hepworthacoustics

21 Little Peter Street, Manchester M15 4PS
manchester@hepworth-acoustics.co.uk
0161 242 7900
hepworth-acoustics.co.uk

MEMO P22-268-M02v5

Project	Approved Residential Development, Halewood South Further Phase
Date	14 May 2024
To	
From	
Subject	**Noise Mitigation Scheme**

Hepworth Acoustics Ltd was commissioned by Redrow Homes Lancashire to advise on any necessary noise mitigation measures in connection with an approved residential development at a further phase of Haleswood South.

Outline planning permission was granted for the residential development of the site on September 2019, planning reference 19/00521/HYB.

This assessment forms part of an application to discharge Condition 16 of the planning permission, which states:

"Before first occupation of any approved dwelling, details of a scheme for the protection of each property from external noise entering habitable rooms has been submitted to and approved in writing by the Local Planning Authority. The agreed mitigation shall be implemented in full accordance with the approved details prior to first occupation of each property and shall be retained thereafter."

Specifically, our scope of work was to review the findings of the noise assessment reports (report numbers AC109087-1R2 & AC109087-2R2) that were prepared by EnSafe Consultants on behalf of Bellway Homes Ltd in November 2020 for the Halewood East and Plummer's Meadow developments and, on the basis of those findings, recommend an appropriate scheme for acoustically treated ventilation for the proposed detailed site layout.

Description of Site & Proposals

The development is split across two land parcels in the area described in the planning permission as plot 3 and is formed of land to south of Railway Line bounded by Lower Road, Finch Lane And Baileys Lane. The location of the development land is shown in Figure 1.

Acoustic Design Criteria

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'. The design criteria recommended in BS 8233 for daytime periods (07:00 – 23:00 hours) and night-time periods (23:00 – 07:00 hours) are summarised in Table 3:

Table 3: 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

BS8233 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 $L_{Amax,F}$ values and these can be highly variable and unpredictable. ProPG: Planning & Noise 'Professional Practice Guidance on Planning & Noise' 2017 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 45dB $L_{Amax,F}$ more than 10 times a night*".

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

- Daytime noise below 35 dB $L_{Aeq,T}$ inside living rooms & bedrooms, below 40 dB $L_{Aeq,T}$ in dining rooms; and
- Night-time noise levels not exceeding 30 dB $L_{Aeq,T}$ and generally not exceeding 45 dB $L_{AFmax,F}$ in bedrooms.

For private outdoor amenity spaces of the new houses (e.g. rear gardens) BS8233 states that 'it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,16hr}$ with an upper guideline value of 55 dB $L_{Aeq,16hr}$ which would be acceptable in noisier environments'. In our experience, most local planning authorities have traditionally adopted, or accepted, the 55 dB(A) guideline value for rear gardens of proposed new residential developments.

Ensafe Noise Survey & Assessment Review

EnSafe Consultants undertook a noise survey close Finch Farm football club and indicated as Location 1 in Figure 1. The survey included noise from vehicle passbys on Finch Lane as well as occasional noise from training activities at the grounds.

Noise measurements were undertaken from 10:37 hours to 13:22 hours Friday 27 October 2017.

The results of the noise survey are summarised in Table 1 and the full results, the measurement equipment used, weather conditions, etc. are detailed in EnSafe Consultants report.

Table 1: Summary of Measured Road Traffic Noise Levels (dB)

Location	Daytime $L_{Aeq,T}$
1. South east boundary with Finch Farm	51 – 59

EnSafe Consultants undertook a railway noise survey located to the south of the railway line and indicated as Location 2 in Figure 1.

Noise measurements were undertaken from 14:00 hours Thursday 8th to 14:00 hours Friday 9th February 2018.

The results of the railway noise survey are summarised in Table 2 and the full results, the measurement equipment used, weather conditions, etc. are detailed in EnSafe Consultants report.

Table 2: Summary of Measured Railway Noise Levels (dB)

Location	Daytime $L_{Aeq,16hrs}$	Night-time $L_{Aeq,8hrs}$	10th Highest L_{AFmax}
2. South of Railway Line	55	48	70

Only passenger trains were noted on the line which is supported by Network Rail's Working Timetable for the line confirming no freight movements.

Based upon the site noise measurements a computer model was also created by EnSafe Consultants to investigate likely noise impact on the Halewood East and Plummer's Meadow developments.

The main noise source on the development site will be the railway line to the north.

Finch Lane is not a busy road and the nearest dwellings to Finch Lane are proposed to be around 20m from the road. Based on the results of the noise contour plot noise levels will likely be less than 45 dB $L_{Aeq,T}$ in the daytime and at night. These are low noise levels and will be mitigated by standard glazing and ventilation specifications.

Ensafe also undertook an assessment of Finches Farm football grounds for Halewood East development, the outcome of which was a negligible impact at the nearest dwellings. The dwellings proposed at Halewood South will be much further away and therefore a lower impact likely.

The nearest dwellings to the railway line are proposed to be around 45m back from the line. On this basis, the daytime noise levels will be around 45 dB and night-time values around 38 dB $L_{Aeq,8hr}$. The 10th highest transient noise level at night will likely to be 51 dB L_{AFmax}.

These are low levels of noise and therefore standard construction details as detailed below will ensure the criteria are met.

Gardens

All gardens on the development will meet the criterion set out above.

Glazing

We recommend that the living rooms and bedrooms of dwellings exposed to railway noise (as indicated in Figure 2) will require higher specification glazing having a sound reduction performance of either 32 dB Rw + Ctr:

- 8.4mm Solaglas 'Stadip Silence' laminated glass - nominal (8-20mm) cavity - 6mm glass; or
- 10mm glass - nominal (8-20mm) cavity - 6mm glass.

For all other living rooms & bedrooms well fitted standard double glazing of 4mm glass - nominal (8-20mm) cavity - 4mm glass will be adequate.

Ventilation

For all living rooms and bedrooms on the development, standard trickle vents will be adequate.

We recommend that the living rooms and bedrooms of dwellings exposed to railway noise (as indicated in Figure 2) will require an acoustically treated means of ventilation, instead of standard window frame slot vents, to achieve the internal noise criteria. We would recommend either:

- Aereco EHA2 Acoustic Trickle Ventilator with acoustic canopy and sleeve (44 dB $D_{n,e,w}$); or
- Rytons AAC125HP Super Acoustic Controllable LookRyt AirCore Ventilator (43 dB $D_{n,e,w}$); or
- Another ventilation system with a good acoustic performance (i.e. above 40 dB $D_{n,e,w}$).

External Walls

The exact construction of the external walls is not known at this stage however it is assumed that the sound insulation performance of the external wall construction will not be less than 50 dB R_w.

Conclusions

Based on the previous noise assessment carried out by EnSafe Consultants on behalf of Bellway Homes Ltd in November 2020, no special noise mitigation measures are necessary for the development in respect of the low road traffic, however enhanced acoustic trickle ventilation will be required for some dwellings to the noise relating to railway noise levels.



Key:

Not to scale

X - Noise Measurement Position

/ - Site Boundary

N

hepworthacoustics

Title: Figure 1: Site Locations & Noise Measurement Positions

Project: P22-268



Key:

Not to scale

- Upgraded Glazing & Ventilation

hepworthacoustics

Title: Figure 2: Site Layout

Project: P22-268