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RESULTS OF A 24-HOUR NOISE LEVEL SURVEY CARRIED OUT ON THE SECOND FLOOR ROOF AT THE REAR OF THE OFFICE BUILDING LOCATED AT 114-118 PARKWAY, CAMDEN AND A REPORT ON THE NOISE CONTROL MEASURES REQUIRED TO MITIGATE THE IMPACT OF ANY PROPOSED NEW EXTERNAL PLANT

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Release by : I J Marchant

Client:	Peter Deer Associates/Gazelle London
Project:	114 -118 Parkway, Camden, London NW1
Emtec Ref:	QF9100/PF6036/RP1
Issue Date:	25th August 2017

RESULTS OF A 24-HOUR NOISE LEVEL SURVEY CARRIED OUT ON THE SECOND FLOOR ROOF AT THE REAR OF THE OFFICE BUILDING LOCATED AT 114-118 PARKWAY, CAMDEN AND A REPORT ON THE NOISE CONTROL MEASURES REQUIRED TO MITIGATE THE IMPACT OF ANY PROPOSED NEW EXTERNAL PLANT

1.0. INTRODUCTION

This report details the results of a 24-hour noise survey carried out on the second floor flat roof area at the rear of the office building located at 114 -118 Parkway in Camden, London NW1.

The objectives of this survey were as follows:

- To assess the proposal to install new external plant on the second floor rear roof area of the building.
- To establish the existing background noise level outside the nearest noise sensitive properties.
- To recommend noise limits and any necessary measures to ensure that the operation of the new plant does not disturb the occupants of the nearest affected properties.

This report has been divided into the following sections for ease of analysis:

2.0. SITE DESCRIPTION

The property at 114 -118 Parkway is a four storey office building in a terrace of similar office and retail premises on the main road into the centre of Camden. The rear of the building has a large flat roof area on the second floor which overlooks the intersection of Oval Road and Gloucester Avenue.

The front of the building is shown on the attached Photo A. The rear elevation of the building and the second floor flat roof area are shown on the attached Photos B to F.

3.0. TEST INSTRUMENTATION

All measurement equipment used during the survey complied with the requirements of BS4142:2014 "Method for Rating Industrial Noise Affecting Mixed Residential and Industrial Areas". Details of the equipment are as follows:

Integrating Sound Level Meter:	Rion type NL-52 class 1 Sound Level Meter fitted with a Rion type UC-59 ½ inch condenser microphone. Serial No. 01121378
Statistical Analysis Modules:	Built in module capable of computing the percentile levels L1, L10, L50, L90 and L99 and also the Leq level.
Acoustic Calibrator:	Bruel & Kjaer type 4231 electronic calibrator. Serial No.: 1934160

Calibration was performed before and after the surveys and found to be, in all cases, +/- 0.1 dB from the reference source.

3.1. Existing Noise Climate

Road traffic travelling on Parkway, Oval Road and Gloucester Avenue could be clearly heard during the manned periods at the start and the end of the survey, so the noise levels measured will include contributions from road vehicles.

Commercial jet aircraft were observed at medium and high altitude during the manned periods at the start and the end of the survey, so it is possible that the noise levels measured could include contributions from medium altitude jet aircraft.

There are no overland railways nearby, so the noise levels measured will not include contributions from rail noise.

We judged that traffic noise will be the dominant noise source throughout the daytime and nightime periods.

4.0. TEST PROCEDURE

The survey was conducted during a continuous 24-hour period from 08:17am on Monday the 21st of August to 08.17am on Tuesday the 22nd of August 2017.

Data was continuously acquired throughout the measurement period with the individual averaging time for statistical noise data set to 15 minutes. The following 'A' weighted statistical measurements were recorded concurrently: -

LA_1 - The Sound Pressure Level exceeded for 1% of the measurement period.

LA_{10} - The Sound Pressure Level exceeded for 10% of the measurement period.

LA_{50} - The Sound Pressure Level exceeded for 50% of the measurement period.

LA_{90} - The Sound Pressure Level exceeded for 90% of the measurement period. LA90 is considered to represent the "background noise level" during the measurement period and is used for the assessment of noise to determine the likelihood of complaints (See BS 4142:2014).

LA_{99} - The Sound Pressure Level exceeded for 99% of the measurement period.

LA_{eq} - The continuous steady state Sound Pressure Level that has the same acoustic energy as the real fluctuating level.

4.1. Measurement Positions

Noise levels were measured at a position at the rear of the second floor roof area immediately opposite the large picture windows in the residential block of flats at the rear of the site.

