



Ivyleaf Farm, Stratton, Cornwall

Archaeological assessment of proposed wind turbine



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Report author	Nigel Thomas BA MIfA
Checked by	Adam Sharpe MIfA
Approved by	Andrew Young MIfA, HE Projects Officer

Historic Environment, Cornwall Council

Kennall Building, Old County Hall, Station Road, Truro, Cornwall, TR1 3AY

tel (01872) 323603 fax (01872) 323811 E-mail hes@cornwall.gov.uk

www.cornwall.gov.uk

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The viewshed mapping and data extraction were carried out by Francis Shepherd and Peter Dudley.

The views and recommendations expressed in this report are those of Historic Environment Projects and are presented in good faith on the basis of professional judgement and on information currently available.

Freedom of Information Act

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Cover illustration

A temporary anemometer marks the proposed turbine site at Ivyleaf. The field has considerable screening by trees.

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Abbreviations

CRO	Cornwall Record Office
EH	English Heritage
HBSMR	Historic buildings, sites and monuments record
HE	Historic Environment, Cornwall Council
HER	Cornwall and the Isles of Scilly Historic Environment Record
NGR	National Grid Reference
NMP	National Mapping Programme (mapping of archaeological sites from air photographs)
OD	Ordnance Datum (height above sea level)
OS	Ordnance Survey
ZTV	Zone of theoretical visibility (within a mapped viewshed)

1 Summary

Historic Environment Projects, Cornwall Council, was approached by Terri Welsh of 1 Stop Renewables Ltd in November 2012 with a request to provide costs for the provision of an archaeological assessment of a proposed wind turbine at Ivyleaf Farm, Stratton as part of a proposed planning application. A cost schedule for this work was approved on 21st November 2012.

The proposal is for the erection of a single wind turbine with a hub height of 33.2m and a blade tip height of 56.7m with access track and associated engineering works. It is to be sited on farmland at Ivyleaf Farm in Kilkhampton parish at SS 23391 109034. The site chosen for the wind turbines lies on the western slope of a hill overlooking a tributary stream of the River Neet. It is in an area of farmland which has been in continuous use since at least the medieval period.

The assessment comprised a desk-based assessment, geophysical survey and a walkover survey of the proposed turbine site, as well as viewshed analysis to 5km and 20km from the site.

Although the site chosen for the wind turbine is at 145m OD on Ivyleaf hill, the hill rises further to the east to 160m OD. The surroundings of the site to the north and east are covered with woods and plantations and the view towards Ivyleaf from the west is also partly blocked by a tree-covered hillside, so the immediate visual impacts on these sides appear likely to be minimal.

The closest monuments to the turbine site include a Scheduled round within the neighbouring woods to the northwest. The round would only be impacted upon if the woods/plantations are felled during the lifetime of the turbine. This would also apply to a listed farmhouse at Barnacott, sited 1.25 km away. Herdbury round (another Scheduled Monument) is also only 1km SE from the turbine site. However due to the rounded nature of the hill and its tree cover, the sites are not intervisible from ground level.

Some impacts on the HLC of the landscape surrounding the proposed wind turbine can be expected. By and large the potential impacts on historic sites diminish rapidly the greater the distance from the turbine location, as other hills and tree cover block views. This is true of areas even within a few kilometres of the turbine. Nevertheless the turbine will be visible from higher ground further away, such as the ridge which carries the Stratton to Red Post road. But there are few sites here and the recorded barrows inland at Red Post do not fall within the viewshed. It is also worth noting that the surroundings and views associated with Scheduled barrows on the coast near Bude, appear to be oriented towards the coast rather than inland.

A report summarising the results of the assessment and its conclusions was prepared for the client.

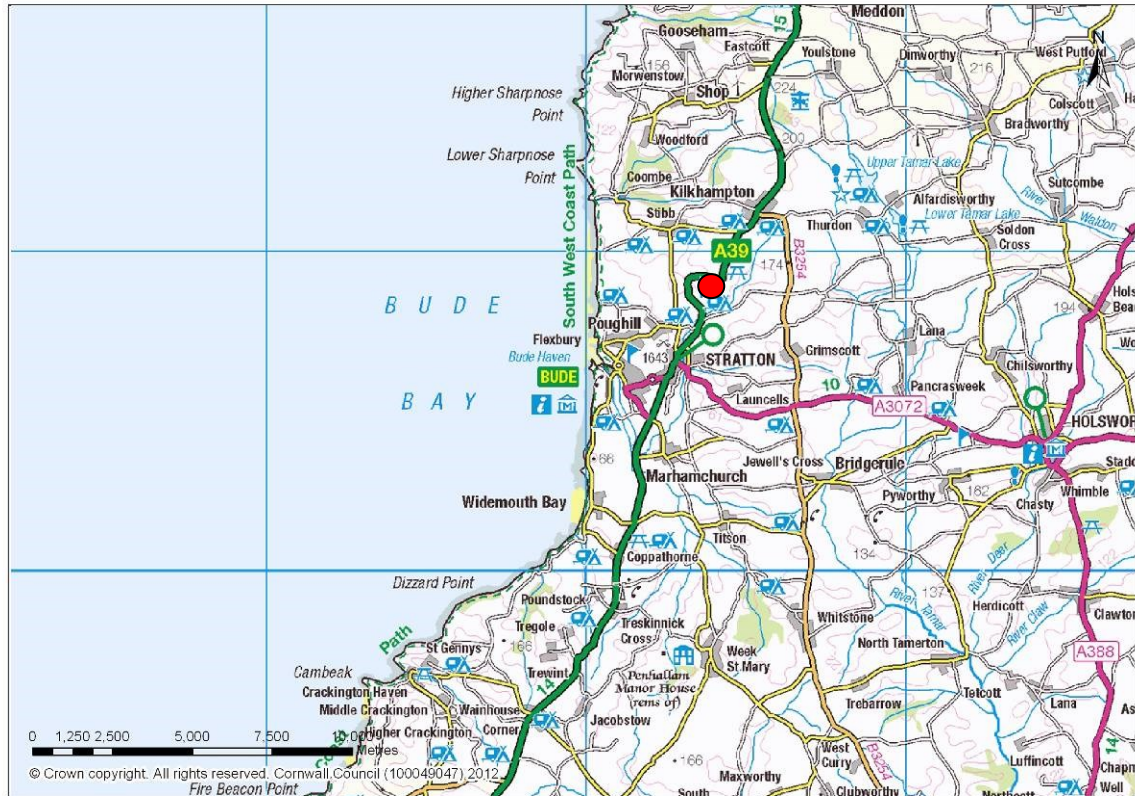


Fig 1 General location map. The proposed turbine site is indicated by the red dot

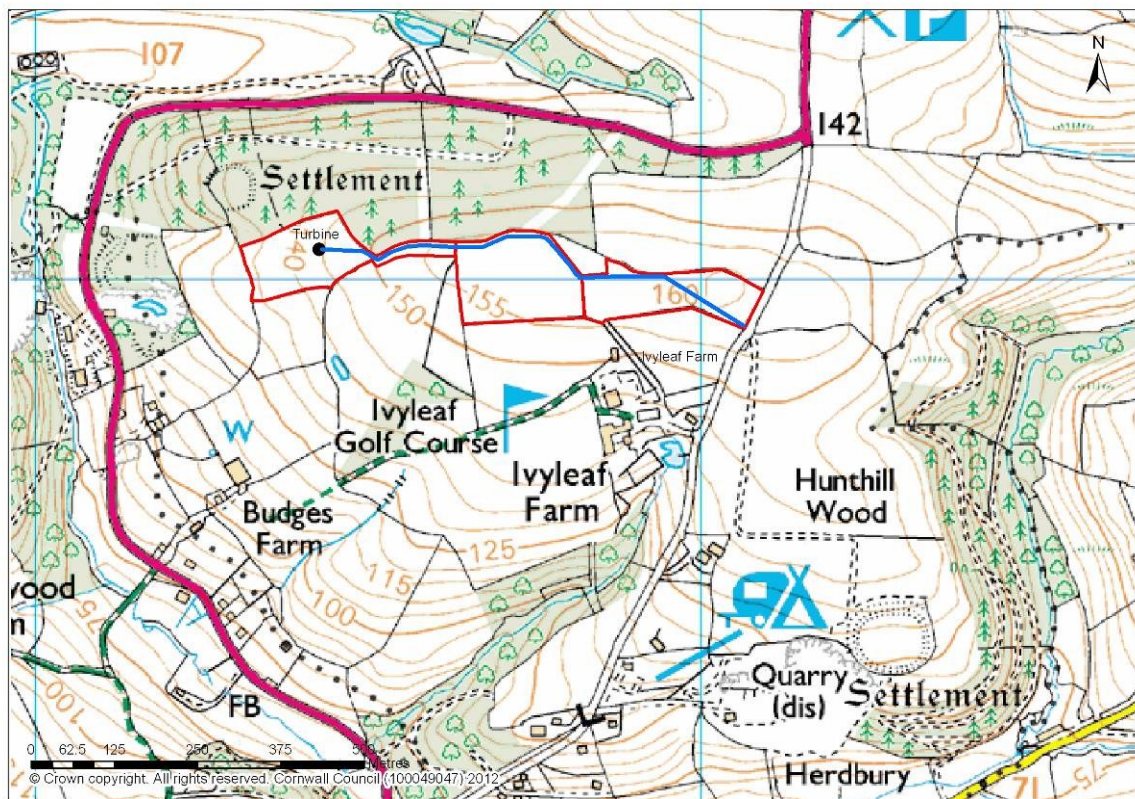


Fig 2 Proposed turbine location (black dot) and construction access route (blue line)

2 Introduction

2.1 Project background

Historic Environment Projects, Cornwall Council, was approached by Terri Welsh of 1 Stop Renewables Ltd in November 2012 with a request to provide costs for the provision of an archaeological assessment of a proposed wind turbine at Ivyleaf Farm, Stratton as part of a proposed planning application ref PA12/05289. A cost schedule for this work was approved on 21st November 2012.

The proposal is for the erection of a single wind turbine with a hub height of 33.2m and a blade tip height of 56.7m with access track and associated engineering works. It is to be sited on farmland at Ivyleaf Farm in Kilkhampton parish at SS 23391 109034. The site chosen for the wind turbines lies on the western slope of a hill overlooking a tributary stream of the River Neet. It is in an area of farmland which has been in continuous use since at least the medieval period.

The assessment comprised a desk-based assessment, geophysical survey and a walkover survey of the proposed turbine site, as well as viewshed analysis to 5km and 20km from the site.

Methodology for the assessment was based upon a brief dated 14th Dec 2012 prepared Mr Phil Copleston, the local Historic Environment Planning Advice Officer for Cornwall Council. Additional advice on assessing the impacts of such developments on the settings of designated sites was provided by Mr Nick Russell, Assistant Inspector of Ancient Monuments, English Heritage.

A geophysical survey of the turbine field, access and cableway areas at Ivyleaf was carried out by GSB Prospection Limited on 28th/29th January 2013. The walkover survey and viewshed check were undertaken by the author on the 19th February 2013.

2.2 Aims and objectives

The principal aim of the study is to gain a better understanding of the impacts which would result from the construction of a wind turbine on land at Ivyleaf Farm north of Stratton.

The overall project aims are to:

- Draw together historical and archaeological information about the development site and its surroundings, including relevant information held within the Cornwall Historic Environment Record.
- Review and analyse historic map evidence for the site.
- Follow the approach outlined in Section 3 of the English Heritage guidance on setting.
- Identify the construction, use and 'end of life' impacts of the current proposals on the significance of the setting of these assets and on the proposal site.

The site specific project aims are to:

- Produce a report containing the desk based assessment and surveys in interpreted form.
- Inform whether an archaeological evaluation or further archaeological recording of any potential buried remains or other mitigation is recommended.

The objective of the project is to produce a report setting out the likely range of impacts (both direct and on settings) of the development on heritage assets within the site or the surrounding locality, and to make recommendations for any further archaeological investigation which might be required, as defined above.

2.3 Methods

2.3.1 Desk-based assessment

As part of the desk-based assessment (DBA), historical databases and archives were consulted in order to obtain information about the history of the site and its surroundings, and the structures and features recorded within the site boundaries. The main sources consulted were as follows:

- Published sources available in the Cornwall and Scilly HER.
- Historic maps including
 - Norden's Map of Cornwall (c1580)
 - Joel Gascoyne's map of Cornwall (1699)
 - Thomas Martyn's map of Cornwall (1748),
 - OS 1 inch survey (c1809)
 - Poughill, Stratton and Kilkhampton Tithe Maps (c1840),
 - 1st and 2nd Editions of the OS 25 inch maps (c1880 and c1907).
- Modern maps.
- National Mapping Programme transcripts from aerial photographs.
- Other aerial photographs in the Cornwall and Scilly HER.
- Historic Landscape Characterisation mapping.
- Cornwall and Scilly Historic Buildings, Sites and Monuments Record (HBSMR).
- Devon HBSMR (Listed buildings, Registered Battlefields, Registered Parks and Gardens and Scheduled Monuments information layers)
- Information held as GIS themes as part of the Cornwall and Scilly HER.

The historical and landscape context of the site was also considered during this stage of the assessment in order to establish the nature of the heritage assets which are located within the area surrounding the proposed wind turbines.

2.3.2 Viewshed analysis

An assessment of the impacts of the proposals was made from the surrounding area using the guidelines and methodological approaches set out in English Heritage's recent consultation draft guidance on the setting of heritage assets. This was based on GIS-based viewshed mapping produced using a model of theoretical inter-visibility between the wind turbines proposed for the site and significant heritage assets within the surrounding landscape; the viewshed (ZTV or Zone of Theoretical Visibility) was generated using ArcGIS software. The methodology employs a Digital Terrain Model (DTM), which ignores potentially temporary surface features such as buildings, woodland, vegetation, etc. to provide a surface model of potential intervisibility between the proposed wind turbine and key heritage assets within the surrounding landscape. A viewshed was generated for a three 'observer point's based on the locations of the proposed wind turbines.

When performing a viewshed analysis, several variables are used to limit or adjust the calculation including offset values, limitations on horizontal and vertical viewing angles (azimuth) and distance parameters (radius) for each observer point. For the proposed wind turbine, the viewshed was based on an 'overall observer elevation value' made up of the 'elevation value' or height above sea level of the ground at the observer viewpoint, with added to this an additional offset of 56.7m to represent the maximum height of the turbine blades. This viewshed was checked on the ground, given that vegetation and other factors may substantially block views to and from key sites, whilst

significant heritage assets within the theoretical viewshed were visited (where access was possible) and the landscape within which they sit considered to determine intervisibility with the proposed development site and the natures of their settings, both locally and at a distance. This informed the likely scales and types of any visual impacts which might affect their settings, as required by English Heritage (2011).

Viewshed modelling combined with ZTV radii of 5 and 20km were used to help determine effects on heritage assets (see Figs 16 to 21). Sites identified through intersection of the ZTV modelling with GIS layers containing designated and undesignated heritage assets produced data sub-sets which were further filtered according to their intersection with ZTV zones representing 5km and 20km radii from the site, as required by English Heritage guidance. High level designated heritage sites (i.e. Grade I and II* Listed Buildings, Scheduled Monuments, Registered Parks and Gardens with designed views and Registered Battlefields) were assessed within a ZTV radius of 20km. These sites are listed in tables contained in this report.

