MARTIN
ENVIRONMENTAL
SOLUTIONS

Acoustic Survey and Assessment for Proposed residential development at, The Dog and Partridge, Hesketh Lane, Chipping, PR3 2TH.

Prepared for:

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Contents

1. Introduction

1.1. The report updates the findings from a previous report undertaken by Martin Environmental Solutions, report No; 1670-1 in the support of a planning applications for residential development at Dog & Partridge, Hesketh Lane, Chipping, PR3 2TH.

1.2. Following the previous report, information has been received from Ribble Valley Borough Council suggesting that the adjacent dog kennelling facility was closed at the time of the noise survey, despite the owner being seen with a client at the time the meter was set up.

1.3. As such a further noise assessment has been undertaken on the 17th – 18th January 2019 in order to obtain further background monitoring on site and to identify any sound levels from the adjacent kennel facility.

2. The Assessment

3.1 The initial report considered the impact from the passing highway to the south of the site. This part of the assessment is still considered to be valid and the recommendations for the conversion of the existing building; namely the inclusion of a slightly improved glazing specification to the southern and eastern facades of the existing property. This glazing specification being 6/6-16/6[1] Pilkington insulating glass unit providing a reduction of 34dB (R_w+ C_{Tr}) thus reducing the maximum sound level to be experienced to below 45dB L_{Amax}.

3.2 The full results are provided within Appendix A, and have been used to calculate the $L_{Aeq,16hr}$ sound level at the property as 53.7dB and the $L_{Aeq,8hr}$ as 46.4dB. The monitoring position was located at the side of the road opposite the existing building on site.

3.3 All measurements were taken using a Cirrus, Optimus Green CR-171C, Type 1 sound level meter. The meter was calibrated before and after use and no significant deviation was identified. The calibration certificates are available on request. The weather at the time of the monitoring was dry, clear, cold and there was no wind.

3.4 In order to be able to keep windows closed additional ventilation provision must be made for the property. As such it is recommended that a ventilation system is used incorporating acoustic trickle ventilators for all windows to habitable rooms to the proposed properties. The ventilators must achieve a similar of better performance to the windows when open and a number of suitable models are available from suppliers including the Greenwood DN Vent providing 34dB (C_{tr}) attenuation or the Titon, SF Xtra SA Ventilator providing 41dB (C_{tr}) attenuation. Other models and manufacturers area available.

3.5 In relation to the wider environmental noise and in particular the adjacent kennelling facility, additional monitoring was undertaken in the same location as the first round on the January 2019, on the Patio area. The full results are shown in Appendix B, with a summary below.

Start Time	End Time	Duration	L_{Aeq}	L_{A90}	L_{AMax}
17/01/2019 17:17	17/01/2019 23:00	05:42:50	41.9	27.3	77.6
17/01/2019 23:00	18/01/2019 07:00	08:00:00	35.0	20.9	67.1
18/01/2019 07:00	18/01/2019 17:47	10:47:34	49.2	37.7	80.1

[1] http://assetmanager-ws.pilkington.com/fileserver.aspx?cmd=get_file&ref=8222&cd=cd

3.6 The weather at the time was dry, cold with no rain and little wind. All measurements were taken using a Cirrus, Optimus Green CR-171B, Type 1 sound level meter. The meter was calibrated before and after use and no significant deviation was identified. The calibration certificates are available on request.

3.7 The above results are in line with those previously taken when the kennel was reportedly closed. A review of the monitoring results has been undertaken in order to identify any barking dogs. Some dog barking has been identified and in the main this consists of the occasional individual bark. The maximum sound level, L_{Amax}, identified for the barking dogs was 68.2dB(A) (63.0dB L_{Aeq}). Only one period of barking has been identified during the night-time period, this consisted of a couple of barks at 06:05, the maximum sound level from these was 56.2dB(A). These are allegedly the owners' own dogs and not barking from the kennel facility.

3.8 An open window provides 15dB attenuation and therefore utilising the maximum sound levels from the barking dogs this would result in internal sound level within the proposed properties of 53.2dB(A) during the day and 41.2dB(A) during the night. There is currently no guidance on maximum sound levels during the daytime period with the night-time period suggesting that a 45dB(A) maximum that should not be regularly exceeded.

3.9 However, in order to ensure that no adverse impact is experienced by the future residents of the development it is recommended that additional measures are included to protect the internal sound level of the properties.

