



Land at Moor Row

Noise Impact Assessment

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Revision B



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1 Summary

- 1.1 This report presents a noise assessment for a proposed residential development of 19 dwelling houses at Scalegill Road, Moor Row, conducted by Apex Acoustics in response to planning conditions set by the Local Planning Authority.
- 1.2 The assessment evaluates potential noise impacts from the nearby Moor Row Working Men's Club, focusing on compliance with noise criteria for internal living areas and external amenity spaces, set out by the Local Authority.
- 1.3 Noise measurements were undertaken over a three-hour period from 20:00 to 23:00 on 3 April 2025, establishing the representative background noise level at the site. Due to the sporadic nature of events at the club, it was not feasible to directly measure representative noise breakout levels during an event. Instead, as agreed with the Local Authority, noise propagation from the club and its impact on the proposed development were modelled using the PMEARD OTL Suite proprietary software, which calculates sound distribution in accordance with ISO 9613-2.
- 1.4 For internal ambient noise levels, a conservative attenuation of 10 dB through a partially open window, as defined in ProPG, was considered, resulting in a predicted internal noise level of 22 dB $L_{A,eq}$ within the living areas of Plot 19. This complies with the planning condition requirements of 35 dB(A) daytime and 30 dB(A) night-time, as recommended by the World Health Organization (WHO) Community Noise 1999 guidelines. With windows closed, the internal noise is expected to be significantly lower.
- 1.5 The rating level at the most exposed external amenity area (Plot 19) was calculated to be 3 dB over the background noise level, suggesting a potential adverse impact. However, contextual factors, such as club events occurring only sporadically and when residents are likely indoors, indicate that the actual impact is likely to be low for most of the time.
- 1.6 No specific glazing for the properties is deemed required since internal noise levels are achieved with partially open windows.
- 1.7 Considering the context, the development is deemed suitable from a noise perspective, complying with the requirements set out by the Local Authority through the issued Planning Conditions.

2 Introduction

- 2.1 A new residential development, comprising 19 dwelling houses, has been proposed at Scalegill Road in Moor Row. Apex Acoustics has been engaged to conduct a noise survey and assessment to address the potential noise impacts from the nearby Moor Row Working Men's Club on the proposed development, in response to the planning conditions issued by the Local Authority.
- 2.2 The locations of the proposed development, the Moor Row Working Men's Club and the adopted survey measurement position are illustrated in Figure 1.

The scope of our appointment includes the following:

- Measurements of the existing background noise levels at a single representative location.
- Prediction of the Club's noise breakout levels, with a focus on identifying the highest noise impact on the most affected façade.
- An assessment of impacts based on the criteria set out by the issued planning conditions.
- The proposal of a noise mitigation scheme, where necessary.



Figure 1: Proposed Site, Moor Row Working Men's Club and Measurement Position P1

3 Planning conditions

3.1 Apex Acoustics was informed by the client that the original planning condition for the proposed development had been updated by the Local Planning Authority. To address discrepancies between the original and revised conditions, Apex Acoustics consulted the Local Authority's Environmental Health Officer (EHO) for clarification. The original condition, the updated condition, and the clarified requirements are outlined below for reference.

3.2 Based on the clarified information, it is understood that a BS 4142 (Reference 1) assessment of the noise emitted by the Club, at the most affected amenity areas of the proposed development, is required. Additionally, it is understood that internal ambient noise levels in the most affected living areas of the dwellings (such as bedrooms or living rooms) must be maintained below 35 dB(A) during the daytime and 30 dB(A) at night.

3.3 Due to the sporadic nature of events at the club, Apex Acoustics was unable to identify and measure representative noise breakout levels during an event. Instead, as agreed with the Local Authority in their clarified requirements, noise propagation from the club and its impact on the proposed development was modelled using a suitable proprietary software.

3.4 Original Condition:

3.5 *No development must take place until a Noise Assessment has been submitted to, and approved in writing by the Local Planning Authority. The noise assessment must fully consider the weekend/evenings and night time operation of the nearby licensed premises to provide representative levels of noise. The development must be carried out in accordance with the approved scheme and any remedial action must be implemented prior to the occupation of any dwelling hereby approved and retained at all times thereafter.*

3.6 Updated Condition:

3.7 *No development shall take place until a scheme of noise insulation measures for the dwellings has been submitted to and approved in writing by the Local Planning Authority. The scheme of noise insulation measures shall be prepared by a suitably qualified acoustic engineer/consultant and shall take into account the provisions of BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings. The approved scheme shall be implemented prior to the commencement of the use and be permanently retained thereafter.*

