# CAM-G-RL-2
# SAFER NEIGHBOURHOODS
# 179 WEST END LANE
# LONDON NW6 2LH

PLANT NOISE
ASSESSMENT REPORT
3742/PNA

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## Contents

# 1.0 Introduction

It is proposed to install new building services plant to the rear of 179 West End Lane, London NW6. A planning application has been submitted for this and the London Borough of Camden's Environmental Health Department has requested an acoustic assessment be carried out in support of the application.

RBA Acoustics have been commissioned by TP Bennett to undertake measurements of the prevailing noise conditions at the rear of the site and to provide an assessment of the atmospheric noise emissions from the proposed air conditioning units to the nearest noise sensitive property for comparison with the London Borough of Camden's noise emission criterion.

# 2.0 Noise Survey

## 2.1 General

It is proposed that the plant will operate during the daytime period only (07:00 – 23:00 hours). Noise monitoring was therefore undertaken as follows:

Thursday 24 September 2009 20:00 – 23:00 hours

During the survey period the weather conditions were considered appropriate for the noise measurement exercise, it being dry with only a very light breeze.

Measurements were made of the $L_{A90}$ noise levels over sample periods of 15 minutes.

## 2.2 Measurement Location

A microphone was mounted on a boom at a height of approximately 9m above ground level and approximately 8m from the proposed plant location. The measurement position is shown on the attached Site Plan 3742/SP1.

The nearest residential window to the proposed position of the plant was identified as being located directly above 179 West End Lane at second floor level. The measurement location was noted to be at an approximate distance of 2m from the nearest noise sensitive window. However, the noise climate at the measurement location was deemed to be representative of that at the location of the nearest noise-sensitive window, to which it was not possible to gain access.

The prevailing noise climate at the measurement position was noted to consist of noise produced by existing mechanical services to the rear of the adjacent property (Papa John's Pizza Restaurant) as well as noise produced by regular train movements along the adjacent railway lines to the North of the site and ambient road traffic movements within the local area.

### 2.3 Instrumentation

The following equipment was used for the measurements:

**Table 3742/T1 – Equipment**

| Manufacturer | Model Type | Serial No. | Calibration | |
|---|---|---|---|---|
| | | | Certificate No. | Expiry Date |
| 01dB A&V Type 1 Sound Level Meter | Blue Solo 01 | 60610 | 5589 | 11 August 2010 |
| 01dB A&V Pre Amplifier | PRE 21 S | 13676 | | |
| Gras ½" Microphone | MCE 212 | 84948 | | |
| 01dB-Stell Calibrator | Cal 21 | 50441910 | U5569 | 6 August 2010 |

The equipment was calibrated prior to and on completion of the survey. No significant calibration drift occurred.

## 3.0 Local Authority Requirements

The requirements of Camden Council's Unitary Development Plan 2006 regarding noise levels from new plant and machinery are confirmed as follows.

**Table 3742/T2 – Camden Council Noise Thresholds**

| 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) $<L_{A90}$ |
| Noise that has a distinguishable discrete continuous note (whine, hiss, screech, hum) at 1 metre external to a sensitive facade | Day, evening and night | 0000-2400 | 10dB(A) $<L_{A90}$ |
| Noise that has distinct impulses (bangs, clicks, clatters, thumps) at 1 metre external to a sensitive facade | Day, evening and night | 0000-2400 | 10dB(A) $<L_{A90}$ |
| Noise at 1 metre external to sensitive façade where LA90 >60dB | Day, evening and night | 0000-2400 | 55dB $L_{Aeq}$ |

## 4.0 Results

The typical background noise spectrum at the measurement position is shown on the attached Graph 3742/G1.

The background ($L_{A90}$) noise levels measured are summarised below.

**Table 3742/T3 – Measured Noise Levels**

| Measurement Period | $L_{A90}$ Sound Pressure Level (dBA) |
|---|---|
| 20:00 – 21:00 | 54.7 |
| 21:00 – 22:00 | 54.7 |
| 22:00 – 23:00 | 54.4 |

## 5.0 Atmospheric Noise Emission Criteria

Based on the measured existing background noise levels and the London Borough of Camden's criteria for plant noise emissions (as detailed in Section 3.0) we propose an atmospheric noise emission limit from all units at the nearest residential window of 49dBA (assuming the noise does not contain the undesirable characteristics described by Camden).

N.B. It should be noted that the prevailing noise climate was measured in intervals of 15 minutes duration, meaning that the measured $L_{A90}$ sample is in fact an $L_{A90,15min}$ sample. However, as the noise climate was constant throughout the survey period it is considered to be representative of the existing background noise levels over each hourly period.

