



Project

**Environmental Noise Assessment of a Residential Development
54 Norcot Road, Tilehurst, Reading RG30 6BU**

Client

Mr R Gibson

Author

Keiron Durrant BSc (Hons) MSc MIOA

28th September 2026

**Sound Acoustics Limited, Drishaig, Collimer Close, Chelmondiston, Suffolk IP9 1HX
mail@sound-acoustics.co.uk www.sound-acoustics.co.uk facebook.com/soundacousticsltd
Tel:01473 781871**

Registered Office: Drishaig, Collimer Close, Chelmondiston IP9 1HX. Registered Company No. 5340816. VAT Registration No. 866 9098 61.



Summary

Sound Acoustics Ltd has been asked to assess the impact of existing noise sources on the proposed residential development at 54 Norcot Road, Tilehurst, Reading RG30 6BU. The client proposes to develop the vacant ground floor into 2 flats. There are existing flats on the 1st floor.

The site is bounded to the north by Norcot Road, to the east and south by parking bays and to the west by No. 52 Norcot Road. The area is mostly residential with a few small shops to the north-west and a telephone exchange to the north-east.

A survey was carried out on Tuesday 22nd September 2026 and the daytime levels at the front, side and rear were found to be $L_{Aeq,16hr}$ 56.4 dB, 41.1 dB and 43.1 dB respectively. Night-time levels at the side façade where the bedroom windows have been predicted to be 5 dB less than the daytime level at $L_{Aeq,8hr}$ 36.1 dB.

The levels at the front indicate a low risk of adverse impact based on the Noise Risk Assessment guidance in ProPG Planning & Noise. The levels at the side and rear indicate a negligible impact.

All criteria will be met for day and night with open windows except for the living room of Flat 1 (front flat) where the windows would need to be shut. This doesn't mean that the occupant cannot open them for ventilation should they choose to, in addition to that provide by the rear door and bedroom window, both of which can be open whilst meeting the criteria at the side and rear.

The glazing for the living room of Flat 1 should be rated at R_w 33 dB with up to 30,000 mm² of standard trickle ventilation. This would meet the noise criterion of $L_{Aeq,16hr}$ 35 dB assuming that the room is soft furnished (carpet, curtains upholstered furniture etc). The room could be future proofed for hard furnishing (wooden floor, no curtains etc) by making the trickle ventilation an acoustic product up to 30,000mm² in total.

On the basis of the above it is considered that this application can be supported.

Keiron Durrant

Principal Consultant

Introduction

The client intends to redevelop the vacant ground floor at 54 Norcot Road, Tilehurst, Reading RG30 6BU into 2 flats. There are existing flats on the 1st floor.

The site is bounded to the north by Norcot Road, to the east and south by parking bays and to the west by No. 52 Norcot Road. The area is mostly residential with a few small shops to the north-west and a telephone exchange to the north-east.

The client has instructed us to carry out this assessment to determine the impact of existing noise sources and to determine acoustic performance requirements of façade elements.

This report details our survey, assessment methodology and assessment outcome.

Assessment Criteria

BS8233:2014

BS8233:2014 is the British Standard which gives guidance on sound insulation and noise reduction for buildings.

The building envelope will need to meet the following values, which are taken from the standard and additional WHO guidance.

Activity	Location	07:00hrs – 23:00hrs	23:00hrs – 07:00hrs
Resting	Living Room	35 dB LAeq, 16 hours	-
Dining	Dining room/area	40 dB LAeq, 16 hours	-
Sleeping or daytime resting	Bedroom	35 dB LAeq, 16 hours	30 dB LAeq, 8 hours
			45 dB LAF Max

N.B. Additional guidance from the WHO is that maximum internal noise levels at night should not exceed 45dBA on more than 10 occasions.

Noise Survey

Noise levels were surveyed on Tuesday 22nd September 2026 using a Norsonics Type 118 meter. The Type 118 meter is fully calibrated to traceable standards every two years by Campbell Associates. Calibration certificates are available on request. Field calibration was performed before and after the surveys and there was no drift in calibration noise levels.

