MEC Consulting Group

ACOUSTIC AIR

Bosworth Lane, Newbold Verdon
Acoustics Assessment
August 2025

Report Ref: 28945-ENV-0401 Rev D

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APPENDICES

1.0 INTRODUCTION

1.1 MEC Consulting Group Ltd (MEC) has been commissioned by Bloor Homes Limited, to undertake an Acoustics Assessment for the proposed residential development at Bosworth Lane, Newbold Verdon (hereafter referred to as 'the Site').

Existing Site

1.2 The Site, comprised of arable land, is bound by Bosworth Lane to the north; existing residential to the east; the Newbold Verdon Primary School to the south, and arable land to the west, with agricultural buildings located beyond.

1.3 The principal source of noise affecting the Site is predicted to be from road traffic using Bosworth Lane, coupled with any contributions from the Newbold Verdon Primary School, and agricultural buildings to the west.

Figure 1.1: Approximate Redline Boundary

Development Proposals

1.4 Development proposals comprise:

Erection of up to 200 dwellings, a community health and well-being hub (Use Class E(e)) or community shop (Use Class E(a)) of up to 108 sqm gross external area and provision of up to 0.5 hectares of school playing fields and sport pitches, together with landscaping, open space, infrastructure and other associated works

1.5 An indicative framework plan is provided in **Appendix A**.

Assessment Scope

1.6 The assessment scope has been discussed and agreed with the Local Planning Authority's (LPA) Environmental Health Officer (EHO), and the relevant correspondence is presented in **Appendix B.**

1.7 As agreed during consultation, the following scope of works has been undertaken:

- An Environmental Sound Survey has been undertaken within the Site in order to determine the prevailing acoustic conditions;
- Appropriate noise limits for any new mechanical/electrical service plant associated with the community health hub have been defined in accordance with BS 4142[1];
- An acoustic model has been created in order to predict sound level across the Site based upon the measured sound level data;
- Embedded façade mitigation measures in the form of glazing and whole-dwelling ventilation specifications have been provided to demonstrate compliance with the guidance contained within ProPG[2], BS 8233[3]; and AVOG[4]; and
- Where required, appropriate mitigation measures have been provided to demonstrate compliance with the relevant standards.

1.8 Following submission of the initial assessment to the LPA, a comment was received by Giles Rawdon (EHO) on 16th June 2025 on behalf of Hinckley and Bosworth Borough Council. The comment stated:

'Please can the applicant provide further details regarding the school expansion/playing fields/sports pitches aspect of the application. The area has not been assessed in terms of potential noise impact.'

1.9 In response to the comment, the school expansion and playing/sports fields have been acoustically modelled, to assess any potential impact on the proposed dwellings.

1.10 The conclusions of this report aim to demonstrate to the LPA that external and internal acoustic conditions will be compliant with the relevant British Standards and Acoustics Guidance.

Disclaimer

1.11 MEC has completed this report for the benefit of the individuals referred to in Paragraph 1.1 and any relevant statutory authority which may require reference in relation to approvals for the proposed development. Other third parties should not use or rely upon the contents of this report unless explicit written approval has been gained from MEC.

1.12 MEC accepts no responsibility or liability for:

- The consequence of this documentation being used for any purpose or project other than that for which it was commissioned;
- The issue of this document to any third party with whom approval for use has not been agreed.

[1] BS 4142:2014 +A1:2019 *'Methods for rating and assessing industrial and commercial sound.'*
[2] Professional Practice Guidance on Planning and Noise, May 2017.
[3] BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings'
[4] Acoustics Ventilation and Overheating, Residential Design Guide, V1.1. January 2020.

2.0 STANDARDS AND GUIDANCE

General

2.1 An acoustics glossary is provided in **Appendix C** to assist the reader.

Summary of Guidance and Standards

2.2 The following guidance and standards relevant to the assessment are outlined below:

- National Planning Policy Framework (NPPF) 2024;
- Noise Policy Statement for England (NPSE) 2010;
- Professional Practice Guidance on Planning and Noise (ProPG) 2017;
- BS 8233:2014 *'Guidance on sound insulation and noise reduction for buildings'*; and
- Acoustics Overheating and Ventilation Guide (AVOG) 2020.

2.3 For conciseness, the guidance and standards most appropriate to this assessment are summarised in this section.

Professional Practice Guidance on Planning and Noise (ProPG) 2017

2.4 ProPG seeks to secure good acoustic design for new residential developments. The guidance includes a framework to enable situations where noise is not an issue but to help identify the extent of risk at noisier sites. The guidance does not constitute an official government code of practice and neither replaces nor provides an authoritative interpretation of the law or government policy.

2.5 The guidance is restricted to sites that are exposed predominantly to noise from transportation sources. Where industrial or commercial noise is present on the site but is "not dominant", its contribution may be included in the noise level used to establish the degree of risk. However, if the industrial/commercial source is dominant, an assessment in accordance with BS 4142 should be conducted.

2.6 A two-stage approach is considered whereby:

- Stage 1 – an initial noise risk assessment of the proposed development site is undertaken;
- Stage 2 – a systematic consideration of internal and external noise levels is considered ensuring good acoustic design and consideration of other relevant issues is recognised.

2.7 ProPG also references the World Health Organisation (WHO) guidance on maximum noise levels at night. Guidance from the WHO states that indoor sound pressure levels should not exceed approximately 45 dB L_{AFmax} more than 10 – 15 times per night. ProPG indicates that individual noise events do not exceed 45 dB L_{AFmax} more than 10 times a night and therefore this is considered as criteria in addition to that outlined in Table 2.1.

2.8 Whilst ProPG does not define a measurement interval for the assessment of L_{AFmax} levels, research undertaken by Paxton et al[5] indicates that, for Maximum Event Level assessments, a sampling interval of

[5] Paxton et al., Assessing L_{max} for residential development: The AVO Guide Approach, Institute of Acoustics, 2019

between 1 and 3 minutes relates most closely to how awakening events are experienced by people in reality when compared to longer sampling periods.

2.9 For brevity, within the study, the majority of people (circa 75-85%) under test returned to a sleep state by approximately 2.5 minutes after the initial awakening event.

2.10 In summary, a longer sampling period can result in the under assessment of the 10th highest maximum level, therefore, based upon research and the recommendation of the Institute of Acoustics (IOA), a sample measurement of 2 minutes has been used to inform this assessment.

2.11 Upon completion of the ProPG's Stage 1 and 2 assessments, the findings should enable one of four possible recommendations to be presented to the decision maker, namely to grant permission without conditions, grant with conditions, 'avoid' or 'prevent'.

BS 8233:2014 *'Guidance on sound insulation and noise reduction for buildings'*

2.12 BS 8233 provides recommendations for the control of noise in and around buildings.

2.13 The guidance provided includes appropriate internal and external noise level criteria which are applicable to residential buildings exposed to steady external noise sources. It is stated in the British Standard that it is desirable for internal ambient noise levels to not exceed the criteria set out in Table 2.1.

Table 2.1: BS 8233: 2014 Table 4 – Indoor Ambient Noise Levels for Dwellings

Activity	Location	07:00 – 23:00 $L_{Aeq, 16hr}$ dB	23:00 – 07:00 $L_{Aeq, 8hr}$ dB
Resting	Living Room	35	-
Dining	Dining Room/Area	40	-
Sleeping (daytime resting)	Bedroom	35	30

2.14 Additional guidance in BS 8233 indicates that appropriate ventilation should be provided, if relying on closed windows to meet the guide values, and that such ventilation should not compromise the façade insulation and resulting noise levels.

2.15 BS 8233 additionally includes guidance on external amenity areas whereby it states that external noise levels should not exceed 50 dB $L_{Aeq, T}$ with an upper guideline of 55 dB $L_{Aeq, T}$ which would be acceptable in noisier environments.

2.16 Furthermore, due to the nationwide difficulty in satisfying the external criteria outlined above, the standard provides an over-arching consideration of how to treat external amenity areas as follows:

"... it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development

needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited."

Acoustics Overheating and Ventilation Guide (AVOG) 2020

2.17 The AVOG was published by the Association of Noise Consultants (ANC) and The Institute of Acoustics (IOA) in 2020. The guide outlines a methodology for the assessment of airborne sound during overheating conditions, and emphasises the co-dependency of acoustics, ventilation and overheating design.

2.18 Many developments require closed windows to provide good internal acoustic conditions. This is in direct contrast to the fact that residents typically open windows in order to keep a building cool. These opposing requirements are becoming a major issue in the design of buildings, in particular for housing, especially as the aim is to avoid widespread use of mechanical ventilation and cooling systems.

2.19 AVOG prescribes a two-level assessment procedure, as follows:

- Level 1 – Site Risk Assessment, based on external free-field noise levels (similar to that of ProPG); and
- Level 2 – Assessment of Adverse Effect, based on internal ambient noise level and duration.

2.20 An AVOG Level 2 assessment gives consideration to internal noise levels on a sliding scale depending on the likelihood and duration of overheating.

2.21 This report considers an AVOG Level 1 assessment.

3.0 ENVIRONMENTAL SOUND SURVEY

3.1 An environmental sound survey was undertaken between Tuesday 23rd and Thursday 25th July 2024. The survey was undertaken in full accordance with the guidance set out in BS 7445[6].

3.2 Sound Level Meters (SLMs) were installed at two locations, as follows:

- Continuous Measurement 1 (CM1): along the northern boundary, approximately 5m from the carriageway edge of Bosworth Lane; and
- Continuous Measurement 2 (CM2): along the western boundary, with a direct line of sight to the agricultural buildings.

3.3 The measurement positions are identified in Figure 3.1.

Figure 3.1: Measurement Positions

Equipment

3.4 Measurements were taken using Class 1 integrating/averaging SLMs housed in environmental protection apparatus. The SLMs were installed in a free field position at a height of 1.5m above local ground level, and field calibrated before and after the survey using a Class 1 calibrator, with no significant drift in calibration noted.

