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Bodrida Wind Turbine, Brynsiencyn, Isle of Anglesey

Archaeological Desk-Based Assessment

Project Code: A0009

Report no. 0009

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Date: 10/04/2013
Client: Entrust
Written by: Richard Cooke BA MA MIfA

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BODRIDA WIND TURBINE, BRYNSIENCYN, ANGLESEY

ARCHAEOLOGICAL DESK-BASED ASSESSMENT: (A0009)

SUMMARY
Aeon Archaeology undertook an archaeological desk-based assessment of a proposed wind turbine located *in a field immediately north of Bodrida Farm, approximately 2.2km northwest of the village of Brynsiencyn, Isle of Anglesey.*

The archaeological assessment showed that the proposed wind turbine is expected to have a visual impact upon thirty-five Scheduled Ancient Monuments located within a 10.0km radius of the proposed site location. Of these, the nearest to the site (within 2.0km) were assessed as part of the visual impact assessment. In addition, the World Heritage Site of Caernarfon Castle (Cn034) and Caernarfon Town Wall (Cn079), as well as the only two Listed Buildings within 1.0km, Melin Bodowyr (LB 19883) and Pont Melin Bodowyr (LB 19887), were included within the visual assessment of the proposed turbine.

The visual impact assessment determined that there was no potential impact upon the view between monuments or upon their significant views. It did however determine that of the nine Scheduled Ancient Monuments located within 2.0km of the proposed turbine site, one monument, Bodowyr Burial Chamber (An007) would be severely/very severely impacted upon. In addition, it determined that the Pont Sarn-Las Hut Group (An087) would be severely impacted, and that the Bryngwyn Standing Stones (An022) and Castell Bryn Gwyn (An015) would be considerably/severely impacted upon.

The proposed turbine would also have a moderate visual impact upon the Trefwri Standing Stone (An086) Scheduled Ancient Monument, and a very slight visual impact upon four other Scheduled Ancient Monuments including the World Heritage Sites of Caernarfon Castle (Cn079) and Caernarfon Town Walls (Cn034).

The potential visual impact upon the grade II Listed Buildings of Melin Bodowyr and Pont Melin Bodowyr was also assessed, and the impact is expected to be moderate.

1.0 INTRODUCTION

Aeon Archaeology was asked by Entrust to undertake an archaeological desk-based assessment of a proposed wind turbine site (single turbine). The proposed scheme is to be located in a field immediately north of Bodrida Farm, approximately 2.2km northwest of the village of Brynsiencyn, Isle of Anglesey (centred on NGR **SH 46273 67815)** (figure 1). The archaeological desk-based assessment has been undertaken in tandem with a full planning application by the client for the erection of one wind turbine with a maximum hub height of 31.5m, rotor diameter of up to 27.0m and a maximum upright vertical tip height of up to 57.5m.

The favoured turbine is the Vestas V27 225kW which comprises three components; the turbine, the rotor, and the tubular tower. Access will be gained to the site via an existing trackway to the southwest and fields will be accessed via their existing gateways with no requirement for wall demolition. The turbine does not require a utility housing or transformer station and the cable route to connect the generated supply to the national grid is currently undertermined. The anticipated lifespan of the turbine is twenty-five years (data sourced from Entrust).

The proposed turbine is situated close to several archaeological sites, including the Scheduled Ancient Monuments of the prehistoric Bodowyr Burial Chamber (An 007) located 330.0m to the north; the prehistoric Castell Bryn-Gwyn (An 015) located 750.0m to the southeast; the

prehistoric Pont Sarn-Las Hut Group (An 087) located 860.0m to the east; the prehistoric Bryngwyn Standing Stones located 880.0m to the south; the Roman enclosure of Caer Leb (An 014) located 1.0km to the southeast; and the prehistoric Trefwri Standing Stone (An 086) located 1.34km to the east. Furthermore, due to the substantial height of the turbine the visual impact upon Scheduled Ancient Monuments is far more outreaching, and as such Scheduled Ancient Monuments within a 10.0km radius are included within the Zone of Theoretical Visibility (ZTV) study for this assessment report.

2.0 AIMS

This archaeological desk-based assessment report is for the proposed development area, which included the proposed wind turbine location, hard-standing, transformer house, and access track. As part of the archaeological desk-based assessment a 1.0km search area centred on the proposed wind turbine location was utilised for a search of the Gwynedd Historic Environment Record (HER). This provided a background historical narrative of the area and included source material from the Royal Commission on the Ancient and Historic Monuments in Wales (RCAHMW) and Cadw.

3.0 SPECIFICATION AND PROJECT DESIGN

A detailed brief was not prepared for this project by the Gwynedd Archaeological Planning Service (GAPS) archaeologist Jenny Emmett, but an archaeological desk-based assessment of the proposed development area was requested by Enturst prior to planning application. Furthermore, the client had previously sought advice from Cadw regarding the requirement for an archaeological study, and correspondence from Cadw identified the need for an archaeological assessment of the potential archaeological impacts of the scheme:

> *'Cadw would wish to see full consideration given to the visual impact that the turbine would have upon the setting of the scheduled ancient monuments in the vicinity of the proposed turbine and careful consideration should be given to the intervisibility of the monument with other monuments that sit within this archaeologically rich landscape'* (Enturst/ Cadw correspondence dated 19/02/2013).

The following report conforms to the guidelines specified in *Standard and Guidance for Archaeological Desk-based Assessment* (Institute of Field Archaeologists, 1994, rev. 2007).

The archaeological desk-based assessment considered the following:

(i) The history of the site;
(ii) The assessment of impact of development on archaeological remains;
(iii) The assessment of impact of development on the setting of sites of archaeological importance;
(iv) The requirements for further assessment in the form of non-intrusive and intrusive field evaluation.

The archaeological desk-based assessment was undertaken in four stages:

(i) Archival research
(ii) Site walkover including environmental hand auger transects
(iii) Written report
(iv) Project archive

4.0 METHODS AND TECHNIQUES

4.1 Archival research

The archaeological desk-based assessment involved the study of the following records:

(i) The regional Historic Environment Record (Gwynedd Archaeological Trust, Craig Beuno, Garth Road, Bangor, LL57 2RT) was examined for information concerning the study area. This included an examination of the core HER, and secondary information

held within the record which included unpublished reports, the 1:2500 County Series Ordnance Survey maps, the National Archaeological Record index cards and aerial photography if relevant.

(ii) The National Monuments Record (NMR RCAHMW, National Monuments Record of Wales, Plas Crug, Aberystwyth, SY23 1NJ) was checked for sites additional to the HER, including aerial photography, and additional supporting information will be examined at the NMR if useful.

(iii) Information about Listed Buildings and Scheduled Ancient Monuments from Cadw was examined in the regional HER. The Register of Outstanding and Special Historic Landscapes and the Register of Parks and Gardens was checked, as well as the location of World Heritage Sites.

(iv) The National Library of Wales (Aberystwyth) was checked for information concerning the study area and monuments within close proximity.

(v) Secondary sources were examined, including the Inventories of the (RCAHMW), and works held within the regional libraries. Indices to relevant journals, including county history and archaeology society journals, as well as national society journals were checked. In addition topographical dictionaries, antiquarian tours and trade directories were examined where relevant.

(vi) Historic aerial photographs from the Welsh Government were obtained and examined for sites that have been demolished and/or sites which were visible only as cropmarks. All photographs examined are listed in the assessment report.

(vii) The Anglesey Archives (Llangefni) and The Bangor University archives (Bangor) were searched for archive maps, including estate and tithe maps as well as information from Land Tax Assessments.

(viii) Results from previous archaeological work within the area were also reviewed.

A Zone of Theoretical Visibility (ZTV) study was carried out by Entrust, which mapped the visibility of the proposed turbine from SAMs within a 10.0km radius. This study was then utilised to produce wire-frame montage of views from all of the affected SAMs within a 2.0km radius towards the proposed location of the turbine.

4.2 Site walkover

The site walkover was carried out on Friday 29th March 2013 by Richard Cooke BA MA MIfA, archaeological contractor and consultant at Aeon Archaeology. The site was clear of vegetation (plate 1) due to grazing and the weather was bright and clear, thus being suitable to assess the impacts upon long range views across Anglesey. The proposed footprint of the turbine and access track were inspected for upstanding archaeological features.

4.3 Written report

All identified features were assessed and allocated to categories of international, national, regional/county, local and none/unknown importance as listed in Appendix 2. These are intended to give an idea of the importance of the feature and the level of response likely to be required; descriptions of the features and specific recommendations for further assessment or mitigatory measures, as appropriate, are given in the relevant sections of this report. The criteria used for allocating features to categories of importance are based on existing statutory designations and, for non-designated assets, the Secretary of State's non-statutory criteria for Scheduling Ancient Monuments; these are set out in National Planning Policy Framework (NPPF).

Definitions of Impact, evaluation methods and mitigation methods as used in the gazetteer (section 6.0 below) can be found in Appendix 2.

5.0 THE STUDY AREA

5.1 Topographic Description

The study area is located in the community of Rhosyr within the parish of Llangeinwen, approximately 2.2km northwest of the village of Brynsiencyn, Isle of Anglesey. The proposed wind turbine location is within an enclosed field utilised for sheep grazing and approximately 250.0m northwest of the farm of Bodrida, as well as a minor unnamed road which leads from the B4419 road located to the southwest. The fields consist of improved grassland bounded by dry-stone walls.

The superificial bedrock consists of Devensian – Diamicton till which formed up to 2 million years ago in the Quaternary Period when the local environment was previously dominated by ice age conditions. Beneath this lies mica schist of the Central Anglesey Shear Zone and Berw Shear Zone (Undifferentiated). This is a metamorphic bedrock which formed approximately 518 to 650 million years ago in the Cambrian and Neoproterozoic Iii Periods (British Geological Survey).

5.2 Statutory and non-statutory designations

The site lies within or in close proximity to the following areas/ sites:

(i) Approximately 330.0m south of the prehistoric *Bodowyr Burial Chamber* (An 007) Scheduled Ancient Monument;

(ii) Approximately 750.0m northwest of the prehistoric *Castell Bryn-Gwyn* (An 015) Scheduled Ancient Monument;

(iii) Approximately 860.0m west of the prehistoric *Pont Sarn-Las Hut Group* (An 087) Scheduled Ancient Monument;

(iv) Approximately 880.0m north of the prehistoric *Bryngwyn Standing Stones* (An 022) Scheduled Ancient Monument;

(v) Approximately 1.0km northwest of the Roman enclosure of *Caer Leb* (An 014) Scheduled Ancient Monument;

(vi) Approximately 1.34km west of the prehistoric *Trefwri Standing Stone* (An 086) Scheduled Ancient Monument;

(vii) Approximately 1.83km southeast of the early Medieval *Early Gravestones & Shaft in Churchyard* (An 053) Scheduled Ancient Monument;

(viii) Approximately 2.02km northwest of the prehistoric *Perthi-Duon Burial Chamber* (An 059) Scheduled Ancient Monument;

(ix) Approximately 3.14km west of the prehistoric *Caer Idris Hillfort* (An 051) Scheduled Ancient Monument.

The site lies within 1.0km of the following Listed Buildings:

(i) Approximately 710.0m southwest of the grade II Listed Building of *Melin Bodowyr* (LB ref: 19883);

(ii) Approximately 750.0m southwest of the grade II Listed Building of *Pont Melin Bodowyr* (LB ref: 19887).

The lists of non-designated sites recorded within the Gwynedd Historic Environment Record (HER) are shown on figures 1 and 2. Scheduled Ancient Monuments (SAMs) are shown on figure 2, sites from the National Monuments Record (NMR) housed at the Royal Commission on the Ancient and Historic Monuments in Wales (RCAHMW) and Listed Buildings are shown on figure 3. The sites are shown with their reference numbers which are listed in Appendix 1.

6.0 THE HISTORICAL CONTEXT

The following sections describe the known archaeological record within the general area of the proposed development. Sites are identified by their Primary Reference Number (PRN) which is the number by which they are identified in the Gwynedd Historic Environment Record (HER), or by their Scheduled Ancient Monument reference, or Listed Building reference numbers if applicable. The intention of this section is to provide a historic and archaeological context to the site. This aids in establishing the relative importance of an archaeological feature within its landscape, as well as assessing the potential for unknown buried archaeological remains on the proposed development site.

6.1 Prehistoric and Roman Period

The earliest prehistoric sites encountered in Anglesey belong to the Mesolithic period after the glaciers of the last Ice Age had retreated. These sites are based around seasonal occupation where the lifestyle was dependent upon hunting and gathering food. The sites are primarily identified through the presence of flint and chert scatters, either as waste flakes and cores indicative of flint working; or through the finished scrapers, knives and microliths.

The Neolithic period differed largely through the introduction of farming, more permanent settlements, burial tombs and pottery (Lynch.F. 1970). Furthermore, axes made from stone and usually polished to a smooth regular shape started being produced and replaced the reliance upon the use of flint. Stone axes are usually derived from a specific rock source, of which the nearest is Graiglwyd, Penamaenmawr. A find of a prehistoric axe hammer (PRN 3141) has been made approximately 350.0m to the north of the proposed turbine site at Bodowyr Burial Chamber SAM (An007). Further structural remains associated with the Neolithic period can be seen at Castell Bryn Gwyn (An015) located approximately 750.0m to the southeast and at Perthi-Duon Burial Chamber SAM (An059) located approximately 2.02km to the southeast. The former of these consists of a 2.0m high circular clay and gravel bank enclosing a level area measuring 17.0m in diameter. There would also have originally been a ditch encircling the monument but this has since silted up. Neolithic pottery and flints were found underneath the bank, which has led to speculation that the earthwork may have originally been a type of henge monument. Later alterations included backfilling the already silted-up main ditch in order to extend the bank. Subsequently a V shaped ditch was dug outside and a wooden rampart may have been created, probably during the later prehistoric period. Pottery found within the enclosure suggested that it had been occupied during 1st century AD although the defences were again slightly rebuilt at a later date.

The Bronze Age is well represented within this part of Anglesey with the Trefwri Standing Stone SAM (An086) located approximately 1.34km to the east. Moreover a group of Bronze Age burials (PRN 3153) was found in 1882 in a small field belonging to a farm called Cae Meini located approximately 730.0m to the northwest of the proposed turbine location, although the exact location of the findspot is now unknown. Thirty-two cremation burials were found in a circle measuring 11.0m in diameter with twenty-five urns being found, thirteen of which were mostly intact, the remainder being fragments. One of the urns contained a bronze pin and a Middle Bronze Age undecorated, fragmentary pigmy cup without a base was also found (HER).

Lying approximately 880.0m to the south of the proposed wind turbine site is the Bryngwyn Standing Stones SAM (An022), which evaluation excavations by the Gwynedd Archaeological Trust in 2008 and 2010 confirmed were originally part of a stone circle. The excavations uncovered the stone sockets of the missing standing stones, some of which contained the broken stump of the stones which would have formed a circle of eight stones measuring approximately 16.0m in diameter. Traces were also found of later use of the circle for cremation activity (GAT reports 790 and 942).

The dominant archaeological site in the Iron Age is the round house, usually found grouped in nucleated settlements, and sometimes associated with a defended enclosure on a hilltop or promontory. A site of this type of probable late prehistoric date, Caer Idris Hillfort SAM (An051) is located approximately 3.14km east of the proposed turbine site. The fort has three stony banks formerly terminating at the cliff edge which are now cut off by a modern road on the north and field walls to the east and west. The banks contain an internal area measuring approximately 80.0m by 35.0m which is now heavily forested. The Iron Age is further represented by the Pont Sarn-Las Hut Group SAM (An087) located approximately 860.0m east of the proposed development site. These huts represent the last remains of a large settlement at Trefwri, which extended along the southern bank of the Braint to Tre Ifan, an overall distance of about 550.0m. Two definite hut circles measuring 7.0m internal diameter are visible and there are traces of about six more huts of the group, all of which are partly ploughed away and only a few walling stones can be seen in-situ. Several Roman coins were found across the site and it may well have been reused in the Roman period.

