3/2020/1063

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NOISE ASSESSMENT

DOGGIE DAYCARE

Ribble View Farm, Alston, Longridge PR3 3BN

Client:
Liz Simpson

Report Date: 25th November 2020
Ref: 20201125 8931 Longridge Dogs.docx
Site Visit by: M A Kenyon
Site Visit date: 16th November 2020

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1.0 INTRODUCTION

On the instructions of M L Planning, Martec Environmental Consultants Ltd carried out a noise assessment of a proposed doggie daycare facility to be located at Ribble View Farm, Alston, Longridge PR3 3BN.

This report considers the requirements of current government guidance, measurements of noise made on site and predictions of future noise levels and draws conclusions as to the likely impact of the proposals.

Noise terminology is explained at Appendix 1, and the consultant's qualifications are set out at Appendix 2.

From the outset it should be noted that in our experience, dogs in a day care facility are under close supervision and control and have to be reasonably well adjusted and used to other people and dogs for the facility to function effectively; consequently, the dogs are much less likely to bark that in a boarding or breeding kennels.

2.0 SITE DESCRIPTION

The facility would be located inside existing building commercial premises at Ribble View Farm [see Figure 1 below]; these premises are currently used for equine stabling and an indoor arena.

The nearest 'off site' residents occupy a property immediately to the west, with the next nearest properties being some 500m to the southwest of the site; clearly the impact at the nearest property will control the overall impact of the proposals.

We are instructed as follows:

1. There would be up to 12 dogs on site, and
2. The dogs would be exercised either internally in the area or on the far side of the building from the nearest property [See Figure 1].
3. The hours of operation will be as follows
    a. 7am - 7pm Mon to Fri
    b. 9am - 4pm Sat and Sun
4. The doors to the facility would need to be kept closed for security reasons, so that dogs could be exercised/trained off the lead without being able to escape off site.

