

fisher acoustics

Union, St Johns, Vita T2, Manchester

External Seating Noise Study

March 2021

Flint Glass Works, 64 Jersey Street, Manchester, M4 6JW

0161 605 0905 

info@fisheracoustics.co.uk 

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AUTHOR	MATT FISHER, BENG (HONS) CENG MIOA
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1.0 SUMMARY

The proposed ground floor commercial unit at Union, St John's, Vita T2, Manchester includes areas of external seating for the use of patrons of the proposed restaurant. Fisher Acoustics Ltd has been commissioned by Union Living Manchester 1 Limited to carry out an environmental noise assessment relating to the proposed external seating.

This report identifies the results of a targeted noise survey and results of previous environmental noise surveys at receptors close to and around the site. The potential levels of external noise from patrons of the proposed commercial unit within the Union T2 building have been determined at noise sensitive properties at and around the site. The maximum allowable external noise levels due to background music loudspeakers within the seating areas have also been established.

The study has found that residential amenity is expected to be maintained at all properties around the proposed commercial unit given the proposed location of external seating and potential number of patrons.

The permissible sound pressure levels from external loudspeakers are of necessity very low but are compatible with the replay of low-level background music within the proposed external seating areas. It is therefore considered that external loudspeakers can be accommodated within the scheme.

2.0 INTRODUCTION

The proposed commercial unit at Union, St John's, Vita T2, Manchester includes areas of external seating for the use of patrons of the proposed restaurant. Fisher Acoustics Ltd has been commissioned by Union Living Manchester 1 Limited to carry out an environmental noise assessment of the proposed external seating.

This report identifies the results of environmental noise surveys at receptors close to and around the site. The potential levels of external noise from patrons of the proposed commercial unit within the Union Vita T2 building have been determined at noise sensitive properties at and around the site. The calculated noise levels have been compared to appropriate noise limits such that residential amenity can be maintained.

The steps undertaken in compiling this study are as follows:

- Reference to previous daytime and night time environmental noise surveys at and around the proposed development site in order to determine the existing levels of noise at sensitive receptors around the site
- Determination of allowable levels of environmental noise due to patrons such that external residential amenity can be maintained
- Calculation of potential levels of patron noise at residential properties around the site and comparison to the suggested noise limits

3.0 DESCRIPTION OF SITE

The proposed commercial unit lies at the north western end of the Vita T2 residential building, in the St John's area of central Manchester.

The site is bounded to the north-west by the River Irwell and to the south-east by Water Street. To the north-east lies the Manchester Marriot Victoria and Albert hotel. To the south-west of the site is a plot of land earmarked for commercial development

Directly to the east of the site is the Vita T1 residential building, currently under construction. Further to the south-east of the site lies the construction site for the Factory, a cultural venue which is to host music and festival events.

To the west of the site lies the Ordsall Chord rail line which spans the River Irwell. Across the River Irwell is the A6042, Trinity Way. Trinity Way is a busy major road that is trafficked by passenger vehicles, goods vehicles, motorbikes and buses.

The existing buildings around the proposed development include residential and commercial uses. The closest residential dwellings to the proposed commercial unit will be those within the Vita T2 building itself.

Figure 1 shows the development site in the context of the surrounding roads and buildings.