The location of the microphone is shown on the attached Photos C, D and E.

The microphone was fitted onto a tripod that was placed onto the second floor roof area with the microphone being some 1.2 metres above the roof surface. The rest of the measurement equipment was located in a weatherproof enclosure with a low impedance cable running from the microphone to the instrumentation.

4.2. Weather Conditions

The weather conditions prevailing during the measurement period were generally in line with those recommended in BS 4142:2014: -

Weather daytime: -	Dull and Overcast	Weather night time: -	Overcast
Wind daytime: -	Light	Wind night time: -	Light

The microphone was protected throughout the tests by an acoustically transparent wind balloon.

5.0. RESULTS AND EVALUATION OF NOISE CRITERIA

The raw test data, gathered during the noise survey, is given in Appendix 'A 'of this report.

The 'A' Weighted Leq levels measured over each 15 minute interval throughout the 24-hour period (denoted by LA_{eq}, (15 mins)) are displayed as a bar graph on the attached Sketch No QF/9100/T1 at the back of this report.

The 'A' Weighted percentile levels measured over each 15 minute interval denoted by LA_{10} (15 mins), LA_{50} (15 mins) and LA_{90} (15 mins) are displayed as line graphs on the attached Sketch No QF/9100/T2 at the back of this report.

5.1. Summary of Results

The table QF/9100/D1 below summarises the noise levels taken over the 24-hour period in terms of the maximum and minimum Sound Pressure Levels recorded.

Table QF/9100/D1 – Summary of Maximum and Minimum Noise Levels

	LA_{eq}	LA_1	LA_{10}	LA_{50}	LA_{90}	LA_{99}
Minimum	39.8 dBA	50.6 dBA	42.2 dBA	36.2 dBA	34.8 dBA	34.1 dBA
Maximum	58.9 dBA	72.5 dBA	60.4 dBA	55.7 dBA	50.5 dBA	48.9 dBA

5.2. Summary of the Local Authority's planning requirements regarding noise for noise sensitive properties

The local authority is the London Borough of Camden and Section 16.34 of Camden's Noise Strategy states:-

> "The council considers that for new developments involving noisy plant/equipment or other uses, design measures should be taken to ensure that noise levels predicted at a point 1 metre external to sensitive facades are at least 5dBA less than the existing background measurement (LA_{90}) when the equipment is in operation. Where it is anticipated that equipment will have a noise that has a distinguishable, discrete continuous note (whine, hiss, screech, hum) and/or if there are distinct impulses in the noise (bangs, clicks, clatters, thumps) special attention should be given to reducing the noise levels from plant and equipment at any sensitive façade to at least 10dBA below the LA_{90} level."

5.3. Determination of noise sensitive property design criteria

We assume that the new plant will not be intermittent or contain tones. Based on the local authority's planning requirements outlined above, any new plant should be designed to be 5dBA below the minimum existing LA_{90} background noise level during the relevant operational period.

We believe that it is proposed to operate the majority of the plant only during the extended office hours, during the daytime and early evening (8am to 10pm) but some equipment may operate on a 24-hour basis.

The lowest recorded LA_{90} level measured during the 8am to 10pm period was 44.0dBA and during the 24-hour period the lowest LA_{90} was 34.8dBA.

The new plant should therefore be designed to achieve 39.0dBA for daytime and evening operation (8am to 10pm) and 29.8dBA for 24 hour operation. These noise levels should be achieved at 1 metre from the nearest noise sensitive properties' windows with all the proposed new plant that normally operates either during the daytime/evening period or during the overnight period.

5.4. Determination of commercial design criteria

The use of the majority of the surrounding premises is as offices. It is therefore proposed that the recommendations given in BS8233:1999, Section 7.6 be considered.

	Good	Reasonable
Open plan office: $L_{Aeq,T}$	45dBA	50dBA

We propose that the lower of these rating levels is adopted, i.e. 45dBA.

Assuming a 10dB noise reduction due to a partially open window, as per the lower limit of the range given in BS8233:1999 section 8.4.7, the rating level at 1 metre external to the nearest affected office windows would be 45dBA + 10dB = 55dBA.

