

Memo

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Cc: Phil Mann, Al Plail (Hoare Lea)

From: Sam Garne, Senior Acoustics Engineer

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Project: The Manchester College CC

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The Manchester College – Condition 16 verification report.

1. Introduction.

Hoare Lea has been appointed to provide a report suitable for submission to Manchester City Council for the discharge of Planning Condition 16 of Application reference 124995/FO/2019.

2. Acoustic requirements.

2.1 Planning Condition 16.

The full planning condition is presented below:

'16) Notwithstanding the acoustic report stamped as received by the City Council, as Local Planning Authority, on the 1 October 2019 and Revised acoustic assessment Rev 03 stamped as received by the City Council, as Local Planning Authority on the 28 November 2019

(a) Prior to the first use of the development hereby approved, details of any externally mounted ancillary plant, equipment and servicing shall be submitted for approval. For the avoidance of doubt, externally mounted 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 5 db (Laeq) below the typical background (La90) level at the nearest noise sensitive location.

(b) The approved scheme shall be implemented and prior to the first use of the development, a verification report will be required to validate that the work undertaken conforms to the recommendations and requirements approved as part of part (a) of this planning condition. The verification report shall include post completion testing to confirm the noise criteria has been met. In instances of non conformity, these shall be detailed along with mitigation measures required to ensure compliance with the noise criteria. Any mitigation measures shall be implemented in accordance with a timescale to be agreed with the City Council, as Local Planning Authority, and thereafter retained and maintained in situ.

Reason - To minimise the impact of plant on the occupants of the development pursuant to policies SP1 and DM1 of the Manchester Core Strategy (2012) and saved policy DC26 of the Unitary Development Plan for the City of Manchester (1995).'

2.2 Criteria.

The planning noise assessment report (dated 28/11/2019) includes the following results from the noise survey carried out at the site.



Figure 1: Annotated 3D rendered image indicating measurement positions and prevalent sound levels -courtesy of Google Earth (from planning report dated 28/11/2019).

The two closest noise-sensitive receptors considered are the Travelodge on Great Ducie Street to the north-west of the development, and the Beaumont Building apartments on Mirabel Street to the south west.

The roof mounted plant equipment is only proposed to be in operation during daytime hours. On this basis, only the daytime noise levels have been considered.

The noise survey position considered to be representative of the Travelodge is Position L5, and the noise survey position considered representative of the Beaumont Building Apartments is Position L1. On this basis, the applicable plant noise emissions limits for these two receptors are to be based on the daytime background sound levels measured at these receptors.

Receptor	Background sound level captured at representative location ($L_{A90,T}$, dB)	Maximum allowable sound pressure level at 1 m from the closest noise sensitive premises ($L_{Aeq,T}$, dB)
Travelodge	51	46
Beaumont Building Apartments	61	56

Table 1: Plant noise emissions limits applicable at 1 m from the closest noise-sensitive receptors.

3. Post completion testing.

3.1 Methodology.

The Planning Condition requires post completion testing to be undertaken. Due to the low noise levels to be achieved at the closest noise-sensitive receptors, measurements have been undertaken close to the external plant units, and calculations undertaken to determine the resultant noise level at the closest noise-sensitive receptors.

It is understood that the plant equipment was all set to operate at 'design duty' by the project building services engineer. Measurements were undertaken in four conditions:

- VRF units on, all other equipment off
- General extract fans and air handling units on, all other equipment off
- Local extract ventilation on, all other equipment off
- All equipment off (to be used as a background at each measurement location)

To capture the noise emissions from plant equipment more accurately and to provide a detailed assessment of plant noise at the receptor locations, measurements were undertaken of each group of items separately, at a distance of 1 m from the dominant item of equipment, as presented below:

- 14 groups of VRF units
- 11 groups of general extract fans & air handling units
- 5 groups of local extract ventilation units

All items of equipment not measured were very quiet and were not dominant over the background noise present at roof level.

There is a louvred plant screen surrounding many of the items of plant equipment. Measurements were undertaken either side of the screen, close to nearby units in operation. A sound level difference of c. 3 dB was measured across the screen. This was used as a correction for all units fully enclosed behind the louvred screen.

3.2 Assessment.

Based on the measurements undertaken at each group of plant equipment, the noise levels acting on the closest noise-sensitive receptors has been established as presented in Table 2.

Receptor	Travelodge, $L_{Aeq,T}$ dB	Beaumont Building Apartments, $L_{Aeq,T}$ dB
VRF units	33	35
General extract fans and air handling units	42	50
Local extract ventilation units	41	45
<u>Total</u>	<u>45</u>	<u>51</u>

Table 2: Plant noise emissions calculated at 1 m from the closest noise-sensitive receptors based on measurements undertaken.

The noise levels at 1 m from the closest noise sensitive receptors has been compared with the daytime limits below:

Receptor	Maximum allowable sound pressure level at 1 m from the closest noise sensitive premises ($L_{Aeq,T}$, dB)	Total noise level predicted at 1 m from closest noise sensitive premises based on measurements undertaken ($L_{Aeq,T}$, dB)
Travelodge	46	45
Beaumont Building Apartments	56	51

Table 3: Total noise level predicted at closest noise sensitive premises based on measurements undertaken compared with noise limits.

As presented, the measurements undertaken show that the noise emissions from the plant equipment operating on the roof of the new building achieves the plant noise limits at the two closest noise sensitive receptors.

4. Summary.

Hoare Lea has carried out post completion testing to determine whether the plant noise emissions from the new items of plant equipment achieve the plant noise limits.

Based on the measurements undertaken, it is shown that the plant noise limits are achieved and therefore the requirements of Planning Condition 16 have been achieved.