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RESULTS OF A 24-HOUR NOISE LEVEL SURVEY CARRIED OUT AT LOW AND HIGH LEVEL IN THE LIGHT WELL AT THE REAR OF PHOENIX HOUSE AT 110 CHARING CROSS ROAD, CAMDEN AND A REPORT ON THE NOISE CONTROL MEASURES REQUIRED TO MITIGATE THE IMPACT OF THE REROUTING AND REPOSITIONING OF THE BASEMENT RXTRACT FAN AND DUCTING

Test Engineer : M G Roberts

Report Author : M G Roberts

Authorised for
Release by : I J Marchant

Client:	Peter Deer Associates
Project:	110 Charing Cross Road, London WC2
Emtec Ref:	QF9300/PF6131/PF6275/RP2
Date:	9th August 2018

RESULTS OF A 24-HOUR NOISE LEVEL SURVEY CARRIED OUT AT LOW AND HIGH LEVEL IN THE LIGHT WELL AT THE REAR OF PHOENIX HOUSE AT 110 CHARING CROSS ROAD, CAMDEN AND A REPORT ON THE NOISE CONTROL MEASURES REQUIRED TO MITIGATE THE IMPACT OF THE REROUTING AND REPOSITIONING OF THE BASEMENT RXTRACT FAN AND DUCTING

1.0. INTRODUCTION

This report details the results of two 24-hour noise surveys carried out at the rear of Pheonix House located at 110 Charing Cross Road in Camden, London WC2.

The objectives of the surveys were as follows:

- To assess the proposal to reroute and reposition the existing Basement Extract Fan and its associated ducting in the light well behind the residential flats which are located above the theatre and retail units at the front and rear of the site.

- To establish the existing background noise level outside the residential flats which will be the nearest noise sensitive properties.

- To recommend noise limits and any necessary measures to ensure that the operation of the extract fan and ducting 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 110 Charing Cross Road consists of the Phoenix Theatre and a front area which is made up of the Theatre entrance foyer, a number of retail units and a residential block of flats over the complete frontage onto Charing Cross Road. The residential flats are known as Phoenix House. The front of the building can be seen on the attached Photo A. The Theatre is located behind the retail/residential block as indicated on the attached aerial view of the site in Photo B.

Between the front residential/retail building and rear theatre building there is an open light well with balconies on each floor to allow pedestrian access to the entrance doors of the residential flats. The light well is shown on the attached Photos C and D.

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 Charing Cross Road could be clearly heard at high level during the manned periods at the start and the end of the survey, so the noise levels measured there will include contributions from road vehicles.

Commercial jet aircraft were also 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.

These effects were less pronounced at low level and existing plant noise was the dominant noise source at this lower level.

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 at high level and existing plant noise at low level.

4.0. TEST PROCEDURE

The surveys were conducted during two continuous 24-hour periods on the 9th/10th of January 2018 at high level and on the 31st of July/1st of August 2018 at low level.

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 Position

Noise levels were measured at a position at the end of the fourth floor access balcony overlooking the void area between the end of Phoenix House and the rear of the adjacent buildings in Flitcroft Street.

Noise Levels were measured at a position at the other end of the light well at first floor level immediately adjacent to the existing basement extract duct as it enters the light well.

The high level microphone was strapped to the handrail of the access stairs at the far end of the balcony as can be seen in the attached Photo E. The low level microphone was fixed to a tripod and placed on top of the theatre ductwork as can be seen on the attached Photos C and F. 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: -	Clear and Bright	Weather night time: -	Overcast
Wind daytime: -	Calm	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 each of the noise surveys, 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 graphs on the attached Sketches No QF/9300/T1 and -/T3 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 Sketches No QF/9300/T2 and –T4 at the back of this report.

5.1. Summary of Results

The tables QF/9300/DD1 to -/DD6 below summarise the noise levels taken over the two 24-hour periods in terms of the maximum and minimum Sound Pressure Levels recorded.

Table QF/9300/DD1 – Summary of Maximum and Minimum Noise Levels at High Level

	LA_{eq}	**LA_{1}**	**LA_{10}**	**LA_{50}**	**LA_{90}**	**LA_{99}**
Minimum	50.8 dBA	56.7 dBA	53.1 dBA	48.9 dBA	45.9 dBA	45.5 dBA
Maximum	73.2 dBA	72.1 dBA	64.4 dBA	61.3 dBA	56.5 dBA	56.3 dBA

Table QF/9300/DD2 - Min LA90 Noise Level at High Level – Daytime (07.00 to 23.00)

	LA_{90}
Minimum daytime	47.4dBA

Table QF/9300/DD3 - Min LA90 Noise Level at High Level - Nightime (23.00 to 07.00)

	LA_{90}
Minimum night time	45.9dBA

Table QF/9300/DD4 – Summary of Maximum and Minimum Noise Levels at Low Level

	LA_{eq}	LA_{1}	LA_{10}	LA_{50}	LA_{90}	LA_{99}
Minimum	52.0 dBA	54.4 dBA	53.3 dBA	52.1 dBA	48.0 dBA	47.5 dBA
Maximum	59.8 dBA	68.0 dBA	60.5 dBA	58.7 dBA	57.9 dBA	57.4 dBA

Table QF/9300/DD5 – Min LA90 Noise Level at Low Level – Daytime (07.00 to 23.00)

	LA_{90}
Minimum daytime	48.0dBA

Table QF/9300/DD6 - Min LA90 Noise Level at Low Level - Nightime (23.00 to 07.00)

	LA_{90}
Minimum night time	52.2dBA

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

The local planning authority is the London Borough of Camden.

The Camden Local Plan sets out the Council's planning policies and replaces the Core Strategy and Development Policy planning documents (adopted in 2010). It ensures that Camden continues to have robust, effective and up-to-date planning policies that respond to changing circumstances and the borough's unique characteristics and contribute to delivering the Camden Plan and other local priorities.

The Local Plan will cover the period from 2016-2031. Policy A4 of The Local Plan is entitled Noise and Vibration and states:

The Council will seek to ensure that noise and vibration is controlled and managed. Development should have regard to Camden's Noise and Vibration thresholds (Appendix 3). We will not grant planning permission for a) a development likely to generate unacceptable noise and vibration impacts or b) a development sensitive to noise in locations which experience high levels of noise, unless appropriate attenuation measures can be provided and will not harm the continued operation of existing uses. We will only grant permission for noise generating development, including any plant and machinery, if it can be operated without causing harm to amenity. We will also seek to minimise the impact on local amenity from deliveries and from the demolition and construction phases of development.

The parts of Appendix 3 that we have identified as relevant to this application are as follows:

Appendix 3: Noise thresholds

The significance of noise impact varies dependent on the different noise sources, receptors and times of operation presented for consideration within a planning application. Therefore, Camden's thresholds for noise and vibration evaluate noise impact in terms of various 'effect levels' described in the National Planning Policy Framework and Planning Practice Guidance:

- *NOEL – No Observed Effect Level*
- *LOAEL – Lowest Observed Adverse Effect Level*
- *SOAEL – Significant Observed Adverse Effect Level*

Three basic design criteria have been set for proposed developments, these being aimed at guiding applicants as to the degree of detailed consideration needed to be given to noise in any planning application. The design criteria outlined below are defined in the corresponding noise tables. The values will vary depending on the context, type of noise and sensitivity of the receptor:

- *Green – where noise is considered to be at an acceptable level.*
- *Amber – where noise is observed to have an adverse effect level, but which may be considered acceptable when assessed in the context of other merits of the development.*
- *Red – where noise is observed to have a significant adverse effect.*

Table C: Noise levels applicable to proposed industrial and commercial developments (including plant and machinery)

Existing Noise sensitive receptor	*Assessment Location*	*Design Period*	*LOAEL (Green)*	*LOAEL to SOAEL (Amber)*	*SOAL (Red)*
*Dwellings***	*Garden used for main amenity (free field) and Outside living or dining or bedroom window (façade)*	*Day*	*'Rating level' 10dB* below background*	*'Rating level' between 9dB below and 5dB above background*	*'Rating level' greater than 5dB above background*
*Dwellings***	*Outside bedroom window (façade)*	*Night*	*'Rating level' 10dB* below background and no events exceeding 57dBL_{Amax}*	*'Rating level' between 9dB below and 5dB above background or noise events between 57dB and 88dB L_{Amax}*	*'Rating level' greater than 5dB above background and/or events exceeding 88dBL_{Amax}*

**10dB should be increased to 15dB if the noise contains audible tonal elements (day and night). However, if it can be demonstrated that there is no significant difference in the character of the residual background noise and the specific noise from the proposed development then this reduction may not be required. In addition, a frequency analysis (to include, the use of Noise Rating (NR) curves or other criteria curves) for the assessment of tonal or low frequency noise may be required.*

***levels given are for dwellings, however, levels are use specific and different levels will apply dependent on the use of the premises.*

The periods in Table C correspond to 0700 hours to 2300 hours for the day and 2300 hours to 0700 hours for the night. The Council will take into account the likely times of occupation for types of development and will be amended according to the times of operation of the establishment under consideration.

There are certain smaller pieces of equipment on commercial premises, such as extract ventilation, air conditioning units and condensers, where achievement of the rating levels (ordinarily determined by a BS:4142 assessment) may not afford the necessary protection. In these cases, the Council will generally also require an NR curve specification of NR35 or below, dependant on the room (based upon measured or predicted Leq (5mins) noise levels in octave bands, 1 metre from the façade of affected premises, where the noise sensitive premise is located in a quiet background area.

5.3. Determination of noise sensitive property design criteria

We believe that the rerouted extract ductwork and the fan will be located at first floor level and run from the end of the light well where the current extract duct is located up to the end where the metal escape staircase is located and then rise vertically to discharge at high level.

The fan will be located at low level near to the point that the ducting enters the light well and the final discharge from the ducting will be at high level next to the top of the metal staircase.

To comply with a green rating from the table above the ducting, fan and discharge should have a Sound Pressure Level 10dB below the lowest LA90 background noise level at 1 metre from the nearest noise sensitive window.

The lowest background noise levels measured during the surveys were 45.9dBA at high level and 48dBA at low level. The lowest daytime LA90 noise level was 47.4dBA. at high level and 48dBA at low level. Applying a rating level that is 10dB below the daytime/nightime noise levels would give limiting daytime/nightime rating levels of 37.4 and 35.9dBA at high level and 38dBA for low level.

