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NOISE FROM KENNELS

LAND ADJACENT TO TENFORD LANE
TEAN, STAFFS ST10 4EN

Client:
Hewitt and Carr Architects

Report Date: 22nd June 2021
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Site Visit by: M A Kenyon
Site Visit date: 18th June 2021

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Institute of Acoustics

ANC ACOUSTICS & NOISE CONSULTANTS

CONTENTS

1.0	INTRODUCTION	3
2.0	BACKGROUND TO ASSESSMENT	4
3.0	NOISE CONDITION	5
4.0	SITE VISIT	6
5.0	NOISE MEASUREMENTS	7
6.0	NOISE PREDICTIONS	8
7.0	ASSESSMENT	9
8.0	CONCLUSIONS AND RECOMMENDATIONS	9
APPENDIX 1		14
APPENDIX 2		15
APPENDIX 3		16
APPENDIX 4		18

1.0 INTRODUCTION

On the instructions of Hewitt and Carr Architects, Martec Environmental Consultants Ltd carried out a noise assessment of a dog kennels located adjacent to a development site, which is on land to the north of Tenford Lane, Tean, Staffordshire. The development site has outline planning consent for 40 properties subject to the submission of a site specific sound insulation scheme [Staffordshire Moorlands Ref. SMD/2016/0811].

This report considers the requirements of the local authority, measurements of dog barking noise on site made by others and predictions of the noise levels and proposes a site specific sound insulation scheme.

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

For the avoidance of doubt, Martec has made no noise measurements on site and therefore, this report and its conclusions are reliant on the accuracy and work undertaken by others.

Reference 1 is the noise report submitted with the outline application and Appendix 3 contains the Environmental Health Department's response to that document; From both these sources it is clear that the only significant noise issue is dog barking at the kennels. Accordingly, we have assumed that the noise condition only applies to dog barking noise and have prepared the sound insulation scheme in that light.

2.0 BACKGROUND TO ASSESSMENT

2.1 Site Description

The development site at Tenford Lane is shown in Figure 1 below. It can be seen that a dog boarding kennels is located immediately on the western boundary of the site, and that the western side of the site has been designated public open space, meaning that the nearest dwellings are some 140m from kennels and that the nearest dwellings 'face' towards the kennels with their private amenity spaces [rear gardens] located further from the kennels and screened by the dwellings themselves.

