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RESULTS OF A 24-HOUR NOISE LEVEL SURVEY CARRIED OUT AT THE FRONT AND REAR OF THE BUILDING LOCATED AT 35, GREAT JAMES STREET, LONDON WC1 AND A REPORT ON THE NOISE CONTROL MEASURES REQUIRED TO MINIMISE THE NOISE IMPACT OF THE PROPOSED NEW EXTERNAL PLANT

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Client	:	David Phillips/ MW Architects
Project	:	35 Great James Street, London WC1
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RESULTS OF A 24-HOUR NOISE LEVEL SURVEY CARRIED OUT AT THE FRONT AND REAR OF THE BUILDING LOCATED AT 35, GREAT JAMES STREET, LONDON WC1 AND A REPORT ON THE NOISE CONTROL MEASURES REQUIRED TO MINIMISE THE NOISE IMPACT OF THE PROPOSED NEW EXTERNAL PLANT

1.0. INTRODUCTION

This report details the results of two 24-hour noise surveys carried out at the front and rear of the building located at 35, Great James Street, London WC1.

The objectives of this survey were as follows:

- To assess the proposal to install new external plant at the front and rear of the building.
- To identify the nearest properties that might be affected by plant noise.
- To establish the existing background noise level outside the nearest affected 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 35 Great James Street is a four storey, brick built, terraced building which has a basement below pavement level. The front of the building is shown on the attached Photo A. At the rear of the building the ground floor roof continues through to the back of the site as can be seen on the attached Photo C.

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.
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 Great James Street could clearly be heard at the front of the building during the manned periods at the start and the end of the survey, so the noise levels measured in this location 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.

Construction works were being carried out on the building next door (see Photo A) so noise from these building operations could be included during the daytime.

We judged that road traffic noise to be the dominant source of noise affecting ambient noise levels at the front of the site.

4.0. TEST PROCEDURE

The survey was conducted during a continuous 24-hour period from 8:00am on Monday the 19th October 2015 to 8:00am on Tuesday the 20th of October 2015.

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 the front and rear of the building. The noise levels at the front were measured by a microphone placed on the roof of the canopy which covers the entrance door to the building. The position of the microphone can be clearly seen on the attached Photo A. The noise levels at the rear of the building were measured by a microphone placed onto the flat roof over the ground floor as can be seen on the attached Photos B & C.

Both microphones were pointing vertically and was approximately 1.2 metres above the canopy/roof level. The rest of the measurement equipment was located in weatherproof enclosures with low impedance cables running from the microphones 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: -	Dry and overcast	Weather night time: -	Overcast
Wind daytime: -	Light	Wind night time: -	Calm

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 at the front and rear of the building over each 15 minute interval throughout the 24-hour period (denoted by LA_{eq}, (15 mins)) are displayed as bar graphs on the attached Sketches No QF/8407/T1 and -/T3 at the back of this report.

The 'A' Weighted percentile levels measured at each location 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 Sketches No QF/8407/T2 and -/T4 at the back of this report.

5.1. Summary of Results

The tables QF/8407/D1 and -/D2 below summarise the noise levels taken over the 24-hour period, in each location, in terms of the maximum and minimum Sound Pressure Levels recorded.

Table QF/8407/D1 – Summary of Maximum and Minimum Noise Levels Recorded at the Front of the Building

	LA_{eq}	LA_1	LA_{10}	LA_{50}	LA_{90}	LA_{99}
Minimum	53.9dBA	62.8dBA	57.8dBA	49.4dBA	46.6dBA	46.3dBA
Maximum	68.7dBA	81.3dBA	67.9dBA	61.2dBA	58.1dBA	56.6dBA

Table QF/8407/D2 – Summary of Maximum and Minimum Noise Levels Recorded at the Rear of the Building

	LA_{eq}	LA_1	LA_{10}	LA_{50}	LA_{90}	LA_{99}
Minimum	48.9dBA	50.1dBA	49.6dBA	48.9dBA	48.1dBA	47.4dBA
Maximum	60.4dBA	72.5dBA	63.8dBA	52dBA	51.1dBA	50.4dBA

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

Section 16.34 of Camden's Noise Strategy 2002 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 metreexternalto sensitive facades are at least 5dB(A) less than the existing background measurement (LA90) 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 (bang, clicks chatters, thumps), special attention should be given to reducing the noise levels from plant and equipment at any sensitive façade to at least 10dB(A) below the LA90 level.

5.3. Determination of noise sensitive property design criteria

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

It is proposed to operate the plant on a 24-hour basis.

The lowest recorded LA_{90} levels measured in each location during the 24-hour period were 46.6dBA at the front of the building and 48.1dBA at the rear of the building. The lowest noise level, at the front of the building, occurred during the time period ending at 3:52am and at the rear of the building, occurred during four time periods ending at 1:09am; 1:39am; 3:09am and 4:24am. The LA90 noise level at the rear of the building was between 49dBA and 48.1dBA throughout the nightime period from 9pm to 6am.

The new plant should therefore be designed to achieve 41.6dBA at the front of the building and 43.1dBA at the rear of the building. Both these noise levels should be achieved at 1 metre from the nearest noise sensitive properties' windows if the externally located equipment is to be operated on a 24-hour basis.

5.4. Determination of commercial design criteria

The uses of the commercial premises that surround the development site generally consist of 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/8407/D3: -

Table QF/8407/D3 – recommended design rating levels $L_{Ar,T}$

Type of premises	**$L_{Ar,T}$ (24-hour)**	
	Front of Building	Rear of Building
Noise sensitive	41.6 dBA	43.1dBA
Commercial	55 dBA	55dBA

6.0. DISCUSSION OF RESULTS

It is proposed to install boilers, pressurisation units and pumps in the vault under the pavement at the front of the building. This is shown on the attached Cundall/MW drawing P.02.

It is proposed to install kitchen extract fans on the flat roof at the rear of the building. These fans are shown on the attached Cundall/MW drawing P.03.

The boilers and pressurisation unit at the front of the building will be of the order of 60 dBA and in order to ensure that their operation does not affect the residential properties on either side of No. 35 it will be necessary to fit an acoustic louvred door to the plantroom. The acoustic louvred door should have the noise reduction capability listed in table QF/8407/D4:-

Table QF/8407/D4 – Noise Reduction capability of Acoustic Louvred door to front Vault Plantroom

Acoustic Louvre Type	Noise Reduction (dB) 63	125	250	500	1k	2k	4k	8k
Emtec LAAC 15	5	7	9	12	18	19	15	15

With regard to the two extract fans at the rear of the site, we list in tables QF/8407/D5 and -/D6 the natural and required attenuations to meet the established limiting noise levels at 1 metre from the nearest residential and office windows.

Table QF/8407/D5 – Natural and Required Attenuation to Residential Windows

Source/Attenuation	Sound Pressure Level (dB ref 2 x 10^{-5} N/m^2) 63	125	250	500	1k	2k	4k	8k	dBA
Nuaire MEVDC Extract Fan Sound Power Level	45	44	54	52	44	35	31	27	
Sound Power to Sound Pressure	-5	-5	-5	-5	-5	-5	-5	-5	
2 Units	+3	+3	+3	+3	+3	+3	+3	+3	
Reverberation of local environment	+5	+5	+5	+5	+5	+5	+5	+5	
Distance correction to 6 metres 20 log 5	-14	-14	-14	-14	-14	-14	-14	-14	
Unattenuated SPL at 1 metre from nearest residential window	34	33	43	41	33	24	20	16	41

Table QF/8407/D6 – Natural and Required Attenuation to Office Windows

Source/Attenuation	Sound Pressure Level (dB ref 2 x 10^{-5} N/m^2) 63	125	250	500	1k	2k	4k	8k	dBA
Nuaire MEVDC Extract Fan Sound Power Level	45	44	54	52	44	35	31	27	
Sound Power to Sound Pressure	-5	-5	-5	-5	-5	-5	-5	-5	
2 Units	+3	+3	+3	+3	+3	+3	+3	+3	
Reverberation of local environment	+5	+5	+5	+5	+5	+5	+5	+5	
Distance correction to 4 metres 20 log 3	-9	-9	-9	-9	-9	-9	-9	-9	
Unattenuated SPL at 1 metre from nearest office window	39	38	48	46	38	29	25	21	46

The calculated noise levels above are below the established limiting noise levels of 43.1 dBA at 1 metre from the nearest residential window and 55 dBA at 1 metre from the nearest office windows so the extract fans will be able to operate on a 24 hour basis and meet the requirements of the Camden Council's planning directives.

