JONES LANG LASALLE

Real value in a changing world

Section 78 Town & Country Planning Act 1990 **BEL/DB/3**

PINS Ref: APP/Z2830/A/11/2165035

Appendices to Proof of Evidence of

David C Bell BSc(Hons) DipUD MRTPI MCIHT

in respect of an Application under Section 78 of the Town & Country Planning Act 1990 for the erection of and 25 year operation of 5, 125m wind turbines and associated infrastructure and services, at Spring Farm Ridge, land to the north of Welsh Lane between Greatworth and Helmdon, South Northamptonshire

in relation to:

Planning Policy

prepared for

Broadview Energy Limited

August 2013

Appendices

Appendix 1: Dti 'The Energy Challenge', Annex D, Renewables Statement of Need (July, 2006).

Appendix 2: Dti, 'Meeting the Energy Challenge' White Paper on Energy (May 2007) - Extracts.

Appendix 3: Wind Farms and Residential Amenity

Appendix 4: Wind Farms and Tourism

Appendix 5: Flood Risk & Drainage Technical Note

Appendix 6: Highways Technical Note

Appendix 7: Aviation Technical Note

Appendix 8: Broadband Technical Note

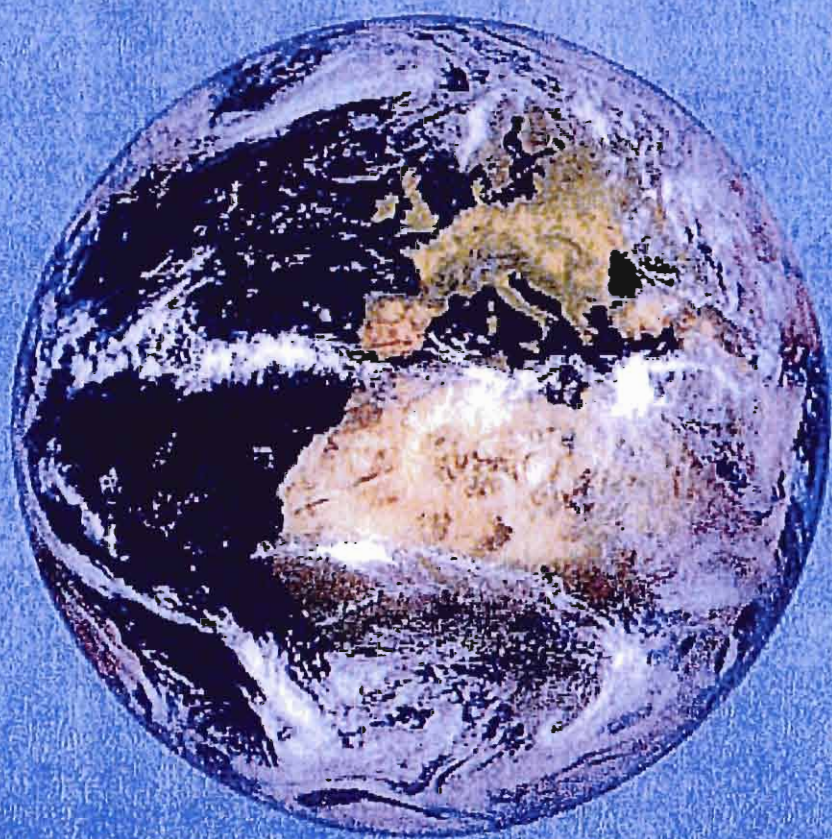
Appendix 9: Review of Proximity of Operational / Consented Wind Farms to Public Rights of Way / Bridleways

Appendix 10: Spring Farm Ridge Wind Farm – Report on Energy Potential

DAVID BELL
APPENDIX 1
[redacted]

HM Government

The Energy Challenge



dti

ENERGY REVIEW

A Report

The Energy Challenge
Energy Review Report 2006
Department of Trade and Industry

Presented to Parliament by the Secretary of State for Trade and Industry
By Command of Her Majesty

July 2006

Cm 6887 £22.00

ANNEX D

Renewables Statement of Need

We remain committed to the important role renewables have to play in helping the UK meet its energy policy goals. In this publication we are reiterating previous commitments we have made, not least in the 2003 Energy White Paper and Planning Policy Statement 22 on renewable energy (PPS22), on the importance of renewable generation and the supporting infrastructure. We intend this to reconfirm the UK Government policy context for planning and consent decisions on renewable generation projects.

As highlighted in the 2006 Energy Review report[1], the UK faces difficult challenges in meeting its energy policy goals. Renewable energy as a source of low-carbon, indigenous electricity generation is central to reducing emissions and maintaining the reliability of our energy supplies at a time when our indigenous fossil fuels are declining more rapidly than expected. A regulatory environment that enables the development of appropriately sited renewable projects, and allows the UK to realise its extensive renewable resources, is vital if we are to make real progress towards our challenging goals.

New renewable projects may not always appear to convey any particular local benefit, but they provide crucial national benefits. Individual renewable projects are part of a growing proportion of low-carbon generation that provides benefits shared by all communities both through reduced emissions and more diverse supplies of energy, which helps the reliability of our supplies. This factor is a material consideration to which all participants in the planning system should give significant weight when considering renewable proposals. These wider benefits are not always immediately visible to the specific locality in which the project is sited. However, the benefits to society and the wider economy as a whole are significant and this must be reflected in the weight given to these considerations by decision makers in reaching their decisions.

If we are to maintain a rigorous planning system that does not disincentivise investment in renewable generation, it must also enable decisions to be taken in reasonable time. Decision makers should ensure that planning applications for renewable energy developments are dealt with expeditiously while addressing the relevant issues.

1 *The Energy Challenge*, July 2006.

PPS22 makes clear that regional planning bodies and local planning authorities should not make assumptions about the technical and commercial feasibility of renewable energy projects, and that possible locations for renewable energy development must not be ruled out as unsuitable in advance of full consideration of the application and its likely impacts. Planning policies, in Regional Spatial Strategies and Local Development Documents, should not place unjustified restrictions on renewable developments; they must be flexible to cope with technological and other change over time.

However, there will be certain areas with more readily available access to renewable resources that will be more attractive for developers, for example where windspeeds are greatest. As such, as we increase the level of renewables, in line with our energy policy goals, there will be occasions when proposals are received for renewables projects that are located closely enough together potentially to have cumulative impacts. Decision makers will have to work closely together with statutory advisers, such as English Nature, to consider the handling of assessments of the cumulative impact of such proposed developments. Cumulative effects, like the impacts of individual projects, will not however necessarily be unacceptable or incapable of reduction through mitigation measures.

DAVID BELL
APPENDIX 2

Meeting the Energy Challenge
A White Paper on Energy
May 2007

Department of Trade and Industry

Presented to Parliament by the Secretary of State for Trade and Industry
By Command of Her Majesty

May 2007

CM 7124

£40.00

Results of the recent statutory consultation on the RO

5.3.62 Our recent consultation also included a series of more minor changes to the Renewables Obligation Order and these came into force on 1 April 2007. The detail is set out in the explanatory note accompanying the Order[148]. These include specific de-regulatory measures which will:

- make it easier for small and micro-generators to seek support via the RO;
- allow generators to claim support for a wider range of biomass fuels as long as at least 90% of the total energy content is derived from biomass; and
- remove caps on co-firing energy crops.

5.3.63 As mentioned previously there are a range of other issues, beyond those related to the RO, which currently act as barriers to greater development of renewable energy. These issues are addressed in the following sections.

Planning

5.3.64 As already mentioned, planning is one of the most significant barriers to the deployment of renewables. For example, according to industry statistics, it takes an average period of 21 months for windfarms to secure planning consent under the Electricity Act regime[149].

5.3.65 In the Energy Review Report we therefore set out a series of initiatives and proposals aimed at reducing uncertainty and shortening the overall timescales from application to a final decision on consent. These were based on three underlying principles:

- improving the strategic (i.e. national policy) context against which individual planning decisions should be made;
- introducing more efficient inquiry procedures in the current consent regimes; and
- exploring options for more timely decision-making.

5.3.66 Each of the planning reforms in these areas is detailed in chapter 8 of this White Paper.

5.3.67 Recognising the particular difficulties faced by renewables in securing planning consent, the Government is also:

- underlining that applicants will no longer have to demonstrate either the overall need for renewable energy or for their particular proposal to be sited in a particular location;
- creating the expectation amongst applicants that any substantial new proposed developments would need to source a significant proportion of their energy supply from low carbon sources (including on and off-site renewables);
- encouraging planners to help create an attractive environment for innovation and in which the private sector can bring forward investment in renewable and low carbon technologies; and
- giving a clear steer to planning professionals and local authority decision-makers, that in considering applications they should look favourably on renewable energy developments.

148 The Renewables Obligation Order 2006 (Amendment) Order 2007.
149 BWEA Onshore Wind: Powering Ahead, March 2006.

5.3.68 In addition, new regulations that came into force in April 2007 to improve the efficiency of planning inquiries for electricity generation projects greater than 50MW should help large scale renewables projects seeking planning consent (see chapter 8 for more details).

5.3.69 In December 2006, we launched a consultation on a draft of the Planning Policy Statement (PPS) on Climate Change. It contains a number of key policies on renewables:

- It significantly strengthens the requirement on planners to recognise the national need for renewable technologies and other low carbon energy technologies.
- There is also a clear steer to planning professionals and local authority decision makers not to question the national need for renewables and other low carbon technologies, or to question the need for a particular project to be sited at a particular location.
- Substantial new developments should seek to source a significant proportion of their energy supply from low carbon sources (including on and off-site renewables).

5.3.70 We aim to publish the PPS on Climate Change at the earliest opportunity. We will publish guidance to accompany the Statement.

BOX 5.3.3 RENEWABLES STATEMENT OF NEED

We remain committed to the important role renewables has to play in helping the UK meet its energy policy goals. In this publication we are reiterating previous commitments we have made, not least in the 2003 Energy White Paper and Planning Policy Statement 22 on renewable energy (PPS22), on the importance of renewable generation and the supporting infrastructure. We intend this to reconfirm the UK Government policy context for planning and consent decisions on renewable generation projects.

As highlighted in the July 2006 *Energy Review Report*[150], the UK faces difficult challenges in meeting its energy policy goals. Renewable energy as a source of low carbon, indigenous electricity generation is central to reducing emissions and maintaining the reliability of our energy supplies at a time when our indigenous reserves of fossil fuels are declining more rapidly than expected. A regulatory environment that enables the development of appropriately sited renewable projects, and allows the UK to realise its extensive renewable resources, is vital if we are to make real progress towards our challenging goals.

New renewable projects may not always appear to convey any particular local benefit, but they provide crucial national benefits. Individual renewable projects are part of a growing proportion of low carbon generation that provides benefits shared by all communities both through reduced emissions and more diverse supplies of energy, which helps the reliability of our supplies. This factor is a material consideration to which all participants in the planning system should give significant weight when considering renewable proposals. These wider benefits are not always

150 http://www.dti.gov.uk/energy/review/

BOX 5.3.3 CONTINUED

immediately visible to the specific locality in which the project is sited. However, the benefits to society and the wider economy as a whole are significant and this must be reflected in the weight given to these considerations by decision makers in reaching their decisions.

If we are to maintain a rigorous planning system that does not disincentivise investment in renewable generation, it must also enable decisions to be taken in reasonable time. Decision makers should ensure that planning applications for renewable energy developments are dealt with expeditiously while addressing the relevant issues.

5.3.71 The Energy Review Report also sets out a commitment to a reform of the planning system for major energy infrastructure projects in the longer term. These reforms will cover all large onshore renewable projects with a capacity of greater than 50MW and offshore with capacity greater than 100MW. We expect them to bring real benefits with an expectation that the decision making phase (including inquiry) will take no longer than nine months except in particularly difficult circumstances. The details of the reforms are discussed in chapter 8, and in the planning White Paper 2007, *Planning for a Sustainable Future*[151].

5.3.72 Taken together, we believe this package of proposals will increase the speed and quality of decision-making on existing and future renewable projects reducing costs and risks for developers and uncertainty for local communities.

Improving grid access for renewable generation

Context

5.3.73 As already mentioned in section 5.2, in Great Britain, electricity is transported over high and low voltage power lines. The transmission network (high voltage), on the whole, receives electricity from large power stations which in turn enters, via transformers, the low voltage distribution system. Most consumers receive their electricity from the low voltage network.

5.3.74 National Grid (NGET) owns the England and Wales transmission system, with Scottish Power and Scottish and Southern Energy each owning a part of the transmission system in Scotland. As transmission system owners, these companies are responsible for building and maintaining safe and efficient networks and are regulated by Ofgem. NGET also has the responsibility of overseeing and managing the flow of electricity across the whole GB transmission network, including the elements owned and maintained by Scottish Power and Scottish and Southern Energy. In this role, NGET is known as the transmission system operator. NGET is also required to co-ordinate the process of making connection offers to prospective system users. This involves having in place a series of rules for achieving grid

151 Planning for a Sustainable Future; May 2007; www.communities.gov.uk

Appendix 3: The Visual Component of Residential Amenity in Appeal Decisions

1.1.1 With regard to potential effects on residential amenity, it is relevant to consider the way in which decision makers have viewed wind farm developments in other cases. In this section I make reference to a number of wind farm Appeal decisions. The purpose is not in any way to seek to highlight a matter of precedent in a planning sense, but rather to help illustrate how other decision makers have handled making judgements on the visual effects of wind farms in relation to residential amenity. Most commercial wind farm developments will give rise to some locally significant visual effects. Where there are residential properties in close proximity to a proposed wind farm development it is not uncommon for a Landscape and Visual Impact Assessment (LVIA) to acknowledge that there will be some significant effects on the private visual amenity of some residents. This is inevitable when considering the typical height of a modern turbine but, as various planning decisions show, this does not in itself render a wind farm unacceptable and any significant visual effects need to be balanced against the other benefits of the particular development in question.

1.1.2 In the Enifer Downs Farm / North Dover Appeal Decision of 28 April 2009, the Inspector Mr D Lavender addressed visual impact at paragraph 66 *et seq*. He took the view that in the cases he identified:

"where the full height and maximum spread of turbines in the numbers proposed would be seen at their greatest from closest to (typically at up to about 800m), and with little or nothing by way of intervening screening, it is my conclusion that living conditions would be demonstrably harmed by significant and over-dominant visual impact". In other decisions, Inspectors have found turbines closer to residential developments to be acceptable.

1.1.3 In the Carland Cross Appeal Decision of 19th January 2010 (Inspector Lavender and a scheme involving 15 Turbines), there were 209 properties within 3km of the proposed turbines (para 23). 23 were identified as likely to experience "high significance of visual effect" which in each case the Council judged to be as "overwhelmingly adverse". But the Inspector stated:

"*However, those who face the prospect of living close to a wind farm may attach very different value judgements to their visual effect than the wider public, who stand to benefit from the energy produced without seeing the turbines from their homes. In effect, the former is primarily a private interest whereas he latter is a public one and, in the case of the former, few householders are able to exercise control over development by others that may do no more than impinge into the outlook from their property. The planning system is designed to protect the public rather than private interests, but both interests may coincide where, for example, visual intrusion is of such magnitude as to render a property an unattractive place in which to live. This is because it is not in the public interest to create such living conditions where they did not exist before. Thus I do not consider that simply being able to see a turbine or turbines from a particular window or part of the garden of a house is sufficient reason to find the visual impact unacceptable (even though a particular occupier might find it objectionable).*

1.1.4 It is a general principle of planning law that no one has a right to a view and indeed it is generally accepted that the loss of property value that could arise from a proposed development is not in itself a material planning consideration.

1.1.5 There are many wind farm decisions that have been upheld where Inspectors have dealt with a number of properties in close proximity to wind turbines where the visual effects in environmental impact assessment terms were identified to be significant and where the overall development was considered to be acceptable in planning terms.

1.1.6 A very relevant case is the Secretary of State's Burnthouse Farm decision of 6th July 2011. In the Inspector's conclusions on this decision he addressed living conditions of neighboring occupiers and stated at paragraph 229 that:-

"The methodology for assessing the visual impact on residential occupiers was considered fully at the Inquiry. I accept that the approach used by Inspectors in the Enifer Downs, Poplar Lane and Carland

Cross Appeals and elsewhere [62 – 63, 119 -120] should not be regarded as a mechanistic 'test' and has no status in terms of being part of statutory documentation or planning policy or guidance. However, it seems to me that a logical, transparent and objective approach to assessing visual impact, ...should be adopted".

1.1.7 The Inspector went on to state that there can be no substitute for site visits to individual properties so that any likely impacts can be judged in the particular and unique circumstances of each case. He added at paragraph 230 that:-

"Nevertheless, it is helpful to consider the factors and thresholds of acceptability which have guided decision makers in other cases [51, 122]".

1.1.8 At paragraph 232 the Inspector stated that serious harm to living conditions which might lead to a recommendation for planning permission to be refused, in the public interest is a more stringent requirement than the identification of a significant adverse impact. He added that:-

"I consider that when assessing the effect on visual outlook, it is helpful to pose the question 'would the proposal affect the outlook of these residents to such an extent i.e. be so unpleasant, overwhelming and oppressive that this would become an unattractive place to live?"

1.1.9 Therefore in this case the Inspector was agreeing with the position that there needs to be a degree of harm over and above an identified substantial adverse effect on a private interest to take a case into the category of refusal in the public interest. This approach was expressly endorsed by the Secretary of State in paragraph 10 of his decision letter on the Burnthouse Farm case. Therefore changing the outlook from a property is not sufficient. Indeed a fundamental change in outlook is not necessarily unacceptable.

1.1.10 In the Spaldington Airfield Decision of September 2011, involving 5 turbines up to 126m high, the Inspector addressed the potential effects of the development on living conditions at paragraph 38 *et seq.* At paragraph 40, the Inspector stated:-

"The parties agree that the public interest test applied at Enifer Downs and by the SoS at Burnthouse Farm/Staffurth's Bridge is a fair way to calibrate the visual impacts on residences. Thus, in assessing the visual effects of these schemes in isolation or together on living conditions, the question to answer is would the proposals affect the outlook of residents to such an extent, i.e. be so unpleasant, overwhelming and oppressive, that the property would become an unacceptably unattractive place in which to live".

1.1.11 In the Cleek Hall decision of September 2012, involving a 5 turbine scheme with turbines up to 127m to tip height, the Inspector addressed effects on living conditions at paragraph 26 *et seq.* At paragraph 26 the Inspector sets out that there were 11 residential properties within 1km of the nearest turbine. At paragraph 27 he stated:-

"it is a well-established principle that there is no right to a view. It is also recognised that the effect of the loss of the view on the value of the property is not a matter that can be afforded any weight. The issue then is not concerned with whether people would be able to see the turbines, but whether their proximity to them would create living conditions which most people would regard as being unattractive. This is an absolute test rather than a comparative one, so that the fact that the living conditions may not be as attractive as they were previously is not the issue. It is whether the living conditions would be so unattractive per se that the majority of people would not choose to live there."

1.1.12 The Inspector added at paragraph 37:-

"Although there would be certainly some views of the turbines from nearby residential property and the present residents may prefer not to see turbines, no view from any of the properties I have visited would be so intrusive or extensive that it would render the property an unattractive place to live".

1.1.13 In the Carlton Grange / Thacker Bank Appeal Decision of April 2013, involving 8 turbines with a tip height of up to 115m, the Inspector addressed living conditions at paragraph 44 *et seq.*

1.1.14 At paragraph 47 the Inspector stated:-

"the visual impact of the turbines on living conditions is an absolute test rather than a comparative one. It is not enough to show that view of the turbine field would make properties less attractive than they are now – it is necessary to show that they would be made so unattractive that the majority of people would consider those houses would become unsatisfactory places to live".

1.1.15 At paragraph 48 the Inspector stated:-

"The Appellants were able to show by reference to other appeal and called in application decisions that in England, no property 800m on more from a wind farm scheme had been judged to be potentially affected by the presence of turbines to the extent that the living conditions of its residents would be so unacceptably harmed. It would seem, therefore, that there would have be something extraordinary about a particular scheme and its location to want a decision that found unacceptable harm to living conditions beyond that distance".

1.1.16 At paragraph 51 the Inspector concluded:-

"I do not find therefore, that there are any unusual circumstances surrounding this proposal that would warrant a conclusion that residents' living conditions would be unacceptably harmed by the visual impact of the proposed wind farms".

1.1.17 The approach to undertaking a judgement on the effects of a proposed wind farm in relation to the visual component of residential amenity was addressed in a recent High Court case[1], known an Spring Farm Ridge, in which the ruling was issued in January 2013. In this case, the Claimants advanced an argument that the Inspector had:

"erred in law by adopting a test relating to visual impacts on residential amenity without any basis in law or policy, mis-applied the relevant policy in this context, and failed to take into account relevant considerations, mainly the impact which she regarded as falling below the threshold she has wrongly set".

1.1.18 In the ruling, Judge Mackie QC set out the defendant's position on this which was that:

"in assessing whether the proposals would contravene the policy, the Inspector was entitled and bound to use her own judgement, and she was entitled to use the adjectives she did in order to reach and explain her conclusions as to whether the policy was contravened".

1.1.19 The Judge added that:

"The defendants are correct. The Inspector was making a planning judgement. As I see it, looking at the reasoning in the manner in which the law requires, she did not apply a higher threshold of acceptability than that set out in the local plan."

[1] High Court of Justice Queens Bench Division Administrative Court, Citation Number: [2013] EWHC11 (admin) between (1) South Northamptonshire Council (2) Deidre Veronica Ward v Secretary of State for Communities and Local Government and Broadview Energy Developments Limited .

Appendix 4 – Tourism and Wind Farms

Research on Wind Farms and Tourism

1.1.1 In examining tourism and recreation matters, it is important to take account of the findings of two largest and most rigorous studies of the impact of wind farms on tourism that have been conducted to date:

- the University of the West of England's (UWE) (2004) report entitled 'The Potential Impact of Fullabrook Wind Farm Proposal, North Devon: Evidence Gathering of the Impact of Wind Farms on Visitor Numbers and Tourist Experience' ("the UWE Study") which was commissioned by Devon Wind Power; and
- the Scottish Government research report[1] entitled 'The Economic Impacts of Wind Farms on Scottish Tourism' (March 2008) (widely known as "the Moffat Report"), and to draw upon the conclusions of the research.

1.1.2 The latter report is regarded as the definitive study on the likely economic impact of wind farm developments on tourism destinations throughout Scotland. Both of these studies address many of the shortcomings of earlier research in relation to previous weaknesses in the use of survey methods, sampling, interpretation and extrapolation of data

The UWE Study

1.1.3 The research was designed to provide evidence of the potential impact of the proposed Fullabrook wind farm development on both visitor numbers and tourist expenditure.

1.1.4 The research findings revealed overwhelming support for renewable energy in general and the proposed Fullabrook wind farm in particular. The findings demonstrated that the construction of Fullabrook wind farm would not have a detrimental impact on visitor numbers, tourist experience or tourist expenditure in the area of North Devon.

1.1.5 As the proposed construction of Fullabrook wind farm was found to have no adverse effect on day visitor or tourist numbers, it was concluded that it would not be likely to have a negative impact on day visitor or tourist expenditure

1.1.6 The findings from the Fullabrook study in North Devon broadly accord with those of the other major academic study of the impact of wind farms on tourism, namely the Moffat Study.

The Moffat Report

1.1.6 The Moffatt report comes to clear overall conclusions (pages 275 to 283). It is clear the survey has refuted the continued assertions that wind farms will have significant adverse effects on the tourist industry. Simply put, no study to date has demonstrated that this is likely to occur and the Moffat report confirms that this will not occur (see third paragraph of Section 14.3, page 276). Furthermore, the literature review undertaken by Moffat confirms the view that whilst there may well often be concerns at the outset of a project, over time hostility decreases and they become an accepted part of the scenery.

1.1.7 It is clear that the Scottish Government has placed weight on the Moffat report. Based on the information contained in the Moffat report, the Government can be satisfied that its targets for the development of tourism and renewable energy are not ones that are in fundamental conflict.

1.1.8 The Research Report was specifically referred to in the former Planning Advice Note (PAN) 45 Annex 2, (paragraph 44) (now replaced by Scottish Government web based Guidance, 2011) where it stated:

[1] '*The Economic Impacts of Wind Farms on Scottish Tourism*', A Report for the Scottish Government, Glasgow Caledonian University, The Moffat Centre and Cogentsi (March 2008).

"A recent Research Report 'The Economic Impact of Wind Farms on Scottish Tourism', found overall that if the tourism and renewable industries work together to ensure that suitably sized wind farms are sensitively sited, whilst at the same time affording parts of Scotland protection from development, then the impacts on anticipated growth paths are expected to be so small that there is no reason to believe that Scottish Government targets for both sectors should be seen as incompatible. It has also found from a tourism stand point, larger developments may be preferable to a number of smaller developments, particularly when they occur in the same general area".

1.1.9 The potential impact of wind farms on tourism has been a recurrent theme at many wind farm Inquiries. Surveys of tourists at locations where there are already wind farms have not indicated that they have had a significant impact on the local area.

1.1.10 The Scottish Government in its report stated that it is mindful of its "need to balance sustainable economic growth with environmental responsibilities" and they have noted that "The discussion on any particular wind farm proposal is now almost always an adversarial debate, and the policy area of wind farms in Scotland has become polarised and founded on competing myths (of which some are, and some are not, founded in reality)."

1.1.11 For this reason the Scottish Government commissioned the research report with the fundamental aim to provide knowledge of:

- The potential number tourists that would be affected;
- The reactions of those affected to these schemes;
- The economic impact of those reactions.

1.1.12 In examining the three questions above, the Scottish Government considered that the research would form a crucial step in:

- Replacing myth with evidence;
- Determining if there is a trade-off, for local communities and for Scotland as a whole, between energy and environmental benefits and tourism damage;
- Identifying when there should be a general presumption for or against a development.

1.1.13 Page 3 of the 'Moffat report' discusses the reasoning for its commissioning and reports on the adversarial debate that has occurred to date on this matter at Scottish wind farm Public Inquiries.

1.1.14 The Moffat report is broken down into three main parts. To start with, the authors undertook an exhaustive literature review to examine whether there was any evidence to suggest that wind farms have a serious negative economic impact on tourism. Secondly, they undertook an internet survey with the primary objective to ascertain whether the presence of wind farms would reduce value. The third part of the research study was to examine actual attitudes of tourists within selected study areas within Scotland (Dumfries & Galloway, Scottish Borders, Stirling, Perth & Kinross and Caithness & Sutherland). The face-to-face interviews sought to obtain detailed information regarding tourists' attitude to wind farm development.

1.1.15 The research recognises in the Summary section1 that:

"Scottish tourism depends heavily on the country's landscape, with 92% of visitors stating that scenery was important in their choice of Scotland as a holiday destination, the natural environment being important to 89% of visitors."

1.1.16 However, set together with the development of wind farms this does not translate into concern on the part of tourists and result in an adverse impact upon tourism numbers. Overall nationally, the research emphasises that wind farms have minimal adverse impact upon tourism and tourist numbers. In terms of the effects of wind farms on visitor intentions to return, the Summary section 5 states:

"*Under all circumstances, the vast majority (93-99%) of those who had seen a wind farm suggested that the experience would not have any effect.*"

1.1.17 In addition, the Summary section 8 states:

"*In general this research has found that the negative impact of wind farms on tourism at national level is small and any reduction in employment in tourism will be less than the numbers currently directly employed in the wind power industry.*" "*This research has shown that even using a worst case scenario the impact of current applications would be very small and, for three of the four case study areas, would hardly be noticed*".

1.1.18 Furthermore, the Summary section 9 concludes:

"*This research has shown that even using a worst case scenario the impact of current applications would be very small and for three of the four case study areas, would hardly be noticed.*"

1.1.19 Indeed in section 11.1 the research also states that:

"*The growth in service demand from the elderly suggests that any decline in the tourist sector will have little effect as hospitality services simply move to another set of clients.*"

The Internet Survey

1.1.20 The summary of the internet survey is set out on pages 8 and 9 of the Report. The authors indicate that the results of the internet survey were primarily used to assess whether there was a potential economic loss arising from a wind farm. However they note, "*It should be noted that this result is less robust than the estimate provided by the Intercept survey and should therefore be treated with caution, as, unlike the Intercept study, respondents were not made aware of what constitutes the "local area"*". The authors highlight in the second paragraph on page 160, some of the difficulties that they had regarding the obtaining a random list to survey in terms of the internet. One difficulty was that respondents to the survey could vote more than once.

1.1.21 The conclusion of the internet survey is that there would be a marginal economic reduction as a consequence of a wind farm located in the landscape.

1.1.22 Looking at specific issues covered by the research, section 4.7 from the tourist intercept survey concludes that:

"*The results confirm that a sizeable minority of tourists did not like wind farms, but only a small minority were so offended as to change their intentions about revisiting Scotland. The impact is consequently likely to be very small.*"

1.1.23 Although it is accepted that wind farms are regarded by some tourists and visitors as unsightly, it is not accepted that this would result in a significant number of tourists or visitors not returning to visit Scotland or the area local to the proposed wind farm. This recent research supports this contention.

The Intercept Survey

1.1.24 Discussion regarding the Intercept survey is set out on pages 101 to 130 of the Moffat report. The survey includes a number of questions designed to elicit general attitudes to wind farms and also the effect that they have on tourists. Some of the key findings include:-

1.1.25 On page 115, a significantly higher proportion of tourists were positively disposed towards wind farms, as opposed to being negative. The impression often given by objectors at Public Inquiries is that all tourists are negatively disposed towards wind farms. That is not borne out by the evidence of the survey.

1.1.26 Page 117 of the report analyses the general responses of tourists, having established the activity in which they were primarily engaged. Those engaged in hiking and hill-walking were more positively

disposed towards wind farms than the general tourist population. This was also reflected by those undertaking activities such as cycling and mountain-biking. At previous Inquiries it has been suggested that those people engaged in outdoor activities would be less positively disposed towards wind farms. The survey 'debunks' this myth. This is supported by the findings on page 128 that over 48% of tourists like to see wind farms, as opposed to the 28% who disagreed. Paragraph 4.7 on page 130 states "*Importantly, those who had seen a wind farm were less hostile than those who had not, suggesting that previous intention type surveys such as NTS/System 3 (2002) and indeed the internet survey conducted as part of this research, may have exaggerated the impact*". The survey sought to understand whether the presence of wind farms would alter peoples' perception of the area and in particular their decision to visit the area again. For example, the results for Stirling, Perth and Kinross disclose that of the 96 tourists questioned, only 2 indicated that the wind farms reduced their likelihood of return whilst 2 signalled that it would increase it (see page 121). Furthermore, none of those surveyed indicated they would definitely not return.

1.1.27 The results of the Intercept survey are important in that they counter many of the unfounded allegations that all tourists don't like wind farms, or that wind farms will have a significant adverse economic impact.

1.1.28 The report's section 4.4 highlights the fact that walkers are less opposed to wind farms than the norm, thus:

"*Interestingly, the proportion of respondents whose main activity was indicated as walking/hill walking (where the landscape is a major part of the experience) and who indicated a negative attitude towards Wind farms (19%) was lower than the overall figure of 25%. This group also had the most positive attitude (45%) among those categories where the sample size was of sufficient size for analysis.*"

1.1.29 Some of the other conclusions from the survey are included on page 280. The authors support the concept of "concentrating developments" rather than a dispersal of smaller wind farms over a wider area. This is re-confirmed in paragraph 14.7 where concentration (clustering) is strongly supported. The reason for this is that if there is a loss of value, this already occurs by the presence of the first wind farm. If one applies a policy of dispersal, a wider area of Scotland could be affected by wind farm development.

1.1.30 The report comes to clear overall conclusions at pages 275 to 283. It is clear the survey has refuted the continued assertions that wind farms will have significant adverse effects on the tourist industry. Simply put, no study to date has demonstrated that this is likely to occur and the Moffat report confirms that this will not occur (see third paragraph of Section 14.3, page 276). Furthermore, the literature review undertaken by Moffat confirms the view that whilst there may well often be concerns at the outset of a project, over time hostility decreases and they become an accepted part of the scenery.

1.1.31 It is clear that the Scottish Government has placed weight on the Moffat report. Based on the information contained in the Moffat report, the Government can be satisfied that its targets for the development of tourism and renewable energy are not ones that are in fundamental conflict.

Appeal Decisions: Wind Farms and Tourism

1.1.32 It is helpful to examine a number of wind farm Appeal decisions in which tourism has been addressed as an issue.

2011

1.1.33 **Kirkharle** – at paragraph 114 of this decision, the Inspector concluded that tourism was important to the economy and to the employment base of Northumberland and found that there was, "*no compelling evidence to support concerns about the tourist industry being undermined to a material degree*" and that the inherent qualities of the area as a whole would remain should the wind farm be constructed and that "*overall, there is nothing to suggest that tourists, in general, would be deterred to a significant extent*".

1.1.34 **Langham** – with regard to this six wind turbine development in Lincolnshire, the Inspector addressed tourism matters at paragraph 54 and found that the coastal economy of the area in which the proposed wind farm was to be sited, was almost wholly based on tourism and was one of the most deprived areas in the country. Although the inspector found that the development would detract from the enjoyment of those who came to the area which also included a Country Park, he stated at paragraph 55 that he was, *"not convinced that this would be sufficient to deter enough potential visitors to have a significant effect on the tourist economy ...".*

1.1.35 At paragraph 56 the Inspector stated that he had had regard to the various studies and research submitted about the likely effect of wind farms on tourism and he concluded that *"no compelling evidence was adduced that any local businesses in the vicinity of the appeal site would be significantly affected by the proposed wind farm".* On this main issue, the Inspector found that there were no compelling reasons to find against the proposal because of its likely effects with respect to the impact more generally on tourism and the tourism economy.

1.1.36 **Westnewton** – in this decision in relation to three wind turbines in Cumbria, the Inspector in setting out overall conclusions on the planning balance, addressed tourism and stated at paragraph 62 that *"I considered the submissions relating to an adverse impact on tourism to be unproven and as such attach limited weight to them".*

2010

1.1.37 **Newlands Farm** – in relation to this Appeal for three wind turbines in Cumbria, the Inspector addressed tourism at paragraph 47 where he referred to suggestions that the proposed development would have a negative impact on tourism. The Inspector concluded that, although the proposal would be clearly visible from the nearby junction on the M6 motorway, and it had been described as the 'gateway' to Carlisle, he did not accept that its visibility would be harmful and put off visitors.

1.1.38 **Grise** – in relation to this Appeal decision for nine wind turbines in Cumbria, tourism was addressed at paragraph 11.88 *et seq.* The inspector addressed tourism in detail and stated that many objectors had passionately expressed concern about the impact of the proposal on the tourism potential of the area and on existing tourist destinations. The Inspector stated that from his reading of research provided, the number of people surveyed who said they would not return to an area because of wind farm developments, is very small. He added that, *"moreover other research indicates that despite the development of turbines over a long period, tourist numbers continue to rise despite the development of substantial wind farms".* The Inspector stated that little weight should be attached to the likely impact of the development on tourism activities or tourism potential.

1.1.39 **Hoff Moor** – in this Appeal decision for three wind turbines in Eden District in Cumbria, the Inspector addressed impact on tourism and the local economy at paragraph 48, where he stated that some local residents were concerned that the proposal could have an adverse impact on tourism on the local economy. He stated the tourism was very important in the local economy, but that:

"there is limited evidence to this effect and I am mindful that this is not a point of objection taken by the Council. While the turbines would be a likely deterrent for some recreational users such as walkers on the open land to the south, there is no certainty that they would act as a deterrent overall to tourist visitors to the area, and I would not find fears for the local economy to be a sound reason for permission to be withheld were there no other matters at issue".

1.1.40 **Willow Bank Farm** – in this Appeal in relation to four turbines near Bicester, Oxfordshire, the Inspector addressed tourism and outdoor activities at paragraph 97 and he stated these matters were the subject of various representations to the Inquiry. He stated that concern was expressed that the Appeal proposal would reduce the attractiveness of the area to visitors, and that local businesses would suffer as a result. He stated that no evidence was brought to illustrate the scale of the contribution that tourism and other outdoor interests (in the area from which the turbines could be seen) makes to the local economy. He concluded that he was not satisfied that the Appeal proposal would cause the harm expected by those who made representations to the Inquiry on this matter.

1.1.41 **Roos** – in this Appeal in relation to nine turbines in the East Riding of Yorkshire, the Inspector addressed tourism matters at paragraph 47. He stated that the East Riding is a holiday destination and there is concern that the area would be less attractive to tourists as a result of the wind farm development. The Inspector found that people would take different views of turbines and that *"thus for some the presence of wind farms would add to the attractions of the area, balancing out any deterrent effect on potential visitors who would find them unsightly".*

1.1.42 **Sillfield** – in relation to this Appeal for three turbines in Cumbria, the Inspector addressed the impacts on recreation and tourism at paragraph 61 *et seq.* He stated that the proposed wind farm would have a potentially significant effect upon local rights of way, including a bridleway and that the turbines would dominate views on a footpath. The Inspector took the view that the routes did not show evidence of intensive use, or lines to other paths such that they would be obvious components of longer distance walking or riding routes. He concluded that their value was essentially limited and local and accepted that some users of the closest rights of way might feel essentially neutral towards the turbines, or might see them as a feature of interest, while others would feel them to be intrusive and even intimidating, such that their enjoyment of the routes and of the surrounding countryside would be markedly reduced. However, he concluded that the number of people whose enjoyment of the countryside as seen from these local rights of way might be seriously harmed, would be relatively small.

1.1.43 At paragraph 65 of the decision, the Inspector noted that the opposition group to the development argued that the Appeal proposal would harm the local tourist industry, but he stated that:

"it is difficult to establish clearly the scale and significance of that industry and to quantify possible effects upon it". He stated that "the apparent modest use of the rights of way closest to the site, and the limited evidence available, suggests that the majority of users of these and other local paths are likely to be local residents rather than visitors coming from any great distance".

1.1.44 He added at paragraph 68, that the opposition group's quotes from various studies and surveys did not *"make a clear case that wind farms harm tourism".* He added that what he had seen of various studies suggests that adverse effects are generally not proven, and at worst, are likely to be marginal. He added that, *"there certainly appears to be no consensus to support the consortium's conclusion that all surveys show that visitors will be discouraged from an area (at least in any significant numbers) if wind farms are constructed".* He concluded at paragraph 70 by stating:

"there is no compelling evidence that the proposal would have any significant adverse affects on the contribution made by tourism and recreation to the local economy".

1.1.45 **Green Rigg** – in the Secretary of State's (SoS) decision in relation to three wind farms in Northumberland (including Ray and Steadings), the Inspector addressed tourism matters in the report to the SoS dated 27th November 2009. The Inspector addressed tourism at paragraph 15.525 *et seq.* He acknowledged the value of tourism to the local economy and stated at paragraph 15.527 that:

"In my opinion, speculation without clear foundation is not a sufficient reason to withhold permission for any of these proposals, and any potential decline in tourism that could be shown to be likely would be but one factor to be weighed in the overall planning balance".

1.1.46 He concluded that he was satisfied that the proposals would not result in any material adverse impacts in relation to tourism and economy.

1.1.47 **Brightenber** – (Skipton, N Yorkshire) (8 March 2010) (5 turbines, 100m to tip). At paragraph 36 the Inspector noted that tourists are attracted to the area in the vicinity of the Appeal site, *"not just for the close access to the nearby NP and AONB but also for the attractive landscape and other amenities in the District.."*

1.1.48 At para 37, the Inspector stated that the WF would be unique in the landscape and *"would harm the character of the area".* He stated some visitors would be ambivalent to the presence of turbines and some might consider the effect to be positive.

1.1.49 At para 38 the Inspector concluded that income through tourism would not be significantly affected in the District as a whole.

2009

1.1.50 **Paul's Moor / Three Moors** in this Appeal decision in relation to 9 turbines in North Devon, the Inspector stated at paragraph 99 that in his view, *"the presence of turbines seems to take on a limited significance in tourists' propensity to visit an area".*

1.1.51 He added that studies have shown that there is a small negative affect at worst, but with the possibility of some positive effects. He added that, *"it is acknowledged that some people find the presence of wind farms an attraction and a relatively recent study in North Devon concludes that wind farm development would have a neutral or positive effect".* Overall he concluded that, *"in the round, therefore, I am not satisfied that it has been shown that the proposal would result in a material effect on tourism".*

1.1.52 **Goveton** – in relation to this Appeal for three wind turbines in Devon, the Inspector addressed tourism at paragraph 59 and stated that tourism was a key commercial activity in the area and important to the local economy. However, he concluded that there was little hard evidence about what effects the turbines would be likely to have on tourism and stated it was not a matter for the exercise of a precautionary approach as suggested by the opposition group to the development, rather it fell to be assessed on the evidence put before the Inquiry. He added that:

"much of this represented generalised concerns or apprehensions about the local economy, the substance of which was difficult to assess. In the absence of clear evidence about harm to tourism or local economy, either from experience elsewhere, or in the circumstances which apply here, I am not convinced that it is a factor which weighs significantly against the proposal".

1.1.53 **Earls Hall Farm** – in relation to this Appeal for five turbines in Tendring District, Clacton-on-Sea, the Inspector addressed tourism at paragraph 67 and stated that some concern had been raised that the proposal would have a negative effect on tourism in the area. He stated, *"however no empirical has been adduced that would warrant such a conclusion. I realise that tourism is an important element of the economy but I have no reason to conclude that the proposal would have any significant impact upon it".*

1.1.54 **Withernwick** – in this Appeal with regard to 9 turbines in the East Riding of Yorkshire, the Inspector addressed tourism at paragraph 58 and concluded that he found, *"no evidence that tourism interest would be significantly affected by the development".*

1.1.55 **Parkhead Farm (Hell Rigg),** Silloth, Allerdale, Cumbria (4 Turbines, 121m tip) (11th May 2009). At paragraph 47, the Inspector said there was no doubt that the area was attractive in a variety of ways and had much to offer the visitor including the AONB and its coastline, national footpath routes, national cycle routes and access lands. The Lake District National Park was also easily accessible.

