



RIBBLE VALLEY
BOROUGH COUNCIL

20 JAN 2012

For office use only

Application No: 320120060P

Date received

Fee paid £

Receipt No:

Council Offices, Church Walk, Clitheroe, Lancashire, BB7 2RA tel: 01200 425111 www.ribblevalley.gov.uk

Application for Planning Permission. Town and Country Planning Act 1990

You can complete and submit this form electronically via the Planning Portal by visiting www.planningportal.gov.uk/apply

Publication of applications on planning authority websites

Please note that the information provided on this application form and in supporting documents may be published on the Authority's website. If you require any further clarification, please contact the Authority's planning department.

Please complete using block capitals and black ink

It is important that you read the accompanying guidance notes as incorrect completion will delay the processing of your application

1. Applicant Name and Address

Title: MR First name: M.
Last name: BRISTOL
Company (optional):
Unit: House number: House suffix:
House name: CRAWSHAW FARM
Address 1: NEWTON IN BOWLAND
Address 2:
Address 3:
Town: CLITHEROE
County:
Country:
Postcode: BB7 3EE

2. Agent Name and Address

Title: First name:
Last name:
Company (optional): V9 ENERGY LTD.
Unit: House number: House suffix:
House name: WATERSIDE FARM
Address 1: GLASGOW ROAD
Address 2:
Address 3:
Town: GALSTON
County:
Country:
Postcode: KA4 8PB

3. Description of the Proposal

Please describe the proposed development, including any change of use:

PROPOSED ERECTION OF A 25 METRE HIGH WIND TURBINE
(29.25m TO BLADE TIP) - PEAK POWER OF 12 KW

Has the building, work or change of use already started?

☐ Yes

☒ No

If Yes, please state the date when building,
work or use were started (DD/MM/YYYY):

(date must be pre-application submission)

Has the building, work or change of use been completed?

☐ Yes

☒ No

If Yes, please state the date when the building, work
or change of use was completed: (DD/MM/YYYY):

(date must be pre-application submission)

4. Site Address Details

Please provide the full postal address of the application site

Unit: House number: House suffix:

House name:

Address 1:

Address 2:

Address 3:

Town:

County:

Postcode (optional):

Description of location or a grid reference (must be completed if postcode is not known):

Easting: Northing:

Description:

5. Pre-application Advice

Has assistance or prior advice been sought from the local authority about this application? ☒ Yes ☐ No

If Yes, please complete the following information about the advice you were given (This will help the authority to deal with this application more efficiently)

Please tick if the full contact details are not known, and then complete as much as possible: ☐

Officer name:

Reference:

Date (DD/MM/YYYY):
(must be pre-application submission)

Details of pre-application advice received?

6. Pedestrian and Vehicle Access, Roads and Rights of Way

Is a new or altered vehicle access proposed to or from the public highway? ☐ Yes ☒ No

Is a new or altered pedestrian access proposed to or from the public highway? ☐ Yes ☒ No

Are there any new public roads to be provided within the site? ☐ Yes ☒ No

Are there any new public rights of way to be provided within or adjacent to the site? ☐ Yes ☒ No

Do the proposals require any diversions /extinguishments and/or creation of rights of way? ☐ Yes ☒ No

If you answered Yes to any of the above questions, please show details on your plans/drawings and state the reference of the plan (s)/drawings(s)

7. Waste Storage and Collection

Do the plans incorporate areas to store and aid the collection of waste? ☐ Yes ☒ No

If Yes, please provide details:

Have arrangements been made for the separate storage and collection of recyclable waste? ☐ Yes ☒ No

If Yes, please provide details:

8. Authority Employee / Member

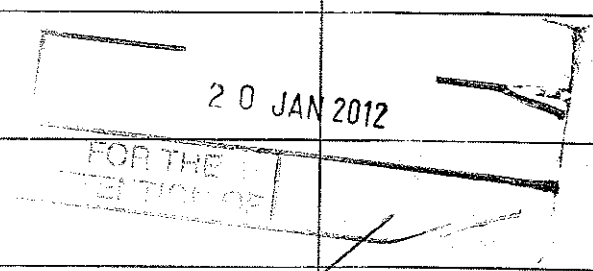
With respect to the Authority, I am: (a) a member of staff
(b) an elected member
(c) related to a member of staff
(d) related to an elected member

Do any of these statements apply to you? ☐ Yes ☒ No

If Yes, please provide details of the name, relationship and role

9. Materials

If applicable, please state what materials are to be used externally. Include type, colour and name for each material:

	Existing (where applicable)	Proposed	Not applicable	Don't Know
Walls	 20 JAN 2012 FOR THE EDITION OF		☐	☐
Roof			☐	☐
Windows			☐	☐
Doors			☐	☐
Boundary treatments (e.g. fences, walls)			☐	☐
Vehicle access and hard-standing			☐	☐
Lighting			☐	☐
Others (please specify)		GALVANISED STEEL TOWER WHITE TURBINE HEAD	☐	☐

Are you supplying additional information on submitted plan(s)/drawing(s)/design and access statement?

☒ Yes

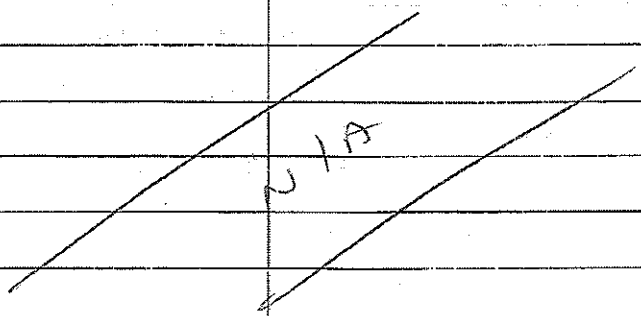
☐ No

If Yes, please state references for the plan(s)/drawing(s)/design and access statement:

GENERAL MANUFACTURERS TECHNICAL DATA

10. Vehicle Parking

Please provide information on the existing and proposed number of on-site parking spaces:

Type of Vehicle	Total Existing	Total proposed (including spaces retained)	Difference in spaces
Cars	 20 JAN 2012 FOR THE EDITION OF		
Light goods vehicles/ public carrier vehicles			
Motorcycles			
Disability spaces			
Cycle spaces			
Other (e.g. Bus)			
Other (e.g. Bus)			

11. Foul Sewage

Please state how foul sewage is to be disposed of:

- ☐ Mains sewer ☐ Cess pit
☐ Septic tank ☐ Other
☐ Package treatment plant

Are you proposing to connect to the existing drainage system? ☐ Yes ☐ No

If Yes, please include the details of the existing system on the application drawings and state references for the plan(s)/drawing(s):

N/A

12. Assessment of Flood Risk

Is the site within an area at risk of flooding? (Refer to the Environment Agency's Flood Map showing flood zones 2 and 3 and consult Environment Agency standing advice and your local planning authority requirements for information as necessary)

☐ Yes ☒ No

If Yes, you will need to submit a Flood Risk Assessment to consider the risk to the proposed site

Is your proposal within 20 metres of a watercourse (e.g. river, stream or beck)? ☐ Yes ☒ No

Will the proposal increase the flood risk elsewhere? ☐ Yes ☒ No

How will surface water be disposed of?

- ☐ Sustainable drainage system ☐ Existing watercourse
☐ Soakaway ☐ Pond/lake
☐ Main sewer

N/A

13. Biodiversity and Geological Conservation

To assist in answering the following questions refer to the guidance notes for further information on when there is a reasonable likelihood that any important biodiversity or geological conservation features may be present or nearby and whether they are likely to be affected by your proposals

Having referred to the guidance notes, is there a reasonable likelihood of the following being affected adversely or conserved and enhanced within the application site, or on land adjacent to or near the application site?

a) Protected and priority species:

- ☐ Yes, on the development site
☐ Yes, on land adjacent to or near the proposed development
☒ No

b) Designated sites, important habitats or other biodiversity features:

- ☐ Yes, on the development site
☐ Yes, on land adjacent to or near the proposed development
☒ No

c) Features of geological conservation importance:

- ☐ Yes, on the development site
☐ Yes, on land adjacent to or near the proposed development
☒ No

14. Existing Use

Please describe the current use of the site:

OPEN FARMLAND

Is the site currently vacant? ☐ Yes ☒ No

If Yes, please describe the last use of the site:

When did this use end (if known)?

DD/MM/YYYY

(date where known may be approximate)

Does the proposal involve any of the following?
If yes, you will need to submit an appropriate contamination assessment with your application

Land which is known to be contaminated? ☐ Yes ☒ No

Land where contamination is suspected for all or part of the site? ☐ Yes ☒ No

A proposed use that would be particularly vulnerable to the presence of contamination? ☐ Yes ☒ No

15. Trees and Hedges

Are there trees or hedges on the proposed development site? ☐ Yes ☒ No

And/or: Are there trees or hedges on land adjacent to the proposed development site that could influence the development or might be important as part of the local landscape character? ☐ Yes ☒ No

If Yes to either or both of the above, you may need to provide a full Tree Survey, at the discretion of your local planning authority. If a Tree Survey is required, this and the accompanying plan should be submitted alongside your application. Your local planning authority should make clear on its website what the survey should contain, in accordance with the current 'BS5837: Trees in relation to construction - Recommendations'.

16. Trade Effluent

Does the proposal involve the need to dispose of trade effluents or waste? ☐ Yes ☒ No

If Yes, please describe the nature, volume and means of disposal of trade effluents or waste

17. Residential Units (Including Conversion)

Does your proposal include the gain, loss or change of use of residential units?
If Yes, please complete details of the changes in the tables below:

☐ Yes☒ No**Proposed Housing****Existing Housing**

Market Housing	Not known	Number of Bedrooms					Total
		1	2	3	4+	Unknown	
Houses	☐						
Flats and maisonettes	☐						
Live-work units	☐						
Cluster flats	☐						
Sheltered housing	☐						
Bedsit/studios	☐						
Unknown type	☐						
Totals (a+b+c+d+e+f+g)=							

Market Housing	Not known	Number of Bedrooms					Total
		1	2	3	4+	Unknown	
Houses	☐						
Flats and maisonettes	☐						
Live-work units	☐						
Cluster flats	☐						
Sheltered housing	☐						
Bedsit/studios	☐						
Unknown type	☐						
Totals (a+b+c+d+e+f+g)=							

Social Rented	Not known	Number of Bedrooms					Total
		1	2	3	4+	Unknown	
Houses	☐						
Flats and maisonettes	☐						
Live-work units	☐						
Cluster flats	☐						
Sheltered housing	☐						
Bedsit/studios	☐						
Unknown type	☐						
Totals (a+b+c+d+e+f+g)=							

Social Rented	Not known	Number of Bedrooms					Total
		1	2	3	4+	Unknown	
Houses	☐						
Flats and maisonettes	☐						
Live-work units	☐						
Cluster flats	☐						
Sheltered housing	☐						
Bedsit/studios	☐						
Unknown type	☐						
Totals (a+b+c+d+e+f+g)=							

Intermediate	Not known	Number of Bedrooms					Total
		1	2	3	4+	Unknown	
Houses	☐						
Flats and maisonettes	☐						
Live-work units	☐						
Cluster flats	☐						
Sheltered housing	☐						
Bedsit/studios	☐						
Unknown type	☐						
Totals (a+b+c+d+e+f+g)=							

Intermediate	Not known	Number of Bedrooms					Total
		1	2	3	4+	Unknown	
Houses	☐						
Flats and maisonettes	☐						
Live-work units	☐						
Cluster flats	☐						
Sheltered housing	☐						
Bedsit/studios	☐						
Unknown type	☐						
Totals (a+b+c+d+e+f+g)=							

Key worker	Not known	Number of Bedrooms					Total
		1	2	3	4+	Unknown	
Houses	☐						
Flats and maisonettes	☐						
Live-work units	☐						
Cluster flats	☐						
Sheltered housing	☐						
Bedsit/studios	☐						
Unknown type	☐						
Totals (a+b+c+d+e+f+g)=							

Key worker	Not known	Number of Bedrooms					Total
		1	2	3	4+	Unknown	
Houses	☐						
Flats and maisonettes	☐						
Live-work units	☐						
Cluster flats	☐						
Sheltered housing	☐						
Bedsit/studios	☐						
Unknown type	☐						
Totals (a+b+c+d+e+f+g)=							

Total proposed residential units (A+B+C+D)=**Total existing residential units (E+F+G+H)=****TOTAL NET GAIN or LOSS of RESIDENTIAL UNITS (Proposed Housing Grand Total - Existing Housing Grand Total):**

18. All Types of Development: Non-residential Floorspace

Does your proposal involve the loss, gain or change of use of non-residential floorspace?

☐ Yes☒ No

If you have answered Yes to the question above please add details in the following table:

Use class/type of use	Not applicable	Existing gross internal floorspace (square metres)	Gross internal floorspace to be lost by change of use or demolition (square metres)	Total gross internal floorspace proposed (including change of use)(square metres)	Net additional gross internal floorspace following development (square metres)
A1					
Shops	☐				
Net tradable area:	☐				
A2					
Financial and professional services	☐				
A3					
Restaurants and cafes	☐				
A4					
Drinking establishments	☐				
A5					
Hot food takeaways	☐				
B1 (a)					
Office (other than A2)	☐				
B1 (b)					
Research and development	☐				
B1 (c)					
Light industrial	☐				
B2					
General industrial	☐				
B8					
Storage or distribution	☐				
C1					
Hotels and halls of residence	☐				
C2					
Residential institutions	☐				
D1					
Non-residential institutions	☐				
D2					
Assembly and leisure	☐				
OTHER	☐				
Please Specify	☐				
Total					

In addition, for hotels, residential institutions and hostels, please additionally indicate the loss or gain of rooms

Use class	Type of use	Not applicable	Existing rooms to be lost by change of use or demolition	Total rooms proposed (including changes of use)	Net additional rooms
C1	Hotels	☐			
C2	Residential Institutions	☐			
OTHER		☐			
Please Specify		☐			

19. Employment

Please complete the following information regarding employees:

	Full-time	Part-time	Total full-time equivalent
Existing employees		N/A	
Proposed employees			

20. Hours of Opening

Please state the hours of opening for each non-residential use proposed:

Use	Monday to Friday	Saturday	Sunday and Bank Holidays	Not known
		N/A		

21. Site Area

Please state the site area in hectares (ha)

0.077

22. Industrial or Commercial Processes and Machinery

Please describe the activities and processes which would be carried out on the site and the end products including plant, ventilation or air conditioning. Please include the type of machinery which may be installed on site:

Is the proposal a waste management development? ☐ Yes ☒ No

If the answer is Yes, please complete the following table:

	Not applicable	The total capacity of the void in cubic metres, including engineering surcharge and making no allowance for cover or restoration material (or tonnes if solid waste or litres if liquid waste)	Maximum annual operational throughput in tonnes (or litres if liquid waste)
Inert landfill	☐		
Non-hazardous landfill	☐		
Hazardous landfill	☐		
Energy from waste incineration	☐		
Other incineration	☐		
Landfill gas generation plant	☐		
Pyrolysis/gasification	☐		
Metal recycling site	☐		
Transfer stations	☐		
Material recovery/recycling facilities (MRFs)	☐		
Household civic amenity sites	☐		
Open windrow composting	☐		
In-vessel composting	☐		
Anaerobic digestion	☐		
Any combined mechanical, biological and/or thermal treatment (MBT)	☐		
Sewage treatment works	☐		
Other treatment	☐		
Recycling facilities construction, demolition and excavation waste	☐		
Storage of waste	☐		
Other waste management	☐		
Other developments	☐		

Please provide the maximum annual operational throughput of the following waste streams:

Municipal	
Construction, demolition and excavation	
Commercial and industrial	
Hazardous	

If this is a landfill application you will need to provide further information before your application can be determined. Your waste planning authority should make clear what information it requires on its website.

23. Hazardous Substances

Does the proposal involve the use or storage of any of the following materials in the quantities stated below? ☐ Yes ☐ No ☒ Not applicable

If Yes, please provide the amount of each substance that is involved:

Acrylonitrile (tonnes)		Ethylene oxide (tonnes)		Phosgene (tonnes)	
Ammonia (tonnes)		Hydrogen cyanide (tonnes)		Sulphur dioxide (tonnes)	
Bromine (tonnes)		Liquid oxygen (tonnes)		Flour (tonnes)	
Chlorine (tonnes)		Liquid petroleum gas (tonnes)		Refined white sugar (tonnes)	

Other:

Other:

Amount (tonnes):

Amount (tonnes):

24. Ownership Certificates

One Certificate A, B, C, or D, must be completed, together with the Agricultural Holdings Certificate with this application form

CERTIFICATE OF OWNERSHIP - CERTIFICATE A

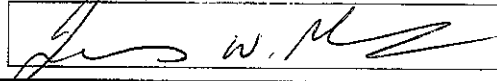
Town and Country Planning (Development Management Procedure) (England) Order 2010 Certificate under Article 12

I certify/ The applicant certifies that on the day 21 days before the date of this application nobody except myself/ the applicant was the owner (owner is a person with a freehold interest or leasehold interest with at least 7 years left to run) of any part of the land or building to which the application relates

Signed - Applicant:

Or signed - Agent:

Date (DD/MM/YYYY):



CERTIFICATE OF OWNERSHIP - CERTIFICATE B

Town and Country Planning (Development Management Procedure) (England) Order 2010 Certificate under Article 12

I certify/ The applicant certifies that I have/ the applicant has given the requisite notice to everyone else (as listed below) who, on the day 21 days before the date of this application, was the owner (owner is a person with a freehold interest or leasehold interest with at least 7 years left to run) of any part of the land or building to which this application relates

Name of Owner	Address	Date Notice Served

Signed - Applicant:

Or signed - Agent:

Date (DD/MM/YYYY):

CERTIFICATE OF OWNERSHIP - CERTIFICATE C

Town and Country Planning (Development Management Procedure) (England) Order 2010 Certificate under Article 12

I certify/ The applicant certifies that:

- Neither Certificate A or B can be issued for this application
- All reasonable steps have been taken to find out the names and addresses of the other owners (owner is a person with a freehold interest or leasehold interest with at least 7 years left to run) of the land or building, or of a part of it, but I have/ the applicant has been unable to do so

The steps taken were:

Name of Owner	Address	Date Notice Served

Notice of the application has been published in the following newspaper (circulating in the area where the land is situated):

On the following date (which must not be earlier than 21 days before the date of the application):

Signed - Applicant:

Or signed - Agent:

Date (DD/MM/YYYY):

24. Ownership Certificates (continued)

CERTIFICATE OF OWNERSHIP - CERTIFICATE D

Town and Country Planning (Development Management Procedure) (England) Order 2010 Certificate under Article 12

I certify/ The applicant certifies that:

- Certificate A cannot be issued for this application
- All reasonable steps have been taken to find out the names and addresses of everyone else who, on the day 21 days before the date of this application, was the owner (*owner is a person with a freehold interest or leasehold interest with at least 7 years left to run*) of any part of the land to which this application relates, but I have/ the applicant has been unable to do so

The steps taken were:

Notice of the application has been published in the following newspaper (circulating in the area where the land is situated):

On the following date (which must not be earlier than 21 days before the date of the application):

Signed - Applicant:

Or signed - Agent:

Date (DD/MM/YYYY):

25. Agricultural Land Declaration

AGRICULTURAL LAND DECLARATION

Town and Country Planning (Development Management Procedure) (England) Order 2010 Certificate under Article 12
Agricultural Land Declaration - You Must Complete Either A or B

(A) None of the land to which the application relates is, or is part of, an agricultural holding

Signed - Applicant:

Or signed - Agent:

Date (DD/MM/YYYY):

W. M.

12/01/2012

(B) I have/ The applicant has given the requisite notice to every person other than myself/ the applicant who, on the day 21 days before the date of this application, was a tenant of an agricultural holding on all or part of the land to which this application relates, as listed below:

Name of Tenant	Address	Date Notice Served

Signed - Applicant:

Or signed - Agent:

Date (DD/MM/YYYY):

26. Planning Application Requirements - Checklist

Please read the following checklist to make sure you have sent all the information in support of your proposal. Failure to submit all information required will result in your application being deemed invalid. It will not be considered valid until all information required by the Local Planning Authority has been submitted.

