Cole Jarman

187 Kentish Town Road

Plant Noise Assessment

Report 18/0601/R1

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Report 18/0601/R1

Vabel

531 Highgate Studios
53-79 Highgate Road
London
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Revision	Description	Date	Prepared	Approved
0	1st Issue	17 May 2019	Tim Fox	Josh Palmer
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Plant Noise Assessment

1 Introduction

1.1 Planning consent was granted in 2015 for redevelopment at 187 Kentish Town Road to provide a ground floor cinema and bar, with residential units across four storeys above.

1.2 As part of the consent, a planning condition relating to noise from mechanical services plant has been set. This report details the plant noise assessment required to discharge the condition.

2 Site Description

2.1 187 Kentish Town Road is located on the corner of where Prince of Wales Road meets Kentish Town Road in the London Borough of Camden. Kentish Town Road bounds the site to the east and Prince of Wales Road to the north. Church Avenue bounds the site to the south and acts as an access road.

2.2 The area is a mixed residential and commercial area with commercial properties to the south, east and north with residential properties located above commercial on the eastern and northern properties. Further residential is located to the west of the site.

3 Noise Survey

3.1 **Methodology and Instrumentation**

3.1 A 24-hour unattended noise survey was undertaken on site commencing at 14h00 on Tuesday 8th January 2019.

3.2 Unattended measurements were carried out at one position; the position is described below and marked on the attached site plan 16/0416/SP1.

- MP1 – Unattended free-field measurement position at the eastern boundary of the site at high level;

3.3 For the unattended survey, measurements of the L_{Amax}, L_{Aeq} and L_{A90} indices were made over sequential 15 minute periods (see the Glossary of Acoustic Terms for an explanation of the noise units used).

3.4 Noise measurements during the survey were made using the equipment listed in table T1 below.

Item	Manufacturer	Type
Sound Level Analyser (x2)	Rion	NL-52
Acoustic Calibrator (x2)	Rion	NC-74
Weatherproof windshield (x2)	Rion	WS-15

T1 Equipment used during noise survey

3.5 The microphones for the noise monitors were fitted with weatherproof windshields and were calibrated before and after the survey to ensure that a consistent and acceptable level of accuracy was maintained throughout. No significant drift in level was noted.

3.6 The weather conditions during the setting up and collection of the survey were dry, cold and clear with little breeze.

3.2 **Results**

3.7 The results of the unattended noise survey measurements at position MP1 are shown in the attached time history graph 16/0416/TH01.

3.2.1 The daytime and night time typical background noise levels recorded are as set out in the following table, as derived through statistical analysis, in accordance with BS 4142:2014.

Location	Typical Background Noise Levels Measured, dB $L_{A90,15min}$	
	Daytime (0700-2300)	Night time (2300-0700)
MP1	61	46

T2 Typical background noise levels measured

3.2.2 The noise climate was controlled by road traffic, mostly from Kentish Town Road and Princes of Wales Road.

4 Plant Noise Limits

4.1 Condition 5 of application 2013/8301/P states the following:

5) Noise levels at a point 1 metre external to sensitive facades shall be at least 5 dB(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 10 dB(A) below the LA90, expressed in dB(A).

4.2 On this basis, the following plant noise limits apply at the assessment positions. The plant noise limits apply at 1m from the nearest residential window.

Location	**Plant Noise Limits, $L_{Ar,Tr}$ dB**	
	Daytime (0700-2300 only)	**Night time (24-hour)**
Assessment positions	56	41

T3 Plant noise limits

5 Plant Noise Assessment

5.1 Overview

5.1.1 The proposed installation includes one air handling unit and thirteen condensing units at roof level, another air handling unit and condensing unit at ground floor level and an MVHR serving each apartment.

5.1.2 A list of the proposed plant units and associated noise levels used in the assessment can be found in the attached schedule 16/0416/SCH1 rev.1.

5.1.3 The plant noise assessment has been undertaken to the residential properties to the east on the opposite side of Kentish Town Road (AP1) and to the north on the opposite side of Prince of Wales Road (AP2). These positions are shown on the attached site plan 16/0416/SP1.

5.2 Assessment

5.2.1 Our calculations have taken into account duct losses, end reflection, grille directivity, radiation losses, distance losses and a façade correction. Currently, screening effects of the building has not been allowed for in our calculations, although it is expected for some screening to be provided by the building edge. Additionally, an enclosure is proposed around the roof level plant items; currently, screening from this enclosure has not been allowed for.

