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LAND AT PENDLE ROAD CLITHEROE (STANDEN PHASE 5 & 6)
PROPOSED RESIDENTIAL DEVELOPMENT

NOISE IMPACT ASSESSMENT

On behalf of:

Taylor Wimpey Manchester

Report No: P22-308-R02v4
April 2025

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1.0 INTRODUCTION

1.1 Hepworth Acoustics Ltd was commissioned by Taylor Wimpey Manchester to carry out a noise impact assessment in connection with a proposed planning application for a residential development at land off Pendle Road in Clitheroe. The site is part of the wider Higher Standen Farm development and forms Phases five and six.

1.2 The location of the proposed residential development, which is currently used a grazing and farming land, is shown in Figure 1. The site is bounded to the north by the rear gardens of the dwellings on Hillside Close. To the east of the site are open fields although this land does form part of the wider Higher Standen Farm development and will in due course be developed. To the south the site is bounded by Littlemoor Road, a lightly trafficked road. To the south of the site are the premises of Brian Dent Ltd, a plant and tool hire business. The site topography is such that the Brian Dent premises are at the foot of a steep slope approximately six meters below that of the development land.

1.3 It is understood objections to the development have been raised by Brian Dent Ltd and Ribble Valley Borough Council have requested a noise assessment be carried out for a period of seven days to determine whether there is a noise impact from Brian Dent and if so, recommended a suitable scheme of noise mitigation.

1.4 It is proposed to develop the phase five and six parcels for a total of 265 dwellings. The assessment has been based on the layout shown on drawing TW/HSF/SL/01-Rev Q as provided by Taylor Wimpey and shown in Figure 2.

1.5 The noise assessment has included:

- An inspection of the site and surrounding area;
- Measurement of noise levels during for a period of seven days;
- Recommendation of appropriate mitigation measures.

1.6 The various noise units and indices referred to in this report are described in Appendix I. All noise levels mentioned in the text have been rounded to the nearest decibel, as fractions of decibels are imperceptible.

2.0 GUIDANCE AND ACOUSTIC DESIGN CRITERIA

National Planning Policy Framework: December 2024

2.1 Paragraph 198 of the National Planning Policy Framework (NPPF) December 2024 states that planning policies and decisions should *"ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should: a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;"*

2.2 A requirement of the NPPF is that new development can be integrated effectively with existing businesses. Existing businesses should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

2.3 Thus, for this development, if it is found that there is adverse noise impact from the existing commercial premises it is incumbent on the housing developer to incorporate adequate noise mitigation into the residential developer to protect the amenity of the new residents but also to safeguard the business interests of the commercial operator.

Noise Policy Statement for England

2.4 The Noise Policy Statement for England (NPSE) 2010, which is referred to the in NPPF, includes three aims:

i. Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

ii. Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

iii. Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

British Standard 8233:2014

2.5 No specific guidance is given in the NPPF on acoustic design criteria, therefore, the guidance discussed below has been used for acoustic design purposes, which carries the full weight of an adopted British Standard.

2.6 Guidance on acceptable noise levels in habitable rooms is set out in British Standard 8233: 2014, *'Guidance on Sound Insulation and Noise Reduction for Buildings'*, (referred to hereafter as BS 8233). BS 8233 recommends that it is desirable that noise from external sources does not exceed the guidelines values that are shown in Table 1 inside habitable rooms for daytime (07:00 – 23:00) and night-time (23:00 – 07:00) periods.

Table 1: BS 8233:2014 recommended acoustic design criteria (dB $L_{Aeq,T}$)

Activity	Location	Daytime 07:00 – 23:00	Night-time 23:00 – 07:00
Resting	Living room	35	-
Dining	Dining room/area	40	-
Sleeping (daytime resting)	Bedroom	35	30

2.7 BS 8233 also recognises that regular individual noise events at night can cause sleep disturbance. Peaks of noise from individual events are usually described in terms of L_{Amax} values and these can be highly variable and unpredictable such that for design purposes it is usual to take into account the findings of research described in WHO *Community Noise Guidelines* that states "for a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB L_{Amax} more than 10-15 times per night". Similarly, ProPG states that "*in most circumstances in noise-sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45 dB $L_{Amax,F}$ more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events*". At this site it should be straightforward to achieve acceptable L_{Amax} noise levels in bedrooms based on the 10th highest night-time value.