1.1.56 At paragraph 48, the Inspector stated the local economy was very reliant on the income from tourism.

1.1.57 At paragraph 49, the Inspector stated "reference is also made to a more recent report, prepared for the Scottish Government entitled The Economic Impact of Wind Farms on Scottish Tourism".

1.1.58 At para, 51 the Inspector stated that both main parties to the Inquiry relied on the Report for the Scottish Government and he stated that:

"given that it relies on responses to wind farms that are in place, it seems to me a more reliable analysis. Amongst other things, the research shows that only a very small proportion, 1 – 7% of the 380 persons interviewed, would be actively dissuaded from visiting the areas under consideration if a wind farm was present. The research also shows that there are tourists for whom the experience of seeing a wind farm increased the likelihood of return".

1.1.59 At paragraph 54, the Inspector stated that:

"it also seems fair to add that some new visitors might be attracted by a wind farm. Most importantly, bearing in mind the results of the Scottish research and the relatively small number of people discouraged from returning to an area by the presence of wind farm it recorded, it seems to me that if there is to be an impact on visitor numbers and the local economy, as a consequence of the proposal, it will be insignificant. I have no empirical evidence that warrants any other conclusion".

2008

1.1.60 **Middlemoor** – in this Secretary of State decision which involved an appeal for a 75MW wind farm in Northumberland, the Inspector, in the report to the SoS dated 16th April 2008 addressed tourism as one of the main considerations. The potential effect on tourism and local businesses was addressed in the Inspector's conclusions at paragraph 477.

1.1.61 The Inspector stated that although attention was drawn to this aspect by objectors, little or no evidence based analysis was supplied. He stated that there appears to be no evidence from other parts of the country or abroad to suggest that the presence of wind farms in open countryside has harmed the tourist industry. He added that both Cumbria and Cornwall have experienced a rise in tourist numbers since the first wind farms were installed and a number of surveys and reports investigating wind energy and tourism have demonstrated that the effect on tourism is negligible at worst, with many respondents taking a positive view of wind farms (paragraph 478).

1.1.62 **Carsington Pastures**, (17th September, 2008, Derbyshire). At paragraph 69, the Inspector addressed impact on recreation and tourism as a third main issue. He stated:

"*the importance of recreation around the appeal site, and the contribution of tourism to the local economy, are evident both on the ground, in well used trails and other facilities and the number of businesses dependent in whole or part on visitors*".

1.1.63 At paragraph 72 the Inspector found:

"*I find it hard to believe that, in general, views would be so disturbing as to unacceptably diminish the aesthetic and recreational experiences of the majority of visitors, including their appreciation of the particular qualities of the National Park*".

1.1.64 The Inspector made the point that "some visitors might find the interest of their visit enhanced. And whatever the attitude of the viewer, the effects would tail off rapidly with increasing distance..."

1.1.65 It is clear from paragraph 73 that public footpaths and the High Peak Trail were only 100 and 160m away from the nearest turbines. The Inspector stated that most users of the trail (at least those travelling any distance) would "*perceive them as essentially a landmark en route*".

1.1.66 He concluded in paragraph 74 that: "I do not believe that users of [the High Peak Trail] would have their appreciation of their surroundings unduly degraded or that any more than a tiny minority might be deterred from using or returning to it because of the presence of the wind farm".

2007

1.1.67 **Fullabrook** – in the Secretary of State's decision of 16th May 2007, the Inspector addressed tourism matters in the report: the development involved a 66 MW wind farm at Fullabrook Down in North Devon. The inspector addressed tourism and local businesses at paragraph 8.185 of the report. The Inspector placed weight upon the research prepared by the UWE: his overall conclusion was that tourist numbers, as well as income would be maintained. With regard to smaller tourist businesses that were close to this particular site, he found that while a proportion of the regular visitors might be less inclined to return, there would be potential new markets to exploit.

1.1.68 **Langhope Rigg** - It is helpful to note the findings by the Reporter in this decision (August 2008) for a wind farm in the Scottish Borders regarding the Moffat study. In this case, the proposed wind farm was

relatively close to the Southern Upland Way long distance footpath. The Reporter noted in his decision letter (paragraph 73) that:

"the available evidence at a general level does not allow a conclusion that the presence of the wind farm would be likely to have a crucial impact on the tourist economy of the surrounding area or seriously hinder efforts to promote the tourist potential of the south western borders; not least since the study strongly hints that those involved in outdoor pursuits, including the most numerous activity of hill walking or hiking which is important in the area, are, if anything, more and not less tolerant than the average person, of wind farms and the landscape".

1.1.69 The Reporter added at paragraph 74 of the decision letter that:

"it is not credible that more than a very few strongly averse to wind farms would be deterred from walking the Southern Upland Way or other tracks in the area, that substantial numbers of motorists or cyclists would find no prospect of enjoying the Ettrick and Yarrow valleys... because there would be views of a wind farm".

Conclusions

1.1.70 The research findings support of the view that the proposed development is unlikely to lead to significant adverse impacts upon tourism in the local area.

1.1.71 There is no empirical research that demonstrates the impact of wind farms on tourism numbers, expenditure or experience in the specific area of the proposed Spring Farm Ridge Wind Farm or indeed in the wider surrounding area. Without such evidence it is difficult to measure the impact of something that has not yet been built. However, it is possible, however, to gauge the potential impact by drawing on evidence from a range of robust relevant sources. In this regard, the UWE and Moffat studies are both consistent in their conclusion that the development of wind farms will not result in a significant reduction in tourist numbers, tourist experience or tourism revenue.

1.1.72 Furthermore, from the review of various Appeal decisions that have considered the relationship of wind farms, tourism and the local economy, there are consistent messages arising from determinations and these include:

- There is no compelling evidence to support concerns about the tourist industry being undermined to a material degree by wind farm development.
- even in situations where wind farms are proposed in locations where tourism is a key sector in the local economy, Inspectors have not been convinced that effects would be sufficient to deter potential visitors such that there would be a significant effect on the tourist or wider economy of the area.
- submissions relating to a potential adverse impact on tourism are more often than not unproven and limited weight is attached to such submissions. Generally, very little or no evidence based analysis is supplied to support claims that there would be an adverse effect on tourism.
- In a number of cases, decision makers take the view that the presence of wind farms would add to the attractions of a particular area,
- Inspectors and Reporters have placed weight upon the research prepared by the UWE and on the Moffat Report.

Appendix 5

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Wardell Armstrong – Ref. SH10490 - July 2013
Broadview Energy Ltd - Spring Farm Ridge Renewable Energy Project
Technical Note on Flood Risk and Drainage

Introduction

Wardell Armstrong has been instructed by Broadview Energy Ltd to advise on flood risk and drainage matters associated with the proposed Spring Farm Ridge wind farm now subject to redetermination at a second public inquiry. The proposal for five 125m turbines on land to the north of Welsh Lane between the villages of Greatworth and Helmdon was refused planning consent in February 2011 by South Northamptonshire Council. However, there was no mention of flood risk in either the Planning Committee Report or the Decision Notice. Neither was flood risk mentioned in the appeal decision of the Planning Inspectorate who granted planning consent on 12 July 2012. Notwithstanding that flood risk and drainage have not been raised within the Statement of Case by either South Northamptonshire Council or the Helmdon, Stuchbury and Greatworth Windfarm Action Group (HSGWAG), this Technical Note has been produced in response to comments made by Helmdon Parish Council in relation to flood risk within the village and a report produced by its consultants, David Smith Associates (DSA).

Flood Risk Methodology for Wind Turbines

To quote the EA in its letter on Spring Farm Ridge (24 September 2010); *A wind farm rarely produces problems in flood risk terms due to the dispersed nature of the turbine locations*. Wind farms are commonly situated on agricultural land in open countryside where the agricultural land drainage system can cope with surface water run-off and attenuation storage is not needed. At Spring Farm Ridge, however, because of the geology and the relatively wet nature of the ground observed during site visits, a more engineered approach than usual has been adopted. In addition to the use of permeable materials and maintenance of the existing land drainage system, surface water attenuation is proposed, utilising a series of ditches and ponds which will cope with the extreme-case design scenario of 100% run-off from stoned areas in a 1 in 100 year rainfall event. This scheme is explained fully in the planning application Environmental Statement, dated October 2010, and its supporting document, the Wardell Armstrong Flood Risk Assessment Report No SH10490/RPT-008A, dated January 2012.

Flood Investigation Report, Station Road, Helmdon

A Flood Investigation Report on the flooding of properties at Station Road, Helmdon on 21 November 2012 was carried out by consultants DSA for the Lead Local Flood Authority (LFFA), Northamptonshire County Council. The report concludes that the flooding was caused by overland flow from high ground to the south combining with surface run-off and sewerage flows in the village and was blamed on the poor state of maintenance of the existing drainage systems and watercourses. The Helmdon Brook did not directly contribute to the flooding in the village and, consequently, there was no impact on the village from run-off from the area of the proposed Spring Farm Ridge wind farm.

Statement by Chairman of Helmdon Parish Council

The Chairman of Helmdon Parish Council has made a statement (undated) for submission to the Planning Inquiry. He emphasises that Helmdon suffers flooding on a regular basis and contents that the proposed wind farm development will make matters worse. Our response is that the flooding in

Helmdon is not caused directly by the Helmdon Brook and, even if it were, any impacts associated with the proposed development would be sufficiently mitigated by the flow attenuation scheme described in the ES and FRA and approved by the Environment Agency (EA).

Helmdon Parish Council Review of Surface Water Drainage Proposals

A Review of Surface Water Drainage Proposals for the Spring Farm Ridge Renewable Energy Project, dated 9 May 2013, was carried out by DSA on behalf of Helmdon Parish Council. The report refers to Section 6.1 Hydrology and Drainage of the Objection to Broadview Energy's Planning Application to Erect Wind Turbines at Spring Farm Ridge by HSGWAG, dated January 2011. The points raised in Section 6.1 of the HSGWAG Objection Document are quoted in italics below, each with the our response in bold type:

- *Despite the mitigation measures the applicant intends to take, we are not reassured that the risk of surface water flooding in Helmdon will not be exacerbated. We believe that the finely balanced hydrology environment makes this location inappropriate for development.*
  The hydrology of the location is not 'finely balanced'. Because of the clay soils and springs, there is more run-off from the turbine site than usual for such sites, but this is currently being carried adequately through the village by the Helmdon Brook.

- *The applicant has at no point approached Helmdon Parish Council for details of the issues surrounding local flooding.*
  Local knowledge was obtained via Anglian Water Services, news archives and consultation comments on the planning application by local residents.

- *Local information including photos and video footage highlights two things:*
  - *Firstly, that surface water run-off is a problem in a village nestling at the bowl of a small valley, surrounded by source streams.*
  - *Secondly, that there is a specific issue with run-off from the direction of the turbine site which eventually ends up in Station Road in The Green.*

  The floodwater which ends up at The Green does not originate from the turbine site. An examination of the topography clearly shows that run-off from the turbine site enters the Helmdon Brook no nearer the village than 700m upstream of Station Road.

- *The applicant is generally aware of the run-off issue and the ES states that: "during periods of heavy rain levels of high water in the brook (River Tove) restricts the discharge from the public surface water drainage systems in Helmdon"*
  This is a direct quote from Anglian Water Services (AWS) and provided in the ES and FRA as background information regarding flood history. It was not sufficiently relevant to the purpose of these reports to require substantiation.

- *The addition of attenuation ponds was a last minute addition to the ES. It only appears to have been added at the insistence of the Environment Agency*
  The timing of the introduction of attenuation into the preliminary design is irrelevant. The early draft sent to EA for comment was part of the design process and useful suggestions were incorporated as a result. The significant point is that the attenuation scheme was included in the planning application and approved by the EA.

- *New ditches are also proposed which seem to join into existing water courses rather than going into the attenuation pond. This will surely add to the amount of water entering the Tove which the applicant denies elsewhere in the documentation .*
  Any run-off from land higher than the development will be directed past the development to join the existing watercourses further downhill as it does at present. No water will be added.

- *Whilst the turbines themselves are not on land at high risk of flooding, it is noted that the pond for turbine 5 seems very close to flood zone 3. How will the developers ensure that the pond itself is not swallowed into any flood plain?*
  Pond 5 cannot be 'swallowed up' because it is 150m from Flood Zone 3 and 7m higher.

- *There is a high volume of natural springs on the site – how will the developer ensure these are not displaced and how will any new spring which appears during construction (as seems likely) be dealt with?*
  All spring water will be treated as run-off and directed into the existing drainage system, separate from the development drainage system.

- *The likelihood of finding a new spring at all seems to have been dismissed by the developer who, whilst conceding that there are springs in the centre of the site states "there is little potential for groundwater emergence" and groundwater flooding is not a significant risk.*
  Groundwater flooding is not a significant risk because it can only emerge in small quantities and there is nowhere for it to gather. It will simply flow downhill as it does at present.

- *The Applicant states that the turbines would not affect the surface water regime at the site nor flow into the River Tove. How can this be the case with the creation of new ponds and drains which will drain into the watercourse?*
  The principle of attenuation is that run-off is stored during heavy rainfall and then released to the watercourse at the same rate at which it did before the new works were constructed.

- *What happens if the ponds fill to capacity?*
  The ponds are designed to fill to capacity during a very severe 1 in 100 year storm with a 30% additional flow allowance for future climate change. This is normal accepted practice. It is not possible to cater for every conceivable event. An small element of risk assessment will always remain.

- *All documentation indicates that the whole area is finely balanced with regard to the hydrology and geology – as the Environment Agency pointed out to the developer: -"it must not be assumed that a small percentage increase on the flows in the receiving watercourse would be of negligible impact" and "even a perceived small increase in runoff from the site may have severe consequences downstream."*
  The whole point of attenuation is to prevent such consequences from occurring.

- *This is contrary to local Wind Turbine policy (point 10.3 SPD "Wind Turbines in the Open Countryside).*
  Paragraph 10.3 of the SPD - *Wind Turbines in the Open Countryside* relates to the protection of ground water and is not relevant to flood risk and drainage.

Further points raised by DSA consultants themselves are quoted in italics below, each with the Appellant's response in bold type:

- *The FRA indicates that high water levels in Helmdon Brook are reported to be a factor in reducing the ability of sewerage systems in Helmdon village to drain down causing flooding of residential properties on numerous occasions.*
  This is a direct quote from AWS and provided in the FRA as background information regarding flood history.

- *The DSA report on behalf of Northamptonshire County Council records numerous previous flood incidents in Helmdon. It concludes that high water levels in Helmdon Brook are reported to be a factor in the occurrences on flooding of property.*
  High water levels in the Helmdon Brook which restrict the outfalls from the village drains do not constitute fluvial flooding. The only way in which run-off from the turbine site could cause flooding in Helmdon would be if it raised the water levels to the point where the Brook overtopped onto Station Road. This does not happen at present. The attenuation scheme proposed for the wind farm will prevent run-off from that source from causing it to happen in the future. The problem of flooding in Helmdon can only be solved by better engineering and maintenance of the village drainage system. It cannot be related to the wind farm site.

- *The design intercepts the natural run-off from catchments on the 'high' side of the access tracks and hardstanding areas. This flow is carried by ditches and through piped culverts where the access track is crossed to a single point on the receiving watercourse. This could affect the natural run-off regime by:*
  - *preventing the existing infiltration of run-off into areas of low lying land between the proposed access tracks and the receiving watercourse, thus potentially increasing the amount of water entering the watercourse.*
  - *potentially reducing the time of entry and increasing the velocity of flows into the receiving watercourse.*
  - *introducing a risk of failure in the proposed ditch system and any associated pipework which could lead to a breach of intercepted water suddenly being released to the receiving watercourse or at other location.*
  - *a maintenance regime and decommissioning proposals are required, which limits the sustainability of the drainage principles.*
  - *the ecology of the low lying land and watercourse banks between the access tracks and the receiving watercourse will be affected by being deprived of a quantity of the natural run-off.*
  - *the designs are based on 100 year return storm events + 30% additional rainfall to allow for climate change. There is a residual risk of a heavier storm event, or a series of extreme events, occurring for which the system has not been designed which could*

lead to a breach of intercepted water suddenly being released to the receiving watercourse.

The design provides a ditch system on the 'low' side of the access tracks to accept run-off from the access track and carry this to proposed attenuation ponds which have an outlet pipe back to the watercourses with a restricted flow rate provided by a flow control orifice. The risks associated with this are:

- *blockage of the flow control orifice or outlet pipe from the pond could lead to a breach of water suddenly being released to the receiving watercourse.*
- *The proposed restricted flow rates vary between 1.1 litres/second and 3.2 litres/second. This would result in very small apertures in the flow control orifices which would be susceptible to blockages.*
- *Should the ditch system on the 'high' side of the access tracks fail for any reason, these may overtop into the ditch system on the 'low' side of the access tracks leading to natural catchment run-off entering the ponds which has not been allowed for in their design. This could lead to a breach of water over the pond of ditch sides suddenly being released to the receiving watercourse or at other location.*

No development can be entirely without risk or impact on the environment and it is the role of the engineer to mitigate the risks and impacts to a level where they are acceptable. This level is established by common consent and varies from time to time depending on the importance of each particular issue in the public eye. At present, established good practice with respect to flood risk and drainage is to mitigate the effects of a 1 in 100 year rainfall event with an additional 30% of flow to allow for the effects of climate change over the next century. This is a very demanding requirement, but the proposed drainage scheme achieves it. Detailed design will be carried out once planning permission has been granted, as is normal practice.

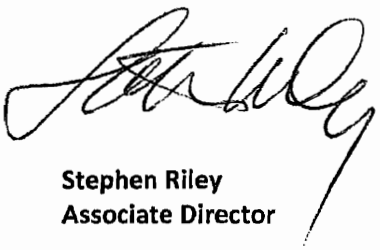
This is not an urban development. It is a rural scheme with similar characteristics to other wind farms in the open countryside which do not require attenuation drainage schemes. Only because this site is wetter than normal has it been deemed prudent to include attenuation in the drainage scheme. Consequently, its sensitivity to run-off is low and the land will be able to absorb significant rainfall and flows of water across it. Only in extreme occurrences approaching the design event will the attenuation be utilised in preventing downstream impacts.

As with all engineering works, maintenance will be required. The developer will also be the operator and carry out all necessary maintenance. The maintenance schedule for the drainage system will form part of that for the turbines and all other infrastructure and be equally robust.

Conclusions

In the light of the points made above, we stand by our surface water drainage scheme as contained in the ES and FRA and approved by the EA and consider the allegations made by Helmdon Parish Council and their consultants, DSA, to be without substance. Furthermore, we consider that, with the implementation of the proposed drainage scheme, the site of the Spring Farm Ridge wind farm would be acceptable with respect to flood risk and drainage.

for Wardell Armstrong



Stephen Riley
Associate Director

Andrew Dunhill
Technical Director

SH10490

8 August 2013

Appendix 6

Spring Ridge Farm.
Proposed Wind Farm.
Technical Highway and Transportation Note.

1. Introduction.

1.1. WSP are instructed by Broadview Energy Ltd to advise on the highway and transportation matters associated with the proposal for the erection of 5 wind turbines together with ancillary infrastructure on land on land at Spring Farm Ridge, land to the north of Welsh Lane between Greatworth and Helmdon (App Ref Z2830/A/11/2165035)

1.2. This technical note has been produced by WSP on behalf of Broadview Energy Ltd in response to comments raised in relation to highway safety along the B4525. The key issues which are raised by the third parties are identified as follows;

- The speed and number of accidents that have occurred on the B4525 in particular between the Sulgrave to Marston Street junction, Lawrence cross roads and the Hendon to Radstone Cross Roads and the impact of the appeal developments traffic exacerbating existing highway safety problems;
- The implications of recent changes made in relation to the anaerobic digester at Stuchbury Manor Farm.
- The issue relating to driver distraction.

1.3. In undertaking this technical note WSP has reviewed the highway and transportation work submitted as part of the Spring Farm Ridge wind farm site application (Ref S/2010/1437/MAF), the Red Route Study of B4525 issued by Northamptonshire County Council (NCC) dated 30th September 2012(1), and the planning applications approved at Stuchbury Manor Farm.

1.4. South Northamptonshire Council are not raising matters relating to highway safety as an issue at the appeal. Furthermore, the Highways Agency has raised no objection to the proposal in terms of highway impact.

1.5. In advising on this matter, WSP have acted in relation to a number of wind farms around the UK and are therefore familiar with the highway and transportation issues that arise in the context of such development types.

2. Transportation Planning Policy.

2.1 In terms of policy, there are no particularly relevant policies in the statutory Development Plan on traffic and transportation matters. In the context of national planning policy and guidance, the relevant documents are the National Planning Policy Framework (NPPF) (2012) and the Planning Practice Guidance (PPG) (2013).

2.2 The NPPF specifically deals with the matter of the impact of development traffic. In this regard Section 4 of the NPPF deals with matters relating to sustainable transport. Paragraph 32, highlights that all developments that generate a significant amount of movement should be supported by a Transport Statement or Transport Assessment. Despite the fact that the development traffic associated with the Spring Farm Ridge wind farm relates mainly to the construction phase, an assessment of traffic matters is included within the ES where predicted impacts are considered to be not significant in EIA terms.

2.3 Paragraph 32 of the NPPF concludes that development should only be prevented or refused on transport grounds where the residual cumulative impacts of the development are severe. WSP has reviewed the assessment of the impact of the proposed development and consider that even for the peak period of the construction phase, the impact of development traffic cannot be considered as severe.

2.5 The PPG provides no specific traffic and transport assessment advice; however when considering safety, reference is made to the strategic road network and to the Department for Transport (DfT) document, "The Strategic Road Network and the Delivery of Sustainable Development". This document states at Para 1.3:-

"This document sets out the way in which the Highways Agency will engage with communities and the development industry to deliver sustainable development and thus, economic growth whilst safeguarding the primary function and purpose of the strategic road network."

2.6 The document then deals with specific issues of wind turbines at paragraphs A.11 to A20. Specifically paragraphs A14 to A16 deal with the matter of "Visual Distraction". This highlights the need to seek to provide a clear and continuous view of the turbines, that turbines should not be provided where drivers need to pay attention to a particular driving task, and that an analysis of road accidents within the vicinity of a site should be undertaken. These matters are addressed later within this note.

3. Technical Response to Issued Raised.

The speed and number of accidents.

3.1. In relation to the first issue concerning the number of accidents that have occurred along B4525, reference is made to the Red Route Study (1) undertaken by NCC. The Red Route Study identifies and reviews the accidents that have occurred along B4525 between its junction with A422 to the west and the village of Crowfield to the east between 2009 and 2012. The study considers that the number of accidents that have occurred along this section of road is above the national average for this type of road. The report summarises that remedial measures have been put in place along this road including several yellow backed warning speed limit signs and solar power cat's eyes. In addition the B4525 has been programmed to be surface dressed along its entire length of the study route in the next financial year (2013).

3.2. The Red Route Study concludes that there are no perceived engineering improvements that can be made along this study route. However, Northamptonshire County Council are currently progressing a speed reduction scheme for this route to reduce the speed to 50mph. Clearly this would have a positive effect in assisting in reducing accidents along this route.

3.3. In addition to the above a new mini roundabout is proposed at the junction with Banbury Lane and Chacombe Road together with an extension of the 40mph speed limit as part of a residential development for 79 dwellings on land at Windmill Farm (App ref S/2010/0473/MAO). A reserved matter application for this site has been refused and as such the timing of the implication of this development is not known.

3.4. In considering this study, the accidents that have occurred along this route are at different locations with the exception of those in Middleton Cheney, where there have been 4 recorded accidents at the junction of Banbury Lane and Chacombe Road. Whilst it is evident that there has been a higher than average number of accidents along this route as a whole, there are no specific locations or junctions that would be considered an accident problem or 'black spot'. Clearly if this was the case then remedial measures would have been proposed.

3.5. The routing of the vehicles to and from the appeal site could be via A43 or A222. Northamptonshire County Council has stated that their preference would be for HGV's to be routed via the A43 to the east of the site which would avoid the Banbury Lane/ Chacombe Road junction; however there are no specific requirements for this.

3.6. The ES identifies that there are around 3,500 vehicles using the B4525 between the hours of 09:00 and 19:00 close to the appeal site of which 588 (17%) are HGV's. The maximum number of additional vehicles associated with the construction of the appeal site between 09:00 – 19:00 will be 126 of which 46 (36%) will be HGV's resulting in approximately 9 HGV's two-way movements per hour (i.e. 4 vehicles arriving and 5 vehicles departing). This number of movements will be over a very short period (a few days) after which the numbers will reduce to approximately half this level for the remaining 12 month construction period. The total number of vehicles accessing the site after the peak is expected to be a total of 73 vehicles per day.

3.7. In relation to the existing traffic volumes, the peak construction period will see an increase of traffic along B5245 by 4% reducing to just 1% thereafter, as a consequence of the appeal proposals. It is considered by WSP that this level of increase is not significant and therefore this is not an issue which would prevent the appeal proposals being approved.

3.8. The vertical alignment of B4525 is relatively flat and as such is not likely to result in very slow moving HGV's, only two of the accidents identified in NCC's red route study are related to overtaking HGV's although only one resulted in a collision with an oncoming vehicle. The increase of HGV's associated with the construction of the appeal site will be over a short period of time and as such is not considered to exacerbate this type of accident.

3.9. The proposed site access has been designed to accord with the DfT Design Manual for Roads and Bridges TD42/95 for a design speed of 60mph, ensuring that there is sufficient visibility from

the access as well as forward visibility approaching the junction for this speed of traffic. Furthermore when the speed is reduced to 50mph, the visibility requirements will be more than adequate for the speed of traffic.

3.10. Accordingly in conclusion on this matter WSP consider that there are no highway safety issues which would prevent the development proposals being approved.

Anaerobic digester at Stuchbury Manor Farm.

3.11. The second point identified is in relation to an increase in tractor movements associated with the new anaerobic digestion facility at Stuchbury Manor Farm which is 1.7Km to the west of the appeal site. The application ref S/2011/0555/MAF for the anaerobic digestion facility received no highway objection. In the Design and Access Statement for app ref S/2011/0555/MAF it is stated that "*No impact on the local highway network will occur as a result of this proposal. All vehicles needed to operate the facility will be accommodated on site. Bio-fertiliser will be utilised by the farm.*"

3.12. In addition, Stuchbury Manor Farm submitted an application for a Slurry Lagoon (app ref S/2012/1428/FUL) and again there was no highway objection from NCC and the Design and Access Statement relating to the aforesaid application states "*The proposal would not involve the intensification of any traffic movements to or from the site. It is a requirement brought about solely to achieve compliance with the latest Environmental Agency SSAFO regulations.*" On this basis it is considered there has been no additional traffic movements associated with the anaerobic digestion facility at this site and the movements to and from the farm are considered to be part of the farms every day operation.

3.13. Accordingly it is considered that the appeal proposals in combination with the anaerobic digester do not raise an issue in highway capacity and safety terms.

Driver Distraction.

3.14. When considering the matter of driver distraction, reference has been made within this note to the DfT document referring to the Strategic Road Network. Clearly this document relates to the consideration of traffic on the highest class of roads within the country, namely motorways and trunk roads. The issues to be considered within this document are to seek to ensure continuous views of the wind turbines, that turbines should not be provided where drivers need to pay attention to a particular driving task, and that an analysis of road accidents within the vicinity of the site should be undertaken.

3.15. In the context of views of the site, drivers will have sight of the turbines on approach to the development site from both directions. It is considered that wind farms are not an unusual sight within the landscape and that drivers would not be distracted by their presence. Clearly the Highways Agency does not preclude them from locations adjacent to motorways where there are far higher levels of vehicular traffic travelling at far higher speeds.

3.16. Turing to the matter of the need for drivers to pay particular attention to driving tasks, again it is considered that the nature of the road in the vicinity of the site does not pose any significant challenges to drivers. Whilst there are a number of side road junctions or accesses along this stretch of the B4525, the accident records for this particular location do not highlight a safety issue which might otherwise be exacerbated by the presence of the wind farm.

3.17. Finally on the matter of driver distraction the accident statistics have been reviewed and it is considered that there are no highway safety issues which would prevent the development proposals being approved.

3.18. Accordingly in the context of the issue of driver distraction it is considered that this location does not present a safety concern for drivers.

4.0 Summary.

4.1 In summary, WSP has reviewed the highway and transportation information submitted as part of the application, together with reviewing the appeal proposals. From this assessment of the information available WSP has considered the various matters raised by the third parties which are summarised below.

4.2 In the context of the red route and the matter of vehicle speed and accident numbers, WSP consider the development proposal will not result in a significant increase in traffic and hence will not impact on road safety.

4.3 Turning to the matter of the anaerobic digester it has been shown that in isolation that development does not impact on the local road network and consequently neither will the cumulative effect of the appeal scheme and the consented development.

4.4 When considering driver distraction, it is considered that the site location does not present a safety concern when considering the parameters to be assessed as identified by the DfT.

4.2 In conclusion therefore, it is considered that the issues raised in terms of highway safety are considered unfounded and that there are no highway safety or capacity issues which would prevent the proposal being approved. Furthermore in the context of the NPPF and the new PPG there are no issues associated with the highway and transportation issues which could be construed as severe or which would justify refusal of the proposed development.

Osprey Consulting
Services Ltd

Appendix 7: Aviation Technical Note
PINS Appeal Ref: APP/Z2830/A/11/2156035
Our Ref: 7675/001
21st August 2013

Broadview Energy Developments Limited
91 New Cavendish Street
London
W1W 6XE

Response to Objection to Spring Farm Ridge Wind Farm by Turweston Flight Centre

Osprey Consulting Services Ltd (Osprey) understands that the Spring Farm Ridge Wind Farm will be going back to appeal in October 2013. Turweston Aerodrome has re-submitted their witness statement originally raised at the previous public inquiry in May 2012. The main issues that were raised within the statement from Turweston Flight Centre (TFC) detail potential concerns relating to:

- Lack of circuit height awareness, particularly for visiting pilots;
- Student pilot competence in the vicinity of the turbines;
- Pilot conformance with circuit height in the vicinity of the turbines during Runway 27 operations;
- Circuit height error due to pilot miscalculation of the QFE[1];
- Flight within poor weather conditions;
- Wind turbine induced turbulence;
- Development and introduction of Global Positioning System (GPS)[2] approaches as a mitigation option.

This technical note has been produced on behalf of Broadview Energy Ltd and contains Osprey's analyses of the contents of the TFC witness statement in order to address the concerns raised.

Circuit Height Awareness

Flight Procedures for all UK aerodromes are published within the UK Integrated Aeronautical Information Publication[3] (UK IAIP), which pilots are obliged to check prior to visiting an airfield. The Turweston entry of the UK IAIP clearly states a circuit height of 1,300 ft QFE.

As detailed within the TFC statement, approaching pilots are required to call 10 NM from the aerodrome for airfield information. Circuit height is clearly stated and could easily be emphasised at this point, i.e. 'please note circuit height is 1,300 ft QFE'.

Student Pilot Competence

The duty of care for the avoidance of obstacles rests with the training provider; solo flying training is only permitted at the authorisation and supervision of an appropriately qualified Flying Instructor, as detailed in

[1] QFE is the term used to denote pressure set on an altimeter that provides the aircraft's height above aerodrome level. QNH is the pressure setting that provides height above mean sea level. To convert from QNH to QFE a pilot must deduct the change in pressure between these two datums, calculated at 1 mb per 30 ft.
2 A Global Positioning System (GPS) approach is a non-precision approach (i.e. one which provides lateral, but not vertical guidance) utilising positioning data from GPS satellites. GPS approach procedures will provide a track for aircraft to follow to approach the aerodrome and rely on the aircraft having the appropriate GPS equipment fitted.
[3] CAA, CAP 032 *UK Integrated Aeronautical Information Publication* (UK IAIP).

the CAA document CAP 393[4]. If a student cannot control an aircraft within a 'couple of hundred feet' as indicated in the TFC statement, then it is suggested that the student pilot should not be in sole control of the aircraft.

This objection was raised in respect of Westfield Wind Farm in Fife (LPA Reference: 09/01861/EIA). The site was approved by the Local Planning Authority (LPA); an analogy was used that:

"we would not refuse permission [for a road] on the basis that a learner driver or an unsafe vehicle could cause an accident.[5]"

And it was reported that the planning officer stated:

"A new road that is granted planning permission would not be classed as unsafe due to the anticipated behaviour of the driver or the roadworthiness of the vehicle.[6]"

This analogy describes how it is out of scope for an assessment of the impact of the turbines to determine the competency of the pilots flying nearby; it is incumbent on flying instructors to ensure that student pilots have the necessary level of competence prior to solo flight.

Circuit Height Conformance under Runway 27 Operations

The turbines do not reside within the circuit pattern as described in the Turweston entry of the IAIP and depicted in Pooley's Flight Guide[7]. Provided the pilot flies the published procedure there is no requirement to overfly the turbines. Additionally, given that to take off from Runway 27 the wind would need to be from a westerly direction, it would effectively push affected aircraft away from the wind farm.

Circuit Height Error due to Pilot Miscalculation of the QFE

The Turweston entry of the UK IAIP states that circuit height is 1,300 ft QFE and it is assumed that the pilot will fly on the QFE if remaining within the circuit. Approaches to the airfield can be made on the QNH. However, the airfield elevation would be passed to avoid the pilot having to "look it up" on the approach if he has not already done so prior to departure. Obstacles heights/altitudes are published relative to both QFE and QNH and details of the turbines could be passed when the pilot calls to join; the pilot should be fully aware of the altitude or height of the obstacle relative to his own, regardless of which pressure setting he is flying on.

Flight within Poor Weather Conditions

Pilots may be required to fly at a lower height in poor weather conditions, in order to maintain visibility with the ground. It is a requirement for pilots using the aerodrome to maintain Visual Flight Rules (VFR)[8] where a pilot is able to see outside the cockpit, in order to control the aircraft's attitude, navigate, and avoid obstacles and other aircraft. VFR flight requires pilots to operate in Visual Meteorological Conditions

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[4] CAA, CAP 393 *Air Navigation: The Order and the Regulations*. Third Edition, 10 August 2012.

[5] LPA email correspondence to the CAA, dated 19th August 2011. *Safety Considerations in Relation to Wind Turbines next to Airfields*. Reference: 09/01861/EIA. Available: http://planning.fife.gov.uk/online

[6] Planning committee approves Earlseat and Westfield windfarm plans. The Courier. 21 September 2011, updated 26 November 2012. Available http://www.thecourier.co.uk/news/local/fife/planning-committee-approves-earlseat-and-westfield-windfarm-plans-1.47806

[7] Pooley's Flight Guide United Kingdom. Fiftieth Edition. 2012.

[8] Visual Flight Rules (VFR) comprising Rules 25 to 31 of the Rules of the Air Regulations.

as stipulated in CAP 493[9]. For VFR compliance, flight must be conducted in:

- 5 km flight visibility, clear of cloud and with the surface in sight; or
- For an aircraft, other than a helicopter, operating at 140 knots or less: 1,500 m flight visibility, clear of cloud and with the surface in sight.

In each case it is anticipated that a pilot operating at lower altitude due to poor or deteriorating weather will be able to see the wind farm from at least 1,500 m.

Wind Turbine Induced Turbulence

The CAA operates a Mandatory Occurrence Report (MOR) system. As defined in CAP 382[10], the MOR scheme aims to improve flight safety by ensuring that safety information is reported, collected, stored and disseminated; contributing to accident and incident prevention. CAP 382 provides great detail as to what type of incident requires the raising of an MOR. Amongst those are:

- Inability to achieve predicted performance during take-off or initial climb;
- Loss of control (including partial or temporary) regardless of cause;
- Unintentional significant deviation from airspeed, intended track or altitude (more than 300 ft) regardless of cause.

In addition, such is the seriousness attributed to incidents of wake turbulence there is a special category and reporting structure set up for it, over and above the MOR scheme.

The MOR scheme is arguably the most mature (over 30 years old) aviation safety reporting system in the world, generating in excess of 12,000 reports per year. The UK is recognised as a world leader in addressing the problems of aviation interaction with wind turbines. The small land mass forces wind farms and aviation stakeholders to co-exist. Despite the wealth of knowledge gained over the past 10 years and the maturity of the MOR system, the CAA have stated that they have never received a MOR relating to the impact of wind turbine induced wake turbulence on an aircraft.

GPS Approaches

It is agreed that GPS approaches would improve services at Turweston and enhance safety in relation to all obstacles in the vicinity of the airfield.

Summary

The majority of the issues raised by TFC relate to human error in operating the aircraft. To avoid this, additional information could be passed to pilots as they join the circuit at Turweston and an obstacle in the vicinity of the airfield should be addressed through sound airmanship and adherence to rules of the air. It is agreed that GPS would enhance operations at Turweston, but are not specifically required to mitigate for the Spring Farm Wind Farm.

Sue Crooks
Business Area Manager - Operations
Osprey Consulting Services Ltd

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[9] CAA CAP 493 *Manual of Air Traffic Services – Part 1*. Fourth Edition incorporating amendments to April 2013.

[10] CAA CAP 382 *Mandatory Occurrence Reporting Scheme*. Ninth Edition, March 2011.

Appendix 8

PAGERPOWER

TECHNICAL NOTE

Introduction

Broadview Energy Limited is proposing the development of a 5 turbine wind farm to be located on land to the north of Welsh Lane between Greatworth and Helmdon in South Northamptonshire. The turbines are to have an overall tip height of 125m above ground level (agl).

Pager Power has been engaged to provide technical advice regarding the impact of wind turbines upon wireless broadband systems following Greatworth Parish Council raising concerns about the potential effect upon a proposed wireless broadband scheme. It is believed that the transmitter for the broadband will be located on an old RAF radio mast at Greatworth Park however the exact location is unknown at this point. This is approximately 1km from the proposed wind farm site.

Calculations have been undertaken based on the information provided by Greatworth Parish Council (in their appeal letter dated 22nd May 2013 to the Planning Inspectorate) and Pager Power's prior knowledge of wireless systems. The broadband system will utilise a fibre optic connection at Greatworth Park however the appeal letter does not contain the following information:

1. The frequency at which the wireless broadband system will operate;
2. The exact location of the mast;
3. The height at which the transmitter will be located on the mast.

The following reasonable assumptions have therefore been made:

1. Typically community broadband systems operate in the GHz spectrum at frequencies of 2.4GHz and 5.8GHz in accordance with IEEE 802[1]. Therefore a frequency of 2.4GHz has been used in the calculations as a worst case;
2. It is known that the mast will be located on Greatworth Park ('*The proposals plan to make use of the old RAF radio masts that are on the site*') however the exact location of the mast is unknown. Therefore a reasonable location for the mast upon Greatworth Park has been selected (455327E 243392N);
3. The height of the antenna agl is unknown therefore an antenna height of 25m agl has been assumed.

Potential effects on wireless systems

Wind turbines have the potential to affect wireless systems. Pager Power has undertaken an assessment and quantified (where possible) the potential impact of the proposed Spring Farm Ridge wind farm upon the wireless broadband system proposed at Greatworth. The following has been assessed in detail to inform this technical note:

- Wind farm and broadband information;
- Possible interference mechanisms;
- Knowledge of Carrier to Interference ratio (CIR)[2] with a CIR calculation;
- Overall expected impacts;

[1] Institute of Electrical and Electronics Engineers 802 refers to a family of IEEE standards dealing with local area networks and metropolitan area 0networks.

[2] The methodology for assessment of interference effects was developed based on evaluating the strength of the predicted carrier(C) signal to the interfered(I) signal to give a Ratio (CIR). To achieve good quality reception a strong Carrier signal must be received coupled with weak Interference signals. The CIR is evaluated by taking the ratio of the predicted signal strength (provided directly from the transmitter) to the predicted interference signal strength (reflections from the turbines).

Key findings:

Potential interference mechanisms have been identified:

1) The electromagnetic emissions from a turbine are not expected to cause interference upon the Broadband system. Electromagnetic interference upon the Broadband system is not expected due to the presence of the wind farm. Electromagnetic energy may be radiated from a wind turbine affecting radio systems, however this is unlikely to be a problem because turbines are built to a standard which limits emissions in accordance with Electro-Magnetic Compatibility (EMC) directives.

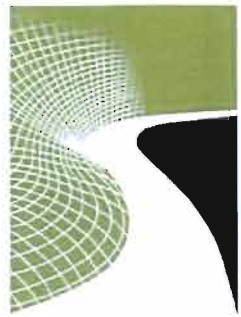
2) The quality of the signal is dependent on both the strength of the signal received directly from the transmitter (Carrier signal) and the strength of Interference signals modelled as reflections of the Carrier signal by wind turbines. The interference zones can be modelled for broadband signals. The results of the CIR calculations are as follows:

- Interference has been predicted within the forward scatter region. This region is approximately 10km in length and about 1km across at its widest point.
- Residents receiving broadband in the village of Greatworth will be not be affected because the village is not in the forward scatter region;
- If the signal was to pass through the blade swept area then it is likely that the predicted interference would be worse. Based on the mast height used (25m agl) it is unlikely that the signal would pass directly through the blades;
- Overall the only locations which could be affected would be those that reside within the forward scatter region.

Conclusions

The exact parameters and details of the broadband system would lead to a more accurate assessment of effects. If wireless broadband was to be implemented at Greatworth Park then Greatworth itself would not be affected. Interference has not been predicted here and it does not lie within the forward scatter region.

