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Our Ref: LA/1790/03cR/ML

807 High Road, PBSA, London N17 8ER

Environmental Noise & Noise Impact Assessments

Client: High Road West (Tottenham) Limited
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1. CONSULTANCY BRIEF

- 1.1. Using the data gathered from a pre-covid noise survey, determine the noise levels of passing traffic and public house activity at the relevant façades of the proposed student accommodation development.
- 1.2. Calculate the noise impact on the proposed residential element of the development and compare with relevant noise-limiting criteria and previous noise-related planning conditions. Provide a suitable mitigation scheme to protect future occupants' amenity in accordance with the specific planning criteria, including BS 8233:2014.
- 1.3. Consider the noise impact from likely mechanical plant servicing the proposed blocks and suggest mitigation measures commensurate with the noise-limiting criteria of BS 4142:2014+A1:2019.
- 1.4. Assess the proposed construction of the internal separating partitions against the criteria likely to be required by a planning condition similar to that imposed in the previous application and suggest any mitigation measures necessary to meet the criteria of the condition.
- 1.5. Provide a new technical report based on latest layout suitable for submission to the planning authority to support a new planning application for mixed use development, detailing the findings and recommendations to enable planning criteria to be met.

2. REPORT SUMMARY

- 2.1. The current proposal for the site at 807 High Road, London N17 8ER is for a mixed-use development consisting a ground-floor Class E use unit, with three floors of student accommodation above in two blocks. This scheme replaces the previous proposal for a very similar building design with additional commercial space on the 1st floor and private apartments, which obtained planning permission in 2021 (Ref: HGY/2021/0441).
- 2.2. To support the new application, this assessment has considered the impact from the existing environmental noise sources of road traffic on High Road, and outside activity noise from the adjacent pub beer garden, on the future occupants of the accommodation. Data from a noise survey carried out in February 2020 – just pre-covid – by others was considered valid and representative, and has been utilised for this assessment.
- 2.3. The findings of the assessment indicate that noise levels affecting the frontage of Block A, overlooking High Road, and the southern façade of Block B, overlooking the pub beer garden, are relatively high and will require high-performance acoustic glazing to meet the criteria. A suitable scheme is detailed in Table 2 of this report. Heating and ventilation will be provided by a MVHR system.
- 2.4. Outside amenity space should either meet or be close to the criteria, given the level of shielding afforded by the proposed and existing neighbouring buildings. However further mitigation is gained from the context of the site location and occupant expectations, according the ProPG and BS 8233:2014.
- 2.5. External plant is mainly roof-mounted and should be sufficiently remote from residential façades so as to be low impact. Internal plant in the dedicated ground-floor plant room is limited to small plant such as pumps, and is unlikely to be audible in the closest studios above. However, mitigation in the form of room acoustic treatment and local enclosures should be possible if deemed necessary.
- 2.6. The internal separating partition design is predicted to meet the likely criteria to protect studio occupants from noise associated with retail shop activity, and neighbours from potential loud music from the student rooms.
- 2.7. In conclusion it is considered that if the recommendations within this report are incorporated into the design of the building, local authority criteria for noise should be met and ensure that the internal and external noise environment will not adversely affect future occupants, and that existing businesses are protected from any potential noise complaints. It is further considered that all noise-related issues could be successfully conditioned. This report is therefore considered suitable to support the latest application as proposed.

3. INTRODUCTION

- 3.1. A scheme of mixed use with a ground floor commercial unit and upper floor residential accommodation for students, is proposed on the site of 807 High Road, London N17 8ER. The current residential scheme is for 23no. studios and 2no. bedrooms without kitchenettes but with an adjacent shared kitchen, in two separate blocks. The front block (designated as Block A) will incorporate the refurbished existing building and façade, with ground floor commercial use, whilst the rear block (Block B) will be primarily new build, with three storeys of studios over ground floor service areas.
- 3.2. A previous scheme for retail and commercial units and upper floor residential apartments, in essentially the same footprint and building design, was granted planning permission in 2021 (Ref: HGY/2021/0441). However, since then, an affiliation with a similar student accommodation scheme just north of the site (The Printworks), has been agreed, and the design of this site has been changed to student studios, with a Class E unit on the High Road frontage on the ground floor – the shell for future fit-out by others – with various service areas to the rear.
- 3.3. The new scheme incorporates a 1st floor communal outside amenity space and an indoor amenity area on the ground floor. There will be no parking spaces provided, but there will be cycle storage on the ground floor. The ground floor will also house bin storage, a laundry room, shower room and a fully enclosed plant room, housing the mechanical plant / HVAC equipment for the student rooms.
- 3.4. With the previous planning permission, there were several conditions imposed, with 3no. relating to noise. As the new design and use is essentially the same as the previous scheme, as far as noise impact is concerned, it is deemed likely that any new permission will include similar noise-related conditions. It is on that basis that this assessment will be undertaken.
- 3.5. The site fronts High Road in Tottenham, north London, the A1010. This road links the A406 North Circular Road (heading west) to the A10, one of the primary routes into London from the north. As such the road is very busy with mixed traffic throughout the day, reducing but still consistent in the late evening and overnight.
- 3.6. Adjoining the southern boundary of the site is The Bricklayers public house, a popular venue for attendees of football matches taking place in the Tottenham Hotspur Stadium, 130m south of the site. The pub has late opening hours and to the rear has a beer garden, which often accommodates outside events including screening of matches, and an outside bar.

- 3.7. The two noise sources identified above are the most significant affecting the site, and will be considered as part of this assessment. They have been assessed for previous applications, and surveys of noise have been carried out for a report supporting the last application in 2021, with surveys carried out just pre-covid in February 2020.
- 3.8. This assessment will consider the noise impact from the identified noise sources on the new occupants of the development, as well as assess the proposed construction of internal separating partitions. Noise from mechanical plant will also be considered in the context of available information. The report is provided in a format suitable to support the new planning application for mixed use development of the site.

4. NOISE LIMITING CRITERIA

- 4.1. As previously mentioned, there were planning conditions relating to noise attached to the previous application (Ref. HGY/2021/0441), which are considered likely to be similar to any that may be imposed on this new application. They primarily required an assessment of the following conditions, as summarised below:

- 4.1.1. Condition 6 – Separating floor between the commercial units (for that application, on the 1st floor) and upper floor residential spaces in Block A (fronting High Road). And separating walls between the 1st floor commercial and adjoining residential spaces in 803-805 and 809 High Road.

