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22 June 2015

Dear Mr Cole

Fullabrook Wind Farm - noise monitoring

Noise monitoring is currently in progress at seven properties around the Fullabrook wind farm. This is the third series of noise surveys intended to demonstrate compliance with the noise limits, or to identify conditions in which noise limits are exceeded to enable mitigating measures to be devised. The measurements are being carried out by the Hayes McKenzie Partnership (HMP), who are employed by the site operator ESBI. I am overseeing, on behalf of the Council, the collection of noise data and the subsequent analysis.

I understand that residents have asked whether, if it is demonstrated that noise levels at these seven properties meet the noise limits, then it can safely be concluded that noise levels at all other properties are also compliant with the limits. This is a very reasonable question and I offer my response in the following paragraphs.

I am satisfied that the monitoring equipment being used, the positioning of it, and the measurement procedures, meet the requirements set out in the original planning conditions. They also follow the recommendations in the Institute of Acoustics Document '*Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Farm Noise*' published in May 2013. I was a member of the Working Group which prepared the Good Practice Guide. It has been endorsed by central Government and by the Scottish, Welsh and Northern Ireland regional assemblies and therefore the guidance within it is agreed to represent current 'best practice' for assessing wind farm noise.

The first noise surveys were carried out by HMP in 2012. The planning conditions (Condition 21) required noise surveys to be carried out during the first 6 months of wind farm operation at up to five properties, to confirm that the noise limits were complied with. Because some residents had complained about noise during the commissioning and initial operation of the wind turbines, the Council required ESBI to extend the scope of this initial survey to cover twelve properties, including some of those from which complaints had been received. These were selected as being representative properties surrounding the wind farm where noise levels were predicted to be closest to the noise limits. The properties were at Binalong, Crackaway, Burland Farm, Metcombe, Northleigh, Greenhill, Patsford, Fullabrook, Halsinger, Beara, Plppacott and Luscott.

The results of this initial survey were issued in September 2012. These indicated that *measured* noise levels exceeded the noise limits at 4 of the 12 properties. The results also showed evidence of tonal noise: the presence of tonal noise can result in a 'penalty' of up to 5dB being added to the measured noise level for the purpose of evaluation against the limits.

At that time there was insufficient information to enable the tonal noise 'penalties' to be reliably calculated, because not all of the monitoring equipment was able to record audio data to enable tonal noise to be identified and assessed. Therefore it was concluded that the noise limits were probably exceeded at some of the properties even where *measured* noise levels were within the limits, because of the addition of tonal penalties. It follows also that where measured noise levels were shown to exceed the limits that the addition of a tonal penalty would add to the margin by which the limits were exceeded.

As a result of the September 2012 Report, ESBI put into effect some changes to the operation of some wind turbines to reduce noise (by restricting turbine speeds in some wind conditions). Vestas also carried out investigations into the causes of the tonal noise, and subsequently carried out modifications intended to reduce this noise component. Following these measures, the second series of surveys was carried out between August 2013 and July 2014. The number of survey locations was reduced to eight: it was agreed that the margin between noise levels and noise limits at four properties – Greenhill, Fullabrook, Pippacott and Luscott), as revealed by the results of the first survey, were such that with the additional mitigation then proposed the noise limits would be met at these properties even if a tonal correction was found to be applicable. For this survey, all the equipment was capable of making audio recordings to allow the presence of tonal noise to be detected and any tonal penalties calculated.

The results of the second survey, published in October 2014, showed that measured noise levels had been reduced and that tonal noise had been reduced but not eliminated. Tonal penalties were still applicable in some conditions. The outcome was that noise limits were still exceeded at all the eight locations except Crackaway.

The operator has now implemented further changes to the turbine operating modes and the current noise monitoring programme covers seven properties (the previous eight excluding Crackaway). The results of the current surveys are awaited.

My professional opinion, having visited the site on several occasions and having reviewed the noise data to date, is that the seven current monitoring locations are representative. If it is demonstrated that noise levels comply with the limits at these seven locations, there is reasonable certainty that they will also be complied with at all other properties. Noise propagation is affected by many variables, including atmospheric conditions and the effects of the local terrain, and I cannot discount the possibility that noise limits might on occasions be marginally exceeded at other properties (or even at the seven monitored properties), even if the current surveys demonstrate satisfactory compliance at the seven properties. Therefore there can be no absolute certainty that noise limits would never be exceeded anywhere. However, it is clearly not practicable to monitor noise levels at every property and to assess noise levels occurring in a wide range of specific weather conditions (some of which might rarely occur). I am satisfied that the current scope of noise monitoring is adequately comprehensive and that the Council cannot justify requiring ESBI to extend the scope further at this stage.

There is provision within the planning conditions (Condition 22) for further investigations to be carried out in the event of continuing or future complaints. For example, if it were found that a particular property experienced excessive noise levels in specific weather conditions then the Council could request the operator to carry out noise monitoring which took account only of noise measured in the specific conditions to which the complaints referred (based on the resident's record of when noise levels were observed to be excessive). Therefore the planning conditions do incorporate this additional safeguard to protect residents.

I hope that these comments are informative and useful. Please let me know if I can offer further clarification on this issue.

Yours sincerely

A handwritten signature in black ink, appearing to read 'R A Davis', with a horizontal line underneath.

R A Davis