If the acoustic louvred door is fitted to the plantroom at the front of the building and the kitchen extract fans, at the rear of the building, are as detailed in the tables above then the requirements of Camden Council's planning directives with regard to noise will be met.

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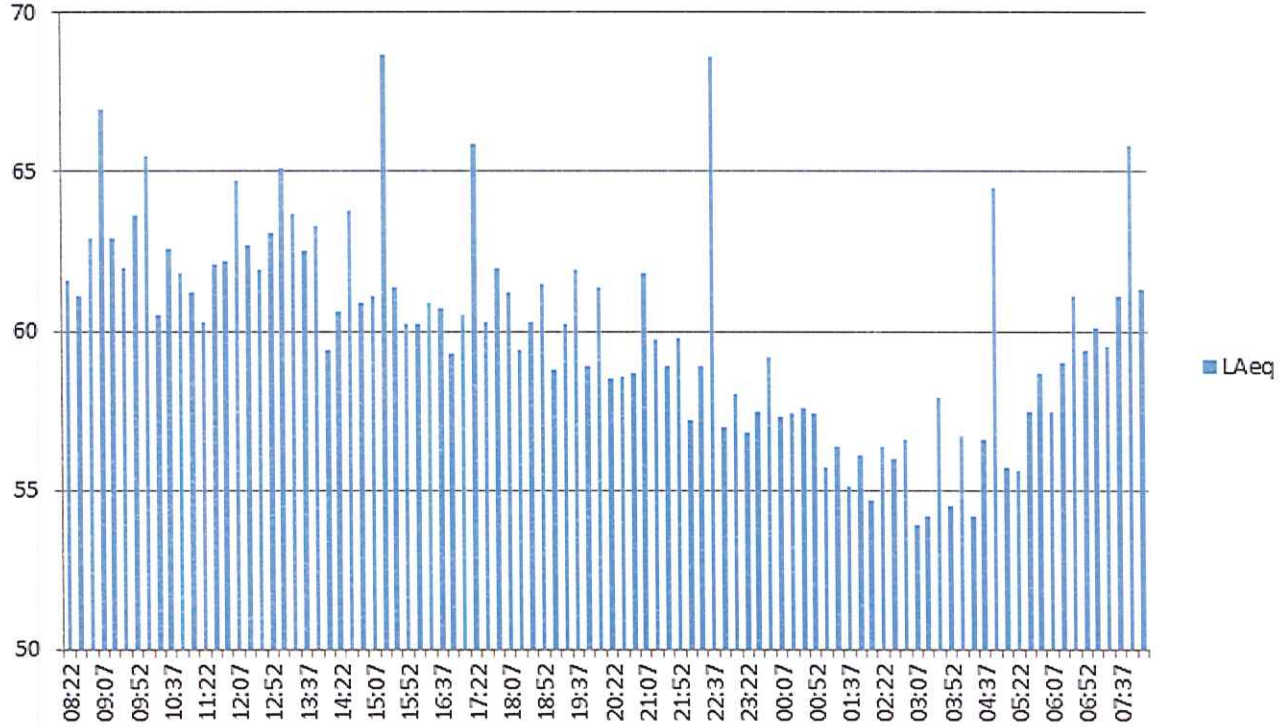
30th November 2015



TITLE: LAeq Levels – Front of Building	*ISSUE DATE:* 21/10/15				*DRAWN BY:* *MGR*	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*
CLIENT: David Phillips/MW Architects	*PF No:5562*				*APPROVED BY:* *MGR*	*REVISION*							
PROJECT: 35 Great James Street, London	*Q*	*A*	*M*	*I*	*DESIGN AUTH:* *MGR*	*SKETCH No. QF/8407/T1*							

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TITLE: LA10; LA50 & LA90 Levels – Front of Building	ISSUE DATE: 21/10/15				DRAWN BY: MGR	A	B	C	D	E	F	G	H
CLIENT: David Phillips/MW Architects	PF No:5562				APPROVED BY: MGR	REVISION							
PROJECT: 35 Great James Street, London	Q	A	M	I	DESIGN AUTH: MGR	SKETCH No. QF/8407/T2							

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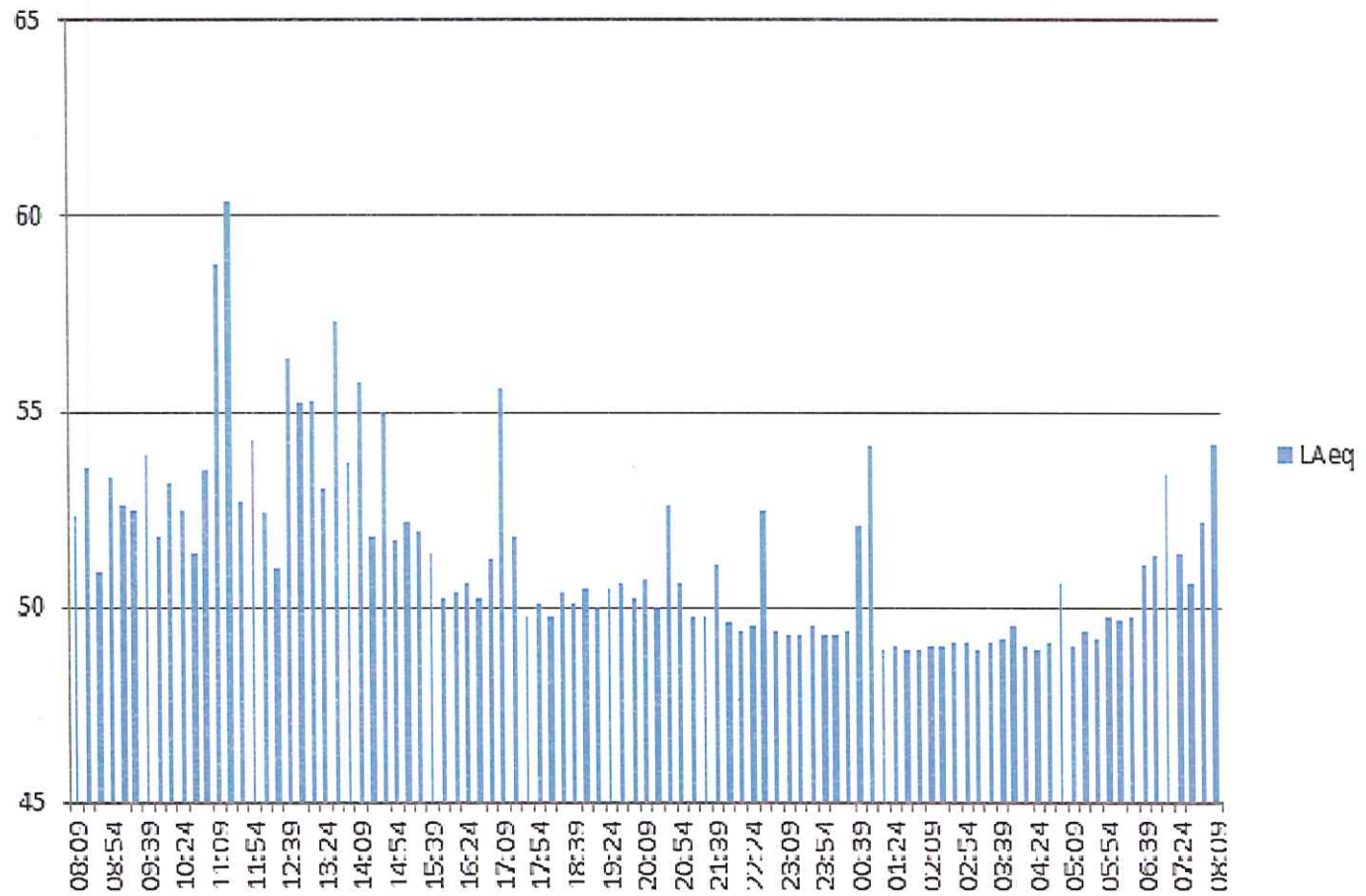

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CLIENT: David Phillips/ MW Architects	*PF No: 5562*				*APPROVED BY:* *MGR*	*REVISION*							
PROJECT: 35 Great James Street, London WC1	*Q*	*A*	*M*	*I*	*DESIGN AUTH:* *MGR*	*SKETCH No. QF/ 8407/T3*							

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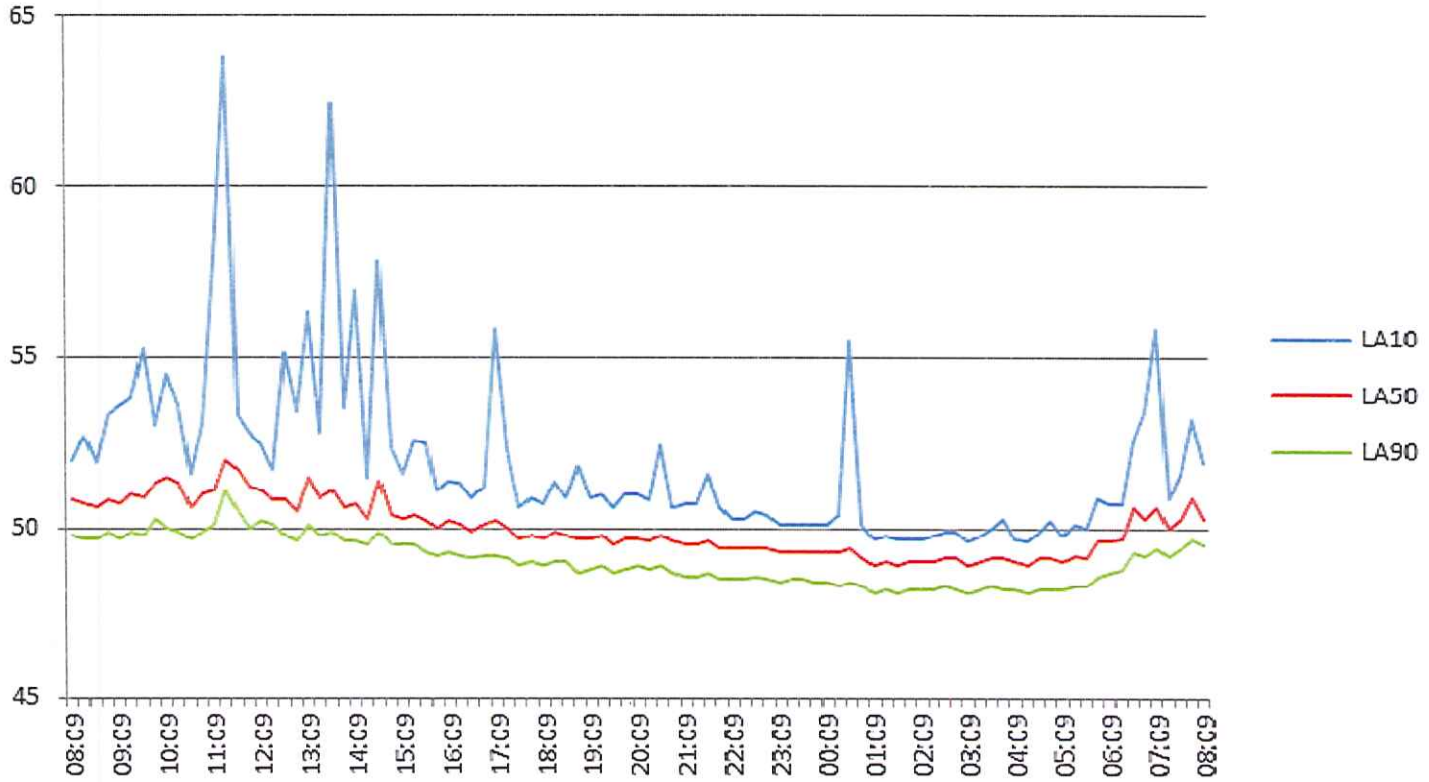

TITLE: LA10; LA50 and LA90 Levels – Rear of Building	*ISSUE DATE:* 20/10/2015				*DRAWN BY:* MGR	A	B	C	D	E	F	G	H
CLIENT: David Phillips/ MW Architects	*PF No: 5562*				*APPROVED BY:* MGR	*REVISION*							
PROJECT: 35 Great James Street, London WC1	Q	A	M	I	*DESIGN AUTH:* MGR	*SKETCH No. QF/ 8407/T4*							

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APPENDIX 'A'

Raw Data – Noise Survey

19th to 20th October 2015

RAW NOISE DATA - 35 Great James Street, London WC1N 3HN - Front of Building

Ref: QF8407/PF5562/RP1
Client: David Phillips/Marek Wojciechowski Architects
Date: 19th to 20th October 2015

Address	Start Time	LAeq	LE	Lmax	Lmin	LA1	LA10	LA50	LA90	LA99
1	08:22	61.6	91.2	83.3	50.8	70.7	63.2	58.5	54.6	53.9
2	08:37	61.1	90.7	79.3	51.3	69.8	64.1	58.6	55.2	54.2
3	08:52	62.9	92.5	84.6	51.7	73.7	64.4	59.3	55.2	54.4
4	09:07	67	96.6	89.5	52.3	81.1	64.4	58.6	55	54.3
5	09:22	62.9	92.5	82	51.3	74.5	64	58.8	55.3	54.4
6	09:37	62	91.6	78	50.7	72	64.2	59.4	55.3	54.4
7	09:52	63.6	93.2	83	51.1	74	66.3	60.3	55.8	54.7
8	10:07	65.5	95.1	88.1	51.6	76.5	67.9	60.9	56.4	55
9	10:22	60.5	90.1	77.2	50.2	68.5	63	59.2	54.5	53.1
10	10:37	62.6	92.2	79.1	53.6	72.9	64.6	60	57.2	56.6
11	10:52	61.8	91.4	77	51.8	71.5	64.2	59.4	56.2	54.7
12	11:07	61.2	90.8	77.8	50.3	70.9	64.1	58.3	54.5	53.2
13	11:22	60.3	89.9	74.7	51	69.1	63.1	58.4	54	53.2
14	11:37	62.1	91.7	77.8	52.1	72	64.2	59.9	55.5	54.4
15	11:52	62.2	91.8	77.6	52.5	72.9	63.8	60	56.3	55
16	12:07	64.7	94.3	88.6	51.2	74.6	64.7	60.4	56.2	55.2
17	12:22	62.7	92.3	79.3	50.3	72.9	64	60.8	58.1	56.5
18	12:37	61.9	91.5	74.8	51.9	71.3	63.9	60.4	57.5	54.8
19	12:52	63.1	92.7	91.6	50.9	71.7	63.8	58.4	55.3	54.5
20	13:07	65.1	94.7	89.2	52.6	74.7	65.1	61.2	57.4	55.3
21	13:22	63.7	93.3	91.7	51.3	73.1	65.4	60.2	55.9	54.5
22	13:37	62.5	92.1	78.8	50.5	70.7	65.7	60.2	56.8	55.5
23	13:52	63.3	92.9	86.3	51.2	74.5	65.3	58.7	54.5	53.7
24	14:07	59.4	89	80.7	50.2	68	61.6	57.5	54.1	53.4
25	14:22	60.6	90.2	79.8	50.1	69.9	62.9	58	53.7	52.7
26	14:37	63.8	93.4	87.9	50.9	73.1	64.3	59.8	55.2	53.9
27	14:52	60.9	90.5	75.3	50.9	67.1	63.2	60.3	56	54.3
28	15:07	61.1	90.7	74.2	49.7	69	63.5	60.1	54.8	52.7
29	15:22	68.7	98.3	93.4	49.9	77.8	67.1	60.9	56.7	55.1
30	15:37	61.4	91	80.5	51	70.7	63.2	59.5	55.6	54.3
31	15:52	60.2	89.8	74.6	50.6	68.4	62.5	58.6	54.1	53.2
32	16:07	60.2	89.8	77	49.6	69.9	62.8	57.5	53.1	52.1
33	16:22	60.9	90.5	78	50	70	63.4	58.3	54	53.1
34	16:37	60.7	90.3	81.9	49.4	69.9	63.4	58.3	53.5	52.4
35	16:52	59.3	88.9	74.5	50.6	68.2	62.1	57.4	53.7	53
36	17:07	60.5	90.1	74.8	50.1	69.6	63.8	57.8	53.6	52.8
37	17:22	65.9	95.5	91.9	50.7	74.8	66.7	59	54.6	53.8
38	17:37	60.3	89.9	75.8	49.5	69.9	63.3	57.1	53.4	52.3
39	17:52	62	91.6	79.1	49	73.4	64.1	58	53.8	52.2
40	18:07	61.2	90.8	83.7	49.9	71	62.4	57.4	52.9	52
41	18:22	59.4	89	76.9	49.3	67.7	62.3	57.4	53.4	52.4
42	18:37	60.3	89.9	78.8	49.2	70.1	62.9	57.6	53.1	52.1
43	18:52	61.5	91.1	80.8	49	72.4	63.6	57.4	51.9	51
44	19:07	58.8	88.4	78	48.1	66.8	61.2	56.9	52.6	51.7
45	19:22	60.2	89.8	76.8	48.5	71.1	62.3	57.1	52.7	51.8
46	19:37	61.9	91.5	86.8	49.6	70.9	63.1	57.1	52.6	51.8
47	19:52	58.9	88.5	76.6	47.9	68	61.5	56.9	50.7	49.8
48	20:07	61.4	91	83.7	47.7	72.7	61.9	56.8	50.9	49.8
49	20:22	58.5	88.1	77.1	47.6	68.1	60.9	55.7	51.1	49.6
50	20:37	58.6	88.2	76.7	48	67.6	61.3	56.2	51	50.3
51	20:52	58.7	88.3	76.7	47.4	66.9	61.5	56.1	50.4	49

