RESULTS OF A DOUBLE 24-HOUR NOISE LEVEL SURVEY CARRIED OUT IN THE FRONT AND REAR LIGHT WELLS OF THE RESIDENTIALPROPERTY LOCATED AT 16 CLEVELAND STREET, LONDON W1 AND A REPORT ON THE NOISE CONTROL MEASURES REQUIRED TO MINIMISE THE NOISE IMPACT OF THE PROPOSED NEW EXTERNAL PLANT

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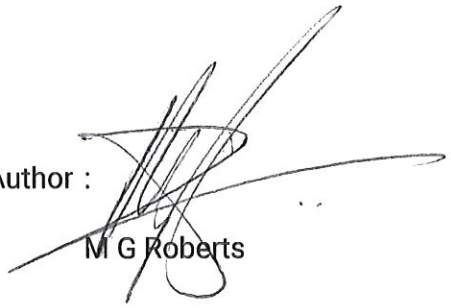
Report Author :



M G Roberts

Authorised for
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Client	:	West Hill Projects
Project	:	16, Cleveland Street, London W1
Emtec Ref.	:	QF9884/PF6563/RP1
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1.0. INTRODUCTION

This report details the results of a double 24-hour noise survey carried out at the front and rear of the residential property located at 16, Cleveland Street, London W1.

The objectives of this survey were as follows:

- To assess the proposal to install new external plant in the front and rear light wells of the building.
- To identify the nearest properties that might be affected by noise from the proposed plant.
- 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 16, Cleveland Street is a five storey residential, terraced house with a basement and four upper floors in the Fitzrovia area of central London. The building has a brick façade with sash windows and the front of the building can be seen in the attached Photos A, B and C. The front light well is behind the metal fencing at basement level.

The rear light well is at the right hand side of the rear of the building and extends from the basement up to the first floor.

An aerial view of the site is shown in the attached Photo D with the adjacent buildings around the site indicated.

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 Cleveland Street, could be heard during the manned periods at the start and 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 railway lines near to the site, so the noise levels measured will not include contributions from rail noise.

Major refurbishment works were being carried out on the site so the daytime noise levels will not be representative of the normal background environment.

4.0. TEST PROCEDURE

The surveys were conducted during a continuous 24-hour period from approximately 11am on Thursday the 15th of August 2019 to 11 am on Friday the 16th of August 2019.

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 microphone at the front of the building (Location A) was attached to the scaffolding at first floor level with the microphone being fixed to an extendable boom that was attached to the corner of the scaffolding. The microphone was orientated at 45 degrees and was approximately 1.5 metres from the scaffold and the façade of the neighbouring building at 18 Cleveland Street. The location of the microphone can be seen on the attached Photos C and D.

The microphone at the rear of the building (Location B) was again attached to a boom that was extended out of a first floor window that overlooks the rear light well. The microphone was orientated vertically and was approximately 1.2 metres from the rear façade of the building. The microphone can be seen in the attached Photos E and F.

The rest of the measurement equipment was located in enclosures, within the building, 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/Bright	Weather night time: -	Clear
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 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 bar graphs on the attached Sketches No QF/9884/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/9845/T2 and -/T4 at the back of this report.

5.1 Summary of Results

The table QF/9884/D1 below summarises the noise levels taken over the 24-hour period in both locations in terms of the maximum and minimum Sound Pressure Levels recorded.

Table QF/9884/D1 – Summary of Maximum and Minimum Noise Levels

	Location	LA_{eq}	LA_1	LA_{10}	LA_{50}	LA_{90}	LA_{99}
Minimum	A	49dBA	61dBA	51dBA	44dBA	42dBA	41dBA
	B	42dBA	44dBA	43dBA	42dBA	38dBA	37dBA
Maximum	A	74dBA	81dBA	73dBA	64dBA	60dBA	59dBA
	B	68dBA	79dBA	73dBA	63dBA	54dBA	51dBA

Based upon the above measurements the lowest LA_{90} background noise level, over the 24 hour survey was 42dBA at Location A (front) and 38dBA at location B (rear). However the proposed new plant may be able to be operated on a lower speed at night and only operate at full duty during the daytime/evening period (7am to 11pm). The lowest LA_{90} noise levels during the daytime/evening period were 49dBA at location A and 42dBA at location B (rear).

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 new plant to be located in the front and rear light well, will consist of a single air cooled condensing unit in each location. These units will not emit noise that will have a distinguishable discrete tone or emit noise that has distinctive impulses. The fans and compressors within the condenser units will be inverter controlled and will slowly ramp up to their operating speed. To comply with a green rating from the table above the new units should therefore have a Sound Pressure Level 10dB below the lowest LA_{90} background noise level at 1 metre from the nearest noise sensitive window.

The lowest background noise levels measured during the 24 hour survey were 42dBA at location A and 38dBA at location B.

The daytime (7am to 11pm) minimum LA_{90} noise levels measured during the survey were 49dBA at location A and 42dBA at location B.

We believe that the proposed mechanical plant will probably only run during the daytime but applying a rating level that is 10dB below the lowest daytime and night time LA_{90} noise levels gives the following limiting noise rating LA_{eq} levels as given in table QF/9884/D2 below:

Table QF/9884/D2 – Proposed Design Rating Levels

Existing Noise sensitive receptor	*Design Period*	*Lowest measured background level*	***Proposed rating level***	*Proposed Local Authority criteria*
Dwellings-Front	*Day*	*49dBA*	***39dBA***	*Green*
Dwellings - Rear		*42dBA*	***32dBA***	
Dwellings-Front	*Night*	*42dBA*	***32dBA***	*Green*
Dwellings – Rear		*38dBA*	***28dBA***	

5.4 Determination of commercial design criteria

The use of the ground floor premises at 18 Cleveland Street is a retail/office space. 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 and assuming a 10dB noise reduction through 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 window will 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/9884/D2: -

Table QF/9884/D2 – recommended design rating levels $L_{Ar,T}$

Type of premises	**$L_{Ar,T}$ (7am to 11pm)**	**$L_{Ar,T}$ (24-hour)**
Noise sensitive – Front Noise sensitive - Rear	39dBA 32dBA	32dBA 28dBA
Commercial	55 dBA	-

6.0 DISCUSSION OF RESULTS

It is proposed to install a single Fujitsu AOYG18LAC2 air cooled condenser in the front light well and a single Fujitsu AJY054LCLAH condenser in the rear light well.

The tables QF/9884/D3 and -/D4 below list the noise levels of the condensers and the natural and required attenuation to a position 1 metre from the nearest noise sensitive window.