The Roman period saw little change in the nature of native settlements, and many roundhouse settlements continued to be occupied as can be seen at Castell Bryngwyn SAM (An015) and Pont Sarn-Las Hut Group SAM (An087). The period is clearly defined in the archaeological record through the introduction of Roman pottery and Roman coins, as well as characteristically Romano-British settlements. An example of this can be seen approximately 1.0km southeast of the proposed development site with the Roman earthwork settlement of Caer Leb SAM (An014). This site occupies a low lying marsh and excavations carried out in 1866 revealed stone founded buildings which produced Roman material. The enclosure is roughly rectangular and measures approximately 66.0m by 44.0m orientated northwest to southeast. The short south-east side projects to the central entrance gap and the site is enclosed by two banked circuits with a broad ditch between. Several stone founded buildings are apparent within, including a rectangular structure at least 14.0m square and a 5.9m internal diameter roundhouse. The roundhouse was explored in 1866 when it was found to have a paved floor with a stone mortar set at the centre and a possible hearth by the wall. The upper stone of a 'well finished' quern was also recovered from this building. The finds included pottery, with some Samian ware, a coin of the later third century emperor Postumus and a penanular brooch (RCAHMW).

Approximately 2.9km south of the proposed development site lays the Roman settlement of Tai Cochion (PRN 28425). The site turned up significant finds of Roman metalwork and pottery and it was subsequently investigated using geophysical survey in three phases. A total of 19.6 hectares was surveyed, most of which was found to contain elements of an extensive

settlement comprising of a road with several side branches and a series of small enclosures containing buildings. Excavation confirmed the interpretation of the settlement as a Roman civilian village or small town. The large amounts of Samian ware found demonstrated that it was a relatively high status settlement and its position on the opposite shore of the Menai Straits to the Roman fort of Segontium indicated that it marked the crossing point from the mainland.

The second season of excavation concentrated on a large rectangular building and a number of curvilinear features interpreted as pits and shallow cuts possibly related to building activity contemporary with the earliest phase of the settlement site. A kiln was also discovered from a later settlement phase, which could have been used to produce lime from locally plentiful limestone. The excavated rectangular building was one of 23 buildings identified on the geophysical survey plot, and was of fairly basic construction of timber and wattle and daub. It went through various phases, including destruction by fire and rebuilding, to its eventual abandonment and infilling.

The settlement at Tai Cochion in many respects fits into the category of a 'local centre'. It is situated in an obvious position for trade, at a crossing point of the Menai Straits. The finds suggest that it was wealthy and it doesn't appear to be centred on a villa or any official building. It was undefended which suggests a greater degree of Romanisation than is usually assumed for this zone of Roman Britain. The settlement was founded at the end of the 1st century AD (within two or three decades of the Flavian invasion) and survived until the mid-4th century (HER).

6.2 Early Medieval and Medieval Periods

The Early Medieval period is poorly represented within this part of northwest Wales and there are no known sites within 1.0km of the turbine location. However, by the 12th and 13th centuries the kingdom of Gwynedd, of which Anglesey was a part of, was divided into administrative *commotes*, administered through a network of local centres governed by a royal court or *Llys*. The township of a commote associated with a llys was known as the *maerdref*, in which the Prince’s agent would reside. The component parts of a llys included the royal hall and other buildings associated with the residence, as well as the royal demesne worked by bond tenants, and the settlements of these tenants which constituted small hamlets. The llys and royal lands became the property of the English King upon the conclusion of the conquest of Wales. The closest Llys to the study area is Llys Rhosyr SAM (An129) located approximately 5.0km to the southwest of the development area.

By the 13th century King Edward I had constructed a ring of castles around north Wales to help secure the conquest, the closest of which are Caernarfon Castle and Beaumaris Castle. He had also established boroughs where English settlers could live and trade, such as at Newborough located 4.4km to the southwest of the study area. The nearest surviving remains of the Medieval period to the proposed development site includes a medieval strip field system south of Bryngwyn Bach (PRN 29391) approximately 900.0m to the south.

6.3 Post Medieval Period

The farm and surrounding land of Bodrida was historically owned by the Plas Coch Estate and is first depicted in a survey of the estate in 1805 (figure 4.). The survey depicts the farm much as it exists today, with the main farm house, stables, and outbuildings all shown. The land belonging to the farm lies to the north and although there has been the removal of some field boundaries, the majority have been retained and very closely resemble those depicted on the 1805 map. The proposed wind turbine location field is shown as having been divided in

two at this time, by a boundary running from northwest to southeast. The survey apportionment details these two fields as follows:

Table 1. Apportionment to the Plas Coch Estate survey of 1805.

Plot	Plot name	A	R	P
11	Cae pant ycha	3	0	2
12	Cae pant ifsa	3	0	2

The fields in which the proposed wind turbine will be located (fields 11 and 12) are named as *Cae pant ycha* and *Cae pant ifsa* both of which may hint at an open field system through their use of the word *cae* (field). Furthermore, both of the words *ycha* and *ifsa* have medieval roots and may refer to a medieval origin, perhaps as strip fields.

The farm and surrounding land are again depicted on a survey of the Plas Coch Estate from 1833 (figure 5.) although the map shows the farm and fields exactly the same as in 1805 and was almost certainly traced from the earlier survey map. The accompanying valuation lists the field names as unchanged but includes the valuation of a cottage and garden known as 'Bodrida Bach' which was presumably constructed between 1805 and 1833.

The Llangeinwen parish tithe map of 1841 (figure 6.) depicts the proposed turbine location as within one large triangular field (field 38). The map has not been drawn to scale or to include every field boundary but is indicative of groups of fields separated by farm ownership. The field is depicted as lying to the north of Bodrida and there are no buildings or features of note depicted within or in proximity to the turbine location.

Table 2. The tithe apportionment of 1841

Plot	Landowner	Tenant	Plot Name	A/R/P
38	William Bulkley Hughes Esq.	Thomas Griffith	Bodrida	165/3/9

As can be seen from the 1841 tithe apportionment (table 2), the proposed development site was owned by William Bulkley Hughes Esq of the Plas Coch Estate. He was born in 1797 and was the eldest son of Sir William Bulkeley Hughes of Plas Coch, Llanidan, and Brynddu, Llanfechell, and Elizabeth the daughter and co-heiress of Rice Thomas of Coed Alun, Caernarvon. He sat as a Conservative in the House of Commons from 1837 to 1859 and his family, which claimed descent from Llywarch ap Bran, Lord of Menai, had since the middle of the 15th century played a leading part in the local administration of Anglesey.

Hugh Hughes, who in 1569 built Plas Coch on the site of the older house called Porthamel Isa, had a brilliant legal career and rose to be Queen's Attorney in North Wales and a member of the Council of the Marches, and was just before his death about to take up his appointment as lord chief justice of Ireland .

William Bulkeley Hughes Esq at first followed in his ancestor's footsteps, proceeding from Harrow to Lincoln's Inn, from which in 1824 he was called to the Bar . But while still actively engaged on the Oxford and Chester circuits, he came forward as Tory candidate in the Caernarvon boroughs election of 1837 and defeated captain Charles Henry Paget. His politics were described as those of a moderate Conservatism, although it was as a Liberal that he contested the election of 1865 . He was still M.P. for Caernarvon at the time of his death in 1882.

He took an active interest in local affairs and administration, being a justice of the peace of Anglesey and Caernarvonshire and high sheriff of Anglesey in 1861. As chairman of the Llandudno Improvement Commissioners he contributed in large measure to the development of the town through his successful negotiations with the Mostyn Estate between 1873 and 1877. A keen speculator in railway shares, he took full advantage of the boom of the 1840's to replenish his estate, and held the chairmanship of the Anglesey Central Railway from its opening to its absorption by the L.N.W.R. Co (Archives Wales).

As can be seen from the tithe apportionment of 1841 the tenant farmer at this time was Thomas Griffith. He had, however, died the very same year and was thus not included within the Wales census of 1841 which records that Bodrida was occupied by his wife Mary Griffiths (65 years old), Margaret Griffiths (30 years old), and Anne Griffiths (25 years old), as well as two farm labourers.

The proposed development area is depicted clearly on the first, second and third edition Ordnance Survey maps of 1889, 1900 and 1920 respectively (figures 7, 8, and 9.). The wind turbine location is shown exactly how it exists today. There have been no reduction or addition of field boundaries and there are no buildings depicted in vicinity to the site. However, on the first and second edition maps (figures 7 and 8.) a trackway is shown running from the farm northwest across the fields. This trackway is not depicted on the third edition map (figure 9.) although the track is still in use today to access the fields, and indeed will be utilised to access the wind turbine site by plant machinery.

6.4 Aerial Photographs

A range of aerial photographs of the proposed development area were examined from the Welsh Government. These included high level photographs taken by the Royal Air Force in 1945, 1946, and 1951. Recent aerial coverage of the proposed development area from 2012 was also inspected. No new archaeological sites were identified from the aerial photographs.

6.5 Site Gazetteer

The field walkover discovered one site of archaeological and historic interest within, or in close proximity to the proposed development corridor, as listed below. Each entry contains an assessment of importance, ranked from International through to National, Regional/County, Local, and None. If it is not possible to assess the importance of the site from the visible remains, then it is ranked Unknown with the suspected level of importance placed in brackets. Identified sites were also assigned a level of impact ranked from high through to medium, and low. Levels of impact can be considered as both adverse or beneficial, and can be direct (physically impacting upon a site) or indirect (visually or indirectly physically impacting upon a site). Where it is expected that a site will be impacted upon by the proposed works then mitigation recommendations are provided. All archaeological/historical sites identified are depicted on figure.1.

1. Trackway (plate 2; figure 7)	Category: Local	PRN: 37081
SH 46372 67655 – SH 46280 67711	Period: Post Medieval	Impact: Negligible
A trackway measuring approximately 3.0m in width runs from southeast to northwest up the edge of the field, parallel with the field wall to the northeast. The trackway does not appear to have any structural element apart from the occasional use of hardcore material to fill in areas of rutting.		

The trackway is first depicted on the first edition Ordnance Survey map of 1889 (figure 7.) although it may well have medieval origins. The trackway will be utilised to access the proposed wind turbine location by plant machinery. The track has already been fairly heavily rutted over generations of use and the lack of any structural element suggests that the utilisation of the track by machinery will not cause any further damage. The direct impact therefore is expected to be negligible and no further assessment or mitigatory measures are proposed.
Recommendations for further assessment: None
Recommendations for mitigatory measures: None

7.0 VISUAL IMPACT

7.1 Zone of theoretical visibility (ZTV) study

A ZTV study was carried out by Entrust in December 2012 (see figure 10). This study was used to graphically depict the Scheduled Ancient Monuments within a 10km radius of the proposed development site which would have a line of sight with any part of the wind turbine. The desk-study included computer studies to test the visibility of the proposed wind turbine. A computer-generated ZTV was prepared to identify the general locations and extent of the visual envelope for each part of the proposed wind turbine. This involves a series of inter-visibility calculations using specialist computer software, equivalent to studies based on drawn cross-sections.

The ZTV is based on topographic data only; minor undulations in the terrain may not be reflected in the 10m interval of the contour data. Similarly, the screening effects of surface features such as buildings, woodland and hedgerows are not taken into consideration during the preparation of the ZTV. Visual barriers created by vegetation are seen as temporary in nature and therefore have no direct influence upon visual impact assessment, however regard should be taken to visual barriers created by a multitude of sources or by vegetation which is awarded statutory or non-statutory protection.

Topography has a major influence on the visibility of developments in the landscape, but surface features can also restrict the extent of the potential views available. The predicted visibility of the proposed development through the ZTV is, therefore, only an indication of visibility and not an accurate representation of actual visibility.

7.2 Visual Impact upon Scheduled Ancient Monuments

The following list is a gazetteer of Scheduled Ancient Monuments within a 2.0km radius of the proposed development site which will be visually impacted upon by the proposed development, as shown by the ZTV study. In addition the Scheduled Ancient Monuments and World Heritage Sites of Caernarfon Town Wall (Cn034) and Caernarfon Castle (Cn079) have been included within the visual impact assessment. The sites are listed in numerical order by their Scheduled Ancient Monument reference number as provided by Cadw. The descriptions of the Scheduled Ancient Monuments have been obtained from the Coflein online inventory list housed by The Royal Commission on the Ancient and Historical Monuments in Wales (RCAHMW), and the magnitude of visual impact has been determined from wire-frame montage taken from the viewpoint of each individual monument towards a wire-frame model of the proposed wind turbine, as provided by Enturst. Where possible, photographs have also been taken from affected Scheduled Ancient Monuments looking towards the proposed development site. Photographs were taken at 35mm focal length to simulate the actual depth of field and the level of visual impact has been determined using both wire-frame and photographic evidence. The magnitude of severity regarding visual impact is derived from the Assessment of the Impact of Development upon Historic Landscapes (ASIDOHL 2) process

(see appendix II), and is recognised by Cadw, The Countryside Council for Wales, and The Welsh Government.

Scheduled Ancient Monuments within 2.0km with a view of the proposed wind turbine.

AN 007	**NGR:** SH 46228 68158	(figure 12; plates 3 and 4)
Bodowyr Burial Chamber		
The Bodowyr Burial Chamber is a megalithic monument now consolidated for public viewing. It consists of five upright orthostatic stones, one now fallen, which define a polygonal chamber. Three of the stones support a mushroom shaped capstone about 2.5m by 1.9m and up to 0.9m thick. The chamber would have lain within a cairn or mound of which there is now no trace. It can be identified as a Neolithic ritual or funerary monument. As can be seen from the wire-frame montage (figure 12) the proposed wind turbine would be highly visible and silhouetted against the sky when viewing south from the SAM. The photographic evidence (plate 4) shows that a small amount of the base of the turbine will be hidden from view by field boundaries, but the visual impact is still expected to be severe.		
Visual Impact: Severe to Very Severe		

AN 014	**NGR:** SH 47294 67415	(figure 13; plates 5 and 6)
Caer Leb		
An earthwork settlement enclosure occupying a low lying marshy site. Stone founded buildings within produced some Roman material when excavated in 1866. The enclosure is roughly rectangular or pentagonal, about 66.0m north-west to south-east by 44.0m. The short south-east side projects to the central entrance gap. It is enclosed by two banked circuits with a broad ditch between. Several stone founded buildings are apparent within, including a rectangular structure at least 14.0m square and a 5.9m internal diameter roundhouse. The roundhouse was explored in 1866 when it was found to have a paved floor with a stone mortar set at the centre and a possible hearth by the wall. The upper stone of a 'well finished' quern was also recovered from this building. The finds included pottery, with some Samian ware, a coin of the later third century emperor Postumus and a penanular brooch. This may be a later Prehistoric settlement occupied through the Roman period. The presence of a groat of Henry V or VI may indicate some form of occupation in the medieval period. The wire-frame montage (figure 13) shows that the wind turbine would be reasonably visible in the medium distance and partially silhouetted against the sky when viewing northwest from the SAM; however photographic evidence (plate 6) shows that the views towards the turbine site from the SAM are obscured by several field boundary hedges and outcrops of trees. Therefore the visual impact upon the SAM is expected to be Very Slight.		
Visual Impact: Very Slight		

AN 015	**NGR:** SH 46529 67058	(figure 14; plate 7)
Castell Bryn-Gwyn		
Castell Bryn Gwyn is a near circular earthwork enclosure defined by a massive rampart that remains up to 2.6m high, with an internal area in the region of 52.0-56.0m across. There is little trace on the ground of a ditch and early observers, misled by irregularities in the rampart, identified this as a Roman amphitheatre.		

Excavations in 1959-60 demonstrated that the monument had originated as a late Neolithic ritual henge enclosure or similar. It had later been adapted as a defensible circuit, presumably enclosing a settlement. This reuse probably occurred in the later Prehistoric period and its latest phase is associated with Roman pottery of the late first century AD. The primary Neolithic phase had a 5.2m wide stony bank with a 2.3m wide berm separating it from a broad flat-bottomed external ditch, 1.9m deep and up to 9.8m wide. There was at least one entrance, facing south-west. The ditch had partly silted up and the bank had weathered, when the bank was extended forward into a 9.0m wide rampart, revetted by a dry stone wall and fronted by a relatively insubstantial ditch. Finally the rampart was again extended to a width of 11.0m with a timber revetment and a new ditch was dug, 5.5m wide and 3.6m deep. The south-west entrance was blocked at this time and a Roman pottery sherd was recovered from the blocking.

Trenching in the interior identified some features, although these could not be resolved into coherent structures and produced no dating evidence.

The wire-frame montage (figure 14) shows that the proposed turbine will be highly visible in the medium distance and mostly silhouetted against the sky when viewing north from the SAM; and the photographic evidence (plate 7) shows that there is no vegetation or buildings to obscure the view. Therefore the visual impact of the proposed development on the SAM is expected to be considerable/ severe.