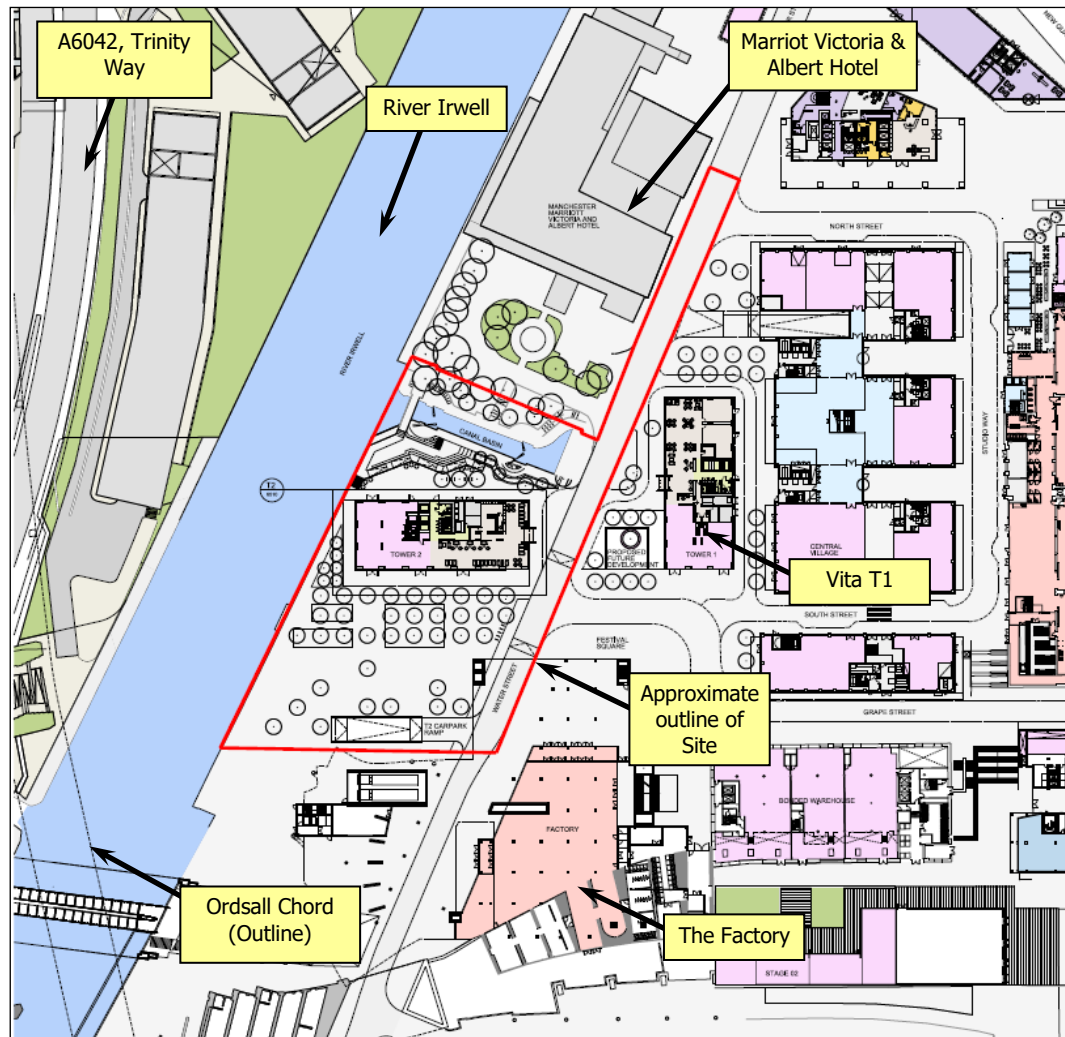


Figure 1: Development site plan (edged red) in context of surroundings roads and buildings

4.0 DESCRIPTION OF PROPOSED DEVELOPMENT

The Union Vita T2 building will provide residential accommodation of three hundred and five self-contained units. The residential accommodation is a mix of:

- 3 and 4 Bed Apartments
- 1 Bed Studios
- 1 Bed DDA Studios

The proposed uses within the building are as follows:

- Basement Level : Cycle storage, plant room
- Ground Floor: Reception Lobby, Amenity Area, Commercial Area, Residential Bin Store, Substation
- Level 1: Residents' amenity
- Levels 2 to 4: Co-Working space
- Level 5 to 35: Self-contained serviced Apartments and Studios

Planning approval for the Vita T2 building has been awarded (planning reference 126648/FO/2020).