3.10 A standard 6/12/6 double glazing unit will provide a sound reduction, Rw(C;Ctr), of 33(-1;-3). Thus, for this project a reduction of 30dB when closed. This would reduce the internal sound levels from the Maximum (L_{Amax}) to 38.2dB(A) during the day and 26.2dB(A) at night.

3.11 In order to be able to keep windows closed additional ventilation provision must be made for the property. As such it is recommended that a ventilation system is used incorporating acoustic trickle ventilators for all windows to habitable rooms to the proposed properties. The ventilators must achieve a similar of better performance to the windows when open and a number of suitable models are available from suppliers

including the Greenwood DN Vent providing 34dB (Ctr) attenuation or the Titon, Trimvent Select S13 Ventilator providing 33dB (Ctr) attenuation. Other models and manufacturers area available

3.12 The barking identified from the records only lasted for a very short duration on each occurrence, generally individual barks or a period of less than 1 minute. The average sound level based on the L_{Amax} barking levels over any hour would be 30.4dB $L_{Amax,1hr}$. This is below the recommended daily average sound level of 35dB $L_{Aeq,16hr,}$ and significantly below the prevail background daily sound level of 37.7dB $L_{A90.}$ The same applies to the night-time sound levels.

3.13 For the external area BS8233:2014 and the World Health Organisation recommend a lower level of 50dB $L_{Aeq,16hr,}$ with an upper level of 55dB $L_{Aeq,16hr}$. However, BS8233:2014 identifies that it is not always possibly to obtain the levels and, in such situations, development should be designed to achieve the lowest practicable levels in external amenity areas.

3.14 The proposed development only has dedicated amenity areas for the dwellings in the far west of the site, with some general public open space for the rest of the development. Those amenity spaces to the west will be enclosed by 1.8m close boarded fencing, with a minimum density of 12Kg/m^2, and protected by the building itself. The fencing will provide approx. 15.4dB of attenuation from the road (Appendix 2), reducing sound levels within the gardens to 38.3dB $L_{Aeq,16hr}$.

3.14 Along the eastern boundary it is recommended that a 2m high close boarded fence is erected, providing approximately 21.2dB reduction to the ground floor properties and the public open spaces. Reducing any sound from barking dogs to below the recommended 50dB, al-be-it for the short duration of barking that occurs.

4 Conclusions

4.1 Following monitoring undertaken on site the prevailing background sound levels have been identified and the impact from both the road to the south of the development and the kennels in the east assessed.

4.2 The assessment has identified the need for additional mitigation measures to ensure suitable internal and external sound levels are achieved in accordance with the relevant guidance documents discussed in Section 2 of the report.

4.3 These mitigation measures include enhanced glazing specifications to the habitable rooms facing the southern and eastern boundaries of the development, with standard double-glazing unit to the other facades of the development. In addition to avoid the need to open windows suitable trickle ventilators are required to each window to match the specifications identified in Section 3 above.

4.4 For external amenity areas, in order to ensure the recommended sound levels are achieved a 1.8m high close boarded fence should be erected around the garden areas to the west of the site. while a 2m high close boarded fence should be erected along the eastern boundary in order to protect the public open space.

4.5 The above mitigation measures will ensure that suitable internal and external sound levels are achieved below those recommended within the guidance documents detailed above and as such a level of NOEL (No Observed Effect Level) would be experienced by future residents. The inclusion of the identified mitigation measure will ensure that no significant adverse impact is experienced as required by the National Planning Policy Framework and as such the development is in terms of noise acceptable.