It is noted that in this new application, there is no commercial space proposed for the 1st floor of Block A, as it will be student rooms, so the noise impact to neighbouring residential spaces is no longer as significant. Nevertheless, due to the potential for loud music to be played in the student rooms at night, the previous construction will still apply and be assessed accordingly.

- 4.1.2. Condition 7 – Impact on the front façade of Block A from traffic noise, and on the southern façade of Block B (the rear block), from noise pertaining to activity in the pub garden. The recommended criteria of BS 8233:2014 was specified.

- 4.1.3. Condition 8 – The noise level from any fixed mechanical plant should be 5dB below the background noise level measured at the façades of the closest residential units, as per the methodology and criteria of BS 4142:2014.

It is noted that at this stage there is insufficient information to carry out a BS 4142-type assessment. However, consideration will be given to the plant location and context, and any good-practice mitigation measures in order to help meet the likely criteria.

- 4.2. As discussed, it is considered reasonable at this stage to assume that the same or similar criteria as those above are likely to be applied to a new application so will be adopted for this assessment.

- 4.3. It is also considered reasonable to re-utilise the environmental noise data obtained for the previous application; a very similar scheme. These data are considered viable and relevant for the following reasons:

- 4.3.1. The survey at the frontage of the building (Location A) was carried out just pre-covid, in February 2020, when traffic and general activity was at a peak 'norm'.

4.3.2. The survey at the rear of the building overlooking the pub beer garden (Location B), was carried out during an evening of peak activity just after a Tottenham European Cup home game, when customer noise would likely represent the highest normal (pre-covid) levels.

4.4. On the basis of the above, it is deemed likely that the noise levels on the road and in the pub beer garden would not have increased by any significant degree in the intervening 3 years, and so are considered relevant to be used for this assessment.

London & Local Plans

4.5. Notwithstanding the technical assessment criteria noted above, consideration will also be given to the policies relating to noise in both The London Plan 2021, and Haringey Council's Development Management DPD (2017). The relevant policies are summarised below.

The London Plan 2021

Policy D13 Agent of Change

A The Agent of Change principle places the responsibility for mitigating impacts from existing noise and other nuisance-generating activities or uses on the proposed new noise-sensitive development. Boroughs should ensure that Development Plans and planning decisions reflect the Agent of Change principle and take account of existing noise and other nuisance-generating uses in a sensitive manner when new development is proposed nearby.

B Development should be designed to ensure that established noise and other nuisance-generating uses remain viable and can continue or grow without unreasonable restrictions being placed on them.

C New noise and other nuisance-generating development proposed close to residential and other noise-sensitive uses should put in place measures to mitigate and manage any noise impacts for neighbouring residents and businesses.

D Development proposals should manage noise and other potential nuisances by:

- 1) ensuring good design mitigates and minimises existing and potential nuisances generated by existing uses and activities located in the area*
- 2) exploring mitigation measures early in the design stage, with necessary and appropriate provisions including ongoing and future management of mitigation measures secured through planning obligations*

3) separating new noise-sensitive development where possible from existing noise-generating businesses and uses through distance, screening, internal layout, sound-proofing, insulation and other acoustic design measures.

E *Boroughs should not normally permit development proposals that have not clearly demonstrated how noise and other nuisances will be mitigated and managed.*

Policy D14 Noise

A *In order to reduce, manage and mitigate noise to improve health and quality of life, residential and other non-aviation development proposals should manage noise by:*

- 1) avoiding significant adverse noise impacts on health and quality of life*
- 2) reflecting the Agent of Change principle as set out in Policy D13 Agent of Change*
- 3) mitigating and minimising the existing and potential adverse impacts of noise on, from, within, as a result of, or in the vicinity of new development without placing unreasonable restrictions on existing noise-generating uses*
- 4) improving and enhancing the acoustic environment and promoting appropriate soundscapes (including Quiet Areas and spaces of relative tranquillity)*
- 5) separating new noise-sensitive development from major noise sources (such as road, rail, air transport and some types of industrial use) through the use of distance, screening, layout, orientation, uses and materials – in preference to sole reliance on sound insulation*
- 6) where it is not possible to achieve separation of noise-sensitive development and noise sources without undue impact on other sustainable development objectives, then any potential adverse effects should be controlled and mitigated through applying good acoustic design principles*
- 7) promoting new technologies and improved practices to reduce noise at source, and on the transmission path from source to receiver.*

B *Boroughs, and others with relevant responsibilities, should identify and nominate new Quiet Areas and protect existing Quiet Areas in line with the procedure in Defra's Noise Action Plan for Agglomerations.*

Haringey Development Management DPD

Policy DM23: Environmental Protection

Noise and Vibration

***D** The Council will seek to ensure that new noise sensitive development is located away from existing or planned sources of noise pollution. Proposals for potentially noisy development must suitably demonstrate that measures will be implemented to mitigate its impact.*

***E** A noise assessment will be required to be submitted if the proposed development is a noise sensitive development, or an activity with the potential to generate noise.*

4.60 Noise pollution can adversely impact on the amenity and health of building occupiers as well as the wider public. The Council will seek to ensure that new developments both minimise noise pollution and appropriately manage its impact. Noise sensitive development (such as housing, schools and health facilities) should be located away or appropriately separated from major sources of noise. The Council will expect that mitigation measures are considered and incorporated into the design process prior to the submission of an application

- 4.6. The above policies do not offer any specific criteria for assessment, but set out the Council's general requirements for consideration of noise impact on future occupants of a development (D14 & DM23), as well as the protection of existing local activities which generate noise as part of their normal operations (D13).
- 4.7. This assessment will demonstrate how the above policies will be conformed with, as meeting the requirements of the technical criteria set out earlier should successfully fulfil the scope of these policies. By the overall design and layout of the new development, and the application of suitable noise mitigation measures in the form of façade design, an acceptable internal and external noise environment may be achieved, whilst taking into account the existing noise climate, including traffic and local noise-generating operations.
- 4.8. The resultant acoustic design specifications should consequently ensure that the *Agent of Change* policy (D13) will be fulfilled and that the identified noise-generating business will not be subject to (reasonable) complaints regarding noise, thus protecting their normal activities, as well as the amenity of the development occupants.

