

C&F Green Energy

320120310P

Summary of Acoustic Measurements

CF50-30m mast

Tarrae, Co. Galway

7rd Sept 2011

Report Version 1.0

Prepared for:
C&F Green Energy

C&F Green Energy

320120310P

Summary of Acoustic Measurements

CF50-30m mast

Tarrae, Co. Galway

7rd Sept 2011

Report Version 1.0

Prepared for:
C&F Green Energy

Introduction

The following report is based upon measurements taken by C&F Green Energy. The measurements have been assessed and comply with the requirements of BS EN 61400 – 11: 2003.

Test Details

Wind Turbine Model: CF50
Max Output: 50KW
Rotor Diameter: 20m
Mast Height: 30m
Location: Tarrae, Co. Galway
Date of tests: 1st Sept - 6th Sept
SLM: Larson Davis 824 with narrow band module

Test Setup

All acoustic measurements were conducted in accordance with IEC 61400-11:2002. The BWEA have also published a standard that addresses wind turbine noise assessment and the acoustic measurement technique is largely based on the IEC standard. The output data are presented in the format requested by the BWEA standard since this is typically most appropriate for planning purposes in the UK.

The microphone is located downwind at ground level facing the turbine at a distance of 40m which is the mast height plus the rotor radius. The microphone is placed on a piece of plywood and covered with a hemispherical wind shield. Acoustic and wind data are recorded while the wind turbine is active and also when shut down so that background noise can be assessed.

Acoustic measurements were taken as 1 minute Leq A-weighted readings. All measurements were recorded with 1/3 octave definition.

Wind velocity was measured using an anemometer on a 15m pole. Presented data are scaled to the height of the rotor axis.

Results

As specified in the BWEA standard, the 1/3 octave acoustic levels for all measurements were analysed to identify any tonal contribution. In this respect, no tonal content was present.

Several key metrics are required by the BWEA standard.

These are:

Key BWEA Metrics	
Sound Power at 8m/s	88.2 dBA
Sound Power vs Velocity slope	2.7 dBA / (m/s)
Sound Pressure at 8m/s	
Distance 25m	52.2 dBA
Distance 60m	44.7 dBA

In Figure 1, the acoustic data is presented as a function of nacelle height wind speed. Data are presented for both the background noise and the combined turbine & background noise cases. A linear regression is performed on both sets of data.

In Figure 2, the A-weighted sound pressure level of the wind turbine is adjusted to account for background noise and presented as a function of velocity.

In Figure 3, the A-weighted sound power level is presented as a function of wind speed.

In Figure 4, a contour plot shows the relationship of sound pressure to wind speed and distance. The distance here is measured from the centre of the mast. The data for this plot is derived from an interpolation where spherical propagation is assumed.

Finally, on the last page of the report, the above data are presented in the recommended BWEA format. The stated power level and field plot have been adjusted to account for an uncertainty penalty of 1.5dBA.

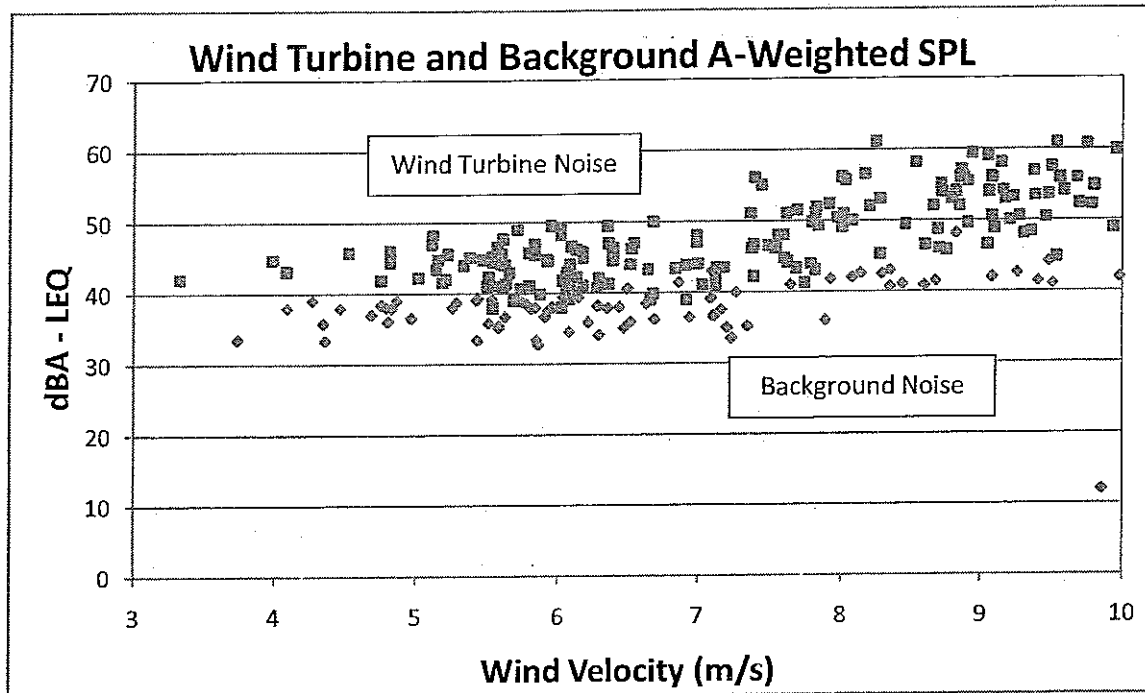


Figure 1: Wind turbine and background noise data as a function of nacelle height wind velocity.

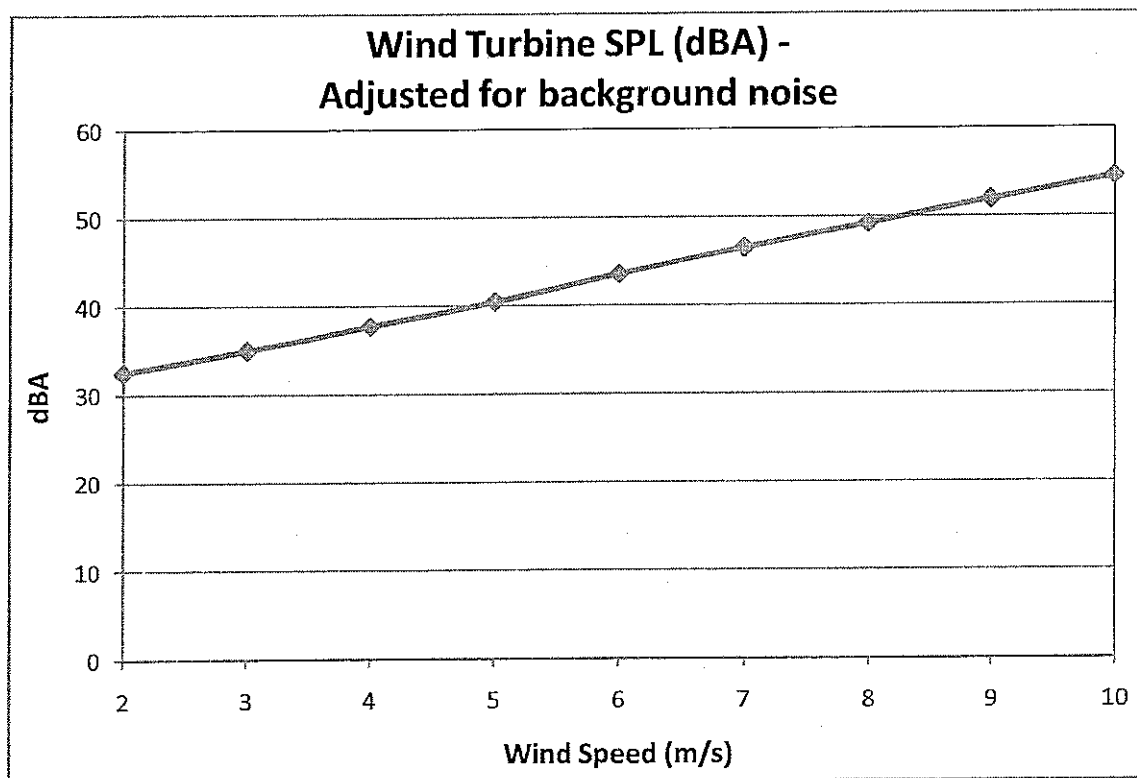


Figure 2: A-Weighted Sound Pressure Level as a function of nacelle height wind velocity

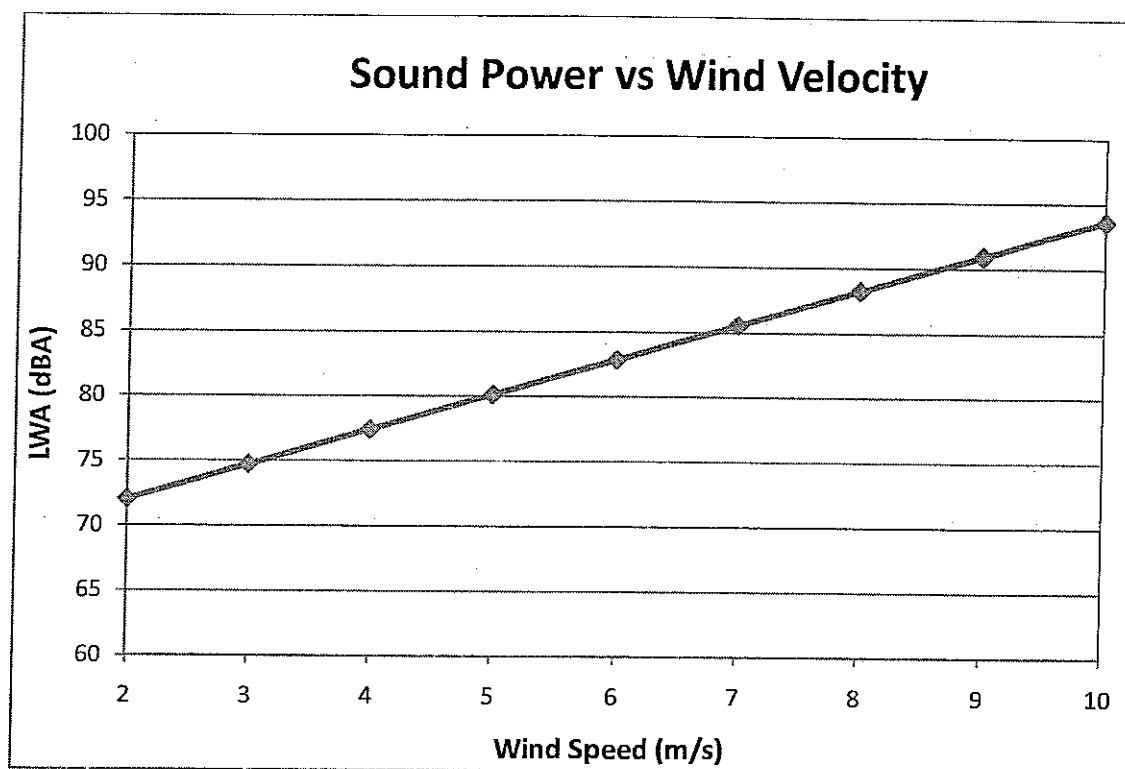


Figure 3: A-Weighted Sound Power Level as a function of nacelle height wind velocity.

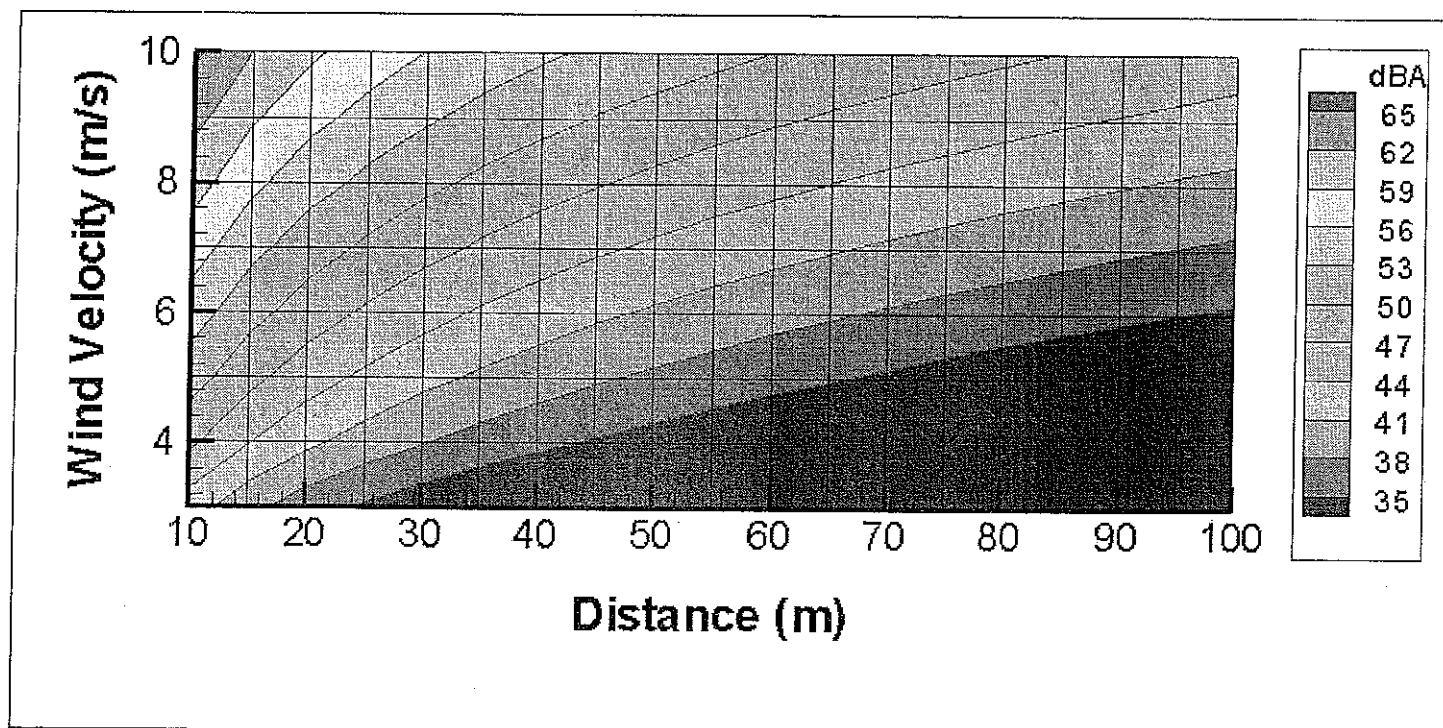


Figure 4: A-Weighted Sound Pressure Level as a function of wind velocity and distance from turbine

Acoustic Noise Levels

Turbine Make:

