

Cambridge Halls, Manchester

Road Traffic Noise Increase Assessment

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1. Introduction

This technical note presents a noise assessment to support the proposals for the re-development of the existing Cambridge Halls at 41 Cavendish Street, Manchester, M15 6TT, to provide new student accommodation (PBSA), on behalf of Unite and Manchester Metropolitan University (MMU).

The aim of this technical note is to provide a noise assessment in relation to the potential road traffic noise increase, during both the construction and operational phases of the proposed development.

In addition, this technical note will also evaluate potential noise impacts associated with delivery and servicing activities to the proposed development.

2. Site Location, Proposals and Sensitive Receptors

The Site is located in an urban setting and is surrounded by a mix of land uses including residential properties, commercial, entertainment and educational. Mancunian Way (Ring Road), the A5103 and the A57(M) are situated approximately 100m to the north of the Site. To the west are other PBSA blocks and Barracks. Manchester Metropolitan University educational buildings are located to the east. Entertainment venues in the form of The Salutation Pub and the Manchester Metropolitan University Union are located to the south of The Site. The site falls under the jurisdiction of Manchester City Council (MCC).

This assessment considers the potential road traffic noise increase at the three roads bordering the proposed development: Cambridge Street, Boundary Street West and Higher Chatham Street.

The surrounding area features a range of sensitive receptors, primarily comprising of PBSA residences, MMU educational buildings and some private residential residences, which have been identified and considered in the subsequent noise and vibration assessment. The full list of receptors is provided below:

Private Residential:

- North-west of the site: Residential dwellings at Elmdale Walk, Matham Walk, Loxford Street
- West of the site: 44 Cavendish Street, Dalesman Walk, 71 Cavendish St, The Old Bank

PBSA Residences:

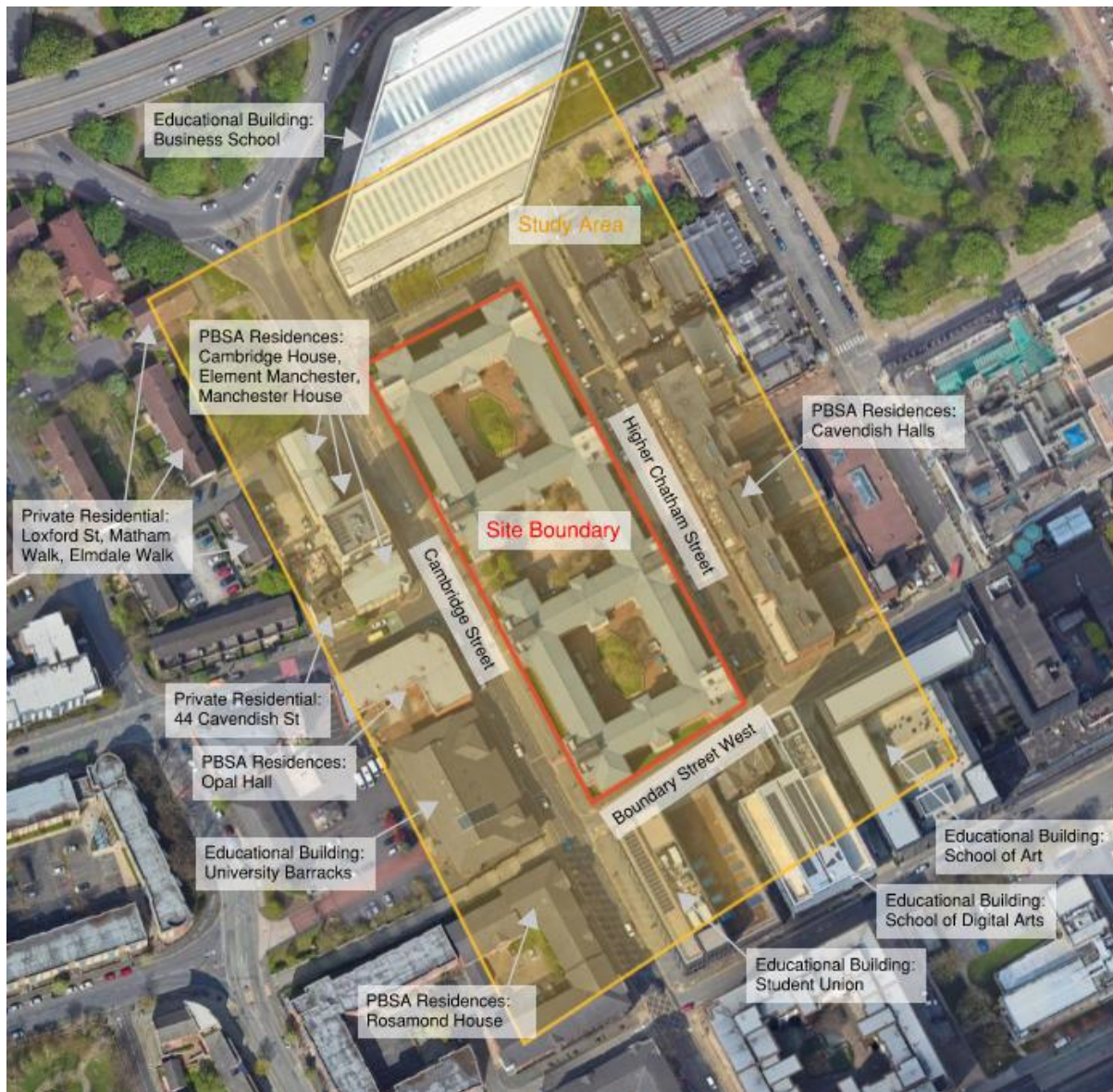
- West of the site: Cambridge House, Element Manchester, Manchester House, Opal Hall, Rosamond House
- East of the site: Cavendish Hall