3.8 *Reason: In order to safeguard the amenities of neighbouring residential occupiers and the details are needed prior to the start of work so that measures can be incorporated into the build.*

3.9 Clarified requirements from the Local Authority:

3.10 *Environmental Health are seeking reassurance that the design of the new dwellings (windows in particular) are of sufficient quality as to avoid noise disturbance to the new residents from future activities at the club.*

3.11 *The World Health Organisation (WHO) Community Noise 1999 guidelines for dwellings would be an acceptable standard to reach, particularly for any disturbance after 23.00 hours.*

3.12 *A modelled BS 4142 type assessment of predicted noise from the club (amplified music and vocals and any low frequency bass noise) and how this would propagate and impact on the background noise environment and the proposed new development would be acceptable. Maximum noise levels (L_{Amax}) should be included also please.*

4 Noise sources and measurements

4.1 Measurements

- 4.2 Background noise measurements were conducted over a three-hour period from 20:00 to 23:00 on the 3rd of April 2025, following the methodology outlined in BS 7445 (Reference 5).
- 4.3 The measurement location is shown in Figure 1.
- 4.4 The microphone was positioned at a height of 1.5 meters above ground level, sufficiently distanced from reflective surfaces to ensure free-field conditions.
- 4.5 The equipment used is listed in Table 1.
- 4.6 All sound level meters and calibrators used meet the technical specifications of BS 7445 and have current calibration certificates traceable to national standards. The equipment was field-calibrated before and after the measurement, with no significant drift in sensitivity noted.
- 4.7 Weather conditions during the measurement period were dry, with wind speeds below 5 m/s, ensuring reliable data collection.

Equipment	Model	Serial no.
Sound Level Meter	NTi XL2	A2A-19046-E0
Calibrator	Larson Davis CAL 200	12572

Table 1: Equipment used

4.8 Noise sources

- 4.9 The site was observed to be generally quiet during the measurement period. The primary audible sources included intermittent birdsong, occasional vehicle pass-bys, and distant conversations from nearby individuals.
- 4.10 Voices from people chatting as they left the nearby club were audible at times but did not constitute a dominant noise source. These sounds were sporadic and blended into the overall ambient noise environment, and as such, the measured background noise levels are considered representative of the site's acoustic conditions.

4.11 Results

- 4.12 A statistical analysis to determine the representative background sound level was undertaken following the guidance of BS 4142, with the results shown in Figure 2. The representative background level during the evening, at which the Club hosts music and other similar events, was determined to be 32 dB LA90.