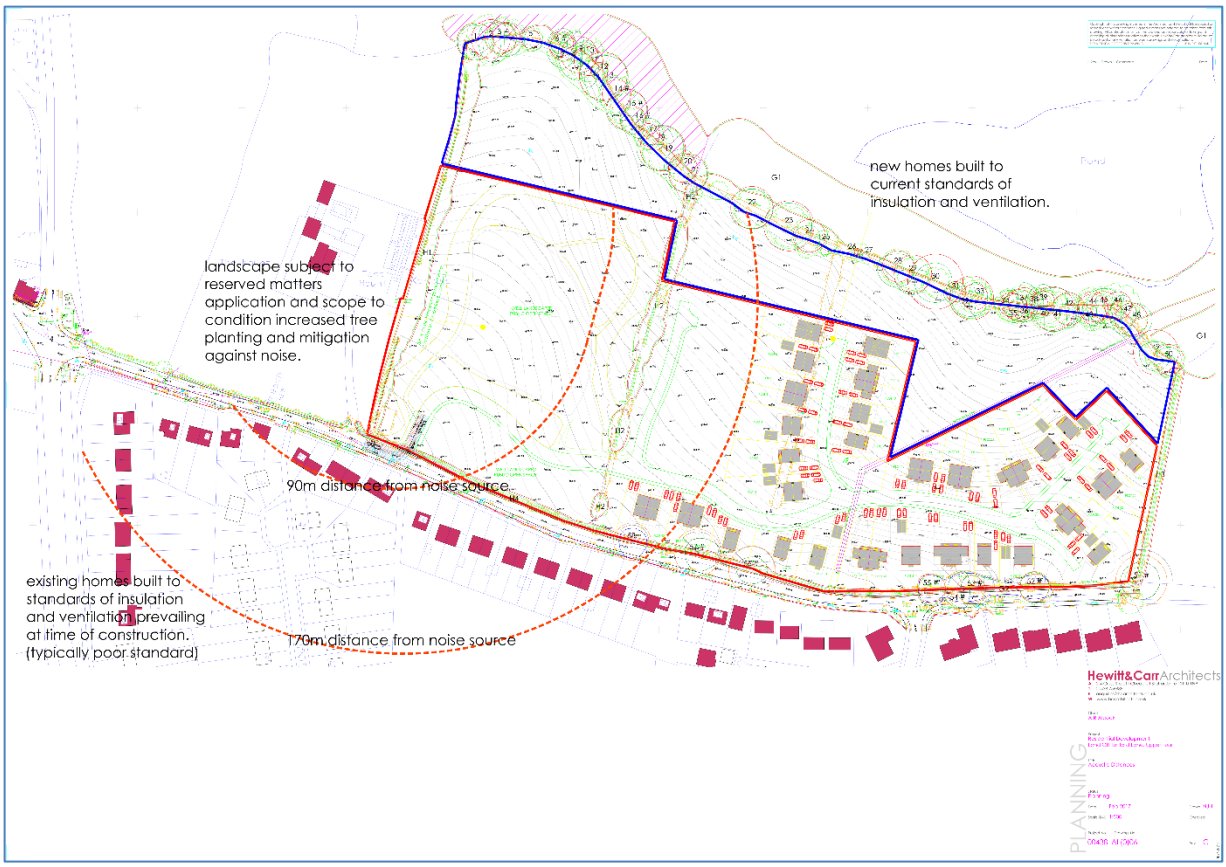


Figure 1: Hewitt & Carr Drawing 00438_AL(0)06 C

3.0 NOISE CONDITION

The outline planning consent [SMD/2016/0811] condition No.12 states:

"Details submitted under first reserved matters shall include a site specific sound insulation scheme including details of an acoustic barrier and / or bund which shall be submitted to and approved in writing by the Local Planning Authority. The submitted scheme shall have due regard for the British Standard BS8233:2014 'Guidance on Sound Insulation for Buildings' and shall be designed to achieve noise levels of less than 35 dB LAeq16hr (07:00 to 23:00) in bedrooms and living rooms, less than 40 dB LAeq16hr (07:00 to 23:00) in dining areas, less than 30dB LAeq8hr in bedrooms (23:00 to 07:00) and 50dB LAeq16hr (07:00 to 23:00) in outside living areas.

A report shall be produced containing all raw data and showing how calculations have been made. A copy of such report shall be submitted to the Local Planning Authority for its approval in writing prior to development commencing.

Prior to the first occupation of the development, pre-completion tests shall be carried out to verify compliance with this condition and a corresponding report shall be produced containing all raw data and showing how calculations have been made. Thereafter, this report shall be submitted to the Local Planning Authority for its written approval before any of the dwelling units hereby approved are first occupied."

For the avoidance of doubt, it is not accepted that the above noise limits accurately reflect the requirements of BS8233:2014, nor that the standard is necessarily appropriate to the circumstances of this case.

The condition requires that the "*…sound insulation scheme... shall be designed to achieve noise levels of… …50 LAeq,16hr (07:00 to 23:00) in outside living areas."* We have interpreted this as the levels should be 50 LAeq,16hr or less and that in this case 'outside living areas' would be the rear gardens.

4.0 SITE VISIT

Given the existence of on-site noise measurements, which having been submitted as part of the original grant of planning consent are within the public domain, Martec were instructed to undertake a desk exercise; however, the author was travelling close to the site on Friday 18th June 2021 and made a visual inspection of the site and walked along the boundary with kennels.

During the 15 minutes the author was on site, no dog barking was audible from the kennels, which for a 'largish' boarding kennels during the daytime is very unusual. From a Google search, the kennels are listed as 'Permanently Closed' and the telephone number for the kennels is inoperative.

From further subsequent searches it emerged that the dwelling and the kennels are up for sale. Therefore, currently there is no source of dog barking noise and there may be none in future, depending on the intentions of the new owners of that site.