The weather throughout the survey was warm (22 to 24 °C) with no precipitation and a light wind (forecast southerly at 1 to 3 mph). The road surfaces were dry.

Survey positions were chosen at the 3 facades with the microphone positioned at a height of 1.5m and 1m from the building. Position 1 is the front façade, position 2 is the side and position 3 is the rear. The measurement positions are shown on Figure 1. A facade correction of -3 dB has been applied to the data to allow for façade reflection.

The front of the building is considered to be the most impacted façade and so measurements were of 1-hour duration at position 1. At positions 2 and 3 measurements were around 15-minutes duration.

The dB measurements were as follows:

Position	Time	L _{Amax}	L _{A10}	L _{Aeq}	Notes
1	12:00	68.4	59.4	55.2	Traffic on Norcot Road
1	13:00	69.8	59.6	55.5	As above plus noisy ebike, large jet
1	14:00	67.6	59.2	55.1	Traffic on Norcot Road
2	11:25	58.0	44.1	42.4	Car passing
2	15:05	51.3	43.8	41.1	Just Norcot Road
2	15:40	59.1	44.3	41.7	Car passing
3	11:40	54.0	42.3	40.9	Screened traffic, light aeroplane
3	15:20	59.9	46.8	41.5	Car passing
3	16:00	70.4	49.3	46.7	Large jet

The L_{Amax} is the maximum noise level in the measurement period.

The L_{A10} is the level exceeded for 10% of the time and is often regarded as the traffic noise level.

The L_{Aeq} or the equivalent continuous level, can be regarded as an average.

The data above is considered to be representative of the typical noise level at the site. There were no obvious road works, closures or diversions in place at the time and traffic seemed typical for this type of road with a mix of cars, vans and buses. It was noted that the buses on the No. 17

route were very quiet and it is assumed that they are electric. There was no noisy airbrakes or pulling away noise normally associated with diesel buses. There is a bus stop approximately 20m to the east and the noise from this and passing buses seemed lower than that from individual passing cars or vans.

At position 1 (front façade) the maximum levels were generally due to passing cars or vans. There was one event involving a speeding ebike, which was louder than regular vehicles and another involving a large jet aeroplane. Typically maximum levels from passing cars and vans were around L_{Amax} 60 to 67 dB. Louder levels from emergency sirens were paused and back-erased from the data. These would be unlikely to occur at night (when the criterion for maximum noise applies) as the flashing lights would be more visible and there would be less traffic on the road requiring the siren to be used.

At positions 2 and 3 the noise is predominantly screened traffic from Norcot Road although there are raised levels due to occasional passing cars or aeroplanes. The noise of aeroplanes is included in the data at position 1 but they are less noticeable subjectively due to the higher noise levels at the front compared to the back.

The L_{Amax} data will be used for assessing bedrooms at night.

The L_{A10} data will be used in the assessment to predict overall daytime and night-time L_{Aeq} levels using a recognised formula and common practice.

The L_{Aeq} data is useful to see the typical hourly levels and to allow comparison against the levels derived from the L_{A10} data in the next section.

Noise Assessment

Using the guidance in BS 8233, PPG 24 (withdrawn but still useful) and the shortened measurement procedure in The Calculation of Road Traffic Noise (HMSO, 1988) it is possible to predict daytime road traffic $L_{Aeq,16hour}$ from $L_{A10,3hour}$ (measured during any three consecutive hours between 1000 and 1700hrs) by subtracting 3 dB.