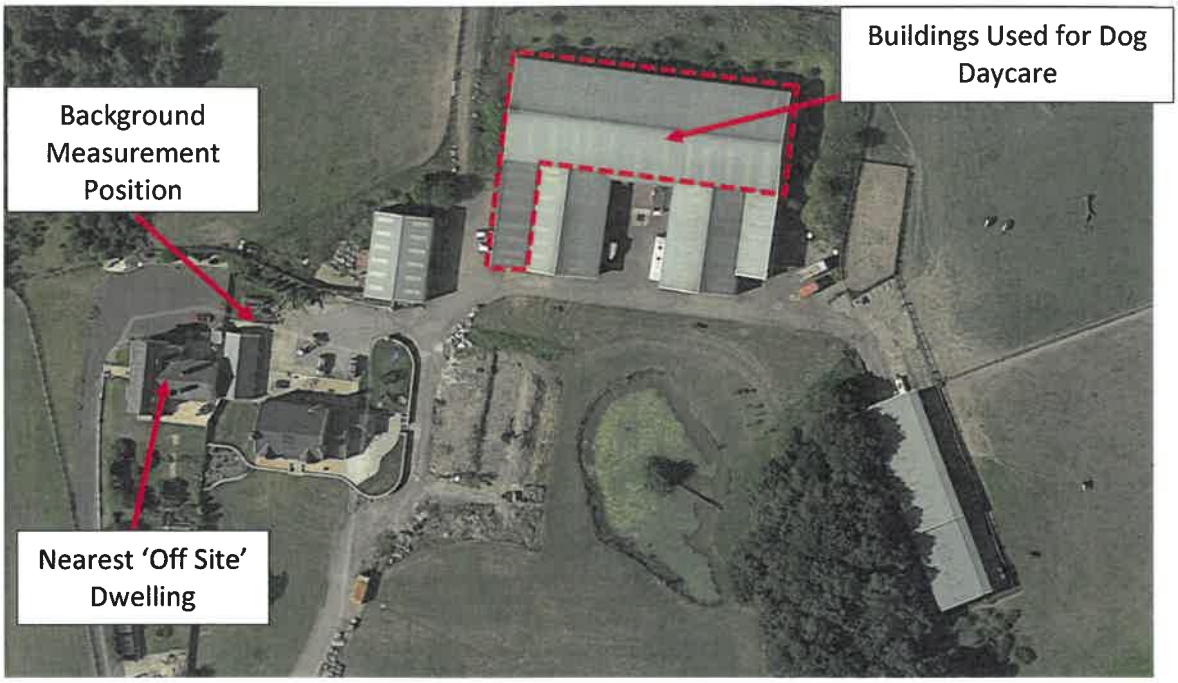


Figure 1: Location Plan & Measurement Position

3.0 NOISE CRITERIA

3.1 National Planning Policy Guidance - Noise

3.1.1 The Use of Quantitative Standards

The first comment to make about the new guidance, issued in March 2014, is that it is qualitative, lacking quantitative guidance on acceptable noise levels for general industrial or commercial noise. In addition, there is no direct reference to using British (or other) Standards to assess noise; i.e. previously PPG24 directly referred to both BS8233 and BS4142; therefore, the current government guidance does not appear to endorse directly the use of these documents.

At paragraph 10 of the Noise Guidance, it is stated that local plans can include noise standards, which presumably would/could be based upon relevant British Standards. Paragraph 10 states: "Care should be taken, however, to avoid these being implemented as fixed thresholds as specific circumstances may justify some variation being allowed."

So that it is clear that current guidance envisages that quantitative standards can be used, provided that there is flexibility in their application.

3.1.2 The Qualitative Guidance in NPPG - Noise

In paragraph 5 various noise categories and thresholds are set out; up to and including "Noticeable and Intrusive" it seems likely that the intention would be to recognise that whilst the noise levels are not desirable, planning consent should be granted provided that the noise can be mitigated and the intrusion reduced to a minimum. "Noticeable and Intrusive" noise occurs when:

"Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life."

Above the "Significant Observed Adverse Effect Level" threshold, noise becomes "Noticeable and Disruptive" because:

"The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area."

Noise which is "Noticeable and disruptive" should be avoided; however, it is the next level of disturbance "Noticeable and very disruptive" that should be prevented.

It can be seen that the NPPG noise guidance envisages that if properties are provided with alternative ventilation and acoustic glazing, designed to ensure "acceptable" internal noise levels, then internal noise levels would not exceed the "Significant Observed Adverse Effect Level" and that planning consent could be granted. The guidance states "If the exposure is above this level the planning process should be used to avoid this effect occurring, by use of appropriate mitigation such as by altering the design and layout."

Clearly the provision of acoustic glazing and ventilation cannot change external noise levels; therefore, it follows that the NPPG-Noise is not based on assessments of external noise such as BS4142, i.e. the wording of the Guidance does not support the use of BS4142.

The remaining question would then be whether the noise "Affects the acoustic character of the area such that there is a perceived change in the quality of life." OR "Quality of life diminished due to change in acoustic character of the area". It should be noted that these definitions relating to external noise use the term "...the acoustic character of the area", i.e. no specific requirements are placed on amenity space noise levels, whether private or communal.

At Paragraph 9, the Guidance states that there are other matters that can mitigate the impact of noise on residential developments if residents *"...have access to:*

1. *a relatively quiet facade (containing windows to habitable rooms) as part of their dwelling, and/or;*
2. *a relatively quiet external amenity space for their sole use, (e.g. a garden or balcony). Although the existence of a garden or balcony is generally desirable, the intended benefits will be reduced with increasing noise exposure and could be such that significant adverse effects occur, and/or;*
3. *a relatively quiet, protected, nearby external amenity space for sole use by a limited group of residents as part of the amenity of their dwellings, and/or;*
4. *a relatively quiet, protected, external publicly accessible amenity space (e.g. a public park or a local green space designated because*

of its tranquillity) that is nearby (e.g. within a 5 minutes walking distance)"

It can be seen that in noise terms it is not a requirement that residents have access to either a public or communal external "quiet" amenity space, although if they have access to such a space it can "partially off-set" the impact of noise on residential developments.