5.0 NOISE MEASUREMENTS

From reference 1 [Section 3.4.1] the following measurements of the kennels were made:

Condition	Day LAeq,16hr	Night LAeq,8hr
As Measured	55.8	47.4
Inc +3dB for peak periods	58.8	50.4

Table 1: Measurements Made by Peak Acoustics

In Appendix 3 it can be seen that the Environmental Health Section stated that they have *"…undertaken noise measurements in the vicinity of the site which validate the measurements set out in the noise report."*, i.e. the local authority agrees with the measurements shown in Table 1 above.

In addition, Peak Acoustics used octave band measurements to predict internal noise levels, which were presumably also measured on site:

Time Period	Octave Band Centre Frequency [Hz]					LAeq,T
	125	250	500	1k	2k	
Day	50.3	46.6	57.7	55.7	48.3	58.8
Night	40.4	41.6	51.4	46.6	35.9	50.8

Table 2: Octave Band Data from Peak Acoustics Report

It can be deduced from Section 4.7 of Reference 1, that the above measurements were made some 6m from the kennels.

6.0 NOISE PREDICTIONS

A 3D model of the site and surrounding area has been created, using proprietary software SoundPLANv4.1, the predictions have then been validated using the on-site measurements [See Figure 2 towards end of report]; further calculations of the daytime and nighttime noise contours have then been performed for the scheme [Figures 3 and 4].

Parameter	Source	Details
Ground levels – around site	Bluesky Mapshop	LIDAR terrain data
Building heights to ridge	Martec	9m height for two storey residential properties. 6m height for bungalows
Source type	Martec	Area Source at 1m above local ground height, which is a more conservative assumption that Peak Acoustics' line source. As stated above kennels only – roads set to zero contribution.
Receptor & noise contour heights	Martec	1.4m for ground floor, 4m for first floor, & 7m for second floor receptors [if required].
Finished Ground height	Martec	Assumed similar to existing
Plans	--	Proposed Site Plan [Figure 1 above]
Source Data	Peak Acoustics	Day & Night spectra similar, therefore, day spectrum used to represent both – See Tables 1 and 2 above.
Acoustic Barriers	Martec	As shown in Figures

Table 3: Modelling Parameters Sources and Assumptions

7.0 ASSESSMENT

The external free-field levels for the closest dwellings can be deduced from Figures 2, 3 and 4 and the highest predicted levels have been used in Table 4 to compare against the local authority's criteria. The attenuation of an open window is generally taken as 15dB.

