

**SUMMARY PROOF OF EVIDENCE
APPLICATION FOR A BIOMASS POWER PLANT
BISHOP'S CASTLE BUSINESS PARK
FOR
BISHOP'S CASTLE BIOMASS POWER LTD
BIOMASS PROJECT
APP/K3225/A/2008/2086011
LPA REF 1/08/20502/F**

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PROOF OF EVIDENCE

1.0 INTRODUCTION

- 1.1 My name is Stephen Ellis and I am a member of the Institute of Acoustics.
- 1.2 I have worked in acoustics for over 30 years, specialising in transportation and environmental noise. During this time I have been involved with and responsible for the noise and vibration assessment of many large civil engineering projects.
- 1.3 I am employed by the **Industrial Noise and Vibration Centre** as a Senior Consultant.
- 1.4 I have been commissioned to assess the likely noise impact arising from the proposed biomass power plant. I have visited the site and I am familiar with the surrounding area.

2.0 THE NATURE AND MEASUREMENT OF NOISE

- 2.1 This is described in my full proof of evidence.

3.0 NOISE CONDITION

- 3.1 South Shropshire District Council have proposed the following planning condition with respect to noise.:

16 Noise levels caused by operation of, or activities associated with the power, cooling and pelletiser plants shall not exceed 30 dB(A) at a distance of 200 metres from the building. Demonstration of compliance with the condition should be by measurement and/or calculation of the noise level defined as $L_{Aeq (1 \text{ hour})}$ 0700 to 2300 and $L_{Aeq (5 \text{ mins})}$ 2300 to 0700 hours."

- 3.2 The noise assessment undertaken shows that it is possible to meet the above noise condition at night, which is the most sensitive period with respect to causing annoyance to residents.

- 3.3 However, I am a little concerned that the above noise condition is open to ambiguous interpretation because it does not say which building should be the reference point from which a distance of 200m is taken.

The other concern is that the daytime and night-time noise levels are the same, even though measurements indicate that the ambient level during the day increases to around 40 dB L_{Aeq} .

- 3.4 In my opinion it is better to set a noise level for the daytime and night-time periods which reflects the existing situation and has regard to the guideline values suggested by the World Health Organisation and is also at the current nearest noise sensitive dwelling.

4.0 NOISE SURVEY – EXISTING SITUATION

- 4.1 Measurements of the existing ambient (L_{Aeq}) and background (L_{A90}) noise levels were undertaken by C J Day Associates between 14 December and 18 December 2006. The equipment was calibrated and conformed to the Type 1 specification of BS EN 61672-1 : 2003.

- 4.2 In summary, the background noise level during the daytime is in the region of 35 dB(A), reducing to below 30 dB(A) at night. Typically, based on Figure A of the environmental report, the ambient noise level is in the region of 40 dB(A) during the daytime, again reducing to below 30 dB(A) in the early hours of the morning.

- 4.3 British Standard BS 4142 : 1997 “Method for rating industrial noise affecting mixed residential and industrial areas” is a method by which it is possible to get an indication if complaints are likely in a mixed residential and industrial environment. However, because the scope of the standard states that:

“The method is not suitable for assessing the noise measured inside buildings or when the background and rating noise levels are both very low.

Note: *for the purposes of this standard, background noise levels below about 30 dB and rating levels below about 35 dB are considered to be very low.”*

- 4.4 Given the very low background and ambient noise level, it is not considered appropriate to undertake a BS 4142 assessment and I have assumed, based on the noise measurements, that the existing night-time background noise level is 30 dB L_{A90} or lower.

5.0 PREDICTION OF NOISE LEVELS FROM BIOMASS POWER PLANT

5.1 Using the information contained in my main proof of evidence, Table 2 gives a summary of the predicted noise levels at a distance of 200m and to the nearest house in Brick Meadow.

Table 2

Element	200m from building		Nearest house	
	Day dB(A)	Night dB(A)	Day dB(A)	Night dB(A)
Side wall	24	24	25	25
End wall	25	25	27	25
Pelletiser building	17	N/A	19	N/A
Roof	19	19	20	20
Cooling tower	29 100% speed	22 75% speed	29 100% speed	22 75% speed
Total	* 32 L _{Aeq} dB	* 29 L _{Aeq} dB	* 33 L _{Aeq} dB	* 29 L _{Aeq} dB
* This is a logarithmic addition				

6.0 ASSESSMENT

6.1 In section 3 I detailed the proposed noise condition from South Shropshire District Council. The noise condition can be complied with at night, but as previously stated, is open to interpretation, albeit I have assumed that the distance referred to in the condition is 200m from the pelletiser.

6.2 The very low level of background noise tends to rule out using BS 4142 as a basis for setting a more robust noise condition.

6.3 In view of this I have referred to the World Health Organisation (WHO) "Guidelines for Community Noise" 1999 provides guideline values for community noise in specific environments.

Specific environment	Critical health effects	L _{Aeq} (dB)	Time (hours)	L _{Amax} fast (dB)
Outdoor living area	Serious annoyance, daytime and evening	55	16	-
	Moderate annoyance, daytime and evening	50	16	-
Dwellings, indoors	Speech intelligibility and moderate annoyance, daytime and evening, sleep disturbance, night-time	35	16	
Inside bedrooms		30	8	45
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	8	60

6.4 Therefore, given the above table and in consideration of a more appropriate noise condition I would suggest the following:

"16 Daytime noise levels (between 07:00 - 23:00 hours) caused by the operation of the biomass power plant including the pelletiser shall not exceed 41 dB L_{Aeq (1 hour)} free field. Night-time noise levels (between 23:00 - 07:00 hours) caused by the operation of the biomass power plant shall not exceed 33 dB L_{Aeq (5 mins)} free field. The use of the pelletiser between the hours of 23:00 - 07:00 is not permitted and all doors shall remain closed during this time. In addition, there shall be no significant tonal noise from the operation of the plant.

The noise measurements shall be taken in a free field situation at the nearest residential property in Brick Meadow or they can be undertaken closer to the plant, then calculated for the nearest dwelling in Brick Meadow. (Free field is defined as 3.5m from any reflective surface other than the ground).

If it is not possible to measure in a free field condition, then 2 - 5 dB shall be added to the above noise levels.

6.5 The above noise condition will ensure that the noise levels within the houses, with a partially open window, would be 31 dB(A) during the daytime and 23 dB(A) at night, which is 7 dB lower than the noise guidelines suggested by the World Health Organisation.

6.6 I have used 41 dB(A) during the daytime in terms of a 1 hour L_{Aeq} because the existing ambient noise level is 40 dB(A) at its lowest and the predicted noise level is 33 dB(A), giving a combined noise level of 41 dB L_{Aeq} (1 hour). Similarly, at night the combined noise level of 30 dB and 29 dB is 33 dB L_{Aeq} (5 min).

7.0 CONCLUSIONS

7.1 I consider that given the conservative assumptions made in undertaking the noise predictions, noise from the biomass power plant and associated activities will not cause residents any noise annoyance.

7.2 The proposed noise condition will safeguard residents from being disturbed by the proposals and hence noise should not be a significant factor in determining the planning application.

7.3 I should therefore like to request that the application be allowed, as no unacceptable noise would be caused by the proposal.

Signed:

S ELLIS

Date: