MATRIX ACOUSTIC DESIGN CONSULTANTS

Land at 532615, 317390
Pear Tree Hill Road
Whaplode Drove
Spalding
PE12 0SL

Proposed Poultry Units

NOISE IMPACT ASSESSMENT

Acoustics Report M2504/R01
27th February 2025

To: Acorus Rural Property Services Ltd
Addlepool Business Centre
Woodbury Road
Clyst St George
Exeter
EX3 0NR

By: Paul Smith BSc MIOA

Brookfield Coach House
Weston Lane
Bath BA1 4AG

M: 07765 518035
T: 01225 667 470
E: mail@matrixacoustics.co.uk

1. Introduction

This acoustic report documents a noise impact assessment for the proposed poultry units at land off Pear Tree Hill, Spalding; Figures 1 and 2.

The report is divided into the following sections:

- Section 2: Overview of the Development
- Section 3: Noise Assessment Criteria
- Section 4: Background Noise survey
- Section 5: Noise Impact Assessment
- Section 6: Conclusion
- Appendix A: Noise monitor and weather station data
- Appendix B: Calculations
- Appendix C: Manufacturers extract fan noise data

2. Overview of the Development

The proposed scheme is for 12 poultry units at land off Pear Tree Hill, Spalding; Figures 1 and 2.

The assessment considers the noise impact at the closest private dwellings to the north, east and south of the proposed poultry site. These are labelled receptors A - C in Figure 2, and are approximately between 420m - 790m from the proposed poultry units

For the assessment, the main operational noise sources generated by the proposed poultry units have been reviewed, namely:

- **Plant noise:** The plant associated with the development will be:
    - *Ventilation fans:* Manufacturers' data sheets for the fans are provided in Appendix C.
        - Roof mounted fans: 18 x extract fans per shed, arranged in two rows of 9 either side of the ridge; Figure 1. There will be an unobstructed noise path between all the duct terminations and Receptors A - C
        - Gable end fans: 6 x extract fans per shed, located on the south gable ends. Receptor A will be fully acoustically shielded (i.e., the line of sight will be fully blocked) from the gable end extract fans by the sheds themselves.

      The roof extract fans will typically provide the ventilation requirements on their own; the gable end fans are only needed if the roof fans are not able to provide the required ventilation due to failure or during periods of very high external temperatures.

      We understand that the extract fans for the poultry units have yet to be selected. For the assessment the following extract fans have been used in the calculations (manufacturers data sheets are provided in Appendix C):
        - Roof fans: Big Dutchman FF091-6ET; 49dB(A) at 7m, 45° lateral; see
        - Gable end extract fans: Hydor HV1250; 60dB(A) at 3m, 45° lateral; see Appendix C for manufacturers data sheet
    - *Backup generator:* The generator is for emergency use only, and is a requirement for the health and safety of the livestock in the event of mains power failure. Testing of the generator will be undertaken during the working day period only and for a short duration. Taking into consideration the emergency use and day period testing

of the generator, an assessment of its noise emissions is not considered warranted in this case.

- **Transport noise:** Transport noise includes stock/feed deliveries; the stock deliveries will be undertaken on the concrete apron to the north of the poultry units.

  Activities on the concrete apron will be fully acoustically shielded from Receptors B and C by the poultry units themselves; there will be an unobstructed noise path for Receptor A.

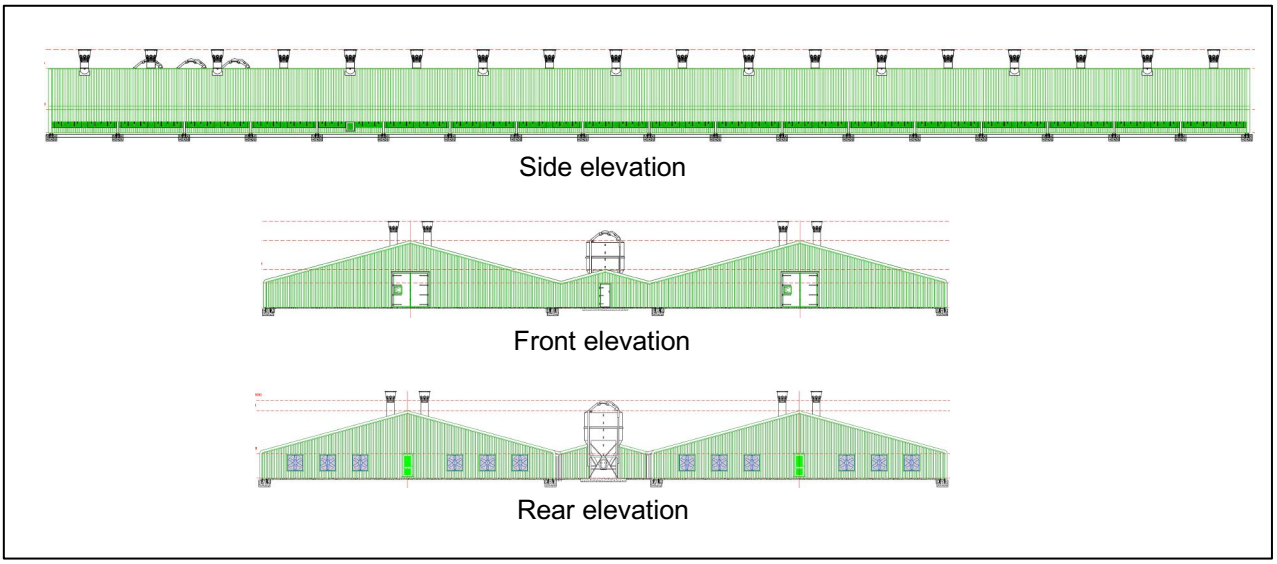


Figure 1. Elevations of the proposed poultry units

Figure 2. Ariel view (source: www.google.com) showing proposed poultry units, monitor positions and assessed receptors

3. Noise Assessment Criteria

To review the noise impact of the proposed poultry unit's ventilation fans and transport related activity noise emissions, the following guidance documents have been considered;

3.1 BS4142:2014+A1:2019

BS4142 provides a methodology to assess the impact of industrial and commercial noise affecting dwellings, whereby the 'typical' background noise level is deducted from the industrial noise Rating Level (industrial noise corrected to account for the 'on-time' and noise character of the noise source. The following guidance is given based on the established difference:

- A difference of around +10dB or more is likely to be an indication of significant adverse impact, depending on context
- A difference of +5dB is likely to be an indication of an adverse impact, depending on context
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this
- is an indication of the specific sound source having a low impact, depending on context

Context, as defined in BS4142:2014, includes the consideration of the following factors:

- The absolute level of the noise emissions
- Character and level of the residual sound compared to the character and level of the Specific Level
- Sensitivity of the receptor and any acoustic design measures (e.g., façade sound insulation, use of mechanical ventilation and acoustic screening) incorporated at premises used for residential purposes

To take account of industrial/commercial noise sources that do not operate continually an 'on-time' correction is applied using:

$$- 10 \log (r/r_{ref})$$

Where:

$r_{ref.}$ = reference time (1hr between 07:00 – 23:00hrs and 15 minutes between 23:00 – 07:00hrs)

r = total 'on-time' during the reference period

Note that the shorter reference time interval between 23:00 – 07:00hrs is designed to penalise industrial/commercial noise events that occur during the night.

BS4142 provides four noise character correction categories with associated penalties that must be applied when determining the Rating Level, namely:

- **Tonality:**
  - Not perceptible = 0dB
  - Just perceptible = +2dB
  - Clearly perceptible = +4dB
  - Highly perceptible = +6dB
- **Impulsivity:**
  - Not perceptible = 0dB
  - Just perceptible = +3dB
  - Clearly perceptible = +6dB
  - Highly perceptible = +9dB

- **Intermittency:** +3dB if the intermittency of operation is readily distinctive against the residual noise environment
- **Other:** +3dB applied if the specific sound is neither tonal or impulsive but features noise characteristics that are readily distinctive against the residual noise environment

With regard to noise ingress (noise from outside to inside), BS4142 states that *'The standard is not intended to be applied to the assessment of indoor sound levels'* and the assessment methodology *'... is not intended to be used to assess the extent of the impact at indoor locations'*; in the worked Examples 6 and 8 given in BS4142, comparison with BS8233 noise ingress limits is used to review potential acceptability.

3.2 Noise Ingress (BS8233:2014)

BS8233 provides guidance noise ingress limits for habitable rooms within residential premises, namely;

- Living rooms: $L_{Aeq,16hr}$ 35dB (day)
- Dining room/area: $L_{Aeq,16hr}$ 40dB (day)
- Bedrooms: $L_{Aeq,16hr}$ 35dB (day), $L_{Aeq,8hr}$ 30dB (night)

In order to avoid sleep disturbance, in accordance with guidance given in PRoPG, individual noise events should not exceed 45 dB $L_{Amax,F}$ more than 10 times within bedrooms during the night period.

The above noise limits must be met with windows closed and trickle vents (if applicable) open.

Where the external noise source has a specific character, such as a strong low-frequency content or is irregular enough to attract attention, BS8233 advises lower noise limits might be appropriate.

Taking into account the characteristics of the potential noise emissions from the proposed poultry units (intermittent and some noise sources may include impulsive elements) we consider noise ingress levels 5dB below BS8233 noise ingress limits will be considered acceptable.

Purge ventilation, which could be required on occasion to mitigate against overheating, may require open windows. It is generally accepted that there is a compromise between providing rapid ventilation via an open window and the unavoidable higher noise ingress levels (a façade with an open window provides around a 13dB reduction between outside to inside).

For this situation 'Acoustics Ventilation and Overheating - Residential Design Guide: 2020' (AVO) advises that 'reasonable' internal conditions for habitable rooms may be considered to be noise ingress levels up to 5dB above BS8233's noise ingress limits.

In line with AVO's guidance, we therefore consider that 'reasonable' poultry development noise ingress levels via an open window will be 5dB above are suggested noise ingress level with windows closed; this equates to parity with the noise ingress limits given in BS8233.

4. Background Noise Survey

- **Survey dates**: Wednesday 22nd – Thursday 23rd January 2025
- **Weather;** Table A1, Appendix A:
  - Precipitation: Dry
  - Wind Speed: maximum measured wind speed 3.8m/sec, with a median wind speed of 0.0m/s
- **Noise monitor locations:** with the microphones attached to tripods, the noise monitor were located at Positions 1 - 3 as shown in Figure 2
- **Weather station location:** Weather station, mounted on a tripod, located at Position 1; Figure 2
- **Equipment:**
  - Weather Station: Kestrel type 5500
  - Noise monitors: Brüel & Kjær Type 2238 (Positions 1 and 2) and Brüel & Kjær Type 2260 (Position 3)
- **Monitor configuration:**
  - Weather station: Configured to measure the average wind speed and temperature over consecutive 10-minute periods
  - Noise Monitor: configured to measure consecutive 15-minute samples of noise.
- **Calibration:** calibrated before and after the survey using a Brüel & Kjær Type 4231 calibrator with no deviations found

All noise measurements are free-field. Full tabulated results are given in Tables A1 and A2, Appendix A. The weather conditions will not have adversely affected the noise measurements.

4.1 Survey observations

During the setting up and collection of the monitors it was observed that noise sources affecting Positions 1 – 3 consisted of light road traffic on the surrounding roads, occasional airplane movements related to the nearby airfield and birdsong. The general underlying noise environment was considered to be very quiet.

4.2 Typical background noise level, L_{A90}, at Receptors A - C

Figures 3 - 5 show the variation in the measured maximum ($L_{Amax,F}$), ambient (L_{Aeq}) and background (L_{A90}) noise levels obtained at Positions 1 - 3 respectively.

As can be seen the variation in background noise levels follows the same pattern at all three measurement positions, with comparable levels being returned. This indicates that all three measurement positions were exposed to the same underlying noise environment.

Reviewing the survey data, the typical background noise levels at Positions 1 - 3 have been established as;

- Day (07:00 – 20:00hrs): L_{A90} 29dB
- Evening (20:00 – 23:00hrs): L_{A90} 24dB
- Night (23:00 – 07:00hrs): L_{A90} 22dB

The above background noise levels, which are in all case very low, are considered to be representative to the typical background noise levels that will occur at Receptors A – C.