52	21:07	61.8	91.4	87.8	46.9	71.2	61.1	56	49.7	48.7
53	21:22	59.7	89.3	76.2	49	69.2	62.8	56.6	52	51.1
54	21:37	58.9	88.5	75.4	46.7	68.9	61.4	56.4	50	48.9
55	21:52	59.8	89.4	79	46.7	67.9	62.2	57	50.3	49
56	22:07	57.2	86.8	71.5	46.5	64.2	60.9	55	48.7	47.9
57	22:22	58.9	88.5	73.8	47.1	68.7	61.9	56.5	49.8	48.9
58	22:37	68.6	98.2	93.7	46.7	81.3	61.6	55.8	49.2	48.3
59	22:52	57	86.6	67.5	46.3	63.9	60.3	55.6	49.2	48.5
60	23:07	58	87.6	70.8	46.2	66.5	61.7	55.5	48.3	47.8
61	23:22	56.8	86.4	68.1	46.4	63.7	60.5	55.2	48.4	47.9
62	23:37	57.5	87.1	70.9	46.4	65.5	60.8	55.9	48.9	47.8
63	23:52	59.2	88.8	83.7	45.9	66.4	60.8	54.9	48.3	47.7
64	00:07	57.3	86.9	73.1	45.7	65.2	60.6	54.6	48.2	47.5
65	00:22	57.4	87	78.7	45.8	66	60.5	54.9	47.8	47.3
66	00:37	57.6	87.2	72.4	45.4	65.2	61.1	55.5	48.5	47.4
67	00:52	57.4	87	77.1	46.2	68.3	59.9	54.3	47.9	47.4
68	01:07	55.7	85.3	70.6	45.7	64.5	59.3	52.7	47.3	46.9
69	01:22	56.4	86	73.2	45.7	64.8	60.1	53.1	47.5	47.1
70	01:37	55.1	84.7	68.3	45.5	63	59.3	51.3	47.2	46.7
71	01:52	56.1	85.7	74.1	45.2	66.1	59.5	51.7	46.9	46.5
72	02:07	54.7	84.3	69.5	45.5	64.2	58.8	50.3	46.9	46.5
73	02:22	56.4	86	75.7	45.2	65.1	59.7	51.9	47.2	46.8
74	02:37	56	85.6	71.9	45.2	65.1	59.3	52.4	47.3	46.9
75	02:52	56.6	86.2	73.5	46.2	65.9	59.9	53	48.1	47.4
76	03:07	53.9	83.5	66	45.3	62.8	58.1	49.4	47	46.7
77	03:22	54.2	83.8	68.4	45.7	63.7	57.8	50.3	47.1	46.8
78	03:37	57.9	87.5	79.9	45.7	69	60.3	52.6	47.4	47
79	03:52	54.5	84.1	73.2	45.3	63.1	58	50.3	46.6	46.3
80	04:07	56.7	86.3	77	45.4	67	59.9	52.4	47.4	46.5
81	04:22	54.2	83.8	66.2	45.2	63	58.5	50.1	47	46.5
82	04:37	56.6	86.2	72.8	45.7	66.4	60.2	52.3	47.5	47.1
83	04:52	64.5	94.1	90.7	46	71.7	59.3	51	47.7	47.3
84	05:07	55.7	85.3	71.2	45.9	64.8	59.8	51.9	47.6	47.2
85	05:22	55.6	85.2	68.9	45.8	63.7	59.9	51.8	47.2	46.9
86	05:37	57.5	87.1	75.3	45.5	66.7	60.6	54.7	48	47.5
87	05:52	58.7	88.3	74.1	46.1	68.1	62	55.7	48.5	47.8
88	06:07	57.5	87.1	71.7	46.6	66	61	55	49.6	48.9
89	06:22	59	88.6	74.9	47	68.2	62.3	55.9	49.7	49
90	06:37	61.1	90.7	80.9	48.6	68.8	63.6	59.1	53.4	52.1
91	06:52	59.4	89	76.3	48.7	68.9	61.7	57	52.5	51.6
92	07:07	60.1	89.7	77.4	49	67	63.1	58.3	53.1	52.2
93	07:22	59.5	89.1	73.2	48.7	66.4	62.3	58	53.3	52.3
94	07:37	61.1	90.7	78	47.3	71.4	63.2	58	53.6	52.4
95	07:52	65.8	95.4	85.3	50.3	78.1	67	59.8	54.1	53.1
96	08:07	61.3	90.9	81.3	49.8	70.5	64.1	58.7	54.8	53.7

RAW NOISE DATA - 35 Great James Street, London WC1N 3HN - Rear of Building

Ref: QF8407/PF5562/RP1
Client: David Phillips/Marek Wojciechowski Architects
Date: 19th to 20th October 2015