Visual Impact: Considerable/ severe

AN 022	**NGR:** SH 46238 66931	(figure 15; plates 8 and 9)

Bryngwyn Standing Stones

Two immense standing stones set about 4.6m apart. These are: a pointed slab 4.2m high, 3.2m wide and 0.6m thick; a more massive block 3.2m high, 2.9m wide and 1.5m thick, with a flat inclined top.

This has been the conjectured site of a druidical stone circle since the early eighteenth century at least, indeed Rowlands identified elements of two circles and the RCAHMW traced a ditch and bank. Excavations by the Gwynedd Archaeological Trust in 2008 and 2011 succeeded in confirming that the monument had originally been a stone circle.

In the eighteenth century the stones supported a cottage and its garden wall. More recently they have acted as gateposts.

The wire-frame montage (figure 15) shows that the proposed wind turbine will be highly visible in the medium distance and mostly silhouetted against the sky when viewing north from the SAM, and the photographic evidence (plate 9) shows that there is no vegetation or buildings to obscure the view. Therefore the visual impact of the proposed development on the SAM is expected to be considerable/ severe.

Visual Impact: Considerable/ severe

AN 051	**NGR:** SH 4945367963	(figure 16; plates 10 and 11)

Cader Idris Hillfort

A hillfort defined by three or more banks representing tumbled stone walls. It occupies the summit of a north-east to south-west ridge and backs up against the lip of the long cliff that forms the ridge's northern edge. The ruined walls enclose an elongated area some 80m by 36m. There is a single entrance in the long south-eastern facade, to which the outer walls allow only a staggered approach. A road, the A4080, running along the summit of the cliff line has obscured part of the fort.

The wire-frame montage (figure 16) shows that the proposed wind turbine will be slightly visible in the far distance when viewing west from the SAM. However, the turbine would not be silhouetted against the sky and the photographic evidence (plate 11) shows that there is several field boundaries, hedges, and trees to obscure far reaching views towards the turbine location. Therefore the visual impact of the proposed development on the SAM is expected to be none.
Visual Impact: None

AN 053	**NGR:** SH 44581 68536	(figure 17; plates 12 and 13)
Early Gravestones & Shaft in Churchyard		
A series of nine incised stones and cross-shafts within the graveyard of Llangaffo Church dating to the Early Medieval period. The earliest stone in the collection, a wheel-cross gravestone in the sacristy, dates from the 7th Century. Five more stones stand against a low wall opposite the church door and other stones can be found in the graveyard walls. The wire-frame montage (figure 17) shows that the proposed wind turbine will be slightly visible in the far distance and the blade tip will be silhouetted against the sky when viewing southeast from the SAM; however the photographic evidence (plate 13) shows that the view towards the turbine site is entirely obscured by Llangaffo Church. Therefore the visual impact of the proposed development on the SAM is expected to be none.		
Visual Impact: None		

AN 059	**NGR:** SH 47981 66757	(figure 18; plates 14 and 15)
Perthi-Duon Burial Chamber		
A much ruined burial chamber consisting of a large capstone 9ft by 7ft resting on two collapsed orthostats. Several bronze chisels were said to be found in digging under it c.1826, when it fell down. A massive slab 2.3m x 1.9m x 0.80m deep rests on a horizontal smaller stone about 1.6 x 0.7 x 0.3 deep. The wire-frame montage (figure 18) shows that the proposed wind turbine will be slightly visible in the far distance and partially silhouetted against the sky when viewing northwest from the SAM; however the photographic evidence (plate 15) shows that the turbine would be almost wholly hidden from view by several field boundaries. Therefore the visual impact of the proposed development on the SAM is expected to be very slight.		
Visual Impact: Very Slight		

An 086	**NGR:** SH 47615 67793	(figure 19)
Trefwri Standing Stone		
The stone is on the site of a destroyed hut group known as Trefwri part of which is scheduled (An 087). Another stone c.180.0m west is not scheduled. The eastern stone looks like a genuine standing stone, slightly prismatic in cross-section but in an odd place on a slope just above the Afon Braint. The western stone is an irregular slabby boulder at 2.2m long, 0.8 thick and 1.6m high artificially set on edge, possibly just as a rubbing stone. Access could not be gained to this SAM and thus the assessment of visual impact of the proposed turbine upon the monument is assessed solely through the use of wire-frame montage. The wire-frame montage (figure 19) shows that the proposed wind turbine will be moderately visible in the medium to far distance and partially silhouetted against the sky when viewing		

west from the SAM. Therefore the visual impact of the proposed development on the SAM is expected to be moderate.
Visual Impact: Moderate

An 087	**NGR:** SH 47143 67870	(figure 20; plates 16 and 17)
Pont Sarn-Las Hut Group		
Besides the River Briant, near Pont Sarn Las, about 550.0m northwest of Maen Hir (PRN 3145). Two definite hut circles, 7.0m internal diameter, are visible and there are traces of about six more huts of the group. All are partly ploughed away and only a few walling stones can be seen in-situ. These huts represent the last remains of a large settlement at Trefwri, which extend along the southern bank of the Braint to Tre Ifan, an overall distance of about 550.0m. Two upright stones in a field south of Tre Ifan are all that remain of the eastern part of the site. A number of Roman coins were found in destroying the huts. The wire-frame montage (figure 20) shows that the proposed wind turbine will be highly visible in the medium distance and silhouetted against the sky when viewing from the west; and the photographic evidence (plate 17) shows that there is no vegetation or buildings to obscure the turbine from view. Therefore the visual impact of the proposed development on the SAM is expected to be severe.		
Visual Impact: Severe		

Cn 034	**NGR:** SH 47899 62852	(figure 21)
Caernarfon Town Wall World Heritage Site		
Construction began in 1283, along with the castle (Cn 079). The first phase was completed by 1285 and is off coursed rubble-stone construction. The wall comprises two gatehouses and eight round towers and has survived almost to its original full extent. This monument was not visited during the site walkover and thus the assessment of visual impact of the proposed turbine upon the monument is assessed solely through the use of wire-frame montage. The wire-frame montage (figure 21) shows that only the edge of the blade tip of the proposed wind turbine will be visible and silhouetted against the sky when viewing north from the Caernarfon Town Wall World Heritage Site. Therefore the visual impact of the proposed development on the monument is expected to be very slight.		
Visual Impact: Very Slight		

Cn 079	**NGR:** SH 47789 62667	(figure 22)
Caernarfon Castle World Heritage Site		
Caernarfon castle is an imperious and grand fortress built following the English conquest of Gwynedd in the late thirteenth century. Its banded stone towers famously reference the great walls of Constantinople. This is a play on the visionary 'Dream of Mascen Wledig', a poem celebrating Wales' legendary imperial past. The castle was in decay by the sixteenth century and was abandoned following the Civil War. It was restored and refurbished from the mid nineteenth century. The castle, together with the walled borough (Cn 034), was begun in 1283 and was still incomplete by about 1330 when major work ended. It consists of seven great polygonal towers, two turrets and two great twin towered gates, all joined by massive curtain walls tracing a rough figure of eight. Galleries thread their way through the walls and across the towers. The higher upper ward and Queen's Gate are thought to occupy the earthworks of an earlier castle. At the other end of the castle is the mighty Eagle Tower, crowned by three tall		

turrets topped by sculptured figures. The grand apartments planned for the castle interior, including a great hall, may never have been built.

Although the castle presents a great display of military might from outside the medieval borough the approach to the great King's Gate follows an indirect line along narrow streets. From this direction the castle appears only in fragments.

From the nineteenth century the castle was extensively restored and the walls and towers renewed. In this way the medieval fortress has become an archetypal castle, a setting for investitures and other grand occasions.

This monument was not visited during the site walkover and thus the assessment of visual impact of the proposed turbine upon the monument is assessed solely through the use of wire-frame montage.

The wire-frame montage (figure 22) shows that only the blades and the very top of the hub will be visible and silhouetted against the sky in the far distance when viewing north from Caernarfon Castle World Heritage Site. Therefore the visual impact of the proposed development on the monument is expected to be very slight.

Visual Impact: Very Slight

7.3 Visual Impact upon Listed Buildings

Local Plan Policy 41. States that 'buildings of special and architectural and historic interest and their settings will be protected from unsympathetic development, alterations or demolition'. The following Listed Buildings are within 1.0km of the proposed development site and are all grade II listed, which is a grade attributed by central government because they are particularly important buildings of special interest. As both Listed Buildings are in close proximity to one another, a single wire-frame montage looking towards the proposed development site was utilised to formulate a visual impact assessment. As with section 7.2, the magnitude of severity regarding visual impact is derived from the Assessment of the Impact of Development upon Historic Landscapes (ASIDOHL 2) process (see appendix II), and is recognised by Cadw, The Countryside Council for Wales, and The Welsh Government.

LB 19883	**NGR:** SH 46893 68166	(figure 23)
Melin Bodowyr grade II Listed Building		
Melin Bodowyr is a two-storey rubblestone building, with a newer extension at the north-west end and lean-to buildings on three elevations. The main building measures 10.8 x 4.9 metres internally. The composite, six-spoked water wheel, 3.94 metres diameter by 1.64 metres wide on a wooden ocatgonal axle, is on the south-east gable, and drives two pairs of stones (one french, one Anglesey). The internal gears are cast iron on a wooden main shaft. The sack hoist and its drive are complete. This monument was not visited during the site walkover and thus the assessment of visual impact of the proposed turbine upon the monument is assessed solely through the use of wire-frame montage. The wire-frame montage (figure 23) shows that the whole of the hub and blades can be seen in the middle distance and silhouetted against the skyline when viewing southwest from the Listed Building. Therefore the visual impact of the proposed development on the monument is expected to be moderate.		
Visual Impact: Moderate		

LB 19887	**NGR:** SH 46925 68188	(figure 23)
Pont Melin Bodowyr grade II Listed Building		
The bridge lies immediately to the east of Melin Bodowyr fulling mill. It was Listed as a good example of a mid 19th century single arch bridge, and for its group value with Melin Bodowyr. This monument was not visited during the site walkover and thus the assessment of visual impact of the proposed turbine upon the monument is assessed solely through the use of wire-frame montage. The wire-frame montage (figure 23) shows that the whole of the hub and blades can be seen in the middle distance and silhouetted against the skyline when viewing southwest from the Listed Building. Therefore the visual impact of the proposed development on the monument is expected to be moderate.		
Visual Impact: Moderate		

8.0 IMPACT AND RECOMMENDATIONS

8.1 General recommendations

8.1.1 Direct impact
The proposed wind turbine scheme is not expected to have a direct physical impact upon any known archaeological or historical sites.

8.1.2 Indirect impact
An indirect physical impact is that taken to be an increase in disturbance or processes, both natural and manmade, as an indirect result of the proposed development. This can take the form of increased erosion, exposure or disturbance as well as the increased likelihood of management requirements.

The completed wind turbine scheme is not expected to have an indirect physical impact upon any archaeological features.

An indirect visual impact is that taken to be the effect upon viewpoints into and out of archaeological elements, as well as the effect upon the inter-visibility between such elements. A visual impact is assessed with reference to key historic viewpoints and essential settings, and is considered in relation to a site's character and function, as well as the key vantage points and visual experience.

The completed wind turbine scheme will be visible from thirty-five Scheduled Ancient Monuments within a 10.0km radius, as shown by the ZTV study (figures 10 and 11). Of these SAMs, nine were located within 2.0km of the proposed turbine and the potential visual impact upon them was assessed. In addition to these, the world heritage sites of Caernarfon Castle (Cn079) and Caernarfon Town Walls (Cn034) were also assessed.

The proposed wind turbine is expected to have a *severe/ very severe* impact upon views from one Scheduled Ancient Monument; a *severe* impact upon the views from one Scheduled Ancient Monument; a *considerable/ severe* impact upon the views from two Scheduled Ancient Monuments; a *moderate* impact upon the views from one Scheduled Ancient Monument; a *very slight* impact upon the views from two Scheduled Ancient Monuments and two World Heritage Sites; and no visual impact upon two Scheduled Ancient Monuments.

Scheduled no.	Monument	Visual Impact
An007	Bodowyr Burial Chamber	Severe/ Very

		Severe
An014	Caer Leb	Very Slight
An015	Castell Bryn Gwyn	Considerable/ Severe
An022	Bryngwyn Standing Stones	Considerable/ Severe
An051	Caer Idris Hillfort	None
An053	Early Gravestones Shaft in Churchyard	None
An059	Perthi-Duon Burial Chamber	Very Slight
An086	Trefwri Standing Stone	Moderate
An087	Pont Sarn-Las Hut Group	Severe
Cn034	Caernarfon Town Wall World Heritage Site	Very Slight
Cn079	Caernarfon Castle World Heritage Site	Very Slight

The **indirect visual impact** upon the two closest Listed Buildings was also assessed. It is expected that the proposed development will have a *moderate* impact upon both the Melin Bodowyr (LB 19883) and Pont Melin Bodowyr (LB 19887) grade II Listed Buildings.

Ref no.	Listed Building	Grade	Visual Impact
19883	Melin Bodowyr	II	Moderate
19887	Pont Melin Bodowyr	II	Moderate

8.2 Site Specific Recommendations

One site was identified as lying within proximity of the proposed development. The trackway (feature 1) will be utilised for access onto the turbine site, however it is already considerably rutted by farm machinery and there does not appear to be any associated structural remains. As such the proposed scheme is not expected to physically impact upon any upstanding archaeological remains. However, due to the close proximity of a number of archaeological remains and Scheduled Ancient Monuments, belonging particularly to the prehistoric and Roman periods, within 1.0km of the development area, the potential for preserved unknown buried archaeological remains within close proximity to the proposed development site is considered to be high. However, the actual physical footprint of the development is small and as such the potential of encountering such remains is somewhat reduced. It is therefore recommended that a **partial watching brief** be maintained during intrusive groundworks.

9.0 VISUAL IMPACT CONCLUSIONS

The archaeological assessment has shown that the proposed wind turbine is expected to have a visual impact upon thirty-five Scheduled Ancient Monuments located within a 10.0km radius of the proposed site location. Of these, the nearest to the site (within 2.0km) were assessed as part of the visual impact assessment. In addition, the World Heritage Site of Caernarfon Castle (Cn034) and Caernarfon Town Wall (Cn079), as well as the only two Listed Buildings within 1.0km, Melin Bodowyr (LB 19883) and Pont Melin Bodowyr (LB 19887), were included within the visual assessment of the proposed turbine.

The assessment of the visual impact upon the monuments was based upon wire-frame montage viewpoints from the monuments towards wire-frame models of the proposed turbine. These wire-frame illustrations are based upon the ZTV study which maps contour data at 10.0m intervals across the 10.0km study area. The intervals between contour data means that there is a potential for error in the visual assessments and that some monuments may be more or less visible than the ZTV and wire-frame montages actually show, due to variations in the terrain. This margin of error is compounded by the fact that the wire-frame data does not

include vegetation or buildings which could obscure viewpoints. Visual barriers created by vegetation are seen as temporary in nature and therefore have no direct influence upon visual impact assessment; however regard should be taken to visual barriers created by a multitude of sources or by vegetation which is awarded statutory or non-statutory protection. Furthermore, some buildings/structures are also protected and there is sufficient gravitas to argue that where line of sight is blocked by a number of buildings then the precedent has been set for it to always to be blocked from view. Therefore, photographs were also utilised to determine the most accurate assessment of the potential visual impact upon the monuments. These were taken at 35mm focal length to simulate the actual depth of field that would be experienced by a visitor to the monuments.

The visual impact assessment determined that there was no potential impact upon the view between monuments or upon their significant views. It did however determine that of the nine Scheduled Ancient Monuments located within 2.0km of the proposed turbine site, one monument, Bodowyr Burial Chamber (An007) would be severely/very severely impacted upon. In addition, it determined that the Pont Sarn-Las Hut Group (An087) would be severely impacted, and that the Bryngwyn Standing Stones (An022) and Castell Bryn Gwyn (An015) would be considerably/severely impacted upon. The majority of the visual impact is through the unavoidably large size of the proposed turbine being within close proximity to the monuments. However, there is a certain amount of additional visual impact attributed through the proposed location of the turbine on a ridge which runs from northeast to southwest. This means that the turbine would be silhouetted against the sky when viewed from most of the affected SAMs. The visual impact could be reduced somewhat if the turbine location was moved further to the south to occupy the same plateau of land as Bodrida farm.

