Item No. 12

APPLICATION NUMBER	**CB/13/02037/VOC**
LOCATION	**Double Arches Quarry, Eastern Way, Heath And Reach, Leighton Buzzard, LU7 9LF**
PROPOSAL	**Removal of Condition 11 of planning permission CB/10/03034 - The wind turbine shall not emit greater than expected amplitude modulation the level of broadband noise emitted by a turbine at blade passing frequency.**
PARISH	Heath & Reach
WARD	**Heath & Reach**
WARD COUNCILLORS	**Cllr Versallion**
CASE OFFICER	**Abel Bunu**
DATE REGISTERED	**13 June 2013**
EXPIRY DATE	**12 September 2013**
APPLICANT	**Arnold White Estates**
AGENT	**Engena Limited**
REASON FOR COMMITTEE TO DETERMINE	**Departure from the Development Plan**
RECOMMENDED DECISION	**Variation of Condition – Recommended for Approval**

Recommended Reasons for Granting:

Whilst the proposed development would be inappropriate in the Green Belt, the proposal demonstrated the very special circumstances required of such developments which led to the grant of planning permission, reference **CB/10/03034/FULL**. The principle of the development on this site is therefore established. The proposed development without complying with Condition 11 of the planning permission would not alter this principle. Furthermore, the development would not be materially harmful to residential amenity thereby conforming to the development plan comprising Policies BE8 and SD1, of the South Bedfordshire Local Plan Review, Policies 1,3,23,36,43, 46,50,57 and 58 of the emerging Development Strategy for Central Bedfordshire and national advice contained in the National Planning Policy Framework and the Central Bedfordshire Renewable Energy Guidance (2013).

Site Location:

The application site lies within the boundaries of Double Arches Quarry, an active sand processing plant that comprises part of a larger operational minerals extraction area. The site lies to the north-east of Leighton Linslade, on Eastern Way,
within the Parish of Heath and Reach.

The site is a raised area of land located in the north eastern part of the quarry, adjacent to the settling ponds. Although, it is within the existing boundary of the quarry, it lies outside of the permitted and future working area of the quarry.

The quarry sits within a larger complex of sand quarries, which alongside Nine Acres
and Churchways Quarries, is identified as a County Wildlife Site (CWS) and includes
a number of waterbodies. These include settlement ponds, which vary in size and location as working patterns dictate, there are also larger lakes which are used by a local angling club.

Approximately 0.2km to the west of the site is Double Arches Pit Site of Specific Scientific Interest (SSSI), which is designated as such for its geological importance. The King's and Baker's Wood and Heaths SSSI is located approximately 0.7km northwest of the proposed location, with part of the SSSI being designated as a National Nature Reserve. This SSSI/NNR is separated from the proposed turbine location by the remainder of the site, Woburn Road, Stone Lane Quarry and Churchways Quarry.

The settlements of Heath and Reach and Leighton Linslade are located to the south-west of the application site. Further beyond to the south-east is the conurbation
of Luton, Dunstable and Houghton Regis. There are also a number of smaller settlements in the locality including Overend Green, Potsgrove and Battlesden, and further afield, Woburn, Milton Bryan, Hockliffe, Eggington, Stanbridge, Billington,
Soulbury, Stoke Hammond and Great Brickhill.

The Application:

seeks planning permission for the removal of Condition 11 attached to planning permission reference **CB/10/03034** in respect of the control over the level of broadband noise emitted by a turbine at blade passing frequency,(amplitude modulation).The condition states that :

The wind turbine shall not emit greater than expected amplitude modulation. Amplitude modulation is the modulation of the level of broadband noise emitted by a turbine at blade passing frequency. These will be deemed greater than expected if the following characteristics apply:

a) *A change in the measured $L_{Aeq\ 125\ milliseconds}$ turbine noise level of more than 3dB (represented as a rise and fall in sound energy levels each of more than 3dB) occurring within a 2 second period.*
b) *The change identified in (a) above shall not occur less than 5 times in any one minute period provided that the $L_{Aeq,\ 1\ minute}$ turbine sound energy level for that minute is not below 28dB.*
c) *The changes identified in (a) and (b) above shall not occur for fewer than 6 minutes in any hour that the measurements are undertaken.*

Noise immissions shall be undertaken at a complainant's dwelling and shall be measured not further than 35m from the relevant dwelling building, and not closer than 3.5m of any reflective building or surface other than the ground, or within 1.2m of the ground. Where there is not access to the land of a relevant dwelling, measurements to assess compliance with the noise limit of this condition shall be undertaken at a measurement location approved in writing by the Local Planning Authority that is accessible.

Reason: To ensure that the amenities of neighbouring occupiers are not prejudiced by excessive noise.

The application relates to a development that was granted permission subject to a number of conditions, of which Condition 11 forms the subject of this application, for the erection of a 149 metre high wind turbine, including access and associated infrastructure.

The reason for seeking the removal of the condition has been supported by the following documents submitted with the application :

- Report by Dr Mackenzie : Double Arches Wind Turbine, Amplitude Modulation Condition
- NANR277, Wind Farm Noise Statutory Nuisance Complaint Methodology, DEFRA.
- Spaldington Airfield Appeal Decisions : APP/E2001/A/2137617, APP/E2001/A/2139965
- Watford Lodge Appeal Decision : APP/Y2810/A/11/2153242
- Bass J, 2012, Investigation of the Den Brook Amplitude Modulation Methodology for wind turbine noise, IOA Acoustics Bulletin Vol.36, No.6, Vol. 37 No.1.
- The Marston Vale Millenium Country park Wind Turbine, Central Bedfordshire Council, CB/12/00718/VOC, Agenda Item 13.
- Wolley Hill appeal decision : APP/H0520/A/11/2158702
- Batsworthy Cross Appeal Decision : APP/X1118/A11/2162070.
- Drawing Number 3100.013

RELEVANT POLICIES:

The National Planning Policy Framework (NPPF) was published on 27th March 2012 and replaced most of the previous national planning policy documents, PPGs and PPSs.

South Bedfordshire Local Plan Review

The NPPF advises of the weight to be attached to existing local plans for plans adopted prior to the 2004 Planning and Compulsory Purchase Act, as in the case of the South Bedfordshire Local Plan Review. Due weight can be given to relevant policies in existing plans according to their degree of consistency with the framework. It is considered that the following policies are broadly consistent with the Framework and significant weight should be attached to them.

SD1 Keynote Policy
BE7 Conservation and Enhancement of Historic Parks and Gardens;
BE8 Design Considerations
NE3 Control of Development in the AGLV
R15 Retention of Rights of Way Network

Endorsed Core Strategy - South

The Pre-Submission Core Strategy for Southern Central Bedfordshire was endorsed for Development Management purposes by the Executive in August 2011 following the decision of The Luton and South Bedfordshire Joint Committee's resolution on the 29th July 2011 to seek the withdrawal of the Luton and southern Central Bedfordshire Joint Core Strategy.

Development Strategy for Central Bedfordshire

Having regard to the National Planning Policy Framework, significant weight is given to the policies contained within the emerging Development Strategy for Central Bedfordshire, which is consistent with the NPPF. The draft Development Strategy is due to be submitted to the Secretary of State in 2013 and the following policies are considered relevant to the determination of any subsequent application :

Policy 1 : Presumption in Favour of Sustainable Development
Policy 3 : Green Belt
Policy 23 : Public Rights of Way
Policy 36 : Development In the Green Belt
Policy 43: High Quality Development
Policy 46 : Renewable and low carbon energy development
Policy 50 : Development In the Countryside
Policy 57 : Biodiversity and Geodiversity
Policy 58 : Landscape

Bedfordshire and Luton Minerals and Waste Local Plan 2000 – 2015 (Adopted January 2005)

M4: Protection of Mineral resources within mineral consultation areas;
G3: Proposals within the Greensand Trust area to support the aims and objectives of the Greensand Trust;
GE26: Restoration of Mineral sites.

Supplementary Planning Guidance

- South Bedfordshire Landscape Character Assessment
- Central Bedfordshire and Luton Borough Councils Joint Committee Sustainable Development and Adaptation and Mitigation of Climate
- Change Study (Parsons Brinckerhoff, 2010)
- Central Bedfordshire Renewable Energy Guidance (2013).

Planning History

CB/10/03034/FULL	Permission. Erection of a 2.3 MW wind turbine (108m high to top of hub, 149m high to tip of rotor) including access and associated infrastructure.
SB/08/01073/SCO	Request for scoping opinion of the Local Planning Authority – regulation 5 of the Environmental Impact Assessment Regulations for the installation of two wind turbines.

Representations:
(Parish & Neighbours)

Heath and Reach Parish Council	The standard quoted in Condition 11has been discredited and is no longer valid. The condition should not just be deleted, but should be rephrased to specify a limit on the noise produced by the turbine. If not, future turbines could be situated closer to the village and cause nuisance. A precedent should not be set.

Neighbours 4 Sandhouse cottages, The Sandhouse Cottage, 21 Reach lane	Objection • Insufficient clarity regarding the expected noise levels with Condition 11. • No justification to remove the condition. • Justification has not been adequately explained for the public to adequately comment on. • Removal of condition does not protect the public or environmental interests against noise. • Proposal would negatively impact on quality of family's life. • Previous permission should be reviewed in its entirerity. • New houses planned east of Leighton Buzzard would be negatively impact by noise.

Consultations/Publicity Responses

Site Notice date :
03/07/13
Press Notice Date :
23/06/13

Public Protection	Detailed comments submitted by the Council's Environmental Consultant are contained in the MAS Report objecting to the application unless an alternative condition is attached as set out in Appendix A of the report. The summary of the response to the applicant's submission is covered from paragraph 5.0 of the MAS report.
Tree and Landscape Officer	No comments
Ecologist	No comments
Minerals and Waste	No objection
Conservation	No objection
Archaeology	The proposal to remove Condition 11 from this planning permission will not materially alter the impact of the development on archaeological remains or on the significance of the heritage asset with archaeological interest. Therefore, I have no objection to this application on archaeological grounds.

Other Local Authorities

Milton Keynes Council	No objections but advises that the local residents's views should be considered.
Luton Borough Council	No objections.

Aviation

Ministry of Defence – Wind Energy	No comments received.
London Luton Airport	No safeguarding objection.