We therefore propose that the following rating levels be applied to this project:

Table QF/9300/DD7 – Proposed Design Rating Levels

Existing Noise sensitive receptor	*Assessment Location*	*Design Period*	*Lowest measured background level*	***Proposed rating level***	*Proposed Local Authority criteria*
Dwellings	*Garden used for main amenity (free field) and Outside living or dining or bedroom window (façade)*	*High Level Day*	*47.4dBA*	***37.4dBA***	*Green*
		Low Level Day	*48.0dBA*	***38.0dBA***	*Green*
Dwellings	*Outside bedroom window (façade)*	*High Night*	*45.9dBA*	***35.9dBA***	*Green*
		Low Night	*52.2dBA*	***38.0dBA***	*Green*

5.4. Determination of commercial design criteria

The uses of the commercial premises on the other side of Flitcroft Street consist of offices. It is therefore proposed that the recommendations given in BS8233:2014 and that Table 2 be considered.

	Good	Reasonable
Open Plan offices: $L_{Aeq,T}$	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 the rating level at 1 metre external to the nearest affected office windows would be 45dBA + 10dB = 55dBA.
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/9300/DD8: -

Table QF/9300/DD8 – recommended design rating levels $L_{Ar,T}$

Type of premises	**$L_{Ar,T}$ (Daytime 7am – 11pm)**	**$L_{Ar,T}$ (Nightime 11pm – 7am)**
Noise sensitive – High Level	37.4dBA	35.9dBA
Noise sensitive – Low Level	38.0dBA	38.0dBA
Commercial – High Level	55 dBA	-

6.0. DISCUSSION OF RESULTS

It is proposed to install a replacement extract fan and rerouted ducting into the light well at the rear of the flats. The extract is from the basement club area and is at present served by a fan located on the roof of the flats. It is proposed to replace the existing fan by a new Helios GBD EC 450 fan. The proposed layout of the system is as per the attached PDA drawings 4242 180807 sheets 1 to 3.

The intake, outlet and casing breakout noise levels are analysed in tables QF/9300/DD9 and -/DD10 below together with the required attenuation in order to meet the limiting LAeq noise levels at 1 metre from the adjacent flats.

Table QF/9300/DD9 – Noise Levels of New Extract Fan – Breakout from Fan Casing and Ductwork to 1 metre from adjacent residential properties

Source/Attenuation	Sound Pressure Level (dB ref 2 x 10^{-5} N/m^2) 63	125	250	500	1k	2k	4k	8k	dBA
Helios GBD EC 450 casing SWL	-	64	65	51	47	45	41	32	
Distance Correction to 4 metres	-20	-20	-20	-20	-20	-20	-20	-20	
(10 log A_3/A_0)									
Reverberation of Space-3 surfaces	+5	+5	+5	+5	+5	+5	+5	+5	
Unattenuated Fan Casing SPL at 1m from residential window	-	49	50	36	32	30	26	17	43
Emtec PAC30 Acoustic Housing	-18	-20	-28	-32	-40	-41	-44	-38	
Attenuated Fan Casing SPL (a)	-	29	22	4	-	-	-	-	16
Helios GBD EC 450 outlet SWL	-	76	79	77	75	73	64	59	
Reduction of Duct Casing	-3	-8	-14	-20	-26	-32	-38	-40	
Distance Correction to 4 metres	-19	-19	-19	-19	-19	-19	-19	-19	
Reverberation of Space	+5	+5	+5	+5	+5	+5	+5	+5	
Unattenuated SPL at 1m from windows	-	54	51	43	35	27	12	5	46
Emtec RAAC/25/2100M	-15	-29	-23	-22	-29	-30	-31	-31	
Attenuated SPL - outlet duct (b)	-	25	28	21	6	-	-	-	22
Helios GBD EC 450 inlet SWL	-	70	75	71	70	68	63	58	
Reduction of Duct Casing	-3	-8	-14	-20	-26	-32	-38	-40	
Distance Correction to 4 metres	-19	-19	-19	-19	-19	-19	-19	-19	
Reverberation of Space	+5	+5	+5	+5	+5	+5	+5	+5	

Unattenuated SPL at 1m from residential windows Emtec RAAC/25/1200M	- -9	48 -15	47 -16	37 -16	30 -18	22 -20	11 -21	4 -28	41
Attenuated SPL – inlet duct (c)	-	33	31	21	12	2	-	-	25
Overall Attenuated SPL (a+b+c)	-	35	33	24	13	2	-	-	27

The above table shows that with the fan installed in an Emtec PAC30 acoustic enclosure and Emtec RAAC25M, Melinex lined, attenuators fitted on the inlet and outlet of the fan that the limiting LAeq noise level at 1 metre from the nearest residential window will not be exceeded and will allow 24 hour operation of the fan.

Within the acoustic enclosure the fan should be isolated from the structure by Emtec/VMC RD2 neoprene-in-shear anti-vibration mounts having a minimum static deflection of 6mm.

The outline of the acoustic treatment is shown on the attached sketch No.QF/9300/SK1.

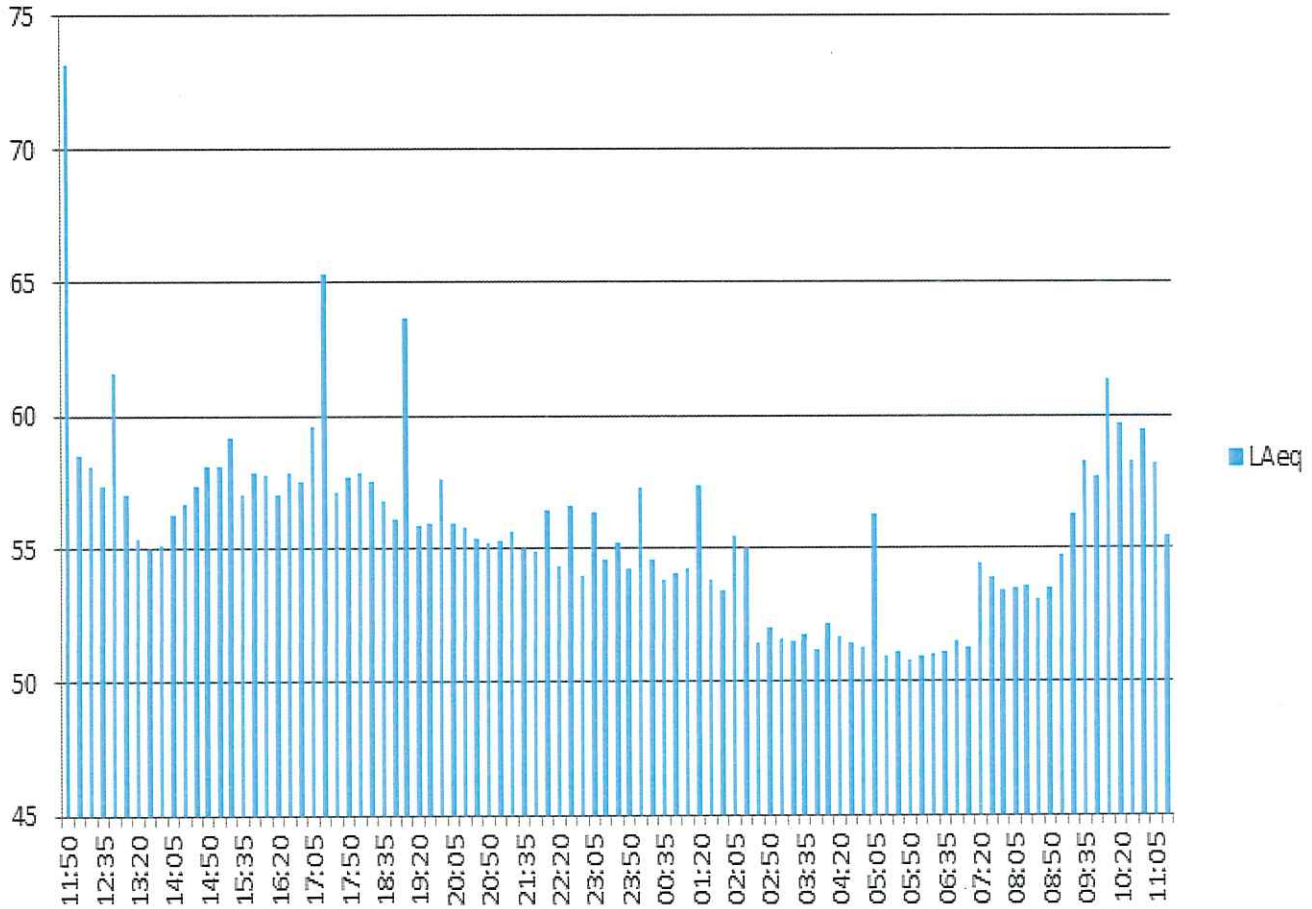
Table QF/9300/DD10 – Noise Levels of New Extract Fan – Outlet Noise at top of Stack and attenuation to 1 metre from adjacent residential properties

Source/Attenuation	Sound Pressure Level (dB ref 2 x 10^{-5} N/m^2) 63	125	250	500	1k	2k	4k	8k	dBA
Helios GBD EC 450 outlet SWL Duct loss (15 metres) End Reflection SWL to SPL Distance correction (20 log 3)	- -10 -8 -8 -9	76 -10 -4 -8 -9	79 -5 -1 -8 -9	77 -5 0 -8 -9	75 -5 0 -8 -9	73 -5 0 -8 -9	64 -5 0 -8 -9	59 -5 0 -8 -9	
Unattentuated SPL at 1 metre from residential window Emtec RAAC/25/2100M	- -15	45 -29	56 -23	55 -22	53 -29	51 -30	42 -31	37 -31	58
SPL at 1 metre from residential window	-	16	33	33	24	21	11	6	32

The above table shows that the noise level at high level will not exceed the limiting LAeq noise level at 1 metre from the nearest residential window and should again allow 24 hour operation of the extract system.

If the recommendations outlined above are incorporated into the design of the new extract system then the installation will not exceed the limiting LAeq levels outlined in table QF/9300/DD8 above and will allow 24 hour operation of the new fan system without breaching the requirements of the local authority's planning directives with regard to noise.