[6] BS 7445-1:2003 '*Description and measurement of environmental noise, Part 1: Guide to quantities and procedures.*'

3.5 The SLMs were set up to capture the following parameters at a minimum: L_{Aeq}, L_{A90} and L_{AFmax} values, and full details of the equipment used to undertake the survey are presented in Table 3.1.

Table 3.1: Equipment and Calibration Details

Measurement Position	Description	Manufacturer & Type No.	Serial No.	Calibration Due Date
CM1	Sound Level Meter	Type NOR140	1407932	26/02/2025
	Pre-Amplifier	Type 1209	23695	
	Microphone	Type 1225	505583	
	Calibrator	Norsonic 1255	125525772	21/11/2024
CM2	Sound Level Meter	Type NOR140	1407599	04/09/2024
	Pre-Amplifier	Type 1209	22646	
	Microphone	Type 1225	384571	
	Calibrator	Norsonic 1255	125525494	18/09/2024

Meteorological Conditions

3.6 During setup of the SLMs, weather conditions were warm and dry, with northerly winds of up to 1.5 m/s. On collection, conditions were cloudy and dry, with northerly winds of up to 2.1 m/s.

3.7 It can therefore be concluded that there were no significant adverse meteorological conditions that could influence the survey outcomes.

Observations

3.8 Site notes indicate the dominant source of noise across the Site to be from road traffic using Bosworth Lane.

3.9 Observations during Site walkover, SLM installation and collection show that harvesting of crops within the arable land adjacent to the western boundary occurred during the measurement period, with audio analysis of the measurement data highlighting mobile plant associated with this process passing the microphone at occasional times throughout the Tuesday and Wednesday daytime period.

3.10 It should be noted that at no point during observations, or audio analysis, was there any audible noise from the agricultural buildings located further north that would warrant assessment under BS 4142.

3.11 Furthermore, noise associated with the planting/harvesting of crops would be limited to short, occasional impacts a couple of times a year and consequently, would not represent a dominant noise source requiring assessment against BS 4142.

Results

3.12 Table 3.2 and Table 3.3 provide a summary of measured assessment appropriate sound levels at CM1 and CM2 respectively.

3.13 Time history graphs of the measured data are presented in **Appendix D**.

Table 3.2: Summary of Measured Sound Levels at CM1, dB

Date	Daytime 07:00 – 23:00	Night-time 23:00 – 07:00	
	$L_{Aeq,T}$	$L_{Aeq,8hr}$	Typical Maximum Event Level[a] $L_{AFmax,2min}$
Tue 23rd	65[b]	58	81
Wed 24th	64	56	79
Thu 25th	64[c]	-	-

[a] Maximum noise level not exceeded more than 10 times per night.
[b] T = 10hr
[c] T = 6hr

3.14 The measured daytime $L_{Aeq,T}$ ranged between 64 dB and 65 dB (rounding to the nearest whole number for assessment purposes), while the night-time $L_{Aeq,8hr}$ ranged between 56 dB and 58 dB.

3.15 Analysis of the night-time $L_{AFmax,2min}$ noise levels shows that the individual noise events did not exceed 81 dB more than 10 times during either measured night-time period. Analysis of the audio recordings show that all events above 81 dB were caused by vehicular 'pass-bys', with no significant low frequency spectral content. Therefore, a value of 81 dB $L_{AFmax,2min}$ is considered appropriate value for assessment purposes.

Table 3.3: Summary of Measured Sound Levels at CM2, dB

Date	Daytime 07:00 – 23:00		Night-time 23:00 – 07:00		
	$L_{Aeq,T}$	$L_{A90,1hr}$	$L_{Aeq,8hr}$	$L_{A90,15min}$	Typical Maximum Event Level[a] $L_{AFmax,2min}$
Tue 23rd	61[b]	42	39	29	56
Wed 24th	50	40	38	30	56
Thu 25th	45[c]	40	-	-	-

[a] Maximum noise level not exceeded more than 10 times per night.
[b] T = 10hr
[c] T = 6.5hr

3.16 The measured daytime $L_{Aeq,T}$ ranged between 45 dB and 61 dB, while the night-time $L_{Aeq,8hr}$ ranged between 38 dB and 39 dB.

3.17 The average L_{A90} background noise level during the day ranged between 40 dB and 42 dB, while at night the average ranged between 29 dB and 30 dB. The lowest measured L_{A90} during the day was 31 dB and at night 22 dB.

3.18 Analysis of the night-time $L_{AFmax,2min}$ levels shows that the individual noise events did not exceed 56 dB more than 10 times during either measured night-time period, and in any event, investigation of the audio recordings show that all relevant maximum values were caused by 'birdsong'.

3.19 Whilst the data in Table 3.2 does indicate that the harvesting of crops influenced the daytime ambient sound levels during the Tuesday and Wednesday measurement periods, it is still considered to be inappropriate to assess this process against BS 4142.

3.20 Further analysis of the measurement data shows that in the absence of noise from harvesting operations, ambient daytime $L_{Aeq,T}$ levels were similar to those measured during the Thursday, which supports the observation that road traffic noise from Bosworth Lane represents the dominant noise source across the Site.

3.21 Therefore, given that noise from the planting/harvesting of crops would only be present for brief periods a couple of times a year, the CM2 measurement data has not been used within the following assessment.

Background Sound Level

3.22 With regard to derivation of the L_{A90} background sound level for assessment purposes, Section 8 of BS 4142 makes it clear that the objective of the assessment *"is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during particular time periods."*

3.23 Therefore, for noise control purposes it is inappropriate to base the controls on the very lowest (single minimum) value since this would be overly restrictive and unreasonable.

3.24 Paragraph 8.14 of BS 4142 similarly remarks that "*The monitoring duration should reflect the range of background sound levels for the period being assessed. In practice, there is no 'single' background sound level as this is a fluctuating parameter. However, the background sound level used for the assessment should be representative of the period being assessed."*

3.25 The subsequent Note 1 states that *"A representative level ought to account for the range of background sound levels and ought not automatically to be assumed to be either the minimum or modal value".*

3.26 Therefore, the lower average value as measured at CM2 of 40 dB L_{A90}, is considered to be an appropriate value to use for assessment purposes during the daytime, with the lower average value of 29 dB L_{A90} applicable for assessment purposes during the night-time.

4.0 ASSESSMENT METHODOLOGY

Acoustic Modelling

4.1 An acoustic model of the Site and environs has been generated in Datakustik CadnaA® modelling software. CadnaA® considers various inputs, including topography, buildings and noise sources, and calculates sound levels in accordance with national and international standards; in this case, the relevant UK standards are the procedures set out within ISO 9613-2[7].

4.2 The modelling assumptions and input information for the acoustic model are as follows:

- Digital Terrain Model – Lidar 1m (Environment Agency, downloaded on 6th August 2024);
- Open Street Map data (publicly available);
- Ground absorption for the Site = 0.5 (mixed ground);
- Building heights estimated following site observations or based upon masterplan;
- Buildings set to be reflective only with no absorption coefficient;
- First order reflections included in the modelling;
- Temperature set to 10°C; and
- Relative humidity set to 70%.

Source Noise Levels

Road Traffic

4.3 The environmental sound survey was undertaken during the school summer holiday and therefore, abnormal traffic movements along Bosworth Lane may have affected the survey results. Therefore, the current assessment has included a compensation factor to allow for any abnormal traffic movements during this holiday period.

4.4 Traffic growth over a 15-year design period would amount to a noise increase of less than 1 dB(A) using the traffic growth forecasts provided by the CRTN[8], which would be represented by only a small and insignificant shift in the noise contours across the Site. Therefore, essentially the same comments relating to the noise measurements can be applied to the Site to account for any abnormal traffic movements associated with the school summer holiday period.

4.5 Nevertheless, to account for any abnormal traffic movements during the measurement period, and since traffic flows would need to double to cause a 3 dB noise change to occur, a factor of 1 dB should more than compensate for assessment purposes, and this approach has been agreed with the EHO.

4.6 The correction factor would be applicable to the L_{Aeq} measurements, i.e., to the total noise exposure values, but would not be applicable to the individual L_{Amax} values as these are not a function of traffic volume.

[7] ISO 9613-2 *'Acoustics – Attenuation of sound during propagation outdoors, Part 2: General method of calculation.*
[8] Calculation of Road Traffic Noise, Department of Transport Welsh Office, 1988.

4.7 Based on the environmental sound survey and agreed compensation factor, the sound levels used to calibrate the 3D acoustic model are presented in Table 4.1.

Table 4.1: Sound Levels Used to Calibrated 3D Acoustic Model, dB

Parameter	CM1
Daytime $L_{Aeq,16hr}$	65
Night-time Ambient $L_{Aeq,8hr}$	59
Night-time Maximum $L_{AFmax,2min}$	81

Newbold Verdon Primary School

4.8 Given the school summer holiday period, it was not possible to measure impacts on the Site from the school's play areas. Therefore, the approach has been to use MEC's comprehensive library of in-house measurement data, with source noise levels at the boundary of an Artificial Grass Pitch (AGP) used for the school's concrete play area, and from football being played on Brinsley Recreation Ground, used for the school's grass play area. This data is presented in **Appendix D**.

4.9 It should be noted that this approach will represent a worst-case assessment, as any noise contribution from an outdoor school play area would only be present for a typical period of 1-2 hours during the above 16-hour assessment period as the remainder of school hours are mainly spent at lessons inside the school buildings. Therefore, the remaining 14-hours would be totally unaffected, and the overall 16-hour noise exposure for nearby gardens will tend to be influenced most by the ambient noises present during the unaffected 14-hours rather than the 1-2 hour when the play areas might be used.

4.10 In addition to the sports pitches in the existing school playing areas, and to address comments from the Local Authority, two further pitches have been included in the school expansion area. At this stage, it is unknown how the school expansion area will be used. This is therefore considered to provide a robust assessment scenario.