3.2 BS8233:2014

The latest version of BS8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' provides guidance on acceptable noise levels [Table 4 of the Standard]; however, it states the following:

"This subclause applies to external noise as it affects the internal acoustic environment from sources without a specific character, previously termed "anonymous noise". Occupants are usually more tolerant of noise without a specific character than, for example, that from neighbours which can trigger complex emotional reactions. For simplicity, only noise without character is considered in Table 4".

Although there is no direct mention of barking dogs in BS8233:2014, they are often a source of complaints about noise from neighbours and barking probably would not be regarded as *"anonymous noise"*; consequently, it is considered that BS8233 does not readily apply to the noise of dogs.

3.3 BS4142:2014

BS.4142:2014 "Methods for Rating and Assessing Industrial and Commercial Sound" at Section 1.3e excludes itself from assessing noise from "domestic animals" which would include dogs.

3.4 South Holland District Council

Given that BS4142 and BS8233 are not directly applicable to dog barking noise, South Holland District Council in Lincolnshire carried out detailed research on this topic during the late 1990s. This research culminated in the publication of Planning Guidance entitled *'Location of Premises for the Boarding and Breeding of Dogs and Other Animals – Noise Issues'* in December 1999.

Much of the SHDC guidance is taken up with how to predict noise from dogs in open/outdoor runs which is not relevant to the current case, but the guidance then defines a criterion for the acceptability of dog barking noise; it states "*the objective shall be that the specific noise level does not exceed the background noise level*", no corrections for character are made in the SHDC guidance, i.e. the predicted or measured level of dog barking noise [LAeq] should not exceed the background noise level [LA90].

The author is aware that this guidance continues to be widely accepted and has used the South Holland Guidance in several recent cases.

3.5 Summary

The latest planning guidance makes it clear that objective criteria can be used to assess noise impacts; however, the methodologies generally used for planning assessments [BS8233 and BS4142] do not cover the noise impact of dogs. The author is not aware of any criteria that would apply to the circumstances of this situation, other than the guidance produced by South Holland DC.

4.0 MEASUREMENT PROCEDURE

Instrumentation was installed at the position shown in Figure 1 [meter A in Table 1]; this meter was battery powered and housed in a weather-proof box with the microphone mounted at 1.4m above local ground height within a RION WS-02 'all-weather' windmuff.

Using the calibrator in Table 1, the instrument calibrated appropriately before and after the measurements and had been laboratory calibrated in the preceding two years.

Details of the equipment are as shown in Table 1 below:

Model	Instrument	Serial No.	Lab Cal Certificate	Re-Calibration Due
A - Svan 957	Sound Level Meter	12308	14013218-2	12/07/2021
Svan SV12L	Preamp	13471	14013218-2	12/07/2021
GRAS 40AE Mic	Microphone	75146	14013218-2	12/07/2021
RION NC74	Calibrator	34262041	14014839-4	20/02/2022

Table 1: Instrumentation used on Site.

5.0 MEASUREMENT RESULTS

5.1 Background Noise Results

The background measurements from meter 'A' are shown in Table 2 below.

Date & End time	Duration	LAmax,F	LAmin	LAeq	L01	L10	L50	L90
16/11/2020 12:50:46	00:15:00	56.7	38.1	43.1	49.9	45.1	41.8	39.7
16/11/2020 13:05:46	00:15:00	60.6	38.9	45.3	51.8	47.6	43.9	41
16/11/2020 13:20:46	00:15:00	83.2	37.4	51.9	57.6	46.8	41.7	39.3
16/11/2020 13:35:46	00:15:00	66.8	35.9	45.1	57.7	45.1	39.9	37.5
16/11/2020 13:50:46	00:15:00	77.1	37.2	52.9	64.3	50	41.5	39
16/11/2020 14:05:46	00:15:00	49.7	36.7	39.4	44.2	40.8	38.9	37.6
16/11/2020 14:20:46	00:15:00	47.6	36.1	40	43.7	42	39.5	37.5
16/11/2020 14:35:46	00:15:00	51.7	35.4	39.7	45.6	41.7	38.9	36.8
16/11/2020 14:50:46	00:15:00	83.4	35.3	58.2	71	44	38.4	36.7
16/11/2020 15:05:46	00:15:00	55.4	34.6	38.8	44	41.1	37.5	35.6
16/11/2020 15:20:46	00:15:00	54.2	35.2	38.7	45.2	40.6	37.5	36.2
16/11/2020 15:35:46	00:15:00	58.8	34.4	39.6	48.3	41.4	37.6	35.6
16/11/2020 15:50:46	00:15:00	65.5	36.5	43	53.7	43.4	39.8	37.4
16/11/2020 16:05:46	00:15:00	69.9	37	42.3	50.7	41.9	39.3	38.1
16/11/2020 16:20:46	00:15:00	62.5	36.2	41	48.3	42.2	39.3	37.4
16/11/2020 16:35:46	00:15:00	64	37.4	41.8	48.1	43	41	39
16/11/2020 16:50:46	00:15:00	76.8	37.5	53.2	67.4	43.9	40.6	39
16/11/2020 17:05:46	00:15:00	57.3	38.2	42.7	51.9	42.9	41.4	40.2
16/11/2020 17:20:46	00:15:00	51.1	38.8	41.4	44.7	42.4	41.2	40.1
16/11/2020 17:35:46	00:15:00	50.9	38.7	41.1	44.1	42.2	40.9	39.8
16/11/2020 17:50:46	00:15:00	65.9	38.4	43.2	53.8	42.7	40.4	39.2

Table 2: Background Measurement Results [dBA free-field]

The results can be analysed statistically, as indicated in BS4142 Section 8 and the results are shown in Figure 2 below:

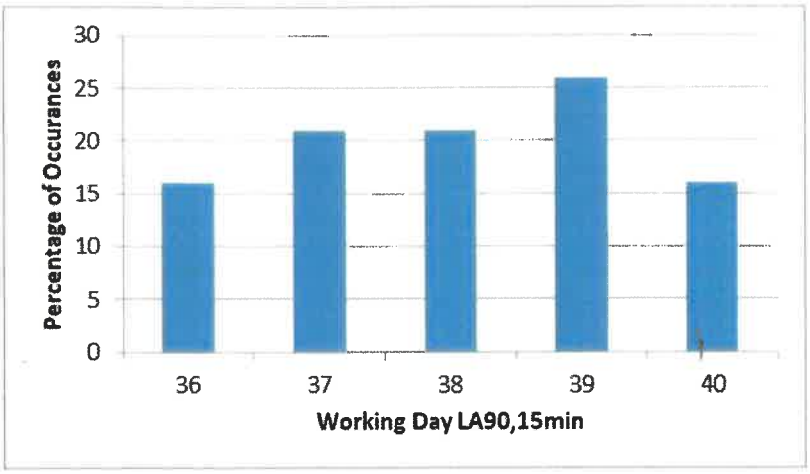


Figure 2: Statistical Analysis of Background Noise

The most common level was 39 LA90 [modal value] and the average level was 38 LA90; therefore, it is considered reasonable to take 38 LA90 as representative of typical daytime background noise levels in the area.

5.2 Weather Data

There is a nearby weather station which publishes its results on wunderground.com; they are shown in Figure 3 below.

It can be seen that except for the very beginning of the monitoring period, when wind speeds were higher than ideal, the conditions were suitable for monitoring with winds from the south and then southeast and no significant precipitation.