The approved sui generis use class includes co-living accommodation on upper floors, dedicated residents amenity on Level 1 and flexible commercial space at ground floor, integrated with the residents' lobby. When the original consent was approved, the exact use of that space was unknown but it was envisaged to be either Food & Beverage (F&B) or retail use. For robustness, the application assumed an F&B use occupied the commercial area overlooking the River Irwell, in order to provide a "worst-case" assessment of potential uses in terms of servicing, ventilation and noise breakout from the building.

Since planning approval was granted, the client has entered into an agreement with the master-developer for St Johns, Allied London, to operate the Green Room, a new F&B unit that integrates with the Union concept and the broader aspirations for St Johns Enterprise City. The Green Room will be accessible directly from the residents lobby and to the general public via a separate dedicated access, as originally envisaged. Therefore, in terms of usage, the amendment relates solely to the nett increase in commercial floor space for use as an F&B unit and introduction of an external roof terrace for residents' use only on top of the

extended ground floor unit. The increase in commercial floor space is to be complemented by external seating to serve the commercial unit

Outdoor seating for patrons of the ground floor commercial unit is proposed to the north of the building within the canal basin area and within a space to the south of the building. The proposed usage hours of the external seating spaces for the commercial use is:

- 08:00 hours to 23:00 hours, Monday to Saturday
- 08:00 hours to 22:30 hours Sunday

Figure 2 shows the proposed ground floor layout including the location of the external seating.

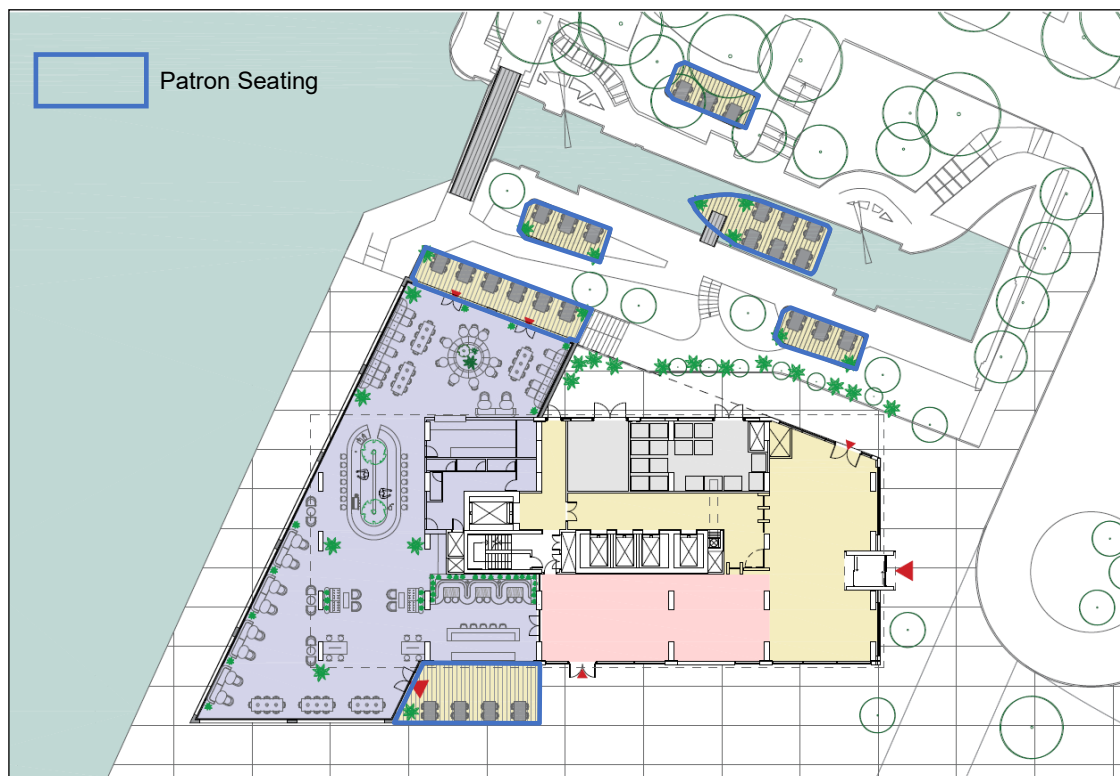


Figure 2: Proposed ground floor layout

5.0 RELEVANT GUIDANCE DOCUMENTS

The National Planning Policy Framework (NPPF), published in February 2019 by the Ministry of Housing, Communities and Local Government 'sets out the Government's planning policies for England and how these are expected to be applied'.