10.0 ARCHIVE

The archive consists of field notes, historic maps and photographs taken on the field visit. It is currently held by Aeon Archaeology under the project code A0009.

11.0 SOURCES

Primary Sources

Anglesey Archives

First Edition 25” County Series Ordnance Survey map of 1889.

Second Edition 25” County Series Ordnance Survey map of 1900.

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W/DD/528 *Valuation of Farms in 1869 Llangeinwen.*

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RCAHMW

RCAHMW. Anglesey, 1937. *A Survey and Inventory by the Royal Commission on Ancient and Historical Monuments in Wales and Monmouthshire.*

Aerial Photographs

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106G/UK/655.frames 3012, 3013, 3072-3076, taken 13th August 1945.

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Gwynedd Archaeological Trust report 790. *Bryngwyn Stones, Brynsiencyn, Anglesey. Evaluation excavation 2008.*

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RCAHMW 1937 *An Inventory of the Ancient and Historic Monuments on Anglesey*

APPENDIX 1

Sites within 1km of the proposed wind turbine as listed on the Gwynedd HER

PRN	Name	Form	NGR	Period	Type
1631	Stone Circle (Possible), Tre Dryw Bach	Document	SH 46806730	Prehistoric	Stone Circle
3134	Bodowyr Burial Chamber	Other Structure	SH 46226815	Neolithic	Chambered Tomb
3138	Pont Sarn-Las Hut Group	Other Structure	SH 47156788	Roman	Hut Circle Settlement
3140	Castell Bryn Gwyn	Earthwork	SH 46496706	Neolithic	Enclosure
3141	Axe Hammer - Findspot, Tre'r Dryw Bach	Find Only	SH 46006700	Prehistoric	Findspot
3153	Urn Burials (32) - Findspot, Cae Meini, Llanidan	Other Structure	SH 45606810	Bronze Age	Cremation Cemetery
6464	Melin Bodowyr, E Of Llangaffo	Building	SH 4689268166	Post-Medieval	Corn Mill
29391	Field System, S Of Bryngwyn Bach	Buried Feature	SH 46246693	Medieval	Strip Field System

New sites within 1km of the proposed wind turbine as listed on the Gwynedd HER

PRN	Name	NGR	Type	Period
26108	Well Sw Of Cefn-Maesoglen	SH 45726738	Well	Unknown
26109	Cefn-Maesoglen, Garden, Llangaffo	SH 45726738	Country House Garden	Post-Medieval

Sites within 1km of the proposed wind turbine as listed on the NMR

NPRN	Name	Type	Period	NGR
15581	Bodowyr	House	Post Medieval	SH 461685
15905	Tre'r Dryw Issa	Building	Post Medieval?	SH 46776718
15906	Tre'r Dryw Uchaf	House	Post Medieval?	SH 46906735
24619	Melin Bodowyr Corn Mill;Bodowyr Mill	Corn Mill	Post Medieval	SH 4689268166
43554	Capel Beuno, Site Of	Chapel	Unknown	SH 4667
93830	Bodowyr Burial Chamber	Chambered Tomb	Neolithic	SH 4621968160
93836	Castell Bryn Gwyn, Neolithic Henge And Later Ringwork	Henge;Defended Enclosure	Multiperiod	SH 4652867061
93883	Pont Sarn-Las Settlement	Settlement	Prehistoric	SH 471679

265355	Cefn-Maesoglen, Garden, Llangaffo	Country House Garden	Post Medieval	SH 4581067520
300836	Urn Burials (32) - Findspot, Cae Meini, Llanidan	Burial	Prehistoric	SH 456681
302402	Bryngwyn Standing Stones, Supposed Remains Of Stone Circle	Stone Setting	Unknown	SH 4623766929
400591	Bodowyr Cromlech, Clearance Feature N Of	Clearance Cairn	Post Medieval;Modern	SH 46266821
407390	Llwyn Idris, Brynsiencyn	House	Post Medieval	SH 45336801
417622	Bodowyr, Indeterminate Cropmarks	Cropmark	Unknown	SH 45896862

Listed Buildings within 1km of the proposed wind turbine

Number	Name	Locality	Eastings	Northings	Grade
19883	Melin Bodowyr	Bodowyr	246893	368166	II
19887	Pont Melin Bodowyr	Bodowyr	246925	368188	II

Scheduled Ancient Monuments (SAMs) within 10km, with a view of the proposed wind turbine

Number	Name	Eastings	Northings	Type	Period
AN002	Bryn-Celli-Ddu Burial Chamber	250757	370183	Burial Chamber	Prehistoric
AN003	Henblas Burial Chamber	242579	371971	Chambered tomb	Prehistoric
AN007	Bodowyr Burial Chamber	246228	368158	Chambered tomb	Prehistoric
AN014	Caer Leb	247294	367415	Enclosure	Roman
AN015	Castell Bryn-Gwyn	246529	367058	Henge	Prehistoric
AN022	Bryngwyn Standing Stones	246238	366931	Standing stone	Prehistoric
AN037	Burial Chamber 180m NE of Pen-y-Berth	253886	372146	Chambered tomb	Prehistoric
AN049	Tywyn-y-Parc Promontory Fort	236856	364966	Promontory Fort- coastal	Prehistoric
AN051	Caer Idris Hillfort	249453	367963	Hillfort	Prehistoric
AN053	Early Gravestones & Shaft in Churchyard	244581	368536	Cross shaft	Early Medieval
AN059	Perthi-Duon Burial Chamber	247981	366757	Chambered tomb	Prehistoric

AN085	Bryn-Celli-Ddu Standing Stone	250632	370100	Standing stone	Prehistoric
AN086	Trefwri Standing Stone	247615	367793	Standing stone	Prehistoric
AN087	Pont Sarn-Las Hut Group	247143	367870	Unenclosed hut circle	Prehistoric
AN120	Capel Eithin (site of) and Cemetery	249011	372641	Chapel	Prehistoric
AN129	Llys Rhosyr	241910	365381	Manor	Medieval
CN006	Segontium Roman Site	248500	362400	Fort	Roman
CN017	Dinas Dinorwic Camp	254980	365314	Hillfort	Prehistoric
CN034	Caernarfon Town Wall	247899	362852	Town Wall	Medieval
CN058	Caer Carreg y Fran	254726	362735	Hillfort	Prehistoric
CN079	Caernarfon Castle	247789	362667	Castle	Medieval
CN094	Lower Roman Fort	248230	362357	Fort	Roman
CN149	Pen-y-Gaer Camp	254757	364385	Hillfort	Prehistoric
CN150	Glascoed Round Cairn	254692	364911	Round cairn	Prehistoric
CN168	Cae Metta Hut Group	253605	364975	Enclosed hut circle	Prehistoric
CN175	Fodol Ganol Enclosed Hut Group	255048	368549	Enclosed hut circle	Prehistoric
CN188	Bryn-Glas Roman Signal Station	250279	363471	Signal station	Roman
CN200	Cefn Mawr Hut Group	253333	365243	Hut circle settlement	Prehistoric
CN203	Gors y Brithdir Enclosed Hut Group & Ancient Fields	255498	368867	Enclosed hut circle	Prehistoric
CN224	Settlement NW of Waen Rhythallt	254329	364066	Enclosed hut circle	Prehistoric
CN229	Hut Circle South of Rhyd y Galen, Pont-Rug	251434	364370	Unenclosed hut circle	Prehistoric
CN334	Cored Gwyrfai Fish Weir	245180	360912	Fish weir	Medieval
CN375	Coed Nant-y-garth, standing stone to N of	254191	368271	Standing stone	Prehistoric
CN390	Carreg Lefain Cairn	254039	361706	Round cairn	Prehistoric
CN400	Caerlan Tibot Defended Enclosure	250715	364820	Enclosure - Defensive	Prehistoric

APPENDIX 2: DEFINITIONS OF IMPORTANCE AND RECOMMENDATION

1. Definition of Categories of importance

The following categories were used to define the importance of the archaeological resource.

Significance	Description
International (Very High)	Archaeological sites or monuments of international importance, including World Heritage Sites. Structures and buildings inscribed as of universal importance as World Heritage Sites. Other buildings or structures of recognised international importance.
National (High)	Ancient monuments scheduled under the Ancient Monuments and Archaeological Areas Act 1979, or archaeological sites and remains of comparable quality, assessed with reference to the Secretary of State's non-statutory criteria. Listed Buildings. Undesignated structures of national importance.
Regional/ County (Medium)	Conservation Areas Archaeological sites and remains which, while not of national importance, score well against most of the Secretary of State's criteria.
Local (Low)	Archaeological sites that score less well against the Secretary of State's criteria. Historic buildings on a 'local list'.
None	Areas in which investigative techniques have produced no or only minimal evidence for archaeological remains, or where previous large-scale disturbance or removal of deposits can be demonstrated.

2. Definition of Impact

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

Magnitude	Direct Impacts	Indirect Impacts
High Adverse	Complete removal of an archaeological site. Complete destruction of a designated building or structure.	Radical transformation of the setting of an archaeological monument. A fundamental change in the setting of a building.
Medium Adverse	Removal of a major part of an archaeological site and loss of research potential. Extensive alteration (but not demolition) of a historic building or feature, resulting in an appreciable adverse change.	Partial transformation of the setting of an archaeological site (e.g. the introduction of significant noise or vibration levels to an archaeological monument leading to changes to amenity use, accessibility or appreciation of an archaeological site). Partial adverse transformation of the setting of a designated building.
Low Adverse	Removal of an archaeological site where a minor part of its total area is removed but the site retains a significant future research potential.	Minor change to the setting of an archaeological monument or historic building.

Magnitude	Direct Impacts	Indirect Impacts
	Change to a historic building or feature resulting in a small change in the resource and its historical context and setting.	

3. Definition of Visual Impact

The visual impact of the proposed development on each site was estimated. The impact is defined as *none, very slight, slight, moderate, considerable, severe,* and *very severe.*

None:
There is no change to the view into, out of, or between historic elements.

Very Slight:
The proposed development is barely visible and the view into, out of, or between historic elements has been minimally impacted.

Slight:
The proposed development is visible but at a distance, or is largely obscured or shielded. The view into, out of, or between historic elements has been marginally impacted.

Moderate:
Around half of the proposed development is visible and the views into, out of, or between historic elements has been partially impacted.

Considerable:
More than half of the proposed development is visible and views into, out of, or between historic elements has been significantly impacted.

Severe:
The proposed development is either totally visible or partially visible but at a close distance. The views into, out of, or between historic elements has been majorly fragmented.

Very Severe:
The proposed development is prominent. The views into, out of, or between historic elements has been completely compromised.

4. Definition of field evaluation techniques

Field evaluation is sometimes necessary when the importance of an identified archaeological feature cannot be ascertained via an archaeological desk based assessment alone. There are several different techniques but the three most common are geophysical survey, trial trenching, and supervised metal detector survey:

Geophysical survey
This technique is a non-intrusive form of archaeological field evaluation. It utilises a magnetometer which detects differences within the earth's magnetic field caused by the presence of iron in the soil. This iron often takes the form of magnetised iron oxides in the topsoil which have been re-deposited into lower archaeological features through cutting and backfill. A magnetometer can also detect iron artefacts within the soil and the presence of burnt stone material such as on hearths, kilns, and burnt mounds.

Trial trenching
Where a site is suspected to contain more subtle archaeological features such as pits, a geophysical survey may not be appropriate due to its lack on sensitivity in detecting these features. Indeed, trial trenching can also be utilised when anomalies have been identified during the geophysical survey and clarification is required in order to identify them. Trial trenches usually measure 20m by 2m although can vary ion size if targeting geophysical anomalies. Trenches are excavated using a mechanical tracked excavator and supervised by an archaeologist. The topsoil and subsoil are removed onto buried features or if absent, on to the natural glacial substrata. Any archaeological remains found are usually evaluated and recorded prior to backfilling of the trench, so that further site specific mitigatory recommendations can be made.

Supervised Metal Detector Survey
Some types of underlying substrata and bedrock can mask the results of investigation techniques such as geophysical survey. In such instances an archaeologically supervised metal detector survey can be undertaken. This involves the supervision of metal detectorists by a suitably qualified archaeologist and the spatial mapping of artefacts as they are discovered. This technique can give a geographical spread of metal finds and thus be indicative of 'hotspot' areas which may require further investigation by trial trenching for example.

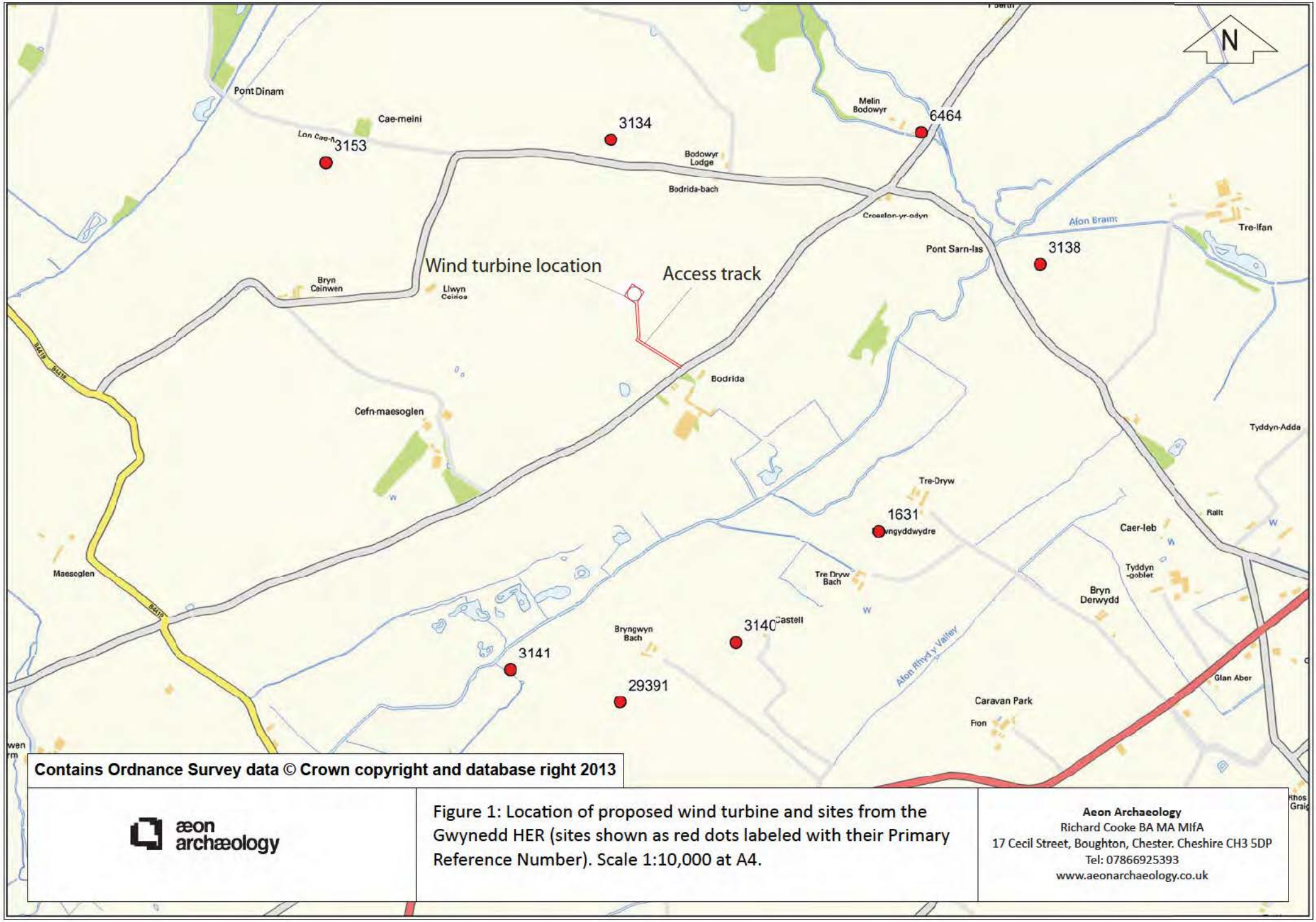

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Figure 1: Location of proposed wind turbine and sites from the Gwynedd HER (sites shown as red dots labeled with their Primary Reference Number). Scale 1:10,000 at A4.