## 6.0 Assessment

In order to ensure a worst-case assessment the lowest measured background noise levels have been used in all analyses.

Our assessment has been based upon the following information:

### 6.1 Proposed Air Conditioning Units

2No. Mitsubishi SUZ-KA50VA

### 6.2 Noise Levels and Position of Units

Information regarding the noise levels of the proposed plant was provided by the manufacturers of the units.

The sound pressure level (SPL) of the SUZ-KA50VA unit is advised as being a worst case (heating mode) of 55dBA at 1m.

Octave band data was obtained for the specified units and is summarised below.

**3742/T4 – Manufacturers Plant Noise Emission Data**

| | Sound Pressure Level (dB re $2x10^{-5}$ Pa) at Octave Band Centre Frequencies | | | | | | | | Overall SPL |
|---|---|---|---|---|---|---|---|---|---|
| | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | dBA |
| SUZ-KA50VA | 60 | 63 | 56 | 54 | 49 | 43 | 40 | 38 | 55 |

A review of the above noise data with reference to BS 7445 Pt. 2:1991 suggests that there would be no tonal characteristics associated with the proposed plant. As such, we assume no tonal correction to the noise emission criterion is required.

The proposed air-conditioning units are to be located to the rear of 179 West End Lane and are to be wall mounted at lower ground floor level. The proposed positions are indicated on the attached Site Plan 3742/SP1.

### 6.3 Operating Hours

We understand from TP Bennett Architects that the proposed plant is required to operate during the daytime period only, up to 22:00 hours.

### 6.4 Location of Nearest Residential Window

The worst-affected residential window in proximity to the proposed plant was identified as being located directly above 179 West End Lane, at second floor level. This is approximately 10m from the proposed plant location and is marginally screened by a balcony serving the second floor residence, which extends approximately 1.5m from the rear façade of the building.

The approximate location of these windows is also indicated on the attached Site Plan 3742/SP1.

### 6.5 Calculation of Noise Levels at Nearest Residential Window

Our calculation method for predicting noise levels from the proposed air conditioning units at the nearest residential window, based on the information stated above, is summarised below.

- Cumulative Source Term (combined condenser SPL)
- 20LogR Distance Attenuation
- Screening Effects
- Reflection Effects

The above method predicts a combined noise level due to the operation of the air conditioning units of 40dBA at the nearest noise-sensitive window. A copy of our calculation spreadsheet is attached as required by the London Borough of Camden.

### 6.6 Mitigation

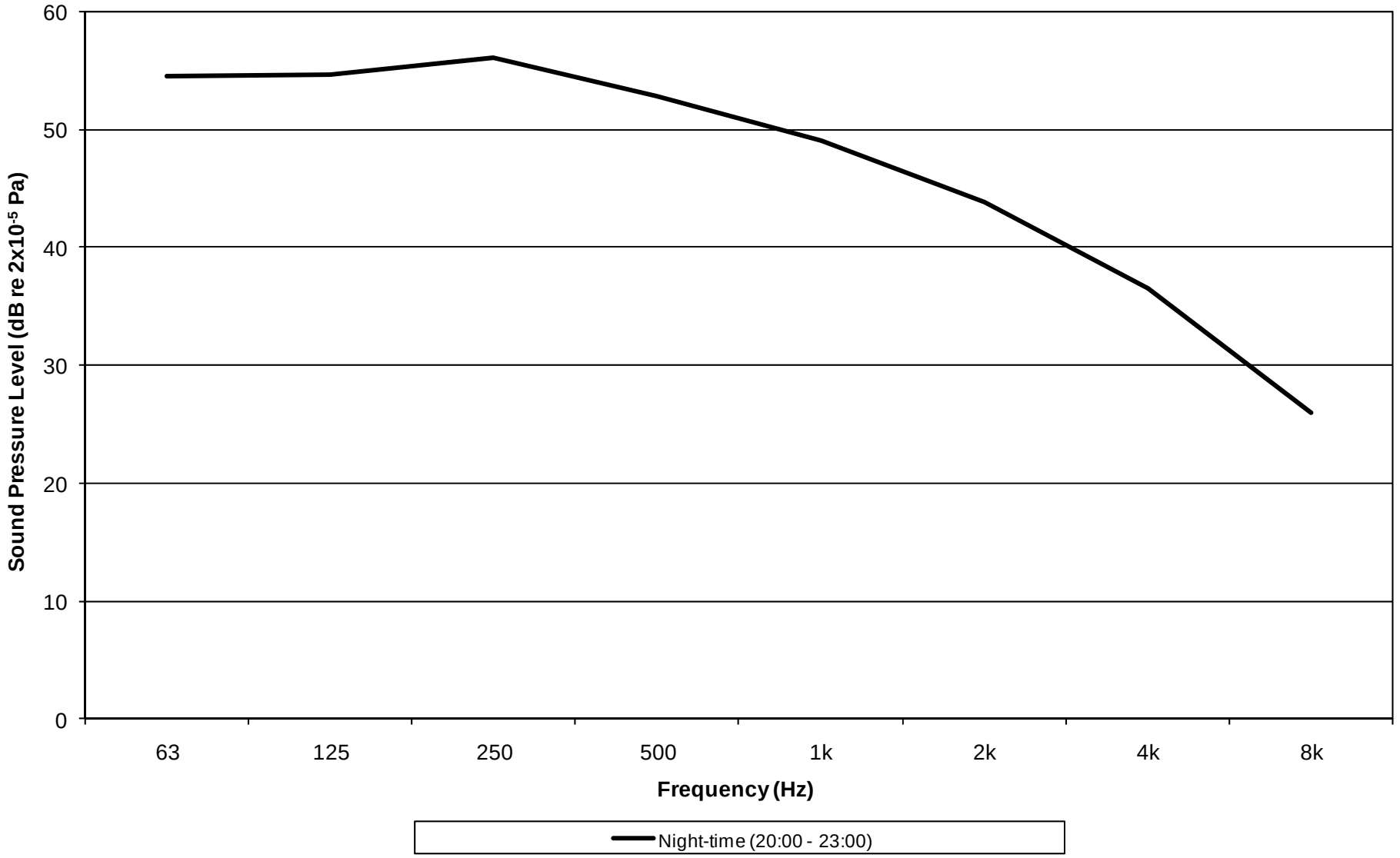
The predicted worst-case noise level of 40dBA at the nearest residential window is in excess of 10dBA below the lowest measured background noise level and therefore within the proposed atmospheric noise emissions criterion. As such, no mitigation measures are required.

## 7.0 Conclusion

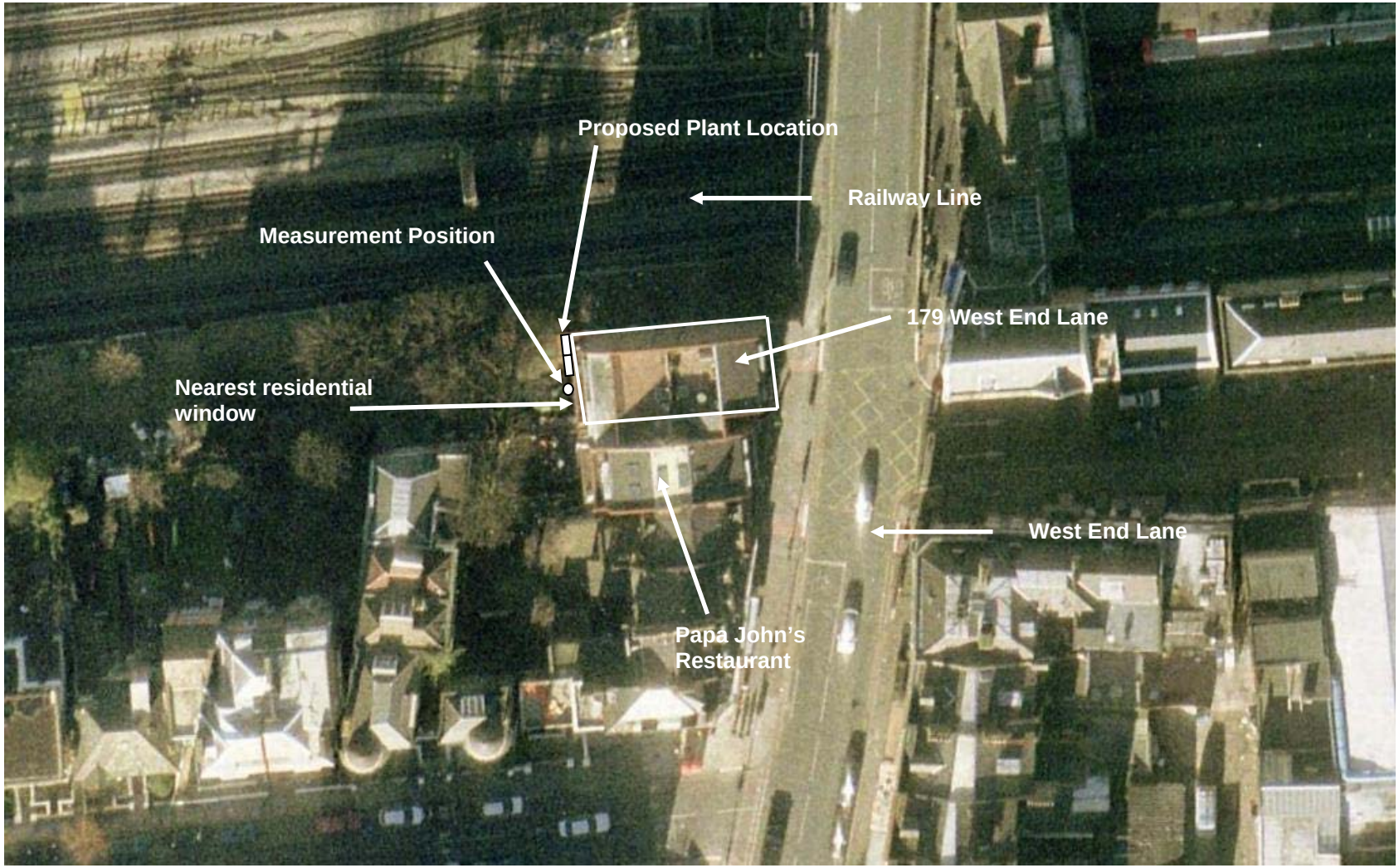
Measurements of the existing background noise levels at 179 West End Lane, London NW6 have been undertaken in accordance with the requirements of the London Borough of Camden. The results of the measurements have been used in order to assess atmospheric noise emissions from the proposed new plant.

