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Hallmark Developments (NW) Ltd

Reassessment of noise impact at the Former Dexine
Site, Rochdale, OL12 6AU, in the light of a proposed
new Office Building and Commercial Unit.

Prepared for :-

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1.0 **SUMMARY**

The original assessment in 2019 assumed that all units potentially run with relatively high internal noise levels. It suggested that most units could run through the night without any difficulties.

Since then planning consent was granted for the site as a whole with some noise criteria given in Condition 18. It is assumed that these criteria will be brought forward to any consent for the proposed new Office Building and Commercial Unit. We have remodelled the site to include the impact of the proposed new commercial units, based on a fairly extreme worst case assumption of internal industrial noise at levels above which occupation noise exposure would become an issue. We have also assumed basic roller shutter doors and, in another scenario, the roller shutter doors left open. In all cases the impact should be well within criteria and can be expected to make no significant contribution the site noise as a whole.

Further, the Commercial Unit is likely to be used by the developers as it is attached to their proposed offices and, if not, let to small commercial businesses which create negligible noise and will rarely be open at night, if ever. We would suggest that the risk of any impact at all is likely to be extremely low.



A R Raymond



P J Durell

2.0 **INTRODUCTION**

ADC was asked to remodel the above site with regards to a proposed new Office Building and Commercial Unit.

This report begins by discussing the planning condition and alternative interpretations.

After describing the modelling process and assumptions, we discuss basic results and the resulting assessment. The predicted noise is assessed and discussed along with any recommendations.

3.0 **PLANNING CONDITIONS**

The original planning consent for the site included Condition 18, which reads as follows:-

18 Prior to first occupation of any individual plots (Units 9-18 as shown on approved layout H332/021N), and unless otherwise agreed in writing by the Local Planning Authority, a Noise Impact Assessment shall be submitted to and approved in writing by the Local Planning Authority to demonstrate that the following noise parameters will be achieved in respect of any building or from plant and machinery used in connection with any building:

- Point 1, rear of homes 201-211 Spotland Road to the Northern boundary of the site. Between 07:00-23:00 44 dB(A) Leq 15 minute, between 23:00-07:00, 34 dB(A) Leq 5 minute.*

(Note that there are other criteria at other positions, but only Point 1 is relevant to this proposal)

The approved Noise Impact Assessment shall be implemented in full prior to first occupation and the set parameters shall not be exceeded at any time.

Reason: In order to ensure an appropriate level of sound insulation in the interests of residential amenity in accordance with Core Strategy policy DM1 and the National Planning Policy Framework.

As discussed in previous reports, we cannot identify from where any of the criteria in Condition 18 have been derived, or why they are associated with such short assessment durations. The criterion for Point 1 is not too onerous for daytime, but we would suggest that 35 dB LAeq(15 min) would be more than adequate for night time.

As discussed in previous reports, BS 4142 states:-

Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.

The Association of Noise Consultants Working Group (“WG” in the extract below) who put together the ANC guidance to BS 4142¹ state:-

BS 4142 does not define ‘low’ in the context of background sound levels nor rating levels. The note to the Scope of the 1997 version of BS 4142 defined very low background sound levels as being less than about 30 dB L_{A90} , and low rating levels as being less than about 35 dB $L_{A,r,Tr}$.

The WG suggest that similar values would not be unreasonable in the context of BS 4142, but that the assessor should make a judgement and justify it where appropriate.

We would suggest, therefore that there is little justification in setting criteria below 35 dB L_{Aeq} in most contexts, and certainly not where the context is established B2 use.

Overall, we would suggest that criteria of 40 dB L_{Aeq} daytime and 35 dB L_{Aeq} night create negligible impact, particularly as this would be a design aim based on all units running together to contribute to these overall levels. The reality is that some will be far quieter than others, and most are unlikely to run at all at night.

Our main recommendation, as previously, is to discuss the criteria with planners, inviting officers to contact us directly and informally if they wish.