Table QF/9884/D3 – Noise Level of Fujitsu Condenser in front light well, operating at heating full duty, and natural and required attenuation to 1 metre from the neighbour's window at 18 Cleveland Street

Equipment/Attenuation	Sound Pressure Level (dB ref 2 x 10^{-5} N/m^2)								dBA
	63	125	250	500	1k	2k	4k	8k	
Fujitsu AOYG18LAC2 at 1m free field – full duty (heating)	60	60	55	50	47	41	37	38	53
Distance loss – 4 metres $10\log A_3/A_1$	-8	-8	-8	-8	-8	-8	-8	-8	
Reverberation of Space	+8	+8	+8	+8	+8	+8	+8	+8	
Barrier Effect of edge of light well overhang (300mm)	-6	-8	-10	-12	-14	-16	-18	-18	
Absorption in light well (Emtec WCAC30 cladding)	-3	-3	-4	-4	-5	-5	-6	-6	
Overall SPL at 1 metre from nearest neighbour's window	51	49	41	34	28	20	13	14	38

The above calculations show that the condenser unit, if located under the end protrusion as indicated in Photo F and if Emtec WCAC30 acoustic cladding panels are fixed to the walls adjacent to the unit, then the condenser can be operated between the hours of 7am to 11pm on full heating duty and the unit will achieve a noise level below the daytime/evening limiting noise level of 39dBA.

The condenser will have to be switched off from 11pm to 7am or fitted with a low noise control that reduces the unit's noise level by at least 6dB.

The condenser should be isolated from the structure of the building on neoprene-in-shear, anti-vibration mounts having a minimum static deflection of 6mm such as Emtec/VMC RD1 mounts on the attached data sheet.

The DX pipework from the condenser should be supported from pipe clamps having soft neoprene inserts around the pipes.

Table QF/9884/D4 – Noise Level of Fujitsu Condenser in rear light well, operating at heating full duty, and natural and required attenuation to 1 metre from the neighbour's window of Cleveland Residences

Equipment/Attenuation	Sound Pressure Level (dB ref 2 x 10^{-5} N/m^2)								dBA
	63	125	250	500	1k	2k	4k	8k	
Fujitsu AJY054LCLAH at 1m free field – full duty (heating)	65	62	58	53	50	46	43	34	56
Distance loss – 6 metres $10\log A_5/A_1$	-11	-11	-11	-11	-11	-11	-11	-11	
Reverberation of Space	+8	+8	+8	+8	+8	+8	+8	+8	
Barrier Effect of edge of light well overhang (100mm)	-4	-6	-8	-9	-11	-13	-15	-15	
Attenuation of enclosure (Emtec PAC30/LAAC15/105)	-5	-7	-8	-12	-26	-34	-32	-22	
Absorption in light well (Emtec WCAC30 cladding)	-3	-3	-4	-4	-5	-5	-6	-6	
Overall SPL at 1 metre from nearest neighbour's window	50	43	35	25	5	-	-	-	31

The above calculations show that the attenuated noise level would permit use of the condenser during the daytime/evening period (7am to 11pm). If the condenser is to be run at night (11pm to 7am) it should be fitted with a control circuit and set to only operate on low speed. This would reduce the noise level of the condenser by 3-5dB so that the noise level of the condenser would be below the limiting LAeq noise level for night time operation of the condenser.

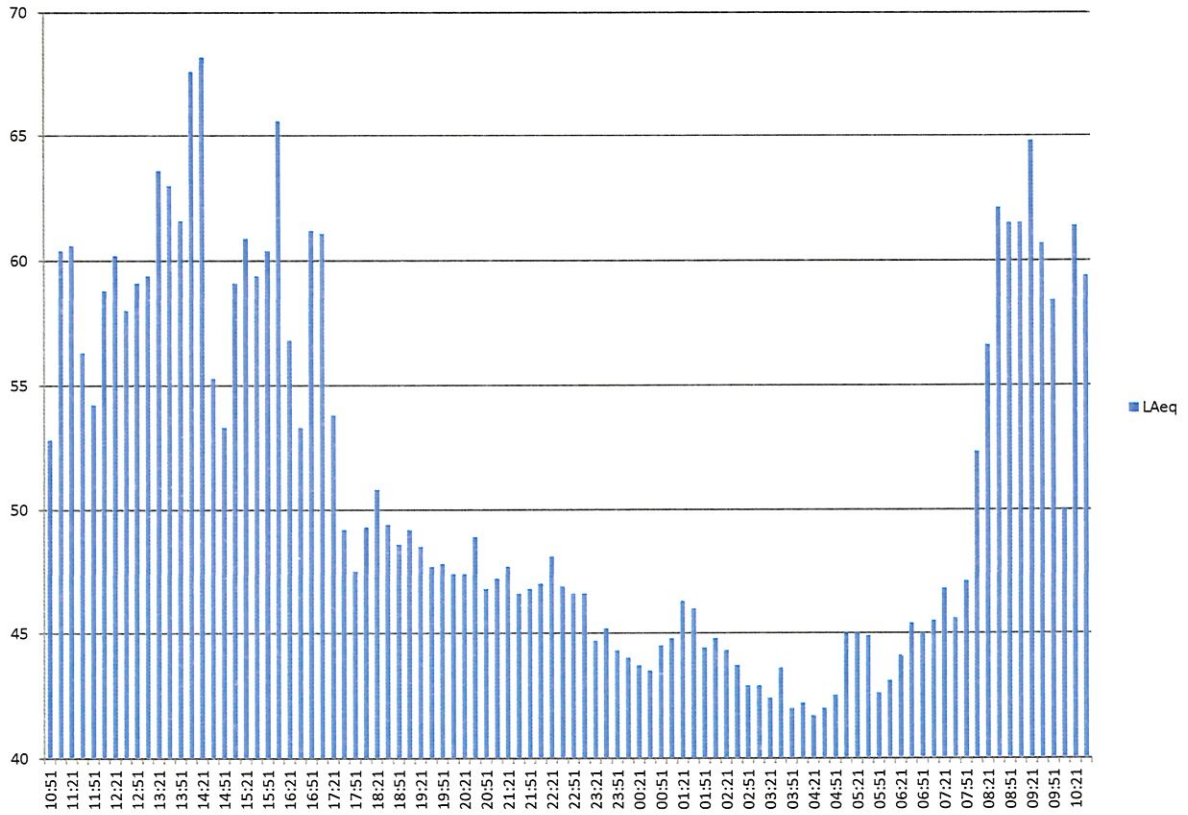
The condenser should be installed into an acoustic enclosure as detailed on the attached sketch NO QF/9884/GA1and be positioned as shown on the attached Photo G with the acoustic wall cladding immediately adjacent and above the condenser location.