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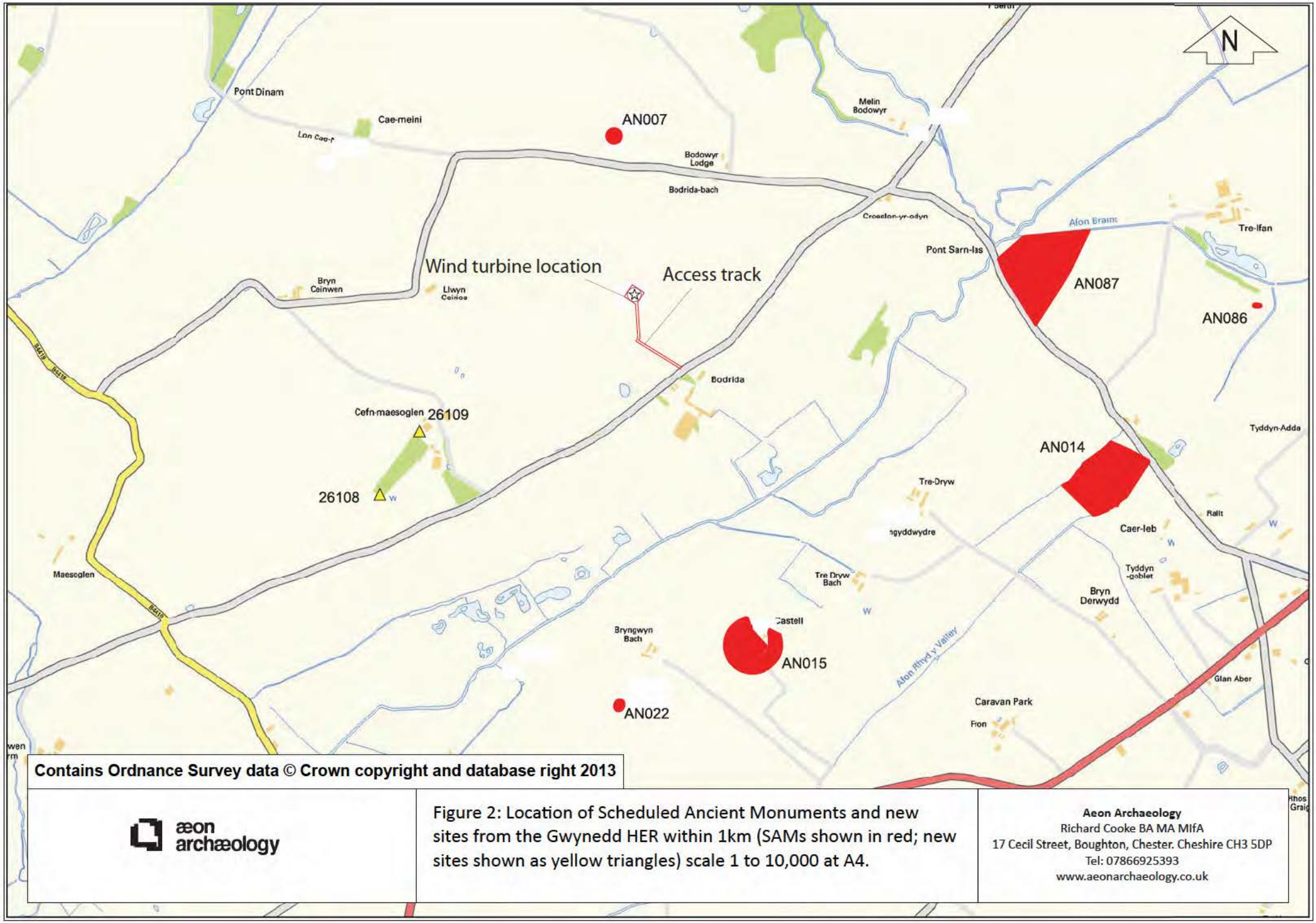

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Figure 2: Location of Scheduled Ancient Monuments and new sites from the Gwynedd HER within 1km (SAMs shown in red; new sites shown as yellow triangles) scale 1 to 10,000 at A4.

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Figure 3: Location of sites from the National Monuments Record and Listed Buildings within 1km (NMR shown as blue triangles; Listed Buildings shown as purple crosses) scale 1 to 10,000 at A4.

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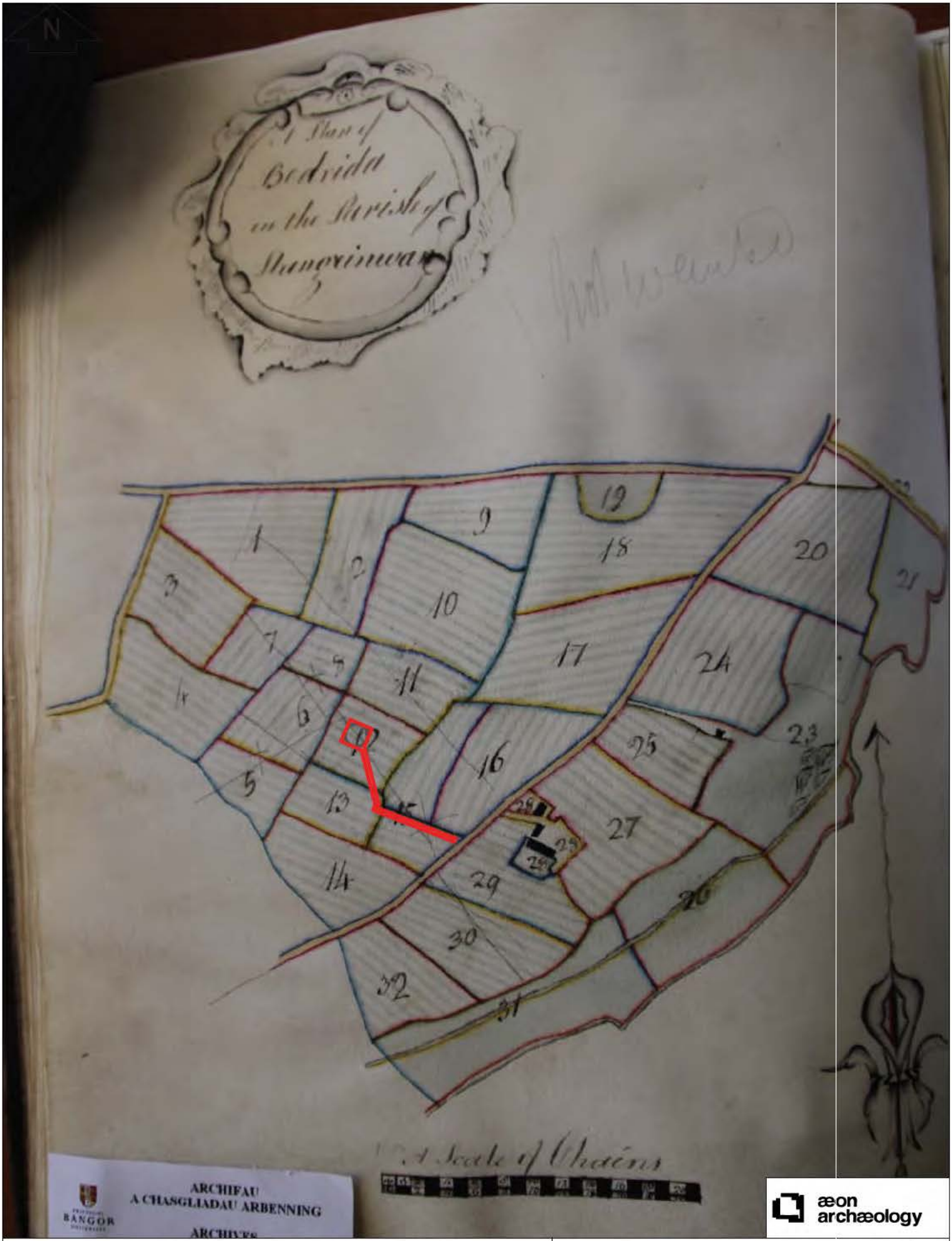

Figure 4: Plan of Bodrida from the Plas Coch Estate survey of 1805 (Approximate location of the proposed wind turbine shown in red).

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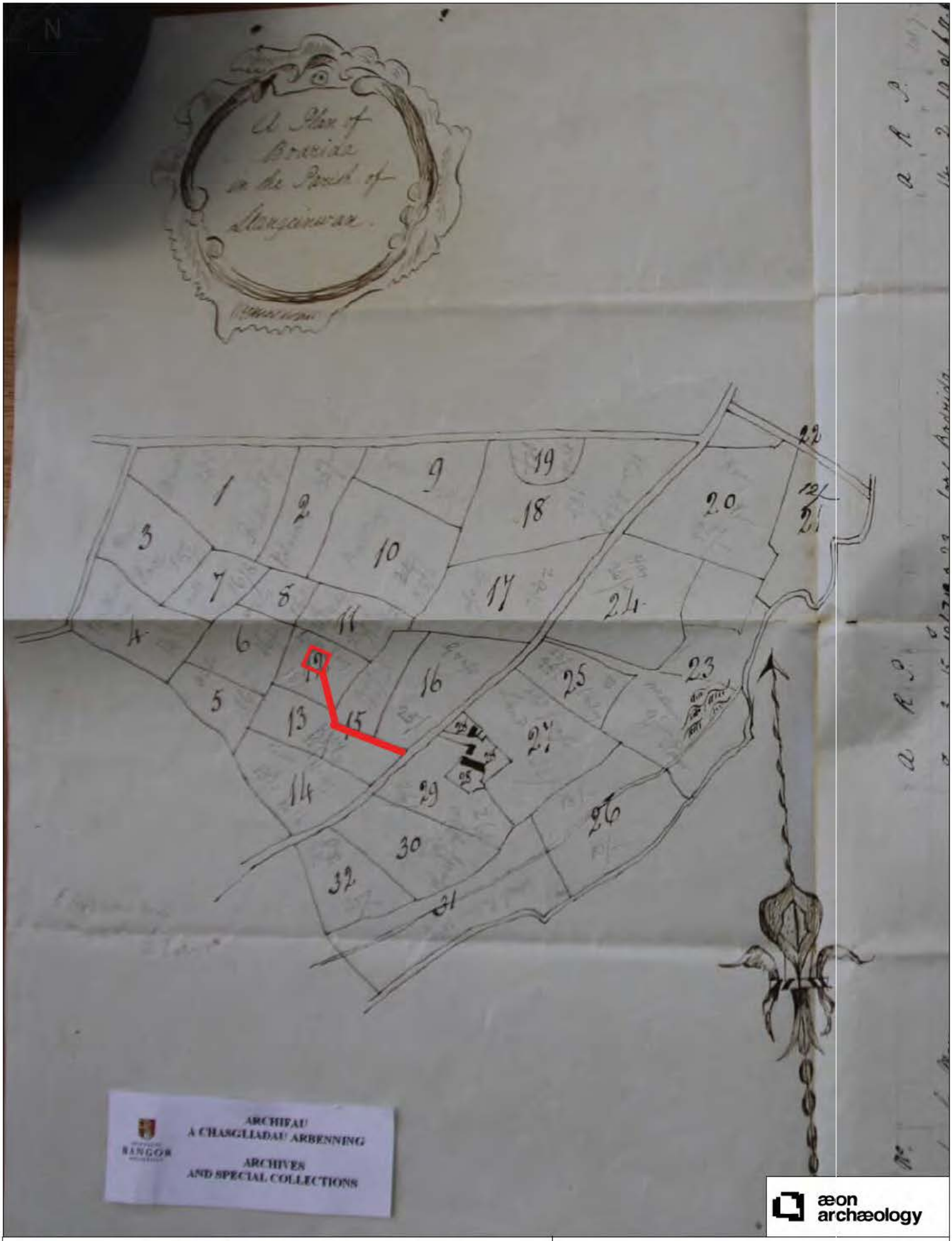

Figure 5: Plan of Bodrida from the Plas Coch Estate survey of 1833 (Approximate location of the proposed wind turbine shown in red).

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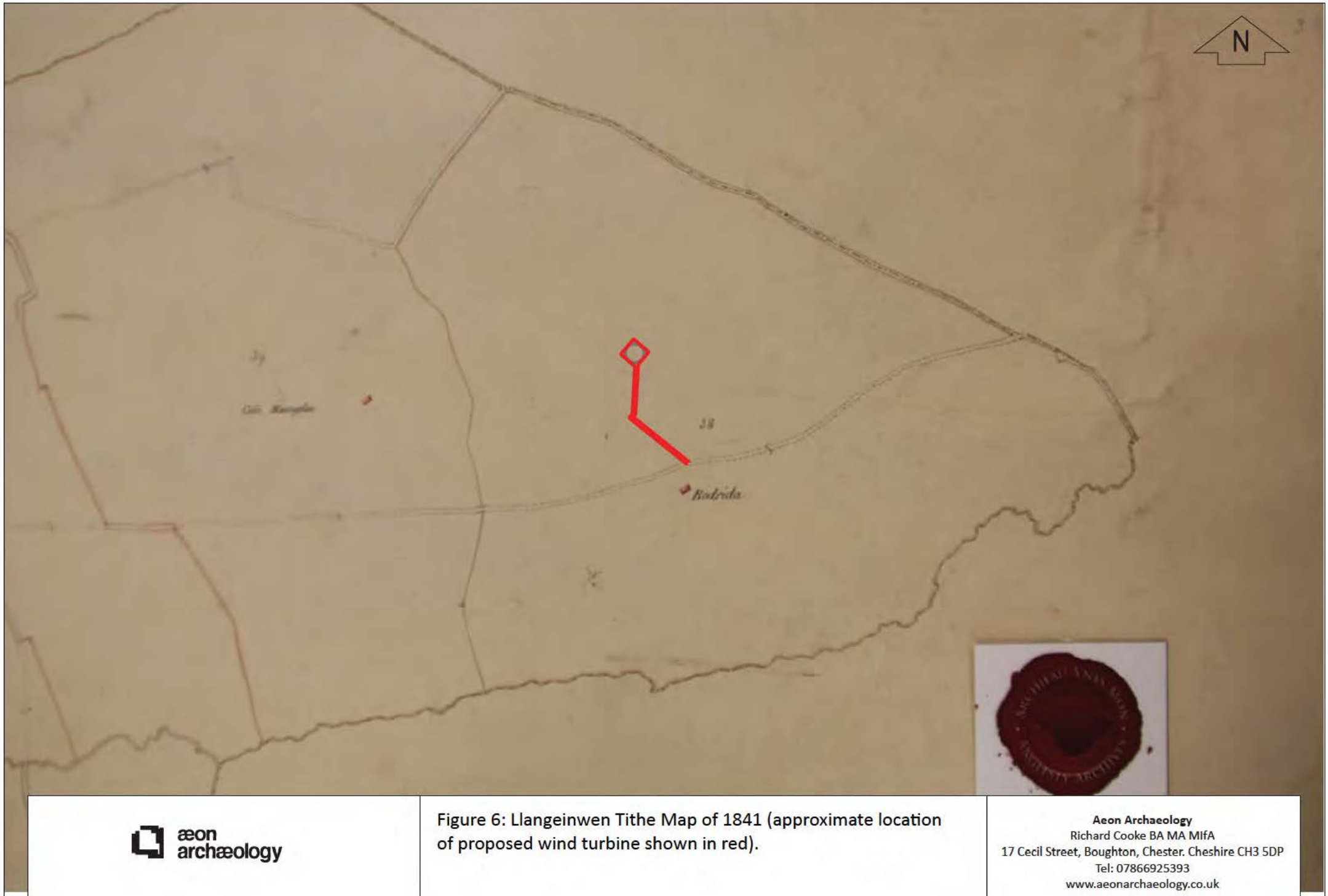

Figure 6: Llangeinwen Tithe Map of 1841 (approximate location of proposed wind turbine shown in red).

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Figure 7: First Edition Ordnance Survey map of 1889, (archaeological features identified during the site visit shown as a numbered red dot) scale 1:2,500 at A4.