Appendix 9



STEPHENSON
HALLIDAY

ENVIRONMENTAL PLANNING • LANDSCAPE ARCHITECTURE

REVIEW OF THE PROXIMITY OF OPERATIONAL / CONSENTED WIND FARMS TO PUBLIC RIGHTS OF WAY & BRIDLEWAYS

August 2013

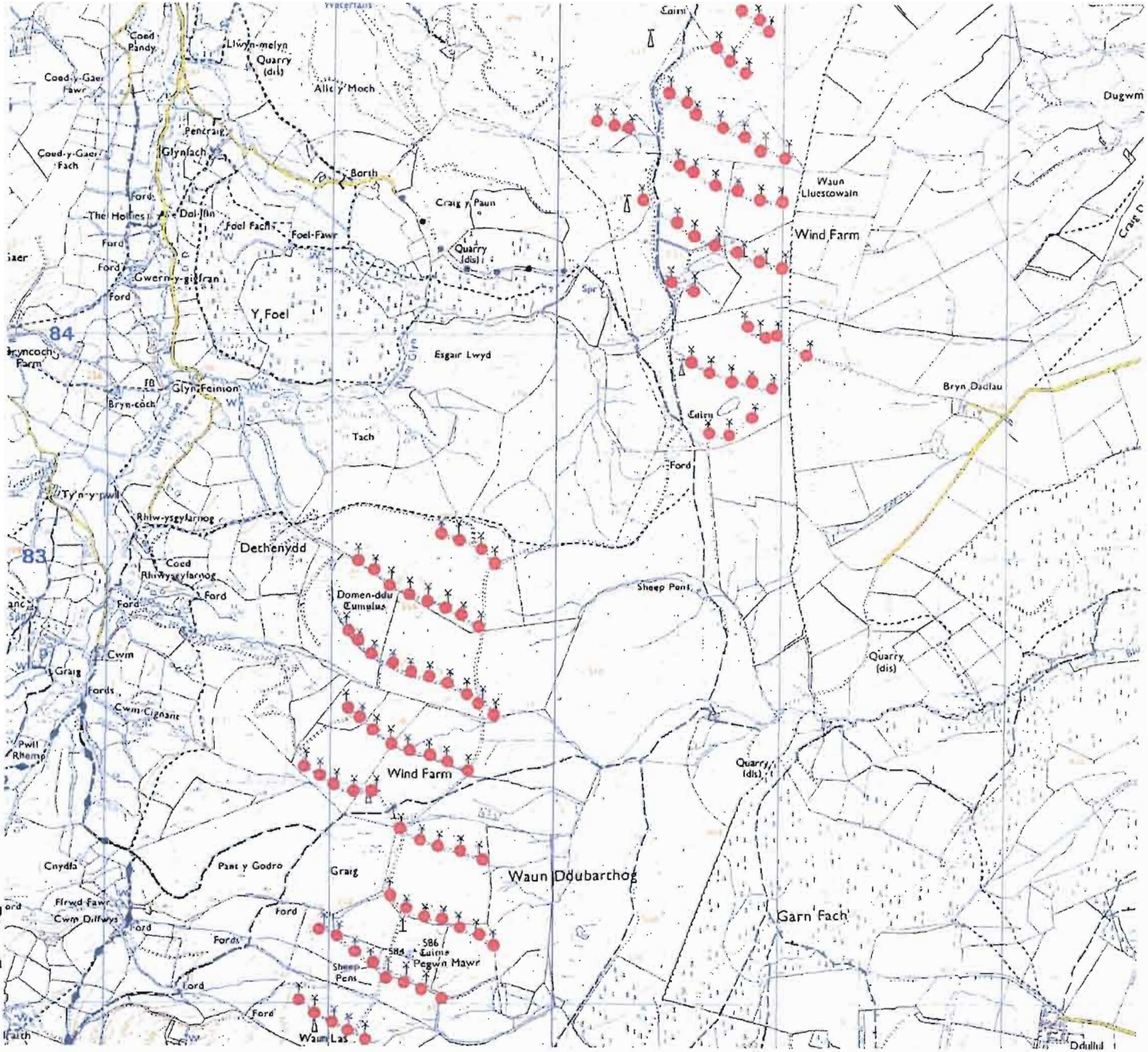
CONTENTS

SUMMARY SCHEDULE

Project Name	No of Turbines / Geometry	Status	Distance of Nearest Bridleway / Byways / PRoW	Appeal Decision Reference	Relevant Paragraphs
BRIDLEWAYS					
Llandinam (Powys)	103 No. 30m Hub 45m Tip	Operational (repowering scheme currently at PI June 2013)	30m	N/A	N/A
Carno (inc Carno 2 extension)	56No 32m Hub 54m Tip 12No 49m Hub 80m Tip	Operational	10m (Distance obtained from 1:25k OS Data)	N/A (approved by Powys Council)	N/A
Cemmaes	18No 40m Hub 77m Tip	Operational	50m	N/A	N/A
Low Spinney	4No 80m Hub 125m tip	Operational (map shows consented turbines only)	140m	APP/F2415/A/09/2109745	Paragraphs 51 - 57
Armistead	6No 60m Hub 100m Tip	Operational (map shows consented turbines only)	110m and 180m (PI)	APP/M0933/A/08/2090274	Paragraphs 75-79
Middlemoor	18No. 80m Hub 125m Tip	Under construction	175m (2no. turbines) (PI)	ELEC/2005/2004 – GDBC/001/00245C	Paragraphs 474 - 476
Sixpenny Wood	10No 80m Hub 125m Tip	Under construction	200m	APP/E2001/A/09/2101851	Paragraph 58
Crook Hill / Reaps Moss / Todmorden Moor	Crook Hill 12No Reaps Moss 3No and Todmorden 5No All 80m Hub 125m Tip	Consented	200m/ 150m (turbine 2) (PI)	APP/P4225/A/08/2065277; APP/A4710/A/08/2065274; APP/P4225/A/08/2091045; APP/A4710/A/08/2091044; APP/A4710/A/08/2062366; APP/B2355/A/08/2067355; APP/A4710/A/08/2062365	Background: 5.69-5.76 (CH) / 5.98-5.100 (RM) Sequential Cumulative = 5.123-5.124 Conclusions: 11.148-11.157 & 11.205

Project Name	No of Turbines / Geometry	Status	Distance of Nearest Bridleway / Byways / PRoW	Appeal Decision Reference	Relevant Paragraphs
Coal Clough Repowering	8No 70m Hub 110m Tip	Consented	35m from local footpath, 125m to Burnley Way 95m to Bridleway 112	N/A (approved by Burnley Borough Council)	N/A
M1 Wind Farm	9No 59m Hub 90m Tip	Consented	150m	N/A	N/A
Carsington Pastures	4no. 67m Hub 102m Tip	Consented	160m High Peak Trail 100-130 from footpath	APP/P1045/A/07/2054080	Paragraphs 69-79
Spring Farm Ridge	5No 80m Hub 125m Tip	Consented but currently at JR	190m	APP/Z2830/A/11/2165035	Paragraphs 73-79 & 90
Kiln Pit Hill	6No 65m Hub 100m Tip	Consented	105m	APP/R2928/A/08/2075105	Paragraphs 47 - 48
Lilbourne	5no 80m Hub 125m Tip	Consented	201m	APP/Y2810/A/11/2164759	Paragraphs 5, 77 & 97
Wadlow Wind Farm	13no. 80 Hub 120m Tip	Consented	200m (byway)	APP/W0530/A/07/2059471	Paragraphs 12.86 – 12.88
St Breock Repowering	5No 59m Hub 100m Tip	Consented	216m	N/A (approved by Cornwall Council)	N/A
PUBLIC RIGHTS OF WAY (PRoW)					
Hameldon Hill	3No existing 55m Hub 90m Tip 3No consented 69m Hub 110m Tip	Operational with consented extension	PRoW-175m	N/A (approved by Burnley Borough Council)	N/A

Project Name	No of Turbines / Geometry	Status	Distance of Nearest Bridleway / Byways / PRoW	Appeal Decision Reference	Relevant Paragraphs
Scout Moor	26No 60m Hub 100m Tip	Operational	80m from Rossendale Way, 40m from Rochdale Way	Report to Secretaries of State for Trade and Industry; and for Environment, Food and Rural Affairs by Keith P Durrant 11th April 2005	Paragraphs 263 - 265
Hyndburn	12No 80m Hub 122m Tip	Operational	90m from footpath	N/A (approved by Hyndburn Council)	N/A
Earls Hall Farm	5No 80m Hub 122m Tip	Operational	30m	APP/P1560/A/08/2088548	Paragraphs 7, 26, 36-39, 72, 86, 91
Gayton Le Marsh	8No 70m Hub 115m Tip	Consented	PRoW-195m	APP/D2510/A/12/2176754	Paragraphs 70-71
Kilgallioch	96 100 Hub 146.5 Tip (T50 and T53, 78.5 Hub, 125m Tip)	Consented	121m from Southern Upland Way, 15m from Core Path	Approved by The Scottish Ministers	N/A



STEPHENSON HALLIDAY

REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Llandinam

Llandinam Turbine Location (As Built Coordinates)

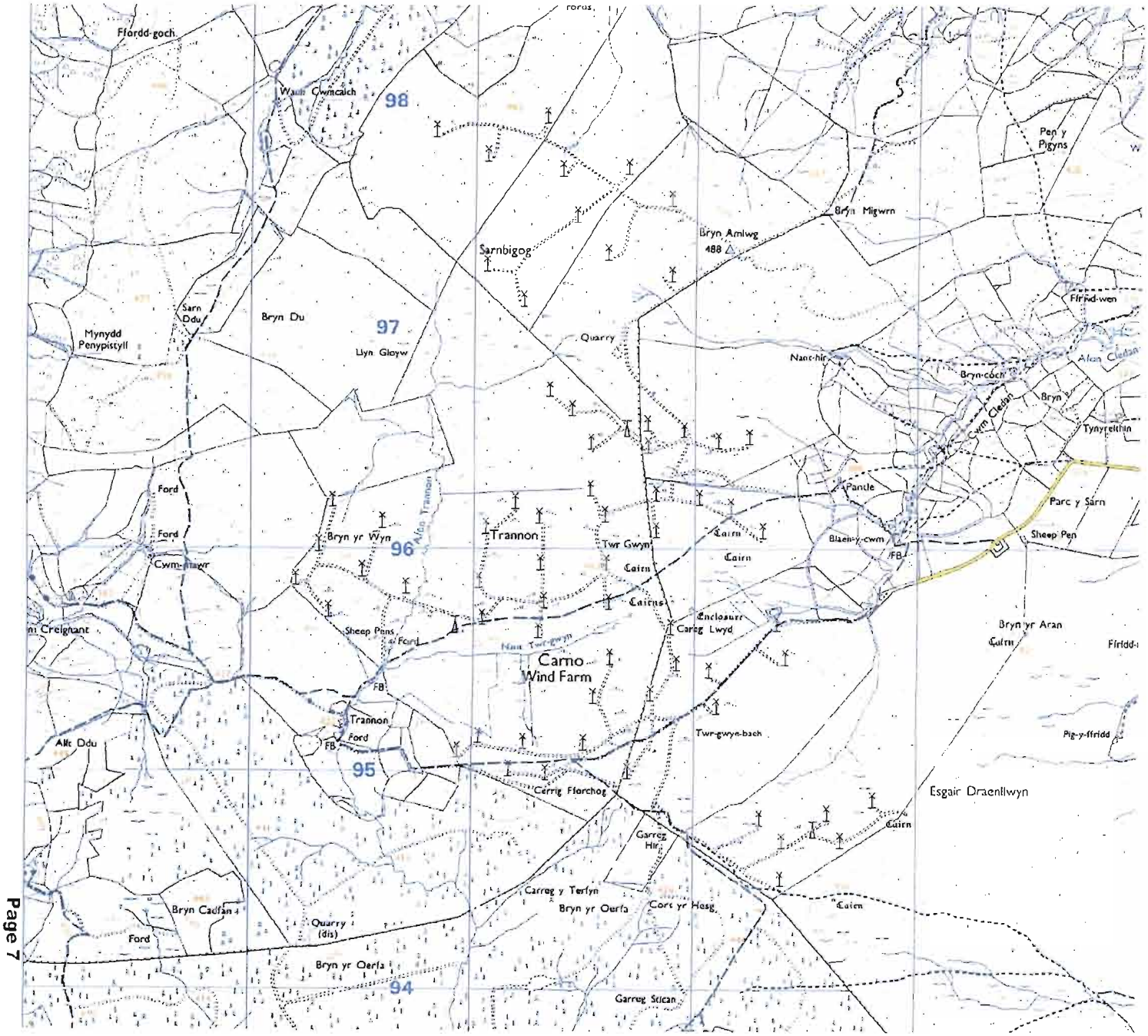
TURBINE DATA:

Number of turbines:	103
Hub height:	30m
Blade tip height:	45m

0m 500m 1km

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	CD	A4	1:25,000		



STEPHENSON HALLIDAY

REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Carno Wind Farm

TURBINE DATA:

Carno 'A' & 'B'

Number of turbines:	56
Hub height:	32m
Blade tip height:	54m

Carno Extension

Number of turbines:	12
Hub height:	49m
Blade tip height:	12m

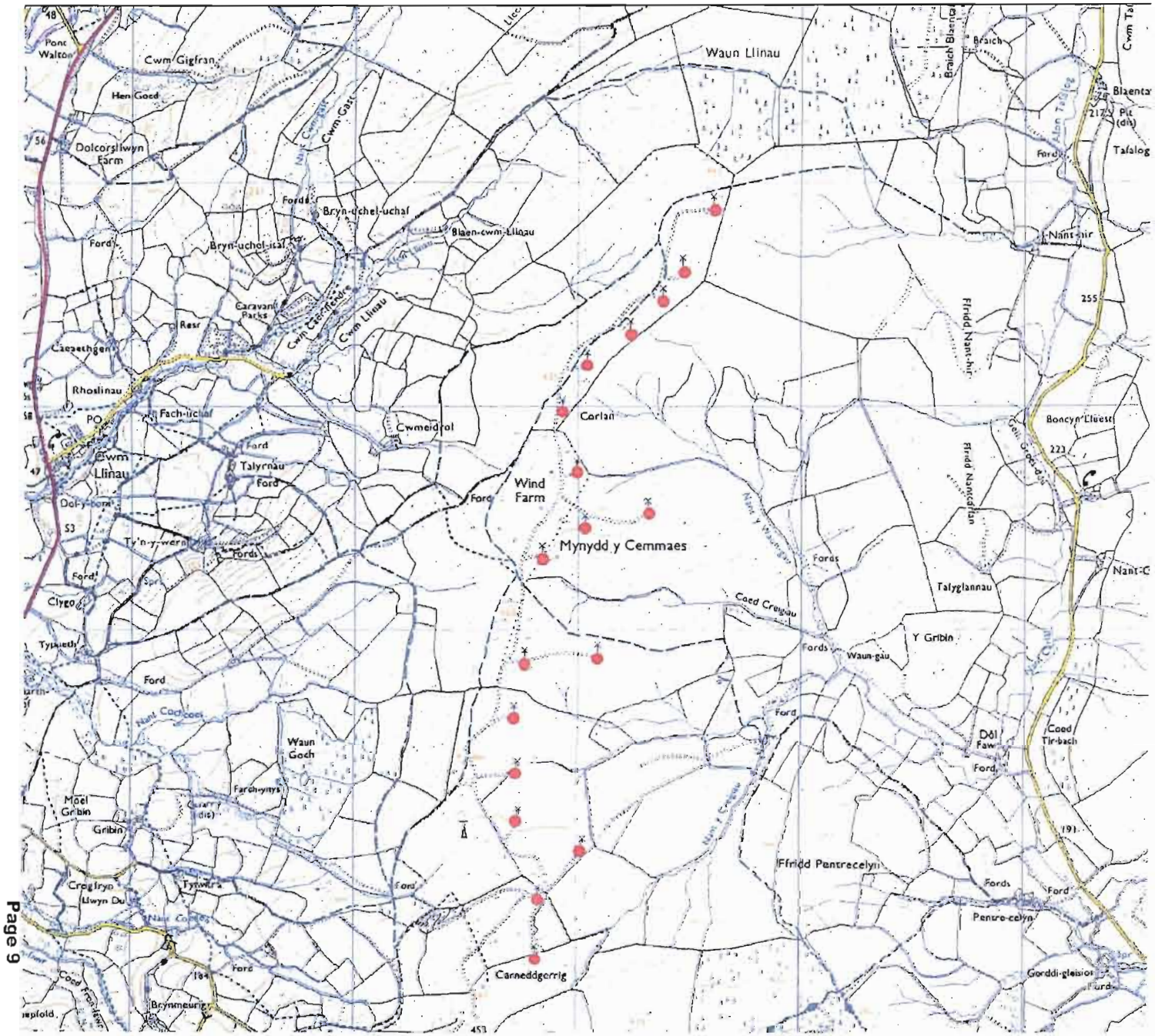
Number of turbines sourced from Renewable UK.

0m 500m 1km

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	CD	A4	1:25,000		

PI Supplementary Work



REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Cemmaes

Cemmaes Turbine Location (As Built Coordinates)

TURBINE DATA:

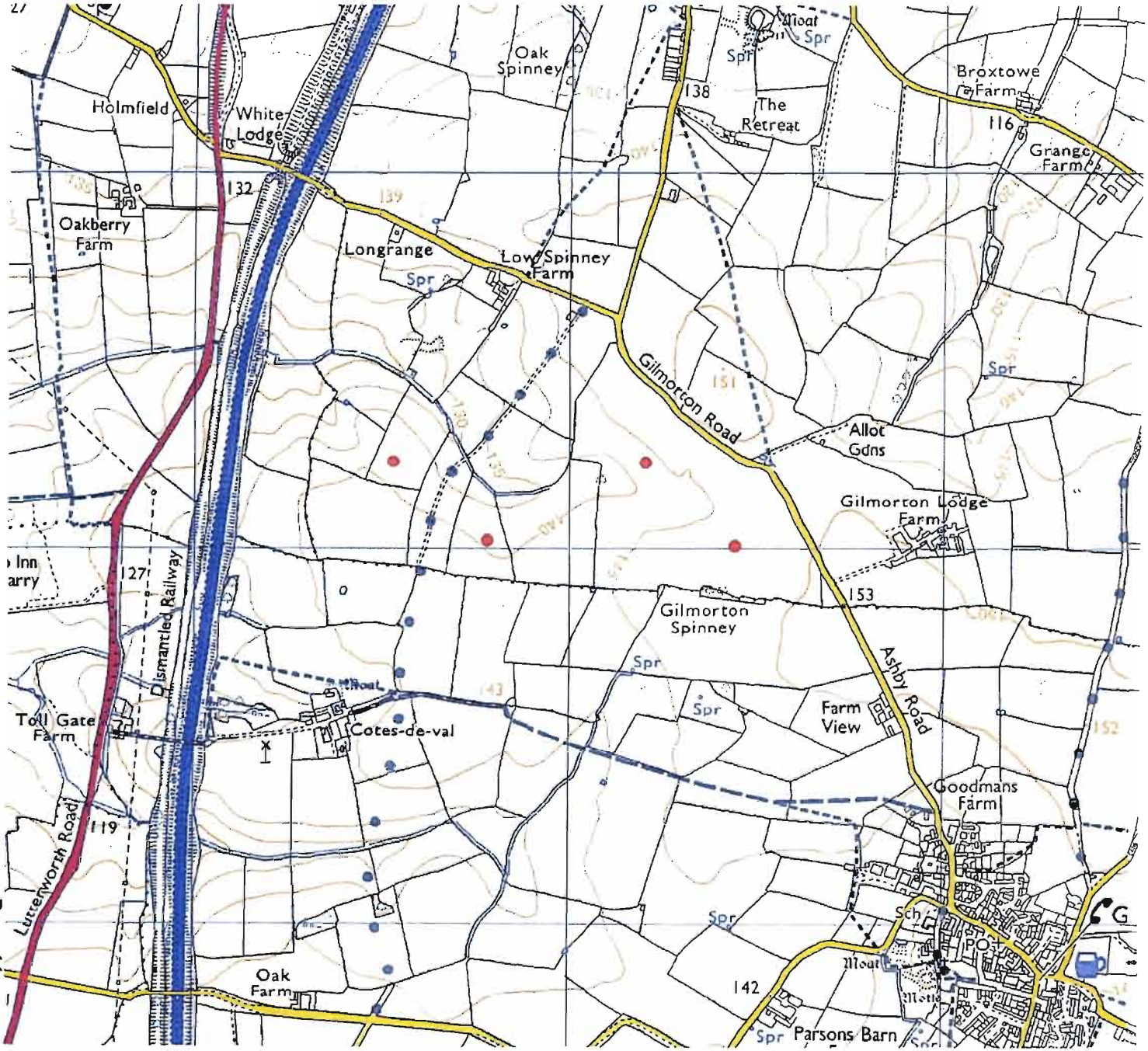
Number of turbines:	18
Hub height:	40m
Blade tip height:	77m

0m 500m 1km

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	CD	A4	1:25,000		

ES Supplementary Work



STEPHENSON HALLIDAY

REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Low Spinney

Low Spinney Turbine Location (Consented Coordinates)

TURBINE DATA:

Number of turbines:	4
Hub height:	80m
Blade tip height:	125m

0m 250m 500m

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	CD	A4	1:15,000		

PI Supplementary Work

Appeal Decision

Inquiry opened on 4 February 2010

Site visits made on 10 & 11 February 2010

by Paul Griffiths BSc(Hons) BArch IHBC

an Inspector appointed by the Secretary of State for Communities and Local Government

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Decision date: 29 March 2010

Appeal Ref: APP/F2415/A/09/2109745
Land South-East of Low Spinney Farm, Ashby Magna, Leicestershire LE17 5NB

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a failure to give notice within the prescribed period of a decision on an application for planning permission.
- The appeal is made by Broadview Energy Developments Ltd against Harborough District Council.
- The application Ref.09/00174/FUL, is dated 10 February 2009.
- The development proposed is the erection of 4 no. 125m high wind turbines together with associated crane pads, access tracks, site compound, ancillary works, control building, meteorological mast and access to the public highway.

Preliminary Matters

1. The Inquiry opened on 4 February 2010 and also sat on 5, 9 and 10 February. Unaccompanied site visits were undertaken on the afternoon of 10 February and accompanied site visits took place the following day, largely in accordance with an itinerary prepared by the parties.

2. At the Inquiry I was assisted by another Inspector Richard Ogier BA MRTPI who took part in the proceedings. However, as the appointed Inspector, the decision on this case is mine alone.

3. The Council confirmed at the opening of the Inquiry that it would not present any evidence to support its putative reasons for refusal relating to noise and disturbance and cultural heritage matters. This intention regarding evidence became apparent only a short time before the Inquiry opened. The Council's revised position had been arrived at as a result of a decision taken at senior officer level and after the withdrawal by English Heritage (EH) of its objection to the proposal. I understand that the Council's decision was also informed by discussions on noise matters with its acoustic consultant. However, the Council and its noise consultant participated fully in the session on conditions.

4. Shortly after confirmation by the Council of its intention not to present any evidence to the Inquiry, a request was made on behalf of the 'Against Wind Farm at Low Spinney' Group (AWFALS) for an adjournment of the Inquiry. AWFALS felt that they had been placed at a disadvantage and sought opportunity to persuade the Council to change its mind about the submission of evidence. The Council confirmed that its position would not change. The appellant opposed any such adjournment, as appropriate prior notice should have been given of any application to adjourn.

45. In response to my questions, the suggestion from AWFALS was, put simply, that I should agree with them that ETSU-R-97 offers insufficient protection for local residents from the effect of noise and disturbance as a result of the proposal and, as a consequence, I should dismiss the appeal. I have considered very carefully the evidence adduced by AWFALS in this context.

46. However, paragraph 22 of PPS22 confirms the Government position that ETSU-R-97 should be used to assess and rate noise from wind energy development. I am not satisfied that the evidence put forward is sufficiently conclusive to allow me, as an Inspector, to disagree with or set aside the prevailing Government approach. It seems to me that unless and until Government guidance is modified or replaced, ETSU-R-97 remains the yardstick against which proposals like this must be assessed. If the emerging subject of the relationship between wind turbine noise and sleep disturbance or other effects, means that ETSU-R-97 needs to be modified or replaced, that, to my mind, is a matter for Government, not individual Inspectors, dealing with specific proposals.

47. The appellant has demonstrated that the proposal would operate within the parameters set out by ETSU-R-97 and conditions have been suggested that would ensure compliance. It was argued that the noise monitoring locations used to frame the condition are not representative because they do not take account of dwellings sited further away from the M1 motorway. However, I heard that the locations chosen comply with the ETSU-R-97 methodology. In my view, it is not necessary to go further than that.

48. The suggested conditions are both reasonable and enforceable and would ensure that the living conditions of local residents would not be affected to a degree beyond what ETSU-R-97 would allow. The Council, while it has suggested conditions that, it accepts, go beyond what ETSU-R-97 would require, does not suggest that the proposal could not operate within the parameters of ETSU-R-97. In that context, and notwithstanding the points raised, I do not consider that noise and disturbance from the wind turbines would affect the living conditions of local residents to an unacceptable degree.

49. Concerns have also been expressed about shadow flicker. Paragraph 76 of the technical annex on wind to the Companion Guide to PPS22 notes that flicker effects have been proven to occur only within ten rotor diameters of a turbine. Some properties might be affected. Shadow flicker, as a phenomenon, is predictable. As a consequence, there seems to me no good reason why a properly worded condition that sets out a protocol to be followed in the event of a complaint, that may involve the offending turbine(s) being shut down at certain times, cannot deal with this matter in a way that adequately protects the living conditions of local residents.

50. Taking all these points together I consider that the proposal would not harm the living conditions of local residents to an unacceptable degree whether through visual impact, noise and disturbance, or shadow flicker. The proposal complies, therefore, with criterion 3 of LP Policy EV/5.

Recreational Activities

51. Evidence from AWFALS and others referred to the potential impact of the proposal on walking, cycling, horse riding and countryside enjoyment generally. I accept that residents living in nearby villages, and others, use the

countryside around the appeal site for a variety of recreational purposes. There are local footpaths, bridleways and other thoroughfares, including the so-called County road that runs through the appeal site, a bridleway connecting Gilmorton to Cotes-de-val to the south of the appeal site and a public track running northwards from Gilmorton to Willow Farm and beyond.

52. Some people might be deterred by the proposed wind turbines from using these and other routes. However, I find no strong evidence that this would be the case. Some might find the turbines an interesting feature to pass close to and in my view more would in time accept or at least tolerate them as part of the local landscape.

53. I find no convincing evidence that people would be deterred by the turbines from visiting the area on a wider basis for recreational purposes or as tourists and there would be no departure from the requirements of the development plan on this particular basis.

54. Representations were made at the inquiry on behalf of the Leicestershire & Rutland Bridleways Association and of the British Horse Society (BHS) about the potential of wind turbines to frighten horses being ridden nearby, with serious results. It was pointed out that the proposed wind farm did not comply with the suggestion of the BHS, mentioned in the Companion Guide to PPS22, that there should be a 200 metre exclusion zone around bridle paths to avoid wind turbines frightening horses.

55. Horses may be ridden along the route through the appeal site and on other roads around the appeal site. However, no specific evidence of any actual incident causing injury to, the death of, or other misfortune affecting horses or their riders near wind turbines was produced.

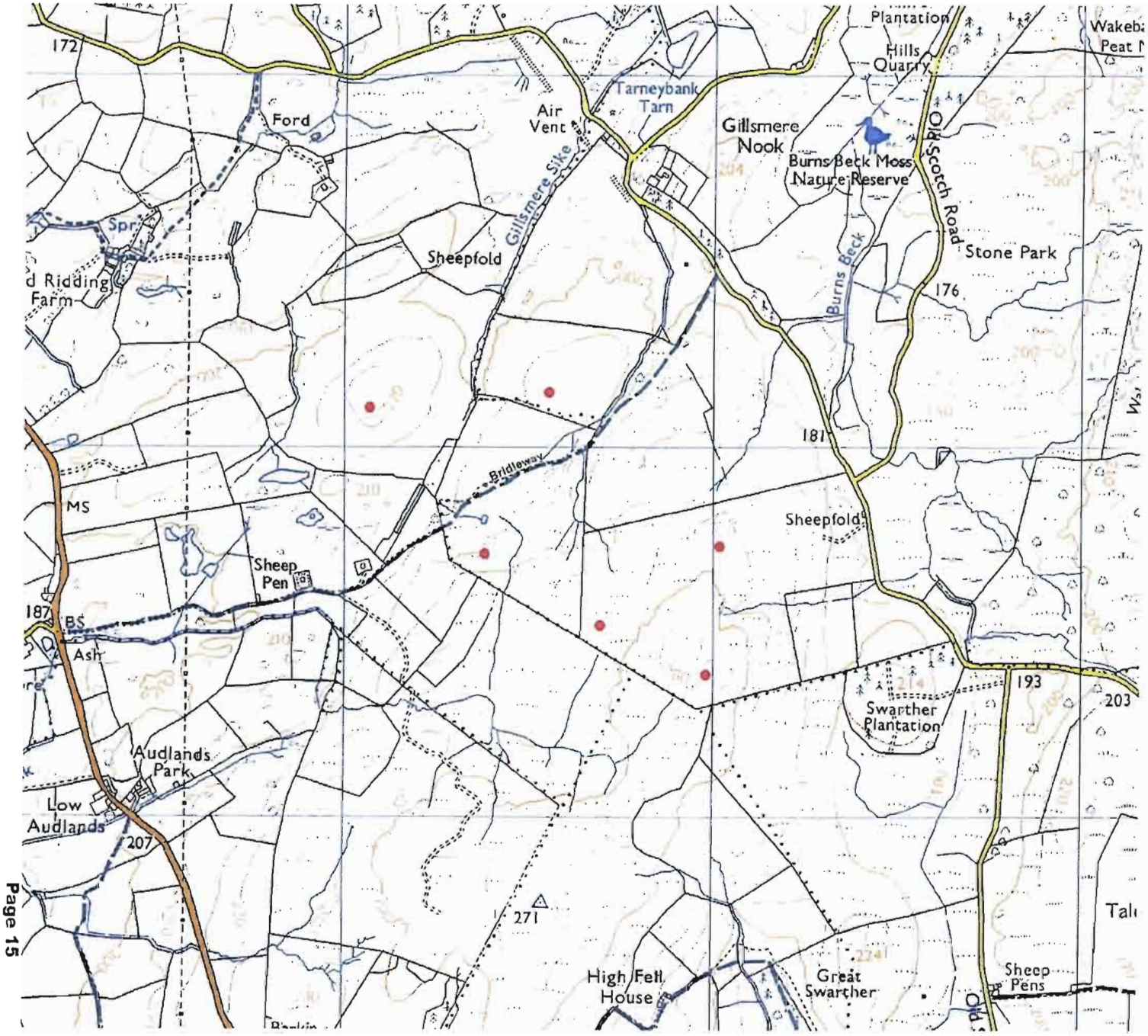
56. The PPS22 Companion Guide advises that whilst the exclusion zone could be deemed desirable, it is not a statutory requirement. The turbines in a largely open landscape would be visible for quite a distance from approaching bridleways and roads, and so there is less likelihood that horses would be subjected to any sudden visual images. The assertion that there could be perceptual effects on horses from the movement of rotor blades or shadow flicker was not supported by convincing evidence.

57. I do not in these circumstances consider the proximity of the proposed turbines to routes which may be used for horse riding to be a significantly harmful characteristic of the proposed development. I am satisfied that there would be no conflict with the development plan or its objectives on this account.

Cultural Heritage

58. Objections to the appeal proposal on cultural heritage grounds were raised by the Council at the application stage following consideration by EH of the ES which accompanied the planning application. EH considered the Chapter defective in relation to the methodology used to assess the potential impacts of the proposed wind farm on the setting of listed buildings, conservation areas and Scheduled Ancient Monuments.

59. In response, the appellant undertook, as a precautionary approach, an extended evaluation of the impact of the proposed turbines on the settings of



REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Armistead Wind Farm

KEY

Wind Turbine Location (Consented Coordinates)

TURBINE DATA:

Number of turbines:	6
Hub height:	60m
Blade tip height:	100m

0 250 500m

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	EC	A4	1:15 000		

PI Supplementary Work EC170613

THE PLANNING INSPECTORATE YR AROLYGIAETH GYNLLUNIO

Appeal Decision

Inquiry held on 28 April - 8 May 2009
Site visits made on 7, 8, 21 and 22 May 2009

by Martin Pike BA MA MRTPI

an Inspector appointed by the Secretary of State for Communities and Local Government

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Decision date: 22 July 2009

Appeal Ref: APP/M0933/A/08/2090274
Land to the east of Crosslands Farm, Old Hutton, Kendal, Cumbria

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a refusal to grant planning permission.
- The appeal is made by H J Banks & Co Ltd against the decision of South Lakeland District Council.
- The application Ref: SL/2008/0318, dated 29 February 2008, was refused by notice dated 10 November 2008.
- The development proposed is erection of 6 wind turbines, control room, anemometer mast and associated access tracks.

DECISION

1. I allow the appeal, and grant planning permission for the erection of 6 wind turbines, control room, anemometer mast and associated access tracks on land to the east of Crosslands Farm, Old Hutton, Kendal in accordance with the terms of the application, Ref: SL/2008/0318, dated 29 February 2008, and the plans submitted therewith, subject to the conditions set out in the attached schedule.

PROCEDURAL MATTERS

2. The planning application was accompanied by an Environmental Statement (ES) prepared in accordance with the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999, as amended. Following an independent review of the ES by consultants appointed by the Council, supplementary information was submitted to the authority. Further environmental information was submitted as part of the evidence base for the inquiry. In arriving at my decision I have taken all this environmental information into account. I have also considered the comments from consultees and the representations made by other persons about the ES and the likely environmental effects of the proposed development.

3. The proposal is known as the Armistead wind farm. The application drawing showing a typical wind turbine (Figure 4.3) is not drawn to scale; moreover the blades of the turbine are not drawn in proportion to the tower. Nevertheless, the various visual representations of the proposed development in its landscape setting were broadly accepted at the inquiry to depict accurately the scale and proportion of the turbines, and I have based my consideration primarily on these. A few of the indicative wireframe figures in

structures. Whilst shadow flicker can be a source of nuisance, its effects are relatively easy to mitigate, not least by shutting down the relevant turbines during periods when it could occur. I believe that shadow flicker is a matter which can appropriately be addressed by a condition which requires a protocol to be in place prior to the operation of the wind turbines.

73. In response to concerns from some nearby residents that television reception or broadband computer links could be adversely affected by the turbines, a condition is proposed which would require the implementation of a scheme of mitigation. I agree that such a condition is necessary; in my view it requires a baseline study to be undertaken before the development commences so that it is possible to subsequently determine whether or not any signal impairment is attributable to the operation of the turbines.

Living conditions - conclusion

74. There would be limited visibility of the wind farm from inside Gilsmere Nook and East Ridding, the two nearest properties; although the turbines would appear obtrusive from parts of the curtilages of these dwellings, the overall impact would not be so harmful as to be unacceptable. There would be some loss of amenity for the occupiers of other, more distant properties, but the effects would not be significant. There is no compelling evidence that noise or shadow flicker would be a serious problem in this case but, given the difficulties of prediction, conditions would be imposed to mitigate any adverse effects that might arise. Overall, although the impacts on residential amenity are close to the margin of acceptability, I conclude that the development would not conflict with the relevant parts of JSP policy R44 and SLLP policy C26.

Users of bridleway

75. The Council and many local residents believe that the development would have an unacceptable impact on the peace and quiet of the bridleway that passes through the site, thereby undermining the enjoyment experienced by users of the route. The bridleway is approximately 2.3km long and runs between the B6254 and the unclassified road to the east; away from these roads it passes through an area of undulating ground with changing vistas but limited long distance views. The two nearest turbines would be about 110m and 180m from the bridleway, and all six turbines would be visible on both sides of the route.

76. The bridleway does not appear to be a particularly important link in the wider network, for it does not connect settlements or give access to specific recreational facilities. Furthermore, whilst it is the most convenient and usable link between the B6254 and the unclassified roads to the east, alternative routes do exist. Evidence about the intensity of its use was limited, though it is not a highly popular route, as the absence of a clearly identifiable path along the eastern stretch of the route testifies. It seems to be a route that is used intermittently by local people and occasionally by visitors to the area.

77. There is no doubt that the turbines would dominate views for a significant stretch of the bridleway, profoundly changing the nature of the recreational experience. Indeed the greatest impact of the development would be felt by

bridleway users, albeit for a relatively short period of time as they move along the route. I acknowledge that some people would regard the turbines as a major intrusion into the quiet rural ambience of the bridleway, substantially diminishing their enjoyment of the route. Others are likely to be more tolerant of the structures, their perceptions about the benefits of wind energy overriding any concerns about the impact on their recreational excursion. Based on experience at similar installations elsewhere, there may be a third group of people who are attracted to the bridleway by the very presence of the turbines. Thus the dramatic change in the nature of the recreational experience for users of the bridleway may not universally be viewed as harmful.

78. The British Horse Society is concerned about the safety of riders using the bridleway as a result of the potential for horses to be startled by the proximity of the turbines and, as a result, to bolt. It points out that the separation distance between the bridleway and the nearest turbine would be substantially below its advisory distance of three times the turbine height. Whilst this is so, I note that there is no statutory requirement for such a margin. Furthermore, the Companion Guide to PPS22 indicates that, in many instances the "topple distance" (ie 100m in this case) is regarded as appropriate separation from a public right of way. At Armistead the presence of turbines would be clearly apparent to horses as they approached the cluster along the bridleway, so it is unlikely that they would be taken by surprise. Moreover, if a horse did show signs of distress, it would be possible to turn round and use an alternative route not far away. Having regard also to the relatively low use of the bridleway by horses and riders, I consider that the development would not pose an undue risk to equestrian users of the route.

79. Overall I conclude that the number of people for whom the enjoyment of the bridleway would be seriously harmed by the development is likely to be relatively small. In addition, alternative routes are available for such people which would provide appreciably greater separation from the turbines, albeit such routes are longer and less convenient. Thus, whilst there would be some loss of recreational amenity as a result of the development, it would be limited. To the extent that there may be a conflict with SLLP policy L10, the degree of conflict would be small.

Other matters

80. A wide range of other concerns were raised by local people and groups opposed to the development. Many of these matters were investigated in the Environmental Statement and, where necessary, I am satisfied that appropriate mitigation would be achieved through planning conditions. I have taken all these representations into account in reaching my decision.

81. One matter is the impact of the development, particularly during the construction phase, on hydrology and the streams that flow to the Burns Beck Moss Site of Special Scientific Interest. This was also a concern of Natural England. Subject to the use of 50m buffer zones around Burns Beck and its tributaries and measures set out in the Outline Habitat Management Plan (OHMP), Natural England does not object to the proposal. On the evidence before the inquiry, I see no reason to disagree with this conclusion. Concerns

about the effects on private water supplies would also be addressed through implementation of the OHMP.

82. There are claims that the Kendall Low Fells are an important low-key outdoor leisure resource and that tourism within the area would suffer if the wind farm was built. Based on my earlier finding that the significant impacts of the development would be limited to a relatively small local area, I do not believe that an appreciable number of visitors to most parts of the Low Fells would decide not to come (or not to return) because of the presence of the wind farm. There might be a few who would be dissuaded from staying in guest accommodation in the immediate locality, and as noted in the section above, others might choose not to use the bridleway through the site. But there is no evidence that the numbers thus affected would be substantial, and in my view the effect on the local tourism economy would not be significant.

83. Some nearby residents are worried about a possible loss of property value as a result of the development. Whilst I sympathise with such concerns, it is the case that many planning decisions have some effect on property values. Government advice in *The Planning System: General Principles* states that the planning system does not extend to protecting the private interests of one person against the activities of another. The material question is not whether owners of nearby property might suffer financial or other loss, but whether the development would unacceptably affect amenities and the existing use of land that ought to be protected in the public interest. In this case I have concluded that the loss of visual and residential amenity does not fall below the threshold of acceptability. Consequently I do not believe that there is a wider public interest that merits protection.

BALANCE OF CONSIDERATIONS

84. As indicated at the outset, the decision in this case turns on the balanced judgement that has to be made between the benefits of renewable energy production and the adverse effects on the landscape and people in the surrounding locality.

85. The benefits of the proposal are simply stated but must not be underestimated. The most important factors are a considerable quantity of electricity from a renewable energy source, and an appreciable contribution to a regional (and county) renewable energy target that, in the short term at least, is unlikely to be met. The Government has made abundantly clear the urgency of the need to address the challenge of climate change. The Armistead wind farm has the potential to be one of the many individual building blocks required to meet that challenge and to help secure the wider environmental, social and economic benefits that flow from the Government's sustainable development strategy.

86. Of course, this does not mean that the environmental, social and other safeguards which are central to the planning system should be abandoned. In this case I have found that the wind farm would give rise to significant adverse landscape and visual effects within a relatively small area (up to 2km from the site). The visual impact on the occupiers of the two nearest properties would also be significant, but as the turbines would mainly be visible from outside rather than inside the dwellings, the effect would be

limited. The effect on the recreational experience of users of the bridleway and local roads would depend on individual perceptions, but any loss of amenity is unlikely to be significant. Thus overall, whilst some significant adverse effects would exist, they would be quite limited in extent.