5. ASSESSMENT OF SEPARATING PARTITIONS

5.1. As discussed earlier, it is considered likely and logical that noise-related planning conditions imposed on the previous application for this development (Ref: HGY/21/0441), will also be applied to the new application. Condition 6 of planning application ref: HGY/21/0441 required that details be submitted prior to commencement, of walls and floor separating the commercial space in Block A (then on the 1st floor), with the residential units (then apartment on 2nd floor), and adjoining 1st floor properties. The purpose of the condition was to ensure that any commercial activity taking place in the commercial unit would not adversely impact on the amenity of occupiers of the surrounding residential spaces.

5.2. The condition was worded as follows:

Block A – Noise Attenuation 1

6. (a) No development of Block A at slab level or above shall commence until such times as full details of the ceiling slab/walls and any other noise attenuation measures between the first floor commercial unit (Use Class D2/B1) and dwellings on the second floor of the approved scheme and between this unit and existing homes in Nos. 803-805 High Road and No. 809 High Road have been submitted to and approved in writing by the Local Planning Authority.

(b) The details shall be designed to ensure that at any junction between existing and proposed dwellings and the first floor commercial unit, the internal noise insulation level for the dwellings is no less than 60 dB $D_{nT,w} + C_{tr}$.

(c) The approved ceiling slab/walls and any other noise attenuation measures shall be completed prior to the occupation of the second-floor dwelling directly above the commercial unit is first occupied and shall be maintained thereafter.

REASON: In order to ensure a satisfactory internal noise environment for occupiers of these dwellings.

5.3. It was noted that part (b) of the condition required the sound insulation performance of the separating partitions to achieve 60dB $D_{nT,w} + C_{tr}$, significantly more robust than Building Regulations requires from a new-build separating floor of minimum 45dB $D_{nT,w} + C_{tr}$. This was assumed to be required due to the unknown specific use of the commercial space at the time the condition was written, and what was thought to be the potential for D2 use – as indicated in the condition wording above.

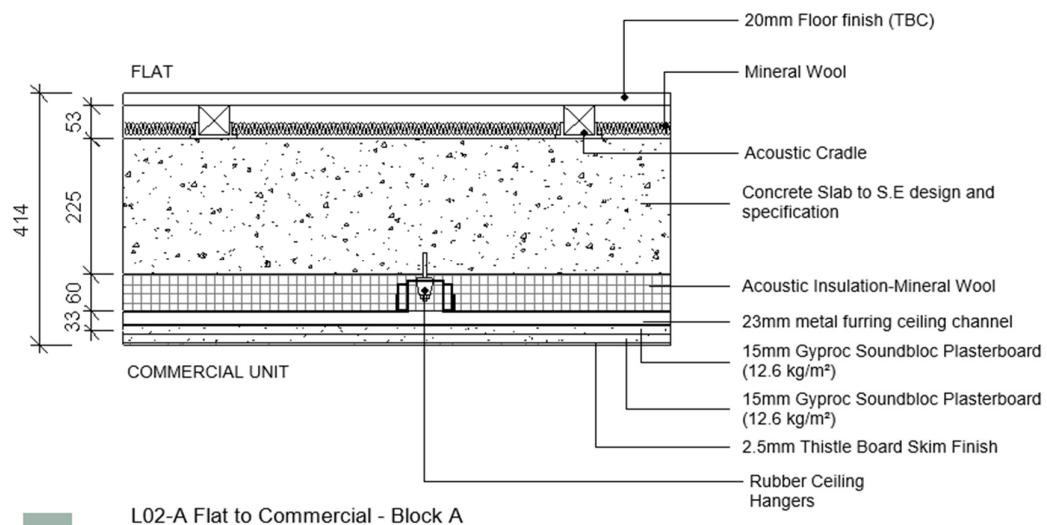
5.4. However the previous granted permission was for the 1st floor space of Block A to be 'Class E,g,i' use, which is office space designed to be suitable in a residential area. The potential for noisy activities is therefore somewhat diminished from that envisaged in the condition, and whilst no specific end use was finalised at the time of writing, it will be constrained by the planning class granted permission.

- 5.5. Nevertheless, the separating floor and walls referred to in Condition 6 were designed to meet the condition criterion, and it is reasonably assumed that they will still be suitable for the new application.

Separating Floor

- 5.6. Figure 1 below shows the likely build-up of the proposed separating floor between the ground floor retail space in Block A, with the new first-floor residential studios. As discussed earlier the permitted use of the ground floor is far less likely to generate any significant noise than may have initially been considered possible, but the floor build-up has been designed to meet the Condition 6 criterion.

Figure 1. Proposed separating floor – Block A Ground – 1st floor



- 5.7. The primary mass of the 225mm RC in-situ slab will provide the main sound insulation of the floor system, and alone could be sufficient to meet the sound insulation performance requirements of Approved Document E of the Building Regulations. It would therefore likely offer sufficient protection from the proposed commercial use.
- 5.8. The mechanical separation of the floating floor layer from the slab, and acoustic absorption in the void, will increase the performance of airborne sound as well as provide protection from impact sound. Whilst the latter benefit may not be necessary for the ground floor space as commercial use, should the space be converted to residential in the future, the impact sound protection will already be in place.