5.2.2 The calculations have been undertaken on the basis of all plant items operating at any time during the day and night time period.

5.2.3 Based on the noise levels provided, we predict noise levels at the assessment positions as presented in the table below, alongside the 24-hour plant noise limit derived. A calculation summary at each assessment position is provided in the attached Appendix A. More detailed calculation sheets can be provided if necessary.

Location	Predicted Noise Level, $L_{Ar,Tr}$ dB	Plant Noise Emission Limit, $L_{Ar,Tr}$ dB
AP1 Residences to the east	36	41
AP2 Residences to the north	37	41

T4 Plant noise emission limits at the nearest residential properties

5.2.4 The above table shows that the noise levels are predicted to be below the planning condition noise emission requirements without the need for mitigation.

6 Conclusions

6.1 Planning consent was granted in 2015 for redevelopment at 187 Kentish Town Road to provide a ground floor cinema and bar, with residential units across four storeys above. As part of the consent, a planning condition relating to noise from mechanical services plant has been set.

6.2 An environmental noise survey has been previously undertaken at the site in order to quantify the sources and nature of the existing noise climate.

6.3 Based upon the results of the survey, suitable noise emission limits for new mechanical services plant have been proposed in accordance with the Local Authority requirements.

6.4 It has been shown that noise levels from the proposed plant items are below the Local Authority noise emission requirements without any additional mitigation measures.

End of Section

Glossary of Acoustic Terms

L_{Aeq}:

The notional steady sound level (in dB) which over a stated period of time, would have the same A-weighted acoustic energy as the A-weighted fluctuating noise measurement over that period. Values are sometimes written using the alternative expression dB(A) L_{eq}.

L_{Amax}:

The maximum A-weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise when occasional loud noises occur, which may have little effect on the L_{Aeq} noise level. Unless described otherwise, L_{Amax} is measured using the "fast" sound level meter response.

L_{A10} & L_{A90}:

If non-steady noise is to be described, it is necessary to know both its level and degree of fluctuation. The L_{An} indices are used for this purpose. The term refers to the A-weighted level (in dB) exceeded for n% of the time specified. L_{A10} is the level exceeded for 10% of the time and as such gives an indication of the upper limit of fluctuating noise. Similarly, L_{A90} gives an indication of the lower levels of fluctuating noise. It is often used to define the background noise.

L_{A10} is commonly used to describe traffic noise. Values of dB L_{An} are sometimes written using the alternative expression dB(A) L_{n}.

L_{AX}, L_{AE} or SEL

The single event noise exposure level which, when maintained for 1 second, contains the same quantity of sound energy as the actual time varying level of one noise event. L_{AX} values for contributing noise sources can be considered as individual building blocks in the construction of a calculated value of L_{Aeq} for the total noise. The L_{AX} term can sometimes be referred to as Exposure Level (L_{AE}) or Single Event Level (SEL).