87. PPS22 explicitly recognises that, of all renewable technologies, wind turbines are likely to have the greatest visual and landscape effects. Wind energy can only be harnessed where wind speeds are high, which generally means exposed and/or elevated locations. In Cumbria the opportunities for such provision are severely constrained by the high proportion of land designated for its nationally important landscapes. The proposed wind farm would not materially affect such landscapes, and I give little weight to the possible threat to potential extensions. Although the low fells around the appeal site have some landscape value, they are identified in the Cumbria study as having potential for a small wind farm. I believe that the site itself has a robustness and scale which would enable it to assimilate the turbines, despite their prominence. Furthermore, the site is located in a part of the low fells where the presence of major infrastructure is already apparent.

88. Taking all these factors into account, I conclude that the balance weighs in favour of the proposal. Setting this in the context of the development plan, I consider that the proposal accords with the 'balanced' policies most relevant to the issues in this case, such as NWRSS policy EM17 and SLLP policy C25. I appreciate that the development would be contrary to the policies which seek to protect and enhance the character of the countryside and rights of way, but that has to be set against the significant weight to be attributed to engaging with the policies which promote renewable energy schemes. When assessed against the plans in the round, I believe there is overall compliance.

CONDITIONS

89. I have considered the conditions suggested by the main parties in the light of the discussion at the inquiry and the advice in Circular 11/95: *The use of conditions in planning permissions*. Apart from the matter of micro-siting, which I discuss below, the conditions and their wording were agreed during the discussion and are included in this decision, subject to minor amendments necessary to ensure compliance with the Circular or desirable in the interests of clarity and brevity.

90. The need for the conditions relating to noise, shadow flicker and electrical signal interference has already been discussed. I agree that the other conditions are necessary for the reasons given by the Council. In broad terms these reasons relate to the need to minimise the landscape and visual impact of the development; the need to protect the wildlife, ecology, hydrology and archaeology of the locality; the need to protect the amenity of nearby residents; and the need to safeguard highway safety and users of the bridleway. The decommissioning conditions are necessary to ensure that the site is restored to its former use at the end of the 25 year operational lifespan of the wind farm.

91. I consider that there is justification for some flexibility in micro-siting to allow for difficult ground conditions at the precise locations shown for the turbines on the submitted plans. However, because of the undulating nature

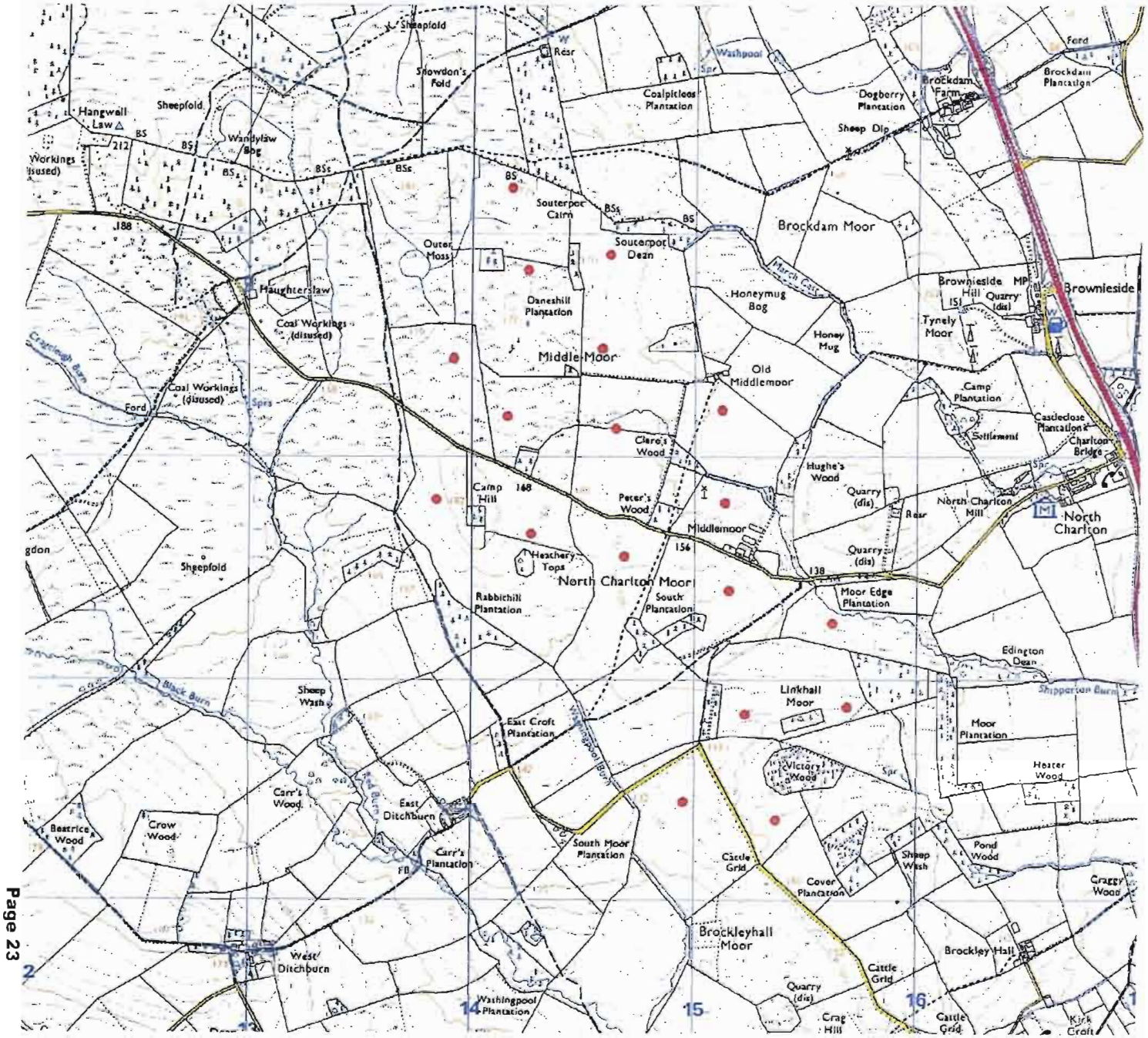
of the terrain and the potential for unforeseen impacts on a range of matters addressed in the ES, I believe that the 50m tolerance sought by the appellant is too extensive. In my view a tolerance of 25m would be appropriate in this case, subject to two provisos intended to minimise the impact of the development on the most sensitive receptors. Firstly, the turbines closest to residential properties (T5 and T6) should be no nearer to those properties than shown, and secondly, turbine T4 should be no closer to the bridleway than shown.

CONCLUSION

92. For the reasons given above I conclude that the appeal should be allowed.

Martin Pike

INSPECTOR



REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Middlemoor Wind Farm

KEY

Wind Turbine Location (Consented Coordinates)

TURBINE DATA:

Number of turbines:	18
Hub height:	80m
Blade tip height:	125m

0 500m 1km

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	EC	A4	1:25 000		

PI Supplementary Work EC170613

Report to the Secretary of State for Business Enterprise and Regulatory Reform

by Alan Novitzky BArch MA(RCA) PhD RIBA
an Inspector appointed by the Secretary of State for Business Enterprise and Regulatory Reform

The Planning Inspectorate
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☎ GTN 1371 8000

Date 16 April 2008

ELECTRICITY ACT 1989

TOWN AND COUNTRY PLANNING ACT 1990

APPLICATION BY NPOWER RENEWABLES LTD FOR CONSENT TO CONSTRUCT AND OPERATE A 75MW WIND TURBINE GENERATING STATION AT MIDDLEMOOR, NORTH CHARLTON, ALNWICK, NORTHUMBERLAND

Inquiry began on 13 November 2007

File Ref: ELEC/2005/2004 – GDBC/001/00245C

File Ref: ELEC/2005/2004 – GDBC/001/00245C
Middlemoor, North Charlton, Alnwick, Northunberland

- The application is for consent under section 36 of the Electricity Act 1989 and for deemed planning permission under section 90(2) of the Town and Country Planning Act 1990.
- The application, made by NPower Renewables Ltd, is dated 7 December 2005.
- The development proposed is the construction and operation of a 75MW wind turbine generating station.

Summary of Recommendation: The application be allowed subject to conditions

Procedural Matters

1. At the Inquiry an application for costs was made by Save Northumberland's environment (SANE) against NRL. This application is the subject of a separate report.

2. A pre-inquiry meeting was held on 11 September 2007. The Inquiry sat from 13 to 16, 20 to 23, 28 to 29 November, and 3 December 2007. Site visits were carried out on 27 November and on various other dates.

3. The Statement of Matters likely to be relevant to the Secretary of State's consideration of the proposed development is included as an Inquiry Document.[1]

4. Proofs of evidence are included as Inquiry Documents. These are as originally submitted and do not take account of how the evidence may have been affected by questioning or other aspects of the Inquiry. Closing submissions are also included and have been amended in red to more accurately reflect their delivered content. Typographical errors to Inquiry Documents, where detected, have also been corrected in red.

5. A Statement of Common Ground (SCG)[2] has been agreed between the Applicant and Alnwick District Council. The SCG describes the Environmental Statement (ES) accompanying the application, and the submission of further information requested by BERR.[3] Taken as a whole, the ES appears to fulfil the requirements of the EIA Regulations and is adequate for its purposes.

The Application

6. The application was submitted by NPower Renewables Ltd (NRL), the Applicant, on 7 December 2005, for consent under section 36 of the Electricity Act 1989 and for deemed planning permission under section 90(2) of the Town and Country Planning act 1990. The proposal is to construct and operate a wind farm comprising 18 wind turbines with a maximum height to blade tip of 125m and associated infrastructure including unit transformers, upgrading of existing and construction of new access tracks, a new substation and two long term meteorological masts. One borrow pit would also be excavated within the site boundary as a source of road stone for the proposed development.

[1] GEN3.1
[2] GEN1.1
[3] GEN1.1 paras 3.3-3.6

highway network, including that on users and safety, appears to be acceptable.

472. The possibility of driver distraction, caused by the appearance of the turbines and the movement the blades, has been suggested. However, evidence indicates that where wind farms are located near main roads, driver distraction is not generally a problem. Drivers on this stretch of the A1 are unlikely to be over stressed, through excessive attention demands, nor is their attention likely to wander, through lack of visual stimulation. Moreover, the turbines would be glimpsed intermittently from some distance away and would not come as a surprise.

473. There seems to be no reason to suppose, therefore, that driver distraction would be a serious consideration in this case. Furthermore, the Highways Agency has raised no issues of highway safety associated with the wind farm.

Public Rights of Way and Bridle Paths [48-50]

474. Public rights of way and bridle paths are addressed in the ES[415] and Mr Stevenson's proof.[416] The sections most exposed to views of the wind farm would run in an arc from Rayheugh, north west of the site, westwards to Ros Castle, and south east to Cateran Hilll. The most significant effects have been described in the visual assessments of viewpoints from Ros Castle and Caterham Hill [413, 417]. The paths would also run from Rayheugh southwards, alongside the site, to South Charlton. Inevitably, the visual effect would be dramatic as one passes close to turbines.

475. Kay Stafford, Manager of the Shipley lane Equestrian Centre, gave evidence concerning the effect on horse riding [379-382]. Besides harm to panoramic views, safety issues might arise through turbines frightening horses. The minimum separation shown between turbines and bridle paths is some 175m. A condition has been suggested and discussed controlling the agreed position of turbines.

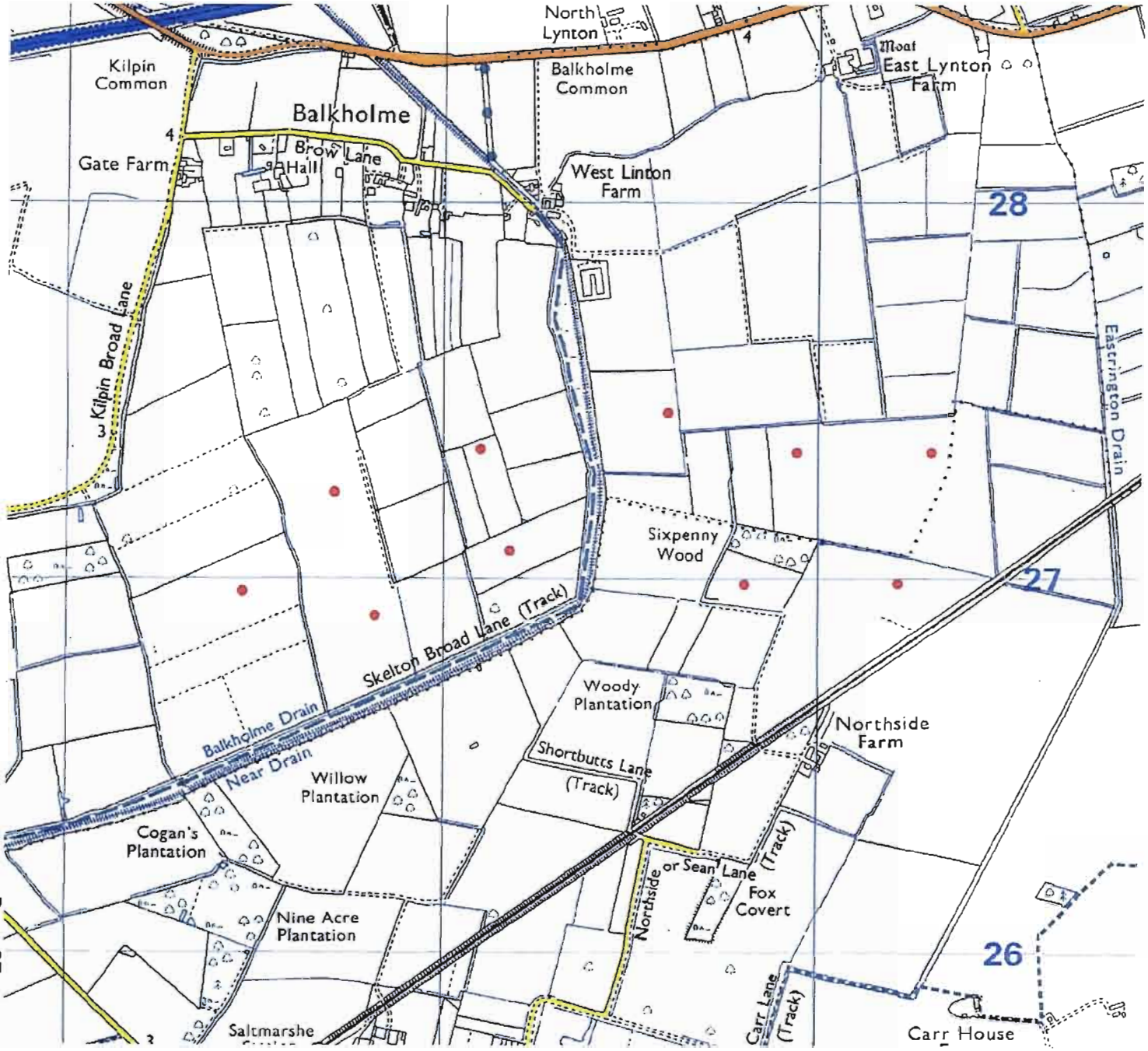
476. Users of the bridle paths would gradually approach the turbines from a distance, minimising the risk of disturbance to horses, and giving the opportunity to retreat should horses become unsettled. Under these circumstances, even though the BHS advice, which is not statutory, would be likely to be breached in relation to two turbines, I am satisfied that unacceptable harm would not arise in relation to bridle paths.

Tourism and Local Businesses [51-55, 384, 385, 388-390, 395-397]

477. The impact of the proposal on tourism and local businesses is addressed in Mr Stewart's evidence, for the Applicant.[417] Although attention is drawn to this aspect by objectors, little or no evidence based analysis is supplied.

478. There appears to be no evidence from other parts of the country or abroad to suggest that the presence of wind farms in open countryside has harmed the tourist industry. Both Cumbria and Cornwall have experienced a rise in tourist

[415] CD2(a) paras 7.2.2, 7.7.15 - 7.7.19, 7.9.8 and 7.9.14
[416] NRL3.2 paras 14.13-14.17 pages 58-59
[417] NRL2.1 Section 10; NRL2.3 Appendices 4 and 5



REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Sixpenny Wood Wind Farm

KEY

Wind Turbine Location (Consented Coordinates)

TURBINE DATA:

Number of turbines:	10
Hub height:	80m
Blade tip height:	125m

0 250 500m

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	EC	A4	1:15 000		

PI Supplementary Work EC170613

Appeal Decision

Inquiry opened on 20 October 2009

Accompanied site visits made on 29 October 2009

by Philip Major BA(Hons) DipTP MRTPI

an Inspector appointed by the Secretary of State for Communities and Local Government

The Planning Inspectorate
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Temple Quay House
2 The Square
Temple Quay
Bristol BS1 6PN

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Decision date:
8 December 2009

Appeal Ref: APP/E2001/A/09/2101851
Land south of West Linton Farm, Brow Lane, Balkholme, East Riding of Yorkshire DN14 7XH.

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a refusal to grant planning permission.
- The appeal is made by Sixpenny Wood Windfarm against the decision of East Riding of Yorkshire Council.
- The application Ref: DC/07/04680/STPLFE/STRAT, dated 19 July 2007, was refused by notice dated 6 November 2008.
- The development proposed is a wind farm comprising ten turbines up to 125m high, control building, anemometry mast, access tracks including access off the public highway, underground electrical cabling (all for a period of 25 years) and a temporary construction compound.

Decision

1. I allow the appeal, and grant planning permission for a wind farm comprising ten turbines up to 125m high, control building, anemometry mast, access tracks including access off the public highway, underground electrical cabling (all for a period of 25 years) and a temporary construction compound at land south of West Linton Farm, Brow Lane, Balkholme, East Riding of Yorkshire DN14 7XH in accordance with the terms of the application, Ref: 06/07/04680/STPLFE/STRAT, dated 30 July 2007, and the plans submitted with it, subject to the conditions set out in the attached schedule.

Preliminary Matters

2. I carried out visits of the area and particular viewpoints in company with the parties on 29 October. In addition I undertook unaccompanied visits to other locations as requested by the parties. This includes visiting the recently constructed wind farm at Lissett, East Yorkshire.

3. It was agreed at the inquiry that the East Yorkshire has performed well against the targets set for renewable energy capacity to 2010, and looks to be in a strong position in relation to Regional Spatial Strategy (RSS) targets for 2021. However, it is also agreed that the targets are minima, and will be reviewed in the light of evolving national policy.

4. The application is for 10 turbines and the current intention is to install turbines of 2MW rated power. Although turbines up to 3MW had been considered during the preparation of the proposal it is common practice for the choice of turbines to be made at the time planning permission is granted. Any contribution to the production of renewable energy is to be welcomed and I therefore see no

the location of the site access, which has good visibility along the B1230, I see no reason to suppose that the scheme would have a material effect on highway safety. Driver distraction seems to me to be unlikely given the range of development features to which drivers are commonly exposed without harm.

56. There is concern that construction activities could be disruptive to local residents. Given the fact that large scale plant would be required on site during construction I agree that this would be possible. However, suitable conditions would deal with this matter.

57. Television interference is possible with large structures such as turbines. However there are methods by which interference can be mitigated should it occur. This is a matter which is capable of being dealt with by appropriate condition.

58. Concern has been expressed that the wind farm could cause difficulties and accidents for horse riders. I have no doubt that turbines which come suddenly into view could indeed startle horses, but that is not the case here. The landscape is open, and the nearest turbines would be some distance from the nearby bridleway known as Skelton Broad Lane. As such I do not consider that danger to horse riders would be significant. Because of the separation distances from footpaths and property I also consider that other safety concerns such as ice throw are not sufficient to attract weight in this decision.

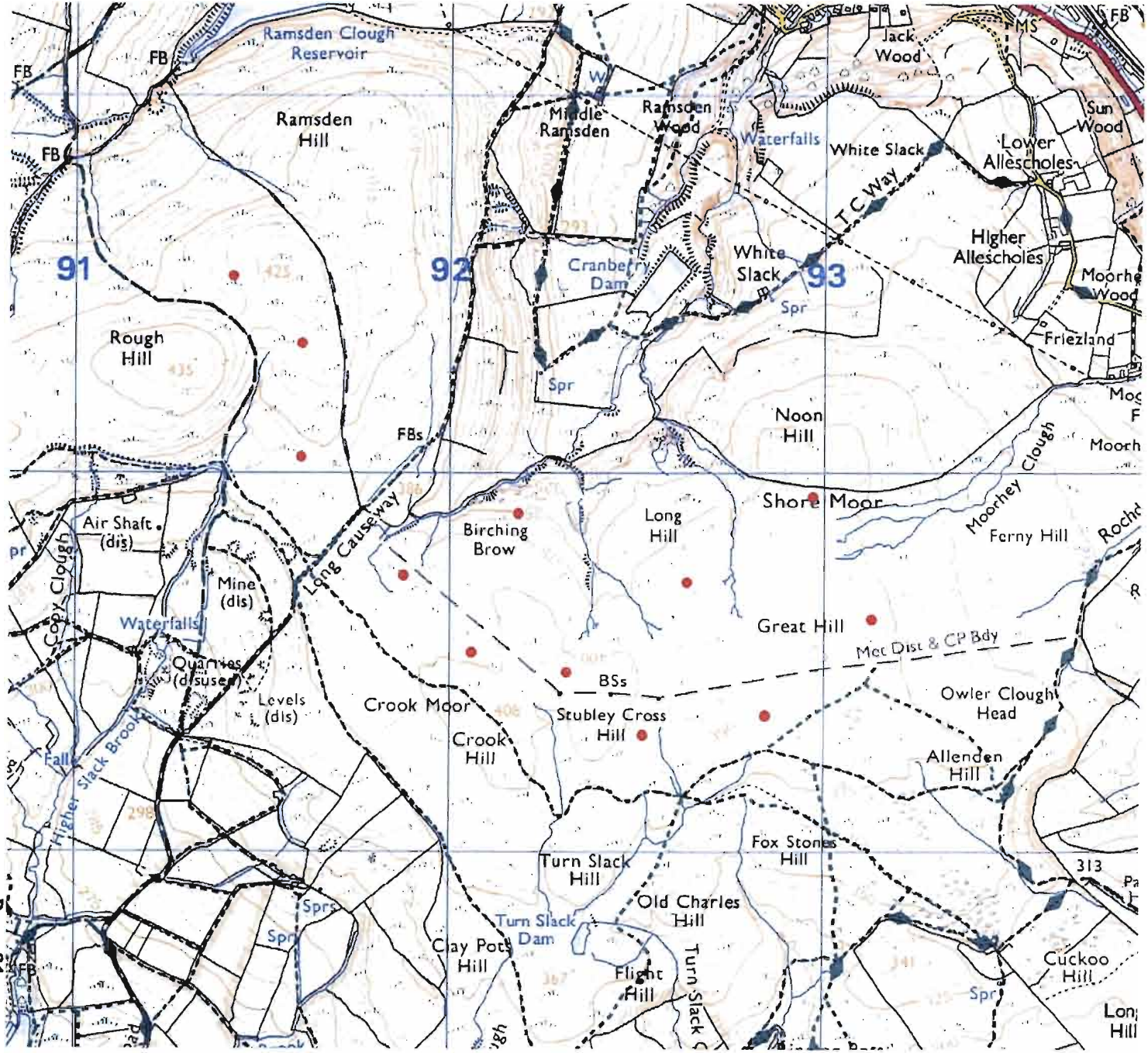
59. In addition to Howden Minster there are listed buildings closer to the site. The Council has not alleged any harm to their settings. These are modest buildings with a quite different relationship to their surroundings than Howden Minster, and I agree that none would be adversely affected by the proposal.

60. It has been argued that the development would bring some economic benefit to the area. However, I do not agree that this can be realistically seen as rural diversification, which seems to me to relate to small scale developments on individual holdings brought about by individual landowners. But I agree that economic benefit is inevitable to an extent, both in short to medium term job opportunities, and in provision of ongoing financial reward to landowners.

61. I am aware that several people have criticised the manner in which representatives of the appellant have dealt with nearby residents. That is not a matter for me as I must assess the proposal on its planning merits. I am also unable to give weight to concerns relating to property value as this is not a material planning consideration.

Overall Conclusion and Balancing Exercise

62. On the main issues I find that there would be harm to the landscape character of the area, and conflict with some parts of the development plan. However, the degree of harm is limited and in my judgement is outweighed by the urgent need to provide renewable energy and the support of policy at national, regional and sub regional level. Subject to suitable conditions I do not find that there would be unacceptable harm to the living conditions of nearby residents, nor to the setting of Howden Minster. No other considerations are determinative, and consequently I have decided that the appeal will succeed.



REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Crook Hill Wind Farm

KEY

- Wind Turbine Location (2009 Consented Coordinates)

TURBINE DATA:

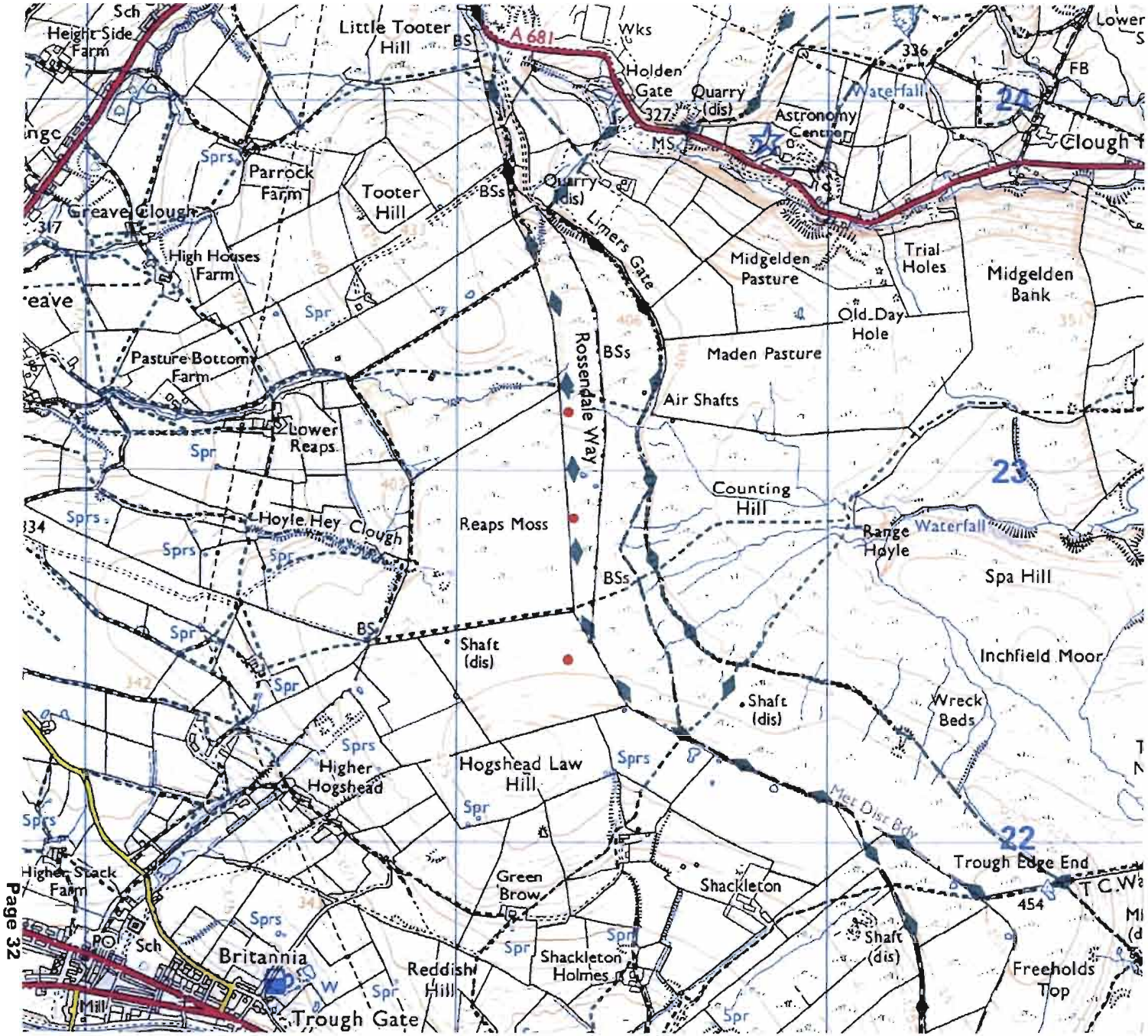
Number of turbines:	12
Hub height:	80m
Blade tip height:	125m

0 250 500m

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	EC	A4	1:15 000		

PI Supplementary Work EC170613



STEPHENSON HALLIDAY

REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Reaps Moss Wind Farm

KEY

Wind Turbine Location (Consented Coordinates)

TURBINE DATA:

Number of turbines:	3
Hub height:	80m
Blade tip height:	125m

0 250 500m

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	EC	A4	1:15 000		

PI Supplementary Work EC170613

Report to the Secretary of State for Communities and Local Government

The Planning Inspectorate
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☎ GTN 1371 8000

by S R G Baird BA(Hons) MRTPI

an Inspector appointed by the Secretary of State for Communities and Local Government

Date 31 July 2009

THE TOWN AND COUNTRY PLANNING ACT 1990

REPORT ON RECOVERED APPEALS

BY

CORONATION POWER LIMITED

TO

ROCHDALE METROPOLITAN BOROUGH COUNCIL

AND

CALDERDALE METROPOLITAN BOROUGH COUNCIL

AND

ROSSENDALE BOROUGH COUNCIL

Inquiry held on 17 February 2009

File Ref(s): APP/P4225/A/08/2065277; APP/A4710/A/08/2065274; APP/P4225/A/08/2091045; APP/A4710/A/08/2091044; APP/A4710/A/08/2062366; APP/B2355/A/08/2067355; APP/A4710/A/08/2062365

APPEAL A: File Ref: APP/P4225/A/08/2065277
Land at Crook Hill.

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a failure to give notice within the prescribed period of a decision on an application for planning permission.
- The appeal is made by Coronation Power Limited against Rochdale Metropolitan Borough Council.
- The application Ref 07/D48920 is dated 15 March 2007.
- The development proposed is the erection and operation of 7 wind turbines and ancillary infrastructure for the generation of wind power.

Summary of Recommendation: The appeal is allowed and planning permission granted subject to conditions.

APPEAL B: File Ref: APP/A4710/A/08/2065274
Land at Crook Hill.

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a failure to give notice within the prescribed period of a decision on an application for planning permission.
- The appeal is made by Coronation Power Limited against Calderdale Metropolitan Borough Council.
- The application Ref 07/00632/WDF is dated 15 March 2007.
- The development proposed is the erection and operation of 5 wind turbines and ancillary infrastructure for the generation of wind power.

Summary of Recommendation: The appeal is allowed and planning permission granted subject to conditions.

APPEAL C: File Ref: APP/P4225/A/08/2091045
Land at Crook Hill.

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a refusal to grant planning permission.
- The appeal is made by Coronation Power Limited against the decision of Rochdale Metropolitan Borough Council.
- The application Ref 08/D51145, dated 10 July 2008, was refused by notice dated 29 October 2008.
- The development proposed is the erection and operation of 4 wind turbines with a purpose to generate wind derived clean energy for a period of 25 years with associated infrastructure.

Summary of Recommendation: The appeal is allowed and planning permission granted subject to conditions.

APPEAL D: File Ref: APP/A4710/A/08/2091044
Land at Crook Hill.

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a failure to give notice within the prescribed period of a decision on an application for planning permission.
- The appeal is made by Coronation Power Limited against Calderdale Metropolitan Borough Council.
- The application Ref 08/01281 is dated 10 July 2008.
- The development proposed is the erection and operation of 4 wind turbines with a purpose

to generate wind derived clean energy for a period of 25 years with associated infrastructure.

Summary of Recommendation: The appeal is allowed and planning permission granted subject to conditions.

APPEAL E: File Ref: APP/A4710/A/08/2062366
Land at Todmorden Moor.

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a failure to give notice within the prescribed period of a decision on an application for planning permission.
- The appeal is made by Coronation Power Limited against Calderdale Metropolitan Borough Council.
- The application Ref 07/00349 is dated 21 February 2007.
- The development proposed is the installation and operation of 5 wind turbines and associated infrastructure for the generation of wind power.

Summary of Recommendation: The appeal is dismissed and planning permission refused

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APPEAL F: File Ref: APP/B2355/A/08/2067355
Lands at Reaps Moss.

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a refusal to grant planning permission.
- The appeal is made by Coronation Power Limited against the decision of Rossendale Borough Council.
- The application Ref 2007/125, dated 4 January 2007, was refused by notice dated 1 February 2008.
- The development proposed is the erection and operation of 3 wind turbines and associated access tracks, meteorological mast and substation building.

Summary of Recommendation: The appeal is allowed and planning permission granted subject to conditions.

APPEAL G: File Ref: APP/A4710/A/08/2062365
Land South of the A681 between Clough Foot and Sharney Ford.

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a failure to give notice within the prescribed period of a decision on an application for planning permission.
- The appeal is made by Coronation Power Limited against Calderdale Metropolitan Borough Council.
- The application Ref 07/00351 is dated 15 February 2007.
- The development proposed is for the upgrade of an access track to service the Reaps Moss wind farm.

Summary of Recommendation: The appeal is allowed and planning permission granted subject to conditions.

Cumulative Landscape Impacts

11.147 Taken together, the existing wind farm developments do not, in my view, materially detract from the landscape characteristics that go to make up the South Pennines. Whilst in the case of individual wind farms, I have expressed concerns regarding their localised impact, I do not believe that, when taken together and with existing wind farms, they would materially affect the overall landscape character of the South Pennines area. In some views, any or all of the proposed wind farms would be seen against the backdrop of existing wind farms and as such would not add to their impact on the landscape. In other view points they would be additional features in the landscape. I consider the degree of visual separation between the various schemes and existing wind farms would be such that the overall impact on the landscape would be acceptable and would not create a wind farm landscape. On this basis, I do not subscribe to the suggestion that the South Pennine settlements would be encircled by a "ring of steel".

The Impact on Recreation, Footpaths and Bridleways

11.148 Given the proximity of all 3 sites to the built-up area and particularly the Greater Manchester conurbation, these are popular areas for walking and riding (8.1, 8.2, 8.37, 8.44, 8.46 and LPA14C appendix 6). These areas are important because of the substantial network of paths and bridleways, although not unique to the South Pennines, that provide walkers and riders at all levels to have quick and easy access to an extensive area where they can experience varying degrees of openness, wildness, remoteness and tranquillity. The features that contribute to this are the expansive panoramic views, the width of the ridgelines and the altitude. From the representations made, I am in no doubt that these areas individually and cumulatively provide a great deal of pleasure and respite to many.

11.149 In terms of national trails and parts of the strategic recreational routes away from the sites, the existing wind farms at SM, CC, OM and HH are visible in views from various vantage points and they form part of the recreational experience along those routes (5.65 & CP5G). In these longer distance views, the existing wind farms form minor elements in existing views. The construction of any or all of the proposed wind farms would increase the number of individual or clusters of turbines that could be seen from any particular vantage point. However, the overall effect would be minor and would not adversely affect the recreational experience on these routes.

11.150 Of the 3 sites, CH exhibits the greatest sense of remoteness, tranquillity and wildness. These experiences are particularly felt on reaching the ridge and walking the moor either from the Long Causeway from the parking area at Watergrove Reservoir or from Cuckoo Hill to the south-west. On the moor top, users also experience a sense of openness through the general expansiveness of this part of the moor and the extensive views to the south (6.20). Although RM and TM exhibit similar degrees of openness, the sense of remoteness and the degree of tranquillity is less.

11.151 Like pearls on a necklace, these areas are linked and provide the dedicated walker with a rewarding and strenuous day's walk and the casual stroller the opportunity to take short round trips. The introduction of the network of access tracks and the intrusion/dominance of the tall turbines would destroy

the sense of openness, remoteness and wildness on CH, RM and TM (6.18). I have no doubt that some walkers and riders would choose to walk elsewhere.

11.152 For horse riders, it is suggested that the adverse impact and deterrent effect of the turbines would be exacerbated by concerns over safety, given that at several locations the turbines would be within 200m of the bridleways and the, more recent, 3 and 4 times the height of the turbine separation distance suggested for national trails referred to by the British Horse Society (7.53, 7.103 & 7.151). None of these distances, even the 200m which is referred to in the Companion Guide to PPS 22 is a statutory requirement and nothing was put to me that objectively justifies applying this figure rigidly to any or all of these schemes (5.70). Moreover, I agree with the Inspector in the Carsington Pastures case that, if there was a tangible and unacceptable risk to horses and their riders, it is a matter that would have been directly addressed in national planning guidance (CD J15).

11.153 Horses, like human beings, have varying levels of tolerance to events and I have no doubt that some would be scared by the presence of a wind turbine. However, these are the same horses that would be spooked by any sudden event i.e. a rabbit or a ground bird suddenly rising, the fast moving shadow of a cloud on a windy day or a swooping bird. Other horses quite happily graze close to and allow themselves to be ridden in close proximity to turbines (5.73). In my experience horses, other than those who are particularly nervous can and do get used to the presence of turbines.

11.154 In all locations, the bridleways would gradually approach the wind farms and, as such, none of the developments would come as a surprise to the rider and their horse. At CH, the Mary Towneley Loop/Pennine Bridleway would be some considerable distance from the turbines (5.74). The only impact the wind farm would have on this bridleway would be where the access track crosses the bridleway. During construction, appropriate measures could be introduced as part of the CMS to warn approaching riders of the crossing and to ensure its safe management. A wind turbine does not start up quickly so that it would startle a nearby horse, and whilst it may throw a shadow it does not cause the phenomenon referred to as shadow flicker outside of a dwelling (5.76). The only other area, where there may be a material deterrent to those riders who fear turbines, is the length of bridleway along Limers Gate below RM. Here, the 3 turbines would be set high above the bridleway. This relationship could potentially deny some riders in the north access to the Watergrove area.

11.155 Several representations suggest that these wind farms would have an adverse effect on tourism and those businesses linked to recreational activities. However, other than assertion, there was nothing put in evidence to counter research that shows that in other areas tourist numbers continued to rise despite the development of substantial wind farms (5.62)

11.156 Whilst some walkers/riders may choose to walk elsewhere, there are some for whom the wind farms would prove an attraction. In all cases there is relatively easy access to the moors from various locations. At CH, Watergrove Reservoir is a popular visitor attraction, where some take walks beside the reservoir but who do not venture up onto the moor. It may be that the visual proximity of the turbines on CH could encourage some to make use of the Long Causeway to get a close view of the turbines. The

approach to CH from the south-west and Calderbrook, given the varying steepness of the topography and the impact of grazing on the surface, is more challenging. The access track from Calderbrook would make it easier for walkers and cyclists to get onto the moor top. I am conscious, that the access track has the potential to give motorcyclists access to the moors. However, with the existing access track to Grimes that potential exists in part. Moreover, unlike at SM, the existing track and the proposed entrance off Higher Calderbrook Road are overlooked by several dwelling who would provide natural surveillance and an early warning of any problem.

Conclusion on the Impact on Recreation, Footpaths and Bridleways

11.157 Whilst the turbines on any of these sites might prove an attraction to some, I conclude that these developments either individually or cumulatively would adversely affect the attributes of wildness, remoteness and tranquillity that attract walkers and riders to these areas.

Other Matters

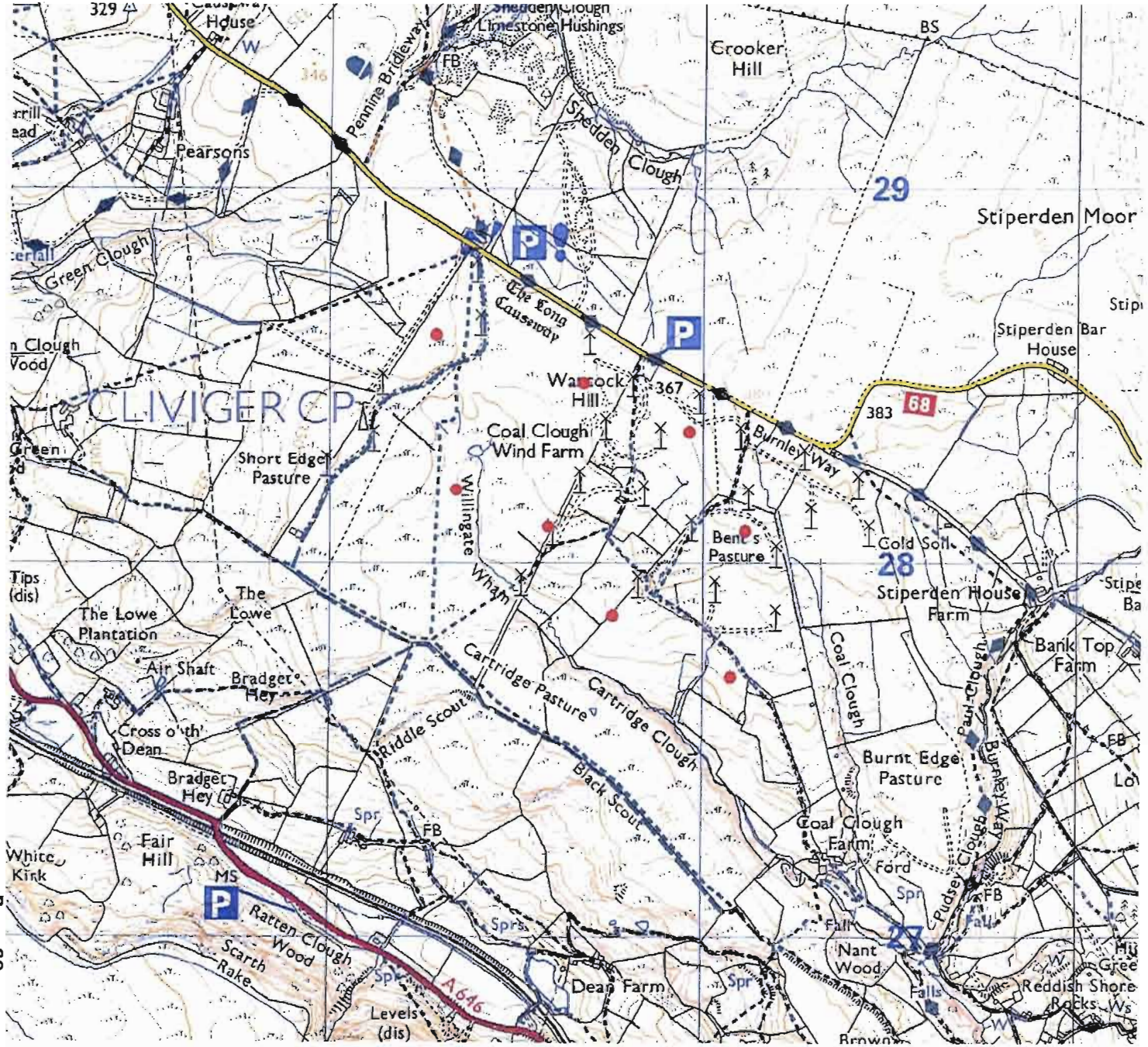
Archaeology

11.158 The objections in relation to archaeology concentrate on the importance of the CH site. FSP suggest that CP has understated the significance of CH which it suggests should be regarded as one of national importance (7.62). PPG 16 Archaeology and Planning recognises that archaeological remains are a finite resource, potentially they are highly fragile and vulnerable to damage and destruction. Thus, care has to be taken to ensure that they are not needlessly or thoughtlessly destroyed.