EMTEC Products Ltd
9th August 2018



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CLIENT: Peter Deer & Associates Ltd	*PF No: 6121*				*APPROVED BY:* *MGR*	*REVISION*								
PROJECT: Pheonix House, 110 Charing Cross Road, London WC2	*Q*	*A*	*M*	*I*	*DESIGN AUTH:* *MGR*	*SKETCH No. QF/9300/T1*								

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CLIENT: Peter Deer & Associates Ltd	*PF No: 6121*				*APPROVED BY:* *MGR*	*REVISION*							
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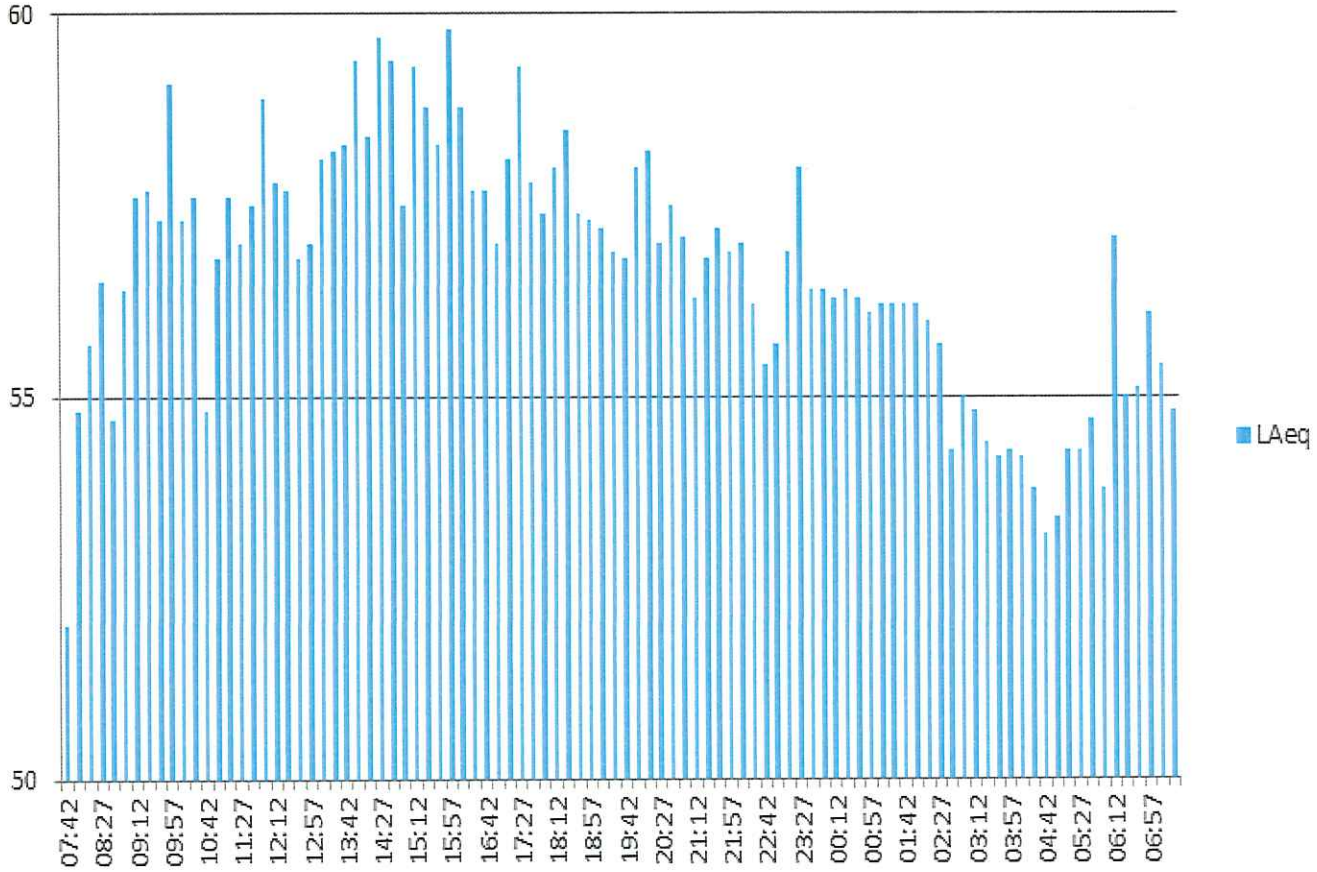

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PROJECT: Pheonix House, 110 Charing Cross Road, London WC2	*Q*	*A*	*M*	*I*	*DESIGN AUTH:* *MGR*	*SKETCH No. QF/9300/T3*							

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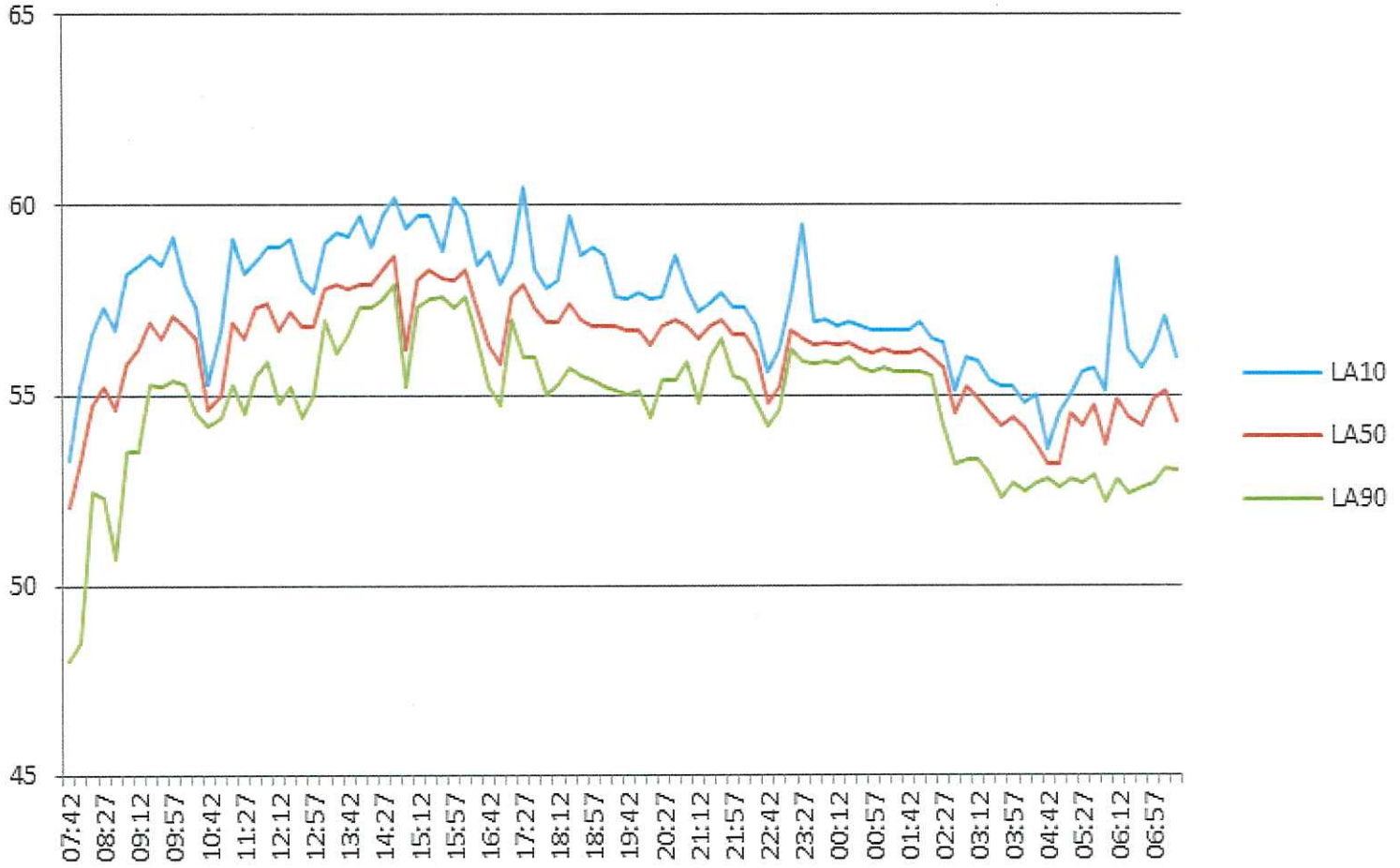

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CLIENT: Peter Deer & Associates Ltd	*PF No: 6275*				*APPROVED BY:* *MGR*	*REVISION*							
PROJECT: Pheonix House, 110 Charing Cross Road, London WC2	*Q*	*A*	*M*	*I*	*DESIGN AUTH:* *MGR*	*SKETCH No. QF/9300/T4*							

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APPENDIX 'A'

Raw Data – Noise Survey

9th to 10th January 2018

31st July to 1st August 2018

RAW NOISE DATA - Pheonix House, 110 Charing Cross Road, London WC2 - High Level

Ref: QF9300/PF6131/RP1
Client: Peter Deer & Associates Ltd
Date: 9th to 10th January 2018

Address	Start Time	LAeq	LE	Lmax	Lmin	LA1	LA10	LA50	LA90	LA99
1	11:50	73.2	102.8	111.5	24	64.8	59.9	57.6	56.5	56.3
2	12:05	58.5	88.1	86.3	55.2	60.7	58.5	57.2	56.3	56.2
3	12:20	58.1	87.7	82.9	54.9	63.3	58.9	57	56.1	55.9
4	12:35	57.4	87	73.8	55.2	60.9	58.2	57	56.3	56.1
5	12:50	61.6	91.2	82.6	52.7	72.1	63.4	57	54.1	53.8
6	13:05	57	86.6	70.6	51.5	64.4	59.8	55.2	52.6	52.3
7	13:20	55.4	85	67.7	50.8	59.7	57.2	54.9	53	52.5
8	13:35	55	84.6	70.7	50.5	59.7	56.7	54.6	52.6	52.2
9	13:50	55.1	84.7	73.2	50	59.9	56.5	54.6	53.1	52.8
10	14:05	56.3	85.9	72.1	51.9	61.5	58.2	55.6	53.6	53.1
11	14:20	56.7	86.3	71.6	51.9	63.5	58.7	55.7	54	53.6
12	14:35	57.4	87	75.2	51.7	63.6	58.8	56.2	53.8	53.2
13	14:50	58.1	87.7	71.9	55	64.9	59.2	57.5	56.2	56
14	15:05	58.1	87.7	79.7	53.4	64.6	59.7	56.9	55.6	55.2
15	15:20	59.2	88.8	80.6	53.8	65.6	58.3	56.3	55.1	54.8
16	15:35	57	86.6	77.6	53.7	62	58.4	56.1	55	54.7
17	15:50	57.9	87.5	78.1	54.2	62.8	59.5	57.2	55.4	55
18	16:05	57.8	87.4	70.8	53.5	64.1	59.7	56.6	55.4	55
19	16:20	57	86.6	69.4	53.6	63.2	58.4	56.3	55.1	54.8
20	16:35	57.9	87.5	69.3	53.6	65.6	59.2	57.1	55.2	54.7
21	16:50	57.5	87.1	67.6	53.2	62.7	59	57.1	55.1	54.7
22	17:05	59.6	89.2	81.4	54.7	68.4	58.3	56.6	55.7	55.5
23	17:20	65.3	94.9	96.3	54.8	61.3	58.5	56.9	55.9	55.7
24	17:35	57.1	86.7	63.1	55	59.5	58	57	56.2	56
25	17:50	57.7	87.3	67.5	54.9	62.7	59.1	57.1	56.1	55.9
26	18:05	57.9	87.5	71.6	55	62.1	59.4	57.3	56.1	55.9
27	18:20	57.5	87.1	79.6	55.2	60	58.3	57	56.2	56
28	18:35	56.8	86.4	75.9	53.8	60.2	58	56.4	55.1	54.8
29	18:50	56.1	85.7	65	54.1	59.3	57.2	55.8	55	54.9
30	19:05	63.6	93.2	90.6	53.6	71.6	58.1	55.7	55	54.8
31	19:20	55.9	85.5	73.2	53.7	59.4	57.1	55.4	54.7	54.5
32	19:35	56	85.6	72.4	53.4	62.4	57.1	55.1	54.4	54.3
33	19:50	57.6	87.2	82.1	53.6	62.1	57.1	55.5	54.5	54.4
34	20:05	56	85.6	67.2	53.3	60	57.5	55.5	54.5	54.3
35	20:20	55.8	85.4	63.2	53.2	59.9	57.2	55.4	54.5	54.3
36	20:35	55.4	85	65	52.7	58.8	56.6	55.1	54.3	54.1
37	20:50	55.2	84.8	72.9	51.2	59.5	56.3	54.9	53.5	52.7
38	21:05	55.3	84.9	70.5	51.6	59.3	56.6	54.9	53.5	52.9
39	21:20	55.6	85.2	65.6	53.4	60.3	56.5	55.1	54.4	54.3
40	21:35	55	84.6	67.9	51.5	58.7	56.1	54.7	53.5	53.1
41	21:50	54.9	84.5	76.7	52	58.8	56.1	54.3	53.1	52.9
42	22:05	56.5	86.1	78.2	51.1	65.7	56.5	54	52.6	52.3
43	22:20	54.3	83.9	69.6	51.4	58.9	55.8	53.7	52.7	52.4
44	22:35	56.6	86.2	77	51.7	65.1	56.6	54.1	52.9	52.7
45	22:50	54	83.6	71	51.1	58.9	55.2	53.4	52.5	52.3
46	23:05	56.4	86	82.3	51.7	63.8	56.7	54.4	53.1	52.9
47	23:20	54.6	84.2	70.6	51.6	60.8	56.4	53.7	52.6	52.4
48	23:35	55.2	84.8	77	51.2	61.9	56.3	53.7	52.4	52.2
49	23:50	54.2	83.8	75.5	51.6	57.6	55.5	53.6	52.7	52.5
50	00:05	57.3	86.9	80	51.5	67.2	55.8	53.7	52.7	52.5