The $L_{A10,3hour}$ (arithmetic average of the three measured hourly values) and resulting $L_{Aeq,16hour}$ values are as follows:

Position 1 (front façade)

$L_{A10,3hour} = 59.4$ dB, therefore $L_{Aeq,16hour} = 56.4$ dB

Position 2 (side façade)

$L_{A10,3hour} = 44.1$ dB, therefore $L_{Aeq,16hour} = 41.1$ dB

Position 3 (rear façade)

$L_{A10,3hour} = 46.1$ dB, therefore $L_{Aeq,16hour} = 43.1$ dB

Where traffic noise is the main noise source the night-time $L_{Aeq,8hour}$ level is normally between 5 and 10 dB lower than the daytime level. A robust approach (-5 dB) would therefore result in the following night-time levels:

Position 1 (front façade)

$L_{Aeq,8hour} = 51.4$ dB

Position 2 (side façade)

$L_{Aeq,8hour} = 36.1$ dB

Position 3 (rear façade)

$L_{Aeq,8hour} = 38.1$ dB

The levels at the front indicate a low risk of adverse impact based on the Noise Risk Assessment guidance in ProPG Planning & Noise. The levels at the side and rear indicate a negligible impact.

It is assumed that an open window in a façade provides around 12 dB attenuation (including the wall construction; as assumed by the WHO). On this basis the levels during the daytime (all rooms) and night-time (bedrooms only) would be as follows (criterion in brackets):

Flat 1 (front flat)

Living Room = $L_{Aeq,16hr}$ 44.4 dB (35 dB)

Bedroom = $L_{Aeq,16hr}$ 29.1 dB, $L_{Aeq,8hr}$ 24.1 dB (35 dB, 30 dB respectively)

Flat 2 (rear flat)

Living Room = $L_{Aeq,16hr}$ 31.1 dB* (35 dB)

Bedroom = $L_{Aeq,8hr}$ 29.1 dB, $L_{Aeq,8hr}$ 24.1 dB (35 dB, 30 dB respectively)

*as there are windows on 2 facades the loudest level has been used

The maximum noise level from passing cars on the side façade (the only façade with bedrooms and therefore the only area where the maximum noise criterion for night applies) was L_{Amax} 59.1 dB with no screening. The WHO guidance is that the maximum internal noise levels at night should not exceed L_{Amax} 45 dB on more than 10 occasions. The above level would exceed by around 2 dB assuming 12 dB reduction for an open window in a facade. However, based on the small number of dwellings at the rear and the limited number of vehicle movements that can be expected between 23:00 and 07:00hrs it considered that the criterion would still probably be met (i.e. not exceeded on more than 10 occasions). In any case the proposed fence will remove line of sight of the tyre interaction with the ground and the engine and exhaust of most regular vehicles and so a screening reduction of at least 5 dB will occur (provided the fence is solid with no gaps e.g. close boarded).

It is therefore clear that all criteria will be met for day and night with open windows except for the living room of Flat 1 (front flat) where the windows would need to be shut. This doesn't mean that the occupant cannot open them for ventilation should they choose to. It is likely that the rear door can be used for ventilation and cooling in conjunction with the bedroom window and as such the recommendations for acoustic glazing and ventilation products are very minimal.

This is demonstrated by an octave-band calculation for noise break-in for the living room of Flat 1 facing Norcot Road. A typical traffic noise spectrum shape has been used from the average of the survey data. Calculation 1 at the end of the report shows that double glazed units rated at R_w 33 dB with up to 30,000 mm² of standard trickle ventilation would meet the noise criterion of $L_{Aeq,16hr}$ 35 dB. This assumes that the room is soft furnished (carpet, curtains upholstered furniture etc)

with a reverberation time of around 0.5 seconds (as assumed by Part E of Building Regulations). If the room is hard furnished (wooden floor, no curtains etc) then the reverberation time would be longer (more echo) and the trickle ventilation should be an acoustic product up to 30,000mm² in total (any acoustic vent would suffice so long as it is a true acoustic vent with some absorptive material rather than a standard vent that has had an acoustic test). The glazing can remain at R_w 33 dB. As indicated above, it might be wise to use a low-end acoustic vent to future proof the development (in case hard floors are desired).

Internal Sound Insulation

It was not possible to access the 1st floor or to look in detail at the building construction as it is not owned by the client. However, it is still possible to give the following advice that will help the development comply with Part E of the Building Regulations.