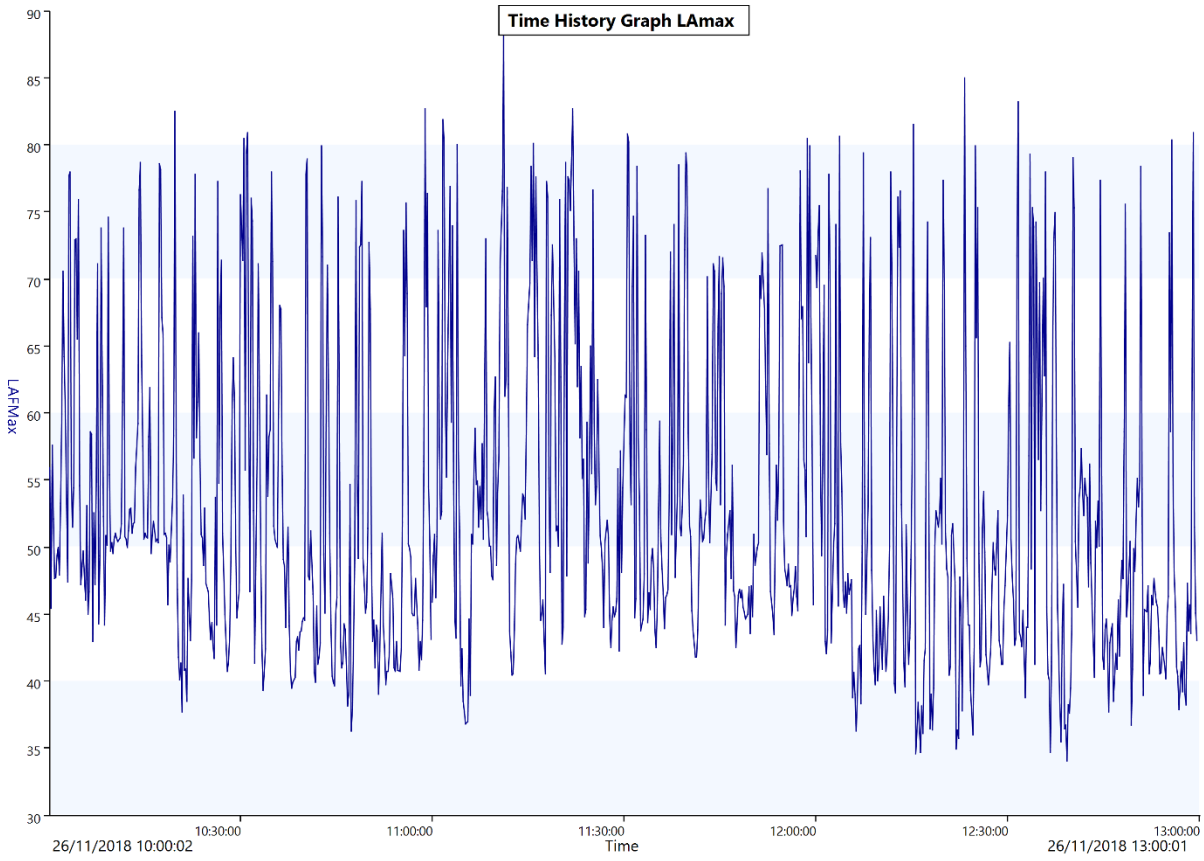
Figure 1 – Aerial Photograph

Figure 2 – Indicative Site Layout

Appendix 1 – Monitoring Results

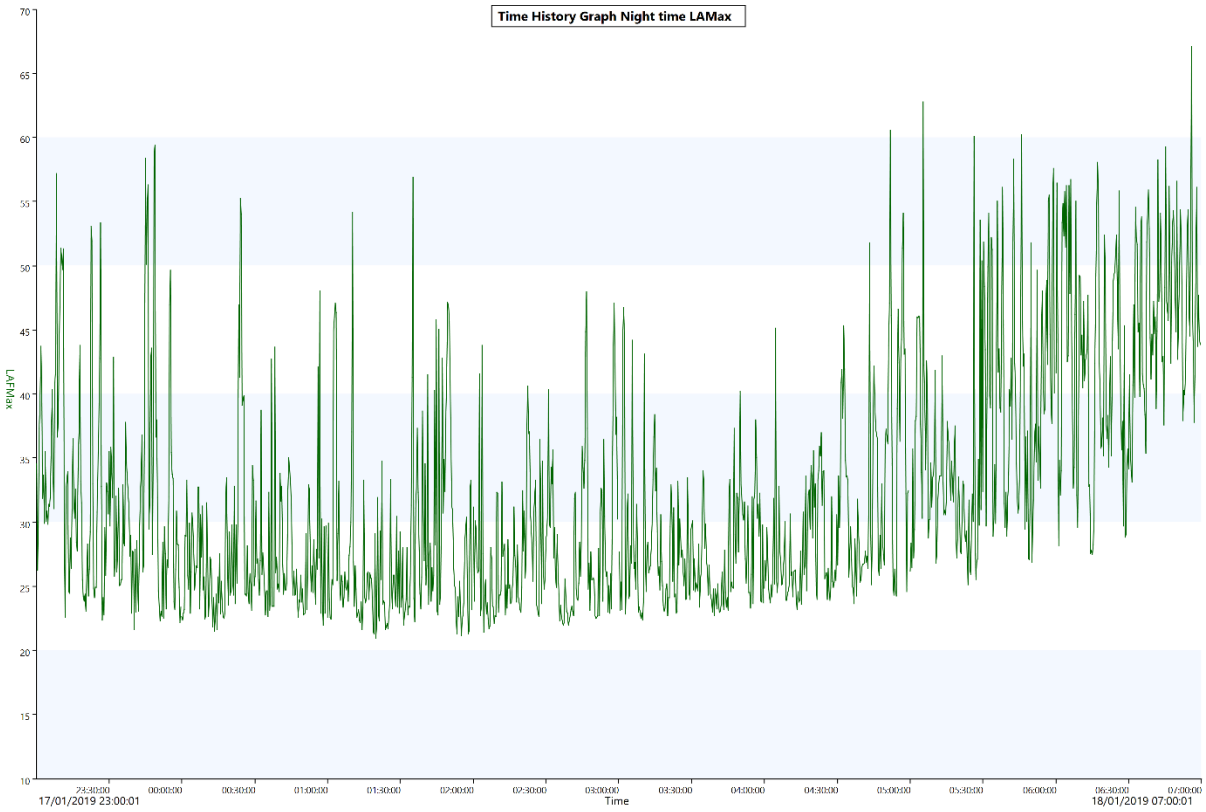
Traffic Noise

Time	L_{Aeq} (dB)	L_{AMax} (dB)	L_{A10}(dB)
26/11/2018 10:00	58.9	82.7	56.4
26/11/2018 11:00	60.3	88.9	59.8
26/11/2018 12:00	58.5	85.0	54.0



Long-term Env. Monitoring

Time	Duration	LAeq (dB)	LAMax (dB)	LA90 (dB)
17/01/2019 17:17	00:42:51	46.3	77.6	34.5
17/01/2019 18:00	01:00:00	42.1	68.6	31.0
17/01/2019 19:00	01:00:00	41.5	70.7	28.2
17/01/2019 20:00	01:00:00	40.3	70.6	27.0
17/01/2019 21:00	01:00:00	41.2	74.3	27.5
17/01/2019 22:00	01:00:00	36.3	55.5	23.2
17/01/2019 23:00	01:00:00	35.0	59.4	20.8
18/01/2019 00:00	01:00:00	29.1	55.2	20.7
18/01/2019 01:00	01:00:00	30.4	56.9	20.0
18/01/2019 02:00	01:00:00	26.1	48.0	20.6
18/01/2019 03:00	01:00:00	24.2	46.7	21.3
18/01/2019 04:00	01:00:00	33.1	60.5	22.3
18/01/2019 05:00	01:00:00	37.0	62.8	23.9
18/01/2019 06:00	01:00:00	41.0	67.1	26.8
18/01/2019 07:00	01:00:00	48.1	70.7	36.5
18/01/2019 08:00	01:00:00	49.1	65.6	38.9
18/01/2019 09:00	01:00:00	46.9	67.3	37.1
18/01/2019 10:00	01:00:00	46.6	70.0	36.5
18/01/2019 11:00	01:00:00	47.0	70.4	37.0