Modelled Scenarios

4.11 With reference to the noise criteria outlined in Section 2.0, the acoustic model has been used to predict sound levels across the Site in the following scenarios:

- Daytime $L_{Aeq,16hr}$ external sound levels at ground floor (1.5m) height;
- Night-time $L_{Aeq,8hr}$ external sound levels at first floor (4m) height; and
- Night-time $L_{AFmax,1min}$ external sound levels at first floor (4m) height.

5.0 ACOUSTICS ASSESSMENT

Community Health Hub

Fixed External Plant (Extracts/Ventilation Systems)

5.1 At this stage of the development's design, it is not possible to identify the specific type or location of any new equipment that will operate for ventilation or extract purposes on the proposed community health hub. Therefore, the approach has been to devise an appropriate noise criterion that, when applied to the selection and siting of equipment during the detailed design of the building, will enable the equipment to operate during sensitive periods without adversely affecting the ambient noise climate and without causing complaints from existing/new residents.

5.2 The background sound levels to be used for noise control purposes have been defined in Section 4. A value of 40 dB L_{A90} is recommended for the control of any new fixed plant proposed to operate on the outside of the community health hub during the daytime hours (07:00 – 23:00), and a value of 29 dB L_{A90} is recommended during night-time hours (23:00 – 07:00).

5.3 The operation of any fixed plant would have no impact upon neighbouring dwellings if the operation of the extraction system produces a Noise Rating Level that does not exceed the L_{A90} background sound level as measured at 3.5 metres from the façade of the nearest noise sensitive premise.

Residential Development

5.4 The following assessment has been undertaken using indicative receptors based on the concept plan. For conciseness, the most exposed indicative receptors will be assessed within the body of this report, and these are identified as Plot X overlooking Bosworth Lane, and Plot Y adjacent to Newbold Verdon Primary School, within the various sound level contour and mitigation maps presented within the appendices of this report.

ProPG Initial Noise Risk Assessment

5.5 As required by the ProPG, an Initial Noise Risk Assessment (INRA) is presented Table 5.1, based on the modelled sound levels.

Table 5.1: Initial Site Noise Risk Assessment, dB

Risk	Negligible		Low		Medium		High	
Period	Day	Night	Day	Night	Day	Night	Day	Night
Pro PG Threshold	< 50	< 40	50 – 60	40 – 50	60 – 70	50 – 60	> 70	> 60
Plot X			57			53		
Risk Assessment			Low			Medium		
Plot Y			58					
Risk Assessment			Low					

5.6 Based on the modelled sound levels, the most exposed receptors overlooking Bosworth Lane fall within the ProPG risk category of 'Low' risk during the daytime, for which the guidance states "*the Site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed*".

5.7 The noise exposure increases to a 'Medium' risk during the night-time for the most exposed receptors overlooking Bosworth Lane, for which the guidance requires that the Site should follow a good acoustic design process which confirms how the adverse impacts of noise will be mitigated and minimised.

5.8 New receptors adjacent to Newbold Verdon Primary School also fall within the ProPG 'Low' risk category during the daytime. It should be noted, however, that the sound levels from the school and its associated sports pitches have been modelled using a worst-case scenario, and are therefore likely to fall within a lower risk category in practice.

5.9 This report is considered to form the basis of the 'Acoustic Design Statement', which considers appropriate design measures to achieve suitable acoustic conditions for residential amenity.

BS 8233 External Amenity Criteria

5.10 The acoustics criterion often the most difficult to meet in residential environments situated next to busy transportation sources is BS 8233's criterion of 55 dB $L_{Aeq,\ 16hr}$ applicable to private external amenity spaces such as gardens.

5.11 The daytime $L_{Aeq,16hr}$ sound level contour map, shown on drawing 28945_04_120_01 in **Appendix E**, indicates that standard mitigation in the form of 1.8m high close boarded timber fencing will enable BS 8233's lower-level criterion of 50 dB $L_{Aeq,16hr}$ to be satisfied across the Site.

BS 8233 Internal Acoustic Criteria

5.12 Table 5.2 presents the required external to internal reduction requirements for the most exposed receptor overlooking Bosworth Lane and the Newbold Verdon Primary School.

Table 5.2: Required Façade Performance, dB

Plot	Parameter	External Level	Internal Criteria	Required Reduction
X	Daytime Ambient $L_{Aeq,\ 16hr}$	57	35	22
	Night-time Ambient $L_{Aeq,\ 8hr}$	53	30	23
	Night-time Maximum $L_{AFmax,\ 2min}$	76	45	31
Y	Daytime Ambient $L_{Aeq,\ 16hr}$	58	35	23

5.13 For the most exposed receptors, the results in Table 5.2 show that a sound reduction of up to 22 dB will be required to achieve the internal $L_{Aeq,16hr}$ criterion during the daytime, with a sound reduction of up to 31 dB required to achieve the L_{Amax} criterion for new receptors overlooking Bosworth Lane during the night-time.

AVOG Level 1 Assessment

5.14 AVOG prescribes a two-stage assessment. Level 1 looks to determine if overheating needs to be considered further, based on the predicted external façade levels for the most exposed receptors.

5.15 The initial Level 1 assessment is presented in Table 5.3.

Table 5.3: AVOG Level 1 Assessment

Plot	Parameter	Predicted External Level dB	Level 1 Risk Grading	Level 2 Advised?
X	Daytime Ambient $L_{Aeq,16hr}$	57	Low	Optional
	Night-time Ambient $L_{Aeq,8hr}$	53	Medium	Optional
Y	Daytime Ambient $L_{Aeq,16hr}$	58	Low	Optional

5.16 The results demonstrate that at the most exposed receptors overlooking Bosworth Lane and Newbold Verdon Primary School, an AVOG Level 2 assessment is optional due to the low to medium levels of noise.

5.17 However, it should be noted that the night-time maximum levels will drive the acoustic design and therefore, with the introduction of the more stringent maximum night-time criteria presented within AD-O[9], the mitigation schedule may be subject to change at Building Control stage based upon the outcome of any Dynamic Thermal Modelling assessment.

5.18 Nevertheless, demonstrating a suitable overheating strategy is not necessarily a planning application consideration, and could therefore be considered at a later stage, as part of other Building Control matters.

[9] The Building Regulations 2010, Overheating, Approved Document 'O'.

6.0 MITIGATION

Community Health Hub

Fixed External Plant (Extracts/Ventilation Systems)

6.1 The design criterion for new plant such as extracts or ventilation units shall be that the overall Rating Level measured at 3.5 metres from the facade of the nearest dwelling shall not exceed 40 dB for all daytime and evening operations, or 29 dB at night. The Rating Level must allow for any tonal content through the addition of appropriate acoustic character corrections as defined by BS 4142 where tonal noise is present.

6.2 Use of the above noise limits for the design and installation of any new mechanical/electrical service plant on the outside of the community health hub will ensure that its operation does not adversely affect the existing background sound level and does not give rise to adverse impacts under BS 4142. This is a matter that can be dealt with by way of a routine planning condition.

Residential Development

External Sound Levels

6.3 Based on the current site layout, BS 8233's lower-level criterion of 50 dB $L_{Aeq,16hr}$ will be satisfied at all garden locations on the Site through the provision of standard 1.8m high close boarded timber fencing.

Internal Sound Levels

6.4 Acoustic modelling has demonstrated potential façade sound levels and, in accordance with BS 8233, ProPG and AVOG, sound reduction performance requirements of the façade have been determined.

6.5 In terms of acoustics, windows and ventilation strategies are the 'weakest' acoustics point in any façade and subsequently, the composite sound reduction performance is typically dominated by these elements. Therefore, minimum performance requirements to be provided by the glazing and ventilation elements at all dwellings are presented herein.

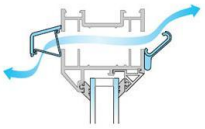
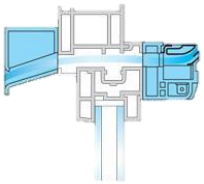
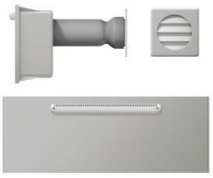
6.6 Drawing on the above, and the acoustic modelling undertaken, Table 6.1 provides typical reduction requirements and potential glazing and ventilation solutions across the Site in order to demonstrate compliance with the internal sound level criteria outlined in BS 8233 and ProPG during typical conditions; internal sound level criteria outlined in AVOG during overheating conditions; whilst adhering to the ventilation requirements of AD-F[10].

6.7 This table should be read in conjunction with the drawings in **Appendix F** whereby drawing 28945_04_120_04 demonstrates the required reduction for bedrooms and drawing 28945_04_120_05 demonstrates the required reduction for all other habitable rooms.

6.8 For each reference in Table 6.1, the sound reduction performance requirements, in octave band and weighted reduction format, are presented in **Appendix G**.

[10] The Building Regulations 2010, Ventilation, Approved Document F, 2021 Edition.

Table 6.1: Suggested Internal Mitigation Measures

Mitigation Ref.	Example Glazing Solution	Example Whole-Dwelling Ventilation Solution (AD-F)
Ref. A	4mm glass panel 12mm air gap 4mm glass panel Approx. 27 dB $R_w + C_{tr}$	Standard Non-Acoustic Trickle Vent Direct airpath trickle vent located in the top of the window frame  Approx. $D_{ne,w} + C_{tr}$ = 32 dB
Ref: B	8mm pane 12mm air space 10mm pane Approx. $R_w + C_{tr}$ = 33 dB	Acoustically Rated Trickle Vent Slots typically located in the window frame with more torturous path and acoustic lining  Approx. $D_{ne,w} + C_{tr}$ = 35 dB
Ref: C	6mm pane 18mm air space 9.5 mm laminated pane Approx. $R_w + C_{tr}$ = 36 dB	Acoustically Rated Through Wall Trickle Vent Through wall trickle vent with torturous airpath.  Approx. $D_{ne,w} + C_{tr}$ = 42 dB

7.0 CONCLUSIONS

7.1 MEC has been commissioned by Bloor Homes Limited, to undertake an Acoustics Assessment for the proposed residential development at Bosworth Lane, Newbold Verdon.