11.159 Whilst there are a variety of Mesolithic sites within the immediate vicinity of the CH site, the evidence produced by FSP shows that it is in no sense unique. FSP13D Figure 1 shows that there are substantial concentrations of such sites to the south-east, north and north-east. Moreover, the plans show that in either the CH 12 or CH 8 schemes the number of sites that would be directly affected would be small (FSP13 D Figures 3 and 6). Whilst PPG 16 indicates that physical preservation is the preferred option, excavation is not ruled out. It is CP's intention to construct these wind farms within a tight corridor. Therefore, the potential for an adverse impact on existing known sites is low. Moreover, permission could be the subject of a planning condition that would, where it was thought appropriate, secure a programme of archaeological works that would add significantly to the sum of local archaeological knowledge (5.77).

Shadow Flicker and Reflected Light

11.160 PPS 22 recognises that shadow flicker is a relatively rare phenomenon and that it only happens in buildings generally within 10 rotor diameters from the turbines, where there is a narrow window opening and at certain times of the day and year. In the CH 12, RM and TM schemes each of the ESs identify 3 properties that have the potential to be affected by shadow flicker (5.60, 5.97 & 5.110) and in the CH 8 scheme only one property was identified (5.84). Given that the effects can be calculated, it is possible to programme the turbine controls to ensure that at the appropriate time the turbines can be taken out of operation. The technology is tried and tested and its use can be



REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Coal Clough Repowering

Coal Clough Repowering Turbine Location
(Consented Coordinates)

TURBINE DATA:

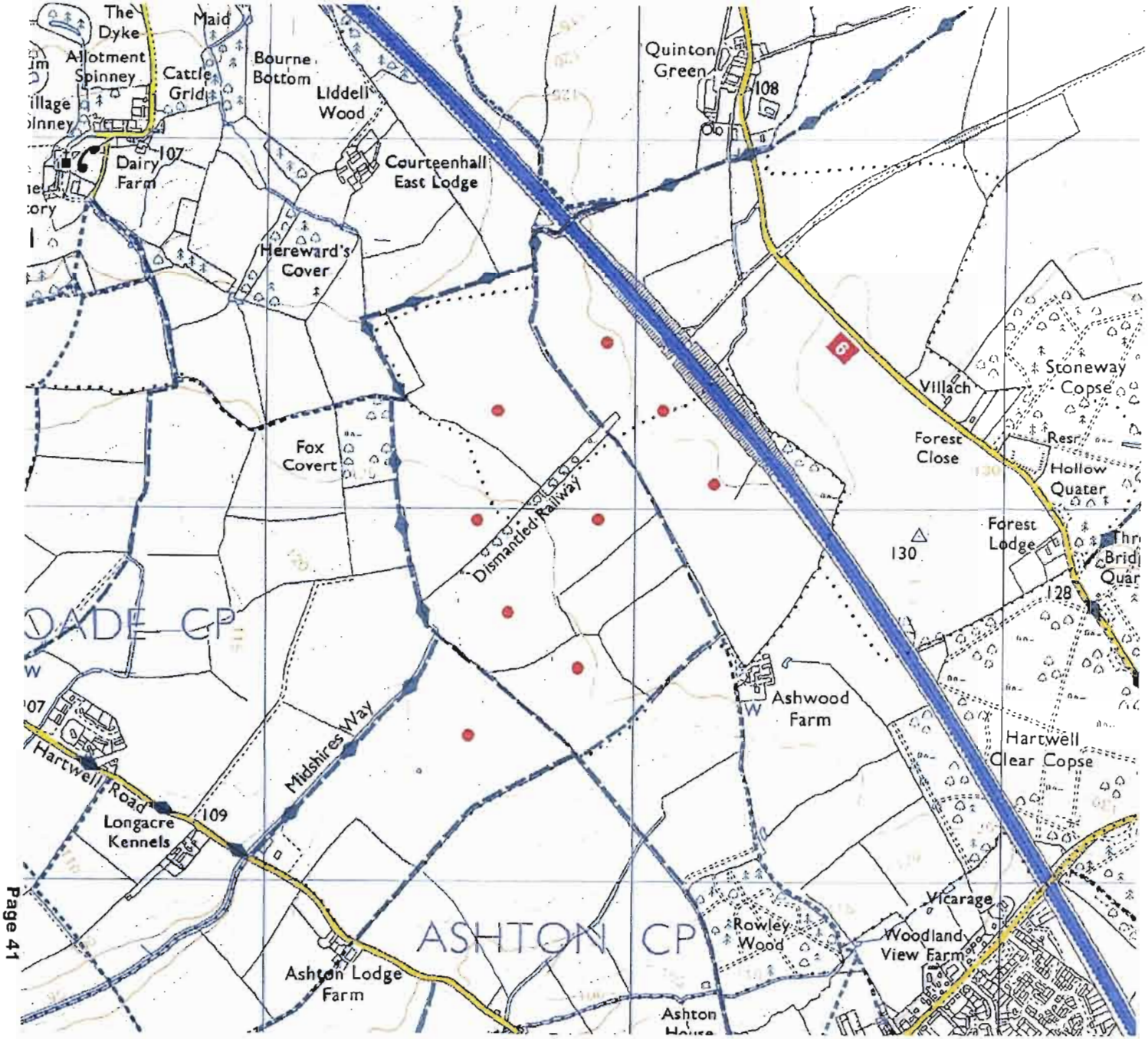
Number of turbines:	8
Hub height:	70m
Blade tip height:	110m

0m 250m 500m

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	CD	A4	1:15,000		

PI Supplementary Work



STEPHENSON HALLIDAY

REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

M1 Wind Farm

M1 Wind Farm Turbine Location (Consented Coordinates)

TURBINE DATA:

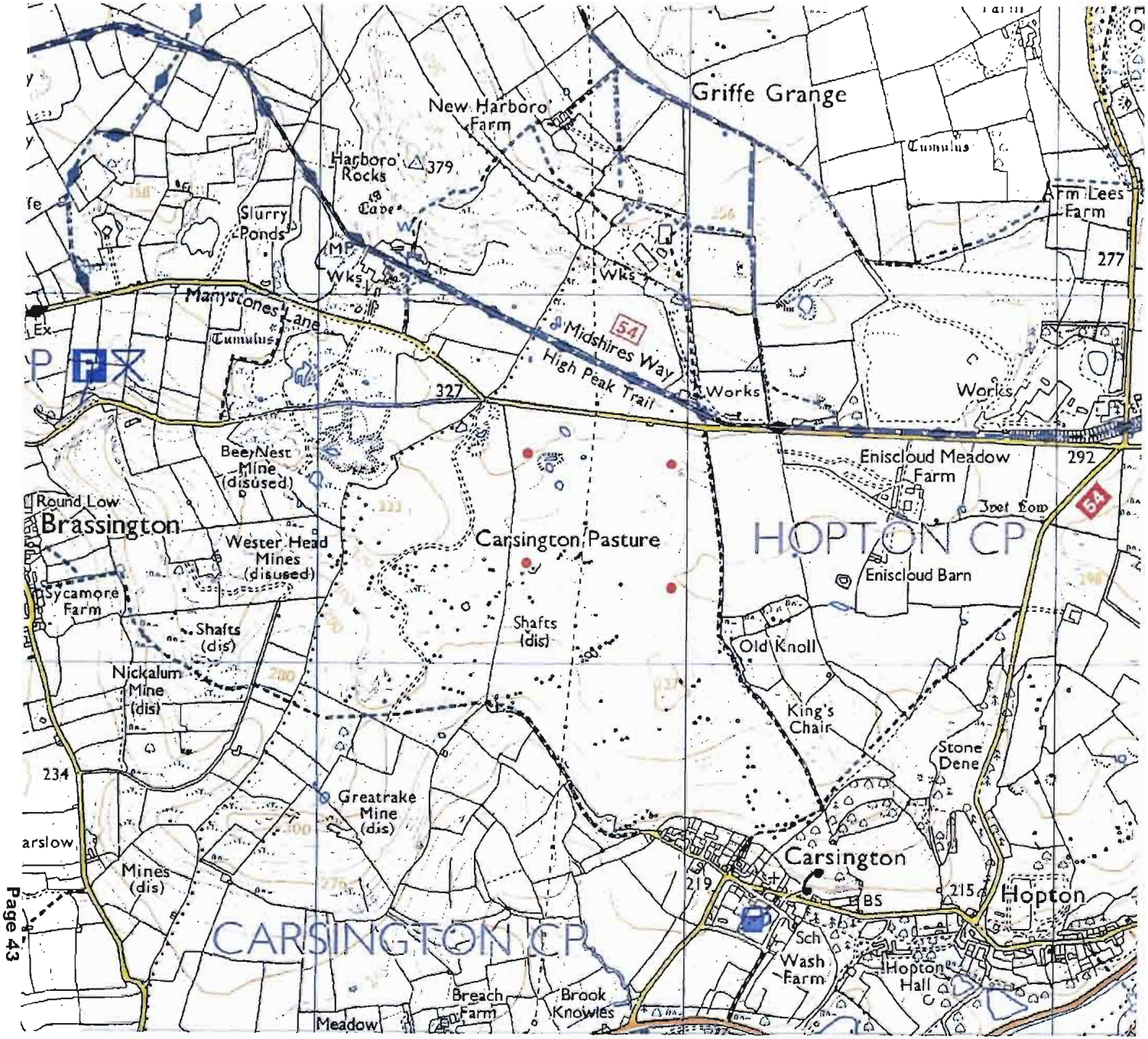
Number of turbines:	9
Hub height:	59m
Blade tip height:	90m

0m 250m 500m

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	CD	A4	1:15,000		

PI Supplementary Work



REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Carsington Pasture Wind Farm

KEY

Wind Turbine Location (Consented Coordinates)

TURBINE DATA:

Number of turbines:	4
Hub height:	67m
Blade tip height:	102m

0 250 500m

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	EC	A4	1:15 000		

PI Supplementary Work EC170613

Appeal Decision

Inquiry held on 1-11 July 2008

Site visits made on 10 and 11 July 2008

by Robin Brooks BA (Hons) MRTPI

an Inspector appointed by the Secretary of State for Communities and Local Government

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Decision date: 17 September 2008

Appeal Ref: APP/P1045/A/07/2054080
Carsington Pastures, Manystones Lane, Carsington, Derbyshire DE4 4HF

- The appeal is made under Section 78 of the Town and Country Planning Act 1990 against a refusal to grant planning permission.
- The appeal is made by Carsington Wind Energy Ltd against the decision of Derbyshire Dales District Council.
- The application Ref 07/00083/FUL, dated 24 January 2007, was refused by notice dated 20 July 2007.
- The development proposed is a wind farm comprising 4 wind turbine generators, substation, access tracks and ancillary development.

Decision

1. The appeal is allowed, and planning permission granted subject to the conditions set out in the Formal Decision at the end of this letter.

Procedural Matters

2. At the Inquiry an application for costs was made by the Council against the Appellant. This application is the subject of a separate Decision.

3. At the opening of the Inquiry the Council confirmed that reasons for refusal Nos. 3, 4 and 5, relating respectively to impact on archaeological interests, nature conservation interests and air traffic safety, had been withdrawn; and that they were satisfied that archaeological and nature conservation matters could be satisfactorily covered by conditions if the proposal was otherwise acceptable. It was also confirmed that as the policies from the Derby and Derbyshire Joint Structure Plan referred to in reasons for refusal 1 and 2 had not been "saved" by the Secretary of State under the Planning and Compulsory Purchase Act 2004, they no longer had effect and did not form part of the Council's case.

4. The Appellant confirmed that, despite some ambiguities in submitted plans, planning permission was sought, as part of the development, for a single anemometry mast towards the eastern edge of the site[1]. The proposal had also been modified in that it was now intended to connect to the electricity grid via an underground cable to the substation at Hopton to the east of the site, rather than by an overhead line or underground cable to the Longcliffe substation to the north west as originally proposed. An environmental impact assessment of the amended route had been made in the Further Environmental Information (FEI).

[1] Shown on site layout plan 0954/SL/149a, which also shows definitive numbering for the proposed wind turbines, consistent with that used on the wireframe diagrams in the Further Environmental Information.

67. Entering the village from the west, parts of all four turbines would be seen above the skyline, in two cases to below hub height *(APP 10.7; DC 10.7)*. However, at some distance away, whilst some buildings can be seen, there is no clear evidence of the existence or form of the village, no indication that the valley slope seen forms part of the Conservation Area setting, and no tangible indication of the Conservation Area itself. There would be a significant visual impact on the landscape but not on the setting of the Conservation Area. Moving further towards and into the Conservation Area the extent of the turbines that would be seen would diminish rapidly. Once within the village, views across to the setting are constrained by buildings, walls, hedges and trees such that it is unlikely that the impact on the setting would be anything like that suggested by the ZTV plots. In my view there would be few if any places around the village from which the proposed turbines and the setting of the Conservation Area would be so juxtaposed that the former would cause significant harm to the latter. Similarly from further west, towards Bradbourne, although the wider landscape setting of the village is clearly seen, as noted in the Conservation Area Appraisal, that is not coterminous with the Conservation Area setting, which would remain essentially unchanged.

68. Drawing together this assessment, I have taken account of the fact that the impact of the turbines would be increased by the movement of the blades; of their distinctive scale, vertical form and materials; and of the way they would be perceived by an observer moving through and around the Conservation Areas. However, given that there would be only four turbines, in a compact group, and that views of them would generally be limited and partial, I do not believe they would generally be seen as strikingly incongruous with the settings of the three historic villages. Where there would be some more adverse impact, notably in some views from the Miner's Lane public footpath at the western end of Carsington, and from the western slope of the valley within which Brassington lies, any harm must be weighed in the balance against benefits of the appeal proposal.

Third Issue: Impact on Recreation and Tourism

69. The importance of recreation around the appeal site, and the contribution of tourism to the local economy, are evident both on the ground, in well used trails and other facilities and the number of businesses dependent in whole or part on visitors; and in the Council's evidence on visitor numbers and spending estimates. The High Peak Trail is popular with walkers and cyclists and is part of the National Bridleway Network and National Cycle Route Network; the Limestone Way is a well walked County long distance trail; and there is an intensive network of public rights of way in the area, including the circular path around Carsington Water. The figures alone, albeit global in scope, are striking. The Peak Park is said to attract over 10 million leisure visits each year and, outside the Park, Carsington Water alone had an estimated 870,000 visitors in 2006, or around a million according to the Protect Carsington and Hopton Action Group). It is estimated that tourism and recreation in the Peak District and Derbyshire generate over £1.3 billion of spending and support over 24,000 jobs; within the Park the corresponding figures could be £350-450 million and 3,400 jobs. None of this was challenged at the Inquiry. Such popularity clearly means a great deal in terms of both visitor's enjoyment of the area and contribution to the local economy, a contribution which in turn

helps maintain the fabric of the countryside. It should not be lightly put at risk.

70. That said, assessing what influence the appeal proposal would have upon that popularity involves making a judgement on very limited evidence, as the Council fairly acknowledged. The results of a survey of visitors to the National Park by the NPA in 2005 indicate that almost all came to see the scenery and about half to enjoy the peace and tranquillity, and that many made repeat visits; and I have no doubt that these results hold good across the National Park boundary also. It is safe to assume that most users of the trails and paths are attracted primarily by the attractive countryside through which those paths pass though a good number of those using the High Peak and Tissington Trails may well be drawn as much or more by the opportunities they offer for off-road cycling and hard exercise and so might well be correspondingly less sensitive to the character of their surroundings.

71. As noted above, the turbines would be likely to have significant visual effects in principle within a radius of 3-5 kms, an area that overlaps the Peak Park, and covers extensive sections of the trails and paths referred to, as well as the whole of Carsington Water. It is reasonable to assume that members of the public antipathetic towards wind turbines (or at least most of them) would react negatively to those proposed at Carsington Pastures when seen within this area. However, as already set out, such views would be by no means universal or uninterrupted throughout; they would frequently be constrained by local landform or other screening; and in many places the turbines would occupy only small segments of wide landscape panoramas which often hold much of visual interest in other directions.

72. Against this background I find it hard to believe that, in general, views would be so disturbing as to unacceptably diminish the aesthetic and recreational experiences of the majority of visitors, including their appreciation of the particular qualities of the National Park. For those neutral towards wind turbines, or favourably disposed towards them, then any adverse feelings and consequent loss of enjoyment would of course be much less; and some visitors might find the interest of their visit enhanced. And whatever the attitude of the viewer, the effects would tail off rapidly with increasing distance and beyond 10 kms or so I consider it unlikely that they would tangibly affect the enjoyment of the landscape in the round of even the strongest opponents of wind turbines. Also, whilst I appreciate that local residents may have a particular affinity with the site and its surroundings through regularly walking local footpaths, only limited sections of those paths, close to the site, would be directly affected. Extensive and attractive views in many directions, including southwards from above Carsington and over Carsington Water, would remain entirely unchanged.

73. The public footpath to the east of the site is 100-130 m from the nearest turbines and the High Peak Trail is some 160 m away. I deal below with the question of public safety, and with risk to horse riders, but footpaths and trails are not in my view so close to the proposed turbines that users in general would be deterred or intimidated by their scale and proximity, perceived safety risks or noise to the point that they would be likely to seek out alternative routes or avoid the area in future. Also, although as already noted, the turbines would be visible, at least at times and in part, over some 4 – 5 kms of

the High Peak Trail, they would be dominant over a much shorter length such that most users of the Trail, at least those travelling any distance, would be likely to perceive them as essentially a landmark en route. I accept that a good number of Trail users will make shorter "out and back" trips, perhaps from Middleton Top, but even they would be out of direct sight of the turbines for a good deal of the time.

74. The Trail passes through a considerable variety of scenery, with some intrusive and unattractive industry, notably at Ryder Point and Hoben Works, and the section past the Appeal site is by no means the most attractive on the route, or even on that part outside the National Park. Taking all these points into consideration, and looking at the Trail as a whole, I do not believe that users of it would have their appreciation of their surroundings unduly degraded or that any more than a tiny minority might be deterred from using or returning to it because of the presence of the wind farm.

75. So far as tourism is concerned, research into what has happened, not happened or might happen in other areas seems to provide a reasonable guide to what would be likely to follow here. The Investigation into the Potential Impact of Wind Farms on Tourism in Wales (2003), cited by the Council and the Action Group, does not appear to me to cogently support the Council's suggestion that the Carsington Pastures scheme would have serious implications for the visitor economy, not least because the conclusions on wind farms possibly deterring future tourist visits were decidedly tentative. Nor do the results of the Sheffield University study into public attitudes to mobile phone masts in the Peak National Park (2008) carry weight given that that particular form of development is very different in nature and in the attitudes it can engender.

76. The various studies cited by the Appellant, and not challenged by the Council, show no clear evidence of wind farms having had a significant and lasting adverse effect on visitor numbers or the tourist economy; and the most recent such publication, the Moffat Centre's report on the Economic Impacts of Wind Farms on Scottish Tourism (March 2008) concludes that even on a worse case scenario adverse economic impact would be very small and, in three of four (admittedly extensive) case study areas, hardly noticeable.

77. The thrust of this evidence is also reflected in previous appeal decisions; and it is significant that, whilst the Inspector's report on the Whinash Wind Farm, extensively referred to at the Inquiry, concluded that that proposal's landscape impact would unacceptably harm the enjoyment of those walking in the area, he saw no reason to contemplate adverse effects on tourism and the rural economy. Given the much smaller scale of the Carsington Pastures proposal, and my appraisal of its limited impacts on landscape character, the likelihood that there would be no significant harm to the tourism industry here is all the greater.

78. I have carefully considered the opinion survey carried out by the Action Group in the weeks leading up to the Inquiry and which resulted in 1,481 signatures on a petition of objection, and a total of 1,682 individual objections. As the work was carried out in part at weekends from an information stand in the village, it is reasonable to assume that this could reflect the views of a good number of visitors to and around Carsington Water and analysis did indeed

show that some 88% of objections came from outside the immediate area, and nearly 50% from outside Derbyshire. However, with every respect to those who undertook this work I am not convinced that this leads to the conclusion that visitors numbers would be reduced, or the tourist trade harmed, if the appeal proposal went ahead. There is no information on how these numbers compare with the total of visitors in the area at the time, or with the number who did not object, or on the amount of information that objectors had before them; and the Action Group's conclusion that, extrapolated over a year, the number of objectors might be some 10,000-13,000 is essentially speculative. Whilst I have no doubt that that signatories of the petition and other objectors were entirely sincere in their views, this aspect of the Action Group's case does not go much beyond confirming that wind turbines arouse strong emotions.

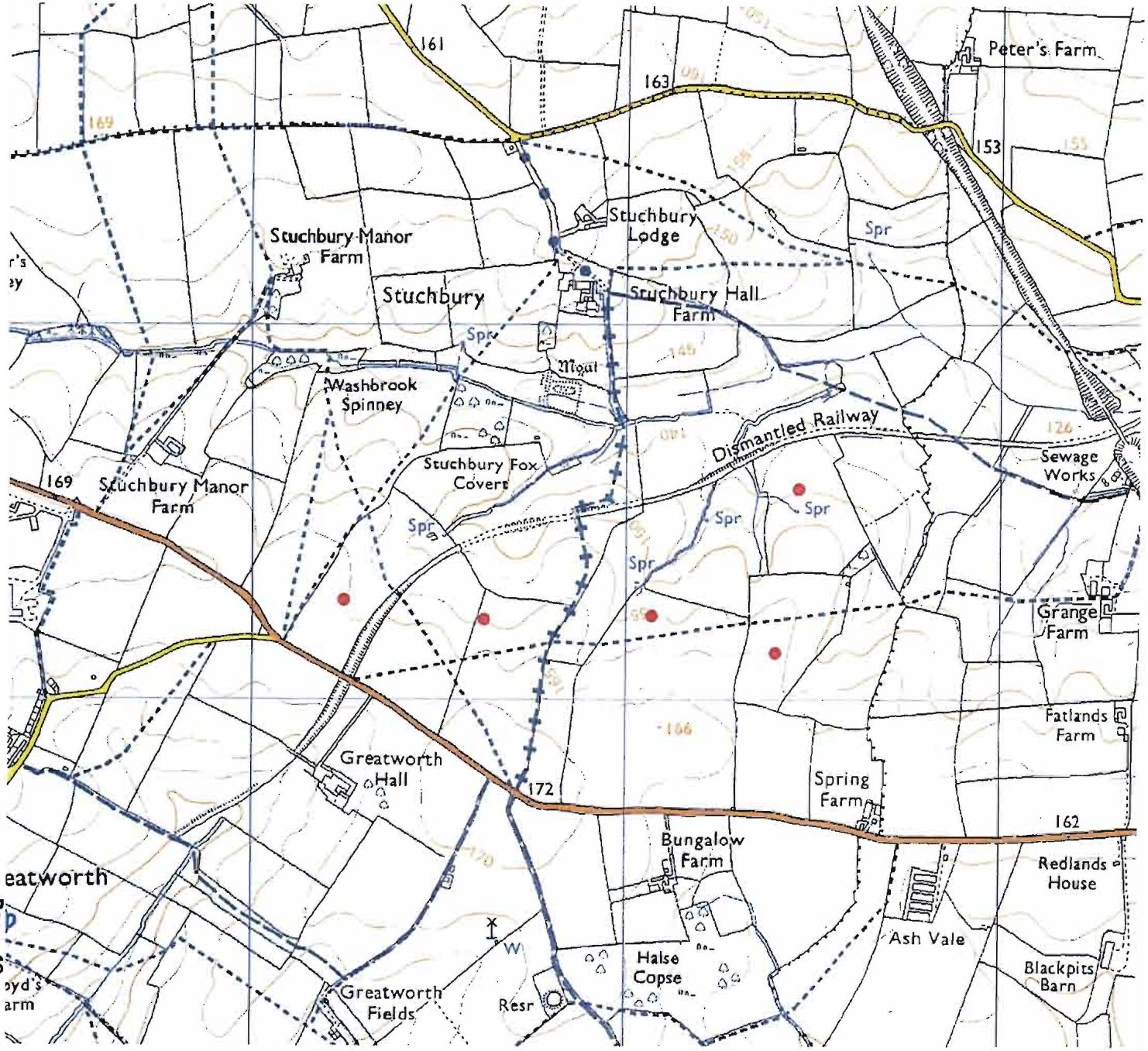
79. I conclude on the third main issue that the proposal would not unacceptably detract from enjoyment of the countryside by members of the public, including those using the High Peak Trail, the Limestone Way and other local paths, and those visiting Carsington Reservoir; and approval would not have significant adverse effects on the contribution made by tourism and recreation to the local economy. So far as rights of way are concerned, there would be no unacceptable conflict with the aims of Local Plan Policies L9 and L10.

Fourth Issue: Alternative Sites

80. As noted earlier, the Planning Inspectorate's letter of 15 October 2007 which referred to the assessment of alternative sites, did so in the context of environmental impact assessment under the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999; and it was subsequently agreed that the matter should be dealt with through evidence to the Inquiry. Where a developer has considered alternatives the Regulations[16] require an outline of the main ones, and the reasons for the choice, to be included in the ES but the accompanying Circular 02/99 makes clear that though consideration of alternatives may be both a material consideration and good practice, there is no express requirement to study alternatives. As it is agreed here that there was no comparative assessment of possible sites (though a number of criteria such as wind speed, and proximity of electricity transmission lines and housing, were applied to the County) the requirement does not apply. Accordingly I do not find the environmental impact assessment flawed in this respect; nor did the Council assert that it was.

81. The Council's argument was that failure to consider alternative sites made the Appellant's proposal wrong in common law and that it must be rejected for that reason. Pointing to the circumstances in which the courts have held that existence of alternative sites may be a relevant consideration, they cited a number of legal authorities. In particular *R (on the application of Scott and another) v North Warwickshire BC [2001] 2PLR 59* indicates that this may be so where a proposal, though desirable in itself, would cause such harm on the site proposed that the possibility of a less harmful alternative must reasonably be considered. *SoS v Edwards [1994] 60 P&CR* sets out the criteria for determining where the question of alternative sites is relevant, namely (in short) presence of clear public benefits from the proposal; existence of

[16] Para. 4 of Part II of Schedule 4.



REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Spring Farm Ridge

Spring Farm Ridge Turbine Location (Consented Coordinates)

TURBINE DATA:

Number of turbines:	5
Hub height:	80m
Blade tip height:	125m

0m 250m 500m

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	CD	A4	1:15,000		

PI Supplementary Work

The Planning Inspectorate

Appeal Decision

Inquiry held on 15 - 18 and 22 - 24 May 2012
Site visit made on 21, 24 and 28 May 2012

by Elizabeth Fieldhouse DipTP DipUD MRTPI

an Inspector appointed by the Secretary of State for Communities and Local Government

Decision date: 12 July 2012

Appeal Ref: APP/Z2830/A/11/2165035
Spring Farm Ridge, land to the north of Welsh Lane between Greatworth and Helmdon

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a refusal to grant planning permission.
- The appeal is made by Broadview Energy Developments Limited against the decision of South Northamptonshire Council.
- The application Ref S/2010/1437/MAF, dated 18 October 2010, was refused by notice dated 11 July 2011.
- The development proposed is the erection of five wind turbines plus underground cabling, meteorological mast, access tracks, control building, temporary site compound and ancillary development.

Decision

1. The appeal is allowed and planning permission is granted for the erection of five wind turbines plus underground cabling, meteorological mast, access tracks, control building, temporary site compound and ancillary development at Spring Farm Ridge, land to the north of Welsh Lane between Greatworth and Helmdon in accordance with the terms of the application, Ref S/2010/1437/MAF, dated 18 October 2010, and the plans submitted with it, subject to the conditions set out in the schedule to this decision.

Procedural matters

2. The application was accompanied by an Environmental Statement (ES) dated October 2010 produced in accordance with the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999, as amended. In the light of consultee responses received by the Council during the planning application determination period and after the Appellant had reviewed the reasons for refusal of the application, Broadview Energy Developments Limited commissioned further survey and assessment work in order to address a number of issues prior to the appeal against the refusal of planning permission being heard. The Further Environmental Information (FEI) dated February 2012 was prepared to supplement the ES and included:

   - the micro-siting of four of the five proposed wind turbines;
   - any related alterations to the ES to fully address the impacts of the revised proposals; and

69. The projected noise levels were established using the methodology in ETSU-R-97. The proposed rating of noise immission levels that should not be exceeded during the daytime are based on the lower daytime limit in ETSU-R-97 of 35dB(A) or background noise levels plus 5dB(A). Although the measured background noise levels between 23.00 and 07.00 hours were low, ETSU-R-97 provides for noise immission levels to be 43dB(A) or 5dB(A) above background during those hours. This would be well over some night-time background noise levels, particularly at lower wind speeds. The suggested condition would accord with the maximum day and night time noise immission levels in ETSU-R-97. No harm is found in respect of noise immission levels suggested in the condition and there would be no conflict with the advice in CG PPS22, EN-1, EN-3 and the Framework in this respect. Subject to the proposed condition there would be no conflict with LP policy G3 (D) or emerging CS policy S11 (3) in respect of noise.

70. Amplitude Modulation (AM), sometimes referred to as blade swish or thump, is a phenomenon, the occurrence and effect of which are difficult to predict. Nevertheless, the recommended maximum noise levels in ETSU-R-97 take account of character of noise that is described as blade swish. The Salford University Report Research into Aerodynamic Modulation of Wind Turbine Noise concludes that AM was not generally a factor in noise complaints. There was no conclusive evidence that excess AM would occur, therefore possible excess AM does not carry much weight in my determination of this appeal. However, maximum noise levels could be controlled by condition.

71. There may be noise and disturbance during the construction period associated with construction vehicles, turbine delivery and on-site working. The hours during which delivery and construction can take place can be controlled by conditions so that the amenities of residents in the vicinity would not be harmed by reason of noise associated with construction at unsocial hours. Subject to appropriate controls through conditions, residential amenity would not change to such an extent during the limited period of construction as to cause harm.

Residential amenity - overall conclusion

72. Overall in relation to the effect on the living conditions of residents, it has been found that the proposed development may be dominant but would not be overwhelming and inescapable for residential occupiers. There may be unsettling stacking of turbines or at least blades visible from some properties and a considerable number of residents would see the turbines as prominent and uncharacteristic structures. Such impacts would diminish with distance and there is nothing to suggest that such effects would be experienced in relation to the house and garden as a whole of the affected properties. The properties would not become unattractive and/or unsuitable places in which to live. Subject to appropriate controls through conditions, there would be no harm by reason of shadow flicker and any noise as a result of the proposal could be controlled to accord with Government policy.

Public footpaths, bridleways and byway

73. The appeal site is crossed and in an area traversed by many PRoWs and a BOAT. Of the PRoWs, one is a bridleway that links Helmdon with Stuchbury Hall Farm (AP15/AN32) from where the BOAT provides a link south to the bridleways on the opposite side of the B4525. Footpath route AN10 links

Greatworth and Helmdon in an east-west direction, as well as other footpaths and the BOAT. Although there are several PRoWs in the area, from the condition of the footpaths, I have no reason to doubt that the majority in the vicinity of, and crossing the appeal site are well used with several included in promoted routes.

74. The proposed FEI siting of turbine T3 would be 41m from the definitive line of footpath AN10 and therefore the blades of the turbine could over-sail the footpath. Turbine T1 would be 84.2m away from footpath AN9, Turbine T2 75.5m from footpath AN10 and turbine T4 95.6m from footpath AN10. Therefore the siting of all the turbines, other than turbine T5, would be within a fall over distance of a public footpath with the over-sail of turbine T3 the most problematic and unnerving for pedestrians, potentially deterring use of this important link.

75. On the ground the route of footpath AN10 does not coincide with the route on the definitive map. The Council advises that the landowners have agreed to reinstate the footpath along the definitive route after harvest this year. The suggested micro-siting of turbine T3 would prevent any blade over-sail of the definitive footpath and could be required by condition. In addition, the Appellant has proposed the creation of a permissive path to the north that would not be over-sailed by any wind turbine blade. This could also be subject of a condition.

76. CG PPS22 advises that experience indicates properly designed and maintained wind turbines are a safe technology. The guidance goes on to indicate that it may be advisable to provide a set-back from roads and railways of at least fall over distance so as to achieve maximum safety. The siting of all of the proposed wind turbines would accord with this advice in relation to roads and railways but PRoWs would remain within the fall over distance.

77. CG PPS22 published in 2004 notes that the British Horse Society had suggested a 200m minimum exclusion zone around bridleways to avoid wind turbines frightening horses. In April 2010 the British Horse Society reviewed its wind farm policy in respect of separation distances and proposed a distance of three times the overall height with the 200m recommended in the CG PPS22 a minimum. The greater separation distance has not been incorporated into current Government advice. While the nearest bridleway (AN32/AP15 would be a minimum of 326m away from the nearest turbine (T5), both turbines T2 and T3 would be under 200m from the BOAT that forms the important link between the limited number of bridleways in the area. Turbine T2 would be 183m away from the BOAT and turbine T3 196m.

78. CG PPS22 advises that the 200m separation distance is deemed desirable but it is not a statutory requirement. If the BOAT is used by horses where the separation distance is below that desirable, they would already have been travelling in a 'wind farm landscape' and the wind turbines would not appear suddenly. The Appellant advises, and as found by a previous Inspector (APP/E2001/A/10/2137617 and 2139965), turbines start very slowly and gradually pick up speed. Therefore, to all but the most highly strung horse the wind turbines are unlikely to be a surprise or frightening. The proposed micro-siting condition would prevent any micro-siting of turbines T2 or T3 closer to the BOAT, so the maximum shortfall on the desirable separation would be 17m. The shortfall on the separation distance from the BOAT carries limited weight.

79. The turbines would be visible in the landscape but views would depend on the direction of travel and any hedgerows, hedgerow trees and woodland in the vicinity. The proposed wind farm would not result in the loss of any PRoW or BOAT and would provide an alternative permissive path to part of the length of footpath AN10 that would be outside any blade over-sail distance. The proposed development would be a visible presence in the area and result in the loss of a perception of tranquillity contrary to the aims of RSS policy 1, LP policy G3 and CS policy S1. Nevertheless, with the intermittent filtering/screening effect of vegetation and any twists and turns along routes, the ever changing views would not necessarily always include turbines. The proposal would not result in PRoWs or the BOAT being inaccessible or unavailable and no significant harm is found in relation to the usage of public rights of way.

Other matters

Ecology

80. The Council does not raise ecological concerns in respect of the proposal as a result of the FEI submitted in February 2012 including the micro-siting of four of the proposed wind turbines. Natural England has also withdrawn its holding objection. Suitable conditions would be required in any grant of planning permission.

Aviation

81. In the Statement of Common Ground the main parties agreed that there were no issues in relation to aviation. The Turweston airfield operator had advised that he would rather the wind farm was not constructed but its presence would not stop the operations. At the inquiry, the Light Aircraft Association and Turweston Flight Centre (the airfield operator) raised concerns that the wind farm could present a significant increase in risk to safety particularly in poor weather conditions. The objectors stated that the Turweston airfield circuit is larger and higher, at 396m above ground level, than the normal circuit. The more common height would be 305m or occasionally 243m above ground level. The proposed wind farm is not within the circuit pattern and the concerns raised relate to possible human error and the adoption of the other circuit heights or routes. The Appellant accepts that a GPS approach procedure would enhance operations at Turweston airfield but I am not convinced that such a measure is necessary to mitigate any harm from the development proposed. An unnecessary condition relating to this matter would not meet the tests in Circular 11/95 *The use of conditions in planning permissions*.

Grid connection

82. Section 4.9 in EN-1 advises that the Government envisages that wherever possible the related infrastructure necessary to make a grid connection should be prepared in an integrated way with the electricity generating plant. Therefore it is advised that developers should provide information on the most likely route and method from the grid connection to the wind farm with their planning application and as part of any Environmental Impact Assessment. All cabling within the site would be underground with the exception of the control room. Three alternative grid connection options have been identified. The final grid connection point would be confirmed later and subject of a separate application under section 37 of the Electricity Act 1989 if it utilises a

new overhead line. However, an underground connection would be subject of a separate application for planning permission or use of a permitted development order by the statutory undertaker.

Highway safety

83. The Council raises no issue in respect of highway safety but third parties are concerned that the wind farm would be a distraction to drivers close to the turnings for Greatworth off the B4525. At the site visit, because of the horizontal alignment of the B4525, the blimp that was flying near the position of turbine T1 first appeared to be on the southern side of the road. However, it gradually appeared to be on the northern side as it was approached. In view of the scale of the proposed development approaching drivers would be aware of a wind farm development in the vicinity. While I do not underestimate the concerns of local residents, the local highway authority raised no objection in principle and did not consider distraction to be a cause for concern. I have had regard to the accident statistics submitted but no substantive reason is found to take a different view to the County Highway Authority regarding possible distraction to drivers.

Human rights

84. I have also had regard to the implications of the proposed development in relation to Article 1 and Article 8 of the First Protocol to the European Convention on Human Rights, with particular reference to property values, noise and quality of life. However, no material interference has been established and I do not consider the matter further.

Overall balance and conclusions

85. There is a clear national and regional need for renewable energy which weighs heavily in favour of the development and is supported by Government and regional policy and a local SPD. Wide economic and environmental benefits attach to all renewable energy proposals and are significant material considerations which have to be given substantial weight. The UK Renewable Energy Roadmap sets out actions that are intended to accelerate the delivery of renewable energy including onshore wind. Nevertheless, the Government's intention is not that all renewable energy schemes should be supported irrespective of any harm that might be caused. The Framework advises that planning plays a key role in helping to shape places to secure radical reductions in greenhouse gas emissions. The delivery of renewable and low carbon energy and associated infrastructure is identified as being central to the economic, social and environmental dimensions of sustainable development. However, the Framework advises that it is necessary to ensure that the impact of development is acceptable.

86. LP policy EV2 and CS policy S1 aim to prevent development in the countryside/rural areas that does not fit into the identified categories. Wind turbines do not fall into the accepted and identified uses. However, due to the size and number of turbines, the proposal would be likely to have to be located in the countryside rather than in a settlement. Turbines of appropriate size and number could be accommodated in urban areas but wind turbines in rural areas away from densely populated areas would reduce the potential for impact on residential amenity.

87. The benefits of producing renewable energy and assisting in meeting national obligations, aspirations and helping to reduce the impact of climate change have to be set against the identified harm. Any wind farm is likely to bring change to the landscape and outlook of people living nearby but the fact that the development would be for a period of 25 years and is reversible has to be borne in mind. However, such a period would be a long time for any perceived harm and therefore the fact that the development would be for a temporary period carries little weight. The question is whether any harm would be so serious as to significantly damage interests of acknowledged importance.

88. In this particular case, the proposal would bring about a significant change to the landscape and from some viewpoints the proposed wind farm would become a key feature at odds with the scale of the landscape with a subsequent adverse impact. There would be harm to the setting of a range of heritage assets but the level of harm would be less than substantial.

89. Residential amenity could be protected from shadow flicker and the noise immission levels controlled by the imposition of conditions. The proposal would change the outlook from many homes and could be unpleasantly imposing and pervasive to the occupiers of Stuchbury Hall Farm, who work the adjoining land. Turbine blade stacking could be visible from some properties. However, the proposal would not be so overwhelming as to make any property an unattractive and/or unsatisfactory place in which to live.