The site types within these data sets were then analysed to determine their likely sensitivity to impacts on settings. Those site types which had no setting (documented sites) were excluded from further analysis, as were those that by their nature have very localised settings (for example, milestones, wayside crosses and fingerposts) except where in very close proximity to the application site. The resultant site lists were further filtered by close examination of the ZTV data and a 2005 vertical aerial photograph GIS layer to remove from the lists those sites where mature vegetation or proximal buildings would almost certainly block intervisibility and where intrusion into key views was unlikely. Designated sites with limited settings (most Grade II Listed Buildings) and those with local settings such as associated urban development which were more than 2Km from the application site tended to be excluded from assessment at this stage unless specific reasons were identified for their retention.

The resultant site list consisted of a mixture of designated landscapes with substantial intervisibility with the proposal site, particularly where these included planned views in the direction of the proposal site, Scheduled Monuments whose original settings were intended to include large areas of the landscape (for example prominent hilltop barrows or hillforts), or which were designed to function as part of intervisible elements of larger groups with landscape settings (for instance barrow cemeteries), other high grade designated historic structures which were intended when built to be highly prominent within the landscape (predominantly church towers and spires), and upstanding undesignated sites in close proximity to the development site. This filtered group of sites was assessed to determine impact (see below).

2.3.3 Fieldwork

A walkover survey of the site proposed for the wind turbines and for their cabling was undertaken to examine the site for upstanding archaeology and to record the nature of the boundary types which might be impacted upon during the development. A list of sites visited is contained within Section 10 of this report.

In order to check the validity of the Zone of Theoretical Visibility (ZTV) indicated by the viewshed analysis, and thus the potential impacts on key heritage assets within the ZTV, site visits were made to both the site proposed for the wind turbine, and to selected key locations within the surrounding landscape. A visual check and photographic record were made of intervisibility (or the lack of it) between the proposed development site and heritage assets indicated by the ZTV mapping as being likely to be within the viewshed and whose settings were assessed as vulnerable to impacts from the development where public access was available. Where this was not the case, the nearest possible vantage point from which views including both the heritage asset and the development proposal site was utilised, preferably one in which the proposed development site formed the backdrop to a view of the designated heritage site.

Photographs were taken using a digital SLR camera with a resolution of 8 million pixels. The camera lens was set on 35mm, so as to produce views that do not exaggerate wide angles, nor produce excessive telephoto effects. After fieldwork the downloaded photographs were minimally processed (adjusting light/exposure only) using Adobe PhotoShop Elements software. Fig 41, a panoramic image, was produced from two original photographs merged using ArcSoft Panorama Maker.

2.3.4 Post-fieldwork

On completion of the project and following review with the HE Project Manager the results of the study were collated as an archive in accordance with: *Management of Research Projects in the Historic Environment (MoRPHE) English Heritage 2006*. The site archive will initially be stored at ReStore, with the eventual aim of deposition at Cornwall Record Office.

An archive report (this report) has been produced and supplied to the Client. This report will be lodged with the Cornwall and Scilly Historic Environment Record (HER) and made available for public consultation once a planning application for the site has been made. A copy of the report will be supplied to the National Monuments Record (NMR) in Swindon, to the Courtney Library of the Royal Cornwall Museum and to the Cornish Studies Library. All digital records will be filed on the Cornwall Council network.

An English Heritage/ADS online access to the index of archaeological investigations (OASIS) record has been made covering this assessment project.

3 Location and setting

The site proposed for the wind turbine is at SS 23391 109034 to the northwest of Ivyleaf farm in the parish of Kilkhampton. The proposed turbine site is on the upper western slope of a hill at a height of 145m OD (Figs 2 and 15) although the land rises to the hilltop further east at 160m OD. The site is on higher ground above the confluence of the River Neet and a tributary stream, where the river flows southwards towards Stratton and Bude.

The development area is characterised in the Cornwall and Scilly Historic Environment Record (HER) as 'Anciently Enclosed Land – farmland medieval', that is land which has been continuously farmed since at least the medieval period, if not longer (Fig 12). Ivyleaf has however changed in the later 20th century as the former fields to the immediate south of the turbine site have been converted to a 9 hole golf course. Other fields to the east have also been expanded by removal of hedges; this is particularly visible in the area north of Herdbury Round.

The parent bedrock underlying the application site consists of Holsworthy Group Carboniferous period mudstone, siltstone and sandstone deposits, as recorded by the British Geological Survey. Soils in the application site are described by the Soil Survey as Neath type (i.e. loam over sandstone).

4 Project extent

The archaeological assessment was focussed on those heritage assets (whether designated or not) that might be physically impacted upon by activities associated with the erection of the wind turbine, including cable trenching, siting of temporary compounds, cranes or other equipment and with any associated semi-permanent infrastructure.

The assessment also takes into account and quantifies impacts on the settings of heritage assets (both designated and undesignated) within the viewshed of the proposed turbine site in line with Policy HE6 in PPS5, sections 16(2) and 66(1) of the Planning (Listed Buildings and Conservations Areas) Act 1990 Chapter 9, and English

Heritage guidance relating to the setting of historic assets (2011) and on wind energy and the historic environment (2005), namely:

- Non-designated heritage assets – 5km radius.
- Grade II Listed Buildings and Conservation Areas – 5km radius.
- Scheduled Monuments, Grade I and II* Listed Buildings, Registered Battlefields and Registered Parks and Gardens (with views to or from the application site) – 20km radius.

5 Designations

5.1 International

No international designations apply to the site proposed for the development, or to the 5km or 20km ZTV radii.

5.2 National

No national designations apply to the site proposed for the development.

The 5km radius viewshed includes 92 Listed Buildings (all grades) (Fig 17).

The 5km radius viewshed intersects one Registered Battlefield (Fig 17).

The 5km radius viewshed zone includes 11 potentially intervisible Scheduled Monuments (Fig 18).

Within the 20km radius viewshed, the wind turbine would be theoretically intervisible to some degree with 39 Grade I and II* Listed Buildings (see Fig 19).

The 20km radius viewshed mapping includes 76 Scheduled Monuments (Fig 20)

5.3 Regional/county

Ivyleaf is located within an Area of Great Landscape Value (AGLV).

The 5km radius viewshed intersects parts of four Conservation Areas (Bude, Stratton, Kilkhampton and Poughill; see Fig 17)

5.4 Local

No local designations apply to the site proposed for the development.

5.5 Rights of Way

No rights of way traverse the site proposed for the wind turbine, nor the area across which the cabling will be undergrounded.

6 Results of desk-based assessment

The proposed turbine site lies on the higher western slope of a fairly rounded hill occupied by Ivyleaf farm. The Cornwall HBSMR records that the settlement of Ivyleaf is first documented in 1327, when the place-name was spelt "Hyvaleth". The name is of English origin, but its exact meaning is uncertain; the second element may have been the Old English *hlith* meaning 'slope'.

Settlement of the area clearly has considerably earlier origins, as the HBSMR also records numerous prehistoric features in the local landscape. Although no Neolithic or Bronze Age remains are recorded at Ivyleaf itself, the remains of a Neolithic long barrow are extant at Woolley Moor north of Kilkhampton, and there are numerous Bronze Age round barrows on the coastland (e.g. north of Flexbury) and higher ground

around Bude (such as the group of barrows at Red Post). Earlier prehistoric settlements are likely to have existed in the more sheltered areas, their locations most reused by medieval and later farmsteads.

Two extant rounds represent Iron Age/later prehistoric activity at Ivyleaf, one located in the woods immediately north of the proposed turbine site and the other, Herdbury, to the south east overlooking the Neet valley. Both rounds are now Scheduled Monuments.

The pre-Norman Conquest landscape of the area is recorded in the Domesday Survey of 1086; at the time of the survey the area that became Ivyleaf farm was in the Hundred of Stratton. As well as Stratton itself, local manors named in Domesday Book include Barnacott (immediately north of Ivyleaf), Moreton, Norton, Pigsdon and the manorial/parish centres of Poughill and Kilkhampton.

Most other local settlements are first named in the 13th and 14th centuries. Many larger early settlements will have originally been hamlets occupied by several families, with the land subdivided and farmed among the settlement group. Ivyleaf lies just to the west of what was once the main road between Stratton and Kilkhampton.

It is noticeable that the present farmstead of Ivyleaf occupies a shallow depression in the hillside that affords it more shelter than is available in the immediately surrounding landscape; this is likely to have been a preferred location and is likely to have been continuously occupied since the medieval period. The former field system to the north and west of Ivyleaf is characterised by a curvilinear hedge or ring-fence that encloses the farm. This is likely to have distinguished the land in regular cultivation from pasture on higher ground beyond (to the north), or more steeply sloping fields to the south west.

Earlier post-medieval sites in the local landscape are represented by the Stamford Hill Civil War site north west of Stratton, now a Registered Battlefield.

The 1842 Tithe Map for Poughill parish shows the turbine field as two narrower enclosures (plots numbered 484 and 485); the central hedge line had been removed before c1880. At the time the Tithe Map was surveyed the farm name appeared as 'Ivyleaf' with the higher ground known as Down Parks.

The First Edition OS 25 Inch Scale map (surveyed c1880) shows the present farmhouse and buildings at Ivyleaf, together with the pattern of smaller fields that then existed.

By 1907, when the OS updated their mapping of the area, there had been a considerable change in the local landscape as a new road had been developed which curved around the lower western side of the hill at Ivyleaf. This was probably built to service two quarries (Tiscott and Northcott Park) that had been dug into the valley sides.

Later maps show the quarry pits as extended, but these became disused before the end of the 20th century. The valley between Barnacott, Killock and Ivyleaf (beyond the turbine site and the adjoining woodland) has been used in the 20th century as a landfill site. This site has now closed but a council-owned recycling depot is extant there.

Ivyleaf farm today is a diversified business, with much of the land given over to its golf course and other leisure facilities. The older farm buildings have been converted to residential use. The remaining part of the farmland is now serviced from modern buildings on the north side of the farmstead.

7 Results of geophysical survey

A magnetometry survey of the proposed turbine site, together with the access and cable ways, was commissioned from GSB Prospection, Bradford. This geophysical survey was intended to detect sub-surface anomalies which may indicate archaeological material surviving below the ground surface.

The survey did not reveal any significant archaeological potential in this area, as the only results discovered in the turbine field were traces of the field hedge indicated on the 1842 Tithe Map, and another similar anomaly, probably another former field boundary. Cultivation marks were also revealed within the field close to the road (see Fig 22).

8 Results of site walkover

A site walkover was undertaken on 26th February 2013. The weather was variable, ranging from moderate cloud cover with sunny intervals in the morning to heavily overcast skies with a distant haze for the rest of the day. Visibility was poor for undertaking photography, but the landscape was still clear to 4-5km.

The site proposed for this wind turbine was under grass at the time of survey. This field slopes gently to the west and is bounded on all sides by earth banks (Cornish hedges) topped with bushes up to 3.0m high. The northern and eastern sides of the field are adjoined by coniferous plantations and deciduous woodland that offer considerable shelter. Most views are, therefore, very local, or of relatively distant elements of the landscape. No archaeological features were detected within the field. The field has a south westerly aspect, with views towards Poughill and Bude, although when viewed from ground level these settlements are mostly hidden by intervening hills.

9 Results of viewshed analysis

See Figs 16 to 21

Given the location of the site and the height of the turbine tower, the viewshed analysis suggests that the Zone of Theoretical Visibility (ZTV) will be fairly far-reaching. In line with the requirements of English Heritage guidance, the ZTV has been mapped to a distance of 5 and 20km from the site, but the ZTV suggests that its visibility is unlikely to extend to any great degree in the outer zone. The visibility of the turbine will diminish with distance, and will, at many local sites, be blocked by intervening buildings within settlements or farmsteads or by mature groups of trees (albeit on a temporary basis, should such trees subsequently be felled).

9.1 5 km radius ZTV

See Fig 16

The 5km radius ZTV is almost entirely within Cornwall, although the Devon border is crossed by a few hundred metres to the south of Moreton Mill.

Given the nature of the local topography and the elevations of the proposed wind turbines, the ZTV suggests that the turbine mast or blades will be visible from approximately 50% of this zone. In practice, it is likely that vegetation or buildings will block views of it from most habitations.

There are no Registered Parks and Gardens within the 5km ZTV.

9.2 Listed buildings within the 5km radius ZTV

This section includes all grades of Listed Buildings that are within 5km of the proposed turbine site and also fall within the ZTV mapped polygons.

See Figure 17

Record No.	Name	Grade
1141834	CHURCH OF ST SWITHIN (Launcells)	I
1328522	CHURCH OF ST OLAF (Poughill)	I
1230335	BARNACOTT	II
1141832	TUMBLES COTTAGE	II

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Record No.	Name	Grade
1141846	BRIDGE COTTAGES	II
1278622	SCADGHILL FARMHOUSE	II
1141847	AGRICULTURAL MERCHANTS	II
1231915	WOODLAND FARMHOUSE	II
1141843	LAKE HOUSE	II
1229353	STRATTON COMMUNITY HALL	II
1229928	TREE HILL HOUSE	II
1328548	HOUSE ABOUT 6 METRES WEST OF HATHERLEIGH COTTAGE	II
1328533	MAER FARMHOUSE	II
1328495	THE CASTLE AND WALLS TO THE NORTH WEST AND SOUTH EAST	II
1328519	HOUSE ADJOINING THE TREE INN TO THE NORTH	II
1278576	THE POST OFFICE	II
1230082	OUTBUILDING IMMEDIATELY TO THE NORTH EAST OF PUDNERS	II
1278566	HOBBACOTT DOWN	II
1141840	LITTLE COTHILL GUESTHOUSE	II
1141849	TREE HILL COTTAGE	II
1141818	NANNY MOORE'S BRIDGE	II
1141856	RODDS BRIDGE FARMHOUSE	II
1141873	HILLHEAD FARMHOUSE	II
1279104	THE BREAKWATER	II
1141855	POUGHILL MILL	II
1141870	BROOMHILL MANOR	II
1229815	TREE VIEW COTTAGE	II
1141796	OUTBUILDING ABOUT 11 METRES EAST OF LAUNCELLS BARTON	II
1328515		II
1328516	STRATTON GARDEN HOTEL	II
1141808	LOWER STURSDON	II
1141833	HERSHAM CARPENTRY	II
1141836	BARTON COTTAGES	II
1141819	THORN COTTAGES	II
1141817	WEST COTTAGE	II
1141848	TOWNSEND COTTAGE	II
1229618		II
1328523	JOSE CHEST TOMB ABOUT 1 METRE WEST OF SOUTH AISLE OF CHURCH OF ST OLAF	II
1141871	GROVE PARK	II
1230044	DAYMAN CHEST TOMBS ABOUT 3 METRES SOUTH OF THE CHANCEL OF THE CHURCH OF ST OLAF	II
1328494	STRATTON COURT	II
1278913	TREE VIEW	II
1141771	NOS 9 TO 35 (ODD) EXCLUDING NOS 11 AND 17 INCLUDING FRONT PAVEMENT	II
1230101	THE THATCHED HOUSE	II
1279111	CHURCH OF ST MICHAEL AND ALL ANGELS	II
1328543	MEMORIAL TO THE BATTLE OF STAMFORD HILL	II
1278554	WELL HOUSE AND BRIDGE ABOUT 50 METRES NORTH EAST OF CHURCH ST SWITHIN	II
1141845	HOUSE ADJOINING TREE VIEW AT NORTH	II
1141767	HOWARDS FARMHOUSE	II
1328544	THORN COTTAGES	II
1141857	THE WAR MEMORIAL	II
1230018	PAIR OF CHEST TOMBS ABOUT 7 METRES SOUTH EAST OF PORCH OF ST OLAF	II
1141850	HARRIS CHEST TOMB ABOUT 5 METRES SOUTH EAST OF PORCH OF CHURCH OF ST OLAF	II
1328545	WAREHOUSE ON THE WEST SIDE OF THE BUDE CANAL ABOUT 40 METRES SOUTH OF LIFEBOAT HOUSE	II
1141770	NO 5 INCLUDING FRONT PAVEMENT	II
1328518	BIRWOOD HOUSE	II
1141798	RED POST INN	II
1229349	HILL	II
1278742	BURSHILL MANOR	II
1141874	CENTRAL METHODIST CHAPEL	II