Figure 3. Position 1 noise monitor data (free-field)

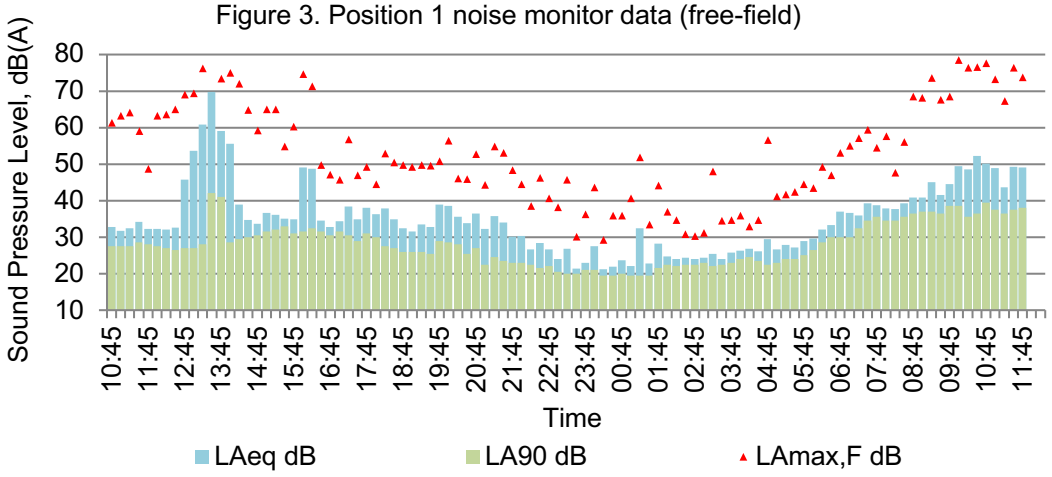


Figure 4. Position 2 noise monitor data (free-field)

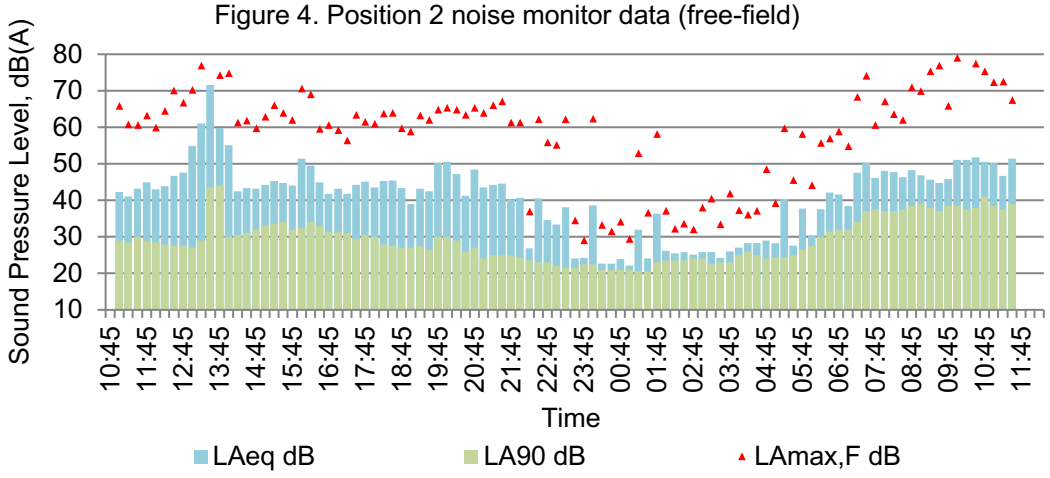
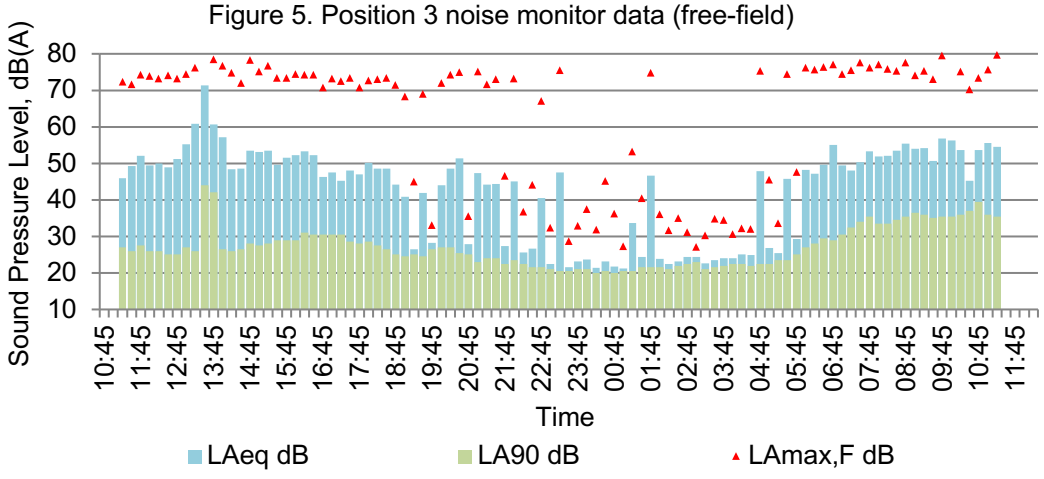


Figure 5. Position 3 noise monitor data (free-field)



5. Noise Impact Assessment

5.1 Noise Source Data

- **Ventilation fans**
  - Roof extract fans:
    - Type: Big Dutchman FF091-6ET
    - Sound pressure level: 49dB(A) at 7m, 45° lateral; see Appendix C for manufacturers data sheet
    - Total number of fans: 18 per shed, arrange two rows of 9 fans either side of the ridge; Figure 1
  - Gable end extract fans:
    - Type: Hydor HV1250
    - Sound pressure level: 60dB(A) at 3m, 45° lateral; see Appendix C for manufacturers data sheet
    - Total number of fans: 6 per shed, located on the south gable end; Figure 1
- **Transport noise:** Inhouse measured source noise levels:
  - Electric forklift loading/unloading stock: L_{Aeq} 63dB and $L_{Amax,F}$ 84dB at 5m
  - HGV maneuvering: L_{Aeq} 72dB and $L_{Amax,F}$ 80dB at 5m

5.2 Extract Fan Operation

The temperature within the sheds is determined by a combination of the heat generated by the birds themselves, the external temperature and the ventilation provided by the extract fans.

To provide sufficient ventilation of the bird generated heat, as required to maintain the ideal internal operating temperature of around 20°C, up to 25% of the roof extract fans will be required to operate (either intermittently or on variable speed).

With the influence of the external temperature additional extract fans may be required in order to maintain the ideal operating internal temperature. Here the fans are operated in Stages, triggered with each 1°C rise above the ideal internal temperature. The highest Stage will typically only be triggered when the internal temperature rises above 23°.

Normally the roof extract fans will provide sufficient extraction on their own; the gable end fans are only required during periods of extreme external temperatures or due to failure of the roof extract fans.

The operation of 100% of the roof extract fans, and additionally the gable end fans if required, are only expected to occur during the day period when the external temperatures have the potential to be higher.

During the evening and night, when the external temperature will fall, there will be a corresponding decrease in the number of roof extract fans needed above those for bird generated heat alone; the expected percentage of ridge extract fans required to maintain the set temperature are 50% and 25% for the evening and night periods respectively.

For a robust assessment however, the calculations have reviewed the following scenarios:

- *Day (07:00 – 20:00hrs):*
  - 100% roof and gable end extract fans operating (this is the worst-case scenario; typically, the gable end fans will not be required to operate)
  - 100% roof extract fans operating (normal operating capacity)

- *Evening (20:00 – 23:00hrs):* 50% roof extract fans operating
- *Night (23:00 – 07:00hrs):* 25% roof extract fans operating

5.3 Transport Vehicle Operation

Loading/unloading of the HGVs for the proposed poultry units will be undertaken using a forklift on the concrete apron to the north of the sheds.

The majority of transport movements will only occur during the working day (07:00 – 20:00hrs). However, in order to avoid stressing the birds catching is typically undertaken during the night.

5.4 Mitigation measures

For the assessment the following mitigation measures have been included:

- *Forklift:* electric forklift used on the concrete apron for the movement of stock and the loading/unloading of HGVs
- *Noise barrier:* 2m high noise barrier between 5 – 15m south of the poultry units; Figure 6. The barrier must fully block the noise path between the gable end fans and Receptor C. The barrier must have a minimum surface density of 10kg/m^2, with no gaps in the construction. Suitable barriers are a good quality close-boarded timber fence, masonry wall or earth bund.

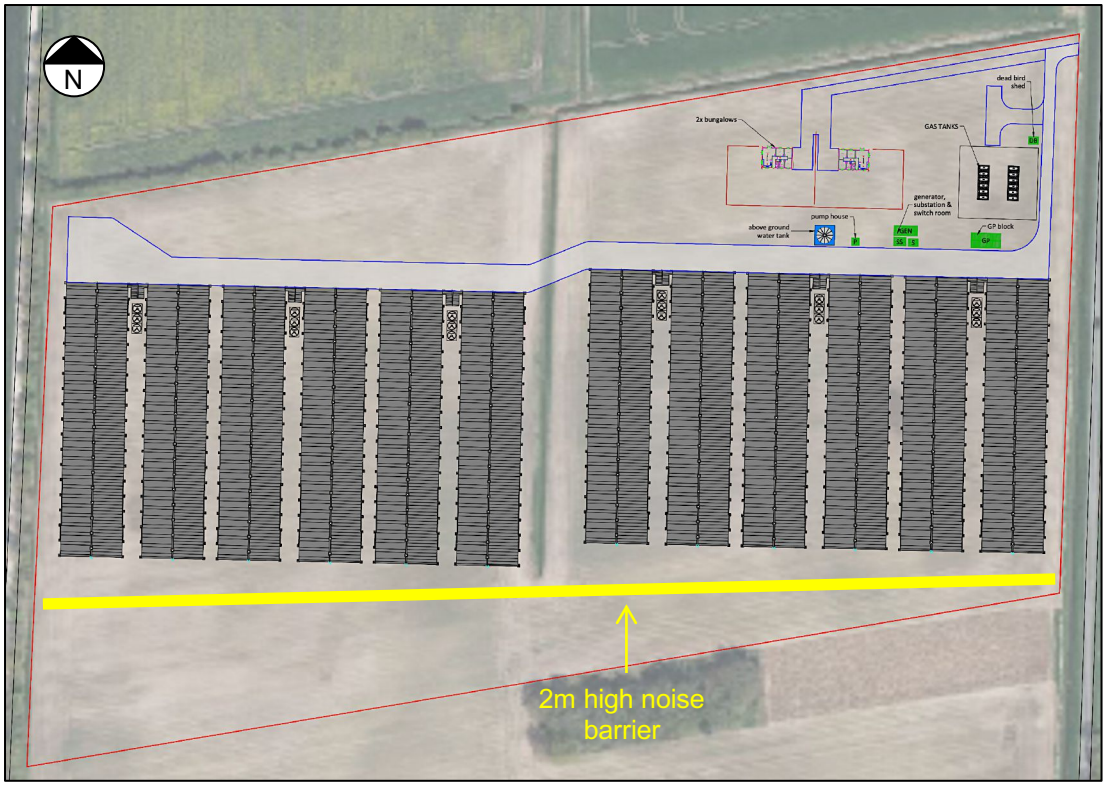


Figure 6. Plan showing location of 2m high noise barrier

5.5 Derivation of aggregate Specific Level

To calculate the Specific Levels at Receptors A - C, the following corrections have been applied to the source noise data:

- **Ventilation fans:**
  - *Directivity correction:* correction to convert the fan noise data from the manufacturers stated level at 45° lateral to 90° lateral (the propagation angle for the assessed dwellings), determined using the corrections given in Duct Directivity Index Applications (Day H. Hansen C & Bennett B, Acoustics Australia 96 Vol. 37 December (2009) No. 3). For the calculation a typical axial frequency spectra has been used
  - *Attenuators:* atmosphere side attenuators fitted to each roof extract fan that achieve the minimum insertion losses provided in Table 1.
  - *Reflections:* 3dB added to account for reflections off the poultry shed roof
  - *Distance correction:* 20 x Log (d_1/d_0), where d_1 = distance between the noise source and receptor and d_0 is the reference distance.
  - *Shielding attenuation:* Where the line of sight between the noise source and dwelling is fully blocked by a solid barrier 10dB shielding correction has been applied in accordance with BS5228-1 2009.
  - *Ground absorption correction:* ISO 9613-2: Attenuation of sound during propagation outdoors, Formula 10:

    $$A_{gr} = 4.8 – (2h_m/d)[17 + (300/d)]$$

    Where,

    h_m = mean height of the propagation path above ground
    d = distance from source to receptor

