a house, Dolgwy, where it is a garden feature and may have been moved from its original purpose to serve this function. (H Pritchard 2014)			
<b>Community:</b>	Llanllawddog		<b>Site Status:</b>	
<b>PRN:</b>	1727	<b>Type:</b> Standing Stone	<b>Period:</b> Bronze Age	<b>NGR:</b> SN4598126102



- Name:** MEINI GWYN  
**Summary:**  
Standing stone. An irregular quartz block 2m across and 0.5m high. It is located next to the hedge line along a roadside. One of a pair in an improved pasture field. (H Pritchard 2014)  
**Community:** Llanllawddog **Site Status:**
- PRN:** 1728 **Type:** Standing Stone **Period:** Bronze Age **NGR:** SN46002610  
**Name:** MEINI GWYN  
**Summary:**  
Site of a standing stone. Photographs from 2004 show an irregular quartz block 1.5m across and 0.25m high. Aerial photographs in 2009 showed the stone still in situ but at a field visit in 2014 the stone had disappeared.. (H Pritchard 2014)  
**Community:** Abergwili **Site Status:**
- PRN:** 1730 **Type:** Round Barrow,Natural Feature **Period:** Bronze Age **NGR:** SN46682632  
**Name:** TURBARY COMMON THE  
**Summary:**  
No archaeological features visible in the area. The cropmark described is a a large clump of gorse and nothing else. NB. 2001.  
**Community:** Abergwili **Site Status:** Site of Special Scientific Interest
- PRN:** 1740 **Type:** Chapel **Period:** Medieval **NGR:** SN44422431  
**Name:** CAPEL BACH FFOS Y GEST;CAPEL Y GROES  
**Summary:**  
Churchyard occupied by 19th century chapelry to Abergwili parish (PRN 16985), known as 'Capel-y-groes' and 'Capel bach ffos y gest'. It may occupy the site (and churchyard) of an earlier, medieval chapelry to Abergwili parish (PRN 1740). See churchyard P  
**Community:** Abergwili **Site Status:**
- PRN:** 1741 **Type:** Inscribed Stone **Period:** Early Medieval **NGR:** SN44422431  
**Name:** CAPEL Y GROES  
**Summary:**  
Group II ECM (Cross-carved stone), with incised ring-cross, of probable 7th-8th century date. It was first recorded in 1876 when it formed part of a stile leading into the churchyard at Capel-y-groes, Abergwili (PRNs 1740 & 16985) where it was possibly m  
**Community:** Abergwili **Site Status:**
- PRN:** 5361 **Type:** Round Barrow **Period:** Bronze Age **NGR:** SN446255  
**Name:** PARC TWMPATH  
**Summary:**  
  
**Community:** Llanllawddog **Site Status:**
- PRN:** 5364 **Type:** Unknown **Period:** Unknown **NGR:** SN44682546  
**Name:** PARC DAN Y GAER  
**Summary:**  
Bank and hillslope: a ridge along the top ends at a deep crevasse, which has been quarried in the past. ER Evans 1983  
**Community:** Llanllawddog **Site Status:**
- PRN:** 5369 **Type:** Round Barrow **Period:** Bronze Age **NGR:** SN45002595  
**Name:** OLD QUARRY CRUG  
**Summary:**  
Site no longer visible in the field. NB. 2001.No archaeological traces of a monument exists in the area indicated by the grid reference, nor in the immediately surrounding area. Site destroyed. NB. 2001.  
**Community:** Llanllawddog **Site Status:**