Community Health Hub

Fixed External Plant (Extracts/Ventilation Systems)

7.2 The design criterion for new plant such as extracts or ventilation units shall be that the overall Rating Level measured at 3.5 metres from the facade of the nearest dwelling shall not exceed 40 dB for all daytime and evening operations, or 29 dB at night. The Rating Level must allow for any tonal content through the addition of appropriate acoustic character corrections as defined by BS 4142 where tonal noise is present.

7.3 Use of the above noise limits for the design and installation of any new mechanical/electrical service plant on the outside of the community health hub will ensure that its operation does not adversely affect the existing background sound level and does not give rise to adverse impacts under BS 4142. This is a matter that can be dealt with by way of a routine planning condition.

Residential Development

7.4 Detailed assessments of the Site, during typical conditions, have been undertaken in accordance with BS 8233 and ProPG criteria whilst giving consideration to typical condition ventilation requirements in AD-F.

7.5 Acoustic modelling has demonstrated that, based on the current site layout, BS 8233's lower-level criterion of 50 dB $L_{Aeq,16hr}$ will be satisfied at all garden locations on the Site through the provision of standard 1.8m high close boarded timber fencing.

7.6 To address LPA comments requesting further details on the proposed expansion of Newbold Verdon Primary School, the acoustic model has been updated to include two indicative football pitches within the expansion area, representing a robust scenario. The modelling results confirm that noise from these pitches would not adversely affect the external amenity areas or require any additional mitigation at the nearest dwellings.

7.7 With regards to internal acoustic conditions, the majority of new dwellings will satisfy the criteria in BS 8233 and ProPG through the provision of standard thermal double glazing and direct airpath window mounted trickle ventilators to achieve the whole-dwelling ventilation requirements of AD-F, with uprated acoustic glazing and ventilators required for the most exposed plots overlooking Bosworth Lane.

7.8 When considering the planning guidance outlined in AVOG, an open window acoustics strategy is permissible during periods of overheating. However, maximum levels will drive the acoustic design during the night-time period and therefore, further investigations may be required under AD-O at Building Control stage. Nevertheless, as this is not a planning consideration the application should not be delayed on these grounds.

7.9 It is therefore considered that with the implementation of the recommended mitigation strategy, the Site is suitable for residential development.

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APPENDICES

APPENDIX A

1:1,500 0 25m 50m 75m 100m

Status: Planning

Client: Bloor Homes - East Midlands

Project title: Land South of Bosworth Lane, Newbold Verdon

Drawing title: Indicative Framework Plan

Scale:	1:1,500 @ A2
Date:	June 2025
Drawn by:	SP
Checked by:	JMP
Drawing no.:	2508709.11.03
Revision:	I

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APPENDICES

APPENDIX B

Date: 23/07/2024 10:24:05
From: Giles Rawdon [redacted]
To: Neil Forsdyke [redacted]
Subject: RE: 28945 - Land off Bosworth Lane, Newbold Verdon
Attachments: image001.jpg; image002.jpg;

Hi Neil

That's fine- Thanks

Giles Rawdon
Environmental Health Officer (Environmental Protection)
Hinckley & Bosworth Borough Council
Environmental Health
Hinckley Hub
Rugby Road
Hinckley
Leics LE10 0FR
[redacted]

From: Neil Forsdyke [redacted]
Sent: Tuesday, July 23, 2024 11:07 AM
To: Giles Rawdon [redacted]
Subject: RE: 28945 - Land off Bosworth Lane, Newbold Verdon

Thanks Giles – completely forgot about that part!

I meant to mention that as we are undertaking the measurements during the school holiday, we propose to add a 1 dB correction to the measured traffic flow data, which should more than compensate for any abnormal traffic movements during this period.

In terms of the school, I have library data for a multi-use games area and football match on a grass pitch that I could include within the model if you are agreeable, which I believe would represent a robust assessment approach of the school's external play areas.

Kind regards,

Neil S Forsdyke MIOA
Senior Acoustics & Air Quality Consultant
[redacted]

Birmingham | Brighton | Leicester

MEC Consulting Group

From: Giles Rawdon [redacted]
Sent: 23 July 2024 10:42
To: Neil Forsdyke [redacted]
Subject: RE: 28945 - Land off Bosworth Lane, Newbold Verdon

Morning Neil

Yes all good here hope you are too.

The methodology sounds fine although the Leicestershire schools have now broken up for the summer holidays- I don't know when you were looking at carrying out the monitoring so this may not be an issue.

Thanks

Giles Rawdon
Environmental Health Officer (Environmental Protection)
Hinckley & Bosworth Borough Council
Environmental Health
Hinckley Hub
Rugby Road
Hinckley
Leics LE10 0FR
[redacted]

From: Neil Forsdyke [redacted]
Sent: Tuesday, July 23, 2024 10:08 AM
To: Giles Rawdon [redacted]
Subject: 28945 - Land off Bosworth Lane, Newbold Verdon

Morning Giles,

I hope all is well?

We have been commissioned to undertake noise and air quality assessments for a proposed residential development off Bosworth Lane, and I am hoping to agree a scope of works with yourself. I attach an approximate redline boundary, which identifies our proposed monitoring locations as two continuous measurement positions adjacent to the road, and along the south western boundary with the neighbouring agricultural buildings, and a lunchtime sample adjacent to the playing field with the neighbouring primary school.

Our proposed methodology would be as follows:

Noise
Assessment will be undertaken in accordance with BS 8233[1], ProPG[2] and AVOG[3]. Subject to the level and type of noise emanating from the agricultural uses, this would be evaluated either against BS 4142[4], if the type of noise is sufficiently distinct from the local transportation noise to warrant such an assessment, or by way of appropriate mitigation methods for 'mixed sources'.

Air Quality
The need for an air quality assessment would firstly be evaluated in accordance with Defra's LAQM, the EPUK, and the EMAQN.

A review of the Council's published air monitoring and modelling data for the area would be undertaken, so that air pollutant concentrations at the site and its surroundings can be quantified relative to the relevant air quality objectives governed by the Air Quality (England) Regulations.

Relevant air pollutant (nitrogen dioxide and particulate matter) concentrations from nearby local roads would be calculated in accordance with the DMRB air quality screening method. This will require the input of annual average daytime traffic flows (AADT), %HGVs and average speeds, and would enable ambient concentrations of road traffic pollutants to be calculated, for comparison with the air quality objectives.

The potential effects of dust and traffic emissions during construction would be considered, and controls necessary to protect existing sensitive development would be recommended. Information on the proposed methods of construction during the different phases of construction would be used to undertake a dust risk assessment in accordance with the IAQM construction guidance, and indicative dust control measures would be recommended.

If you could please confirm whether the above approach satisfies the councils requirements it would be appreciated.

Many thanks,

Neil S Forsdyke MIOA
Senior Acoustics & Air Quality Consultant
[redacted]

[redacted]
[redacted]

Birmingham | Brighton | Leicester

MEC Consulting Group

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[1] BS 8233:2014 *'Guidance on sound insulation and noise reduction for buildings.'*

[2] Professional Practice Guidance on Planning & Noise, May 2017

[3] Acoustics Ventilation and Overheating, Residential Design Guide, V1.1. January 2020.

[4] BS 4142:2014 +A1:2019 *'Methods for rating and assessing industrial and commercial sound.'*

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APPENDIX C

GLOSSARY OF TECHNICAL TERMS

Noise

Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude, but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source.

The most widely used weighting mechanism that best corresponds to the response of the human ear is the 'A'-weighting scale. This is widely used for environmental noise measurements, and the levels are denoted as dB(A) or L_{Aeq}, L_{A90} etc., according to the parameter being measured.

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective, but as a general guide a 10 dB(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions.

Typical sound levels found in the environment

Sound Level	Location
0 dB(A)	Threshold of hearing
20 to 30 dB(A)	Quiet bedroom at night
30 to 40 dB(A)	Living room during the day
40 to 50 dB(A)	Typical office
50 to 60 dB(A)	Inside a car
60 to 70 dB(A)	Typical high street
70 to 90 dB(A)	Inside a factory
100 to 110 dB(A)	Burglar alarm at 1m away
110 to 130 dB(A)	Jet aircraft taking off
140 dB(A)	Threshold of pain

Descriptor	Terminology
Sound Pressure	Sound, or sound pressure, is a fluctuation in air pressure over the static ambient pressure.
Sound Pressure Level	The sound level is the sound pressure relative to a standard reference pressure of 20μPa (20x10-6 Pascals) on a decibel scale.
Decibel (dB)	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds s1 and s2 is given by 20 log10 (s1 / s2). The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is 20μPa.
A-weighting (dB(A))	The unit of sound level, weighted according to the A-scale, which takes into account the increased sensitivity of the human ear at some frequencies.
Noise Level Indices	Noise levels usually fluctuate over time, so it is often necessary to consider an average or statistical noise level. This can be done in several ways, so a number of different noise indices have been defined, according to how the averaging or statistics are carried out.
$L_{eq, T}$	A noise level index called the equivalent continuous noise level over the time period, *T*. This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$L_{AFmax, T}$	A noise level index defined as the maximum noise level during the measurement period. L_{Max} is sometimes used for the assessment of discrete loud noises, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. It is typically measured using the 'fast' sound level meter response.
$L_{90, T}$	A noise level index. The noise level exceeded for 90% of the time over the period, *T*. *L*90 can be considered to be the "average minimum" noise level and is often used to describe the background noise.
$L_{10, T}$	A noise level index. The noise level exceeded for 10% of the time over the period, *T*. *L*10 can be considered to be the "average maximum" noise level. Generally used to describe road traffic noise.
Free-Field	Far from the presence of sound reflecting objects (except the ground), usually taken to mean at least 3.5m.
Façade	At a distance of 1m in front of a large sound reflecting object such as a building facade.
Fast/Slow Time Weighting	Averaging times used in sound level meters.
Octave Band	A range of frequencies whose upper limit is twice the frequency of the lower limit
One-third Octave Band	A frequency band in which the upper limit is 21/3 times the frequency of the lower limit.
Rating Level	The specific sound level, plus any adjustment for characteristic feature of sound in BS 4142.
Specific Sound Level	The A-weighted L_{eq} sound level produced by a sound source during a specified period of time. Commonly known as the sound source under investigation as defined in BS 4142.
Typical Maximum Level	The 90th percentile maximum event level (L_{AFmax}) measured during a period. Used for assessing night-time maximum levels under typical and overheating conditions.

