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KINGS CROSS CROWNE PLAZA
PLANNING DISCHARGE REPORT

RAMBOLL

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EXECUTIVE SUMMARY

Ramboll have been appointed to address the planning condition relating to plant noise at the refurbished Crowne Plaza, Kings Cross (formerly Holiday Inn). The planning condition outlines criteria for the new plant installation at first floor roof level at the rear of site. It should be noted that the new plant has replaced old plant that has been removed and is in the same location as the old plant.

The governing criterion is that the plant noise emission at the nearest noise sensitive receptors must be 5dB less than the background noise levels prior to development. Due to access restraints, the noise levels at the receptors could not be measured. However, the noise levels on the first floor roof have been measured and the noise propagation to receptor has been calculated.

The noise level from the newly installed plant is predicted to be 29 dB L_{Aeq} at the closest facades of the nearby noise sensitive receptors.

It was not possible to gain access to the rear of the nearby noise sensitive receptors to measure the background noise level (L_{A90} dB), however a specific noise level from plant of 29 dB L_{Aeq} is considered to be significantly below the pre-existing background noise level L_{A90} dB at this location, even at the quietest time of the night.

The measured noise levels of the newly installed plant have been compared to the noise level measurements of the old plant and it is considered that there will be no change in overall noise level at the receptor location during the day and night-time periods.

1. INTRODUCTION

The refurbishment of King's Cross Holiday Inn and conversion to a Crowne Plaza included the removal of existing plant and the installation of new, replacement, plant on the first floor roof area. It is this plant installation that is the subject of this assessment. In particular, this report compares the new plant with the old (as measured by Ramboll in 2014). This assessment is for the purposes of planning discharge, the detailed condition of which are outlined within this report.

2. SITE DESCRIPTION

The plant area in question is on the first floor roof area at the rear of the site as shown in Figure 1. The nearest noise sensitive receptors, as identified in 2014, are also marked on Figure 1.

Figure 1 **Nearest sensitive receptors and plant locations**

3. LOCAL POLICY AND PLANNING CONDITION

3.1 Camden Development Policy 28 (DP28)

The London Borough of Camden has a noise development policy that includes guidance on noise from plant and machinery. The following table is reproduced from the policy and states noise levels from plant and machinery at which planning permission will not be granted.

Noise description and location of measurement	Period	Time	Noise level
Noise at 1 metre external to a sensitive facade	Day, evening and night	0000-2400	5dB(A) < LA90
Noise that has a distinguishable discrete continuous note (whine, hiss, screech, hum) at 1 metre external to a sensitive façade	Day, evening and night	0000-2400	10dB(A) < LA90
Noise that has distinct impulses (bangs, clicks, clatters, thumps) at 1 metre external to a sensitive façade	Day, evening and night	0000-2400	10dB(A) < LA90
Noise at 1 metre external to sensitive façade where LA90>60dB	Day, evening and night	0000-2400	55dB LAeq

Table 1 **Noise levels from plant and machinery at which planning permission will not be granted according to Camden's DP28**

3.2 Planning Condition

Camden Council have placed a planning condition relating to plant noise on the King's Cross Holiday Inn conversion into a Crowne Plaza. This states:

"Noise levels at a point 1 metre external to sensitive facades shall be at least 5dB(A) less than the existing background measurement (LA90), expressed in dB(A) when all plant/equipment (or any part of it) is in operation unless the plant/equipment hereby permitted will have a noise that has a distinguishable, discrete continuous note (whine, hiss, screech, hum) and/or if there are distinct impulses (bangs, clicks, clatters, thumps), then the noise levels from that piece of plant/equipment at any sensitive façade shall be at least 10dB(A) below the LA90, expressed in dB(A).

Reason: To safeguard the amenities of the [adjoining] premises [and the area generally] in accordance with the requirements of policy CS5 of the London Borough of Camden Local Development Framework Core Strategy and policies DP26 and DP28 of the London Borough of Camden Local Development Framework Development Policies."

4. NOISE SURVEY (2017)

4.1 Methodology

No access could be obtained to the rear of the residential properties on Packenham Street or the playground, therefore all measurements were taken at the first floor roof level. The plant noise emission levels at the noise sensitive receivers from the Holiday Inn/Crowne Plaza first floor roof plant was then established by calculation.

The 2017 measurements consisted of both 24-hour noise logging in the same location as the 2014 noise logger and attended measurements at the perimeter of the roof area. The attended measurements were two minutes duration and taken at both 1.5m and 4m above roof level.

The measurement locations are shown in Figure 2. The logger location is denoted by LT1 and the attended measurement locations are denoted by ST1-4.