C&F Green Energy

Model

CF50

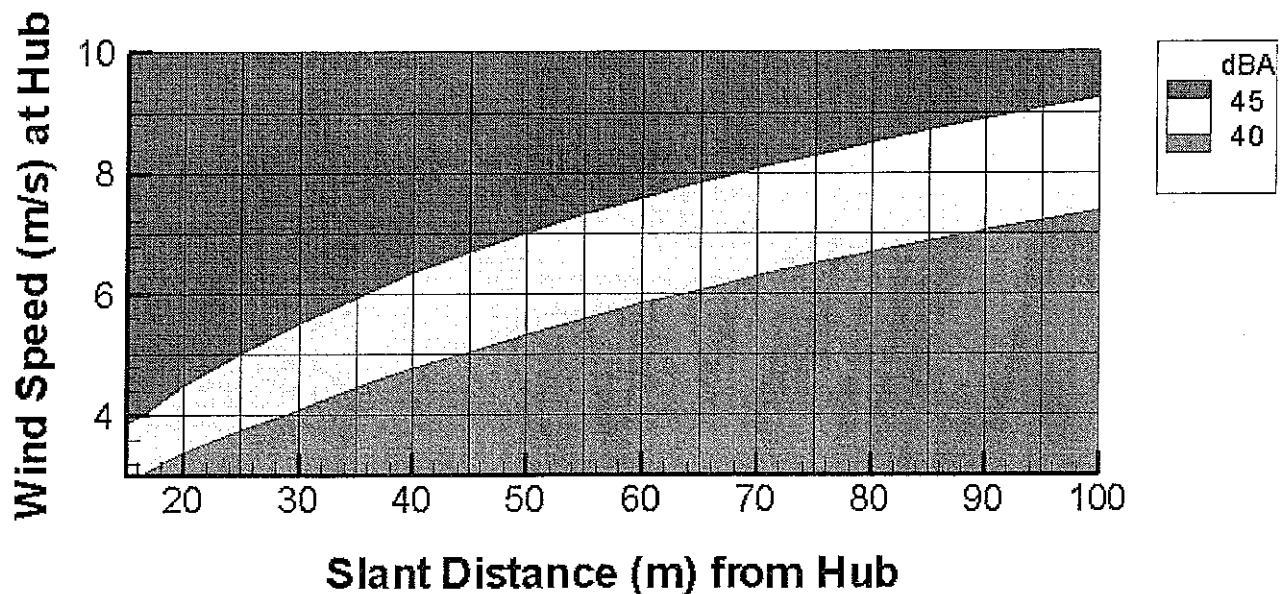
NOISE EMISSION LEVEL

NOISE PENALTY

Sound Power
 $L_{Wd,8m/s}$

89.7
dB(A)

Noise Slope
(dB/m/s)

2.7**NO**

**C&F
Green Energy**

Tarrae Test Site, Galway

Issued by C&F Green Energy
September 2011

Small Scale 50kW Wind Turbine

Pasture House Farm
West Marton
North Yorkshire
BD23 3UJ

320120310P

Design and Access Statement

March 2012



Windle
Beech
Winthrop

CHARTERED SURVEYORS

Windle Beech Winthrop Limited
Chartered Surveyors
Skipton Auction Mart
Gargrave Road
Skipton BD23 1UD
+44 01756 692 900
www.wbwsurveyors.co.uk

Contents

1. Introduction.....	3
2. Background.....	4
3. Proposal	5
4. Installation.....	7
5. Crime Prevention	7
6. Alternative Energy Solutions.....	8
7. Planning Policy Assessment.....	9
8. Consultations.....	10
9. Environmental Statement	10
10. Summary	11
Appendix A – 50kW Wind Turbine, 25m.....	12
Appendix B – Site Location & Cable Route	15
Appendix C – Noise Assessment	18
Appendix D – RVBC Screening Opinion	25
Appendix E – Renewable Energy Statement.....	30
Appendix F – Archaeological Survey	32

320120310P

1. Introduction

This report contains a design and access statement for the proposed installation of a 50kW wind turbine at Pasture House Farm. It is written to provide supplementary information to the planning application, landscape assessment and detailed drawings.

The following sections describe the site, the background and proposal, local and planning policy and the recently adopted National Planning Policy Framework, how they apply as well as specific assessments relevant to this application. It is not a definitive document and should be read in conjunction with all the additional information supplied with the planning application. In order to achieve the aim of the report it is divided into the following sections.

Background

This section describes the location, the current energy requirements and reasons for selecting a renewable energy source.

Proposal

This section details the proposal for the wind turbine, including details regarding the specification of the turbine, energy output, noise and shadow impact and colour proposals.

Installation

This section describes what is required for the installation of the proposed turbine in terms of earthworks, additional plant and equipment, supporting works and maintenance works.

Alternative Energy Solutions

This section details the alternative energy solutions that have been looked at in terms of the energy production for the business. It highlights the continued reliance on fossil fuels for energy generation and draws attention to the reliance on this within the UK.

Planning Policy Assessment

This section details local planning policy and National Planning Policy Framework and sets out whether the proposed turbine meets with these policies. It particular references policies pertaining to developmental planning, renewable energy and where applicable any specific policies regarding wind turbines.

Consultations

This section details any consultations that have taken place in relation to the proposed installation of a Wind Turbine at this site.

2. Background

The proposed site is near to Pasture House Farm, West Marton, Skipton, North Yorkshire. It is a lowland area comprising of reclaimed pastures and meadows interspersed with some woodland. The A59 passes to the South of the site but the site is not visible from the highway.

Pasture Farm is a goat rearing and dairy farm. The power to run the farm is currently provided via the National Grid. The owner of the farm wishes to reduce their carbon footprint and generate their own electricity.

Pasture House Farm, being a dairy farm has extremely high energy usage. The power to run the milking machines, pumping the milk and the bulk cooled storage of the milk is currently provided via the National Grid. A small scale 50kw wind turbine will help reduce the reliance on mains electricity consumption of the power intensive farm operation. A turbine of this size will not produce enough power during these intensive periods to completely power the dairy operation, however it will help reduce the reliance on mains electricity consumption during peak periods. At other periods the wind turbine may produce a surplus of electricity which will be fed back into the national grid.

There is also an issue in this area with interrupted electricity supplies. Several times a year the power supply will fail and leave the dairy element of the farm reliant on diesel powered generators to meet the demands. As with any dairy production process the product is a just in time product and therefore these power supply interruptions can be critical to the business.

320120310P

3. Proposal

The proposal is to construct a single wind turbine with a hub height of 25m and a blade length of 10.45m from the hub, giving an overall blade tip height of 35.5m. The turbine specification has a rated output of 50kw giving an estimated annual output of 105MWh. Appendix A contains drawings of the dimensions of the proposed turbine and the power rating curves for the proposed turbine.

The proposal has been scaled in order to minimise the visual impact upon the surrounding countryside and therefore does not produce a constant surplus of electricity. This demonstrates a balance has been sought between the size of the turbine and thus the energy savings for the farm enterprise and the visual impact of siting a turbine in a rural setting.

Colour

The turbine tower and base kit are all mild steel hot dip galvanised, which is grey in colour. The colour can be selected as necessary to compliment the surrounding landscape and mitigate the visual impact of the turbine. The turbine housing is of the same material however white in appearance. The blades and cone are all made of fibre glass and the standard colour for these is also white but can also be changed if required. The most neutral effect for turbines of this size is often matt grey on a galvanised tower. A combination of colours can be used for mast and blades if this is deemed necessary.

Noise

Due to the size of the C & F Green Energy 50kW wind turbine there is no requirement for the turbine itself to have a gearbox. Therefore the generation of noise and vibration from this type and size of turbine is minimal and due to the noise of the turbine blades cutting through the air. An assessment of the noise generation of the 50kW turbine is included in Appendix C. Operational noise from wind farms is assessed following the procedure set out in standard European guidance: ETSU-R-97, The Assessment and Rating of Noise from Wind Farms. This specifies limits on the levels of wind farm noise that are considered acceptable at the nearest occupied properties. These are set relative to the existing background noise levels at the houses, which were measured as part of the baseline surveys. The guidance for noise levels from wind turbines as set out in ETSU-R-97 are as follows:

- Max 37dB(A) or 5dB(A) above background noise level.
- ETSU-R-97 provides for a relaxation of the noise limit for those with a financial interest in the turbine to 45dB(A).

Given that the nearest residential dwelling, that of the farm owner, to the turbine is a distance of over 190m away from the proposed site *no significant* adverse noise effects are predicted for the 50kW turbine given the noise assessment provided for this turbine.

Shadow Flicker

Shadow Flicker occurs when the sunlight on rotating Wind Turbines react in such a way that a moving shadow is cast on the ground or stationary objects. The Shadow Flicker effect can be seen when the shadow passes across a specified location that falls within the range of the Wind Turbine Shadow. The factors that need to be in place for Shadow flicker to occur are listed below:-

- The receptor must be in range of a shadow from the Wind Turbine.
- This shadow must be of an intensity that is deemed to be strong enough to create Shadow Flicker effect.
- The sun must be shining and not obscured by clouds or fog or any other intervening objects.
- The Turbine must be operational in that the blades are rotating.
- The blades must be perpendicular to the receptor in order for the shadow to be cast through the rotating blades.
- The receptor must not be obscured by any intervening structure.
- The Turbine must track the sun at exactly the same rate as it moves across the sky.

If **ALL** of the above criteria are met Shadow Flicker will potentially occur at a receptor and this is referred to as the "worse case scenario".

Shadow Flicker Assessment Methodology

Within the UK at present there are no prescribed guidelines for the assessment of Shadow Flicker or limits for the acceptable exposure to Shadow Flicker. This is largely due to the underdeveloped onshore Wind Turbine Industry within the UK. It is prudent to seek guidance from countries with a more developed and experienced Onshore Wind Turbine industry. General guidance from within Europe recognises that Shadow Flicker impacts reduce with distance and will only occur when the sun is low in the sky. On Shore Wind Farm Guidance states that "only dwellings within 130 degrees either side of North relative to a Turbine can be affected and the shadow can only be experienced within 10 rota diameters (RD) of the Wind Turbine".¹ It is recognised that at distances beyond 10 RD the intensity of the shadow is reduced significantly so as not to be noticeable when moving across a stationary object. The exposure limits it is generally recommended that Shadow Flicker should not exceed 30 hours per year in total or 30 minutes in any one single day². The Shadow Flicker recommendations are based on research by Predac, a European Union sponsored organisation promoting best practice in energy use and supply and draws on experience from Belgium, Denmark, France, The Netherlands and Germany. The limits should only be applied to occupied properties.

Analysis

The only dwelling that falls within 10RD of the proposed site is the farmhouse at Pasturehouse Farm. It has been determined that the shadow from the rotating turbine blades may exist if the sun is shining, has an elevation of

¹ Update of UK Shadow Flicker Evidence Base, Department of Energy and Climate Change, March 2011

² The shadow flicker recommendations are based on research by Predac, a European Union sponsored organisation promoting best practice in energy use and supply which draws on experience from Belgium, Denmark, France, the Netherlands and Germany.

between 3.49° and 12.52° above the horizon with an Azimuth angle of between 198° and 302° east of due north.

The data for the analysis is provided by the National Renewable Energy Laboratory website which computes the solar position based on the date, time of day, position of the Turbine (longitude and latitude) and provides an output for the solar position at any time and day throughout the year. Analysis of this data shows that the sun will not pass through the required angles in order for shadow flicker to occur and therefore it is not a concern with this application.

4. Installation

The turbine will be installed at the site shown in Appendix B which is approximately 190m from Pasture House Farm. The land is lowland pastureland and is used for agricultural purposes. Access to the site is from the farm lane to running to the south of the site. The size of the foundation for this turbine is will vary depending upon the allowable soil pressure, details are included in Appendix A.

The site is located to the North West of Pasture House Farm. The farm has had considerable development carried out in recent years and therefore additional ground disturbance is unlikely to have any detrimental effect on the immediate landscape around the farm. The cable from the site of the turbine will run underground to Pasture House Farm. An excavator will be required to carry out the excavation for the turbine foundation and for the cable trenching works. A small mobile crane will be required to erect the turbine and any hard standing necessary for this will be installed and then subsequently removed once installation is in place and the ground returned to its original state. All excavations will be reinstated and landscaped in keeping with the surrounding ground. As the site is close to a local road network and an access track runs very close to the site there is no requirement for a permanent track for installation or maintenance purposes. The company supplying the turbine will be maintain it annually to ensure the turbine is running smoothly and efficiently at all times.

5. Crime Prevention

During the construction phase of the development, all measures to secure the site, all associated materials, plant, and equipment will be made in order to prevent theft or vandalism. Once erected it is unlikely that the turbine will be involved in any crime issues and as it is securely fixed to a large concrete foundation and therefore it is unlikely to attract thieves.

6. Alternative Energy Solutions

This section details the alternative energy solutions that have been looked at and deemed insufficient for this site in terms of the energy production and the continued reliance on fossil fuels. At present 76% of UK energy is produced from fossil fuels and 16% from nuclear. Only 7% of the UK energy production is from renewable or other sources of which 3% is from wind power³.

This proposal is part of an ongoing commitment to reducing the reliance on main generated electricity and hence the costs for the tenant farmers by the landowner Mr Amos Nelson. A statement to this effect is included in Appendix E of this document.

Present Arrangement (Mains Electricity)

The current arrangement is for the farm to continue using mains electricity. Although there is a suitable mains supply to the farm its continuing use of this from the national grid will continue to use the finite resources.

Hydro Power

Hydro power has been installed on a small scale at farms across the region, but it is often only enough to supplement existing energy requirements and not sufficient to completely replace existing supplies. However, there is no suitable significant water source for this type of energy generation Pasture Farm.

Solar/PV Cells

The use of Solar Power for electricity generation is becoming increasingly more prevalent as the costs of the installation decreases and the efficiency of the PV cells improves. It is often only enough to supplement existing energy requirements and not sufficient to completely replace existing supplies. It would not provide a viable efficient replacement to the energy requirements at Pasture House Farm.

The uptake in commercial PV has then been further upset by the uncertainty in the Feed in Tariffs that are constantly being reviewed by the government.

³ UK Energy in Brief 2011, Department of Energy and Climate Change (DECC), 2011

7. Planning Policy Assessment

This section considers the local and national planning policies and how the proposal meets within these policies. The following policies have been considered.

National Planning Policies

The recently released National Planning Policy Framework (NPPF) contains the latest Government advice on combating climate change and indicates in section 10 that planning plays a key role in helping to reduce greenhouse gas emissions by supporting the delivery of renewable and low carbon energy. When determining planning applications local planning authorities should not require applicants for energy development to demonstrate the overall need for renewable or low carbon energy and should recognise that even small scale projects can provide a valuable contribution to cutting greenhouse gas emissions. In the section on decision taking, it is stated that local planning authorities should apply the presumption in favour of sustainable development.

The NPPF also states that applications for planning permissions must be determined in accordance with the development plan unless material considerations indicate otherwise.

The Ribble Valley District Wide Local Plan contains policies dealing with renewable energy proposals including wind energy.

Policy ENV24 indicates a general presumption in favour of renewable energy proposals provided that such developments do not cause unacceptable harm to interests of acknowledged importance.

Policy ENV25 indicates that proposals for renewable energy schemes will be considered with reference to specific issues including the local and wider benefits the proposal may bring and the fact that certain renewable energy resources can only be harnessed where the resource occurs.

The proposal meets satisfactorily with Policy ENV26 and it is believed that the site lends itself to the use of wind energy and the visual impact on the landscape is justifiable due to the limited number of viewpoints where the turbine has a significant impact.

In the case of the present proposal the benefits of wind energy are well documented and wind turbines by their very nature need to be in an area where they will function most efficiently, or as policy ENV25 states they are harnessing the wind resource where it occurs.

In the case of the present proposal the effect of the wind turbine on the character and appearance of the area is considered to be outweighed by the benefits in the provision of a renewable and sustainable energy resource. The Council is requested to support the proposed development in accordance with the recommended presumption in favour of sustainable development.

8. Consultations

Ribble Valley Borough Council

A screening opinion (3/2011/0956P) was requested (See Appendix D) and it was determined that an Environmental Impact Assessment would not be required for this application. However the screening opinion requested the following:

- A visual impact assessment and noise impact assessment. – This has been included as a separate document as part of this application.

This was followed by an on site meeting with the Authority Planning Officer who determined the following:

- A selection of photomontages (3-4) from various viewpoints and a brief analysis of these in order to assess their impact.
- Given the distance to the AONB and the secluded nature of the site it was determined that a ZTV was not required as part of this application.

9. Environmental Statement

This statement has been informed by a desk study to obtain relevant information under the following headings in which the information, relating to the various headings, was recorded during the site survey and from land classification maps.