Acoustic Design Criteria

2.8 For this development we therefore recommend the following noise criteria be adopted with windows closed and trickle ventilation provided:

- Daytime noise below 35 dB $L_{Aeq,16hr}$ inside living rooms and bedrooms, 40 dB $L_{Aeq,16hr}$ inside dining rooms; and
- Night-time noise levels not exceeding 30 dB $L_{Aeq,8hr}$ and generally not exceeding 45 dB L_{AmaxF} in bedrooms (i.e. no more than 10 times per night).

2.9 Meeting the above adopted noise criteria will provide a good standard of protection of residential amenity for future residents of the proposed development.

2.10 Our noise mitigation recommendations to meet the adopted noise criteria are described in Section 4.

3.0 NOISE SURVEY AND ASSESSMENT

Noise Survey

3.1 Noise measurements were carried out at a location on the site that is representative of the dwellings at the southern boundary of the site closest to potential noise sources. The measurement location was 3m from the southern boundary and is indicated in Figure 1.

3.2 It is understood that Brian Dent can access the yard 24 hours a day to load plant equipment from the storage yard in the early morning this can also include weekends. Therefore, as per the requirements of the local authority, noise measurements were taken for in excess of seven days between 12:00 on Tuesday 30th August until Wednesday 14:30 on 7th September 2022

3.3 The noise measurements were carried out in consecutive 15-minute periods using a Rion NL-52 'Class 1' integrating sound level meter (s/n: 821105). Acoustic calibration checks of the sound level meter were carried out before and after the noise measurements. No significant variation in the calibrated noise level was noted. The noise measurements were taken in 'free-field' conditions and at a microphone height of approximately 1.5 m above the ground. Audio was also recorded for the entire duration of the noise measurements.

3.4 The weather conditions during the survey were predominately dry and calm and thus suitable for a survey of this type, there were however some brief periods of rain on Monday 5th and Tuesday 6th September.

3.5 The full results of the noise survey including weather conditions are shown in Appendix II and are summarised in Table 2.

Table 2: Summary of measured noise levels (dB)

Period	Daytime 07:00 – 23:00		Night 23:00 - 07:00		
	$L_{Aeq\ (average)}$	$L_{A90\ (average)}$	$L_{Amax\ (range)}$	$L_{Aeq\ (average)}$	$L_{A90\ (average)}$
Tuesday 30th	50	45	44 - 64	42	39
Wednesday 31st	50	45	45 - 70	42	39
Thursday 1st	51	45	47 - 71	46	40
Friday 2nd	49	43	45 - 70	41	38
Saturday 3rd	45	42	44 - 62	41	38
Sunday 4th	44	42	47 - 70	46	41
Monday 5th	50	44	44 - 71	48	44
Tuesday 6th	53	48	47 - 76	47	43
Wednesday 7th	51	46	44 - 64	42	39

3.6 The measured noise levels shown in Table 1 are low. The predominant noise in the area during the survey was distant traffic noise from the nearby road network.

3.7 We have reviewed the audio recorded during the measurement survey. There was some occasional very low-level noise that can be attributable to Brian Dent operations to the south, primarily from vehicles arriving at and departing. There were no peaks of noise above 70 dB L_{Amax} associated with Brian Dent measured at night, indeed the 10th highest night-time L_{Amax} measured over the survey ranged between 52 dB and 61 dB L_{Amax} of which the majority of peaks were as a result of birdsong at sunrise.

Noise Assessment

3.8 It was proposed to assess any significant commercial/industrial noise sources in accordance with the rating method described in BS 4142:2014 '*Methods for Rating and Assessing Industrial and Commercial Sound*'. However, it was found that the development site was not exposed to any significant commercial/industrial noise and any noise from commercial/industrial premises.

3.9 Thus, a quantitative BS 4142 noise assessment is not possible. However, when considering the need for any noise mitigation, due consideration must also be given to the future proofing the dwellings from noise from commercial premises.

3.10 In cases such as this, it is appropriate to adopt a pragmatic approach and to implement a noise mitigation scheme that takes into account not only the measured levels of noise, but possible daily variations and changes in the future. This approach is in accordance with the aims of the *National Planning Policy Framework* (NPPF) which states:

"Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities … Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed."

3.11 Therefore, noise mitigation measures have been recommended for properties at the southern boundary of the site to protect the amenity of the new residents in perpetuity and, in so doing, safeguard the business interests of nearby commercial premises. The recommended noise mitigation measures are described in Section 4.