The condenser should again be mounted onto neoprene-in-shear anti-vibration mountings having a minimum static deflection of 6mm such as the Emtec/VMC RD1 mounts on the attached data sheet.

The DX pipework from the condenser should be supported from pipe clamps having soft neoprene inserts around the pipes.

If the recommendations outlined above are followed the operation of the condensers will not exceed the local council's planning requirements and should not evoke any justifiable complaints from the neighbours under the guidelines of BS4142:2014.

EMTEC PRODUCTS LTD
29th August 2019



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CLIENT: Westhill Projects Ltd	*PF No: 6563*				*APPROVED BY:* MGR	*REVISION*							
PROJECT: 16 Cleveland Street, London	*Q*	*A*	*M*	*I*	*DESIGN AUTH:* MGR	*SKETCH No. QF9884/T1*							

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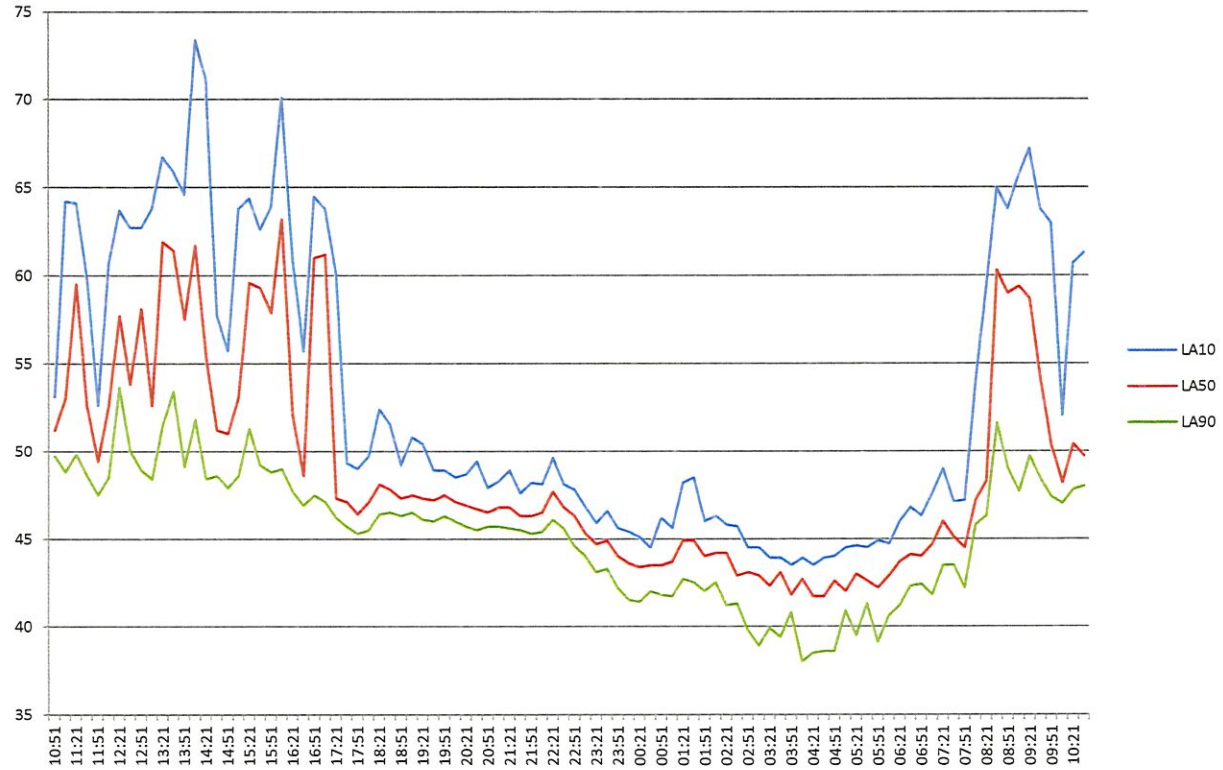

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CLIENT: Westhill Projects Ltd	*PF No: 6563*				*APPROVED BY:* *MGR*	*REVISION*							
PROJECT: 16 Cleveland Street, London	*Q*	*A*	*M*	*I*	*DESIGN AUTH:* *MGR*	*SKETCH No. QF9884/T2*							

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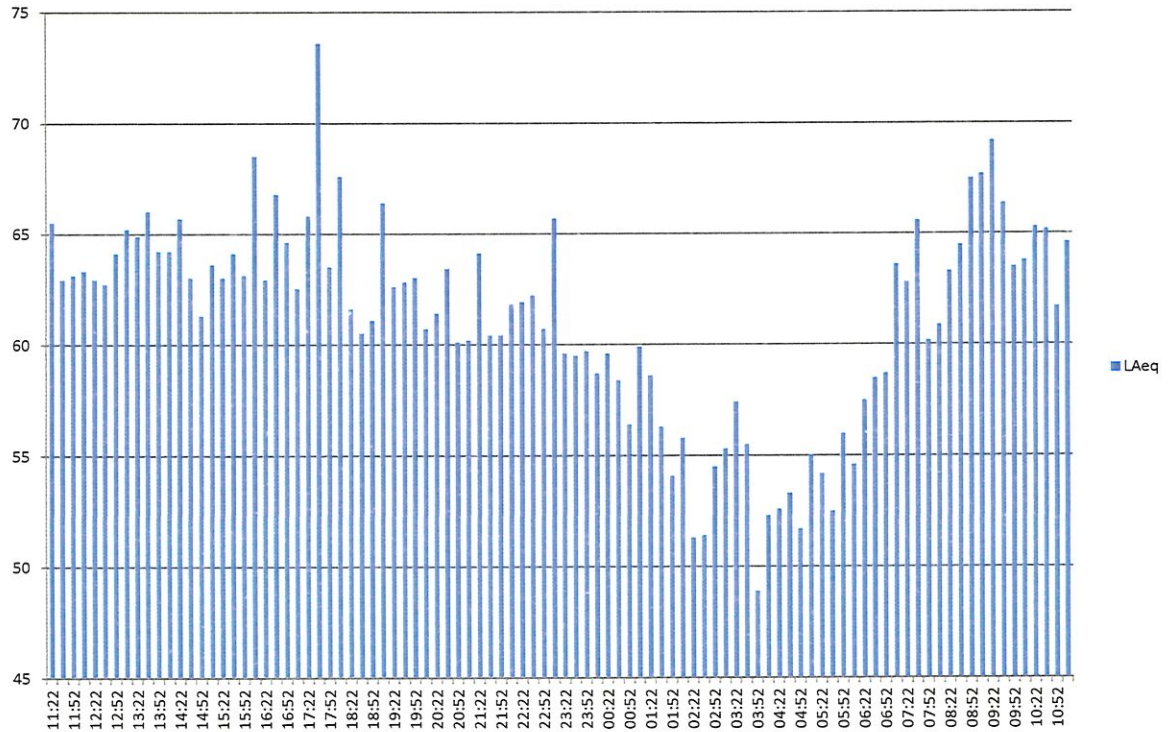