Ornithological

The proposed turbine is not located close to any buildings, trees or hedgerows where the indigenous bird population would use as a habitat or feeding area. There are no known migratory bird paths over the area and in any event, migratory birds would fly at a much greater height than 35 metres, the height of the turbine. There would be very little chance therefore of bird strike. Ground nesting and ground foraging birds would not be adversely affected by a single turbine of such a minor scale as the ground take would be insignificant at 5m x 5m for the base.

Bats

No trees, hedgerows or buildings which have potential to support roosting bats were identified as being significantly close to the site for the development. The turbine would not result in the removal or destruction of hedgerows or buildings where bats might feed or use these features as navigational aids, therefore it is concluded that the proposed turbine would not adversely affect the bat species. The turbine has been sited in accordance with Natural England's recommendation contained in TIN51. This advises that turbines be positioned such that there is a 50m buffer around trees and hedges, as these provide a foraging ground for bats. The turbine is to be situated 55m from the nearest trees and hedges.

Botanical

The land and area on which the turbine would be located has no special landscape designation such as SSSI and is used for pasture. The turbine would be located on pasture land which is grazed daily and its construction would result in the loss of grazing land only. There would be no adverse impact therefore on the flora of the local area.

Landscape

The landscape issues with regard to the effect of the proposed turbine on the local area have been assessed separately within this application.

Archaeological

During the screening phase of this application the following response was received from the archaeological officer at Lancashire County Council.

"The proposed turbine location lies in an area of known archaeological potential; a series of banks and enclosures (Lancashire Historic Environment Record PRN 3274) of an unknown date and function which have been identified on aerial photographs of the area."

An archaeological survey of the site was carried out and the report is included in Appendix F.

Recreational Users

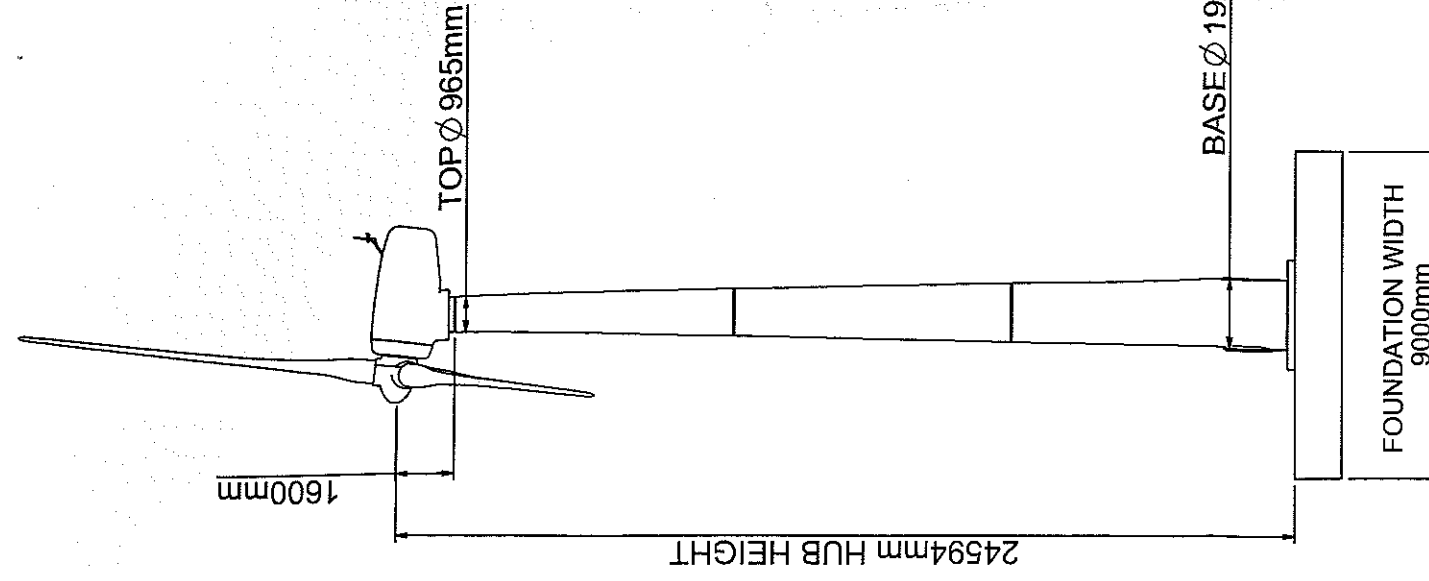
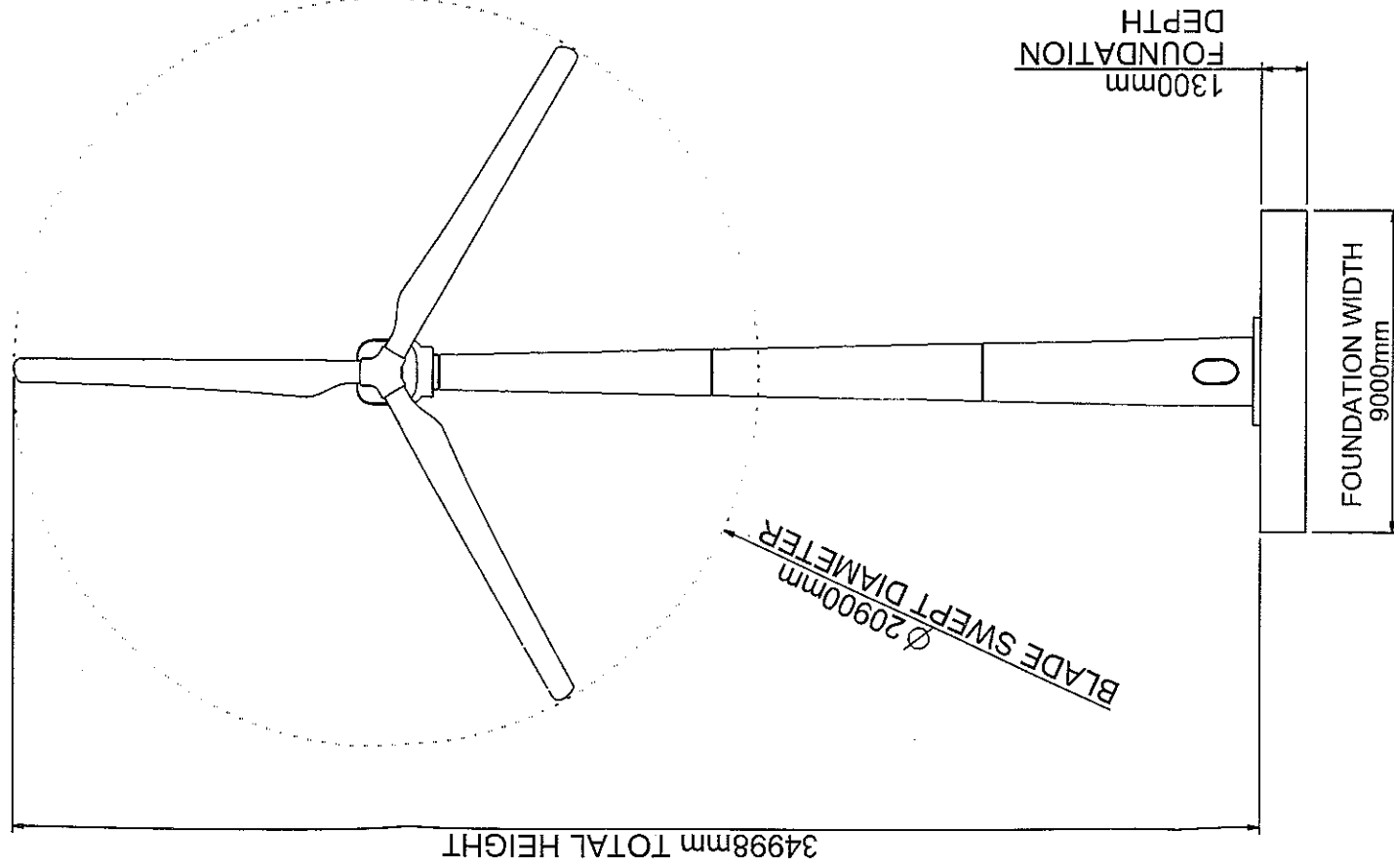
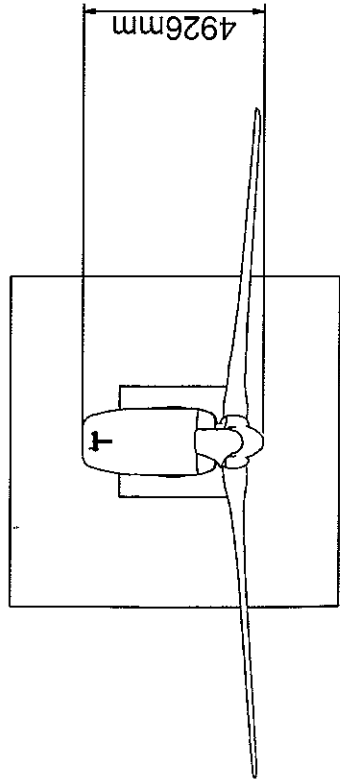
The main recreational use affected by the turbine will be users of local footpaths. The consideration of these has been assessed separately within this application in the Landscape Assessment.

10. Summary

This document has examined the various effects of the proposed development on landscape character residential amenity and the business and environmental need of the development. It has been concluded that the development will cause no undue harm to interests of acknowledged importance. It should be read in conjunction with all other documentation attached to this application.

Given the size of the turbine will not fully cover the electrical energy requirements of the farm the proposal has demonstrated a balance has been sought between the size of the turbine and the visual impact of siting a turbine in a rural setting. Therefore officers are requested to seriously consider supporting this application given the issues discussed surrounding the NPPF and policies ENV24, ENV25 and ENV26.

Appendix A – 50kW Wind Turbine, 25m



32012031

CAF Green-Energy		FORW	
DESCRIPTION:		All Dimensions in mm	
OVERALLS / PLANNING		QTY PER UNIT	
MATERIAL: Monopole: 12mm S355		SCALE: 1:200	
DRAWN: C O'Neill		DWG SIZE: A3	
CHECKED: -		TOLERANCES UNLESS OTHERWISE SPECIFIED	
DATE: 02-Nov-11		SHEET: 1 OF 1	

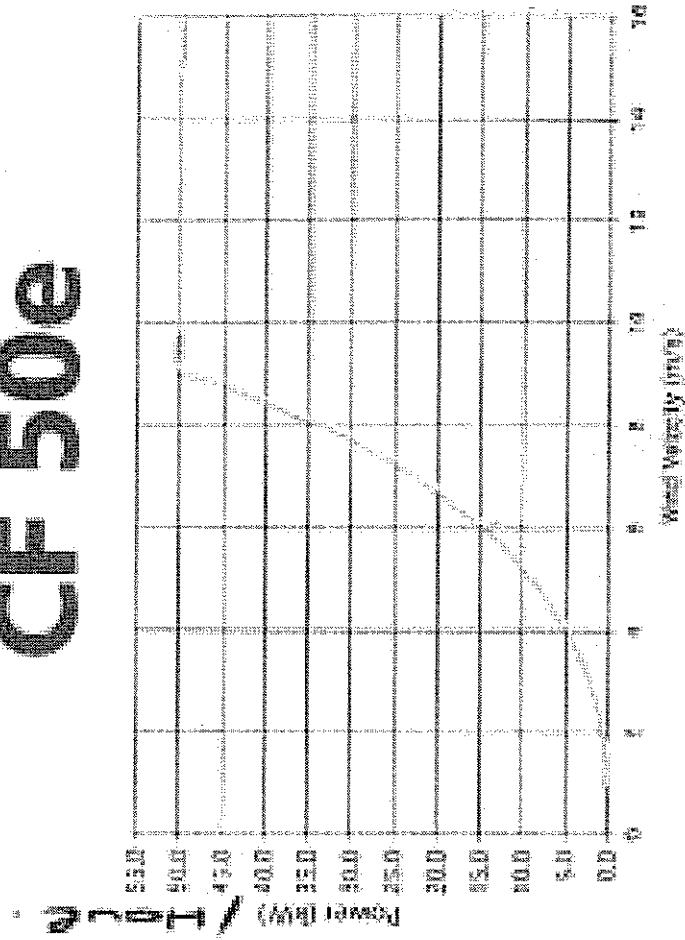


320120310P

SPECIFICATION SHEET

Rotor Diameter	20m
Hub Height	25m / 30m / 35m
Max. Power	50kW
An. Yield @ 5 m/s	117 250 kWh
Rated Wind Speed	9m/s
Min active wind speed	2.2m/s
Cut out wind speed	30m/s
Annual Carbon Saving	70-80 Tonnes
Noise @ 5 m/s at 60m	37dBA
Max RPM	50rpm
Method of Installation	Crane
GSM Controlled as Standard	

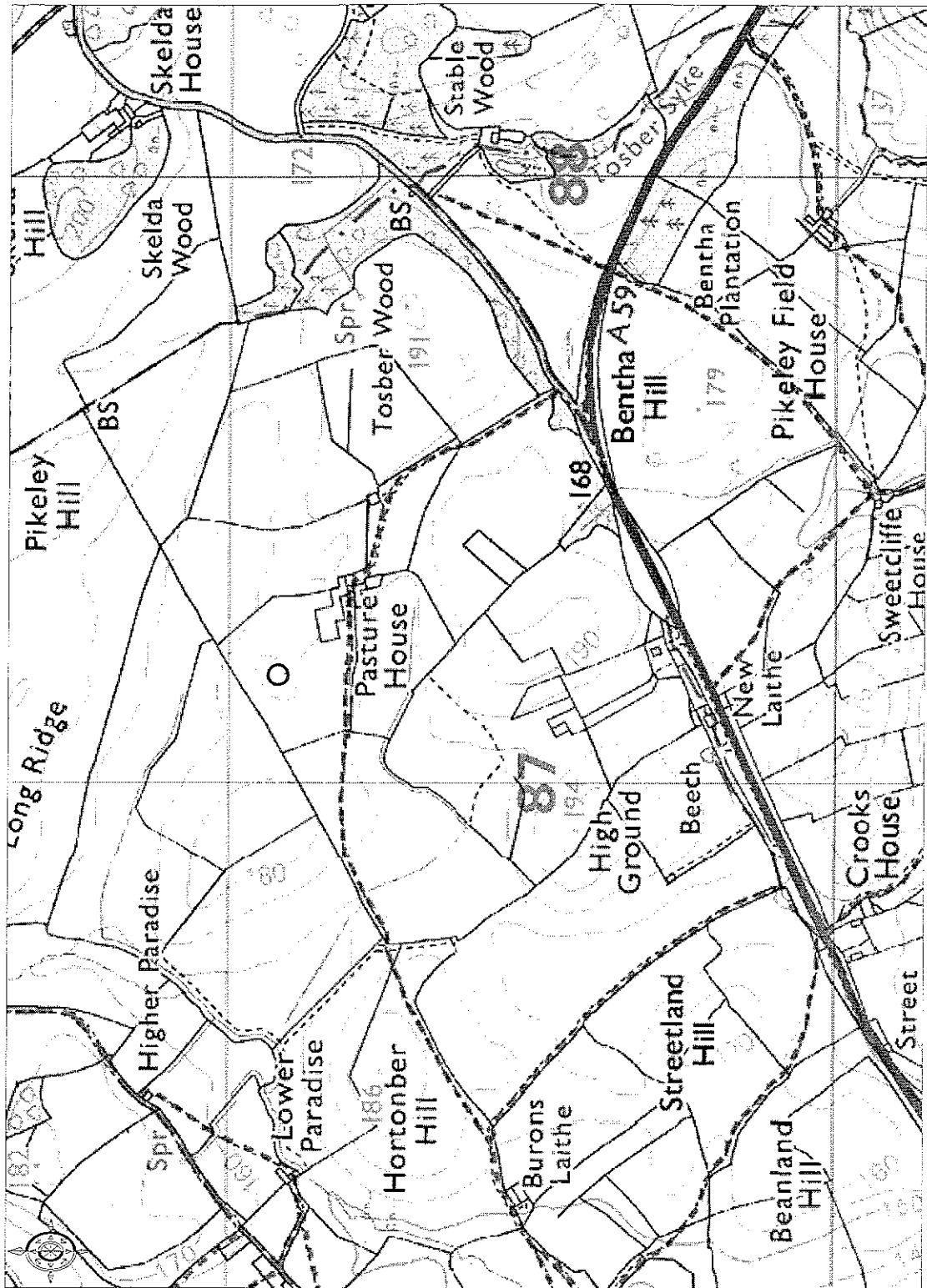
Three Phase CF 50e



Speed Control: Blade Pitch Control, Electromagnetic Braking, Failsafe Hydraulic Braking.