4.0 RECOMMENDED NOISE MITIGATION MEASURES

Gardens

4.1 The site layout as shown in Figure 2 indicates that the majority of dwellings will be orientated such that they will front towards Brian Dent and the private gardens will be located on the far (shielded) side of the dwellings.

4.2 For the garden fencing as shown in red in Figure 3, where the gardens will not be fully screened by the dwellings themselves, and to ensure the protection of residential amenity in perpetuity, we recommend that proprietary acoustic timber fencing of 2.0m minimum height is installed for these gardens.

4.3 The acoustic barriers should be solid with no holes or gaps along their length or at the base and should have a minimum surface mass of 10 kg/m^2. Suitable barrier constructions would include proprietary acoustic timber fencing of minimum 20mm thickness or solid brick walls. Access gates in the barrier would be acceptable, if necessary, as long as they are built to the same standard as acoustic fencing. Alternatively, solid brick walls could be installed if/where considered appropriate.

4.4 Some suppliers of proprietary acoustic fences include Jacksons Fencing (jacksons-fencing.co.uk), Guardian Fencing (guardianfencing.com), GRAMM barriers (grammbarriers.com) and Ransfords (ransfords.co.uk). Alternatively, solid brick walls could be installed.

Sound Insulation of Dwellings

4.5 Whilst no significant operational noise was measured from Brian Dent to the south, we consider that it would be prudent to incorporate some sound insulation measures for elevations of the dwellings along the southern boundary with a view of the yard to the south. This approach would protect the amenity of future residents and safeguard the business interests of the nearby commercial premises to the south.

4.6 For such elevations close to the commercial property as indicated in blue on Figure 3 we recommend that windows of habitable rooms are fitted with double glazing that has a sound reduction performance of at least 30 R_w + C_{tr}. Typically this would be achieved with double glazing specifications of:

- 4 mm glass - nominal (12-20 mm) cavity – 6.4 mm Acoustic Laminated Glass

Or

- 8 mm glass - nominal (12-20 mm) cavity – 6 mm Glass

4.7 Due care and attention must be taken to ensure that all glazing is well-fitted and well-sealed.

Ventilation

4.8 Also, for all habitable rooms for which sound insulated windows are necessary (as shown in blue on Figure 3), we recommend that specialist acoustic vents are fitted instead of standard window frame slot vents. Various types of acoustic vents are commercially available.

4.9 However, in terms of acoustic performance, for exposed living rooms we would recommend types such as the Greenwood EAR42W 3-part system, comprising humidity sensitive indoor unit, acoustic sleeve, and outdoor acoustic canopy or wall mounted Ryton AAC125HP units, both of which have a good acoustic performance rating of over 42 dB $D_{n,e,w}$.

4.10 For the exposed bedrooms, acoustic vents of a higher rating of 50 dB $D_{n,e,w}$ would be recommended which may require larger wall mounted passive units (e.g. Greenwood Type MA3051 Acoustic Wall Ventilator) or powered through-wall types (e.g. Titon Sonair F+). This is to ensure any night time operations at Brian Dent are sufficiently controlled.

4.11 For all other on the development, standard double glazing of 4mm glass - nominal (8-20mm) cavity - 4mm glass (25 dB $R_w + C_{tr}$) and standard window frame trickle vents will suffice.