Address	Start Time	LAeq	LE	Lmax	Lmin	LA1	LA10	LA50	LA90	LA99
1	08:09	52.3	81.9	81	48.1	56.7	52	50.8	49.8	49.1
2	08:24	53.6	83.2	80.9	47.8	61.7	52.7	50.7	49.7	48.9
3	08:39	50.9	80.5	63.2	48.2	54.4	51.9	50.6	49.7	49
4	08:54	53.3	82.9	71.8	48.6	65.5	53.3	50.8	49.9	49.2
5	09:09	52.6	82.2	69.2	47.9	62	53.6	50.7	49.7	49
6	09:24	52.5	82.1	66	48.3	60.1	53.8	51	49.9	49.2
7	09:39	53.9	83.5	74	48.2	64.5	55.2	50.9	49.8	49.2
8	09:54	51.8	81.4	70.6	49	55.8	53	51.3	50.3	49.6
9	10:09	53.2	82.8	66.8	48.2	62.2	54.5	51.5	50	49.2
10	10:24	52.5	82.1	68.5	48.3	60.5	53.6	51.3	49.9	49.1
11	10:39	51.4	81	68.6	47.9	58.9	51.6	50.6	49.7	49
12	10:54	53.5	83.1	69.5	48.2	65.3	53.1	51	49.9	49.2
13	11:09	58.8	88.4	75.5	48.1	72.5	57.9	51.1	50.1	49.4
14	11:24	60.4	90	77.2	49.6	72.5	63.8	52	51.1	50.4
15	11:39	52.7	82.3	67.4	48	60.7	53.3	51.7	50.5	49.5
16	11:54	54.3	83.9	72.4	48.2	66.6	52.8	51.2	50	49.2
17	12:09	52.4	82	68.2	48.7	62.3	52.4	51.1	50.2	49.5
18	12:24	51	80.6	62.8	48.8	54.1	51.7	50.8	50.1	49.5
19	12:39	56.4	86	70.2	48.3	69.2	55.1	50.8	49.8	49.2
20	12:54	55.2	84.8	71.2	48.2	67.2	53.4	50.5	49.6	49
21	13:09	55.3	84.9	70	48.6	66.7	56.3	51.5	50.1	49.4
22	13:24	53	82.6	68.6	48.1	65	52.8	50.9	49.8	49.1
23	13:39	57.3	86.9	70	48.3	67.6	62.4	51.1	49.9	49.1
24	13:54	53.7	83.3	75.1	47.8	64.2	53.5	50.6	49.6	48.8
25	14:09	55.7	85.3	70.2	48.1	67.7	57	50.7	49.6	48.9
26	14:24	51.8	81.4	67.3	48	62.9	51.5	50.3	49.5	48.9
27	14:39	55	84.6	71.4	47.9	65.4	57.8	51.4	49.9	49.1
28	14:54	51.7	81.3	74.1	47.8	57.7	52.3	50.4	49.5	48.8
29	15:09	52.2	81.8	65.8	48.1	63.7	51.6	50.3	49.5	48.8
30	15:24	51.9	81.5	69.3	48	61.3	52.6	50.4	49.5	48.8
31	15:39	51.4	81	66	47.7	59.3	52.5	50.2	49.3	48.6
32	15:54	50.2	79.8	57.9	47.3	54	51.1	50	49.2	48.5
33	16:09	50.4	80	60.3	47.8	53.3	51.4	50.2	49.3	48.6
34	16:24	50.6	80.2	68.4	47.5	55.1	51.3	50.1	49.2	48.5
35	16:39	50.2	79.8	62.9	47.5	53.4	50.9	49.9	49.1	48.4
36	16:54	51.2	80.8	66.4	47.2	61.2	51.2	50.1	49.2	48.5
37	17:09	55.6	85.2	74	47.5	68.5	55.8	50.2	49.2	48.5
38	17:24	51.8	81.4	67.4	47.3	62.1	52.3	50	49.1	48.4
39	17:39	49.8	79.4	53.7	47.4	51.6	50.6	49.7	48.9	48.3
40	17:54	50.1	79.7	61.2	47.5	54.3	50.9	49.8	49	48.3
41	18:09	49.8	79.4	56.5	47	52.9	50.7	49.7	48.9	48.1
42	18:24	50.4	80	64	47.1	55.1	51.4	49.9	49	48.3
43	18:39	50.1	79.7	57.6	47.3	54.9	50.9	49.8	49	48.3
44	18:54	50.5	80.1	61.6	46.9	56.9	51.8	49.7	48.7	48
45	19:09	50	79.6	60.6	47.4	54.7	50.9	49.7	48.8	48.2
46	19:24	50.5	80.1	65.3	47.4	57.5	51	49.8	48.9	48.2
47	19:39	50.6	80.2	64.9	46.9	59.4	50.6	49.5	48.7	47.9
48	19:54	50.2	79.8	61.2	47.2	56.2	51	49.7	48.8	48.1
49	20:09	50.7	80.3	67.7	47	58.7	51	49.7	48.9	48.1
50	20:24	50	79.6	61.4	47.1	54.3	50.8	49.6	48.8	48.1
51	20:39	52.6	82.2	68.1	47.3	65	52.4	49.8	48.9	48.1

52	20:54	50.6	80.2	70.8	46.9	58	50.6	49.6	48.7	48
53	21:09	49.8	79.4	57.5	46.8	54.2	50.7	49.5	48.6	47.9
54	21:24	49.8	79.4	58.8	47	54.2	50.7	49.5	48.6	47.9
55	21:39	51.1	80.7	63.9	47.1	61.2	51.6	49.6	48.7	48
56	21:54	49.6	79.2	60.8	46.8	53	50.6	49.4	48.5	47.9
57	22:09	49.4	79	54.7	47	51.8	50.3	49.4	48.5	47.8
58	22:24	49.5	79.1	60.3	47.1	51.9	50.3	49.4	48.5	47.8
59	22:39	52.5	82.1	70.5	46.9	65.5	50.5	49.4	48.6	47.8
60	22:54	49.4	79	53.7	46.7	51.6	50.4	49.4	48.5	47.8
61	23:09	49.3	78.9	55.5	46.5	52	50.1	49.3	48.4	47.7
62	23:24	49.3	78.9	52.1	47	50.8	50.1	49.3	48.5	47.7
63	23:39	49.5	79.1	62.5	47	52.8	50.1	49.3	48.5	47.8
64	23:54	49.3	78.9	53.2	46.7	50.7	50.1	49.3	48.4	47.7
65	00:09	49.3	78.9	60.7	46.6	51.3	50.1	49.3	48.4	47.7
66	00:24	49.4	79	55.3	46.4	52.3	50.4	49.3	48.3	47.6
67	00:39	52.1	81.7	64	46.6	61.3	55.5	49.4	48.4	47.6
68	00:54	54.1	83.7	74.7	46.6	68.1	50.1	49.1	48.3	47.6
69	01:09	48.9	78.5	55	46.1	50.6	49.7	48.9	48.1	47.4
70	01:24	49	78.6	55.1	46.3	50.8	49.8	49	48.2	47.4
71	01:39	48.9	78.5	57.6	46.6	50.5	49.7	48.9	48.1	47.4
72	01:54	48.9	78.5	51.6	46.6	50.5	49.7	49	48.2	47.5
73	02:09	49	78.6	51.9	46.5	50.3	49.7	49	48.2	47.5
74	02:24	49	78.6	52.6	46.3	50.6	49.8	49	48.2	47.5
75	02:39	49.1	78.7	52.5	46.5	50.8	49.9	49.1	48.3	47.6
76	02:54	49.1	78.7	51.7	46.4	50.6	49.9	49.1	48.2	47.5
77	03:09	48.9	78.5	51.4	46.1	50.3	49.6	48.9	48.1	47.4
78	03:24	49.1	78.7	61.7	46.6	51.1	49.8	49	48.2	47.5
79	03:39	49.2	78.8	57.3	46.8	52.6	50	49.1	48.3	47.5
80	03:54	49.5	79.1	59.2	46.6	54.7	50.3	49.1	48.2	47.5
81	04:09	49	78.6	51.2	46.5	50.3	49.7	49	48.2	47.5
82	04:24	48.9	78.5	50.8	46.6	50.1	49.6	48.9	48.1	47.5
83	04:39	49.1	78.7	53.8	46.2	50.9	49.9	49.1	48.2	47.5
84	04:54	50.6	80.2	68.8	46.8	60.3	50.2	49.1	48.2	47.6
85	05:09	49	78.6	53.2	46.4	50.6	49.8	49	48.2	47.5
86	05:24	49.4	79	58.6	46.6	53.1	50.1	49.2	48.3	47.6
87	05:39	49.2	78.8	52.9	46.6	51.1	50	49.1	48.3	47.6
88	05:54	49.8	79.4	55.2	47	52.3	50.9	49.6	48.6	47.8
89	06:09	49.7	79.3	53.7	47.3	51.9	50.7	49.6	48.7	48.1
90	06:24	49.8	79.4	55.2	47.1	51.8	50.7	49.7	48.8	48.1
91	06:39	51.1	80.7	61.7	47.6	55.4	52.6	50.6	49.3	48.5
92	06:54	51.3	80.9	59.5	47.3	57	53.4	50.3	49.2	48.4
93	07:09	53.4	83	67.2	47.5	64.2	55.8	50.6	49.4	48.5
94	07:24	51.4	81	75.6	47.6	57	50.9	50	49.2	48.5
95	07:39	50.6	80.2	67.2	47.6	54.3	51.6	50.3	49.4	48.7
96	07:54	52.2	81.8	74.5	48.1	58.5	53.2	50.9	49.7	48.9
97	08:09	54.2	82.6	82.7	48	63.2	51.9	50.3	49.5	48.7

APPENDIX 'B'

Photos and sketches

Photo A – Front of Building at 35 Great James Street with Microphone Located on Top of Entrance Canopy

