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MPF/PR0635/L01A

15 January 2025

John Messer
Renaker Build Limited
NQ Building
47 Bengal Street
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Dear John

VITA T2, MANCHESTER – PLANNING CONDITION 17

I write with confirmation of the results of the acoustic assessment of the external building services plant at Vita Union T2, St Johns, Manchester.

INTRODUCTION

Fisher Acoustics Ltd has been commissioned by Renaker Limited to determine the expected external noise levels generated by the external building services plant at Vita Union T2, St Johns, Manchester and to respond to condition 17a of the planning approval for the development.

PLANNING CONDITION

Planning condition 17a for Vita Union T2 (planning application number 132952/JO/2022) states:

Condition 17:

- *"a) Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (LAeq) below the typical background (LA90) level at the nearest noise sensitive location.*

  The scheme shall be submitted to and approved in writing by the City Council as local planning authority, prior to installation, in order to secure a reduction in the level of noise emanating from the site.

  External plant shall not be brought into use until an emergency plant noise testing schedule has been submitted to, and approved in writing by, the City Council, as local planning authority.

  b) Prior to the operation of the scheme a verification report shall be submitted to and approved in writing by the City Council as local planning authority to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic report. The report shall also undertake post completion testing to confirm that the noise criteria have been met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the agreed noise criteria.

Reason - To minimise the impact of the development and to prevent a general increase in pre-existing background noise levels around the site, pursuant to policy DM1 of the Core Strategy for the City of Manchester."

PRE-EXISTING NOISE LEVELS & ENVIRONMENTAL NOISE STUDIES

To determine the typical background levels at and around the T2 site, noise surveys have been conducted by Fisher Acoustics. A manned daytime survey was conducted between 16:30 and 17:20 on Friday 13 March 2020. A more recent and longer-term daytime and night-time noise survey was carried out between 13:35 on Friday 26 April 2024 and 11:50 on Tuesday 30 April 2024.

The measurement locations used for the surveys are identified on Figure 1 and are representative of the positions of the façades of the proposed building and are described below:

- Location 1: Representative of the northwest elevation of the T2 building, at a microphone height of 5 m above ground level
- Location 2: At the northeast elevation of the T2 building, at a microphone height of 26 m above ground level, 1m from the facade

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 and around the site is determined by road traffic on Trinity Way and rail traffic on the Ordsall Chord.