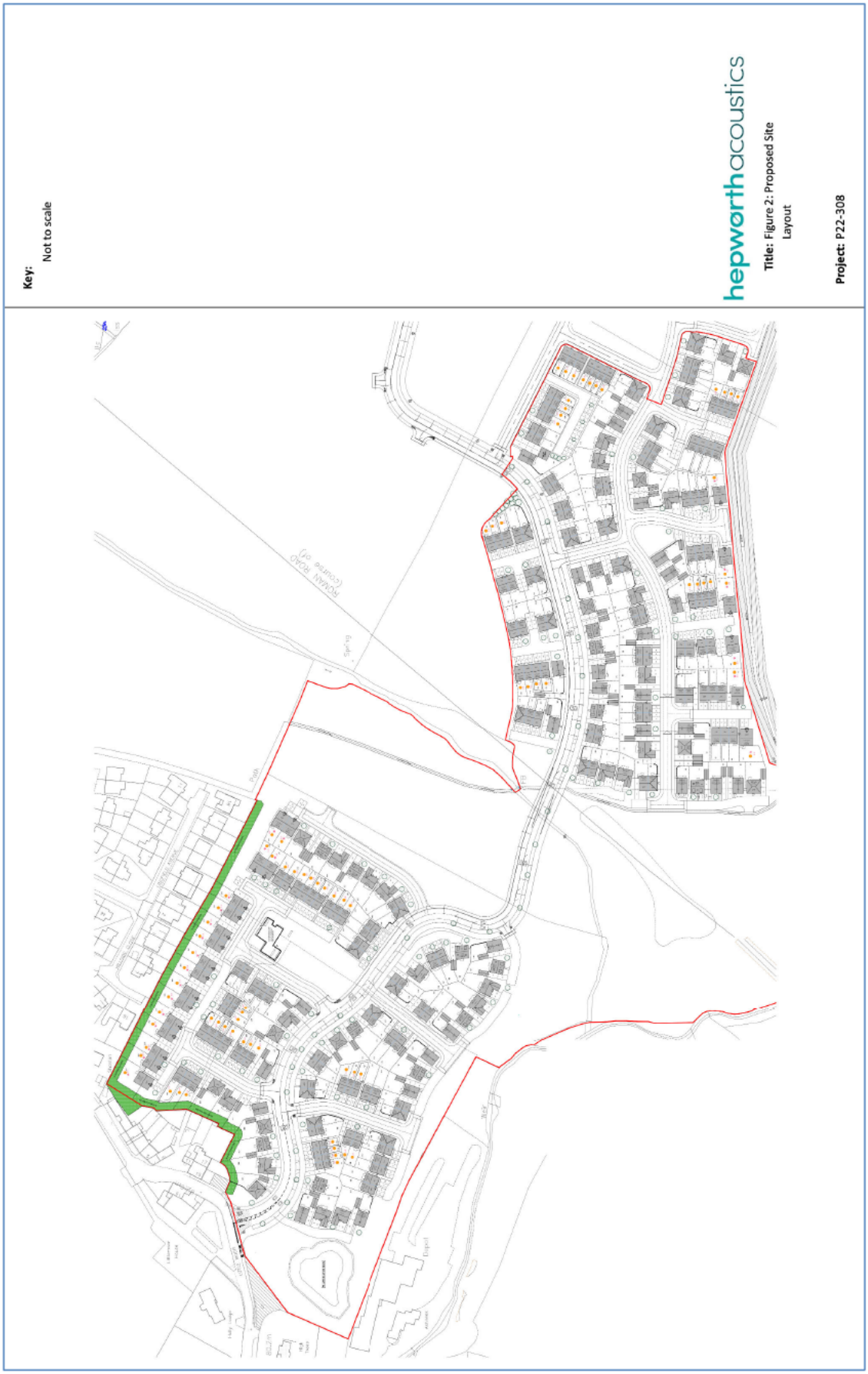
5.0 SUMMARY

5.1 The impact of noise commercial/industrial premises have been assessed for the proposed Phase 5 & 6 residential development at the Higher Standen Farm land.

5.2 The assessment has included the measurement of ambient noise levels during for a period of seven days to determine the noise impact of Brian Dent plant hire on the proposed development. There was no significant noise measured from any of the nearby commercial or industrial premises.

5.3 However, we have recommended that an appropriate scheme of noise mitigation is implemented for 'future proofing' purposes in order to comply with the NPPF.


Key:
Not to scale
1 Measurement Location
hepworthacoustics
Title: Figure 1: Noise Measurement Location
Project: P22-30
1
Brian Dent


Key:
Not to scale
hepworthacoustics
Title: Figure 2: Proposed Site Layout
Project: P22-308


Key:
Not to scale
Upgraded glazing and ventilation
2m acoustic fencing
hepworthacoustics
Title: Figure 3: Recommended Noise Mitigation Scheme
Project: P22-308
LINDFIELD AVENUE
HILLSIDE CLOSE
Snaston
LITTLE MOOR
Littlemoor House
Holly Lodge
Depot
Weir
Ashness
2m

Appendix I: Noise Units & Indices

Sound and the decibel

A sound wave is a small fluctuation of atmospheric pressure. The human ear responds to these variations in pressure, producing the sensation of hearing. The ear can detect a very wide range of pressure variations. In order to cope with this wide range of pressure variations, a logarithmic scale is used to convert the values into manageable numbers. Although it might seem unusual to use a logarithmic scale to measure a physical phenomenon, it has been found that human hearing also responds to sound in an approximately logarithmic fashion. The dB (decibel) is the logarithmic unit used to describe sound (or noise) levels. The usual range of sound pressure levels is from 0 dB (threshold of hearing) to 120dB (threshold of pain).