<b>PRN:</b> 10232	<b>Type:</b> Round Barrow	<b>Period:</b> Bronze Age	<b>NGR:</b> SN45092613
<b>Name:</b> BLAEN Y PANT			
<b>Summary:</b> No archaeological traces of this barrow remain. NB. 2001.No archaeological traces of a monument exists in the area indicated by the grid reference, nor in the immediately surrounding area. Site destroyed. NB. 2001.			
<b>Community:</b> Llanllawddog		<b>Site Status:</b>	
<b>PRN:</b> 10736	<b>Type:</b> Unknown,Cropmark	<b>Period:</b> Unknown	<b>NGR:</b> SN45212490
<b>Name:</b> LLAN HEUGIL			
<b>Summary:</b>			
<b>Community:</b> Abergwili		<b>Site Status:</b>	
<b>PRN:</b> 10737	<b>Type:</b> Unknown,Earthwork	<b>Period:</b> Unknown	<b>NGR:</b> SN45282482
<b>Name:</b> LLAN HEUGIL			
<b>Summary:</b>			
<b>Community:</b> Abergwili		<b>Site Status:</b>	
<b>PRN:</b> 11244	<b>Type:</b> Well,Holy Well	<b>Period:</b> Unknown,Medieval	<b>NGR:</b> SN46362679
<b>Name:</b> FFYNNON IAGO			
<b>Summary:</b> Place name suggesting the presence of a well but the well itself is not shown on either historic Ordnance Survey maps or modern mapping and there are no records to suggest that a holy well existed in this location (M.Ings, 2011).			
<b>Community:</b> Llanllawddog		<b>Site Status:</b>	
<b>PRN:</b> 11290	<b>Type:</b> Standing Stone	<b>Period:</b> Bronze Age	<b>NGR:</b> SN432264
<b>Name:</b> CAE MAIN			
<b>Summary:</b>			
<b>Community:</b> Llandyfaelog		<b>Site Status:</b>	
<b>PRN:</b> 12216	<b>Type:</b> Unknown	<b>Period:</b> Unknown	<b>NGR:</b> SN45502747
<b>Name:</b> BEILI GLAS			
<b>Summary:</b>			
<b>Community:</b> Llanllawddog		<b>Site Status:</b>	
<b>PRN:</b> 12802	<b>Type:</b> Round Barrow	<b>Period:</b> Bronze Age	<b>NGR:</b> SN4635426347
<b>Name:</b> PANT-Y-LLYN;PENCWNC			
<b>Summary:</b> Site almost completely destroyed and indistinct in the field. NB. 2001.			
<b>Community:</b> Abergwili		<b>Site Status:</b>	
<b>PRN:</b> 12803	<b>Type:</b> Round Barrow	<b>Period:</b> Bronze Age	<b>NGR:</b> SN46122621
<b>Name:</b> PANT-Y-LLYN			
<b>Summary:</b> A large round barrow clearly visible in the field, and located directly between two groups of monuments, starting with the barrow cemetery at Penycwnc (42530) and running WSW towards the Meini Gwyn monument complex (43531). The barrow has been somewhat d			
<b>Community:</b> Abergwili		<b>Site Status:</b>	
<b>PRN:</b> 16433	<b>Type:</b> Chapel	<b>Period:</b> Post-Medieval	<b>NGR:</b> SN44662443
<b>Name:</b> CAPEL BACH UCHAF			

**Summary:**

**Community:** Abergwili

**Site Status:**

**PRN:** 16559 **Type:** Bridge **Period:** Post-Medieval **NGR:** SN44302785  
**Name:** PONT RHYD-GOCH  
**Summary:**

Bridge on road now by-passed by main road. Lies in thick woodland not identified on site visit. (H Steane Price 2014)

**Community:** Llanllawddog

**Site Status:**

**PRN:** 16562 **Type:** Quarry **Period:** Post-Medieval **NGR:** SN4340926930  
**Name:**  
**Summary:**

**Community:** Llanllawddog

**Site Status:**

**PRN:** 16563 **Type:** Quarry **Period:** Post-Medieval **NGR:** SN44532690  
**Name:**  
**Summary:**

A quarry is shown in this location on the 1907 Ordnance Survey map. Present condition unknown.