Record No.	Name	Grade
1328534	CROSS FARMHOUSE	II
1141872	TREMAER	II
1229794	FLEXBURY PARK METHODIST CHURCH	II
1229797	KERSCOWE COTTAGES	II
1229930	PREMISES OCCUPIED BY HENNINGS AND PATT	II
1141820	OLD STEAM LAUNDARY	II
1141824	RECTORY AND ADJOINING GARDEN WALLS	II
1141852	PUDNERS	II
1141837	THE PROPERTY SHOP, PREMISES OCCUPIED BY S WICKET AND HOUSE ADJOINING AT THE SOUTH	II
1141875	THE STORM TOWER	II
1141821	LAUNDARY COTTAGE	II
1141853	ST OLAF'S COTTAGE	II
1230350	PRISTACOTT	II
1141854	BURSHILL COTTAGE AND EASTERLY COTTAGE AND MANDALAY	II
1229834	TUDOR COTTAGE	II
1278883	MILITARIA MUSEUM	II
1229922	THE THATCH	II
1230344	KESTREL PIT COTTAGE	II
1230140	MILEPOST ABOUT 100 METRES NORTH OF RODDS BRIDGE	II
1394302	Milestone East of Thurlibeer House	II
1394317	Milestone opposite Brooks Garden Centre	II
1328547	WALL ABOUT 30 METRES WEST OF ALDERCOMBE BARTON	II
1328521	HYDE AWAY HOUSE AND WALLS TO NORTH AND SOUTH OF PATHWAY BETWEEN MAIDEN STREET AND EAST OF HOUSE	II
1141772	NOS 2 TO 30 (EVEN) INCLUDING FRONT PAVEMENT	II
1141844	THE TREE INN	II
1141822	ALDERCOMBE BARTON	II*
1328514	THE POST OFFICE AND DWELLING HOUSE ADJOINING AT SOUTH, THE DRANGWAY AND PART OF PASSAGE TO THE EAST BETWEEN CHURCH SQUARE AND GIBRALTAR SQUARE	II*
1328573	LAUNCELLS BARTON	II*
1328520	SEA LOCK, LOCK GATES AND HAND WINCHES	II*
1328546	EBBINGFORD MANOR	II*
1278759	CHURCH HOUSE	II*
1229361	BARN ABOUT 40 METRES SOUTH EAST OF TREMAER	II*

Within the 5km zone, 92 Listed Buildings of all grades are intersected by the ZTV. Of these, two are Listed at Grade I and seven at Grade II*. Note – some Listed Buildings have multiple entries in the GIS to distinguish separate elements, though have single List numbers.

Impacts on the settings of many of these designated buildings are very unlikely unless they are in very close proximity to the proposed wind turbine. The nearest Listed Building to the proposed turbine location is Barnacott farmhouse (ref 1230335, Grade II). This house is to some extent screened from the turbine site by the plantations within Hartland Forest.

More distant views of the turbine will be possible from some Listed Buildings on higher ground, e.g. Tumbles Cottage, situated on the elevated minor road between Hershams and Stratton.

Given their distances from the site of the proposed wind turbine, the local topography and vegetation and the site types (and hence their sensitivities), no impacts on the settings of the remaining sites of this type are likely.

9.3 Registered Battlefields and Conservation Areas within the 5km radius ZTV

See Figure 17

Four Conservation Areas, or parts of Conservation Areas, fall within the 5km radius ZTV of the proposed site. These comprise Bude, Stratton, Poughill and Kilkhampton. In practice only small proportions of the Conservation Areas are within the ZTV, as these settlements tend to lie within valleys or lower ground. There is, therefore, likely to be no negative impacts on the settings of these Conservation Areas as a result of the construction of the wind turbine.

A single Registered Battlefield lies relatively close to the turbine site; this is the 1643 Civil War battle site at Stamford Hill, on the west side of the Neet valley north west of Stratton. The higher ground of the battle site will be intervisible with the wind turbine, at 2.1km away.

9.4 Scheduled Monuments within the 5km radius ZTV

See Fig 18

There are 11 Scheduled Monuments within 5km of the site proposed for the wind turbine at Trelaske, which would potentially be intervisible with it as follows:

Record No.	Name
1005449	Camp N of Penhunsey with memorial
1005459	Hobbacott canal incline
1004472	Three barrows N of Bude
1004655	Binhamy moat 500yds (460m) W of Binhamy Farm
1005454	Bude Canal sea lock
1004382	Camp NE of Northcott Park Quarry (Hartland Forest)
1004472	Three barrows N of Bude
1004427	Abbey camp
1005433	Camp SW of Hunthill Wood (Herdbury)
1004472	Three barrows N of Bude
1005438	Tumulus 100yds (90m) WNW of Red Post Inn

In summary, the potentially intervisible Scheduled Monuments within the 5km ZTV consist of four round barrows, four rounds/enclosures, a moated medieval site, and two features associated with the Bude Canal, i.e. its sea lock and the incline plane at Hobbacott Down.

Although there is likely to be some degree of intervisibility between these sites and the proposed wind turbine, in most cases views of it will tend to be distant, in some cases partial and in others locally blocked by nearby vegetation or structures. There are few locations within the landscape from which views of these designated sites will include the wind turbine as a significant, far less dominant, element. The closest site is the camp NE of Northcott Park Quarry, which is sited within the woodland immediately north west of the turbine site. This monument is currently completely shrouded by trees, so at present there will be no negative setting impacts. This situation could however change if the trees are felled within the lifetime of the turbine (expected to be 20 years).

Slightly further away to the south east the 'Camp SW of Hunthill Wood' (aka Herdbury) is completely out of sight of the turbine, at least at ground level. This is due to Herdbury's south-easterly aspect and also the rounded nature of Ivyleaf Hill; taken together this will mean that Herdbury will be relatively concealed from the turbine site.

Approximately 2km to the south west of Ivyleaf at Stamford Hill is the prehistoric settlement (and Civil War battlefield site) recorded in the Scheduling as a camp N of

Penhunsey. This site will be intervisible from the turbine location but the turbine is unlikely to be a significant feature when viewed from the site.

Barrows on the coast to the north of Bude (approximately 3.1 to 3.3km from the turbine site) are in an open cliffland landscape. Views inland from these are limited due to higher ground and woods at Tiscott and Wooda.

In summary, negative impacts on the settings of Scheduled Monuments are therefore unlikely.

9.5 Listed Buildings (Grade I and II*) within the 20km radius ZTV

See Fig 19

Table of sites within Cornwall

Record No	Name	Grade
1141834	CHURCH OF ST SWITHIN	I
1230750	PARISH CHURCH OF ST MARWENNE	I
1142426	PARISH CHURCH OF ST ANNE	I
1328522	CHURCH OF ST OLAF	I
1142413	CHURCH OF ST GENESIUS	I
1142437	CHURCH OF ST DENIS	I
1137655	CHURCH OF THE NATIVITY OF THE BLESSED VIRGIN MARY	I
1142888	CHURCH OF ST WINWALO	I
1137650	BURDENWELL MANOR AND COTTAGE ADJOINING NORTH-EAST	II*
1142424	FROXTON FARMHOUSE AND FROXTON	II*
1141822	ALDERCOMBE BARTON	II*
1328250	LEIGH FARMHOUSE	II*
1137624	MARHAYES MANOR, INCLUDING GARDEN AREA WALL ADJOINING AT NORTH-EAST AND RUNNING PARALLEL TO NORTH FRONT	II*
1328514	THE POST OFFICE AND DWELLING HOUSE ADJOINING AT SOUTH, THE DRANGWAY AND PART OF PASSAGE TO THE EAST BETWEEN CHURCH SQUARE AND GIBRALTAR SQUARE	II*
1328572	VIADUCT ABOUT 180 METRES NORTH EAST OF WOOLSTON FARMHOUSE	II*
1231610	TREBARFOOTE MANOR INCLUDING BARN ADJOINING AT NORTH EAST	II*
1328573	LAUNCELLS BARTON	II*
1143456	CHURCH OF ST DENIS	II*
1328570	PENFOUND MANOR	II*
1328520	SEA LOCK, LOCK GATES AND HAND WINCHES	II*
1231145	STANBURY MANOR AND GARDEN WALL ABOUT 6 METRES SOUTH OF THE SOUTH FRONT	II*
1161531	CHURCH OF ST WERBURGHA	II*
1328546	EBBINGFORD MANOR	II*
1278759	CHURCH HOUSE	II*
1142422	THE OLD COLLEGE, OUTBUILDING ADJOINING LEFT GABLE END OF COLLEGE, WALL ADJOINING RIGHT FRONT OF COLLEGE	II*
1142423	WELL HOUSE ABOUT 4 METRES EAST OF THE OLD COLLEGE	II*
1328535	LANGFORD HILL	II*
1229361	BARN ABOUT 40 METRES SOUTH EAST OF TREMAER	II*

Table of sites within Devon

Record No	Name	Grade
1104976	CHURCH OF ST BRIDGET	I
1161919	CHURCH OF ST JAMES	I
1252173	CHURCH OF THE HOLY CROSS	I
1104945	CHURCH OF ST PETER AND ST PAUL OUTBUILDING, FORMERLY CHAPEL 25 METRES NORTH EAST OF LOWER ALSWORTHY	II*
1104971	FARMHOUSE	II*
1162728	CHURCH OF ST JOHN THE BAPTIST AND THE SEVEN MACCABEES	II*

1164477	CHURCH OF ST PANCRAS	II*
1164560	CHURCH OF ST SWITHIN	II*
	MANOR COTTAGE	
	TETCOTT BARTON	
1262341	TETCOTT MANOR	II*
1326575	HIGHSTEAD FARMHOUSE	II*
1326580	CHURCH OF ST ANDREW	II*

The guidance received from English Heritage for the 20km radius ZTV refers to a need to evaluate the effects on the settings of Registered Parks and Gardens, Grade I and II* listed sites which have designed views/vistas (Nick Russell, pers. comm.).

There are no Registered Parks and Gardens within the 20km radius ZTV. Of the Grade I listed buildings, there are four sites in Cornwall, all of which are parish churches, and three churches in Devon at Grade I, plus five others with II* grading. One church in Cornwall within this zone has a Grade II* listing. All churches with spires or towers will be local landmarks. However, as most parish centres are distant from the proposed wind turbine site any negative effects on their settings will be minor or absent.

Of the other sites within Cornwall, the nearest Grade II* listed buildings which may have designed views could include Aldercombe and Stanbury. At Aldercombe, (4.3km away to the north east) the aspect of the house is south-easterly, i.e. it looks away from the wind turbine site. Stanbury is c5.3km to the north west in Morwenstow parish. Both houses would be considerably screened by Hartland Forest adjoining the turbine site.

9.6 Scheduled Monuments within the 20km radius ZTV

See Fig 20

Table of sites within Cornwall

Record No	Name
1010423	ASHBURY CAMP LATER PREHISTORIC MULTIVALLATE HILLFORT
1005447	Camp 240yds (220m) SW of Trengayor
1005414	Barrow group SW of Moor Cottage
1004661	Barrows S and W of Dilland
1005464	Two barrows on Otterham Down
1003090	Group of round barrows NE of Creddacott
1004402	Group of four round barrows E of Bottaborough
1003083	Round barrow 400yds (370m) NW of West Youlstone
1005437	Five barrows near Newton
1005463	Three barrows 550m ENE of Cansford
1004402	Group of four round barrows E of Bottaborough
1005437	Five barrows near Newton
1005464	Two barrows on Otterham Down
1005437	Five barrows near Newton
1013669	PENHALLAM MEDIEVAL MOATED MANOR HOUSE, 360M SOUTH WEST OF ASHBURY CAMP
1004665	Two barrows S of Wilsworthy Cross
1004386	Castle Mound
1005461	Earthwork on Hill Down 500yds (450m) WSW of Tresparrett Posts
1004661	Barrows S and W of Dilland
1003090	Group of round barrows NE of Creddacott
1006710	Warbstow Bury camp
1005450	Barrow group near Chelsfield
1004402	Group of four round barrows E of Bottaborough
1003090	Group of round barrows NE of Creddacott
1003090	Group of round barrows NE of Creddacott
1005414	Barrow group SW of Moor Cottage
1004623	Group of round barrows E of Smallhill
1005445	Round barrow on Millook Common

1005439	Camp 770yds (700m) SW of Hill
1003097	Promontory fort N of village
1005463	Three barrows 550m ENE of Cansford
1005437	Five barrows near Newton
1005450	Barrow group near Chelsfield
1001723	Two barrows on Higher and Lower Longbeak
1005460	Two barrows on Hill Down near Tresparrett Posts
1003090	Group of round barrows NE of Creddacott
1005434	'Headon Barrow' near Headon Cross
1005448	Froxton Wood Castle 280yds (250m) SW of Froxton Farm
1004665	Two barrows S of Wilsworthy Cross
1005414	Barrow group SW of Moor Cottage
1004371	The Beacon round barrows
1005414	Barrow group SW of Moor Cottage
1003090	Group of round barrows NE of Creddacott
1004661	Barrows S and W of Dilland
1005450	Barrow group near Chelsfield
1005463	Three barrows 550m ENE of Cansford
1005460	Two barrows on Hill Down near Tresparrett Posts
1004402	Group of four round barrows E of Bottaborough
1007294	Downinney Pound
1005450	Barrow group near Chelsfield
1007281	Rectangular enclosure W of Rosecare Villa
1003090	Group of round barrows NE of Creddacott

Table of sites within Devon

List Entry	Name
1020608	Three bowl barrows 240m south east of Highermoor
1017974	Two bowl barrows 690m and 760m south west of Leworthy
1017974	Two bowl barrows 690m and 760m south west of Leworthy
1017973	Two bowl barrows 450m and 500m west of Leworthy
1017973	Two bowl barrows 450m and 500m west of Leworthy
1020076	Three bowl barrows 350m south east of Sandymoor Cross, forming part of a round barrow cemetery
1020076	Three bowl barrows 350m south east of Sandymoor Cross, forming part of a round barrow cemetery
1020076	Three bowl barrows 350m south east of Sandymoor Cross, forming part of a round barrow cemetery
1017977	Bowl barrow on Ugworthy Moor 510m south of West Ugworthy House
1018517	Long barrow 540m south west of Sanders's Cross
1020082	Bowl barrow 470m north east of Dux
1020078	Two bowl barrows 450m and 520m north east of Sandymoor Cross, forming part of a round barrow cemetery
1020078	Two bowl barrows 450m and 520m north east of Sandymoor Cross, forming part of a round barrow cemetery
1020476	Bowl barrow 60m west of St James's Church
1017972	Two bowl barrows 430m north west of Leworthy
1020077	Bowl barrow 220m east of Spry's Shop Cross, forming part of a round barrow cemetery
1020609	Beacon on Belland Moor 770m north east of Belland
1017978	Bowl barrow on Ugworthy Moor 750m SSW of West Ugworthy House
1017677	Bowl barrow in Cookworthy Plantation, 290m east of the Baptist chapel
1016223	Four bowl barrows on Langaford Moor
1016223	Four bowl barrows on Langaford Moor
1016223	Four bowl barrows on Langaford Moor
1020083	Bowl barrow 100m north of Lishaperhill
1020079	Bowl barrow 250m north east of Oak Cottage, forming part of a round barrow cemetery
1003845	Embury Beacon camp

In summary, these comprise:

Site type	Cornwall	Devon	Total
Barrows/groups of barrows	40	23	63
Hillforts, camps/rounds, promontory forts	6	1	7
Moated site	1	0	1
Castle (mound)	1	0	1
Earthwork (undifferentiated)	1	0	1
Pound	1	0	1
Enclosure	1	0	1
Beacon	0	1	1
Totals	51	25	76

All the prehistoric monuments will have a landscape importance although the majority, unless located on high ridges or hilltops, will not be visible from the surrounding landscapes beyond a few kilometres away.