The original and 3 copies of a completed and dated application form:

The original and 3 copies of the plan which identifies the land to which the application relates drawn to an identified scale and showing the direction of North:

The original and 3 copies of other plans and drawings or information necessary to describe the subject of the application:



The correct fee:



The original and 3 copies of a design and access statement, if required (see help text and guidance notes for details):



The original and 3 copies of the completed, dated Ownership Certificate (A, B, C, or D - as applicable):



The original and 3 copies of the completed, dated Article 12 Certificate (Agricultural Holdings):



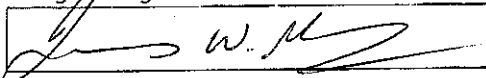
27. Declaration

I/we hereby apply for planning permission/consent as described in this form and the accompanying plans/drawings and additional information

Signed - Applicant:

Or signed - Agent:

Date (DD/MM/YYYY):



12/01/2012

(date cannot be pre-application)

28. Applicant Contact Details

Telephone numbers

Country code: National number: Extension number:

Country code: Mobile number (optional):

Country code: Fax number (optional):

Email address (optional):

29. Agent Contact Details

Telephone numbers

Country code: National number: Extension number:

Country code: Mobile number (optional):

Country code: Fax number (optional):

Email address (optional):

JIMMY@VGENERGY.CO.UK

30. Site Visit

Can the site be seen from a public road, public footpath, bridleway or other public land?

☒ Yes

☐ No

If the planning authority needs to make an appointment to carry out a site visit, whom should they contact? (Please select only one)

☐ Agent

☒ Applicant

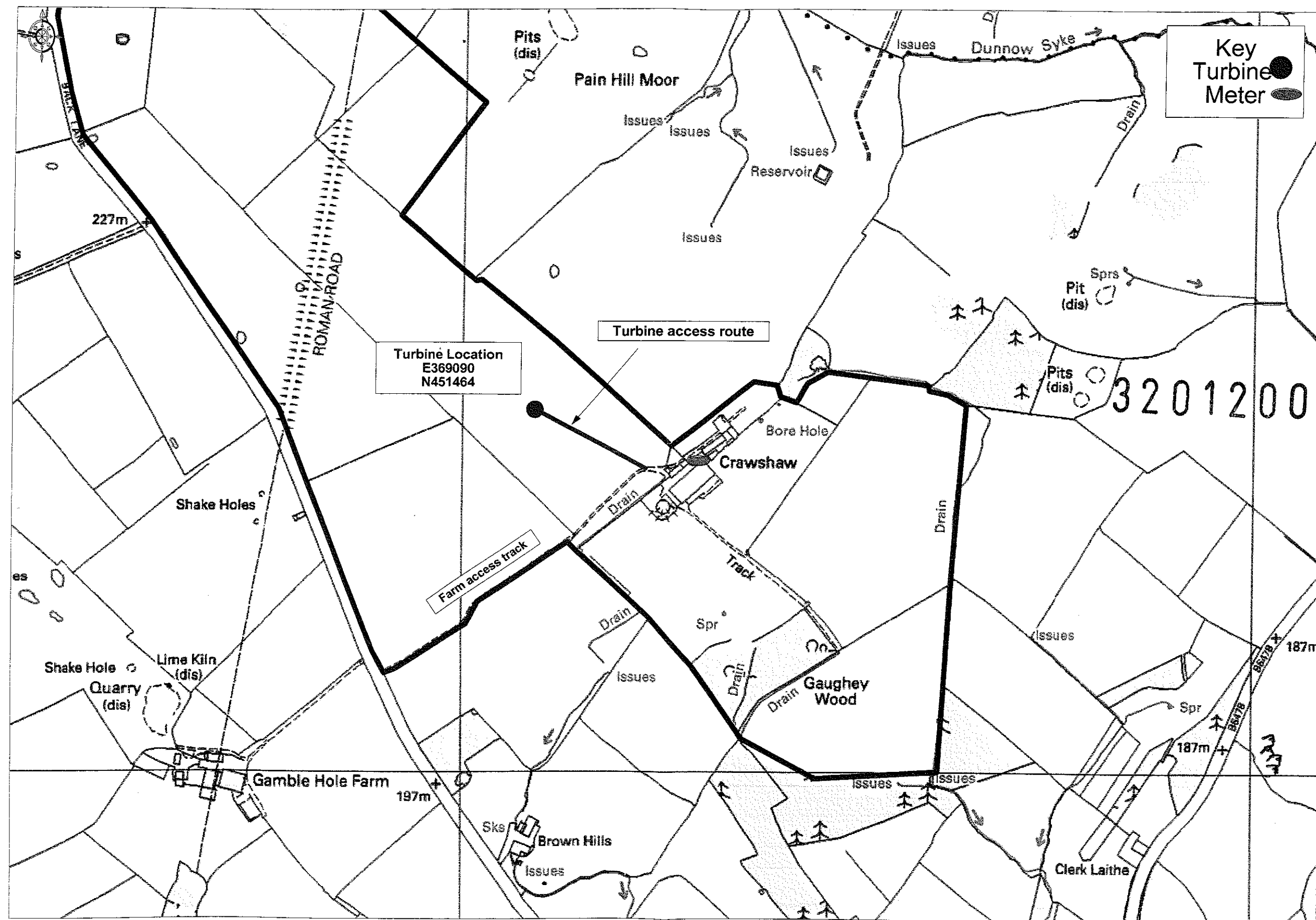
☐ Other (if different from the agent/applicant's details)

If Other has been selected, please provide:

Contact name:

Telephone number:

Email address:



VG Energy Ltd.

Waterside Farm,
Glasgow Road,
Galston
KA4 8PB

Tel :- 01563 829994
mobile 07824 531641
e-mail :- jimmy@vgenergy.co.uk

James W. Mair MCIAT Architectural Technologist

Project

PROPOSED ERECTION OF A
25 metre HIGH WIND TURBINE for
Mr. M. BRISTOL at
CRAWSHAW FARM,
NEWTON in BOWLAND,
CLITHEROE

Drawing No.

A001

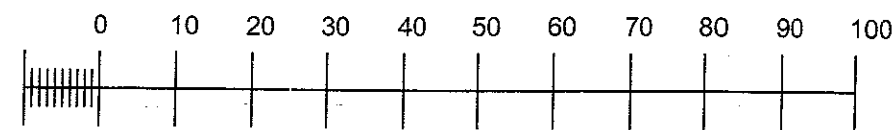
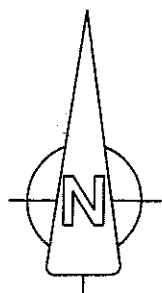
Revision

Scale

1:1000

Date

January 2012



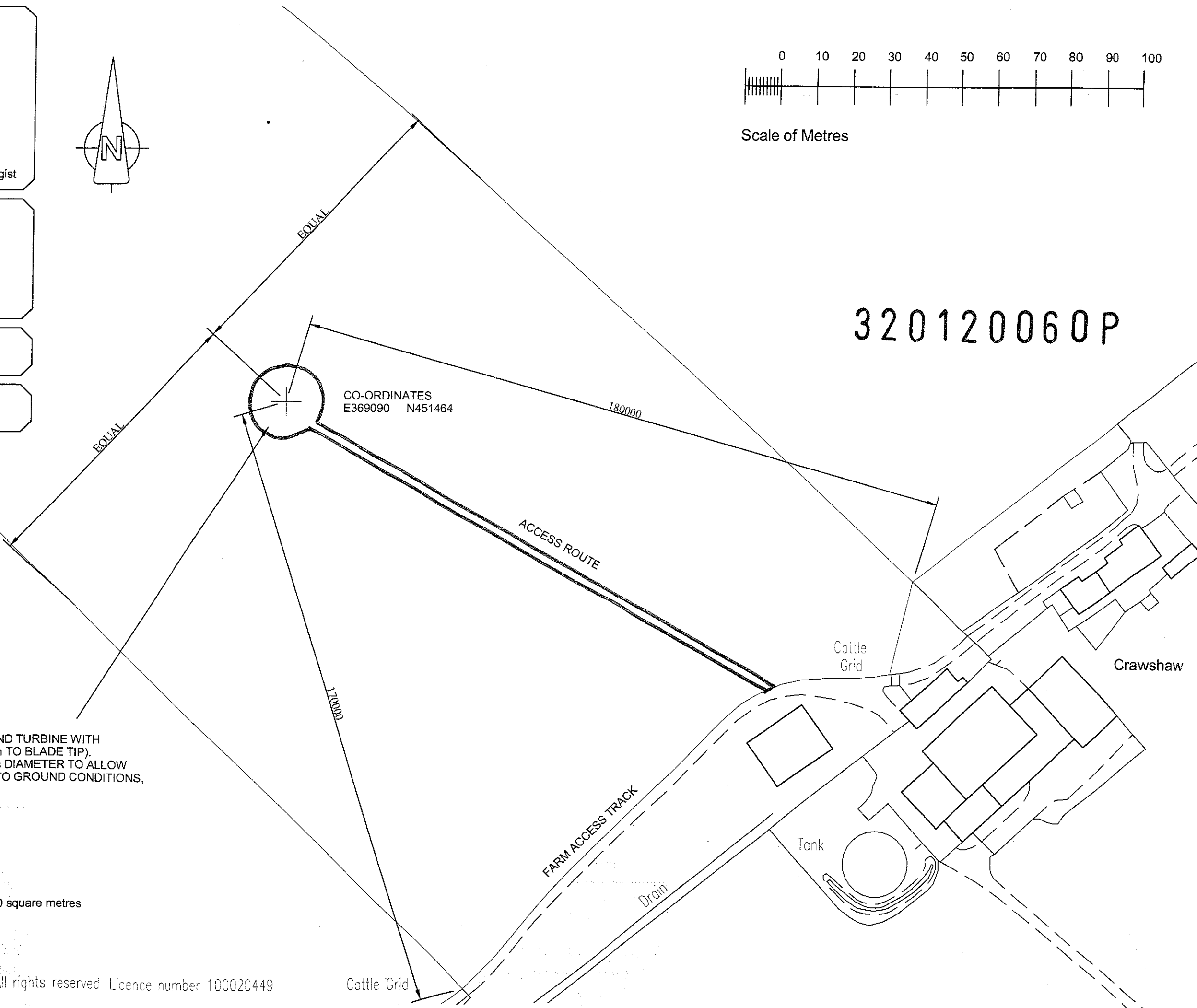
Scale of Metres

320120060P

CO-ORDINATES
E369090 N451464

POSITION FOR A 25 metre HIGH WIND TURBINE WITH
7.2 metre DIAMETER ROTOR (29.02m TO BLADE TIP).
APPLICATION SITE TO BE 20 metres DIAMETER TO ALLOW
FOR MINOR REPOSITIONING DUE TO GROUND CONDITIONS,
MICRO-SITING ALLOWANCES ETC.

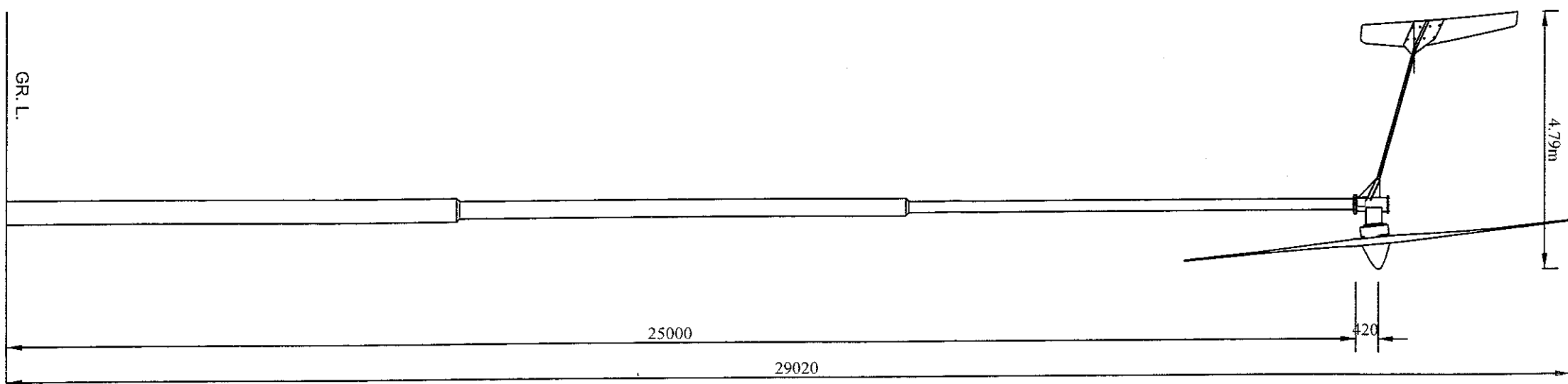
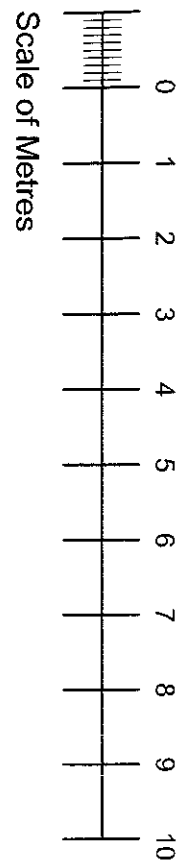
APPLICATION SITE AMOUNTS TO 770 square metres



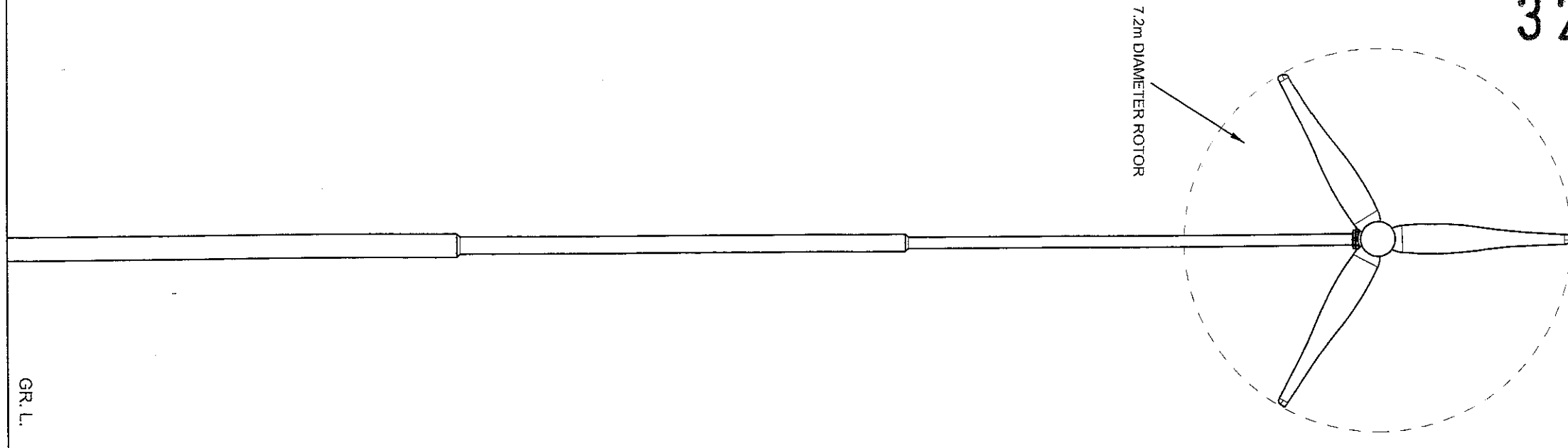
XZERES 442SR WIND TURBINE

Scale 1:100

Drawing no. X442/25



320120060P





XZERES 442SR - Planning Support Document

APPROVED PRODUCT



Certificate Number: MCS BBA 0071

+44 (0)169 820 9099
www.XZERES.co.uk

EC Declaration of Conformity

in terms of the Guidelines of the European Community

- Electromagnetic Compliance 2004/108/EC
- Low Voltage 2006/95/EC
- R&TTE 1999/5/EC

The devices stated below have been developed, constructed and manufactured according to the above mentioned EC directives. The applied harmonized standards are shown in the following table.