**Community:** Llanllawddog

**Site Status:**

**PRN:** 16566 **Type:** Quarry **Period:** Post-Medieval **NGR:** SN43002634  
**Name:**  
**Summary:**

**Community:** Llanllawddog

**Site Status:**

**PRN:** 16567 **Type:** Gravel Pit **Period:** Post-Medieval **NGR:** SN4342726282  
**Name:**  
**Summary:**

**Community:** Llanllawddog

**Site Status:**

**PRN:** 16568 **Type:** Chapel **Period:** Post-Medieval **NGR:** SN43862642  
**Name:** CAPEL HOREB  
**Summary:**

Horeb Chapel still in use. Strands in burial ground (H Steane Price 2014)

**Community:** Llanpumsaint

**Site Status:**

**PRN:** 16569 **Type:** Chapel **Period:** Post-Medieval **NGR:** SN43842623  
**Name:** CAPEL BETHEL  
**Summary:**

Capel built 1816, rebuilt in 1852

**Community:** Llanllawddog

**Site Status:**

**PRN:** 16570 **Type:** Quarry **Period:** Post-Medieval **NGR:** SN44222618  
**Name:**  
**Summary:**

Very large quarry shown on 2nd edition OS map currently being used as landfill site.(H Steane Price 2014)

**Community:** Llanllawddog

**Site Status:**

**PRN:** 16571 **Type:** Chapel **Period:** Post-Medieval **NGR:** SN44992637  
**Name:** BWLCH-Y-CORN CHAPEL  
**Summary:**



Chapel still in use. Ty bach/privy remains outside and in very good condition. (H Steane Price 2014)

<b>Community:</b> Llanllawddog	<b>Site Status:</b>	
<b>PRN:</b> 16572 <b>Type:</b> Well <b>Name:</b> LLAIN-FFYNNO <b>Summary:</b>	<b>Period:</b> Post-Medieval	<b>NGR:</b> SN44792584
<b>Community:</b> Llanllawddog	<b>Site Status:</b>	
<b>PRN:</b> 16573 <b>Type:</b> Quarry <b>Name:</b> <b>Summary:</b>	<b>Period:</b> Post-Medieval	<b>NGR:</b> SN43752592
<b>Community:</b> Llanllawddog	<b>Site Status:</b>	
<b>PRN:</b> 16580 <b>Type:</b> Corn Mill <b>Name:</b> FELIN GELLI <b>Summary:</b>	<b>Period:</b> Post-Medieval	<b>NGR:</b> SN44402501
<b>Community:</b> Abergwili	<b>Site Status:</b>	
<b>PRN:</b> 16985 <b>Type:</b> Chapel <b>Name:</b> CAPEL-Y-GROES <b>Summary:</b>	<b>Period:</b> Post-Medieval	<b>NGR:</b> SN44422431
<b>Community:</b> Abergwili	<b>Site Status:</b>	
<b>PRN:</b> 20471 <b>Type:</b> Mansion <b>Name:</b> GELLI-FERGWM;GELLYVERGAM <b>Summary:</b> C. 1760 Woodford Rice lived in a mansion on this site (spelt then Gellyvergam). Double pile house with walled garden. F. Jones.	<b>Period:</b> Post-Medieval	<b>NGR:</b> SN44172507
<b>Community:</b> Llanllawddog	<b>Site Status:</b>	
<b>PRN:</b> 21107 <b>Type:</b> Cottage <b>Name:</b> PANTYPINCHWN <b>Summary:</b> Cottage shown on tithe map but not on late 20th century OS maps. RPS October 2001	<b>Period:</b> Post-Medieval	<b>NGR:</b> SN447269
<b>Community:</b> Llanegwad	<b>Site Status:</b>	
<b>PRN:</b> 22263 <b>Type:</b> Farmstead <b>Name:</b> PEN RHIW LAS <b>Summary:</b> Original house was demolished to make way for a modern dwelling prior to visit in 1984. RPS August 2001	<b>Period:</b> Post-Medieval	<b>NGR:</b> SN45112647
<b>Community:</b> Llanllawddog	<b>Site Status:</b>	
<b>PRN:</b> 23993 <b>Type:</b> Cottage <b>Name:</b> PANT-Y-FFYNNON <b>Summary:</b> Cottage shown on 1st and 2nd edition Ordnance Survey maps. Depicted as rectangular 2 cell building set in small enclosures with outbuildings. Not visible on aerial photographs. (H Steane Price 2014)	<b>Period:</b> Post-Medieval	<b>NGR:</b> SN4620426823
<b>Community:</b> Llanllawddog	<b>Site Status:</b>	
<b>PRN:</b> 23996 <b>Type:</b> Cottage	<b>Period:</b> Post-Medieval	<b>NGR:</b> SN46342617