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PROJECT: 16 Cleveland Street, London	*Q*	*A*	*M*	*I*	*DESIGN AUTH:* MGR	*SKETCH No. QF9884/T3*							

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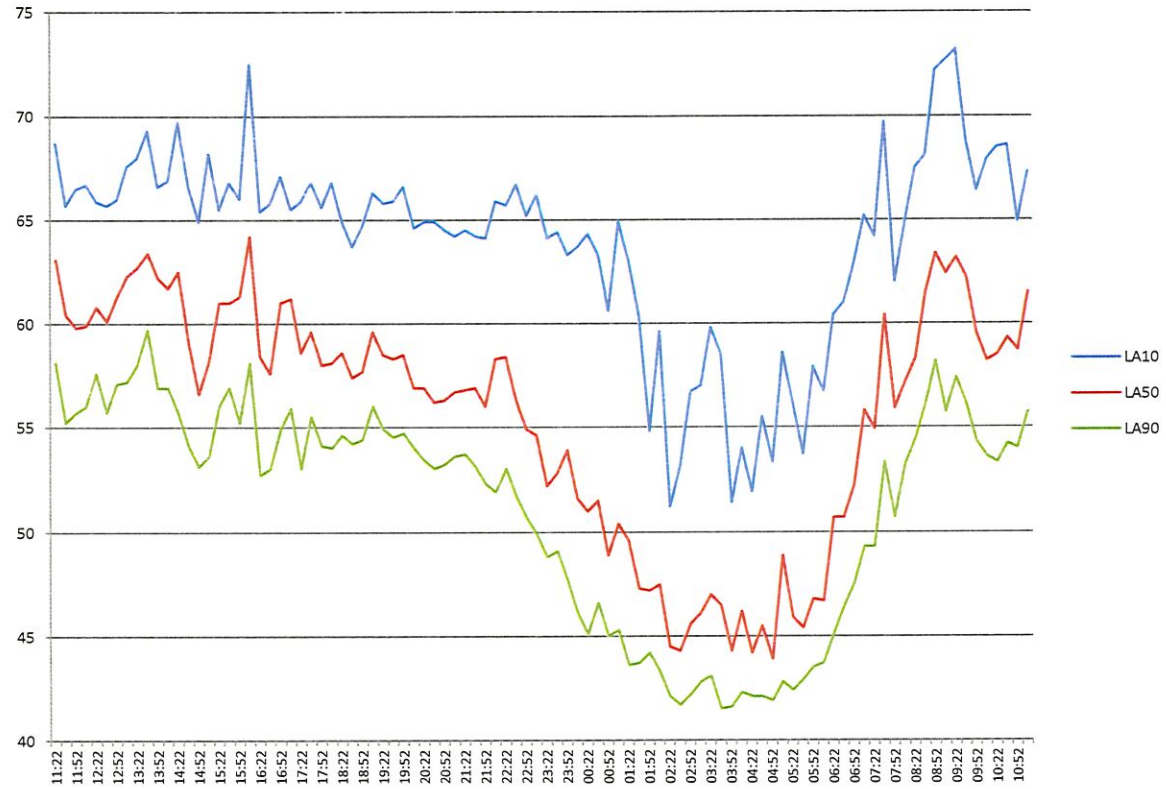

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CLIENT: Westhill Projects Ltd	*PF No: 6563*				*APPROVED BY:* MGR	*REVISION*							
PROJECT: 16 Cleveland Street, London	*Q*	*A*	*M*	*I*	*DESIGN AUTH:* MGR	*SKETCH No. QF9884/T4*							

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APPENDIX 'A'

Raw Data – Noise Survey

15th to 16th August 2019

RAW NOISE DATA - 16 Cleveland Street, London - Rear Lightwell

Ref: QF9884/PF6563/RP1
Client: Westhill Projects Ltd
Date: 15th to 16th August 2019