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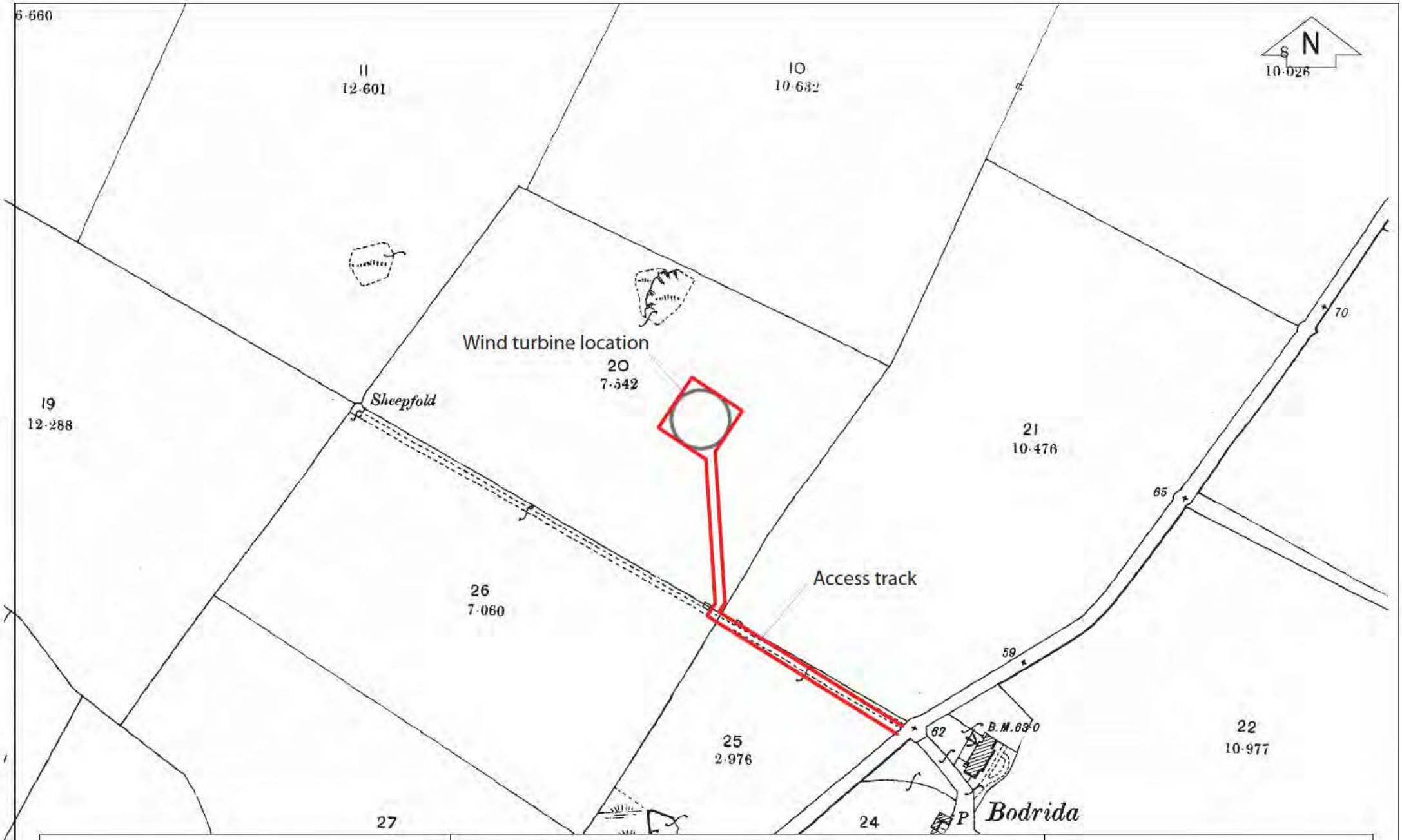

Figure 8: Second Edition Ordnance Survey map of 1900, scale 1:2,500 at A4.

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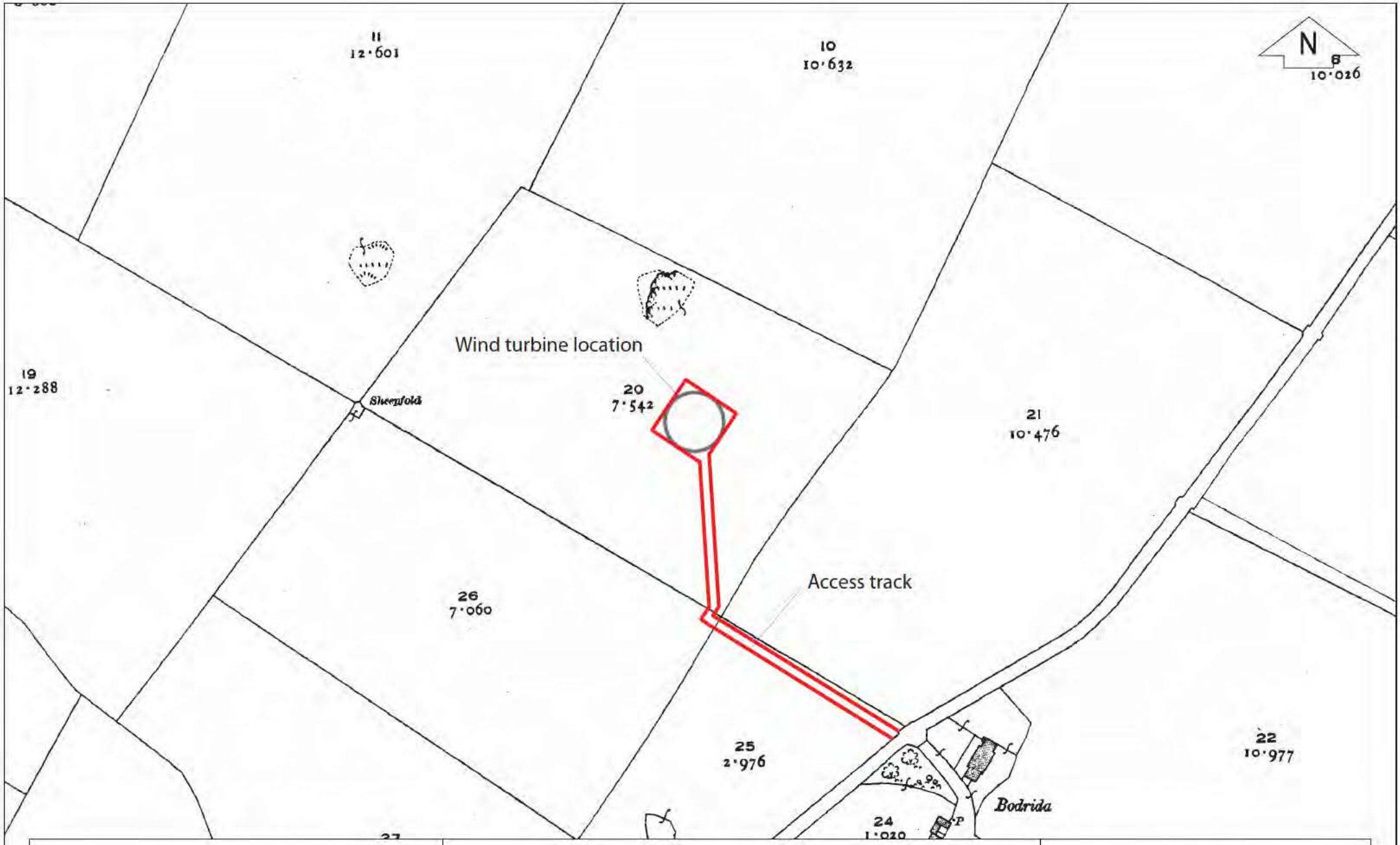

Figure 9: Third Edition Ordnance Survey map of 1920, scale 1:2,500 at A4.

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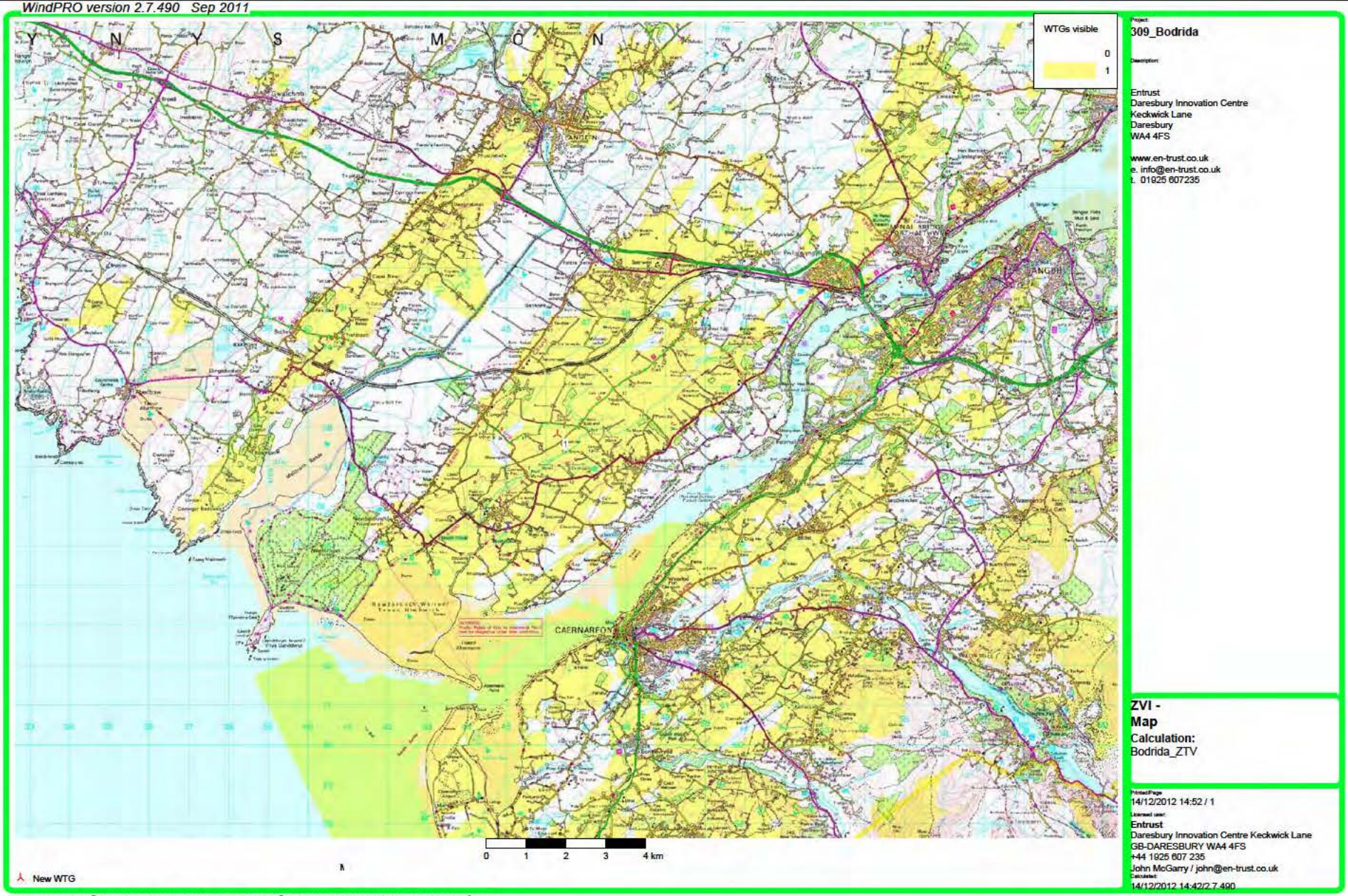

Figure 10: Zone of Theoretical Visibility (ZTV) study.

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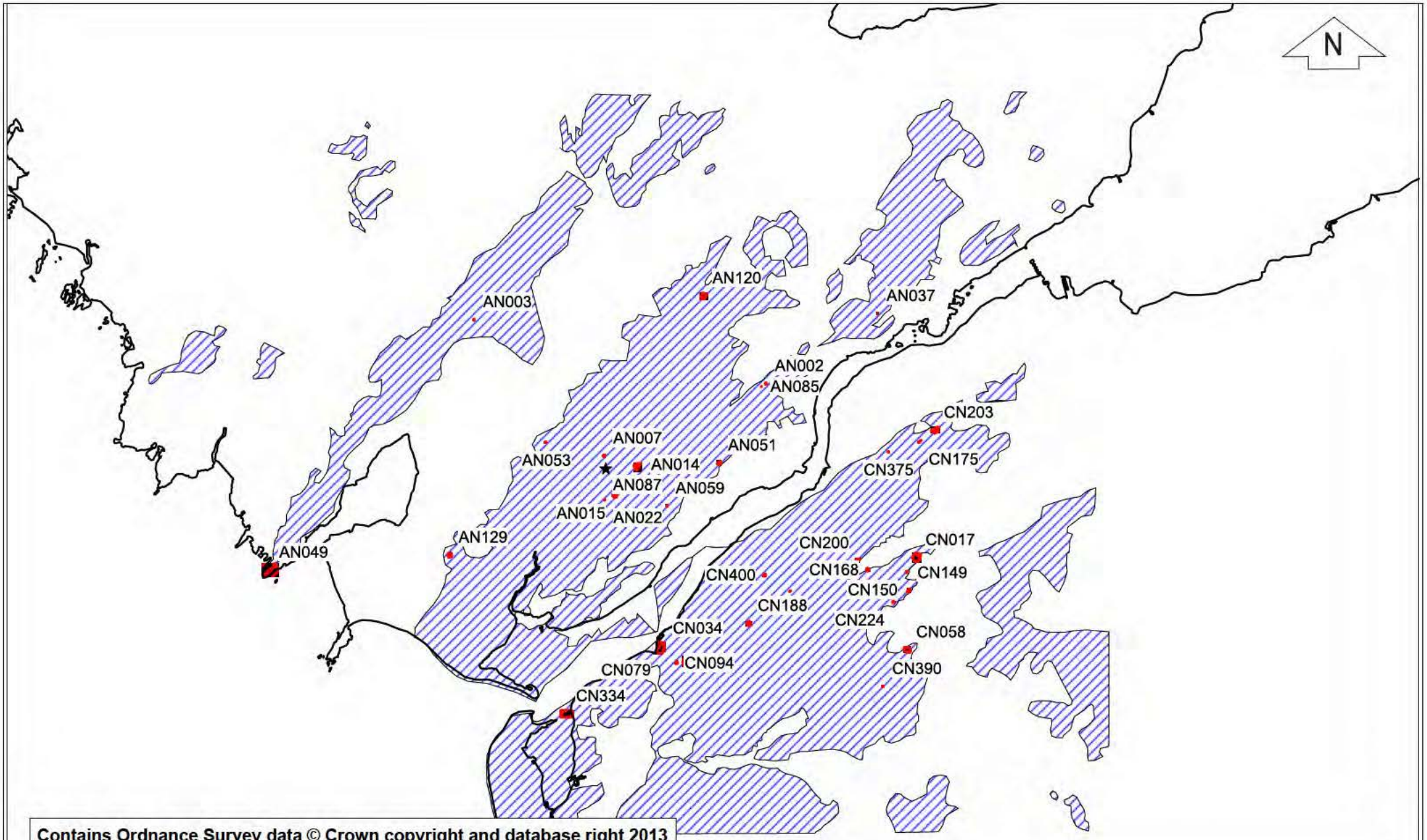

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Figure 11: Location of Scheduled Ancient Monuments with a view of the turbine within 10km of the proposed site (Areas of visibility shown in blue; SAMs shown in red; wind turbine location shown as a star). Scale 1:140,000 at A4.