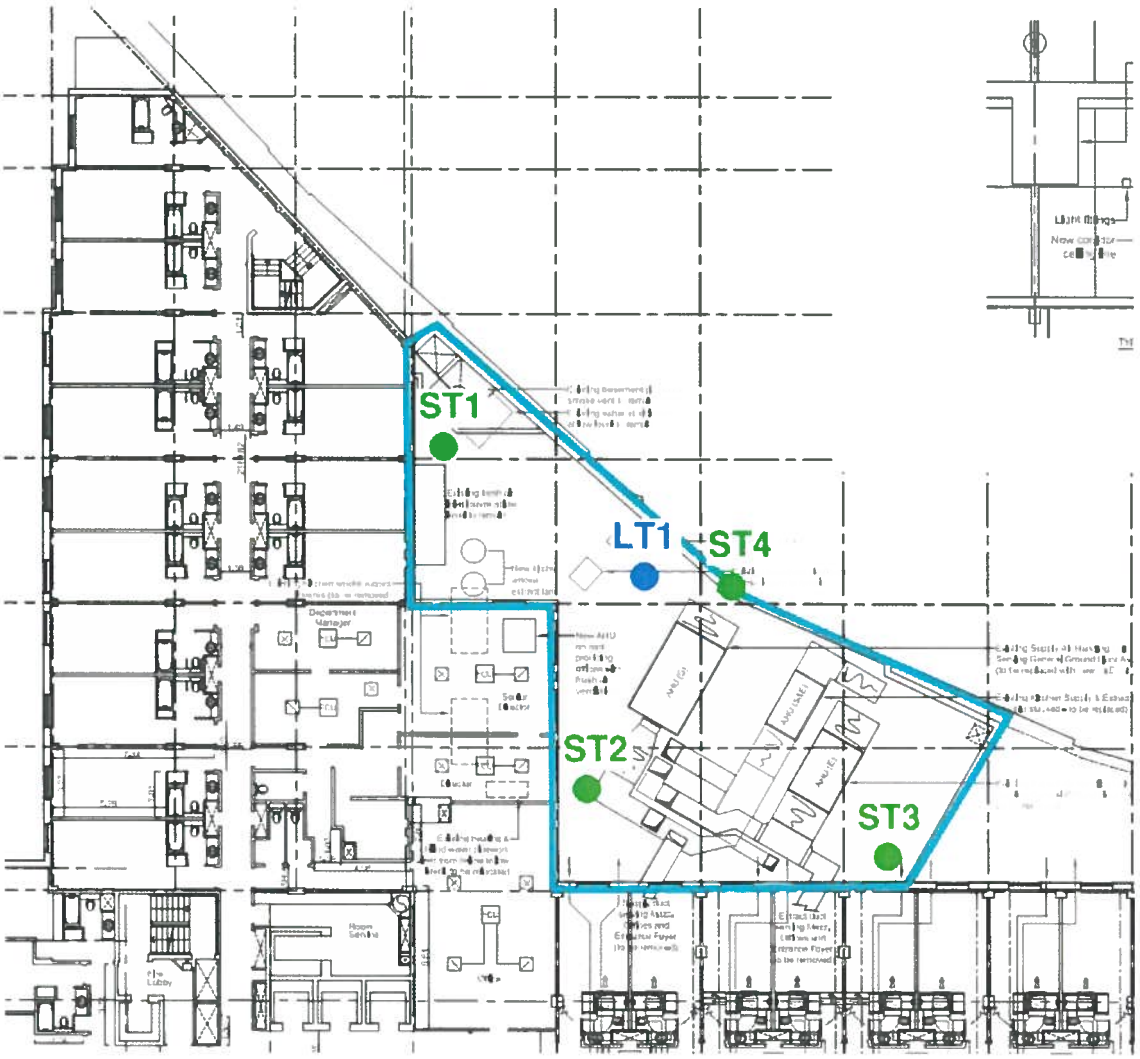

Figure 2 **Noise survey measurement locations (2017)**

4.2 Equipment

The following equipment was used for both the attended and unattended noise measurements.

- Norsonic 140 sound level analyser (serial no. 1404236) with GRAS 40AF pre-polarised microphone (serial no. 102631)
- Norsonic 1251 acoustic calibrator (serial no. 32190)

All equipment owned or hired by Ramboll is subject to annual calibration checks traceable to national standards. Copies of these calibration certificates are available upon request.

4.3 Noise Climate

The noise climate at the roof top was dominated by the air handling units. Road traffic noise was clearly audible at ST3.

4.4 Results

The attended measurement results are given in Table 2. A summary of the unattended measurements is given in Figure 3.