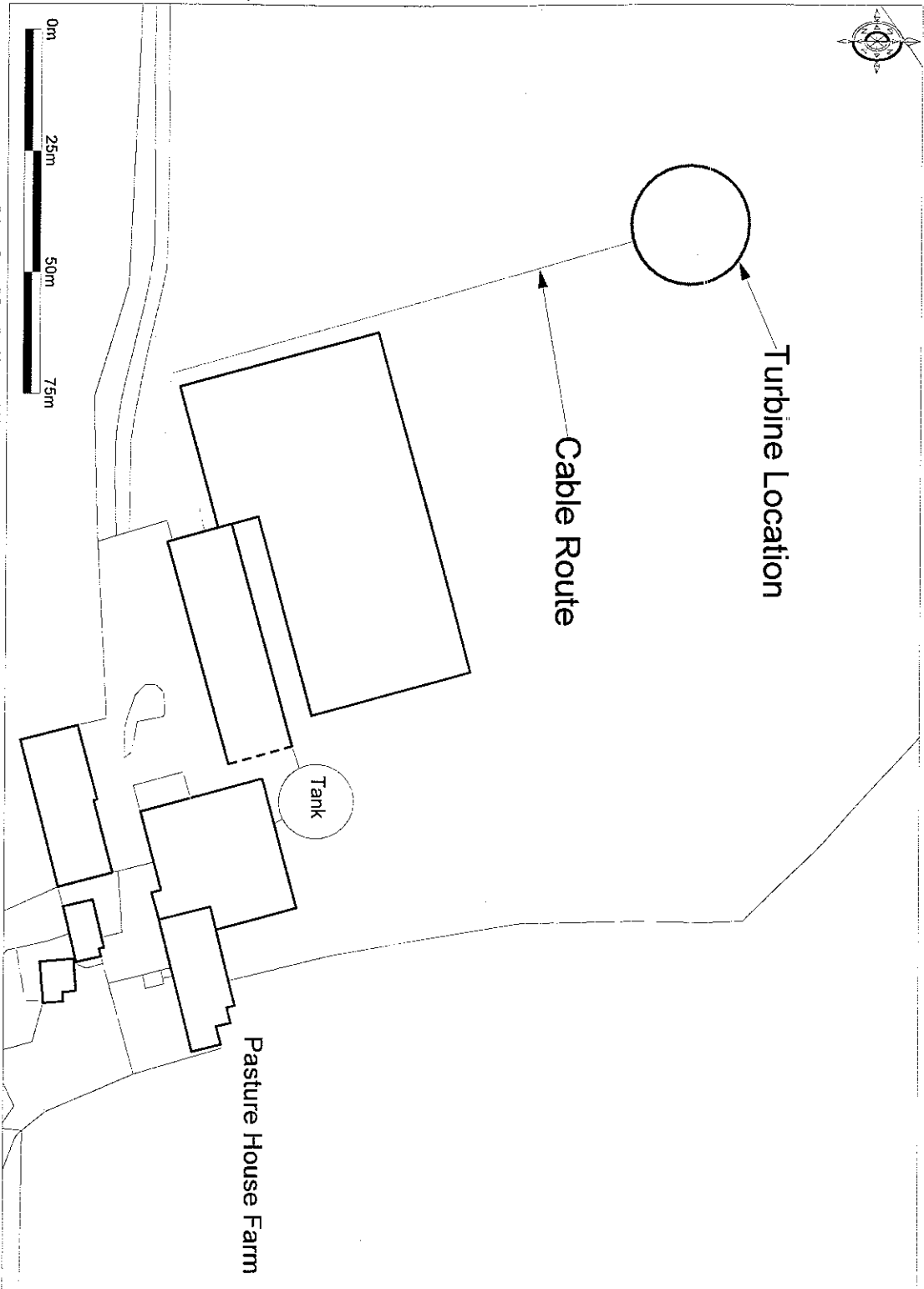
Appendix B – Site Location & Cable Route

320120310P



Ordnance Survey © Crown Copyright 2011. All rights reserved. Licence number: 100020419. Printed Scale: 1:10000





Promap

Ordnance Survey © Crown Copyright 2012. All rights reserved. Licence number 100028410. Practical Scale - 1:1250

320120310P

Appendix C – Noise Assessment

C&F Green Energy

Summary of Acoustic Measurements

CF50-30m mast

Tarrae, Co. Galway

7rd Sept 2011

Report Version 1.0

Prepared for:
C&F Green Energy

Introduction

The following report is based upon measurements taken by C&F Green Energy. The measurements have been assessed and comply with the requirements of BS EN 61400 – 11: 2003.

Test Details

Wind Turbine Model: CF50
Max Output: 50KW
Rotor Diameter: 20m
Mast Height: 30m
Location: Tarrae, Co. Galway
Date of tests: 1st Sept - 6th Sept
SLM: Larson Davis 824 with narrow band module

320120310P

Test Setup

All acoustic measurements were conducted in accordance with IEC 61400-11:2002. The BWEA have also published a standard that addresses wind turbine noise assessment and the acoustic measurement technique is largely based on the IEC standard. The output data are presented in the format requested by the BWEA standard since this is typically most appropriate for planning purposes in the UK.

The microphone is located downwind at ground level facing the turbine at a distance of 40m which is the mast height plus the rotor radius. The microphone is placed on a piece of plywood and covered with a hemispherical wind shield. Acoustic and wind data are recorded while the wind turbine is active and also when shut down so that background noise can be assessed.

Acoustic measurements were taken as 1 minute Leq A-weighted readings. All measurements were recorded with 1/3 octave definition.

Wind velocity was measured using an anemometer on a 15m pole. Presented data are scaled to the height of the rotor axis.

Results

As specified in the BWEA standard, the 1/3 octave acoustic levels for all measurements were analysed to identify any tonal contribution. In this respect, no tonal content was present.

Several key metrics are required by the BWEA standard.

These are:

Key BWEA Metrics	
Sound Power at 8m/s	88.2 dBA
Sound Power vs Velocity slope	2.7 dBA / (m/s)
Sound Pressure at 8m/s	
Distance 25m	52.2 dBA
Distance 60m	44.7 dBA

In Figure 1, the acoustic data is presented as a function of nacelle height wind speed. Data are presented for both the background noise and the combined turbine & background noise cases. A linear regression is performed on both sets of data.

In Figure 2, the A-weighted sound pressure level of the wind turbine is adjusted to account for background noise and presented as a function of velocity.

In Figure 3, the A-weighted sound power level is presented as a function of wind speed.

In Figure 4, a contour plot shows the relationship of sound pressure to wind speed and distance. The distance here is measured from the centre of the mast. The data for this plot is derived from an interpolation where spherical propagation is assumed.

Finally, on the last page of the report, the above data are presented in the recommended BWEA format. The stated power level and field plot have been adjusted to account for an uncertainty penalty of 1.5dBA.

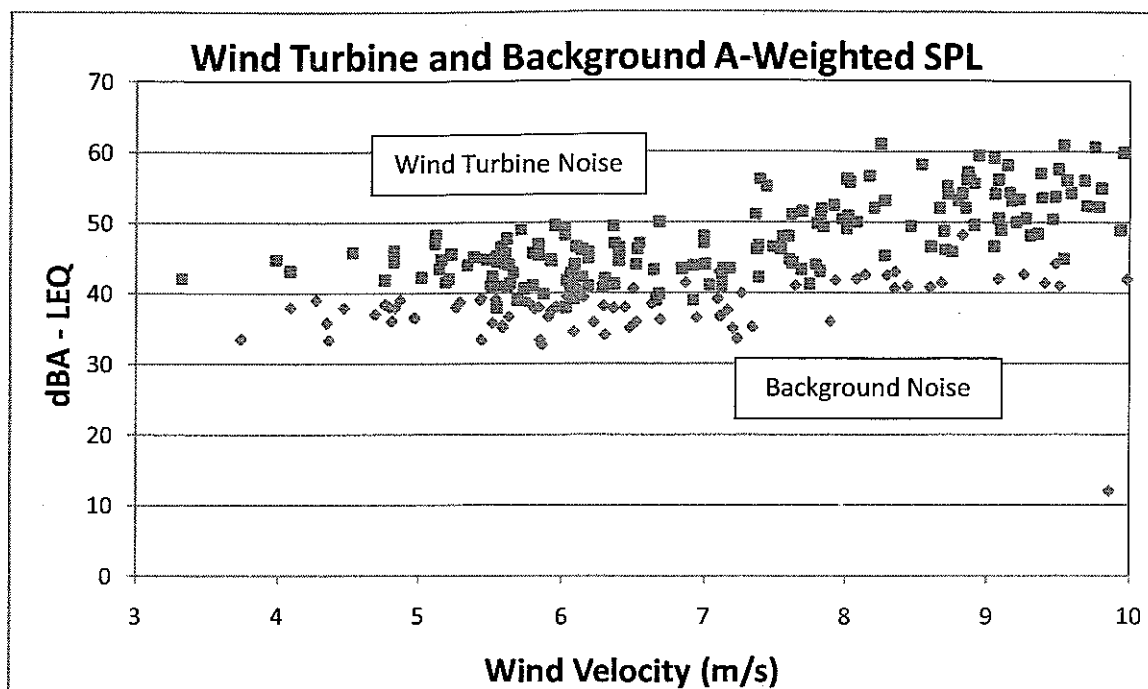


Figure 1: Wind turbine and background noise data as a function of nacelle height wind velocity.

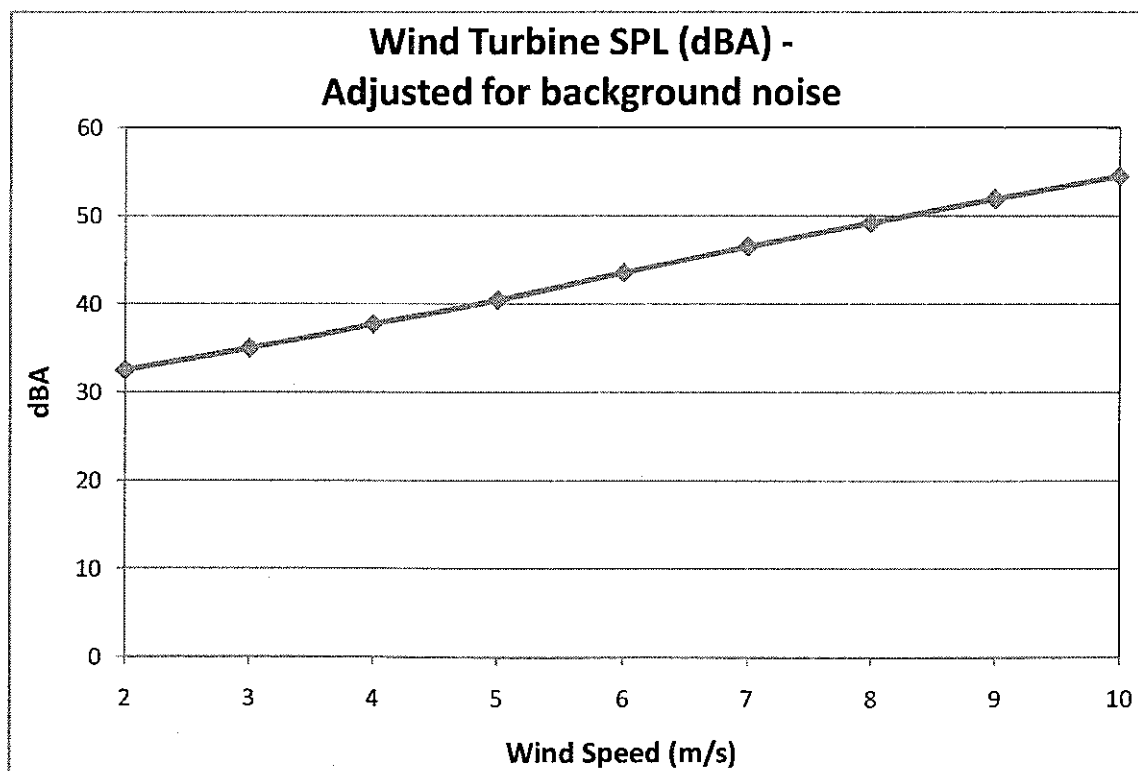


Figure 2: A-Weighted Sound Pressure Level as a function of nacelle height wind velocity.

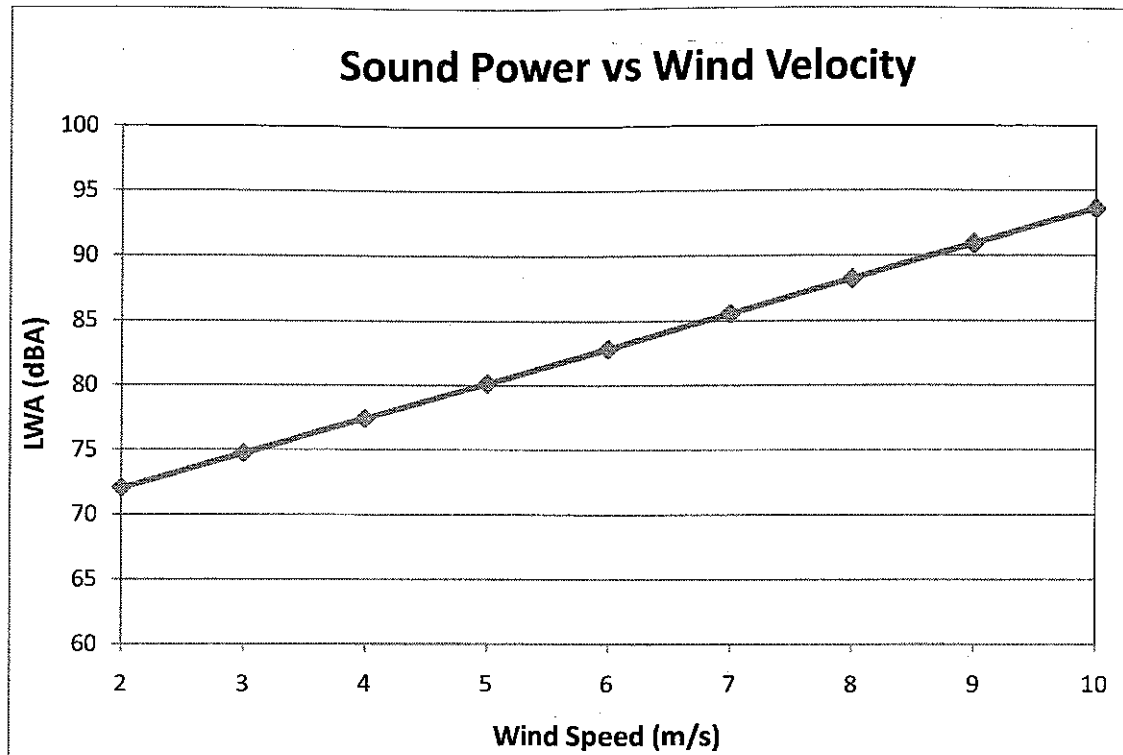


Figure 3: A-Weighted Sound Power Level as a function of nacelle height wind velocity.