    In accordance with ISO 9613-2 the ground absorption correction is assumed to be zero when the line of sight of the noise source is partially or fully blocked by a solid body (i.e., when a shielding correction is applicable)
  - *Atmospheric attenuation:* ISO 9613-2: Attenuation of sound during propagation outdoors, Formula 8:

    $$A_{atm} = \alpha d/100$$

    Where,

    α = is the atmosphere attenuation coefficient for a temperature of 10°C and 70% relative humidity
    d = distance from source to receptor

    In accordance with ISO 9613-2 the attenuation at 500Hz has been used as only the dB(A) value of the extract fans are known
  - *On-time correction:* it has been assumed that the fans are operating continuously and consequently no ‘on-time’ correction has been applied.
- **Stock delivery/collection noise emissions (concrete apron):**
  - *Distance correction:* 20 x Log (d_1/d_0), where d_1 = distance between the noise source and receptor and d_0 is the reference distance. Note that in accordance with ISO 9613-2 distances have been capped at 1km

- *Shielding attenuation:* Where the line of sight between the noise source and dwelling is fully blocked by a solid barrier 10dB shielding correction has been applied in accordance with BS5228-1 2009.
- *Ground absorption correction:* ISO 9613-2: Attenuation of sound during propagation outdoors, Formula 10:

$$A_{gr} = 4.8 – (2h_m/d)[17 + (300/d)]$$

Where,

h_m = mean height of the propagation path above ground
d = distance from source to receptor

In accordance with ISO 9613-2 the ground absorption correction is assumed to be zero when the line of sight of the noise source is partially or fully blocked by a solid body (i.e., when a shielding correction is applicable)

- *Atmospheric attenuation:* ISO 9613-2: Attenuation of sound during propagation outdoors, Formula 8:

$$A_{atm} = \alpha d/100$$

Where,

α = is the atmosphere attenuation coefficient for a temperature of 10°C and 70% relative humidity
d = distance from source to receptor

In accordance with ISO 9613-2 the attenuation at 500Hz has been used as only the dB(A) value of the extract fans are known

- *On-time corrections:*
  - Day (over any 1 hour period): 45-minutes for loading/unloading and 2 minutes for manoeuvring
  - Night (over any 15-minute period): 15-minutes for loading/unloading and 2 minutes for manoeuvring

5.6 Rating Level

To establish the Rating Levels the following BS4142 character corrections have been applied to the established Specific Levels.

- **Extract fans:**
  - *Tonality:* 0dB; in common with the majority of modern fans, and in line with our own measurements of Big Dutchman and comparable fans at other poultry sites, the fans are not expected to be tonal
  - *Impulsivity*: 0dB; the proposed extract fans will not contain an impulsive noise element such as bangs or a very sudden jump in sound output due to quick start-up/change in fan speed.
  - *Intermittency:* 0dB; the starting/stopping of individual fans will not be readily distinctive against the residual noise environment and consequently an intermittency penalty is not applicable
  - *Other:* 0dB; no ‘other’ noise characteristics of the fans are expected
- **Stock collection/delivery**
  - *Tonality:* 0dB; measurements confirm that the stock collections/deliveries are not tonal.
  - *Impulsivity:* 6dB; the use of a forklift has the potential to generate ‘highly perceptible’ impulsive noise. Note that we have observed that with careful

operation of the forklift (i.e., slowing loading crates) impulsive noise can be minimised.

- *Intermittency:* 3dB; stock collections and HGV movements will be intermittent.
- *Other:* 0dB; no 'other' noise characteristics are expected/have been identified

As is standard practice, the total character corrections have been capped at 6dB

The resultant aggregate Rating Levels are provided in Table 1.

5.7 Assessment Level

We define Assessment Level = RL – min L_{A90} dB, where:

RL = Rating Level, dB(A)

L_{A90} dB = the typical background noise level, L_{A90}, derived from the noise survey data

Table 1 provides the resultant Assessment Levels at Receptors A - C.

Table 1. Typical background and calculated Rating and Assessment Levels at Receptors A - C; Figure 1

Noise source	Receptor; Figure 1	Day (07:00 - 20:00hrs)					Evening (20:00 - 23:00hrs)			Night (23:00 - 07:00hrs)		
			100% roof & gable extract fans operating		100% roof extract fans operating			50% roof extract fans operating			25% roof extract fans operating	
		Typical L_{A90} dB	Rating Level, dB	Assessment Level, dB	Rating Level, dB	Assessment Level, dB	Typical L_{A90} dB	Rating Level, dB	Assessment Level, dB	Typical L_{A90} dB	Rating Level, dB	Assessment Level, dB
[A] Ventilation fans	A	29	25	-4	24	-5	24	22	-2	22	20	-2
	B	29	22	-7	19	-10	24	16	-8	22	14	-8
	C	29	30	1	26	-3	24	23	-1	22	21	-1
[B] HGV loading manoeuvring + forklift moving stock	A	29	23	-6	23	-6	24	*N/A*		22	26	4
	B	29	12	-18	12	-18	24	*N/A*		22	14	-8
	C	29	17	-12	17	-12	24	*N/A*		22	19	-3
Aggregate [A] + [B]	A	29	27	-2	27	-2	24	22	-2	22	27	5
	B	29	22	-7	20	-9	24	16	-8	22	17	-5
	C	29	30	1	27	-3	24	23	-1	22	23	1

Where the Rating Level is at parity with the typical background noise level (Assessment Level = 0 dB) BS4142 states that the Specific Level will have a low impact; an adverse impact is indicated where the Rating Level is ≥ 5dB and <10dB above the typical background noise level.

As can be seen in Table 1, the highest calculated Assessment Levels during the day and evening are:

- *Extract fans:*
  - Day: -2dB with just the roof fans running (normal operating capacity) and 1dB with the addition of the gable end fans (only required during period of very hot

weather). On the basis that a 1dB change in noise level is imperceptible (i.e., an 1dB Assessment level would be perceived as the same as 1dB), we conclude that the BS4142 noise impact will be low for both day period operating capacities

  - Evening: -1dB; indicates a low noise impact

- *Transport (stock collection/deliveries on the concrete apron):* -6dB day; indicates a very low noise impact
- *Aggregate (extract fans + transport):*
  - Day: -2dB (with roof fans running) and 1dB (with addition of gable end fans); indicates a low noise impact
  - Evening: -1dB; indicates a low noise impact

We therefore conclude that both the individual and aggregate noise emissions from the ventilation fans and transport activities, with the inclusion of the mitigation measures discussed in Section 5.4 of this report, will not result in a noise impact greater than low during the day and evening periods.

During the night period (23:00 – 07:00hrs) we consider the context that occupiers of the nearest dwelling will be expected to be within their houses is relevant, and consequently it will be noise ingress that will inform on the noise impact. Based on a room with an open window providing 13dB sound reduction from outside to inside, the highest aggregate noise ingress would be $L_{Aeq,15min}$ 10dB and $L_{Amax,F}$ 26dB.

The resultant ambient noise level is very low, being significantly below the existing background noise levels and our suggested noise ingress limit (5dB below the noise ingress limits given in BS8233). The maximum noise ingress level, which will be generated by transport activities, also does not exceed PRoPG's $L_{Amax,F}$ 45dB threshold (value that should not be exceeded more than 10 times during the night) with regard to sleep disturbance. We therefore conclude that during the night the noise impact will be very low.

5.8 Assessment uncertainty

With all calculations there is a level of uncertainty, which in this case we do not expect to be greater than +/-3dB (3dB is a just perceptible change in noise level). This small level of uncertainty is not considered to have a significant impact on the assessment outcome i.e., it would not result in an adverse impact being identified.

The established typical background noise levels are in line with the observed noise environment. No significant variation in the underlying noise environment from that surveyed is expected.

The difference between halving or doubling the number of fans operating (e.g., 50% to 100%) is 3dB. With smaller changes in the number of fans operating, for example, 50% to 70%, the change in aggregate noise emissions will be less than 2dB; this represents an imperceptible change in noise.

We therefore consider the used percentage of fans as suitably robust for the purpose of the assessment; it reflects the percentage of fans used in livestock units as advised by both operators and experts and would not result in a perceptible change in noise emissions with a 20 – 25% increase/decrease in the number of fans operating.

As the extract fans have yet to be selected, the calculations have been based on typical ventilation fans used in poultry developments. We therefore advise that when selecting the extract fans manufacturers noise data is obtained and compared with the values used in this assessment. If the noise emissions are higher the calculation model should be updated, which will identify if any additional mitigation measures are required.

We have measured transport activity noise levels at various poultry and other commercial developments. These have returned results comparable to the source data used in this assessment. We therefore conclude that the source noise data is suitably robust and representative for the purpose of the assessment.

6. Conclusion

A noise impact assessment has been undertaken for the proposed poultry units at land off Pear Tree Hill, Spalding; Figures 1 and 2. The assessment included:

- A noise survey to establish representative background noise levels at the nearest private dwellings; Appendix A and Figure 2
- Calculations of the noise emissions and corresponding BS4142 Rating Levels generated by the extract fans and transport activities; Table 1 and Tables B1 – B4, Appendix B

The following mitigation measures have been included in the assessment:

- *Forklift:* electric forklift used on the concrete aprons for the movement of stock and the loading/unloading of HGVs
- *Noise barrier:* 2m high noise barrier (e.g., close-boarded timber fence/masonry wall/earth bund) 5 – 15m south of the proposed poultry units; Figure 6. The noise barrier will provide acoustic shielding of the gable end fans for Receptor C

As the extract fans have yet to be selected, the calculations have been based on typical ventilation fans used in poultry developments. We therefore advise that when selecting the extract fans manufacturers noise data is obtained and compared with the values used in this assessment. If the noise emissions are higher the calculation model should be updated, which will identify if any additional mitigation measures are required.

The findings of the assessment established that the extract fans and transport activities will result in:

- *Day & evening:* BS4142 low noise impact
- *Night:* ambient noise ingress levels via an open window significantly below the existing background noise levels and our suggested noise ingress limit (5dB below the noise ingress limits given in BS8233). The maximum noise ingress level (generated by transport activities) < PRoPG's $L_{Amax,F}$ 45dB threshold (value that should not be exceeded more than 10 times during the night) with regard to sleep disturbance. We therefore conclude that during the night, when occupiers are expected to be indoors, the noise impact will be very low.

On the basis that the proposed poultry units, with the inclusion of the mitigation measures discussed in Section 5.4 of this report, will not result in an adverse noise impact at the nearest dwellings, we conclude that on noise grounds they are acceptable.