Separating Floors

With a few ceiling tiles removed at the front it appears that there is a plasterboard ceiling with fixings at around 400mm centres confirming that the construction appears to be a traditional timber floor with joists and plasterboard ceiling. As the plasterboard ceiling is quite a bit higher than the windows it does not appear that there is a suspended plasterboard ceiling. The airborne sound insulation of a basic timber floor is likely to be around 35 dB (Building Regulations Part E criterion is 43 dB for conversion).

Unless later inspection shows otherwise (or some other evidence comes to light such as sound test results for the 1st floor flats) the recommended works are as follows:

Floor between ground and 1st floor flats

Upgrade the existing ceiling to 20kg/m² or more (e.g. if entirely new use 2 layers of 12.5mm SoundBloc plasterboard or equivalent, if there is a single layer of existing 12.5mm standard plasterboard upgrade with 15mm SoundBloc plasterboard or equivalent, and if there are any areas of lath & plaster ceiling these are already likely to be around 20kg/m²). Then suspend another 20kg/m² ceiling on independent ceiling joists (fixed to the walls) or on a metal frame fixed with acoustic ceiling hangers (e.g. British Gypsum GAH1) so that there is a cavity of at least 150mm between the upper ceiling and the upper surface of the lower ceiling. Place 100mm lightweight mineral wool ($\geq 10\text{kg/m}^3$) in the cavity. If the upper ceiling is being removed there is an opportunity to add 100mm lightweight mineral wool ($\geq 10\text{kg/m}^3$) in between the existing joists before installing the first 20kg/m² ceiling. This is not strictly necessary but a wise precaution where there is the opportunity.

If using joists for the lower ceiling, the depth of the joists should be sized appropriately to the room dimensions and there should be a minimum gap of 25mm between the joists and the ceiling above. If lights are recessed ensure they are Part E (and fire) rated.

If the ceiling conflicts with windows it is acceptable to reduce the cavity size to form a pelmet recess in the immediate area around the window but this frame should still be independent of the ceiling above. There are illustrations of this system in Approved Document E Section 4.

Additional Floor/Ceiling Advice

Ensure plasterboard is installed with staggered joints to prevent edges lining up which would be weak acoustically (you would do this for strength anyway). Use surface fixed lights only or Part E compliant recessed lights and seal all cable penetrations with flexible mastic. The separating walls must be built before the suspended ceilings.

You will need to ensure our recommendations also meet your fire requirements. It would be acceptable to swap acoustic for fire grade plasterboard in all options if necessary.

Separating Walls

Existing separating walls (to No. 52 and entrance stairwell to flats above) are believed to be over 200mm thick masonry and as such would be compliant. The design has been carefully thought out and there is no significant area of habitable room on these separating walls. New walls between the flats would be compliant if they were any of the following (or at least very similar):

1. 215mm dense concrete blocks ($>1840 \text{ kg/m}^3$) laid flat with 13mm plaster both sides.
2. Two leaves of 100mm dense block ($>1990 \text{ kg/m}^3$) separated by a 50mm cavity with 13mm plaster both sides.
3. Two leaves of 100mm medium dense block ($>1375 \text{ kg/m}^3$) separated by a 75mm cavity with 13mm plaster both sides.
4. Two separate unconnected timber or metal stud frames with 50mm lightweight mineral wool in between the studs of one or both frames (one as a minimum, both for a higher standard) and finished each side with two layers of 12.5mm plasterboard (totalling a minimum of 20 kg/m^2 e.g. SoundBloc). The minimum recommended distance between the inside faces of the plasterboard is 200mm.
5. 100mm timber stud with 100mm lightweight mineral wool in between and finished with two layers of 12.5mm plasterboard (totalling 20 kg/m^2 e.g. SoundBloc) on resilient bars each side.
6. 70mm metal C stud with 50mm lightweight mineral wool in between and finished with two layers of 12.5mm plasterboard (totalling a minimum of 20 kg/m^2 e.g. SoundBloc) on resilient bars each side.*

7. For any masonry walls less than 200mm or existing stud walls with a minimum of 2 layers of plasterboard each side (or equivalent mass), install a stud frame (timber or metal) at least 10mm clear of the existing wall (fixed only to floor, ceiling and flank walls) and place 50mm lightweight mineral wool in the cavity between the studs (not between the studs and the existing wall otherwise bridging may occur) and line with two layers of 12.5mm plasterboard (totalling a minimum of 20 kg/m² e.g. SoundBloc). Finish with a plaster skim.