51	00:20	54.6	84.2	74.3	51.3	59.9	55.8	53.5	52.5	52.3
52	00:35	53.8	83.4	68	50.8	60.4	55.3	53	52	51.8
53	00:50	54.1	83.7	62.2	51.7	58.4	55.5	53.8	52.8	52.7
54	01:05	54.2	83.8	68.5	51.2	59.6	55.5	53.6	52.5	52.3
55	01:20	57.4	87	85.2	50.8	62	56.2	53.5	52.5	52.2
56	01:35	53.8	83.4	61.6	51.2	58	55	53.5	52.4	52.2
57	01:50	53.4	83	68.6	50.9	57.3	54.4	53	52.1	51.9
58	02:05	55.5	85.1	69.5	51.7	62.9	56.7	54.2	53.1	52.9
59	02:20	55	84.6	69.9	51.9	61.2	56.3	54.2	53.1	52.8
60	02:35	51.4	81	62.9	46.8	57.6	53.4	50.6	48.3	47.9
61	02:50	52	81.6	68.4	48.4	57.3	53.7	51.2	49.7	49.4
62	03:05	51.6	81.2	64.7	46.7	58.3	53.2	50.8	48.8	48.2
63	03:20	51.5	81.1	63.3	46.9	57.4	53.4	50.7	49.3	48.6
64	03:35	51.8	81.4	68.5	47.1	58.3	53.5	51	48.9	48.3
65	03:50	51.2	80.8	61	46.2	56.7	53.1	50.5	48.4	47.7
66	04:05	52.2	81.8	63	47.5	58.4	54.2	51.4	49.6	49.3
67	04:20	51.7	81.3	61.9	46	58.1	54.2	50.5	48.3	47.7
68	04:35	51.4	81	63.3	45	58.3	53.5	50.3	48.6	47.8
69	04:50	51.3	80.9	63.9	47.3	57.8	53.1	50.5	48.5	48.3
70	05:05	56.3	85.9	82.4	45.9	65.5	54.1	49.5	48.1	47.8
71	05:20	50.9	80.5	64	44.6	56.8	53.7	49.8	47.3	46.1
72	05:35	51.1	80.7	60.9	44.9	58	53.5	49.8	47.8	46.5
73	05:50	50.8	80.4	63.5	44.3	59.1	53.5	48.9	45.9	45.5
74	06:05	50.9	80.5	62.6	45.1	58.2	53.5	49.4	47.3	46.2
75	06:20	51	80.6	63.7	45.6	58.3	53.6	49.6	47.8	47.5
76	06:35	51.1	80.7	62.7	45.3	58	54.2	49.3	47	46.5
77	06:50	51.5	81.1	62.3	47.5	58.2	54.2	50	48.5	48.3
78	07:05	51.3	80.9	61.4	45.5	57.8	54.4	49.7	47.4	47
79	07:20	54.4	84	81.4	46.5	60.9	55.4	50.6	48.8	48.5
80	07:35	53.9	83.5	72.2	47.7	64	56	51.2	49.4	49.1
81	07:50	53.4	83	78.6	46.6	60.7	54.7	51.2	49.3	48.7
82	08:05	53.5	83.1	74	48.1	60.7	55.8	51.4	49.5	49.1
83	08:20	53.6	83.2	67.5	48	61.5	55.7	52.2	49.9	49.4
84	08:35	53.1	82.7	73.1	48.6	59	55.6	51.7	50.2	49.9
85	08:50	53.5	83.1	63.2	48.6	59	55.6	52.7	50.5	50
86	09:05	54.7	84.3	72.8	50.8	59.9	56.2	54	52.3	52
87	09:20	56.3	85.9	71.1	51	63.1	58.2	55.3	53.3	52.7
88	09:35	58.3	87.9	72	52	64	60.4	57.6	55	54.4
89	09:50	57.7	87.3	71.8	51.6	65.2	59.9	56.4	54.4	53.9
90	10:05	61.3	90.9	67.7	52.2	65.3	64	61.3	55.5	54.6
91	10:20	59.7	89.3	69.4	50.7	66.5	64.4	55.7	52.6	52.2
92	10:35	58.3	87.9	82.4	52.3	64.9	61.1	56.5	54.2	53.8
93	10:50	59.4	89	71.1	52.8	65.6	61.6	58.6	55.5	54.9
94	11:05	58.2	87.8	75	51.4	65.7	61.2	56.1	53.1	52.7
95	11:20	55.5	68.6	57.2	51.3	56.7	56.5	55.7	54	52.2

RAW NOISE DATA - Pheonix House, 110 Charing Cross Road, London WC2 - Low Level

Ref: QF9300/PF6275/RP1
Client: Peter Deer & Associates Ltd
Date: 31st July to 1st of August 2018

Address	Start Time	LAeq	LE	Lmax	Lmin	LA1	LA10	LA50	LA90	LA99
1	07:42	52	81.6	71.2	47	57.3	53.3	52.1	48	47.5
2	07:57	54.8	84.4	79.1	47	64.7	55.3	53.3	48.5	47.8
3	08:12	55.7	85.3	81.5	50.4	61	56.6	54.7	52.5	51.3
4	08:27	56.5	86.1	75.1	50.4	65.6	57.3	55.2	52.3	51.3
5	08:42	54.7	84.3	68.7	48.9	58.9	56.7	54.6	50.7	49.8
6	08:57	56.4	86	67.4	50.3	62.6	58.2	55.8	53.5	51.7
7	09:12	57.6	87.2	82.5	50.6	65.1	58.4	56.2	53.5	51.6
8	09:27	57.7	87.3	80.5	53.3	63.6	58.7	56.9	55.3	54.2
9	09:42	57.3	86.9	73.9	53.6	64	58.4	56.5	55.2	54.5
10	09:57	59.1	88.7	83.5	54	66.6	59.2	57.1	55.4	54.6
11	10:12	57.3	86.9	76.8	54	63.2	57.9	56.8	55.3	54.7
12	10:27	57.6	87.2	85.1	53.4	60.1	57.3	56.5	54.5	54
13	10:42	54.8	84.4	65.9	53.3	57.1	55.3	54.6	54.2	53.9
14	10:57	56.8	86.4	81.8	53.3	61.5	56.7	55	54.4	53.9
15	11:12	57.6	87.2	73.2	53.7	63.2	59.1	56.9	55.3	54.5
16	11:27	57	86.6	74.9	52.9	61.8	58.2	56.5	54.5	53.7
17	11:42	57.5	87.1	69.8	53.9	63.2	58.5	57.3	55.5	54.7
18	11:57	58.9	88.5	84.1	53.4	67.7	58.9	57.4	55.9	54.3
19	12:12	57.8	87.4	77.8	53.3	65.3	58.9	56.7	54.8	54.2
20	12:27	57.7	87.3	74.1	53.8	63.9	59.1	57.2	55.2	54.6
21	12:42	56.8	86.4	70.8	52.9	61.7	58	56.8	54.4	53.9
22	12:57	57	86.6	73.8	52.9	62.9	57.7	56.8	55	54.3
23	13:12	58.1	87.7	76.2	55.6	62.2	59	57.8	57	56.2
24	13:27	58.2	87.8	71.4	54.7	63.4	59.3	57.9	56.1	55.5
25	13:42	58.3	87.9	77.3	54.3	63	59.2	57.8	56.6	55.4
26	13:57	59.4	89	79.8	56.2	66.7	59.7	57.9	57.3	56.9
27	14:12	58.4	88	70.3	56.2	64.2	58.9	57.9	57.3	56.9
28	14:27	59.7	89.3	78.7	56.5	67.4	59.7	58.3	57.5	57.1
29	14:42	59.4	89	73.8	56.8	66.2	60.2	58.7	57.9	57.4
30	14:57	57.5	87.1	72.9	53.8	62.7	59.4	56.2	55.2	54.6
31	15:12	59.3	88.9	78.6	56.3	68	59.7	58	57.3	56.9
32	15:27	58.8	88.4	70.6	56.4	64.8	59.7	58.3	57.5	57.1
33	15:42	58.3	87.9	70.9	56.4	60.6	58.8	58.1	57.6	57.2
34	15:57	59.8	89.4	79.6	56.1	67.1	60.2	58	57.3	56.8
35	16:12	58.8	88.4	69.4	56.5	63.9	59.8	58.3	57.6	57.1
36	16:27	57.7	87.3	78.5	53.5	62.2	58.4	57.3	56.5	54.5
37	16:42	57.7	87.3	77.2	53.9	66.9	58.8	56.3	55.2	54.6
38	16:57	57	86.6	78.1	53.4	63.2	57.9	55.8	54.7	54.1
39	17:12	58.1	87.7	78.9	55.8	62.3	58.5	57.6	57	56.6
40	17:27	59.3	88.9	76.8	54.5	67.9	60.5	57.9	56	55.3
41	17:42	57.8	87.4	77.3	54.2	63.4	58.3	57.3	56	55.2
42	17:57	57.4	87	74.1	53.3	65	57.8	56.9	55	54.2
43	18:12	58	87.6	82.6	53.8	64.2	58	56.9	55.3	54.7
44	18:27	58.5	88.1	79.6	53.4	65.1	59.7	57.4	55.7	54.2
45	18:42	57.4	87	77.2	53.9	61.1	58.7	57	55.5	54.8
46	18:57	57.3	86.9	79.2	53.7	60.6	58.9	56.8	55.4	54.7
47	19:12	57.2	86.8	76.6	53.8	60.8	58.7	56.8	55.2	54.5
48	19:27	56.9	86.5	76.9	53.3	60	57.6	56.8	55.1	54.1
49	19:42	56.8	86.4	74.2	53.4	60.4	57.5	56.7	55	54.2
50	19:57	58	87.6	78.4	53.4	65.9	57.7	56.7	55.1	54.3