- Name:** BULL HALL  
**Summary:**  
Cottage shown on 1st and 2nd edition Ordnance Survey maps. No trace of cottage during field visit (2014)(H Steane Price 2014)  
**Community:** Abergwili **Site Status:**
- PRN:** 23997 **Type:** Blacksmiths Workshop **Period:** Post-Medieval **NGR:** SN45362616  
**Name:** BANC  
**Summary:**  
Smithy shown on 1st and 2nd edition Ordnance Survey maps. In good condition, now part of a farm complex. (H Steane Price 2014)  
**Community:** Llanllawddog **Site Status:**
- PRN:** 23998 **Type:** Cottage **Period:** Post-Medieval **NGR:** SN45602600  
**Name:** CAREG-WEN  
**Summary:**  
Cottage shown on 1st and 2nd edition Ordnance Survey maps. No longer survives, replaced by new build on plot closer to road. (H Steane Price 2014)  
**Community:** Llanllawddog **Site Status:**
- PRN:** 24003 **Type:** Cottage **Period:** Post-Medieval **NGR:** SN4332126847  
**Name:** MAWNEN  
**Summary:**  
Cottage shown on 1907 6" OS map. Present condition unknown, but not shown on OS Landranger map. RPS September 2001  
**Community:** Llanllawddog **Site Status:**
- PRN:** 24004 **Type:** Blacksmiths Workshop **Period:** Post-Medieval **NGR:** SN43802632  
**Name:** WHYDARGAREAU  
**Summary:**  
**Community:** Llanllawddog **Site Status:**
- PRN:** 24005 **Type:** Public House **Period:** Post-Medieval **NGR:** SN43812630  
**Name:** BLUE BELL THE  
**Summary:**  
**Community:** Llanllawddog **Site Status:**
- PRN:** 25072 **Type:** Dwelling **Period:** Post-Medieval **NGR:** SN45432467  
**Name:** HENGIL  
**Summary:**  
Historic dwelling described by Francis Jones in 1987. RPS September 2001  
**Community:** Abergwili **Site Status:**
- PRN:** 30280 **Type:** Cottage **Period:** Post-Medieval **NGR:** SN4585227583  
**Name:**  
**Summary:**  
One small rectangular building shown on 1st 2nd and 1964 ed OS map. JH July 1995. Described by FE WHA survey in 1999 thus: "Small enclosure with an earthwork building platform inside. Small semi-circular stone structure. 3m x 2m to N." RPS September 2001  
**Community:** Llanllawddog **Site Status:**
- PRN:** 30281 **Type:** Farmstead **Period:** Post-Medieval **NGR:** SN46202764  
**Name:** CROFFT-YR-ADAR  
**Summary:**  
Two rectangular and one square buildings shown on 1st 2nd and 1964 ed OS map. The site is not named on the 1st ed map JH July 1995. Described by FE WHA survey in 1999 thus: "Three

buildings shown on OS 2nd edition. Remains of 2 buildings visible. FE tra

**Community:** Llanllawddog

**Site Status:**

**PRN:** 33942 **Type:** Road,Hollow Way **Period:** Roman **NGR:** SN44052793

**Name:** PONT-RHYD GOCH

**Summary:**

A cropmark identified from aerial photographs and presumed to be associated with the Roman road RR69d between Carmarthen and Llanfair Clydogau (PRN 3382), although there are no other remnants of the road nearby that might help to support this presumption