** Although option 6 would normally be capable of passing with resilient bars on one side it is considered that this could be borderline at this site due to the small size of the bedrooms and that resilient bar should be placed on both sides.*

Additional Wall Advice

For walls with resilient bars it is extremely important to follow manufacturer's instructions e.g. fix bars horizontally to both sides of the stud using screws fixed through the holes of the bars and then fix the plasterboard to the ridged part of the resilient bars each side with staggered joints and using screws of the correct length to avoid bridging the plasterboard to the stud. Such walls are perfectly capable of meeting the requirements and take up less space but are prone to problems if the resilient bars aren't installed correctly.

Avoid placing electric sockets in the separating walls if possible. If this is unavoidable in a stud wall form a box (same material as separating wall or equivalent) sealed with mastic around the back of each socket or use proprietary acoustic socket boxes. If sockets are on both sides there must be a stagger of at least 600mm.

You will need to ensure our recommendations also meet your fire requirements. It would be acceptable to swap acoustic for fire grade plasterboard in all options if necessary.

Flanking Noise

Walls and Floors

In a building of traditional masonry construction (red brick observed at the front above tile ceiling line and in sockets) there is unlikely to be significant flanking noise in the external walls so there is no recommendation for lining these walls for acoustic reasons. The rear appears to be a more

recent addition and as such there is the possibility that the inner leaf of the external wall is a lightweight block. If this is the case there would be a high chance of the Part E floor tests and the wall test between the new bedrooms failing at the end of the project due to noise travelling along such blocks. It would be wise to determine the type of blocks in the external wall (and any other such wall that spans between flats). If lightweight blocks are found these would need to be lined with 20kg/m² plasterboard either on an independent frame or a system such as GypLynner Single or equivalent. The separating walls and ceilings must be built before installing such linings to prevent the lining becoming a flanking route between the different spaces.

Soil Pipes

Any soil/waste pipe passing through a separating construction into another internal space should be wrapped in lightweight mineral wool and be encased in two layers of standard plasterboard on both sides of the separating construction.

Columns/Steels

Any steels (if present) could potentially be a flanking route. Any such steel should be boxed out with an independent stud frame lined with 20 kg/m² plasterboard (e.g. two layers of 12.5mm SoundBloc plasterboard) and with lightweight mineral wool roll or rigid batts (>10kg/m³) in the web of the steels and around the steel/column.

Entrance Doors to Flats

For Part E compliance doors to flats should be rated at R_w 29 dB or higher or have a mass of 25kg/m² and be fitted with acoustic seals (including the threshold where practicable). However, this is to reduce the noise of people in the communal areas and there are no communal areas within the ground floor of the building. Nevertheless such a door is to be recommended for Flat 1 to reduce traffic noise into the hallway. It is likely that most exterior grade doors will already meet these requirements and would also be used at the rear where there is no dB rating required since the doors could actually be open and meet the criteria.

Detail for junction of separating wall with window on side facade

It is unusual to have a separating wall abutting a window as noise can easily pass via any gaps at the junction as well as along the window structure, the gaps between the panes and outside and

back in again. The only way for this detail to work would be for there to be secondary glazing either side of the junction (i.e. in both rooms) and for the section in Flat 2 to be permanently fixed so that there could not be 2 open windows immediately next to each other (this bedroom has another window that can be opened further along the facade). A more robust detail could be to move the separating wall further to the rear so that it abuts the external wall entirely or reduce the window size, again with the same outcome, but leaving the separating wall in its proposed position.