MMU Educational Buildings:

- West of the site: University Barracks
- South of the site: Student Union Building, School of Digital Arts, School of Art
- North of the site: Business School

A visual representation of the site and its surroundings, including the nearest sensitive receptors, is illustrated in Figure 1 below.

Figure 2: Site Boundary and Nearest Receptors to the Proposed MUGAs



3. Road Traffic Noise Increase Assessment

3.1. Overview and Methodology

This report section provides the details of the road traffic noise increase assessment used to inform the assessment of potential significant effects due to road traffic noise during the construction and operational phases of development.

The impact of any changes in road traffic noise levels have been assessed in accordance with the principles and guidance presented within the Highways Agency Design Manual for Roads and Bridges (DMRB).

The DMRB states that *"The impact of a road project at any location can be reported in terms of changes in absolute noise level. In the UK the standard index used for traffic noise is the $L_{A10,18\text{hour}}$ level, which is quoted in decibels"*.

In order to determine whether changes in traffic noise levels are likely to occur as a result of the proposed development, noise levels are predicted in accordance with the methodology contained within the Calculation of Road Traffic Noise (CRTN).

The calculation method uses a number of input variables to predict the $L_{A10,18\text{hour}}$ noise level for any receptor point at a given distance from the road. In this assessment, however, the key factors are changes in traffic flows and the composition of the traffic (i.e. percentage HGVs).

In this instance, however, the existing and future road traffic flows have not yet been provided by the transport consultants to conduct a comprehensive assessment. Instead, this assessment goes on to assess potential noise increase significance considering worst-case future road traffic flow assumptions, compared against the existing measured road traffic noise levels around the site and adjacent road network.

The potential road traffic noise increase associated with the proposed development has been calculated in accordance with the Basic Noise Level (BNL) prediction methodology detailed in CRTN. This methodology considers the relative change in noise level for a notional road-side receptor at a distance of 10m from the kerb and at a height of 1.5 m (free-field).

3.2. Criteria

The DMRB presents a significance matrix for assessing the magnitude of changes in noise level, which is reproduced in the table below and has been utilised in this assessment to consider the effect of any changes in road traffic noise levels. An increase in noise level represents an adverse effect whilst a reduction in noise represents a beneficial effect. The "magnitude of change" is detailed in Table 1 below, corresponding to a change in the short-term.

Table 1: Road Traffic Noise Increase Magnitude of Change – Short Term

Short Term Magnitude	Short Term Noise Change (dB $L_{A10,18hr}$ or L_{night})
Major	Greater than or equal to 5.0
Moderate	3.0 to 4.9
Minor	1.0 to 2.9
Negligible	less than 1.0

3.3. Existing Road Traffic Noise Levels

As mentioned in Section 3.1, in the absence of having detailed existing road traffic flow data, this assessment is based on the measured ambient road traffic noise levels obtained during environmental surveys conducted by Blackbird Acoustics in support of the wider Environmental Impact Assessment (EIA) (refer to report reference 2124.Rep.20250128.CHM.AAR.Rev2).