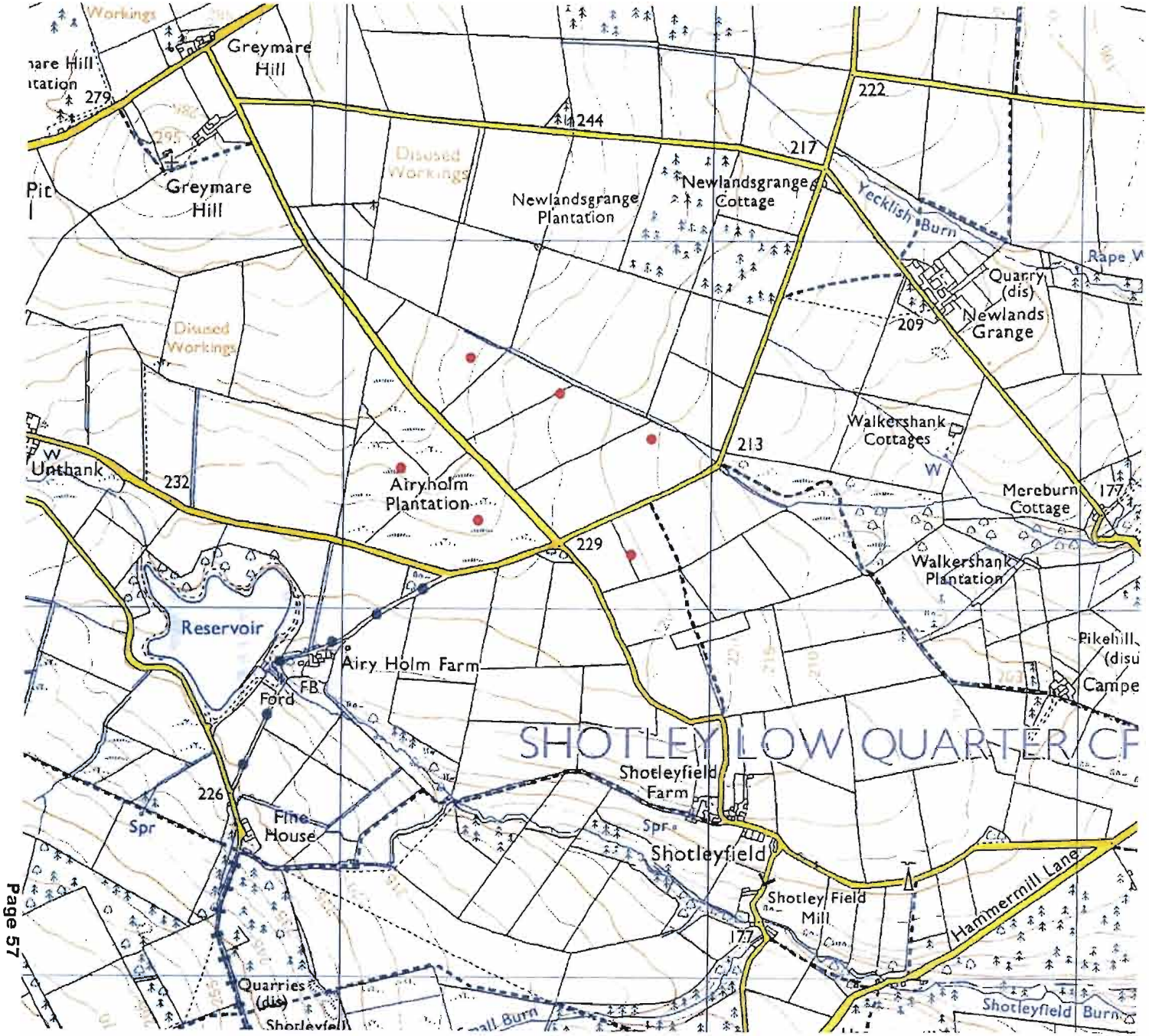
90. Turbine T3 could be micro-sited to overcome blade over-sail of the PRoW and a permissive path could be required by the imposition of a condition. The enjoyment of the countryside by horse riders and walkers could potentially change but it would not be so marked as to count significantly against the project. Conditions can address other matters including ecology, highway safety at the access, noise and shadow flicker.

91. Taking account of the statutory duties imposed by the Planning (Listed Buildings and Conservation Areas) Act 1990 and the harm identified to the setting of heritage assets, the balance indicates that the wider benefits attributable to the project contribute to the case for approval.

92. National policy seeks to secure well-planned developments in appropriate locations and the drive to provide renewable energy should not be at the expense of the environment and cultural heritage. Overall the totality of the impact of the proposal, including conflict with development and emerging plan policies, is not sufficient to outweigh the wider economic and environmental benefits of the proposal. The LP policies do not address renewable energy. However, the Framework provides the most up to date expression of national renewable energy policy. This is a material consideration to which I give significant weight. Having carried out the balancing exercise, I have concluded that the proposal is acceptable in planning terms.

Conditions [Numbers in () relate to relevant condition]

93. The conditions largely agreed between the parties and discussed at the inquiry have been considered in the light of Circular 11/95. In relation to the time within which development should commence, there would be additional consents necessary prior to commencement. Nonetheless, there is a process for extending time limits and I find no reason to allow more time than was



STEPHENSON HALLIDAY

REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Kiln Pit Hill Wind Farm

KEY

- Wind Turbine Location (Consented Coordinates)

TURBINE DATA:

Number of turbines:	6
Hub height:	65m
Blade tip height:	100m

0 250 500m

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	EC	A4	1:15 000		

PI Supplementary Work EC170613

Appeal Decision

Inquiry held on 6-9 and 13-16 January 2009

Accompanied site visits made on 12 and 13 January 2009

by Robert Mellor BSc DipTRP DipDesBEnv DMS CEnv MRICS MRTPI

an Inspector appointed by the Secretary of State for Communities and Local Government

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Decision date:
12 February 2009

Appeal Ref: APP/R2928/A/08/2075105
Land to the South East of Kiln Pit Hill, Northumberland DH8 9SL

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a failure to give notice within the prescribed period of a decision on an application for planning permission.
- The appeal is made by NPower Renewables Ltd against Tynedale District Council.
- The application, Ref 20060052, is dated 12 January 2006.
- The development proposed is the erection of 6 wind turbines, associated infrastructure and services.

Decision

1. I allow the appeal, and grant planning permission for the erection of 6 wind turbines, associated infrastructure and services on land to the South East of Kiln Pit Hill, Northumberland DH8 9SL in accordance with the terms of the application, Ref 20060052, dated 12 January 2006, and the plans submitted therewith, except where information submitted with the application is affected by the planning conditions to which this permission is subject and which are set out in the attached schedule.

Procedural Matters

2. Following the submission of the appeal, the Council resolved that, had the appeal not been submitted, it would have refused planning permission for two putative reasons which may be summarised as: (1) The Council could not be satisfied that civil aviation interests had been resolved before it could decide the application; and (2) The acknowledged benefits towards addressing climate change, by providing renewable electricity and reducing emissions of carbon dioxide and other gases, would not outweigh the considerable harm to the historic heritage of the area and the landscape setting of nationally important listed buildings, and the civil aviation interests.

Environmental Impact Analysis

3. The scheme constitutes EIA development as it falls within the descriptions set out in Schedule 2 and exceeds the thresholds in column 2 of the Town and country Planning (Environmental Impact Assessment) 9England and Wales) Regulations 1999. The submitted Environmental Statement addresses:

   - Socio-economics
   - Landscape and Visual

together with all other matters raised at the Inquiry or in writing. I refer in particular to the following matters.

Landscape

44. The site lies outside and to the north east of the North Pennines AONB and outside and to the south west of the Green Belt. The former local Area of High Landscape Value designation referred to in some representations is no longer in effect and is therefore not material to the determination of this appeal. Extensive consideration has been given to landscape impact in: the Arup Report; the Environmental Statement (ES) including the Landscape and Visual Impact Assessment (LVIA); the audit of the ES for the Council by Ironside Farrar; and (most recently) the Capita Lovejoy Report for the Council which took into account the earlier studies as well as the policy context. The Arup Report highlighted the listed buildings' setting as its main concern with regard to the siting a windfarm in this part of the study area. I address this separately above as a main issue. The Capita Lovejoy Report concluded amongst other things that the windfarm was 'under assessed' within the ES but would be well located and largely compliant with the planning policy context, except for the same issue of the setting of the listed buildings.

45. In the light of planning policy and the 'limited effects' of the development, the Capita Lovejoy Report concluded that there were insufficient grounds to contest the issue of the setting of the AONB. However, as the effects on the AONB might extend further than originally concluded in the ES and because of concerns of the AONB officer, I visited more distant locations within the AONB including the Dead Friars Quarry viewpoint recommended by that officer. The dominant AONB landscape in that vicinity is of a remote wild upland. However I judged that the windfarm would appear very small at such distances and clearly located within a different and more managed agricultural landscape. Thus it would not have a significant adverse effect on the landscape character and setting of the AONB.

46. The windfarm would obviously have a greater impact on closer views. However this is a very wide landscape which is capable of accommodating some change. The windfarm would only be dominant within a relatively small area. I conclude that the general landscape impact would be acceptable subject to consideration of the harm to the setting of the listed buildings which I address above.

Equestrian

47. The network of rural lanes to the east of the A68 carries little vehicular traffic and consequently the lanes are particularly popular with horse-riders from several local equestrian establishments. They are concerned that horses may be alarmed by the turbines. There have been previous suggestions by the Appellant that an alternative bridleway route might be provided. This is not now proposed. A route suggested by some objectors would require land over which the Appellant and (in some parts) the landowner of the appeal site do not have ownership or control. Neither is there evidence of any support for the proposal from that or other landowners. It would also require changes in the status of existing footpaths which might well be objected to by other users. Consequently to apply the requested planning condition would not ensure its

provision and it is not reasonably likely that such a bridleway could be created before the date for implementation of the planning permission had expired, if at all. The imposition of a condition would thus not be reasonable and is not in my view necessary. The British Horse Society's recommended separation distances are non-statutory. The lanes near the appeal site are more likely to be used repeatedly by the same horses and riders, who would become more familiar with the turbines. Also the turbines would normally be approached from a distance, reducing the risk of sudden disturbance of the horses. Neither is there clear and substantive evidence before me of actual harm where turbines have been sited at about 100m from routes used by horses, as proposed here.

48. There is potential for conflict between construction activities and recreational use of nearby lanes by horse-riders, walkers and cyclists. I therefore accept that a variation of the permitted construction hours is appropriate to reduce such conflicts. This would exclude all construction activities on Saturdays as well as on Sundays and Public Holidays. However I do not consider it reasonable to also shorten the permitted hours between Monday and Friday, having regard to other constraints such as traffic conditions and the technical requirements of concrete pouring as well as the consequent lengthening of the construction period and the associated disruption. Specific measures to mitigate the impact of traffic can be considered as part of a traffic management plan which can be required by condition.

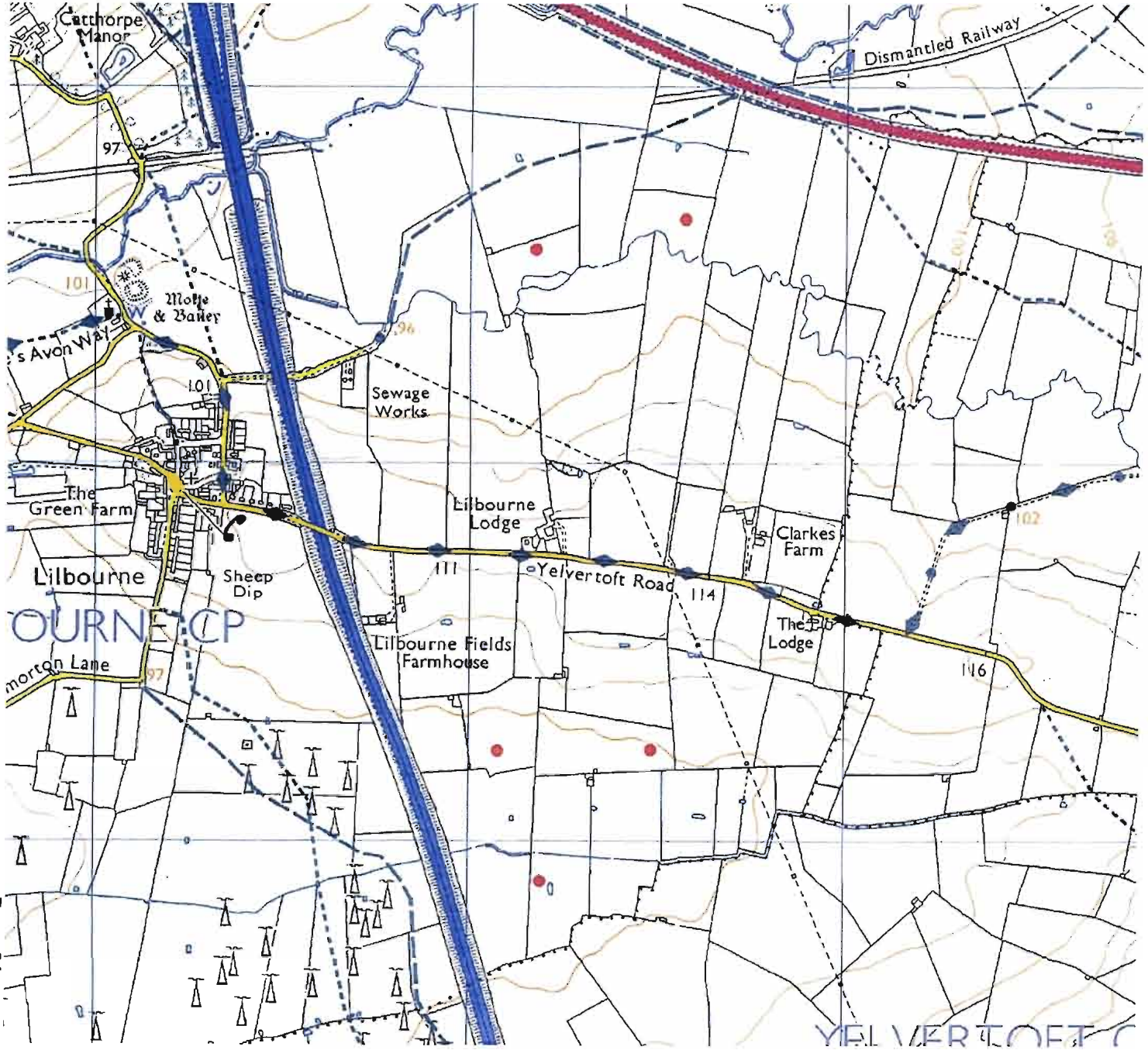
Access

49. The principal access route during construction would be the C263 which connects the A68 to the site through the hamlet of Unthank. Works are proposed to widen the junction with the A68 to accommodate longer vehicles and to make other alterations to the lane including the provision of passing places. The lane is relatively straight and is wider than some other lanes in the area. There is no more obviously suitable route. A traffic management plan can be required by a condition which can require prior local consultation before it is submitted for approval. That is the best means for addressing local safety and other traffic concerns. Details of the highway works can also be reserved by condition but would in any event require the approval of the highway authority where the works are to take place within the highway including highway verges. There is no safety objection from the highway authorities and a lack of evidence to support the views of some objectors that the windfarm would materially distract or otherwise add to existing hazards for users of the A68.

Wildlife

50. A number of wildlife issues are addressed in the ES. Particular concerns were raised by the County Ecologist, Natural England and others, mainly in relation to birds and protected species. However, Natural England has confirmed in an email dated 10 April 2008 that they do not consider that there would be a significant effect on a nearby Special Protection Area and thus an 'Appropriate Assessment' is not required under habitat regulations.

51. The Appellant has agreed to the Council's reasonable suggestion that further protected species surveys and associated mitigation may be necessary before



REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Lilbourne

LilbourneTurbine Location (Consented Coordinates)

TURBINE DATA:

Number of turbines:	5
Hub height:	80m
Blade tip height:	125m

0m 250m 500m

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	CD	A4	1:15,000		

PI Supplementary Work

The Planning Inspectorate

Appeal Decision

Inquiry commenced on 1 May 2012
Site visit made on 10 May 2012

by Graham Dudley BA (Hons) Arch Dip Cons AA RIBA FRICS

an Inspector appointed by the Secretary of State for Communities and Local Government

Decision date: 6 July 2012

Appeal Ref: APP/Y2810/A/11/2164759
Lilbourne Fields, Lilbourne, Nr Rugby CV23 0SV

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a refusal to grant planning permission.
- The appeal is made by Mr W Mollett (Hemex LLP) against the decision of Daventry District Council.
- The application Ref DA/2009/0731, dated 16 September 2009, was refused by notice dated 12 October 2011.
- The development proposed is a wind farm located north and south of Lilbourne Lodge, comprising eight wind turbine generators up to 125m high, access tracks, including access off public highways, a control and maintenance building, crane hard-standings, cable trenches, anemometer mast up to 80m high (for a period of 25 years) and a temporary construction compound.

Procedural Matters

1. The Inquiry was held on 1 - 4 and 8 - 11 May 2012.

2. The application was originally made for 8 turbines, but the proposal subsequently changed to 6 turbines. An Environmental Statement [ES] was submitted with the application and further information added in relation to the removal of Turbine 1, prior to the inquiry. The environmental information meets the statutory requirements. Therefore, the development has also been considered without Turbine 1, on the basis that if it was found to cause unacceptable harm the development could proceed with 5 turbines. These five turbines are capable of being physically and functionally independent, and there would be no injustice caused by my issuing a split decision, with the parties being aware of the potential for this from the date of the pre inquiry meeting.

3. At the Pre Inquiry Meeting a request was made by a Rule 6 party to have blimps flown at the time of the site visit. While this was not essential in terms of coming to a decision on the proposal, it was beneficial in readily identifying location in a wide landscape. Two were erected and their height and location noted from various locations. It was necessary because of strong winds to take the blimps down during the course of the day as one became unattached, but by that time the purpose of flying them had been achieved.

Decision

4. The appeal is allowed insofar as it relates to a wind farm located north and south of Lilbourne Lodge, comprising 5 wind turbine generators (Turbines 3, 4, 5, 6 and 7) up to 125m high, access tracks, including access off public

highways, a control and maintenance building, crane hard-standings, cable trenches, anemometer mast up to 80m high (for a period of 25 years) and a temporary construction compound. The appeal is dismissed insofar as it relates to Turbine 1 and associated infrastructure. Planning permission is therefore granted for a wind farm located north and south of Lilbourne Lodge, comprising 5 wind turbine generators (Turbines 3, 4, 5, 6 and 7) up to 125m high, access tracks, including access off public highways, a control and maintenance building, crane hard-standings, cable trenches, anemometer mast up to 80m high (for a period of 25 years) and a temporary construction compound at Lilbourne Fields, Lilbourne, Nr Rugby CV23 0SV in accordance with the terms of the application, Ref DA/2009/0731, dated 16 September 2009 so far as relevant to that part of the development hereby permitted and subject to the conditions in annexe 1.

Main Issues

5. The main issues are:

- Whether the proposal provides benefit in terms of energy policy.
- The effect on nearby heritage assets.
- The effect on the character and appearance of the surrounding area.
- The effect on the living conditions of neighbouring occupiers, particularly, in respect of visual impact, shadow flicker, noise and disturbance.
- The effect on highway safety, particularly the M1, A14 and Bridleway EX7.

Reasons

Energy Policy and Development Plan

6. National and local planning policy gives support for onshore wind energy playing a part in meeting the need for renewable energy supply. The Coalition Government in its Programme for Government identified its belief that climate change is one of the gravest threats we face and that urgent action, at home and abroad, is required. It notes that the Coalition will seek to increase the target for energy from renewable sources, subject to the advice of the Climate Change Committee. The development plan includes the East Midlands Regional Plan 2009 [RSS] and the saved policies in the Daventry District Local Plan 1997 [LP]. The council noted at the inquiry that considerable weight should still be attached to the RSS, and I agree, but in light of the potential abolition, I have also considered whether abolition would have any material effect on the outcome in this situation. The National Planning Policy Framework [the Framework] is also a material consideration and aims to strengthen local decision making and reinforce the importance of up to date development plans, which retain the weight given to them by Section 38(6) of the Town and Country Planning Act, in the first year, even where there might be a limited degree of conflict with the Framework. Also relevant is the emerging West Northamptonshire Joint Core Strategy – Pre Submission [CS], to which I attach moderate weight.

7. Regional Policy 40 identifies regional priorities for low carbon energy generation and notes that local planning authorities should develop policies and proposals to achieve the indicative regional targets for renewable energy set out in its

to the M1 as being a particularly busy and dangerous stretch of the motorway and the location of many accidents, recorded and unrecorded. I accept that this is the case, but it would also be readily apparent to the professionals considering the proposal, particularly as identified by the LPC, that there are schemes being produced to improve the junction. However, it is plain that this matter was considered, and the appellant produced a document showing the progressive views from the motorway leading to the bend at the junction, prepared for the application.

74. While I accept that at busy times other traffic could block views, the nature of movement of traffic would mean that the interruption would not be continuous. I also accept that bridges and some trees and hedging in the topography would interrupt views of the surrounding countryside. However, it is evident from driving along the road, and the visualisations prepared by the appellant, that even without Turbine 1 and the others previously removed, there would be a reasonable period to 'acclimatise' to the presence of the turbines and that in this situation I do not consider there would be a sudden and distracting appearance of a turbine or turbines likely to result in an unacceptable risk to highway safety.

75. Similarly, traffic turning off along the A14 is likely to have had some view of the turbine on the roads approaching the junction. In addition, traffic leaving the last roundabout of the junction would be likely to be accelerating away from a relatively low speed and beyond this roundabout there are no significant or unusual matters that would require special attention. I consider that the views of the turbines would not cause an unacceptable distraction to drivers on the A14.

76. The LPC and Lilbourne Against Wind Farm [LAW], together with other interested parties, expressed safety concerns about the proximity of the turbines to roads and other rights of way. LPC acknowledged that separation accords with highway guidance. I accept that there have been incidences where blades have been cast off, sometimes at some distance, and ice throw and shadow throw can also occur, but taking account of the risk of such incidents occurring I consider that the spacing of the turbines from roads is reasonable.

77. The British Horse Society advice in relation to wind turbines is that there should be a separation distance of about 200m from bridleways. This would not be provided between Turbine 1 and bridleway EX7. However, to mitigate this situation the appellant has submitted an obligation to provide an alternative route for EX7 that would be more than 200m from Turbine 1 and Turbine 3. This is indicated as a logical straight route between two points on the existing bridleway and would give the separation distances required to Turbine 1 and Turbine 3. The existing bridleway would remain available to those that wished to continue to use it. I consider that the Section 106 agreement would provide a reasonable and safe alternative and would overcome the potential harm in relation to the proximity of the turbine to the right of way, and on the basis of Turbine 1 being constructed would be necessary.

78. I have taken into consideration the turbine manufacturer's advice to operators and technicians that they should not stay within a radius of 400m of a turbine, unless it is necessary. However, in terms of risk assessment and appropriate advice and actions there is a substantial difference between people that might be working for long periods in a particular location and those passing by relatively quickly. The advice does not say that it is unsafe to go within this

be used. Given the nature of the noise assessment I do not consider that this would be unreasonable.

93. I do not consider it necessary to have a separate condition relating to road condition surveys, as this is a matter that would properly be considered in the construction management plan. I also do not consider it necessary to have a condition relating to the permissive path, as this is the subject of part of the Agreement, and in any case is not necessary without Turbine 1.

94. The appellant requested that should Turbine 1 be found to cause unacceptable harm, it should be removed from the application/permission, which I have done by splitting the decision.

95. A condition was suggested to require additional screening throughout the parish. This would involve land outside the appellant's control. In any case, I have found the proposal to be acceptable in terms of the current situation and therefore a condition to this effect is unnecessary.

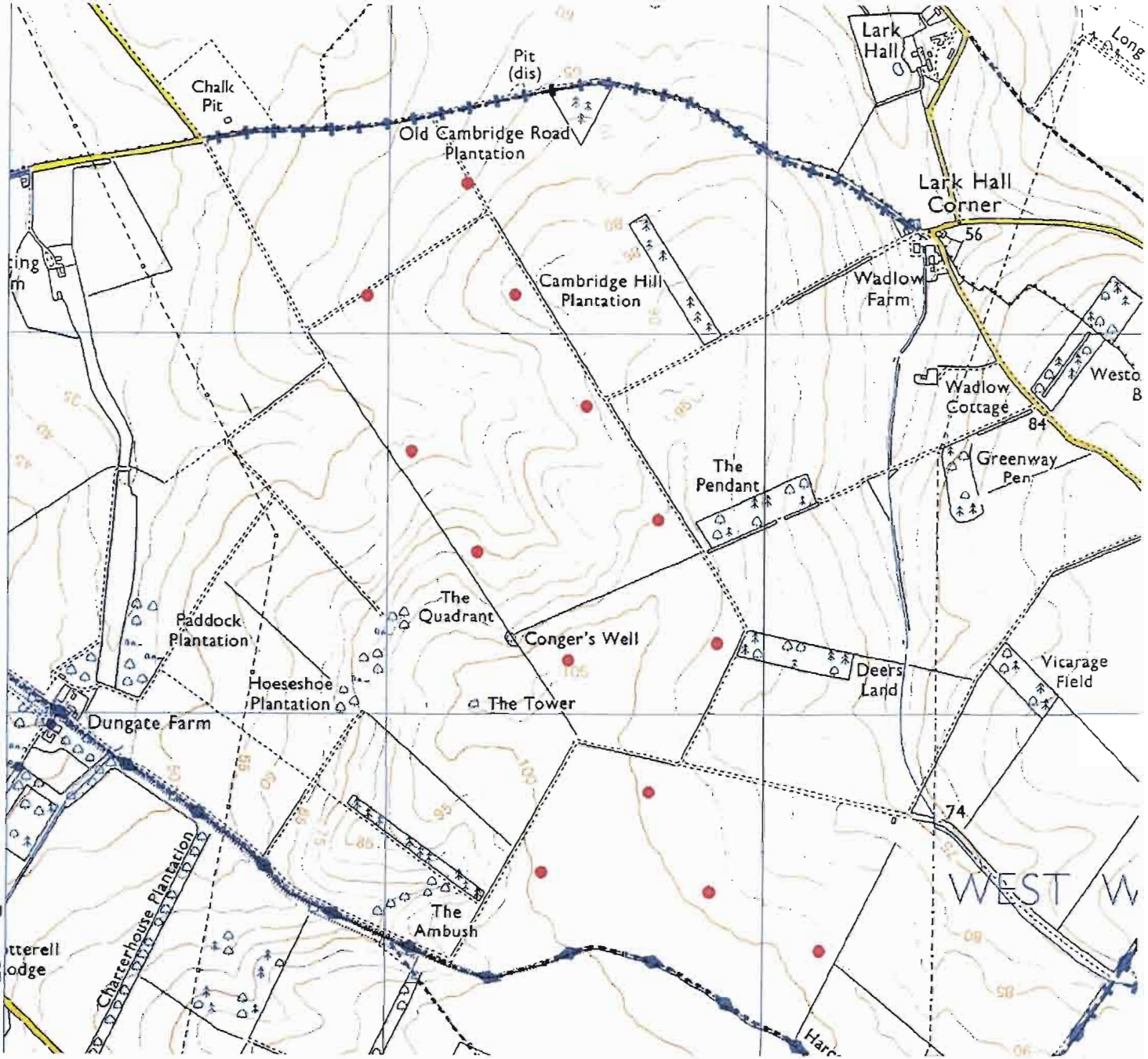
96. Conditions were also suggested requiring compensation/community funds to be made available. Conditions requiring monetary payments would be unreasonable and I have not found that the harm that would result would be significant and therefore what is proposed would not be reasonably related to the development.

97. A signed and dated agreement was submitted at the inquiry which relates to a decommissioning bond for the removal of the turbines, provision of an alternative permissive route for Bridleway EX7 and provision and implementation of a habitat creation and management plan. I am satisfied that the agreement is necessary to make the development acceptable in planning terms and fairly reasonably relates to the scale and kind of the development proposed and I attach considerable weight to it. However, the need for the permissive route would fall away without Turbine 1.

Overall conclusion and balance

98. The developer has carefully considered the proposal as demonstrated through the environmental statement, and has reduced the scale of the initial proposal to 6 turbines on the basis, amongst other things, of the proximity to Lilbourne and district and the bridleway. The development plan, particularly in the form of the RSS, places weight on the need for renewable energy. I have taken account of the possible changes to the development plan, but the draft Core Strategy and the Framework still demonstrate the substantial weight that should be attached to the proposed development and the benefits that it would provide, even with five turbines.

99. I have not found harm in relation to Stanford Hall and its surroundings, but I have found significant harm in relation to the effect that Turbine 1 would have in relation to Lilbourne Motte & Bailey castle and All Saints Church, Lilbourne; their setting would not be preserved. This is less than substantial harm in terms of The Framework, but must still be weighed against the public benefits of the proposal in line with RSS Policy 26 and the Framework. In this case, on balance, taking into consideration the 25 year life of the proposal, conditions and agreement, I consider that the harm of Turbine 1 is of such consequence that even with the public benefits of the development, the proposal should not be allowed to proceed with Turbine 1 in place and it would not preserve the setting of the heritage assets.



REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Wadlow

Wadlow Turbine Location (Consented Coordinates)

TURBINE DATA:

Number of turbines:	13
Hub height:	80m
Blade tip height:	120m

0m 250m 500m

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	CD	A4	1:15,000		

PI Supplementary Work

Report to the Secretary of State for Communities and Local Government

The Planning Inspectorate
Temple Quay House
2 The Square
Temple Quay
Bristol BS1 6PN
☎ GTN 1371 8000

by Mr D Lavender MRTPI

an Inspector appointed by the Secretary of State for Communities and Local Government

Date 26 August 2009

TOWN AND COUNTRY PLANNING ACT 1990

APPEAL BY RES DEVELOPMENTS LTD

AGAINST

THE DECISION OF THE SOUTH CAMBRIDGESHIRE DISTRICT COUNCIL

TO REFUSE PLANNING PERMISSION FOR

THIRTEEN THREE BLADED, HORIZONTAL AXIS WIND TURBINES, ELECTRICITY TRANSFORMERS, ACCESS TRACKS, CRANE HARDSTANDINGS, CONTROL BUILDING, SUBSTATION, PERMANENT ANEMOMETER MAST, HIGHWAY MODIFICATIONS, TEMPORARY CONSTRUCTION COMPOUND AND TWO TEMPORARY ANEMOMETER MASTS

AT

WADLOW FARM, SIX MILE BOTTOM ROAD, WEST WRATTING, CAMBRIDGESHIRE

Inquiry held on 9 June -12 June 2009, 16 June - 19 June 2009 and 7 July 2009
Site inspection conducted on 8 July 2009

File Ref: APP/W0530/A/07/2059471

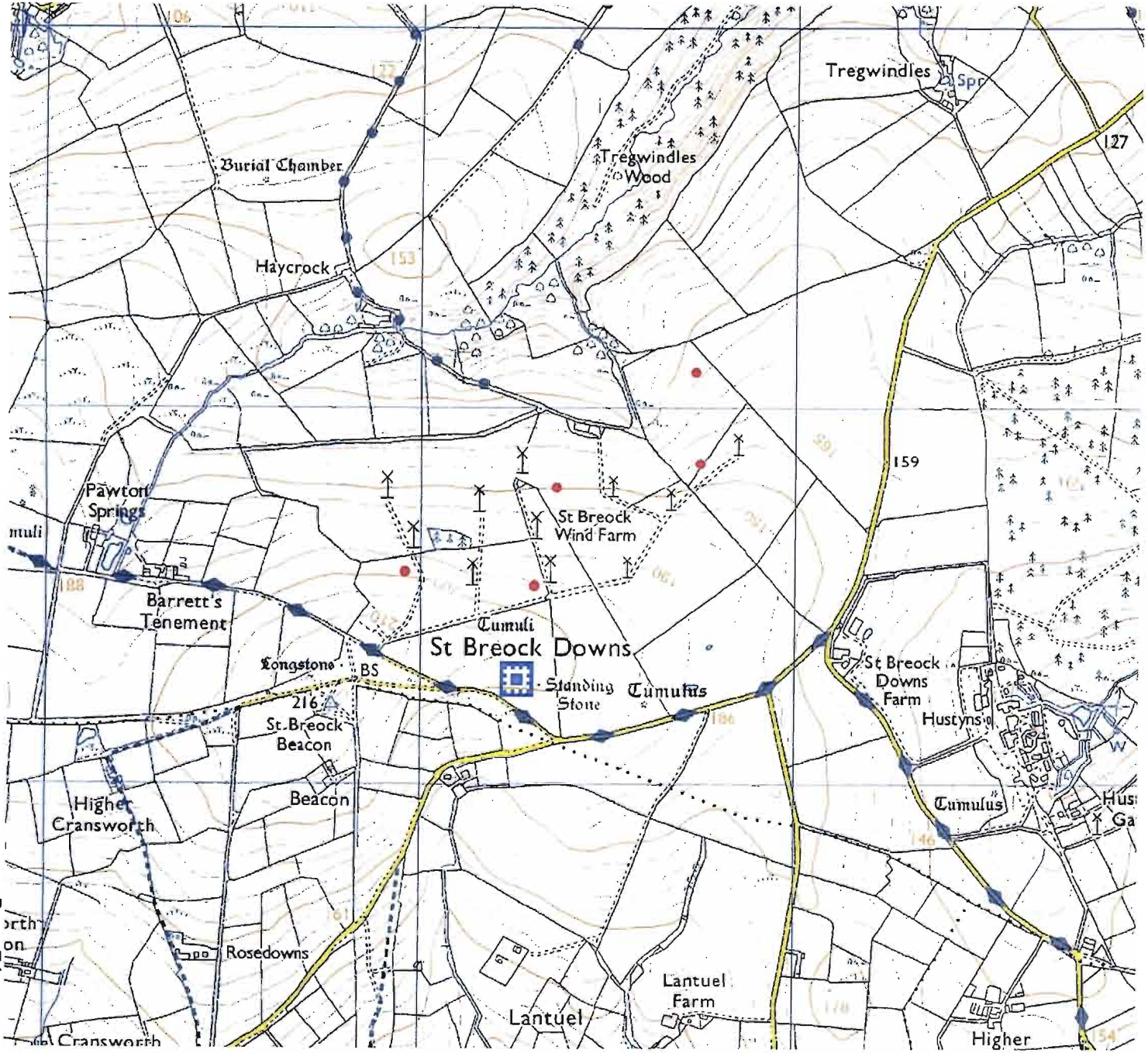
neither a viewing platform or visitor centre. Concerns about the substandard layout of the Great Wilbraham junction or any other road safety issue have not been voiced by either the police or the Highways Agency. Although the County Highway Authority has expressed some reservations *[9.129, 10.26]* these relate to matters of clarification particularly with regard to ensuring developer funding of off-site road works and that necessary Agreements are in place for works to public highways. To the extent necessary under planning rather than Highways Act powers, such matters can be suitably dealt with by condition *[11.6]*. The need for any future improvement of the Great Wilbraham junction to accommodate traffic serving additional CamGrain silos is not a matter that falls to consideration in connection with the present appeal. I therefore find no reason to depart from the Companion Guide's advice on highway matters.

Safety concerns arising from proximity of turbines to riding routes and public rights of way [6.1, 8.65, 9.125-9.127, 10.11, 10.27]

12.86 Advice in Technical Annex 8 of the Companion Guide to PPS22 on this matter (at paragraphs 49-51 and 53, 56 and 57) is that the 200 m exclusion zone around bridle paths to avoid wind turbines frightening horses could be deemed desirable but is not a statutory requirement and thus negotiable, while fall-over distance (in this case 120 m) is often considered an acceptable distance for separation from public rights of way, with a minimum that blades should not oversail such routes (in this case equivalent to about 40 m). The advice adds that an often used safe separation distance from open areas used by the public where blade detachment might be a concern is fall-over distance plus 10% (132m).

12.87 Although there was some debate over the British Horse Society's current advice, it was accepted by SWWFC in cross-examination that the Council had been correct in asserting that this did not depart from the 200 m distance specified in the Companion Guide *[9.125]*. The Society's report of a survey of horse riders' accidents involving wind farms can only be treated as anecdotal *[9.126]*.

12.88 The nearest turbines to the various recreational routes are T1, which is shown in the application site layout plan to stand 200m from Old Cambridge Road (a byway open to all traffic) and T10 which would stand about 100m from one of the "private loop routes" used by local riders *[8.65, 10.11]*. The British Horse Society has been consulted on this proposal and, apart from referring to its position on minimum separation distance has not objected to the proposal *[9.125]*. A planning condition can be formulated to avoid the turbine positioning migrating any closer to these routes through "micro-siting" adjustments *[11.10]*. I saw that the approach route to turbine T10 would be across relatively open land and since only local riders use this route the presence of the turbine would not be unexpected. It is also only a very short part of a loop that could easily be avoided if inexperienced riders are present or if the timing of the ride and weather conditions combine to create conditions in which turbine noise or shadow throw could be problematic. It is clear from the representations that horse riding is inherently a potentially hazardous recreational activity *[10.11 and 10.12]*, and to my mind the presence of turbines would not, in this case, make it significantly more so.



REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

St Breock Wind Farm

KEY

Wind Turbine Location
(Re-powering Coordinates)

TURBINE DATA:

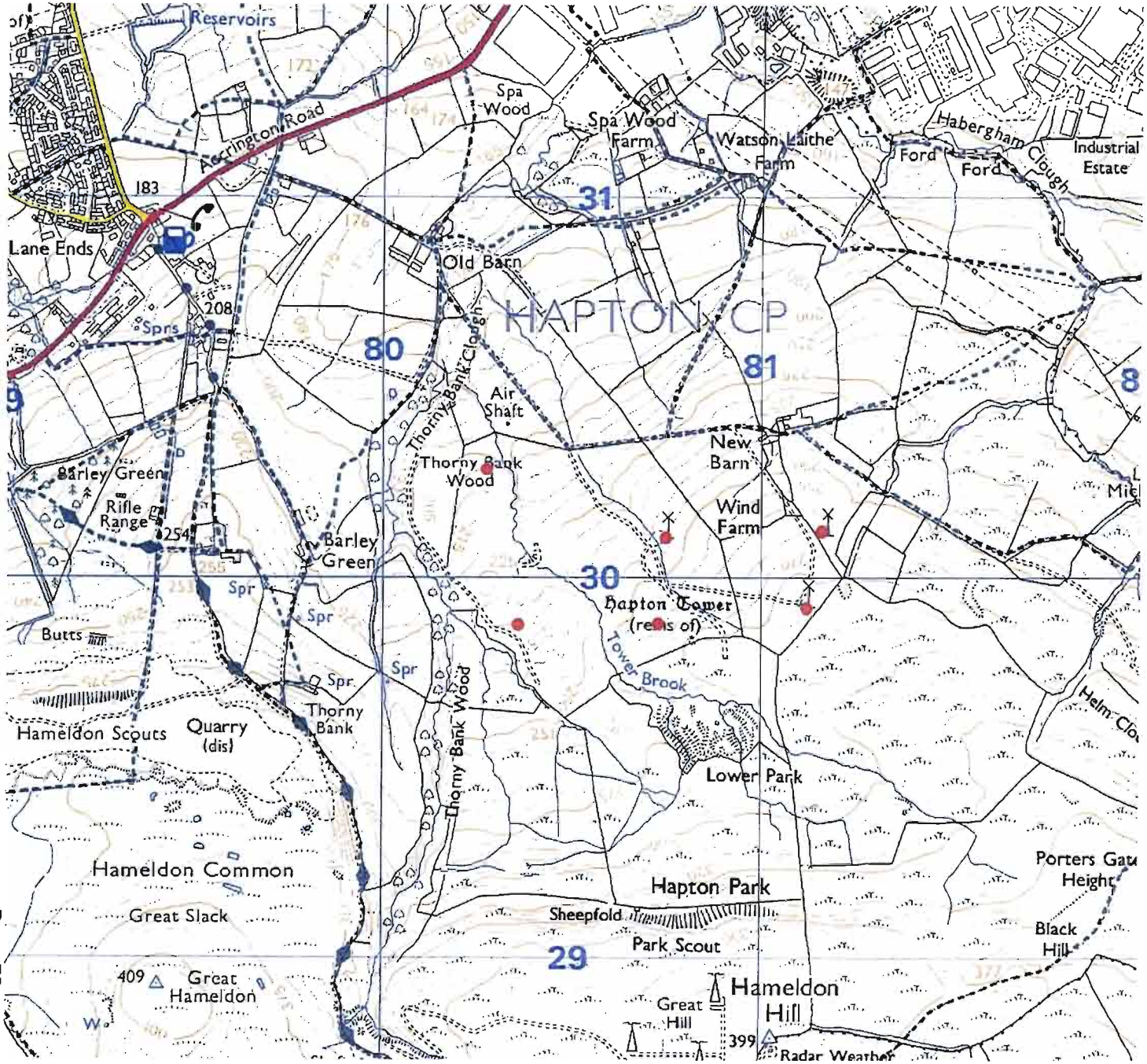
Number of turbines:	5
Hub height:	59m
Blade tip height:	100m

0 250 500m

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	EC	A4	1:15 000		

PI Supplementary Work EC170613



STEPHENSON HALLIDAY

REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Hameldon Hill

Hameldon Hill and Extension Turbine Location
(3no. As Built Coordinates and 3no. Consented Coordinates)

TURBINE DATA:

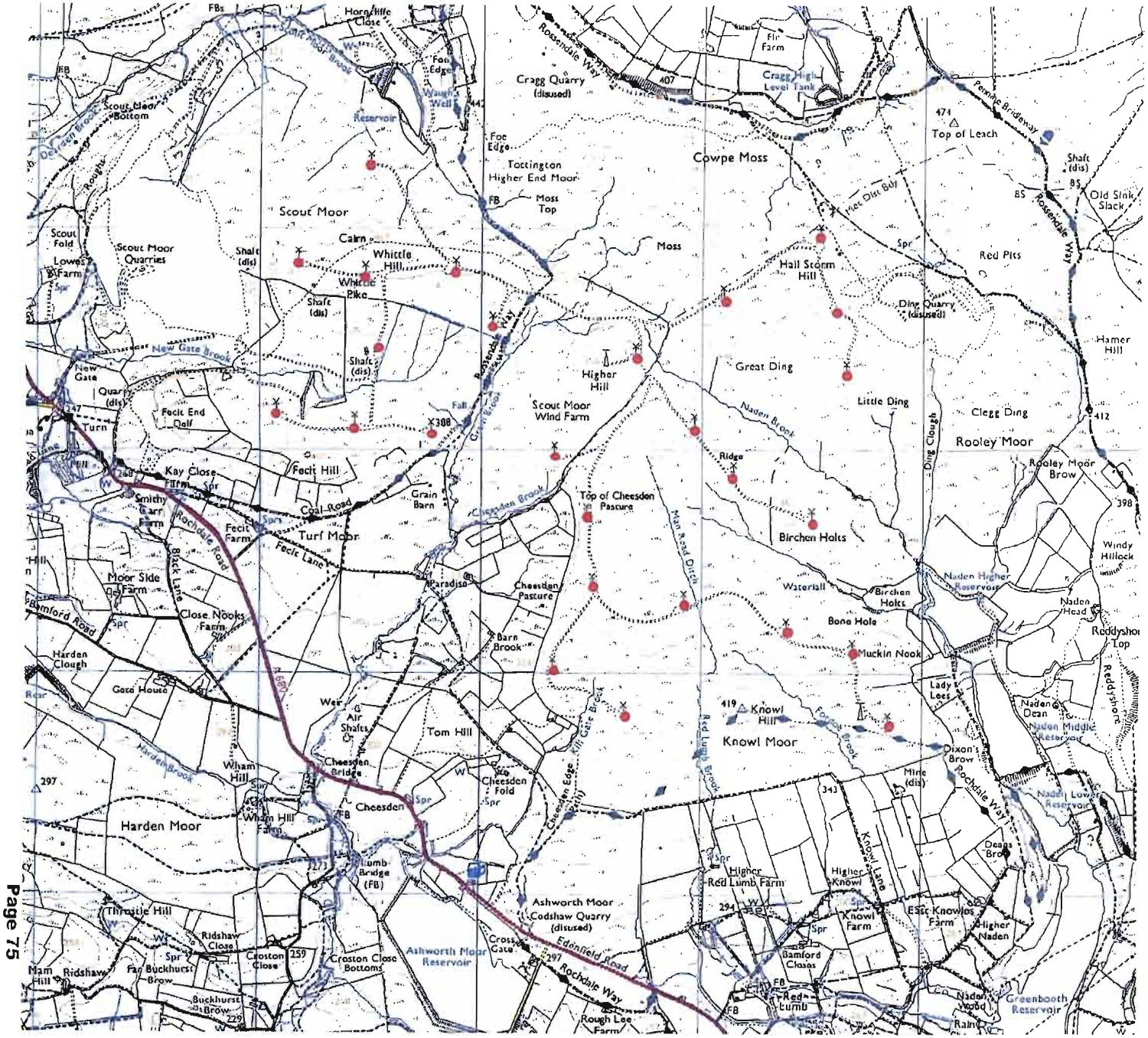
Hameldon Hill	
Number of turbines:	3
Hub height:	55m
Blade tip height:	90m
Extension	
Number of turbines:	3
Hub height:	69m
Blade tip height:	110m

0m 250m 500m

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	CD	A4	1:15,000		

PI Supplementary Work



STEPHENSON HALLIDAY

REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Scout Moor Wind Farm

KEY

Wind Turbine Location (Consented Coordinates)

TURBINE DATA:

Number of turbines:	26
Hub height:	60m
Blade tip height:	100m

0 500m 1km

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	EC	A4	1:25 000		

PI Supplementary Work EC170613

Report to the Secretaries of State for Trade and Industry; and for Environment, Food and Rural Affairs

ıe Planning Inspectorate
ɜmple Quay House
The Square
ɜmple Quay
ristol BS1 6PN
ɛ GTN 1371 8000

by Keith P Durrant

MA BArch[Hons] RIBA ARIAS MRTPI FRSA

an Inspector appointed by the Secretary of State for Trade and Industry, with the agreement of the Secretary of State for Environment, Food and Rural Affairs

ate: 11 April 2005

Scout Moor Wind Farm

Application by Scout Moor Wind Farm Limited for consent to construct and operate a wind turbine generation station under Section 36 of the Electricity Act 1989

Applications by United Utilities Water plc, Mr J J Dearden and Peel Investment (North) Limited for exchanges of land under the provisions of Section 147 of the Inclosure Act 1845

Concurrent Inquiries opened on 23 November 2004

moors to and from the Rossendale valley, their presence will be significant. The site is, however, a visually self-contained landscape, with interconnecting views to urban areas. In scale and form, I conclude that the wider landscape is capable of absorbing visually the change, however many who live locally have made it clear that they dislike the prospect (but others say they would welcome it). It is also of weight that there would be no significant cumulative impact with other wind farms, existing or with consent.