Table A1. Noise monitor data (free field)																			
Start Time	Position 1			Position 2			Position 3			Start Time	Position 1			Position 2			Position 3		
	LAmax,F dB	LAeq dB	LA90 dB	LAmax,F dB	LAeq dB	LA90 dB	LAmax,F dB	LAeq dB	LA90 dB		LAmax,F dB	LAeq dB	LA90 dB	LAmax,F dB	LAeq dB	LA90 dB	LAmax,F dB	LAeq dB	LA90 dB
10:45	61.3	32.8	27.5							23:30	30.1	21.3	20.0	34.4	24.1	21.5	28.7	21.5	20.5
11:00	63.3	31.8	27.5	65.8	42.3	29.0				23:45	36.2	22.9	21.0	28.9	24.3	22.5	32.9	23.1	21.0
11:15	64.2	32.4	27.5	60.7	41.0	28.5	72.4	45.9	27.0	00:00	43.7	27.5	21.0	62.2	38.7	22.5	37.5	23.7	21.0
11:30	59.1	34.1	28.5	60.6	43.1	30.0	71.7	49.2	26.0	00:15	29.3	21.2	19.5	33.2	22.6	21.0	31.9	21.4	20.0
11:45	48.8	32.2	28.0	63.2	44.9	29.0	74.3	52.0	27.5	00:30	36.0	21.9	19.5	31.4	22.7	21.0	45.3	23.2	20.5
12:00	63.3	32.3	27.5	59.8	43.0	28.5	73.9	49.4	26.0	00:45	36.0	23.6	20.0	34.1	23.9	21.0	36.3	21.7	20.0
12:15	63.6	32.1	27.0	64.4	43.8	28.0	73.2	49.9	26.0	01:00	40.6	22.1	19.5	29.4	22.2	21.0	27.3	21.3	20.5
12:30	65.1	32.6	26.5	70.0	46.7	27.5	74.2	48.9	25.0	01:15	51.8	32.4	19.5	52.9	31.9	20.5	53.3	33.6	20.5
12:45	69.1	45.7	27.0	66.7	47.6	27.5	73.2	51.2	25.0	01:30	33.4	22.8	19.5	36.5	24.0	20.5	40.5	24.4	21.5
13:00	69.4	53.7	27.0	70.2	54.9	27.0	74.5	55.3	27.0	01:45	44.1	28.2	21.5	58.0	36.3	23.0	74.8	46.6	21.5
13:15	76.2	60.9	28.0	76.8	61.0	29.0	76.3	60.8	26.0	02:00	37.0	24.8	22.5	37.1	26.2	23.5	36.2	23.8	21.5
13:30	86.5	69.7	42.0	87.9	71.5	43.5	86.3	71.3	44.0	02:15	34.7	24.0	22.0	32.2	25.5	23.5	31.8	22.4	21.0
13:45	73.5	59.1	41.0	74.2	59.9	44.0	78.6	60.6	42.0	02:30	30.8	24.3	22.5	33.5	25.9	23.5	35.0	23.2	22.0
14:00	75.1	55.5	28.5	74.7	55.1	30.0	76.8	57.2	26.5	02:45	30.3	24.0	22.5	31.9	25.1	24.0	31.2	24.3	22.5
14:15	72.1	38.9	29.5	61.3	42.4	30.5	74.9	48.4	26.0	03:00	31.2	24.4	23.0	37.9	25.9	24.0	27.2	24.3	23.0
14:30	64.9	34.7	30.0	61.7	43.3	31.0	72.0	48.5	26.5	03:15	48.1	25.4	22.0	40.4	25.8	22.5	30.3	22.6	21.0
14:45	59.3	33.7	30.5	59.7	43.1	32.0	78.3	53.5	28.0	03:30	34.6	24.1	22.5	33.3	24.2	23.0	34.9	23.5	21.5
15:00	65.1	36.7	31.5	62.8	44.3	33.0	75.2	53.2	27.5	03:45	34.7	25.8	23.0	41.8	26.0	23.0	34.5	24.1	22.0
15:15	65.1	36.1	32.0	66.0	45.3	33.5	76.8	53.4	28.0	04:00	36.0	26.3	24.0	37.3	27.1	25.0	30.6	24.0	22.5
15:30	54.9	35.0	33.0	63.8	44.7	34.0	73.4	49.6	29.0	04:15	33.0	26.8	24.5	36.0	28.3	26.0	32.2	25.0	22.5
15:45	60.3	34.8	31.0	62.0	44.0	32.0	73.4	51.6	29.0	04:30	34.7	26.1	23.5	37.0	28.2	25.0	32.1	24.9	22.0
16:00	74.6	49.0	31.5	70.6	51.4	32.5	74.5	52.3	29.0	04:45	56.7	29.4	22.5	48.5	29.0	24.0	75.3	47.8	22.5
16:15	71.4	48.7	32.5	68.9	49.5	34.0	74.4	53.3	31.0	05:00	41.2	26.6	23.0	39.2	28.3	24.5	45.6	26.9	22.5
16:30	49.7	34.6	31.5	59.4	45.0	33.0	74.3	52.2	30.5	05:15	41.8	27.9	24.0	59.7	40.4	24.5	33.7	25.4	23.5
16:45	47.1	32.8	30.5	60.6	41.8	31.5	70.9	46.2	30.5	05:30	42.5	27.1	24.0	45.5	27.5	25.0	74.5	45.7	23.5
17:00	45.7	34.4	31.5	59.1	43.2	31.5	73.2	47.5	30.5	05:45	44.5	29.0	25.0	58.0	37.7	26.5	47.7	29.3	25.0
17:15	56.8	38.3	30.5	56.4	41.7	31.0	72.6	45.2	30.5	06:00	43.4	29.6	26.5	44.0	30.3	27.5	76.2	48.3	27.0
17:30	46.9	34.8	29.0	63.3	44.3	29.5	73.4	48.0	28.5	06:15	49.2	32.1	28.5	55.6	37.5	30.0	75.8	47.2	28.0
17:45	49.2	38.0	31.0	61.4	45.1	30.5	70.8	46.9	28.0	06:30	47.0	33.3	30.0	56.9	42.1	31.5	76.5	49.6	29.5
18:00	44.5	36.2	30.0	60.8	43.6	30.0	72.7	50.1	28.5	06:45	53.1	37.0	30.0	58.7	41.6	32.0	77.2	55.1	29.0
18:15	53.0	37.8	27.5	63.7	45.2	28.0	73.1	48.5	27.5	07:00	55.0	36.7	30.0	54.8	38.4	32.0	74.5	49.5	30.5
18:30	50.5	34.9	27.0	63.8	45.5	27.5	73.5	48.5	26.5	07:15	57.1	35.9	32.5	68.2	47.5	34.0	75.6	48.0	32.5
18:45	49.7	32.5	26.0	59.7	43.3	27.0	71.5	44.1	25.0	07:30	59.5	39.2	34.5	74.0	50.4	37.0	77.6	50.3	34.0
19:00	49.3	31.6	26.0	58.7	39.0	27.0	68.4	40.9	24.5	07:45	54.5	38.7	35.5	60.6	46.2	37.5	76.3	53.3	35.5
19:15	49.7	33.4	26.0	63.2	43.1	27.5	45.0	26.5	25.0	08:00	57.6	37.8	34.5	67.1	48.0	37.0	77.1	51.9	33.5
19:30	49.6	32.8	25.5	61.9	42.5	26.5	69.0	41.9	24.5	08:15	47.7	37.7	34.5	63.5	47.8	37.0	75.9	52.0	33.5
19:45	50.9	39.0	29.0	64.7	50.2	30.0	33.1	28.3	26.5	08:30	56.1	39.3	35.5	62.0	46.3	37.5	75.3	53.5	34.5
20:00	56.5	38.5	28.5	65.3	50.5	30.0	72.1	44.0	27.0	08:45	68.5	40.9	36.5	70.8	48.2	38.5	77.6	55.4	35.5
20:15	46.1	35.5	28.0	64.8	47.2	29.0	74.3	48.5	27.0	09:00	68.1	40.9	37.0	69.9	46.9	39.0	74.1	54.0	36.5
20:30	46.0	33.8	25.5	63.3	41.2	26.0	75.0	51.3	25.5	09:15	73.7	45.0	37.0	75.2	45.7	38.0	75.3	54.1	36.0
20:45	52.7	36.4	27.0	65.2	48.5	27.0	35.6	27.9	25.0	09:30	67.6	41.6	36.5	76.8	44.8	37.0	73.1	50.6	35.0
21:00	44.3	32.3	22.5	63.8	43.5	24.0	75.2	47.4	23.0	09:45	68.6	44.6	38.5	65.8	45.8	38.5	79.6	56.8	35.5
21:15	54.9	35.8	24.5	65.9	44.2	25.0	71.7	44.2	24.0	10:00	78.5	49.4	38.5	79.0	51.1	38.5	81.1	56.2	35.5
21:30	53.1	34.0	23.5	67.1	44.6	25.0	73.1	44.4	24.0	10:15	76.4	48.6	35.5	81.0	51.0	37.5	75.2	53.7	36.0
21:45	48.4	30.1	23.0	61.2	40.2	25.0	46.7	27.4	22.5	10:30	76.6	52.2	36.5	77.4	51.8	38.0	70.3	45.2	37.0
22:00	44.6	30.3	23.0	61.3	40.8	24.5	73.2	45.0	23.5	10:45	77.7	50.2	39.5	75.3	50.6	41.0	73.4	53.7	39.5
22:15	38.5	26.7	22.5	36.9	26.9	23.5	36.9	25.6	22.5	11:00	73.2	48.9	37.5	72.3	50.2	38.5	75.8	55.6	36.0
22:30	46.3	28.4	21.5	62.1	40.6	23.0	44.1	26.6	21.5	11:15	67.3	43.7	36.5	72.5	46.7	37.5	79.8	54.5	35.5
22:45	40.7	26.6	22.0	55.8	34.5	23.0	67.2	40.5	21.5	11:30	76.5	49.2	37.5	67.3	51.5	39.0			
23:00	38.2	24.1	20.5	55.1	33.4	22.0	32.5	22.4	21.0	11:45	73.8	49.0	38.0						
23:15	45.8	26.8	20.0	62.1	38.1	21.5	75.6	47.5	20.5										

Table A2. Weather Station Data											
Start Time	Wind Speed, m/s	Wind Direction	Temp, °C	Start Time	Wind Speed, m/s	Wind Direction	Temp, °C	Start Time	Wind Speed, m/s	Wind Direction	Temp, °C
10:50	0	SSW	4.7	19:10	0	WNW	2.8	03:30	1.7	WSW	3.1
11:00	0	SSW	4.8	19:20	0	WNW	2.3	03:40	1.4	WSW	3.1
11:10	0	W	1.4	19:30	0	WNW	2.1	03:50	1.7	WSW	3.2
11:20	1.2	W	1.1	19:40	0	WNW	2.4	04:00	1.9	WSW	3.1
11:30	1.3	WSW	1.6	19:50	0	WNW	2.2	04:10	1.3	WSW	3
11:40	0	WSW	1.4	20:00	0	WNW	2.1	04:20	1.5	WSW	2.9
11:50	0	W	1.7	20:10	0	WNW	1.8	04:30	0.8	WSW	2.6
12:00	0	W	2.1	20:20	0	WNW	1.8	04:40	0.6	WSW	2.3
12:10	0	WSW	2.2	20:30	0	WNW	1.3	04:50	1.5	WSW	2.3
12:20	0	WSW	2.5	20:40	0	WNW	0.7	05:00	0.9	WSW	2.3
12:30	0	WSW	3.3	20:50	0	WNW	0.8	05:10	0.8	WSW	2.3
12:40	0	WSW	2.7	21:00	0	W	1.4	05:20	1.2	WSW	2.7
12:50	0	WSW	2.6	21:10	0	W	0.9	05:30	1.5	WSW	2.9
13:00	0	WSW	2.8	21:20	0	W	1	05:40	1.6	WSW	3.1
13:10	0	W	2.9	21:30	0	WSW	1.1	05:50	1.3	WSW	3.1
13:20	0.6	WSW	2.7	21:40	0	WSW	1.2	06:00	1.3	WSW	3.1
13:30	0.7	WSW	3	21:50	0	WSW	1.8	06:10	0.7	SW	3
13:40	0	WSW	3.1	22:00	0	WSW	2	06:20	1.2	SW	2.9
13:50	0	WSW	3.2	22:10	0	WSW	2.1	06:30	0.7	SW	2.8
14:00	0	WSW	3.2	22:20	0	WSW	2.1	06:40	1.1	SW	2.6
14:10	0	WSW	3.2	22:30	0	WSW	2.2	06:50	0	SSW	2.2
14:20	0	WSW	4.5	22:40	0	WSW	2.2	07:00	0	SSW	2.2
14:30	0	WSW	3.7	22:50	0	WSW	2.4	07:10	1.3	SSW	2.3
14:40	0	WSW	4.6	23:00	0.5	W	2.4	07:20	1.1	SSW	2.3
14:50	0	WSW	4.3	23:10	1	WSW	2.5	07:30	1.8	SSW	2.4
15:00	0	WSW	4.6	23:20	0.7	WSW	2.5	07:40	1.8	SSW	2.4
15:10	0	WSW	5.6	23:30	0.8	WSW	2.4	07:50	2	SSW	2.4
15:20	0	WSW	4.1	23:40	0	WSW	2.5	08:00	1.9	SSW	2.4
15:30	0	WSW	3.8	23:50	0	WSW	2.4	08:10	2.8	SSW	2.4
15:40	0	WSW	3.2	00:00	0	WSW	2.4	08:20	2.5	SSW	2.4
15:50	0	WSW	3.1	00:10	0	WSW	2.4	08:30	2.2	S	2.3
16:00	0	WSW	3.1	00:20	0	WSW	2.1	08:40	2.7	SW	2.3
16:10	0	WSW	3	00:30	0	WSW	2.1	08:50	2.7	SSW	2.6
16:20	0	WSW	2.8	00:40	0	WSW	2.2	09:00	3.4	SSW	2.8
16:30	0	WSW	2.7	00:50	0	WSW	2.1	09:10	2.6	SSW	3.1
16:40	0	WSW	2.7	01:00	0	WSW	2.1	09:20	3.7	S	3.2
16:50	0	WSW	2.6	01:10	0	WSW	2.3	09:30	3.7	SSE	3.3
17:00	0	WSW	2.6	01:20	0.8	WSW	2.4	09:40	3.2	SSW	3.3
17:10	0	WSW	2.6	01:30	0.8	WSW	2.3	09:50	2.5	S	3.6
17:20	0	WSW	2.7	01:40	1.3	W	2.6	10:00	3.8	SSW	3.8
17:30	0	WSW	2.5	01:50	1.1	WSW	2.7	10:10	3.4	SSW	4.1
17:40	0	WSW	2.7	02:00	1.2	W	2.9	10:20	3.6	SSE	4.1
17:50	0	WSW	2.9	02:10	0.7	WSW	3.1	10:30	2.4	SE	4.2
18:00	0	WSW	3.1	02:20	0	WSW	3.2	10:40	1.7	SE	4.5
18:10	0	WSW	3.2	02:30	0	WSW	3.1	10:50	1.5	S	4.2
18:20	0	WSW	3.2	02:40	1.3	WSW	3.1	11:00	3.8	S	4.4
18:30	0	WSW	3.4	02:50	0.4	WSW	2.9	11:10	3.7	S	4.6
18:40	0	WNW	3.6	03:00	1.9	WSW	3.2	11:20	2.9	S	4.6
18:50	0	WNW	3.4	03:10	0.9	WSW	3.2	11:30	2	SSW	4.8
19:00	0	WNW	3.2	03:20	0.4	WSW	3.2	11:40	3.3	SSW	4.9