5.5. Summary of external noise criteria

Based upon the results of the survey and the above design criteria we summarise the actual design rating levels to be adopted for this project in table QF/9100/D2: -

Table QF/9100/D2 – recommended design rating levels $L_{Ar,T}$

Type of premises	**$L_{Ar,T}$ (24-hour)**	**$L_{Ar,T}$ (8am – 10pm)**
Noise sensitive	29.8 dBA	39.0 dBA
Commercial	-	55 dBA

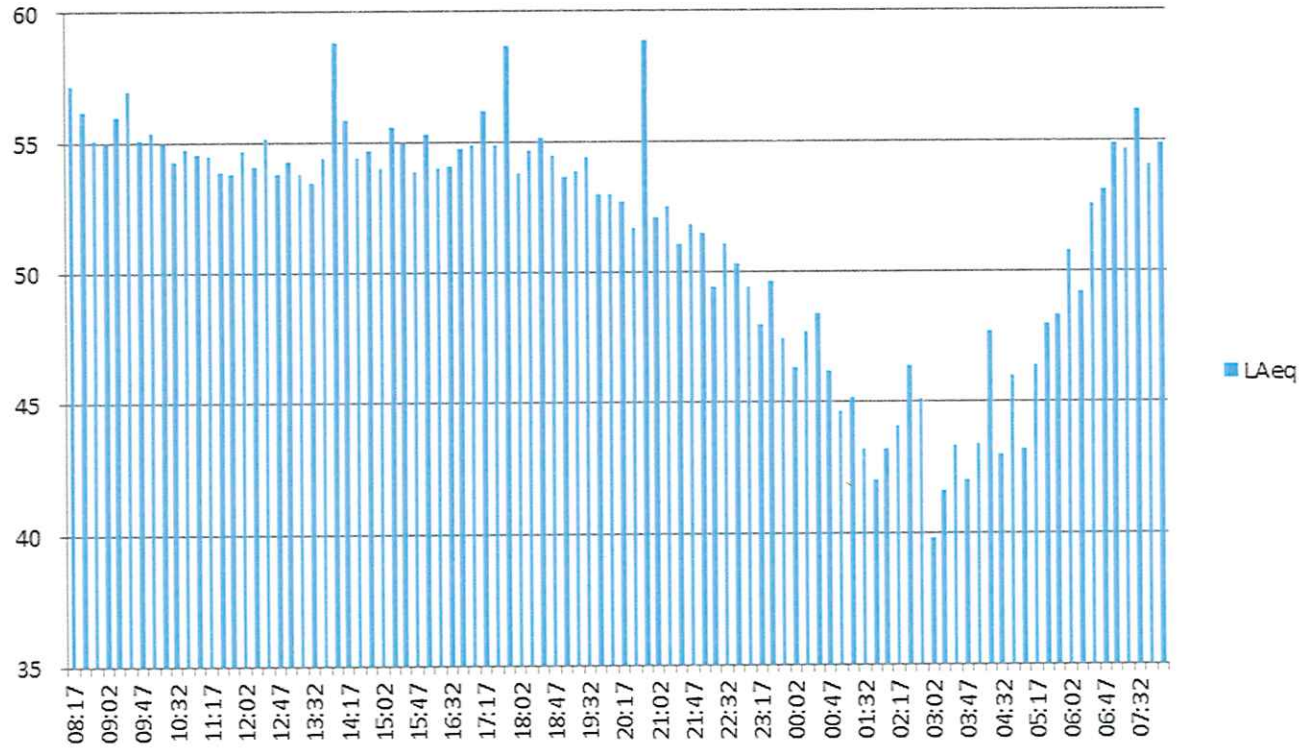
6.0. DISCUSSION OF RESULTS

The office building is to be refurbished and new air conditioning and ventilation plant is to be installed within the offices.

There will be external plant located onto the second floor flat roof of the building. Details of the proposed plant are not yet finalised but the noise level of all this plant should not exceed the LAeq limiting noise levels listed in table QF/9100/D2 above at 1 metre from the windows of the nearest noise sensitive and commercial premises.

On receipt of further details of the proposed plant we can advise as to the acoustic treatment that may be necessary to meet these limiting noise levels.