Other consultees

BBC Reception Advice	Arqiva is responsible for providing the BBC and ITV's transmission network and is responsible for ensuring the integrity of Re-Broadcast Links, and also protect its microwave networks. We have considered whether this development is likely to have an adverse affect on our operations and have concluded that we have no objection to this application.
Network Rail	No objections
English Heritage	The application should be determined in accordance with national and local policy guidance and on the basis of the Council's specialist conservation advice.
CPRE Bedfordshire	Objection: CPRE Bedfordshire objected to this turbine installation essentially from the standpoint of its impact on the surrounding landscape. We did not raise noise impact issues at the time because we saw that as something that could be dealt with under Conditions, which is exactly what your Council has sought to do via Condition 11. Given the massive intrusion this installation will create into its landscape surroundings, it is all the more important that the Conditions under which permission has been granted are not weakened in respect of any other of its environmental impacts. The applicant claims that research by Salford University into EAM is inconclusive as to its causation, and that since the research indicated that EAM might be an issue at only 4 – possibly 8 – of the 133 sites examined, it is statistically highly unlikely to arise at Double Arches. One has to ask the obvious question, namely why, if it is so unlikely, is the applicant so anxious to have the Condition removed? We note, in fact, that the Salford research has been subsequently re-interpreted, and that this re-interpretation indicates that EAM could potentially be an issue at 25% of the sites examined. Perhaps this is why the applicant, 2 years after the Condition was first imposed, is suddenly concerned to secure its removal. The applicant refers to the VOC decision in the Marston Mortaine case, and the various Appeal decisions referred to in considering that matter. The applicant suggests that the decision on Marston Mortaine to allow the removal of a Condition similar to that at Double Arches strongly supports his claim that the Condition at Double Arches should also be removed. However, we note the evidence by MAS Environmental, referred to in the Marston

	Mortaine case, that turbine height is one of the factors that could be involved in the causation of EAM. At Marston Mortaine, the height of the turbine proposed is 120m base-to-tip – at Double Arches it is 149m. This is not only very considerably higher, it is a height at which there is as yet hardly any actual experience of noise impacts – specifically EAM – anywhere in this country. Indeed, we believe that in a land-based environment there is very little experience with turbines of this height in other countries either. For the above reasons, we consider that Condition 11 is of particular relevance and importance at Double Arches, and that the application for its removal should be refused. If EAM proves not to be a problem at Double Arches, the applicant has nothing to worry about – but if EAM does prove to be a problem, then Condition 11 ensures that the operator must do something about it.
Chilterns Conservation Board	No comments. The Board recommends that the decision-maker takes into account the following: • The Chilterns AONB Management Plan • The Chilterns Buildings Design Guide and Supplementary Technical Notes on Chilterns Building Materials (Flint, Brick and Roofing Materials) • The Environmental Guidelines for the Management of Highways in the Chilterns • The Board's Position Statement on Development Affecting the Setting of the Chilterns AONB
Highways Agency	No objection.
Friends of the Earth	South Bedfordshire Friends of the Earth are writing to support the application CB/13/0237 to remove condition 11 concerning AM for the wind turbine at Double Arches Quarry, as there does not appear to be any justification for the condition according to many recent Inspector's reports on planning appeals on wind turbines including the appeal that CBC lost on Biggleswade wind farm, and according the recent good practice published by the Institute of Acoustics. Indeed this condition could make the operation of a wind turbine impossible even though it completely fulfilled the government guidelines on noise. The government guidance is fairly clear that it does not support this type of condition. The Government has recently, this May 2013, endorsed the "Good Practice Guidance to the application of ETSU R-97 for the assessment and rating of wind turbine noise" published

by the Institute of Acoustics. This good practice guide which was peer reviewed was produced with considerable work following the report from Hayes Mackenzie.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/201013/130520_Institute_of_Acoustics.pdf

" A GOOD PRACTICE GUIDE TO THE APPLICATION OF ETSU-R-97 FOR THE ASSESSMENT AND RATING OF WIND TURBINE NOISE" states that

"7.2 Amplitude Modulation

7.2.1 The evidence in relation to "Excess" or "Other" Amplitude Modulation (AM) is still developing. At the time of writing, current practice is not to assign a planning condition to deal with AM."

This should be a fairly unambiguous reason for granting approval.

However considering the views of councillors of CBC on wind turbines and their reluctance to believe that their planning decisions on renewable energy need to be in accordance with government policy, there is also a long line of decisions of Planning Inspectors who did not agree with this condition and did not allow it and did not think that this condition fulfills the necessary requirements of a condition.

This condition was proposed by Mike Stigwood of MAS Consulting , who has been employed by Central Bedfordshire Council. His evidence for Central Bedfordshire Council on the Biggleswade wind farm did not persuade the Inspector who said

"However, although the Council's acoustic witness contended that there was general acceptance that EAM occurred at 10-16% of wind farms nationally, no

cogent evidence was advanced to support that figure. A study by the University of Salford in 2007 considered that AM could be a factor in 4 of the 133 wind farms then operational in the UK and a possible factor in another 8.

It concluded that the incidence of AM in the UK was low. Even taking account of the Council's acoustics witness' criticism that the study may have underestimated the incidence of the phenomenon, and his assessments at certain wind farm sites, there is no real challenge to that conclusion.

Importantly too the Government have seen no reason to change advice in PPS22 on using the ETSU methodology in response to the Salford report.

Nor is there any evident reason why the appeal site should be particularly prone to EAM. Although it was suggested that it was likely to be common in flat eastern parts of the country and could be exacerbated by wind

shear and linear layout or particular spacing of turbines, these assertions were not supported by evidence. And although the proposed layout does indeed include two separate lines of three turbines this does not appear to me to really constitute a linear layout in any real sense.

As I am not convinced that there is a real possibility of EAM at the site I consider that the Council's suggested condition to control it does not pass the test of necessity in Circular 11/95. If there is no clear need for it, it cannot be justified on a precautionary basis or because to impose it would "cause no harm"; nor do parallels drawn with the Den Brook case advance the argument appreciably. I also have doubts as to whether such a condition would meet the Circular tests of enforceability and precision in that, despite what the Council's acoustics witness said about being able to identify EAM and distinguish it from other noise, this would appear to depend so heavily upon individual judgement as to render the approach unsafe."

I think that the fact the Inspector draws attention to the issue that "*Importantly too the Government have seen no reason to change advice in PPS22 on using the ETSU methodology in response to the Salford report"* is followed by the unequivocal comment in the latest good practice published by IOA this May endorsed by the government, that current practice is not to assign a planning condition to AM, seems to indicate that this condition is not sound and would not be supported in an Appeal.

However if this is not completely clear; for although Mike Stigwood was shown to be a lonely voice in the Acoustics world in the BIggleswade Wind Farm Public Inquiry and his work has had little in the way of peer review, he is passionate about his subject and the length of his submissions have suggested to some that his concerns about wind turbines should be listened to and public money should be spent supporting them, there are some other points that illustrate why this condition should be removed and his evidence should not be given weight.

In the Forest Marston Vale wind turbine application, APPLICATION NUMBER CB/12/00718/VOC, the officer for CBC stated concerning the condition on AM.

"Given that the condition does not meet all the tests set out in Circular 11/95, it is considered that it may be unlawful and therefore the application should be approved and the condition removed." This is after the several pages of detailed analysis of the subject of AM by the officer for CBC.

The Inspectors in Cotton Farm, St Neots, Wadlow, Barmoor, Sober Hill, Greenrigg/Ray and Crook Hill appeals have rejected the EAM condition.

In the Watford Lodge Inquiry[APP/Y2810/A/11/2153242]

the Inspector concluded that 'a great deal of confusion and fruitless effort would be likely to arise from the use of the EAM condition suggested' and that the suggested condition would be likely to fail the Circular 11/95 tests of necessity, enforceability and precision'. His final observation at paragraph 99 was that 'in any event, there would be other means of approaching the problem, should it arise, through statutory nuisance legislation'.

The condition on AM in Denbrook could be removed as RES has put in an application in April this year to remove it ,http://www.den-brook.co.uk/news.aspx and http://www.westdevon.gov.uk/article/4504/Denbrook-Wind-Farm-Development.

Since the Court of Appeal ruling, RES has spent several months monitoring background noise levels at other rural wind farm sites and running the data through the parameters set by the High Court. The results of these tests consistently show that excess AM, as defined by the current condition, is present even at locations where there are no wind turbines. RES likens this situation to a policeman registering speeding motorists on his speed gun even when there are no cars there.

This is backed up the report in the Acoustics Bulletin on the Den Brook Condition which is part of this application

We believe that application should be approved and the condition removed as soon as possible otherwise it becomes increasingly difficult to understand the link between the actions of CBC and the NPPF's paragraph ." Local planning authorities should adopt proactive strategies to mitigate and adapt to climate change, In line with Climate Change Act".

To help increase the use and supply of renewable and low carbon energy, local planning authorities should recognise the responsibility on all communities to contribute to energy generation from renewable or low carbon sources. They should have a positive strategy to promote energy from renewable and low carbon sources.

We would hope that the decisions of Development Management would reflect the NPPF and therefore we would urge CBC to support this application.

Determining Issues

The main considerations of the application are;

1. Principle of the development
2. Residential amenity
3. Whether condition 11 meets the tests set out in the National Planning Policy Framework and Circular 11/95

4. Other matters

Considerations

1. **Principle of the development**

The principle of the development was established with the grant of planning permission which forms the subject of this application to remove a condition regulating EAM noise, reference **CB/10/03034.** Section 73 of the Act provides for applications for planning permission to develop land without complying with conditions previously imposed on a planning permission. The local planning authority can grant such permission unconditionally or subject to different conditions, or they can refuse the application if they decide the original conditions should continue. The original planning permission will continue to subsist whatever the outcome of the application under section 73. (Paragraph 60,Circular 11/95). In determining such an application under section 73, the decision maker should take into account any changes in circumstances since the parent permission was issued. In this case, since the grant of permission in 2010, the following documents have been published which are considered to be material changes in circumstances :

- National Planning Policy Framework (NPPF) which came into force on the 27th March 2012.
- the emerging Development Strategy for Central Bedfordshire (DSCB) went out to public consultation in January 2013.
- Central Bedfordshire Renewable Energy Guidance (2013).
- the publication by the Government in July 2013 of the Planning practice guidance for renewable and low carbon energy.