The full details of the noise survey can be found in that report, however for simplicity, the measurements relevant to this assessment have been summarised in Table 2 below.

Table 2: Measured Existing Ambient Noise Levels from Adjacent Roads

Blackbird Acoustics Measurement ref.	Location	Measured Daytime $L_{Aeq,T}$ dB	Measured Night-time $L_{Aeq,T}$ dB
Position 1	Overlooking Cambridge Street – representative of any sensitive receptors to the west and north-west of the site	65	61.4
Position 2	Overlooking Boundary Street West – representative of any sensitive receptors to the south of the site	55.2	51.4
Position 3	Overlooking Chatham Street – representative of any sensitive receptors to the east of the site	56.2	53.2

Whilst the measurement positions were not strictly located at a horizontal distance of 10m from the kerb of each road and at a height of 1.5m, they have been located on the 2nd or 3rd floor levels of the existing Cambridge Halls, directly overlooking each respective road. As a result, the microphones were located at a geometric distance of approximately 10m from the kerbs. As such, no additional distance corrections have been applied to the measured or calculated noise levels on this basis.

3.4. Calculated Road Traffic Flow Increases

3.4.1. Construction Phase

This section of the report predicts the potential road traffic noise increase during the construction phase, based on the existing measured road traffic noise levels, information provided by the project team and several robust assumptions.

The assessment has been carried out for the daytime period only and is based on the following traffic flow assumptions, approved by the project team as representative of a robust worst-case scenario:

- Up to 180 vehicles per an 18-hour period (or approximately 10/hour)
- 75% Heavy Goods Vehicles
- 36 km/h traffic speed

The outcome of the construction phase assessment is presented in Table 3 below.

Table 3: Road Traffic Increased During Construction Phase (Daytime)

Measurement / Road	Measured Existing Daytime $L_{Aeq,T}$ dB	Calculated Existing $L_{A10,18hr}$ ($L_{Aeq,16hr} + 2$) dB	Calculated Future Construction Traffic Noise from Proposed Development $L_{A10,18hr}$ dB	Calculated Total Future Traffic Noise $L_{A10,18hr}$ dB	Calculated Road Traffic Increase dB	Significance in the short-term
Position 1 – Cambridge Street	65	67	56.9	67.4	+0.4	Negligible
Position 2 – Boundary Street West	55.2	57.2	56.9	60.1	+2.9	Minor
Position 3 – Chatham Street	56.2	58.2	56.9	60.6	+2.4	Minor

On the basis that the number of vehicle movements and percentage of HGVs detailed above are not exceeded, construction traffic can use Cambridge Street, Boundary Street West and Chatham Street as required, with an expected magnitude of change of negligible to minor significance, in accordance with DMRB 111 guidance.

3.4.2. Operational Phase

This Section of the report predicts the potential road traffic noise increase during the operational phase, based on the existing measured road traffic noise levels, information detailed in the Traffic Scoping Assessment and several robust assumptions. The Traffic Scoping Assessment states:

“The development is car-free, with the provision of up to 10 disabled parking spaces, and is predicted to generate 40 LDV trips (arrivals) a day.”

Based on the above, in addition to the 40 LDV (assumed HGV) trips per day, it has been assumed that all 10 disabled parking spaces are used once per hour as a worst-case (180 cars in an 18-hour period). The assessment has been carried out for the daytime and night-time periods and the full list of traffic flow information and assumptions are detailed below:

- Up to 220 vehicles (180 cars and 40 HGVs) per an 18-hour period (or approximately 12/hour)
- 22% Heavy Goods Vehicles
- 36 km/h traffic speed

The outcome of the day-time operational phase assessment is presented in Table 4 below.