	Windy Boy	Windy Boy	Windy Boy	Windy Boy
	WB 1100LV, WB 1100, WB 1200, WB 1700, WB 2500, WB 3000	WB 3300, WB 3800, WB 5000A, WB 6000A	WB 2000HF-30, WB 2500HF-30, WB 3000HF-30	WB 3600TL-20, WB 5000TL-20
Emission:				
EN 61000-6-3:2007	x	x	x	x
EN 61000-6-4:2007	x	x	x	x
Utility Interference:				
EN 61000-3-3:2008	x		x	
EN 61000-3-2:2006+A1:2009+A2:2009	x		x	
EN 61000-3-11:2000		x		x
EN 61000-3-12:2005		x		x
Immunity:				
EN 61000-6-1:2007	x	x	x	x
EN 61000-6-2:2005	x	x	x	x
Safety:				
EN 50178:1997	x	x	x	x
Radio module (Bluetooth):				
EN 301 489-1 V1.8.1			x	x
EN 301 489-17 V1.3.2			x	x
EN 300 328 V1.7.1			x	x



Declaration of conformity with German, European and international (non-european) standards used for WINDY BOY inverters

German Standard DIN EN		European Standard EN		International Standard IEC (IEC/CISPR)
DIN EN 61000-6-1:2007-10	based on	EN 61000-6-1:2007	based on	IEC 61 000-6-1:2005
DIN EN 61000-6-2:2006-03	based on	EN 61000-6-2:2005	based on	IEC 61 000-6-2:2005
DIN EN 61000-6-3:2007-09	based on	EN 61000-6-3:2007	based on	IEC 61 000-6-3:2006
DIN EN 61000-6-4:2007-09	based on	EN 61000-6-4:2007	based on	IEC 61 000-6-4:2006
DIN EN 61000-3-2:2010-03	based on	EN 61000-3-2:2006+A1:2009+A2:2009	based on	IEC 61000-3-2:2005+A1:2008+A2:2009
DIN EN 61000-3-3:2009-06	based on	EN 61000-3-3:2008	based on	IEC 61000-3-3:2008
DIN EN 61000-3-11:2001-04	based on	EN 61000-3-11:2000	based on	IEC 61000-3-11:2000
DIN EN 61000-3-12:2005-09	based on	EN 61000-3-12:2005	based on	IEC 61000-3-12:2004
DIN EN —		EN 301 489-1 V1.8.1		IEC —
DIN EN —		EN 301 489-17 V1.3.2		IEC —
DIN EN —		EN 300 328 V1.7.1		IEC —
DIN EN 50178:1998-04	based on	EN 50178:1997	led to	IEC 62103:2003

Product Specifications

Model: XZERES 442SR

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IEC 61400-2 Small Wind Turbine Class: II ($V_{avg} = 8.5 \text{ m/s}$)

Design Life: 20 years

Rotor

Type: Upwind, Horizontal axis

Blades: 3 Blades, fixed pitch

Rotor diameter: 7.2 m

Blade length: 3.567 m

Swept Area: 40.7 m²

Rotor Rotational Direction: Clockwise viewed from upwind

Generator

Type: 3-phase neodymium permanent magnet

Output: Grid connect

Max AC voltage: 540 VAC

AC voltage at rated power: 377 VAC

Current at rated power: 24.4 A

Control System

Yaw control: Passive 360 degree way

Braking: Independent failsafe electronic braking load

Over-speed control: PWM modulated dynamic braking with stall regulation

Rotor speed: 0-160 RPM, 140 RPM nominal

Tower Interface

Tower top weight: 725 kg

Maximum lateral thrust: 5650 N

Maximum axial thrust: 7580 N

Maximum moment: 7950 N·m

320120060P

Tower

Type: Self-supporting monopole

Hub height: 15m, 18m and 25m (hinged or hydraulic lift)

Standards Compliance

MCS certification (BWEA compliance), certificate number: MCS BBA 0071

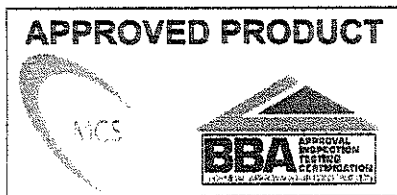
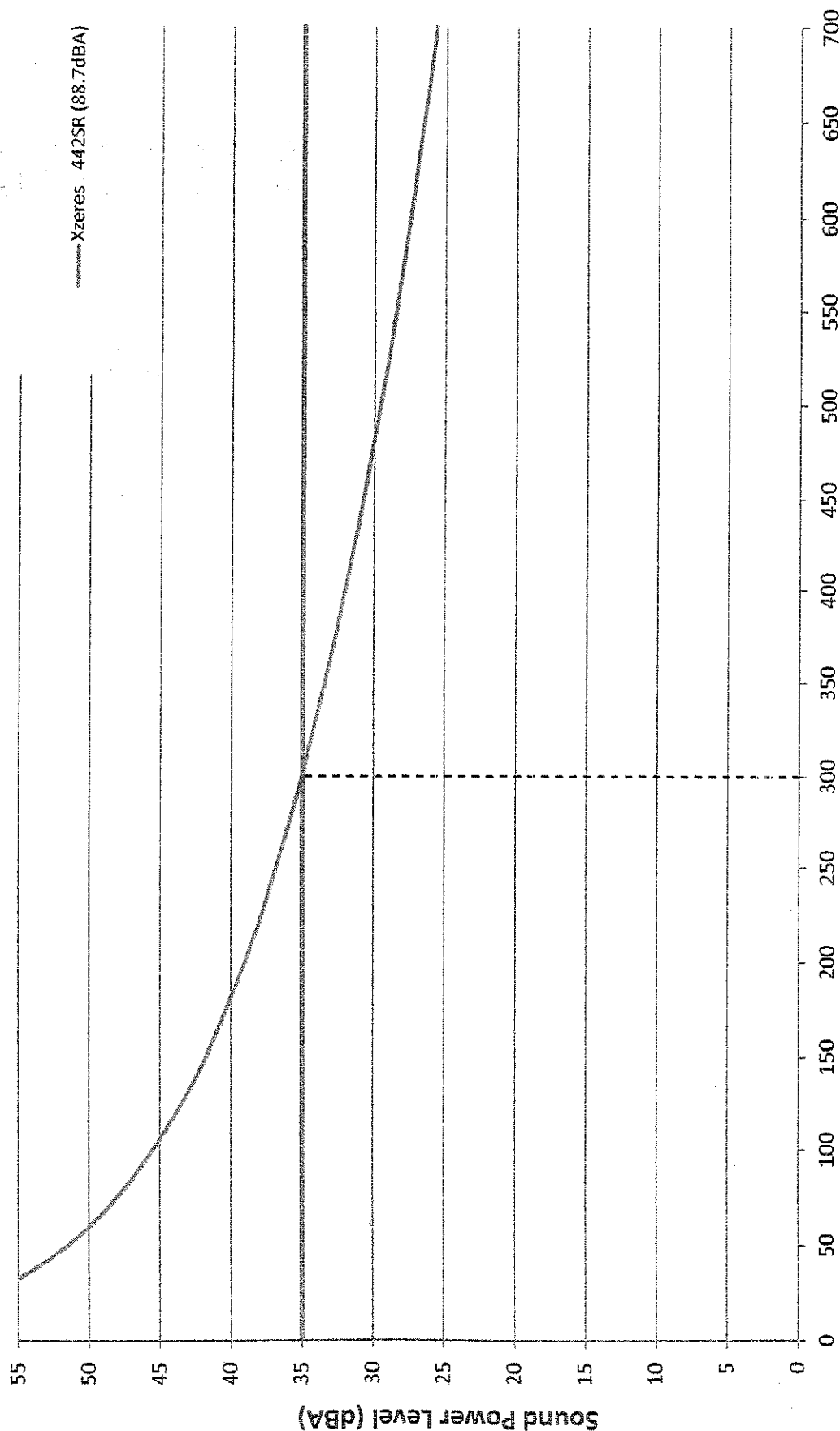


Figure 1: Certificate No: MCS BBA 0071

Small Wind Turbine Acoustic Graph (at 10m/s)



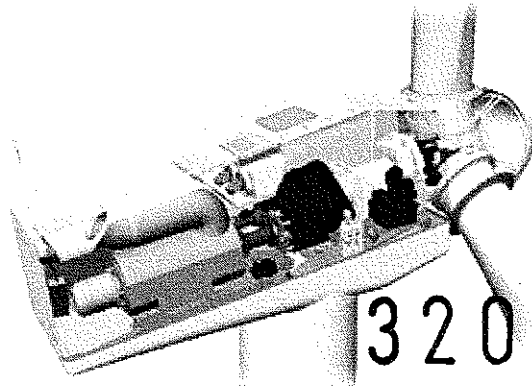
Distance from Turbine to Achieve Required Sound Power Level (m)

Figures based on hemispherical spreading of the sound from the source. Figures based on the derived sound power level in 10m/s winds. This graph has been constructed using manufacturers' data available at the time of comparison, VG Energy cannot guarantee or warrant their information for its accuracy or completeness.

January 2012



Renewable Technology Specialists



320120060P

Crawshaw Farm

Design and Access Statement

Client: Mr. Bristol

Site Location: Crawshaw Farm
Newton - in - Bowland
Clitheroe
BB7 3EE

Compiled by:

Catriona MacLachlan Bsc (Hons)

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Edited by: Fiona Struthers

Checked by: Graeme Wallace

Signed off by: Michael McGhee

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1. INTRODUCTION

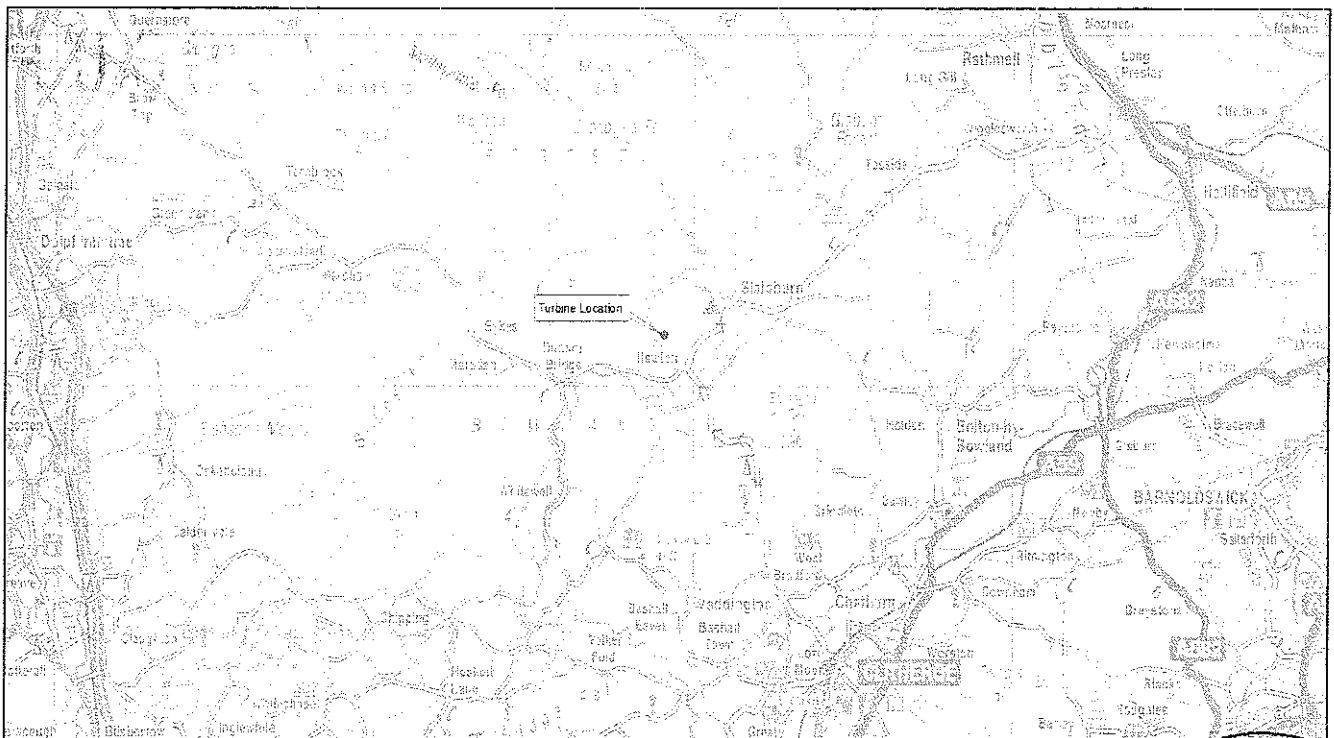
This Design and Access Statement has been commissioned by Mr Bristol to be submitted as part of a Planning Application to Ribble Valley District Council, for the proposal to erect one 29 02m high wind turbine with associated infrastructure and metre house. Due to the type of turbine selected for this site, no access track will be required. This statement has been produced with reference to the 2006 Commission for Architecture and the Built Environment's (CABE) guide: "Design and Access Statements, How to write, read and use them"

2. PROJECT DESCRIPTION

i. Site Location

The site is located on Crawshaw Farm near Newton. The site location is shown in Figure 1 on the map below.

Figure 1: Site Location Map



ii. Turbine Specifications

The turbine details as proposed for this project are shown below:

No. of Turbines	1 No. Xzeres 442SR
Hub Height	25m
Rotor Diameter	7.2m
Height to blade tip (max.)	29.02m
Generating capacity	Up to 12kW
Colour	White

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3. DESIGN STATEMENT

There are six design principles that are required to be addressed within the design component of the Design and Access Statement. These are:

Use - what the development will be used for

Amount – how much development is proposed, which is closely related to the capacity of the site;

Layout – the general arrangement and orientation of the development and any individual components, and how it fits with the surrounding environment;

Scale – the size and extent of the development and any individual components;

Landscaping – treatment of private and public land through hard and soft landscaping techniques to enhance or protect the amenity of the development site and surrounding environment; and

Appearance – measures incorporated into the design of built elements that determines the impression it makes, including its built form, choice of materials, lighting, colour and texture.

i. Use

The proposed project has been designed with the intention of generating zero-carbon electricity through the utilisation of wind as a renewable energy source. It is proposed that the electricity generated from the turbine will power the client's farm. Any excess capacity will be exported back to the national grid.

ii. Amount

The development consists of one wind turbine measuring 29.02m to the blade tip and a blade diameter of up to 7.2m. The development has an output power capacity of up to 12kW. The site is currently on agricultural land and the development would occupy only a minor proportion of this. Land-take would be required for the turbine foundation and would amount to only 36m². During operation, the agricultural function of the site will be retained.

iii. Layout

An Xzeres 442SR turbine does not require an access track or crane pad as it is erected by a hydraulic ram. The turbine foundations will be 6m by 6m by 0.9m. The cabling for the turbine will be dug underground from the turbine to the meter point in the existing farm buildings.

iv. Scale

The proposed turbine will have a maximum blade tip height of 29.02m and will be an Xzeres 442SR on a 25m high tower.

v. Landscaping

Once construction of the turbine is complete, any temporary construction features will be removed from site and the land will go back to its former use.

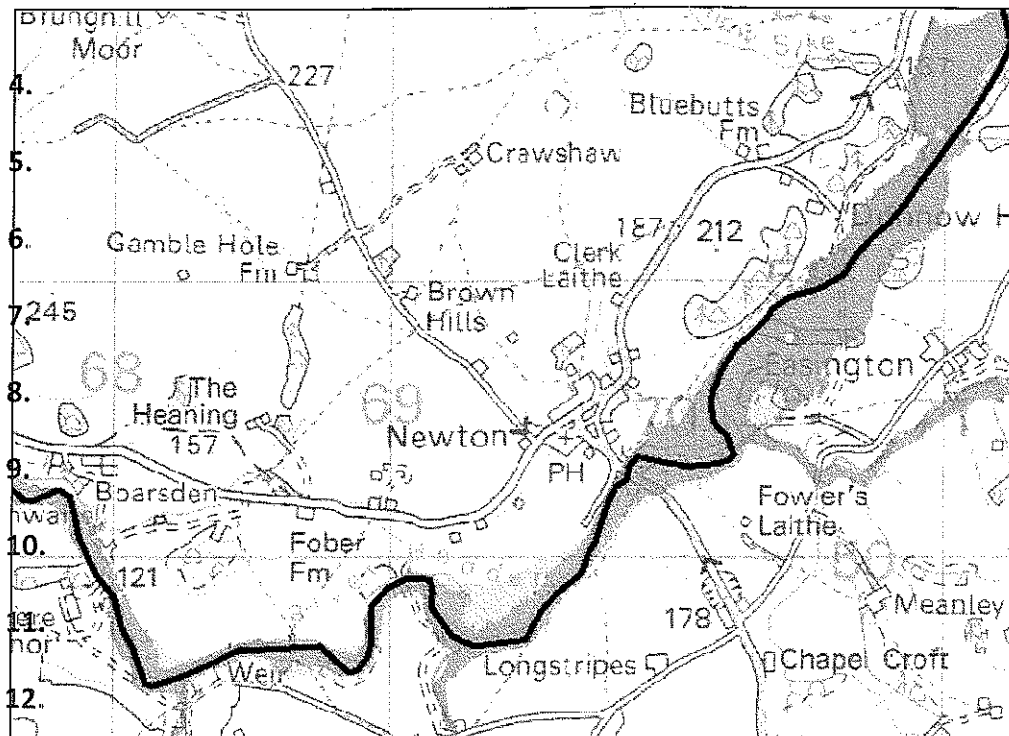
vi. Appearance

The appearance of wind energy developments, particularly the turbine type, location and layout, is of great importance in terms of minimising landscape and visual impacts. The small to medium scale of the turbine will limit its impact on the landscape.

Additionally, the turbine has been sited to prevent the development from being affected by flooding. The site is situated at a height of 200m OD, in an area deemed "not flood risk area" by the Environment Agency. There are areas nearby defined as at risk of flooding from the River Calder, however it can be stated that there is no risk of flooding at the proposed site¹. (See Figure 2, below)

¹ Risk of Flooding from Rivers and Sea, <http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=531500.0&y=181500.0&topic=floodmap&ep=map&scale=3&location=London,%20City%20of%20London&lang=e&layerGroups=default&textonly=off>

Figure 2: Environment Agency Flood Risk Map for Crawshaw Farm



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4. ACCESS STATEMENT

This part of the statement will include two separate aspects of access. These are as follows:

Vehicular and Transport Links – Why the access points and routes have been chosen

Inclusive Access – How everyone can get to and move through the site.

i. Vehicular and Transport Links

The volume of vehicle traffic is expected to be light overall with a few days of heavy unloading

At this stage the following gives the best indication the main traffic volumes

- Roughly 6 concrete deliveries over one day;
- Forklift delivery to site;
- Turbine can be delivered to site on one load;
- Average/Typical Traffic out with above: 2 light vehicles per day;

All deliveries will be delivered as permitted loads under the Roads Vehicles (Construction and Use) Regulations 1986 (C&U).

Route

The site will be accessed via the public road network, then into the field using the farm entrance. Turbine components will be transported directly from Galston, where VG Energy is based.

- Leaving Galston onto A719
- Turning right onto A71
- Take slip road on right on to M74, which changes name to M6 at Gretna Green
- Leave M6 at Junction 34
- Travel along the A683
- Turn Right toward Postern Gate Rd, keeping left and continuing on this road
- Turn left onto Quernmore Brow and continue onto Rakehouse Brow
- Turn left toward the Back Lane and right into Crawshaw Farm.
- Continue through Crawshaw Farm's yard to the field and access using the farm gate

A desk top study of the route has been done and no upgrades to the existing road network are necessary for it to be negotiated by the lorry which will deliver the components.

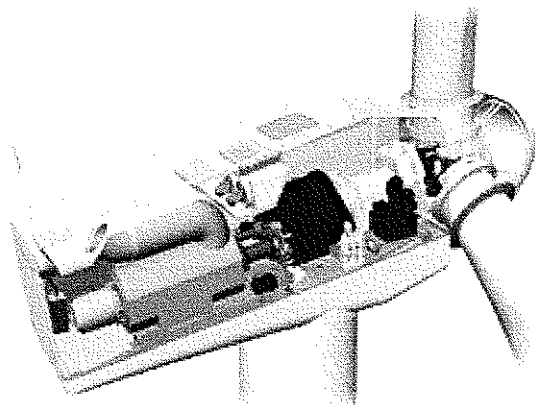
ii. Inclusive Access

There will be no public access to the site during construction as is presently the case. The construction site is located on private land and will remain so after the works have taken place. Deliveries will make their way up the Back Lane and the existing farm access. The lorry will then be unloaded by a forklift at the field entrance. Each delivery will have qualified banksmen at hand to guide them into the field from the public road and to control oncoming traffic. Construction staff will be parked at the Crawshaw Farm dwelling and make their way to site through the farmers land. This will help to reduce traffic on surrounding roads and free up space on the construction site.

January 2012



Renewable Technology Specialists



320120060P

Crawshaw Farm

Environmental Report

Client: Mr Bristol

Site Location: Crawshaw Farm
Newton in Bowland
Clitheroe
BB7 3EE



Registered in Scotland No. 395364

Compiled by:

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1. INTRODUCTION

i. **Planning Application**

This Environmental Report is being submitted to Ribble Valley Council for the installation of one Xzeres 442SR at Crawshaw Farm, Newton in Bowland. This report outlines an evaluation of the potential impacts the proposed development may have on the various aspects of the environment including; landscape, ecology, hydrology, cultural heritage, shadow flicker and noise.