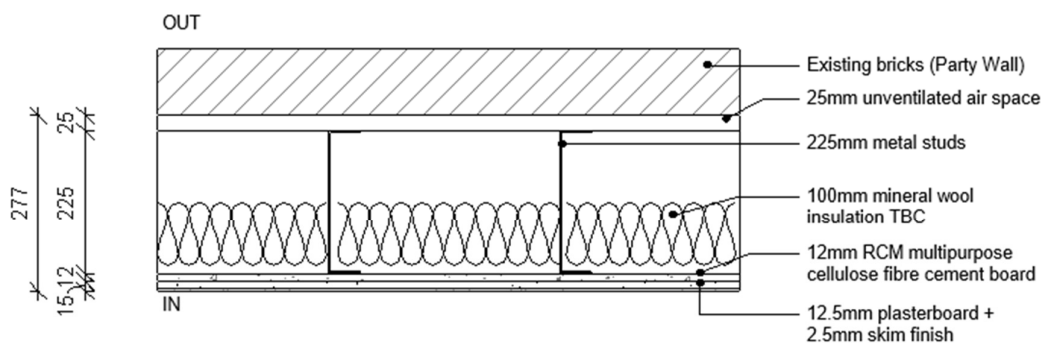
- 5.9. The floating floor will provide a relatively small increase to the sound insulation performance of the floor slab, but a significant effectiveness of a partition's performance is the extent of separation of two mass layers. In this instance the addition of the significant mass layer of the ceiling (25kg/m^2) separated from the slab soffit by 70+mm, and mechanically separated from the slab by a resilient hanging system will improve the sound insulation performance by a far greater margin than the floating floor. Inclusion of absorbing mineral wool in the void will greatly reduce any reverberant build-up of sound and further improve performance.
- 5.10. The choice of material is important to the effectiveness of the partition. Gypsum SoundBloc (or equivalent) has been specified for the ceiling mass as it is stiffer than normal wallboard and therefore more resistant to the transmission of the low-frequency sound accounted for in the ' C_{tr} ' parameter of the target level. The resilient hangers proposed are type HDLP-A from Mason UK, which support a MF grid ceiling system to which the plasterboard ceiling layers attach. The density of the open-faced mineral wool in the ceiling void will be $30\text{-}50\text{kg/m}^3$, which is denser than normal thermal insulation, to provide increased absorbing material without impeding sound energy penetration.
- 5.11. These brackets ensure that ceiling fixings into the soffit are connected via a rubber bush on the bracket, thus avoiding the direct transmission pathway of any sound that breaks through the slab. The rubber element in this bracket has low dynamic stiffness, providing up to 6mm deflection. This feature will further benefit the absorption of the critical high energy, low frequency sound and help achieve a low C_{tr} correction.
- 5.12. As a result, it is predicted that the floor system will perform very well acoustically, including at the lower end of the frequency spectrum, and the overall sound insulation performance should ensure that the condition criterion will be met.

Separating Walls

- 5.13. The make-up of the existing separating walls between first floor space in Block A and nos. 805 and 809 High Road are not definitively known as of writing, but it is understood that based on the visible wall on the site sides, they are likely to consist of 225mm solid brickwork, at the very least. In reality it is possible that some enhancement would have been applied to the party walls within the neighbouring properties when adapting to residential use (if this is what their use is?), but without the specific detail they have to be assumed as a minimum 225mm brick wall - and the proposed wall lining is based on that assumption.

- 5.14. Figure 2 below shows the proposed build-up of the wall linings. As noted for the party floor, it is the separation of two mass layers that provides significant sound insulation performance, and in this instance, there will be separation of 250mm, with an independent 225mm MF stud wall frame constructed 25mm clear of the existing wall face. This is a significant separation, which allows for slightly less thickness to the lining boards than the ceiling, but with a high mass 12mm cementitious board and 12.5mm plasterboard. Within the MF frame will be 100mm of acoustic absorption mineral wool with a density of 20-30kg/m³ to provide adequate absorbing material, without compromising the ingress of sound energy (i.e. not reflecting).

Figure 2. Proposed separating wall treatment – Block A 1st floor



Party Wall Wall Type 03 - P.W. with Existing Brick Wall

- 5.15. It is noted above that the sound insulation of the party walls may be less critical than originally considered in the Condition 6 criteria, but the build-up detailed above would be expected to meet the required level of performance.
- 5.16. It should also be noted, however, that the sound insulation performance of these partitions is dependent on the quality of the workmanship and attention to construction detail, particularly in the mechanical separation of the ceiling boards and wall linings from the main mass layers of brick wall and concrete floor. For these layers, it is important that there is no direct mechanical contact at the junctions of surrounding walls and floors. A separation gap of approximately 5mm should be allowed for and filled with flexible acrylic mastic to allow for a degree of independent movement of the wall and ceiling lining boards.
- 5.17. Additionally, at the junction of the walls and ceiling, the wall lining should be taken to the concrete soffit and the ceiling boards extending to the wall boards – again with the 5mm filled gap. This will reduce the likelihood of flanking sound transmission, which could otherwise affect the overall sound insulation of the partition.

- 5.18. Assuming the necessary workmanship and construction details are followed, it is predicted that the separating floor and wall specifications proposed above should provide the required level of sound insulation detailed in Condition 6, attached to the previous planning permission of application ref: HGY/21/0441 and assumed to be similar to the target criterion for this current application.

6. EXISTING NOISE ENVIRONMENT

- 6.1. A noise survey was carried out during two consecutive 24-hour periods between Tuesday 18th and Thursday 20th February 2020, by Emtec Products Ltd., in order to obtain representative environmental noise levels affecting the frontage of the site facing High Road, and the southern rear elevation overlooking the beer garden of The Bricklayers public house.
- 6.2. Broadband 15-minute continuous measurements were taken over the 24-hour periods. The measurement positions were as follows:
- **Location A** – At roof level at the front edge of the building overlooking High Road.
 - **Location B** – On the single storey flat roof at the rear of the building on the boundary with the neighbouring pub beer garden.
- 6.3. Figure 3 in the appendix indicates the measurement positions relative to the site. Table 1 below summarises the survey data, including the logarithmic average of the 15-minute samples over the 24-hour measurement periods.

Table 1. Summary of noise survey data

Measurement period	dB L _{Aeq}	dB L _{Amax}	dB L _{A10}	dB L _{A90}
Location A				
Daytime (07:00-23:00)	71	93	72	62
Night-time (23:00-07:00)	66	83*	69	58
Location B				
Daytime (07:00-23:00)	68	86	71	63
Night-time (23:00-07:00)	54	84**	56	50

* Frequently occurring overnight maxima values

** Highest maxima values due to increased sensitivity of activity noise

- 6.4. Survey details can be found in Appendix 1. The appendix also contains an explanation of the measurement terms used in the above tables. In Appendix 2, Tables 4 & 5 show all survey data, and Charts 1 & 2 show the data in graphical form.
- 6.5. It can be seen in the table above that the L_{A10} values are between 1-3dB above the L_{Aeq} values. This is a clear indication that road traffic was the dominant noise source overall at both measurement locations.

7. PREDICTED NOISE IMPACT & RECOMMENDATIONS

- 7.1. The noise levels shown in Table 1 above indicates that the traffic on High Road generates significant levels of noise, day and night. The data also show that during periods of peak activity in the adjacent pub beer garden, maxima impulsive noise levels are also high. Based on the data, a practical mitigation scheme may be provided to ensure an adequate level of protection against noise. A suitable scheme is summarised below.
- 7.2. It should be noted that this scheme is based on the revised layout drawings provided - **nos. 807HR-F3A-XX-00 to 03-GA-A-0820 to 0824, revision S4.P10 dated 27/02/2024 & S4.P1P1 dated 28/02/2024.**

Internal Noise Levels

- 7.3. Table 2 below summarises a suitable scheme of glazing and ventilation to meet the BS 8233:2014 requirements for internal noise levels – as detailed in section 4 of this report. The calculations utilise the calculated L_{Aeq} / L_{Amax} values shown in Table.

Table 2. Predicted internal noise levels and indicative glazing and ventilation recommendations

Affected façades (all levels)	Daytime dBL_{Aeq} (Criterion ≤ 35)	Night time dBL_{Aeq} / $dB L_{Amax}$ (Criteria ≤ 30 / ≤ 45)		Indicative glazing performance (ventilation)**
				Studios / bedrooms
BLOCK A				
East façade	31	26	43	R_W+C_{tr} 40 (MV)
West façade	31	26	37	R_W+C_{tr} 25 (MV)
BLOCK B				
South façade (including returns*)	28	14	44	R_W+C_{tr} 40 (MV)
East façade (minus returns*)	28-32	18-22	38-43	R_W+C_{tr} 34 (MV)
North façade	32	27	38	R_W+C_{tr} 25 (MV)

*See Figure 4 in the appendix for specific extent.

**** Ventilation:**

- 7.4. (MV) Indicates that ventilation should be provided by mechanical means. In this instance it is understood that a whole house heat recovery system will be installed. Trickle vents should not be used in any habitable rooms.

- 7.5. Note that the above recommended glazing and ventilation applies to habitable rooms only. Non-habitable rooms such as communal and service areas require thermal glazing only with trickle ventilation where appropriate.
- 7.6. The glazing specification shown in Table 2 above is overall sound insulation level (SRI). Table 3 below shows an indicative configuration of glazing which will meet the requirements. However, any other glazing configuration that at least matches the performance specification should be acceptable. Figure 4 in the appendix indicates the specific extent of recommended glazing.

Table 3. Indicative glazing configurations

Glazing specification (from Table 2)	Indicative Glazing Configuration (mm) glass/air/glass	Indicative Glazing Supplier
$R_W + C_{tr}$ 40	10/16 argon/9.1*	Pilkington Optiphon
	or.. 10/6-16/6 + 4-6mm Sec glazing**	Pilkington
$R_W + C_{tr}$ 34	6/16 argon/8.8*	Pilkington Optiphon
$R_W + C_{tr}$ 25	4/6-16/6	Pilkington

* Internal pane laminated glass

** Secondary glazing in independent well-sealed frame at least 100mm from primary glazing

- 7.7. **Note:** It will be the responsibility of the window provider to ensure that the sound insulation value above is not compromised by the frames and sash seals.

Outside Amenity Space

- 7.8. The criteria for assessment of outside space is typically that of BS 8233 / WHO guidelines with an upper preferred limit of 55dB $L_{Aeq,16hour}$. In terms of this development the latest proposals now show outside amenity space in the form of an open communal terrace at 1st floor level between Block A and Block B. There is a shared third floor balcony proposed for the studios which extends around the outside of Studios 21 to 23.
- 7.9. The 1st floor terrace is located in the best location available on the site as it will benefit from total shielding of High Road traffic noise by the bulk of the structure of Block A and neighbouring buildings. There will be a 1.1m high wall on the southern end of the terrace at the boundary with the pub.
- 7.10. Based on the survey data in Table 5 in the appendix, the measured daytime levels at the Location B measurement position, adjacent to the proposed terrace, show a range of 52-58dB(A) during the periods without pub garden activity. With the benefit of greater shielding from the redesigned rear of Block A, and the new boundary wall, it is likely that the average noise level within the amenity space will be within the criteria detailed above.
- 7.11. It is acknowledged that during busy times in the pub garden, the noise level may be elevated to around 60-65dB(A) for a short period. However, this is only likely to occur infrequently, so is not regarded as a limiting factor to the suitability of the terrace as a communal amenity space.
- 7.12. The balcony proposed for three of the studios on the third floor of Block B will also be shielded from traffic noise by the buildings fronting the road, to a large extent. The north-facing part of the balcony overlooking Percival Court will experience the higher noise level as this access allows a narrow pathway for traffic noise on High Road. However, at a distance of 28m from the road, and with the limited exposure at the elevated balcony, daytime noise levels would be expected to be in the range of 50-58dB $L_{Aeq,16hour}$, considered to be acceptable given the context of the area and perception of the occupants.
- 7.13. And further to the last above point, it should be noted in the ProPG: *Planning and Noise* document, and the latest 2014 edition of BS 8233, it is recognised that applying absolute numerical limits to amenity space does not take into consideration the benefit of the facility in an 'urban' environment, or close to a major transport network (Section 7.7.3.2). To put it simply, most people living in town and city centre or near major roads would rather have an outside amenity space which may have slightly elevated noise levels, than not have one at all.

Mechanical Plant Noise

- 7.14. The latest details available for the installation of mechanical plant indicates that there are relatively few noise-generating plant units proposed. Heating and ventilation to the student rooms will be provided by a whole house heat recovery system with an air source heat pump unit mounted on the roof of Block B – in the centre of the roof, and far enough away from any residential windows to ensure a low impact noise-wise.
- 7.15. The details also show 2 MVHR units, one within the roof void of Block A and one located in a third-floor riser in Block B. The roof mounted system will be sufficiently remote from residential façades so as not to be a significant noise source, and the internal unit riser is in a common area and will be adequately insulated against sound breakout. All air ducting to the studios will be adequately attenuated to meet Building Regulations standards.
- 7.16. On the ground floor will be a dedicated plant room in the south-west corner of Block B. This room will be isolated from any residential areas although there will be a studio directly over it. However, from the details available it seems that the only potentially noisy plant within will be three or four booster and circulation pumps, with the remaining space utilised for water tanks, cylinders, a hydro air unit, and electrical equipment.
- 7.17. It is not expected that any of the plant in the plant room will generate sufficient noise to disturb the occupants above, given the concrete structure of the separating floor. However, if necessary, there can be localised noise control measures installed in the form of acoustic enclosures around the noisiest pumps, and the room acoustic can be dampened to reduce reverberation by installing absorption panels in the room.
- 7.18. It is also noted that the latest design incorporates a back-up generator in the plant room. However, as this will only be used in emergency situations such as if there were a power supply issue, and then only for short periods, it is deemed unnecessary to assess this as a significant noise source.
- 7.19. Further and more detailed assessment according to the criteria of BS 4142:2014+A1:2019 may be provided when the full specification for the plant is finalised. However, notwithstanding the likelihood of a low noise impact on the residential rooms, it is considered that plant noise mitigation could be successfully conditioned within the planning process.