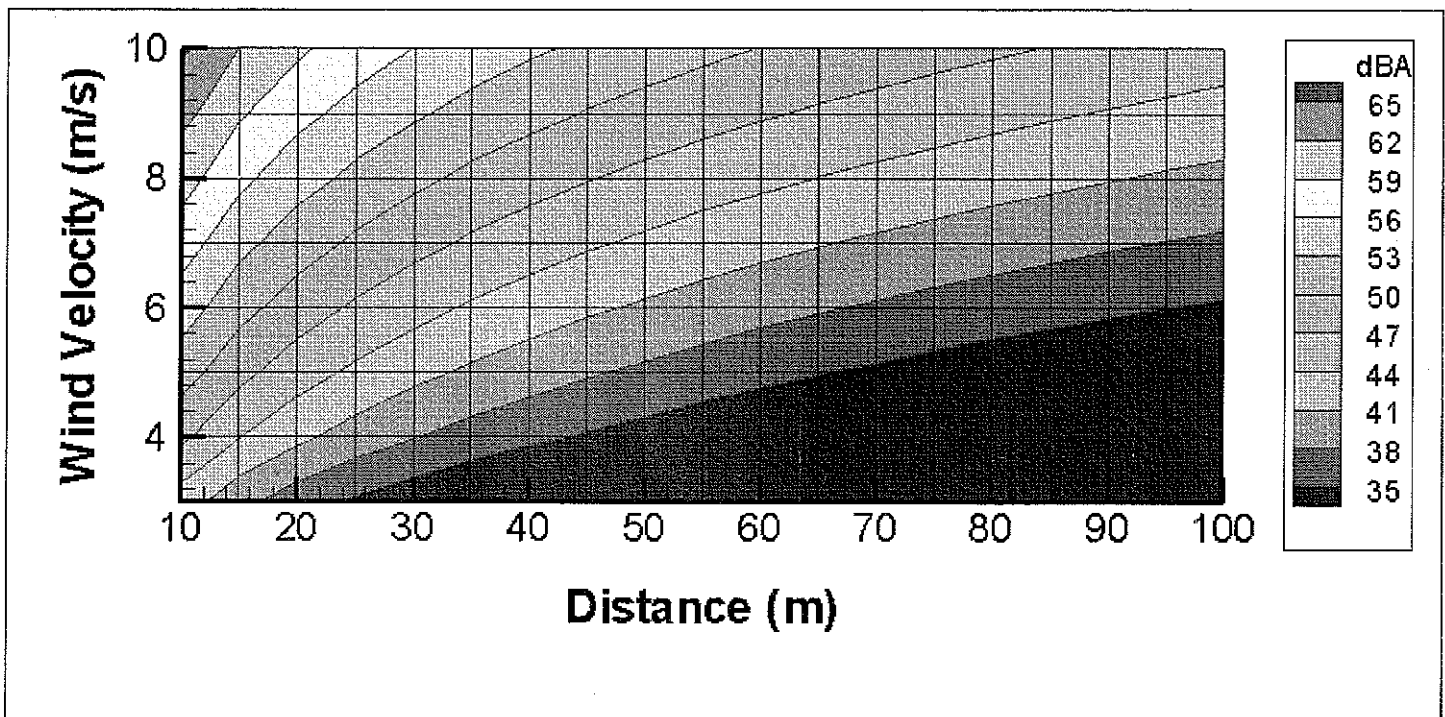
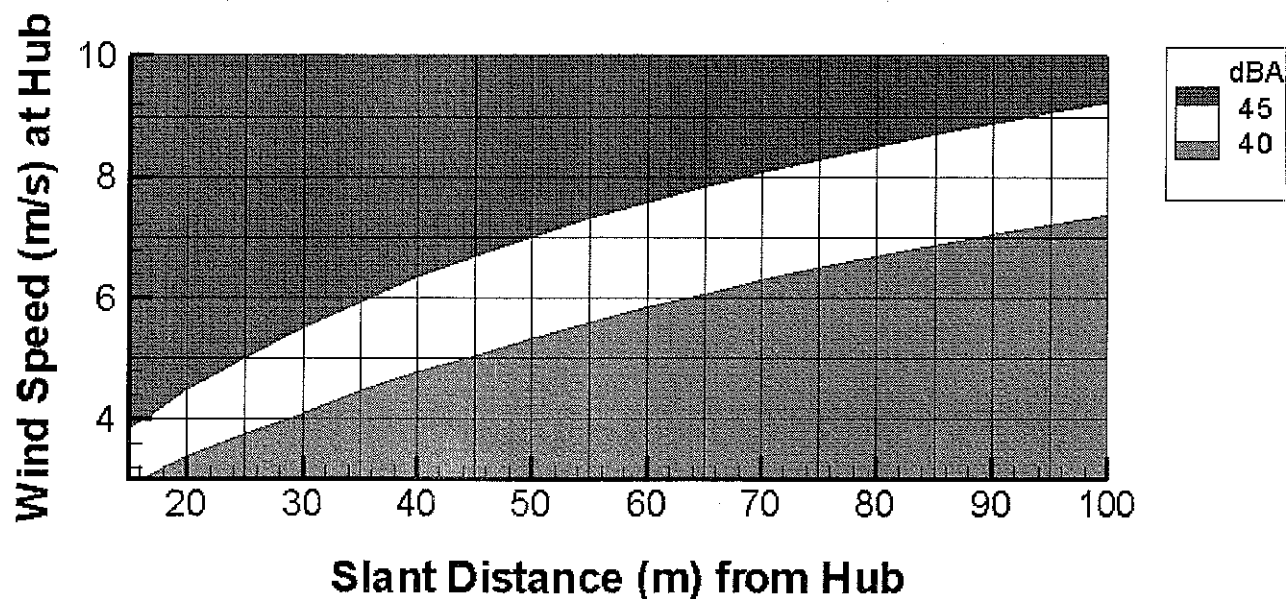


Figure 4: A-Weighted Sound Pressure Level as a function of wind velocity and distance from turbine

320120310P

Acoustic Noise Levels

Turbine Make:	C&F Green Energy	Model	CF50
NOISE EMISSION LEVEL			
Sound Power $L_{Wd,8m/s}$	89.7 dB(A)	Noise Slope (dB/m/s)	2.7
NOISE PENALTY			
NO			

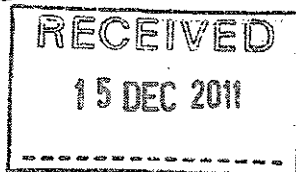


**C&F
Green Energy**

Iarrae Test Site, Galway

Issued by C&F Green Energy
September 2011

Appendix D – Ribble Valley Council Screening Opinion



320120310P



RIBBLE VALLEY BOROUGH COUNCIL

please ask for: Graeme Thorpe
direct line: 01200 414520
email: graeme.thorpe@ribblevalley.gov.uk
my ref:
your ref: 3/2011/0956/P
date: 12 December 2011

Council Offices
Church Walk, Clitheroe
Lancashire BB7 2RA

Tel: 01200 425111
Fax: 01200 414488
DX Clitheroe 15157
www.ribblevalley.gov.uk

Dear Mr Paul Mason,

RE – Request for a Screening Opinion under Regulation 5 of the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulation 2011.

Proposal: Proposed 50kW Wind Turbine on a 25m Mast.
Site Address: Land at Pasture House Farm, West Marton, Skipton, North Yorkshire, BD23 3UJ

I write in reply the above request received at our offices on the 15 November 2011. Following my assessment of the information provided in respect of the above development, I now write to inform you of the Local Planning Authority's formal screening opinion under the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011

I can confirm that the local planning authority is of the view that the development proposals fall within Section 3 (i) of Schedule 2 of the Regulations, Installations for the harnessing of wind power for energy production (wind farms).

On the basis of the limited information provided with your Screening Opinion request under Section 5 of the regulations, the Local Planning Authority have carried out a full screening opinion to ascertain whether there is a need for an Environmental Impact Assessment.

In assessing the applicable thresholds and criteria of Schedule 2, whilst the development proposed involves the installation of only ONE turbine, the hub height of the turbine will exceed 15 metres. This therefore requires an assessment of the proposal in relation to Schedule 3

The selection criteria for screening within Schedule 2 development considers that the following must be assessed,

1. Characteristics of development,
2. Location of development, and
3. Characteristics of the potential development

Having assessed the scheme in relation to the above, the Local Planning Authority have concluded that an Environmental Impact Assessment will not be necessary in relation to this proposal as the turbine will be,

- Over 600m away from the nearest residential property (other than the Applicants)

- A sufficient distance from the adjacent A O N B. so as not to be of visual detriment,
- A sufficient distance from the adjacent P R O W. so as not to be of visual detriment to users, and
- Will not adversely affect ecology in the nearby vicinity

Prior to the formal submission of a full application for the development, I would however like to bring your attention to the importance of the following relevant Local Plan Policies and the detailed information likely to be required with any such application.

The site in question lies within land designated as 'Open Countryside' within the Districtwide Local Plan, and as such Policy ENV3 is considered relevant. This Policy notes that *'In the open countryside outside the AONB and areas immediately adjacent to it, development will be required to be in keeping with the character of the landscape area and should reflect local vernacular, scale, style, features and building materials.'*

Policies ENV24, ENV25 and ENV26 are also relevant as they consider schemes for Renewable Energy and Wind Energy. Policy ENV24 states *'the Borough Council will support the development of renewable energy schemes provided it can be shown that such developments would not cause unacceptable harm'*, and Policy ENV25 states that *'in assessing proposals for renewable energy schemes, the Borough Council will have particular regard to the following issues,*

- i *The immediate and wider impact of the proposed development on the landscape; and AONB in particular the need to protect features and areas of natural, cultural, historic and archaeological interest;*
- ii *the measures that would be taken, during and after construction, to minimise the impact of the development on local land use and residential amenity;*
- iii *the local and wider benefits the proposal may bring, and*
- iv *the fact that certain renewable energy resources can only be harnessed where the resource occurs*

More specific to Wind Energy, Policy ENV26 states that *'The Borough Council will approve proposals for wind turbine generators providing:*

- i *the visual impact of the proposal on the wider landscape is justifiable;*
- ii *the proposal does not harm any wildlife habitat or area of historical or architectural importance;*
- iii *the degree of nuisance caused by noise and shadow flicker to nearby residential amenities, agricultural operations, recreational areas or the function of the countryside is minimal;*
- iv *the proposal does not interfere with electromagnetic signals;*
- v *the design, colour layout and scale of turbines and ancillary structures including access roads must be appropriate to the character of the area;*
- vi *connections to electrical grids and sub stations etc must be acceptable in the landscape setting;*
- vii *adequate restoration and after use provision must be made*
- viii *suitable parking facilities should be provided where appropriate.*

Development proposals within or close to the Area of Outstanding Natural Beauty, sites of special scientific interest, local nature reserves, or scheduled ancient monuments will not be allowed, unless:

- i *the proposal cannot be better located outside such statutory designated areas;*
- ii *the proposal is acceptable in environmental and landscape terms; and*

iii any adverse environmental impacts as far as practicable have been mitigated.

Bearing this in mind, the main guidance I can offer is that given the site may be visible from the Forest of Bowland Area of Outstanding Natural Beauty, the proposed siting of the turbine must be considered acceptable in environmental, visual and landscape terms, it must have minimal impact on users of the adjacent Public Rights of Way, the proposal must not harm any wildlife habitat and the design, colour and scale of the turbine and ancillary structures including access roads must be appropriate to the character of the area. As such, we recommend siting the turbine as close to the property/group of buildings to which the turbine will be associated with, and also recommend considering mitigating the visual impact of the turbine by additional planting. In most cases, a Phase One Habitat Survey will also help to identify the optimum site for the mast.

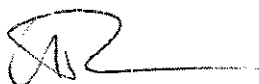
In order to form a visual assessment, I would also recommend submitting a Landscape Visual Assessment, with the key components of the assessment should include:

- a) Detailed description of the full extent of the proposed wind turbine works
- b) ~~Zone of Theoretical Visibility Map~~ - This should cover an area of up to 10km radius and show the zone of theoretical visibility (ZTV) of the proposed turbine at full height. Given the small scale of the turbine I do not think that it is necessary to do a hub height ZTV map.
- c) Visualisations - Approximately 8 photomontages from a range of viewpoints within a 3 – 4km radius of the proposed turbine. It is recommended that the selected viewpoints be agreed jointly with the local authorities. I am happy to advise on the suitability of viewpoints.
- d) Assessment of the site and wider landscape's sensitivity and capacity to wind energy development. The *Landscape Sensitivity to Wind Energy Development in Lancashire, February 2005*, study (Lancashire County Council) should be helpful for this work, and can be found at the following website address <http://www.lancashire.gov.uk/environment/landscape/landscapewind/index.asp>
- e) Assessment of impacts on landscape character, landscape value, landscape amenity and landscape fabric. Further guidance on this is available in the *Guidelines for Landscape and Visual Impact Assessment, 2002* (Institute for Environmental Assessment and the Landscape Institute). The County Council's landscape character assessment can be found at the following website address <http://www.lancashire.gov.uk/environment/landscape/landscapecharacass/cover.asp> and the Forest of Bowland AONB landscape character assessment http://www.forestofbowland.com/landscape_character should be referred to for this work.
- f) Assessment of visual impacts.
- g) Assessment of cumulative impacts with operational and consented wind energy development.
- h) Possible mitigation of impacts.
- i) Assessment of the proposals against the key tests of planning policy.

With regards to potential noise impact of the turbine, given the distance from the turbine to other residential properties there is no requirement to submit further information to that submitted with your screening opinion.

I trust that these comments are helpful, however should you wish to discuss the matter further please do not hesitate to contact me on the above direct line or e-mail address.

Yours sincerely,

A handwritten signature in black ink, appearing to be 'GT' followed by a long horizontal stroke.

GRAEME THORPE
SENIOR PLANNING OFFICER

Mr Paul Mason,
Windle Beech Winthrop Ltd,
Chartered Surveyors,
Skipton Auction Mart,
Gargrave Road,
SKIPTON BD23 1UD

320120310P

Appendix E – Renewable Energy Commitment Statement

Statement re policy of Amos Nelson regarding wind turbines

As an agricultural landlord, Amos Nelson has to give permission for the erection of any structures on its land or appliances such as P.V. cells on the roofs of its buildings. As these, by their nature tend to be controversial, we have given a lot of thought to developing a comprehensive policy for the estate on the installation of these.

We start from the assumption that it is the duty of an agricultural landlord to assist his tenants in achieving long term profitability for their holding, where such long term profitability is not achieved at the expense of the long term future of the estate or any unacceptable reduction in the amenities of any neighbours.

We believe that in the current climate government policies make it necessary to investigate the installation of wind turbines on productive dairy farms or farms where electricity makes up a significant part of the costs. Further we believe that turbines generating 50kw or more are necessary to make a worthwhile contribution to the economies of these farms. These have an overall height of around 35-42 metres to the tip of the blade and are the largest we are contemplating erecting. We are not at this stage considering the erection of wind turbines on any farms not using substantial amounts of electricity.

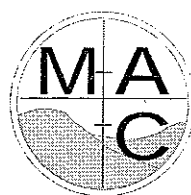
Moving to specifics, we have, on the estate, 5 farms that use substantial amounts of electricity in their operation. One of these does not have an acceptable site for either requisite wind speed or environmental acceptability, another has the wind speed but not at a point that would be acceptable environmentally. There remain 3 farms, where we believe, the installation of a turbine as described above should be acceptable. In these cases the installation of such a turbine would make a significant difference to the economic future of the farm and the estate without in our view causing unacceptable environmental pollution.