The proposed site is located on farmland belonging to Mr Bristol, approximately 1km northeast of the village of Newton in Bowland. This report has been prepared by VG Energy Ltd on behalf of Mr Bristol.

ii. **Applicant Information**

The applicant runs Crawshaw Farm as a family business, consisting primarily of arable and livestock farming. Mr Bristol has participated in agri-environment schemes to ensure natural habitats, native wildlife and woodlands flourish including grass margins, species rich grass, managing hedges to provide habitat for wildlife and wishes to continue to encourage environmental friendly practices. The applicant has identified wind farming as a diversification opportunity that will provide an income for the farm independent of the fluctuations in farm prices. The production of renewable energy from this wind turbine development will significantly reduce the farm business's carbon footprint. It is intended that this income stream would be used to secure the continued use of local farm workers, while also providing funds for the maintenance of the farm property.

2. PROJECT DESCRIPTION

i. **Site Selection**

The site selected consists of land located at an elevation of approximately 200m Ordnance Datum (OD), and is likely to have a reasonable wind resource. The proposed development site is located 190m to the northeast of the Crawshaw farmstead. The site is owned and occupied by one landowner, Mr Bristol.

The turbine's exact location was chosen by taking into account the setting of the landscape, surrounding ecology, archaeology, the closest noise receptors, nearby roads and trees. Other locations within the landownership boundaries were considered. However, to avoid the nearby public rights of way, reduce grid connection and cabling costs, and to keep the turbine close to and associated with the farmstead, the chosen location was considered the most appropriate. This positioning also means that the turbine will be visually screened by the woodlands to the south and southeast, while high wind speeds will be retained.

ii. The Proposed Development

The proposed project has been designed with the intention of generating zero-carbon electricity through the utilisation of wind as a renewable energy source. The development will require the infrastructure associated with the wind turbine itself, an on-site control unit system and a meter house. This particular type of turbine does not require an access track and will be transported to the site using a forklift.

3. RELEVANT PLANNING POLICY

i. Environmental Impact Assessment

There is a statutory obligation for an EIA to be undertaken if deemed necessary by the Local Authority. For the proposed development it has been assumed that an EIA will not be required as this Environmental Report will cover all environmental aspects extensively.

The development has been refined in order to avoid or reduce potential environmental effects where predicted. During this process it was required to analyse potential impacts associated with all the stages of development from construction through to decommissioning. Mitigation measures have been adopted to alleviate these impacts as much as is feasibly possible.

ii. UK Renewable Energy Policies

The United Kingdom has committed itself under the European Framework Convention on Climate Change (also known as the Kyoto Protocol) to reduce its greenhouse gas (GHG) emissions by at least 12.5% during the period 2008-2012, when compared to the 1990 baseline levels.

In 2008, the UK Climate Change Act was implemented and set stringent targets for reducing the UK's carbon dioxide emissions by 80%, by 2050. The Act also requires that over the 5 year period 2008-2012, limits be set on the total amount of CO₂ emissions allowed and that at the very least the UK will have achieved a 34% reduction by 2020 compared to the 1990 baseline emission levels. To date it has been shown that the UK's CO₂ emissions have been successfully reduced by 10.5% of the 1990's emission levels, showing that Britain is making significant progress towards its targets. However, in order for the 34% reduction target to be met further, action is required.

Accompanying the CO₂ emissions reductions targets are the UK Governments targets for renewable energy development. The Government are aiming for 20% of the Country's electricity supply to be met by renewable energy sources as part of the Low Carbon Transition Plan. These targets were outlined in the 2009 Renewable Energy Strategy which also named an intermediate target of 10% of the UK's electricity supply to be met by renewable energy sources by 2010. Wind energy is thought to hold the greatest potential for generating electricity whilst complying with the UK's carbon dioxide emissions reduction targets.

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iii. National Planning Policy

National planning policy for England is set out in a series of Planning Policy Statements (PPS), covering a range of topics. They are legally binding and may be treated as material considerations in the determination of planning applications. PPS22 Renewable Energy is the national planning policy for renewable energy and was published in 2004. This is accompanied by a Companion Guide, which discusses the planning and development of renewable energy schemes across England.

Also important to renewable energy developments is the supplement to PPS1, Planning and Climate Change, which takes precedence over others in the PPS series and sets out how planning, in providing for the new homes, jobs and infrastructure needed by communities, should help shape places with lower carbon emissions and resilience to climate change. This policy moves towards wider networks and neighbourhood-scale decentralised energy sources, places a stronger emphasis on developers and local authorities to consider onsite renewables for all new developments, and provides more robust guidance for the handling of renewable energy planning applications.

4. SOCIO-ECONOMIC ASSESSMENT

The following section provides a brief overview of the area surrounding the proposed development.

i. Location

Crawshaw Farm is located approximately 1km northeast of Newton, 2km southeast of Slaidburn and is 11km northeast of Clitheroe. Although, this is a small scale turbine development, consisting of one turbine, the money generated still stands to benefit the local community from this local employer.

ii. Recreation and Tourism

To date there is no evidence to suggest that wind turbines have an adverse effect on tourism. Wind farms have become increasingly popular, with tourists and locals alike visiting a number of wind farms across the UK. Whitelee wind farm, Ayrshire, and the Ecotech Centre, Norfolk, have proven to be popular attractions; with Whitelee alone attracting over 120,000 visitors in its first year. MORI conducted a study on "Tourist Attitudes towards Wind Farms" which states that *"when [participants of the survey were] asked whether the presence of wind farms had a positive or negative effect, two in five (43%) maintained that it had a positive effect, while a similar proportion felt it was equally positive and negative. Less than one in ten (8%) felt that it had a negative effect"*¹.

¹ BWEA, Tourist Attitudes towards Wind Farms, <http://www.bwea.com/pdf/MORI.pdf>

iii. Public Perception

There has been a large amount of research undertaken to measure the impact that Windfarms have upon the UK's tourism industry. The NOP Wind Tracker released figures stating that 79% of tourists surveyed believed that *"wind farms were necessary so that we could produce renewable energy to help us meet current and future energy needs in the UK"*, with only 10% disagreeing with this statement. The University of the West of England conducted research based on the Fullabrook Wind Farm Proposal, North Devon, and the impact it would have upon tourist's experience of the area in 2004. 94% of those surveyed would not have been discouraged from visiting the area if there was a windfarm there. Within the North West of England, RBA Research of Lambrigg wind farm conducted in 2002 concluded that 3% of respondents believed that the windfarm had caused a fall in visitor numbers, 11% believed the windfarm had caused an increase and the remainder felt there had been no effect.

iv. Socio-Economic Effects

As the scale of the development is relatively small, the turbine has the potential to generate a limited range of social and economic effects. The opportunities are listed as follows;

- Pre-construction – contract opportunities for a various specialists
- Construction – opportunities for haulage, turbine base construction, supply of building materials, electrical services and fencing contractors. The construction team (when local) will also require local accommodation and amenities resulting in a short term boost to the local economy.
- Operation – the owner of the turbine.
- Decommissioning – similar benefits as that of the construction stage.

To summarise, there will be a short to medium term improvement in employment created by the additional spend of income and wages in to the local economy and purchase of materials. Employment opportunities may arise down the supply chain by the companies providing services to this development. The turbine will require regular maintenance over its life span which will create employment opportunities with the potential to contract local individuals. It is perceived that as the turbine will be owned by a local employer, the income generated will be re-invested into both his business and the local economy, therefore creating more opportunities for workers in the area.

5. LANDSCAPE AND VISUAL ASSESSMENT

The purpose of this assessment is to ascertain the likely effect of the proposed turbines at Crawshaw Farm, Newton, be it beneficial or adverse, on the existing landscape and visual environment. Important factors to be considered include the landscape characteristics, sensitivity and visual amenity of the area. Landscape impact may be defined as; changes in the physical landscape, which may give rise to changes in its character and how it is experienced.

Visual impact comprises the change in the composition of available views from dwellings and public areas resulting from the proposals.

i. Methodology

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The methodology of this assessment will follow best practice guidelines and relevant current guidance including;

- Guidelines for Landscape and Visual Assessment (Landscape Institute and Institute of Environmental Management and Assessment 2002)
- Landscape Character Assessment: Guidance for England and Scotland (The Countryside Agency and Scottish Natural Heritage 2002)
- Visual Representation of Wind Farms, SNH (2006)
- Siting and Designing Wind Farms in the Landscape (2009)
- The Landscape Sensitivity to Wind Energy Development in Lancashire (February 2005)
- Natural Heritage Assessment of small scale wind energy projects which do not require formal EIA, SNH (March 2008)
- Forest of Bowland AONB Renewable Energy Position Statement, Natural England and the Forest of Bowland AONB Joint Advisory Committee

The methodology will involve carrying out baseline studies of the existing landscape resources and visual amenity, following the guidelines set out in the "*Guidelines for Landscape and Visual Impact Assessment*" - (Landscape Institute and Institute of Environmental Management and Assessment 2002). A desktop study was undertaken to collect data on the existing landscape including landscape character and landscape designations. A desktop study determined the likely Zone of Theoretical Visibility (ZTV) and has been used to identify the potential extent of the visual envelope and to help pick representative viewpoints. Field visits were undertaken to assess the existing landscape and visual amenity and likely potential impacts of the development. Photomontages have been developed from representative viewpoints taking the advice of Ribbles Valley Council.

The turbines lifespan is expected to be approximately 25 years so for the basis of this assessment it was assumed that all impacts assessed are medium term, as it will be possible to return the land to its former use. This may change if the turbine was disassembled prior to this time, which may reduce the predicted impacts of this proposal

ii. Landscape Context

Landscape Character

The study area lies within Regional Landscape Character Area, as defined by the Character of England Landscape, Wildlife and Cultural Features Map².

Regional Character Area:

The study area lies within Bowland Fells Regional Landscape Character Area (No.34), but is closely bordered by the Bowland Fringe and Pendle Hill (No.33), as defined by the Character of England Landscape, Wildlife and Cultural Features Map³.

The key characteristics of the Bowland Fells are:

- Large-scale sweeping landform incised by narrow wooded valleys and intimate cloughs which drain the moorland heights creating an attractive mosaic of woodland, unimproved meadows, pasture, marshes and streams.
- Expanses of open rolling heather moorland and blanket bog with areas of reclaimed moorland pasture at the periphery defined by dry stone walling.
- Steeply sloping sculptural escarpments link the exposed moorland tops with the surrounding lush green valleys of the Lune, Ribble, Hodder and Wyre
- Scattered settlement pattern of picturesque stone villages and isolated stone built farmhouses, commonly backed by a small copse, typically with a barn under the same roof line.
- Extensive coniferous plantations to the southeast of the area; and
- High quality species-rich meadows in limestone areas to the east

² 'Natural Character Areas Map'

<http://www.naturalengland.org.uk/ourwork/landscape/englands/character/areas/default.aspx>

³ 'Natural Character Areas Map'

<http://www.naturalengland.org.uk/ourwork/landscape/englands/character/areas/default.aspx>

The key characteristics of Bowland Fringe and Pendle Hill are:

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- Undulating rolling landscape with local variation created by both the numerous river valleys and outlying upland features of Beacon Fell, Longridge Fell and Pendle Hill.
- Strong outcrops of 'reef knolls' and limestone form distinct landscape features to the Ribble and Hodder Valleys
- Meandering, commonly tree-fringed rivers with oxbow lakes form prominent features within the predominantly pastoral landscape
- 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 main valley bottoms, side valleys and ridges.
- Dense north - south communication corridor, comprising the M6, the railway line and the Lancaster Canal, defining the western boundary and providing a physical and psychological barrier
- 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; and
- 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.

Local Landscape Designations

The proposed turbine is situated within the limits of Bowland Forest AONB. The site falls within the Moorland Fringe landscape character type of the Bowland Forest AONB as per the Forest of Bowland landscape character area and furthermore are within Bowland Limestone Fringes and bordered by the Upper Hodder Valley.

Bowland Limestone Fringes (4e)

In general this landscape forms the transition between the more settled valleys and other landscapes and the high moorland. As such it shows a transition of characteristics. The relatively large scale and exposed character of this landscape suggests a modest sensitivity to wind energy development. This character area is relatively well maintained and is generally remote from the influences of urban development and contemporary structures such as quarries and transmission masts. The area forms the lower part of the visual backdrop for the adjacent areas and this elevates its sensitivity. In most cases however, this Moorland Fringe landscape does not

form the skyline and therefore there may be opportunities for development within these areas. Such development would be backclothed by the higher parts of this character area and the Moorland Plateaux and Hills above, reducing its sensitivity. This area is within the AONB and this reflects the visual quality of the landscape and its elevated sensitivity.

This area is denoted as having moderate-high sensitivity to wind turbines which would accommodate small and possibly medium turbines.

Upper Hodder Valley (5a)

This is a small scale landscape enclosed by the adjacent higher ground of the Forest of Bowland. There is a mature and established character to the landscape comprising stands of mature deciduous woodland, picturesque built elements and other attributes which elevate its sensitivity. Away from urban influences the area has a sense of "settled remoteness". The area is contained within the AONB in reflection of its visual quality.

This area is denoted as having a high sensitivity to wind turbines and would accommodate a scale appropriate for the landscape.

Public Rights of Way

The following public rights of way (PROW) exist in the vicinity of the development: Rough Skye Barn to Whitehome; running in an east to west direction north of the turbine, from Gamble Hole Farm to Pain Hill Farm through Crawshaw Farm; and from Brown Hills Farm to Crawshaw Farm. However, it can be stated that the turbine is located at a separation distance greater than the 'fall over distance' of the wind turbine. In this case the separation distance is 32m (height of turbine to blade tip plus 10%) and this development is located over 130m from all of the previously mentioned pathways.

iii. Visual Assessment

This part of the assessment was undertaken to assess the potential impact of the turbine on the visual amenity and receptors. Initially a ZTV was produced to determine the potential visual envelope of the turbine and potential viewpoints for photomontages. This was followed by a site visit to gain a greater understanding of the potential impact of the development on the landscape and visual amenity.

Zone of Theoretical Visibility (ZTV)

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The ZTV produced has identified a number of points in the surrounding landscape where the turbine will be visible from. However, the ZTV does not take into account a number of different factors such as vegetation, field walls or high buildings, which are situated in areas around the site. Therefore, the ZTVs produced are not completely accurate as the turbine will not have a visual impact from every point highlighted.

A cumulative ZTV has been produced, in accordance with the advice given from Ribble Valley Council, which included the following turbines which were found within 10km of the proposed development.

Table 1: Turbines included in Cumulative ZTV

Planning Ref.	Tower Height (to hub)	Farm Name	Grid References
3/2010/0061	15m	Laythams Farm	368388,452957
3/2009/0237	9m	Fellside Farm	370075,456941
3/2011/0159	20m	Throstles Nest	378114,454733
3/2010/0989	18m	Mason House Farm	369658,443824

iv. Potential Impacts

The locations which may be visually impacted by this proposed development include the surrounding landscape and the public rights of way mentioned above. The attached ZTVs show that the turbine will only be visible from a relatively small range of places, with the turbine being most visible within 5km of the site. The majority of receptors are to the southeast of the turbine, in the vicinity of Slaidburn and Newton. These buildings and woodland vegetation will screen the turbine from most viewpoints as demonstrated by the photomontages taken from Bluebutts Farm and south of Newton.

Moreover, the cumulative impact of the proposed turbine has been considered. The cumulative ZTV shows that the proposed Crawshaw Farm turbine will potentially be visible with at least one other turbine. However, it can be demonstrated that due to intervening vegetation, buildings and the positioning of visual receptors these potential impact will be minimal, with the turbines being unlikely to be viewed together.

Of the locations where two turbines are theoretically visible from, few of these points are on roads and are mainly within fields where there will be few visual receptors. There are a few areas where three turbines will be theoretically visible from. Of these areas, those locations to the south are over 4km away and given the scale of the proposed turbine, Laytham's turbine and Fellside's (which are both below 15m hub height), the visual impact will be minimal. In the areas to the east and north of the proposed turbine, which note 3 turbines as being visible, the visual impact is reduced as any person in these areas are unlikely to be able to view all turbines concurrently.

The attached wireframes have considered the few locations where it is proposed that 4 turbines would be visible from namely: the road west of Stocks Reservoir; Easington Fell; and Tosside. When considering the view from Stocks Reservoir, 4 turbines will only be visible if the person turns around on the spot. This wireframe shows that the proposed turbine will be seen alongside Laythams and Fellside turbines. However, in the wireframe the impact is minimal and likely the views of all turbines will be screened by vegetation and houses. This can also be said for the views from Easington Fell, where the turbines will be extremely small in scale with the landscape and will be screened by the villages of Newton and Slaidburn and the several woodlands in the area. The view from Tosside shows only the proposed turbine in its entirety, which will likely be screened again by Slaidburn.

The attached photomontages have considered the turbine's visual impact upon pathways and local roads in close proximity to the turbine. Those sites which will be impacted visually include pathways to the north of the proposed turbine site and those which run through Crawshaw Farm. However, in these locations the cumulative ZTV shows only one turbine will be visible and in some cases two turbines but this is Laytham's turbine and so a visual receptor would be required to turn to see both turbines. In the remaining sites considered, the turbine is either not visible, partially screened or the visual impact is reduced due to the topography of the surrounding area.

Therefore given this assessment the proposed small to medium turbine can be accommodated within the Bowland Limestone Fells which is suited to small to medium turbines. The Forest of Bowland AONB is able to contribute to renewable targets and accommodate renewable energy which does not detract from its landscape and ecological credentials. As demonstrated this proposed small to medium turbine can be accommodated by the surrounding landscape and so contribute to renewable energy targets.

v. Mitigation

The predicted impacts of the proposed turbine on the landscape and visual resources of the study area will be reduced through sensitive mitigation measures. These measures have been considered at every stage of the proposed development from initial design through to operation and include;

- Carefully choosing a wind turbine that is appropriate for both the wind resources of the site and is visually suitable to the local landscape.
- Transport route of the turbine being carefully chosen so that it has a minimal impact on local users. The smaller size of the single turbine does not require any amendment to the local roads layout.
- When the turbine is decommissioned all the turbine structures will be taken down and the ground will be covered with topsoil and seeded with a suitable approved grass seed mix, unless the landowner believes the access track will be beneficial for access to his fields.

vi. Do nothing scenario

This scenario assumes that there will be no change to existing land use, resulting in no change to the landscape and visual amenity. However, if the current farming practice on the land ceased and the land become derelict or used for other uses e.g. one off housing, this could have an adverse impact on the local landscape.

6. ECOLOGY**320120060P****i. Methodology**

A comprehensive ecological assessment of the site will be conducted to ascertain if any protected habitats or species lie within the confines of the site. Natural England digital datasets and the Joint Nature Conservation Committee (JNCC) will be consulted to identify environmental designated sites within the region, to analyse if these will be impacted by the proposed development.