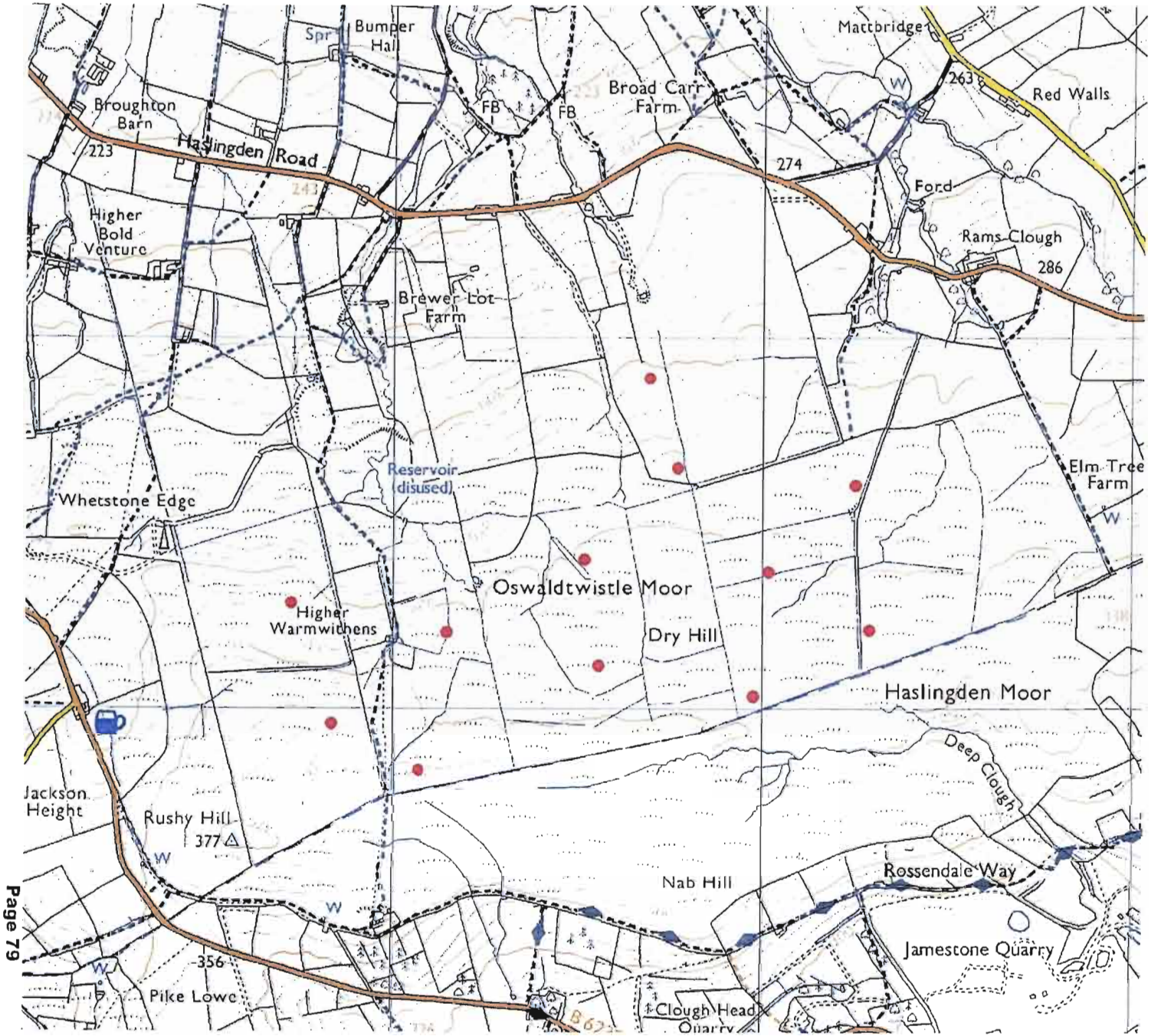
263. As was clear from the evidence and representations, an important component of the local ***recreational landscape experience*** [38 to 46; 124 to 128; 159 to 164] is derived from the ability to walk or ride horses on the common land, including on longer distance paths or bridleways such as the Rossendale Way or on Rooley Moor Road or on the Mary Towneley Loop of the Pennine Bridleway. Having walked the moors, I can fully appreciate the pleasure many now get from the experience – and I have no doubt that it is enjoyed by more people than the applicants' sought to suggest.

264. Physically, the moors will still be able to be accessed by foot or by horse right up to the turbine bases – and in a small way, will gain additional accessibility from the exchange land proposed in the S.147 applications. Distances from the turbines for the bridleways meet the British Horse Society's standards and on the open common, due care can reasonably be expected of riders. For the less agile, the unfenced tracks linking the turbines may also increase accessibility and make the moors more inclusive. For those who presently appreciate the emptiness of the plateau, that pleasure will however be lost. For those on long distance walks or rides, they will have a different experience, but not one I judge that would necessarily be such as to stop them using the southern Pennines for recreation, given the variety of landscapes across the wider area that are traversed by the long distance trails.

265. For other sports and activities including running and paragliding, the choice will remain to either accept the change or use another part of the moors. That may be seem a harsh choice, but on the evidence the Scout and Knowl Moors area is not of such regional significance that those activities have to take place on this site. For those who value the peacefulness of the open moor, the noise climate of turning turbines is, on the evidence, not so harmful that walking, running or riding amongst them is a significant deterrent to many people if the total recreational or sporting experience is still beneficial to them - but different to what is now the case.

266. The enjoyment of the moors has links to its ***wildlife and related habitats***, the impact upon which is an important material consideration [47 to 59; 129 to 134; 165 to 170]. Much of the land is covered by blanket bog, which with its special hydrological systems provides an ideal breeding environment for ground nesting birds such as dunlin and golden plover – an ecological system that is recognised as being locally important. That much is common ground amongst the parties (even allowing for a difference of opinion as to the quality and timing of the bird survey material). At issue is the likelihood of harm from the development (turbine blades and bases and the tracks especially) and the efficacy of mitigation.

267. Given the degree to which both the track design (floating on the peat with adjustment and reinstatement after temporary works) and the spacious positioning of the turbine bases would mitigate against disruption of breeding areas, and control the hydrology, I am not persuaded that, with appropriate conditions governing micro-siting [108,153, 207 & Appendix D], construction methods and timing (to avoid for example a sensible bird nesting season from March to July), any significant harm to the moorland ecology would ensue. Added to that positive conclusion is the compelling evidence of a lack of harm to birds from wind farms,



REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Hyndburn

Hyndburn Turbine Location (Consented Coordinates)

TURBINE DATA:

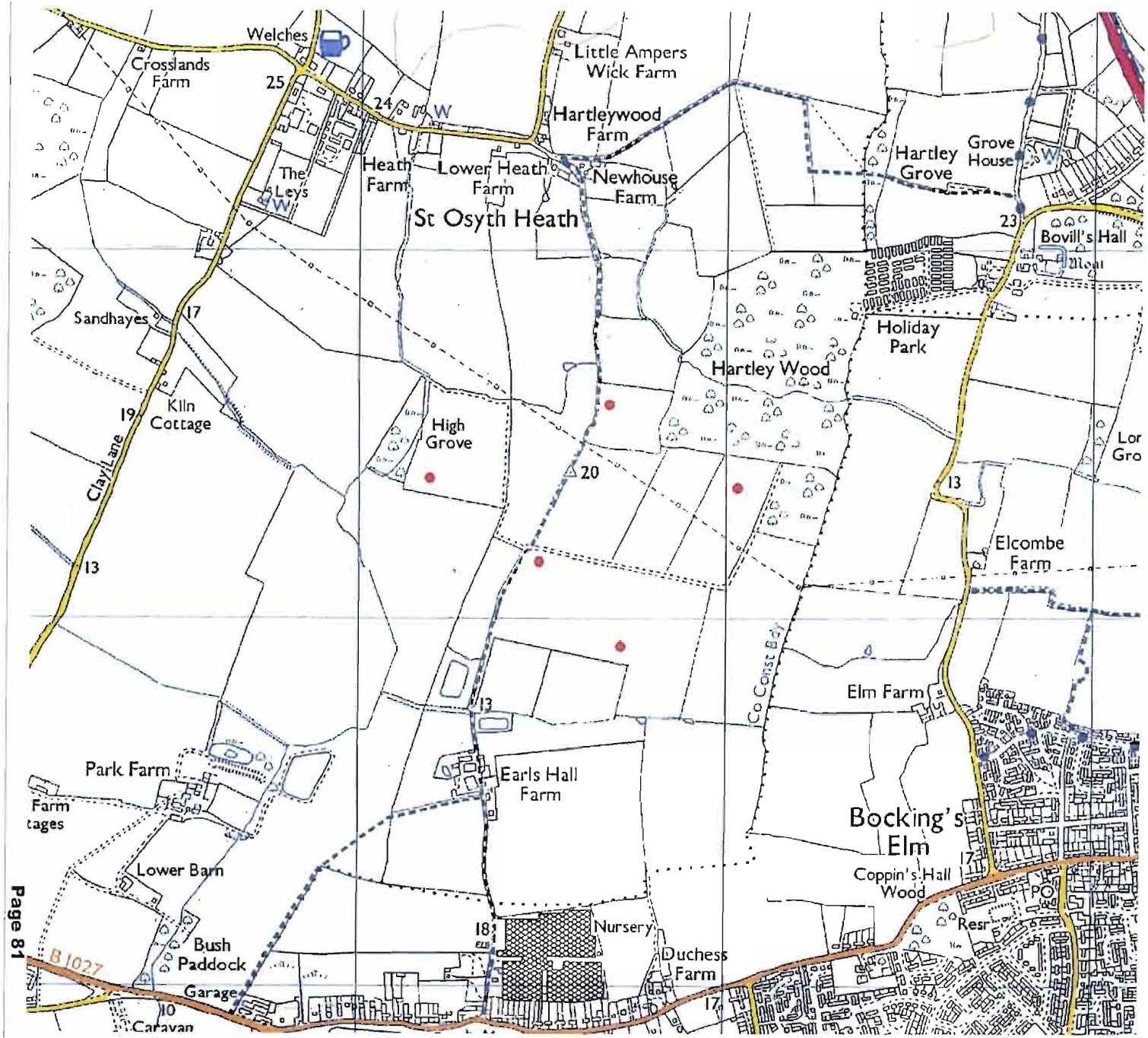
Number of turbines:	12
Hub height:	80m
Blade tip height:	122m

0m 250m 500m

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	CD	A4	1:15,000		

PI Supplementary Work



STEPHENSON HALLIDAY

REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Earls Hall Farm Wind Farm

KEY

- Wind Turbine Location (Consented Coordinates)

TURBINE DATA:

Number of turbines:	5
Hub height:	80m
Blade tip height:	122m

0 250 500m

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	EC	A4	1:15 000		

PI Supplementary Work EC170613

Appeal Decision

Inquiry opened on 29 July 2009
Site visits made on 6 & 7 August 2009

by Paul Griffiths BSc(Hons) BArch IHBC

an Inspector appointed by the Secretary of State for Communities and Local Government

The Planning Inspectorate
4/11 Eagle Wing
Temple Quay House
2 The Square
Temple Quay
Bristol BS1 6PN

☎ 0117 372 6372
email:enquiries@pins.gsi.gov.uk

Decision date:
19 November 2009

Appeal Ref: APP/P1560/A/08/2088548
Earls Hall Farm, St John's Road, Clacton-on-Sea CO16 8BP

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a refusal to grant planning permission.
- The appeal is made by Npower Renewables Ltd against the decision of Tendring District Council.
- The application Ref.07/00433/FUL, dated 13 March 2007, was refused by notice dated 27 June 2008.
- The development proposed is the construction of a wind farm comprising 5 turbines of maximum 125m to blade tip height, substation, anemometer mast, access tracks and ancillary infrastructure.

Preliminary Matters

1. The Inquiry sat on 29, 30 and 31 July and 4 and 5 August 2009.

2. I carried out a series of accompanied site visits on 6 August 2009, taking in the site itself, the footpath that passes through it, a series of dwellings in the general vicinity of the site, and Meadowview, a complex of 'park homes'.

3. On 7 August 2009, I made unaccompanied site visits to the viewpoints in the Environmental Statement (ES) and, as requested, existing wind farms at North Pickenham and Deeping St Nicholas. I also took in the sea-front at Clacton-on-Sea, Jaywick and Seawick and points in-between and noted the offshore wind farm on Gunfleet Sands, currently under construction.

4. The proposal triggered a need for an Environmental Impact Assessment (EIA) under the provisions of Statutory Instrument 1999/293. The originating application was accompanied by an ES that deals with a wide range of matters. The adequacy of the ES is not disputed and I have taken it into account in determining the appeal.

5. For the avoidance of any doubt, and as set out at the Inquiry, I have dealt with the appeal on the basis of the turbine disposition shown in Figure 5.10 – Layout Version 6 contained in Volume 2 of the ES (February 2007).

Decision

6. I allow the appeal, and grant planning permission for the construction of a wind farm comprising 5 turbines of maximum 125m to blade tip height, substation, anemometer mast, access tracks and ancillary infrastructure at Earls Hall Farm, St John's Road, Clacton-on-Sea CO16 8BP, in accordance with the terms of the application, Ref.07/00433/FUL, dated 13 March 2007, and the plans submitted with it, subject to the conditions and accompanying guidance notes set out in Annex 1 to this decision.

Main Issue

7. This whether any harm caused by the proposal in terms of the character and appearance of the landscape and surrounding area, the value of the footpath that crosses the site, and the living conditions of local residents in terms of its visual impact and potential for noise and disturbance, and other matters raised, would be outweighed by any benefits.

Reasons

The Site and the Proposal

8. The appeal site covers approximately 80 hectares of arable farmland located between 750 metres and 1 kilometre to the north-west of the edge of Clacton-on-Sea and about 1 kilometre to the north-east of St Osyth. A public footpath crosses the site.

9. The proposal comprises of five wind turbines, with a hub height of 80 metres and a maximum height to blade tip of 125 metres, and associated infrastructure including an anemometer mast, a substation and access tracks.

10. According to the Statement of Common Ground (SoCG) each turbine would have a generation capacity of around 2.3 MW so that, in total, the proposed development would have a generation capacity in the region of 11.5 MW.

The Policy Background

11. The SoCG confirms that the development plan for the area includes the East of England Plan (RSS), adopted in 2008, the saved policies of the Essex and Southend-on-Sea Replacement Structure Plan, adopted in 2001, and the Tendring District Local Plan, adopted in 2007.

12. The SoCG sets out that the most relevant policies are to be found in the Local Plan (LP). LP Policy EH13a is permissive of renewable energy projects provided that there is no material adverse impact on the local environment in relation to noise, vibration, smell, visual intrusion, residential amenity, landscape characteristics, biodiversity, cultural heritage, the water environment, the treatment of waste products and highway and access considerations.

13. LP Policy EN1 refers to landscape character and seeks to protect and where possible enhance the quality of the landscape in the district and its distinctive local character. The policy resists any development that would significantly harm landscape character or quality and specific reference is made to a series of natural and man-made features, including skylines and prominent views, the setting and character of settlements, ancient woodlands and other important woodland, hedgerows and trees and the traditional character of rural lanes and footpaths, amongst other things, that contribute to local distinctiveness and warrant conservation.

14. LP Policy QL9 relates to the design of new development and requires all new development to make a positive contribution to the quality of the local environment and to protect or enhance local character. New buildings and structures are expected to be well designed, relate well to the site and surroundings in terms of siting, height, scale, form, design and materials, and respect views and skylines.

21. In Planning for Renewable Energy: A Companion Guide to PPS22, paragraph 47 of the Technical Annex: Wind (Companion Guide to PPS22) notes that *modern wind turbines are large structures.....and inevitably will have an impact on the landscape and the visual environment*. The scheme before me would involve 5 turbines, up to 125 metres in height. My visits to the operational wind farms at North Pickenham and Deeping St Nicholas impressed upon me the sheer scale of wind turbines, the nature of their impact on the landscape, and the manner in which the movement of the blades attracts the eye.

22. The landscape evidence put forward on behalf of the appellant accepts that the proposal would exert a characterising influence over the landscape to the effect that there would be a conversion from a landscape without wind farm development to a wind farm landscape in the immediate context of the site – adjudged to be within and perhaps up to 700 metres or thereabouts from the proposed turbines. I agree with that assessment and as a consequence conclude that the intrinsic character of the landscape in the immediate context of the site would be fundamentally changed.

23. In simple, objective terms, it seems to me that an intervention that leads to this magnitude of change cannot be deemed protective of the intrinsic character and beauty of the countryside affected, or the diversity of the local landscapes. Bearing in mind the key principle of PPS7 referred to, I consider that the proposal must therefore be harmful to the character and appearance of the landscape in the immediate context of the appeal site.

24. Having said that, it is clear to me that the degree of harm that would be caused is subject to a range of mitigating factors.

25. First of all, in general terms both LCA 7B and LCA 8B exhibit clear signs of human influence on the landscape. In the immediate context of the appeal site, this is manifest in relatively intensive agriculture, vertical structures such as the electricity pylons crossing the site, and the easily discernible presence of the urban fringe of Clacton-on-Sea and outlying settlements nearby. When on and around the appeal site, I experienced little sense of remoteness.

26. Clearly, at close range, a view that would be available to users of the public footpath that crosses the site, and in the immediate vicinity of the appeal site, the impact of the wind turbines and the associated infrastructure would be at its most extreme. However, in a landscape so heavily influenced by human activity, I do not accept that the wind farm would appear altogether alien.

27. Similarly, LCA 7B is described in the TLCA as exposed and windswept. It seems to me that there would be significant resonance between a scheme designed to harvest the power of the wind and a landscape that is, at least in part, characterised by it. In that context, an intervention on the appeal site, even of the scale proposed, would have a certain functional logic and would not, therefore appear wholly incongruous.

28. Moreover, it seems to me that the impact of the proposal would reduce significantly with distance. The generally flat topography, the great sense of space, and the resulting prominence of the sky would aid in the process of assimilation. On the basis of what I saw during my site visits, this effect would be apparent from all of the viewpoints identified in the ES, and the surrounding area in general, beyond the immediate context of the site.

34. Overall, like almost any wind farm proposal, I believe that the scheme would cause a degree of harm to the character and appearance of the appeal site itself and the landscape in the immediate vicinity, but this impact would reduce with distance. Moreover, the nature of that landscape, and other factors, would offer a considerable degree of mitigation. There would be no undue cumulative impact. Overall, therefore, I consider that the impact on the landscape would not be significantly harmful.

35. The proposal would not, therefore, fall contrary to LP Policy EN1 or, bearing in mind the agreed interpretation, LP Policy EN13a. Neither would there be any significant variance from LP Policy QL9.

Recreational Impact

36. I heard that the public footpath running through the appeal site is well used though sometimes impassable. Clearly, users of the footpath would be acutely aware of the proposed turbines and the associated infrastructure and, close-up, the turbines in particular would be a massive presence.

37. To an extent, I take the point made on behalf of the appellant that users of the footpath, whether casual or regular, would have a range of responses to the presence of the wind farm. Some might well find it exhilarating and use the footpath as a consequence; others might desist from using the footpath altogether because of its presence.

38. However, leaving those emotional responses to one side, and having walked the footpath in both directions, it is clear to me that as a recreational experience the footpath is characterised by a series of events. There are houses, a nursery, and farm buildings at the southern end, the open landscape in the middle, with wide views of the arable fields, the sky and nearby woodlands, and the more intimate, northern end, where hedgerows and trees provide significant enclosure. It seems to me that the presence of the wind farm would provide another event within that series and one that in landscape impact terms would not be significantly harmful.

39. On that basis, I do not consider that the proposal would detract significantly from the value of the footpath in a functional or recreational sense. Similarly, walkers, cyclists, horse-riders, and drivers who might use the area around the appeal site more generally for recreation would clearly be aware of the wind farm, but given the limited degree of landscape harm it would cause, I do not consider that its presence would devalue their experience to any significant extent. In these terms the proposal complies with LP Policy EN1 and the agreed interpretation of LP Policy EN13a.

Living Conditions

40. STAPLE put forward evidence that about 317 dwellings (including the park-homes at Meadowview) would lie within 1 kilometre of a wind turbine and 167 within 800 metres suggesting that some developers would not countenance a wind farm in such close proximity. Some guidelines were produced to underline that. Moreover, STAPLE expressed the view that there is no operational cluster of large-scale wind turbines set so close to dense housing as that proposed. To counter those arguments, the appellant provided details of existing and approved wind farms with dwellings in similar proximity.

69. Initially, the Council raised concern about the impact on Clacton Airstrip, about 3 kilometres from the appeal site. However, this objection was withdrawn prior to the Inquiry and not explored further. The ES concludes that there would be no difficulty. I have no convincing evidence before me that might lead to a different conclusion. On this basis, I am content that the proposal complies with LP Policy CL21 that takes account of any impact upon light aircraft flying operations from the airfield in dealing with development proposals.

70. Concerns have also been raised about health and safety. In terms of icing, any difficulty could be dealt with by vibration sensors that, as set out in the Companion Guide to PPS22, are standard on most wind turbines. This can be addressed through a condition.

71. Some have also raised reservations in terms of turbine collapse or the loss of a turbine blade or blades. However, as set out in the Companion Guide to PPS22, a wind turbine erected in accordance with best engineering practice should be a stable structure.

72. I accept that there may be some issues in relation to fall over distance and the footpath but I do not consider that this should weigh significantly against the proposal. To my mind, a condition to secure a separation distance that prevents the turbine blades oversailing the footpath offers sufficient protection.

73. Any difficulties in terms of television reception can be dealt with through the UU submitted to deal with this aspect.

The Benefits

74. STAPLE raise a number of points that bear on the potential benefits of the scheme. First of all, there is criticism of the figure of 860g of CO2 saved per kWh that has been used. It is pointed out that 430g per kWh is more widely used and has better regard to the energy mix. The Sustainable Development Commission uses 355g per kWh. However, even if these lower figures are used, the scheme would still make a substantial saving.

75. Similarly, there is criticism of the capacity factor of 29% for a 2MW turbine and 31% for a 2.3MW turbine used by the appellant in the ES. STAPLE suggest that 25% is more realistic. Clearly, use of the lower figure would affect the projected output from the scheme. However, I have little evidence to suggest that the appellant is being unduly optimistic about the capacity factor and it seems to me very unlikely that an operator would be willing to pursue and invest in a scheme that was marginal in these terms.

76. I also heard the view expressed that offshore schemes like that at Gunfleet Sands are a better way of harnessing the power of the wind and that in the context of the offshore potential, the contribution from the proposal is too small to warrant the harm it would cause. However, that argument could be applied to most onshore wind farm proposals.

77. PPS22 is very clear that offshore renewable generation projects are not covered by the land-use planning system and the potential to generate substantial amounts of renewable energy from offshore projects should not be used as a justification to set lower targets for onshore projects. I accept that this advice is given in the context of setting regional targets.

Conclusion

86. I have identified a degree of harm in terms of the character and appearance of the landscape. However, that degree of harm would not, in my view, be significant. I have reached a similar conclusion in relation to the living conditions of local residents and the recreational value of the public footpath and the surroundings. On this basis, the proposal would comply with the relevant LP policies. Moreover, the contribution the proposal would make to regional and national targets for the generation of electricity from renewable sources would represent a significant benefit that would comply with the RSS.

87. As set out, key principle 1 of PPS22 states that renewable energy developments should be capable of being accommodated throughout England in locations where the technology is viable and environmental, economic and social impacts can be addressed satisfactorily. In my view, that is the situation in this case and I consider that the positive aspects of the proposal clearly outweigh the negative aspects.

Conditions

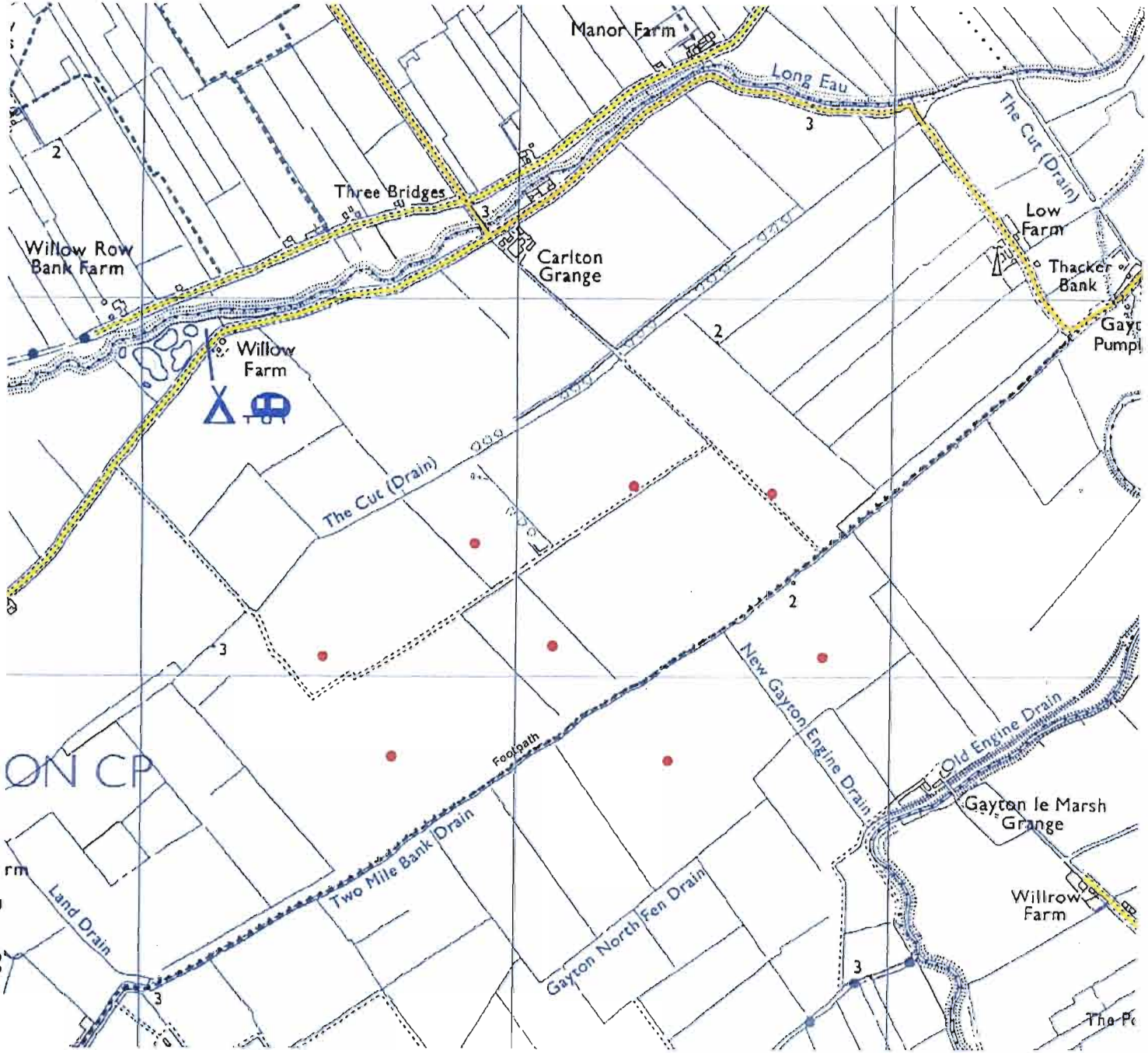
88. A series of conditions and associated guidance notes were discussed at the Inquiry. A final agreed list of conditions, agreed between the appellant and the Council, was submitted post-Inquiry. I have considered conditions in the light of advice in Circular 11/95: *The Use of Conditions in Planning Permissions.*

89. In terms of the commencement condition, I can understand the concern of the appellant that the normal three year period might be insufficient to deal with procurement and to allow all the conditions to be dealt with in time. As a consequence, I have allowed a five year period.

90. The proposal is presented in a 'temporary' form to endure for a period of twenty five years from the point when electricity is first exported. A condition is necessary to deal with this matter. In view of this 'temporary' nature, a condition is necessary to deal with restoration of the site following removal. In a similar vein, conditions are necessary to deal with the situation where a turbine ceases to operate, other than for reasons of repair or replacement. I acknowledge the suggestion from STAPLE that the condition should specify the removal of anything above ground in these circumstances but I am content that the suggested condition offers sufficient safeguard.

91. Conditions are necessary to deal with the micro-siting of the wind turbines. It is important that the turbine positions shown in the ES are adhered to but a measure of flexibility is required. However, the degree of flexibility needs to be controlled in relation to nearby dwellings, woodlands (and the need to cater for the local bat population) and the footpath through the site.

92. Construction traffic is likely to cause some disruption and require a range of measures to allow safe access. To this end, a condition is required to secure approval of a Construction Traffic Management Plan. Similarly, a condition is required to deal with the submission for approval of a Construction Method Statement. Conditions are also necessary to control the times when construction can take place in order to protect, to a degree, the living conditions of local residents. I accept though that some flexibility is needed in terms of the delivery of turbine and crane components.



STEPHENSON HALLIDAY

REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Gayton-le-Marsh Wind Farm

KEY

Wind Turbine Location (Consented Coordinates)

TURBINE DATA:

Number of turbines:	8
Hub height:	70m
Blade tip height:	115m

0 250 500m

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	EC	A4	1:15 000		

PI Supplementary Work EC170613

Appeal Decision

Inquiry held on 21-25 and 28-30 January 2013
Site visit made on 31 January 2013

by D C Pinner BSc (Hons) DipTP MRTPI

an Inspector appointed by the Secretary of State for Communities and Local Government

Decision date: 5 April 2013

Appeal Ref: APP/D2510/A/12/2176754
Land at Carlton Grange, Thacker Bank, Near Louth, LN11 7TX

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a failure to give notice within the prescribed period of a decision on an application for planning permission.
- The appeal is made by Energiekontor UK Ltd against East Lindsey District Council (ELDC).
- The application Ref N/063/01392/11, is dated 20 July 2011.
- The development proposed (agreed revised wording) is the erection of 8 no. wind turbines (maximum tip height of up to 115 metres) and an electricity sub-station, provision of a temporary site compound enclosed by fencing (up to 2.20 metres in height), construction of access roads, hardstanding and parking areas and construction of a new vehicular access.

Decision

1. The appeal is allowed and planning permission is granted for the erection of 8 no. wind turbines (maximum tip height of up to 115 metres) and an electricity sub-station, provision of a temporary site compound enclosed by fencing (up to 2.20 metres in height), construction of access roads, hardstanding and parking areas and construction of a new vehicular access on land at Carlton Grange, Thacker Bank, Near Louth, LN11 7TX in accordance with the terms of the application, Ref N/063/01392/11, dated 20 July, and the plans submitted with it, subject to the conditions set out in Annex A to this decision.

Preliminary matters

2. The focus of the inquiry was on the turbines themselves. The associated temporary and permanent development (sub-station, construction compounds, access tracks, hardstandings etc.) was barely mentioned. I do not consider these aspects of the scheme have any significant bearing on its acceptability or otherwise and I shall therefore concentrate on the turbines themselves.

3. On the day of my site inspections, the weather was clear and sunny, albeit cold and windy, and visibility was excellent for the whole of the day. In terms of visibility at least, I doubt that there could have been a better day for undertaking the site inspections. These took the whole day and covered a very wide area to include views of the site from close by and from a distance and also to include cumulative views with other windfarms, both onshore and offshore. I was accompanied throughout by representatives of the appellant, the Council and NOWAG (NO Windfarm At Gayton), the local group opposing the scheme.

around the building (within what would probably be regarded as its curtilage) demonstrates a use for non-residential purposes. The replacement of the roof with asbestos sheeting is also a clue that it has been used for non-residential purposes. The long period since it was last occupied and the owner's entering into the Option Agreement are persuasive evidence of abandonment of the residential use with no intention ever to occupy the property as a residence. The parlous state of the building and the lack of any of the facilities necessary to enable it to be occupied as a dwelling are also persuasive evidence of abandonment whilst the appalling stench from the piles of chicken manure render the building uninhabitable even by someone camping out in it. In my opinion, this is not a marginal case – the residential use of the building has been clearly abandoned. However, in the absence of an application for a LDC, I cannot make a determination to that effect and a condition preventing its use as a dwelling is therefore necessary. I have amended the suggested condition so that it cannot be taken to imply that the residential use of the Grange would otherwise be lawful and so that it takes effect upon commencement of the development hereby permitted.

70. The proposed wind farm would be visible from very close quarters from Two Mile Bank and at various distances from other footpaths and bridleways including the Silver Lincs Way long-distance walking route. Whether the presence of the turbines would detract from people's enjoyment of using these routes is likely to be dependent on the individual's attitudes to such things. Some people hate them, whereas others find them interesting or even mesmerising and calming. I was presented with no evidence of substance that would indicate that any impact on users of such routes would be so severe that the scheme could not be permitted.

71. I do not know enough about horses to determine the extent to which they might be spooked by the turbines. It seems to me though, that as horses have been trained in the past to work alongside vehicles and machinery, in railway yards, in traffic and even in battlefields, concerns about the spooking of horses may be over-stated and, without good evidence, can be given little weight.

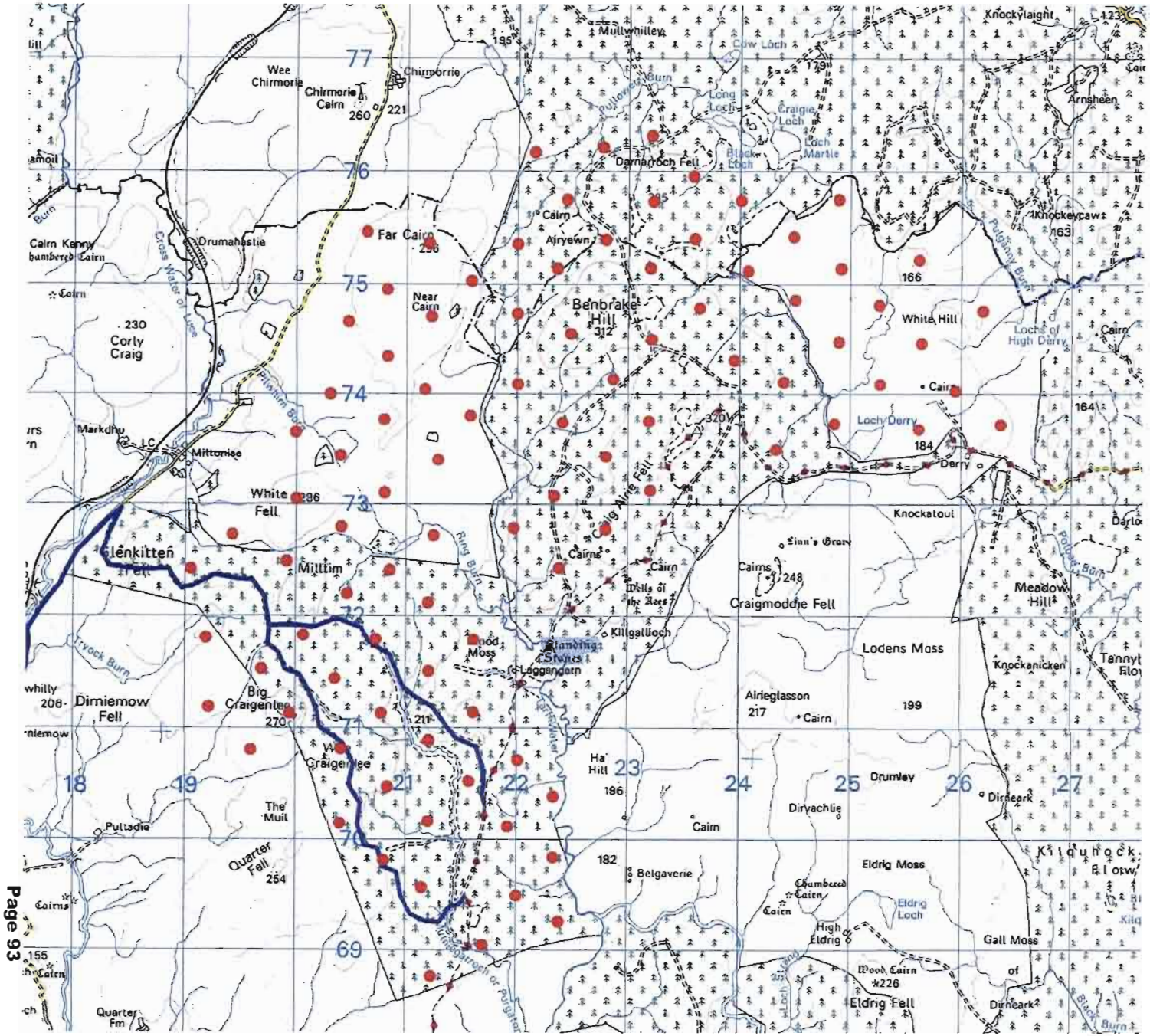
72. There are a number of unlicensed airfields in the area and concerns about the effect of the proposed wind farm were addressed at the application stage by reference to the relevant laws relating to the flying of aircraft. The turbines would become part of the aviation landscape, marked on charts and it would be illegal for anyone to fly within 500 feet in any direction of the turbines. The possibility of light aircraft being affected by turbulence from wind farms is the subject of ongoing studies. To date, despite the proliferation of wind turbines, there have been no recorded incidents or accidents involving wind turbine turbulence.