Southfield Farm is one of these. This is a dairy farm milking over 200 cows, with a large flock of sheep. This makes it a large consumer of electricity and, in our view, an ideal location for the provision of a renewable energy source.

320120310P

Appendix F – Archaeological Survey

**Walkover assessment
Pasture House Farm
West Marton
Skipton**



Meerstone
Archaeological
Consultancy

320120310P

**Walkover assessment
Pasture House Farm
West Marton
Skipton**

Report commissioned
by
Paul Mason
Windle Beech Winthrop

Prepared by Martin Roe
January 2012



Meerstone Archaeological Consultancy

Address: 1-3 Ashleigh Street, Halifax, HX3 6QZ

TEL : 01422 251237

email : meerstone@blueyonder.co.uk

Contents	Page
Non-technical summary	1
Introduction	1
Location	1
Aims and objectives of the evaluation	1
Methodology	2
Summary of Results	2
Conclusion	2
Recommendations	2
References	2
Photographs	5
 Figures	 Page
Figure 1 Location	1
Drawing 1 Site Plan	3
Drawing 2 GPS track of survey traverses	4
 Photographs	 Page
Photograph 1 Representative sample of domestic ware sherd found during the survey.	5
Photograph 2 View south from the centre of the field	6
Photograph 3 View north west from field boundary	7
Photograph 4 View north west from centre of the field. Area A is in the field corner below the arrow	8
Photograph 5 View north east from the centre of the field	9
 Appendix 1 Lancashire HER record PRN 3274	 10

Non-technical summary

This assessment consisted of an examination of a field north of Pasture House Farm which is the proposed site of a wind turbine.

No significant archaeological features were observed that would be adversely affecting by the development.

Introduction

This walk over survey was commissioned by Paul Mason, Windle Beech Winthrop to establish the presence or absence of archaeological features that may be affected by the proposed installation of a wind turbine and cable trench.

Location

Pasture House Farm, West Marton, Skipton BD23 3UJ

The area examined by this survey is a field located to the north and west of Pasture House Farm centred on grid reference SD 872 509 (3872 4509) with an area of 0.313ha

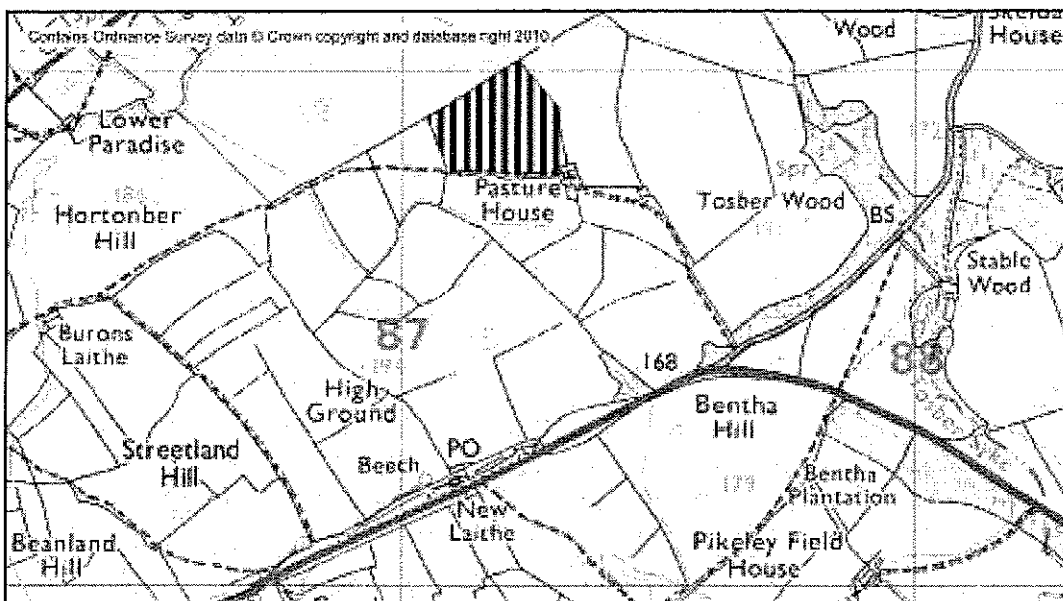


Figure 1 location

The topography of the area consists of low gently rolling hills formed by glacial drumlins. The underlying geology is glacial till overlying the Chatburn limestone Formation and Mudstones (BGS).

Aims and objectives of the evaluation

The purpose of this walk over survey was to establish the presence or absence of archaeological features that may be affected by the proposed installation of a wind turbine and cable trench. Lancashire HER record PRN 3274 (see appendix 1) suggested that earthworks had been identified in an adjacent field on an aerial photograph.

Methodology

This investigation, carried out on 25th January 2012, consisted of a walking assessment. The area was walked in a series of methodical traverses with an average separation of no more than 10 meters (see plan 2). During the survey the weather was dry and cloudy with good visibility.

The aim was to identify and note any earthworks present, any soil discolouration that may suggest the presence of archaeological features, any loose finds or material that may suggest the presence of buried archaeology.

General photographs of the site were also taken.

Summary of Results

The field has been fairly recently reseeded with grass probably after being harrowed. In the north-west corner of the field is an area of rough ground (marked A on plan 1) containing large stones, probably from field clearance and may have also been used at one time as a manure heap.

The harrowing and seeding has brought a range of material to the surface. The evidence from the edge of the field is that the harrowing was to a depth of around 20cm. Over most of the field there is evidence of small rounded stones and pebbles of a variety different rock types, exactly what would be expected from boulder clay soil.

No discernable any earthworks were found.

During the walkover no specifically stony areas that might have suggested evidence of ploughed out stone structures were observed. There were also no areas of discolouration or vegetation changes that may have suggested former structures or buried archaeology.

There were sparse, but widely distributed, sherds of domestic ceramic ware across the field dating from roughly the 19th century to early 20th century (see photograph 1). No areas of higher density were observed. No samples were collected.

Conclusion

Within the limitations of the methodology outlined above, the assessment found no evidence of significant archaeological material present in the field.

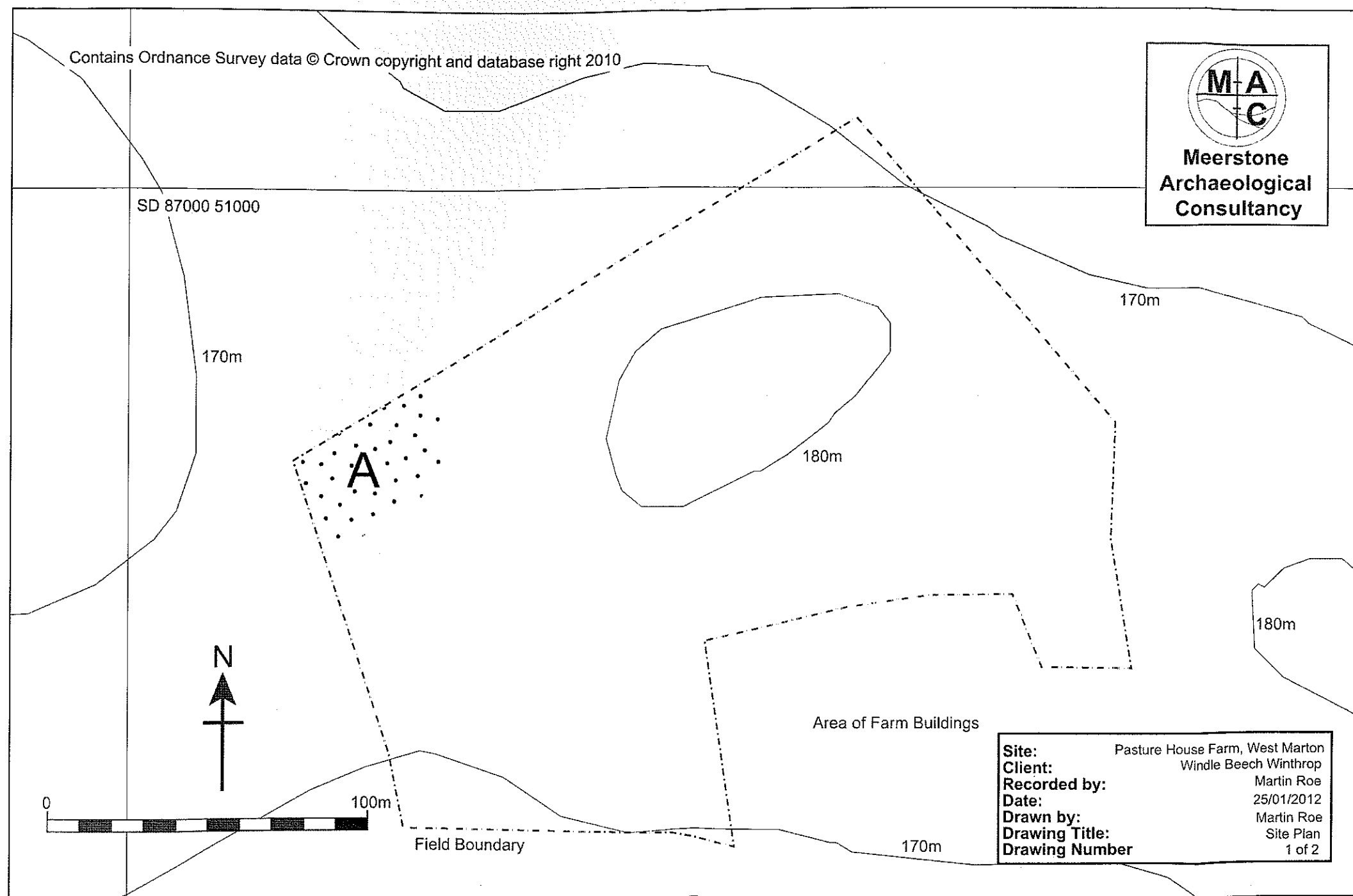
Recommendations

The results of this assessment suggest that the proposed development will not result in damage to archaeological deposits.

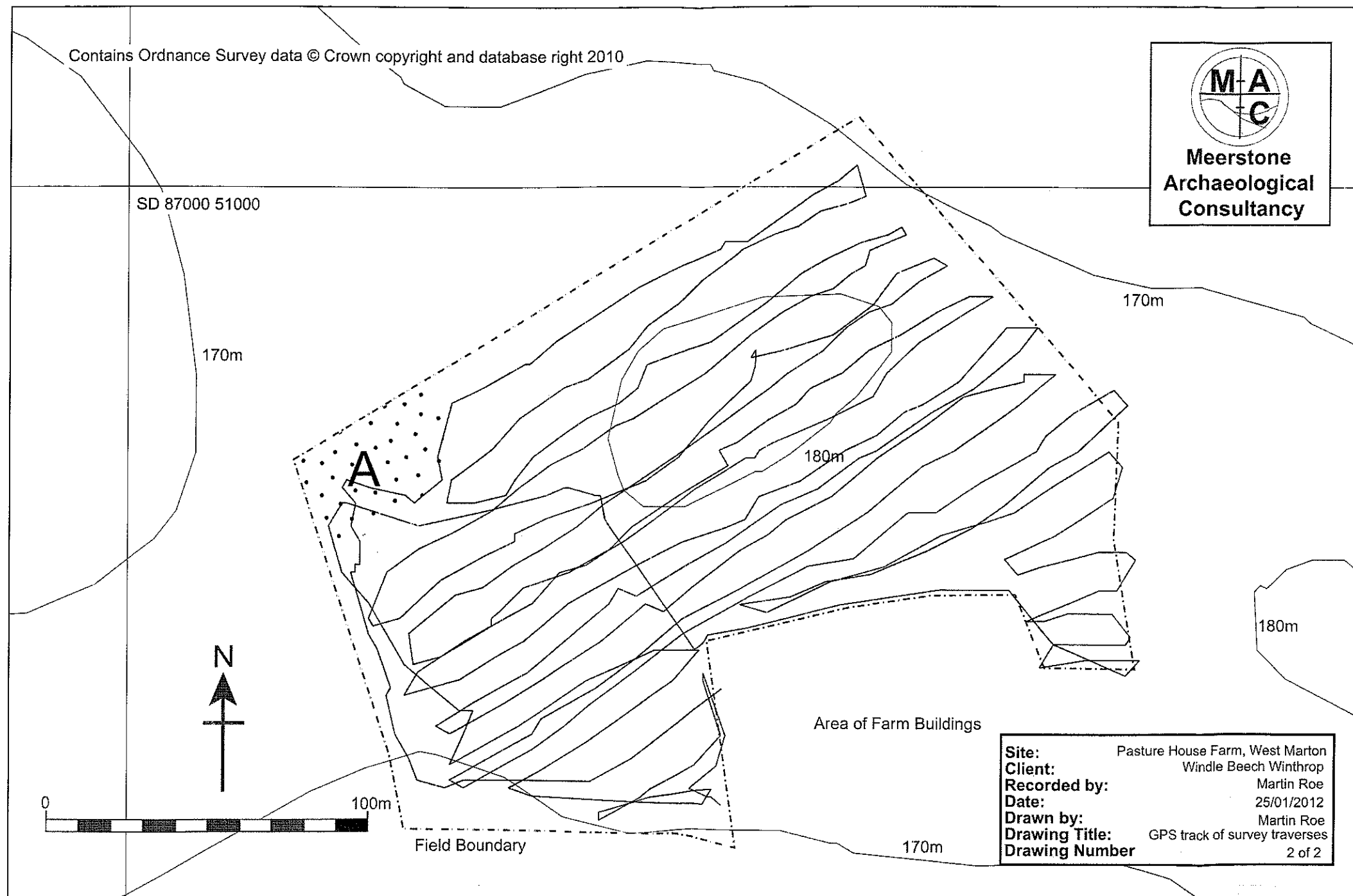
References

BGS 2012 Data retrieved from British Geological Survey Web Map Service
25/01/2012