Location	Height above roof level	$L_{Aeq,2mins}$ / dB	$L_{A90,2mins}$ / dB
ST1	4m	52	51
	1.5m	51	49
ST2	4m	53	51
	1.5m	52	51
ST3	4m	57	54
	1.5m	55	53

Table 2 Summary of attended measurement results

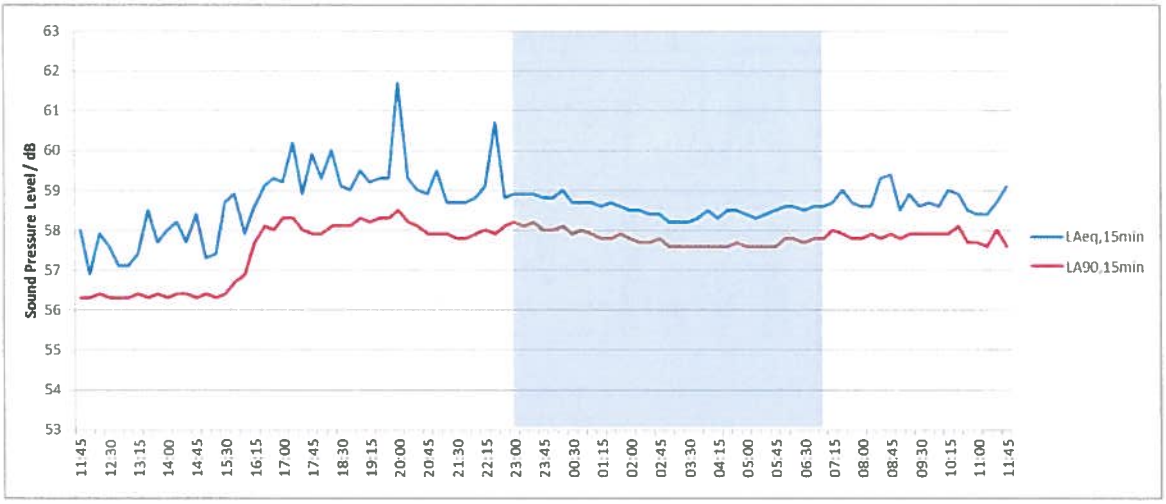

Figure 3 Summary of unattended measurement results

There is a spike in the ambient (LAeq) noise levels at around 20:00 and 22:15 due to heavy rainfall. These are not considered to be representative. The rest of the results are fairly consistent, as would be expected, with minor variances due to load.

5. COMPARISON WITH 2014

5.1 Criteria

Based on Camden Council's DP28 and the planning condition, the criterion for the new roof plant is that new ambient noise level is 5dB lower than the background noise level prior to development. This is based on the plant being non-tonal, non-impulsive with no other sound characteristics. This level applies at 1m from the façade of the receptors.

However, as the background noise level at the receptors could not be established in 2014, the ambient noise levels at roof level have been compared. This is, therefore, a like-for-like comparison of the old and new plant noise emission levels. It is worth noting that distance loss is the same (no alterations have been made to the façade of the building) in both scenarios. The noise propagation methodology remains the same for both the 2014 and 2017 calculations.

5.2 Comparison

		Average background noise level (LAeq,15min) 2014	Average ambient noise level (LAeq,15min) 2017	Change / dB
Day 1	Day 12:00-19:00	60	59	-1
	Evening 19:00-23:00	59	59	0
	Night 23:00-07:00	56	59	+3
Day 2	Day 07:00-12:00	60	59	-1

Table 3 Comparison of 2014 and 2017 measurements

With the noise logger located at the same position in 2014 and 2017 (insert photos), it can be seen the daytime ambient noise levels have decreased by 1dB, the evening levels have not changed and the night-time levels has increased by 3dB.

5.3 Assessment to NSRs

Based on the unattended measurements, the daytime and evening plant noise levels have not increased at rooftop level.

The night-time ambient noise levels at the rooftop have slightly increased, by 3dBA. It is to be noted that a 3dB increase in noise levels is just perceptible and taking into context the site ie. a busy urban area it is considered that this change will not be noticeable. BS4142:2014 states that *"The significance of sound of and industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs. An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur."*

The new plant was observed not to have any tonal, intermittent or have any other specific acoustic features. The nearest residential receptor (outside of the hotel) is 35m from the edge of plan area. Over this distance an attenuation of up to 30dB is expected. This will result in plant noise levels of 29dB at the rear façade of the Packenham Road properties at night-time. This is considered to be significantly below the background noise levels experienced from other sources at this location, given the site context. This means that the overall ambient noise levels at the receptor location should remain unchanged as other sources will be dominant.

5.4 Assessment to the hotel itself

The attended measurements also demonstrate that the noise levels at the Crown Plaza façade are <51dB at locations ST1-ST2 and <54dB at location ST3 where traffic noise is audible. As the hotel is mechanically ventilated it is considered unlikely that the plant noise break-in will cause disturbance to the hotel occupants.

6. CONCLUSIONS

A noise survey was undertaken at Crowne Plaza, Kings Cross to assess the plant noise emission from the first-floor rooftop plant. The 2017 measurements were compared with the 2014 survey results in order to meet the requirements of Camden Council's planning condition for the site. In the absence of access to the rear of the properties on Packenham Street, the noise levels at roof top level were compared. The daytime plant noise levels have decreased by 1dB and the night-time noise levels have increased by 3dB; however, the resultant noise levels at the receptors are still well below the expected background noise levels at the receptor façade given the central London location.