EMTEC PRODUCTS LTD
25th August 2017



TITLE: LAeq Levels	*ISSUE DATE:* 24/8/17				*DRAWN BY:* MGR	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*
CLIENT: Peter Deer & Associates	*PF No: 6036*				*APPROVED BY:* MGR	*REVISION*							
PROJECT: 114-118 Parkway, Camden, London	*Q*	*A*	*M*	*I*	*DESIGN AUTH:* MGR	*SKETCH No. QF/9100/T1*							

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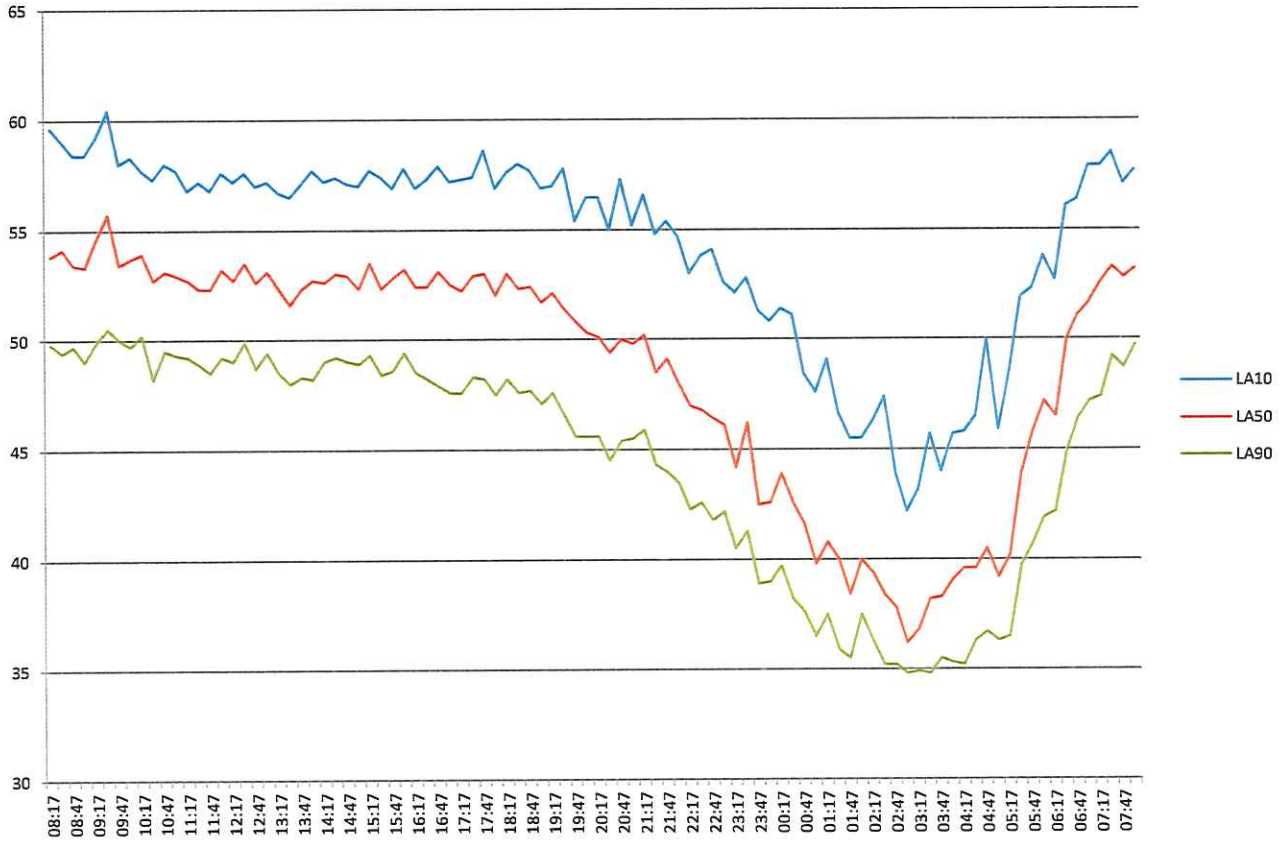

TITLE: LA10; LA50 & LA90 Levels	*ISSUE DATE:* 24/8/17				*DRAWN BY:* MGR	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*
CLIENT: Peter Deer & Associates	*PF No: 6036*				*APPROVED BY:* MGR	*REVISION*							
PROJECT: 114-118 Parkway, Camden, London	*Q*	*A*	*M*	*I*	*DESIGN AUTH:* MGR	*SKETCH No. QF/9100/T2*							

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APPENDIX 'A'

Raw Data – Noise Survey

21st to 22nd August 2017

RAW NOISE DATA - 114-118 Parkway, Camden, London NW1

Ref: QF9100/PF6036/RP1
Client: Peter Deer & Associates
Date: 21st to 22nd August 2017