The castle mound at Week St Mary is situated on a relatively elevated site with views northward. As it is 10km away from Ivyleaf views of the wind turbine will be restricted. The core of Penhallam moated manor is within a valley with very restricted views out into the surrounding landscape.

In effect, very few sites will be visible from Ivyleaf due to the local topography and vegetation which will block or limit longer views.

9.7 The Area of Outstanding Natural Beauty within the 20km radius ZTV

See Fig 21

The coastline to the north and south of Bude stretching to Hartland Point in Devon and eastwards along the North Devon coast is protected through designation as an Area of Outstanding Natural Beauty (AONB). The nearest point of the AONB to the turbine location is at Halls Farm 0.5km away to the north west on the opposite side of the valley.

10 Field verification of ZTV

The viewshed mapping and potential impacts were, wherever possible (given constraints on public access) ground checked from a number of locations, including sites at, adjacent to or overlooking Penstowe, Stibb, Scadgill, Halls, Stamford Hill, Hobbacott Down, Red Post, Launcells Cross, Pristacott, Cross Lanes, Oxenpark, Leigh, Hershams, Grimscott, Flexbury and Summerleaze (see Figs 23-42). As views to Ivyleaf were generally restricted from these relatively local viewpoints no further fieldwork within a wider area appeared necessary.

At each accessible designated heritage site the potential visibility (and proportional visibility) of the proposed wind turbines was considered. Views out from the site towards key heritage assets were checked from the application site itself. Though true levels of intervisibility were impossible to determine from ground level given that the

turbine has not yet been constructed and views were only available from ground level, the general degree of openness of the views out from the site could be assessed. Existing wind turbines close to Colebrook and Oxenpark allowed the likely impacts of the proposed turbine on the settings of key heritage sites to be assessed from the surrounding landscape.

Where possible, photographs were taken from key locations within the surrounding landscape and from Ivyleaf back to these sites. Whilst views from the higher surrounding ground allowed the locations of the proposed wind turbine to be readily determined within the landscape, even from considerable distances away, in the lower lying ground field hedges, woods and other tree plantings blocked views back towards the site in rural areas; within settlements, groups of buildings and mature garden trees and shrubs also blocked many views back to the site. The visibility cut-off imposed by the local topography suggested by the viewshed mapping was confirmed by field verification.

11 Cumulative impacts

Recent English Heritage guidance requires assessments of renewables applications to take account of cumulative impacts, as well as those relating to specific proposals.

There are already two individual medium sized wind turbines to the south west of Ivyleaf, on the low ridge above Colebrook farm at c SS 2430 0790 and above Oxenpark farm at c SS 2440 0710. There are no existing wind turbines in the landscape towards the coast. The landscape northwest of Halls is included within the Area of Outstanding Natural Beauty and there are no turbines within this area.

A group of mobile phone masts already sited on the summit of Ivyleaf hill to the east of the proposed turbine site are already prominent landscape features. The turbine proposal at Ivyleaf seems unlikely, given its location and the topography of the site and its surroundings to create significant extra impact.

12 Synthesis

Neither the desk-based assessment nor the walkover survey indicated the presence of any significant upstanding archaeology which might be directly impacted upon by the proposed wind turbine at Ivyleaf. The geophysical survey did not reveal any indications of significant sub-surface archaeology within the site.

Impacts on both designated and undesignated heritage assets within the local landscape resulting from the construction of a wind turbine on land at Ivyleaf will vary with their distance from the turbine site, their state of preservation, their nature, and the effects of reduced or blocked intervisibility due to local topography, vegetation (including hedge plantings), the presence of other buildings or the proximity of already-existing wind turbines or other visually dominant modern structures or features. In some cases, even where intervisibility will be present, the prevailing local topography will result in the wind turbine being visible against a background of trees, small areas of woodland and vegetated hedgelines.

There will be moderate negative impact within the immediately local landscape out to one to two kilometres from the site. The most sensitive sites within this zone are the round in Hartland Forest (a Scheduled Monument) which adjoins the turbine field and Listed local farmhouses such as Barnacott.

In the wider landscape, although the wind turbine is to be sited on the slope of a hill with potentially relatively far-ranging views across the landscape, it is unlikely to have an impact on the settings of designated heritage assets, other than on those sited up to 2km away. There will be negative minor impacts on the Historic Landscape Character of this landscape.

13 Policies and guidance

The following section brings together policies and guidance (or extracts from these) used in the development of the assessment and its methodology.

13.1 National Planning Policy Framework 2012

The following paragraphs within the above document frame planning policy relating to the Historic Environment and are germane to this assessment:

128 In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

129. Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal.

132.When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. As heritage assets are irreplaceable, any harm or loss should require clear and convincing justification. Substantial harm to or loss of a grade II listed building, park or garden should be exceptional. Substantial harm to or loss of designated heritage assets of the highest significance, notably scheduled monuments, protected wreck sites, battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.

133. Where a proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:

- the nature of the heritage asset prevents all reasonable uses of the site; and
- no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and
- conservation by grant-funding or some form of charitable or public ownership is demonstrably not possible; and
- the harm or loss is outweighed by the benefit of bringing the site back into use.

134. Where a development proposal will lead to less than substantial harm to the

significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including securing its optimum viable use.

135. The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that affect directly or indirectly non designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.

139. Non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.

13.2 PPS5 English Heritage guidance

The English Heritage and DCMS (Department for Culture, Media and Sport) document 'PPS5 Planning for the Historic Environment: Historic Environment Planning Practice Guide' provides current guidance on PPS5 (and its successor the NPPF) and its application.

This refers to the need, for decision-making in response to an application for change that affects the historic environment, of providing and assessing, at a level appropriate to the relative importance of the asset affected, information on the asset and its extent, on its setting, and on the significance of both of these aspects. Section 5, 54 states that:

'Heritage assets may be affected by direct physical change or by change in their setting. Being able to properly assess the nature, extent and importance of the significance of a heritage asset and the contribution of its setting is very important....'

Section 5 on Policies HE6 to HE 12, 58, notes among appropriate actions (in point 5):

'Seek[ing] advice on the best means of assessing the nature and extent of any archaeological interest e.g. geophysical survey, physical appraisal of visible structures and/or trial trenching for buried remains.'

The section on Policy HE10 defines setting as follows:

'113. Setting is 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.'

'114. 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.'

13.3 Former Cornwall Structure Plan

The following policies in the Cornwall Structure Plan relate to the historic environment are currently used to guide responses to applications.

13.3.1 Policy 1

'Development should be compatible with:

The conservation and enhancement of Cornwall's character and distinctiveness;

The prudent use of resources and the conservation of natural and historic assets;

A reduction in the need to travel, whilst optimising the choice of modes, particularly opportunities for walking, cycling and the use of public transport;

Through developing the principles of Policy 1 it is intended to integrate environmental values with land use and transport policies, achieving patterns of development that reflect strong environmental protection and stewardship of resources.'

13.3.2 Policy 2

'Throughout Cornwall, development must respect local character and:

- Retain important elements of the local landscape, including natural and semi-natural habitats, hedges, trees, and other natural and historic features that add to its distinctiveness;
- Contribute to the regeneration, restoration, enhancement or conservation of the area;
- Positively relate to townscape and landscape character through siting, design, use of local materials and landscaping.
- The conservation and enhancement of sites, areas, or interests, of recognised international or national importance for their landscape, nature conservation, archaeological or historic importance, including the proposed World Heritage Site, should be given priority in the consideration of development proposals.'

13.4 Former North Cornwall Local Plan

Although now part of Cornwall Council, North Cornwall District policies listed in its local plan continue to be relevant. Policies concerning the historic environment are listed below.

ARCHAEOLOGY AND HISTORIC RESOURCES

POLICY ENV14:

1. Development proposals affecting nationally important remains, whether scheduled or not, and their settings, will not be permitted unless:

(a) there will be no significant damage to, or adverse effect on, a site or its setting; and

(b) the development can be controlled through the use of conditions or planning obligations to ensure the remains to ensure the remains are preserved in-situ.

2. Development proposals which adversely affect locally important archaeological sites or remains identified as a result of a prior archaeological investigation will only be permitted where:

(a) physical preservation in-situ is not feasible in conjunction with the proposed development and the importance of the development clearly outweighs the case for preservation of the remains; and

(b) satisfactory arrangements are made for the investigation and recording of the remains before or during development.

3. In areas of great historic value, historic settlements and all other locations where there is evidence to suggest that significant remains may exist on the site of a proposed development the extent and importance of which are unknown, applicants will be requested to carry out an archaeological evaluation of the

proposal before the planning application is determined. The areas of great historic value and historic settlements are defined on the proposals map.

THE ARCHAEOLOGICAL LANDSCAPE

Policy ENV14 2

Development proposals which adversely affect locally important archaeological sites or remains identified as a result of a prior archaeological investigation will only be permitted where:

(a) physical preservation in-situ is not feasible in conjunction with the proposed development and the importance of the development clearly outweighs the case for preservation of the remains; and

(b) satisfactory arrangements for investigation and recording of the remains before or during development.

POLICY ENV15

Development proposals will not be permitted where they would adversely affect the character, appearance or setting of areas of great historic value, historic parks and gardens and historic battlefields.

Policy ENV15 3

In areas of Great Historic Value, Historic Settlements and all other locations where there is evidence to suggest that significant remains may exist on the site of a proposed development the extent and importance of which are unknown, applicants will be requested to carry out an archaeological evaluation of the proposal before the planning application is determined. The Areas of Great Historic Value and Historic Settlements are defined on the Proposals Map.

13.5 Hedgerow Regulations

Under the current, 1997 Hedgerow Regulations, owners wishing to remove all or part of a hedgerow considered to be historically important must notify the Local Planning Authority (LPA). Criteria determining importance include whether the hedge marks a pre-1850 boundary, and whether it incorporates an archaeological feature. The LPA may issue a hedgerow retention notice prohibiting removal.

14 Likely impacts of the proposed development

14.1 Types and scale of impact

Two general types of archaeological impact associated with wind turbine developments have been identified as follows.

14.1.1 Types of impact, construction phase

Construction of the wind turbines could have direct, physical impacts on the buried archaeology of the site through the construction of the turbine foundations, through the undergrounding of cables, and through the provision of any works compound, together with any permanent or temporary vehicle access ways into and within the site. Such impacts would be **permanent** and **irreversible**.

14.1.2 Types of impact, operational phase

Wind turbines might be expected to have a visual impact on the settings of some key heritage assets within their viewshed during the operational phase, given their heights, the topography of the site and the open nature of the local landscape. Such factors also make it likely that the development would have an impact on Historic Landscape

Character. These impacts would be **temporary** and **reversible** should the turbines subsequently be dismantled and not re-powered or replaced.

14.1.3 Scale and duration of impact

The impacts of the wind turbines on the historic environment may include positive as well as adverse effects. For the purposes of assessment these are evaluated on a seven-point scale:

- positive/substantial**
- positive/moderate**
- positive/minor**
- neutral**
- negative/minor**
- negative/moderate**
- negative/ substantial**

Negative/unknown is used where an adverse impact is predicted but where, at the present state of knowledge, its degree cannot be evaluated satisfactorily.

The assessment also distinguishes where possible between **permanent** and **temporary** effects, or between those that are **reversible** or **irreversible**, as appropriate, in the application of the scale of impacts.

14.1.4 Potential and residual impacts

Potential adverse impacts may be capable of mitigation through archaeological recording or other interventions. In the assessments forming Section 14.2, where appropriate, both 'potential' and 'residual' impacts are given; that is, expected impacts 'before' and 'after' such work, principally in relation to the development phase. A proposed mitigation strategy is outlined below in Section 15.

14.2 Assessment of impact

Overall, the impacts of the proposed wind turbines on the archaeological resource are assessed as having a potential scored as **negative/minor** to **negative/moderate**, principally dependant on proximity to the proposed turbine sites and intervisibility with them.

Impacts on the settings of designated heritage sites within 5km of the proposed turbine site have been assessed as **neutral** to **negative/minor** overall. There appears to be little potential for impacts on sub-surface archaeology within the development site, given the geophysical survey evidence for the site itself and cropmark features already recorded within the immediately surrounding landscape.

The assessments supporting this general statement are outlined in the following sub-sections. To comply with current policies and guidance (Section 13) these provide assessments of impact in terms of different aspects of the archaeological resource - its individual sites, the settings of sites, Historic Landscape Character, and field boundaries. There are inevitably areas of overlap between these categories of impact; the assessment is adjusted accordingly to avoid 'double counting' of impacts.

14.2.1 Impacts on archaeological sites within the development area

Ground disturbance associated with the installation of foundations for wind turbines, cabling or ancillary works during the construction phase could result in permanent, irreversible loss of below ground remains of archaeological sites within the development area, or of elements of these. The works, if deeper than current ground levels, might affect undetected buried cut features. The results of the geophysical survey suggest that the site does not contain any detectable significant sub-surface archaeology.

Scales of impact will vary with the degree of significance of individual sites, and with the proportion of the whole site which would be affected.

14.2.2 Impacts on the settings of surrounding key heritage assets

The proposed wind turbine is considered likely to have an impact on the setting of key surrounding heritage assets, this being summarised as **negative/minor to negative/moderate** and **temporary/reversible** overall should the wind turbines be dismantled in the future and not be replaced:

- There are a number of Scheduled and high grade Listed sites located within 5km of the site proposed for the wind turbine which would have been intended, when constructed, to be highly visible focal points within the local landscape.
- However, because of the particular topographical locations proposed for the wind turbines and the process of enclosure within the surrounding countryside during the medieval period, the character and appearance of the landscape within which most local prehistoric monuments now sit has changed considerably from those within which they were originally designed to be seen and understood.
- Further wind turbines are already in existence a short distance away with which the additional proposed wind turbine will effectively form a small cluster.
- During the operational phase the wind turbine is unlikely to impact to any significant degree on the settings of the majority of the Listed Buildings within its viewshed, given the relatively large distances between the wind turbine and these designated structures and constraints on intervisibility.
- There is a Registered Battlefield (Stamford Hill) within the 5km radius viewshed of the proposed wind turbine.
- There are unlikely to be any impacts on the settings of intervisible Conservation Areas within the 5Km radius viewshed of the proposed wind turbine.
- Any impacts on heritage assets within the landscape surrounding the proposed wind turbine would be **temporary** and **reversible** should the wind turbines be dismantled in the future.

14.2.3 Designated heritage assets within the 5km radius viewshed

Grade II Listed Buildings – see Fig 17

Given the topography of the area within which these designated structures are sited, and the locally often abundant tree cover and high, vegetated hedges, intervisibility with the wind turbine is likely to be very limited in most cases. Impacts on settings are therefore regarded as **negative/minor**

Conservation Areas - see Fig 17

Of the four Conservation Areas which fall within the 5Km ZTV, none are considered as lying close enough to the site proposed for the wind turbine for there to be any likelihood of negative impacts on their settings.