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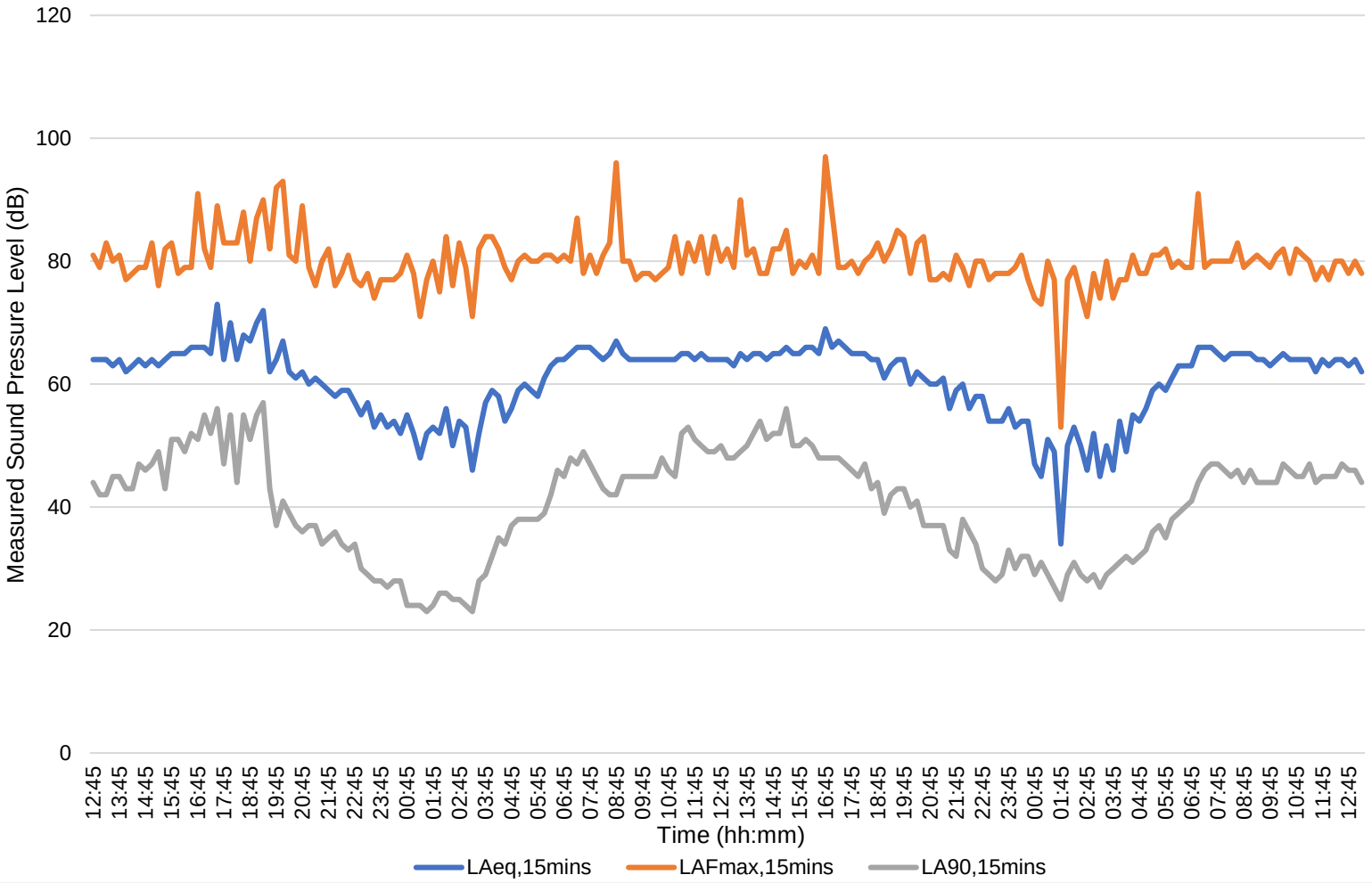
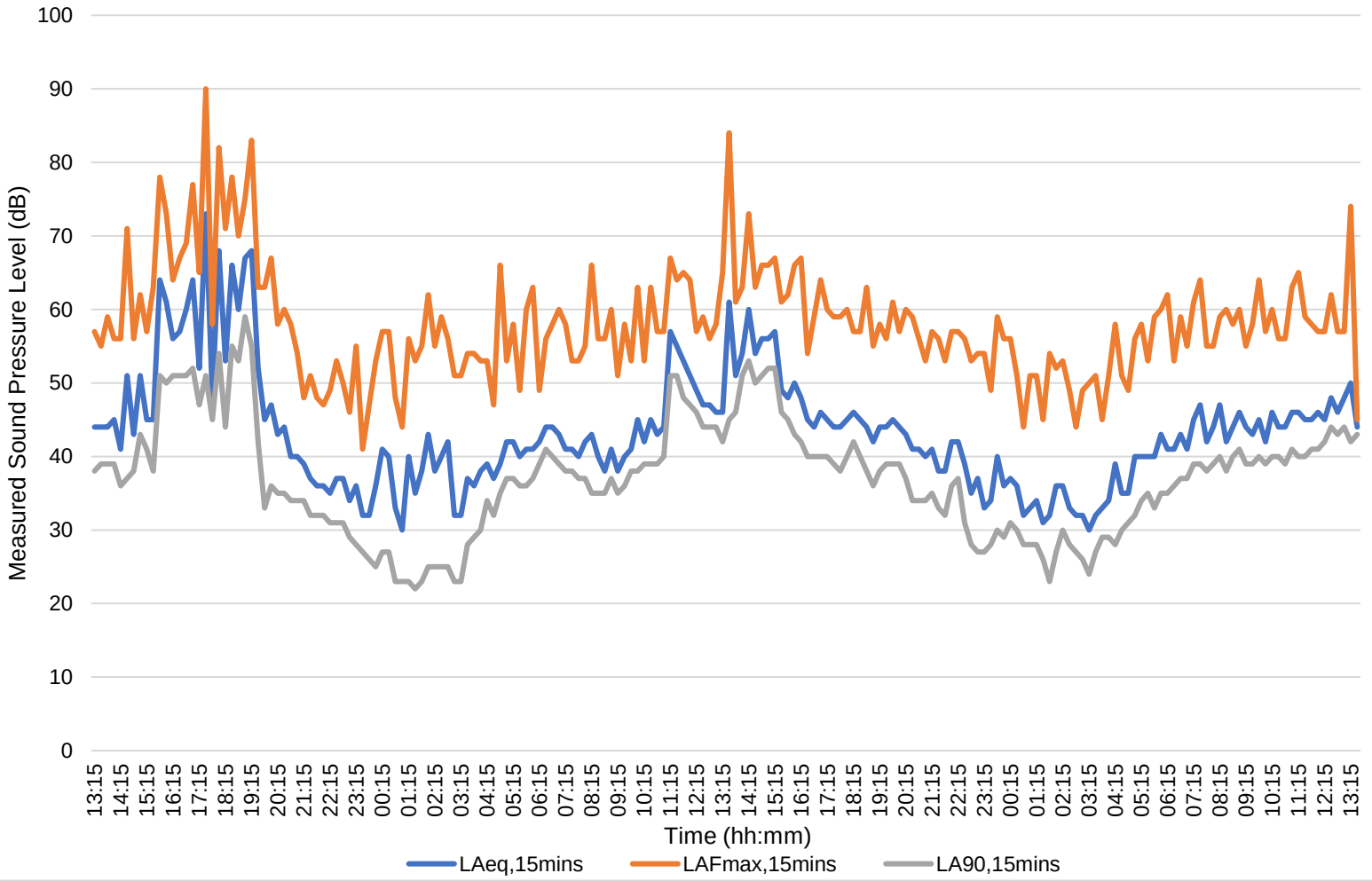
APPENDICES

APPENDIX D

Land off Bosworth Lane, Newbold Verdon - CM1
Environmental Sound Monitoring Survey Results
$L_{Aeq,15mins}$, $L_{AFmax,15mins}$ & $L_{A90,15mins}$ Measured Sound Levels - 23rd - 25th July 2024



Land off Bosworth Lane, Newbold Verdon - CM2
Environmental Sound Monitoring Survey Results
$L_{Aeq,15mins}$, $L_{AFmax,15mins}$ & $L_{A90,15mins}$ Measured Sound Levels - 23rd - 25th July 2024