Sites classified as Special Protection Areas (SPA) under the Wild Birds Directive and selected as Special Areas of Conservation (SAC) under the Habitats Directive, are intended to form a European Community-wide network of protected areas for those habitats and species which are endangered, vulnerable, rare, or otherwise require special attention. Any of these sites that are situated within the vicinity of the proposed development will be analysed in detail to identify impacts and ways to mitigate these impacts. Outwith Natura 2000 sites, certain habitats and species are protected as defined in the following parts of European directives –

- Habitats and species listed in Annex I, II, IV and V of the EC Habitats Directive; and
- Habitats of naturally occurring wild birds listed in Annex I of the EC Birds Directive

Where dictated, ornithological and ecological surveys will be undertaken, including the areas the turbines will be located in and other areas that may be impacted by the development. These will be carried out in line with Natural England guidelines. It is perceived that due to the small footprint of the development these should not be required.

POLICY AND GUIDANCE

Protected species are referred to in the Planning Policy Statement: Biodiversity and Geological Conservation (PPS9) 14 paragraphs 15 and 16, where species which are protected under the Wildlife and Countryside Act (1981) are referred to generally. These paragraphs highlight that regardless of further planning policies and guidelines, certain named species are legally protected and therefore any development which would have a detrimental impact either directly on the species or on its habitat, will be considered as a criminal act. Furthermore, species which are protected under European Acts and are considered to be of European importance are also awarded additional protection, and development must not interfere with their existence.

The Natural Environment and Rural Communities (NERC) Act 2006, Section 41, placed a duty on public bodies to ensure that they were furthering their conservation of biodiversity efforts. It required the Secretary of State to publish lists of species and habitats, known as the S41 list, which were to be recognised as being of particular importance for the conservation of biodiversity in England

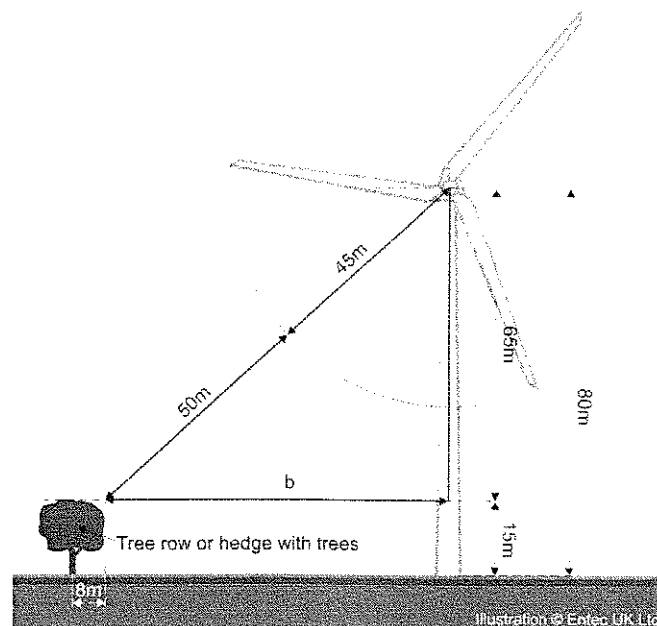
The list contains 943 species and 56 habitats that are listed as priorities for conservation under the UK Biodiversity Action Plan (UKBAP). In 2007, DEFRA published "*Conserving Biodiversity-The UK Approach*" which outlines the framework for halting the loss of biodiversity.

Local Biodiversity Action Plans (LBAP's) were also produced for every county in the UK which serve to highlight local biodiversity issues and highlight priority species and habitats for each area

Bats

Natural England have identified through their research that a bat survey should normally be recommended for the application of turbines that will be located within 50m of Buildings/structures, woodland, hedgerows, rivers or lakes, or within sites designed for bats (SSSI or SAC's)⁴. Since this turbine will be located in open farmland away from any structures or woodland, this should not be an issue.

Figure 1: Turbine Distance for Bats



The majority of bat species are also known to use echolocation calls which are only useful within a couple of meters. Therefore they tend to fly closer to habitats such as hedgerows, woodlands, walls, rivers, and within tree canopies. These species are less likely to collide with a turbine. Natural England research also suggests that the further away the turbine is positioned from linear habitats, the larger the decline in activity.

⁴ Natural England. www.naturalengland.org.uk

Good practice measures will be taken where necessary including:

- Site Selection (to reduce impacts on wildlife).
- Locating turbines so that their blade tips are at least 50m from hedges, tree-lines or woodland in the vicinity.
- If there are roosts within the vicinity of the proposed turbine, turbines will be positioned as far away as possible from the roosts and from any flight paths

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ii. Natural England's Details for designated sites within 5km

Table 2: SSSIs within 5km of Crawshaw Hall

Site Number	Site Name	Description
1004042	Bowland Fells	This site encompasses the main upland block within the area of Lancashire known as the Forest of Bowland, an outlier of the Pennine Range situated in the north of the county and to the east of the M6 motorway. This area is also coincident with Bowland Fells SPA. The maintenance of heather moorland over much of the site has provided an excellent habitat not only for red grouse for which the moors have primarily been managed, but for other moorland birds. These include hen harrier, merlin, peregrine, short-eared owl, sparrowhawk, kestrel, golden plover, ring ouzel, meadow pipit, skylark, whinchat, wheatear, redshank, curlew, lapwing, snipe and oystercatcher
1003982	Myttons Meadows	Myttons Meadows are situated on the south-eastern edge of the Forest of Bowland at an altitude of between 155 m and 180 m OD, approximately 1g km north-west of Slaidburn. The site comprises a series of three fields below Myttons Farm and part of another field to the south, which together represent the largest and best surviving example of traditionally managed, species-rich meadow grassland identified in Lancashire. This nationally scarce and highly vulnerable habitat has, in Lancashire, been almost completely destroyed by agricultural intensification so that, in the county context, this site is regarded as being of outstanding importance. This is area is coincident with North Pennine Dales Meadows SAC.
1007170	Bell Sykes Meadows	Bell Sykes Meadows lies at an altitude of between 140--150m OD, approximately 0.5km north-east of the village of Slaidburn. The site consists of six fields of unimproved, enclosed, herb-rich grassland. The river alluvium of the flatter ground close to the River Hodder supports three fields of herb-rich flood meadow. The field on the higher ground to the east supports herb-rich northern hay meadow, whilst the leached soils overlying carboniferous limestone on the west facing slope supports two fields of herb-rich seasonally grazed pasture. Bell Sykes Meadows is one of the few remaining unimproved herb-rich grasslands present in this part of Lancashire. This vulnerable habitat has become increasingly scarce nationally and has been largely destroyed in Lancashire due to agricultural intensification. This is area is coincident with North Pennine Dales Meadows SAC.
1004056	Langcliff Cross Meadows	Langcliff Cross Meadow lies approximately 1g km to the east of the village of Slaidburn and at an altitude of 190 m OD. It represents one of the best examples of the few remaining species-rich meadow grasslands in the county. This nationally scarce and vulnerable habitat has, in Lancashire, been almost completely destroyed by agricultural intensification so that a site displaying such a high diversity of grass and herb species and containing many plants representative of unimproved meadows, is regarded as being of very great

		importance in the county context. This is area is coincident with North Pennine Dales Meadows SAC.
1007178	Field Head Meadow	Field Head Meadow lies at an altitude of 210m OD, approximately 1.3km east of the village of Slaidburn. The site consists of a single field of enclosed, moderately herb-rich hay meadow, typical of its type in northern England. Field Head Meadow is one of the few remaining herb-rich grasslands present in this part of Lancashire. This vulnerable habitat has become increasingly scarce nationally and has been largely destroyed in Lancashire due to agricultural intensification. This is area is coincident with North Pennine Dales Meadows SAC.
1006939	Standridge Farm Pasture	Standridge Farm Pasture lies at an altitude of between 225–250 m OD, approximately 2.5 km northeast of the village of Slaidburn. The site consists of an unimproved enclosed herb-rich flushed pasture on a north-facing slope. The underlying Bowland Shales give rise to base-rich conditions and impeded drainage, which results in much spring-fed flushing of the slope with ground water. Standridge Farm Pasture is one of the few remaining unimproved herb-rich pastures present in this part of Lancashire. This vulnerable habitat has become increasingly scarce nationally and has been largely destroyed in Lancashire due to agricultural intensification.
1006649	Barn Gill Meadow	Barn Gill Meadow is an area of grassland close to Stocks Reservoir approximately 3 km to the north east of the village of Slaidburn. It lies at an altitude of 180 m and supports two types of herb-rich neutral grassland in which over 73 species of plants have been recorded.

As noted, the above tables show all SSSIs, SPAs and SACs within a 5km radius of the proposed site at Crawshaw Farm.

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iii. Impacts

It is unlikely that a single small to medium turbine will have a significant impact upon local flora and fauna as the turbine is not located within a designated site, while the construction of the foundations, cable trench and other ancillary works should not pose a threat to any protected species of flora or fauna. Birds and Bats are the most likely animal species to suffer fatalities from turbines through direct collisions. There is only one designated site, Bowland Fells, within 5km of the development which is designated for birds. The remaining sites are designated primarily for vegetation reasons, which this turbine will not impact.

iv. Mitigation Measures

It is perceived that this development will only consist of a single small to medium scale turbine, and the fact that it lies outside any environmental designated site and is over 2km from Bowland Fells, it is perceived that the impact upon the habitat will be minimal.

7. CULTURAL HERITAGE AND ARCHAEOLOGY

i. Background

There has been widespread use of wind for industry since at least the 17th century when windmills were being utilised for milling, pumping, and sawing. West Blatchington Windmill (Monument 620285) under the City of Brighton and Hove district is a fine example of a 19th century windmill, formerly used for milling corn, and is now restored as museum. Wind energy has formed a significant part of many English landscapes for centuries, and it has remained an important part of the cultural heritage of many communities.

English Heritage "*believes a pro-active and strategic approach to the land-use planning system will maximise the benefits of renewable energy projects, while minimising their adverse effects on the historic environment*"⁵ It is essential that the micro-renewable installation should be planned carefully to ensure the preservation of the historic character of each site and to make the greatest use of the available renewable energy sources.

Different types of micro-renewable technology suit different locations and sometimes more than one type can be used in combination. English Heritage assesses the impact of onshore wind turbine projects on the historic environment in the Wind Energy and Historic Environment publication.⁶ Assessment of the site will be undertaken based on best policy outlined within the micro-renewable guidance document. The best practice check list is given as follows:

- *The implications for the historic environment of wind energy developments should be reflected in Regional Spatial Strategies, Local Development Frameworks and Supplementary Planning Documents.*
- *The effects of wind energy programmes and projects on the historic environment should be evaluated in all levels of environmental impact assessment.*
- *Consideration of the historic environment should include World Heritage Sites; marine, coastal and terrestrial archaeology; historic buildings and areas; designed landscapes; and the historic character of the wider landscape.*
- *The significance of internationally and nationally designated sites should be safeguarded, and physical damage to historic sites should be avoided.*
- *The impact of wind energy developments on the setting and visual amenity of historic places should also be considered.*

⁵ English Heritage <http://www.english-heritage.org.uk/professional/advice/advice-by-topic/climate-change/renewable-energy/>

⁶ Wind Energy and Historic Environment <http://www.english-heritage.org.uk/content/publications/docs/windenergyfinal.pdf>

- *Where wind energy developments affect historic sites, national planning policies on the historic environment should be taken into account.*
- *Consideration should always be given to the reversibility of wind energy projects.*

ii. Methodology

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An assessment of the potential impacts of the proposed development on the areas cultural heritage will be analysed through a comprehensive study. This investigation will identify the direct and indirect impacts of the turbine, cable trench, and other infrastructural requirements at up to a 5km targeted study area around the development.

Setting

It will be necessary to identify the setting of any important HERs (Historic Environment Records) within the vicinity of the proposed development and to establish the significance of any upstanding remains and their setting in the landscape. In trying to define the character of the building it will be essential to identify the original purpose, style, height, profile, materials and details of the building. Some buildings were originally designed so that they would be visible from all directions, while others were designed to have panoramic views of the landscape. In many previous cases, buildings and monuments have been positioned to reduce the effect on the landscape or are relocated at less visible elevations. It will be important to assess the potential landscape and to identify the impact of the turbine.

It is very problematic when trying to define what should be the intangible aspects of cultural heritage and even more difficult when trying to assess these. This is why trying to identify the cultural landscape is often difficult. From a development perspective the tangible assets are much easier to identify and assess for developments such as this

Trying to identify the meaning of the term landscape in the definition "Cultural Landscape" is extremely difficult. The European Landscape Convention (ELC) has challenged the EU to arrive at a definition of "Landscape" that can have legal substance. UNESCO have defined what the Cultural Landscape should consist of, which is defined as;

"the combined works of nature and of man, and areas... which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological points of view" (1972, Article 1).

Three separate categories of Cultural landscape have been identified by UNESCO

i. Clearly defined landscape

The most easily identifiable is the clearly defined landscape designed and created intentionally by man. This embraces garden and parkland landscapes constructed for aesthetic reasons which

are often (but not always) associated with religious or other monumental buildings and ensembles.

ii. Organically evolved landscape.

The second category is the organically evolved landscape. This results from an initial social, economic, administrative, and/or religious imperative and has developed its present form by association with and in response to its natural environment. Such landscapes reflect that process of evolution in their form and component features. They fall into two sub-categories:

- A relict (or fossil) landscape is one in which an evolutionary process came to an end at some time in the past, either abruptly or over a period. Its significant distinguishing features are, however, still visible in material form
- A continuing landscape is one which retains an active social role in contemporary society closely associated with the traditional way of life, and in which the evolutionary process is still in progress. At the same time it exhibits significant material evidence of its evolution over time

iii. Associative cultural landscape.

The final category is the associative cultural landscape. The inclusion of such landscapes on the World Heritage List is justifiable by virtue of the powerful religious, artistic or cultural associations "

Historic Environment Records (HERs)

An assessment of the potential impacts of the proposed development on the areas cultural heritage has been analysed through a study of the Historic Environment Records (HERs) for the area. This included an analysis of:

World Heritage Sites (WHS)	The 1972 UNESCO World Heritage Convention was ratified by the UK in 1984. The Convention provides for the identification, protection, conservation and presentation of cultural and natural sites of "outstanding universal value." The UK currently has 28 WHS.
Scheduled Monument	English Heritage takes the lead in identifying sites in England which should be placed on the schedule by the Secretary of State for Culture, Media and Sport
Listed Buildings	Listed buildings are structures of special architectural or historic interest protected under the Planning. The lists are compiled and maintained by English Heritage.
Cartographic Sources	OS 1 st and 2 nd Edition 6" maps, historical maps, and aerial records where available
Other Designated	Industrial heritage Sites, Conservation Areas and Designated Gardens

sites	and Designed Landscapes
Development Plans	Local development plans will be consulted to analyze their policies towards cultural heritage
Research	Local Library services and reference books will be consulted where necessary

iii. Designated Sites

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Table 3: Scheduled Ancient Monuments (SAMs) within a 5km radius

Site ID	Name	Description	Impact
1016550	Ashnott lead mine and lime kiln, 90m south of Ashnott	The earthworks and buried remains of a lead mine, located on a limestone knoll on the valley side to the east of Crag Beck. The date when lead mining first began at Ashnott is unknown, but documentary sources indicate that mining operations were in progress here during the late 13th and late 16th centuries and during the 18th and 19th centuries	Low

Table 4: Listed Buildings within 2km of the proposed location

	Name	Category	Description
1072212	Oxenhurst Farmhouse	II	House, late C18th. Sandstone rubble with slate roof. Double-pile plan with central entry and end stack.
1072253	Boardsden Farmhouse	II	House, late C18th. Squared watershot sandstone with slate roof. Double-pile plan with central entry and end stacks. 2 storeys with attic,
There are another 17 listed buildings within the settlement of Newton all of which are in the 'II' category and one categorised as 'II*'			

There are no NMRs within 1km of the proposed turbine.

iv. Impacts

There are no designated sites within the footprint of the proposed development, although there are archaeological sites within the study area. It is perceived that the proposed wind turbine will have a potential impact upon the areas cultural heritage if the turbine is not sited correctly in the landscape. The historic landscape has therefore been considered with utmost importance when designing this development.

The greatest potential impact upon the areas cultural heritage is upon listed buildings in Newton; however the ZTV demonstrates that the turbine is not visible from Newton. The SAM is noted as being within in an area of the ZTV however at almost 5km from the proposed site and therefore the impact upon this SAM is minimal.

8. NOISE ASSESSMENT

The noise levels of a turbine depend on various factors, such as the turbine's power level, background noise, wind speed and the sensitivity of nearby dwellings etc. In general, the turbine proposed in this development is quiet in operation

Wind Turbine Noise Characteristics

Noise is generated by wind turbines as they rotate to generate power. This only occurs above the 'cut-in' wind speed and below the 'cut-out' wind speed. Below the cut-in wind speed there is insufficient strength in the wind to generate efficiently and above the cut-out wind speed the turbine is automatically shut down to prevent any malfunctions from occurring. The cut-in speed at turbine hub height is normally between 3 and 5 metres per second (m/s) and the cut out wind speed is normally around 25 m/s.

The principal sources of noise are from the blades rotating in the air (aerodynamic noise) and from internal machinery, normally the gearbox and, to a lesser extent, the generator (mechanical noise). The blades are carefully designed to minimise noise whilst optimising power transfer from the wind. The nacelle at the top of the tower is insulated to minimise noise radiation from the gearbox, generator and other components which are also isolated from the tower and the blade assembly to prevent structure borne noise

Noise in the Environment

Although the source noise levels are of a benign nature, wind farms are generally situated in rural environments where there are few other sources of noise. When wind speeds are high this is not a problem since any noise is normally masked by wind induced noise effects, particularly that of the trees being blown. At lower wind speeds, however, or in particularly sheltered locations, the wind induced background noise may not be sufficient to mask any noise from the turbines. However, under these conditions, the generated noise levels may be so low as to generate very little impact

Noise levels are normally expressed in decibels. Noise in the environment is measured using the dB(A) scale which includes a correction for the response of the human ear to noises with different frequency content. Planning Advice Note PAN56, Planning and Noise, states that "*For noise of a similar character, a change of 3dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving and doubling the loudness of a sound*". Table 5 shows typical levels of noise in the environment.

PAN 45

Well-designed wind turbines are generally quiet in operation. The table below gives an indication of the noise generated by wind turbines compared with other everyday activities

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Table 5: Indicative Noise Levels

Source / Activity	Indicative noise level dB(A)
Threshold of pain	140
Jet aircraft at 250m	105
Pneumatic drill at 7m	95
Truck at 30mph at 100m	65
Busy general office	60
Car at 40mph at 100m	55
Xzeres 442SR at 10m/s windspeed at 280m	35
Quiet bedroom	35
Rural night-time background	20-40
Threshold of hearing	0

Since the early 1990s, there has been significant reduction in the mechanical noise generated by wind turbines and it is now usually less than, or now of a similar level to, the aerodynamic noise. Aerodynamic noise from wind turbines is generally unobtrusive; it is broad band in nature and in this respect similar to, for example, the noise of wind in trees.

Wind generated background noise increases with wind speed, and at a faster rate than wind turbine noise increases with wind speed. The difference between the noise of the wind farm and the background noise is therefore liable to be greatest at low wind speeds. Varying the speed of the turbines in such conditions can if necessary, reduce the sound output from modern turbines.

From: *"The Assessment and Rating of Noise from Wind Farms"* (ETSU for DTI 1996).