Scheduled Monuments – see Fig 18

The round in the wood at Hartland Forest to the immediate north west is potentially vulnerable because of its proximity, especially if the woodland is felled within the next 20-25 years. At present the likely impacts are **negative/minor**, but if the woodland is felled then there is the potential for the impact to be **negative/substantial**. The impact on the setting of Herdbury, the Scheduled round to the south east will also potentially be **negative/moderate** should its surrounding trees be felled.

14.2.4 Undesignated heritage assets within the 5km radius viewshed

See Fig 16

There are many undesignated sites within the 5km radius ZTV, many of which were first identified by NMP mapping or the Stratton Hundred Rapid Identification Survey (Herring and Thomas 1993). These generally include mostly medieval and post-medieval features with lesser settings, such as field systems, small buildings and industrial features such as quarries. The only undesignated prehistoric sites that have been identified within 2km of Ivyleaf are cropmarks of enclosures or field systems of potential prehistoric date. Impacts on undesignated sites may be regarded as **negative/minor**.

14.2.5 Impacts on Historic Landscape Character

A wind turbine installation erected at Ivyleaf can be predicted to have some degree of negative impact on the historic character of the landscape. The expected effect on HLC has been assessed as **negative/minor**. Factors contributing to this assessment are as follows;

- Some visual impact throughout the operational phase would occur, affecting the integrity of this area as former farmland of medieval origin through the introduction of further highly visible modern feature into this agricultural landscape.
- The land-take for the proposed development is small in comparison with the area of the HLC Units of medieval farmland within the surrounding landscape.
- Alterations to local HLC have already occurred through the construction of the Ivyleaf golf course.
- There would be no impacts in terms of physical loss during the construction phase of features which form the visible components of this type of HLC.
- Any impacts on the legibility of HLC would be **temporary** and **reversible** should the wind turbines be dismantled in the future.

15 Mitigation strategy

A range of means to mitigate the potential impacts identified in this assessment may be considered by the Historic Environment Planning Advice Officer, who may choose to recommend one or more of the following.

15.1 Archaeological recording

In a case where the finalised site design would seem likely to result in unavoidable impacts on below-ground or above ground features, a brief for work to mitigate these impacts would be prepared by Cornwall Council's Historic Environment Advice Officer (Central), setting out its scope. A Written Scheme of Investigation (WSI) to meet the brief would need to be prepared and agreed to establish and direct a programme of mitigating archaeological work.

Archaeological recording in the form of the recording of upstanding elements of the site which might be negatively impacted upon by the works, or a watching brief (observation by an archaeologist during mechanical ground reduction activities) can be required either where any significant features or areas of ground are to be disturbed (for instance for the foundations for the turbines or during cable trenching), in areas where significant features had been identified through the site walkover or geophysics, or where the balance of probability suggested that sub-surface archaeology might survive. This approach provides for preservation by record of upstanding or buried archaeological features or artefacts and reduces any impacts on the archaeology of the sites to **negative/minor**. Any resultant impacts would be reduced to **permanent** and **irreversible**.

16 References

16.1 Primary sources

Cornwall County Council 2005 air photo mapping of Cornwall.

Joel Gascoyne's 1699 Map of Cornwall

Thomas Martyn's 1748 Map of Cornwall

John Norden's c1580 Map of Cornwall, reprinted University of Exeter 1972

Ordnance Survey, 1809. *1 inch map* First Edition (licensed digital copy at HE)

Ordnance Survey, c1880. *25 Inch Map* First Edition (licensed digital copy at HE)

Ordnance Survey, c1907. *25 Inch Map* Second Edition (licensed digital copy at HE)

Ordnance Survey, 2011. *Mastermap Digital Mapping*

Tithe Map, 1842. *Parish of Poughill* (digital copy available from CRO)

Tithe Map, 1842. *Parish of Stratton* (digital copy available from CRO)

Tithe Map, 1839. *Parish of Kilkhampton* (digital copy available from CRO)

16.2 Publications

English Heritage, 2005. *Wind energy and the Historic Environment*

English Heritage, 2011. *The setting of heritage assets: English Heritage guidance*

Herring, P, 1998 *Cornwall's historic landscape: presenting a method of historic landscape character assessment*, Cornwall Archaeological Unit

Herring, P and Thomas, N, 1993. *Stratton Hundred Rapid Identification Survey* Cornwall Archaeological Unit

Thorn, C and Thorn, F (eds.), 1979. *Domesday Book, 10: Cornwall*, Chichester

16.3 Websites

<http://www.heritagegateway.org.uk/gateway/> English Heritage's online database of Sites and Monuments Records, and Listed Buildings

17 Project archive

The HE project number is **146217**

The project's documentary, photographic and drawn archive is housed at the offices of Historic Environment, Cornwall Council, Kennall Building, Old County Hall, Station Road, Truro, TR1 3AY. The contents of this archive are as listed below:

1. A project file containing site records and notes, project correspondence and administration.
2. Digital photographs stored in the directory R:\Historic Environment (Images)\SITES.I-L\Ivyleaf wind turbine assessment
3. English Heritage/ADS OASIS online reference: cornwall2-145401

This report text is held in digital form as: ..\Historic Environment\Projects\Sites\Sites I\Ivyleaf Stratton wind turbine assessment\Report\Ivyleaf wind turbine



Fig 3 The proposed turbine sites and their surroundings, as shown on John Norden's 1580 Map of Cornwall.

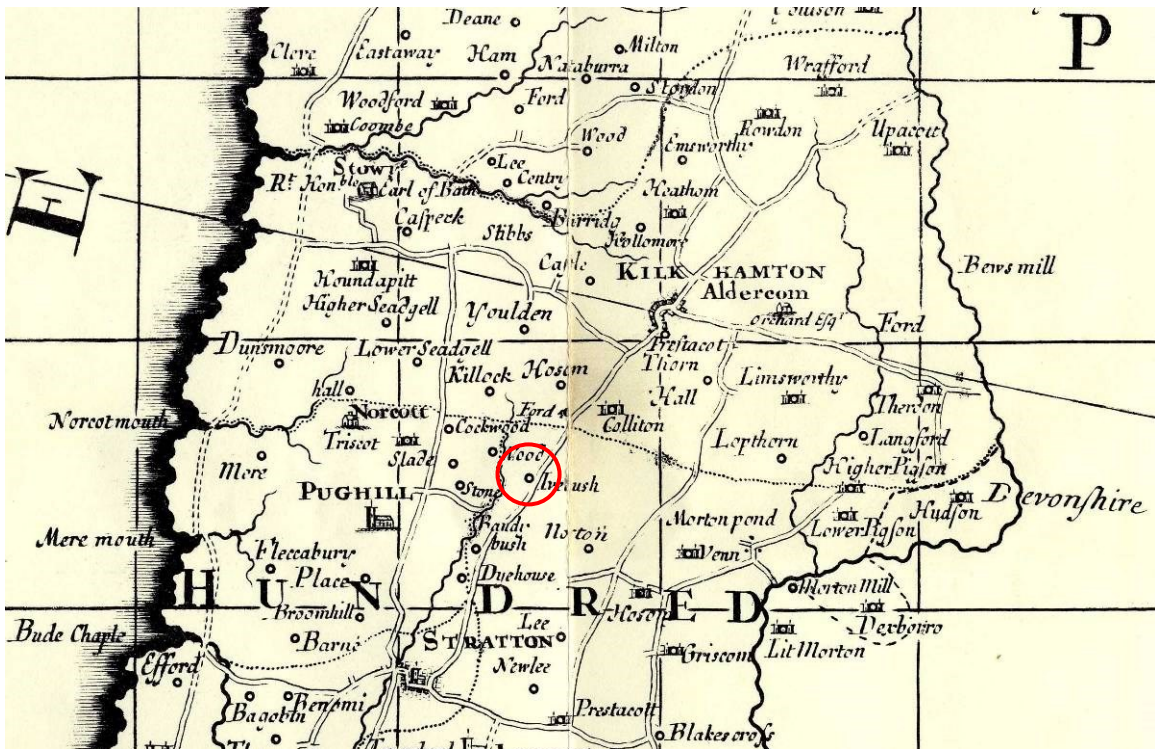


Fig 4 The project area and its surroundings, shown on Joel Gascoyne's 1699 Map of Cornwall



Fig 5 The proposed turbine site and its surroundings, as shown on Thomas Martyn's 1748 Map of Cornwall



Fig 6 Extract from the c1809 OS One Inch scale map

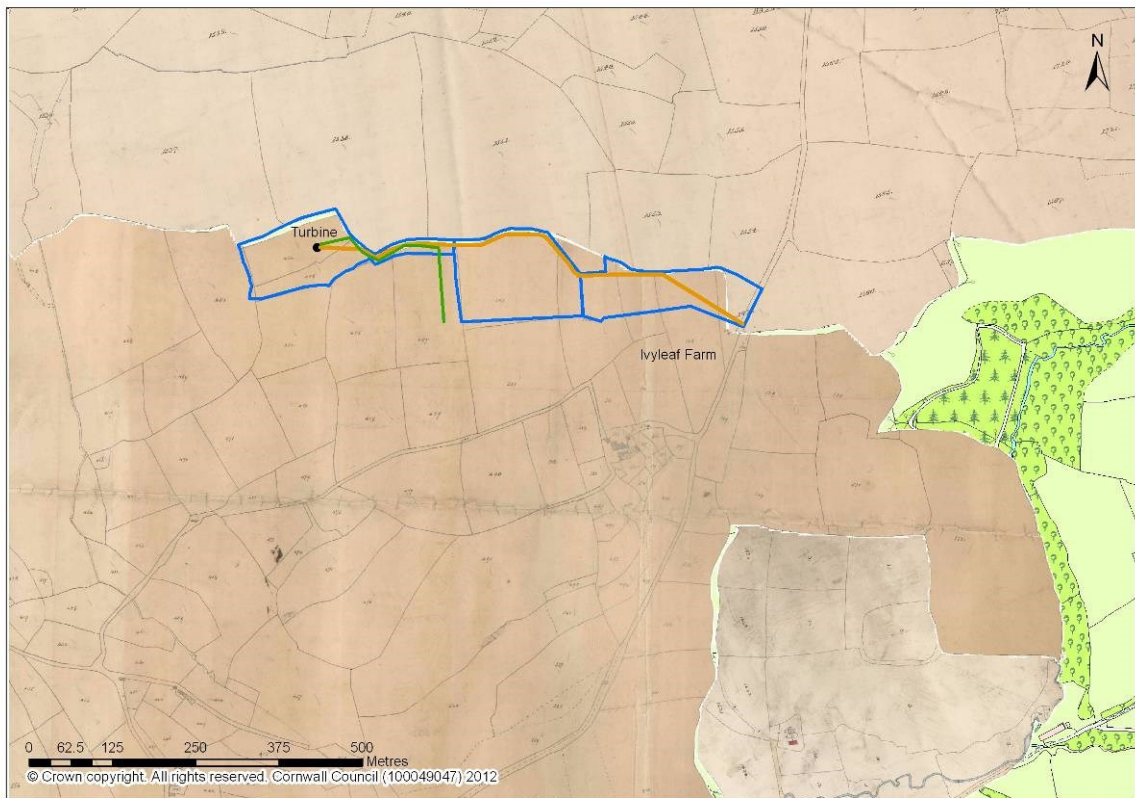


Fig 7 The project areas (blue) as shown on the circa 1840 parish Tithe Maps.

The proposed turbine is indicated by a black dot. The cable route is shown in green and the access track in brown