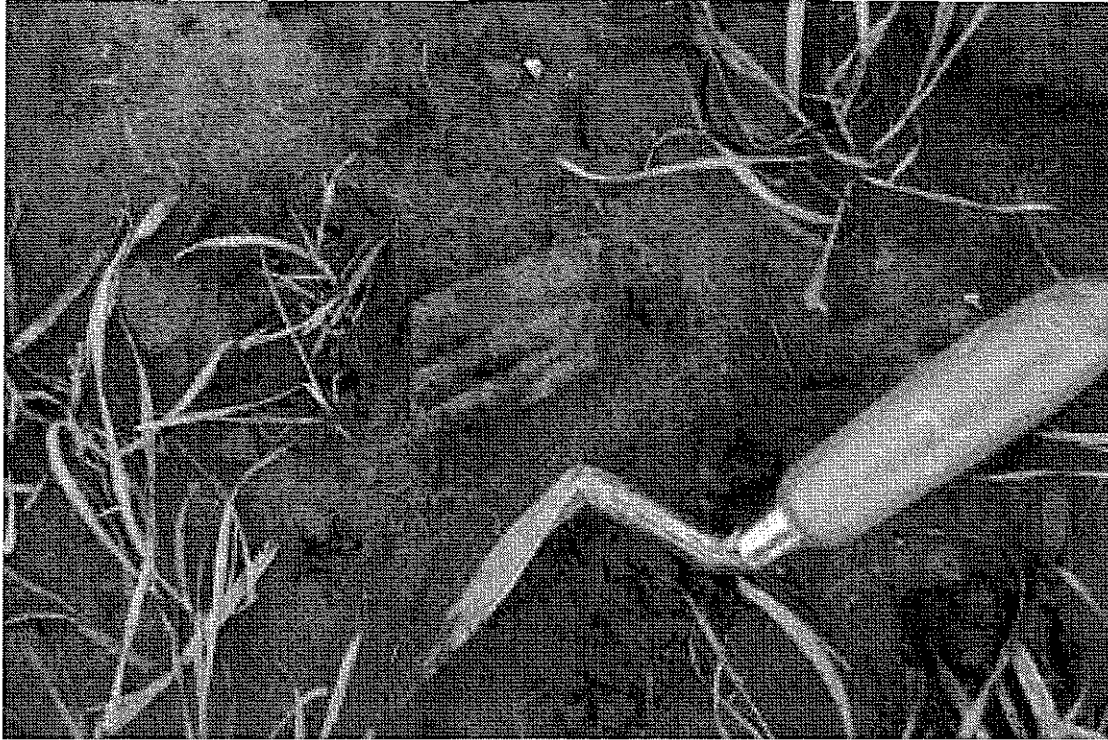
320120310P



320120310P



Appendix 4 photographs



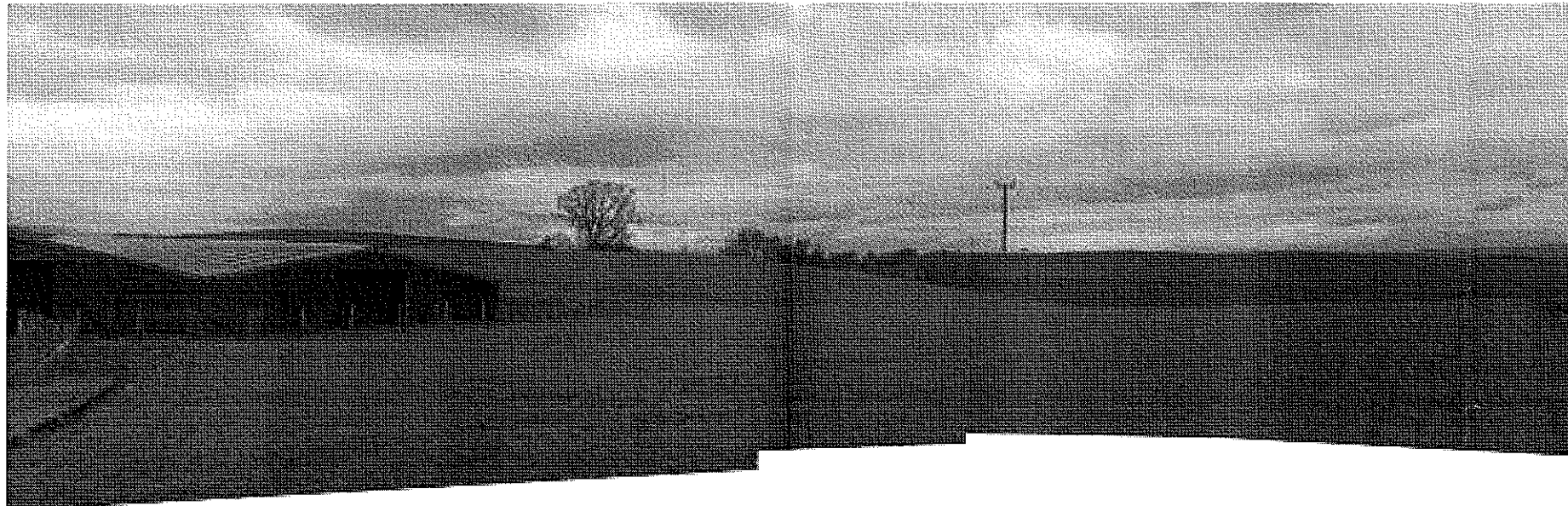
Photograph 1 Representative sample of domestic ware sherd found during the survey.

320120310P



Photograph 2 View south from the centre of the field

320120310P



Photograph 3 View north west from field boundary

320120310P



Photograph 4 View north west from centre of the field. Area A is in the field corner below the arrow.

320120310P



Photograph 5 View north east from the centre of the field

Appendix 1 Lancashire HER record PRN 3274

1:10,000 QUADREF SHEET		PARISH: 63 HORTON		DISTRICT: 2 RIBBLE VALLEY		COUNTY: LANCS		PRN: 3274	
N.G.R.: SD 8757 5081 (A/L)		STATUS:		GEOLOGY: [blank]		SOIL: [blank]		SOURCE: A/P	
SITE NAME AND MAIN FEATURES: [blank]		FORM: EARTHWORKS		TYPE: [blank]		CONDITION: [blank]		PERIOD: [blank]	
FIELD NO.: [blank]		LOCATION OF FINDS:		VISITED BY: [blank]		DATE: [blank]		LAND USE: [blank]	
CROSS REF.: MERIDIAN 12/6/62 - 146 62 011		THREAT:		DATE: [blank]		ACTION: [blank]		DATE: [blank]	
SITE OWNERSHIP:				LOCAL CONTACT:					
DESCRIPTION: FAINT E/WORKS - LOW BANKS - POSSIBLE WITH, MADE UP OF 3 FEATURES.				AUTHORITY: Q.E.L.					
FEATURE A APPEARS TO POSSESS A BANK AND OUTER DITCH AND, APART FROM ITS SMALL SIZE, CLOSELY RESEMBLES THE MANY OTHER SQUARE DITCHED CAMPS IN THE GENERAL VICINITY.									

320120310P

320120310P

Small Scale 50kW Wind Turbine

Pasture House Farm
Lancashire
BD23 3UJ

Landscape and Visual Impact Assessment



Windle
Beech
Winthrop

CHARTERED SURVEYORS

Windle Beech Winthrop Limited
Chartered Surveyors
Skipton Auction Mart
Gargrave Road
Skipton BD23 1UD
+44 01756 692 900
www.wbwsurveyors.co.uk

Contents

1. Introduction	3
2. Site Location	3
3. Topography	4
4. Landscape Designation	4
5. Scale of Landscape	5
6. Nature of Views	5
7. Landscape Quality	5
8. Visual Receptors	6
9. Viewpoint Analysis	6
Appendix A – Viewpoint Photo Montages	11

320120310P

1 Introduction

This report provides a visual assessment of the landscape surrounding the proposed installation of a wind turbine at Pasture House Farm. It is written to provide supplementary information to the planning application, design and access statement and detailed drawings.

The following sections describe the site and surrounding landscape in order to provide as much information as possible as to the visual impact of a wind turbine on the surrounding landscape. It is not a definitive document and should be read in conjunction with all the additional information supplied with the planning application. In order to achieve the aim of the report it is divided into the following sections:

Site Location

Contains information pertaining to the proposed site in terms of the location, height and the visibility from the surrounding area. Location information is provided from Landmark Information Group Ltd.

Topography

A description of the surrounding area and the main features that define the character of the landscape. The features of this are taken from the Joint Character Area taxonomy produced by Natural England.

Landscape Designation

Any designations and classifications of the site and surrounding landscape e.g. National Park, AONB.

Scale of Landscape

A description of the scale of the landscape that would be affected by the proposed development.

Nature of views

The outlook of the surrounding landscape and a description of what is visible within the area.

Landscape Quality

A statement about how prosperous and the condition of the surrounding landscape.

Visual Receptors

A list of all potential receptors that the proposed development will impact within the landscape area.

Viewpoint Analysis

A number of selected viewpoints representing various receptors with descriptions of the Existing View, Predicted View, Effect on Landscape and Visual Amenity

2 Site Location

The site location is on agricultural land 2.3km from the North Yorkshire village of West Marton and 1.6km from the Lancashire village Horton in Craven, to the North of Pasture House Farm. The site of the turbine is at location reference SD 8750 1992, 180m above mean sea level¹. Access to the site is from Pasture House Farm.

3 Landscape Character & Topography

The landscape character has been assessed using the NCA (previously JCA 33), Bowland Fringe & Pendle Hill and the key relevant characteristics of this area are listed below:-

- Predominantly Grade 3 agricultural land supporting permanent pasture, mostly improved, for dairy and livestock farming.
- Intensively managed landscape, with lush hay meadows in small- to medium-scale fields defined by well maintained hedgerows with mature hedgerow trees. Some rough grazing at higher elevations.
- Extensive semi-natural woodland, much of which is ancient, on both main valley bottoms, side valleys and ridges.
- Numerous water courses and bodies including the rivers Ribble, Hodder, Calder, Wyre, a number of reservoirs, and field ponds north of Preston.
- Small villages, hamlets and scattered farmsteads mostly in local stone are well integrated into the landscape and connected by a network of winding hedge-lined country lanes.
- Bowland Fells provide a dramatic backdrop to the east and north with extensive views possible from high ground across the Lancashire and Amounderness Plain and across open valley bottoms.

The topography of the land allows long distance views of the proposed site from surrounding areas, however many of these views project the turbine against a backdrop of the hills which significantly reduces the impact of the turbine.

Due to the site location there are very few short and medium viewpoints for this site. This was evident during the site visit with the authority planning officer.

4 Landscape Designation

The site does **not** fall within any of the following:

- National Park – The Yorkshire Dales national park lies 8km to the South East of the proposed site.
- AONB – The Forest of Bowland AONB lies 7.66km South West and West of the Proposed Site.
- A Local or National Nature Reserve
- Designated Green Belt

¹ Landmark Information Group Ltd, OS Explorer Ref OL21

5 Scale of Landscape

Fields with boundaries consisting of dry stone walls, hedgerows, wire fences and watercourses combined with the rolling nature of the landscape give a medium to small scale landscape. Elevated positions around the site give rise to a more open and expansive landscape.

6 Nature of Views

Due to the rolling nature of the surrounding countryside the views are limited from close range and often give rise to skyline backdrop. More expansive views across the site are available from elevated positions, however these more often result in the turbine projecting against the surrounding hills.

7 Landscape Quality

The landscape quality is generally high to medium, with the walled field boundaries providing a well defined and distinctive character. Farmland predominantly fertile meadow and pasture land with occasional arable land, interspersed with woodland plantations.

Lancashire County Council has set out that the sensitivity to Wind Energy Developments² at the site, (see Figure 1) is medium to high. This can be seen in the plan below as the area shaded blue and the proposed site circled red. The yellow area to the West is deemed to be an area of high sensitivity and encompasses a large amount of the Forest of Bowland AONB. Given that the proposed site is outside of the high sensitivity region it would logically point to the location being at a point where the land topography reduces the impact upon the AONB.

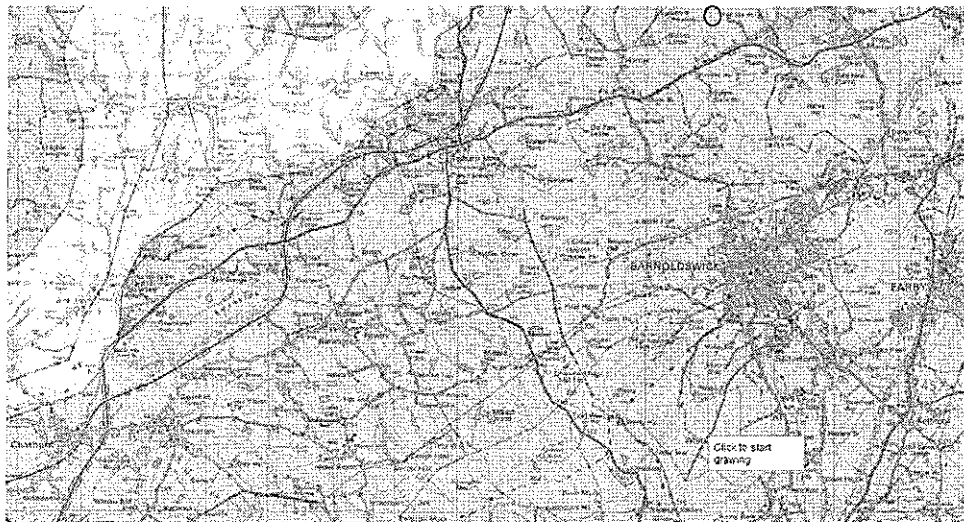


Figure 1

² MARIO MAPS, Lancashire County Council: <http://mario.lancashire.gov.uk/agsmario/>

8 Visual Receptors

The location of the proposed site lends itself to a number of receptors. The main groups are:

- Users of surrounding footpaths and bridleways.
- Various long distance viewpoints from surrounding elevated viewpoints.

9 Viewpoint Analysis

A viewpoint analysis has been carried out using a selection of key viewpoints that represent the various receptors, identified above, in order to assess the magnitude and visual impact of the proposed. The viewpoints have been chosen represent the locations where the turbine will be most visible and also points from surrounding elevated and long range locations to demonstrate the effect of the turbine on the landscape and amenity.

The information is presented as a series of photos from various locations showing the view of proposed turbine geometrically superimposed and presented as a photo montage. This has been carried out in accordance with the following guidance and the impacts assessed accordingly.

- *Landscape Character Assessment Guidance for England and Scotland (2002), Countryside Agency and Scottish Natural Heritage.*
- *Guidelines for Landscape and Visual Impact Assessment (2002), Landscape Institute and Institute of Environmental Management and Assessment.*

The plan shown in Appendix A shows the location of the various viewpoints.

320120310P

Viewpoint 1

The location of Viewpoint 1 is taken from the LCC footpath FP17 which passes through Pasture House Farm. The Viewpoint is located at E:387081, N:450806 at a position below the proposed site, 172m above mean sea level. The Viewpoint is 135m from the proposed site.

Landscape Impact:

The current view towards the proposed site is in a north easterly direction. The immediate foreground is of hedge and fence line, the mid-ground is of open agricultural land sloping up towards the proposed site and the background is of the proposed site set against a skyline backdrop. The character of this Viewpoint is of rolling agricultural land with views in this direction severely restricted by the rolling nature of the hills that the turbine is sited upon. As the landscape from this Viewpoint is largely agricultural a wind turbine would normally have a significant impact on this landscape, however given the proximity of the turbine to the modern developed farmstead and the small scale nature of such a wind turbine, the impact is reduced to moderate.

Visual Impact:

The predicted view is illustrated by the photo montage visualisation in Appendix A (DN (PH) – VPA, Viewpoint 1). The proposed turbine at 25m high projects against the skyline backdrop and will represent a substantial change from this Viewpoint for footpath users walking in an easterly direction. This is mitigated somewhat by the presence of the large developed farmstead and its proximity and the impact will be further reduced if a colour, such as a matt white finish, was used for the tower heads and fins. The main receptors from this viewpoint are footpath users of LCC FP17 and this turbine will only dominate their view for a short length before they pass through into the farmyard and beyond the turbine.

Viewpoint 2

The location of Viewpoint 2 is taken from NYCC footpath 05.32/2/1 in the Martons Parish to the west of Marton Scar, at the edge of Scar Road. The location of Viewpoint 2 is at E:388036, N:451529 at a position above the proposed site of 195m above mean sea level. The Viewpoint is 1070m from the proposed site.

Landscape Impact:

The current view towards the proposed site is in a West South Westerly direction. The immediate foreground is of open agricultural land and the mid-ground is also of agricultural land lined with fences and dry stone walls and the background is of the proposed site projecting against Yarlside Hill. The character of the landscape from this viewpoint is open rolling agricultural land with long distance views across to surrounding hills. As the landscape from this viewpoint is largely agricultural and the wind turbine would normally have a significant impact on the landscape, however given the scale of the turbine and the distance from this viewpoint and the presence of several lines of mature trees, the impact is very much reduced in terms of the prominence of the turbine within the landscape.

Visual Impact:

The predicted view is illustrated by the photo montage visualisation in Appendix A DN (PH) – VPA, Viewpoint 2). The proposed turbine at 25m high projects against the distant fells in the background and therefore represents a moderate magnitude of change from this viewpoint. The presence of several lines of mature trees helps reduce the prominent impact of the structure within the landscape and given the distance and scale of the turbine this impact is reduced further. Therefore the visual impact is assessed as moderate from this viewpoint. The main receptors from this viewpoint will be road users of Scar Road and footpath users of footpath 05.32/2/1 but as the site is perpendicular to this footpath and road it will not dominate the eye line of any of these users.