Table 4: Road Traffic Increased During Operational Phase (Daytime)

Measurement / Road	Measured Existing Daytime $L_{Aeq,T}$ dB	Calculated Existing $L_{A10,18hr}$ ($L_{Aeq,16hr} + 2$) dB	Calculated Future Operational Traffic Noise from Proposed Development $L_{A10,18hr}$ dB	Calculated Total Future Traffic Noise $L_{A10,18hr}$ dB	Calculated Road Traffic Increase dB	Significance in the short-term
Position 1 – Cambridge Street	65	67	53.3	67.4	+0.2	Negligible
Position 2 – Boundary Street West	55.2	57.2	53.3	60.0	+1.5	Minor
Position 3 – Chatham Street	56.2	58.2	53.3	60.6	+1.2	Minor

Based on the above calculated 18-hour $L_{A10,18hr}$ future road traffic noise during the operational phase, the associated L_{night} noise level for the night-time period was calculated using the following TRL conversion method.

$$L_{night} = 0.9 \times L_{A10,18hr} - 3.77 \text{ dBA}$$

The outcome of the night-time operational phase assessment is presented in Table 5 below.

Table 5: Road Traffic Increased During Operational Phase (Night-time)

Measurement / Road	Measured Existing Night-time $L_{Aeq,T}$ dB	Calculated Future Operational Traffic Noise from Proposed Development during the night L_{night} dB	Calculated Total Future Traffic Noise L_{night} dB	Calculated Road Traffic Increase dB	Significance in the short-term
Position 1 – Cambridge Street	61.4	47.4	61.6	+0.1	Negligible
Position 2 – Boundary Street West	51.4	47.4	52.9	+0.8	Negligible
Position 3 – Chatham Street	53.2	47.4	54.2	+0.5	Negligible

On the basis that the number of vehicle movements and percentage of HGVs detailed above are not exceeded, operational traffic can use Cambridge Street, Boundary Street West and Chatham Street as required, resulting in no more than a negligible to minor significance at most, in accordance with DMRB 111.

With reference to potential noise arising with deliveries/servicing to the proposed development, the following has been looked at.

4. Delivery and Servicing Noise Impact Evaluation

To address the requirements of MCC, this section presents a qualitative discussion and evaluation of potential noise impacts associated with deliveries and servicing activities arising from the proposed development. The assessment considers three primary types of delivery and servicing activities:

Refuse collection

Refuse collection is anticipated to occur approximately twice per week and will be restricted to daytime hours only (07:00–21:00). This aligns with the current collection regime, and as such, no significant change in noise impact is expected.

Retail/Community deliveries

The proposed retail unit and community spaces are expected to generate no more than five deliveries per day, also generally limited to daytime hours (07:00–21:00). Where feasible and subject to approval, deliveries will take place via kerbside on Cambridge Street. This arrangement will allow delivery vehicles to unload directly into the retail unit, thereby minimising potential noise impacts.



PBSA deliveries

As outlined in Section 3.4.2, the proposed PBSA element of the development is expected to generate up to 40 light-duty vehicle (LDV) delivery trips per day. These are expected to include services such as food deliveries, online shopping, and postal services, which are likely to be conducted by vehicles already operating in the area and travelling on the adjacent roads. These delivery trips are not generally associated with prolonged or noisy loading/unloading activities, and associated noise impacts are therefore expected to be minimal.

Summary

Taking into account the limited frequency of deliveries and refuse collections, restriction of all activities to daytime hours, the transient nature of associated noise (primarily from vehicular movements), and the context of an area with existing moderate to high ambient noise levels, it is concluded that the noise impact from deliveries and servicing associated with the proposed development will be minimal. Furthermore, the scale and character of these activities are comparable to those already associated with existing PBSA and commercial uses in the vicinity, reinforcing the conclusion that no adverse noise effects are expected.

5. Conclusion

This technical note has provided a comprehensive noise assessment in relation to potential road traffic noise increase associated with the proposed development at Cambridge Halls at 41 Cavendish Street, Manchester, M15 6TT.

The assessment concludes that road traffic noise increase during the construction and operational phases associated with the proposed development is expected to result in no more than a minor significance in accordance with DMRB 111, based on the information provided and approved by the project team and the assumptions made in this report.

Additionally, noise impacts from deliveries and servicing are expected to be minimal due to their low frequency, restriction to daytime hours, the existing ambient noise environment, and the similarity to delivery and servicing patterns already associated with the existing PBSA.

By adhering to the limits, recommendations and assumptions set out in this assessment, the anticipated road traffic movements associated with the proposed development can be suitably controlled, so as to not significantly increase the existing road traffic noise levels and thus minimising impacts on the surrounding community.