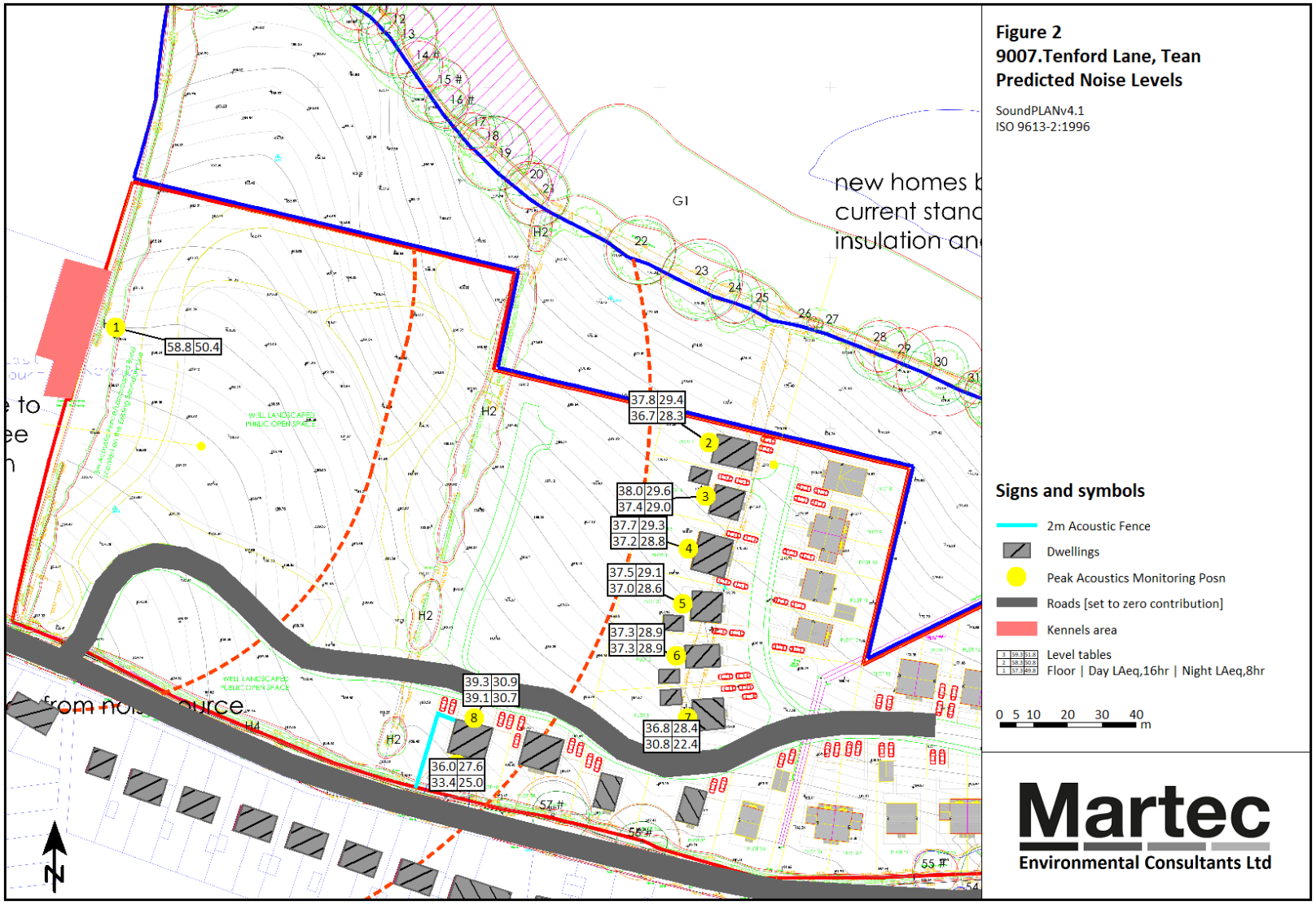
Metric	Period	Predicted External	Open Window	Internal Level	Criteria	Compliance?
Ground Floor	Day	39	-15	24	35	Yes