Viewpoint 3

Viewpoint 3 has been selected as it sits close but not within the Forest of Bowland AONB. The viewpoint is taken from Howgill Lane close to LCC footpath FP8 which passes across and adjacent to Howgill Lane. The viewpoint position is at E:384004, N:446362 at a height above proposed site of 210m above mean sea level. This viewpoint is 520m from the proposed site.

Landscape Impact:

The current view towards the proposed site is in a North North Easterly direction. The immediate foreground is of open agricultural land lined with mature trees. The mid-ground is of rolling agricultural land interspersed with significant tree lines and lines of telegraph poles. The background is of the proposed site projecting against the hills of the Yorkshire Dales National Park and beyond. The character of this landscape is of vast open rolling agricultural land with long distance views to surrounding hills. As the landscape from this viewpoint is largely agricultural, a wind turbine normally a significant impact on the landscape. However, given the scale of the turbine and the distance from this viewpoint the impact is significantly reduced to moderate or even neutral. In certain lights and visibility conditions it will not be possible to see the wind turbine at all from this viewpoint.

Visual Impact:

The predicted view is illustrated by the photo montage visualisation at Appendix A DN (PH) – VPA, Viewpoint 3). The proposed turbine at 25m high projects against the distant fells in the background to the site and therefore represents a moderate change from this viewpoint especially given the scale of the turbine. The main receptors from this viewpoint will be road users of Howgill Lane and also recreational footpath users using the footpath LCC FP8. These receptors will need to be travelling in an easterly direction for the turbine to be visible and given the tree lined nature of the walls and fences the turbine will not dominate views from this viewpoint.

Viewpoint 4

The location of viewpoint 6 is on the roadside of the Carleton to Colne Road at the head of NYCC Footpath 05.16/12/1 in the parish of Elslack. The viewpoint position is at E:393926, N:447216 at a height above the proposed site of 340 metres above mean sea level. The viewpoint is 5.18 kilometres from the proposed site and is taken in a North Westerly direction.

Landscape Impact:

The immediate foreground is of rough grazed heather moorland on Elslack and Thornton Moor. The mid-ground is of the proposed site set in amongst rolling agricultural land lined with dry stone walls encompassing scattered farmsteads and various woodlands. The background is a panoramic view across the fells of The Forest of Bowland, Ingelborough and Malham Moor. The character of the landscape from this viewpoint is of vast open rolling agricultural countryside and therefore a Wind Turbine would normally be deemed to have a significant magnitude of change on the landscape. However due to the scale of the Turbine, the fact that it does not project against the skyline and the distance from the viewpoint, the Turbine's impact on the landscape from this viewpoint could be deemed to be moderate/negligible.

Visual Impact:

The predictive view is illustrated by photo montage visualisation in Appendix A (DN (PH) – VPA, Viewpoint 4). The proposed Turbine at 25 metres tall projects against the surrounding hills and given the range and scale of the Turbine represents a negligible change to this view. The main receptors from this viewpoint would be road users of the Carleton to Colne Road and recreational users of the adjacent footpaths but specifically the NYCC Footpath 05.41/12/1.

SUMMARY

The proposed site lends itself readily to the use of renewable wind energy. As is the nature of small scale wind developments the sites are required to be elevated. Thus the proposed turbine projects against the skyline and is visible from a number of surrounding viewpoints.

Other long distance views have been provided from the surrounding hills and the impact of the turbine demonstrated from these viewpoints. Finally, some nearby viewpoints have been considered in terms of local road users using the network of roads around Southfield Farm.

Given the elevated nature of the site and the rolling nature of the surrounding countryside, the turbine has the most significant impact on the landscape and visual amenity at close range. Mid range views set the turbine against surrounding land backdrop and it is only from further elevated positions that the turbine becomes visible. At these long distances the impact is significantly reduced due to the size of the turbine.

The location is also on the edge of the industrial town of Barnoldswick which reduces the impact of the proposed turbine on the surrounding landscape.

It is suggested that the optimum colour to mitigate any visual effects would be a galvanised tower with matt grey hub, tail and fins for the remainder of the turbine. This would reduce the impact against on the skyline backdrops and also when the turbine projects against surrounding hillsides.

320120310P

Appendix A – Viewpoint Photo Montages

320120310P



PHOTO MONTAGE SPECIFICATION

Focal Length: 42mm

Range: 135m Direction: NE

Height Above Ground: 1.6m

Date Taken: 6th March 2012

Camera: Olympus EPL112.3mp

Lens: m-Zuiko Digital 14-42mm

Viewing Distance on A3: 500mm

wbw

Windle
Beech
Winthrop

Dwg No.: DN (PH) - VPA

Title: Viewpoint Analysis
Viewpoint 1

Range: 135m Direction: NE

Date: 20th March 2012

Produced by: P.Mason

Issue Number: 1

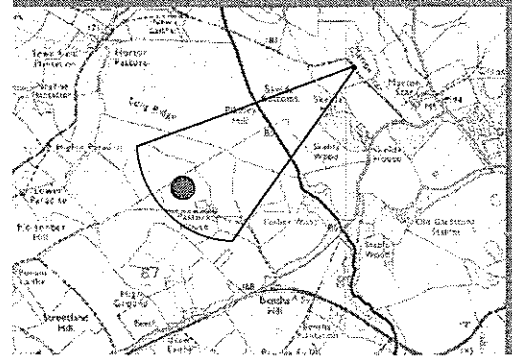
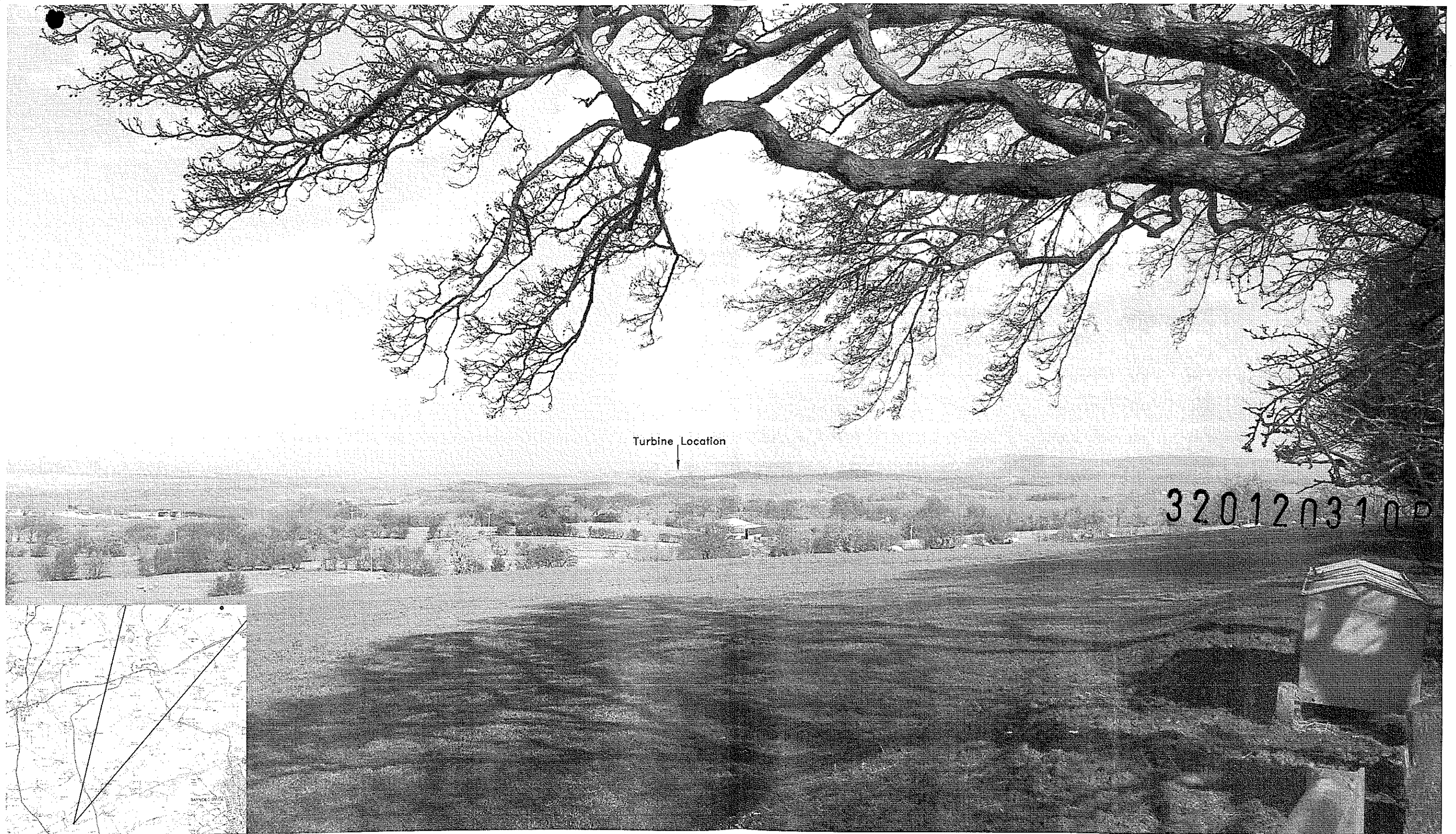


PHOTO MONTAGE SPECIFICATION	
Focal Length:	42mm
Range:	1070m
Direction:	WSW
Height Above Ground:	1.6m
Date Taken:	6th March 2012
Camera:	Olympus EPL112.3mp
Lens:	m-Zulko Digital 14-42mm
Viewing Distance on A3:	500mm

wbw Windle Beech Winthrop	
Dwg No.: DN (PH) - VPA	
Title: Viewpoint Analysis Viewpoint 2	
Range:	1070m
Direction:	WSW
Date:	20th March 2012
Produced by: P.Mason	
Issue Number: 1	



Turbine Location

320120310P

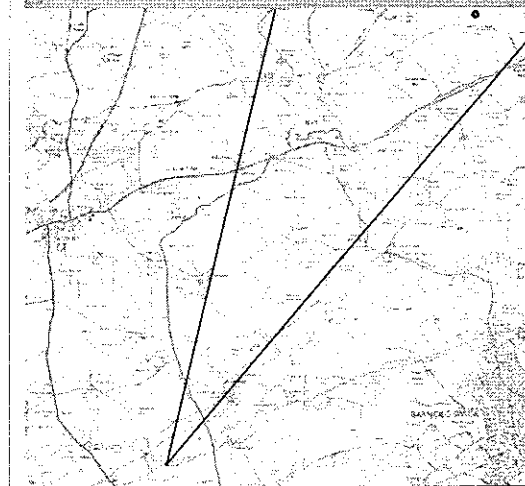
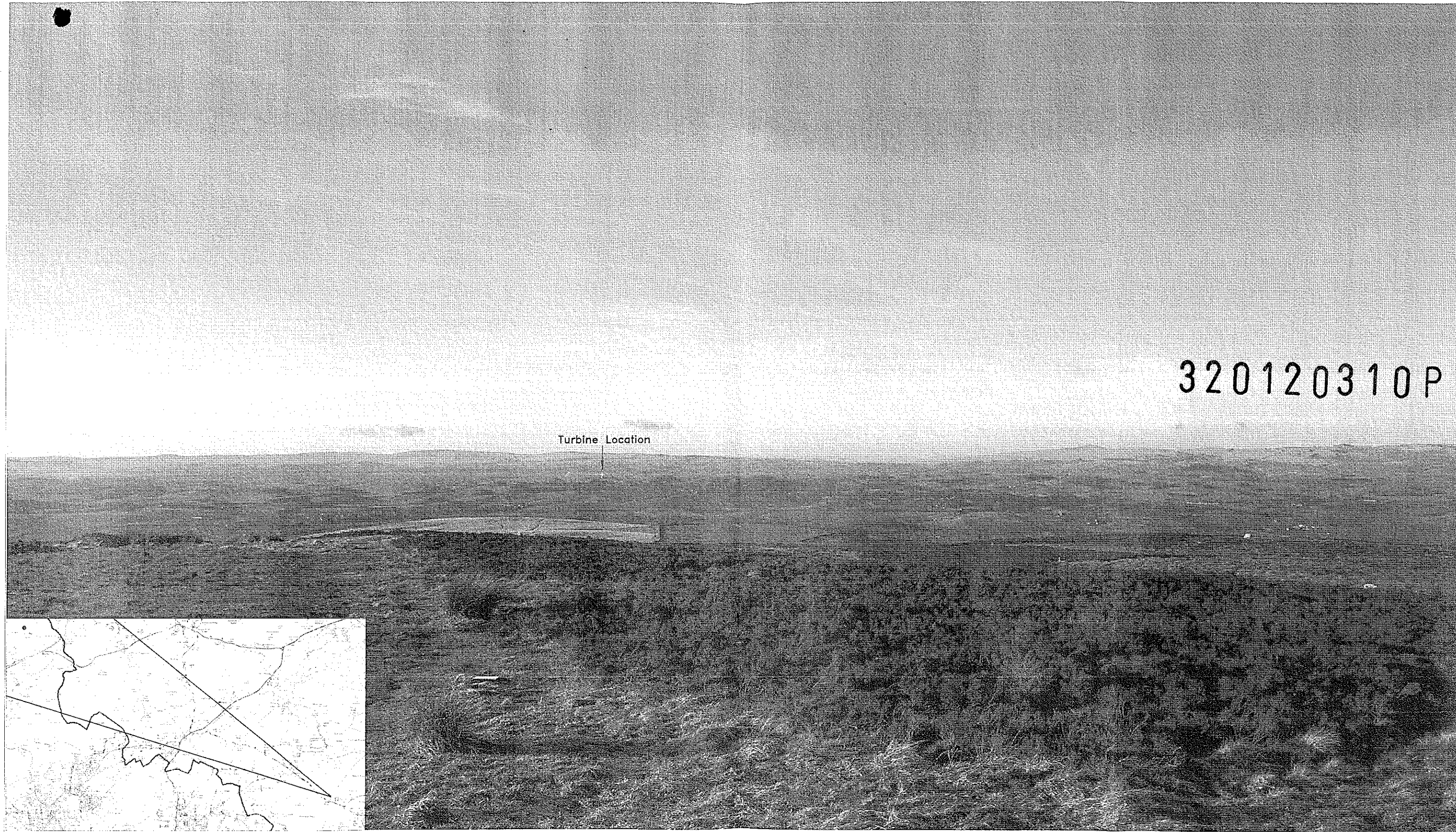


PHOTO MONTAGE SPECIFICATION	
Focal Length:	42mm
Range:	5520m
Direction:	NNE
Height Above Ground:	1.6m
Date Taken:	6th March 2012
Camera:	Olympus EPL112.3mp
Lens:	m-Zuiko Digital 14-42mm
Viewing Distance on A3:	500mm

wbw Windle Beech Winthrop	
Dwg No.: DN (PH) -- VPA	
Title: Viewpoint Analysis Viewpoint 3	
Range:	5520m
Direction:	NNE
Date:	20th March 2012
Produced by: P.Mason	
Issue Number: 1	



320120310P

Turbine Location

PHOTO MONTAGE SPECIFICATION	
Focal Length:	42mm
Height Above Ground:	1.6m
Date Taken:	6th March 2012
Camera:	Olympus EPL112.3mp
Lens:	m-Zuiko Digital 14-42mm
Viewing Distance on A3:	500mm

wbw Windle Beech Winthrop	
Dwg No.: DN (PH) - VPA	
Title: Viewpoint Analysis Viewpoint 4	
Range: 7700m	Direction: WNW
Date: 20th March 2012	
Produced by: P.Mason	
Issue Number: 1	