4.0 GUIDE TO MODELLING

We have used our CadnaA modelling software which calculates noise propagation based on the processes of *ISO 9613 : Acoustics – Attenuation of sound during propagation outdoors*. Obviously, modelling software is reliant on the inputs and assumptions. The key ones are:-

4.1 General

1. The ground is mainly reflective (coefficient of 0.11 assumed).
2. Calculations are based on two orders of reflections.
3. The site buildings and the surrounding buildings are assumed to be mainly reflective (0.5 dB loss on reflection assumed).
4. The surrounding trees and vegetation will provide a small degree of absorption but this has been neglected.

4.2 Previous and Proposed Industrial Units

1. This section repeats the discussions in the previous reports for the site as a whole, with additional comments for the proposed new Commercial Unit.

¹ Note Andrew Raymond, author of this report, was part of the WG which prepared the ANC guidance.

2. Over the site as a whole, we continue to assume that units will be let to industrial tenants who will create internal noise through the day and night. This is not actually the case with existing tenants and not expected from future tenants but we retain the assumption so as to cover a worst case.
3. Noise within the industrial units is very pessimistically assumed to be 85 dB L_{Aeq} at worker positions. For an 8 hour day, anything above this would require action to reduce operator exposure and so it should represent a pessimistic assumption, especially given that it is assumed to take place continuously in all units. We have pessimistically estimated that this will be equivalent to a level of 80 dB L_{Aeq} across all internal surfaces of the walls and roofs. We have assumed the same for the proposed commercial unit in this assessment. We have assumed that the building envelopes across the site are typical industrial cladding such as Kingspan KS1000 R_w and KS1000 AWP. The proposed new units is a brick building, with offices taking the first floor and part of the ground floor. Commercial area is assumed to have a basic roller shutter door and the glazed section is assumed to be 4mm single sheet glass.
4. Source data for potential mechanical equipment is taken from data sheets for Mitsubishi aircon and inverter external units, published data is well known and easily accessible. As typical examples, all units, including the proposed commercial unit have been given a Mitsubishi PUHZ-ZRP71VHA and a Mitsubishi PUHZ-RP250YKA.

5.0 **RESULTS AND DISCUSSIONS**

5.1 **Basic Impact of Commercial Units**

The CadnaA software was used to model the potential impact of the all the site unit, not just the proposed new Commercial Unit. See Section 4.





Note that:-

- The beige shapes are surrounding buildings and the application site building in its proposed form.
- The magenta lines are fences, walls etc.
- The yellow crosses are the mechanical equipment point sources.
- The dark blue hatched areas are the internal noise break out from the roof. The breakout from the walls is shown as the dark blue lines outlining the buildings.
- The coloured octagons are the noise levels at the residential facades. Note that the software is set to display the noisiest floor level (in most cases the first floor)
- Noise contours are shown for guidance only and shown how the noise propagates. The contours are at a height of