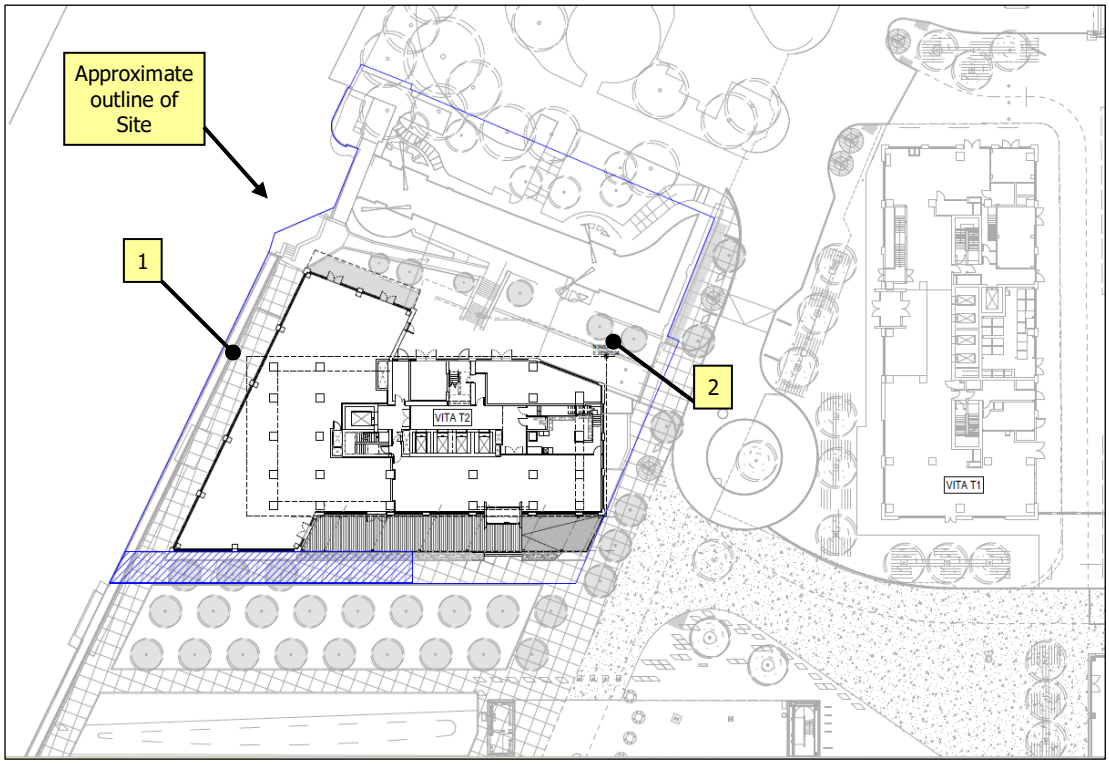

Figure 1: Noise survey measurement locations

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

Location & Date	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 - Friday 13 March 2020	60	61 to 73	53 to 62	-	-	-
2 - Friday 26 April 2024	55	62 to 83	47 to 61	52	48 to 79	43 to 58
2 - Saturday 27 April 2024	54	53 to 77	47 to 60	51	48 to 76	43 to 55
2 - Sunday 28 April 2024	54	53 to 84	46 to 57	52	49 to 73	44 to 56
2 - Monday 29 April 2024	58	56 to 86	49 to 69	53	56 to 87	44 to 56
2 - Tuesday 30 April 2024	56	57 to 72	51 to 66	-	-	-

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

The results of the above noise surveys and reference to the noise surveys discussed in the Environmental Statement for Union T2 have been used to establish the typical background noise levels at and around the site, as identified in Table 2.

Location	Typical background noise level (dB L_{A90})	
	Daytime (07:00 hrs to 23:00 hrs)	Night time (23:00 hrs to 07:00 hrs)
A: The Slate Yard	55	47
B: Left Bank	55	47
C: Marriott Hotel	52	45
D: Manchester Goods Yard	55	50
E: Vita Union T1	52	45
F: Vita Union T2	52	45

Table 2: Environmental noise limits for non-emergency building services plant

Table 3 below gives the applicable noise limits for non-emergency building services plant based upon the values given in Table 2 in order to comply with the requirements of Condition 17.

Location	Rating noise level (dB L_{Aeq})	
	Daytime (07:00 hrs to 23:00 hrs)	Night time (23:00 hrs to 07:00 hrs)
A: The Slate Yard	50	42
B: Left Bank	50	42
C: Marriott Hotel	47	40
D: Manchester Goods Yard	50	45
E: Vita Union T1	47	40
F: Vita Union T2	47	40

Table 3: Environmental noise limits for non-emergency building services plant

With regard to emergency plant, such plant would only operate in an emergency or during periodical short-duration test runs. On this basis, it is not considered appropriate to require emergency plant to comply with the noise limits for continuously operating non-emergency plant. It is therefore suggested that the noise level from any emergency plant is no more than 10 dB(A) greater than the background noise level (measured as an LA90) at any residential receptor.

With reference to the typical daytime background noise levels identified in Table 2 above, it is therefore recommended that the noise level at any residential façade during operation of any emergency plant does not exceed the daytime noise levels given in Table 4.

Location	Daytime noise level (dB L_{Aeq})
A: The Slate Yard	65
B: Left Bank	67
C: Marriott Hotel	57
D: Manchester Goods Yard	65
E: Vita Union T1	57
F: Vita Union T2	57

Table 4: Environmental noise limits for emergency building services plant

BUILDING SERVICES PLANT (NON-EMERGENCY)

There is no external non-emergency plant to be installed at Vita Union T2.

BUILDING SERVICES PLANT (EMERGENCY)

The following external emergency plant items have been installed at Vita Union T2:

- 2 no. Elta 800mm diameter inverter driven, smoke rated axial fans with 2D attenuators

It has been advised that the above smoke extract fans would be tested on a weekly or fortnightly basis, operating during the day for under five minutes per test. During these tests, the plant would be operated at 30% of its normal duty, such that the noise levels generated by the fans during testing would be substantially lower than during a live emergency.

In addition, an annual full-load test is to be carried out between the hours of 10am and 4pm, during which the extract fans would operate for around ten minutes.

Table 5 identifies the reported in-duct sound power levels of the rooftop smoke extract plant during testing and during a live emergency and a full-load annual test.

Building services plant item	Sound Power Level (dB re 1 x 10^{-12} Watts)							
	dB(A)	Octave Band Centre Frequency (Hz)						
		63	125	250	500	1k	2k	4k
Fan 1: Elta 800mm dia. inverter driven, smoke rated axial fan at 30% Duty (Test Mode)	77	82	76	73	75	73	69	65
Fan 1: Elta 800mm dia. inverter driven, smoke rated axial fan at 100% Duty (Emergency and annual test)	104	100	103	98	99	101	97	92
Fan 2: Elta 800mm dia. inverter driven, smoke rated axial fan at 30% Duty (Test Mode)	60	76	67	59	52	49	54	52
Fan 2: Elta 800mm dia. inverter driven, smoke rated axial fan at 100% Duty (Emergency and annual test)	86	94	96	84	75	75	80	77

Table 5: Sound power levels of emergency smoke extract plant – in-duct

Table 6 identifies the reported casing radiated sound power levels of the rooftop smoke extract plant during testing and during a live emergency and a full-load annual test.