Table B1: Calculation of proposed poultry units ventilation fan Rating Levels at Receptor A

Source Noise Levels		Octave Band Centre Frequency, Hz							
		63	125	250	500	1k	2k	4k	dB(A)
		Roof Fans (Big Dutchman FF091-6ET)							
	[A] Lp at: 7m, 45° lateral:	52	48	48	45	45	42	37	49
	[B] directivity correction: 45° to 90°	0	1.5	3	4.5	9	11	18	
	[C] Reflection off poultry shed roof:	3	3	3	3	3	3	3	
	[A] - [B] + [C] L_p at: 7m, 90° lateral	55	49	48	44	39	34	22	45
		Gable End Fans (Hydor HV1250)							
	3m, 45° lateral:	52	57	63	57	54	51	46	60
	45° to 90°	1.5	2.5	4.5	9	23	23	23	
		3	3	3	3	3	3	3	
	3m, 90° lateral	53	58	62	51	34	31	26	55

		Shed 1			Shed 2			Shed 3			Shed 4			Shed 5			Shed 6			Shed 7			Shed 8			Shed 9			Shed 10			Shed 11			Shed 12		
	Fan	Roof			Roof			Roof			Roof			Roof			Roof			Roof			Roof			Roof			Roof			Roof			Roof		
		E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable
1	Direct distance, m	458.5	461.7	550.9	473.1	475.8	562.2	489.4	491.8	575.3	506.6	508.6	589.2	524.3	525.9	603.7	546.0	547.2	622.0	572.0	572.6	642.1	595.9	596.2	662.6	618.6	618.7	682.6	643.0	642.8	703.9	666.5	666.1	724.8	692.9	692.2	748.4
2		469.4	472.7	552.6	483.6	486.5	564.1	499.6	502.1	577.4	516.5	518.5	591.5	533.9	535.6	606.2	555.1	556.5	624.6	580.5	581.2	645.0	604.1	604.5	665.6	626.5	626.7	685.7	650.6	650.5	707.2	673.8	673.5	728.2	699.9	699.3	751.9
3		480.4	483.7	554.3	494.3	497.2	566.0	509.9	512.4	579.5	526.4	528.6	593.8	543.5	545.3	608.7	564.4	565.9	627.3	589.1	590.0	648.0	612.4	612.9	668.8	634.5	634.8	689.0	658.3	658.3	710.6	681.2	681.0	731.7	707.0	706.6	755.5
4		491.4	494.8	559.3	504.9	507.9	571.7	520.3	522.9	585.8	536.5	538.7	600.6	553.2	555.1	616.0	573.8	575.3	635.1	597.9	598.9	656.6	620.8	621.4	677.8	642.7	643.1	698.3	666.1	666.2	720.2	688.8	688.7	741.6	714.3	714.0	765.7
5		502.4	505.9	561.1	515.7	518.8	573.7	530.7	533.4	588.0	546.6	548.9	603.1	563.0	565.0	618.6	583.3	584.9	637.9	606.8	607.9	659.6	629.3	630.1	681.0	650.9	651.4	701.6	674.0	674.3	723.7	696.4	696.5	745.1	721.7	721.5	769.3
6		513.5	517.1	562.9	526.5	529.6	575.8	541.2	544.0	590.3	556.8	559.2	605.5	572.9	575.0	621.2	592.8	594.6	640.7	615.8	617.0	662.7	638.0	638.8	684.1	659.3	659.9	704.9	682.1	682.5	727.1	704.3	704.4	748.6	729.2	729.1	772.9
7		524.7	528.3		537.4	540.6		551.8	554.6		567.1	569.6		582.9	585.0		602.5	604.3		624.9	626.2		646.7	647.7		667.8	668.5		690.3	690.7		712.2	712.4		736.9	736.8	
8		535.8	539.5		548.3	551.6		562.4	565.4		577.4	580.0		592.9	595.2		612.2	614.2		634.1	635.5		655.6	656.6		676.4	677.2		698.6	699.2		720.2	720.5		744.6	744.7	
9		547.1	550.8		559.2	562.6		573.1	576.1		587.8	590.5		603.1	605.4		622.1	624.1		643.4	644.9		664.5	665.7		685.1	686.0		707.0	707.7		728.4	728.8		752.5	752.7	
1	Distance correction, dB	36.3	36.4	45.3	36.6	36.6	45.5	36.9	36.9	45.7	37.2	37.2	45.9	37.5	37.5	46.1	37.8	37.9	46.3	38.2	38.3	46.6	38.6	38.6	46.9	38.9	38.9	47.1	39.3	39.3	47.4	39.6	39.6	47.7	39.9	39.9	47.9
2		36.5	36.6	45.3	36.8	36.8	45.5	37.1	37.1	45.7	37.4	37.4	45.9	37.6	37.7	46.1	38.0	38.0	46.4	38.4	38.4	46.6	38.7	38.7	46.9	39.0	39.0	47.2	39.4	39.4	47.4	39.7	39.7	47.7	40.0	40.0	48.0
3		36.7	36.8	45.3	37.0	37.0	45.5	37.2	37.3	45.7	37.5	37.6	45.9	37.8	37.8	46.1	38.1	38.2	46.4	38.5	38.5	46.7	38.8	38.8	47.0	39.1	39.2	47.2	39.5	39.5	47.5	39.8	39.8	47.7	40.1	40.1	48.0
4		36.9	37.0	45.4	37.2	37.2	45.6	37.4	37.5	45.8	37.7	37.7	46.0	38.0	38.0	46.2	38.3	38.3	46.5	38.6	38.6	46.8	39.0	39.0	47.1	39.3	39.3	47.3	39.6	39.6	47.6	39.9	39.9	47.9	40.2	40.2	48.1
5		37.1	37.2	45.4	37.3	37.4	45.6	37.6	37.6	45.8	37.9	37.9	46.1	38.1	38.1	46.3	38.4	38.4	46.6	38.8	38.8	46.8	39.1	39.1	47.1	39.4	39.4	47.4	39.7	39.7	47.6	40.0	40.0	47.9	40.3	40.3	48.2
6		37.3	37.4	45.5	37.5	37.6	45.7	37.8	37.8	45.9	38.0	38.0	46.1	38.3	38.3	46.3	38.6	38.6	46.6	38.9	38.9	46.9	39.2	39.2	47.2	39.5	39.5	47.4	39.8	39.8	47.7	40.1	40.1	47.9	40.4	40.4	48.2
7		37.5	37.6		37.7	37.8		37.9	38.0		38.2	38.2		38.4	38.4		38.7	38.7		39.0	39.0		39.3	39.3		39.6	39.6		39.9	39.9		40.1	40.2		40.4	40.4	
8		37.7	37.7		37.9	37.9		38.1	38.1		38.3	38.4		38.6	38.6		38.8	38.9		39.1	39.2		39.4	39.4		39.7	39.7		40.0	40.0		40.2	40.3		40.5	40.5	
9		37.9	37.9		38.0	38.1		38.3	38.3		38.5	38.5		38.7	38.7		39.0	39.0		39.3	39.3		39.5	39.6		39.8	39.8		40.1	40.1		40.3	40.4		40.6	40.6	
1	Shielding attenuation, dB	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10
2		0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10
3		0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10
4		0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10
5		0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10
6		0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10
7		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0	
8		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0	
9		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0	
1	Ground absorption, dB	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0
2		4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0
3		4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0
4		4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0
5		4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0
6		4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0
7		4.4	4.4		4.4	4.4		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
8		4.4	4.4		4.4	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
9		4.4	4.4		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
1	Atmospheric attenuation, dB	0.9	0.9	1.0	0.9	0.9	1.1	0.9	0.9	1.1	1.0	1.0	1.1	1.0	1.0	1.1	1.0	1.0	1.2	1.1	1.1	1.2	1.1	1.1	1.3	1.2	1.2	1.3	1.2	1.2	1.3	1.3	1.3	1.4	1.3	1.3	1.4
2		0.9	0.9	1.0	0.9	0.9	1.1	0.9	1.0	1.1	1.0	1.0	1.1	1.0	1.0	1.2	1.1	1.1	1.2	1.1	1.1	1.2	1.1	1.1	1.3	1.2	1.2	1.3	1.2	1.2	1.3	1.3	1.3	1.4	1.3	1.3	1.4
3		0.9	0.9	1.1	0.9	0.9	1.1	1.0	1.0	1.1	1.0	1.0	1.1	1.0	1.0	1.2	1.1	1.1	1.2	1.1	1.1	1.2	1.2	1.2	1.3	1.2	1.2	1.3	1.3	1.3	1.4	1.3	1.3	1.4	1.3	1.3	1.4
4		0.9	0.9	1.1	1.0	1.0	1.1	1.0	1.0	1.1	1.0	1.0	1.1	1.1	1.1	1.2	1.1	1.1	1.2	1.1	1.1	1.2	1.2	1.2	1.3	1.2	1.2	1.3	1.3	1.3	1.4	1.3	1.3	1.4	1.4	1.4	1.5
5		1.0	1.0	1.1	1.0	1.0	1.1	1.0	1.0	1.1	1.0	1.0	1.1	1.1	1.1	1.2	1.1	1.1	1.2	1.2	1.2	1.3	1.2	1.2	1.3	1.2	1.2	1.3	1.3	1.3	1.4	1.3	1.3	1.4	1.4	1.4	1.5
6		1.0	1.0	1.1	1.0	1.0	1.1	1.0	1.0	1.1	1.1	1.1	1.2	1.1	1.1	1.2	1.1	1.1	1.2	1.2	1.2	1.3	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.3	1.3	1.4	1.4	1.4	1.5
7		1.0	1.0		1.0	1.0		1.0	1.1		1.1	1.1		1.1	1.1		1.1	1.1		1.2	1.2		1.2	1.2		1.3	1.3		1.3	1.3		1.4	1.4		1.4	1.4	
8		1.0	1.0		1.0	1.0		1.1	1.1		1.1	1.1		1.1	1.1		1.2	1.2		1.2	1.2		1.2	1.2		1.3	1.3		1.3	1.3		1.4	1.4		1.4	1.4	
9		1.0	1.0		1.1	1.1		1.1	1.1		1.1	1.1		1.1	1.2		1.2	1.2		1.2	1.2		1.3	1.3		1.3	1.3		1.3	1.3		1.4	1.4		1.4	1.4	
1	Sound pressure level at dwelling, dB	3.4	3.4	-1.7	3.1	3.1	-1.9	2.8	2.7	-2.1	2.4	2.4	-2.4	2.1	2.1	-2.6	1.7	1.7	-2.9	1.2	1.2	-3.2	0.8	0.8	-3.5	0.4	0.4	-3.8	0.0	0.0	-4.1	-0.4	-0.3	-4.4	-0.8	-0.7	-4.8
2		3.2	3.1	-1.8	2.9	2.8	-2.0	2.6	2.5	-2.2	2.2	2.2	-2.4	1.9	1.9	-2.7	1.5	1.5	-3.0	1.1	1.0	-3.3	0.7	0.6	-3.6	0.3	0.3	-3.9	-0.1	-0.1	-4.2	-0.5	-0.5	-4.5	-0.9	-0.8	-4.8
3		3.0	2.9	-1.8	2.7	2.6	-2.0	2.4	2.3	-2.2	2.0	2.0	-2.5	1.7	1.7	-2.7	1.3	1.3	-3.0	0.9	0.9	-3.3	0.5	0.5	-3.6	0.2	0.1	-3.9	-0.2	-0.2	-4.2	-0.6	-0.6	-4.5	-1.0	-1.0	-4.9
4		2.7	2.7	-1.9	2.5	2.4	-2.1	2.2	2.1	-2.3	1.9	1.8	-2.6	1.5	1.5	-2.8	1.2	1.1	-3.1	0.8	0.7	-3.5	0.4	0.4	-3.8	0.0	0.0	-4.1	-0.3	-0.3	-4.4	-0.7	-0.7	-4.7	-1.1	-1.1	-5.0
5		2.5	2.4	-1.9	2.2	2.2	-2.1	2.0	1.9	-2.4	1.7	1.6	-2.6	1.4	1.3	-2.9	1.0	1.0	-3.2	0.6	0.6	-3.5	0.2	0.2	-3.8	-0.1	-0.1	-4.1	-0.5	-0.5	-4.4	-0.8	-0.8	-4.7	-1.2	-1.2	-5.0
6		2.3	2.2	-1.9	2.0	2.0	-2.2	1.8	1.7	-2.4	1.5	1.4	-2.7	1.2	1.2	-2.9	0.8	0.8	-3.2	0.5	0.4	-3.5	0.1	0.1	-3.9	-0.2	-0.3	-4.2	-0.6	-0.6	-4.5	-0.9	-0.9	-4.8	-1.3	-1.3	-5.1
7		2.1	2.0		1.8	1.8		1.6	1.5		1.3	1.2		1.0	1.0		0.7	0.6		0.3	0.3		0.0	-0.1		-0.4	-0.4		-0.7	-0.7		-1.0	-1.0		-1.4	-1.4	
8		1.9	1.8		1.6	1.6		1.4	1.3		1.1	1.1		0.8	0.8		0.5	0.5		0.2	0.1		-0.2	-0.2		-0.5	-0.5		-0.8	-0.8		-1.1	-1.2		-1.5	-1.5	
9		1.7	1.6		1.4	1.4		1.2	1.1		0.9	0.9		0.7	0.6		0.4	0.3		0.0	0.0		-0.3	-0.3		-0.6	-0.6		-1.0	-1.0		-1.3	-1.3		-1.6	-1.6	