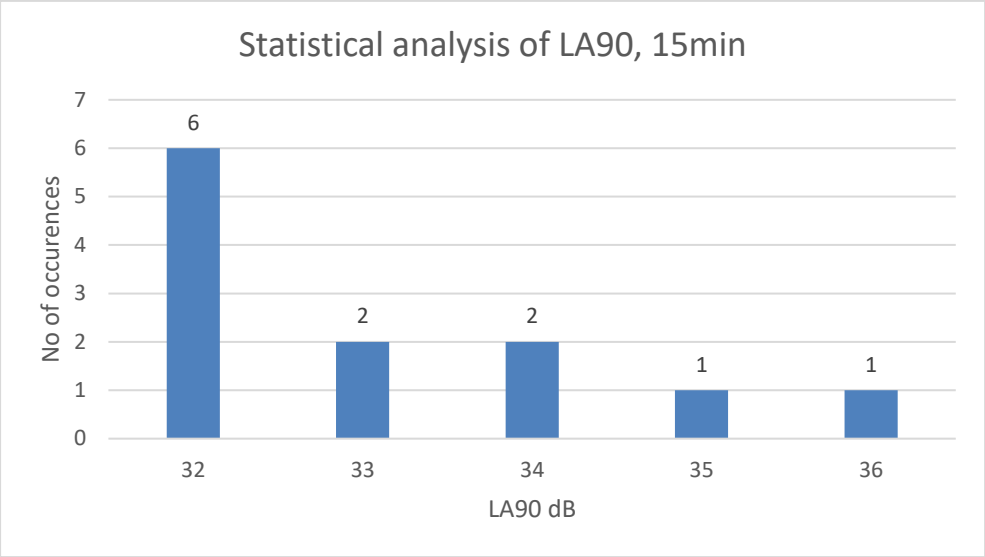


Figure 2: Analysis of daytime background levels, LA90,15min

5 Assessment of Noise Emissions

- 5.1 To evaluate the noise impacts from the operation of Moor Row Working Men’s Club on the proposed residential development, noise propagation from the club was modelled using the proprietary software PMEARD OTL Suite (Reference 6). This software calculates outdoor noise propagation in accordance with ISO 9613-2 (Reference 7), ensuring accurate predictions of sound distribution across the site.
- 5.2 The key parameters and assumptions used in the noise model are detailed in Table 4, providing a transparent basis for the assessment. Noise breakout from the club was estimated based on typical reverberant noise levels, ranging between those of a busy pub/bar and a music bar/nightclub, as referenced in The Little Red Book of Acoustics (Reference 8). This range was selected because Moor Row Working Men’s Club hosts a variety of events, from lively social gatherings to occasional live music or amplified. By adopting this spectrum, the model conservatively accounts for the club’s potential to generate significant noise during peak operations, ensuring the assessment captures worst-case scenarios that could affect nearby residents.
- 5.3 Given the club’s masonry external walls, noise is assumed to primarily escape through the glazing on the rear wall, which faces the proposed dwellings. Site observations indicate that the glazing consists of standard double glazing with a 4+16+4 mm configuration, with a total area of 4 m² and with the transmission loss values presented in Table 2. It should be noted that the model does not account for the proposed garden timber fences, as their height of 1.8 meters provides little to no acoustic shielding at the first-floor windows of the proposed dwellings.
- 5.4 A 3D perspective of the noise propagation model is provided in Figure 3, to illustrate the spatial relationship between the club and the proposed development. The calculated noise contours, depicting the extent of noise breakout from the club throughout the development, are presented in Figure 4, highlighting noise exposure levels at the proposed residential locations to aid in evaluating the requirements. The highest specific noise level is noted to be at 1 metre from the façade of Plot 19.
- 5.5 The reverberant noise levels adopted for this assessment are summarised in Table 2, providing a clear reference for the noise data underpinning the modelling results.

Source	Parameter	Octave band centre frequency, Hz							Global dB(A)
		63	125	250	500	1k	2k	4k	
Busy pub/bar (During live music/events)	L _{eq} (dB)	90	95	95	95	95	90	85	98

Table 2: Typical Spectral Noise Levels (dB L_{eq}) for a Busy Pub/Bar During Live Music or Events

Glazing	Parameter	Octave band centre frequency, Hz							R _w (C ₁ ;C ₂)
		63	125	250	500	1k	2k	4k	
4+16+4 mm (double glazing)	R (dB)	17	21	17	25	35	37	31	29 (-1; -4)

Table 3: Transmission Loss of a 4+16+4 mm Double Glazing

Parameter	Source	Details
Model dimensions	Google Earth	British Transverse Mercator coordinates
Site location and layout	Architects drawings	Architects drawings, Reference 9
Topography –within site	Site observations and Google Street view	Modelled with no changes in topography
Topography –Outside of site	Site observations and Google Street view	Modelled with no changes in topography
Building heights – proposed buildings	Drawings	3 m per storey + 2 m roof (residential properties)
Building heights – outside of site	Site observations and Google Street view	3 m per storey + 2 m roof (residential properties)
Receptor positions	Site observations and Google Street view	1x1 grid throughout the site area
Building and barrier absorption coefficient	ISO 9613-2	0.21 to represent a reflection loss of 1 dB
G, Ground factor	ISO 9613-2	Hard ground, G = 0; Porous ground, G = 1 (locally on model)
Max. order of reflections	Apex Acoustics	Three