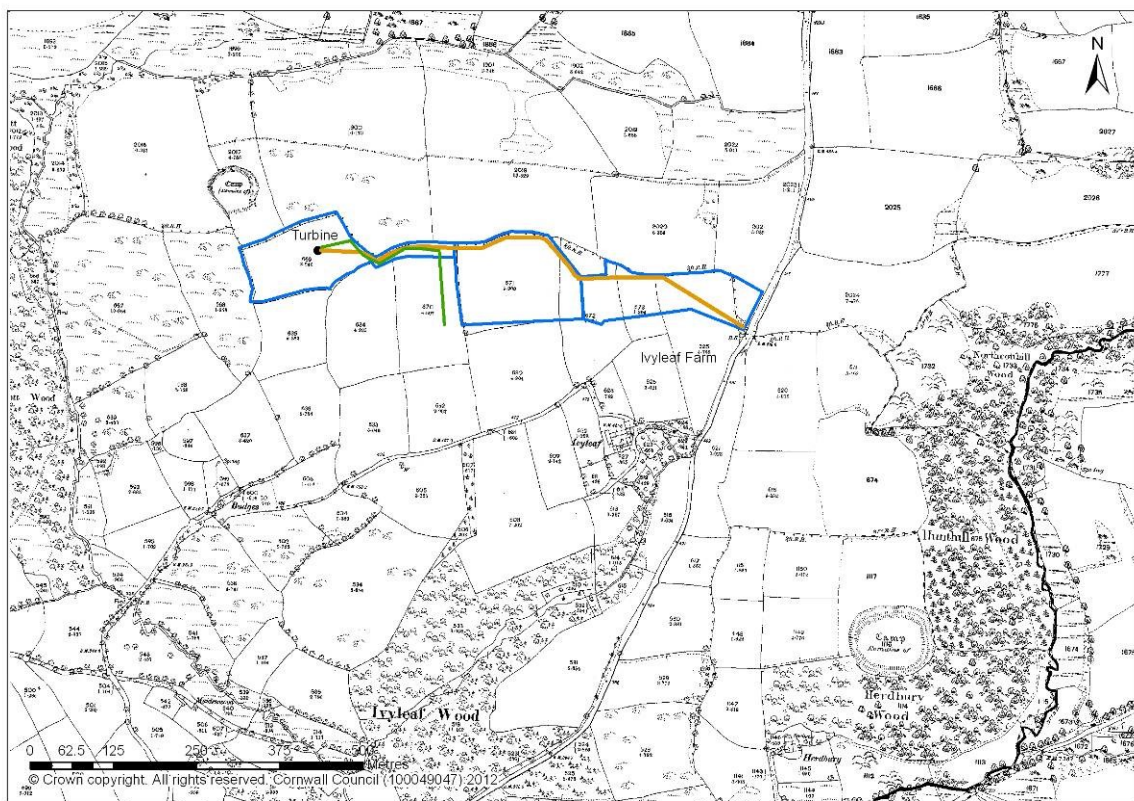


Fig 8 Extract from the OS First Edition 25 Inch Map c1880

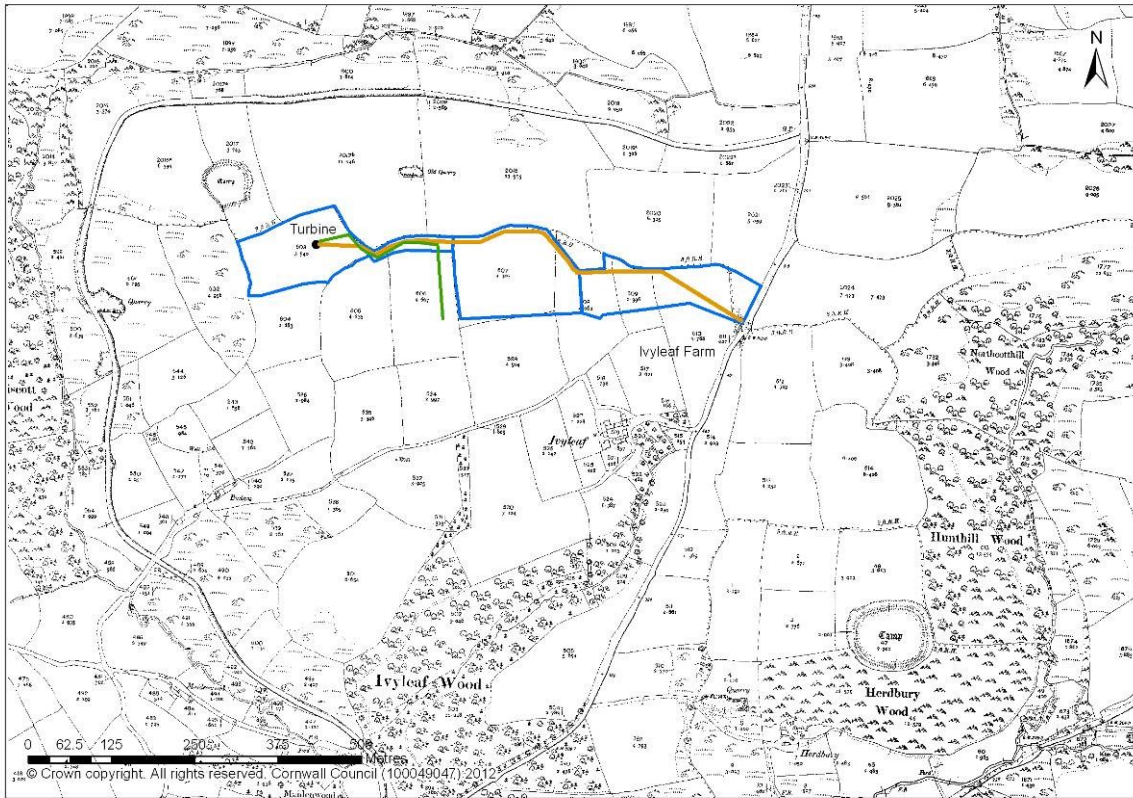


Fig 9 Extract from the OS Second Edition 25 Inch Map c1907

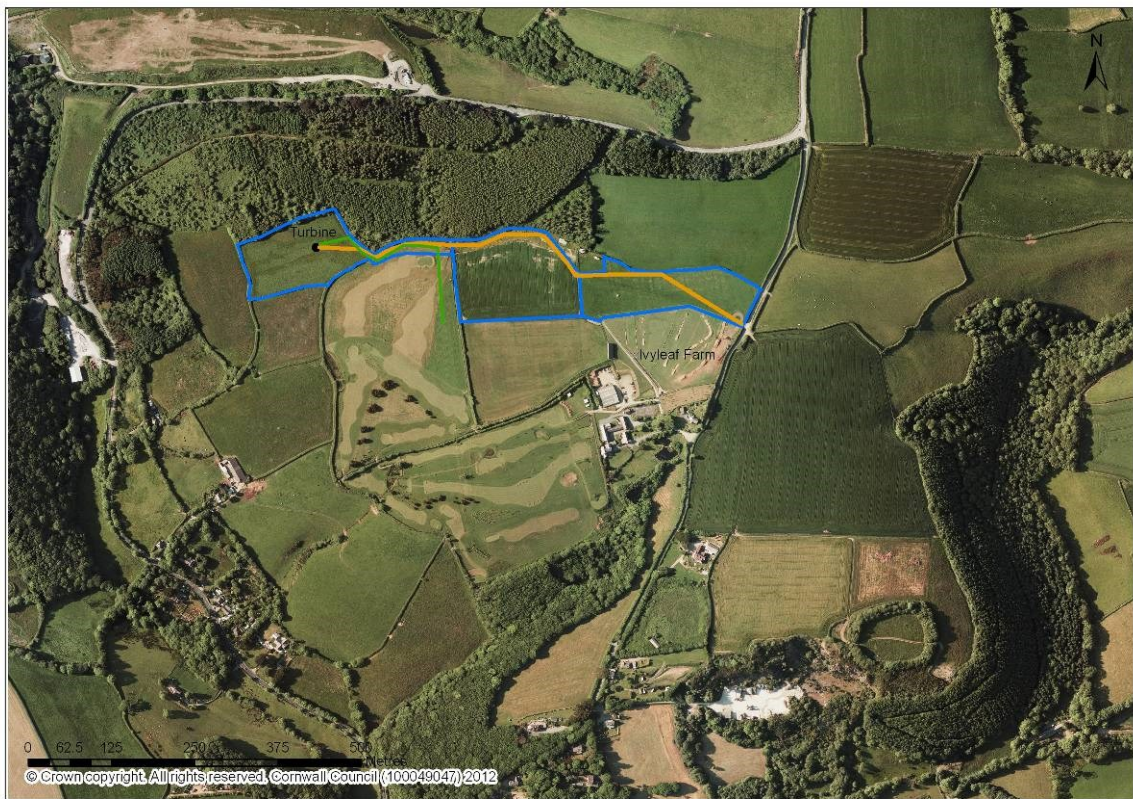


Fig 10 Air photo 2005



Fig 11 Historic Landscape Character mapping

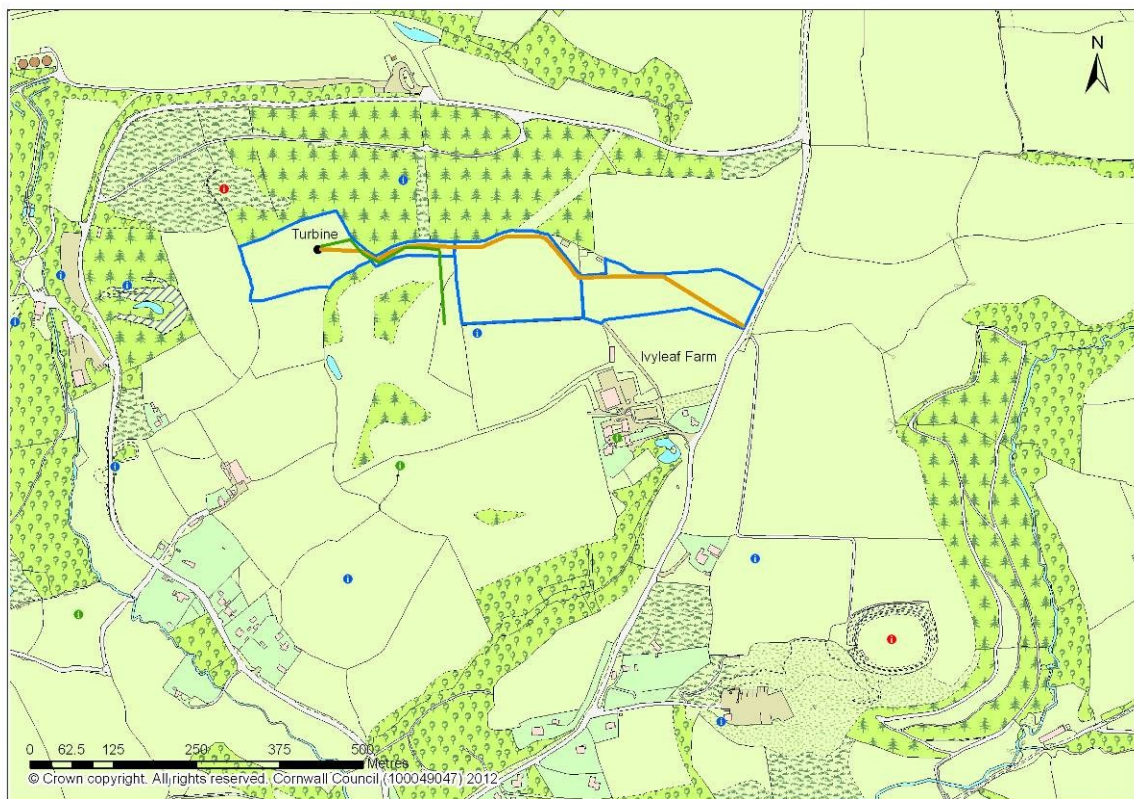


Fig 12 Sites recorded in the Cornwall HBSMR

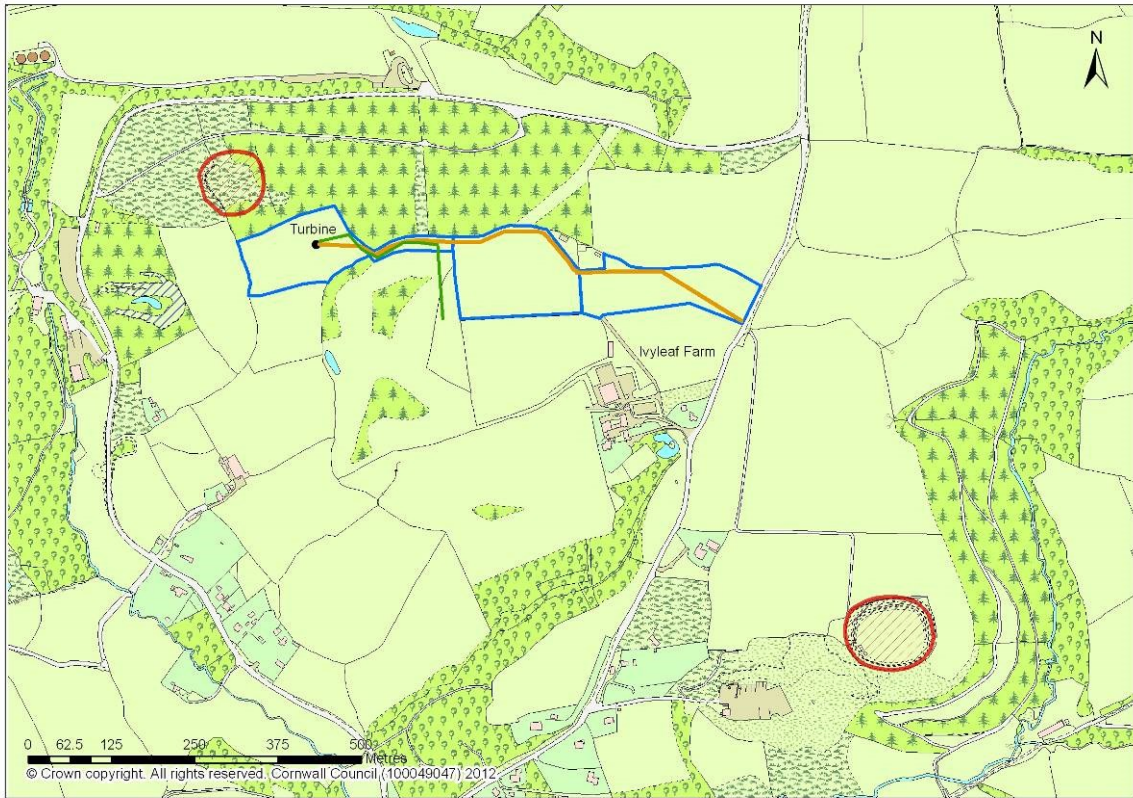


Fig 13 Scheduled Monuments (in red) and Listed Buildings (none within this map area)