Address	Start Time	LAeq	LE	Lmax	Lmin	LA1	LA10	LA50	LA90	LA99
1	10:51	52.8	82.4	77.2	48.1	59.1	53.1	51.2	49.7	48.8
2	11:06	60.4	90	89.6	46.5	67.5	64.2	53	48.8	47.6
3	11:21	60.6	90.2	75.2	46.8	66.4	64.1	59.5	49.8	48.3
4	11:36	56.3	85.9	75	45.7	65.6	59.8	52.6	48.6	47.3
5	11:51	54.2	83.8	86.2	45.7	61.1	52.6	49.4	47.5	46.7
6	12:06	58.8	88.4	77.5	46.4	72.3	60.7	52.6	48.5	47.4
7	12:21	60.2	89.8	74.3	48.3	66.9	63.7	57.7	53.6	51.4
8	12:36	58	87.6	70.6	46.4	66.6	62.7	53.8	50	47.4
9	12:51	59.1	88.7	70.4	46.8	65.3	62.7	58.1	48.9	47.9
10	13:06	59.4	89	76.2	46.5	67.4	63.8	52.6	48.4	47.5
11	13:21	63.6	93.2	81.2	46.3	72	66.7	61.9	51.5	47.7
12	13:36	63	92.6	75.3	47.1	72.2	65.9	61.4	53.4	48.9
13	13:51	61.6	91.2	75.1	46.5	71.9	64.6	57.5	49.1	47.6
14	14:06	67.6	97.2	80.5	45.7	77.8	73.4	61.7	51.8	47.8
15	14:21	68.2	97.8	82.4	45.4	79.5	71.1	55.4	48.4	46.8
16	14:36	55.3	84.9	72.5	46.1	66.2	57.7	51.2	48.6	47.3
17	14:51	53.3	82.9	72.3	45.5	62.8	55.7	51	47.9	46.5
18	15:06	59.1	88.7	74.7	46.3	70.5	63.8	53.1	48.6	47.4
19	15:21	60.9	90.5	75.3	47	67.7	64.4	59.6	51.3	49
20	15:36	59.4	89	72.4	45.8	65	62.6	59.3	49.2	47.6
21	15:51	60.4	90	83.3	46	67.4	63.9	57.9	48.8	47.3
22	16:06	65.6	95.2	77.4	45.3	73.8	70.1	63.2	49	46.8
23	16:21	56.8	86.4	69.4	45.8	65.8	60.9	52	47.7	46.7
24	16:36	53.3	82.9	68.4	44.9	64.9	55.7	48.6	46.9	46.2
25	16:51	61.2	90.8	68.4	44.7	65.9	64.5	61	47.5	45.8
26	17:06	61.1	90.7	77.3	44.3	66.8	63.8	61.2	47.1	45.7
27	17:21	53.8	83.4	68	44.3	62.8	60.1	47.3	46.2	45.6
28	17:36	49.2	78.8	67.7	44.4	56.4	49.3	47.1	45.7	45.1
29	17:51	47.5	77.1	59.4	43.7	55.2	49	46.4	45.3	44.6
30	18:06	49.3	78.9	70.7	43.9	58.9	49.7	47.1	45.5	44.7
31	18:21	50.8	80.4	66.3	44.4	61.2	52.4	48.1	46.4	45.4
32	18:36	49.4	79	66.4	44.6	56.7	51.5	47.8	46.5	45.5
33	18:51	48.6	78.2	66.1	45	57.8	49.2	47.3	46.3	45.7
34	19:06	49.2	78.8	62.1	45	58	50.8	47.5	46.5	45.8
35	19:21	48.5	78.1	61.4	44.5	55.7	50.4	47.3	46.1	45.3
36	19:36	47.7	77.3	62.8	44.6	52.6	48.9	47.2	46	45.3
37	19:51	47.8	77.4	59.7	44.8	51.5	48.9	47.5	46.3	45.5
38	20:06	47.4	77	57.2	44.7	51.9	48.5	47.1	46	45.3
39	20:21	47.4	77	59.7	44	53	48.7	46.9	45.7	45
40	20:36	48.9	78.5	65.1	44.3	60.2	49.4	46.7	45.5	44.9
41	20:51	46.8	76.4	56.3	44.2	50.7	47.9	46.5	45.7	45
42	21:06	47.2	76.8	58.1	44.2	52.5	48.3	46.8	45.7	45
43	21:21	47.7	77.3	61.4	44.2	54	48.9	46.8	45.6	45
44	21:36	46.6	76.2	55.2	44	49.6	47.6	46.3	45.5	44.9
45	21:51	46.8	76.4	56.7	43.9	51.3	48.2	46.3	45.3	44.6
46	22:06	47	76.6	58.3	43.5	52.5	48.1	46.5	45.4	44.6
47	22:21	48.1	77.7	61.6	43.8	52.3	49.6	47.7	46.1	45
48	22:36	46.9	76.5	54.2	44.1	50	48.1	46.8	45.6	44.8
49	22:51	46.6	76.2	59.3	42.9	51.1	47.8	46.3	44.6	43.8
50	23:06	46.6	76.2	64.7	42.6	53.7	46.8	45.3	44	43.4
51	23:21	44.7	74.3	54	42	47.1	45.9	44.7	43.1	42.6
52	23:36	45.2	74.8	56.7	41.2	50	46.6	44.9	43.3	42.4

53	23:51	44.3	73.9	53.8	40.5	49.5	45.6	44	42.2	41.2
54	00:06	44	73.6	59.1	40.1	49.3	45.4	43.6	41.5	40.7
55	00:21	43.7	73.3	56.1	40.3	49.1	45.1	43.4	41.4	40.9
56	00:36	43.5	73.1	54.9	40.4	46.2	44.5	43.5	42	41.2
57	00:51	44.5	74.1	61.6	39	51.5	46.2	43.5	41.8	40.8
58	01:06	44.8	74.4	72	38.7	49.2	45.6	43.7	41.7	40.6
59	01:21	46.3	75.9	64.6	39	54.3	48.2	44.9	42.7	40.8
60	01:36	46	75.6	58.6	38.8	52.6	48.5	44.9	42.5	40
61	01:51	44.4	74	61.2	39	49.3	46	44	42	40.4
62	02:06	44.8	74.4	62.2	40.5	49.9	46.3	44.2	42.5	41.4
63	02:21	44.3	73.9	56.5	37.9	49.4	45.8	44.2	41.2	39
64	02:36	43.7	73.3	58	38.6	48.8	45.7	42.9	41.3	40
65	02:51	42.9	72.5	49.9	37.6	45.7	44.5	43.1	39.8	38.6
66	03:06	42.9	72.5	55.4	36.7	49	44.5	42.9	38.9	37.7
67	03:21	42.4	72	52	36.4	46.4	43.9	42.3	39.9	37
68	03:36	43.6	73.2	72.2	37.3	45.3	43.9	43.1	39.4	38.1
69	03:51	42	71.6	53.3	38.1	45.3	43.5	41.8	40.8	38.9
70	04:06	42.2	71.8	49.1	36.5	47	43.9	42.7	38	37.1
71	04:21	41.7	71.3	50.8	37.2	44.3	43.5	41.7	38.5	38
72	04:36	42	71.6	53.7	36.8	46.6	43.9	41.7	38.6	37.8
73	04:51	42.5	72.1	57.3	37	47.6	44	42.6	38.6	37.8
74	05:06	45	74.6	66.4	37.8	55.2	44.5	42	40.9	38.5
75	05:21	45	74.6	69.6	37.7	48.4	44.6	43	39.5	38.6
76	05:36	44.9	74.5	64	38.7	55	44.5	42.6	41.3	39.8
77	05:51	42.6	72.2	50.9	37.4	46.3	44.9	42.2	39.1	38.3
78	06:06	43.1	72.7	53.5	38.3	46.5	44.7	42.9	40.6	39.6
79	06:21	44.1	73.7	62.6	39.5	48.6	46	43.7	41.2	40.4
80	06:36	45.4	75	62.4	39.2	54	46.8	44.1	42.3	40
81	06:51	45	74.6	62	39.8	52.2	46.3	44	42.4	40.9
82	07:06	45.5	75.1	55.4	39.7	52.1	47.6	44.7	41.8	40.4
83	07:21	46.8	76.4	60.4	40.6	53	49	46	43.5	41.7
84	07:36	45.6	75.2	56.2	41.6	50.7	47.1	45.1	43.5	42.4
85	07:51	47.1	76.7	62.8	40.4	58.9	47.2	44.5	42.2	41.2
86	08:06	52.3	81.9	72.5	42.8	64.2	53.9	47.2	45.8	44.8
87	08:21	56.6	86.2	73.4	44.5	68.7	59.3	48.3	46.3	45.5
88	08:36	62.1	91.7	76.5	46.9	71.4	65	60.3	51.6	48.9
89	08:51	61.5	91.1	77.1	45.7	72.7	63.8	59	49	47.2
90	09:06	61.5	91.1	71.9	45.5	67.7	65.7	59.4	47.7	46.4
91	09:21	64.8	94.4	80	47.3	76.6	67.2	58.7	49.7	48.4
92	09:36	60.7	90.3	77.7	46.4	72.9	63.8	54.1	48.4	47.3
93	09:51	58.4	88	75.3	45.7	67.8	63	50.3	47.4	46.5
94	10:06	50	79.6	63.6	45.4	58.2	52	48.2	47	46.4
95	10:21	61.4	91	81.8	45.8	75	60.7	50.4	47.8	46.6
96	10:36	59.4	89	77.4	46.4	72.6	61.3	49.7	48	47.3