	BS4142 character correction		0
Day (07:00 - 20:00hrs):	100% roof & gable end extract fans operating	Specific Level, dB	25
		Rating Level, dB	25
	100% roof extract fans operating	Specific Level, dB	24
		Rating Level, dB	24
Evening (20:00 - 23:00hrs): 50% roof extract fans operating (assumed odd no. fans running)		Specific Level, dB	22
		Rating Level, dB	22
Night (23:00 - 07:00hrs): 25% roof extract fans operating (assumed no. 2, 5 & 8 fans running)		Specific Level, dB	20
		Rating Level, dB	20

Table B2. Calculation of proposed poultry units ventilation fan Rating Levels at Receptor B

Source Noise Levels		Octave Band Centre Frequency, Hz							
		63	125	250	500	1k	2k	4k	dB(A)
	Roof Fans (Big Dutchman FF091-6ET)								
[A] Lp at:	7m, 45° lateral:	52	48	48	45	45	42	37	49
[B] directivity correction:	45º to 90º	0	1.5	3	4.5	9	11	18	
[C] Reflection off poultry shed roof:		3	3	3	3	3	3	3	
[A] - [B] + [C] L_p at:	7m, 90º lateral	55	49	48	44	39	34	22	45
	Gable End Fans (Hydor HV1250)								
[A] Lp at:	3m, 45° lateral:	52	57	63	57	54	51	46	60
[B] directivity correction:	45º to 80º	1	1.5	3	4.5	18	18	18	
[C] Reflection off poultry shed roof:		3	3	3	3	3	3	3	
[A] - [B] + [C] L_p at:	3m, 80º lateral	54	59	63	55	39	36	31	57

Fan		Shed 1			Shed 2			Shed 3			Shed 4			Shed 5			Shed 6			Shed 7			Shed 8			Shed 9			Shed 10			Shed 11			Shed 12		
		Roof			Roof			Roof			Roof			Roof			Roof			Roof			Roof			Roof			Roof			Roof			Roof		
		E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable
1	Direct distance, m	1183	1187	1183	1151	1155	1151	1120	1124	1120	1090	1094	1089	1060	1064	1059	1028	1032	1026	982.5	986.1	978.6	949.2	952.7	944.4	920.3	923.8	915.1	889.2	892.6	883.1	860.2	863.6	853.4	828.6	831.9	820.9
2		1181	1185	1178	1149	1153	1146	1118	1122	1115	1088	1091	1084	1058	1062	1054	1026	1029	1021	979.9	983.6	973.9	946.5	950.1	939.8	917.6	921.2	910.4	886.3	889.8	878.4	857.3	860.7	848.8	825.5	828.9	816.2
3		1179	1183	1174	1147	1151	1141	1116	1120	1110	1085	1089	1079	1056	1060	1049	1023	1027	1017	977.5	981.2	969.1	944.0	947.7	935.0	915.0	918.7	905.7	883.6	887.2	873.7	854.5	858.0	844.0	822.6	826.1	811.5
4		1177	1181	1160	1145	1149	1128	1114	1118	1097	1084	1088	1066	1054	1058	1036	1021	1025	1003	975.2	979.0	955.6	941.6	945.4	921.5	912.5	916.3	892.2	881.0	884.7	860.2	851.8	855.5	830.5	819.8	823.4	798.0
5		1175	1180	1155	1143	1148	1123	1113	1117	1092	1082	1086	1061	1052	1056	1031	1019	1024	998.2	973.0	977.0	950.8	939.3	943.2	916.7	910.2	914.1	887.4	878.6	882.4	855.4	849.3	853.1	825.8	817.2	820.9	793.2
6		1174	1178	1150	1142	1146	1118	1111	1115	1087	1080	1084	1056	1050	1055	1026	1018	1022	993.6	971.1	975.1	946.2	937.2	941.2	912.1	908.1	912.0	882.7	876.4	880.3	850.8	847.0	850.8	821.1	814.8	818.6	788.6
7		1172	1177		1140	1145		1109	1114		1079	1083		1049	1053		1016	1020		969.2	973.3		935.3	939.4		906.1	910.1		874.3	878.3		844.9	848.8		812.6	816.4	
8		1171	1176		1139	1144		1108	1112		1077	1081		1047	1052		1015	1019		967.5	971.7		933.5	937.7		904.3	908.4		872.4	876.5		842.9	846.9		810.5	814.5	
9		1170	1174		1138	1142		1107	1111		1076	1080		1046	1050		1013	1018		966.0	970.2		931.9	936.1		902.6	906.8		870.7	874.8		841.1	845.2		808.6	812.7	
1	Distance correction, dB	44.6	44.6	51.9	44.3	44.3	51.7	44.1	44.1	51.4	43.8	43.9	51.2	43.6	43.6	51.0	43.3	43.4	50.7	42.9	43.0	50.3	42.6	42.7	50.0	42.4	42.4	49.7	42.1	42.1	49.4	41.8	41.8	49.1	41.5	41.5	48.7
2		44.5	44.6	51.9	44.3	44.3	51.6	44.1	44.1	51.4	43.8	43.9	51.2	43.6	43.6	50.9	43.3	43.4	50.6	42.9	43.0	50.2	42.6	42.7	49.9	42.4	42.4	49.6	42.0	42.1	49.3	41.8	41.8	49.0	41.4	41.5	48.7
3		44.5	44.6	51.8	44.3	44.3	51.6	44.1	44.1	51.4	43.8	43.8	51.1	43.6	43.6	50.9	43.3	43.3	50.6	42.9	42.9	50.2	42.6	42.6	49.9	42.3	42.4	49.6	42.0	42.1	49.3	41.7	41.8	49.0	41.4	41.4	48.6
4		44.5	44.5	51.7	44.3	44.3	51.5	44.0	44.1	51.3	43.8	43.8	51.0	43.6	43.6	50.8	43.3	43.3	50.5	42.9	42.9	50.1	42.6	42.6	49.7	42.3	42.3	49.5	42.0	42.0	49.1	41.7	41.7	48.8	41.4	41.4	48.5
5		44.5	44.5	51.7	44.3	44.3	51.5	44.0	44.1	51.2	43.8	43.8	51.0	43.5	43.6	50.7	43.3	43.3	50.4	42.9	42.9	50.0	42.6	42.6	49.7	42.3	42.3	49.4	42.0	42.0	49.1	41.7	41.7	48.8	41.3	41.4	48.4
6		44.5	44.5	51.7	44.3	44.3	51.4	44.0	44.0	51.2	43.8	43.8	50.9	43.5	43.6	50.7	43.3	43.3	50.4	42.8	42.9	50.0	42.5	42.6	49.7	42.3	42.3	49.4	42.0	42.0	49.1	41.7	41.7	48.7	41.3	41.4	48.4
7		44.5	44.5		44.2	44.3		44.0	44.0		43.8	43.8		43.5	43.5		43.2	43.3		42.8	42.9		42.5	42.6		42.2	42.3		41.9	42.0		41.6	41.7		41.3	41.3	
8		44.5	44.5		44.2	44.3		44.0	44.0		43.7	43.8		43.5	43.5		43.2	43.3		42.8	42.8		42.5	42.5		42.2	42.3		41.9	42.0		41.6	41.7		41.3	41.3	
9		44.5	44.5		44.2	44.3		44.0	44.0		43.7	43.8		43.5	43.5		43.2	43.2		42.8	42.8		42.5	42.5		42.2	42.2		41.9	41.9		41.6	41.6		41.3	41.3	
1	Shielding attenuation, dB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0	
8		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0	
9		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0	
1	Ground absorption, dB	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
2		4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
3		4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
4		4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
5		4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
6		4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
7		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6	
8		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6	
9		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6	
1	Atmospheric attenuation, dB	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.7	1.8	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6
2		2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.7	1.8	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6
3		2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.5
4		2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.5
5		2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.8	1.9	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.5
6		2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.8	1.9	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.5	1.6	1.5
7		2.2	2.2		2.2	2.2		2.1	2.1		2.0	2.1		2.0	2.0		1.9	1.9		1.8	1.8		1.8	1.8		1.7	1.7		1.7	1.7		1.6	1.6		1.5	1.6	
8		2.2	2.2		2.2	2.2		2.1	2.1		2.0	2.1		2.0	2.0		1.9	1.9		1.8	1.8		1.8	1.8		1.7	1.7		1.7	1.7		1.6	1.6		1.5	1.5	
9		2.2	2.2		2.2	2.2		2.1	2.1		2.0	2.1		2.0	2.0		1.9	1.9		1.8	1.8		1.8	1.8		1.7	1.7		1.7	1.7		1.6	1.6		1.5	1.5	
1	Sound pressure level at dwelling, dB	-6.4	-6.5	-1.9	-6.1	-6.2	-1.6	-5.8	-5.9	-1.3	-5.5	-5.6	-1.0	-5.2	-5.3	-0.7	-4.9	-4.9	-0.3	-4.4	-4.5	0.2	-4.0	-4.1	0.5	-3.7	-3.8	0.9	-3.4	-3.4	1.3	-3.0	-3.0	1.6	-2.6	-2.7	2.0
2		-6.4	-6.5	-1.9	-6.1	-6.2	-1.6	-5.8	-5.9	-1.3	-5.5	-5.6	-0.9	-5.2	-5.3	-0.6	-4.9	-4.9	-0.3	-4.4	-4.4	0.2	-4.0	-4.1	0.6	-3.7	-3.7	0.9	-3.3	-3.4	1.3	-3.0	-3.0	1.7	-2.6	-2.6	2.1
3		-6.4	-6.4	-1.8	-6.1	-6.1	-1.5	-5.8	-5.8	-1.2	-5.5	-5.5	-0.9	-5.2	-5.2	-0.6	-4.9	-4.9	-0.2	-4.4	-4.4	0.3	-4.0	-4.0	0.7	-3.7	-3.7	1.0	-3.3	-3.3	1.4	-2.9	-3.0	1.7	-2.5	-2.6	2.2
4		-6.4	-6.4	-1.7	-6.1	-6.1	-1.4	-5.8	-5.8	-1.1	-5.5	-5.5	-0.8	-5.2	-5.2	-0.4	-4.8	-4.9	-0.1	-4.3	-4.4	0.4	-4.0	-4.0	0.8	-3.6	-3.7	1.2	-3.3	-3.3	1.5	-2.9	-2.9	1.9	-2.5	-2.5	2.3
5		-6.4	-6.4	-1.6	-6.1	-6.1	-1.3	-5.8	-5.8	-1.0	-5.5	-5.5	-0.7	-5.2	-5.2	-0.4	-4.8	-4.9	0.0	-4.3	-4.4	0.5	-3.9	-4.0	0.9	-3.6	-3.6	1.2	-3.2	-3.3	1.6	-2.9	-2.9	2.0	-2.5	-2.5	2.4
6		-6.4	-6.4	-1.6	-6.1	-6.1	-1.3	-5.8	-5.8	-1.0	-5.4	-5.5	-0.7	-5.1	-5.2	-0.3	-4.8	-4.8	0.0	-4.3	-4.3	0.5	-3.9	-4.0	0.9	-3.6	-3.6	1.3	-3.2	-3.2	1.7	-2.8	-2.9	2.0	-2.4	-2.5	2.4
7		-6.3	-6.4		-6.0	-6.1		-5.7	-5.8		-5.4	-5.5		-5.1	-5.2		-4.8	-4.8		-4.3	-4.3		-3.9	-3.9		-3.6	-3.6		-3.2	-3.2		-2.8	-2.9		-2.4	-2.5	
8		-6.3	-6.4		-6.0	-6.1		-5.7	-5.8		-5.4	-5.5		-5.1	-5.2		-4.8	-4.8		-4.3	-4.3		-3.9	-3.9		-3.5	-3.6		-3.2	-3.2		-2.8	-2.8		-2.4	-2.4	
9		-6.3	-6.4		-6.0	-6.1		-5.7	-5.8		-5.4	-5.4		-5.1	-5.1		-4.7	-4.8		-4.2	-4.3		-3.9	-3.9		-3.5	-3.6		-3.1	-3.2		-2.8	-2.8		-2.4	-2.4	