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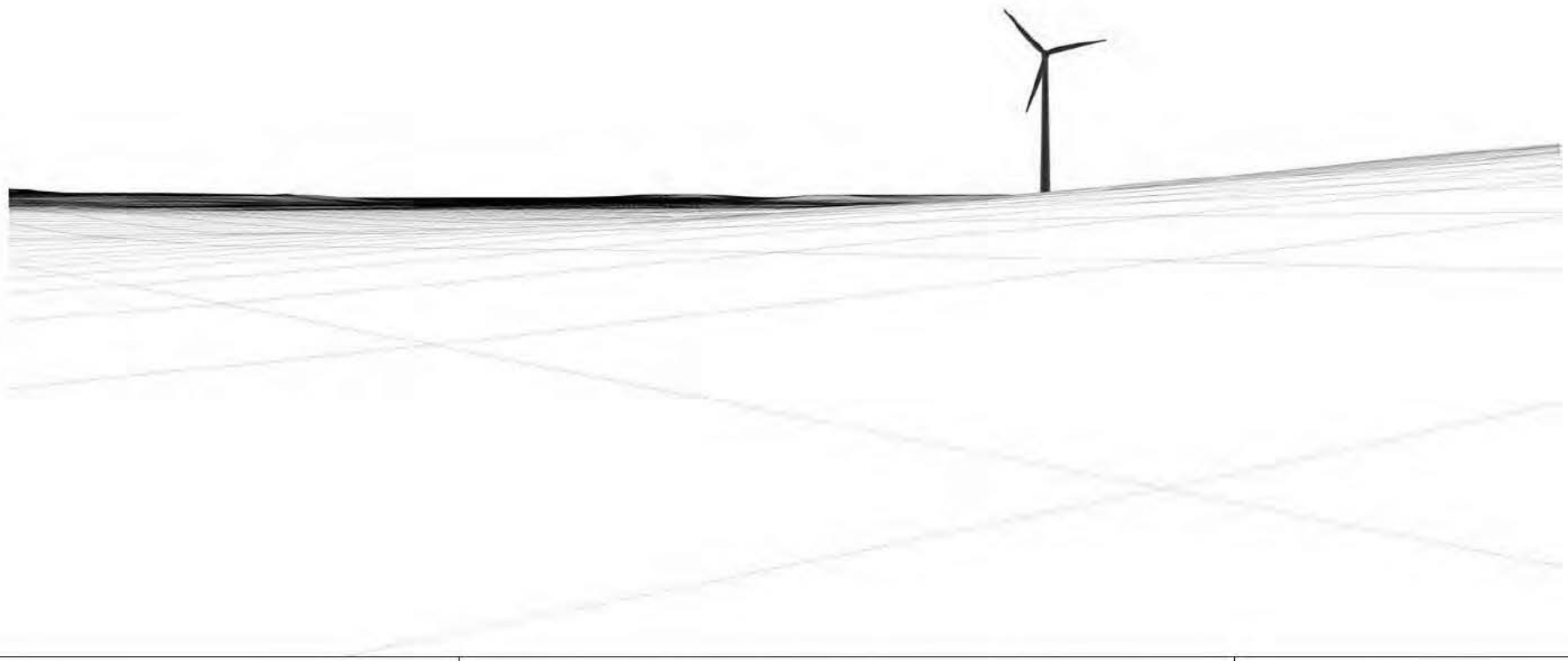

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Figure 12: Wire-frame montage looking towards the proposed wind turbine site from Bodowyr Burial Chamber Scheduled Ancient Monument (An007), from the north.

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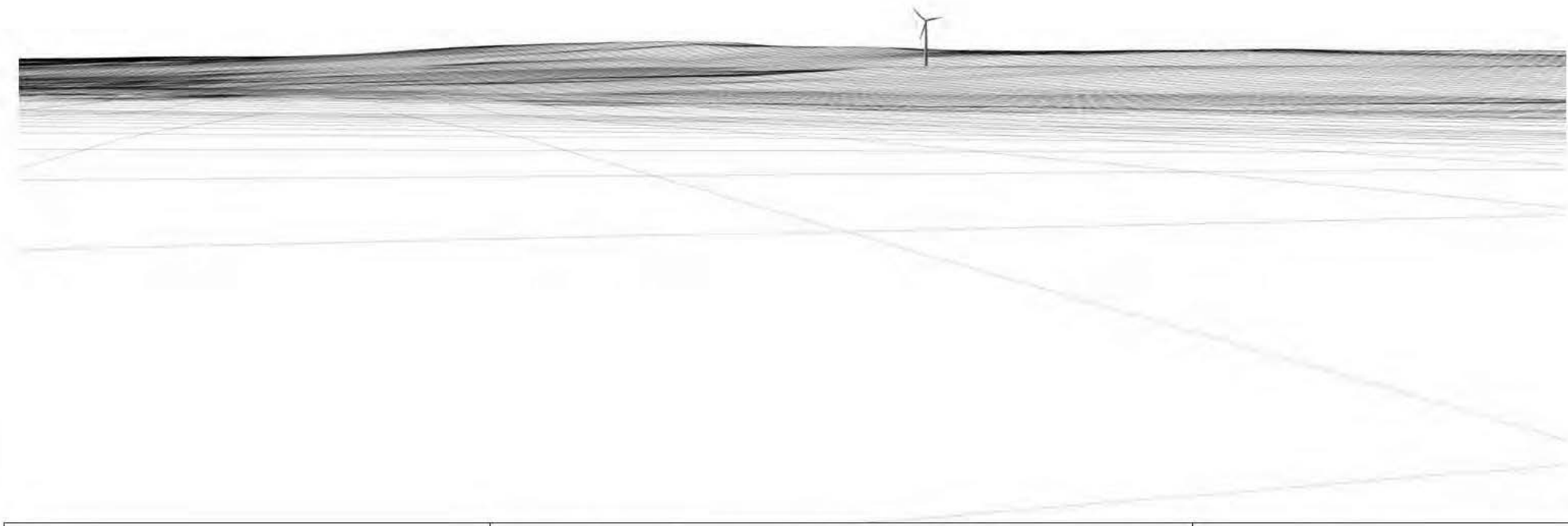

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Figure 13: Wire-frame montage looking towards the proposed wind turbine site from Caer Leb Scheduled Ancient Monument (An014), from the southeast.

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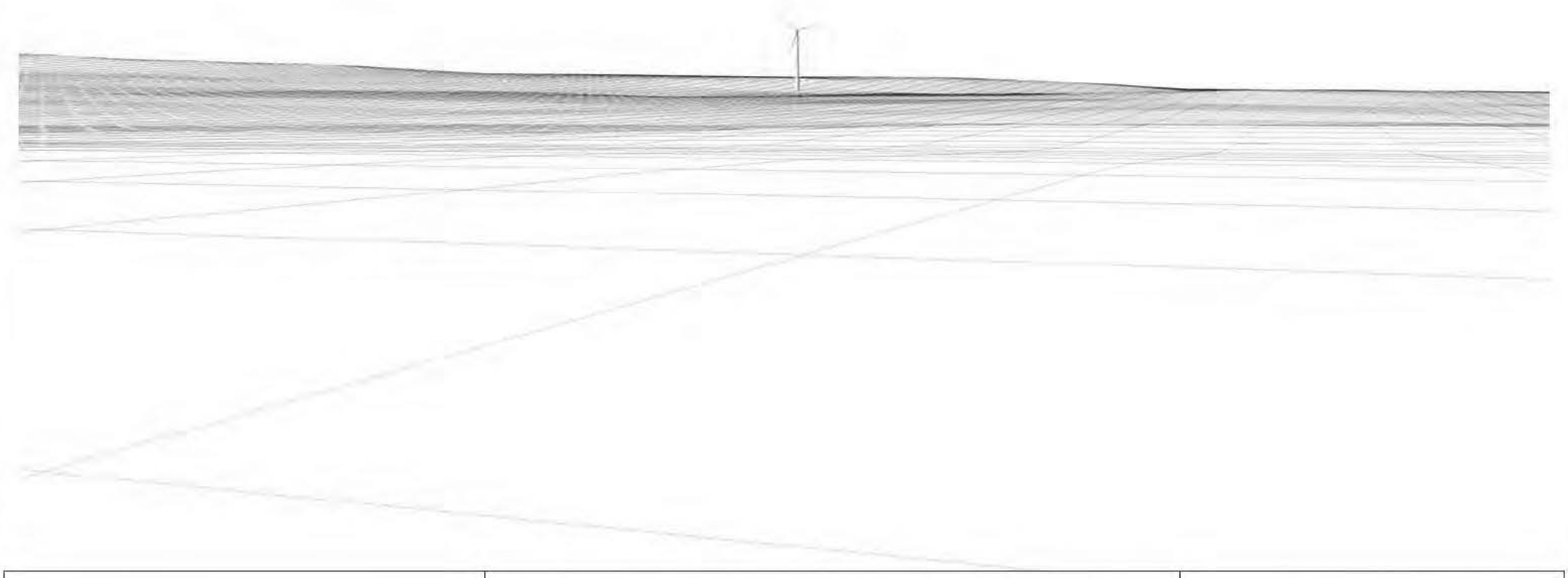

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Figure 14: Wire-frame montage looking towards the proposed wind turbine site from Castell Bryn Gwyn Scheduled Ancient Monument (An015), from the southeast.

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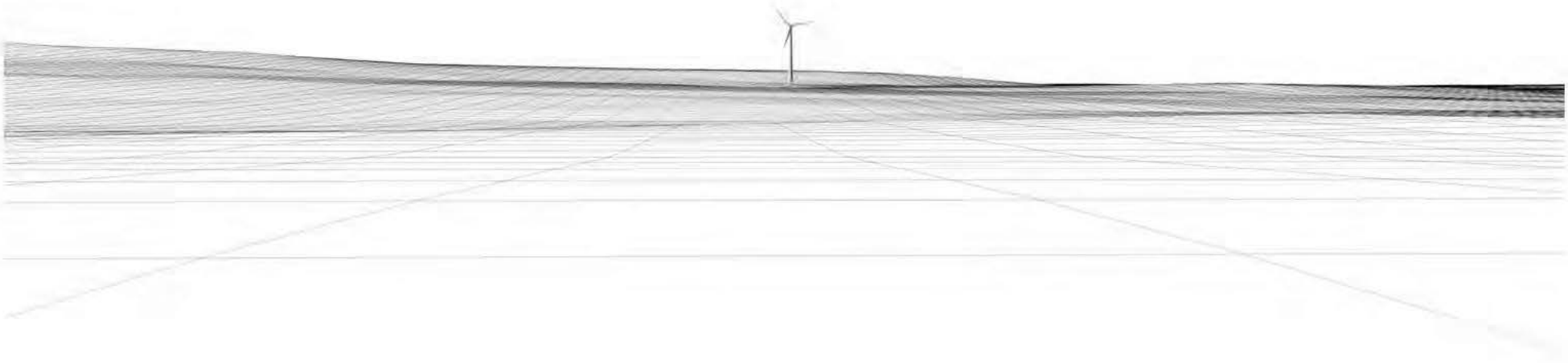

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Figure 15: Wire-frame montage looking towards the proposed wind turbine site from Bryngwyn Standing Stones Scheduled Ancient Monument (An022), from the south.

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Figure 16: Wire-frame montage looking towards the proposed wind turbine site from Caer Idris Hillfort Scheduled Ancient Monument (An051), from the east.

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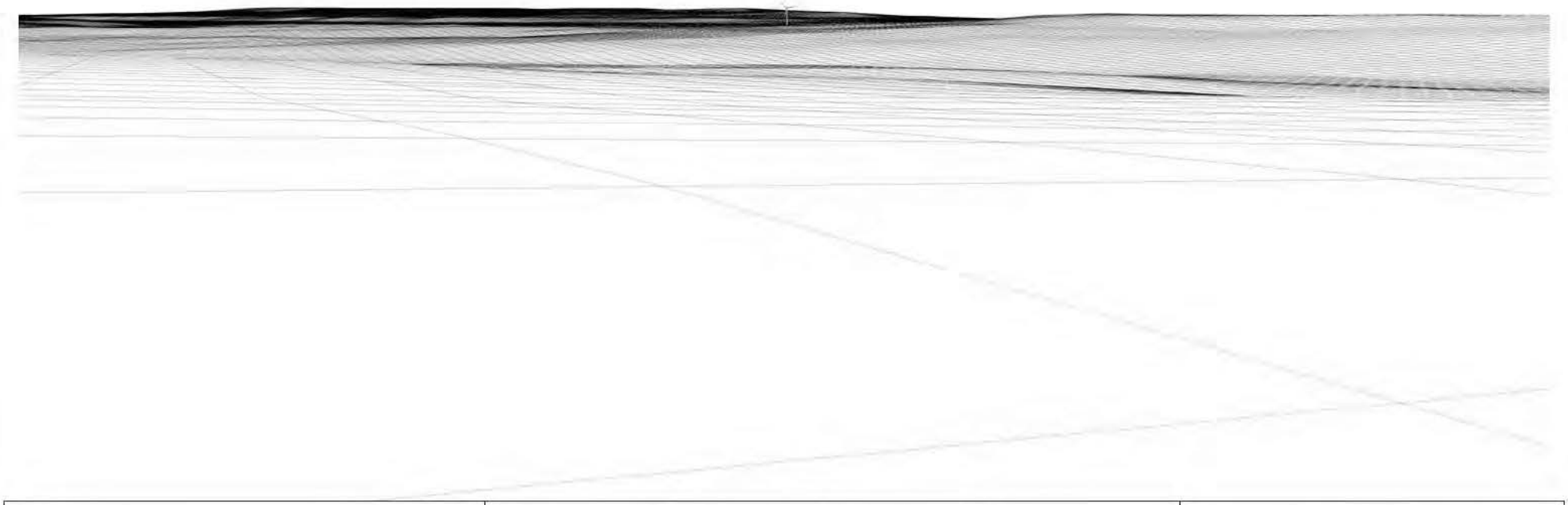

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Figure 17: Wire-frame montage looking towards the proposed wind turbine site from Early Gravestones and Shaft in Churchyard Scheduled Ancient Monument (An053), from the northwest.

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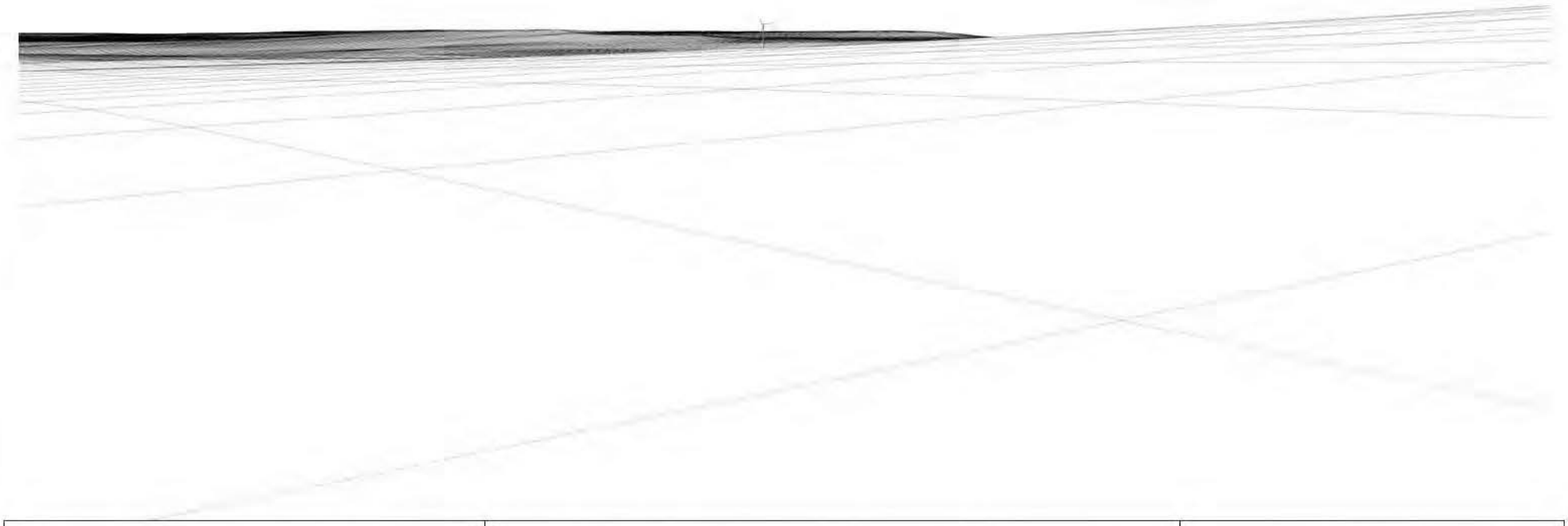

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Figure 18: Wire-frame montage looking towards the proposed wind turbine site from Perthi-Duon Burial Chamber Scheduled Ancient Monument (An059), from the southeast.