The NPPF carries a presumption in favour of developments for renewable energy and states that in order ' to help increase the use and supply of renewable energy and low carbon energy, local planning authorities should recognise the responsibility on all communities to contribute to energy generation from renewable or low carbon sources'.(paragraph 97). Further advice at Paragraph 98 states that 'when determining planning applications, local planning authorities should,' ...approve the application if its impacts are (or can be made) acceptable.' This approach is followed in Policy 46 of the DSCB . All the other matters considered in the previous application regarding landscape character, aviation, cultural and archaeological considerations, ecology, hydrology, geology, flood risk, contamination, traffic generation, telecommunications and the impact on public rights of way, remain relevant but there would be no justification to re-examine them in the current application given that none of the consultees and interested parties have raised new issues which call for a fresh examination of these matters. Furthermore, the previous permission is extant and hence provides a fallback position in the event of a refusal to grant permission. The main issue for consideration in this application therefore is the impact of EAM noise on residential amenity and whether or not a condition to mitigate its effects would be lawful. This will be examined in detail below.

2. **The effect on the residential amenity of nearby residents with respect to noise impact**

The main properties which might be affected by the proposal are Overend Green Farm, Checkley Wood Farm, Churchways Farm, Sandhouse Cottages and Sandhouse Farm.

The main consideration relates to the impact of EAM on residential amenity and as such, it is imperative to examine what the term Excess Amplitude

Modulation (EAM) means. Various appeal decisions have helped shed light on this phenomenon.

Excess Amplitude Modulation (EAM) is commonly referred to as blade swish. It would involve the control of noise that might occur over and above the normal level of blade swish noise. In allowing an appeal in relation to the Langford Wind Farm development, the Inspector stated that *'Amplitude Modulation (AM) or "blade swish" is an aspect of the aerodynamic noise from wind turbines that can be particularly noticeable or insistent but which is still not fully understood'.*

The companion guide to the former PPS22 states in paragraph 42 that *' there are two quite distinct types of noise source within a wind turbine. The mechanical noise produced by the gearbox, generator and other parts of the drive train; and the aerodynamic noise produced by the passage of the blades through the air*'.
The paragraph concludes by saying *' Aerodynamic noise from wind turbines is generally unobtrusive - it is broad-band in nature and in this respect is similar to, for example, the noise of wind in trees'.*

It is common knowledge that there have been instances at some wind farms of reported noise characteristics which could not be attributed to normal blade swish. The Government commissioned a study into the phenomenon which was undertaken by the University of Salford and the findings were published in 2007.
The research suggested a relatively low incidence of occurrences (evident in 4 and possibly another 8 sites out of a total of 133), however, these findings were based on descriptions of noise characteristics and later re-interpretation of the data suggested that the incidence might be as high as 25%.
Whilst several potential causes have been identified, despite the research undertaken by Salford University, there remains no consensus as to the trigger for excess amplitude modulation. The Appeal in relation to Land at Cotton Farm, St Neots which was allowed by the Inspector states that 'Based on the findings of low incidence and the number of people affected being small, the Government's view is that there is not a compelling case for more work on AM and that the minimisation of increases in noise through the use of ETSU-R-97 remains appropriate.
Various factors are considered to be possible causes of excess AM these include - squat turbine designs, linear turbine arrangements, turbines too closely spaced together, high levels of wind shear, reflective surfaces close to the receiver, topography, distance from dwellings, wind direction and background noise levels.

It can be seen from the information above that there is little agreement over the causes of excess amplitude modulation and given the University of Salford's research it is considered that the incidence of it occurring is relatively low even taking into account that although after re-interpretation this increased to potentially 25% of the 133 sites that were examined.

The applicant's reasons for seeking the removal of the condition are based mainly on this background and the main arguments are summarised below :

It is contended that the condition is unlawful for the following reasons :

- Based on Dr Andy Mckenzie's technical analysis, it is submitted that the condition is untested as a means of regulating amplitude modulation and in any case, is not based on any published research.
- The wording of Condition 11 is based on that submitted by the Den Brook Judicial review Group at the second Denbrook Inquiry and subsequently incorporated into the decision notice issued by the Inspector in allowing the appeal. [APP/Q1153/A/06/2017162]. It is understood that this condition was formulated by the consultant advising the Den Brook Judicial Review Group based upon his own appreciation of listening to and recording of wind farm noise at other sites. It is not based on consideration of any dose –response relationship or other research, published or otherwise and has not been incorporated into any appeal decisions thereafter. It is therefore essentially untested as a means of regulating amplitude modulation by anyone other than its proposer and on that basis, it is not justified as a means to regulate amplitude modulation at Double Arches.
- The condition means that the level of variation in noise from the wind farm may not exceed 3dB which is generally held to be the change in level which is the minimum perceptible under normal conditions as required by PPG24, Planning and Noise, before it was withdrawn. It also corresponds to a level of variation corresponding to normal variation in noise propagation conditions completely independent of any variation in turbine noise at source.
- Several appeal decisions used to support Dr Mckenzie's analysis confirm that similar conditions submitted at public inquiries have been rejected by Planning Inspectors on the basis that they would fail the test of necessity in Circular 11/95.
- Research undertaken Renewable Energy Systems and published in the Institute of Acoustics Bulletin (Vol 36, No.6 subsequently corrected in Vol.37, No.1) investigated the methodology of the Den Brook condition using real measured data to assess its performance. It was established that the condition would be breached by natural variation in noise propagation conditions, and the variation in noise from other sources. The paper established greater than expected amplitude modulation for 67-83% of the time where it was applied to ambient noise measurements at two rural locations with no wind turbines installed. Clearly, if compliance with a planning condition cannot be achieved before the development is even carried out, it cannot pass the tests of 'enforceability' or 'reasonableness'.
- EAM has only been identified at a small number of sites across the UK. A report commissioned by DEFRA, BERR(formerly DTI) and the CLG to investigate AM of wind turbine noise found that AM was only considered to be a factor at four, and at a possible further eight of the 133 operational sites at the time. At the four sites, it was considered that conditions associated with AM might occur between about 7 and 15% of the time. It is therefore statistically highly unlikely that EAM would be an issue at Double Arches. The EAM condition is therefore neither **necessary nor reasonable**.
- There is currently no consensus on a robust assessment methodology for detecting EAM. It is therefore currently not possible to craft a condition which includes a robust and tested means of determining the presence of EAM which would meet the tests of **precision and enforceability**. Indeed, given the findings of the RES research which

established that the Den Brook condition is breached even without any turbines installed, gives weight to this argument.

- The EIA did not establish the need for such a condition. It would be inappropriate to apply the precautionary principle unless there is objective scientific evidence to demonstrate that there is a real risk of EAM occurring on the application site. Condition 11 is therefore **unnecessary, unreasonable, imprecise and unenforceable**, and therefore outside of Circular 11/95 and unlawful.
- A report for the CBC Committee submitted in respect of the Marston Vale development confirmed that such a condition is unlawful.
- The recently published Institute of Acoustics Good Practise Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise notes that 'the evidence in relation to 'Excess' or 'Other' Amplitude Modulation (AM) is still developing. At the time of writing, current practice is not to assign a planning condition to deal with AM'. Excess or Other AM is often used to identify the occurrence of AM in ways not anticipated by ESTU-R-97.
- A condition such as this is not only very onerous for an operator, but is not justified by the likely corresponding subjective response and would be likely to prevent the operation of any wind farm in practice. Contract report NANR277 for DEFRA, Wind Farm Noise Statutory Nuisance Complaint Methodology notes that not only is it 'not simple or easy to implement' but 'it does not represent a validated method of assessing the significance of any impact or effect on amenity'.
- A variation of this condition was submitted to the conjoined Inquiry into two wind farms at Spaldington Common and Spaldington Airfield [APP/E2001/A/10/2137617] and [APP/E2001/A/10/2139965] where the Inspector concluded that, 'whilst both these schemes would display some of the characteristics thought to be associated with EAM, the current situation can be summed up as, there is no agreement over what the cause of the phenomenon is, there is no agreement what the level of risk is in relation to any one particular wind farm and there is no agreement how to measure it. Here the evidence does not suggest that the sites pose any greater risk of EAM so as to adopt an approach that differs from ETSU. Moreover, where such an approach has been taken, I am aware of the problems that have arisen in attempting to construct appropriate conditions.Moreover, it would appear that the conditions suggested by STOP [the 3rd Party action group] could lead to some sounds being identified as EAM when in fact it comes from a source that would be generally regarded as innocuous. These factors lead me to the conclusion that such conditions, and the STOP conditions in particular, would fail the tests in Circular 11/95.
- A similar condition was submitted to the Watford Lodge Inquiry [APP/Y281/A/11/2153242] where the Inspector concluded that, 'a great deal of confusion and fruitless effort would likely to arise from the use of the EAM condition suggested' and that 'the suggested condition would be likely to fail the circular 11/95 tests of necessity, enforceability and precision'. His final observation at paragraph 99 was that 'in any event, there would be other means of approaching the problem, should it arise, through statutory nuisance'.
- The latest position on AM as considered in appeal cases, is that from Batsworthy Cross [APP/X1118/A/11/2162070], where the Inspector considered that a condition could not be tailored to tackle 'Other' AM because of current lack of knowledge. He concluded that, because of

this, 'whilst not an ideal solution, reliance on the statutory nuisance regime offers the best recourse available to local residents, should OAM be found to occur'.

- The MAS report relies upon **new** evidence that is not yet published nor peer reviewed. Indeed MAS confirm that the papers that back up their case are not to be published until 28th August. Even after publication, these papers should be subject to full professional peer review before being relied upon to inform planning decisions.
- Despite the length and wide ranging opinions in the MAS report, Mr Stigwood does not demonstrate the actual need and necessity for this condition or for the alternative condition he proposes for Double Arches other than to cite his forthcoming paper and examples where he believes EAM may have occurred.
- Therefore nothing has changed since June 2012 when Central Bedfordshire Planners recommended that the same condition be removed at the Marston Vale with the Officer's recommendation concluding 'Given that the condition does not meet all the tests set out in Circular 11/95, it is considered that it may be unlawful and therefore the application should be approved and the condition removed' (Ref: Officers Conclusion Page 16).

The Council's Environmental Consultant's (MAS) observation on the application

The Consultant states that arguments for removal of the condition are based on a letter of 12th June from Engena and a report by Dr McKenzie of the Hayes McKenzie partnership of 4th June 2013. Both are based on extensive misconceptions about EAM.

It has become increasingly clear that all modern large wind farms cause EAM, including single turbines and that it is the main cause of complaints post development. Whether the problem arises on a regular basis or in a Substantial way depends whether dwellings occur at noise hot spots. There has been a concerted effort by the industry and their representatives to prevent this becoming well understood and also to prevent controls as these then expose the problem and enable constraints that protect communities.

As a result of the industry efforts to introduce confusion and obfuscation to enable developments to continue without control at MAS Environmental we extended our research and as a result have established with much greater clarity the extent of the problem. The findings are being presented in an international paper in August 2013.