8. DISCUSSION & CONCLUSIONS

- 8.1. Data from a pre-covid survey of the existing noise environment affecting the site has been utilised, taking into account the dominant overall noise source of passing road traffic on High Road, and activity noise from the pub beer garden adjacent to the site's southern boundary. The impact of the noise on future residents of the latest iteration of the development has been assessed and a scheme of mitigation provided.
- 8.2. Calculations have shown that a suitable scheme of glazing and ventilation, as detailed in Table 2 of this report, will ensure that internal noise levels in the new dwellings will be within the planning criteria of BS 8233:2014. Mechanical ventilation in the form of a whole house heat recovery system is proposed, so there will be no need to compromise the sound insulation performance of the glazing by the opening of windows for primary ventilation or rapid cooling.
- 8.3. It may be noted from the glazing specification for the southern elevation of Block B that the glazing specified is more robust than the overall noise levels would indicate. However, it can be seen that the glazing is dictated by the high impulsive noise levels, specifically from activity in the next-door pub beer garden. As noted earlier, this venue is popular with football fans so it would be expected that post-match volumes can be high for a while.
- 8.4. Looking at the data in Table 5 in the appendix, it can be seen that the peak loudness took place following the match and dissipates by mid-evening, although remaining relatively high throughout the opening hours of the pub -up to 01:30 at weekends. It is these late evening values that the recommended glazing specification is based on, as they can impinge on what are regarded as sleeping hours (after 23:00).
- 8.5. Noise in outside amenity space has been considered and the primary terrace space on the first floor between the two blocks is predicted to be at or close to the criteria of BS 8233:2014 and ProPG guidelines. Parts of the third-floor balcony serving three of the studios in Block B may exceed the criteria by a small margin, but in mitigation, it is recognised in the standards that applying absolute numerical limits to amenity space does not take into consideration the benefit of the facility in an 'urban' environment, (Section 7.7.3.2). They consider that for most occupant it is preferable to benefit from an outside amenity space which may have slightly elevated noise levels, than not have one at all.

- 8.6. From the available details for external and internal mechanical plant it is likely that as most of the potentially noisier plant will be located on the roofs of the blocks, sufficiently remote from any residential façades to have any significant noise impact. There will be some internal plant in a ground-floor plant room, but the proposed items of noise-generating equipment (mainly booster & circulation pumps), are unlikely to be audible with normal use through the proposed masonry floor.
- 8.7. However, should it be deemed necessary, additional mitigation in the form of improving the room acoustic to reduce reverberant noise levels, and specific noise control in the form of acoustic enclosures around noisy items may be implemented. Further detail may be provided when final specifications are known, but it is considered that plant noise mitigation could be successfully conditioned within the planning process.
- 8.8. Assessment of the proposed construction design for internal party partitions has been carried out. By a series of early review and acoustic design advice, the final design is considered suitable to meet the criteria likely to be imposed by planning condition, based on the previous successful application for the site.
- 8.9. In terms of conforming with the criteria of the London Plan and local DPD, both in terms of the Agent of Change policy (D13), and the Noise policies (D14, DM23), the design of the site is such that the primary accommodation block is to the rear of the site, away from the primary noise source of traffic on High Road. Just six of the twenty-five rooms face the main road, and these will be adequately protected from noise by the façade design noted above.
- 8.10. The design of internal separating partitions will protect accommodation areas from internally generated commercial noise, as well as existing neighbouring properties, and the outside amenity space is well placed between the two main buildings to provide as much shielding from external noise sources as possible.
- 8.11. Specific to Policy D13 of the London Plan is the potential impact of the development on the public house adjacent to the southern boundary of the site. This was identified as the only existing local business that generates potentially disturbing noise, although only for relatively few and short periods during a typical week. However, it is considered that this policy is complied with by the design of the vulnerable façades of the development rear block, with the high-performance acoustic glazing and mechanical ventilation detailed in this report, which were based on the worst-case scenario of post-match celebrations in the pub garden. The pub business should therefore be able to continue its normal operating levels without concern of complaint from future occupants of the student accommodation.

8.12. In conclusion it is considered that if the recommendations within this report are incorporated into the design of the building, the requirements of the local authority from a noise perspective will be met and will ensure that the internal and external noise environment will not adversely affect the amenity of future occupants. It is further considered that all noise-related issues could be successfully conditioned. This report is therefore considered suitable to support the latest application as proposed.

APPENDIX 1

Noise Survey Details

A1.1 Dates:

Tuesday 18th - Wednesday 20th February 2020

A1.2 Location:

807 High Road, London N17 8ER

A1.3 Personnel Present:

PGH Roberts – Emtec Products Ltd.