73. There is no evidence that suggests that the presence of wind turbines has any adverse effects on tourism.

74. I have considered these and all other matters, including the effect of the scheme on the Coastal Grazing Marshes Project which includes land adjoining the appeal site, but none is sufficient to alter my conclusion in this appeal.

Conditions

75. The majority of the conditions which are necessary for the scheme to proceed are agreed between the parties. The decommissioning of the wind farm was



STEPHENSON HALLIDAY

REVIEW OF OPERATIONAL / CONSENTED WIND FARM PROXIMITY TO PUBLIC RIGHTS OF WAY AND BRIDLEWAYS

Kilgallioch

Kilgallioch Turbine Location (Consented Coordinates)

Core Path

TURBINE DATA:

Number of turbines:	96
Hub height:	78.5 / 100m
Blade tip height:	125 / 146.5m

0 1 2km

NORTH

DATE	BY	PAPER	SCALE	QA	REV
06/13	CD	A4	1:50,000		

PI Supplementary Work

Appendix 10: Spring Farm Ridge wind farm energy report

TOWN AND COUNTRY PLANNING ACT 1990 - SECTION 78

APPEAL BY BROADVIEW ENERGY LTD AGAINST THE REFUSAL BY SOUTH NORTHAMPTONSHIRE DISTRICT COUNCIL TO GRANT PLANNING PERMISSION FOR A WIND FARM COMPRISING THE ERECTION OF FIVE WIND TURBINES PLUS UNDERGROUND CABLING, METEOROLOGICAL MAST, ACCESS TRACKS, CONTROL BUILDING, TEMPORARY SITE COMPOUND AND ANCILLARY DEVELOPMENT (OTHERWISE KNOWN AS SPRING FARM RIDGE WIND FARM).

APPEAL REFERENCE: APP/Z2830/A/11/2165035

REPORT ON ENERGY POTENTIAL

by PAUL HANNAH BEng (Hons), MSc, PhD, MBA, CEng MRAeS FRMetS

FOR BROADVIEW ENERGY LTD

AUGUST 2013

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1 Introduction

1.1. Personal Experience

I am Paul Hannah. I am an independent wind energy consultant trading as The Wind Consultancy Service. I specialise in the analysis and assessment of windspeed and direction data collected on potential wind energy projects. I hold the following degrees:

- Bachelor of Engineering (Hons.) in Aeronautical Engineering (Bristol, 1987)
- Master of Science in Atmospheric Sciences (UEA Norwich, 1989)
- Doctor of Philosophy in Windspeed Prediction Techniques (UEA Norwich, 1993)
- Master of Business Administration (Open University, 2004)

I first worked on wind energy projects in 1988 during the project phase of the MSc noted above. My PhD was concerned with computational and statistical methods of windspeed prediction in complex terrain.

Following completion of my PhD, I was employed by National Wind Power (now RWE npower renewables) for ten years in their Technology Department. During that time, I installed meteorological masts, collected and analysed data from over one hundred masts located in the UK and beyond, and provided the technical elements of wind farm design for more than fifty projects, many of which have become operational.

Since leaving National Wind Power in 2003, I have provided independent technical advice to over one hundred clients covering many hundreds of wind energy projects of all sizes, trading as The Wind Consultancy Service. In addition, since 2006, I have been the UK & Ireland agent for EMD International A/S, a Danish consultancy which provides the WindPRO software package to wind energy professionals around the world. Of the 2,000 user organisations worldwide, approximately eighty are located in the UK and I provide technical support and training to users as they require.

I am a Member of the Royal Aeronautical Society and through them, a Chartered Engineer. I am also a Fellow of the Royal Meteorological Society.

1.2. Scope of Report

This inquiry concerns the development of five turbines to be known as Spring Farm Ridge wind farm which Broadview Energy Limited (Broadview) propose to construct and operate on agricultural land between the villages of Sulgrave, Greatworth and Helmdon in the South Northamptonshire District of Northamptonshire. It is proposed that each turbine would have a maximum height to blade tip of 125m, with a hub height of up to 80m.

This report has been produced in light of the Department for Communities and Local Government (DCLG) 2013 Guidance – Planning Practice Guidance for renewable and low carbon energy[1] and in particular to address paragraph 38 of the guidance and to take account of the Digest of UK Energy Statistics (DUKES) figures, published 25th July 2013. This supplementary information refines work which has already been undertaken as part of the ES and FEI and brings this work up to date to reflect the DUKES figures. This report deals with issues related to predicted energy output (expressed as a capacity factor as recommended by

recently-published national planning guidance[1]), the equivalent household output using the most recently-published figures for national and regional household consumption of electricity, and the equivalent CO_2 emissions that the predicted level of generation represents using the most recently-published figures for long-term marginal generation.

Capacity factor is a measure of the effectiveness of a particular wind turbine type for the predicted wind conditions on a site. It is the ratio (usually expressed as a percentage) of the predicted energy divided by the theoretical maximum generation if the turbine was to continuously run at full power. The average reported capacity factor for onshore wind energy in the UK is 25.6% for 2012[2], although this figure will vary from site to site and will depend upon wind resource, plant performance and turbine specification.

The following information is provided in the next sections:

- Outline methodology used to predict likely energy output, including summary of the numerical prediction models used;
- Summary of meteorological data sources used in the assessment;
- Summary of wind speeds used in the analysis including:
  - wind speed data from the temporary anemometry mast campaign; and
  - long-term predicted wind speeds after correlation with reference data;
- Representative turbines/power curves assessed;
- Details of key assumptions regarding losses including electrical efficiency, availability and any other loss factors applied; and
- Summary of the likely generation forecast for each turbine and the total wind farm, setting out net and gross yield, array losses and capacity factors; and
- Summary of household equivalence and CO_2 equivalence for the predicted level of generation.

Broadview had a meteorological mast installed on the site for two years and data collected from this mast has been used to illustrate the potential energy generation for the project.

1.3. Disclaimer

This supplementary information details the potential energy generation and other related statistics for the proposed Spring Farm Ridge wind farm. It is noted that selected calculation inputs, such as wind turbine power curves, modelling assumptions, operational constraints and UK electricity statistics can change over time and this may result in different results being produced if this analysis is repeated in the future. The same is true for the software packages used (e.g. WindPRO and WAsP) which are under continual development by their suppliers.

[1] Department for Communities and Local Government, 2013.
Planning practice guidance for renewable and low carbon energy, paragraph 38.
[2] Digest of the United Kingdom Energy Statistics (DUKES) 2013, Department of Energy and Climate Change, July 2013. Table 6.5 (2) Load Factors for schemes operating on an unchanged configuration basis.

2 Outline of prediction methodology

The outline methodology for predicting the potential output from the proposed Spring Farm Ridge Wind Farm includes the following steps:

- Collation and audit of measured meteorological data (using proprietary data logger software and WindPRO[3])
- Calculation of shear at site based on cleaned measured data (using WindPRO: METEO)
- Correlation of measured data with long-term reference data (using WindPRO: MCP)
- Scaling of long-term mast height windspeeds to hub height (using WAsP v11[4] and WindPRO: MODEL)
- Windflow modelling to predict variations in windspeed and hence energy from the mast location to the turbine locations (using WAsP v11)
- Application of predicted wind regimes at each turbine location to turbine-specific power curves, including wake loss modelling and air density corrections (using WindPRO: PARK)
- Quantification of further losses (using experience and WindPRO: LOSS & UNCERTAINTY)

Where relevant, additional details of the steps outlined above are provided in the following sections.

[3] http://www.emd.dk/windpro: WindPRO is the world's leading wind energy design and assessment package. It has been developed by EMD International A/S of Aalborg, Denmark over the last 25 years. The current version, v2.9 SP1, was released in July 2013. WindPRO is a modular software package; METEO, MODEL, MCP, PARK and LOSS & UNCERTAINTY are Energy-related modules.

[4] http://www.wasp.dk: WAsP is a computer program which allows the modelling of wind regimes from a seed location (e.g. a meteorological mast) to other locations (e.g. other mast locations or turbine locations) taking account of differences in topography, roughness (vegetation) and obstacles between the locations. The program was developed by Denmark's Risø National Laboratory in the late 1980s under EU funding and has been continually developed since then. It is currently supported by DTU Wind Energy and is considered to be the industry standard. v11 was released in April 2013.

3 Summary of Meteorological Data Sources used

Table 1 shows the sources of meteorological data used to create the predictions of windspeed and energy for Spring Farm Ridge Wind Farm in this document.

Table 1: Sources of wind data used in the windspeed and energy predictions for Spring Farm Ridge wind farm.

Site	Distance from Spring Farm Ridge (km)	Measurement heights (m)	Period covered	Equipment installed
Spring Farm Ridge mast (code BV04)	0	Windspeeds: 60.7m, 49.9m, 40.1m, 30.0m, 10.4m Wind directions: 58.0m, 38.0m	12/05/2010 - 07/06/2012	Vector A100LK anemometers, Vector W200P wind vanes
MERRA	14.7 (SW)	Windspeed & direction: 50.0m	01/01/1993 - 30/06/2013	N/A - modelled data

3.1. Data processing - Spring Farm Ridge data

The data from the Spring Farm Ridge mast were provided as the raw daily files which had been sent directly from the data logger on site. The logger, a Secondwind NOMAD2, was supplied with proprietary software[5] which was used to read the data files and collate them into a single data file.

The single data file was then read into WindPRO's METEO module for further evaluation. Data which was outside the normal range of expected values was disabled, along with any data collected during periods where one or more sensors were observed to be showing the signs of icing or other erroneous behaviour. In these cases, if one or more sensors showed such behaviour, the data from all sensors was disabled and not included in the final calculations.

3.2. MERRA data

The MERRA data are one of many windspeed datasets that can be downloaded from within WindPRO to active users. The **M**odern **E**ra **R**etrospective-analysis for **R**esearch and **A**pplications (MERRA) was developed to support NASA's Earth science objectives, by applying a state-of-the-art data assimilation system that includes many modern observing systems to a climate framework. The data description is as follows:

> *MERRA output data resemble existing reanalyses, with several key advances. Two dimensional diagnostics (surface fluxes, single level meteorology, vertical integrals and land states) are produced as one-hour averages. These data products are available at the full spatial resolution (0.5° Latitude × 0.67° Longitude).*

MERRA data have been shown to have good correlation potential with measured data for assessing long-term wind regimes[6]. The nearest grid-cell to Spring Farm Ridge was at 52.0°N, 1.332°W. The data were supplied as hourly statistics of windspeed, direction, temperature and pressure. The data begin in January 1993 and run through until June 2013.

[5] Secondwind Nomad Desktop v2.1.6
[6] Davies, O., 2012. *Validation of MERRA Data as a Long-Term Reference Source in the UK.* Proceedings, Renewable UK 2012.

4 Summary of Windspeed data used in the Analysis

4.1. Summary of measured windspeeds

This section summarises the windspeed data used in the analysis from Spring Farm Ridge in terms of mean windspeed, directionality and shear. It is noted from the installation records supplied for the mast, that all anemometers were calibrated at a MEASNET[7] facility in Germany. This means the calibrations can be considered as robust and traceable. From inspection of the installation records and the data themselves, the calibration values appear to have been correctly entered into the data logger.

4.1.1. Mean windspeed and data recovery

Table 2 shows the monthly mean windspeeds and data recovery for the 60.7m anemometer. Overall, the mean windspeed recorded was 6.3m/s at 60.7m. Data recovery was excellent, with 99.9% of data recovered for the period.

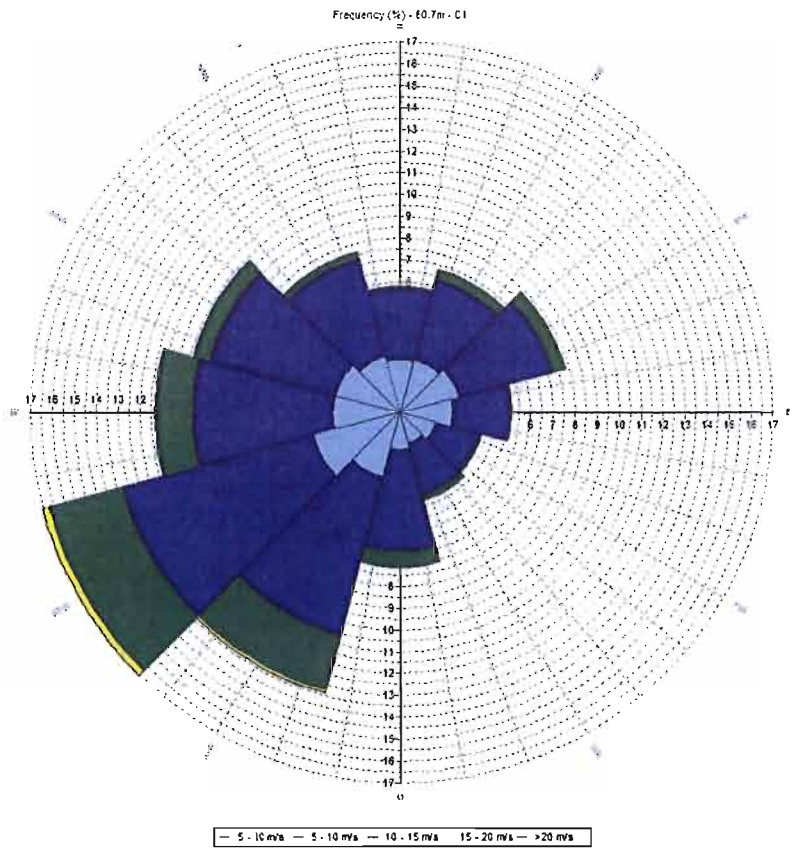
Table 2: Monthly windspeeds recorded at Spring Farm Ridge - [1] - incomplete months		
Month	60.7m windspeed (m/s)	Data recovery (%)
May-10[1]	4.9	100.0
Jun-10	5.0	100.0
Jul-10	6.2	100.0
Aug-10	6.3	100.0
Sep-10	6.5	100.0
Oct-10	6.9	100.0
Nov-10	7.1	100.0
Dec-10	6.3	99.9
Jan-11	7.1	100.0
Feb-11	7.7	100.0
Mar-11	5.6	100.0
Apr-11	6.4	100.0
May-11	7.6	100.0
Jun-11	6.4	100.0
Jul-11	5.3	100.0
Aug-11	5.6	100.0
Sep-11	7.4	100.0
Oct-11	7.6	100.0
Nov-11	6.9	100.0
Dec-11	9.0	100.0
Jan-12	7.9	100.0
Feb-12	6.4	99.2
Mar-12	5.7	100.0
Apr-12	6.8	100.0
May-12	6.2	100.0
Jun-12[1]	6.4	100.0
All data	**6.6**	**100.0**

[7] http://www.measnet.com MEASNET is a co-operation of companies which are engaged in the field of wind energy and want to ensure high quality measurements, uniform interpretation of standards and recommendations as well as interchangeability of results.

4.1.2. Directionality

Figure 1 shows the measured wind rose from the 58.0m wind vane. Overall, the wind rose is strongly weighted to the south-west, typical of many sites in the UK. The highest windspeeds (indicated by the green, yellow and red colour bands) also come from the south-west.

Figure 1. Wind rose for Spring Farm Ridge 58.0m wind vane, May-10 - Jun-12.

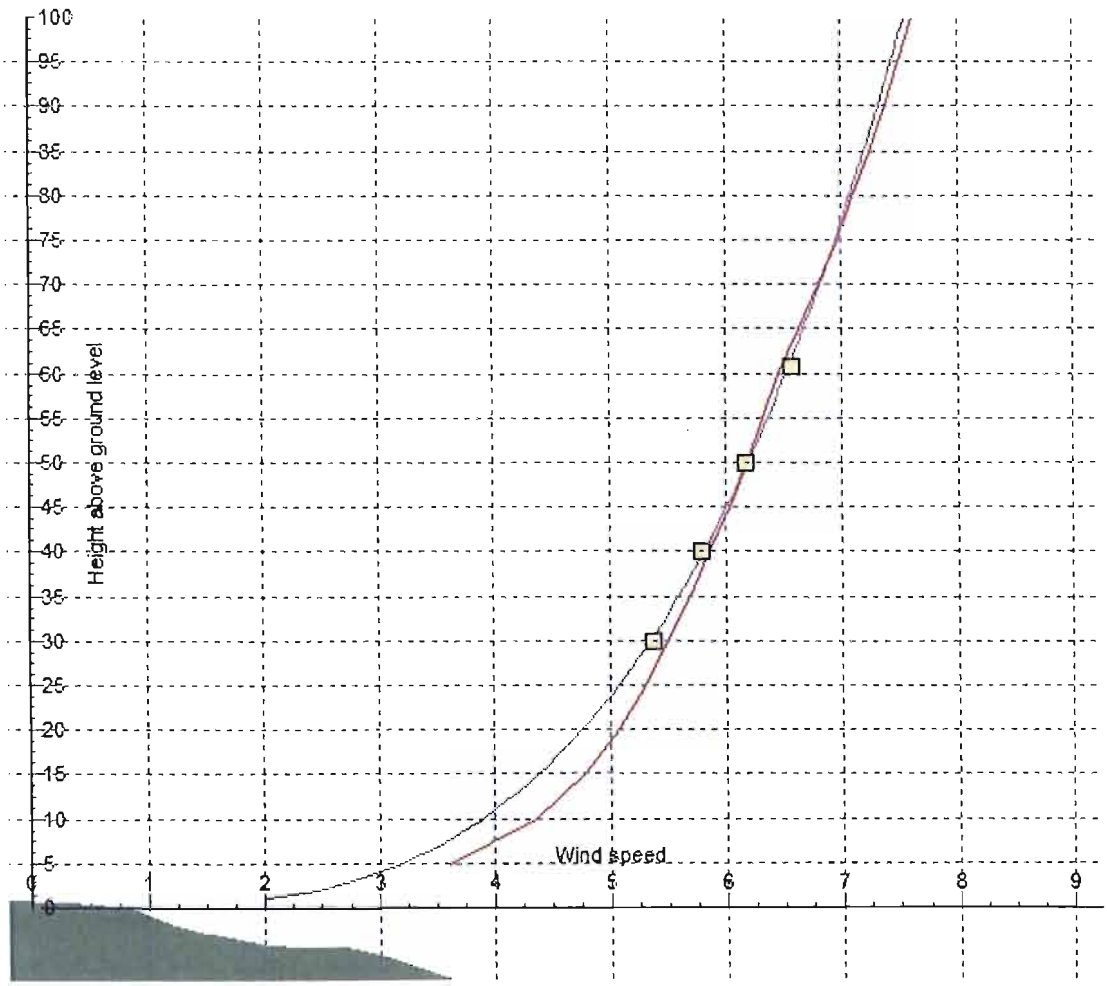


4.1.3.Shear

Shear was analysed both as measured data from the measurement heights on the mast, and also modelled using WAsP. WAsP uses the definition of roughness around the site (a numerical characterisation of those elements in the landscape that may affect the wind regime such as vegetation, settlements, bodies of water, etc.) to estimate shear.

Figure 2 shows the measured (grey) and modelled (red) shear at the mast location. It can be seen that there is a strong relationship between the two, with an especially good match from 30-60m up the mast, and in the extrapolated profile beyond the mast. This gives confidence that the predictions of windspeed from mast height to proposed hub height of the turbines will be accurate.

Figure 2. Comparison of measured (-purple) and modelled (red) shear at Spring Farm Ridge.



4.2. Summary of long-term windspeeds

This section summarises the windspeed data used in the analysis from MERRA in terms of mean windspeed and directionality. MERRA data are output from a numerical modelling package which has been seeded with observational data from many sources.

4.2.1. Mean windspeed and data recovery

Table 3 shows the monthly mean windspeeds and data recovery for the MERRA data for the same period as the Spring Farm Ridge data. Overall, the mean windspeed modelled was 7.0m/s at 50.0m (1993-2013). Data recovery was excellent, with 100% of data recovered for the concurrent period as shown below.

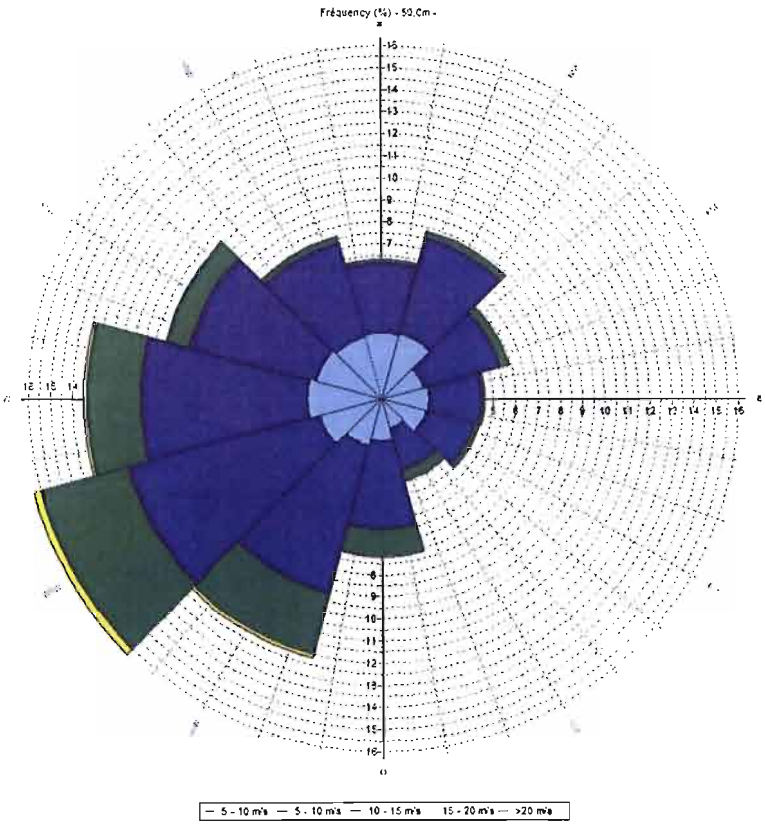
Table 3: Monthly windspeeds recorded in the MERRA dataset

Month	50.0m windspeed (m/s)	Data recovery (%)
May-10	5.3	100.0
Jun-10	4.9	100.0
Jul-10	6.4	100.0
Aug-10	6.6	100.0
Sep-10	6.8	100.0
Oct-10	7.3	100.0
Nov-10	7.4	100.0
Dec-10	6.2	100.0
Jan-11	7.2	100.0
Feb-11	8.1	100.0
Mar-11	5.6	100.0
Apr-11	6.1	100.0
May-11	8.0	100.0
Jun-11	6.6	100.0
Jul-11	5.4	100.0
Aug-11	5.8	100.0
Sep-11	7.8	100.0
Oct-11	8.2	100.0
Nov-11	7.4	100.0
Dec-11	9.7	100.0
Jan-12	8.4	100.0
Feb-12	6.5	100.0
Mar-12	5.5	100.0
Apr-12	6.8	100.0
May-12	6.0	100.0
Jun-12	7.4	100.0
All data	**6.8**	**100.0**

4.2.2. Directionality

Figure 3 shows the measured wind rose from the 50.0m wind direction signal in the MERRA dataset. Overall, the wind rose shows strong agreement with the measured wind rose for the same period from Spring Farm Ridge.

Figure 3. Wind rose for MERRA 50.0m wind vane, May-10 - Jun-12.



5 Prediction of Long-term Windspeeds at Spring Farm Ridge

5.1. Methodology - Measure-Correlate-Predict (MCP)

The mean windspeeds measured at the Spring Farm Ridge mast were compared with the corresponding mean windspeeds from the MERRA data. In each case a speed-up factor (ratio of hourly mean windspeed at the monitored site to hourly mean windspeed at the reference site) was calculated.

Using these records, a plot of reference wind direction versus speed-up factor was examined to determine whether the speed-up factor was direction-dependent. Based on this directional information, the data records were divided into direction sectors grouping data of similar speed-up factors. Standard industry practice is to divide the data into sector-wise bins corresponding to twelve 30° sectors. Table 4 shows the statistics of the correlations.

With the data divided sector-wise, plots of reference site windspeed against the monitored site windspeed were generated for each sector. A linear function, using the method of least squares, was fitted to the data without constraining the Y-intercept value. The resulting function defines the sector-wise speed-up relation with reference site windspeed. No correction was made below cut-in windspeeds of 2m/s (sometimes referred to as the "dog-leg" function). The method does not use residual re-sampling.

Having derived the sector-wise speed-up relationships, the long-term MERRA windspeed data was factored accordingly to produce a long-term windspeed estimate at the Spring Farm Ridge mast location.

Table 4: Correlation statistics for the analysis of Spring Farm Ridge and MERRA data

Bin Start	Bin End	Points	Slope	Offset	Correlation, R^2
345°	15°	1027	0.878	0.664	0.772
15°	45°	1296	0.997	0.073	0.832
45°	75°	980	1.000	0.047	0.834
75°	105°	748	0.885	0.640	0.768
105°	135°	742	0.708	1.240	0.736
135°	165°	637	0.763	0.967	0.805
165°	195°	1201	0.776	0.938	0.792
195°	225°	2097	0.845	0.792	0.832
225°	255°	2876	0.910	0.291	0.848
255°	285°	2353	0.825	0.943	0.790
285°	315°	1674	0.815	1.109	0.751
315°	345°	1219	0.867	0.803	0.726

Correlations are very strong, with the lowest value of 0.726 and an overall average of 0.799. The measured mean windspeed at Spring Farm Ridge is 6.6m/s at 60.7m. The long-term predicted windspeed at Spring Farm Ridge is 6.8m/s at 60.7m.

Figure 4 compares the predicted long-term windspeed distribution and the measured windspeed distribution at Spring Farm Ridge. There is a very strong agreement between the two, showing that the MCP process has modelled the measured distribution well.

Figure 4. Comparison of measured (green) and long-term predicted (red) windspeed distribution at Spring Farm Ridge.

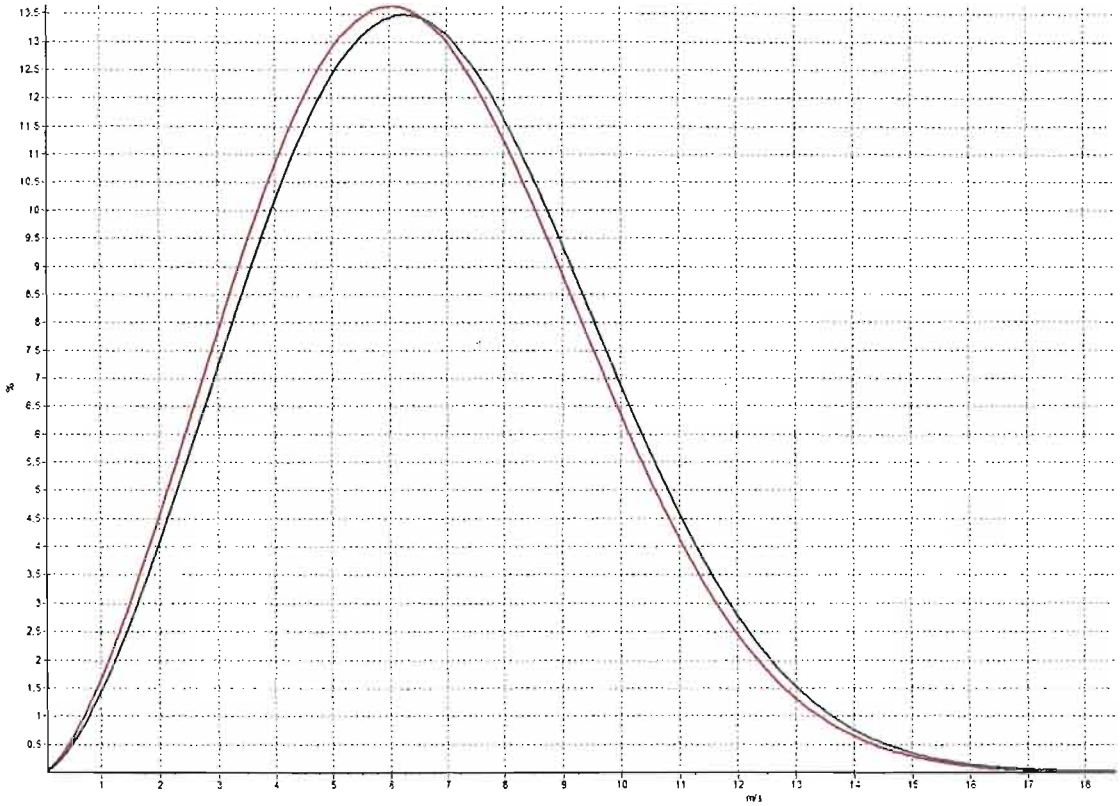


Table 5 summarises the results of the MCP process.

Table 5: Summary of Key Parameters & Results of the MCP Process		
	Spring Farm Ridge	MERRA
Anemometer height (m)	60.7	50.0
Windspeed range for correlation - Min	2.0	2.0
- Max	20.6	21.3
Short-term period (for correlation)	12/05/2010 - 07/06/2012	12/05/2010 - 07/06/2012
Long-term period (for prediction)	-	01/01/1993 - 30/06/2013
Data type	10-minute means converted to hourly means	Hourly means
Mean windspeed at height - concurrent	6.6m/s	6.8m/s
Long-term mean windspeed - actual	-	7.0m/s
Long-term mean windspeed - predicted	6.8m/s	-

5.2. Scaling of the Long-Term Predicted Windspeed to Turbine Hub Height

The long-term mean windspeed and distribution predicted at the mast location were scaled to the hub heights of the proposed turbine types using WAsP and WindPRO. The predicted hub height windspeeds for each of the candidate turbines is shown in Table 6. The modelled shear as shown in Figure 2 was used.

Table 6: Scaled Long-Term Hub Height Mean Windspeeds

Turbine Model	Hub Height (m)	Average Annual Mean Hub Height Windspeed (m/s)
Repower MM92 2.05MW	78.5	7.3
Vestas V90 3.0MW	80.0	7.4

6 Representative turbines assessed

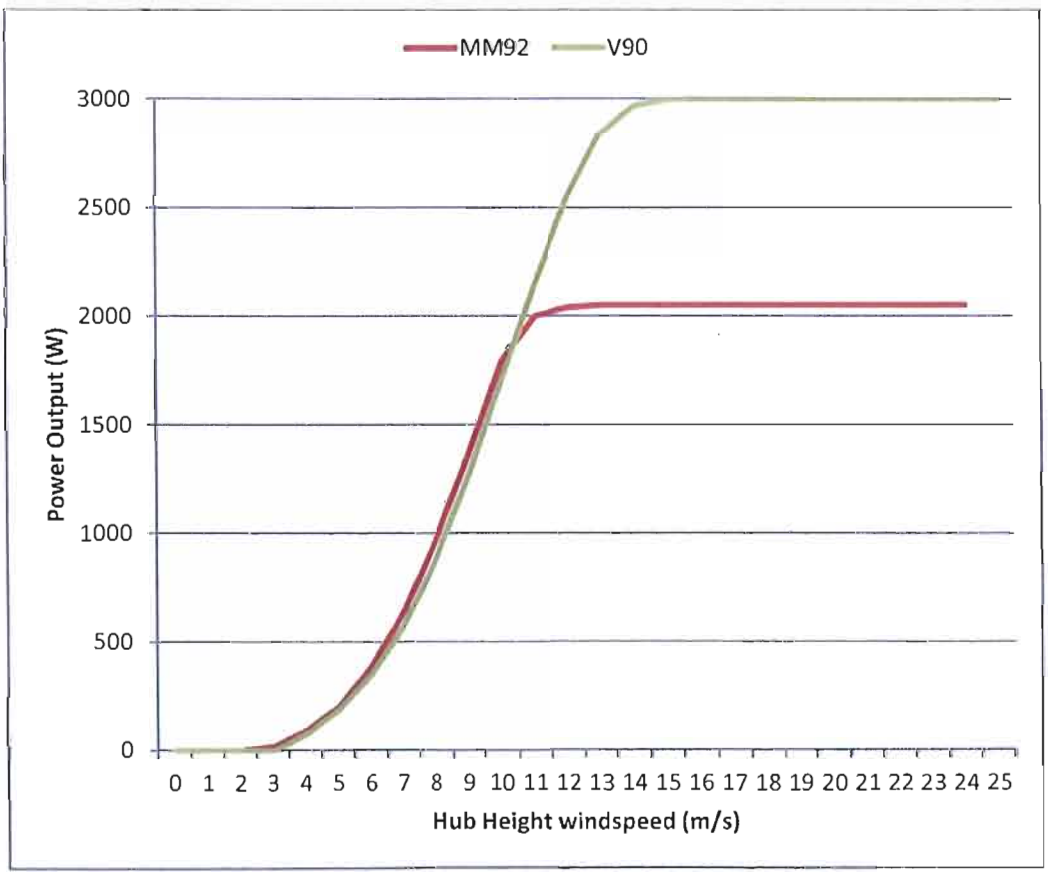
A selection of wind turbines, as noted in Table 6, ranging in installed capacity from 2-3MW and with a maximum tip height of 125m was evaluated in terms of the potential energy generation at the Spring Farm Ridge site. Models are listed in Table 7 whilst Figure 5 shows the power curves for the two turbine types.

Table 7: Wind Turbines considered in the Assessment

Turbine Model	Capacity (MW)	Hub Height (m)	Rotor Diameter (m)	Tip Height (m)
Repower MM92 2.05MW	2.05	78.5	92.5	124.75
Vestas V90 3.0MW	3.00	80.0	90.0	125.00

Power curves shown in Figure 5 were obtained from the relevant manufacturer.

Figure 5. Comparison of power curves of the representative turbines.



7 Prediction of Potential Energy Output

7.1. Method

The long-term windspeed distribution is used as initialisation data for WindPRO. WindPRO which uses WAsP as its calculation "engine" and includes a range of associated array loss calculation routines, is then used to assess the energy production for the given layout and turbine options. The use of WAsP and WindPRO allows calculation of the topographic variation and array losses for the project. Shear is calculated using a roughness-based approach as noted earlier.

Terrain data (elevation data on a 50m grid) was obtained from the Ordnance Survey, and added to where necessary. Air density effects were calculated from a climate database using long-term temperature and pressure data from Oxford as the seed and adjusting these values to on site altitude and the average air temperature for the area. The calculated air density for the site is 1.218kg/m^3.

Losses considered/calculated for each of the turbines chosen is as indicated in Table 8. Losses are applied to the gross energy estimate at each turbine location (which includes topographic effects as modelled in WAsP and air density corrections.

Table 8: Losses considered/calculated for each Turbine Type

Losses	Repower MM92	Vestas V90
Wake effects	0.959	0.953
Electrical losses	0.975	0.975
Availability	0.960	0.960
Icing & Blade Degradation	0.985	0.985
Hysteresis	1.000	1.000
Total loss factor	**0.884**	**0.879**

The losses are characterised as follows:

- Wake effects (which are turbine-specific) are the result of the reduction of windspeed downwind of each turbine and the effect of that velocity deficit on the neighbouring turbines. No other wind energy projects which would cause wake effects at Spring Farm Ridge are known to be located within 5km, so only the effects of the Spring Farm Ridge wind turbines are considered.
- Electrical losses account for collection system losses between the generator in each turbine and the metering point at the grid connection location. This is therefore dependent on the project size and on the collection system design.
- Availability accounts for planned downtime for maintenance (when the turbines might otherwise be operating). This is usually defined in the turbine supply contract.
- Icing and blade degradation accounts for reductions in generation caused by icing (which would cause the turbine to stop) or dirt on the blades which affects their aerodynamic efficiency.
- Hysteresis accounts for the restart delay when a turbine is stopped for high winds (usually at 25m/s).

7.2. Results

The long-term windspeed distribution, adjusted for the topographic conditions at each turbine location, was applied to the turbine power curves to produce gross energy estimates at each turbine location.

The losses shown in Table 8 were applied to the gross results for each turbine type to produce the potential net energy yield for the project.

The potential energy prediction for each turbine type is shown in Table 9, listing gross energy yield, loss factor, net energy yield and capacity factor. Capacity factor varies with installed capacity, so although the Vestas V90 turbine option has the highest capacity and the highest predicted output, it has the lowest capacity factor.

Table 9: Summary of Potential Energy Generation - Spring Farm Ridge

Wind Turbine	Repower MM92	Vestas V90
Hub Height (m)	78.5	80.0
Rated Capacity (MW)	2.05	3.0
Wind Farm Capacity (MW)	10.25	15.0
Predicted Gross Energy (MWh/yr)	38,150	39,850
Loss factor	0.884	0.879
Predicted Net Energy (MWh/yr)	33,700	35,000
Predicted Net Capacity Factor (%)	37.5	26.6

Notes:
1: Gross and net annual energy production are rounded to the nearest 50MWh/yr

Estimated equivalent homes and carbon dioxide offset are shown in Table 10. Table 10 updates the figures produced in the FEI in line with the most recent average household energy consumption figures published by DUKES, July 2013. It should be noted that the FEI used a figure of 3,300kWh electricity use per domestic household. Table 10 shows the homes equivalent both as national (the more usual method of representation of such figures) and regional (Spring Farm Ridge is located in the East Midlands region). The difference between the national and regional figures are less than 2%.

The carbon dioxide figures are based on the methodology recommended by the DECC Valuation of energy use and greenhouse gas (GHG) emissions[8] (DECC GHG), October 2012[8], supplemented with data from the supporting tables of the DECC Toolkit for guidance on the valuation of energy use and GHG emissions[9]. It should be noted that the FEI used a figure of 430gCO_2/kWh. The use of the figures contained in the DECC GHG brings the analysis up-to-date and provides a consistent approach to the interpretation of the benefits of the Spring Farm Ridge wind farm project. This approach has been validated in discussions with DECC as shown in Annex A.

Table 10: Equivalent Homes and CO_2 Emission Savings Predictions - Spring Farm Ridge

Assumptions:

- Assumed UK average annual domestic electricity consumption (kWh/yr): 4,080[1]
- Assumed East Midlands annual domestic electricity consumption (kWh/yr): 4,020[1]
- Assumed displacement factor – Long-run marginal, generation-based, 2015 (kgCO_2/MWh): 319.2[2]
- Assumed displacement factor – Long-run marginal, generation-based, 2040 (kg CO_2/MWh): 48.2[2]

	Repower MM92	Vestas V90
Estimated UK homes equivalent[1]	8,300	8,600
Estimated East Midlands homes equivalent[1]	8,400	8,700
Estimated CO_2 Offset in 2015	10,800	11,200
(Tonnes CO_2/Yr): in 2040	1,600	1,700
Project Lifetime Total (Tonnes CO_2)	143,200	148,900

Notes:
1: Equivalent UK homes supplied is based on annual electricity consumption of 4,080 kWh, which is derived from a total UK domestic electricity consumption of 111.321 terrawatt-hours (TWh) (Table 5D in The Digest of UK Energy Statistics 2013, published 25th July 2013) and 27.3 million UK homes. Equivalent East Midlands homes supplied is based on annual electricity consumption of 4,020 kWh, which is derived from a total East Midlands domestic electricity consumption of 7.985 terrawatt-hours (TWh) (Table 5D in The Digest of UK Energy Statistics 2013, published 25th July 2013) and 1.99 million homes. All estimates are rounded to the nearest 50 homes.
2: Generation-based figures measure GHG (Greenhouse Gas) emissions per unit of electricity generated. Long-run marginal emissions factors are used for measuring small changes in generation. 2015 is a reasonable assumption for first generation at Spring Farm Ridge. 2040 is a reasonable assumption for the end of operations at Spring Farm Ridge. The project lifetime total is a summation of the annual figures from 2015-2040. Figures are quoted to the nearest 100 tonnes.

[8] Department of Energy and Climate Change, October 2012. Valuation of energy use and greenhouse gas (GHG) emissions. Supplementary guidance to the HM Treasury Green Book on Appraisal and Evaluation in Central Government.

[9] Table 1 in https://www.gov.uk/government/policies/using-evidence-and-analysis-to-inform-energy-and-climate-change-policies/supporting-pages/policy-appraisal, accessed 19/08/2013

Annex A: Correspondence with DECC

Wind Consult

From:	Fleming Neil (Economics) [redacted] on behalf of Greenhouse Gas Emissions Appraisal [ghgappraisal@decc.gsi.gov.uk]
Sent:	21 August 2013 12:21
To:	Wind Consult
Cc:	Champion Helen (Science and Innovation); Campbell Siobhan (DECC); Greenhouse Gas Emissions Appraisal
Subject:	RE: GHG equivalent figures for a wind energy project

Hi Paul – we just discussed your project. Yes, you use the marginal factors for estimating changes in generation emissions. These are for marginal changes in generation due to demand changes or where zero emissions generation displaces existing generation. The average factors are for footprinting. As mentioned, the guidance and tables will be updated and published on September 16th. Happy to discuss further.

Regards
Neil

From: Wind Consult
Sent: 19 August 2013 10:19
To: Greenhouse Gas Emissions Appraisal
Subject: GHG equivalent figures for a wind energy project

Dear Sir/Madam

I am currently preparing some analyses for a client in support of a planning application for a wind farm in the UK. In order to show an estimate of the CO_2 emissions avoided by the electricity being generated by the project, I have calculated the predicted energy at the site and used the long-run marginal, generation-based values in Table 1 in https://www.gov.uk/government/policies/using-evidence-and-analysis-to-inform-energy-and-climate-change-policies/supporting-pages/policy-appraisal (Tables 1-20) to calculate the annual CO_2 values for the predicted generation from 2015 (assumed project start) until 2040 (assumed decommission).

The project is ~12MW in capacity. I have therefore assumed that the long-run marginal figures, described as being used for "small changes in generation" are more appropriate for use here than the grid average figures also shown in Table 1.

I would welcome your comments on the method I propose to use.

Regards

Paul Hannah
==========
Paul Hannah t/a The Wind Consultancy Service

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