

MPF/PR0539/L05

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Dear John

CASTLE WHARF, CHESTER ROAD, MANCHESTER – PLANNING CONDITION 24

We write with confirmation of the expected plant noise levels at the nearest sensitive properties due to plant at Castle Wharf, Chester Road, Manchester.

INTRODUCTION

Fisher Acoustics Ltd has been commissioned by Renaker Build Limited to determine the external noise levels generated by external plant installed at Castle Wharf, Chester Road, Manchester and to compare the noise levels to the requirements of planning condition 24 of the planning approval.

PLANNING CONDITION 24

Planning condition 24 of the planning approval for 2-4 Chester Road, Manchester (Planning Application number 113870/FO/2016) states:

- *'Before first occupation of the development the building, together with any externally mounted ancillary equipment, shall be acoustically insulated in accordance with a scheme submitted to and approved in writing by the City Council as local planning authority in order to secure a reduction in the level of noise emanating from the equipment.'*

Reason - To safeguard the amenities of the occupiers of nearby residential accommodation, pursuant to policies SP1 and DM1 of the Core Strategy.

There is no externally mounted ancillary equipment at the development. However, there are two condensers within the basement of Castle Wharf that could radiate noise to the external environment. The noise levels from the condensers has therefore been assessed.

ENVIRONMENTAL NOISE CRITERION

'Planning & Noise, Technical Guidance', dated December 2015 has been issued by the Environmental Protection, Environmental Health and The Neighbourhoods Service sections of Manchester City Council. The document provides guidance to applicants and consultants concerning the assessment and prediction of environmental noise associated with a particular development. Reference is also made in the document to the relevant supporting information and guidance documents that Developers are expected to refer to when submitting a planning application.

With regard to external noise due to building services plant, Section 3.6.1.5.1 of 'Planning & Noise, Technical Guidance' states:

- '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'

PRE-EXISTING NOISE LEVELS

An environmental noise survey was carried out at the site as part of the environmental noise study that was conducted as part of the planning submission for 2-4 Chester Road. The noise and vibration chapter of the Environmental Statement for Chester Road identifies the pre-existing background noise levels at the site at a location in line with the rear elevations of Castlegate and of 2-4 Chester Road. The measurement location was screened from local road noise and thus can be considered to be representative of the background noise levels at other locations that do not have direct line of sight to road traffic on Chester Road, such as the lower floor levels of Deansgate Quay.

Noise limits for building services plant

The two condensers at Castle Wharf are located as follows:

- #1: Within basement car park at the furthest end of the car park from the car park entrance ramp.
- #2: Within dedicated basement plant space adjacent to the archways below Chester Road

Figure 1 identifies the location of the condensers.

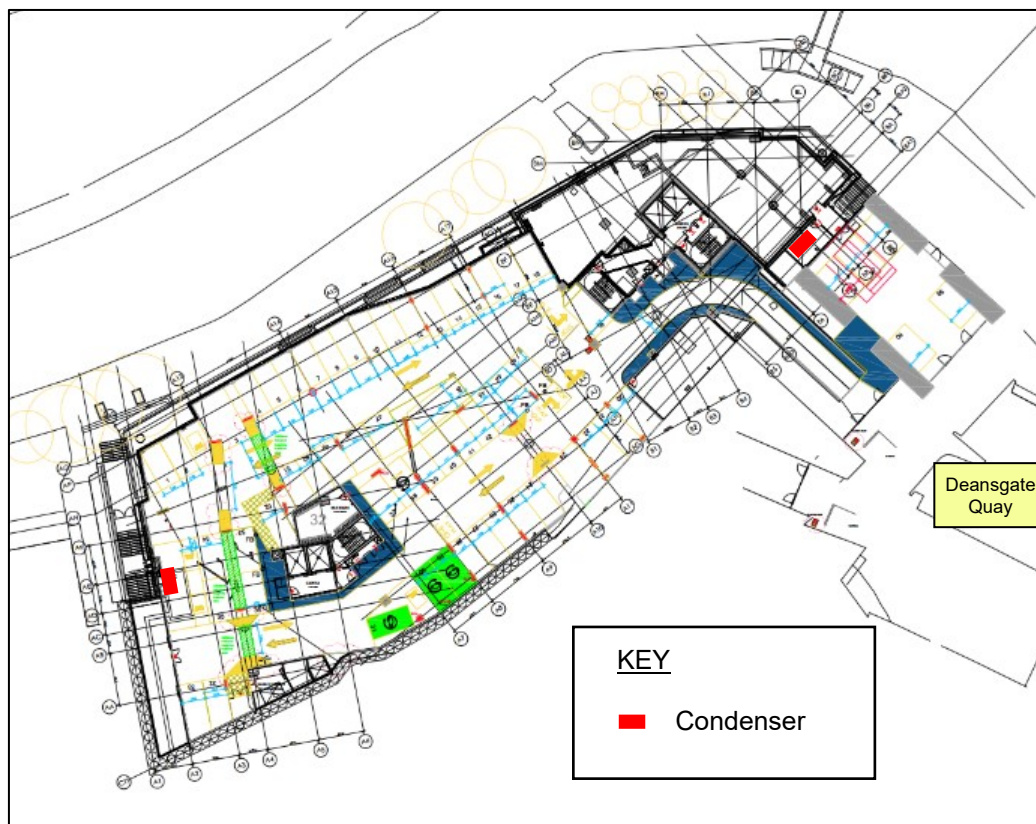


Figure 1: Location of condensers, Castle Wharf basement level 1

The closest noise sensitive properties to the condenser plant at Castle Wharf are the residential apartments of Deansgate Quay on the opposite side of Chester Road to Castle Wharf.