Clause 170 of the National Planning Policy Framework states that 'Planning policies and decisions should contribute to enhance the natural and local environment by ...preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability'.

Clause 180 of the National Planning Policy Framework states that 'Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;
- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'

The National Planning Policy Framework document cross references the 'Explanatory Note to the Noise Policy Statement for England'. The 'Noise Policy Statement for England' (NPSE) was published by the Department for Environment, Food and Rural Affairs in March 2010.

The NPSE does not give suggested external noise criteria for commercial developments. In the absence of specific criteria, reference shall be made in this document to established guidance and principles.

6.0 PUBLISHED GUIDANCE ON ENVIRONMENTAL NOISE

Noise from commercial operations

Patron Noise

No formal published guidance is available that gives recommended assessment criteria for noise due to restaurant patrons in an external area. However, reference can be made to the 'Draft Code of Practice on the Control of Noise from Pubs and Clubs' published by the Institute of Acoustics in 1999, sections 5.2.3 and 5.2.4:

5.2.3 Noise limits between 23:00 and 10:00 hours (example only)

- *The LAeq,5min level measured 1 metre outside a window to a habitable room, with entertainment taking place, shall show no increase when compared with the representative LAeq,5min level measured from the same position, under the same conditions and during a comparable period with no entertainment taking place; and*
- *The Leq,5min level in the 63 Hz and 125 Hz octave bands measured 1 metre outside a window to a habitable room, with entertainment taking place, should show no increase when compared with the representative Leq, 5min level in the 63 Hz and 125 Hz octave bands measured from the same position, under the same conditions and during a comparable period with no entertainment taking place.*

5.2.4 Noise Limits between 10:00 and 23:00hours (Example only)

- a) For venues where live and/ or non-live amplified music events take place more than twice in a week, the limits in Section 5.2.3 shall apply.*
- b) For venues where more than 30 events take place per calendar year but these events do not occur more than twice per week, the following limits shall apply:*
 - *The LAeq,5min level measured 1 metre outside a window to a habitable room, with entertainment taking place. shall be no more than 3 dB higher than the representative LAeq,5min level measured from the same position, under the same conditions and during a comparable period with no entertainment taking place; and*
 - *The Leq,5min in the 63 Hz and 125 Hz octave bands measured 1 metre outside a window to a habitable room, with entertainment taking place, shall be no more than 3 dB higher than the*

representative Leq,5min in the 63 Hz and 125 Hz octave bands measured from the same position, under the same conditions and during a comparable period with no entertainment taking place.

As the external seating is expected to be in use more than twice a week, the more stringent noise limits given in section 5.2.3 of the Draft Code of Practice on the Control of Noise from Pubs and Clubs' would apply.

To achieve the criterion in section 5.2.3 would require that the noise level at the nearest dwelling due to patron noise from the proposed seating is 10dB(A) below the pre-existing ambient noise level.

Whilst no criteria were given in the final version of the Code of Practice on the Control of Noise from Pubs and Clubs, this criterion has been applied successfully by some Local Authorities.

7.0 ENVIRONMENTAL NOISE SURVEYS

In normal circumstances, a baseline noise survey would be carried out over daytime and night time periods at the boundaries of the Site to determine the pre-existing noise levels at and around the Site. However, due to the ongoing extensive construction works across the St Johns Masterplan site, a noise survey around the site at the present time would yield unrepresentative results. However, a targeted noise survey has been carried out to determine the prevailing noise levels at the site due to road traffic on Trinity Way and rail movements to the northwest of the Site on the Ordsall Chord.