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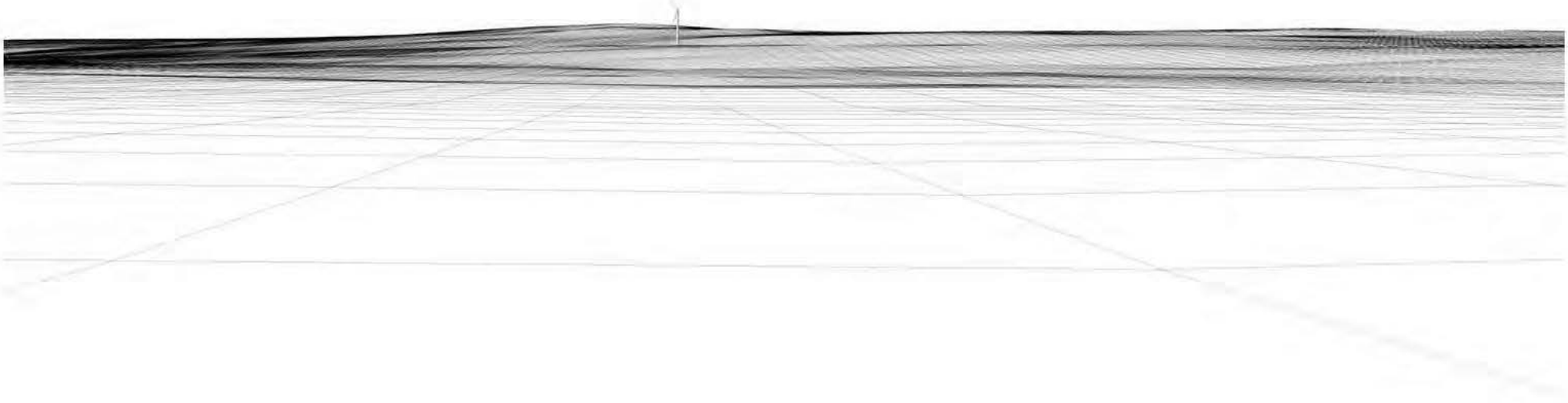

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Figure 19: Wire-frame montage looking towards the proposed wind turbine site from Trefwri Standing Stone Scheduled Ancient Monument (An086), from the east.

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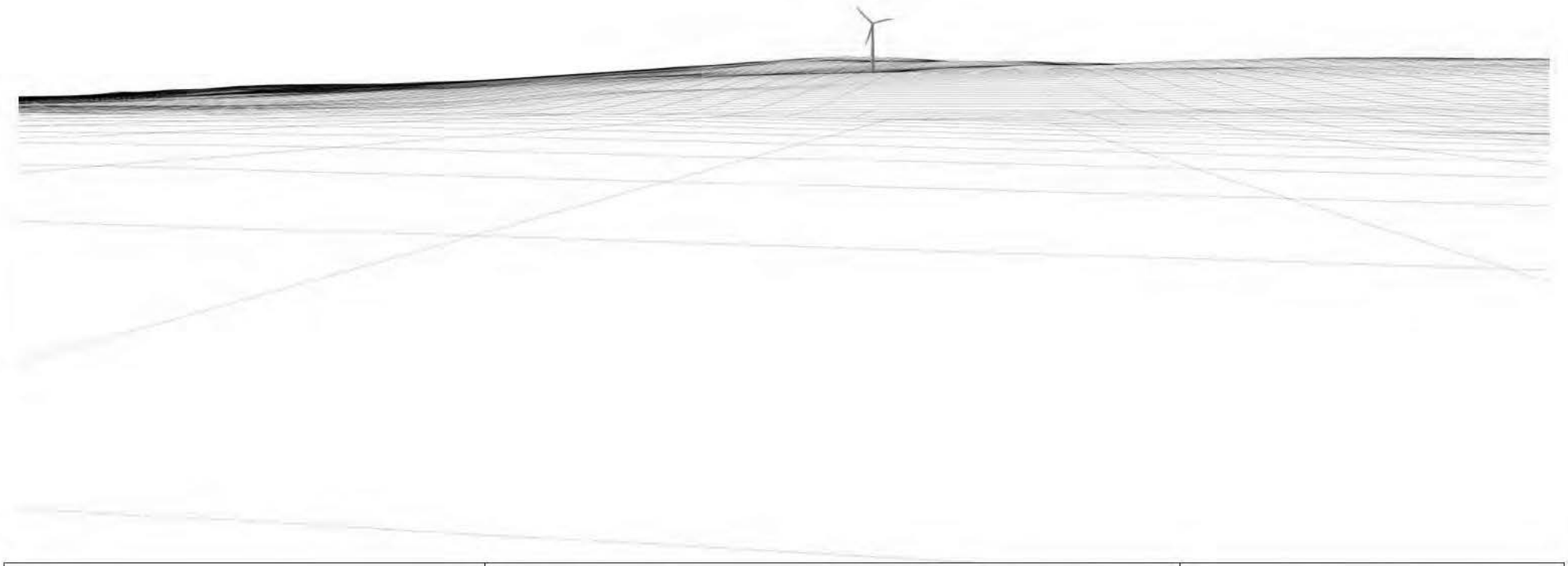

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Figure 20: Wire-frame montage looking towards the proposed wind turbine site from Pont Sarn-Las Hut Group Scheduled Ancient Monument (An087), from the east.

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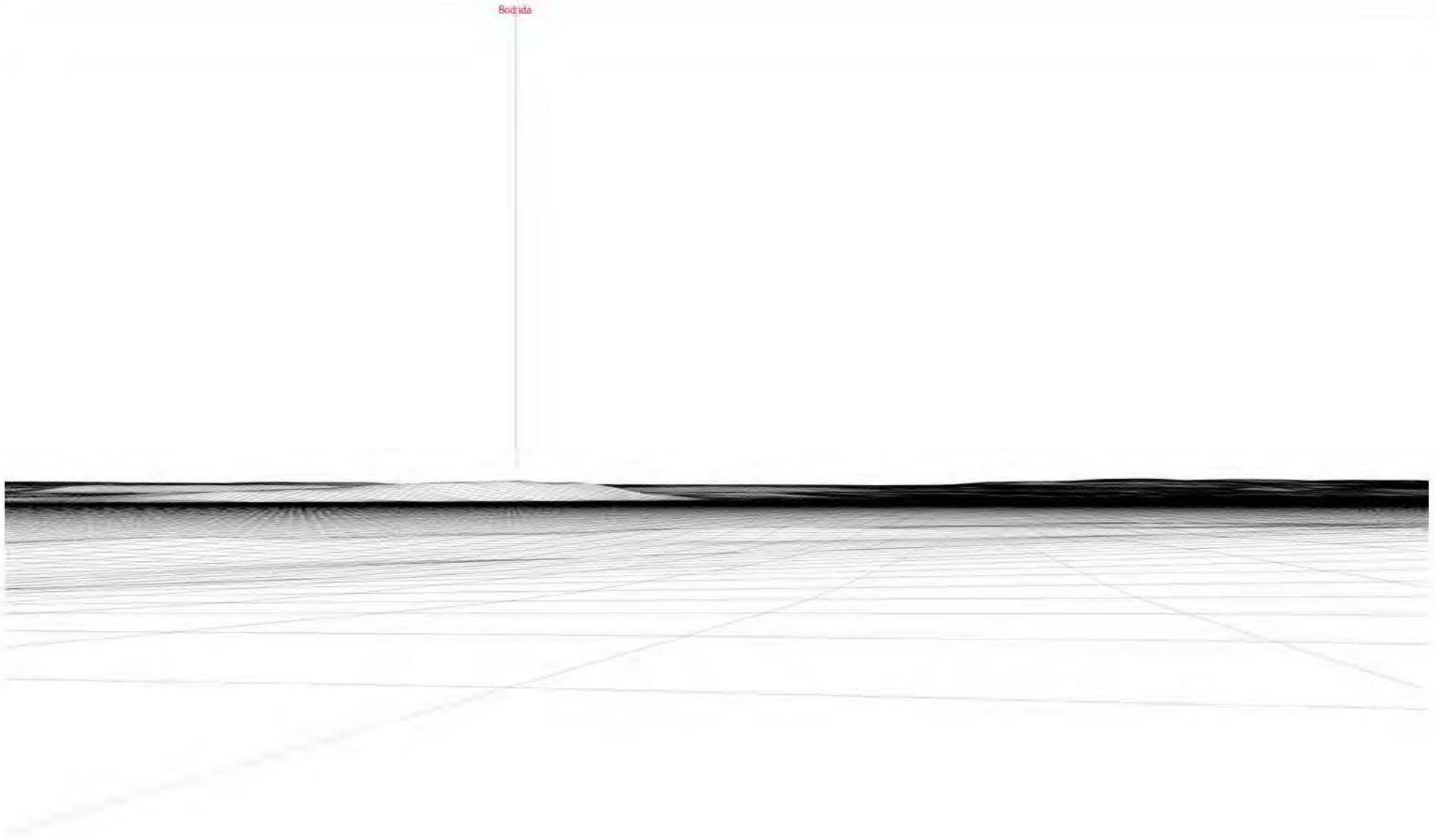

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Figure 21: Wire-frame montage looking towards the proposed wind turbine site from Caernarfon Town Wall Scheduled Ancient Monument (Cn034) and World Heritage Site, from the south.

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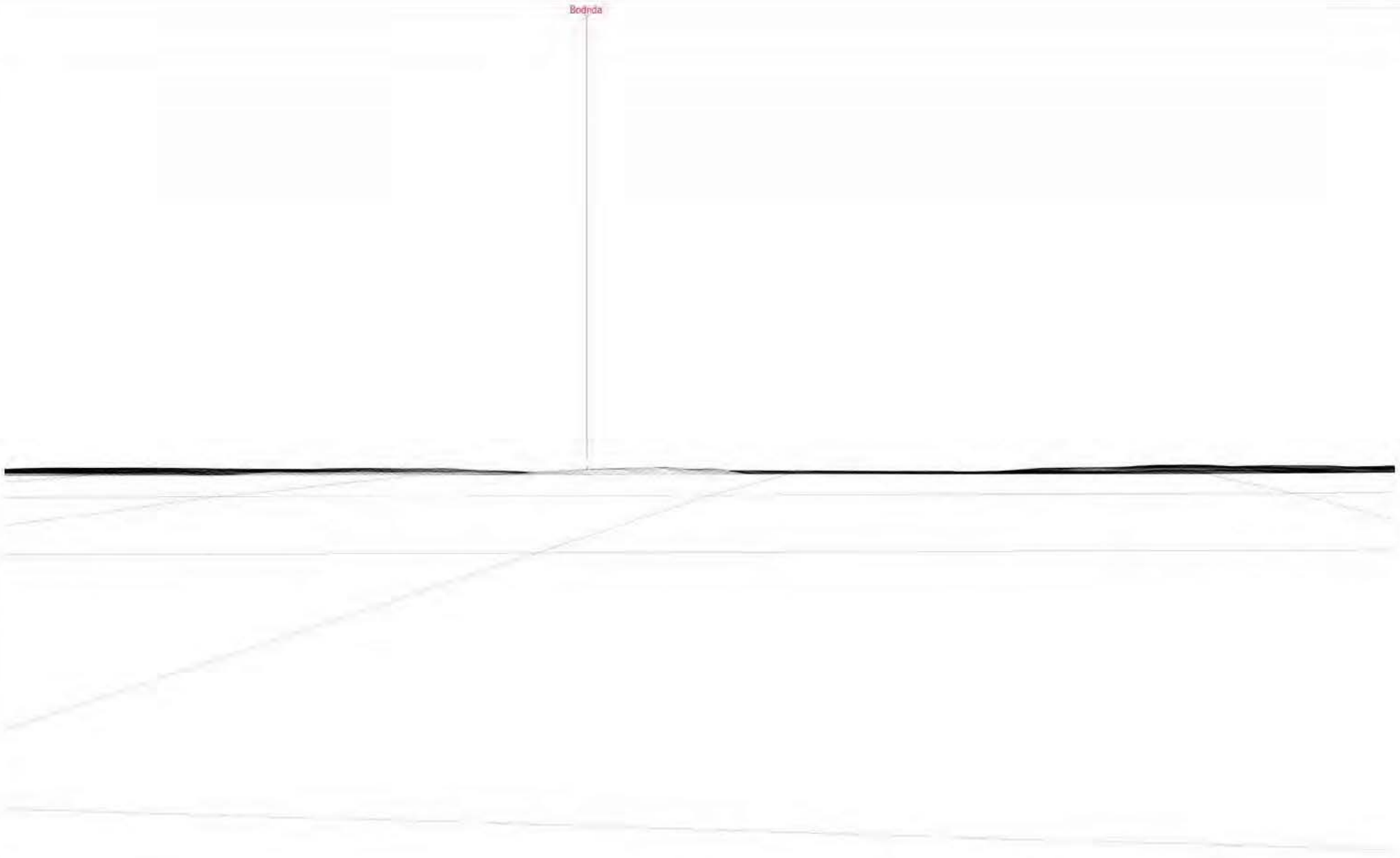

Figure 22: Wire-frame montage looking towards the proposed wind turbine site from Caernarfon Castle Scheduled Ancient Monument (Cn079) and World Heritage Site, from the south.

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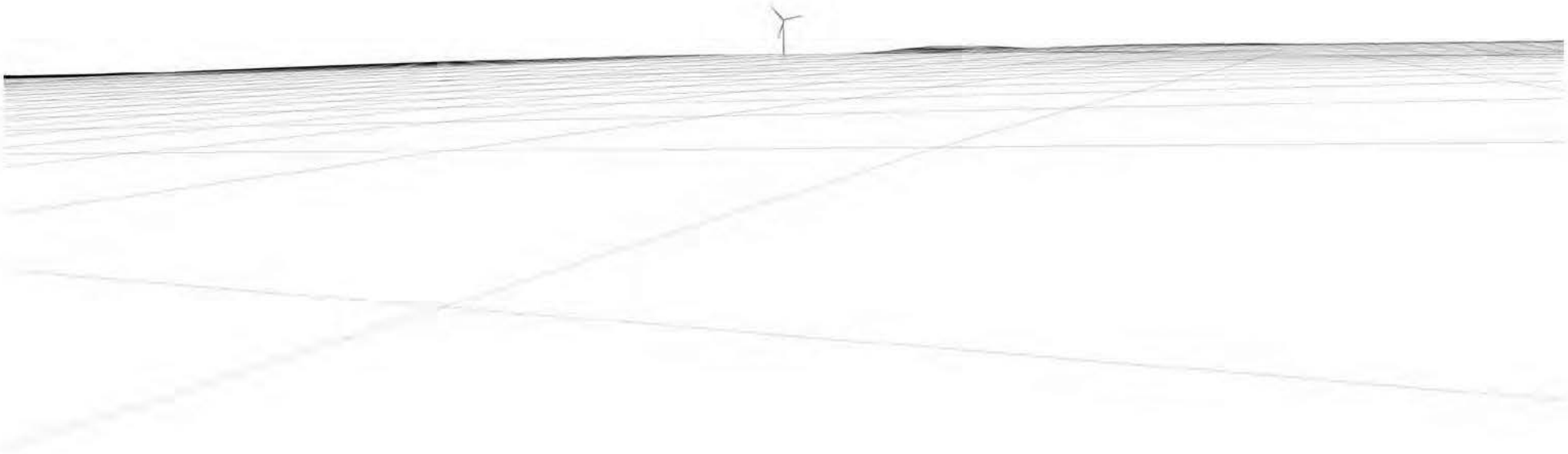

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Figure 23: Wire-frame montage looking towards the proposed wind turbine site from Melin Bodowyr and Pont Melin Bodowyr Listed Buildings (LB refs 19883 and 19887), from the northeast.

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Plate 01: Proposed wind turbine location from the southeast.

Plate 02: Trckway (feature 1), from the southeast. Scale 1.0m

Plate 03: Bodowyr Burial Chamber SAM (An007) from the south. Scale 1.0m.

Plate 04: View towards the proposed wind turbine site from Bodowyr Burial Chamber SAM (An007), from the north.

Plate 05: Caer Leb SAM (An014) from the northeast.

Plate 06: View towards the proposed wind turbine site from Caer Leb SAM (An014), from the southeast.

Plate 07: View towards the proposed wind turbine site from Castell Bryn Gwyn SAM (An015), from the south.

Plate 08: Bryngwyn Standing Stones SAM (An022), from the south.

Plate 09: View towards the proposed wind turbine site from BrynGwyn Standing Stones SAM (An022), from the south.

Plate 10: Caer Idris Hillfort SAM (An051), from the southwest.

Plate 11: View towards the proposed wind turbine site from Caer Idris Hillfort SAM (An051), from the east.

Plate 12: Early Gravestones and Shaft in Churchyard SAM (An053), from the southeast. Scale 1.0m.

Plate 13: View towards the proposed wind turbine site from Early Gravestones and Shaft in Churchyard SAM (An053), from the northwest.

Plate 14: Perthi-Duon Burial Chamber SAM (An059), from the northwest.

Plate 15: View towards the proposed wind turbine site from Perthi-Duon Burial Chamber SAM (An059), from the southeast.

Plate 16: Pont Sarn-Las Hut Group SAM (An087), from the southwest.

Plate 17: View towards the proposed wind turbine site from Pont Sarn-Las Hut Group SAM (An087), from the east.