First Floor	Day	39		24	35	Yes
First Floor	Night	31		16	30	Yes
Rear Garden	Day	37	N/A	N/A	50	Yes

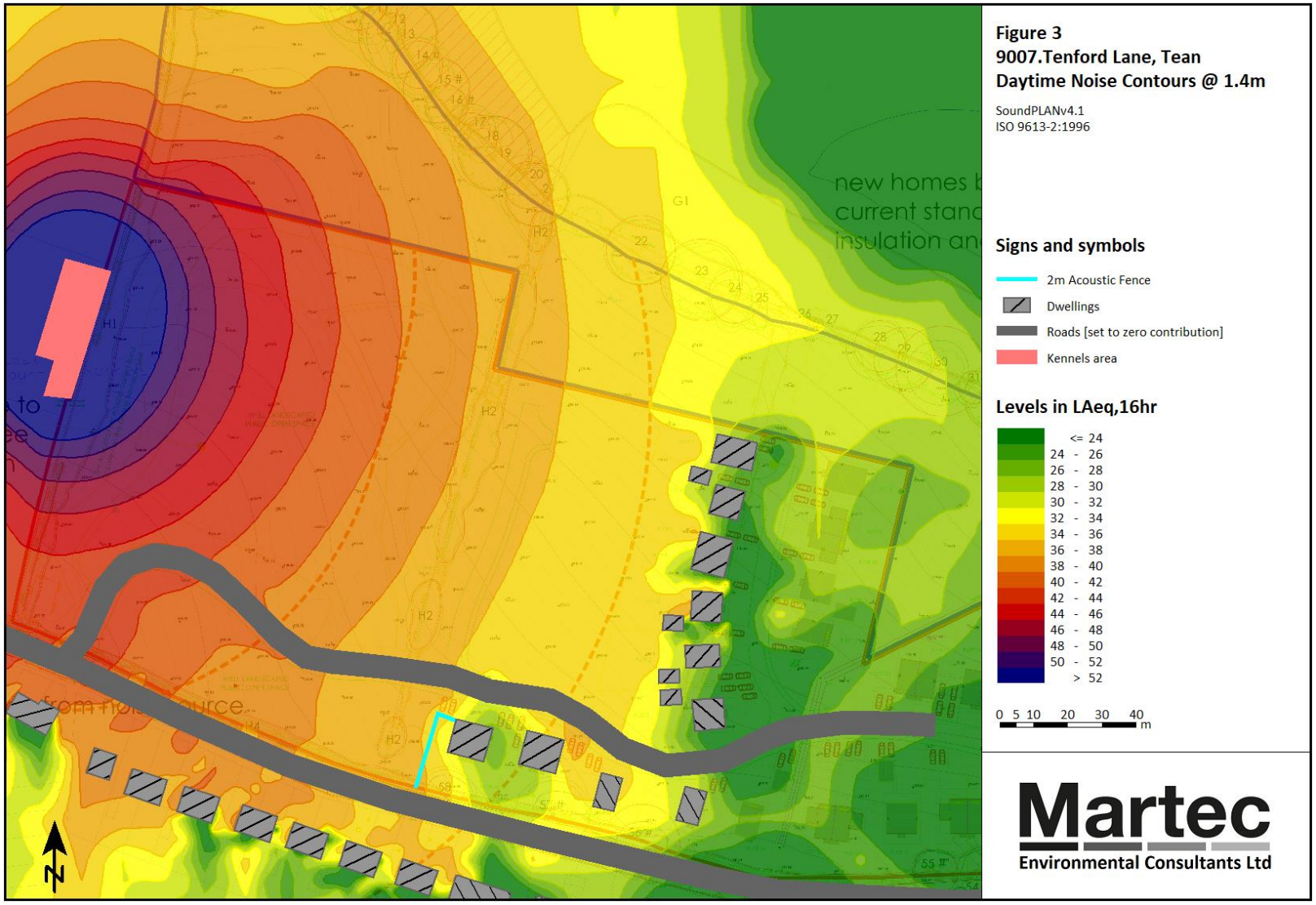
Table 4: Compliance with Criteria [LAeq,T]