Evidence is now coming to light of potential health effects from modern turbines, identified first in the 1980s from a 3 year study but only recently re-discovered. These indicate possible problems which the EAM condition helps control.

Summary responses to the application arguments by the Council's Environmental Consultant (MAS).

At paragraph 5.0 the Consultant summarises his advice to the Council by providing a direct response to the applicant's submission. The applicant's

arguments are presented in italics with the Consultant's response following immediately below.

- *The condition is only based on one individuals appreciation of listening to wind farm noise at other sites and not any dose-response relationships or other research.*

This is incorrect and baseless. Dr McKenzie has no information to support such statements which are untrue. Findings are based on complaints correlated with impact levels, a report by Hayes McKenzie confirming levels of 2-6dB as unacceptable, extensive work in Europe and elsewhere demonstrating similar levels, separate investigations by three experts at MAS Environmental and a series of listening room tests where people have been subjected to EAM.

- *The condition is untested.*

This is untrue. The condition has been tested by us on data from at least 15 wind farms and was independently checked by the Renewable Energy Foundation.

- *Planning Inspectors have concluded the condition does not meet the test of necessity. This is primarily based on a 2007 report by Salford University.*

This is correct but ALL those decisions were based on the now discredited Salford Report commissioned by BERR. If the Salford findings were remotely correct there would be an argument the control is not necessary. The Salford study was deeply flawed on many levels including the investigation techniques applied and the number of cases of EAM it missed. No planning inspector has been presented with the recent findings which now indicate at least 80 onshore wind farms causing EAM at dwellings and the true figure likely to be 140 plus.

- *EAM is only experienced at a small number of sites (4 out of 133).*

This is based on the discredited Salford report to BERR and now known to be woefully inaccurate. We have data showing EAM at 16 sites and evidence it is the cause of complaints at over 80 sites.

- *The condition is breached by natural variation in noise and ambient noise even when no wind turbines are installed. Innocuous sounds could trigger the condition.*

This is untrue and the statements derive from a basic failure to understand how noise level controls work or alternatively they could derive from deliberately misrepresenting the condition. The condition levels only apply to emissions from the wind turbine. Thus it cannot be triggered by other noise as it does not apply to other noise. The condition states "*The wind turbine shall not emit*". This is very clear that it does not state the noise level in the environment shall not exceed the parameters.

To demonstrate how easy this is to check we are providing a simple means of testing the condition with real data and full explanation on our website. This will be live within 10 days of this report. The fact that ambient noise levels can exceed the decibel limits set is true of every noise limit condition ever applied to any environmental source of noise. Many will exceed the limits 100% of the time. That does not render them unenforceable or unreasonable. In many cases conditions set levels below the background noise level and they are exceeded all the time by extraneous noise. This has long been understood and there are detailed procedures to deal with this. The fact the industry acousticians were able to convince inspectors this is a problem reflects on how those acousticians have successfully misled inspectors. If the argument was remotely valid then we have no means of controlling noise as the alleged problem would apply to all conditions. Of all the noise level conditions that are applied, the EAM condition used in this case is the hardest to falsely trigger

and easiest to remove extraneous noise from or differentiate EAM within.

- *There is no consensus on a robust assessment methodology.*

Wind industry acousticians will not agree an assessment methodology. That has proved a very successful method of avoiding this control which had it been applied to the 80 or so wind farms causing this problem that we know of, residents could have been provided some respite. The lack of agreement serves as a mechanism of avoiding control. The creation of disagreement and arguments of problems is a "smokescreen" and obfuscation.

- *Current practice of planning inspectors has been not to impose conditions.*

This is correct due to the successful misinformation by industry acousticians, reliance on a discredited report by Salford University for BERR and fallacious arguments.

- *The 3dB change identified as the measure is the minimum perceptible.*

This is incorrect and misrepresents the science. If the character of a noise does not change but its energy level changes 3dB then in most circumstances it is not significantly noticeable but that is not what happens here and Dr McKenzie should be aware of this. Turn the volume up of white noise (hissing on a radio) and 3dB is the point of noticeable change. However, in the case of EAM the character is changing significantly all the time and it is clearly noticeable with smaller changes than 3dB. This can be seen by examining extracts provided on our website and considered in more detail below. To demonstrate this is possible, it is useful to consider how the courts have assessed this issue. They have confirmed in the case of Godfrey v Conwy CBC that a noise could be immeasurable and still cause a statutory nuisance, provided it was incongruous and out of character with the soundscape of the area. If you cannot measure a noise then you certainly could not measure any change in that noise. The noise in the Godfrey case was changing music noise such as drum beats. This point arises because its character can change causing unacceptable impact without any recordable decibel change that is recordable as a change.

- *The Courts who upheld the condition were not concerned with its technical merits.*

This is incorrect as I have demonstrated and there is evidence the court did consider the reasoning of the inspector on technical content. Further it is reasonable for the court to conclude any technical issue would or should have been raised by any party if it considered such an issue existed. None were raised by any party. If every decision of the courts could be undermined simply by raising a new issue not previously considered relevant to put before the court at the time then we would not be able to rely on the decisions of the court. This is a case where the Court of Appeal upheld the conditions and there was no argument the technical wording was flawed or created an unreasonable requirement. On the technical evidence the court did not challenge or consider there was any fault with the rationale of the inspector in applying the controls.

- *The condition is very onerous for the operator and not justified by the likely corresponding subjective response and will likely prevent the operation of the wind farm in practice.*

On the one hand it is claimed the occurrence of EAM is rare and control is not necessary and then in the same application it is claimed controls over EAM would be very onerous and not justified by the subjective response. Thus there is both acceptance EAM is likely to occur (contrary to the application) and then a claim people would not be adversely affected by it. No evidence people are accepting of such a level of EAM is provided and Dr McKenzie

does not use any research to support his argument. It is instructive that the levels exceed those identified by ETSU-R-97 and those identified by Malcolm Hayes (Dr McKenzie's business partner) in his report to the then DTI in 2006 where he identified AM levels of 2-3dB as exceeding those identified by ETSU-R-97 and warranting a decibel penalty. It is also instructive that Dr McKenzie does not refer to the work by his business partner that contradicts his own assertions or their report on Kessingland which indicates levels in excess of those identified by ETSU-R-97 warrant action investigation / action.

- *Statutory Nuisance can be used to address the problem should it arise.*

There are clear reasons why this is inappropriate, not least the significant differences between planning controls and limitations on nuisance action. If it was arguable then we need few controls over noise from development as statutory nuisance is a legitimate fallback in almost every case of noisy development. This is not how noise is administered demonstrating the disparity in this argument. Statutory nuisance is my main area of expertise. It has thus far failed to address the problems in every wind farm case arising that I have come across. Even ETSU-R-97 points out the defences that can be used against a statutory nuisance action indicating its inability to address the problems.

MAS Conclusions

For the extensive reasons given in the report, it is necessary to control EAM from any wind farm as it is the most common noise problem leading to a large number of complaints in the UK.

The EAM condition applied has been repeatedly tested without difficulty and arguments over problems are simply obfuscation albeit successful prior to us demonstrating robustly the condition works and EAM control is necessary. Information is provided on our website to allow anyone to test the condition for themselves and experience the levels of EAM that would be prevented.

The condition is based on extensive research, comparison with complaints and social studies as well as existing controls / limits of acceptability already identified. An amended version is attached which improves controls.

There is widespread wind industry opposition and a lack of consensus which appears to be a mechanism thus far successfully avoiding control. Statutory nuisance controls are demonstrated as inappropriate and have defences rendering enforcement ineffectual.

If the controls (devised to allow approval) are rejected then refusal is recommended as this is a very serious problem.

Suggested revised condition by MAS:

The wind turbine shall not emit greater than expected amplitude modulation. Amplitude modulation is the modulation of the level of broadband noise emitted by a turbine at blade passing frequency. These will be deemed greater than expected if the following characteristics apply:

a) A change in the measured $L_{Aeq\ 100\ milliseconds}$ turbine noise level of more than 3dB (represented as a rise and fall in sound energy levels each of more than 3dB) occurring within a 2 second period.

b) The change identified in (a) above shall not occur less than 5 times in any one minute period provided that the $L_{Aeq,\ 1\ minute}$ turbine sound energy level for

that minute is not below 28dB.
c) The changes identified in (a) and (b) above shall not occur for fewer than 6 minutes in any hour.
Noise emissions at the complainant's dwellings shall be measured not further than 35m from the relevant dwelling building, and not closer than 3.5m of any reflective building or surface other than the ground, or within 1.2m of the ground.
i) Within 21 days from receipt of a written request of the Local Planning Authority, following a complaint to it alleging noise disturbance at a dwelling which relates to amplitude modulation, the wind farm operator shall, at its expense, employ a consultant approved by the Local Planning Authority, to assess whether there is greater than expected amplitude modulation from the wind farm at the complainant's property. The written request from the Local Planning Authority shall set out at least the date, time and location that the complaint relates to.