AGP Noise Monitoring Positions & Noise Measurements

Date	L_{Aeq}	L_{Amax}	L_{A01}	L_{A10}	L_{A90}
Position 1(1)					
(2017/04/19 18:02:22.00)	41.8	51.5	47.4	43.7	39.2
(2017/04/19 18:03:22.00)	41.6	50.8	47	43.5	38.8
(2017/04/19 18:04:23.00)	42.1	54.2	49.8	43.4	39.4
(2017/04/19 18:05:23.00)	46.4	56.6	54.3	50.5	39.8
(2017/04/19 18:06:23.00)	43.1	49.4	48.4	45.8	39.5
(2017/04/19 18:07:24.00)	42.3	50.9	48.2	44.3	39.9
(2017/04/19 18:08:24.00)	43.5	58.2	51	45.1	40.3
(2017/04/19 18:09:24.00)	45.8	55.6	52.4	48.4	42.2
(2017/04/19 18:10:24.00)	42.7	55	52.2	44.9	38.8
(2017/04/19 18:11:25.00)	46.2	63.9	55.3	48.6	39.4
(2017/04/19 18:12:25.00)	45.6	57.5	55.6	47.7	39.6
(2017/04/19 18:13:25.00)	45.7	62.4	58.7	46.3	37.8
(2017/04/19 18:14:26.00)	45	54.5	53.3	48.3	39.8
(2017/04/19 18:15:26.00)	48.1	60	57.5	51.4	41.2
(2017/04/19 18:16:27.00)	47.8	61.3	59	50.9	40
(2017/04/19 18:17:27.00)	46.9	60.4	58.2	49.7	39.6
(2017/04/19 18:18:27.00)	47.3	61.5	58.6	50.2	39.5
(2017/04/19 18:19:28.00)	47.5	59.4	58.2	50.2	39.4
(2017/04/19 18:20:28.00)	49	63.7	60.6	51.8	39.1
(2017/04/19 18:21:28.00)	48.8	63.5	59	53.1	39.8
Minimum	41.6	49.4	47	43.4	37.8
Maximum	49	63.9	60.6	53.1	42.2
Average	45.4	57.5	54.2	47.9	39.7
Position 2(1)					
(2017/04/19 18:24:25.00)	43.8	57.2	54.1	46.6	38.1
(2017/04/19 18:25:26.00)	47.3	61.5	59.3	49.7	38.9
(2017/04/19 18:26:26.00)	46.5	57.9	55.7	49.6	40.2
(2017/04/19 18:27:26.00)	48.7	62.7	59.7	51.1	40.2
(2017/04/19 18:28:27.00)	47.3	58.6	55.6	51	40.1
(2017/04/19 18:29:27.00)	45	55.2	53.9	47.9	39.3
(2017/04/19 18:30:27.00)	49.3	64.9	60	51.9	40.9
(2017/04/19 18:31:28.00)	46.4	58.8	55.6	49	40.1
(2017/04/19 18:32:28.00)	50.2	60.4	56.4	52.9	46
(2017/04/19 18:33:28.00)	48.3	64.7	57.5	50.4	41.6
(2017/04/19 18:34:29.00)	46.1	59	56.6	48.5	38.6
(2017/04/19 18:35:29.00)	50.3	63.8	60	54.4	40.5
(2017/04/19 18:36:29.00)	49.5	61	57.2	52.6	44.1
(2017/04/19 18:37:30.00)	46.5	60.6	55	48.9	41.4
(2017/04/19 18:38:30.00)	46.8	60.9	58	48.6	40.8
(2017/04/19 18:39:30.00)	49.6	63.6	59.4	53.4	41.6
(2017/04/19 18:40:30.00)	46	57.2	54.8	49.5	39.2
(2017/04/19 18:41:31.00)	47.7	60.7	58.2	51.1	39.3
(2017/04/19 18:42:31.00)	48.6	60.3	57.4	52.4	41.2
(2017/04/19 18:43:31.00)	49.5	63.8	59.4	52.6	42.1
Minimum	43.8	55.2	53.9	46.6	38.1
Maximum	50.3	64.9	60	54.4	46

Average	47.7	60.6	57.2	50.6	40.7
Position 3(1)					
(2017/04/19 18:46:35.00)	43	51.7	49.8	45.3	39.8
(2017/04/19 18:47:35.00)	43.9	53.4	51.2	46.6	39.6
(2017/04/19 18:48:36.00)	46.7	62.8	55.8	49.3	39.9
(2017/04/19 18:49:36.00)	48.2	64.6	57.8	50.3	41.2
(2017/04/19 18:50:36.00)	47.7	58.3	55.2	50.6	42.9
(2017/04/19 18:51:37.00)	47.1	59.9	56.3	50.2	41.4
(2017/04/19 18:52:37.00)	48.4	60.8	57.6	51.7	41.6
(2017/04/19 18:53:37.00)	46.9	57	55.4	49.9	41.5
(2017/04/19 18:54:38.00)	49.5	61.9	60.4	53	40.7
(2017/04/19 18:55:38.00)	45.5	61.4	55.4	47.8	40.1
(2017/04/19 18:56:38.00)	50.4	69.3	61.6	51.4	40.5
(2017/04/19 18:57:39.00)	48.7	63.6	58.9	51.3	41
(2017/04/19 18:58:39.00)	48.1	59.7	57.2	51.6	41
(2017/04/19 18:59:39.00)	46.5	59	54.4	49.5	41.2
(2017/04/19 19:00:40.00)	49	61.6	59.2	51.7	42.9
(2017/04/19 19:01:40.00)	52.2	63.3	61.2	56.4	42
(2017/04/19 19:02:40.00)	50.6	63	60	54.4	41.2
(2017/04/19 19:03:40.00)	49.6	63.2	59.6	54.4	40.1
(2017/04/19 19:04:41.00)	48.8	55	54.1	51.8	42.8
(2017/04/19 19:05:41.00)	47.2	55	53.1	50.2	42.9
Minimum	43	51.7	49.8	45.3	39.6
Maximum	52.2	69.3	61.6	56.4	42.9
Average	47.9	60.2	56.7	50.9	41.2
Position 1(2)					
(2017/04/19 19:08:27.00)	46.3	59	54.8	48.5	41.8
(2017/04/19 19:09:28.00)	45.2	57.2	53.8	47.2	40.8
(2017/04/19 19:10:28.00)	42.8	55.7	51.6	45.6	38.7
(2017/04/19 19:11:28.00)	45.8	60.2	54.8	48.7	40.1
(2017/04/19 19:12:29.00)	46.6	61.4	56.4	48.3	40.7
(2017/04/19 19:13:29.00)	48.6	65	60.8	50.3	39.5
(2017/04/19 19:14:29.00)	48.7	62	59.8	51.5	40.6
(2017/04/19 19:15:30.00)	52.2	69.7	59.6	55.4	41.9
(2017/04/19 19:16:30.00)	53.8	60.4	59.1	56.4	50.2
(2017/04/19 19:17:30.00)	50.5	64	58.4	52.5	44.1
(2017/04/19 19:18:31.00)	49.3	61.1	59.1	52.8	41.9
(2017/04/19 19:19:31.00)	47.8	59.8	55.4	50.6	42.6
(2017/04/19 19:20:31.00)	50.3	66.8	61.2	53.4	39.8
(2017/04/19 19:21:31.00)	49.9	63.9	62.4	52.3	41
(2017/04/19 19:22:32.00)	47.1	57.4	55.3	50.8	39.1
(2017/04/19 19:23:32.00)	47.8	61.5	57	51.1	40.9
(2017/04/19 19:24:32.00)	50.7	65.1	62.9	54	42.7
(2017/04/19 19:25:33.00)	50	65.4	61.2	53.9	40.7
(2017/04/19 19:26:33.00)	53.2	75	65.6	50	40.4
(2017/04/19 19:27:33.00)	46.2	60.4	56.2	48.8	40.1
Minimum	42.8	55.7	51.6	45.6	38.7
Maximum	53.8	75	65.6	56.4	50.2

Average	48.6	62.6	58.3	51.1	41.4
Position 2(2)					
(2017/04/19 19:30:08.00)	55.9	75.2	66.6	56.5	46.2
(2017/04/19 19:31:08.00)	54.8	75.2	66	55.1	43.2
(2017/04/19 19:32:08.00)	54.6	72.7	67.3	56.8	40.5
(2017/04/19 19:33:09.00)	56	78.8	66.4	55.2	43
(2017/04/19 19:34:09.00)	53.6	73.8	62.8	55.7	42.5
(2017/04/19 19:35:09.00)	61.7	84.6	72.4	61.5	44.6
(2017/04/19 19:36:10.00)	56.8	75.2	68	59.4	43.2
(2017/04/19 19:37:10.00)	51.8	63.5	60.2	55.6	42.4
(2017/04/19 19:38:10.00)	53.8	70.2	64.8	56.7	44.1
(2017/04/19 19:39:10.00)	58.9	70.4	67.2	62.6	50
(2017/04/19 19:40:11.00)	55.7	66.3	64	59.3	48
(2017/04/19 19:41:11.00)	53	66.9	61.4	55.8	45.7
(2017/04/19 19:42:11.00)	48.6	59.3	56.2	52.3	42.4
(2017/04/19 19:43:11.00)	50.7	62.9	59.6	53.2	43.9
(2017/04/19 19:44:12.00)	53.5	64.4	61.8	57.4	43.6
(2017/04/19 19:45:12.00)	56.1	71.2	66	59.5	43.9
(2017/04/19 19:46:12.00)	54.4	69.2	64	58	43.7
(2017/04/19 19:47:12.00)	55	67	62.8	58.7	46.5
(2017/04/19 19:48:13.00)	61.7	81.4	74.6	62.8	47.2
(2017/04/19 19:49:13.00)	58.1	73.1	67.8	61.9	46.8
(2017/04/19 19:50:14.00)	62.7	86.2	72.2	58.4	42.5
Minimum	48.6	59.3	56.2	52.3	40.5
Maximum	62.7	86.2	74.6	62.8	50
Average	55.6	71.8	65.3	57.7	44.5
Position 3(2)					
(2017/04/19 19:52:33.00)	52.1	65.4	62.1	55.2	43.6
(2017/04/19 19:53:33.00)	54.1	68.9	65.6	56.4	43.8
(2017/04/19 19:54:34.00)	52.6	65.5	62.4	56.2	42.9
(2017/04/19 19:55:34.00)	50.8	64.5	59.8	53.8	43.6
(2017/04/19 19:56:34.00)	53.3	65.3	62.4	56.1	46.1
(2017/04/19 19:57:35.00)	46.2	57.2	53.1	49.4	40.8
(2017/04/19 19:58:35.00)	49	62.3	58.4	52.9	40.6
(2017/04/19 19:59:35.00)	55.4	73.6	65.7	58.5	44
(2017/04/19 20:00:36.00)	54.2	70.7	63.2	57.9	43.9
(2017/04/19 20:01:36.00)	53.8	67.6	64.8	56.8	45
(2017/04/19 20:02:36.00)	54.4	69.5	63.6	58.4	43.3
(2017/04/19 20:03:37.00)	54.2	67.8	63.8	57.9	44.1
(2017/04/19 20:04:37.00)	54.9	67.2	64.9	59.2	42.6
(2017/04/19 20:05:37.00)	52.6	66.9	63.8	56.5	40.5
(2017/04/19 20:06:38.00)	51.5	66.4	62.2	55.4	40.6
(2017/04/19 20:07:38.00)	56.4	75.1	67.6	58.7	41.2
(2017/04/19 20:08:38.00)	50.1	62.7	60	53.9	41.9
(2017/04/19 20:09:38.00)	56.5	68.5	64.4	60.3	48
(2017/04/19 20:10:39.00)	53.7	66.7	61.6	57.7	44.7
(2017/04/19 20:11:39.00)	52.2	70.1	62.4	55.4	40.9
(2017/04/19 20:12:39.00)	54.9	69.5	64.4	58.4	43