A1.4 Weather:

Day & Night - Overcast. Light wind

A1.5 Instrumentation:

Make	Description	Model	Serial no.
Rion	Class 1 Sound level meter	NL-52	01121378

A1.6 Procedure: See main report

Explanation of Noise Terms

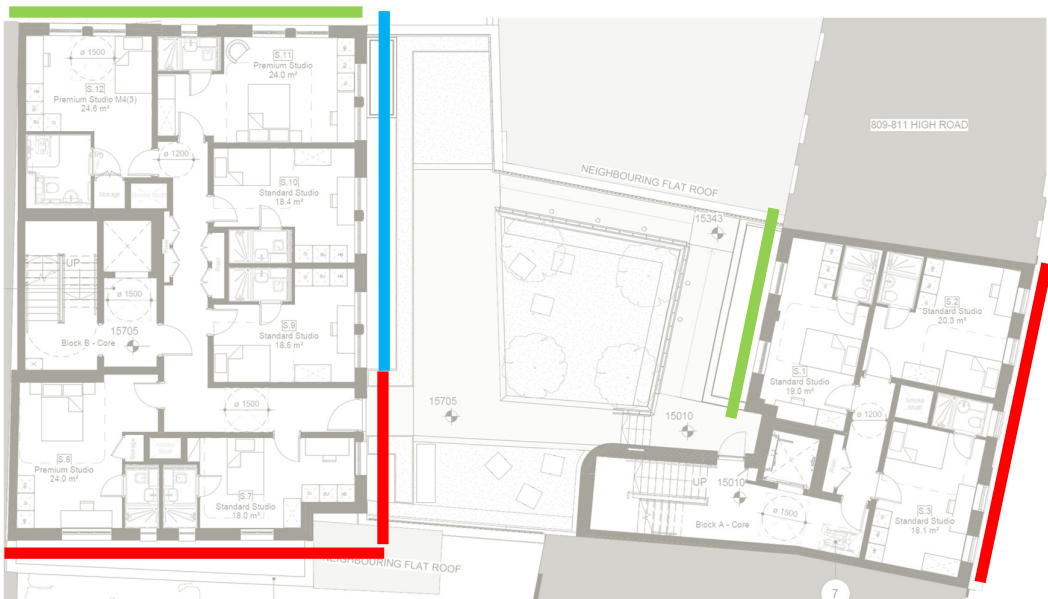
- A2.1 The L_{Aeq} indicates the average noise level and is the 'equivalent continuous' noise level over a sample period. It is the single parameter now commonly used to describe a noise environment. Most of the guidance on noise now uses ' L_{Aeq} ' to define acceptable levels.
- A2.2 The L_{A10} indicates traffic noise levels and is the noise level exceeded for 10% of the sample period. It gives a good indication of the spread of noise events in a given environment. Near a busy road, the L_{10} and the L_{eq} are closely correlated, with the L_{10} typically 2-4dB higher than the L_{eq} . Here, the correlation is evident, indicating a noise environment dominated by road traffic.
- A2.3 The L_{Amax} represents the noisiest event affecting the site during each 15-minute sampling period.
- A2.4 L_{A90} indicates the noise level exceeded for more than 90% of the time and represents the background noise levels.

APPENDIX 2

Figure 3. Site location plan indicating noise measurement positions
(approximate application site in red outline)



Figure 4. Façade identification and extent of proposed ventilation – all floors



Key (ref. Table 2)	
Glazing specification	
Rw+Ctr 40	
Rw+Ctr 34	
Rw+Ctr 25	

Table 4. Baseline noise data at measurement **Location A** – dB(A).
Grey shading indicates night-time hours

Date/Day	Time	LAeq	LAmx	LA10	LA90
18/02/2020 Tuesday	09:58	68	88	70	62
	10:13	70	89	72	62
	10:28	68	79	70	61
	10:43	70	93	71	61
	10:58	72	94	72	62
	11:13	71	99	71	62
	11:28	68	88	70	61
	11:43	67	88	70	60
	11:58	68	82	71	61
	12:13	69	87	71	62
	12:28	73	101	71	62
	12:43	69	87	72	62
	12:58	68	86	70	61
	13:13	67	81	70	62
	13:28	70	88	71	63
	13:43	69	89	70	61
	13:58	74	96	71	62
	14:13	72	96	71	61
	14:28	74	100	71	62
	14:43	73	96	71	62
	14:58	71	97	72	61
	15:13	68	81	71	62
	15:28	70	87	72	63
	15:43	76	101	74	63
	15:58	68	89	71	63
	16:13	75	97	72	63
	16:28	67	88	70	62
	16:43	68	87	70	63
	16:58	73	92	71	61
	17:13	68	84	70	62
	17:28	70	93	71	62
	17:43	67	84	70	62
	17:58	68	85	71	63
	18:13	72	95	72	63
	18:28	69	90	72	64
	18:43	75	100	73	63
	18:58	69	86	72	62
	19:13	69	85	72	63
	19:28	69	84	71	62
	19:43	69	89	71	60
	19:58	73	95	73	62
	20:13	73	95	75	64

Continued...

Table 4. continued

Date/Day	Time	LAeq	LAmx	LA10	LA90
18/02/2020 Tuesday	20:28	72	92	75	63
	20:43	74	94	74	63
	20:58	74	98	75	63
	21:13	73	93	74	63
	21:28	70	78	73	63
	21:43	72	93	73	63
	21:58	70	81	73	63
	22:13	69	84	73	63
	22:28	71	92	72	62
	22:43	69	86	72	62
19/02/2020 Wednesday	22:58	68	85	72	60
	23:13	69	81	72	62
	23:28	68	77	71	60
	23:43	67	76	71	60
	23:58	68	93	71	59
	00:13	68	91	71	60
	00:28	66	76	70	59
	00:43	67	79	70	60
	00:58	66	87	69	53
	01:13	71	99	69	55
	01:28	64	80	68	53
	01:43	66	88	67	51
	01:58	65	76	68	54
	02:13	65	83	68	55
	02:28	67	92	67	49
	02:43	64	75	68	53
	02:58	64	79	67	54
	03:13	63	78	67	51
	03:28	62	78	66	51
	03:43	64	78	67	52
	03:58	64	80	68	51
	04:13	63	76	67	50
	04:28	65	88	68	53
	04:43	65	76	69	55
	04:58	64	76	68	54
	05:13	65	79	69	55
	05:28	67	81	70	56
	05:43	66	75	70	59
	05:58	68	82	71	62
	06:13	67	81	70	60
	06:28	68	81	70	62
	06:43	68	82	71	62
	06:58	69	87	71	63

Continued....