Address	Start Time	LAeq	LE	Lmax	Lmin	LA1	LA10	LA50	LA90	LA99
1	08:17	57.2	86.8	83.4	47.1	64.2	59.6	53.8	49.8	48.4
2	08:32	56.2	85.8	79.9	46.7	62.3	59	54.1	49.4	47.6
3	08:47	55.1	84.7	66.4	46.8	62.1	58.4	53.4	49.7	47.7
4	09:02	55	84.6	73.3	45.8	61.9	58.4	53.3	49	47.1
5	09:17	56	85.6	71	47.1	62.6	59.2	54.6	49.9	47.9
6	09:32	57	86.6	65.9	48.1	63.5	60.4	55.7	50.5	48.9
7	09:47	55.1	84.7	70.4	47.4	62.8	58	53.4	50	48.6
8	10:02	55.4	85	71.3	46.7	62.6	58.3	53.7	49.7	47.6
9	10:17	55	84.6	68.8	47.3	61.3	57.7	53.9	50.2	48.5
10	10:32	54.3	83.9	66.3	45.5	61.7	57.3	52.7	48.2	46.3
11	10:47	54.8	84.4	68.1	46.6	62	58	53.1	49.5	47.8
12	11:02	54.6	84.2	66.2	46	62.2	57.7	52.9	49.3	47.5
13	11:17	54.5	84.1	67	46.2	63	56.8	52.7	49.2	47.4
14	11:32	53.9	83.5	67.1	45.7	60.5	57.2	52.3	48.9	46.9
15	11:47	53.8	83.4	70.9	46.4	59.9	56.8	52.3	48.5	47.3
16	12:02	54.7	84.3	71.7	46.3	61.7	57.6	53.2	49.2	47.6
17	12:17	54.1	83.7	69.1	45.9	60.9	57.2	52.7	49	46.9
18	12:32	55.2	84.8	71.4	46.4	62.5	57.6	53.5	49.9	48.3
19	12:47	53.8	83.4	66.7	46	59.7	57	52.6	48.7	47
20	13:02	54.3	83.9	69.7	46.8	60.7	57.2	53.1	49.4	48.2
21	13:17	53.8	83.4	65.3	46.1	60.8	56.7	52.3	48.5	47.3
22	13:32	53.5	83.1	65.1	45.3	61.2	56.5	51.6	48	46.4
23	13:47	54.4	84	74.6	45.3	61.8	57.1	52.3	48.3	46.5
24	14:02	58.8	88.4	81.2	45.7	63.7	57.7	52.7	48.2	46.7
25	14:17	55.9	85.5	78.6	45.6	63.5	57.2	52.6	49	47.3
26	14:32	54.4	84	65.8	46.1	61.9	57.4	53	49.2	47.2
27	14:47	54.7	84.3	72.7	46.2	63.3	57.1	52.9	49	47
28	15:02	54	83.6	70	45.3	61.1	57	52.3	48.9	47.2
29	15:17	55.6	85.2	74.6	46.5	64.1	57.7	53.5	49.3	47.5
30	15:32	55	84.6	70.9	45.6	65.1	57.4	52.3	48.4	47
31	15:47	53.9	83.5	69.5	45.9	60	56.9	52.8	48.6	47.1
32	16:02	55.3	84.9	70.9	46.3	65.1	57.8	53.2	49.4	47.2
33	16:17	54	83.6	66.8	44.4	61.3	56.9	52.4	48.5	46.5
34	16:32	54.1	83.7	69.5	43.3	60.6	57.3	52.4	48.2	45.8
35	16:47	54.8	84.4	74.4	44.8	62.3	57.9	53.1	47.9	46.2
36	17:02	54.9	84.5	71.2	42	65.3	57.2	52.5	47.6	44
37	17:17	56.2	85.8	78.5	43.4	64.3	57.3	52.2	47.6	45.7
38	17:32	54.9	84.5	70	44.4	63.7	57.4	52.9	48.3	46.1
39	17:47	58.7	88.3	83.2	44.2	65.9	58.6	53	48.2	45.9
40	18:02	53.8	83.4	67.2	44.3	61.2	56.9	52	47.5	45.4
41	18:17	54.7	84.3	68.4	44	63	57.6	53	48.2	46
42	18:32	55.2	84.8	77.1	44	62.3	58	52.3	47.6	45.1
43	18:47	54.5	84.1	66.6	43.9	63.4	57.7	52.4	47.7	45.8
44	19:02	53.7	83.3	64	42.7	61.4	56.9	51.7	47.1	44.4
45	19:17	53.9	83.5	67.4	42.5	61.5	57	52.1	47.6	43.9
46	19:32	54.4	84	69.4	42.8	63.4	57.8	51.4	46.6	44.5
47	19:47	53	82.6	74.4	41.3	60.3	55.4	50.8	45.6	42.4
48	20:02	53	82.6	67.2	40.8	60.8	56.5	50.3	45.6	42.6
49	20:17	52.7	82.3	65.8	41.6	60.5	56.5	50.1	45.6	43.3
50	20:32	51.7	81.3	66.2	41.1	59.3	55	49.4	44.5	42.3