- Noise limits should be applied to external locations and should apply only to those areas frequently used for relaxation or activities for which a quiet environment is highly desirable;
- A fixed limit of 43dB(A) is recommended for night-time. This is based on a sleep disturbance criteria of 35dB(A) with an allowance of 10dB(A) for attenuation through an open window (free field to internal) and 2dB(A) subtracted to account for the use of L A90,10min rather than L Aeq,10min.
- Both day and night-time lower fixed limits can be increased to 45dB(A) to increase the permissible margin above background where the occupier of the property has some financial interest in the wind farm.
- In low noise environments the day-time level of the L A90,10min of the wind farm noise should be limited to an absolute level within the range of 35-40dB(A). The actual value chosen within this range should depend upon; the number of dwellings in the neighbourhood of the wind farm; the effect of noise limits on the number of kWh generated; and the duration of the level of exposure

- For single turbines or wind farms with very large separation distances between the turbines and the nearest properties, a simplified noise condition may be suitable. If the noise is limited to an LA90,10min of 35dB(A) up to wind speeds of 10m/s at 10m height, then this condition alone would offer sufficient protection of amenity, and background noise surveys would be unnecessary.

In regards to the development proposed in this document, various measures have been put in place to avoid noise nuisance. Through desk based and site surveys the turbine has been positioned at such a distance, for this particular model the appropriate separation between the development and any noise sensitive areas is 300m which has been adhered to. Where possible, terrain shielding and noise barriers have been established to any reduce noise impacts further.

9. SHADOW FLICKER

A recent study has been published in March 2011 by the Department of Energy and Climate change on the effects of shadow flicker from wind turbines. Research undertaken by Parsons Brinckerhoff concluded that⁷:

- There have not been extensive issues with shadow flicker in the UK
- The frequency of the flickering caused by the wind turbine rotation is such that it should not cause a significant risk to health. In the few cases where problems have arisen, they have been resolved effectively using mitigation measures, in particular turbine shut down systems. The Government has reviewed the report findings and concluded that the existing planning guidance on shadow flicker is fit for purpose and no changes to it are required.

The following is the definition of Shadow Flicker in according to PAN45 Renewable Energy Technologies;

"Under certain combinations of geographical position, time of day and time of year, the sun may pass behind the rotor and cast a shadow over neighbouring properties. When the blades rotate, the shadow flicks on and off; the effect is known as "shadow flicker". It occurs only within buildings where the flicker appears through a narrow window opening."

It is suggested that in general, a separation distance of 10 times the rotor diameter (72m in the case of this model) is required between the wind turbine and any properties potentially affected. This shall ensure that the any issues regarding "shadow flicker" are mitigated.

⁷ Dept. Energy and Climate Change. http://www.decc.gov.uk/en/content/cms/news/pn11_025/pn11_025.aspx

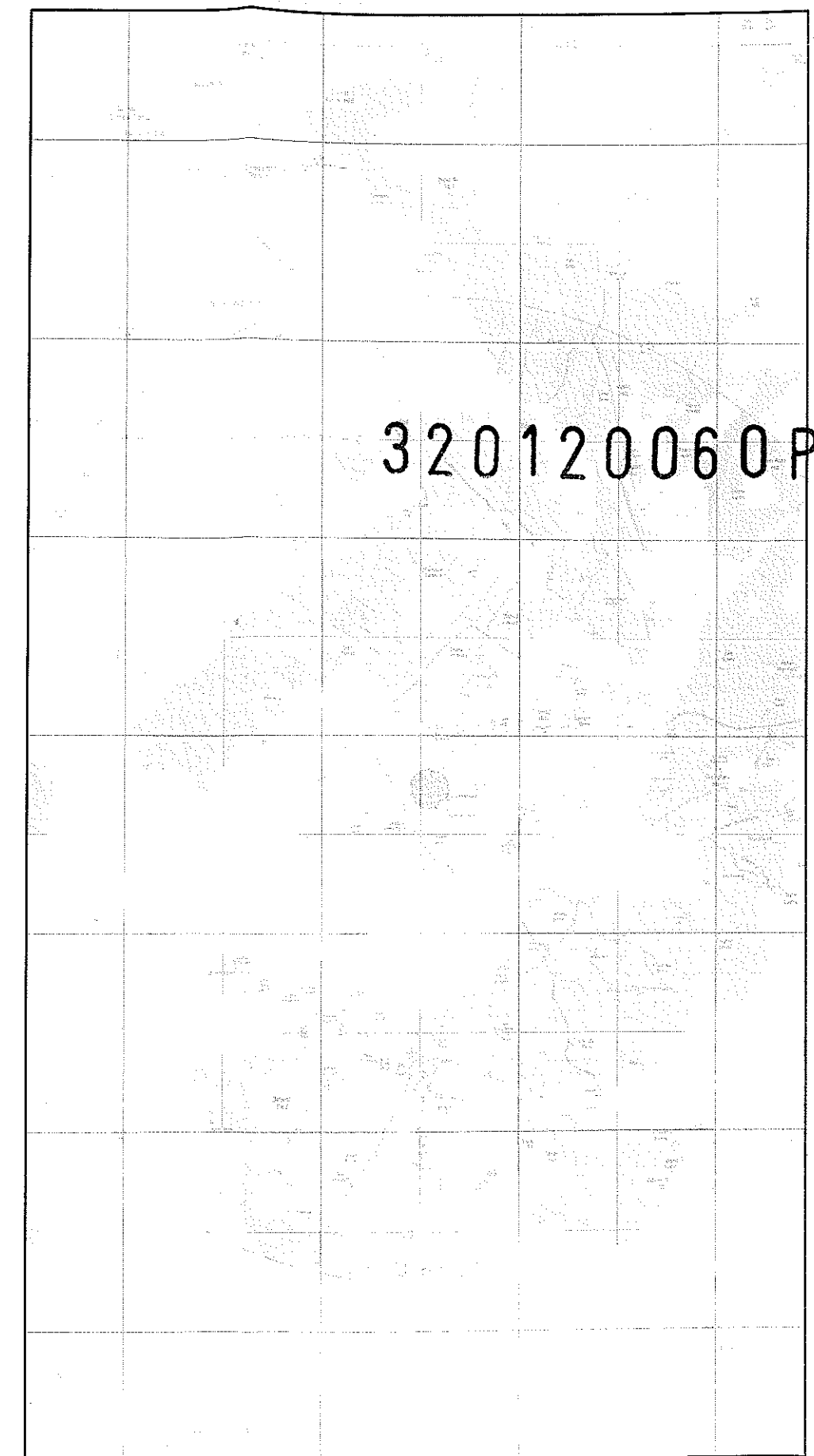
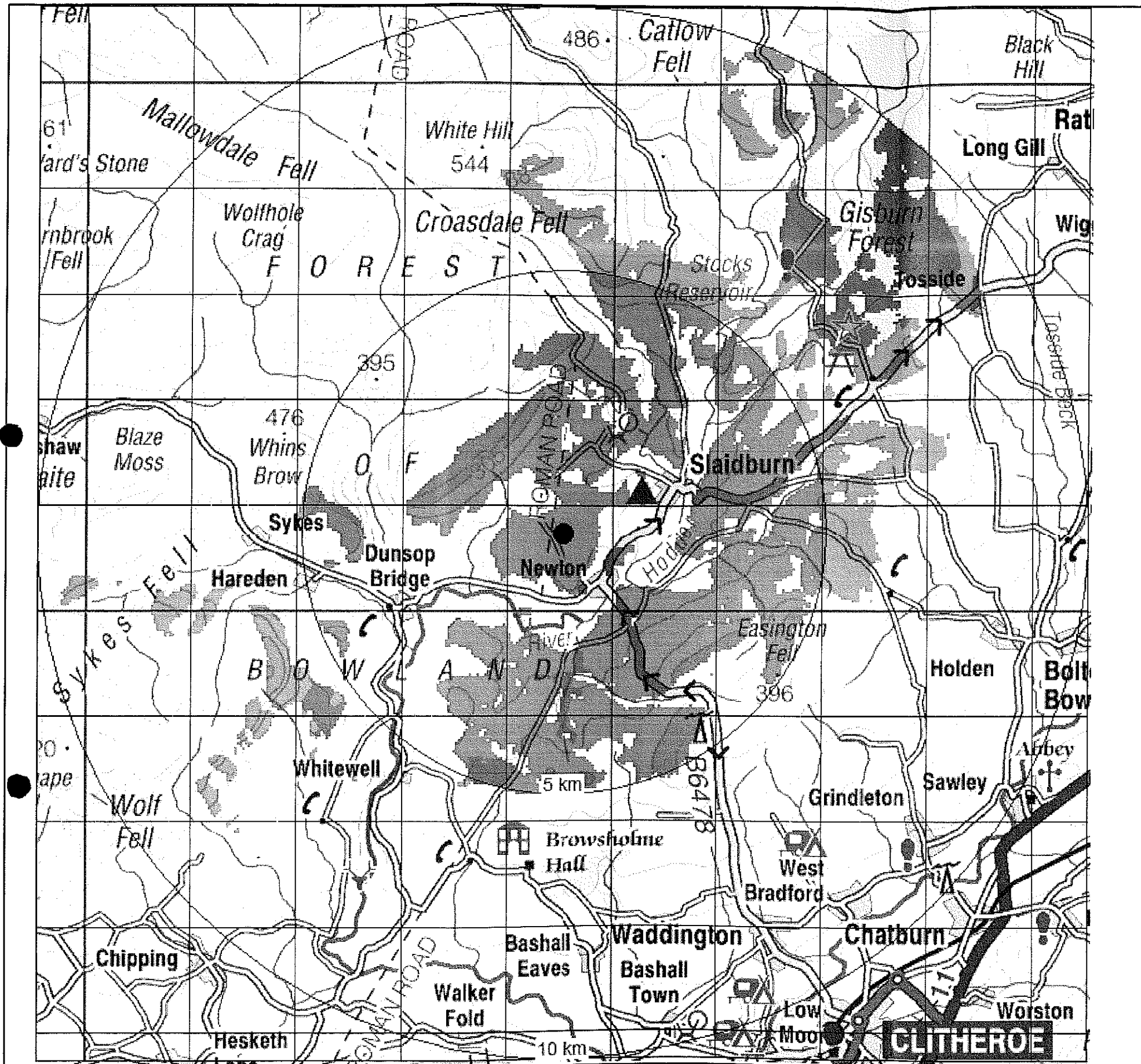
10. EXISTING INFRASTRUCTURE

Wind farms have the potential to interfere with electro-magnetic signals passing above ground or existing infrastructure below ground. Consultation with relevant telecommunication and utilities providers is a routine part of wind farm development. Consultees will include:

- Civil Aviation Authority (CAA);
- Defence Estates, MoD;
- NATS;
- OFCOM;
- Television and telecommunications providers as appropriate; and
- Water, gas and electricity utilities providers.

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Information obtained from the consultees has been taken into account and incorporated into the design of the development.



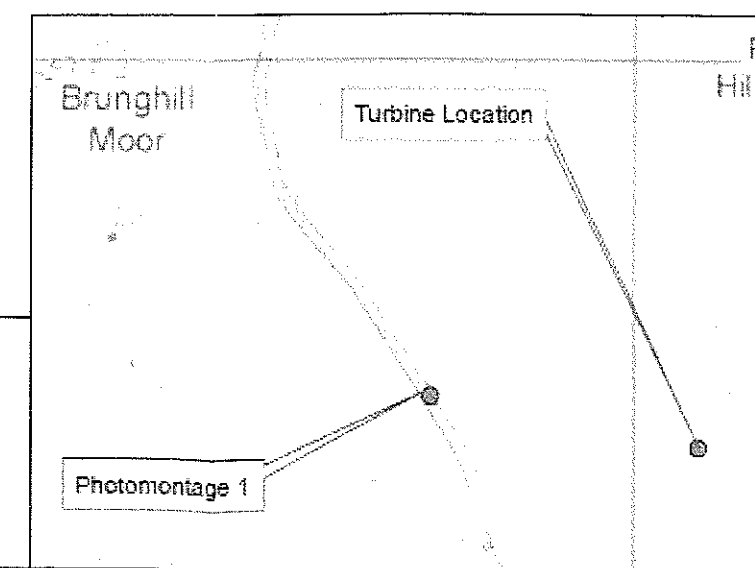
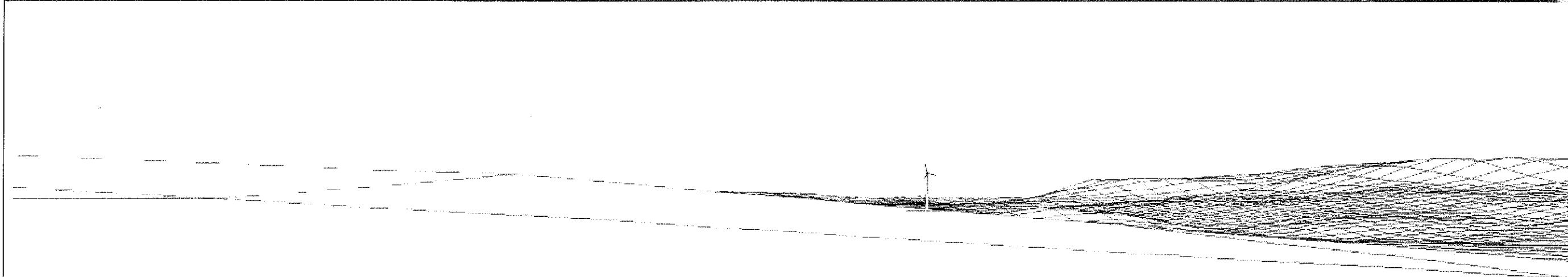
ZTV of CrawshawFarm turbine, Xzeres 442SR 25m tower, over a 10km radius

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Close up of ZTV around proposed site

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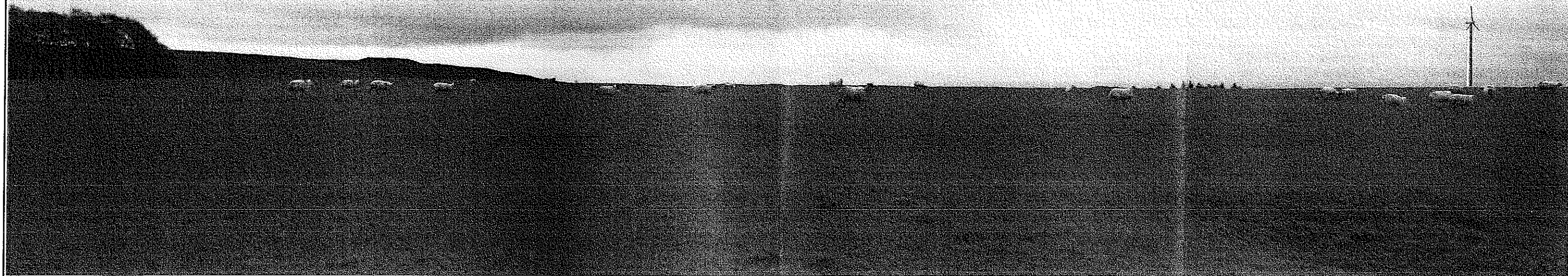
Photomontage Viewpoint Location

View from footpath, north west
of Crawshaw Farm, crossing the road

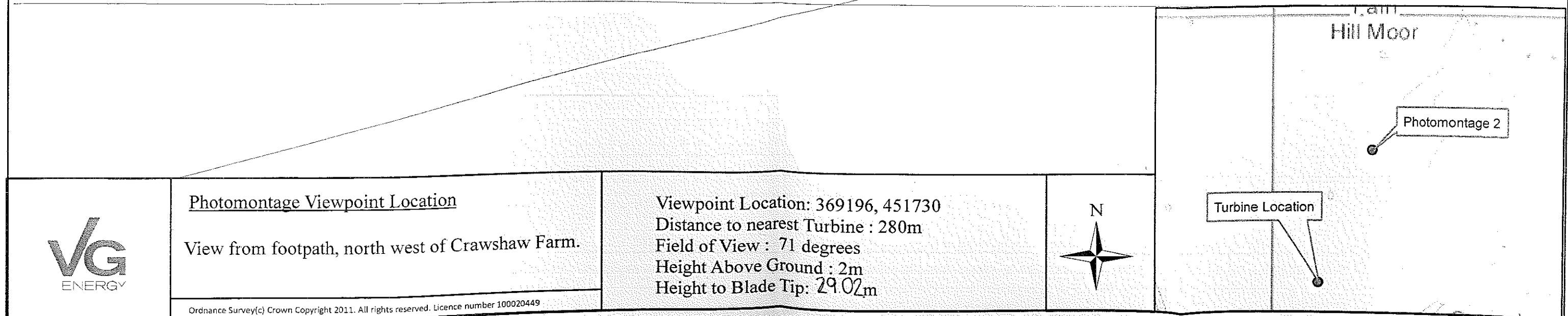
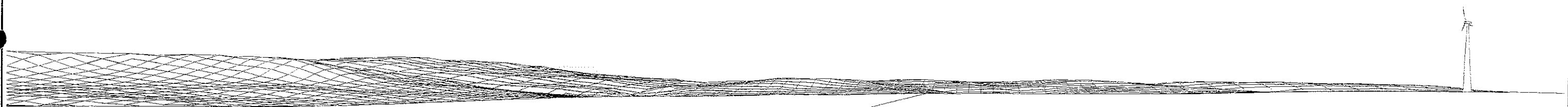
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Viewpoint Location: 368716, 451534
Distance to nearest Turbine : 390m
Field of View : 73 degrees
Height Above Ground : 2m
Height to Blade Tip: 29.02 m



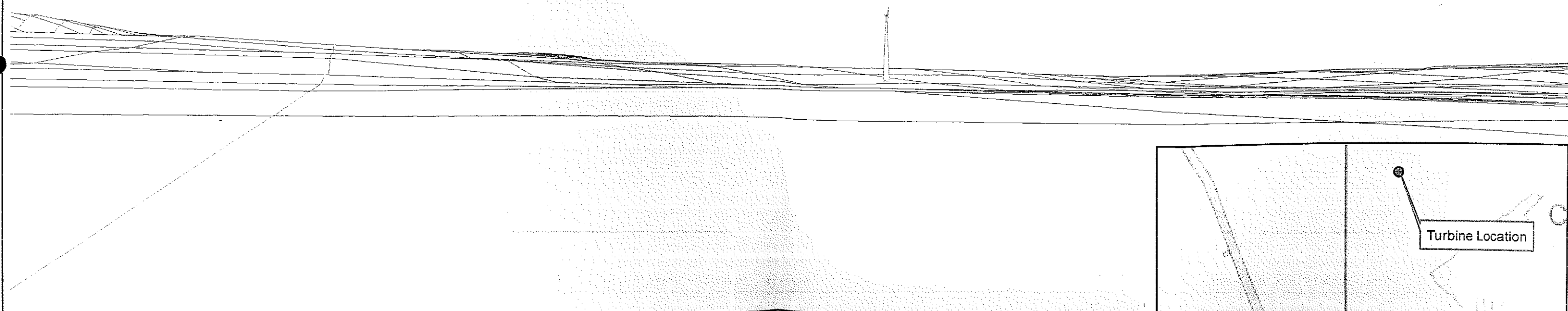


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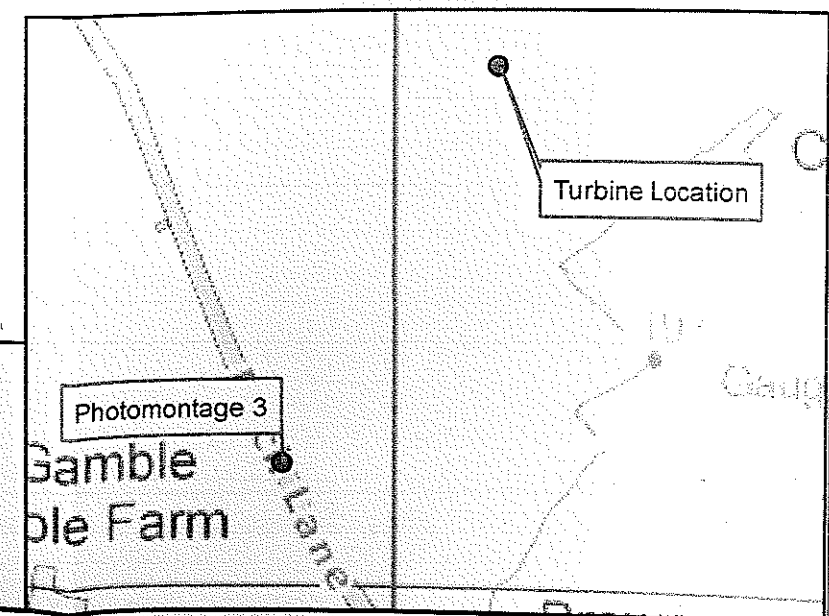
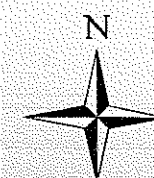


Photomontage Viewpoint Location

View from Crawshaw Farm road.