End of Section

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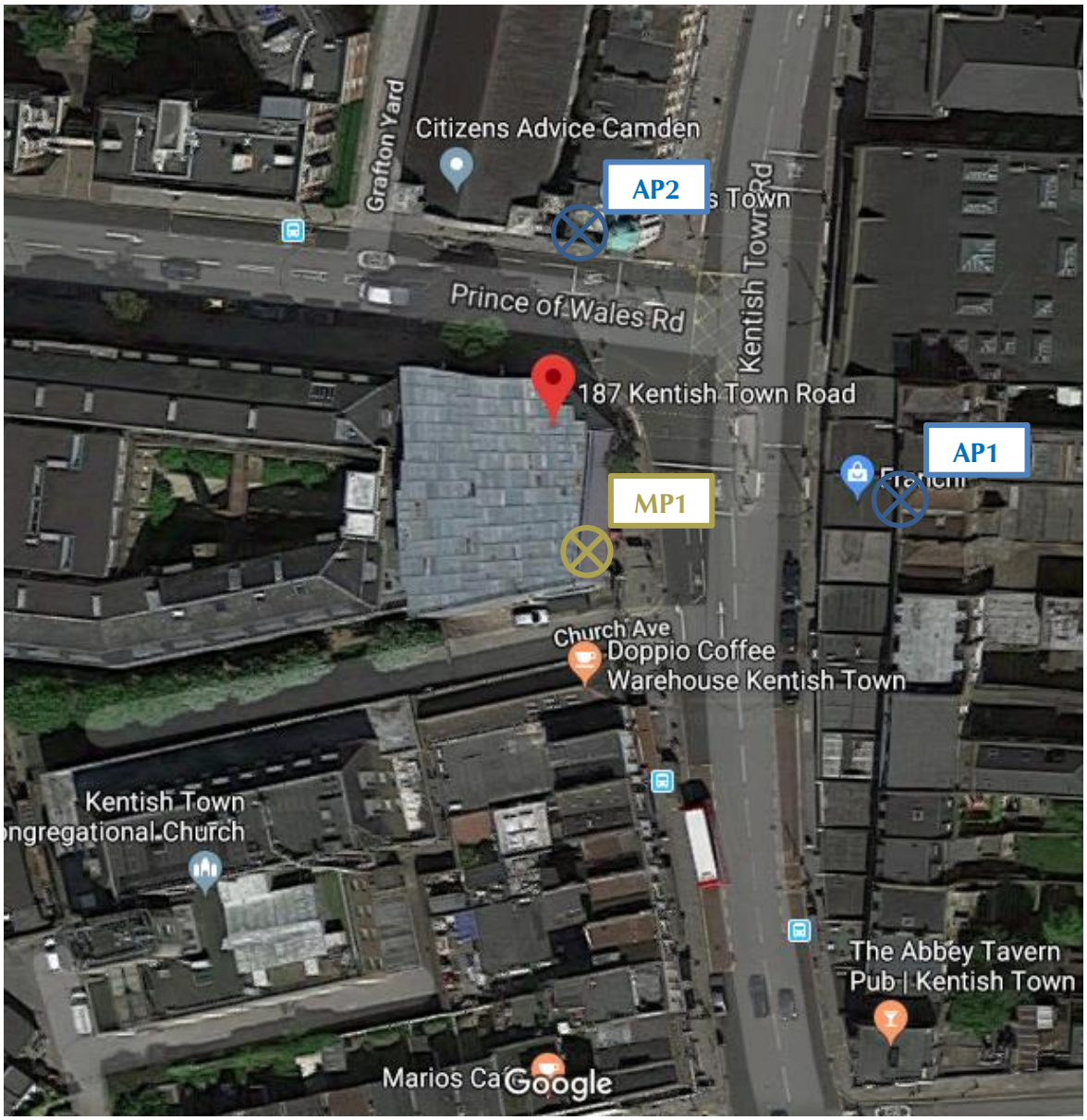
Figure 18/0601/SP1



Title: Site plan showing measurement and assessment positions

Project: 187 Kentish Town Road

Date: May 2019

Scale: Not to scale

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Noise Level Time History at Position MP1, 8 to 9 January 2019