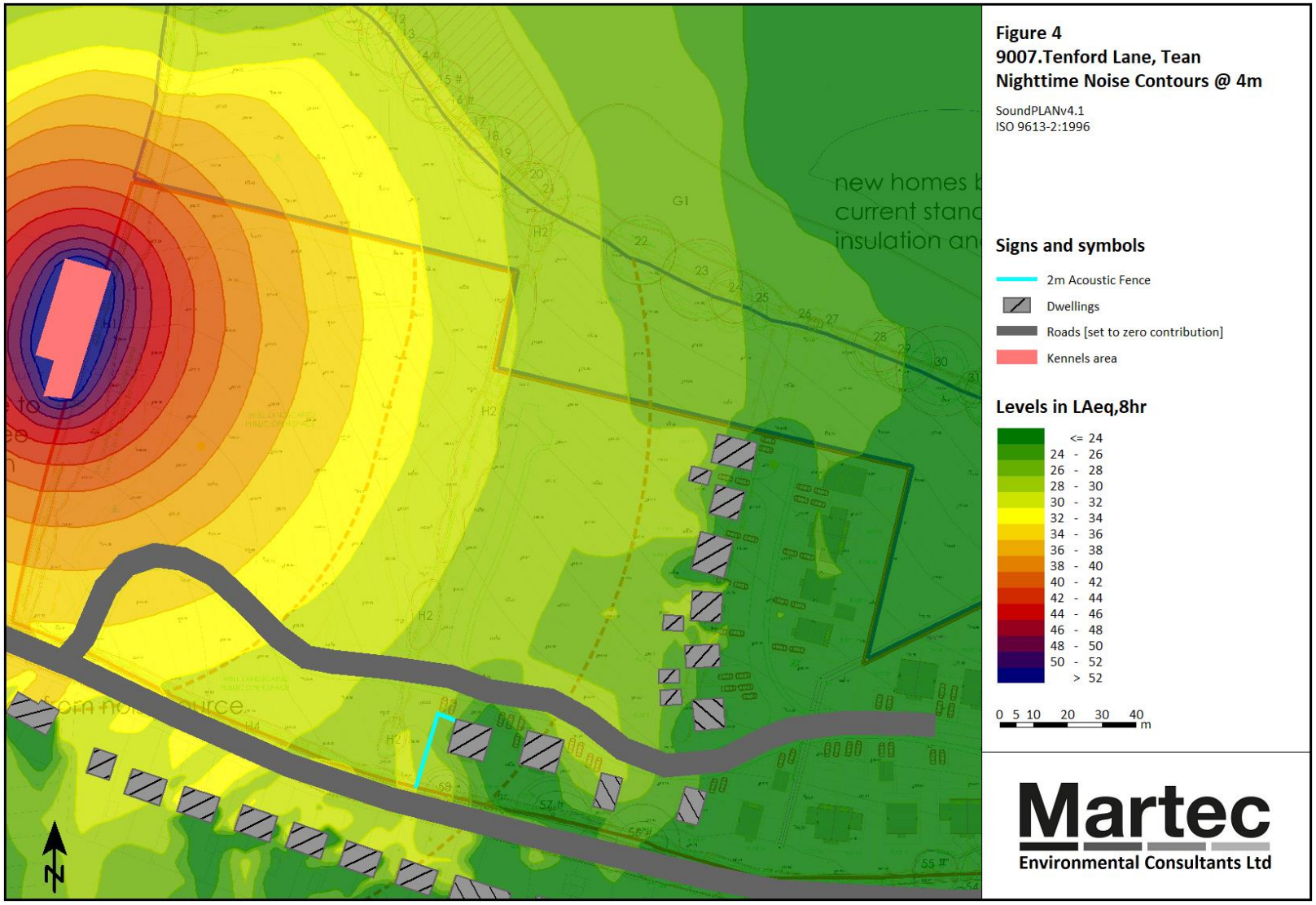
8.0 CONCLUSIONS AND RECOMMENDATIONS

On the basis of the stated assumptions above, from Table 4, standard [open] glazing and ventilation would ensure compliance with the local authority's noise criteria.

It is recommended that a short section of 2m high acoustic fencing is constructed in the location shown in Figure 2. A typical detail of acoustic fencing appears at Figure 5 of this report.


Figure 2
9007.Tenford Lane, Tean
Predicted Noise Levels
SoundPLANv4.1
ISO 9613-2:1996
Signs and symbols
2m Acoustic Fence
Dwellings
Peak Acoustics Monitoring Posn
Roads [set to zero contribution]
Kennels area
Level tables
Floor | Day LAeq,16hr | Night LAeq,8hr
0 5 10 20 30 40 m
Martec
Environmental Consultants Ltd
58.8 50.4
37.8 29.4
36.7 28.3
38.0 29.6
37.4 29.0
37.7 29.3
37.2 28.8
37.5 29.1
37.0 28.6
37.3 28.9
37.3 28.9
39.3 30.9
39.1 30.7
36.8 28.4
30.8 22.4
36.0 27.6
33.4 25.0
new homes b
current stand
insulation an
WELL LANDSCAPED PUBLIC OPEN SPACE
G1
H2
H4
N


Figure 3
9007.Tenford Lane, Tean
Daytime Noise Contours @ 1.4m
SoundPLANv4.1
ISO 9613-2:1996
Signs and symbols
2m Acoustic Fence
Dwellings
Roads [set to zero contribution]
Kennels area
Levels in LAeq,16hr
<= 24
24 - 26
26 - 28
28 - 30
30 - 32
32 - 34
34 - 36
36 - 38
38 - 40
40 - 42
42 - 44
44 - 46
46 - 48
48 - 50
50 - 52
> 52
0 5 10 20 30 40 m
Martec
Environmental Consultants Ltd
N