51	20:12	58.2	87.8	81.7	52.9	66.2	57.5	56.3	54.4	53.7
52	20:27	57	86.6	71.2	53.6	62.7	57.6	56.8	55.4	54.7
53	20:42	57.5	87.1	77.5	53.6	61.2	58.7	57	55.4	54.5
54	20:57	57.1	86.7	71.4	54	61.3	57.8	56.8	55.9	55.1
55	21:12	56.3	85.9	72.3	53	58.1	57.2	56.5	54.8	54.1
56	21:27	56.8	86.4	71.3	53.4	58.1	57.4	56.8	56	54.3
57	21:42	57.2	86.8	65.8	54.3	60.1	57.7	57	56.5	55.5
58	21:57	56.9	86.5	78.2	54	59.2	57.3	56.6	55.5	54.8
59	22:12	57	86.6	69.8	53.7	63.3	57.3	56.6	55.4	54.5
60	22:27	56.2	85.8	75.3	53.2	57.5	56.8	56.1	54.8	54.1
61	22:42	55.4	85	75.3	53	61.3	55.6	54.8	54.2	53.7
62	22:57	55.7	85.3	77	53.5	57.7	56.2	55.2	54.6	54.2
63	23:12	56.9	86.5	67.2	55.1	60.5	57.5	56.7	56.2	55.8
64	23:27	58	87.6	76.9	54.7	65.7	59.5	56.5	55.9	55.5
65	23:42	56.4	86	66.8	54.7	58.6	56.9	56.3	55.8	55.5
66	23:57	56.4	86	63.9	54.9	57.9	57	56.4	55.9	55.5
67	00:12	56.3	85.9	64.9	54.6	57.3	56.8	56.3	55.8	55.4
68	00:27	56.4	86	63.5	54.9	57.5	56.9	56.4	56	55.6
69	00:42	56.3	85.9	69.3	54.5	58.1	56.8	56.2	55.7	55.3
70	00:57	56.1	85.7	63.9	54.5	57.9	56.7	56.1	55.6	55.2
71	01:12	56.2	85.8	68.3	54.6	57.2	56.7	56.2	55.7	55.3
72	01:27	56.2	85.8	67.2	54.6	57.4	56.7	56.1	55.6	55.2
73	01:42	56.2	85.8	66.6	54.6	57.3	56.7	56.1	55.6	55.2
74	01:57	56.2	85.8	61.2	54.5	57.4	56.9	56.2	55.6	55.1
75	02:12	56	85.6	58	54.6	57	56.5	56	55.5	55.2
76	02:27	55.7	85.3	75.7	53.2	57.2	56.4	55.7	54.2	53.8
77	02:42	54.3	83.9	57.1	51.9	55.5	55.1	54.5	53.2	52.6
78	02:57	55	84.6	65.1	52.1	56.7	56	55.2	53.3	52.7
79	03:12	54.8	84.4	66	52.1	56.4	55.9	54.9	53.3	52.8
80	03:27	54.4	84	58.6	51.5	56.3	55.4	54.5	52.9	52.2
81	03:42	54.2	83.8	67.5	51.3	57.6	55.2	54.2	52.3	51.9
82	03:57	54.3	83.9	67.8	51.7	56	55.2	54.4	52.7	52.2
83	04:12	54.2	83.8	76.2	51.4	57.5	54.8	54.1	52.5	52
84	04:27	53.8	83.4	56	51.6	55.5	55	53.7	52.7	52.2
85	04:42	53.2	82.8	66.9	52	54.4	53.6	53.2	52.8	52.5
86	04:57	53.4	83	56.8	51.7	55	54.5	53.2	52.6	52.2
87	05:12	54.3	83.9	58.4	51.5	55.8	55	54.5	52.8	52.2
88	05:27	54.3	83.9	60.1	51.6	56.7	55.6	54.2	52.7	52.2
89	05:42	54.7	84.3	63.9	51.7	59.2	55.7	54.7	52.9	52.4
90	05:57	53.8	83.4	62.3	51.1	57.7	55.1	53.7	52.2	51.6
91	06:12	57.1	86.7	83.9	51.1	64.2	58.6	54.9	52.8	51.9
92	06:27	55	84.6	70.1	51	61.4	56.2	54.4	52.4	51.7
93	06:42	55.1	84.7	76.9	51.1	61.4	55.7	54.2	52.6	51.8
94	06:57	56.1	85.7	78	51.5	63.5	56.2	54.9	52.7	52.2
95	07:12	55.4	85	71.5	51.2	58.2	57.1	55.1	53.1	51.9
96	07:27	54.8	84.4	75.9	50.8	56.8	56	54.3	53	51.9

APPENDIX 'B'

Photos, Drawings and Sketch

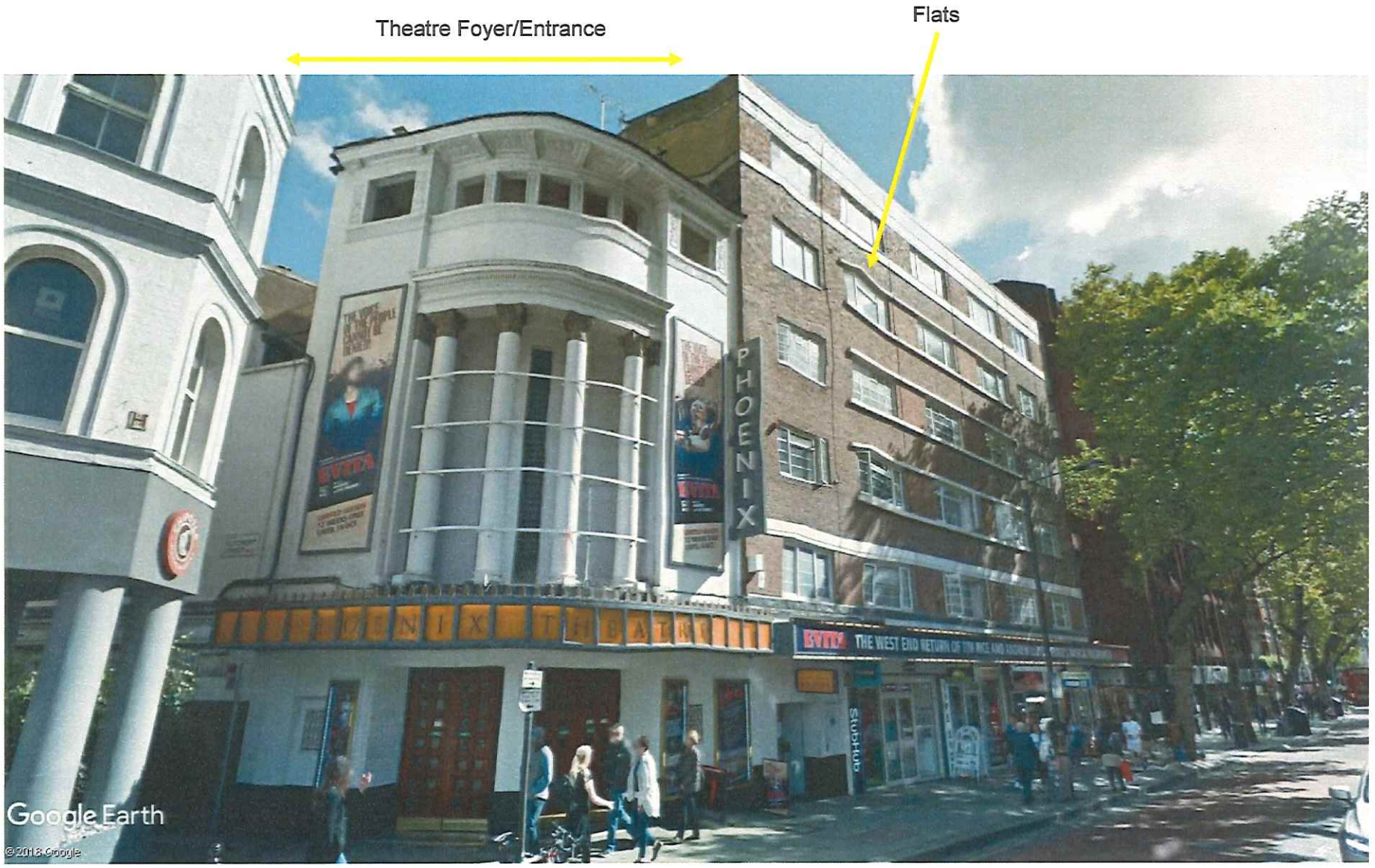

Photo A – Front of Building at 110 Charing Cross Road Showing Theatre Entrance, Retail Units and Flats