**Community:** Llanllawddog

**Site Status:**

**PRN:** 41969 **Type:** Farmhouse **Period:** Post-Medieval **NGR:** SN4626

**Name:** FFWRNEITHIN FARM

**Summary:**

The site of the original farmhouse of Ffwrneithin Farm (c.1773) lies to the northwest of the farmyard. The footings apparently survive within an area of rubble that is now completely overgrown with nettles and was inaccessible at the time of the visit.

**Community:** Llanarth

**Site Status:**

**PRN:** 42505 **Type:** Round Barrow **Period:** Bronze Age **NGR:** SN4630526387

**Name:** PENCWNC

**Summary:**

A possible round barrow, c.50m NNE of barrow 1720 and c.30m from barrows 1721 and 12802, and part of barrow cemetery 42530. Two small clearance cairns of white quartz boulders have been cleared to the edge of the field adjacent to the water reservoir and

**Community:** Llanllawddog

**Site Status:**

**PRN:** 42506 **Type:** Ring Barrow **Period:** Bronze Age **NGR:** SN4596226109

**Name:** MEINI GWYN

**Summary:**

c.20m to the WNW of stone 1727 there is a large circular cairn/stone ring with a central hollow/depression now overgrown with nettles. A clearly circular area, c.12m in diameter and standing 0.6m high, consists of a bank c.1.3m wide with a possible entra

**Community:** Llanllawddog

**Site Status:**

**PRN:** 42515 **Type:** Round Barrow **Period:** Bronze Age **NGR:** SN4597226116

**Name:** MEINI GWYN

**Summary:**

Possible ploughed-out round barrow, 12m in diameter and located in the same small area as stones 1727, 1728 and possible ring barrow 42506. Part of the Meini Gwyn monument complex (42531). Quartz boulder 1727 lies 10m away to the S of the barrow and 17

**Community:** Llanllawddog

**Site Status:**

**PRN:** 42530 **Type:** Round Barrow Cemetery **Period:** Bronze Age **NGR:** SN46352635

**Name:** PENCWNC

**Summary:**

Barrow cemetery group situated on a local highpoint in the landscape and close to, and intervisible with, the prehistoric monument complex at Meini Gwyn (42531). This barrow cemetery consists of a group of four barrows: 1720, 1721, 12802 and 42505, whic

**Community:** Llanllawddog

**Site Status:**

**PRN:** 42531 **Type:** Prehistoric Monument Complex **Period:** Bronze Age **NGR:** SN46002610

**Name:** MEINI GWYN

**Summary:**

A prehistoric monument complex located on a ridge of high ground in improved land. Complex includes a group of quartz boulders (PRNs 1726,1727,1728), 2 barrows 12803 and 42515 and a possible ring barrow 42506. (H.Pritchard, 2014)

**Community:** Llanllawddog

**Site Status:**

**PRN:** 49239    **Type:** Churchyard    **Period:** Early Medieval    **NGR:** SN44422431

**Name:** CAPEL BACH FFOS Y GEST;CAPEL Y GROES

**Summary:**

Early medieval C site, ie. low-probability early medieval origins. Churchyard occupied by 19th century chapelry to Abergwili parish (PRN 16985) which probably occupies the site (and churchyard) of a, medieval chapelry to Abergwili parish (PRN 1740), kno

**Community:** Abergwili

**Site Status:**

**PRN:** 104131    **Type:** Cottage    **Period:** Post-Medieval    **NGR:** SN46292698

**Name:** FFYNNON-LAS

**Summary:**

'Ffynnon-las' cottage recorded on the 1st edition Ordnance Survey map. Possibly abandoned by the 1906 2nd ed. and shown only in outline on mastermap.