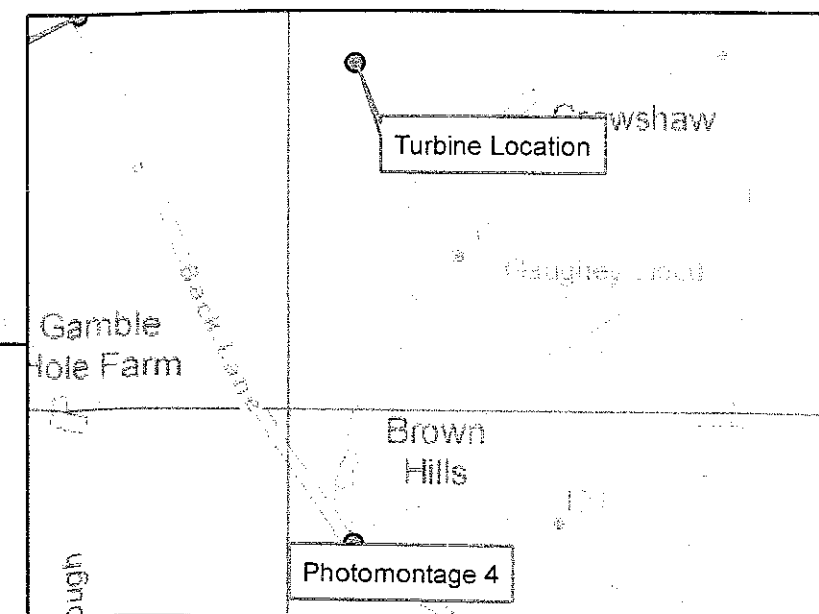
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Viewpoint Location: 368902, 351111
 Distance to nearest Turbine : 390m
 Field of View : 73 degrees
 Height Above Ground : 2m
 Height to Blade Tip: 29.02 m





320120060P



Photomontage Viewpoint Location

View from outside Brown Hills

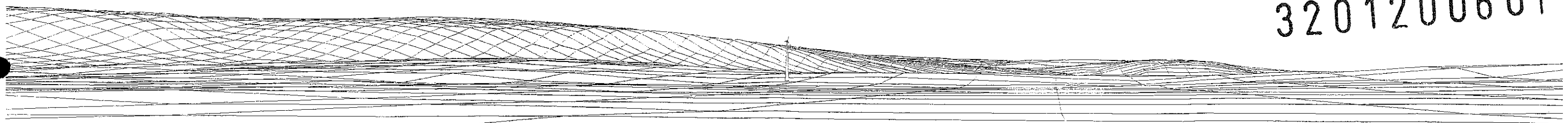
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Viewpoint Location: 369089, 450818
 Distance to nearest Turbine : 390m
 Field of View : 75 degrees
 Height Above Ground : 2m
 Height to Blade Tip: 29.02m





320120060P

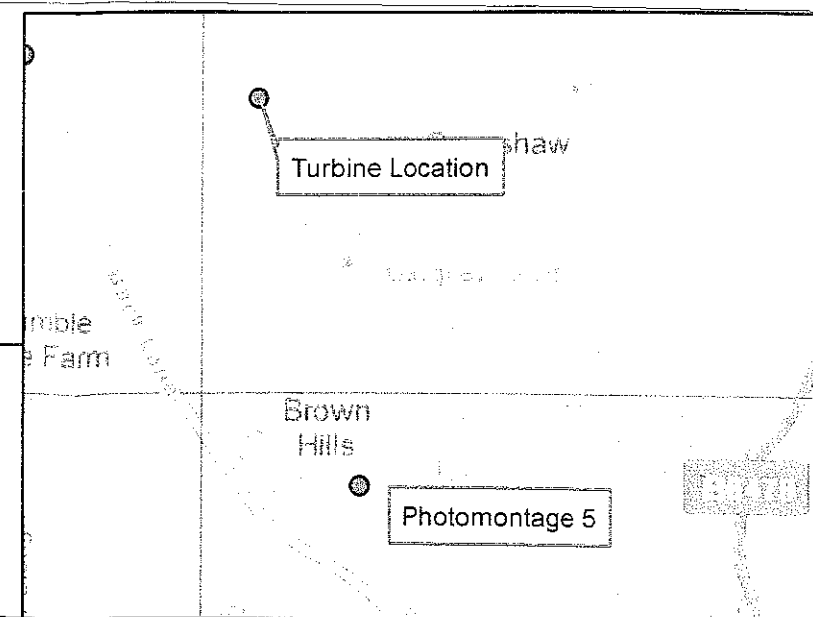


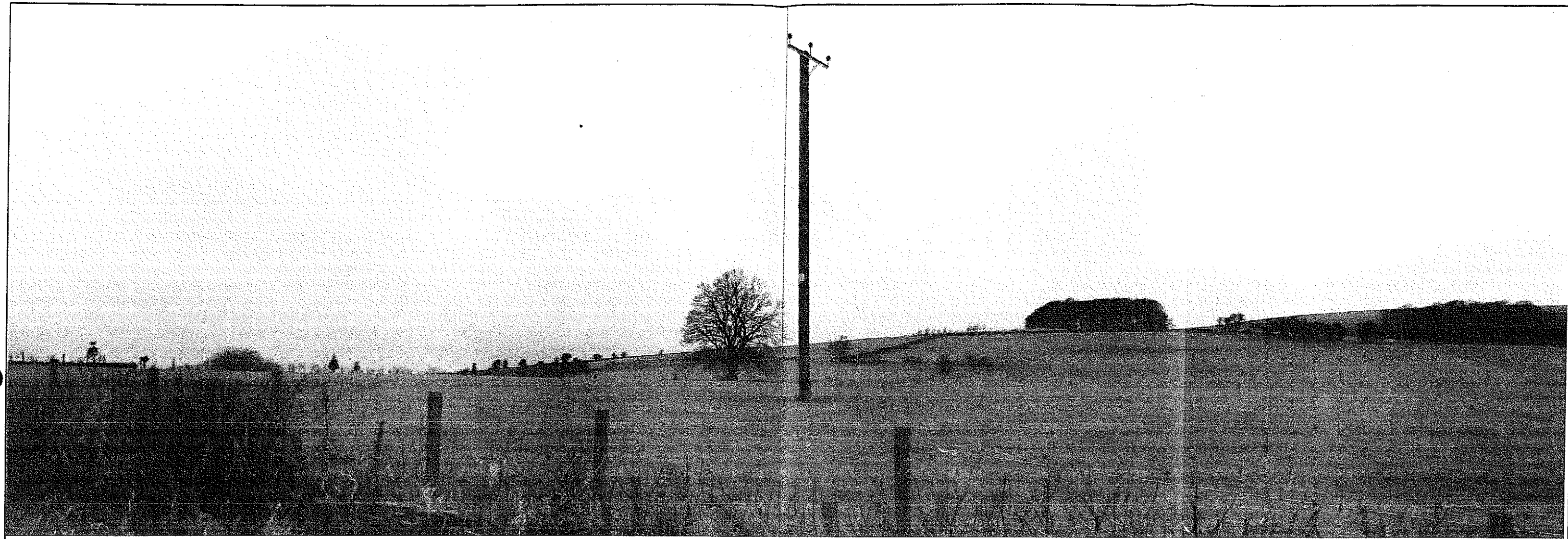
Photomontage Viewpoint Location

View from pathway south of Crawshaw Farm

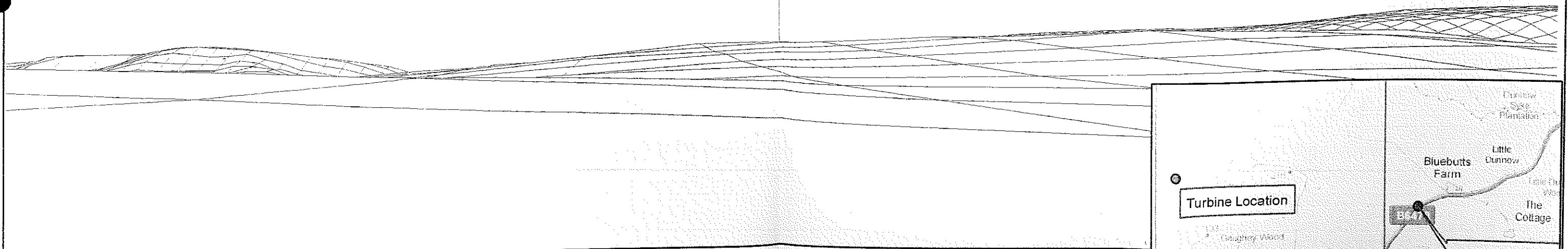
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Viewpoint Location: 369249, 450853
Distance to nearest Turbine : 630m
Field of View : 75 degrees
Height Above Ground : 2m
Height to Blade Tip: 29.02 m





320120060 P

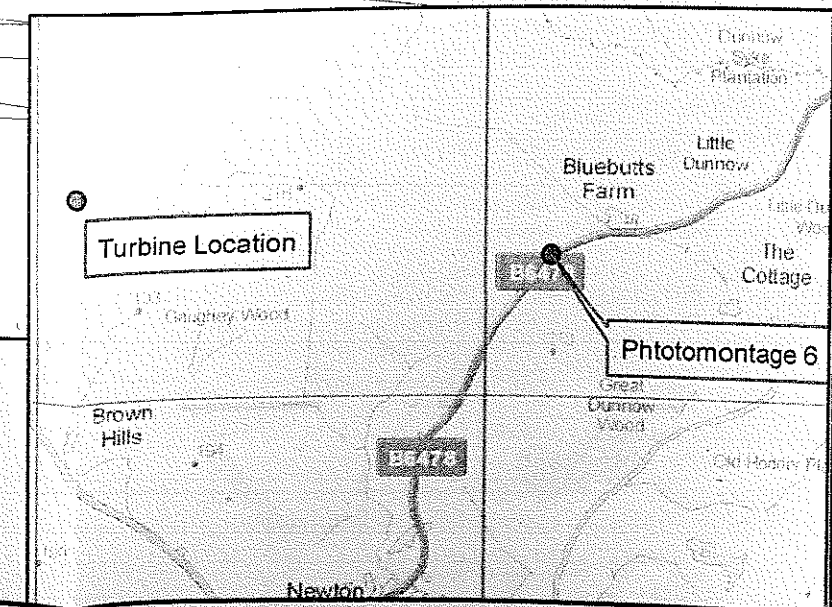
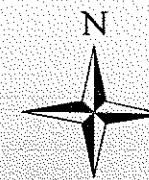


Photomontage Viewpoint Location

View from Bluebutts Farm

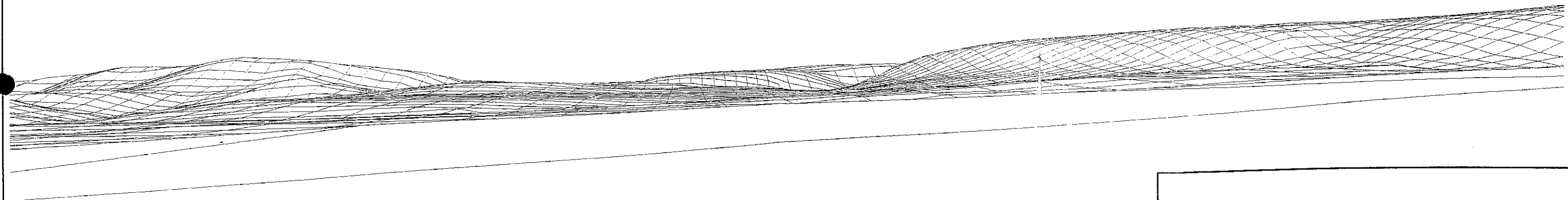
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Viewpoint Location: 370152, 451320
 Distance to nearest Turbine : 1km
 Field of View : 73 degrees
 Height Above Ground : 2m
 Height to Blade Tip: 29.02 m





320120060P

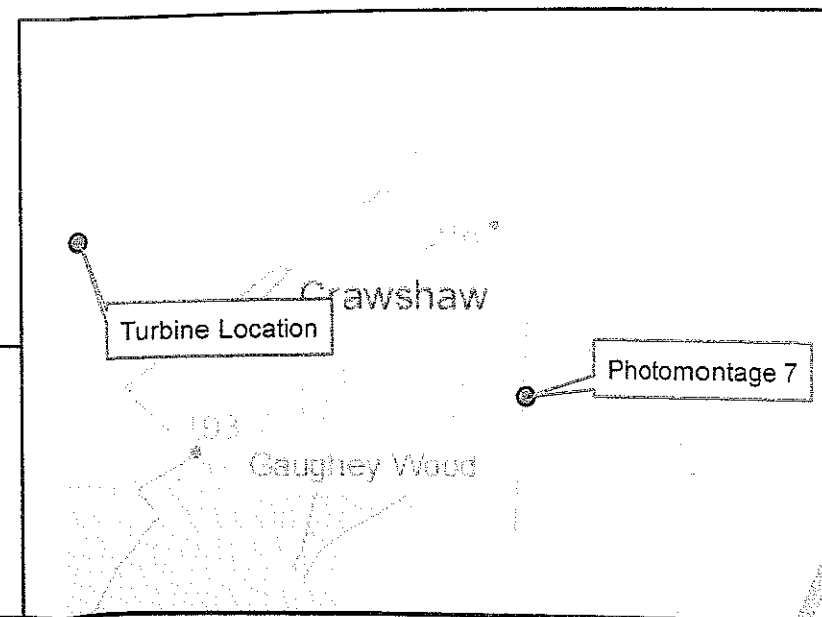


Photomontage Viewpoint Location

View from pathway east of Crawshaw Farm

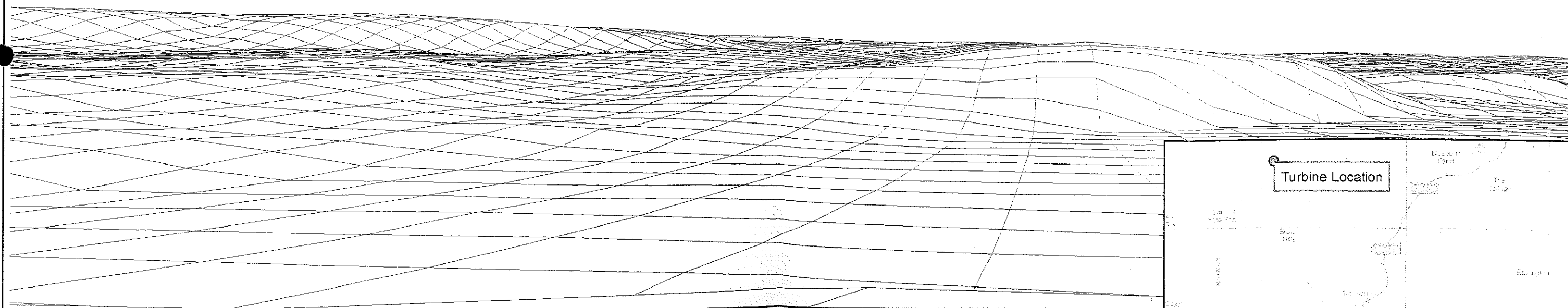
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Viewpoint Location: 369622, 451272
Distance to nearest Turbine : 575m
Field of View : 73 degrees
Height Above Ground : 2m
Height to Blade Tip: 29.02 m