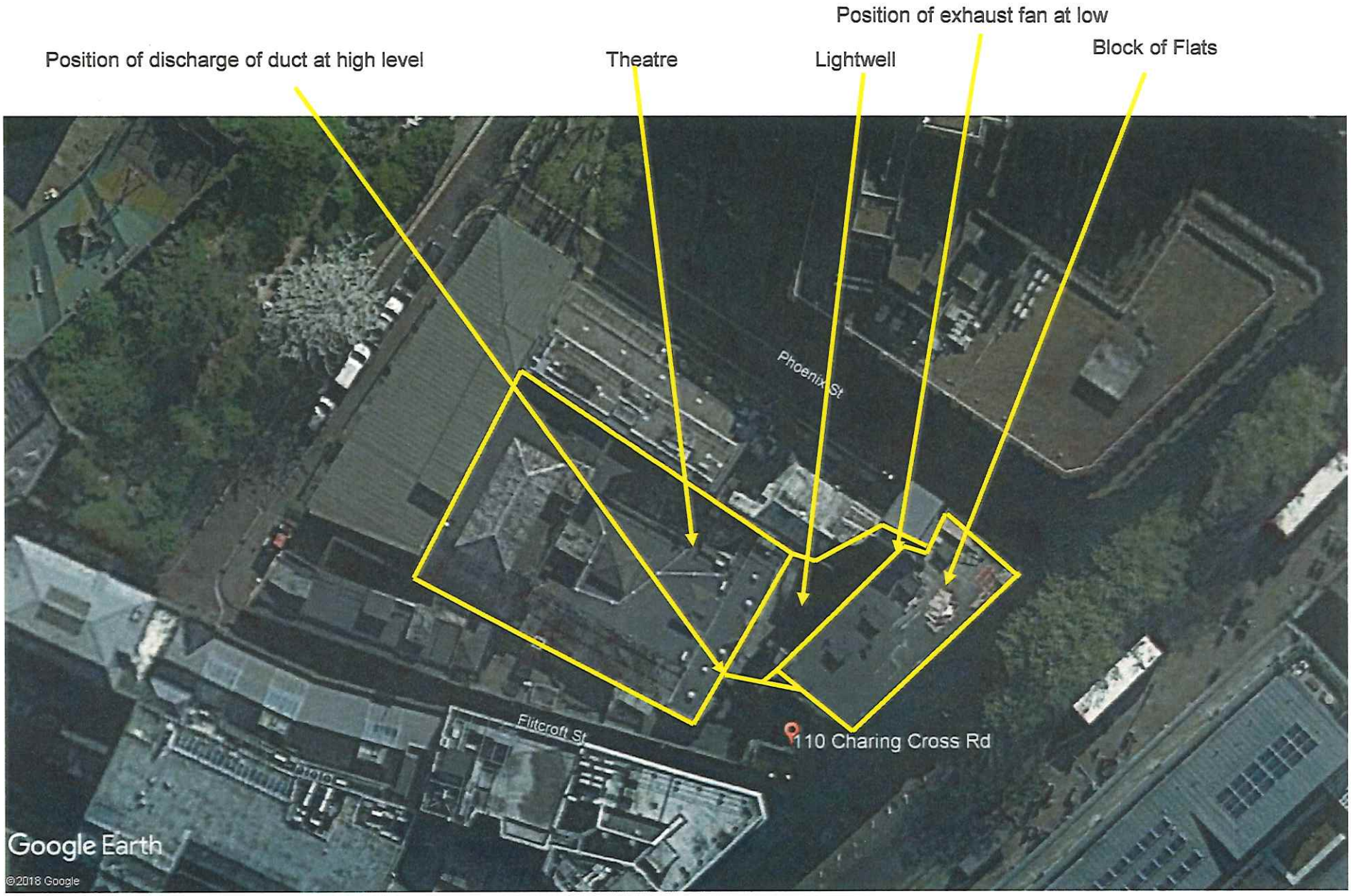

Photo B – Aerial View of Site at 110 Charing Cross Road Showing Theatre, Flats & Lightwell

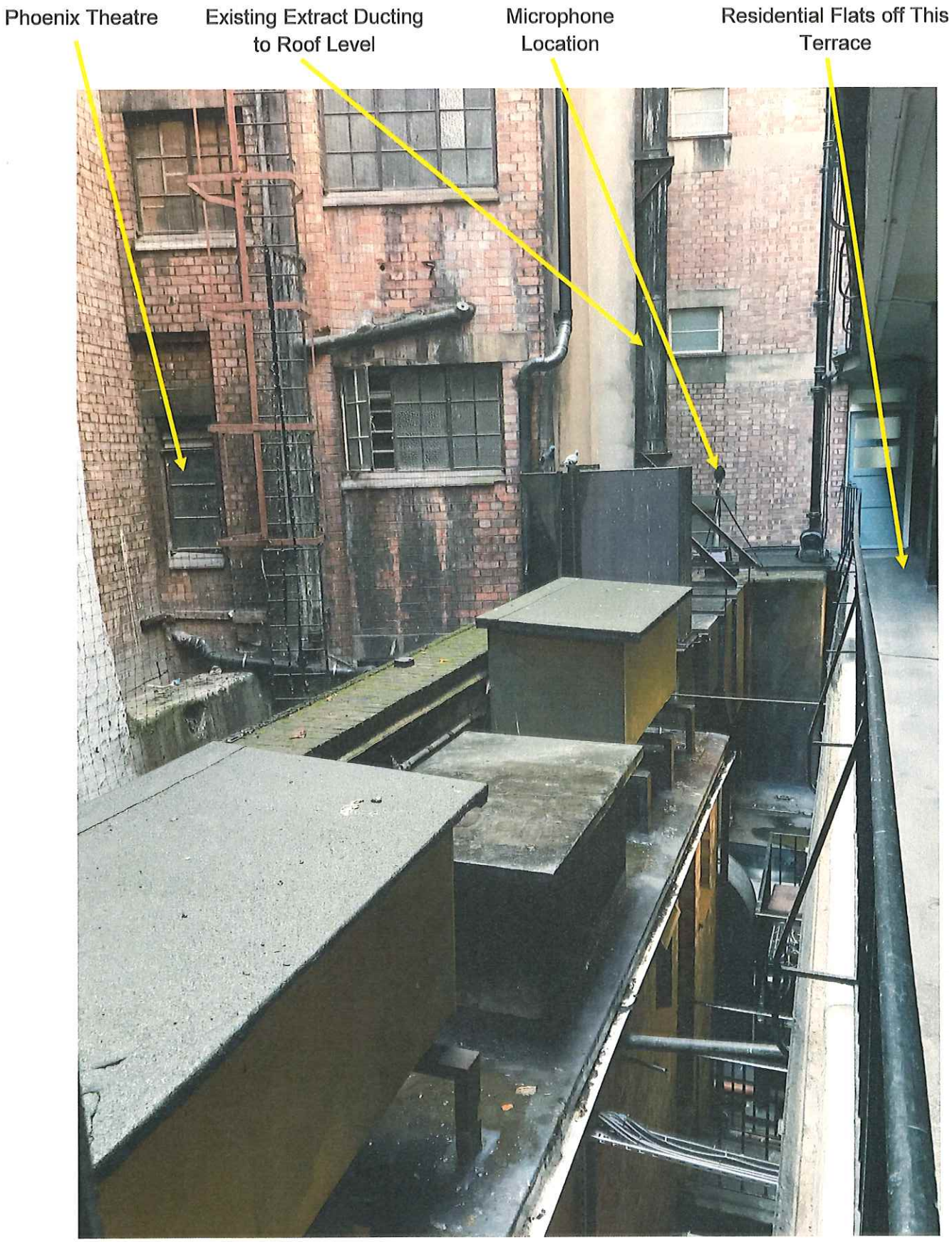

Photo C – Bottom of Light Well Behind the Residential Flats in Phoenix House

Extract ducting rising to high level and crossing over to roof of Phoenix House

Residential Flats

Photo D – Top of lightwell behind residential flats at Phoenix House

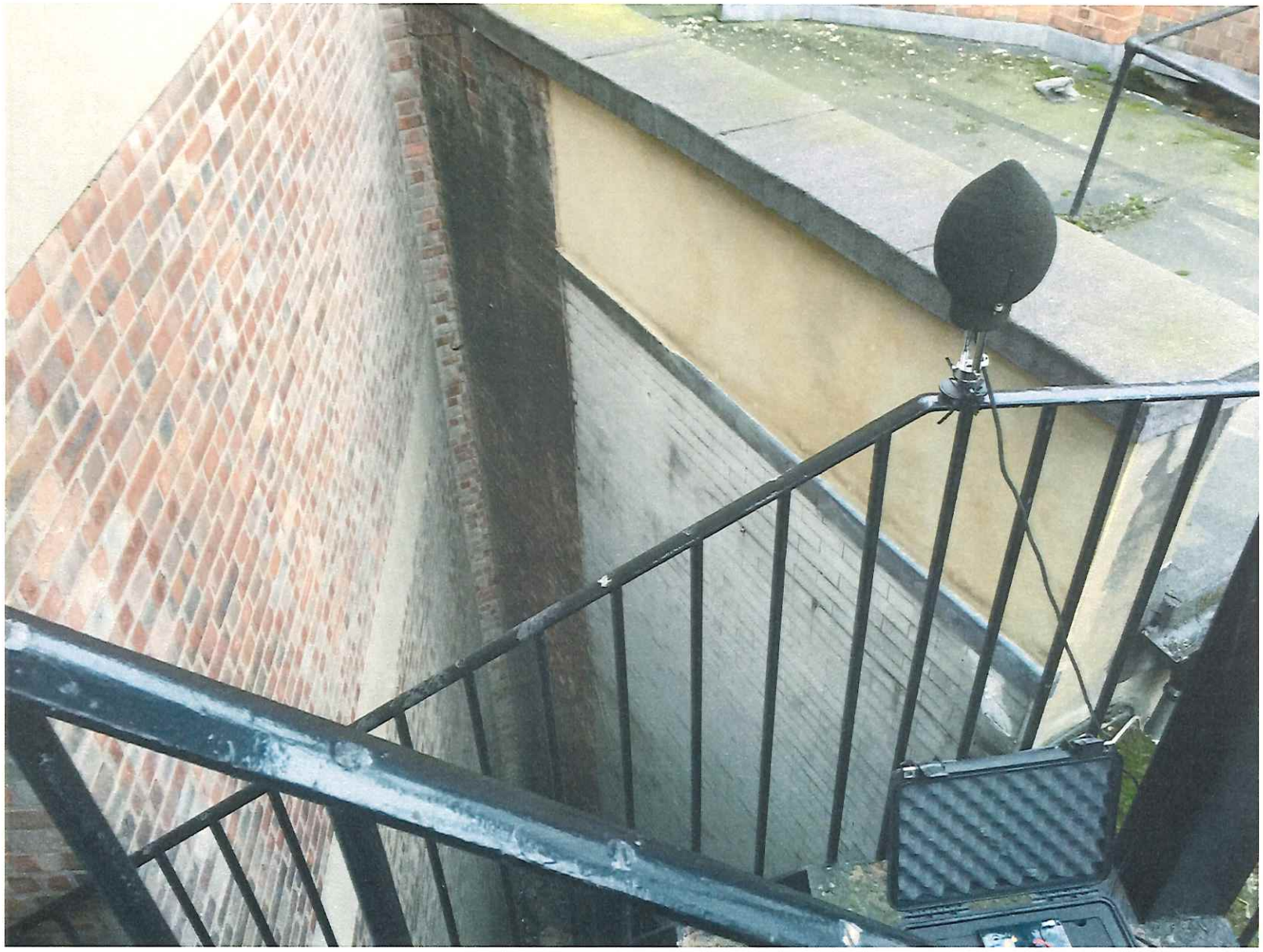

Photo E – Location of Microphone Strapped to staircase railings at 4th Floor Level