**Community:** Llanllawddog

**Site Status:**

**PRN:** 104132    **Type:** Cottage    **Period:** Post-Medieval    **NGR:** SN46302695

**Name:** CWM-FILIAST-FACH

**Summary:**

'Cwm-filast-fach' cottage recorded on the historic Ordnance Survey maps but shown only in outline on mastermap, presumed abandoned.

**Community:** Llanllawddog

**Site Status:**

**PRN:** 104133    **Type:** Cottage    **Period:** Post-Medieval    **NGR:** SN45632688

**Name:** CWM-GWER

**Summary:**

'Cwm-gwer' cottage recorded on the 1889 1st edition Ordnance Survey map. Shown but not named on the 1906 2nd ed and shown only in outline on mastermap, presumed abandoned.

**Community:** Llanllawddog

**Site Status:**

## **B) Scheduled Ancient Monuments (SAMs) and Listed Buildings (LBs) within 5km radius**

### ***i) Scheduled Ancient Monuments (SAMs)***

**SAM No.** CM319    **Type:** Round barrow    **Period:** Prehistoric    **NGR:** SN474271

**Name:** Crug-y-rhud-hir round barrow

**Community:** Llanllawddog

**SAM No.** CM231    **Type:** Hillfort    **Period:** Prehistoric    **NGR:** SN454215

**Name:** Merlins Hill Hillfort

**Community:** Abergwili

**SAM No.** CM119    **Type:** Round barrow    **Period:** Prehistoric    **NGR:** SN406276

**Name:** Bwlch-Bychan Round Barrow

**Community:** Llanpumsaint

**SAM No.** CM120    **Type:** Round barrow    **Period:** Prehistoric    **NGR:** SN404272

**Name:** Banc Round Barrow

**Community:** Llanpumsaint

<b>SAM No.</b>	CM121	<b>Type:</b>	Motte	<b>Period:</b>	Medieval	<b>NGR:</b>	SN421259
<b>Name:</b>	Pant-Glas Castle Mound						
<b>Community:</b>	Llanpumsaint						
<b>SAM No.</b>	CM189	<b>Type:</b>	Standing stone	<b>Period:</b>	Prehistoric	<b>NGR:</b>	SN414283
<b>Name:</b>	Ffos-y-Maen Standing Stone						
<b>Community:</b>	Llanpumsaint						
<b>SAM No.</b>	CM165	<b>Type:</b>	Cross-marked stone	<b>Period:</b>	Early Medieval	<b>NGR:</b>	SN418290
<b>Name:</b>	Cross-Incised Stone in Churchyard						
<b>Community:</b>	Llanpumsaint						
<b>SAM No.</b>	CM376	<b>Type:</b>	Enclosure - Defensive	<b>Period:</b>	Prehistoric	<b>NGR:</b>	SN411234
<b>Name:</b>	Defended Enclosure 350m S of Clungwyn						
<b>Community:</b>	Bronwydd						
<b>SAM No.</b>	CM382	<b>Type:</b>	Promontory Fort - inland	<b>Period:</b>	Prehistoric	<b>NGR:</b>	SN472250
<b>Name:</b>	Defended Enclosure 300m W of Pant-glas						
<b>Community:</b>	Abergwili						