18/01/2019 12:00	01:00:00	46.6	71.6	35.4
18/01/2019 13:00	01:00:00	45.8	67.5	37.4
18/01/2019 14:00	01:00:00	51.3	79.0	41.2
18/01/2019 15:00	01:00:00	53.3	74.2	44.8
18/01/2019 16:00	01:00:00	49.8	71.8	38.7
18/01/2019 17:00	00:47:33	49.6	80.1	37.0


Time History Graph Night time LAMax
LAFMax
70
65
60
55
50
45
40
35
30
25
20
15
10
17/01/2019 23:00:01
Time
18/01/2019 07:00:01

Appendix B – Barrier Calculations

Barrier Attenuation Calculations

Barrier Attenuation has been calculated using the following formula:

$$10 \log\left(3 + \frac{40\delta}{\lambda}\right)$$

where; $\delta = path\ difference$

$\lambda = wavelength,$

$$\lambda = \frac{speed\ of\ sound\ (330\ m/s)}{frequency\ (Hz)}$$

Western boundary

Distance	= 9.6m
Distance source to barrier (wall)	= 7.6m
Distance barrier to receiver	= 2m
Height of source	= 0.5m
Height of receiver	= 1.5m
Height of Barrier	= 1.8m
Path difference	= 0.132757452
Attenuation	= 15.4dB

Public Open Space

Distance	=351m
Distance source to barrier (wall)	= 9m
Distance barrier to receiver	= 26m
Height of source	= 1m
Height of receiver	= 1.5m
Height of Barrier	= 2m
Path difference	= 0.531789728
Attenuation	= 21.2dB