Table 4: Modelling parameters and assumptions



Figure 3: 3D view of the OTL Suite model

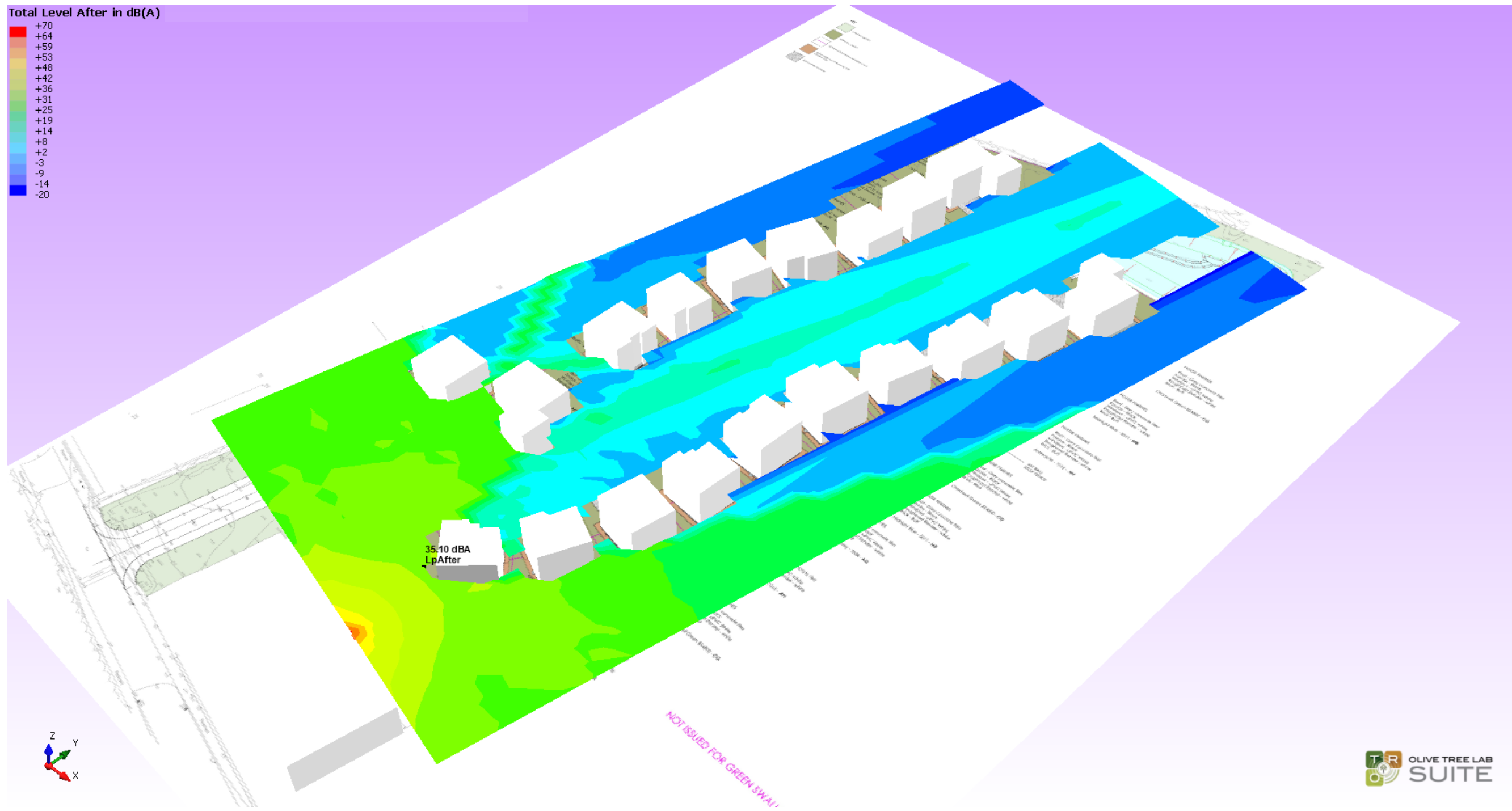


Figure 4: $L_{Aeq, 1hr/15min}$ Sound Contours at 4 m Above Ground (showing the highest specific noise levels at 1 metre from the Plot 19 façade)

5.6

6 Calculation of Noise Impacts

6.1 Internal Ambient Noise Levels

6.2 To estimate the internal ambient noise levels within the proposed dwellings, the noise level at the facade must first be converted to a free-field level, and then the attenuation provided by a partially open window is applied.

6.3 As shown in Figure 4, the external noise level from the Moor Row Working Men’s Club at the most exposed facade (Plot 19) is 35 dB(A) $L_{Aeq,T}$ at 1 meter from the facade. This facade noise level includes a reflection effect from the building’s surface, which typically adds 3 dB to the free-field level. Therefore, the free-field noise level is calculated as:

$$L_{free-field} = 35\text{ dB(A)} - 3\text{ dB} = 32\text{ dB(A)}$$

6.4 According to ProPG (Reference 4), the attenuation from an open window ranges between 10 and 15 dB. For a conservative assessment, an attenuation of 10 dB is applied to the free-field noise level. Thus, the internal noise level within the living areas of Plot 19 is:

$$L_{internal} = 32\text{ dB(A)} - 10\text{ dB} = 22\text{ dB(A)}$$

6.5 This internal noise level of 22 dB(A) is well below the planning condition requirements of 35 dB(A) during the daytime and 30 dB(A) at night, even with windows partially open. Therefore, the acoustic conditions within the dwellings are expected to be acceptable for residents and in line with the requirements of the Local Authority.

6.6 External amenity areas (BS 4142)

6.7 In accordance with BS 4142, the assessment assumes that the Moor Row Working Men’s Club may operate continuously for one hour during the daytime and for 15 minutes during the night-time (e.g., from 22:00 to 23:15 hrs). This duration is considered a prudent worst-case scenario.