Figure 4
9007.Tenford Lane, Tean
Nighttime Noise Contours @ 4m
SoundPLANv4.1
ISO 9613-2:1996
Signs and symbols
2m Acoustic Fence
Dwellings
Roads [set to zero contribution]
Kennels area
Levels in LAeq,8hr
<= 24
24 - 26
26 - 28
28 - 30
30 - 32
32 - 34
34 - 36
36 - 38
38 - 40
40 - 42
42 - 44
44 - 46
46 - 48
48 - 50
50 - 52
> 52
0 5 10 20 30 40 m
Martec
Environmental Consultants Ltd
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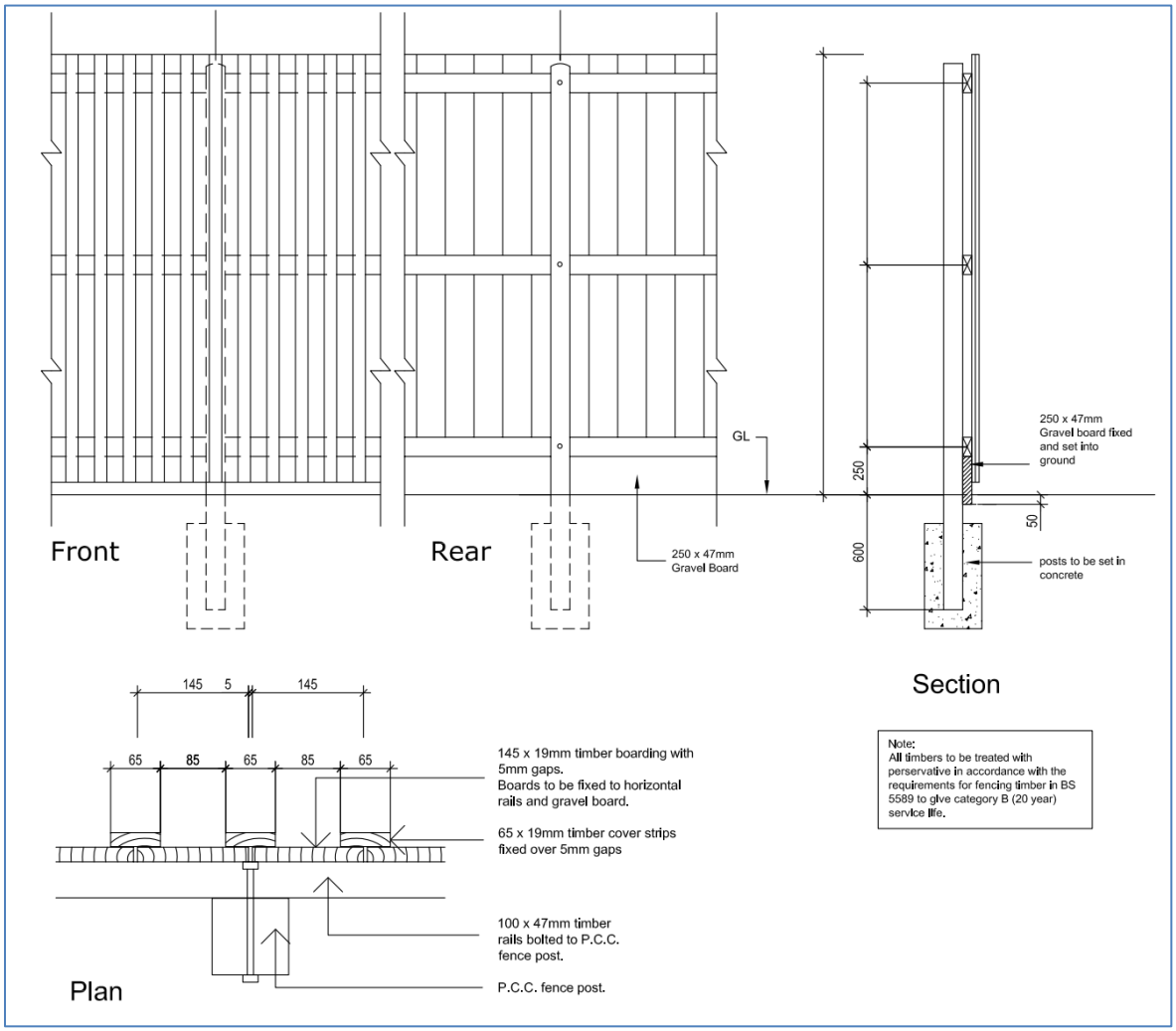


Figure 5: Acoustic Fencing Detail

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

APPENDIX 2

QUALIFICATIONS AND EXPERIENCE OF M. A. KENYON

My full name is Melville Alexander Kenyon. I am the principal of the firm of Martec Environmental Consultants Ltd, a consultancy company that specialises in environmental noise assessment and control. I graduated in 1982 with a Bachelor's degree in Engineering and subsequently a Master's degree in Environmental Acoustics. I have been a corporate member of the professional body for noise and vibration specialists, the Institute of Acoustics, since 1988, and have sat on the British Standards Committee dealing with noise in buildings [BS.8233:1999].