51	20:47	58.9	88.5	83.3	41.4	72.5	57.3	50	45.4	42.9
52	21:02	52.1	81.7	68.4	40.4	61.7	55.2	49.8	45.5	41.7
53	21:17	52.5	82.1	63.8	42	59.2	56.6	50.2	45.9	43.6
54	21:32	51.1	80.7	65.7	41	58.9	54.8	48.5	44.3	42
55	21:47	51.8	81.4	66.7	40.1	60.1	55.4	49.1	44	41.6
56	22:02	51.5	81.1	65.8	38.4	61.8	54.7	48	43.5	40.3
57	22:17	49.4	79	63.4	39	57.9	53	47	42.3	40.2
58	22:32	51.1	80.7	68.3	39.6	61.8	53.8	46.8	42.6	40.7
59	22:47	50.3	79.9	66.7	38.5	59.1	54.1	46.4	41.8	39.6
60	23:02	49.4	79	69.7	39.2	57.2	52.6	46.1	42.2	40.9
61	23:17	48	77.6	62	37.7	56.7	52.1	44.2	40.5	38.6
62	23:32	49.6	79.2	68.8	37.8	59.7	52.8	46.2	41.3	38.8
63	23:47	47.4	77	63.5	36	57.1	51.3	42.5	38.9	37.3
64	00:02	46.3	75.9	58	36.4	54.6	50.8	42.6	39	37.6
65	00:17	47.7	77.3	65.8	36.6	55.6	51.4	43.9	39.7	37.8
66	00:32	48.4	78	69.5	35.6	57.8	51.1	42.6	38.2	36.5
67	00:47	46.2	75.8	69.9	34.3	54.1	48.4	41.6	37.6	35.4
68	01:02	44.6	74.2	60.1	34.7	55.4	47.6	39.8	36.5	35.5
69	01:17	45.2	74.8	58.4	34.9	54.8	49.1	40.8	37.5	36.2
70	01:32	43.2	72.8	55.4	34.4	52.3	46.6	40	35.9	35
71	01:47	42	71.6	55.3	33.5	52.6	45.5	38.4	35.5	34.7
72	02:02	43.2	72.8	59.8	35.1	53.8	45.5	40	37.5	36
73	02:17	44.1	73.7	60.2	34.2	55.1	46.3	39.4	36.3	35.4
74	02:32	46.4	76	68.5	33.4	58.2	47.4	38.4	35.2	34.4
75	02:47	45.1	74.7	66.9	33.5	56.6	43.9	37.8	35.2	34.4
76	03:02	39.8	69.4	56.4	33.4	50.6	42.2	36.2	34.8	34.1
77	03:17	41.6	71.2	57.7	33.5	53.6	43.2	36.8	34.9	34.3
78	03:32	43.3	72.9	64.3	33.1	52.4	45.7	38.2	34.8	34.1
79	03:47	42	71.6	62.4	33.6	51.7	44	38.3	35.5	34.5
80	04:02	43.4	73	59.6	33.5	54.1	45.7	39.1	35.3	34.4
81	04:17	47.7	77.3	74.6	33.3	55.4	45.8	39.6	35.2	34.1
82	04:32	43	72.6	57.7	34	52.1	46.5	39.6	36.3	35.1
83	04:47	46	75.6	62.7	34.2	56.2	50	40.5	36.7	35.3
84	05:02	43.2	72.8	59.1	34.4	54.2	45.9	39.2	36.3	35.4
85	05:17	46.4	76	71.3	34.5	57.5	48.6	40.2	36.5	35.6
86	05:32	48	77.6	62.4	37.1	57.2	51.9	43.9	39.7	38
87	05:47	48.3	77.9	61.2	36.6	55.5	52.3	45.8	40.7	37.4
88	06:02	50.8	80.4	75.8	38	58.4	53.8	47.2	41.9	39
89	06:17	49.2	78.8	61.7	39.3	58	52.7	46.5	42.2	40.5
90	06:32	52.6	82.2	67.4	40	60.9	56.1	50	44.9	41.6
91	06:47	53.1	82.7	67	41.6	60.8	56.4	51.1	46.4	43.5
92	07:02	54.9	84.5	73	43.7	65.2	57.9	51.7	47.2	44.8
93	07:17	54.7	84.3	71.8	43.6	63.8	57.9	52.6	47.4	44.7
94	07:32	56.2	85.8	74.7	46.5	64	58.5	53.3	49.2	47.5
95	07:47	54.1	83.7	64.5	45.9	60.9	57.1	52.8	48.7	46.7
96	08:02	54.9	84.5	70	46.2	62.3	57.7	53.2	49.7	47.3