The noise survey was carried out prior to the implementation of travel restrictions relating to the first nationwide 'lockdown' to mitigate the spread of coronavirus. The results of the noise survey are therefore considered to be representative of normal road traffic flows on Trinity Way and of train movements.

Reference has also been made to the results of previous noise surveys carried out across the St Johns Masterplan site and an adjacent site prior to the current road closures and construction works in the area.

The noise surveys of the pre-existing noise environment at sensitive locations at and around the Site were carried out in support of the following planning applications:

- Slate Yard, New Bailey, Salford, planning reference 09/57950;
- Globe & Simpson, Quay Street, Manchester, planning reference 121721/FO/2018;
- Manchester Goods Yard, St Johns, Manchester, planning reference 121511/FO/2018;
- The Factory arts venue, Water Street, Manchester, planning reference 119890/FO/2018;
- Granada House, Atherton Street, Manchester, planning reference 118040/FO/2017; and
- Extant planning application for the Site, planning reference 114385/FO/2016

The noise surveys provide appropriate baseline noise data that allows the determination of the pre-existing noise levels at existing and planning-approved noise sensitive properties close to the proposed development.

Measurement locations for the noise surveys are shown in Figure 3 and described below.

- Location 1: At location of closest façade of the Slate Yard, New Bailey (Planning reference 09/57950) to Water Street
- Location 2: Representative of Quay Street façade of the Left Bank Apartments, Quay Street
- Location 3: Representative of Water Street façade of Manchester Marriott Victoria & Albert Hotel, Water Street and of Water Street façade of the Proposed Development
- Location 4: Representative of proposed Factory arts venue, Water Street
- Location 5: Representative of proposed Manchester Goods Yard (MGY), St Johns
- Location 6: Atherton Street
- Location 7: Representative of proposed northwest elevation of the Proposed Development