6.8 As shown in Figure 4, the part of the development most exposed to noise from the club is the external amenity area of Plot 19, located 1 meter from the most exposed facade. Based on noise propagation calculations, the specific noise level (L_s) from the club at this location is 35 dB(A) $L_{Aeq,T}$ during both daytime and night-time periods.

6.9 Table 5 presents the BS 4142 assessment, comparing the specific noise level against the typical background noise level (L_{A90}) of 32 dB, established earlier in the report (see Section 4.2). A subjective assessment of acoustic features identified intermittent noise characteristics (e.g., music or amplified sound) from the club, warranting a +3 dB penalty.

6.10 The calculations indicate a rating level 3 dB greater than the background noise level. According to BS 4142, a rating level exceeding the background by 3 dB indicates a potential adverse impact. However, contextual factors mitigate this concern: the club’s noisiest events typically occur when residents are likely indoors (e.g., during evening hours), and a partially open window provides an

attenuation of 10 dB, as previously mentioned. Therefore, the noise impact on residents is expected to be low during these periods. Furthermore, the reverberant noise levels considered are conservative, i.e. in practice most of the events are likely to produce lower noise levels (e.g. bingo and social gatherings).

6.11 As Plot 19 is the most affected location, other plots, situated further from the club, will experience even lower impacts.

Parameter	Daytime assessment	Night-time assessment	Commentary
Background sound level	32 dB $L_{A90, 15min}$	32 dB $L_{A90, 15min}$	Considered representative of the assessment period based on the statistical analysis detailed in 4.2
Background sound level (Corrected to account for façade reflection)	35 dB $L_{A90, 15min}$	35 dB $L_{A90, 15min}$	+ 3 dB to account for façade reflection
Specific sound level L_s , due to all sources for the required assessment interval	35 dB $L_{Aeq, 1-hr}$	35 dB $L_{Aeq, 15-min}$	The on-time for the sources during the assessment period is discussed in Section 6.7 The calculated L_s contours across the site due to all sources during the assessment period are shown in Figure 4.
Acoustic feature correction	+ 3 dB	+ 3 dB	A subjective assessment to determine acoustic features is undertaken, and the following penalties are considered applicable: Tonality – 0 dB; Impulsivity – 0 dB; Intermittency – 3 dB;
Rating level, $L_{Ar,Tr}$	38 dB	38 dB	
Uncertainty of assessment	-	-	Background data was obtained over a 3-hr period, accounting for the changing acoustic environment. Uncertainty in the calculated impact has been reduced by the use of a calculation method in accordance with ISO 9613-2.
Excess of $L_{Ar,Tr}$ over background sound level	3 dB	3 dB	The assessment result indicates the likelihood of an adverse impact at Plot 19

Table 5: BS 4142 assessment of the Club’s noise at Plot 19

7 Conclusion

- 7.1 The noise assessment confirms that the proposed residential development at Scalegill Road, Moor Row, meets the noise-related planning conditions without requiring additional mitigation measures. Internal ambient noise levels in the dwellings are predicted to be 22 dB(A), well below the stipulated limits of 35 dB(A) during the day and 30 dB(A) at night.
- 7.2 Although the BS 4142 assessment for external amenity areas shows a 3 dB excess over the background noise level, indicating a potential adverse impact, when considering that these events only occur sporadically, for a limited amount of time, and at a time when residents are likely to be indoor, the estimated impacts are deemed to be low in practice.
- 7.3 As Plot 19 is the most affected location, other plots will experience even lower noise impacts. Thus, the development is deemed to comply with the planning conditions requirements.

8 References

- 1 BS 4142: 2014, Method for rating and assessing industrial and commercial sound.
- 2 World Health Organization, Guidelines for Community Noise. Geneva, Switzerland: WHO, 1999.
- 3 BS 8233: 2014, Guidance on sound insulation and noise reduction for buildings.
- 4 Association of Noise Consultants (ANC), Institute of Acoustics (IOA) and Chartered Institute of Environmental Health (CIEH), "ProPG: Planning & Noise - New Residential Development," May 2017.
- 5 BS 7445:2003, Description and measurement of environmental noise. Guide to quantities and procedures.
- 6 OTL Suite Noise Modelling Software, v4.5.1.0, PEMARD.
- 7 ISO 9613: Acoustics - Attenuation of sound during propagation outdoors.
- 8 The Little Red Book of Acoustics: A Practical Guide. Blue Tree Acoustics, 2008.
- 9 Architects Drawings 1375-01 Site Plan.