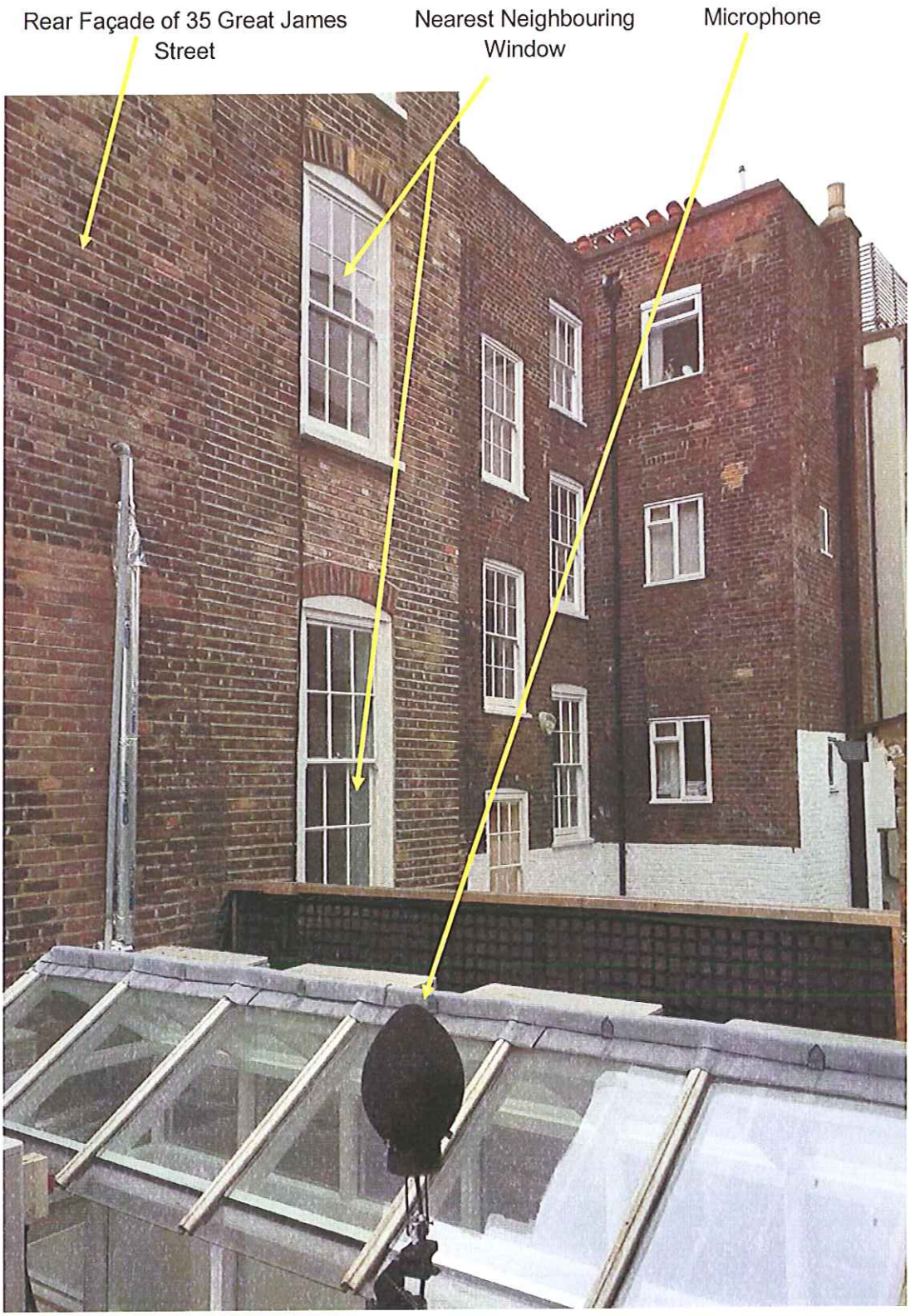


Photo B – Flat Roof Over Ground Floor With Rooflights and Rear Façade of Front Building

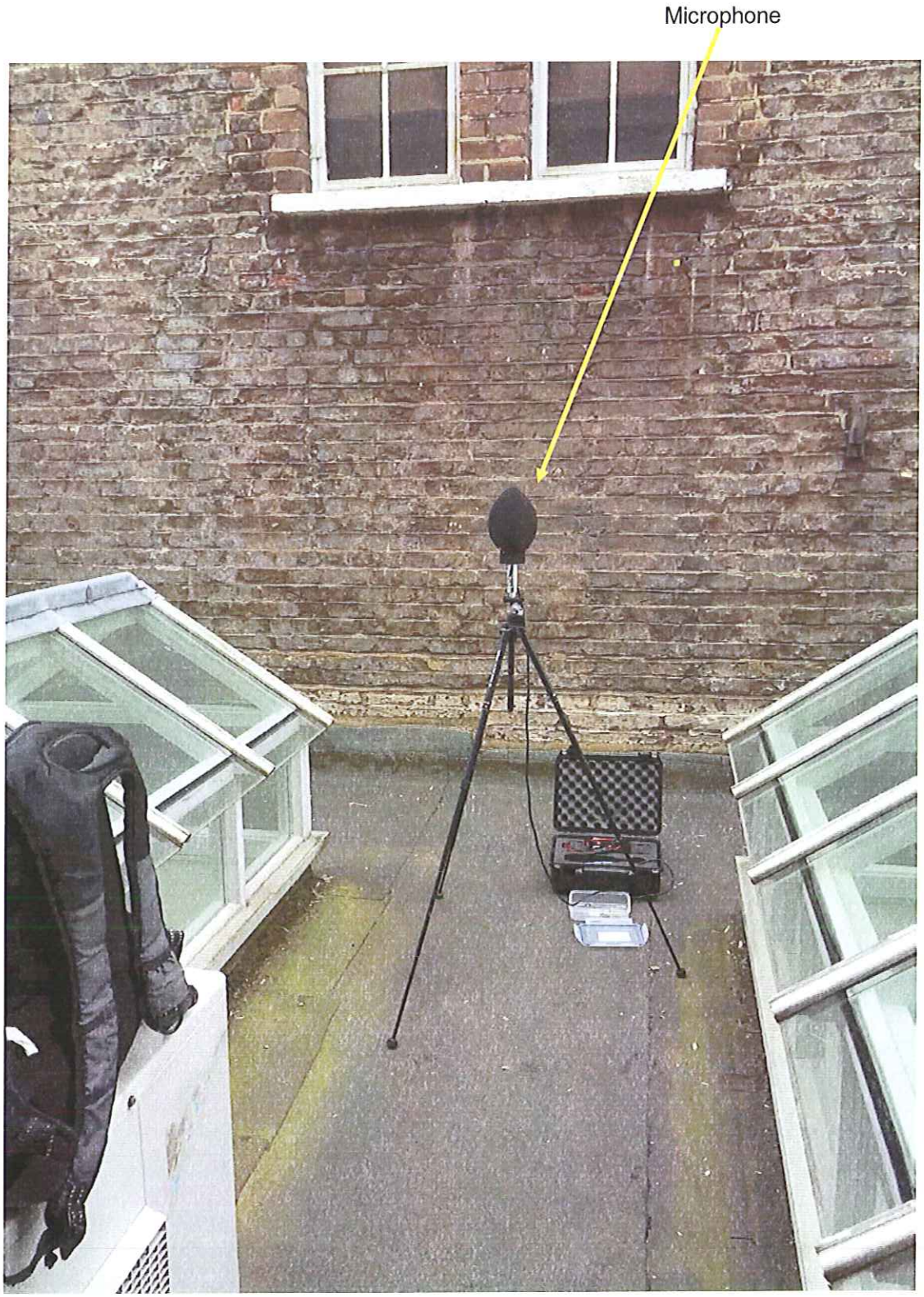


Photo C – Rear Roof Over Ground Floor With Rooflight and Microphone Located on Flat Roof