Internal Constructions (Requirement E2)

Part E requires new internal walls (i.e. those newly built within a dwelling) to be rated at R_w 40 dB (or higher) if they belong to a bedroom or a room containing a toilet (except where there is a door in that specific section of wall between the two areas it separates or if the wall separates an en-suite from the associated bedroom). Such a wall can be formed from either 75mm timber or 50mm metal stud with 20kg/m^2 plasterboard each side (e.g. two layers of 12.5mm SoundBloc plasterboard) which can be reduced to 10kg/m^2 plasterboard each side if there is 25mm lightweight mineral wool in the cavity ($>10\text{kg/m}^3$). All other internal walls can be formed from standard plasterboard with no insulation required or from existing walls.

Assessment Conclusion/Discussion

Sound Acoustics Ltd has assessed the impact of existing noise sources on the proposed residential development at 54 Norcot Road, Tilehurst, Reading RG30 6BU. The client proposes to develop the vacant ground floor into 2 flats. There are existing flats on the 1st floor.

The assessment has found that levels at the front indicate a low risk of adverse impact based on the Noise Risk Assessment guidance in ProPG Planning & Noise. The levels at the side and rear indicate a negligible impact.

The assessment has found that the suggested BS8233/WHO criteria can be met for day and night with open windows except for the living room of Flat 1 (front flat) where the windows would need to be shut and rated at R_w 33 dB with up to 30,000 mm² of standard trickle ventilation. This doesn't mean that the occupant cannot open the windows for greater ventilation should they choose to, in addition to that provide by the rear door and bedroom window, both of which can be open whilst meeting the criteria at the side and rear.

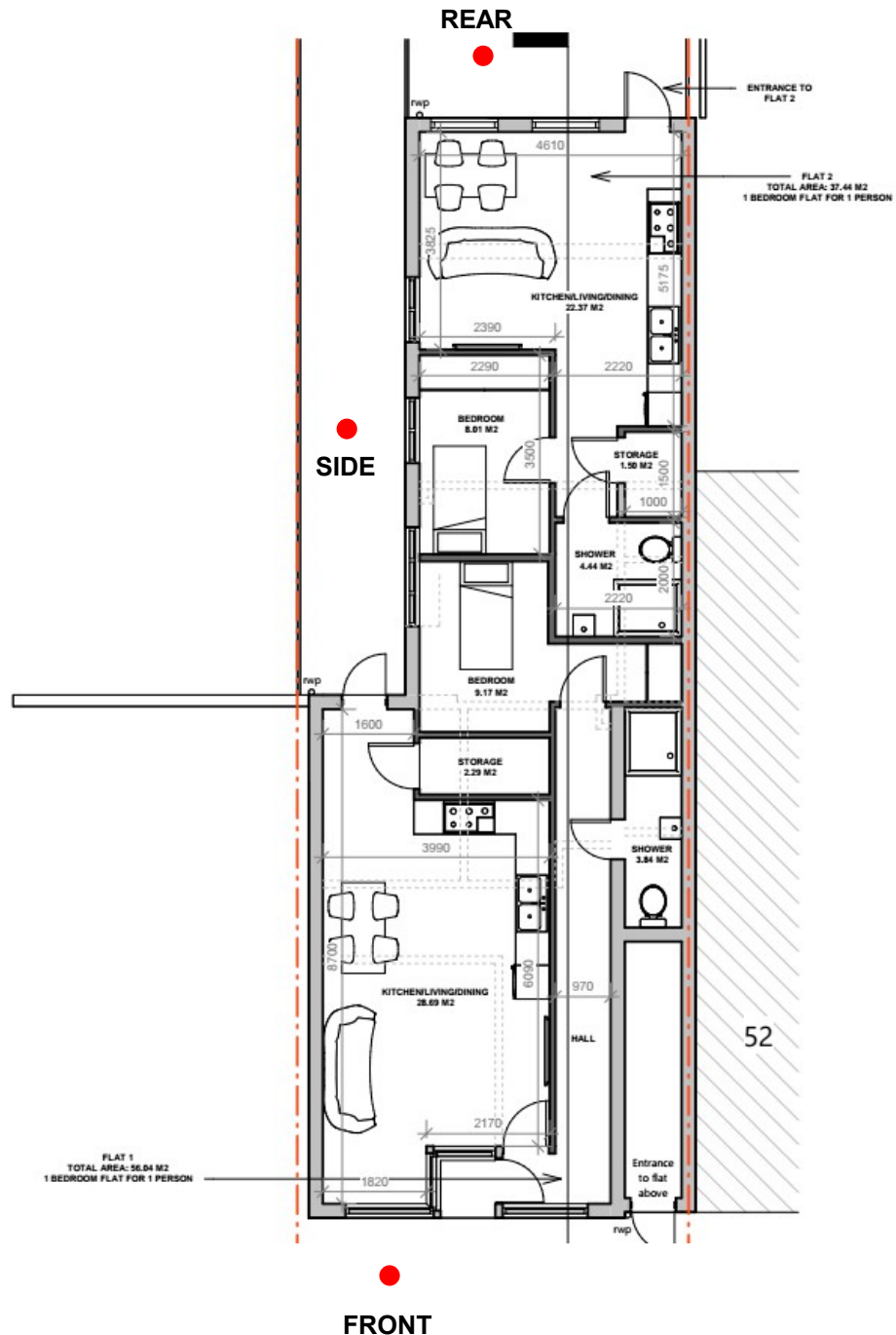
The calculation assumes that the living room of Flat 1 is soft furnished (carpet, curtains upholstered furniture etc). The room could be future proofed for hard furnishing (wooden floor, no curtains etc) by making the trickle ventilation an acoustic product up to 30,000mm² in total.