Due to the logarithmic nature of decibels, when two noises of the same level are combined together, the total noise level is (under normal circumstances) 3 dB(A) higher than each of the individual noise levels e.g. 60 dB(A) plus 60 dB(A) = 63 dB(A). In terms of perceived 'loudness', a 3 dB(A) variation in noise level is a relatively small (but nevertheless just noticeable) change. An increase in noise level of 10 dB(A) generally corresponds to a doubling of perceived loudness. Likewise, a reduction in noise level of 10 dB(A) generally corresponds to a halving of perceived loudness.

The ear is not equally sensitive to sound at all frequencies. It is less sensitive to sound at low and very high frequencies, compared with the frequencies in between. Therefore, when measuring a sound made up of different frequencies, it is often useful to 'weight' each frequency appropriately, so that the measurement correlates better with what a person would actually hear. This is usually achieved by using an electronic filter called the 'A' weighting, which is built into sound level meters. Noise levels measured using the 'A' weighting are denoted dB(A) or dBA.

Frequency and Hertz (Hz)

As well as the loudness of a sound, the frequency content of a sound is also very important. Frequency is a measure of the rate of fluctuation of a sound wave. The unit used is cycles per second, or hertz (Hz). Sometimes large frequency values are written as kiloHertz (kHz), where 1 kHz = 1000 Hz.

Young people with normal hearing can hear frequencies in the range 20 Hz to 20 kHz. However, the upper frequency limit gradually reduces as a person gets older.

Glossary of Terms

When a noise level is constant and does not fluctuate, it can be described adequately by measuring the dB(A) level. However, when the noise level varies with time, the measured dB(A) level will vary as well. In this case it is therefore not possible to represent the noise climate with a simple dB(A) value. In order to describe noise where the level is continuously varying, a number of other indices can be used. The indices used in this report are described below.

C_{tr} This is an A-weighted urban traffic noise spectrum, which can be added to $D_{nT,w}$ or R_w in some standards to take into account different source spectra such as low frequency sound.

R_w This is the 'Weighted Sound Reduction Index', and is a single figure quantity of R, the laboratory measured Sound Reduction Index.

$L_{Aeq,T}$ This is the A–weighted 'equivalent continuous noise level' which is an average of the total sound energy measured over a specified time period. In other words, $L_{Aeq,T}$ is the level of a continuous noise which has the same total (A–weighted) energy as the real fluctuating noise, measured over the same time period. It is increasingly being used as the preferred parameter for all forms of environmental noise.

L_{AFmax} This is the maximum A–weighted noise level that was recorded during the measurement period in terms of 'Fast' time weighting.