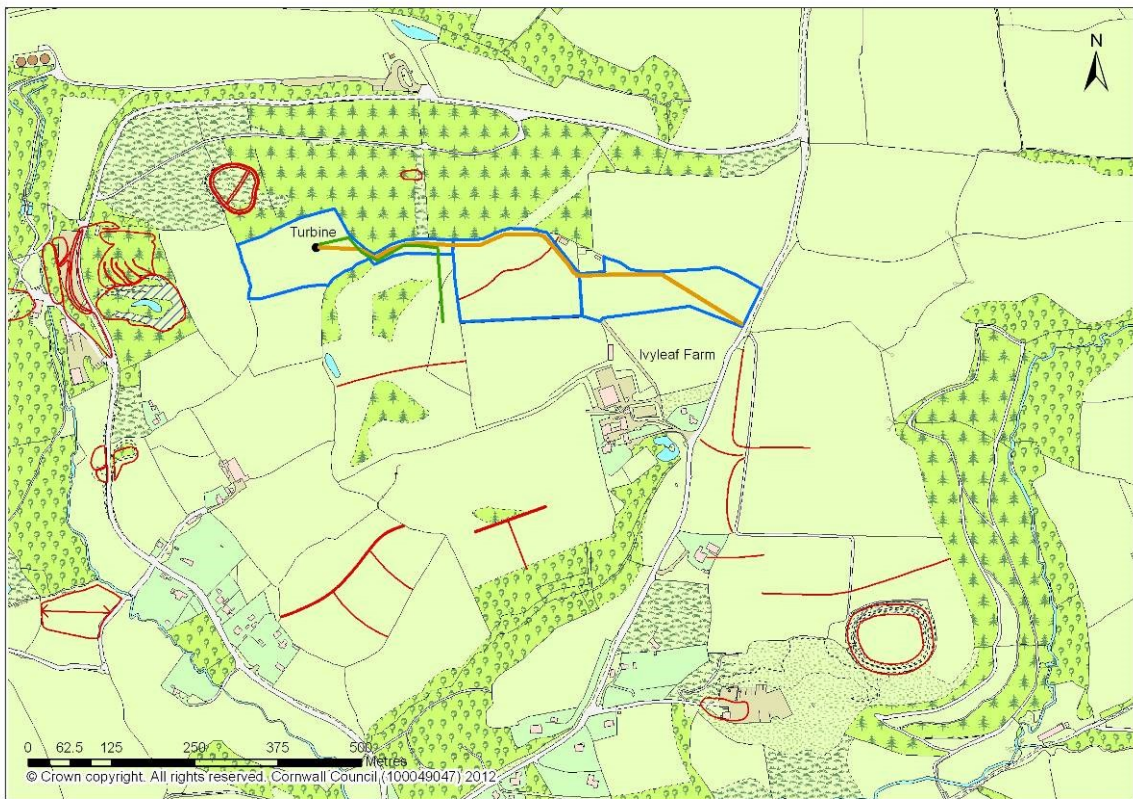


Fig 14 Sites recorded from air photographs by the National Mapping Programme

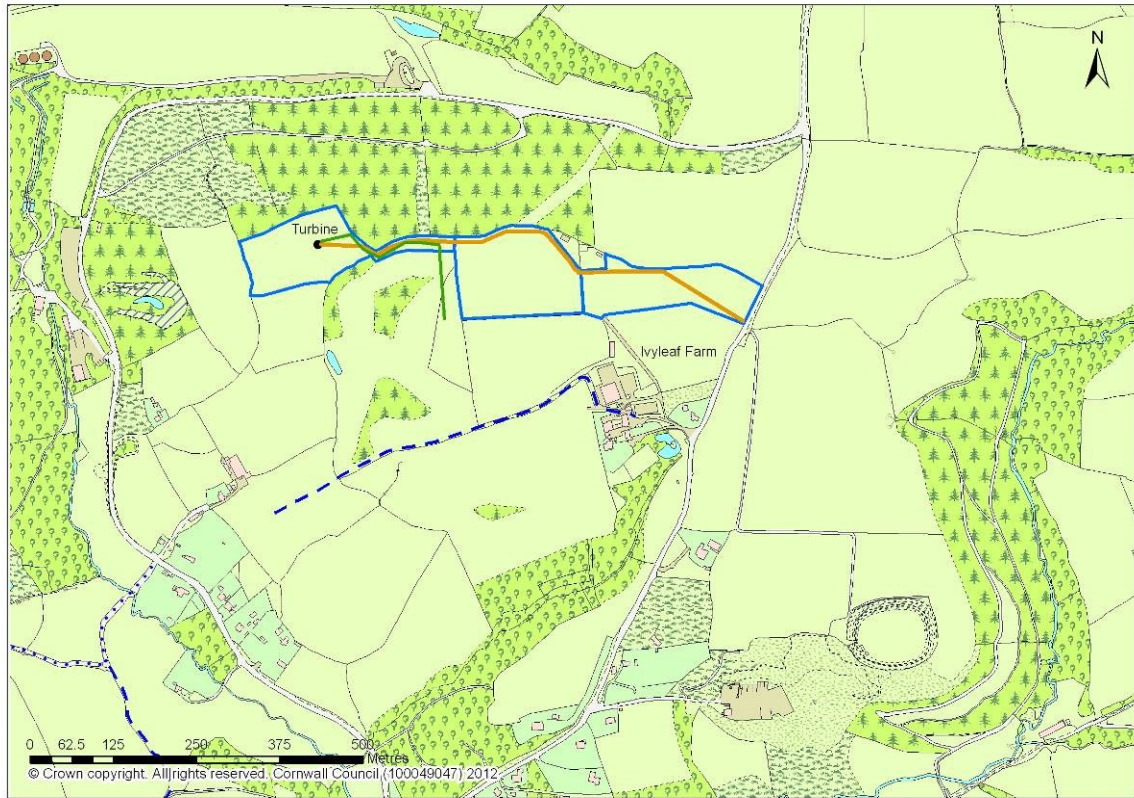


Fig 15 Public Rights of Way in the vicinity of the project area

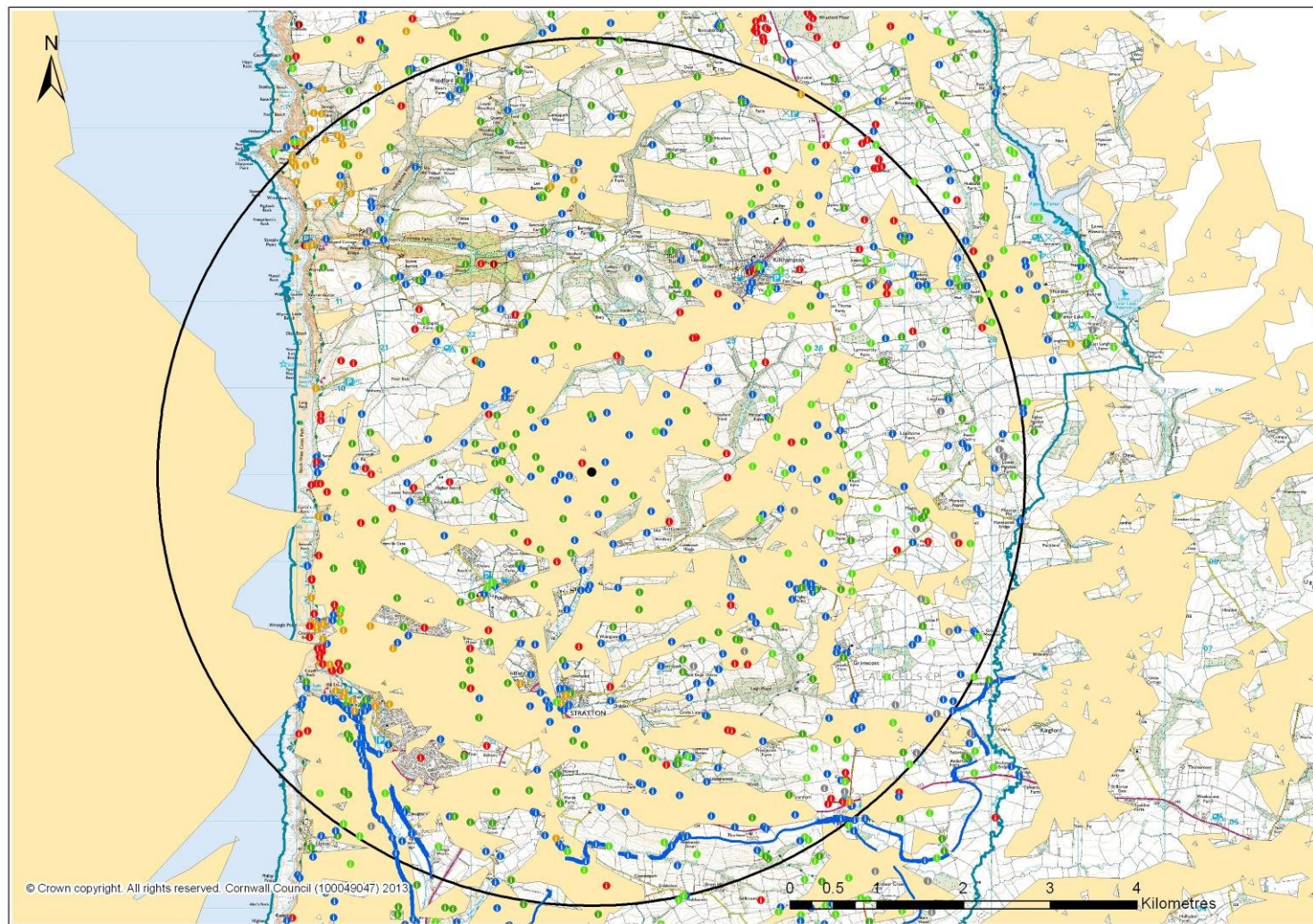


Fig 16 Mapping showing the ZTV within a 5km radius of the site proposed for the wind turbine, showing potentially intervisible sites recorded in the HER

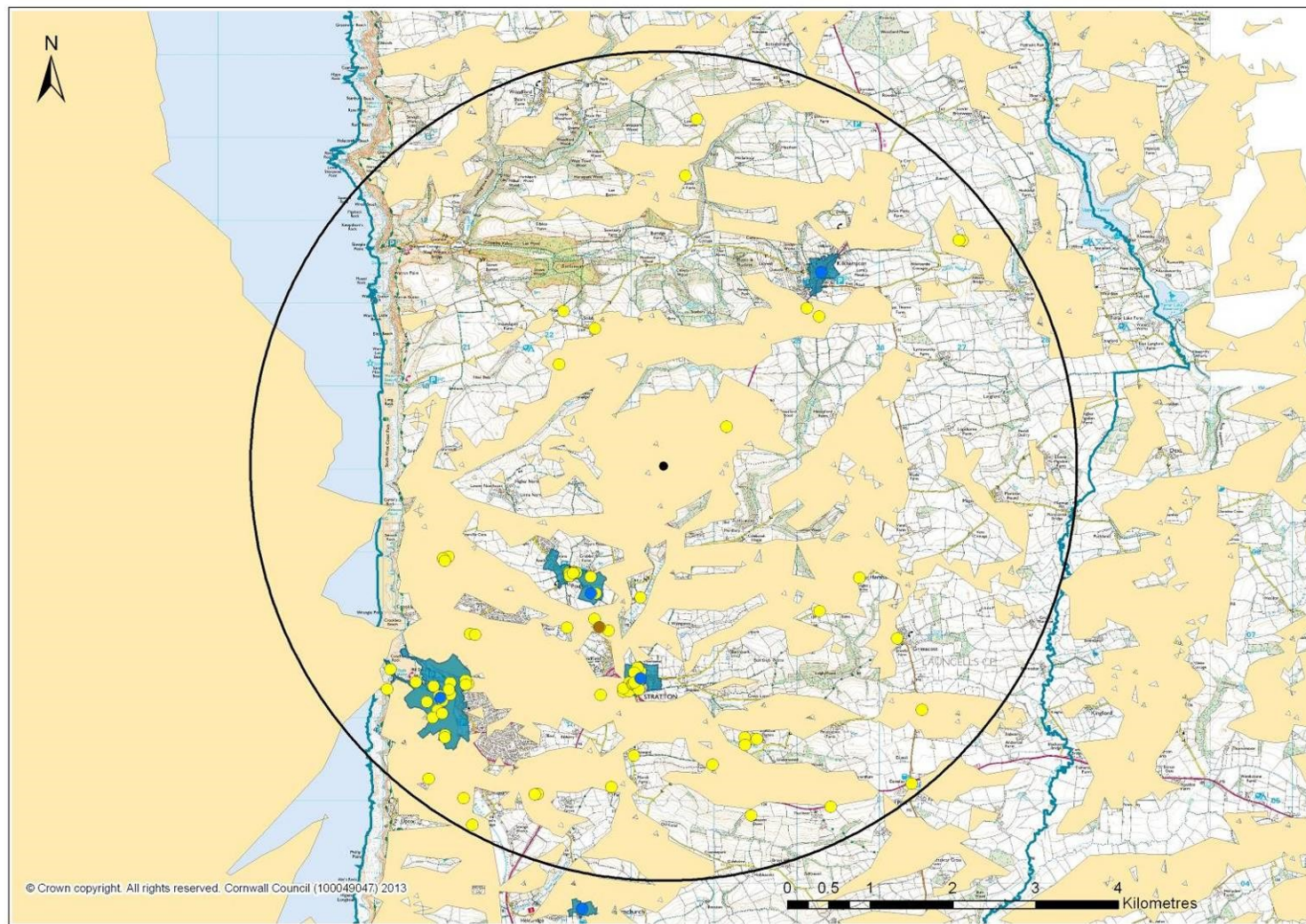


Fig 17 Mapping showing the ZTV within a 5Km radius of the site proposed for the wind turbine, showing potentially intervisible Listed Buildings (all grades, in yellow), Registered Battlefields (in brown) and Conservation Areas (in blue)

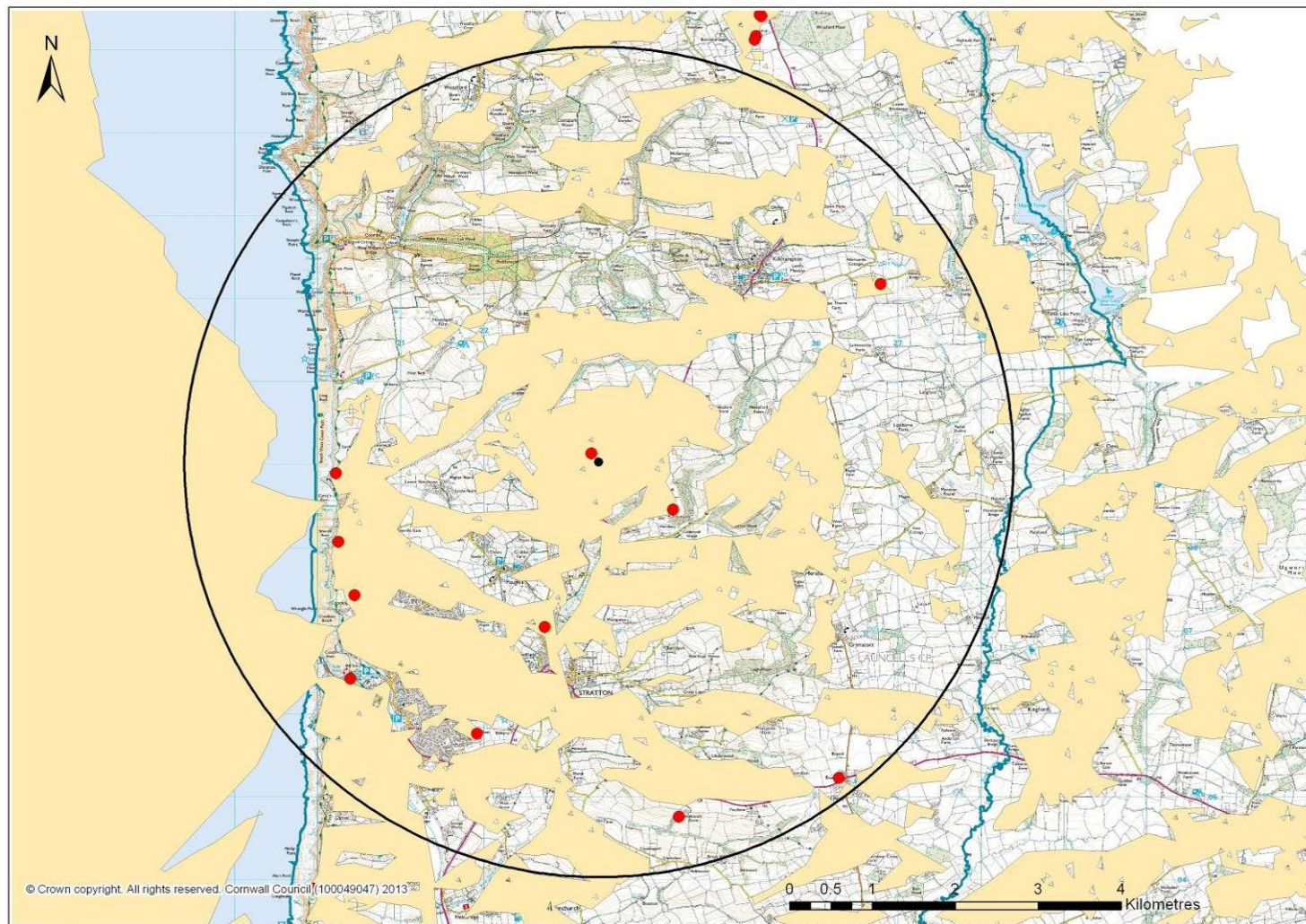


Fig 18 Mapping showing potentially intervisible Scheduled Monuments within the 5Km ZTV of the sites proposed for the wind turbine

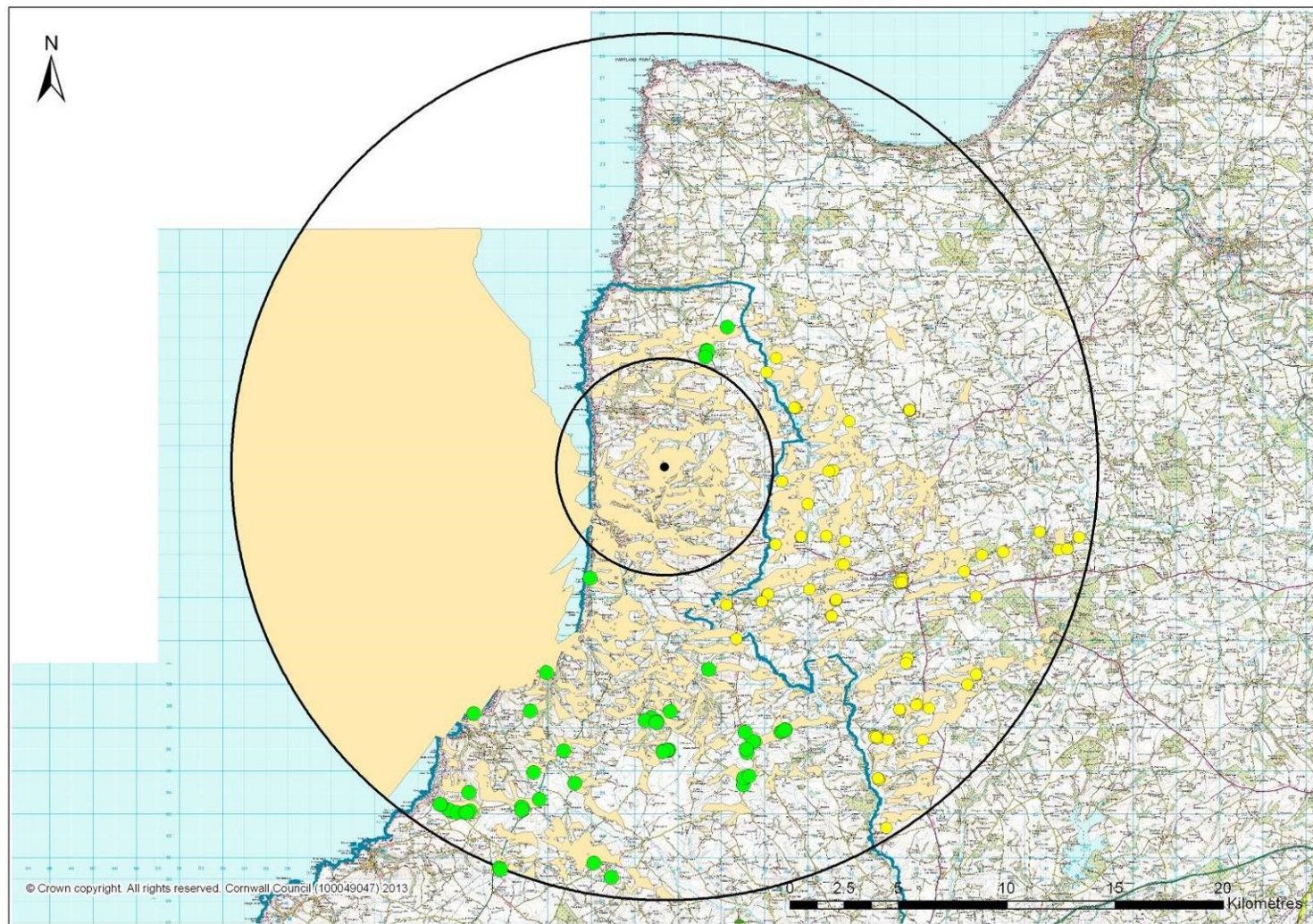


Fig 19 Mapping showing potentially intervisible Grade I and II* Listed Buildings (Devon sites in yellow and Cornwall in green) within the 20km ZTV area

