

Technical design note

Project name	19 King Street, Manchester		
Design note title	Discharge of Condition 3b)		
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1. Introduction

1.1 Overview

Hydrock were appointed by Cushman & Wakefield to carry out a Noise Impact Assessment, '36953-HYD-XX-XX-Y-RP-1001' (hereafter referred to as the 'NIA'), for the installation of two louvres and four new air conditioning condenser units on the rear elevation of 19 King Street, Manchester, M2 6AW.

The NIA assessed the rating level the installation at the nearest Existing Sensitive Receptors (ESRs) in accordance with BS4142 and Manchester City Council (MCC) guidance. The NIA concluded that the combined rating level from the plant configuration would be 6 dB below the background sound level at the nearest ESR, and therefore comply with MCC requirements i.e. the rating level should be at least 5 dB below the background level at the nearest ESR.

Hydrock have since been appointed to carry out post-completion testing, in order to discharge Condition 3b) attached to the planning decision. This report summarises a validation survey of specific noise levels associated with the installation in-situ, with a view to discharging Condition 3b).

Condition 3b) states:

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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.

2. Noise Survey

2.1 Specific Source Noise Measurement and Assessment

An attended noise survey was undertaken at the Site on the 29th January 2025. Specific noise measurements were taken between approximately 1415-1430.

Monitoring equipment was set up to measure A-weighted, time-equivalent, one-third octave band sound pressure levels for the duration of the survey. Noise measurements were carried out using a Class 1, integrating Sound Level Meter (SLM).

The SLM was calibrated to a reference level of 94 dB at 1kHz both prior to, and on completion of, the noise survey. No significant drift in calibration was noted during the survey (≤ 0.5 dB).

All noise monitoring was carried out in accordance with British Standard 7445-2 - *Description and measurement of environmental noise. Guide to the acquisition of data pertinent to land use*, where appropriate. The microphone was set up on a tripod at first floor level on scaffolding on Mayo Street.

As identified in the NIA, Mayo Street contains various fixed plant items, associated with other properties, which contribute significantly to the noise environment. Multiple fixed plant items are located on the façade opposite the new plant configuration for 19 King Street, in some cases less than one meter away.

Therefore, in order to obtain an accurate noise measurement of the installed plant, the validation survey involved the measurement of the source Sound Pressure Levels (SPLs) in close proximity to the installed plant unit located furthest from any existing fixed plant units at neighbouring properties, in order to minimise any interference.

One measurement was taken at a distance of 0.7m perpendicular from the centre of the unit whilst the single plant unit was operating at a typical capacity, as instructed to the occupiers of the property. The three other fitted plant items were not in operation.

The same measurement position was used to measure the residual SPL whilst the installed plant was switched off. The specific SPL from a single plant unit has been calculated via logarithmic subtraction, in accordance with BS4142. The Sound Power Level (SWL) of a single unit, as well as the combined SWL from all fitted plant units, has subsequently been calculated and compared with the combined SWL associated with the installation adopted in the NIA, which was based on manufacturer data.

2.2 Summary of Survey Results

A summary of the specific level is set out in **Table 1**.

Table 1: Summary of Measured Noise Levels

Description	Sound Level, dB L_{Aeq}
Measured Ambient SPL at 0.7m with plant in operation	61
Measured Residual SPL at 0.7m with plant switched off	55
Specific SPL at 0.7m of single plant unit	60

3. Noise Assessment

3.1 Comparison of Predicted and Measured Plant Noise

The SWL of each plant unit has been derived from the measured SPL of a single plant unit, as summarised in **Table 2**. **Table 2** provides a comparison of the measured SWL against the manufacturer quoted SWL used within the NIA.

Table 2: Comparison of Proposed and Measured Cumulative Sound Power Levels

Description	SWL from Manufacturer Data Sheet, dB(A)	SWL derived from Measured Data, dB(A)	Level Difference, dB
SWL of single plant unit	67	65	-2
SWL of combined plant configuration	73	71	-2

Table 2 shows that the cumulative SWL derived from measured noise levels in-situ is 2 dB below the cumulative SWL derived from manufacturers noise data, and therefore complies with MCC guidance, based on the calculations provided in the NIA. Therefore, no mitigation is required.

4. Conclusion

Hydrock have been appointed to carry out a validation noise survey of the plant installation at 19 King Street, Manchester, M2 6AW in order to discharge Condition 3b) attached to the planning decision. A validation noise survey has therefore been carried out to measure the specific noise levels of the fitted units, confirm that the plant configuration does not exceed the proposed sound power level of the units which were assessed in the Noise Impact Assessment, '36953-HYD-XX-XX-Y-RP-1001', in accordance with BS4142, and therefore ensure that the requirements set out by Manchester City Council are met.

The results show that the SWL of installed units under typical operation, derived from noise survey data, is below the SWL provided in manufacturers data sheets. This demonstrates that noise levels associated with the installation is at least 5dB below the background level at Existing Sensitive Receptors (ESRs), which complies with Manchester City Council requirements and provides sufficient information to discharge planning Condition 3b) attached to the planning decision.