*Within 14 days of receipt of the written request of the Local Planning Authority made under this condition, the wind farm operator shall provide the information logged in accordance with this c*ondition to the Local Planning *Authority in the format set out in Guidance Note 1(e).*
ii) Prior to the commencement of any measurements by the independent consultant to be undertaken in accordance with this condition, the wind farm operator shall submit to the Local Planning Authority for written approval the proposed measurement location identified. Measurements to assess compliance with the noise limit of this condition shall be undertaken at the measurement location or locations approved in writing by the Local Planning Authority.
iii) Prior to the submission of the independent consultant's assessment of the rating level of noise emissions in accordance with the requirements of this condition, the wind farm operator shall submit to the Local Planning Authority for written approval a proposed assessment protocol setting out the range of meteorological and operational conditions (which shall include the range of wind speeds, wind directions, power generation and times of day) to determine the assessment of rating level of noise emissions.
iv) The proposed range of conditions shall be those which prevailed during times when the complainant alleges there was disturbance due to noise, or are identified as causing greater than expected amplitude modulation, having regard to the written request of the Local Planning Authority, and such other conditions as the independent consultant considers likely to result in a breach of the noise limits. The assessment of the noise emissions shall be undertaken in accordance with the assessment protocol approved in writing by the Local Planning Authority.
v) The wind farm operator shall provide to the Local Planning Authority the independent consultant's assessment of greater than expected amplitude modulation within 2 months of the date of the written request of the Local Planning Authority unless the time limit is extended in writing by the Local Planning Authority. The assessment shall include all data collected for the purposes of undertaking the compliance measurements, such data to be provided in the format set out in Guidance Note 1(e) of the Guidance Notes. The instrumentation used to undertake the measurements shall be calibrated in accordance with Guidance Note 1(a) and certificates of calibration shall be submitted to the Local Planning Authority with the independent consultant's assessment of the rating level of noise emissions.
vi) The wind farm operator shall continuously log power production, nacelle

wind speed, nacelle wind direction and nacelle orientation at the wind turbine all in accordance with Guidance Note 1(d). 10m height wind speeds averaged over 10 minute periods shall be measured at a location approved by the Local Planning Authority for comparison with noise levels, for the duration of the noise level compliance check survey. Rainfall shall also be measured during any measurement regime at a location approved by the Local Planning Authority in writing.
These data obtained shall be retained for the life of the planning permission. The wind farm operator shall provide this information in the format set out in Guidance Note 1(e) to the Local Planning Authority on its request, within 14 days of receipt in writing of such a request.
Once the Local Planning Authority has received the independent consultant's noise assessment required by this condition, including all noise measurements and audio recordings, where the Local Planning Authority is satisfied of an established breach of the noise limit, upon notification by the Local Planning Authority in writing to the wind farm operator of the said breach, the wind farm operator shall within 14 days propose a scheme for the approval of the Local Planning Authority. The scheme shall be designed to mitigate the breach and to prevent its future recurrence. This scheme shall specify the timescales for implementation. The scheme shall be implemented as reasonably approved by the Local Planning Authority and according to the timescales within it. The scheme as implemented shall be retained thereafter unless otherwise agreed with the Local Planning Authority.

Guidance Note in relation to EAM condition (this is part of the condition)
Amplitude Modulation (AM) is the regular variation of the broadband aerodynamic noise caused by the passage of the blades through the air at the rate at which the blades pass the turbine tower.

Where the Local Planning Authority considers the level of AM may be at a level exceeding that envisaged by the condition, they may require the operator to appoint an approved independent consultant to carry out an assessment of this feature under this condition. In such circumstances, the sound level meter provided for assessment should include a switchable noise recording system which can be activated by the complainant, the independent consultant appointed by the operator or the Local Planning Authority. The independent consultant shall initiate recordings of the turbine noise at times and locations when significant amplitude modulation is considered to occur. Such recordings shall allow for analysis of the noise in decibels using one-third octave bands from 20 Hz up to 10kHz at intervals of 100ms. It shall also record audio at a standard of not less than 16 bit, 44KHz rate.

Whether condition 11 meets the tests set out in the National Planning Policy Framework and Circular 11/95?

The National Planning Policy Framework states in paragraph 206 that planning conditions should only be imposed where they are necessary, relevant to planning and to the development to be permitted, enforceable, precise and reasonable in all other respects. This guidance reflects the advice set out in Circular 11/95.

Circular 11/95 sets out that there are six tests for conditions, as a matter of policy the Circular states that conditions should only be imposed where they satisfy all of the tests. The tests are discussed in detail within paragraphs 14-

42 of the Circular. These explain that conditions should be:
i) necessary - the guidance is that Local Planning Authorities in considering whether a particular condition is necessary, should ask themselves whether planning permission would have to be refused if that condition were not to be imposed.

ii) relevant to planning - the guidance is that conditions should be relevant to planning, any condition which has no relevance to planning is ultra vires. Guidance also states in paragraph 22 that other matters are subject to control under separate legislation and a condition which duplicates the effect of other controls will normally be unnecessary.
iii) relevant to the development permitted - a condition must fairly and reasonably relate to the development permitted. If it is not considered to relate to the development permitted it is considered ultra vires.
iv) enforceable - the guidance states that a condition should not be imposed if it cannot be enforced. There are two aspects of this, the practicality of enforcement and whether compliance is reasonable. In terms of the practicality of enforcement, this relates to whether it is possible to detect a contravention and prove a breach of its requirements. In terms of whether compliance is reasonable, in applying a condition it is necessary to consider whether the person carrying out the development can reasonably be expected to comply with it.
v) precise - a condition must be worded so that it is precise in terms of being able to ensure that a condition is enforceable and also to ascertain what must be done to comply with it.
vi) reasonable - a condition may be unreasonable even though it may be precisely worded and apparently within the powers available. It may be unreasonable because it is unduly restrictive or so onerous that as a matter of policy it should be avoided.
As set out above conditions should only be imposed on the grant of planning permission if they meet all six of the tests set out. Therefore, in applying a condition and similarly in assessing whether a condition should be removed, it is necessary to consider whether it is necessary, relevant to planning, relevant to the development to be permitted, enforceable, precise and reasonable in all other aspects. The guidance is very clearly set out in Circular 11/95 in that in applying a condition or assessing whether it should be removed authorities should ask themselves whether planning permission would have to be refused if that condition were not imposed. The argument that a condition will do no harm is no justification for its imposition; as a matter of policy a condition ought not to be imposed unless there is a definite need for it.

In this case, it is imperative to note the requirement at Paragraph 15 of Circular 11/95 which states that , ' The same principles, of course, must be applied in dealing with applications for the removal of a condition under section 73 or section 73A (of the Act): a condition should not be retained unless there are sound and clear-cut reasons for doing so.'

The following section therefore turns on to an assessment of Condition 11 in light of the above tests and against the evidence submitted for and against the application.

Conclusion
In addition to the appeal decisions cited by the applicant, a recent decision at Land To The North Of Edworth Road, Langford, reference, **MB/09/00118/FULL** is considered relevant. During the Public Inquiry evidence was presented by MAS Environmental on a number of noise issues in relation to the application. One of these included the need for a EAM condition. MAS Environmental raised concerns at the Inquiry and during the application process that there is a particular risk of EAM at Langford and that if the appeal proposal were approved it should be controlled by condition. The Inspector's decision discussed this in detail in paragraph 56 of his decision stating that *'although the Council's acoustic witness contended that there was a general acceptance that EAM occurred at 10-16% of wind farms nationally, no cogent evidence was advanced to support that figure'.* The Inspector goes on to emphasis that there is not any real evident reason why the appeal site should be particularly prone to EAM. MAS Environmental suggested it was likely to be common in flat eastern parts of the country and could be exacerbated by wind shear and linear layout or particularly spacing of turbines. The Inspector states that the assertions made by the Council's witness were not supported by evidence.

The Inspector in this case concludes that *'as I am not convinced that there is a real possibility of EAM at the site I consider that the Council's suggested condition to control it does not pass the test of necessity in Circular 11/95. If there is no clear need for it, it cannot be justified on a precautionary basis or because to impose it would "cause no harm"...I also have doubts as to whether the condition would meet the Circular tests of enforceability and precision in that, despite what the Council's acoustic witness said about being able to identify EAM and distinguish it from other noise, this would appear to depend so heavily upon individual judgment as to render the approach unsafe'.*

The Woolley Hill decision was issued in March 2012. MAS Environmental point out in their response to the Council that there was no detailed discussion in relation to noise during the Inquiry and the issue only arose when noise conditions were discussed. The appeal was to consider the erection of 4 three bladed wind turbines, up to a height of 130.5m, at a site known as Land east of Whitleather Lodge, Woolley Hill, Ellington, Huntingdon. In the Inspectors decision it refers to the Salford University research and the re-interpretation of the data suggesting that the incidence might be as high as 25%.

The Inspector discussed the condition in detail and emphasises that the recognised guidance for wind farm noise assessment is ETSU-R-97 which accepts a certain level of increased noise at residential properties. It also anticipates an element of amplitude modulation which is widely claimed to be no longer adequate for modern, much larger turbines. However, it remains current guidance, endorsed by the Government, and there is nothing of material weight to supplement it or to replace it.

In terms of necessity, the Inspector emphasises that in line with Circular 11/95 a condition ought not to be imposed unless there is a definite need for it. The Inspector in this case rules that the likelihood of excess amplitude modulation manifesting itself cannot be predicted, and there is nothing to suggest that Woolley Hill would be particularly prone, or even likely, to such

tendencies, the imposition of a condition cannot be claimed to be necessary in the sense of mitigating foreseeable impacts.

The Inspector continues by stating in paragraph 193 of the decision that *'none of these aspects, compounded by the lack of understanding on excess amplitude modulation, provide good reason for the imposition of a condition as a matter of routine or precaution. To my mind, on the basis of the evidence before me, the test of necessity has not been fully met'.* The Inspector also states that the condition would be unreasonable, as there is no agreed methodology for measuring excess amplitude modulation, based on convincing research and therefore it would be unreasonable to impose a condition on such an uncertain basis.

The Inspector concludes the discussion on EAM by stating:

'In conclusion, despite the findings of the Inspector in the Den Brook case, the evidence presented to me does not provide convincing justification that an excess amplitude modulation condition would be necessary. In addition, such a condition, if imposed, would be unreasonable given the current limited knowledge and understanding of excess amplitude modulation and a lack of consensus beyond the guidance of ETSU-R-97.'

In the majority of appeal decisions before us, the Inspectors have noted that whilst they have misgivings, the Statutory Nuisance route open to Local Authorities is at present the best means currently available for resolving the phenomenon of EAM and not through condition.

It is concluded therefore that the two diametrically opposed views focusing on the process of measuring EAM and its impact on residential amenity confirm the absence of consensus in the wind energy industry about these matters. The absence of conclusive research and knowledge on these matters leaves the decision maker to rely on existing good practice guidance, previous planning decisions and the relevant planning policy framework which comprises the Development Plan and the National Planning Policy Framework. All other relevant documents cited in opposition or support of the current application have been considered material to the determination of the application and given weight in accordance with their relevance to the main issue. In the absence of any significant possibility of EAM occurring at the application site, it is not considered that the condition to control it would be justified in terms of necessity. In terms of its relevance to planning, the condition would also not be justified given that the matters can be controlled under separate legislation. Whilst the condition is considered relevant to the development permitted, it would not be enforceable as confirmed in the Langford appeal decision, notwithstanding the MAS report's conclusion to the contrary. With regards the test of precision, given the recent appeal decisions and in particular, the Langford case, it would be difficult to justify the condition on this basis in the absence of certainty over methodology for identifying and measuring EAM and the subjectivity this introduces. The appeal decisions examined in this case clearly emphasise that an EAM condition would be unreasonable due to the uncertainty in methodology for measuring EAM and the lack of agreement over its causes and therefore the predictability of it occurring at any given site. For the same reasons, the revised condition offered by MAS would not be justified. It is considered that the new evidence referred to in the MAS report still needs to be tested and accepted.