320120060P

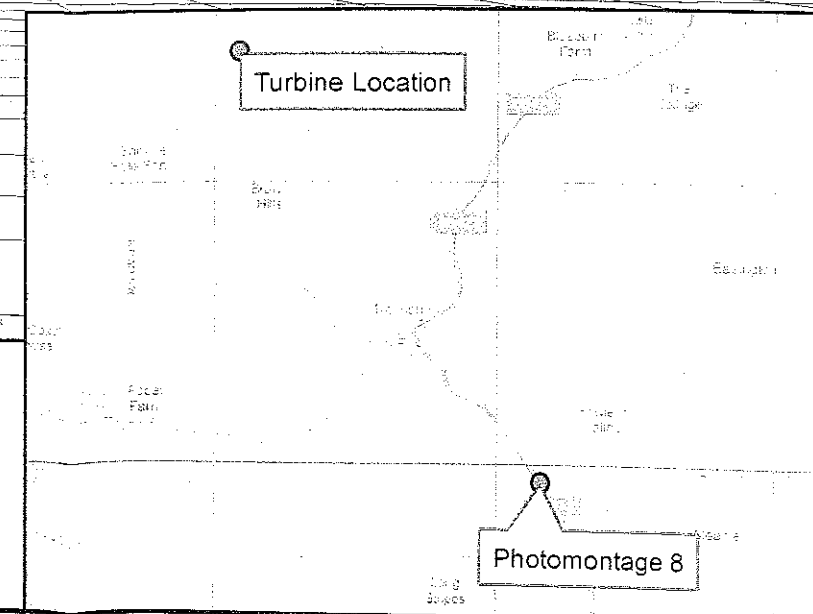


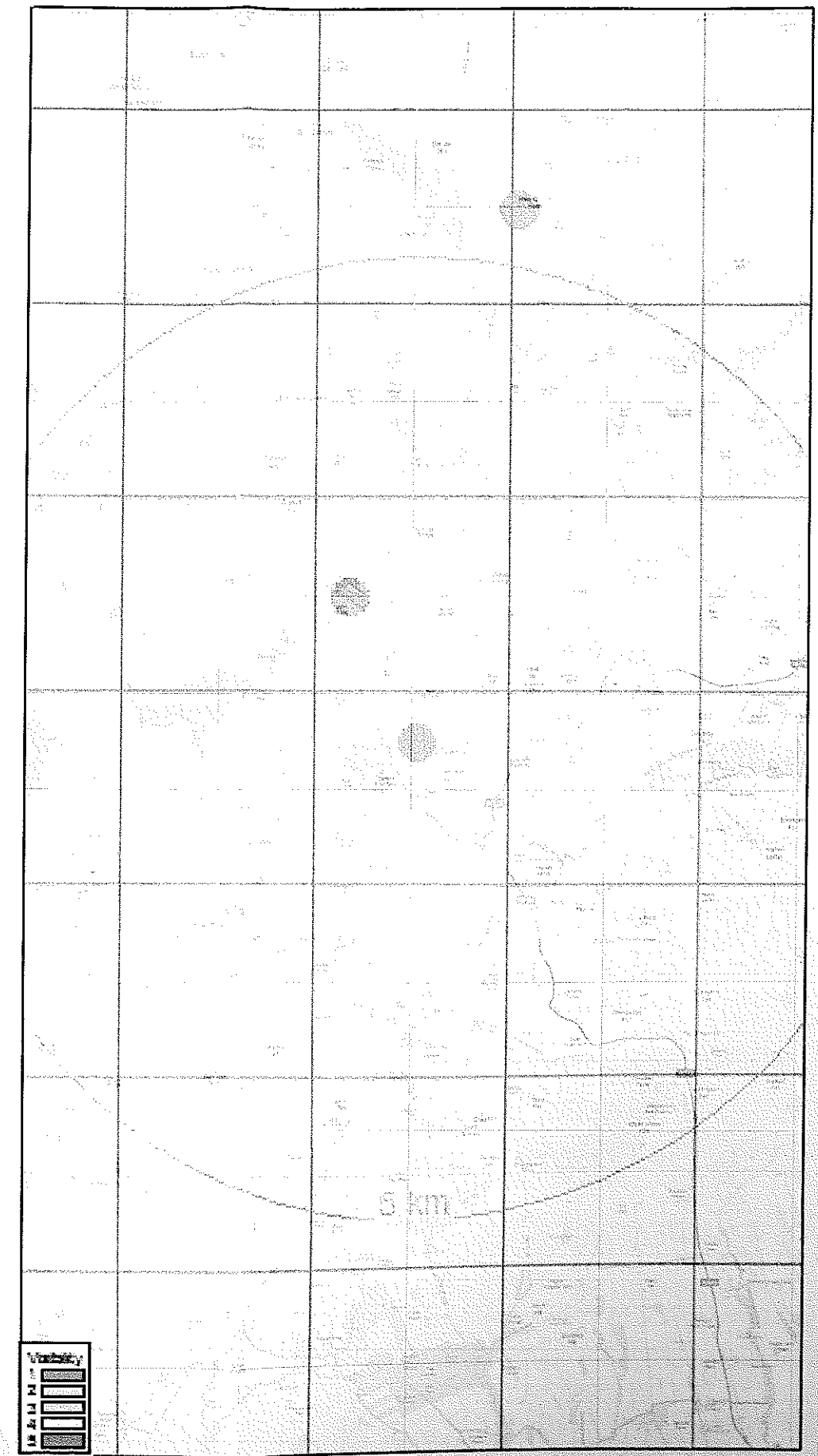
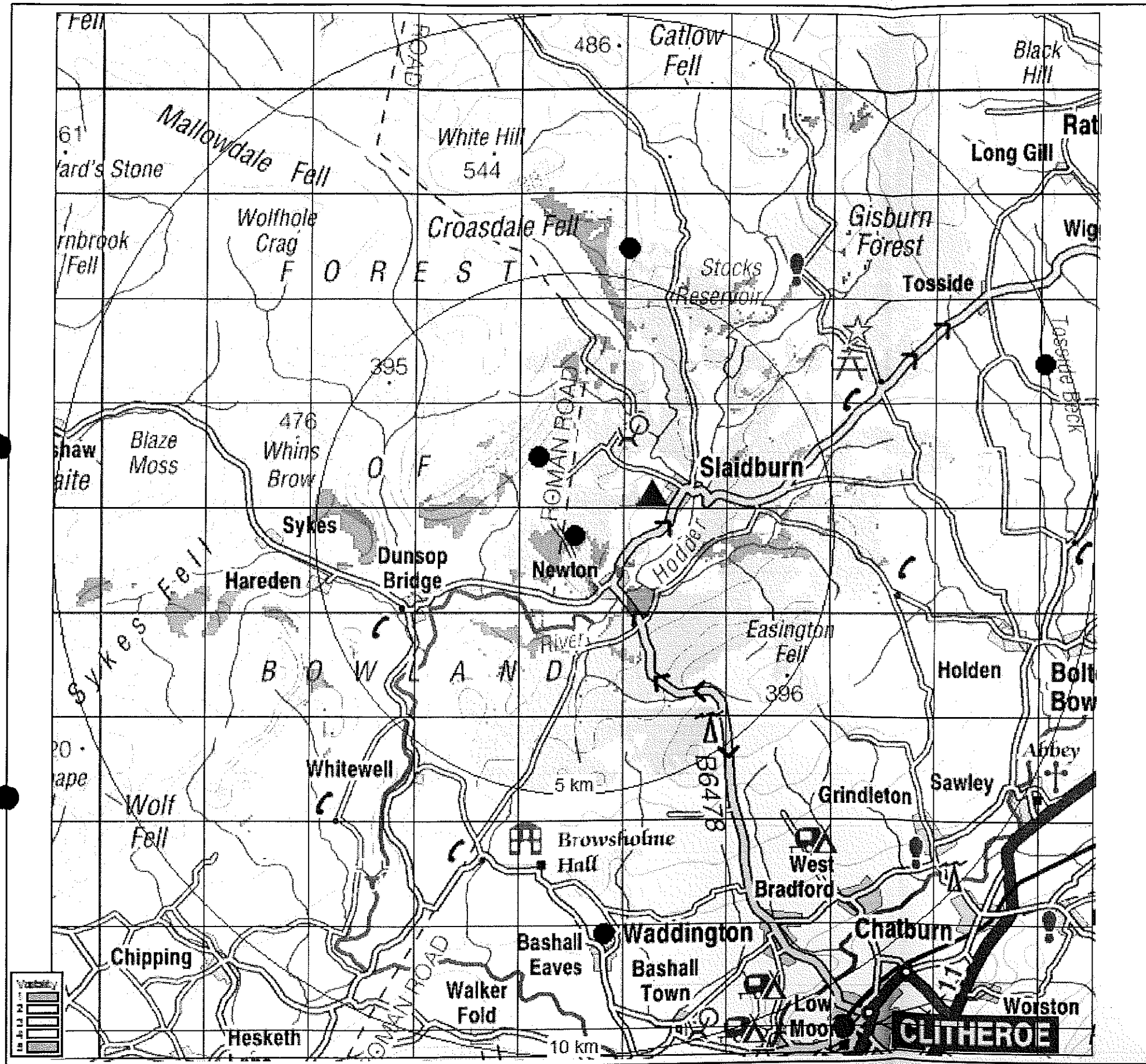
Photomontage Viewpoint Location

View from road leaving Newton from the south-east.

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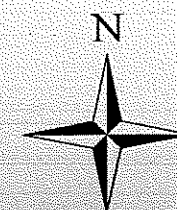
Viewpoint Location: 370162, 449931
 Distance to nearest Turbine : 1.8km
 Field of View : 75 degrees
 Height Above Ground : 2m
 Height to Blade Tip: 29.02m



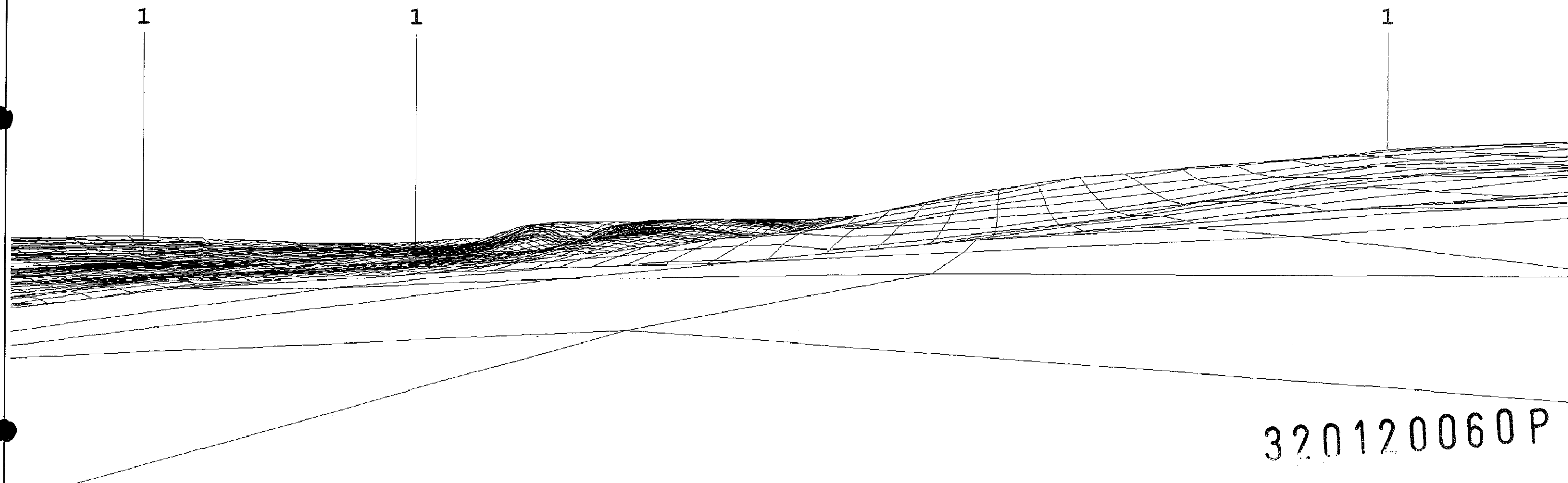


Cumulative ZTV of Crawshaw Farm turbine, Xzeres
442SR 25m tower, over a 10km radius

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320120060P
Close up of ZTV around proposed site



320120060P

Laythams
Fellside
Throstles Nest
Mason House

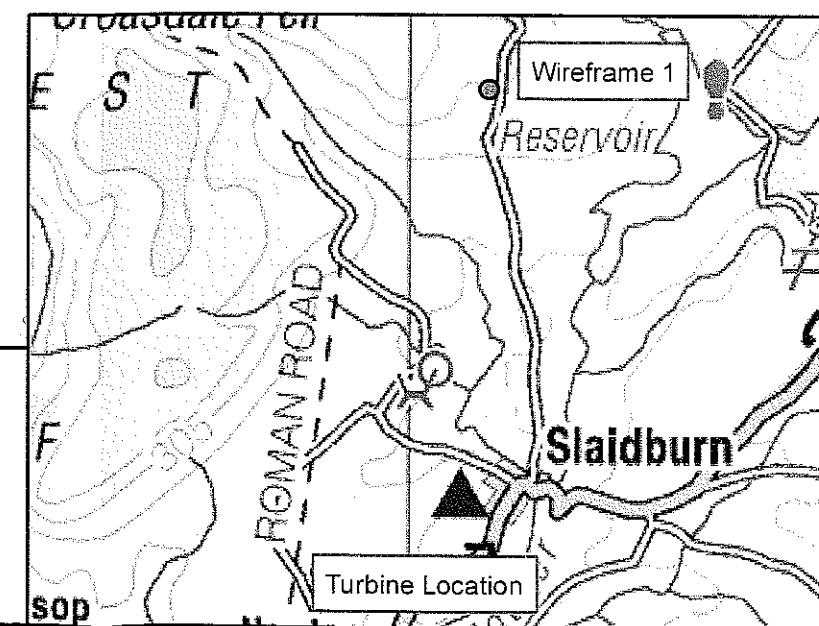


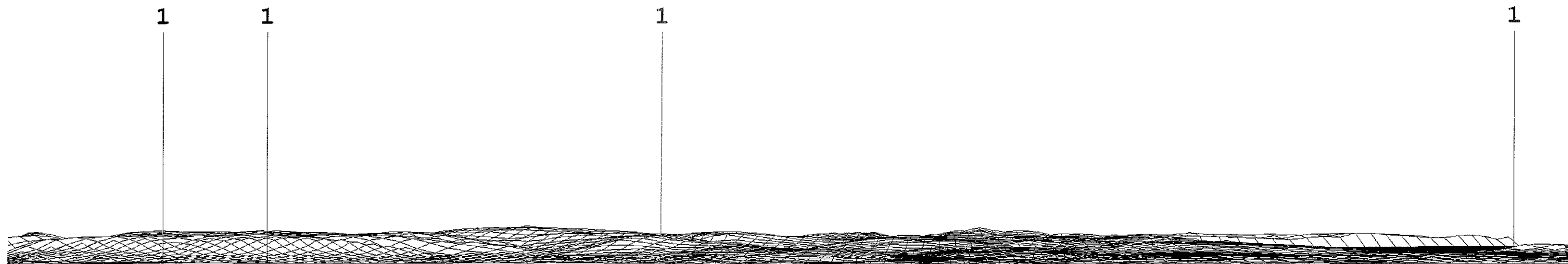
Viewpoint Location

View from road west of Stocks Reservoir

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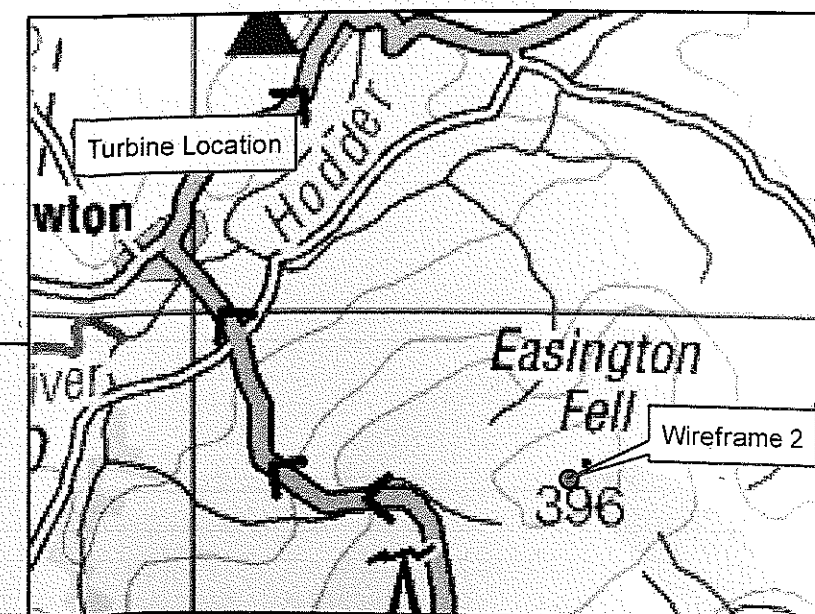
Viewpoint Location: 370859, 456557
Distance to nearest Turbine : 5.3km
Field of View : 110 degrees
Height Above Ground : 2m





320120060P

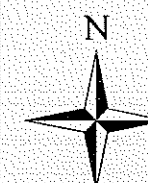
Laythams	☐
Fellside	☐
Throstles Nest	☐
Mason House	☐

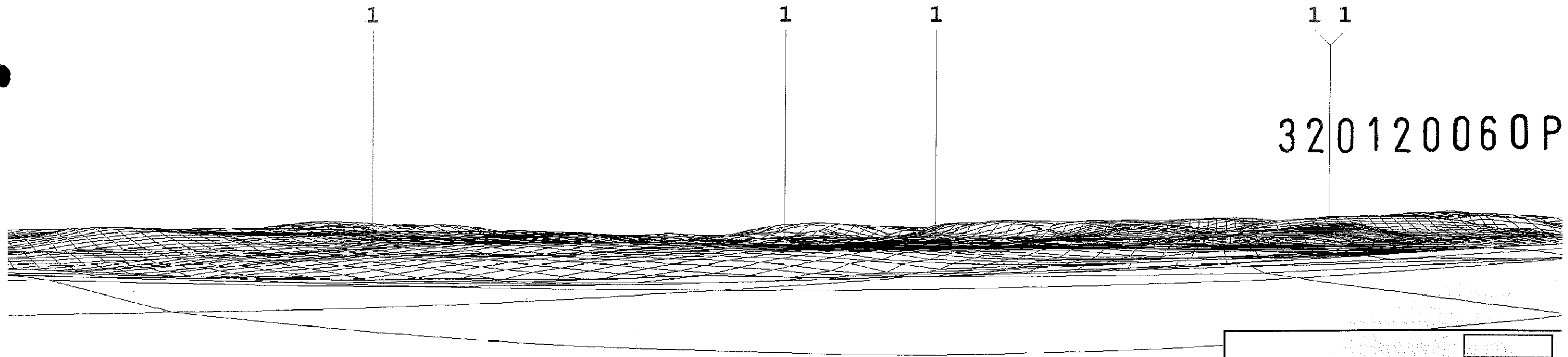


Viewpoint Location

View from Easington Fell

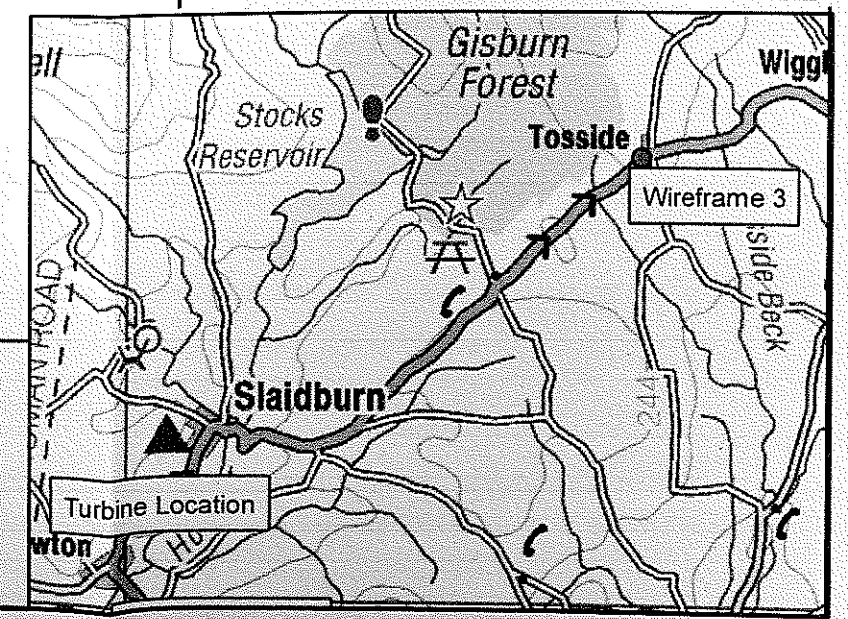
Viewpoint Location: 373029, 448644
Distance to nearest Turbine : 4.8km
Field of View : 110 degrees
Height Above Ground : 2m





320120060P

Laythams	☐
Fellside	☐
Throstles Nest	☐
Mason House	☐



Viewpoint Location
View from Tosside

Viewpoint Location: 376863, 456044
Distance to nearest Turbine : 9km
Field of View : 110 degrees
Height Above Ground : 2m