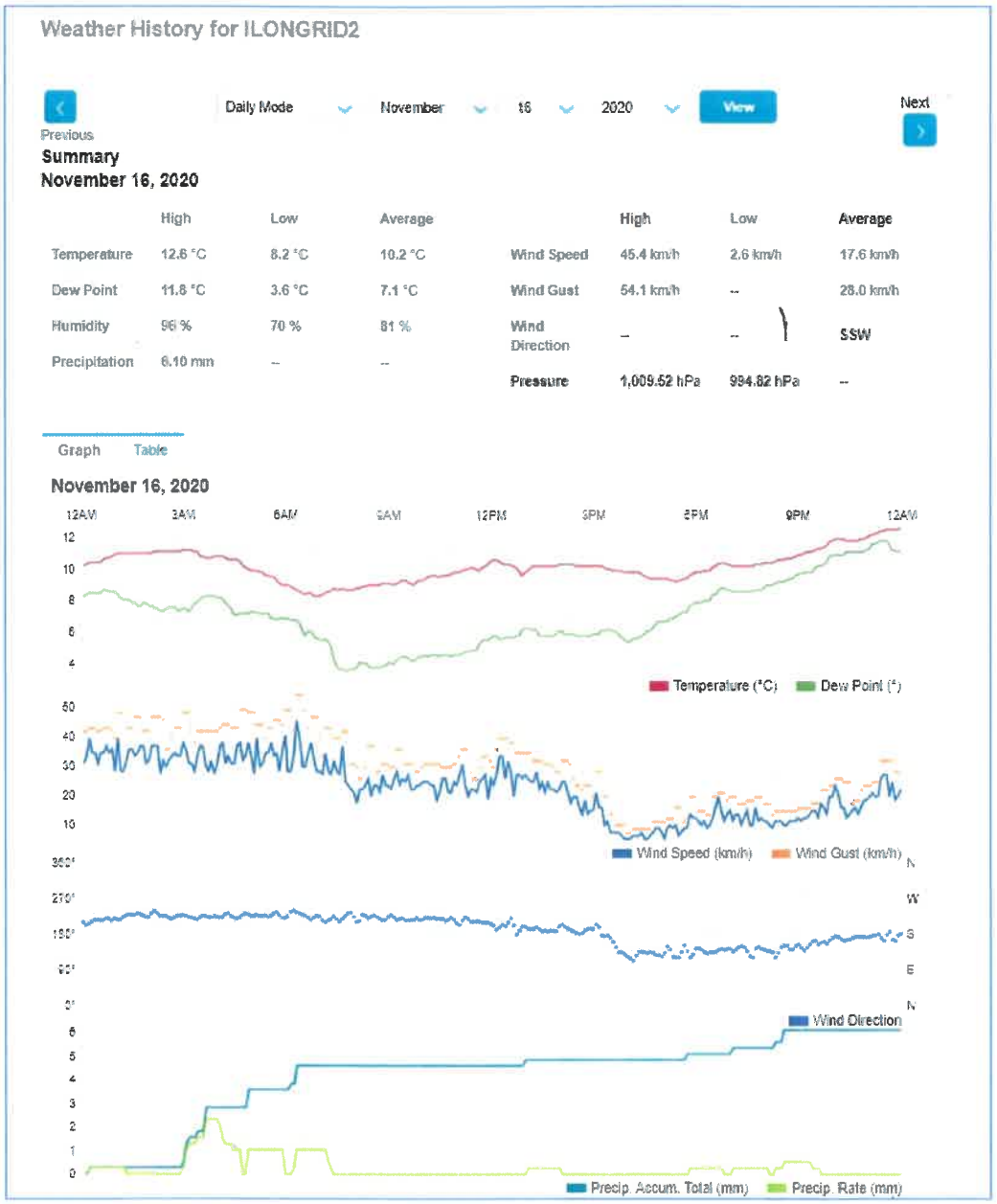


Figure 3: Weather Data

5.3 Coronavirus

The background noise monitoring was conducted during the second

lockdown in England; as such traffic flows, and hence background noise levels, may have been lower than normal.

5.4 Doggie Day Care Source Noise Levels

For this project, the building has not been converted and naturally there are no dogs present on site, so it is necessary to use measurements made elsewhere.

In connection with a similar project, CSP Acoustics [Noise Impact Assessment: Proposed Dog Kennels, Aberdeen Pet Resort, Milltimber, Aberdeen - 5th March 2015] stated the following:

"*For this assessment CSP Acoustics has used historical measurement data for dogs barking within an existing boarding kennel. During the survey a varying number of dogs barked in a disturbed kennel of 14 dogs of which about 5 dogs contributed to the barking at any one time. The sample included dog types reputed to bark particularly loudly. Levels were recorded in one second intervals at a distance of typically 5m from the dogs*"

From CSP's results the [logarithmic] average noise level in the kennels [the reverberant SPL] was 88 LAeq.