On the basis of the above it is considered that this application can be supported.

N.B. As a guide in selecting glazing, the octave band glazing data in the calculation should also be met to ensure the predicted levels are achieved. It is possible that lower levels would still be acceptable in one or two frequency bands but please forward any such data for us to enter into the calculation to check suitability.

Figure 1 – Floor Plan and Survey Positions

● = survey positions



Calculation 1 – Living Room (Front)

Project	54 Norcot Road		Consultant	KMD	
Client		Date	25th September 2026		
Contract					

Measurement Location	Source
Enter Facade Correction	0 dB

Element	4/6/6 Double Glazing
Area 1 - Glazing	5.3 m ² 4/6/6 Double Glazing
Area 2 - Non Glazed	4 m ² Wall
Area 3 - Non Glazed	0.03 m ² Vent
Area 4 - Non Glazed	0 m ² No data
Angle of incidence	0 degrees 0 degrees is normal to element

Receiving Room	Description
Height of room	2.5 m
Width of room	3.99 m
Length of room	7.19 m
Volume of room	71.7203 m ³

Frequency Hz	63	125	250	500	1000	2000	4000	8000	
Reverberation time (sec)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
Absorption (sabines)	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	

Frequency Hz	63	125	250	500	1000	2000	4000	8000	dB(A)
External dB	58.8	55.4	53.1	52.5	53.3	47.8	39.6	32.1	56
External Freefield									
External Freefield Leq dB	59	55	53	53	53	48	40	32	56

Additional Correction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Comment here why
10log(cos(angle))	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Enter SRI Ref. No.	Area									
11	5.3	23	27	24	26	37	38	38	40	4/6/6 Double Glazing
Wall	4	35	40	44	45	51	56	58	60	
Vent	0.03	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	No data

Combined SRI	22	24	23	23	25	25	25	25	
---------------------	----	----	----	----	----	----	----	----	--

10logS(tot)	S = 9.33	9.7	9.7	9.7	9.7	9.7	9.7	9.7	
10log(4T/0.16V)		-7.6	-7.6	-7.6	-7.6	-7.6	-7.6	-7.6	

Internal Leq dB	39	34	33	31	31	25	17	9	34
------------------------	----	----	----	----	----	----	----	---	----