RAW NOISE DATA - 16 Cleveland Street, London - Front Lightwell

Ref: QF9884/PF6563/RP1
Client: Westhill Projects Ltd
Date: 15th to 16th August 2019

Address	Start Time	LAeq	LE	Lmax	Lmin	LA1	LA10	LA50	LA90	LA99
1	11:22	65.5	95.1	88.3	52.4	73.2	68.7	63.1	58.1	56.5
2	11:37	62.9	92.5	84.5	51.5	71.5	65.7	60.4	55.2	54.4
3	11:52	63.1	92.7	77.8	52	72.6	66.5	59.8	55.7	54.9
4	12:07	63.3	92.9	76.8	51.5	72.9	66.7	59.9	56	55.2
5	12:22	62.9	92.5	75.3	53.1	71.4	65.9	60.8	57.6	57
6	12:37	62.7	92.3	87.4	52	70.9	65.7	60.1	55.7	54.9
7	12:52	64.1	93.7	80.6	53.8	74.6	66	61.3	57.1	56.3
8	13:07	65.2	94.8	80.3	53.5	75.7	67.6	62.3	57.2	56.3
9	13:22	64.9	94.5	81.2	52.6	73.4	68	62.7	58	56.4
10	13:37	66	95.6	80.9	54.6	74.3	69.3	63.4	59.7	58.6
11	13:52	64.2	93.8	83.5	51.2	73.4	66.6	62.2	56.9	55.6
12	14:07	64.2	93.8	81.1	50.8	73	66.9	61.7	56.9	55.8
13	14:22	65.7	95.3	78.7	51.1	75.5	69.7	62.5	55.7	54.8
14	14:37	63	92.6	79.4	51.1	73	66.6	59.1	54.1	53.5
15	14:52	61.3	90.9	81.3	49.7	70.8	64.9	56.6	53.1	52.5
16	15:07	63.6	93.2	84.5	49.6	72.4	68.2	58.2	53.6	52.8
17	15:22	63	92.6	80.9	50.3	71.3	65.5	61	56	54.3
18	15:37	64.1	93.7	86.6	51.7	73.3	66.8	61	56.9	56.2
19	15:52	63.1	92.7	81.6	50.8	70.5	66	61.3	55.2	53.9
20	16:07	68.5	98.1	84.1	51	78	72.5	64.2	58.1	56.7
21	16:22	62.9	92.5	82.8	49.4	72.3	65.4	58.4	52.7	51.8
22	16:37	66.8	96.4	93.6	49.2	74.9	65.8	57.6	53	52.3
23	16:52	64.6	94.2	83.9	49.2	74.8	67.1	61	54.9	53.3
24	17:07	62.5	92.1	74.6	51.4	69.6	65.5	61.2	55.9	54.6
25	17:22	65.8	95.4	94.6	50.3	75.7	65.9	58.6	53	52.3
26	17:37	73.6	103.2	98.9	51.3	78.4	66.8	59.6	55.5	54.7
27	17:52	63.5	93.1	84.1	49.7	74.4	65.6	58	54.1	53.4
28	18:07	67.6	97.2	88.9	51.1	80.3	66.8	58.1	54	53.3
29	18:22	61.6	91.2	80.8	51.1	69.7	64.9	58.6	54.6	53.9
30	18:37	60.5	90.1	77.7	52	69.5	63.7	57.4	54.2	53.7
31	18:52	61.1	90.7	75.7	52	70.5	64.7	57.7	54.4	53.7
32	19:07	66.4	96	85.5	52.1	80.7	66.3	59.6	56	55.2
33	19:22	62.6	92.2	79.1	51.1	73	65.8	58.5	54.9	54.3
34	19:37	62.8	92.4	85.4	51.5	72.2	65.9	58.3	54.5	53.8
35	19:52	63	92.6	77.9	52.1	73.2	66.6	58.5	54.7	54.1
36	20:07	60.7	90.3	76.1	51.3	68.8	64.6	56.9	54	53.6
37	20:22	61.4	91	80.2	51	70.7	64.9	56.9	53.4	52.9
38	20:37	63.4	93	84	49.8	74.8	64.9	56.2	53	52.3
39	20:52	60.1	89.7	72.7	49.2	68.4	64.5	56.3	53.2	52.5
40	21:07	60.2	89.8	73.5	50.9	68	64.2	56.7	53.6	53
41	21:22	64.1	93.7	89.6	50.4	76.7	64.5	56.8	53.7	53.2
42	21:37	60.4	90	73.5	50.1	69.9	64.2	56.9	53.1	52.4
43	21:52	60.4	90	80.3	49.5	69.8	64.1	56	52.3	51.7
44	22:07	61.8	91.4	78.6	48.7	70.3	65.9	58.3	51.9	51.3
45	22:22	61.9	91.5	74	49.8	70.5	65.7	58.4	53	52.3
46	22:37	62.2	91.8	76.6	48	71	66.7	56.3	51.7	51
47	22:52	60.7	90.3	76.8	47.7	70.8	65.2	54.9	50.7	50.1
48	23:07	65.7	95.3	90.4	46.6	77.4	66.2	54.6	49.9	48.9
49	23:22	59.6	89.2	74.4	45.3	70.3	64.1	52.2	48.8	48.1
50	23:37	59.5	89.1	73.7	45.7	69.7	64.4	52.8	49.1	48.2
51	23:52	59.7	89.3	79.1	44.1	69.5	63.3	53.9	47.7	46.5
52	00:07	58.7	88.3	73.5	42.7	68.1	63.7	51.6	46.1	45.1
53	00:22	59.6	89.2	78.1	43.1	70.5	64.3	51	45.1	44.6
54	00:37	58.4	88	81.9	42.1	67.3	63.3	51.5	46.6	45.8
55	00:52	56.4	86	70.2	42.4	67.7	60.6	48.9	45	44.4