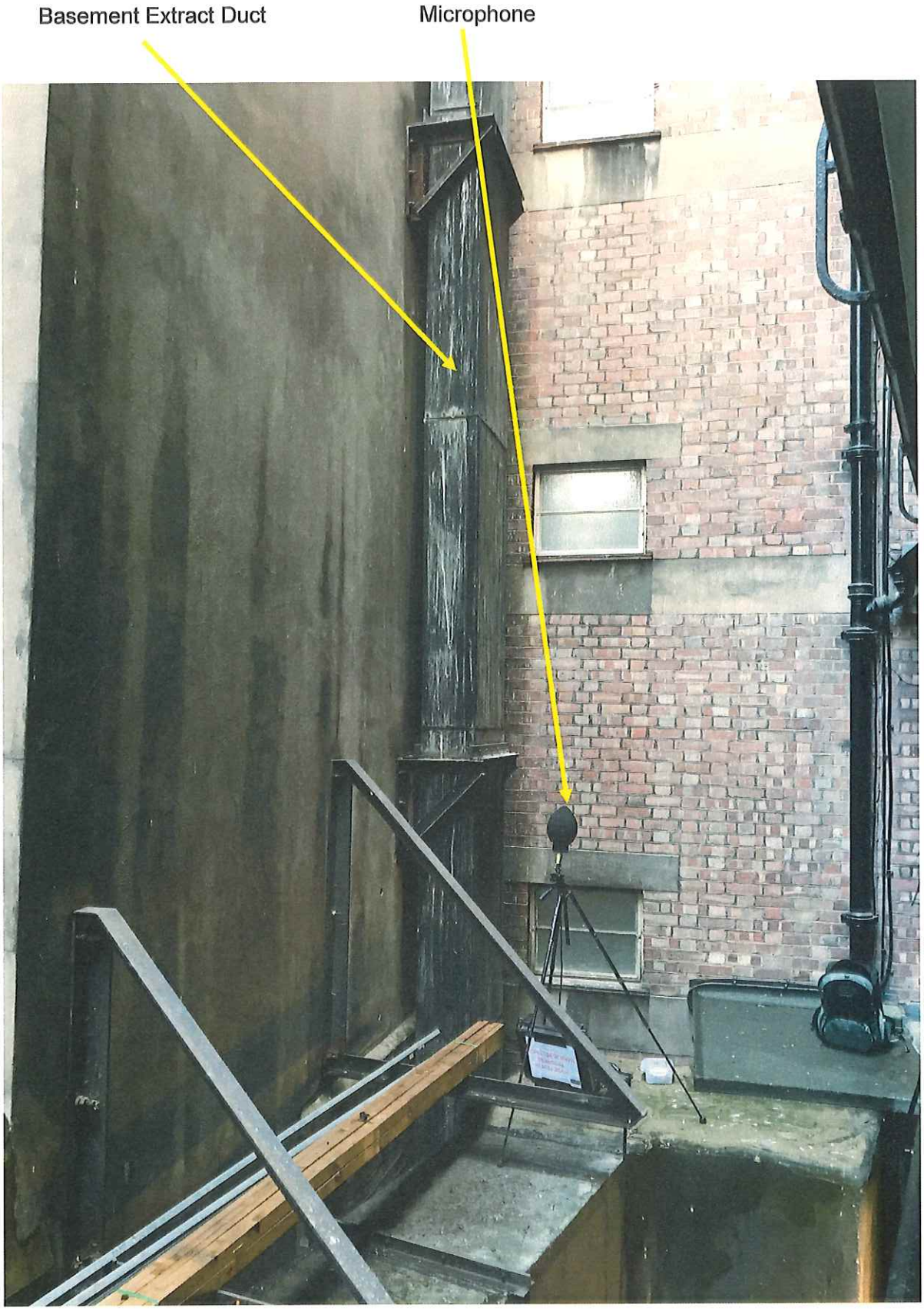

Photo F – Location of microphone at low level next to basement extract ducting

NEW PENTHOUSE APARTMENTS

REMOVE 5 NUMBER EXSITING COLD WATER STORAGE TANKS

EXISTING COLD WATER DOWN SERVICE AND RISING MAIN IN 5 NUMBER RISERS TO BE REUTILISED.

EXISTING STUDIO FLATS 25 NUMBER

EXISTING RETAIL UNITS

NEW PRESSURE BOOSTED WATER SUPPLIES TO PENTHOUSE APARTMENTS.

NEW PRESSURE BOOSTED WATER SUPPLY RISER TO EXISTING 5 NUMBER RISERS AT ROOF LEVEL TO EXISTING STUDIO FLATS

Sheffield Loop cycle Racks

NEW ROUTE FOR KITCHEN EXTRACT DUCT WORK TO RUN FROM EXISTING AT SOUTH END OF LIGHTWELL ABOVE EXISTING TOILETS TO RISE TO ROOF LEVEL OF ADJACENT THEATRE TO DISCHARGE.

EXISTING COLD WATER STORAGE TANKS ON TOILET BLOCK ROOF TO BE REMOVED

PROPOSED NEW COLD WATER STORAGE TANK AND PRESURE BOOSTING PUMPS IN ENCLOSURE ON NEW STRUTURAL PLATFORM.

Sheffield Loop Racks

INDICATIVE SECTION
1/100

Kitchen extract fan located at base of new 500mm diameter extract duct riser at ground level

REMOVE REDUNDANT SECTION OF EXISTING MAINS WATER SERVICE

EXISTING MAINS WATER SERVICE TO BE REUTLISED.

Note:
New mezzanine deck and secure cycle stand. 4no. spaces, 2 per flat unit. in accordance with London plan and Camden Planning guidance.

LOCATION OF EXISTING KITCHEN EXTRACT RISER TO ROOF TO BE REMOVED.

EXISTING LIFT SERVING GROUND TO 6TH FLOORS

ELECTRICAL INTAKE ROOM.

ENTRANCE TO STUDIO FLATS

ENTRANCE TO PHEONIX ARTIST CLUB

EXISTING COLD WATER STORAGE TANKS ON TOILET BLOCK ROOF TO BE REMOVED

NEW ROUTE FOR KITCHEN EXTRACT DUCTWORK TO RUN FROM EXISTING AT SOUTH END OF LIGHTWELL ABOVE EXISTING TOILETS TO RISE TO ROOF LEVEL OF ADJACENT THEATRE TO DISCHARGE.

PHEONIX THEATRE BOX OFFICE

RETAIL UNIT STUBTUB

RETAIL UNIT VAPE SHOP

RETAIL UNIT MASSAGE

RETAIL KIOSK

IOCATION OF EXISTING KITCHEN EXTRACT AT LOW LEVEL RUN NEW EXTRACT TO RISE AT NORTH END OF LIGHTWELL.

PROPOSED GROUND FLOOR
1/100

PDA
PHOENIX HOUSE PENTHOUSES
ENABLING WORKS
GROUND FLOOR AND SECTION.
4242/A/02/T Sheet 1 of 3
Tender Issue

Revision C. Section amended 12-04-2017

Revision B Escape door omited 13-12-2016

Revision B Escape door omited 13-12-2016

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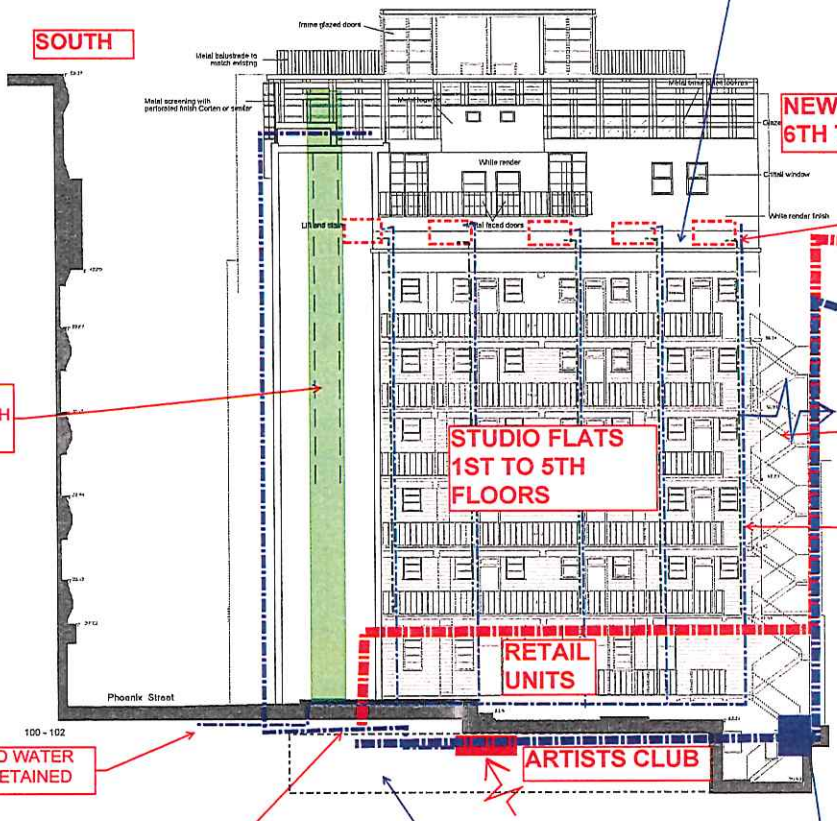
com

Project: Phoenix Hou
Client: Mr & Mrs H S
Title: Proposed gra
Situation: Planning

PDA
Proposed basement kitchen extract fan location added
4242 180807 1 of 3

Project Nº:	Date:	Scale:	Drawing Nº:	Rev:
259	04 / 2017	1/50 1/100 (A1)	(P) 003	



Existing flat roof level 42.2m

Kitchen extract fan located at base of new 500mm diameter extract duct riser at ground level. Extract discharge at 1.0 above theatre roof. Roof level approx 38.4m

NEW APARTMENTS 6TH TO 8TH FLOORS

EXISTING COLD WATER STORAGE TANKS 5 NUMBER TO BE REMOVED.

NEW ROUTE FOR KITCHEN EXTRACT DUCT RISER TO ROOF DISCHARGE AT HIGH LEVEL EXACT DISCHARGE LOCATION AT 5TH FLOOR LEVEL AT NORTH END OF LIGHTWELL TO BE AGREED.