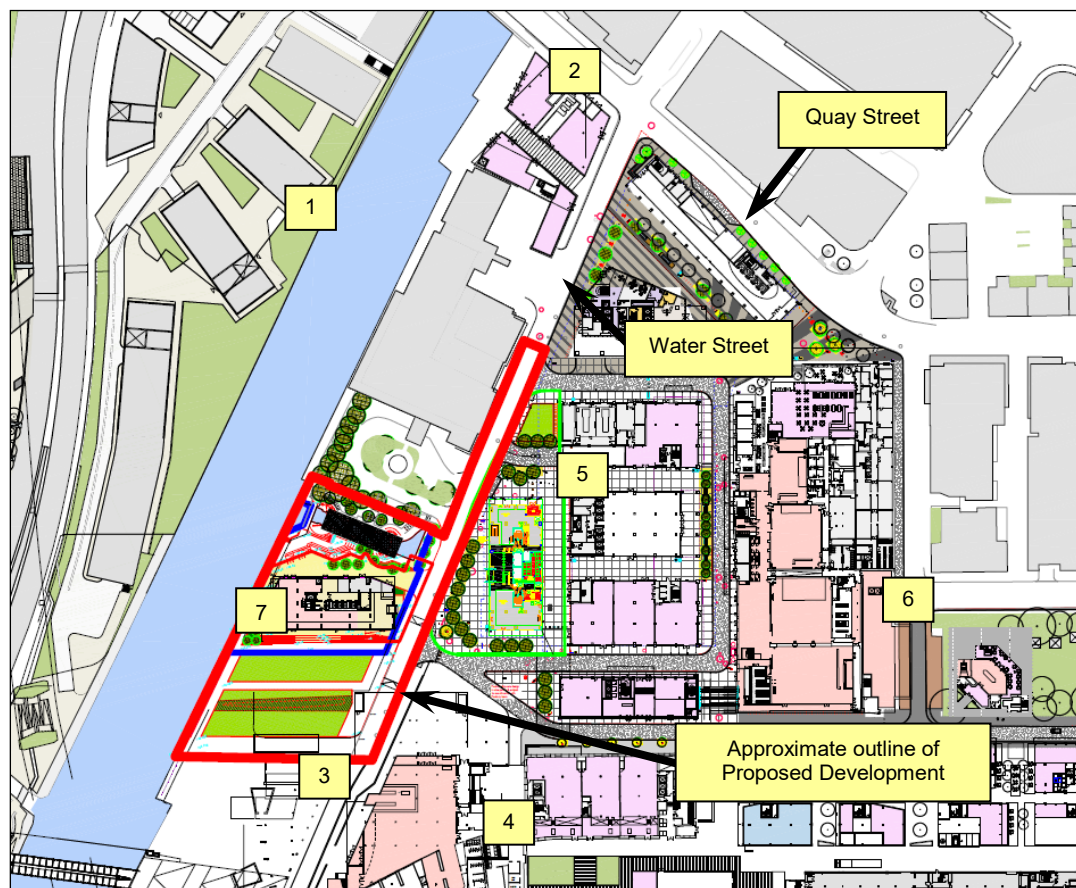


Figure 3: Noise survey measurement locations

The measured noise levels during the day and night at and around the Site are summarised in Table 1.

Location	Measured Noise Level					
	Daytime (defined as 0700 to 2300)			Night time (defined as 2300 to 0700)		
	dB, L _{Aeq}	dB, L _{Amax}	dB L _{A90}	dB, L _{Aeq}	dB, L _{Amax}	dB L _{A90}
1 (Slate Yard)	59	64 to 71	55 to 56	52	63 to 68	48 to 51
2 (Left Bank)	74	84 to 99	55 to 62	68	81 to 84	47 to 50
3 (Marriott)	68	81 to 83	56 to 58	-	-	-
4 (The Factory)	58	-	50 to 57	54	-	44 to 57
5 (MGY)	55	-	48 to 52	52	-	48 to 49
6 (Atherton St)	58	-	47 to 50	53	-	44 to 45
7 (Union T2)	60	61 to 73	53 to 62	-	-	-

Table 1: Summary of measured environmental noise levels – existing and proposed receptors

The measured noise levels can be used to establish appropriate environmental noise criteria for the sensitive properties around the site.

The long-term noise environment at noise sensitive properties around the site is determined by road traffic on Trinity Way, Water Street and rail traffic on the Ordsall Chord.

8.0 NOISE PROPAGATION FROM PROPOSED EXTERNAL SEATING

As discussed in Section 6 above, in order to avoid potential noise nuisance due to patron noise, it is recommended that the noise level at the nearest dwellings due to external patron noise is 10dB(A) below the pre-existing ambient ('LAeq') noise level. Compliance with this criterion would ensure that the pre-existing ambient noise level at noise sensitive receptors was not increased.

The measured daytime external noise levels at a position representative of the nearest residential receptors to the proposed development (Position 7, indicative of Union Vita T2) is 60dB LAeq.

It is therefore recommended that at the facades of Vita T2, noise levels due to external patrons do not exceed 50 dB LAeq during the day.

Whilst the pre-existing noise level at the Slate Yard residential development is slightly lower than that at Vita T2, the Slate Yard is at a much greater distance from the external seating than Vita T2. Therefore compliance with the applicable noise limit at Vita T2 will ensure compliance with the applicable noise limit at the Slate Yard.

Seating for up to eighty four patrons is proposed to the north of Vita T2. Seating for up to sixteen patrons is proposed to the south of Vita T2.

In order to determine the noise level at a receptor due to seated patrons, it is necessary to estimate the number of people that may be talking at any one time. For this purpose, reference can be made to research which indicates that at any one time, just less than one-third of patrons of a restaurant would be expected to be talking simultaneously (ref J.H. Rindel 'Acoustical capacity as a means of noise control in eating establishments', *Proc of Joint Baltic-Nordic Acoustics Meeting*, 2012).