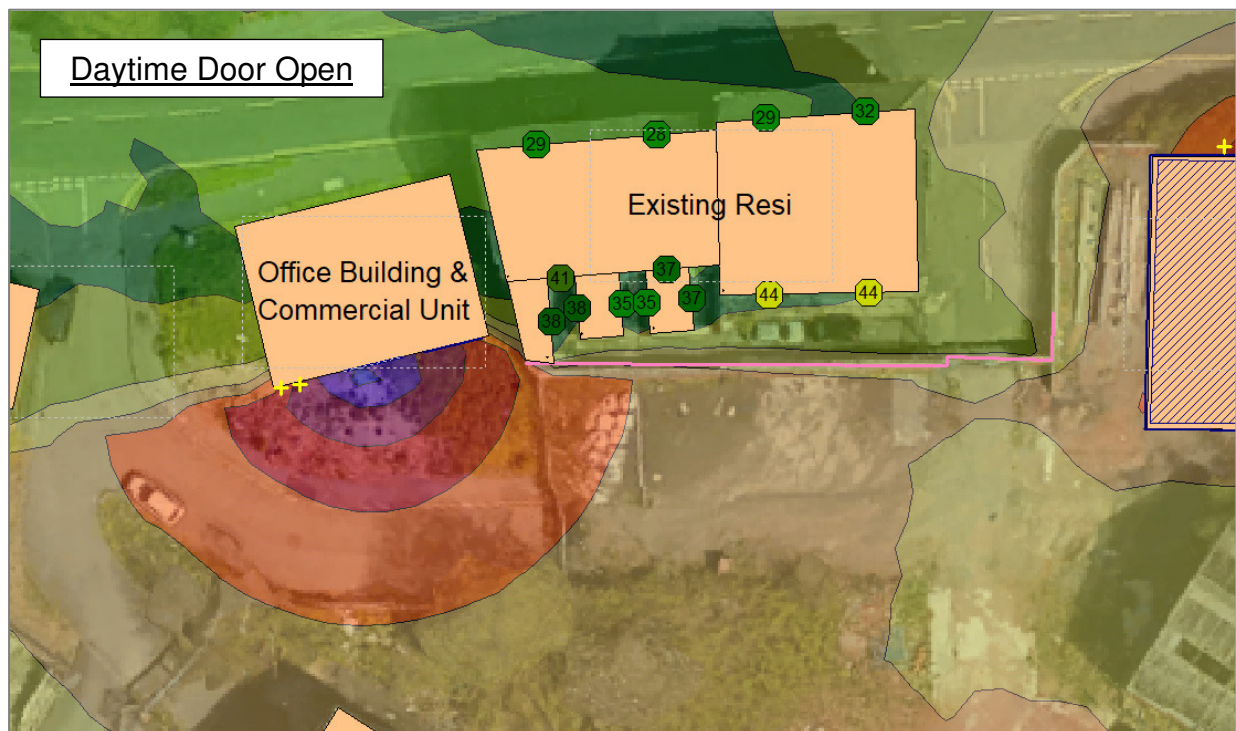
The following 3D view should help to visualise the model.



The model is based on all units, including the proposed new Commercial Unit, running throughout the day, evening and night. The only minor caveat is that we have assumed that noise within the proposed Commercial Unit is 3 dB less at night (in fact we are advised that it is unlikely ever to be used at night).

We can see that the daytime levels are well within the criterion of Condition 18 for Point 1. At face value night time levels are up to 1 dB above the night time criterion of Condition 18 but this is almost entirely due to other units on the site as a whole (the highest predicted night time level from just the proposed new Commercial Unit is well below 30 dB L_{Aeq}).

The above predicted levels are with the roller shutter door closed. However, even with it open, the daytime predicted levels at the most affected residential location is 44 dB L_{Aeq} , which just meets the daytime criterion of Condition 18.



5.2 Mitigation

There is no need for any specific mitigation, as the assumptions in the modelling are likely to be far more worst case than anything that is likely to occur. The roller shutter door of the proposed new Commercial Unit is likely to be acceptable open or closed during the day. In the unlikely event of noisy activity within the unit during the night, then it will need to remain closed.

6.0 CONCLUSIONS/RECOMMENDATIONS

The original assessment in 2019 assumed that all units potentially run with relatively high internal noise levels. It suggested that most units could run through the night without any difficulties.

Since then planning consent was granted for the site as a whole with some noise criteria given in Condition 18. It is assumed that these criteria will be brought forward to any consent for the proposed new Office Building and Commercial Unit. We have remodelled the site to include the impact of the proposed new commercial units, based on a fairly extreme worst case assumption of internal industrial noise at levels above which occupation noise exposure would become an issue. We have also assumed basic roller shutter doors and, in another scenario, the roller shutter doors left open. In all cases the impact should be well within criteria and can be expected to make no significant contribution the site noise as a whole.

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