I have lectured at Liverpool John Moores University on the Diploma of Acoustics course and at Manchester Metropolitan University on their Environmental Health degree course.

The firm of Martec Environmental Engineering was formed in the 1970's and joined The Association of Noise Consultants in 1996. It is now known as Martec Environmental Consultants Ltd.

Since its formation, Martec has advised many groups of both residents and developers about the problems of noise and vibration in the environment.

APPENDIX 3

ENVIRONEMENTAL HEALTH CONSULTATION

From: Colgan, Denis
Sent: 13 February 2017 15:42
To: Simpkin, Rachael
Cc: Mccrory, Daniel
Subject: SMD/2016/0811 - Land Off Tenford Lane, Tean

SMD/2016/0811 - Land Off Tenford Lane, Tean

Comments – The Environmental Health Section recommend refusal of this application for the reasons of significant noise impacts on the future occupiers of the proposed residential development and the risk of compromising the operations and viability of the boarding and rescue kennels as a result of these impacts.

***Noise**:* The dog boarding and rescue kennels are the primary noise source close to the proposed development. It operates as a temporary boarding facility for all stray and lost dogs under the responsibility of the District Council, including availability as an out of hour facility for the public to reclaim and drop off animals. As the kennels is open to public access the dogs are very often disturbed throughout the day and into the evening, this can cause bouts of barking randomly into the evening and night. The kennels are also a rothweiler rescue centre and regularly houses numbers of these animals pending rehousing, in addition it is also a Staffordshire Bull boarding facility. The rothweilers can be particularly loud with maximum noise levels from these dogs being in excess of 100L_{amax}. These kennels although a noise source are important in the area and provide an essential boarding facility for animals which become parted from their owners.

The revised noise assessment and layout submitted in support of the application has proposed a mitigation scheme for the planned residential units.. The Environmental Health Section has undertaken noise measurements in the vicinity of the site which validate the measurements set out in the noise report.

The revised layout has removed one line of housing to create a buffer area to address concerns regarding noise impacts. But there still remains a concern this buffer zone is not to a sufficient extent to ensure that reasonable amenity can be enjoyed by future occupiers of this proposed development.

The noise mitigation advice in paragraphs 4.8.2 and 4.9.1 of the noise assessment state that properties within 170m of the kennels should use a mechanical ventilation system. It is the opinion of this Department that mechanical ventilation is not a suitable sound insulation method for this development. Future residents would reasonably expect to open windows to ventilate and cool their properties in this rural/quiet urban area, as a result it is predicted residents close to the kennels would experience significant noise impacts. In the event of predicted future noise complaint, the use of mechanical ventilation by residents would not be a valid defence for the kennels and the onus and financial burden for improvement would fall to the kennels.

The proposed barrier in the initial submission would require clarification, in the future the onus on maintenance would be the responsibility of who? The barrier was proposed at 2m, the Environmental Health Department would expect this to be higher, a height of 3m would be more appropriate.

In summary there remains an outstanding concern that the operation of the boarding kennels could be compromised by this development and that future occupiers of the proposed residential properties would not enjoy reasonable amenity due to noise from the kennels. The buffer distance between the housing and the kennels is insufficient as set out in this latest application and the proposed mitigation is not considered appropriate for this type of development.

***Contamination*:** The site is historically greenfield, however it is adjacent to a sand and gravel quarry that may have been subject of some infilling with unknown material e.g:

Current Previous

1



It is possible that this in filled material to be a of ground gas (methane and Carbon dioxide), which given the sandy / gravel nature of the surrounding areas could migrate to the adjacent, proposed development site. As the development is sensitive end use a ground gas risk assessment is recommended as a precaution.

Mr Denis Colgan
Pollution Officer (Specialist)
Environmental Health
Staffordshire Moorlands District Council / High Peak Borough Council
01538 395400 ext 4404 or 07713189069

APPENDIX 4
REFERENCES

1. Acoustic Report submitted with original application.

"Environmental Noise Assessment – Land Adjacent to Tenford Lane, Tean, Staffordshire" Peak Acoustics Ref.PA114-LG070916NR2 dated 30th November 2016.