This research implies that of eighty four patrons to the north of the building, twenty eight people could be talking at any one time.

Calculations of noise propagation from patrons must include an assumed sound power level of a person's voice.

Table 2 identifies the sound power level of the human voice at different voice efforts (ref: ANSI 3.5:1997 'Methods for calculation of the speech intelligibility index'). As a guide, 'normal' voice effort would be that used in normal conversation. 'Raised' voice effort would be similar to that used by a teacher when addressing a full classroom.

Voice effort	Sound Power Level (dB Leq) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Normal	45	55	65	69	63	56	50
Raised	48	59	70	75	72	64	57

Table 2: Sound power of human voice at different effort levels

It has been calculated that given the distance of the various groups of external seating to the north of Vita T2, of the twenty eight people that could be taking simultaneously, sixteen could be talking in a normal voice and twelve patrons could be talking in a raised voice without exceeding the maximum allowable patron noise level of 50dB LAeq at the nearest residential receptors.

Similarly, of the sixteen patrons to the south of Vita T2, it has been calculated that given the distance of the external seating to the closest residential window, five patrons could be talking in a raised voice without exceeding the maximum allowable patron noise level of 50dB LAeq at the nearest residential receptors.

It is therefore expected that residential amenity would be maintained at all properties around the proposed commercial unit given the proposed location of external seating and potential number of patrons.

9.0 LOUDSPEAKERS WITHIN EXTERNAL SEATING AREAS

It is proposed that loudspeakers are sited close to the external seating areas to enable the replay of background music. Figure 3 below illustrates the proposed location of loudspeaker groups. The loudspeakers would only operate up to 2300 hours.