APPENDIX 'B'

Photos

Photo A – Front of Office Building at 114-118 Parkway, Camden

Photo B – Rear of 114-118 Parkway with Large Flat Roof Area on the Second Floor

Photo C – Microphone Located at Rear of Second Floor Flat Roof Area with Offices Shown to Left of Site

Photo D – Microphone Location with Residential Block of Flats Behind Site

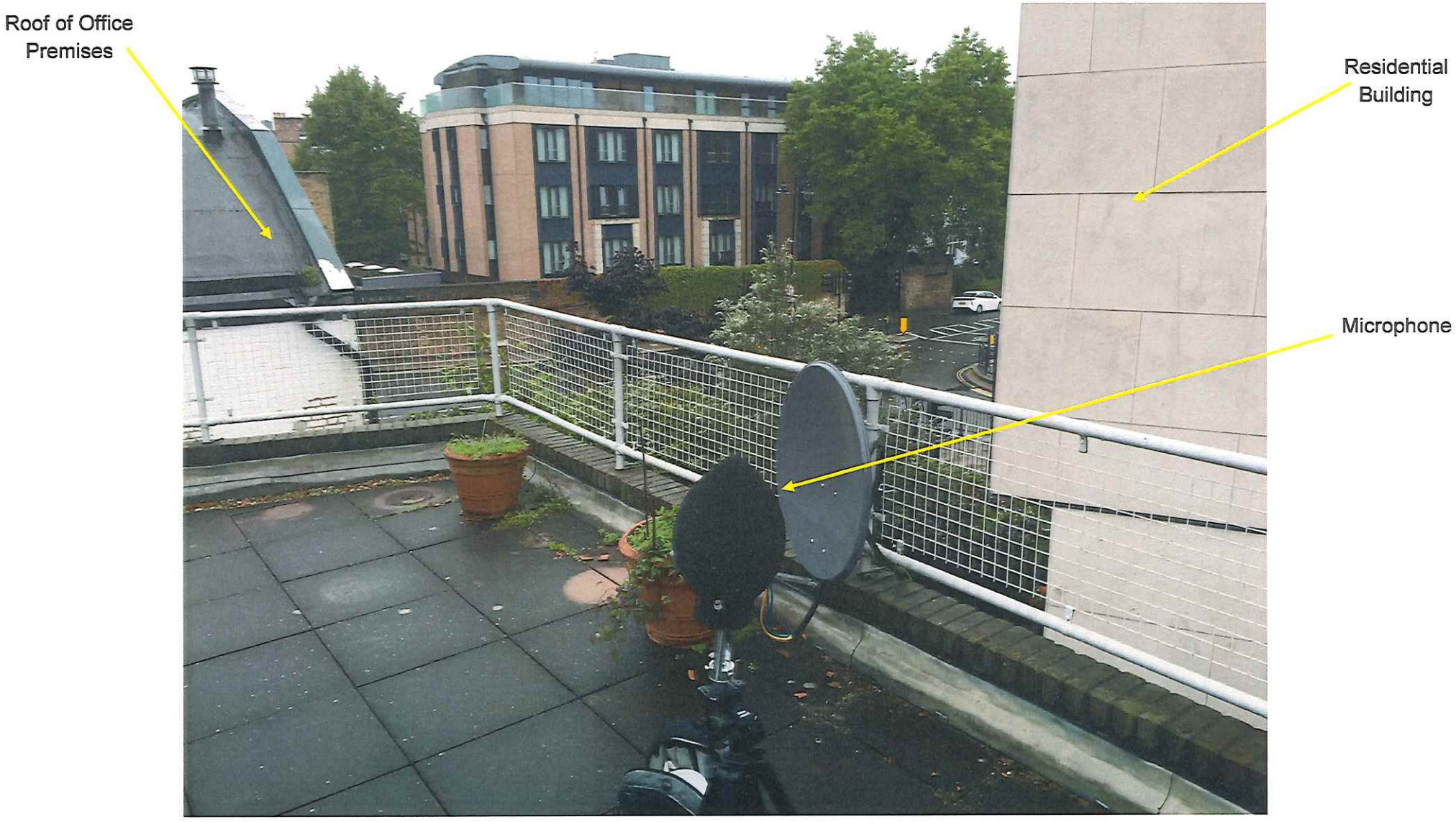

Photo E – Microphone Location with Oval Road/ Gloucester Avenue Intersection Behind