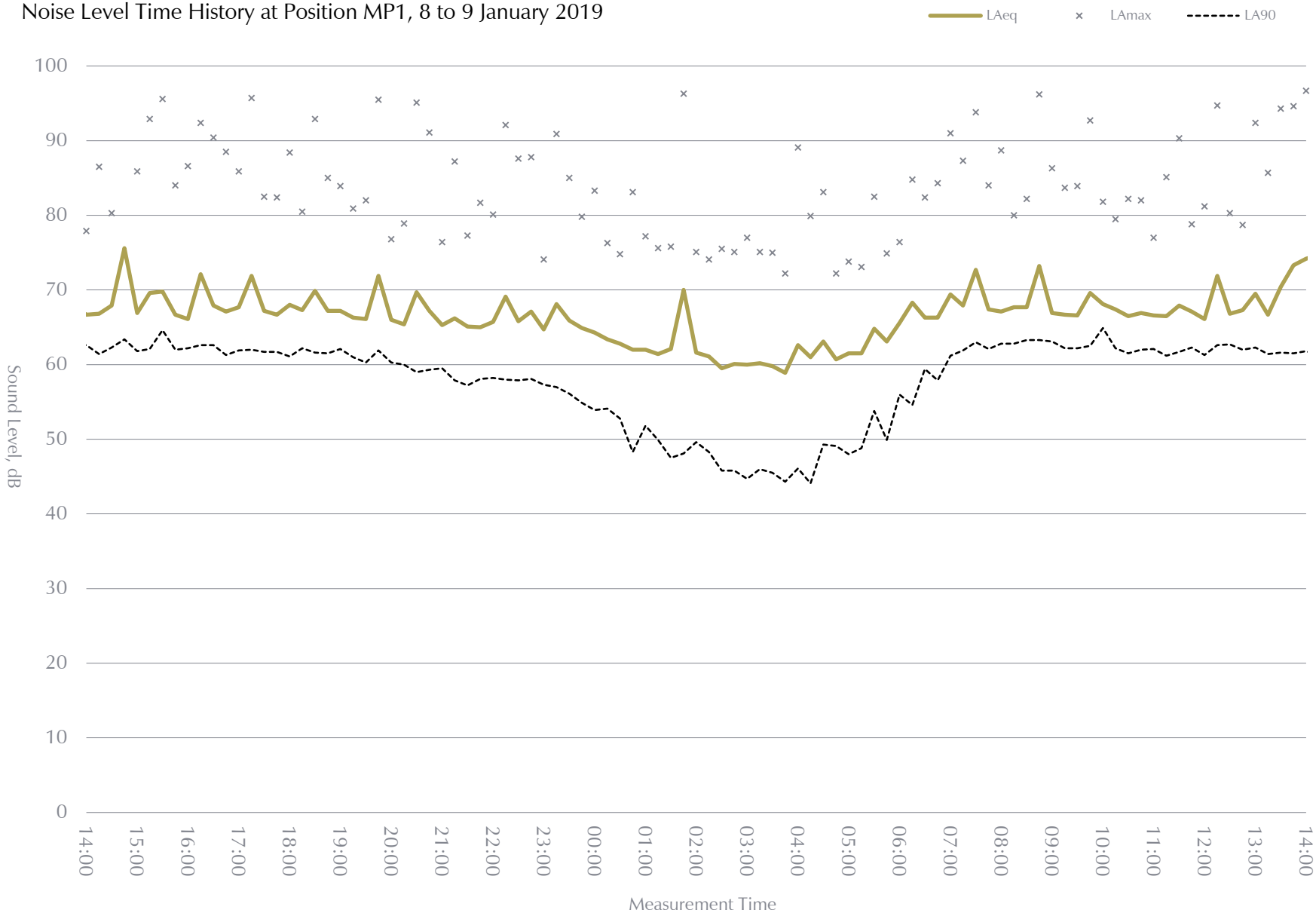


Figure 18/0601/TH01

Schedule of Plant and Air Handling Equipment Sound Levels, dB

Reference	Description	Data Source[1]	Noise Level Type	Noise Levels (dB)							
				63	125	250	500	1k	2k	4k	8k
AHU1 - Fresh Air	Cinema AHU	Man	Sound Power, Lw	60	61	60	55	44	49	47	42
AHU1 - Exhaust	Cinema AHU	Man	Sound Power, Lw	60	63	66	64	64	60	55	50
AHU1 - Breakout	Cinema AHU	Man	Sound Power, Lw	47	50	51	44	50	48	35	28
AHU2 - Fresh Air	Café AHU	Man	Sound Power, Lw	73	66	60	60	56	44	30	30
AHU2 - Exhaust	Café AHU	Man	Sound Power, Lw	75	73	74	72	70	67	66	62
AHU2 - Breaout	Café AHU	Man	Sound Power, Lw	69	68	66	56	46	41	36	30
PUZ-ZM125YKA	Condenser - Roof AHU	Man	Sound Pressure, Lp @ 1m	62	55	52	50	46	42	38	30
PUHZ-W50VHA2	12 x Apartment Condensers	Man	Sound Pressure, Lp @ 1m	46	54	48	42	39	36	32	24
PUMY-SP112VKM	Condenser - Café	Man	Sound Pressure, Lp @ 1m	58	55	54	52	49	45	38	32
MVHR Type 1.1 - Fresh Air	MVHR Type 1.1	Man	Sound Power, Lw	53	48	45	34	27	24	18	19
MVHR Type 1.1 - Exhaust	MVHR Type 1.1	Man	Sound Power, Lw	63	58	56	51	44	40	32	24
MVHR Type 1.2 - Fresh Air	MVHR Type 1.2	Man	Sound Power, Lw	56	51	48	38	30	26	20	19

Reference	Description	Data Source	Noise Level Type	Noise Levels (dB)							
				63	125	250	500	1k	2k	4k	8k
MVHR Type 1.2 - Exhaust	MVHR Type 1.2	Man	Sound Power, Lw	65	60	60	54	48	45	37	28

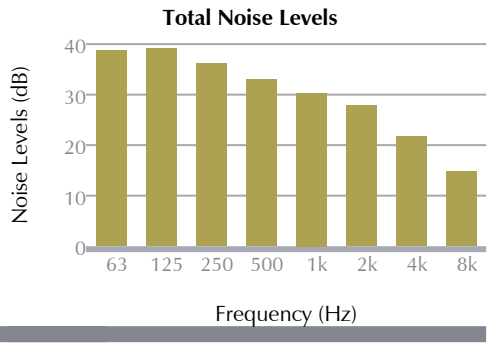
Notes

1 - Man refers to data supplied by the equipment manufacturer or supplier, Emp refers to data calculated using empirical formulae, and Meas refers to data measured by Cole Jarman