## ii) *Listed Buildings (LBs)*

<b>LB No.</b>	22268	<b>Name:</b>	Capel Panteg and attached vestry to left	<b>Easting:</b>	248322	<b>Northing:</b>	225168
<b>Location:</b>	Situating in a remote valley N of a minor road some 4km NE of Whitemill.						
<b>Grade:</b>	II*	<b>Community:</b>	Abergwili				
<b>LB No.</b>	26928	<b>Name:</b>	Pont Newydd	<b>Easting:</b>	241631	<b>Northing:</b>	229142
<b>Location:</b>	Carrying a country road across the Afon Gwili approximately 250m NW of the parish church. The road connects the Gwili valley past the old railway line to the Teifi valley and its woollen mills at Newcastle Emlyn, Llandysil and Drefach Felindre.						
<b>Grade:</b>	II	<b>Community:</b>	Llanpumsaint				
<b>LB No.</b>	26930	<b>Name:</b>	Ffos-y-maen, including attached former byre	<b>Easting:</b>	241660	<b>Northing:</b>	227864
<b>Location:</b>	Approximately 1.2km SSW of the parish church, reached by short farm road on the W side of a minor road between Llanpumsaint and Bronwydd.						
<b>Grade:</b>	II	<b>Community:</b>	Llanpumsaint				
<b>LB No.</b>	26936	<b>Name:</b>	Pound in churchyard wall of Church of St Llawddog	<b>Easting:</b>	245797	<b>Northing:</b>	229389
<b>Location:</b>	On the S side of the church.						
<b>Grade:</b>	II	<b>Community:</b>	Llanllawddog				
<b>LB No.</b>	26937	<b>Name:</b>	Y Dderwyn	<b>Easting:</b>	246756	<b>Northing:</b>	229473

<b>Location:</b>	Approximately 1km E of Llanllawddog church, in a field on the N side of a minor road between Llanllawddog and Brechfa.		
<b>Grade:</b>	II	<b>Community:</b>	Llanllawddog
<b>LB No. 81306</b>	<b>Name:</b> Milestone on A484 at Cwmdwyfran	<b>Easting:</b> 241140	<b>Northing:</b> 224945
<b>Location:</b>	To the N of a junction with a by-road to Cwmdwyfran Farm.		
<b>Grade:</b>	II	<b>Community:</b>	Bronwydd
<b>LB No. 81307</b>	<b>Name:</b> Milestone on A484 at former Bronwydd Arms public house	<b>Easting:</b> 241754	<b>Northing:</b> 223490
<b>Location:</b>	To the S of the junction of the A484 and B4301.		
<b>Grade:</b>	II	<b>Community:</b>	Bronwydd
<b>LB No. 81308</b>	<b>Name:</b> Milestone on B4301 in Bronwydd Arms village	<b>Easting:</b> 241948	<b>Northing:</b> 225007
<b>Location:</b>	Approximately 300m N of Pont Newydd.		
<b>Grade:</b>	II	<b>Community:</b>	Bronwydd
<b>LB No. 81309</b>	<b>Name:</b> Pont Newydd	<b>Easting:</b> 242024	<b>Northing:</b> 224682
<b>Location:</b>	In the centre of the village.		
<b>Grade:</b>	II	<b>Community:</b>	Bronwydd
<b>LB No. 81310</b>	<b>Name:</b> Service building on N side of Cwmgwili	<b>Easting:</b> 242351	<b>Northing:</b> 223275
<b>Location:</b>	On the N side of the house.		
<b>Grade:</b>	II	<b>Community:</b>	Bronwydd
<b>LB No. 81929</b>	<b>Name:</b> Former secondary dwelling at Lan Farm	<b>Easting:</b> 247220	<b>Northing:</b> 225383
<b>Location:</b>	Adjacent to the house on the NW side of the farmyard. Lan Farm is approximately 1.1km W of Capel Panteg, reached by farm road on the S side of a minor road.		
<b>Grade:</b>	II	<b>Community:</b>	Abergwili
<b>LB No. 81931</b>	<b>Name:</b> House opposite Gardener's Cottage	<b>Easting:</b> 242821	<b>Northing:</b> 222784
<b>Location:</b>	Approximately 1km NNW of Dol-gwili roundabout, on the E side of a minor road at its junction with a track to Glyn View.		
<b>Grade:</b>	II	<b>Community:</b>	Abergwili
<b>LB No. 81933</b>	<b>Name:</b> Panteg House	<b>Easting:</b> 248341	<b>Northing:</b> 225181
<b>Location:</b>	On the NE side of the chapel, set back from the road.		
<b>Grade:</b>	II	<b>Community:</b>	Abergwili
<b>LB No. 81934</b>	<b>Name:</b> Pont Glangwili	<b>Easting:</b> 243100	<b>Northing:</b> 221906
<b>Location:</b>	On the E side of the A485 immediately N of Dolgwili roundabout. Partly within the Carmarthen Community		
<b>Grade:</b>	II	<b>Community:</b>	Abergwili
<b>LB No. 82170</b>	<b>Name:</b> Milestone	<b>Easting:</b> 242646	<b>Northing:</b> 222155
<b>Location:</b>	Situated on main Cardigan road, set into retaining wall of Cyncoed, No 116A, at pavement level.		
<b>Grade:</b>	II	<b>Community:</b>	Carmarthen
<b>LB No. 82194</b>	<b>Name:</b> Pont Glangwili	<b>Easting:</b> 243095	<b>Northing:</b> 221900
<b>Location:</b>	Situated at Dolgwili, just NE of A485/Carmarthen by-pass roundabout.		
<b>Grade:</b>	II	<b>Community:</b>	Carmarthen
<b>LB No. 9387</b>	<b>Name:</b> Cwmgwili	<b>Easting:</b> 242348	<b>Northing:</b> 223255
<b>Location:</b>	Set in its own grounds approximately 2.5km NW of Abergwili.		