Photo F – Roof of Building to the Right Hand Side of Second Floor Roof Area. Roof of Office Premises

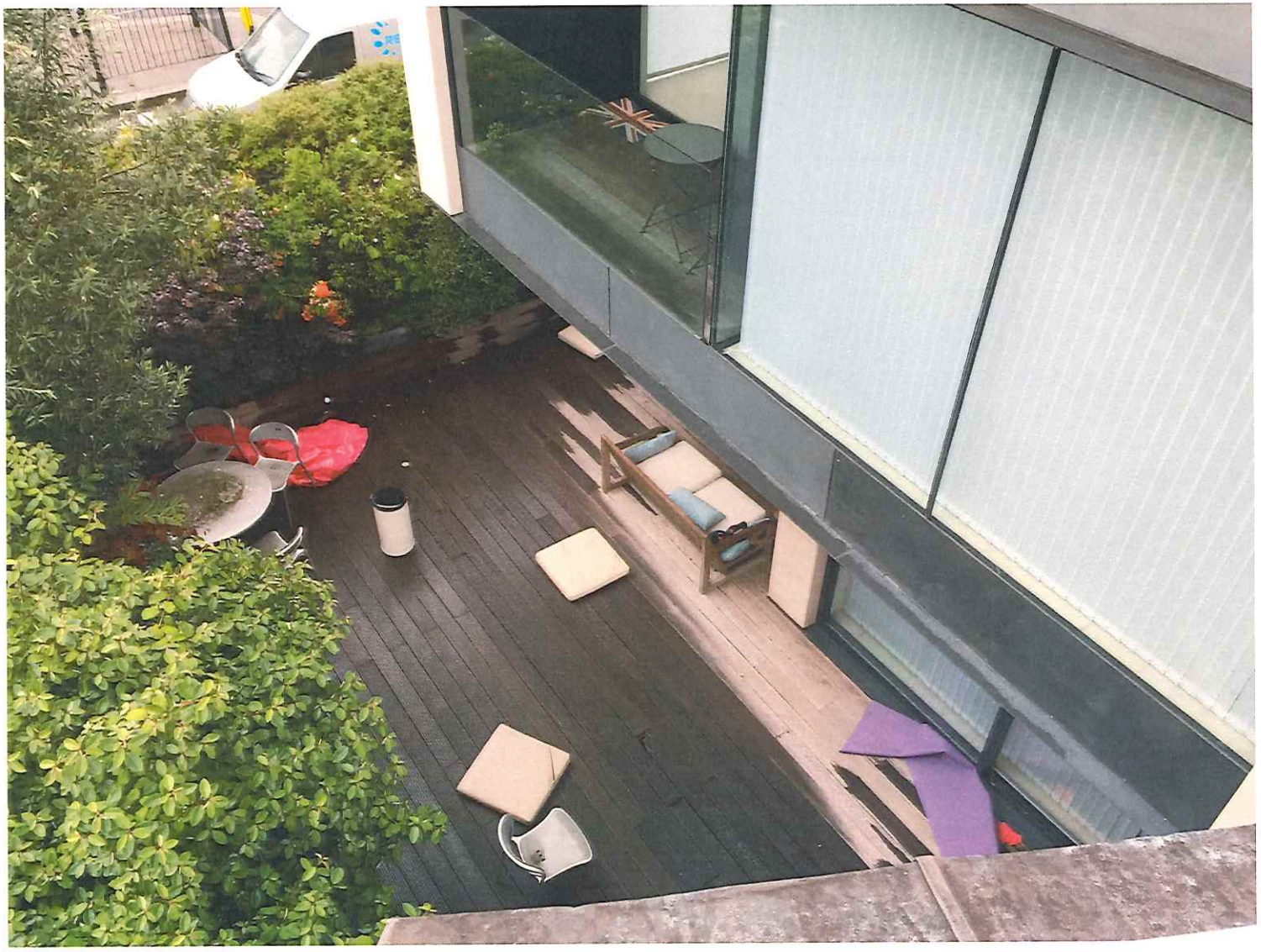

Photo G- Ground Floor Patio Area of Residential Building at Rear of Site

Photo H – Lightwell on Left Hand Side of Second Floor Roof