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Sent by Email: [redacted]

Michael Pia & Mimi Samson
1 & 2 Railey Mews
London
NW5 2PA

Review of Noise Assessment Report Submitted in Support of Planning Application at 28-34 Fortess Road, London.

Introduction

inacoustic has been commissioned to undertake an independent review of the acoustic assessment submitted in support of Planning Application 2017/6027/P submitted to Camden Council, for a new plant compound at 28-34 Fortess Road, London. The acoustic report was prepared by Daniel Saunders of Clarke Saunders Associates and bears the reference AS9808.170725.NIA1.1.

Daniel Saunders has been contacted prior to the issuing of this review, to ensure compliance with the Institute of Acoustics' Code of Conduct.

The plant will be installed on a suspended mezzanine floor, within an existing building, adjacent to 1 & 2 Railey Mews. Importantly, the Application Site shares a party wall with 1 & 2 Railey Mews and the mezzanine floor is attached to this wall. The existing pitched roof of the Proposed Development building is, it is understood, to be replaced by an acoustic louvre system, to provide appropriate airflow rates to/from the proposed air handling plant.

Consequently, this technical note sets out our comments on the technical approach taken and any areas of potential risk that may remain unconsidered.

Baseline Survey

The baseline noise environment was determined via a long-term, unattended noise survey spanning Tuesday 13th to Thursday 15th June 2017, although the end date is erroneously quoted as Thursday 17th June 2017, within the report.

Figure AS9808/SP1 of the submitted noise report identifies the location of the Proposed Development, closest receptor (1 & 2 Railey Mews), denoted as 'Receptor A' and the baseline noise measurement location, denoted as 'Monitor A'. It should be noted that the position of Monitor A is to the west of the substantial massing of the pitched roof factory building associated with the Proposed Development and entirely screened from Receptor A. It would appear that the Monitor A position has a direct line of sight to the A400 road to the west of the site. Receptor A is entirely screened from this potential source of noise.

The selection of the measurement position is justified within Section 2.0 of the report by the statement "*A suitable monitoring location was not available on the eastern elevation of the building*". While this may well have been the case for a longer term, unattended measurement, it would most certainly not have been the case for a shorter duration, attended survey, as Railey Mews is a public road.

In such circumstances, it is suggested that a shorter duration, attended set of measurements at the actual location of the closest noise-sensitive receptor would be preferable to, and more representative than, an unattended measurement at a proxy receptor location, which is exposed to a different set of noise sources.

Moreover, no specific details of the measurement position have been included in the report, discussing the potential constraints such as whether the measurements were undertaken under free-field or façade-field conditions. There are also no photographs of the measurement position included in the report.

Consequently, it is felt that the baseline sound measurement methodology may have been steered by preferable logistics rather than technical correctness and could be compromised, as a result. Furthermore, it is considered that a validation measurement exercise, which considers the baseline environment at the northern façade of 1 & 2 Railey Mews, should be carried out to provide absolute certainty that the baseline acoustic environment at the potentially most affected receptor location is being considered.

Furthermore, meteorological data was not recorded during the baseline survey, and no evidence or source is provided to backup the assertion that "*The weather during the survey was dry with light winds, which made the conditions suitable for the measurement of environmental noise*". Online records held at Weather Underground[1] indicate that average wind speeds reached 4.4 ms^{-1}, with maximum wind speeds of 10.8 ms^{-1}, and wind speed gusts to 15.8 ms^{-1} during 15th June in the area.

Table 3.2 of the report, which is referred to in the text as *"Table 4.2"*, presents the spectral background noise measurement results for both the daytime and night-time periods of the survey. The heading of Table 3.2 asserts that the results are "*Minimum L_{90} linear spectral levels*"; however, the table itself asserts that the levels are A-weighted (L_{A90}). It is assumed that this section of the report is merely stricken with typographic errors, rather than technical ones; however, confirmation should be sought from the report author as to what exactly is being presented.

Assessment Approach

Appendix B of the report sets out the calculation sheets for predicting the sound levels incident upon the closest receptor.

It would appear from inspecting these calculations, that the noise sources have been considered individually as point sources, with distance losses, louvre insertion losses and barrier attenuation losses applied individually, with the cumulative level logarithmically summed at the end of the calculation. While this technique is fairly standard and not challenged for plant operating in an isolated manner, in the open air, it is considered to be technically incorrect for the assessment of noise breakout from a plant room.

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1 https://www.wunderground.com/history/airport/EGLC/2017/6/15/DailyHistory.html?req_city=London+City&req_state=&req_statename=United+Kingdom&reqdb.zip=00000&reqdb.magic=104&reqdb.wmo=WEGLC

Although the plant room is proposed to be roofed by a continuous acoustic louvre, the space behind it will be, to a degree, reverberant, with the louvre would considered as absorbent, and the calculation should have predicted an internal reverberant level within the plant room, with the noise breakout considered as a single or series of rooftop planar sources, which would have very different attenuation rates, both in terms of distance and any screening losses, to the point sources considered.