56	01:07	59.9	89.5	77.8	42.4	70.7	64.9	50.4	45.3	44.4
57	01:22	58.6	88.2	76.7	41.4	69.5	63	49.6	43.6	43
58	01:37	56.3	85.9	77.3	41.8	66.4	60.3	47.3	43.7	43.3
59	01:52	54.1	83.7	74.3	41.8	66.1	54.8	47.2	44.2	43.8
60	02:07	55.8	85.4	71.3	41.4	67.3	59.6	47.5	43.3	42.7
61	02:22	51.3	80.9	71.4	40.4	64.1	51.2	44.5	42.1	41.7
62	02:37	51.4	81	67.8	40.5	64.1	53.1	44.3	41.7	41.5
63	02:52	54.5	84.1	71.8	40.6	67	56.7	45.6	42.2	41.8
64	03:07	55.3	84.9	73.3	41	67.6	57	46.1	42.8	42.3
65	03:22	57.4	87	78.4	41.3	69	59.8	47	43.1	42.6
66	03:37	55.5	85.1	72.3	40	68.6	58.5	46.5	41.5	41.2
67	03:52	48.9	78.5	64.7	40	60.7	51.4	44.3	41.6	41.3
68	04:07	52.3	81.9	70.1	40.8	64.2	54	46.2	42.3	42
69	04:22	52.6	82.2	75	40.4	64.8	51.9	44.2	42.1	41.7
70	04:37	53.3	82.9	69.3	40.2	66.1	55.5	45.5	42.1	41.7
71	04:52	51.7	81.3	69.5	40.7	64	53.3	43.9	41.9	41.6
72	05:07	55	84.6	68.8	40.8	64.3	58.6	48.9	42.8	42.1
73	05:22	54.2	83.8	71.6	41.1	66.3	56.1	45.9	42.4	42.1
74	05:37	52.5	82.1	71.6	41.1	65.4	53.7	45.4	42.9	42.6
75	05:52	56	85.6	72.2	42.1	69.2	57.9	46.8	43.5	43.2
76	06:07	54.6	84.2	74.2	41.9	66.6	56.7	46.7	43.7	43.2
77	06:22	57.5	87.1	77.9	42.3	68.9	60.4	50.7	45.1	44.5
78	06:37	58.5	88.1	76.9	43.6	71.2	61	50.7	46.4	45.8
79	06:52	58.7	88.3	75.2	43.3	69	62.9	52.2	47.5	46.9
80	07:07	63.6	93.2	83.9	45.1	75.1	65.2	55.8	49.3	48
81	07:22	62.8	92.4	82.9	44.6	76.2	64.2	54.9	49.3	47.9
82	07:37	65.6	95.2	80.9	47.1	76	69.7	60.4	53.3	51.4
83	07:52	60.2	89.8	79.8	46.5	71.8	62	55.9	50.7	49.5
84	08:07	60.9	90.5	76.4	49	69.8	64.9	57.2	53.2	52.2
85	08:22	63.3	92.9	80.8	50	72.7	67.5	58.3	54.4	53.3
86	08:37	64.5	94.1	79.4	51.5	73.3	68.1	61.5	56.1	54.6
87	08:52	67.5	97.1	82.4	53.2	75.3	72.2	63.4	58.2	56.9
88	09:07	67.7	97.3	89	50.2	77.4	72.7	62.4	55.7	53.9
89	09:22	69.2	98.8	91.9	50.9	78.4	73.2	63.2	57.4	55.9
90	09:37	66.4	96	82	50.4	77.1	68.8	62.2	56.1	54.5
91	09:52	63.5	93.1	85.8	49.6	74.2	66.4	59.5	54.3	53.3
92	10:07	63.8	93.4	83.5	50.3	73.9	67.9	58.2	53.6	52.6
93	10:22	65.3	94.9	83.1	49.6	76.6	68.5	58.5	53.3	52.5
94	10:37	65.2	94.8	83.5	50.4	75.6	68.6	59.3	54.2	53.1
95	10:52	61.7	91.3	77.7	50.9	71.3	64.9	58.7	54	53.1
96	11:07	64.6	94.2	92.5	50.7	72.3	67.3	61.5	55.7	54.6

APPENDIX 'B'

Photos and Sketch

PHOTO A: Front view of No. 16 with microphone location

PHOTO B: Front of building with Cleveland Residences block of flats to right hand side

PHOTO C: Front of building with retail unit and residential flats above (No. 18 Cleveland Street)