Whilst there are other residential receptors at around the site, these receptors are at a greater distance and are physically screened from the plant at Castle Wharf. Therefore, noise levels at these other receptors due to the operation of plant at Castle Wharf will be less significant.

With reference to the results of the environmental noise surveys at the site, Table 1 identifies the maximum recommended noise levels at Deansgate Quay to comply with the noise criterion of condition 24.

Location	Noise Level (dB LAeq)	
	Daytime (07:00 hrs to 23:00 hrs)	Night time (23:00 hrs to 07:00 hrs)
Deansgate Quay	52	46

Table 1: Environmental noise limits for non-emergency building services plant

BUILDING SERVICES PLANT

The plant items installed in the basement of Castle Wharf are as follows:

- 1 no. Mitsubishi PURY350 condenser
- 1 no. Mitsubishi PURY400 condenser

Table 2 identifies the reported sound pressure levels of the VRF condenser units when operating at full load.

Building Services Plant Item	Sound Pressure Level at 1 metre (dB re 2 x 10 ⁻⁵ Pa)							
	dB(A)	Octave Band Centre Frequency (Hz)						
		63	125	250	500	1k	2k	4k
VRF Condenser Unit: Mitsubishi PURY-P350YNW-A (1 No.)	64	72	71	64	62	57	54	52
VRF Condenser Unit: Mitsubishi PURY-P400YNW-A (1 No.)	69	81	70	70	68	62	59	54

Table 2: Sound pressure levels of condenser units at Chester Road, full load

The condensers are not ducted to outside air and therefore the only routes for noise from the condensers to radiate to external receptors are as follows:

- 1) Via car park entrance ramp, approximately 70 metres from condenser
- 2) Via louvre to circulation corridor, below Chester Road

MEASURED EXTERNAL NOISE LEVELS DUE TO BUILDING SERVICES PLANT

As the condensers are installed and are operational, measurements have been carried out on site to determine the noise levels generated by units.

The condensers serve the concierge area and the spa areas within the building. It is understood that these areas are set to maintain a constant 24 hour temperature of 21°C in the concierge and 22°C in the spa areas.

As the condensers are inverter driven, the output power of the units is regulated to provide only the level of heating or cooling required to maintain these temperatures, such that full power output (and hence the maximum potential noise level) should never be called upon in normal operation.

As such the noise levels were measured with the units in 'normal' operation, as described above, and with the room thermostats set to 30°C to force a higher operating output from the units to present a worst-case, but unlikely, scenario.

Table 4 identifies the results of the measurements for Condenser #1, located in the basement car park.

Nominal condenser output	Location of measurement	Sound Pressure Level (dB LAeq)
Normal	1m from condenser	66
“	At top of car park ramp within basement car park	55
“	External to car park entrance door, 5m from Deansgate Quay residential façade (condenser inaudible, Chester Road traffic dominates)	58
High (artificially high cooling demand)	1m from condenser	74
“	At top of car park ramp within basement car park	58
“	Internal, 1m from car park entrance door (condenser inaudible)	53
“	External to car park entrance door, 5m from Deansgate Quay residential façade (condenser inaudible, Chester Road traffic dominates)	58

Table 4: Measured noise levels – basement car park

Table 5 identifies the results of the measurements for Condenser #2, located in the dedicated basement plant space.

Nominal condenser output	Location of measurement	Sound Pressure Level (dB LAeq)
Normal	Within condenser plant space	58
“	1m in front of external louvre (internal measurement)	48
“	1m in front of external louvre (under Chester Rd arch) Chester Road traffic noise contributes	51
“	5m in front of external louvre (under Chester Rd arch) (condenser inaudible, Chester Road traffic dominates)	51
“	External to archway 5m from Deansgate Quay residential façade (condenser inaudible, Chester Road traffic dominates)	56
High (artificially high heating demand)	Within condenser plant space	58
“	1m in front of external louvre (internal measurement)	53
“	1m in front of external louvre (under Chester Rd arch) Chester Road traffic noise contributes	52
“	5m in front of external louvre (under Chester Rd arch) (condenser inaudible, Chester Road traffic dominates)	49
“	External to archway 5m from Deansgate Quay residential façade (condenser inaudible, Chester Road traffic dominates)	52

Table 5: Measured noise levels – basement car park

CONCLUSION

It can be seen that the condensers installed at Castle Wharf, Chester Road were inaudible at internal positions within the building curtilage and external to the Chester Road archways that lie adjacent to Deansgate Quay residential apartments.

In each case, the measured internal noise levels were lower than the measured external noise levels. This was due to the major contribution of road traffic noise to the measured external noise levels.

Given the measured noise levels, it is considered that full compliance with Condition 24 has been achieved by the installed building services plant.

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

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Matt Fisher', with a stylized flourish at the end.

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