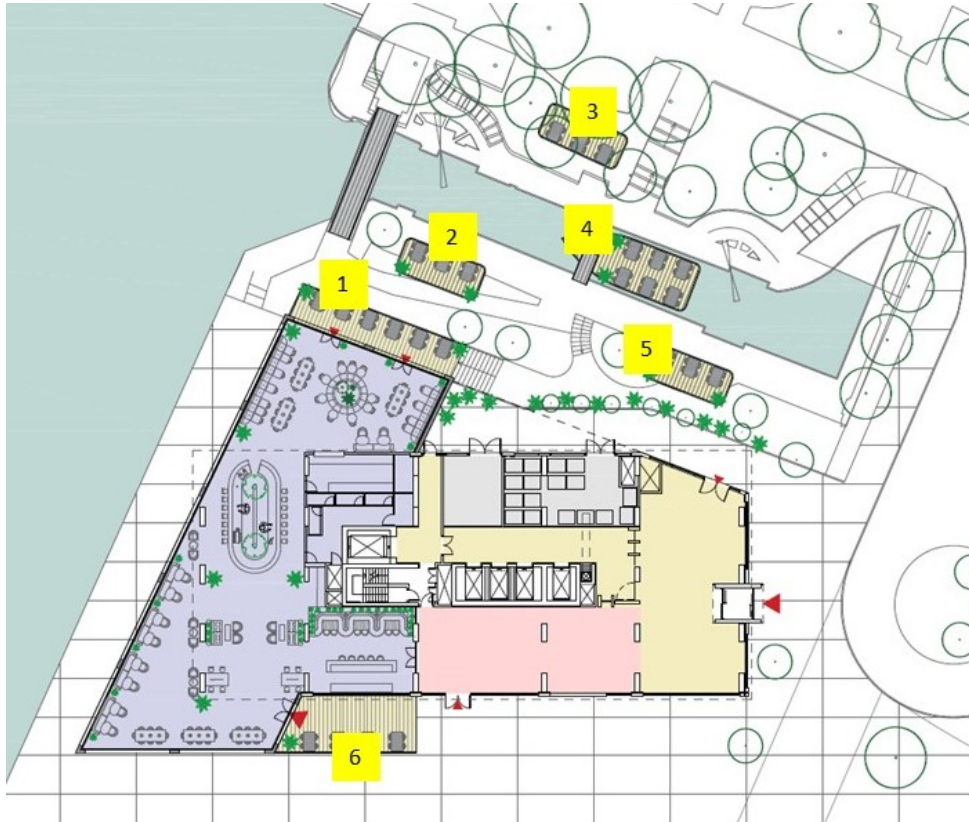


Figure 4: Proposed location of loudspeaker groups at external seating

The noise & vibration chapter of the Environmental Statement for T2 identified the maximum allowable external noise levels at the closest residential facades due to music noise egress from the proposed commercial unit in order to comply with the requirements of Manchester City Council. These noise limits are presented in Table 3.

Location/period	Sound Pressure Level (dB Leq) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Slate Yard (0700 to 2300)	43	36	35	30	34	28	15
Slate Yard (2300 to 0700)	43	33	31	26	23	21	15
Left Bank (0700 to 2300)	45	42	41	39	37	30	20
Left Bank (2300 to 0700)	43	37	36	34	32	25	15
Marriott Hotel (0700 to 2300)	43	40	38	35	32	35	26
Marriott Hotel (2300 to 0700)	43	40	38	35	31	34	27
Union, T1 (0700 to 2300)	43	36	35	30	34	28	15
Union, T1 (2300 to 0700)	43	33	31	26	23	21	15
Union, T2 (0700 to 2300)	43	36	35	30	34	28	15
Union, T2 (2300 to 0700)	43	33	31	26	23	21	15

Table 3: Maximum allowable external music noise levels due to proposed commercial units

Calculations have been carried out to determine the maximum allowable sound pressure levels at 1 metre from each loudspeaker such that the maximum allowable daytime external noise level at the nearest residential properties, as detailed in Table 3, are not exceeded. The calculations assume that in each seating group there is one loudspeaker for every six to eight covers and that all loudspeakers operate simultaneously.

Table 4 identifies the maximum allowable sound pressure levels at 1 metre from each external loudspeaker.

Loudspeaker Group Reference Number (see Figure 3)	Sound Pressure Level (dB Leq) , 1 metre @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
1	61	54	53	48	52	46	34
2	61	54	53	48	52	46	34
3	61	54	53	48	52	46	34
4	60	53	52	47	51	44	31
5	59	53	52	47	51	44	31
6	65	58	57	52	56	50	37

Table 4: Maximum allowable noise levels at individual loudspeakers – daytime

The permissible sound pressure levels are of necessity very low but are compatible with the replay of low-level background music within the proposed external seating areas. It is therefore considered that external loudspeakers can be accommodated within the scheme.

The setting of the maximum allowable internal music noise levels within the commercial unit must take into account the contribution of any external loudspeakers to the cumulative music noise level at the residential facades.

APPENDIX A

NOISE SURVEY DETAILS

LOCATION

Union, St Johns, Vita T2, Water Street, Manchester

DATES AND TIMES

Friday Daytime, 13th March 2020

16:20 to 17:15

Weather during surveys

Friday 13 March 2020

2/8 cloud cover, 1 m/s light breeze, no rain, 6°C

Personnel present during survey

Matt Fisher – Fisher Acoustics

Instrumentation

Norsonic Type 140 IEC 60651 Type 1 Integrating-Averaging Sound Level Meters (serial no. 1403193)

Norsonic Type 1251 IEC 60942-1997 Class 1 Sound Calibrators (x2) (serial nos. 31971, 27878)

Measurement methodology

Before and after the noise survey the sound level meter was checked calibrated to an accuracy of $\pm 0.3\text{dB}$ using the Norsonic Type 1251 Calibrator - no drift in sensitivity was detected. The measurement microphone was installed at the locations identified in this report. All survey measurements were in 'free field' conditions.

Measurement locations are shown on Figure 3.