As a comparator, for a kennels with up to 50 dogs on site, [Noise Assessment of Proposed Dog Kennels at Slatehouse Farm, Sutterton, Boston - April 2008], Acoustic Associates stated "*The estimated*

reverberant sound pressure level inside one leg of the kennels will be approximately 92dB(A)"

Again for a larger kennels with 53 boarding kennels, i.e. up to approx. 100 dogs, [Redevelopment of Bradley Egg Farm, Bradley - Noise Impact Assessment - Technical Report: R5752-1 Rev O - 22nd May 2015], 24 Acoustics did not report an internal reverberant SPL but did use the following spectrum shape in their predictions, which totals to 83 LAeq:

	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz
Dog Barking	65	65	82	78	75

Table 3: Kennels Measurements - 24 Acoustics [Reverberant Levels dB]

Given all the above, and the fact that this would be a dog daycare facility, with much closer supervision of the dogs, it is proposed to use the estimated reverberant SPL of 85 LAeq and the above spectrum shape for the predictions.

It should be noted that the above figures are considered to be a significant over-estimate of typical noise levels; for example 85 LAeq implies that staff would need to wear hearing protection; the author has been to many kennels and never considered that even in boarding kennels hearing protection would be required.

6.0 PREDICTIONS OF EXTERNAL NOISE - RESIDENTS

6.2 Predicted Noise Levels

The estimated internal reverberant level in Section 5.4 above can be used with SoundPLANv4.1 to predict likely noise levels at nearby dwellings; however the first step is to calculate the noise emitted from each façade of the building based on the following. Please note and inform Martec if any of the following assumptions are incorrect:

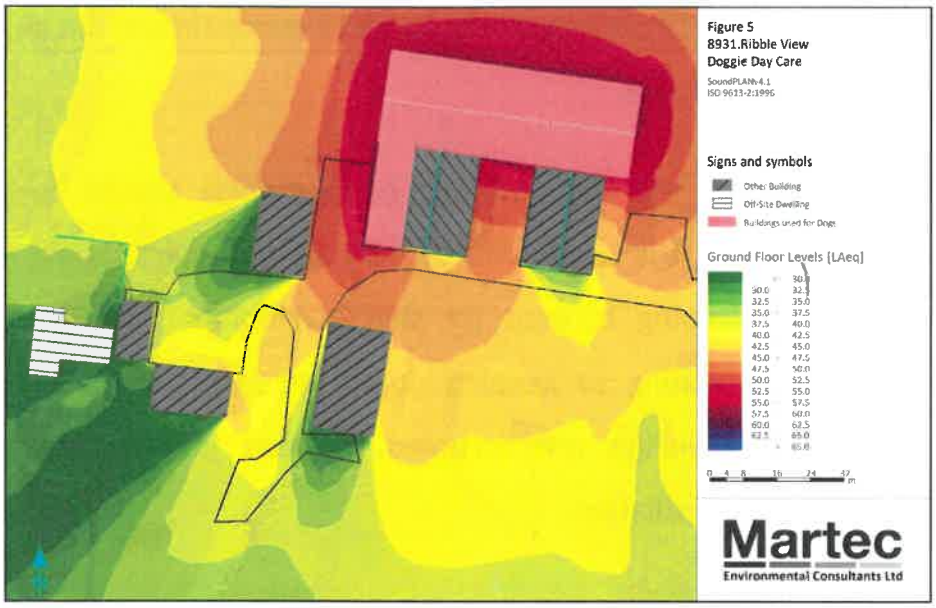
1. The windows and doors of the buildings would be closed during noise generating activities.
2. It has been assumed that given the large size of the buildings, small number of dogs and ability to for doors to be opened on non-sensitive facades of the building powered ventilation would probably be unnecessary.
3. The lower 2.3m of the buildings are of stone or concrete construction and would contribute to the emission of noise from the buildings.
4. The upper sections of the buildings are of 'thin' single skin profile metal sheeting with no insulation.

Using the above measured internal level [Table 3] it is possible to predict the sound power level emitted per unit area of the Roof of the Arena building for use in SoundPLAN, as shown in Table 4 below; similar predictions have been undertaken for the other walls and roofs, which are not shown here.