Table 4. continued

Date/Day	Time	LAeq	LAmaz	LA10	LA90
19/02/2020 Wednesday	07:13	68	81	71	62
	07:28	69	84	72	62
	07:43	69	85	72	64
	07:58	68	82	71	62
	08:13	71	93	71	62
	08:28	67	78	70	62
	08:43	68	79	71	61
Daytime average		71	93	72	62
Night-time average		66	87	69	58

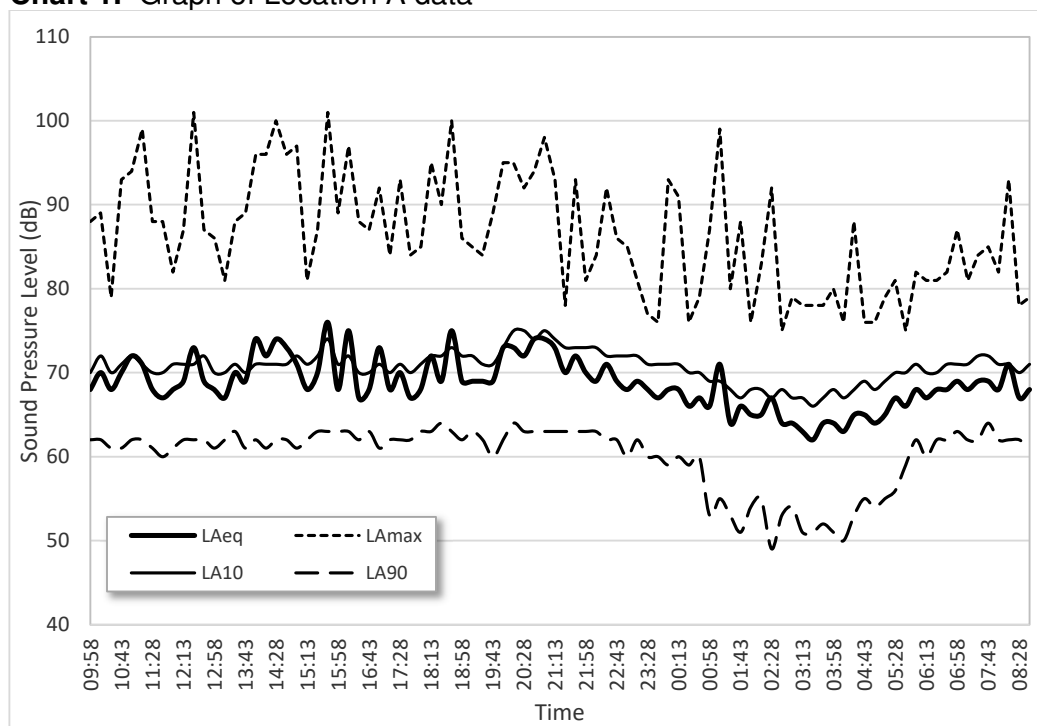
Chart 1. Graph of Location A data

Table 5. Baseline noise data at measurement **Location B** – dB(A).
Grey shading indicates night-time hours

Date/Day	Time	LAeq	LAmx	LA10	LA90
19/02/2020 Wednesday	09:13	56	88	55	50
	09:28	54	80	54	49
	09:43	54	75	54	49
	09:58	55	75	53	48
	10:13	52	70	52	48
	10:28	52	65	54	49
	10:43	53	71	55	50
	10:58	54	75	55	51
	11:13	53	74	55	50
	11:28	52	62	54	50
	11:43	54	63	56	52
	11:58	55	70	57	52
	12:13	54	78	55	51
	12:28	53	62	55	51
	12:43	52	64	54	50
	12:58	53	64	55	51
	13:13	53	69	55	51
	13:28	55	74	56	52
	13:43	57	80	58	52
	13:58	54	68	56	52
	14:13	56	72	58	52
	14:28	57	68	59	54
	14:43	58	77	60	53
	14:58	57	72	59	53
	15:13	58	80	59	53
	15:28	56	69	58	53
	15:43	57	80	58	52
	15:58	57	72	60	54
	16:13	58	82	60	54
	16:28	58	69	60	55
	16:43	62	75	64	58
	16:58	66	77	69	63
	17:13	71	91	72	66
	17:28	71	91	71	66
	17:43	71	83	73	68
	17:58	74	97	74	69
	18:13	74	94	76	70
	18:28	74	89	76	71
	18:43	82	98	86	72
	18:58	77	94	78	71
	19:13	75	93	77	70
	19:28	70	84	72	67

Continued...

Table 5. continued

Date/Day	Time	LAeq	LAmx	LA10	LA90
19/02/2020 Wednesday	19:43	64	75	68	58
	19:58	60	78	62	56
	20:13	58	74	59	55
	20:28	63	77	67	57
	20:43	57	71	59	54
	20:58	57	80	58	53
	21:13	59	81	60	54
	21:28	59	79	60	54
	21:43	60	79	62	55
	21:58	67	78	70	61
	22:13	71	78	73	68
	22:28	71	82	73	68
	22:43	71	84	73	68
	22:58	68	78	71	64
20/02/2020 Thursday	23:13	67	84	70	61
	23:28	65	81	68	60
	23:43	64	78	67	59
	23:58	60	73	62	57
	00:13	59	72	61	55
	00:28	60	71	62	56
	00:43	60	72	62	55
	00:58	55	72	59	48
	01:13	52	70	55	47
	01:28	57	77	60	47
	01:43	50	71	50	45
	01:58	48	66	50	45
	02:13	56	73	59	48
	02:28	53	71	55	46
	02:43	46	56	48	44
	02:58	45	53	47	43
	03:13	46	60	48	43
	03:28	47	62	49	42
	03:43	46	53	49	44
	03:58	47	65	49	44
	04:13	47	56	49	44
	04:28	47	58	48	44
	04:43	48	73	49	43
	04:58	48	56	50	46
	05:13	48	55	50	46
	05:28	49	62	51	46
	05:43	50	60	52	47
	05:58	51	69	54	48
	06:13	50	68	53	47

Continued....

Table 5. continued

Date/Day	Time	LAeq	LAmaz	LA10	LA90
20/02/2020 Thursday	06:28	51	65	53	48
	06:43	52	68	54	49
	06:58	52	61	54	49
	07:13	52	70	54	49
	07:28	52	65	54	49
	07:43	52	67	54	49
	07:58	52	66	53	49
	08:13	51	62	53	49
	08:28	52	63	53	49
	08:43	52	66	55	49
	08:58	52	66	54	50
Daytime average		68	86	71	63
Night-time average		54	69	56	50

Chart 2. Graph of Location B data