HOARE LEA

Design Note

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Cc:	ISG & Hoare Lea
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Plant noise addendum.

1. Background

A noise and vibration impact assessment was prepared and submitted as part of the Environmental Statement for the original application 2019/2879/P, and to the amended permission 2020/5791/P. The noise and vibration assessment for the completed and operational Proposed Development considered road traffic and building services plant. The assessment identified the potential for noise effects on sensitive receptors around the site, including residential properties on Seddon Street, Ampton Street, Trinity Court, and on Grays Inn Road, and the student residences at Frances Gardener House and Langton Close House.

To minimise potential noise and vibration effects associated with the operation of the Proposed Development, the following mitigation measures were integrated within the scheme:

- All fixed plant installations would be fitted with standard attenuation and acoustic screening, as required to meet the local authority's noise emissions limits; and
- The delivery yard will be serviced between 08:00 and 20:00 hours.

With the inclusion of the above measures, the noise assessment identified a negligible adverse effect, that was considered not significant.

The noise emission limits were carried through into the planning conditions attached to permission 2019/2879/P (and amended permission 2020/5791/P). Conditions 3 and 4 set noise limits from plant of 10 dB for non-intermittent (and 15 dB for intermittent) below background noise levels at nearby residential properties and 5 dB for non-intermittent (and 10 dB for intermittent) below background noise levels at Frances Gardener House. Condition 5 requires the maximum noise level of plant to be agreed with LB Camden following the installation of the plant. This includes details of all plant and its relationship with nearest residential properties.

2. Proposed amendments

This amendment proposes the reconfiguration of the strobic fan flues on the roof of Plot 1, with four flues proposed instead of six, with a small increase in height and the incorporation of cladding and structural support.

3. Predicted noise levels

The predicted noise levels from the Plot 1 plant, taking into account the proposed reconfiguration of the strobic fans, at each noise sensitive receivers are presented in Table 1 and in Figure 1. A comparison with the plant limits for Plot 1 is also provided.

Table 1 Predicted noise levels at each receiver – Plot 1

Receiver	Period	Plot 1 plant noise emission limit at each receiver, $L_{Ar,Tr}$ (dB)	Maximum predicted noise level from all plant at each receiver (dB)	Difference (dB)
R1	Daytime (07:00 – 23:00)	32	28	-4
	Night time (23:00 – 07:00)	29	25	-4
R2	Daytime (07:00 – 23:00)	35	30	-5
	Night time (23:00 – 07:00)	32	27	-5
R3	Daytime (07:00 – 23:00)	34	30	-4
	Night time (23:00 – 07:00)	31	27	-4
R4	Daytime (07:00 – 23:00)	32	32	0
	Night time (23:00 – 07:00)	30	29	-1
R5	Daytime (07:00 – 23:00)	34	32	-2
	Night time (23:00 – 07:00)	32	29	-3
R6	Daytime (07:00 – 23:00)	34	32	-2
	Night time (23:00 – 07:00)	32	29	-3
R7	Daytime (07:00 – 23:00)	34	33	-1
	Night time (23:00 – 07:00)	33	30	-3
R8	Daytime (07:00 – 23:00)	41	33	-8
	Night time (23:00 – 07:00)	34	30	-4

Plot 1 Plot 2 Plot3

Nearest noise sensitive receivers – criteria achieved (-XX dB)

Nearest noise sensitive receivers – criteria exceeded (+XX dB)

Figure 1 Predicted plant noise levels at each residential receiver (smallest difference from the limits shown)

The predicted noise levels from Plot 1 plant given in Table 1 take into account the following mitigation measures:

- All air handling units located at roof and upper roof levels will be fitted with in-built attenuators to the fresh air inlet and exhaust.
- Attenuation packages will be provided to all chillers.
- The solid screen to the full perimeter of the chillers and relevant air handling units will extend from roof level (level 5) to at least 600 mm over the discharge point of the chillers (including any plinths, anti-vibration mounts and attenuation packages).
- Class A sound absorbent treatment will be installed on the inner side of the screen facing the plant.
- The plant deck supporting the chillers and air handling units at upper roof level will consist of a perforated mesh to allow downwards dissipation of noise.
- The total noise levels from the chillers will reduce by at least 5 dB when operating in set-back mode between 23:00 and 07:00. This is to allow the night time criteria to be achieved at the various receivers.
- At least two air handling units at roof level (located outside the upper roof screen) are to be located in a fully enclosed plant room.
- All air handling units will run at reduced duty overnight, with the exception of the units serving BSU which require full operational duty at all times.
- The lower section of the strobic fans at roof level, including bypass inlets and fans' housing, will be located in a fully enclosed plant room. The sound reduction performance of the plantroom walls and roof has been determined in coordination with Ramboll UK, and is required to be at least R_w 50 dB.
- The intake louvre to the plantroom for the bypass inlets of the strobic fans, as well as the sections between the fan and the discharge, will be attenuated.
- The operational duty of the strobic fans during the night time (23:00 – 07:00) is advised to be reduced so as to achieve a reduction in noise emissions of at least 7 dB.
- The condensers for the cold rooms will not generate a cumulative noise level of more than 50 dB $L_{Aeq,T}$ at 1 m from the units to avoid contributing to the overall noise levels at receivers. Appropriate allowances will be made for screening where this limit is expected to be exceeded.
- All attenuators, louvres and grilles will be selected so as to ensure the regenerated noise levels from their presence in the building services systems do not increase the noise level within the duct and / or at the relevant receiver location.

4. Conclusion

These results demonstrate that the proposed amendments to the strobic fans would not compromise the ability to mitigate noise from the plant to meet the requirements of planning conditions 3 and 4, and therefore ensure that the effect on nearby sensitive receptors is negligible and not significant.