Buliding Breakout Calcs						Octave Band Centre Frequency [Hz]					dBA
Version 3						125	250	500	1k	2k	
©2017 Martec Environmental Consultants Ltd					Internal Reverberant Spectrum (dBLin)	74	74	91	87	84	92.0
"Noise & Noise Control 2nd Ed" Sn 8.22 Method					Adjustment to a Given Level if required 85.0						
					Adjusted Internal Spectrum	67.4	67.4	84.4	80.4	77.4	85.0
Element	Addntnl Attntn	Dimension Lrgr	Dimension Smlr	Area If Diff	Dist	Element Sound Reduction Index [SRI]					dBA Contrib
Southern Wall											
Single Skin 0.65mm Profile	0.0	60.0	10.0	600.0	63.0	17	20	25	25	30	35.1
Near Wall											
None						0	0	0	0	0	0.0
Windows											
None						0	0	0	0	0	0.0
Rooflights											
Kingspan KS1000RW Polycarb 'Rw 20dB' in Product Data		13.0	7.0		63.0	13	15	19	15	24	35.0
Doorway											
None	0.0					0	0	0	0	0	0.0
Roof											
None	0.0					0	0	0	0	0	0.0
Vents											
None						0	0	0	0	0	0.0
					Façade Total Area 691.0						
					Ave Transmission Coefficient	23.9	12.8	4.4	6.9	1.4	
					Ave SRI	16.2	18.9	23.6	21.6	28.6	
					Cd -3.0						
					L'w (SWL per unit area)	48.2	45.5	57.9	55.8	45.9	58.6

Table 4: Sound Power Level per unit area [dB/m^2]

Figure 4 below the individual levels for the nearest neighbouring dwellings and Figure 5 shows the predicted noise contours.



7.0 CONCLUSIONS

Martec's measurements indicate that a representative daytime background noise level would be 38 LA90. This was under 'coronavirus lockdown conditions' and typical background levels are probably higher.

Martec's predictions of dog barking at the nearest property would are 36 LAeq [See Figure 3 above]. It should be stressed that the above figures are for a boarding kennels were all temperaments of dogs are 'held' unsupervised; it is considered that this would be a very significant over-estimate of dog barking for a doggie daycare facility.

The predicted specific noise level does not exceed the background noise level which conforms with the South Holland District Council Guidance on

Dog Barking/vocalisation noise; that guidance is based on dogs being in open runs for 12 hours per day and will overestimate the impact of the proposed situations.

In conclusion, the levels of dog barking noise should be acceptable. Consequently, it is considered that the noise impact should not bar the grant of planning consent for the development, subject to suitable conditions relating to keeping doors and windows closed when the associated buildings are occupied by dogs. This may necessitate appropriate ventilation.

APPENDIX 1

EXPLANATION OF ACOUSTIC TERMS

The dB or the decibel, is the unit of noise. The number of decibels or the level, is measured using a sound level meter. It is common for the sound level meter to filter or 'weight' the incoming sound so as to mimic the frequency response of the human ear. Such measurements are designated **dB(A)**.

A doubling of the sound is perceived, by most people, when the level has increased by 10 dB(A). The least discernible difference is 2 dB(A). Thus, most people cannot distinguish between, say 30 and 31 dB(A).

The Background level of noise is most commonly represented by the level which is exceeded for 90% of the time i.e. the LA90.

If a noise varies over time then the **equivalent continuous level, or LAeq**, is the notional constant level of noise which would contain the same amount of acoustic energy as the time varying noise.

The following table gives an approximate indication of the comparative loudness of various noises expressed in terms of the A weighted scale:

Source of noise	dB(A)	Nature of Noise
Inside Quiet bedroom at night	25-30	Very Quiet
Quiet office	40-45	
Rural background noise	35-45	
Normal conversational level	55-65	
Busy restaurant	65-75	
Inside suburban electric train	70-80	
Hand clap @ 1m	75-85	
HGV accelerating @ 5m away	85-90	Very Loud