Furthermore, Condition 10 which relates to noise levels in particular would remain and afford adequate protection against noise to the local residents. Given that Condition 11 does not pass all the tests set out in Circular 11/95, it is considered that it may be unlawful and therefore should be removed.

3. **Other matters**

Objections
It is considered that the objections raised have been adequately dealt with in the preceding sections of this report. However, with specific reference to the CPRE objection, the applicant has offered the following response :

Whilst we have noted in the documentation that the Excessive Amplitude Modulation (EAM) is statistically highly unlikely to arise at Double Arches, the reason for applying for the removal of the condition is because the condition cannot be enforced. As highlighted in the submission by Dr McKenzie the condition is essentially untested as a means for regulating EAM and is likely to be breached not only by natural variation in noise propagation conditions, but also by variation in noise from other sources. Dr McKenzie cited a test of the condition published in the IoA bulletin that demonstrated that the levels would be breached with no wind turbine installed.

It is not possible to construct and operate a project where it is known that the condition would be breached.

In our submission we have referenced Inspectors' conclusions on this issue, and it has consistently been found that this condition would fail the Circular 11/95 tests of necessity, enforceability and precision.

With respect to the comments on turbine height, there is no evidence to suggest that turbine height is a factor that influences the occurrence of EAM. Indeed where EAM has been found it has been at sites with lower tip heights.

Human Rights issues
Having regard to the level of opposition and support for the application, the proposed development raises significant human rights concerns. However, given the Council's conclusion that the removal of the condition would not significantly prejudice residential amenity weighed against the benefits of the scheme to the whole debate about mitigating the harmful effects of climate change, it is considered that a decision to withhold planning permission would be unjustified.

Equality Act 2010
The proposal raises no concerns about equality.

Recommendation

That Planning Permission be **GRANTED** subject to the following:

RECOMMENDED CONDITIONS

1 The development shall begin not later than three years from the date of this permission.

Reason: To comply with Section 91 of the Town and Country Planning Act 1990 as amended by Section 51 of the Planning and Compulsory Purchase Act 2004.

2 The maximum height of the turbine hereby permitted, when measured from the turbine base to the blade tip in the vertical position, shall be no greater than 149 metres.
Reason: For the avoidance of doubt and in the interest of visual amenity. (Policies BE8 S.B.L.P.R & 43 DSCB)

3 **No development shall take place until full details of the turbine, including make,model, design, power rating, sound power levels and tonal assessment have been submitted to and approved in writing by the Local Planning Authority.**
Reason: To ensure that the turbine is in accordance with the details submitted in the Environmental Statement and protect the amenities of the neighbouring residential properties.
(Policies BE8 S.B.L.P.R and 43 DSCB)

4 **No development shall take place until details of the external appearance and colour finishes of the turbine and details of the design, including samples of the external materials and the associated infrastructure hereby permitted have been submitted to and approved in writing by the Local Planning Authority.**
Development shall be carried out in accordance with the approved details and retained as such thereafter.
Reason: To protect the visual amenities of the area.
(Policies BE8 S.B.L.P.R & 43 DSCB)

5 **No development shall take place until a Construction Method Statement (CMS) has been submitted to and approved in writing by the Local Planning Authority. Development shall be carried out in accordance with the approved details. The CMS shall identify:**
i) Areas on site designated for the storage of heavy duty plant and equipment, including vehicles, and car parking facilities for construction site operatives and visitors;
ii) Activities like earth moving, aggregate mixing, crushing, screening, and piling and on-site storage and transportation of raw material;
iii) Working practices to control emissions of dust and mud arising from on-site activities, including details of wheel-wash facilities;
iv)Working practices for protecting nearby dwellings, including measures to control noise and vibration arising from on-site activities as set out in British Standard 5228:2009 Noise and Vibration Control on Construction and Open Sites;
v) Details of bunded facilities for any storage of oils, fuels or chemicals;
vi) Details of the temporary construction compound; and vii) A programme for the construction works.

Reason: To protect the amenities of the neighbouring residential properties and highway safety.
(Policies BE8 S.B.L.P.R & 27 & 43 DSCB)

6 The temporary construction compound shall be removed no later than three months from the date of commissioning of the turbine and the ground restored to its previous condition within six months of such removal, unless otherwise agreed in writing by the Local Planning Authority.
Reason: To protect the character and appearance of the surrounding area and to ensure that the compound is removed within an acceptable timeframe as the structure is temporary.
(Policies BE8 S.B.L.P.R & 43 DSCB)

7 **No development shall take place until a traffic management scheme for the implementation of the permission has been submitted to, and approved in writing by the Local Planning Authority. The scheme shall include arrangements for exceptional loads and appropriate temporary signage and shall be implemented in accordance with the approved details.**

Reason: In the interests of highway safety.
(Policies BE8 S.B.L.P.R & 27 & 43 DSCB)

8 **No development shall take place until a scheme of foul drainage for the constructional and operational phases of the development has been submitted to and approved in writing by the Local Planning Authority. Development shall be carried out in accordance with the approved details.**
Reason: To ensure appropriate drainage.
(Policies BE8 S.B.L.P.R & 43 DSCB)

9 The development shall not be brought into use until a scheme of ecological mitigation has been submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved scheme. The scheme shall include:
i) Details of the management programme controlling the habitats and vegetation in the immediate vicinity of the turbine;
ii) The position of 20 Schwegler 1FF bat boxes to be agreed in consultation with the Bedfordshire Bat Group;
iii) A scheme of post-implementation monitoring to be agreed with Natural England.
This scheme shall include techniques such as Anabat recording at turbine height, bat transects on site and corpse searches, as well as monitoring bird strike mortality.
Reason: To ensure that biodiversity interests are protected.
(Policies BE8 S.B.L.P.R and 43 & 57 DSCB)

10 The rating level of noise immissions from the wind turbine, (including the application of any tonal penalty) when determined in accordance with the attached Guidance Notes, shall not exceed 35dB LA90 at any dwelling except those identified in the table below for any relevant 10m height 10 minute mean above ground level measured integer wind speed between 1-10m/s. In the case of the six dwellings identified in the tables attached to this condition, the rating level of noise immissions from the wind turbine,

(including the application of any tonal penalty) when determined in accordance with the attached Guidance Notes, shall not exceed the decibel value identified for the relevant integer 10m measured wind speed set out in the tables and:
A. Prior to the First Export Date the wind farm operator shall submit to the Local Planning Authority for written approval a list of proposed independent consultants who may undertake compliance measurements in accordance with this condition. Amendments to the list of approved consultants shall be made only with the prior written approval of the Local Planning Authority.
B. Within 21 days from receipt of a written request of the Local Planning Authority, following a complaint to it alleging noise disturbance at a dwelling, the wind farm operator shall, at its expense, employ a consultant approved by the Local Planning Authority, to assess the level of noise immissions from the wind farm at the complainant's property in accordance with the procedures described in the attached Guidance Notes. The written request from the Local Planning Authority shall set out at least the date, time and location that the complaint relates to.
Within 14 days of receipt of the written request of the Local Planning Authority made under this paragraph (B), the wind farm operator shall provide the information logged in accordance with paragraph (G) to the Local Planning Authority in the format set out in Guidance Note 1(e).
C. Prior to the commencement of any measurements by the independent consultant to be undertaken in accordance with these conditions, the wind farm operator shall submit to the Local Planning Authority for written approval the proposed measurement location identified in accordance with the Guidance Notes where measurements for compliance checking purposes shall be undertaken. Measurements to assess compliance with the noise limit of this condition shall be undertaken at the measurement location approved in writing by the Local Planning Authority.
D. Prior to the submission of the independent consultant's assessment of the rating level of noise immissions in accordance with paragraph (E), the wind farm operator shall submit to the Local Planning Authority for written approval a proposed assessment protocol setting out the following:
i. the range of meteorological and operational conditions (which shall include the range of wind speeds, wind directions, power generation and times of day) to determine the assessment of rating level of noise immissions; and
ii. a reasoned assessment as to whether the noise giving rise to the complaint contains or is likely to contain a tonal component
The proposed range of conditions shall be those which prevailed during times when the complainant alleges there was disturbance due to noise, having regard to the written request of the Local Planning Authority under paragraph (B), and such others as the independent consultant considers likely to result in a breach of the noise limits.
The assessment of the rating level of noise immissions shall be undertaken in accordance with the assessment protocol approved in writing by the Local Planning Authority.
E. The wind farm operator shall provide to the Local Planning Authority the independent consultant's assessment of the rating level of noise immissions undertaken in accordance with the Guidance Notes within 2 months of the date of the written request of the Local Planning Authority made under paragraph (B) unless the time limit is extended in writing by the Local Planning Authority. The assessment shall include all data collected for the purposes of undertaking the compliance measurements, such data to be provided in the format set out in Guidance Note 1(e) of the Guidance Notes. The instrumentation used to undertake the measurements shall be calibrated in accordance with Guidance Note 1(a) and certificates of calibration shall be submitted to the Local Planning Authority with the independent consultant's assessment of the rating level of noise immissions.
F. Where a further assessment of the rating level of noise immissions from the wind

farm is required pursuant to paragraph 4(c) of the attached Guidance Notes, the wind farm operator shall submit a copy of the further assessment within 21 days of submission of the independent consultant's assessment pursuant to paragraph (E) above unless the time limit has been extended in writing by the Local Planning Authority.

G. The wind farm operator shall continuously log power production, nacelle wind speed, nacelle wind direction and nacelle orientation at the wind turbine all in accordance with Guidance Note 1(d). 10m height wind speeds averaged over 10 minute periods shall be measured at a location approved by the local planning authority for comparison with noise levels, for the duration of the noise level compliance check survey. Rainfall shall also be measured during any measurement regime at a location approved by the local authority in writing.

These data obtained shall be retained for the life of the planning permission. The wind farm operator shall provide this information in the format set out in Guidance Note 1(e) to the Local Planning Authority on its request, within 14 days of receipt in writing of such a request.

H. Once the Local Planning Authority has received the independent consultant's noise assessment required by this condition, including all noise measurements and audio recordings, where the Local Planning Authority is satisfied of an established breach of the noise limit, upon notification by the Local Planning Authority in writing to the wind farm operator of the said breach, the wind farm operator shall within 14 days propose a scheme for the approval of the Local Planning Authority. The scheme shall be designed to mitigate the breach and to
prevent its future recurrence. This scheme shall specify the timescales for implementation. The scheme shall be implemented as approved by the Local Planning Authority and according to the timescales within it. The scheme as implemented shall be retained thereafter unless otherwise agreed with the Local Planning Authority.