<b>Grade:</b>	II*	<b>Community:</b>	Bronwydd		
<b>LB No.</b>	9720	<b>Name:</b>	Felin Wen (White Mill)	<b>Easting:</b>	246255
<b>Location:</b>	On the S side of the road through White Mill hamlet, opposite a junction with a minor road to Capel Gwyn.				<b>Northing:</b> 221442
<b>Grade:</b>	II*	<b>Community:</b>	Abergwili		
<b>LB No.</b>	9738	<b>Name:</b>	Gilfach y Berthog	<b>Easting:</b>	248132
<b>Location:</b>	Approximately 2.5km NE of Whitemill, reached by farm road on the N side of a minor road 0.75km W of Llanfihangel-uwch-gwili.				<b>Northing:</b> 222958
<b>Grade:</b>	II*	<b>Community:</b>	Abergwili		
<b>LB No.</b>	9739	<b>Name:</b>	Stables at Gilfach y Berthog, including attached gate piers	<b>Easting:</b>	248112
<b>Location:</b>	On the W side of the house.				<b>Northing:</b> 222947
<b>Grade:</b>	II	<b>Community:</b>	Abergwili		
<b>LB No.</b>	9746	<b>Name:</b>	Barn to SE of Gilfach y Berthog	<b>Easting:</b>	248176
<b>Location:</b>	On the SE side of the house.				<b>Northing:</b> 222937
<b>Grade:</b>	II	<b>Community:</b>	Abergwili		

**APPENDIX IV:**  
**Archive Cover Sheet**



## ARCHIVE COVER SHEET

Wind Turbines on land east of Rhydargaeau Road

Rhydargaeau, Peniel, Carmarthenshire

ARCHIVE DESTINATION – RCHAMW

Site Name:	Rhydargaeau Road Wind Turbines
Site Code:	RR/2015/AA
PRN:	
NPRN :	N/A
SAM:	N/A
Other Ref No:	HRSW Report No. 158
NGR:	SN 4482 2629 and the other centred on SN 4492 2616.
Site Type:	Multi period landscape
Project Type:	Archaeological Appraisal
Project Manager:	Richard Scott Jones
Project Dates:	March 2015
Categories Present:	N/A
Location of Original Archive:	HRS Wales
Location of duplicate Archives:	Dyfed Archaeological Trust
Number of Finds Boxes:	
Location of Finds:	
Museum Reference:	
Copyright:	HRS Wales
Restrictions to access:	None



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