Photo D – Basement Area at Front of Building with Plant Vault Under Pavement

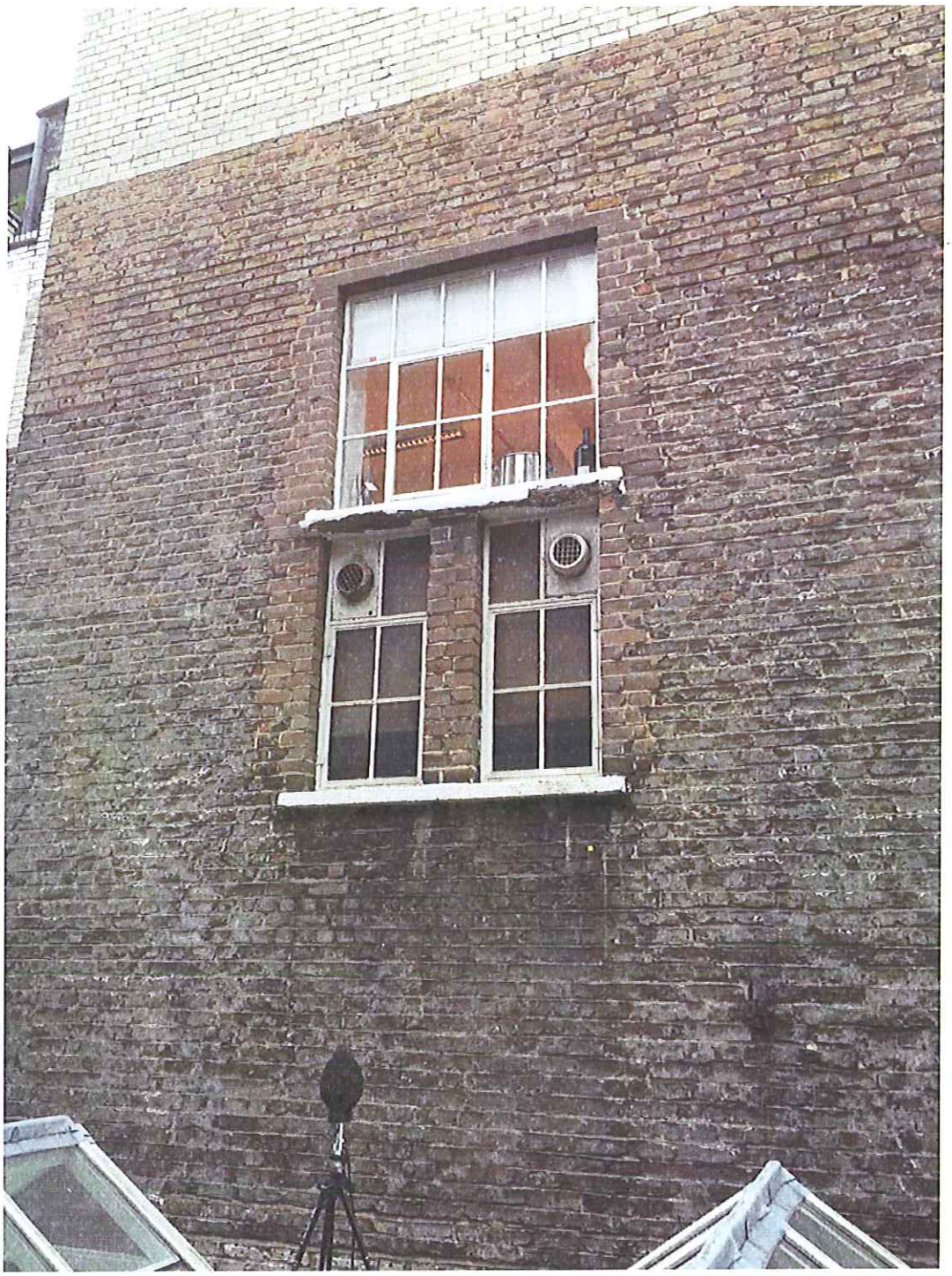
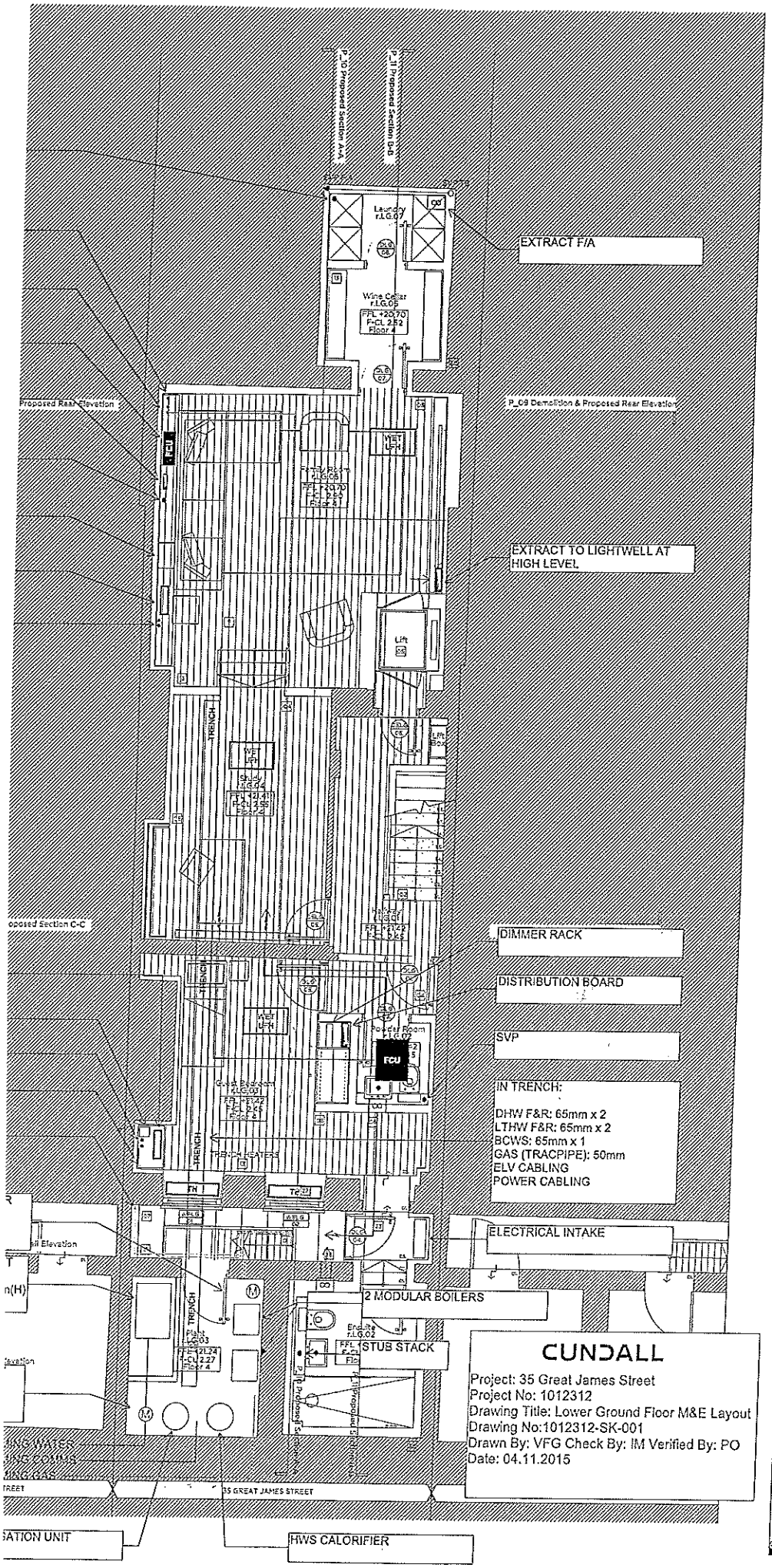
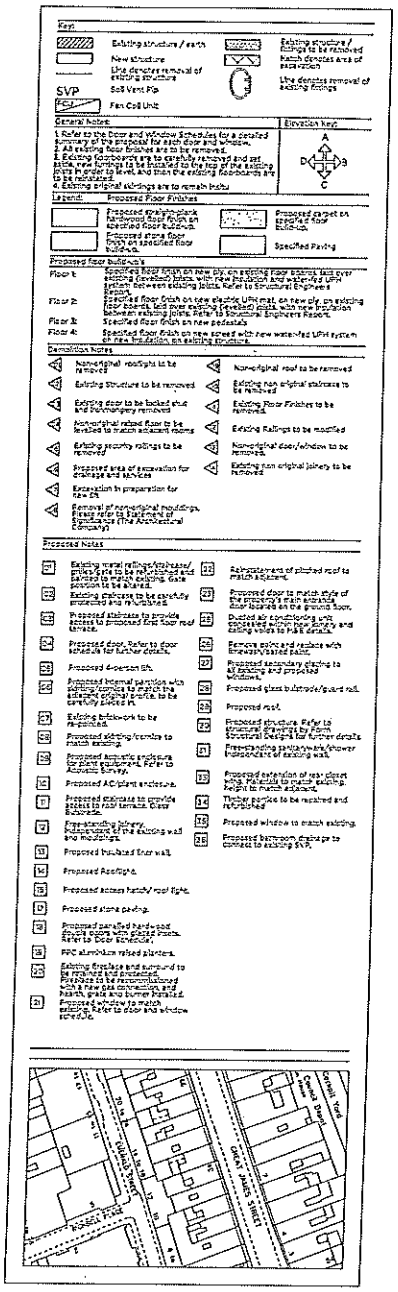