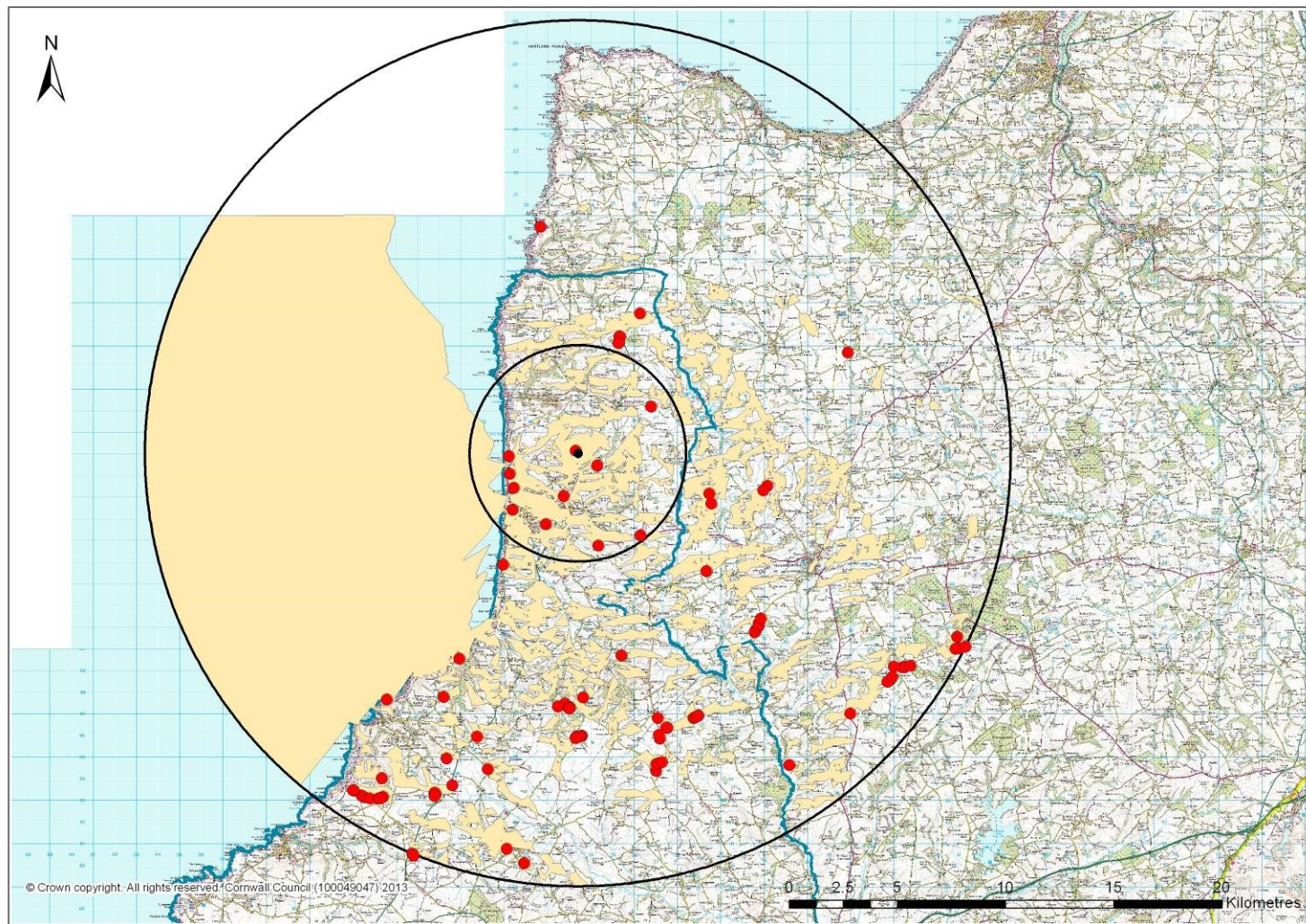


Fig 20 Mapping showing potentially intervisible Scheduled Monuments within the 20km ZTV area

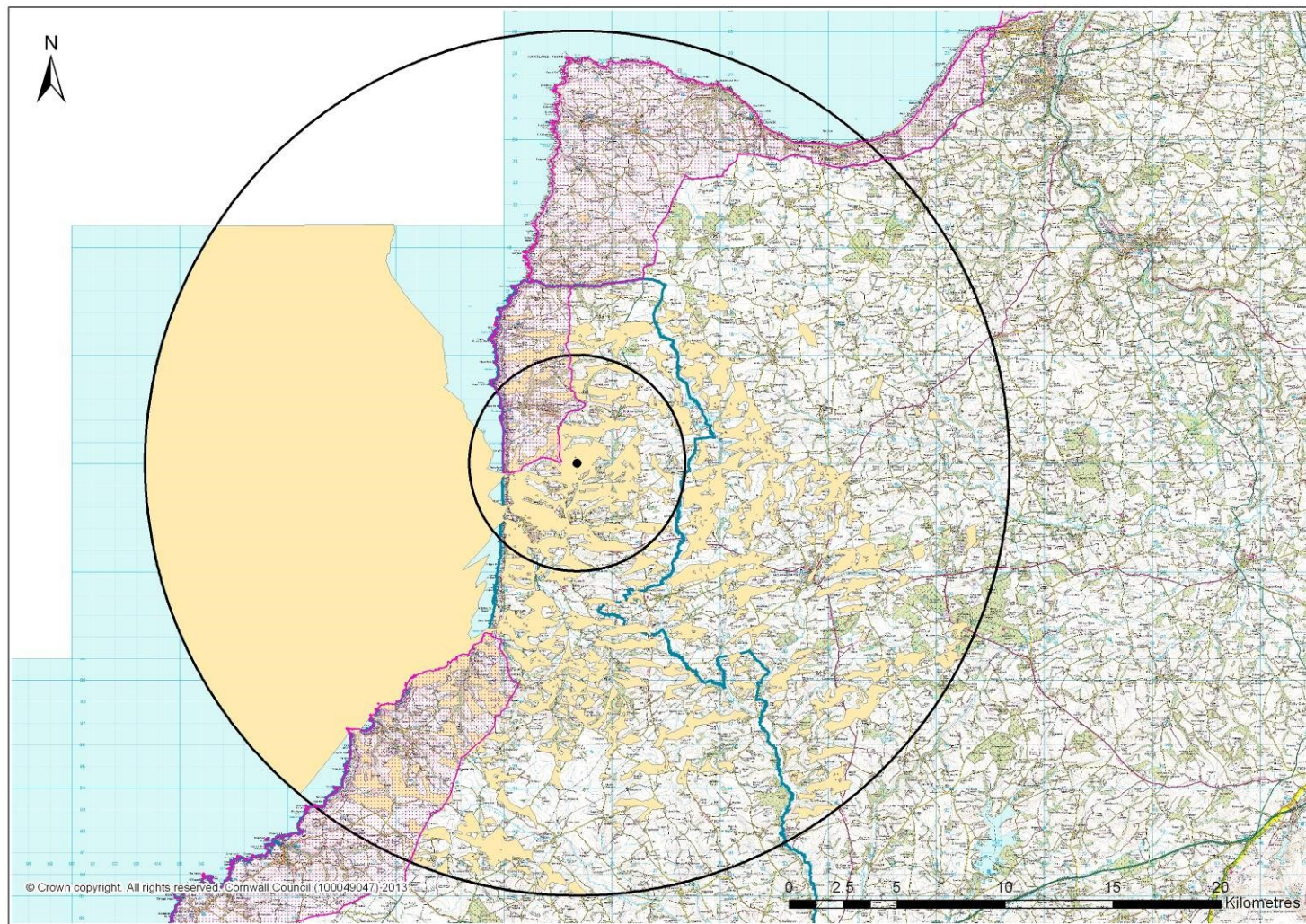


Fig 21 Mapping showing parts of the Area of Outstanding Natural Beauty within the 20km ZTV area

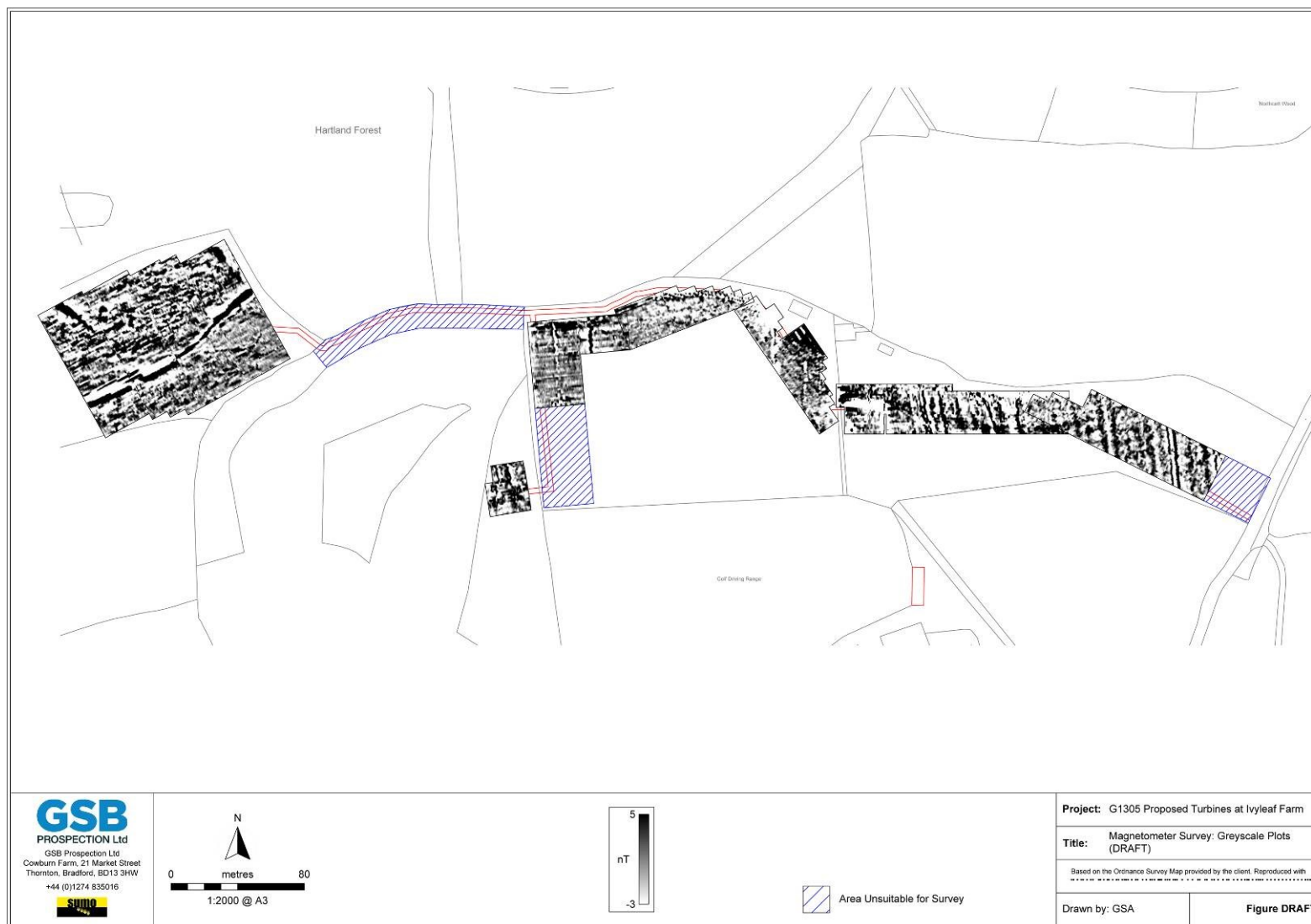


Fig 22 Results of geophysical survey (survey by courtesy of GSB Prospection Ltd/SUMO Survey)



Fig 23 View SW toward Bude storm tower (on the coast, centre horizon) from the proposed Ivyleaf turbine site.



Fig 24 The view to the west from the proposed Ivyleaf turbine site is blocked by a tree covered hill.



Fig 25 The view north west and north from the proposed turbine site is entirely tree-covered. A prehistoric round (a Scheduled Monument) not far away has become hidden in these trees.



Fig 26 The eastern view from the proposed turbine site is blocked by plantation trees.



Fig 27 View south east from Ivyleaf golf course, adjacent to the proposed turbine site



Fig 28 View south from Ivyleaf golf course towards Stratton (behind the trees, centre) and Wooda farm (right)



Fig 29 View from Ivyleaf golf course south west towards Crockwood farm, with Poughill and Bude in the distance



Fig 30 Mobile phone masts and power lines on the summit of Ivyleaf hill (east and upslope from the proposed turbine site)



Fig 31 View north west from Ivyleaf golf course. The proposed turbine site is marked by the temporary anemometer pole (arrowed)



Fig 32 South east view from Ivyleaf farm towards two existing turbines (at Colebrook and Oxenpark)



Fig 33 View south from Herdbury round, a Scheduled Monument (within the trees to the left)

Although this monument is situated at the south east limit of Ivyleaf Farm, due to the local topography it is not intervisible from ground level at the proposed turbine site. The aspect of the round is southerly, with a view across the valley towards Colebrook and beyond. Colebrook wind turbine is arrowed.



Fig 34 Part of the interior of Herdbury Round



Fig 35 View north west upslope from Herdbury round towards Ivyleaf farm and the proposed turbine site (arrowed)



Fig 36 View south south west from the Stibb-Kilkhampton road (and close to a group of Scheduled Bronze Age round barrows). The proposed turbine site is beyond the horizon towards the right



Fig 37 View south east from Halls

The proposed turbine site is within the field (centre of the horizon)



Fig 38 View north north east from Stamford Hill Civil War battle site. Ivyleaf hill is behind the trees to the centre and left



Fig 39 Ivyleaf hill as viewed from Oxenpark wind turbine – the proposed new turbine is close to the centre of the photo on the horizon

The top of Colebrook wind turbine is also visible (arrowed)



Fig 40 Oxenpark wind turbine, with Stamford Hill Civil War battlefield behind the trees to the left



Fig 41 View north east towards the proposed turbine site (centre, horizon) from Summerleaze Down, Bude



Fig 42 A panorama view from a barrow on the coast close to Flexbury. The view looks north-easterly inland; Ivyleaf is behind the hill range on the left horizon