For the purposes of this condition, a "dwelling" is a building which is lawfully used as a dwelling house and which exists or had planning permission at the date of this consent.

Table 1 - Between 07:00 and 23:00 - Noise level dB L_{A90}, 10-minute

Location	**Measured wind speed at 10 meter height (m/s) within the site averaged over 10-minute periods**											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
The dwellings identified as H14-H19, Overend Green as specified in the Double Arches Wind Turbine Environmental Statement Volume 1: Main text July 2010 paragraph 7.3.3 National Grid Ref H14-H17 = 493263 228805 H18 = 493357 228735 H19 = 493365 228682	**35**	**35**	**37**	**39**	**41**	**43**	**45**	**47**	**49**	**51**	**53**	**55**

Table 2 - Between 23:00 and 07:00 - Noise level dB L_{A90}, 10-minute

Location	Measured wind speed at 10 meter height (m/s) within the site averaged over 10-minute periods											
	1	2	3	4	5	6	7	8	9	10	11	12
The dwellings identified as H14-H19, Overend Green as specified in the Double Arches Wind Turbine Environmental Statement Volume 1: Main text July 2010 paragraph 7.3.3 National Grid Ref H14-H17 = 493263 228805 H18 = 493357 228735 H19 = 493365 228682	**43**	**43**	**43**	**43**	**43**	**43**	**44**	**45**	**47**	**49**	**50**	**52**

Reason: To ensure that the amenities of neighbouring occupiers are not prejudiced by excessive noise.
(Policies BE8 S.B.L.P.R and 43 DSCB)

11 Within 21 days from receipt of a written request of the Local Planning Authority, following a complaint to it alleging noise disturbance at a dwelling which relates to amplitude modulation, the wind farm operator shall, at its expense, employ a consultant approved by the Local Planning Authority, to assess whether there is greater than expected amplitude modulation from the wind farm at the complainant's property. The written request from the Local Planning Authority shall set out at least the date, time and location that the complaint relates to. Within 14 days of receipt of the written request of the Local Planning Authority made under this condition, the wind farm operator shall provide the information logged in accordance with this condition to the Local Planning Authority in the format set out in Guidance Note 1(e).

i) Prior to the commencement of any measurements by the independent consultant to be undertaken in accordance with this condition, the wind farm operator shall submit to the Local Planning Authority for written approval the proposed measurement location identified. Measurements to assess compliance with the noise limit of condition 2 shall be undertaken at the measurement location or locations approved in writing by the Local Planning Authority.

ii) Prior to the submission of the independent consultant's assessment of the

level of amplitude modulation in accordance with the requirements of this condition, the
wind farm operator shall submit to the Local Planning Authority for written approval a proposed assessment protocol setting out the range of meteorological and operational conditions (which shall include the range of wind speeds, wind directions, power generation and times of day) to determine the assessment of the amplitude modulation.
iii) The proposed range of conditions shall be those which prevailed during times when the complainant alleges there was disturbance due to noise, or are identified as causing greater than expected amplitude modulation, having regard to the written request of the Local Planning Authority, and such other conditions as the independent consultant considers likely to result in a breach of the noise limits.
The assessment of the noise immissions shall be undertaken in accordance with the assessment protocol approved in writing by the Local Planning Authority.
iv) The wind farm operator shall provide to the Local Planning Authority the independent consultant's assessment of greater than expected amplitude modulation within 2 months of the date of the written request of the Local Planning Authority unless the time limit is extended in writing by the Local Planning Authority. The assessment shall include all data collected for the purposes of undertaking the compliance measurements, such data to be provided in the format set out in Guidance Note 1(e) of the Guidance Notes. The instrumentation
used to undertake the measurements shall be calibrated in accordance with Guidance Note 1(a) and certificates of calibration shall be submitted to the Local Planning Authority with the independent consultant's assessment of the amplitude modulation noise immissions.
v) The wind farm operator shall continuously log power production, nacelle wind speed, nacelle wind direction and nacelle orientation at the wind turbine all in accordance with Guidance Note 1(d). 10m height wind speeds averaged over 10 minute periods shall be measured at a location approved by the local planning authority for comparison with noise levels, for the duration of the noise level compliance check survey. Rainfall shall also be measured during any measurement regime at a location approved by the local authority in writing.
These data obtained shall be retained for the life of the planning permission. The wind farm operator shall provide this information in the format set out in Guidance Note 1(e) to the Local Planning Authority on its request, within 14 days of receipt in writing of such a request.
vi) Once the Local Planning Authority has received the independent consultant's noise assessment required by this condition, including all noise measurements and audio recordings, where the Local Planning Authority is satisfied of an established breach of condition 2, upon notification by the Local Planning Authority in writing to the wind farm operator of the said breach, the wind farm operator shall within 14 days propose a scheme for the approval of the Local Planning Authority. The scheme shall be designed to mitigate the breach and to
prevent its future recurrence. This scheme shall specify the timescales for implementation. The scheme shall be implemented as approved by the Local Planning Authority and according to the timescales within it. The scheme as implemented shall be retained thereafter unless otherwise agreed by the Local Planning Authority.

Reason: To ensure that the amenities of neighbouring occupiers are not prejudiced by excessive noise.
(Policies BE8 S.B.L.P.R and 43 DSCB)

12 **No development shall commence until a scheme detailing the investigation and alleviation of any potential interference to telecommunication links, caused by the turbine hereby permitted, has been submitted to and approved in writing by the local planning authority through consultation to the appropriate telecommunication providers. The approved mitigation measures shall be carried out prior to the erection of the turbine.**
Reason: To ensure that the impact of the turbine on telecommunications links is adequately mitigated.
(Policies BE8 S.B.L.P.R and 43 DSCB)

13 **The wind turbine hereby approved shall operate in accordance with a shadow flicker mitigation scheme which shall be submitted to and approved by the Local Planning Authority prior to the operation of any wind turbine unless a survey carried out on behalf of the developer in accordance with a methodology approved in advance by the local planning authority confirms that shadow flicker effects would not be experienced within habitable rooms within any dwelling.**
Reason: To ensure shadow flicker is adequately mitigated.
(Policies BE8 S.B.L.P.R and 43 DSCB)

14 The planning permission is for a period from the date of the installation until the date occurring 25 years after the date of Commissioning of the Development. Written confirmation of the date of commissioning of the development shall be provided to the Local Planning Authority no later than 1 calendar month after that event.
Reason: In the interests of visual amenity and landscape protection.
(Policies BE8 S.B.L.P.R and 43 DSCB)

15 Not later than 3 months from the date that the planning permission hereby granted expires, or if the turbine ceases to operate for a continuous period of 6 months then, unless otherwise agreed in writing with the Local Planning Authority, it shall be dismantled and removed from the site and the land reinstated to its former condition.
Reason: To ensure that the turbine is removed at the end of its operational life and to safeguard the character of the locality.
(Policies BE8 S.B.L.P.R and 43 DSCB)

16 All electrical cabling on site shall be buried underground unless otherwise approved in writing by the Local Planning Authority.
Reason: For the avoidance of doubt and in the interests of visual amenity.
(Policies BE8 S.B.L.P.R and 43 DSCB)

17 If, during development, contamination not previously identified is found to be present at the site then no further development (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until the developer has submitted, and obtained written approval from the Local Planning Authority for, an amendment to the remediation strategy detailing how this unsuspected contamination shall be dealt with.
Reason :To protect and prevent the pollution of controlled waters (particularly the underlying principal aquifer and EU Water Framework

Directive drinking water protected area) from potential pollutants associated with current and previous land uses in line with National Planning Policy Framework (NPPF; paragraphs 109, 120, 121), EU Water Framework Directive, Anglian River Basin Management Plan and Environment Agency Groundwater Protection (GP3:2012) position statements A4 to A6, D1 to D4 and N7.

18 Prior to commencement of development, a verification report demonstrating completion of the works set out in the approved remediation strategy and the effectiveness of the remediation shall be submitted to and approved in writing by the Local Planning Authority. The report shall include results of sampling and monitoring carried out in accordance with the approved verification plan to demonstrate that the
site remediation criteria have been met. It shall also, include any plan (a long-term monitoring and maintenance plan) for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action, as identified in the verification plan, and for the reporting of this to the Local Planning Authority.
Reason: To protect and prevent the pollution of controlled waters (particularly the underlying principal aquifer and EU Water Framework Directive drinking water protected area) from potential pollutants associated with current and previous land uses in line with National Planning Policy Framework (NPPF; paragraphs 109, 120, 121), EU Water Framework Directive, Anglian River Basin Management Plan and Environment Agency Groundwater Protection (GP3:2012) position statements A4 to A6, D1 to D4 and N7.

19 Piling or any other foundations designs using penetrative methods shall not be permitted other than with the express written consent of the Local Planning Authority, which may be given for those parts of the site where it has been demonstrated that there is no resultant unacceptable risk to ground water. The development shall be carried out in accordance with the approved details.
Reason: To protect and prevent the pollution of controlled waters (particularly the underlying principal aquifer and EU Water Framework Directive drinking water protected area) from potential pollutants associated with current and previous land uses in line with National Planning Policy Framework (NPPF; paragraphs 109, 120, 121), EU Water Framework Directive, Anglian River Basin Management Plan and Environment Agency Groundwater Protection (GP3:2012) position statements A4 to A6, D1 to D4 and N7.

20 No infiltration of surface water drainage into the ground is permitted other than with the express written consent of the Local Planning Authority, which may be given for those parts of the site where it has been demonstrated that there is no resultant unacceptable risk to controlled waters. The development shall be carried out in accordance with the approved details.
Reason: To protect and prevent the pollution of controlled waters (particularly the underlying principal aquifer and EU Water Framework Directive drinking water protected area) from potential pollutants associated with current and previous land uses in line with National Planning Policy Framework (NPPF; paragraphs 109, 120, 121), EU Water Framework Directive, Anglian River Basin Management Plan and Environment Agency Groundwater Protection (GP3:2012) position statements A4 to A6, D1 to D4 and N7.