Minimum	46.2	57.2	53.1	49.4	40.5
Maximum	56.5	75.1	67.6	60.3	48
Average	53	67.2	62.7	56.4	43.1
Position 1(3)					
(2017/04/19 20:15:30.00)	47.2	62.8	59	48.7	39.6
(2017/04/19 20:16:31.00)	50.4	68.3	62	52.7	40.8
(2017/04/19 20:17:31.00)	48.4	64.4	58.4	50	42.4
(2017/04/19 20:18:32.00)	50.8	64.2	61	54.2	41.7
(2017/04/19 20:19:32.00)	49.8	61.2	58.8	53.5	42.5
(2017/04/19 20:20:33.00)	52.1	65.9	62.2	55.7	43.8
(2017/04/19 20:21:33.00)	50.3	60.9	59	53.5	42.4
(2017/04/19 20:22:33.00)	51.6	67.8	64.1	52.9	39.8
(2017/04/19 20:23:34.00)	49.2	60.7	58.7	53.5	41
(2017/04/19 20:24:34.00)	50.4	68.1	62.2	51.7	39.1
(2017/04/19 20:25:34.00)	49	63.8	60.2	51.6	39.7
(2017/04/19 20:26:34.00)	51.4	64.7	61.2	54.9	41.8
(2017/04/19 20:27:34.00)	50.8	62.9	60.4	54.6	40.1
(2017/04/19 20:28:35.00)	50.1	64.6	61.3	52.6	40.3
(2017/04/19 20:29:35.00)	51.7	69.4	64.4	52.8	38.9
(2017/04/19 20:30:35.00)	50.1	62.7	59.6	53.4	42.8
(2017/04/19 20:31:36.00)	54.6	71.1	66.4	56.9	41.3
(2017/04/19 20:32:36.00)	52.3	66	61.8	56.1	42.9
(2017/04/19 20:33:36.00)	51.2	65	61	54.9	40.1
(2017/04/19 20:34:36.00)	51.1	64.7	58.2	54.5	43.9
Minimum	47.2	60.7	58.2	48.7	38.9
Maximum	54.6	71.1	66.4	56.9	43.9
Average	50.6	65	61	53.4	41.2
Position 2(3)					
(2017/04/19 20:37:26.00)	51.7	68.8	62.2	54.6	40.8
(2017/04/19 20:38:27.00)	52.8	68.4	64.2	55.7	39.5
(2017/04/19 20:39:27.00)	49.2	63.6	58.8	53.1	38.2
(2017/04/19 20:40:27.00)	45.8	59.2	56.5	49	37.7
(2017/04/19 20:41:28.00)	53.8	66.9	64.4	57.2	43
(2017/04/19 20:42:28.00)	48.6	64.8	61.8	50.4	39
(2017/04/19 20:43:28.00)	49.7	66.6	61.4	52.2	37.8
(2017/04/19 20:44:28.00)	45.1	61.4	55.2	48	36.8
(2017/04/19 20:45:29.00)	52	68.1	65.4	53.4	36.5
(2017/04/19 20:46:29.00)	48.5	66.7	58	52.1	36
(2017/04/19 20:47:30.00)	53	69	63.5	57.1	36.7
(2017/04/19 20:48:30.00)	45.3	58.3	55.5	48.8	36.2
(2017/04/19 20:49:31.00)	48.1	63.7	57.6	50.9	41
(2017/04/19 20:50:31.00)	44.9	58.6	56.2	48.1	36
(2017/04/19 20:51:31.00)	51.4	64.1	62.8	56	38.8
(2017/04/19 20:52:31.00)	54.8	71.3	68.1	56.6	39.9
(2017/04/19 20:53:32.00)	54.7	72.2	64.2	57.8	45
(2017/04/19 20:54:32.00)	53.3	76.3	61.2	53.8	38.2
(2017/04/19 20:55:33.00)	50.3	71.9	62.4	51	38.7
(2017/04/19 20:56:33.00)	54.3	71.6	66.4	57	38.2

(2017/04/19 20:57:33.00)	42.8	55.8	50.2	45.7	36.5
(2017/04/19 20:58:33.00)	39.3	51.5	48.1	41.2	35.5
Minimum	39.3	51.5	48.1	41.2	35.5
Maximum	54.8	76.3	68.1	57.8	45
Average	49.5	65.4	60.2	52.3	38.5

Sports/Football Pitches Monitoring Positions & Noise Measurements

Noise Measurements

Date	L_{Aeq}	L_{Amax}	L_{A01}	L_{A10}	L_{A90}
Location 1					
On boundary at approx 25m from pitch					
Warm up					
(2021/09/19 10:11:36.00)	52.3	72.1	62.2	53.8	46.3
(2021/09/19 10:15:02.00)	50.1	60.6	56.2	52.5	46.2
(2021/09/19 10:20:02.00)	53.5	67.3	62.5	56	48.8
Average	52.2	66.7	60.3	54.1	47.1
Maximum	53.5	72.1	62.5	56	48.8
Kick off @ 10:22					
(2021/09/19 10:25:01.00)	55.6	76.5	65.4	58.5	48.5
(2021/09/19 10:30:02.00)	59.2	79.6	70.5	60.6	46.9
(2021/09/19 10:35:02.00)	56.3	75.3	66.8	59.1	47
(2021/09/19 10:40:02.00)	54.4	69.5	63.6	58.2	46.1
(2021/09/19 10:45:02.00)	55.6	68.7	65.1	59.4	47.5
(2021/09/19 10:50:02.00)	53.5	74.6	63.7	55.3	47.2
(2021/09/19 10:55:02.00)	54.1	70.3	65.2	56.4	47.4
(2021/09/19 11:00:02.00)	52.2	69.3	65.1	53.4	44.3
(2021/09/19 11:05:02.00)	48.5	64.8	56	49.4	45.6
(2021/09/19 11:10:01.00)	49.1	69.8	55.1	50.4	45
Average	54.9	71.8	63.7	56.1	46.6
Maximum	59.2	79.6	70.5	60.6	48.5
Location 2					
On half way line at approx 10m from sideline					
(2021/09/19 11:13:10.00)	58.5	74	68.7	61.9	49.3
(2021/09/19 11:15:02.00)	59.3	78.7	70.3	62.6	49.4
(2021/09/19 11:20:02.00)	59.6	79.1	71.9	61.9	46.8
(2021/09/19 11:25:02.00)	60.5	81.4	72.3	62.6	47.7
(2021/09/19 11:30:02.00)	57.5	78.6	69.8	59.5	44.7
(2021/09/19 11:35:02.00)	57.3	80.4	68.3	58.3	47.6
(2021/09/19 11:40:02.00)	58	79.6	68.6	59.4	48
(2021/09/19 11:45:02.00)	60.4	82.3	72.1	63.1	48.2
(2021/09/19 11:50:02.00)	59.9	78.4	72.9	61.5	48
Average	59.2	79.2	70.5	61.2	47.7
Maximum	60.5	82.3	72.9	63.1	49.4