As the roof of the Proposed Development is currently, and is proposed to be, pitched, this would elevate the noise source location (emitting to the environment) above the parapet wall of the application building, which would significantly reduce any screening losses afforded by the parapet wall. The predicted screening losses, which are apparently calculated using the Maekawa Method on the basis of point sources, although not explicitly stated in the report, would simply not occur in reality.

Furthermore, no allowance appears to be made within the calculations for acoustic reflections arising as a result of the presence of the larger building to the west. Although, the direct sound field attributable to the eastern pitch of the louvered roof will no doubt be the dominant source at the receptor and the potential reflector comprises a pitched roof, which will reduce the significance of that component further, some evidence of consideration of the potential for reflections from the building to the west would be expected.

Other Considerations

The report considers the potential for environmental noise effects, only; however, there are other potential acoustic impacts that should be considered before a determination of the acoustic suitability of the proposals can be made. These are:

Vibration

The Proposed Development is physically connected to the closest receptor at 1 & 2 Railey Mews, with, as discussed above, the proposed mezzanine floor intended to accommodate the plant, directly connected to the party wall.

Plant of this type, in particular, rotational plant, has the potential to generate vibration, especially during the powering up and powering down cycles, when resonant frequencies may be approached. This effect has the potential to be significantly greater where plant items are mounted on a suspended structure, which does not benefit from mass isolation to the same degree as would be experienced if mounted at ground floor level.

Consequently, the potential for vibration transfer through the structure and into the adjacent receptor property should be appropriately considered, with suggested design specifications for anti-vibration mounts, or similar, proposed accordingly.

Façade Breakout

No assessment of façade breakout through the east wall of the Proposed Development has been undertaken.

The east wall of the development, which fronts onto Railey Mews and is directly adjacent to the front (north) façade of 1 & 2 Railey Mews, contains a large, single-glazed window and a steel, roller-shutter door, neither of which will offer significant acoustic attenuation performances.

Consequently, the likely effects and any upgrade requirements as a result of noise breakout through this façade should also be fully considered, as this has the potential to be acoustically significant at the closest noise-sensitive receptors.

Direct, Structure-Borne and Re-Radiated Sound Transfer

As discussed, the Proposed Development shares a party wall with 1 & 2 Railey Mews and the acoustic performance of this party wall should be appropriately considered, as a significant source of noise is to be proposed on the application side of it. There is significant potential for audible levels of sound transfer through the party wall, especially when considering the low-frequency bias of the generated noise, which may adversely affect the residential amenity of the neighbouring property. This effect could be significantly exacerbated should any degree of re-radiation occur, which typically occurs at low frequencies.

Re-radiated noise and structure borne noise should also be considered in relation to the common elements between the source and receptor locations. The assessed plant items will be directly fixed to a floor, which provides a direct transmission path through the structure, into the adjacent property, yet this is not only not assessed, but is not even considered in the report, which is a significant omission.

It is considered that the acoustic performance of the existing party wall should be obtained, via a diagnostic sound test, and the potential for sound transfer through this wall appropriately assessed. Furthermore, the potential for structure-borne noise and vibration transfer should also be fully considered and assessed, with the design tailored appropriately. This may involve the specification of additional sound insulation to the party wall and the separation/isolation of all common structural elements, in order to prevent acoustic transfer into the adjacent receptor.

Summary

The noise assessment report produced by Clarke Saunders Associates for the Proposed Development has been considered both in terms of its technical correctness, relating to what has been considered, and areas that should have been considered, but have not.

The assessment approach adopted is considered to be flawed; both in terms of the baseline survey methodology and noise prediction methodology, resulting in the significant potential for environmental noise impacts to be much higher at the closest noise-sensitive receptor than those presented within the report.

The assessment has also not considered other potentially significant means of acoustic transfer to the adjoining receptor at 1 & 2 Railey Mews, meaning that the impact upon their residential amenity has not been fully considered.

Consequently, it is felt that the noise assessment report does not fully assess the potential acoustic effects upon sensitive receptors in the vicinity and should not be considered sufficient to support a grant of planning permission for the Proposed Development. Before such a decision can be made, the noise assessment report should be revised, as advised above, and expanded to consider the other potential avenues for acoustic impact, with appropriate mitigation measures set out, where necessary.

Neil Morgan MSc MIOA
Principal Acoustic Consultant
T: 020 7183 8565
M: 07478 677800
E: neil@inacoustic.co.uk