EXISTINGLIFT GROUND TO 6TH FLOOR LEVELS

STUDIO FLATS 1ST TO 5TH FLOORS

EXTERNAL FIRE ESCAPE STAIRS

EXISTING COLDWATER MAINS AND DOWN SERVICE RISERS INSIDE STUDIO FLATS TO BE RETAINED

RETAIL UNITS

ARTISTS CLUB

EXISTING COL D WATER MAINS TO BE RETAINED

EXISTING KITCHEN EXTRACT DUCT RISER TO ROOF TO BE REPLACED, RUN TO DISCHARGE AT HIGH LEVEL EXACT DISCHARGE LOCATION AT 5TH FLOOR LEVEL AT NORTH END OF LIGHTWELL TO BE AGREED.

EAST REAR ELEVATION

Kitchen extract duct run at low level in light well to connect to new fan at north end of light well at ground level

Kitchen extract fan located at base of new 500mm diameter extract duct riser at ground level. Extract discharge at 1.0 theatre roof

PDA
PHOENIX HOUSE PENTHOUSES
ENABLING WORKS
REAR ELEVATION
4242/A/02 Sheet 2 OF 3
Tender Issue

Revision B elevation amended 04-04-2017

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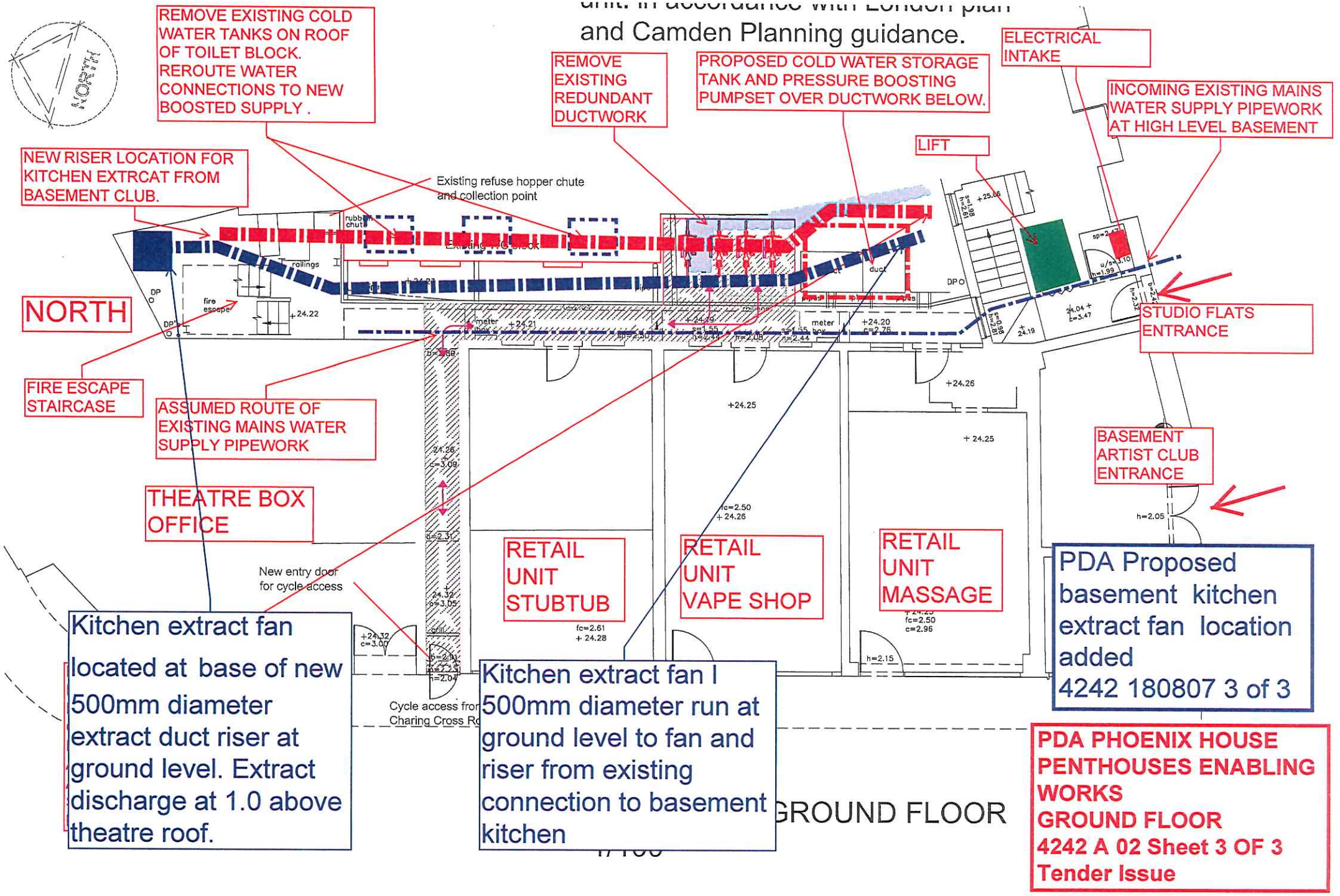
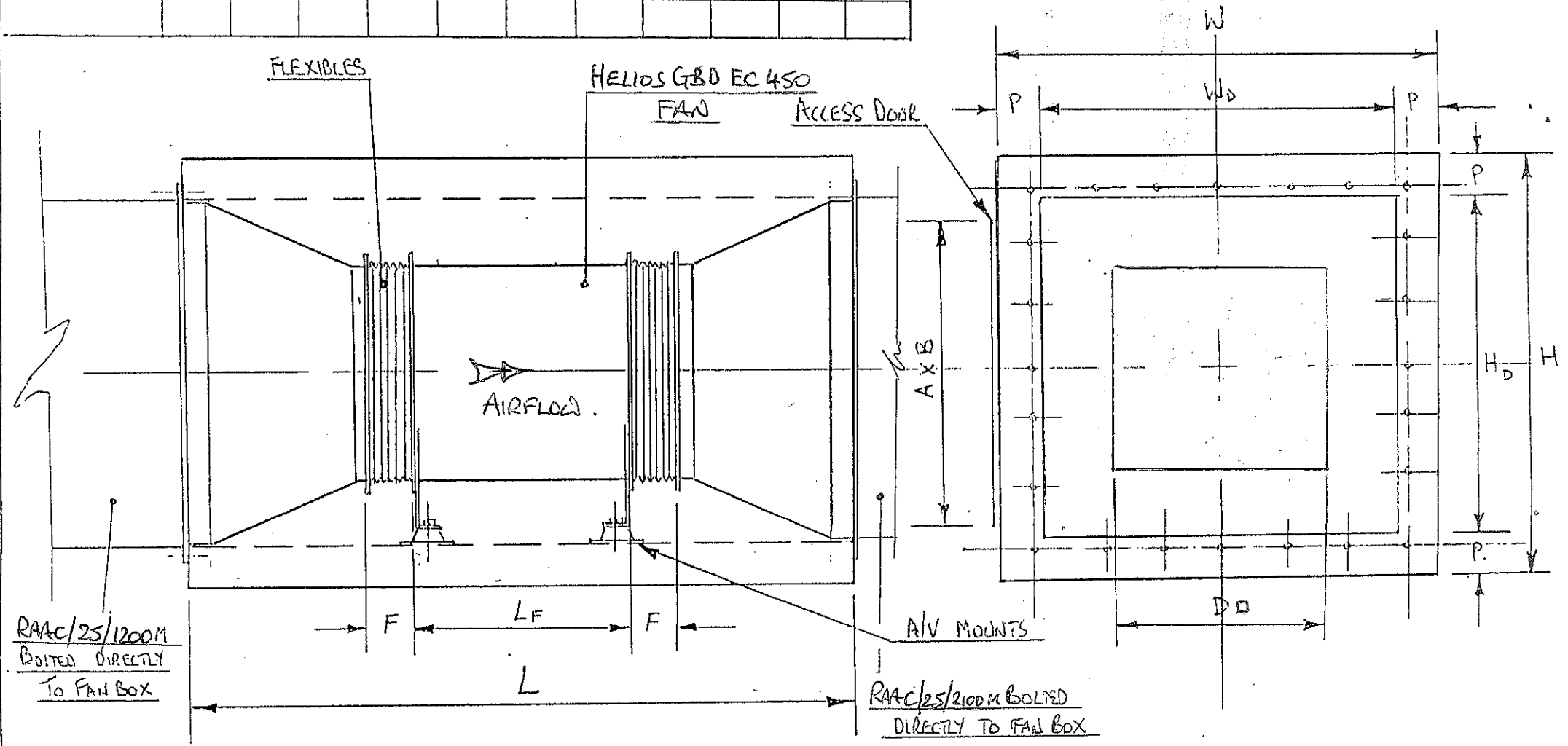
PDA Proposed basement kitchen extract fan location added
4242 180807 2 of 3

Planning

Project N°:	Date:	Scale:	Drawing N°:	Rev:
259	09 / 2016	1/100 (A1)	(P) 007	B


and Camden Planning guidance.
REMOVE EXISTING COLD WATER TANKS ON ROOF OF TOILET BLOCK. REROUTE WATER CONNECTIONS TO NEW BOOSTED SUPPLY .
REMOVE EXISTING REDUNDANT DUCTWORK
PROPOSED COLD WATER STORAGE TANK AND PRESSURE BOOSTING PUMPSET OVER DUCTWORK BELOW.
ELECTRICAL INTAKE
INCOMING EXISTING MAINS WATER SUPPLY PIPEWORK AT HIGH LEVEL BASEMENT
NEW RISER LOCATION FOR KITCHEN EXTRCAT FROM BASEMENT CLUB.
Existing refuse hopper chute and collection point
LIFT
NORTH
STUDIO FLATS ENTRANCE
FIRE ESCAPE STAIRCASE
ASSUMED ROUTE OF EXISTING MAINS WATER SUPPLY PIPEWORK
THEATRE BOX OFFICE
BASEMENT ARTIST CLUB ENTRANCE
RETAIL UNIT STUBTUB
RETAIL UNIT VAPE SHOP
RETAIL UNIT MASSAGE
New entry door for cycle access
Kitchen extract fan located at base of new 500mm diameter extract duct riser at ground level. Extract discharge at 1.0 above theatre roof.
Kitchen extract fan l 500mm diameter run at ground level to fan and riser from existing connection to basement kitchen
PDA Proposed basement kitchen extract fan location added
4242 180807 3 of 3
GROUND FLOOR
PDA PHOENIX HOUSE
PENTHOUSES ENABLING WORKS
GROUND FLOOR
4242 A 02 Sheet 3 OF 3
Tender Issue

DIMENSION / SYSTEM	W	H	L	L_F	F	P	W_D	H_D	D	A	B
EXTRACT FAN BOX	920	920	1200	670	75	50	820	820	670□	820	820



SKETCH NO.

QF/9300/SK1

ACOUSTIC FAN BOX FOR HELIOS EXTRACT FAN.

CLIENT

PETER DEER & ASSOCIATES

PROJECT

PHOENIX HOUSE EXTRACT

EMTEC

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