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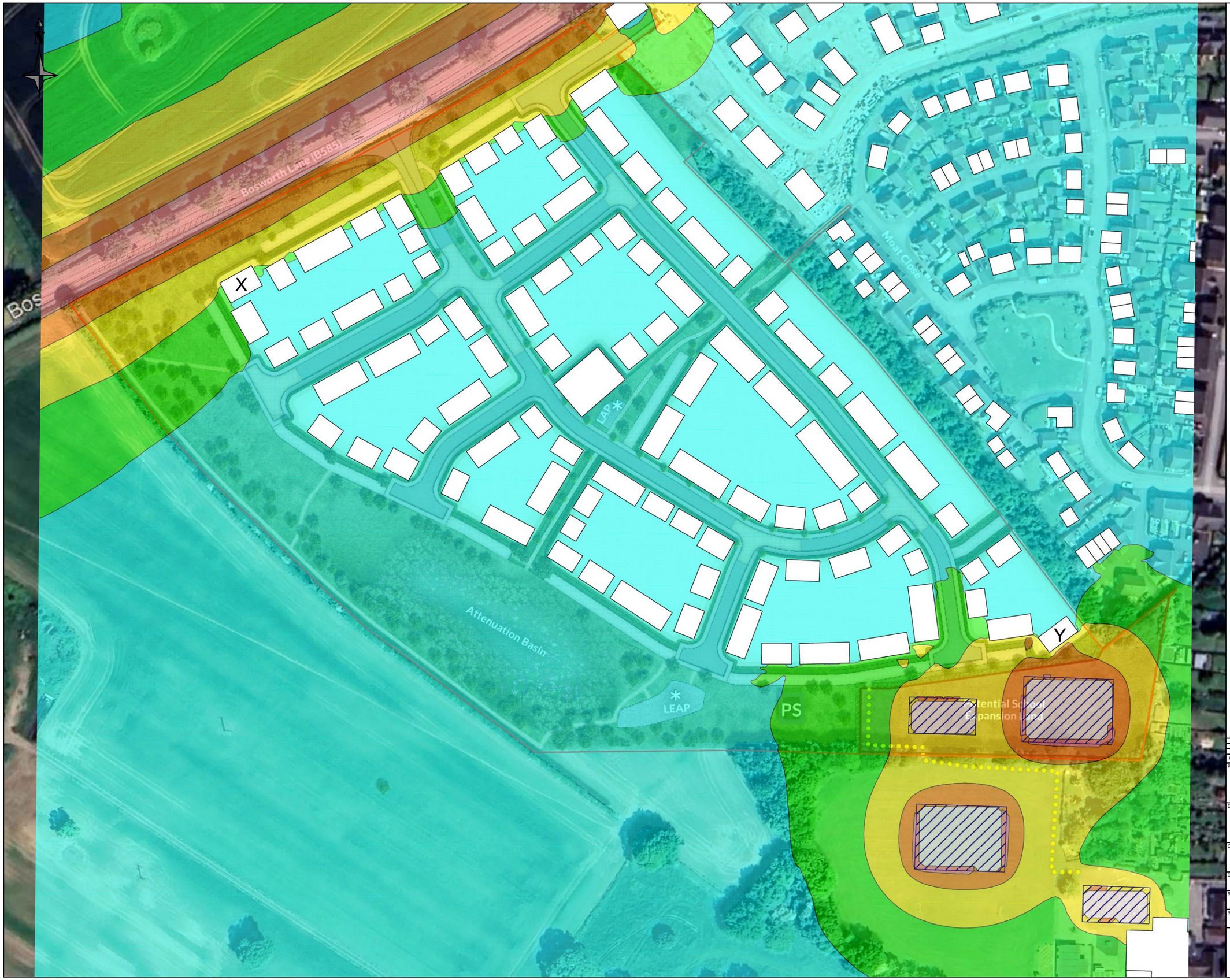
APPENDICES

APPENDIX E



NOTES:

1. DO NOT SCALE THIS DRAWING.

KEY

- 0–50dB(A)
- 50–55dB(A)
- 55–60dB(A)
- 60–65dB(A)
- 65–70dB(A)
- 70–75dB(A)
- 75–80dB(A)
- >80dB(A)
- Sports Pitches

REV:	AMENDMENTS:	DRN:	CHK:	APP:	DATE:
B	Updated Layout	EW	HJ	AB	13.08.25
A	Updated Layout	EW	NF	AB	22.01.25
-		EW	NF	AB	16.08.24

PROJECT:
LAND OFF BOSWORTH LANE,
NEWBOLD VERDON

DRAWING TITLE:
DAYTIME AMBIENT SOUND LEVELS,
LAeq,16hour

CLIENT:
BLOOR HOMES LTD

DRAWING NUMBER:
28945_04_120_01

REVISION:	SHEET SIZE:	SCALE:
B	A3	NFS

STATUS:
FOR INFORMATION / APPROVAL

MEC Consulting Group
Birmingham | Brighton | Leicester

Telephone: 01530 264 753
Email: group@m-ec.co.uk
Website: www.m-ec.co.uk

NOTES:

1. DO NOT SCALE THIS DRAWING.

KEY

- 0–50dB(A)
- 50–55dB(A)
- 55–60dB(A)
- 60–65dB(A)
- 65–70dB(A)
- 70–75dB(A)
- 75–80dB(A)
- >80dB(A)

REV:	AMENDMENTS:	DRN:	CHK:	APP:	DATE:
B	Updated Layout	EW	HJ	AB	13.08.25
A	Updated Layout	EW	NF	AB	22.01.25
-		EW	NF	AB	16.08.24

PROJECT:
LAND OFF BOSWORTH LANE,
NEWBOLD VERDON

DRAWING TITLE:
NIGHT-TIME AMBIENT SOUND LEVELS,
LAeq,8hour

CLIENT:
BLOOR HOMES LTD

DRAWING NUMBER:
28945_04_120_02

REVISION:	SHEET SIZE:	SCALE:
B	A3	NFS

STATUS:
FOR INFORMATION / APPROVAL

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Consulting Group
Birmingham | Brighton | Leicester

Telephone: 01530 264 753
Email: group@m-ec.co.uk
Website: www.m-ec.co.uk

NOTES:

1. DO NOT SCALE THIS DRAWING.

KEY

- 0–50dB(A)
- 50–55dB(A)
- 55–60dB(A)
- 60–65dB(A)
- 65–70dB(A)
- 70–75dB(A)
- 75–80dB(A)
- >80dB(A)

REV:	AMENDMENTS:	DRN:	CHK:	APP:	DATE:
B	Updated Layout	EW	HJ	AB	13.08.25
A	Updated Layout	EW	NF	AB	22.01.25
-		EW	NF	AB	16.08.24

PROJECT:
LAND OFF BOSWORTH LANE,
NEWBOLD VERDON

DRAWING TITLE:
NIGHT-TIME MAXIMUM SOUND LEVELS,
LAFmax,T

CLIENT:
BLOOR HOMES LTD

DRAWING NUMBER:
28945_04_120_03

REVISION:	SHEET SIZE:	SCALE:
B	A3	NFS

STATUS:
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APPENDICES

APPENDIX F

NOTES:

1. DO NOT SCALE THIS DRAWING.
2. Please refer to report reference 28945-ENV-0401 for the details on the proposed glazing and ventilation references.

KEY

Ref. A

Ref. B

Ref. C

REV:	AMENDMENTS:	DRN:	CHK:	APP:	DATE:
B	Updated Layout	EW	HJ	AB	13.08.25
A	Updated Layout	EW	NF	AB	22.01.25
-		EW	NF	AB	16.08.24

PROJECT:
LAND OFF BOSWORTH LANE,
NEWBOLD VERDON

DRAWING TITLE:
MITIGATION REFERENCE FOR
HABITABLE BEDROOMS

CLIENT:
BLOOR HOMES LTD

DRAWING NUMBER:
28945_04_120_04

REVISION:	SHEET SIZE:	SCALE:
B	A3	NFS

STATUS:
FOR INFORMATION / APPROVAL

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Email: group@m-ec.co.uk
Website: www.m-ec.co.uk

NOTES:

1. DO NOT SCALE THIS DRAWING.
2. Please refer to report reference 28945-ENV-0401 for the details on the proposed glazing and ventilation references.

KEY

Ref. A

REV:	AMENDMENTS:	DRN:	CHK:	APP:	DATE:
B	Updated Layout	EW	HJ	AB	13.08.25
A	Updated Layout	EW	NF	AB	22.01.25
-		EW	NF	AB	16.08.24

PROJECT:
LAND OFF BOSWORTH LANE, NEWBOLD VERDON

DRAWING TITLE:
MITIGATION REFERENCE FOR ALL OTHER HABITABLE ROOMS (NON-BEDROOMS)

CLIENT:
BLOOR HOMES LTD

DRAWING NUMBER:
28945_04_120_05

REVISION:	SHEET SIZE:	SCALE:
B	A3	NFS

STATUS:
FOR INFORMATION / APPROVAL

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Website: www.m-ec.co.uk

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APPENDICES

APPENDIX G

Reference A Performance Requirements

Façade Element	Sound Insulation Performance Requirements (dB) in Octave Band Centre Frequencies (Hz)						R_w / $D_{n,e,w}$ (dB)	C_{tr} (dB)
	125	250	500	1k	2k	4k		
Glazing	22	20	26	36	39	31	31	-4
Ventilation (Trickle)	32	32	31	33	31	31	32	0
The glazing reduction requirements can typically be found in a configuration of 4/12/4, where the information is presented in terms of the thickness of one pane of glass in mm, followed by the size of the air gap in mm, followed by the thickness of the second pane of glass in mm. The background ventilation requirements can be found in standard window mounted non-acoustic trickle ventilators.								

Reference B Performance Requirements

Façade Element	Sound Insulation Performance Requirements (dB) in Octave Band Centre Frequencies (Hz)						R_w / $D_{n,e,w}$ (dB)	C_{tr} (dB)
	125	250	500	1k	2k	4k		
Glazing	29	27	35	37	36	45	36	-3
Ventilation (Trickle)	31	35	40	39	31	31	36	-1
The glazing reduction requirements can typically be found in a configuration of 8/12/10. The background ventilation requirements can be found in window mounted acoustic trickle ventilators.								

Reference C Performance Requirements

Façade Element	Sound Insulation Performance Requirements (dB) in Octave Band Centre Frequencies (Hz)						R_w / $D_{n,e,w}$ (dB)	C_{tr} (dB)
	125	250	500	1k	2k	4k		
Glazing	25	29	40	48	47	56	42	-6
Ventilation (Trickle)	43	37	38	46	57	66	45	-3
The glazing reduction requirements can typically be found in a configuration of 6/18/9.5. The background ventilation requirements can be found in through wall acoustic trickle ventilators.								

Minimum performance requirements for overheating ventilation only applicable if passive ventilation is used. If mechanical ventilation is chosen, please refer to the main body of the acoustics report for suitable noise limits.

It is appreciated that it is impractical to achieve every octave band minimum performance requirement, therefore, during procurement of solutions, the $R_w + C_{tr}$ or $D_{n,e,w} + C_{tr}$ should be adhered to at a minimum.

- CIVIL ENGINEERING
- TRANSPORT
- FLOOD RISK & DRAINAGE
- STRUCTURES
- GEO-ENVIRONMENTAL
- ACOUSTIC AIR
- UTILITIES
- GEOMATICS
- LIGHTING
- EXPERT WITNESS

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