Appendix A

Calculation Summary Sheets

Project Name	187 Kentish Town Road
Project Reference	18/0601
Receiver Reference	AP1
Description	East of site
Noise Limit	41
dBA	36



Reference	Noise Levels (dB)							
	63	125	250	500	1k	2k	4k	8k
AHU1 - Fresh Air	13	20	23	19	9	15	13	8
AHU1 - Exhaust	11	18	23	17	15	12	7	2
AHU1 - Breakout	7	10	10	4	9	8	-5	-12
PUZ-ZM125YKA	34	27	24	22	18	14	10	2
PUHZ-W50VHA2	29	37	31	24	22	19	15	7
PUMY-SP112VKM	36	33	33	30	27	23	16	10
MVHR Type 1.1 - Fresh Air	-4	-5	-4	-10	-16	-21	-27	-26
MVHR Type 1.1 - Exhaust	5	5	8	7	1	-5	-13	-21
MVHR Type 1.2 - Fresh Air	-2	-2	0	-6	-14	-19	-25	-26
MVHR Type 1.2 - Exhaust	8	8	12	10	5	0	-8	-17
MVHR Type 1.1 - Fresh Air	-1	0	2	-4	-5	-6	-12	-11
MVHR Type 1.1 - Exhaust	9	9	13	13	12	10	2	-6
MVHR Type 1.2 - Fresh Air	6	7	10	4	2	1	-5	-6
MVHR Type 1.2 - Exhaust	16	17	22	21	20	20	12	3
MVHR Type 1.1 - Fresh Air	3	3	5	0	-1	-2	-8	-7
MVHR Type 1.1 - Exhaust	13	13	17	17	16	14	6	-1

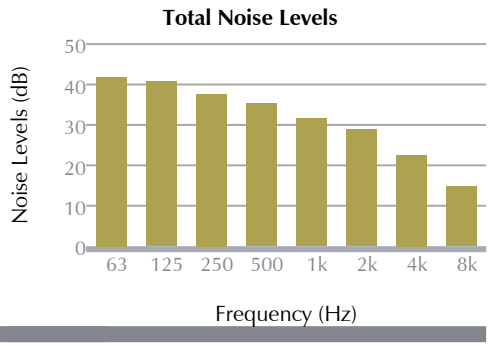
Appendix A

Reference	Noise Levels (dB)							
	63	125	250	500	1k	2k	4k	8k
MVHR Type 1.2 - Fresh Air	5	6	9	4	2	0	-6	-7
MVHR Type 1.2 - Exhaust	15	15	21	20	20	19	12	2
MVHR Type 1.1 - Fresh Air	-1	0	1	-4	-6	-7	-13	-12
MVHR Type 1.1 - Exhaust	9	9	13	13	11	9	1	-7

External Receiver Summary

Appendix A

Project Name	187 Kentish Town Road
Project Reference	18/0601
Receiver Reference	AP2
Description	North of site
Noise Limit	41
dBA	37



Reference	Noise Levels (dB)							
	63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
AHU1 - Fresh Air	16	22	24	19	4	6	4	-1
AHU1 - Exhaust	16	24	30	28	24	17	12	7
AHU1 - Breakout	11	14	15	8	13	12	-1	-8
PUZ-ZM125YKA	40	32	30	27	24	19	16	7
PUHZ-W50VHA2	30	38	32	25	23	20	16	8
AHU2 - Fresh Air	36	34	31	31	23	8	-6	-6
MVHR Type 1.1 - Fresh Air	6	6	8	3	1	0	-5	-4
MVHR Type 1.1 - Exhaust	15	16	20	20	18	17	9	1
MVHR Type 1.2 - Fresh Air	8	8	12	6	4	3	-3	-4
MVHR Type 1.2 - Exhaust	18	18	24	23	22	22	14	5
MVHR Type 1.1 - Fresh Air	3	4	6	0	-1	-2	-8	-7
MVHR Type 1.1 - Exhaust	13	13	17	17	15	14	6	-2
MVHR Type 1.2 - Fresh Air	10	11	14	8	6	5	-1	-2
MVHR Type 1.2 - Exhaust	20	21	26	25	24	24	16	7

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