The results of the assessment indicate atmospheric noise emissions from the proposed plant, when assessed at the nearest noise sensitive receptor location are likely to be significantly lower than the requirements of the London Borough of Camden's Environmental Health Department. As such, planning permission should not be refused on the basis of noise emissions.

**CAM-G-RL-2, Safer Neighbourhoods**
**Typical Worst-Case Night-Time Background Noise ($L_{90}$) Values**




3742/G1




| | | |
|---|---|---|
| Site Plan | Figure 3742/SP1 | RBA richardsonbladonandersen ACOUSTICS |
| | 1 October 2009 | |
| CAM-G-RL-2, Safer Neighbourhoods, 179 West End Lane, London | Not to Scale | 104 The Foundry Annexe, 65 Glasshill St, London SE1 0QR<br>Telephone: 020 7953 7233 Facsimile: 020 7953 7236 |

## CAM-G-RL-2 Safer Neighbourhoods

| Outdoor Units | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | dBA |
|---|---|---|---|---|---|---|---|---|---|---|
| **SUZ-KA50VA** | | | | | | | | | | |
| SPL at 1m | Heating mode | 60 | 63 | 56 | 54 | 49 | 43 | 40 | 38 | **55** |

**To Rear Windows of Flat at Second Floor Level above Safer Neighbourhoods Office**

**Unit 1**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SUZ-KA50VA | reflections from back + side wall | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | |
| Distance to Residential Window at 2nd Floor | 9.9 m | | | | | | | | | |
| | Distance Correction | 19.9 | 19.9 | 19.9 | 19.9 | 19.9 | 19.9 | 19.9 | 19.9 | |
| | Screening | 5.2 | 5.5 | 5.9 | 6.7 | 8.0 | 10.0 | 12.5 | 15.4 | 0.04m path length difference assumed due to balcony of 2nd floor flat |
| | SPL at Receiver | 40.8 | 43.6 | 36.2 | 33.4 | 27.1 | 19.1 | 13.6 | 8.7 | **35** dBA |

**To Rear Windows of Flat at Second Floor Level above Safer Neighbourhoods Office**

**Unit 2**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SUZ-KA50VA | reflection from back wall | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| Distance to Residential Window at 2nd Floor | 9.9 m | | | | | | | | | |
| | Distance Correction | 19.9 | 19.9 | 19.9 | 19.9 | 19.9 | 19.9 | 19.9 | 19.9 | |
| | Screening | 5.2 | 5.5 | 5.9 | 6.7 | 8.0 | 10.0 | 12.5 | 15.4 | 0.04m path length difference assumed due to balcony of 2nd floor flat |
| | SPL at Receiver | 39.8 | 42.6 | 35.2 | 32.4 | 26.1 | 18.1 | 12.6 | 7.7 | **34** dBA |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Total** | 43.4 | 46.2 | 38.7 | 35.9 | 29.6 | 21.6 | 16.1 | 11.2 | **37** dBA |
| **Add 3dB for Façade Reflections** | 46.4 | 49.2 | 41.7 | 38.9 | 32.6 | 24.6 | 19.1 | 14.2 | **40** dBA |