BS4142 character correction			0
Day (07:00 - 20:00hrs):	100% roof & gable end extract fans operating	Specific Level, dB	22
		Rating Level, dB	22
	100% roof extract fans operating	Specific Level, dB	19
		Rating Level, dB	19
Evening (20:00 - 23:00hrs): 50% roof extract fans operating (assumed odd no. fans running)		Specific Level, dB	16
		Rating Level, dB	16
Night (23:00 - 07:00hrs): 25% roof extract fans operating (assumed no. 2, 5 & 8 fans running)		Specific Level, dB	14
		Rating Level, dB	14

Table B3. Calculation of proposed poultry units ventilation fan Rating Levels at Receptor C

		Octave Band Centre Frequency, Hz							
		63	125	250	500	1k	2k	4k	dB(A)
Roof Fans (Big Dutchman FF091-6ET)									
Source Noise Levels	[A] Lp at: 7m, 45° lateral:	52	48	48	45	45	42	37	49
	[B] directivity correction: 45° to 90°	0	1.5	3	4.5	9	11	18	
	[C] Reflection off poultry shed roof:	3	3	3	3	3	3	3	
	[A] - [B] + [C] L_p at: 7m, 90° lateral	55	49	48	44	39	34	22	45
Gable End Fans (Hydor HV1250)									
	[A] Lp at: 3m, 45° lateral:	52	57	63	57	54	51	46	60
	[B] directivity correction: 45° to 20°	-0.5	-1	-0.5	-1	-1	-1	-1	
	[C] Reflection off poultry shed roof:	3	3	3	3	3	3	3	
	[A] - [B] + [C] L_p at: 3m, 20° lateral	55	61	67	61	58	55	50	64

Fan		Shed 1			Shed 2			Shed 3			Shed 4			Shed 5			Shed 6			Shed 7			Shed 8			Shed 9			Shed 10			Shed 11			Shed 12		
		Roof			Roof			Roof			Roof			Roof			Roof			Roof			Roof			Roof			Roof			Roof			Roof		
		E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable	E row	W row	Gable
1	Direct distance, m	636.3	634.4	563.5	618.3	616.2	542.2	601.4	599.0	522.1	586.3	583.5	503.6	573.0	569.9	487.1	558.8	555.3	469.4	551.5	547.4	456.9	543.7	539.2	445.9	536.4	531.5	436.2	532.1	526.9	429.7	529.4	523.9	425.2	528.3	522.4	422.6
2		626.5	624.8	560.3	608.3	606.2	539.1	591.1	588.7	519.2	575.7	573.0	500.8	562.1	559.1	484.6	547.6	544.2	467.1	540.0	536.0	455.1	531.9	527.5	444.4	524.5	519.7	435.0	520.1	514.9	428.7	517.3	511.8	424.6	516.2	510.4	422.4
3		616.9	615.3	557.0	598.3	596.4	536.0	580.9	578.6	516.2	565.1	562.5	498.1	551.3	548.4	482.0	536.6	533.2	464.8	528.5	524.5	453.2	520.2	515.8	442.8	512.7	507.9	433.8	508.1	503.0	427.9	505.3	499.8	424.0	504.1	498.3	422.2
4		607.3	605.8	547.8	588.4	586.6	527.3	570.7	568.5	508.0	554.7	552.1	490.4	540.6	537.7	474.9	525.5	522.2	458.5	517.1	513.1	448.2	508.6	504.2	438.8	500.8	496.1	430.5	496.2	491.0	425.6	493.2	487.7	422.7	492.0	486.2	421.9
5		597.9	596.4	544.6	578.7	576.9	524.2	560.6	558.5	505.1	544.3	541.8	487.8	529.9	527.1	472.5	514.5	511.3	456.3	505.7	501.8	446.5	496.9	492.6	437.4	489.0	484.3	429.5	484.2	479.1	424.9	481.1	475.7	422.4	479.9	474.1	422.0
6		588.5	587.2	541.5	569.0	567.3	521.3	550.6	548.6	502.4	534.0	531.6	485.2	519.3	516.5	470.2	503.6	500.5	454.2	494.3	490.4	444.9	485.3	481.0	436.1	477.2	472.5	428.5	472.2	467.2	424.3	469.1	463.7	422.1	467.8	462.0	422.0
7		579.2	578.0		559.4	557.8		540.7	538.8		523.7	521.4		508.7	506.1		492.7	489.7		482.9	479.2		473.7	469.4		465.4	460.8		460.3	455.2		457.1	451.6		455.7	449.9	
8		570.1	568.9		549.9	548.4		530.8	529.0		513.5	511.3		498.2	495.7		481.9	478.9		471.6	467.9		462.1	457.9		453.6	449.0		448.3	443.3		445.0	439.6		443.6	437.8	
9		561.0	560.0		540.5	539.1		521.1	519.4		503.5	501.4		487.8	485.3		471.2	468.2		460.3	456.7		450.5	446.4		441.9	437.3		436.4	431.4		433.0	427.6		431.5	425.7	
1	Distance correction, dB	39.2	39.1	45.5	38.9	38.9	45.1	38.7	38.6	44.8	38.5	38.4	44.5	38.3	38.2	44.2	38.0	38.0	43.9	37.9	37.9	43.7	37.8	37.7	43.4	37.7	37.6	43.3	37.6	37.5	43.1	37.6	37.5	43.0	37.6	37.5	43.0
2		39.0	39.0	45.4	38.8	38.8	45.1	38.5	38.5	44.8	38.3	38.3	44.5	38.1	38.0	44.2	37.9	37.8	43.8	37.7	37.7	43.6	37.6	37.5	43.4	37.5	37.4	43.2	37.4	37.3	43.1	37.4	37.3	43.0	37.4	37.3	43.0
3		38.9	38.9	45.4	38.6	38.6	45.0	38.4	38.3	44.7	38.1	38.1	44.4	37.9	37.9	44.1	37.7	37.6	43.8	37.6	37.5	43.6	37.4	37.3	43.4	37.3	37.2	43.2	37.2	37.1	43.1	37.2	37.1	43.0	37.1	37.0	43.0
4		38.8	38.7	45.2	38.5	38.5	44.9	38.2	38.2	44.6	38.0	37.9	44.3	37.8	37.7	44.0	37.5	37.5	43.7	37.4	37.3	43.5	37.2	37.2	43.3	37.1	37.0	43.1	37.0	36.9	43.0	37.0	36.9	43.0	36.9	36.8	43.0
5		38.6	38.6	45.2	38.3	38.3	44.8	38.1	38.0	44.5	37.8	37.8	44.2	37.6	37.5	43.9	37.3	37.3	43.6	37.2	37.1	43.5	37.0	36.9	43.3	36.9	36.8	43.1	36.8	36.7	43.0	36.7	36.6	43.0	36.7	36.6	43.0
6		38.5	38.5	45.1	38.2	38.2	44.8	37.9	37.9	44.5	37.6	37.6	44.2	37.4	37.4	43.9	37.1	37.1	43.6	37.0	36.9	43.4	36.8	36.7	43.3	36.7	36.6	43.1	36.6	36.5	43.0	36.5	36.4	43.0	36.5	36.4	43.0
7		38.4	38.3		38.1	38.0		37.8	37.7		37.5	37.4		37.2	37.2		37.0	36.9		36.8	36.7		36.6	36.5		36.5	36.4		36.4	36.3		36.3	36.2		36.3	36.2	
8		38.2	38.2		37.9	37.9		37.6	37.6		37.3	37.3		37.0	37.0		36.8	36.7		36.6	36.5		36.4	36.3		36.2	36.1		36.1	36.0		36.1	36.0		36.0	35.9	
9		38.1	38.1		37.8	37.7		37.4	37.4		37.1	37.1		36.9	36.8		36.6	36.5		36.4	36.3		36.2	36.1		36.0	35.9		35.9	35.8		35.8	35.7		35.8	35.7	
1	Shielding attenuation, dB	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10
2		0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10
3		0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10
4		0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10
5		0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10
6		0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0	10
7		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0	
8		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0	
9		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0	
1	Ground absorption, dB	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0
2		4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0
3		4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0
4		4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0
5		4.5	4.5	0.0	4.5	4.5	0.0	4.5	4.5	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0
6		4.5	4.5	0.0	4.5	4.5	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0	4.4	4.4	0.0
7		4.5	4.5		4.5	4.5		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	
8		4.5	4.5		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	
9		4.5	4.5		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.3		4.4	4.3		4.3	4.3	
1	Atmospheric attenuation, dB	1.2	1.2	1.1	1.2	1.2	1.0	1.1	1.1	1.0	1.1	1.1	1.0	1.1	1.1	0.9	1.1	1.1	0.9	1.0	1.0	0.9	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8
2		1.2	1.2	1.1	1.2	1.2	1.0	1.1	1.1	1.0	1.1	1.1	1.0	1.1	1.1	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8
3		1.2	1.2	1.1	1.1	1.1	1.0	1.1	1.1	1.0	1.1	1.1	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	0.9	0.8	1.0	0.9	0.8
4		1.2	1.2	1.0	1.1	1.1	1.0	1.1	1.1	1.0	1.1	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.8	1.0	0.9	0.8	0.9	0.9	0.8	0.9	0.9	0.8	0.9	0.9	0.8
5		1.1	1.1	1.0	1.1	1.1	1.0	1.1	1.1	1.0	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.8	0.9	0.9	0.8	0.9	0.9	0.8	0.9	0.9	0.8	0.9	0.9	0.8	0.9	0.9	0.8
6		1.1	1.1	1.0	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.8	0.9	0.9	0.8	0.9	0.9	0.8	0.9	0.9	0.8	0.9	0.9	0.8	0.9	0.9	0.8
7		1.1	1.1		1.1	1.1		1.0	1.0		1.0	1.0		1.0	1.0		0.9	0.9		0.9	0.9		0.9	0.9		0.9	0.9		0.9	0.9		0.9	0.9		0.9	0.9	
8		1.1	1.1		1.0	1.0		1.0	1.0		1.0	1.0		0.9	0.9		0.9	0.9		0.9	0.9		0.9	0.9		0.9	0.9		0.9	0.8		0.8	0.8		0.8	0.8	
9		1.1	1.1		1.0	1.0		1.0	1.0		1.0	1.0		0.9	0.9		0.9	0.9		0.9	0.9		0.9	0.8		0.8	0.8		0.8	0.8		0.8	0.8		0.8	0.8	
1	Sound pressure level at dwelling, dB	0.1	0.2	7.3	0.4	0.4	7.6	0.7	0.7	8.0	1.0	1.0	8.3	1.2	1.2	8.7	1.4	1.5	9.0	1.6	1.6	9.3	1.7	1.8	9.5	1.9	1.9	9.7	1.9	2.0	9.9	2.0	2.1	10.0	2.0	2.1	10.0
2		0.3	0.3	7.3	0.6	0.6	7.7	0.9	0.9	8.1	1.1	1.2	8.4	1.4	1.4	8.7	1.6	1.7	9.1	1.8	1.9	9.3	1.9	2.0	9.5	2.1	2.2	9.7	2.2	2.3	9.9	2.2	2.3	10.0	2.2	2.4	10.0
3		0.4	0.5	7.4	0.7	0.8	7.7	1.0	1.1	8.1	1.3	1.4	8.4	1.6	1.6	8.8	1.9	1.9	9.1	2.0	2.1	9.4	2.2	2.2	9.6	2.3	2.4	9.8	2.4	2.5	9.9	2.5	2.6	10.0	2.5	2.6	10.0
4		0.6	0.6	7.5	0.9	0.9	7.9	1.2	1.3	8.3	1.5	1.6	8.6	1.8	1.8	8.9	2.1	2.1	9.2	2.2	2.3	9.5	2.4	2.5	9.7	2.5	2.6	9.8	2.6	2.7	10.0	2.7	2.8	10.0	2.7	2.8	10.0
5		0.8	0.8	7.6	1.1	1.1	8.0	1.4	1.4	8.3	1.7	1.8	8.7	2.0	2.0	9.0	2.3	2.3	9.3	2.4	2.5	9.5	2.6	2.7	9.7	2.8	2.9	9.9	2.9	3.0	10.0	2.9	3.1	10.0	3.0	3.1	10.0
6		0.9	0.9	7.6	1.3	1.3	8.0	1.6	1.6	8.4	1.9	1.9	8.7	2.2	2.2	9.0	2.5	2.6	9.3	2.7	2.8	9.5	2.9	2.9	9.7	3.0	3.1	9.9	3.1	3.2	10.0	3.2	3.3	10.0	3.2	3.4	10.0
7		1.1	1.1		1.4	1.5		1.8	1.8		2.1	2.1		2.4	2.4		2.7	2.8		2.9	3.0		3.1	3.2		3.3	3.4		3.4	3.5		3.5	3.6		3.5	3.6	
8		1.2	1.3		1.6	1.6		2.0	2.0		2.3	2.3		2.6	2.6		2.9	3.0		3.1	3.2		3.3	3.4		3.5	3.6		3.7	3.8		3.7	3.8		3.8	3.9	
9		1.4	1.4		1.8	1.8		2.1	2.2		2.5	2.5		2.8	2.9		3.2	3.2		3.4	3.5		3.6	3.7		3.8	3.9		3.9	4.0		4.0	4.1		4.0	4.2	