21 Prior to the commencement of development a scheme showing full details of the levels of the proposed access road for the site in relation to flood zones, shall be submitted to and approved in writing by the Local Planning Authority. The access road shall thereafter be constructed in accordance with the approved plans.
Reason: To ensure that flood risk from fluvial sources does not increase as a result of the access road construction.
(Policy 49 DSCB)

22 The turbine shall be fitted with 25 candela omni-directional red lighting at the highest practicable point and this shall be retained for the lifetime of the turbine.
Reason: In the interests of air safety.
(Policies 8 S.B.L.P.R and 43 & 44 DSCB)

23 No development shall commence until the applicant or developer has secured the implementation of a Written Scheme of Archaeological Investigation which has been submitted to and approved in writing by the Local Planning Authority. The said
development shall only be implemented in accordance with the scheme thereby approved.
Reason: To record and advance understanding of the significance of the heritage asset.
(Policies 8 S.B.L.P.R and 43 & 45 DSCB)

24 The development hereby permitted shall not be carried out except in complete accordance with the details shown on the submitted plans, numbers 3100.013; Technical Information contained within Environmental Statement dated July 2010 Volumes 1-4 (inclusive) and Transport Assessment dated July 2010.
Reason: For the avoidance of doubt.

Notes to Applicant

1. In accordance with Article 31 of the Town and Country Planning (Development Management Procedure) (England) Order 2010, the reason for any condition above relates to the Policies as referred to in the South Bedfordshire Local Plan Review (SBLPR) and the emerging Development Strategy for Central Bedfordshire (DSCB).

2. This permission relates only to that required under the Town & Country Planning Acts and does not include any consent or approval under any other enactment or under the Building Regulations. Any other consent or approval which is necessary must be obtained from the appropriate authority.

3. The granting of this permission does not absolve the applicants from complying with the relevant law protecting species, including obtaining and complying with the terms and conditions of any licences required, as described in Part IV B of Circular 06/2005.

4. **Guidance Notes for Noise Conditions**

These notes are to be read with and form part of the noise conditions. They further explain the conditions and specify the methods to be deployed in the assessment of complaints about noise immissions from the wind farm. The rating level at each integer wind speed is the arithmetic sum of the wind farm noise level as determined from the best-fit curve described in Note 2 of these Guidance Notes and any tonal penalty applied in accordance with Note 3. References to assessment of rating levels does not apply to the assessment of greater than expected amplitude modulation.Reference to ETSU-R-97 refers to the publication entitled “The Assessment and Rating of Noise from Wind Farms” (1997) published by the Energy Technology Support unit (ETSU) for the Department of Trade and Industry (DTI).

5. **Note 1 applies to planning condition 10 and Note 1(e) & 1(d) also applies to planning condition 11**

(d) Values of the LA90,10-minute noise statistic required for condition 10 should be measured at the complainant’s property, using a sound level meter of EN 60651/BS EN 60804 Type 1, or BS EN 61672 Class 1 quality (or the equivalent UK adopted standard in force at the time of the measurements) set to measure using the fast time weighted response as specified in BS EN 60651/BS EN 60804 or BS EN 61672-1 (or the equivalent UK adopted standard in force at the time of the measurements). This should be calibrated in accordance with the procedure specified in BS 4142: 1997 (or the equivalent UK adopted standard in force at the time of the measurements). Measurements shall be undertaken in such a manner to enable a tonal penalty to be applied in accordance with Guidance Note 3.

(e) The microphone should be mounted at 1.2 - 1.5 metres above ground level,fitted with a two-layer windshield or suitable equivalent approved by the Local Planning Authority, and placed outside the complainant’s dwelling. Measurements should be made in “free field” conditions. To achieve this,the microphone should be placed at least 3.5 metres away from the building facade or any reflecting surface except the ground at the approved measurement location. In the event that the consent of the complainant for access to his or her property to undertake compliance measurements is withheld, the wind farm operator shall submit for the written approval of the Local Planning Authority details of the proposed alternative representative measurement location prior to the commencement of measurements and the measurements shall be undertaken at the approved alternative representative measurement location.

(f) The LA90, 10-minute measurements should be synchronised with measurements of the 10-minute arithmetic average wind speed and with operational data logged in accordance with Guidance Note 1(d), including the power generation data from the turbine control systems of the wind farm.

(g) To enable compliance with the conditions to be evaluated, the wind farm operator shall continuously log arithmetic mean wind speed in metres per second (m/s), arithmetic mean wind direction in degrees from north and rainfall data in each successive 10-minute periods by direct measurement at the meteorological monitoring location approved by the Local Planning Authority. In relation to noise condition 10 it is this procedure, which is determined as valid in accordance with Note 2(b), such correlation to be undertaken in the manner described in Note 2(c). The wind farm operator shall continuously log arithmetic mean nacelle anemometer wind

speed,arithmetic mean nacelle orientation, arithmetic mean wind direction as measured at the nacelle and arithmetic mean power generated during each successive 10-minutes period for each wind turbine on the wind farm. All 10-minute periods shall commence on the hour and in 10-minute increments thereafter synchronised with Greenwich Mean Time.
(h) Data provided to the Local Planning Authority in accordance with paragraphs (E) (F) and (G) of noise condition 10 and as required under noise condition 2 shall be provided in comma separated values in electronic format.

6. **Note 2 applies to planning condition 10**
(a) The noise measurements should be made so as to provide not less than 20 valid data points as defined in Note 2 paragraph (b).
(b) Valid data points are those measured in the conditions set out in the assessment protocol approved by the Local Planning Authority under paragraph (E) of the noise condition but excluding any periods of rainfall measured at the approved meteorological measurement location provided in accordance with the planning permission on the wind farm site.
(c) Values of the LA90,10-minute noise measurements and corresponding values of the 10-minute ten metre height wind speed for those data points considered valid in accordance with Note 2 paragraph (b) shall be plotted on an XY chart with noise level on the Y-axis and wind speed on the X-axis. A least squares,"best fit" curve of an order deemed appropriate by the independent consultant (but which may not be higher than a fourth order) should be fitted to the data points and define the wind farm noise level at each integer speed.
Note 3
(a) Where in accordance with the approved assessment protocol under paragraph (D) of planning condition 10, noise immissions at the location or locations where compliance measurements are being undertaken contain or are likely to contain a tonal component, a tonal penalty is to be calculated and applied using the following rating procedure.
(b) For each 10-minute interval for which LA90,10-minute data have been determined as valid in accordance with Note 2 a tonal assessment shall be performed on noise immissions during 2 minutes of each 10-minute period. The 2-minute periods should be spaced at 10-minute intervals provided that uninterrupted uncorrupted data are available ("the standard procedure"). Where uncorrupted data are not available, the first available uninterrupted clean 2-minute period out of the affected overall 10-minute period shall be selected. Any such deviations from standard procedure shall be reported.
(c) For each of the 2-minute samples the tone level above audibility (Lta), shall be calculated by comparison with the audibility criterion given in Section 2.1 on pages 104 -109 of ETSU-R-97.
(d) The tone level above audibility (Lta) shall be plotted against wind speed for each of the 2-minute samples. Samples for which the tones were below the audibility criterion or no tone was identified, a value of zero audibility shall be substituted.
(e) A least squares "best fit" linear regression shall then be performed to establish the average tone level above audibility for each integer wind speed derived from the value of the "best fit" line fitted to values within ± 0.5m/s of each integer wind speed. If there is no apparent trend with wind speed then a simple arithmetic mean shall be used. This process shall be repeated for each integer wind speed for which there is an assessment of overall levels in

Note 2.
(f) The tonal penalty is derived from the margin above audibility of the tone according to the figure below.

Note 4

(a) If a tonal penalty is to be applied in accordance with Note 3 the rating level of the turbine noise at each wind speed is the arithmetic sum of the measured noise level as determined from the best fit curve described in Note 2 and the penalty for tonal noise as derived in accordance with Note 3 above at each integer wind speed within the range set out in the approved assessment protocol under paragraph (E) of the noise condition.
(b) If no tonal penalty is to be applied then the rating level of the turbine noise ateach wind speed is equal to the measured noise level as determined from the best fit curve described in Note 2.
(c) In the event that the rating level is above the limit(s) set out in the Tables attached to the noise conditions or the noise limits for a complainant's dwelling approved in accordance with paragraph (C) of the noise condition, the independent consultant shall undertake a further assessment of the rating level to correct for background noise so that the rated level relates to wind turbine noise immission only.
(d) The wind farm operator shall ensure that all the wind turbines in the development are turned off for such period as the independent consultant or the Local Planning Authority requires to undertake the further assessment. The further assessment shall be undertaken in accordance with the following steps:
i. Repeating the steps in Note 2, with the wind farm switched off, and determining the background noise at each integer wind speed within the range set out in the approved assessment protocol under paragraph (E) of the noise condition.
ii. The wind farm noise at this speed shall then be calculated
iii. The rating level shall be re-calculated by adding the tonal penalty (if any is applied in accordance with Note 3) to the derived wind farm noise at that integer wind speed.
iv. If the rating level after adjustment for background noise contribution and adjustment for tonal penalty (if required in accordance with note (iii) above) at any integer wind speed lies at or below the values set out in the Tables attached to the conditions or at or below the noise limits of 35dB LA90(10min) for other dwellings existing at the time of this approval then no further action is necessary. If the rating level at any integer wind speed exceeds the values set out then the development fails to comply with the conditions.

7. The applicant is advised that photographs of the existing highway that is to be used for access and delivery of materials will be required by the Local Highway Authority. Any subsequent damage to the public highway resulting from the works as shown by the photographs, including damage caused by delivery vehicles to the works, will be made good to the satisfaction of the Local Highway Authority and at the expense of the applicant. Attention is drawn to Section 59 of the Highways Act 1980 in this respect.

8. The Environmental Statement submitted with this application has been taken into account and the following issues considered in detail:
   - Landscape and Visual Impact
   - Ground conditions, geology and hydrogeology
   - Ecology

- Noise
- Shadow Flicker
- Traffic and Transportation
- Aviation
- Electro-magnetic interference
- Minerals and Waste
- Architectural and Cultural Heritage

It is considered that given the siting of the proposal within a working quarry and the wider environmental benefits in terms of the amount of energy that would be produced by the turbine and the saving in terms of tonnes of carbon dioxide would amount to a case for very special circumstances. This would outweigh the harm identified to the Green Belt, the surrounding area, and the residential amenities of the neighbouring properties.

Statement required by the Town and Country Planning (Development Management Procedure) (England) (Amendment No. 2) Order 2012 - Article 31

Planning permission has been granted for this proposal. The Council acted pro-actively through positive engagement with the applicant during the determination process. The Council has therefore acted pro-actively to secure a sustainable form of development in line with the requirements of the Framework (paragraphs 186 and 187) and in accordance with the Town and Country Planning (Development Management Procedure) (England) (Amendment No. 2) Order 2012.

DECISION

.....

.....