Photo E – View of Nearest Window to Rear of Site (Office Window)

Photo F – Adjacent Building Which is Currently Undergoing Works





PLANNING

DRAFT

Project No.	15030
Client	David Phillips Off-Highway Research
Date	September 2015
Scale	1:50@A3/1:50@A1
Project	35 Great James Street
Drawing Title	Proposed Lower Ground Floor Plan
Drawing No.	P_02 Rev.
Drawn	Approved: MW Signed

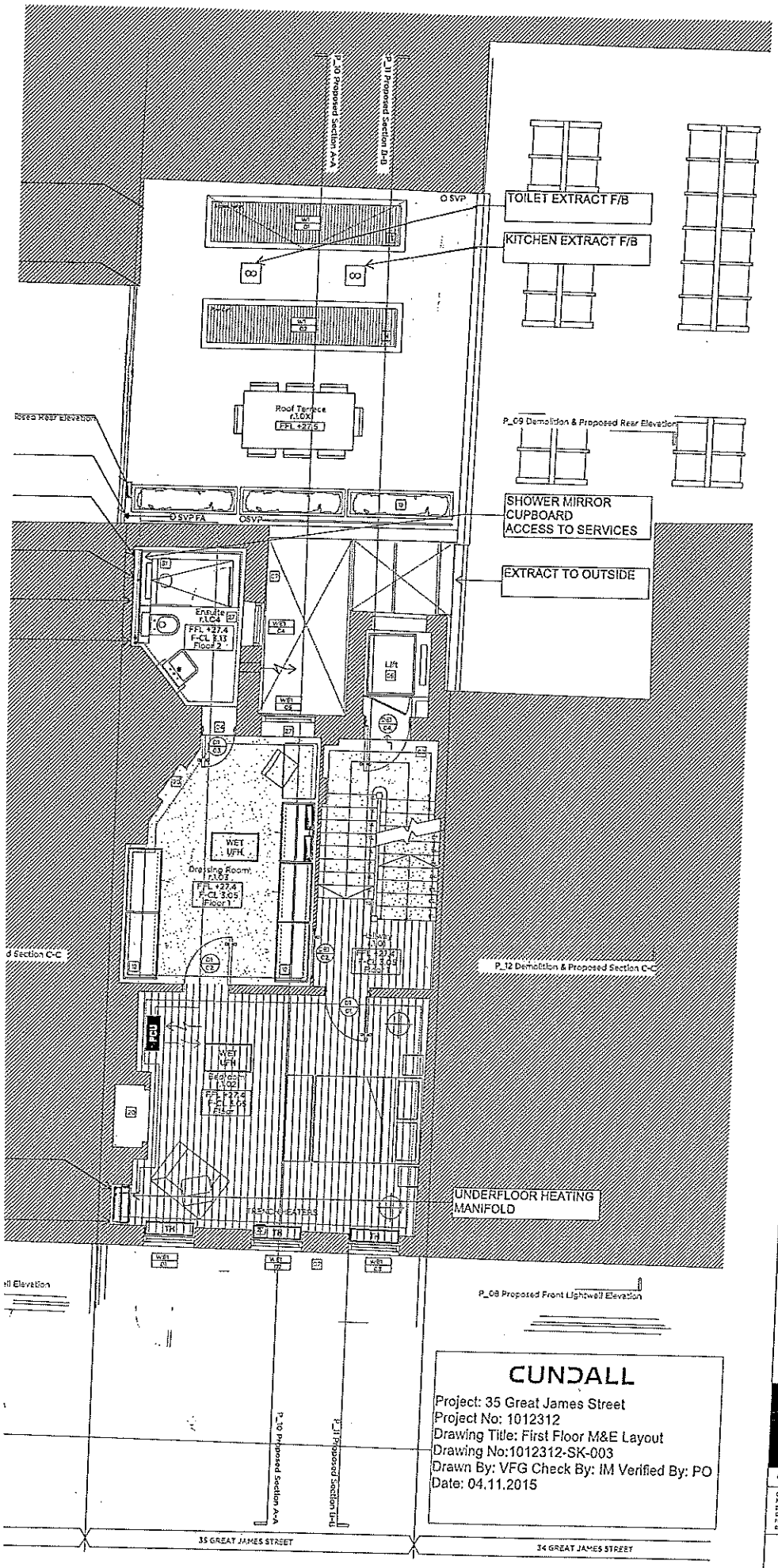
Marek Wojciechowski Architects

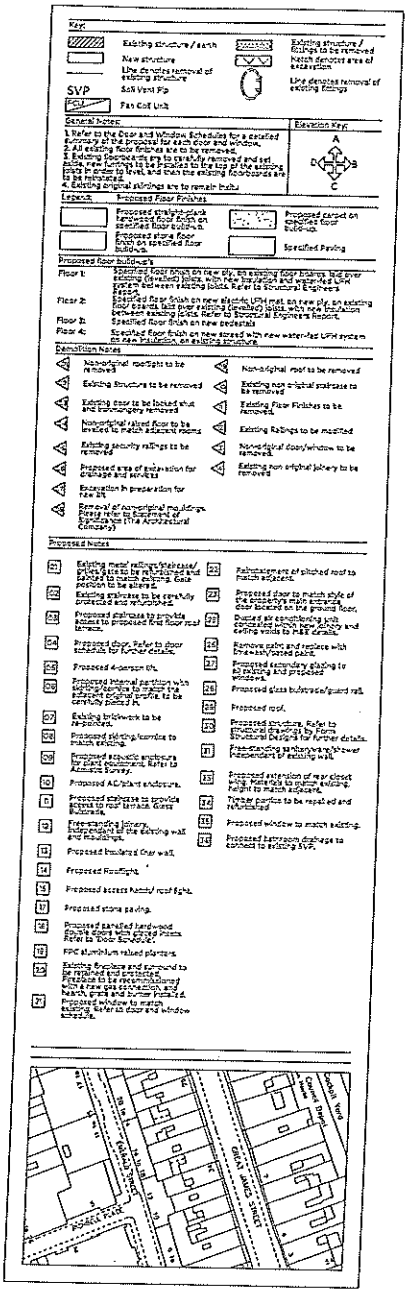
66-68 Margaret Street W1W 8SR T. 020 7580 9336 www.mwa.co.uk

0 0.5m 1m 2m 3m 4m 5m

CUNDALL

Project: 35 Great James Street
Project No: 1012312
Drawing Title: Lower Ground Floor M&E Layout
Drawing No:1012312-SK-001
Drawn By: VFG Check By: IM Verified By: PO
Date: 04.11.2015





Rev X XX.XX.XX Issued for XXXXXX

PLANNING

Project No. 15030

Client David Phillips

Off-Highway Research

Date September 2015

Scale 1:50@A3/1:50@A1

Project 35 Great James Street

Drawing Title: Demolition & Proposed First Floor Plan

Drawing No. P_03 Rev.

Drawn | Approved MW | Signed

DRAFT

Marek Wojciechowski Architects

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0 0.5m 1m 2m 3m 4m 5m

CUNDALL

Project: 35 Great James Street
Project No: 1012312
Drawing Title: First Floor M&E Layout
Drawing No:1012312-SK-003
Drawn By: VFG Check By: IM Verified By: PO
Date: 04.11.2015