		BS4142 character correction	0
Day (07:00 - 20:00hrs):	100% roof & gable end extract fans operating	Specific Level, dB	30
		Rating Level, dB	30
	100% roof extract fans operating	Specific Level, dB	26
		Rating Level, dB	26
Evening (20:00 - 23:00hrs): 50% roof extract fans operating (assumed odd no. fans running)		Specific Level, dB	23
		Rating Level, dB	23
Night (23:00 - 07:00hrs): 25% roof extract fans operating (assumed no. 2, 5 & 8 fans running)		Specific Level, dB	21
		Rating Level, dB	21

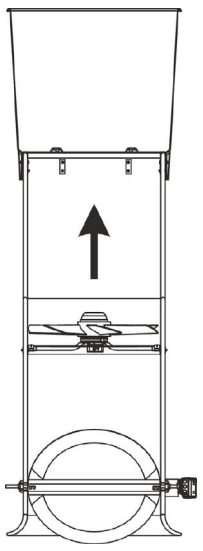
Table B4. Calculation of HGVs loading/unloading BS4142 Rating Level at Receptors A - C															
Source noise levels						L_{Aeq} dB	$L_{Amax,F}$ dB								
	HGV manoeuvring at 5m					72	80								
	HGV loading/unloading using an electric forklift at 5m					63	84								
Receptor		A				B				C					
		Sheds 1 - 6		*Sheds 6 - 12*		*Sheds 1 - 6*		*Sheds 6 - 12*		*Sheds 1 - 6*		*Sheds 6 - 12*			
Noise Event		HGV manoeuvring	HGV loading/ unloading using electric	HGV manoeuvring	HGV loading/ unloading using electric	HGV manoeuvring	HGV loading/ unloading using electric	HGV manoeuvring	HGV loading/ unloading using electric	HGV manoeuvring	HGV loading/ unloading using electric	HGV manoeuvring	HGV loading/ unloading using electric		
Corrections	Distance, m	491	491	617	617	1108	1108	916	916	601	601	546	546		
	Distance correction, dB	40	40	42	42	47	47	45	45	42	42	41	41		
	Shielding correction, dB	0	0	0	0	10	10	10	10	10	10	10	10		
	Ground absorption, dB	4.6	4.6	4.7	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	Atmospheric attenuation, dB	0.9	0.9	1.2	1.2	2.1	2.1	1.7	1.7	1.1	1.1	1.0	1.0		
BS4142 Specific Level															
Day Period Specific Level	On time, mins	2	45	2	45	2	45	2	45	2	45	2	45		
	On time correction, dB	-15	-1	-15	-1	-15	-1	-15	-1	-15	-1	-15	-1		
	Specific Level, dB	12	16	10	14	-2	3	0	5	4	9	5	10		
Night Period Specific Level	On time, mins	2.0	15.0	2.0	15.0	2.0	15.0	2.0	15.0	2.0	15.0	2.0	15.0		
	On time correction, dB	-8.8	0.0	-8.8	0.0	-8.8	0.0	-8.8	0.0	-8.8	0.0	-8.8	0.0		
	Specific Level, dB	18	18	16	15	4	4	6	6	11	10	11	11		
BS4142 Rating & Assessment Level															
	BS4142 character corrections	3	6	3	6	3	6	3	6	3	6	3	6		
Working Day Rating Level, dB	Noise event Rating Level	15	22	13	20	1	9	3	11	7	15	8	16		
	Aggregate Rating Level	23		21		9		12		16		17			
Night Rating Level, dB	Noise event Rating Level	21	24	19	21	7	10	9	12	14	16	14	17		
	Aggregate Rating Level	26		23		12		14		18		19			
Noise ingress via open window (13dB sound insulation)															
	$L_{Aeq,15minutes}$ dB	8		6		-6		-4		0		1			
	$L_{Amax,F}$ dB	26		23		12		14		18		19			

Data sheet: Fan for exhaust air chimney

Code no	Description
60-47-7906	Fan FF091-6ET 1x230V 50Hz 4.2A f/tube
valid for the following chimney types:	
60-39-0130	Exhaust air chimney CL920-30-VC-2900 gray
60-39-0140	Exhaust air chimney CL920-30-VC-2900 brown
60-39-0150	Exhaust air chimney CL920-30-AF-2900 gray
60-39-0160	Exhaust air chimney CL920-30-AF-2900 brown

Parameter	Unit	Value	Comment
Nominal voltage	**[V] / [Hz]**	230/50	
Allowable voltage	**[V]**	207-253	
Current consumption	**[A]**	4,2	
Max. ambient temperature	**[°C]**	55	
Sound power level (L_wA)	**[dB(A)]**	-	
Sound pressure level (L_pA)	**[dB(A)]**	49	Distance 7m at 30 Pa
Weight	**[kg]**	19,5	
Speed control	**[-]**	T, FU, Triac	
Protection class	**[-]**	IP 54	
Certificate	**[-]**	CE, ErP2015	

Pressure	Air volume	Air speed	Specific capacity	Illustration
[Pa]	[m^3/h]	[m/s]	[W/1000m^3]	
0	24,900	10.4	31.5	
10	23,600	9.8	34.0	
20	22,400	9.4	36.8	
30	21,200	8.9	39.9	
40	19,900	8.3	-	
50	18,300	7.6	-	
60	16,300	6.8	-	
80	12,100	5.1	-	
100	-	-	-	
120	-	-	-	
140	-	-	-	
160	-	-	-	



Big Dutchman International GmbH
Big Dutchman Pig Equipment GmbH
P.O Box 1163 · D-49360 Vechta · Germany
Tel. +49(0)4447 / 801-0 · Fax. +49(0)4447 /801-237
E-mail: big@bigdutchman.de

Edition: 06/2015 -GB

HV Wall Mounted Belt Drive Fan

Single Phase

220V to 240V / 50Hz

Model Number	Speed (r/min)	Airflow m^3/s @ Static Pressure (Pa)						Power (kW)	FLC (Amps)	Start (Amps)	dBA @ 3m
		0	20	40	60	80	100				
HV800	630	4.588	4.091	3.589	2.840	-	-	0.75	4.5	14.3	58
HV1000	520	7.096	6.447	5.550	4.296	3.139	1.827	0.75	5.4	14.9	59
HV1250	400	11.002	9.578	8.030	6.190	4.028	-	1.1	7.2	25.7	60
HV1500	360	12.828	11.360	9.503	6.815	-	-	1.5	9.4	33.0	61

Measurement category used to determine energy efficiency: A. FLC Amps @ 230V / 1Ph / 50Hz.

Three Phase

400V / 50Hz

Model Number	Speed (r/min)	Airflow m^3/s @ Static Pressure (Pa)						Power (kW)	FLC (Amps)	Start (Amps)	dBA @ 3m
		0	20	40	60	80	100				
HV800	630	4.588	4.091	3.589	2.840	-	-	0.75	2.0	5.9	58
HV1000	520	7.096	6.447	5.550	4.296	3.139	1.827	0.75	2.6	7.8	59
HV1250	400	11.002	9.578	8.030	6.190	4.028	-	1.1	2.9	8.7	60
HV1500	360	12.828	11.360	9.503	6.815	-	-	1.5	3.6	10.8	61

Measurement category used to determine energy efficiency: A. FLC Amps @ 400V / 3Ph / 50Hz.
Note: Motor electrical data is approximate, as it varies from one motor manufacturer to another

t +44 (0) 1725 511422 e info@hydor.co.uk w www.hydor.co.uk