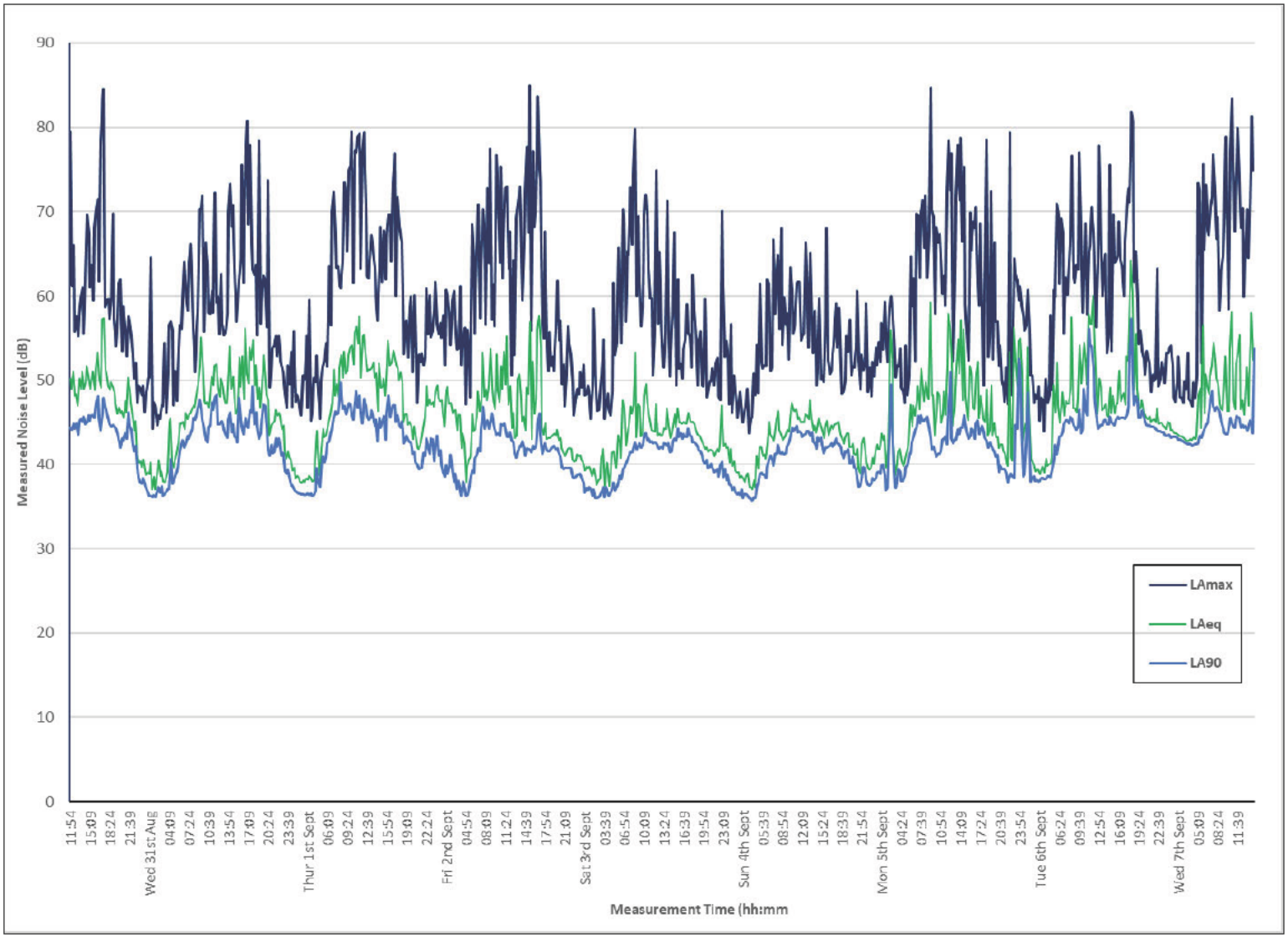
$L_{A90,T}$ This is the A–weighted noise level exceeded for 90% of the time period. $L_{A90,T}$ is used as a measure of background noise.

Appendix II: Noise Survey Results

Date(s):	Tuesday 30th August - Wednesday 7th September 2022
Equipment:	Rion NL-52 'Class 1' sound level meter (s/n: 821105) with associated calibrator and environmental outdoor monitoring kit
Weather:	Tues 30th Aug – Dry, ~13-19°C, cloudy skies and easterly breeze 5 m/s Wed 31st Aug – Dry, ~10-22°C, clear skies and easterly breeze <5 m/s Thurs 1st Sept – Dry, ~12-23°C, partly cloudy skies and light easterly breeze <4 m/s Fri 2nd Sept – Dry, ~14-24°C, clear skies and light north easterly breeze 3 m/s Sat 3rd Sept – Periods of light rain, ~16-22°C, partly cloudy and easterly breeze <6 m/s Sun 4th Sept – Periods of light rain, ~17-24°C, cloudy and south easterly breeze <5 m/s Mon 5th Sept – Periods of light rain ~16-22°C, cloudy and south easterly breeze <5 m/s Tues 6th Sept – Showers ~15-21°C, partly cloudy and south easterly breeze <m/s

All levels in dB(A)

Location 1:


Measured Noise Level (dB)
90
80
70
60
50
40
30
20
10
0
LAmax
LAeq
LA90
11:54
15:09
18:24
21:39
Wed 31st Aug
04:09
07:24
10:39
13:54
17:09
20:24
23:39
Thur 1st Sept
06:09
09:24
12:39
15:54
19:09
22:24
Fri 2nd Sept
04:54
08:09
11:24
14:39
17:54
21:09
Sat 3rd Sept
03:39
06:54
10:09
13:24
16:39
19:54
23:09
Sun 4th Sept
05:39
08:54
12:09
15:24
18:39
21:54
Mon 5th Sept
04:24
07:39
10:54
14:09
17:24
20:39
23:54
Tue 6th Sept
06:24
09:39
12:54
16:09
19:24
22:39
Wed 7th Sept
05:09
08:24
11:39
Measurement Time (hh:mm