Building services plant item	Sound Power Level (dB re 1 x 10^{-12} Watts)							
	dB(A)	Octave Band Centre Frequency (Hz)						
		63	125	250	500	1k	2k	4k
Fan 1: Elta 800mm dia. inverter driven, smoke rated axial fan at 30% Duty (Test Mode)	55	74	64	53	52	48	42	31
Fan 1: Elta 800mm dia. inverter driven, smoke rated axial fan at 100% Duty (Emergency and annual test)	81	93	90	78	77	76	70	58
Fan 2: Elta 800mm dia. inverter driven, smoke rated axial fan at 30% Duty (Test Mode)	54	74	62	52	51	45	40	30
Fan 2: Elta 800mm dia. inverter driven, smoke rated axial fan at 100% Duty (Emergency and annual test)	81	93	91	76	73	71	66	54

Table 6: Estimated sound power levels of emergency smoke extract plant – casing radiated

Figure 2 identifies the locations of the roof mounted smoke extract fans.

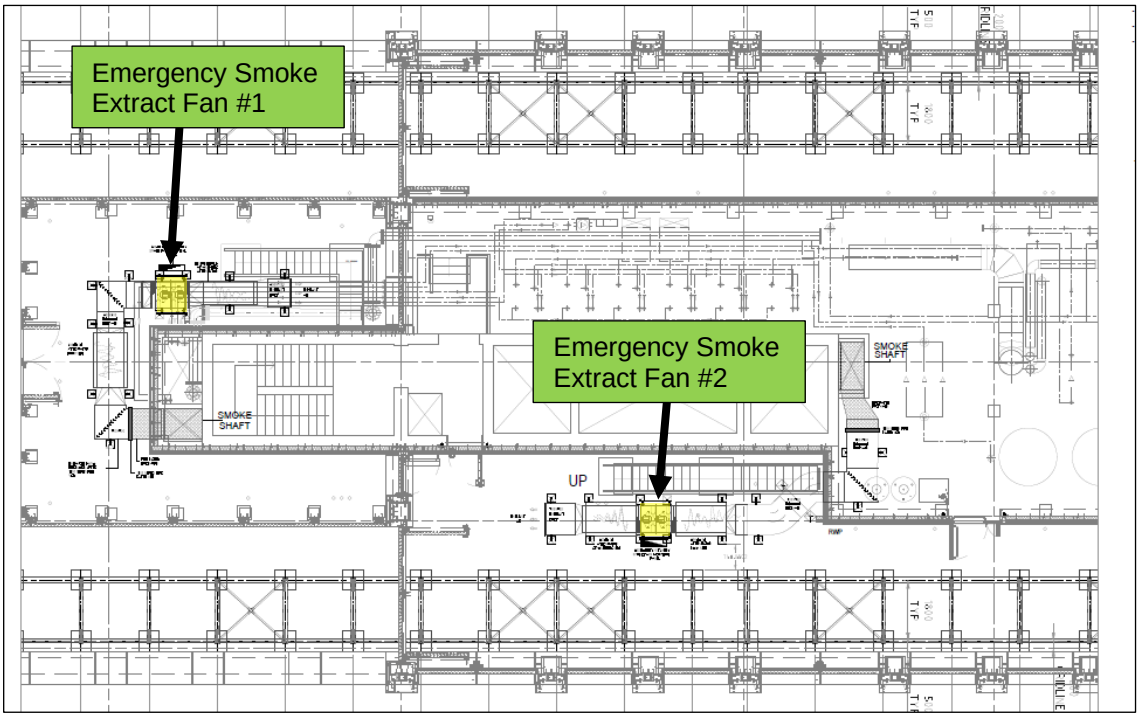

Figure 2: Roof-mounted emergency plant locations, Vita Union T2 - Plan

CALCULATED EXTERNAL NOISE LEVELS DUE TO BUILDING SERVICES PLANT

Based on the reported sound power level for the plant items detailed above, the expected noise levels at the nearest noise sensitive façades have been calculated.

Table 7 identifies the calculated noise levels during typical test runs and during a live emergency or annual test. The calculated noise levels assume that both smoke extract fans are running simultaneously.

Location	Free-field Sound Pressure Level (dBA)		
	Test Mode 30%	Emergency and annual full-load test 100%	Noise Limit
Vita Union T2, Level 35	31	57	57
Vita Union T1, Level 31	23	50	57

Table 7: Calculated noise levels at the nearest noise sensitive locations due to external plant at T2

With reference to Table 7, it can be seen that the calculated plant noise levels, whether in test mode or during an emergency and full-load test, comply with the applicable noise limit.

The receptors that are at a greater distance from the T2 building than the receptors identified in Table 7 will benefit from greater attenuation of noise due to increased distance from the T2 plant. Therefore, compliance with the identified noise limits at these other receptors is also fully expected.

CONCLUSION

Based on the reported sound power data for the external building services plant at Vita Union T2, it can be seen that the worst-case calculated noise levels at the nearest noise sensitive receptors due to emergency plant do not exceed the applicable noise limits.

The expected noise levels at the noise-sensitive properties due to the operation of all emergency building services plant at T2 is considered to be commensurate with the maintenance of residential amenity.

If there are any aspects that you would like to discuss, please do not hesitate to contact the undersigned.

Yours sincerely

MATT FISHER BEng(Hons) CEng MIOA
For and on behalf of Fisher Acoustics Limited