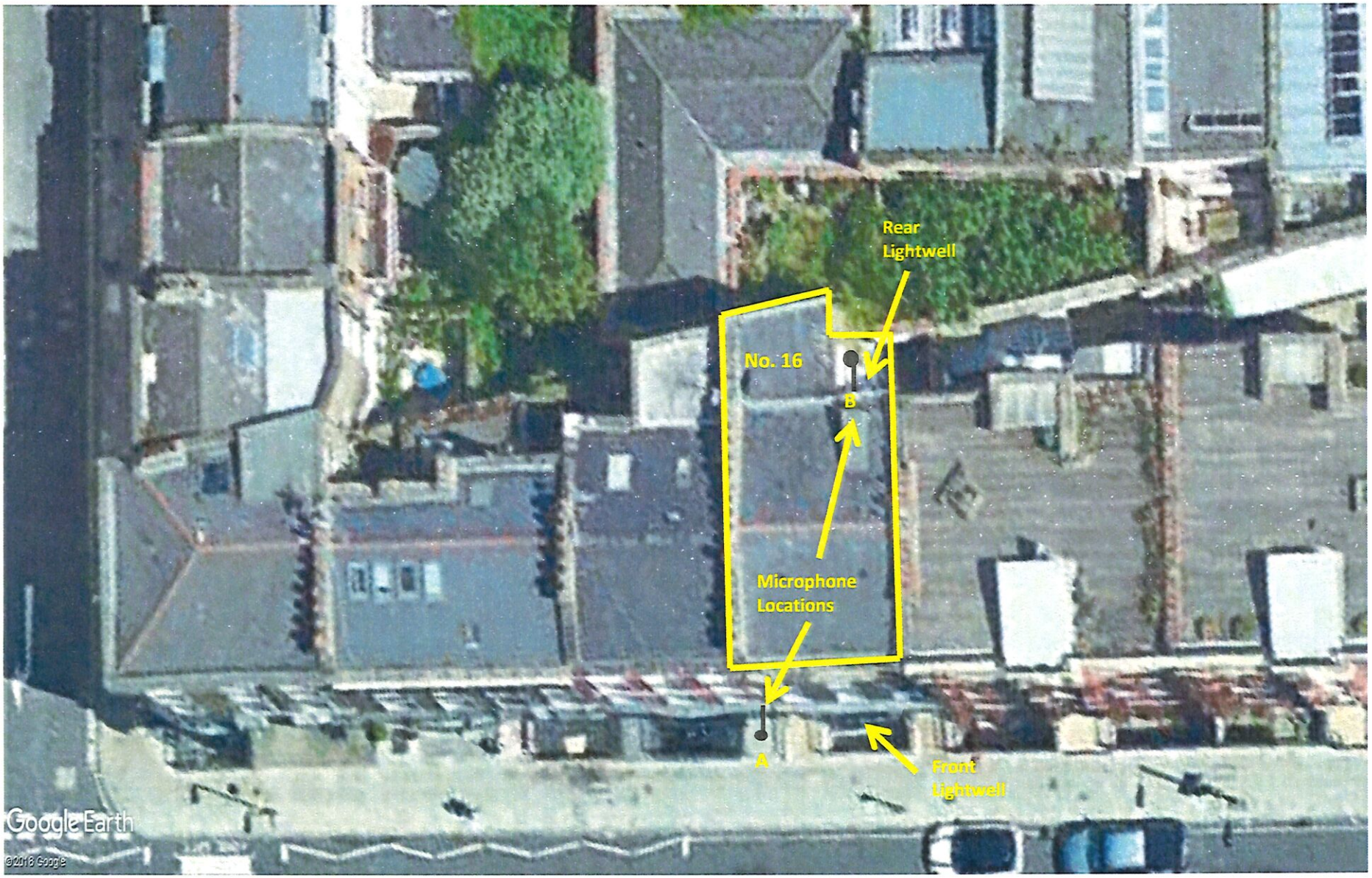


PHOTO D: Aerial view of 16 Cleveland Street with location of lightwell and microphones

PHOTO D: Location of microphone over rear lightwell

Proposed location of condenser under protrusion

Acoustic wall cladding to be fixed to walls and underside of protrusion

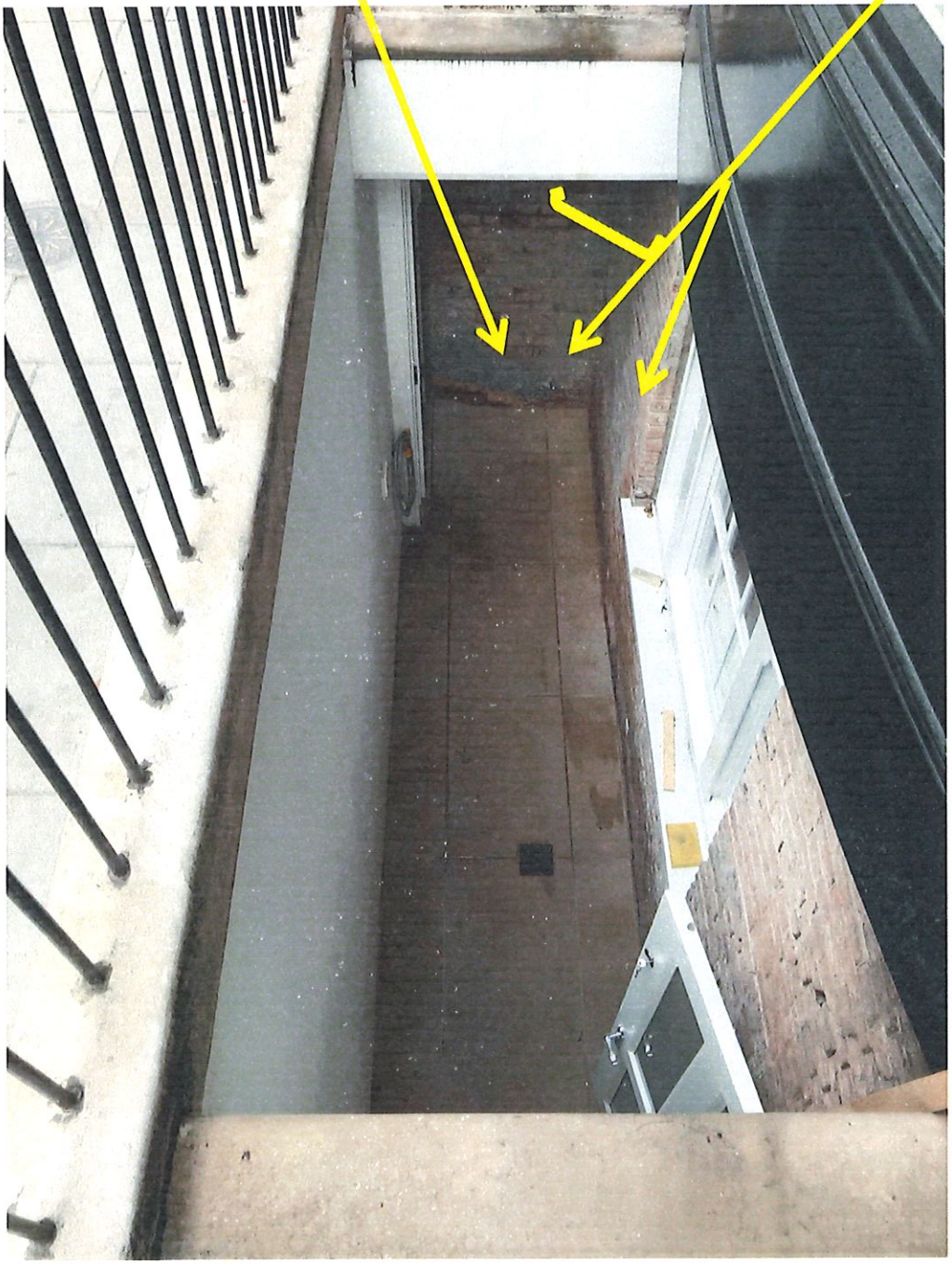


PHOTO F: Front lightwell from street level

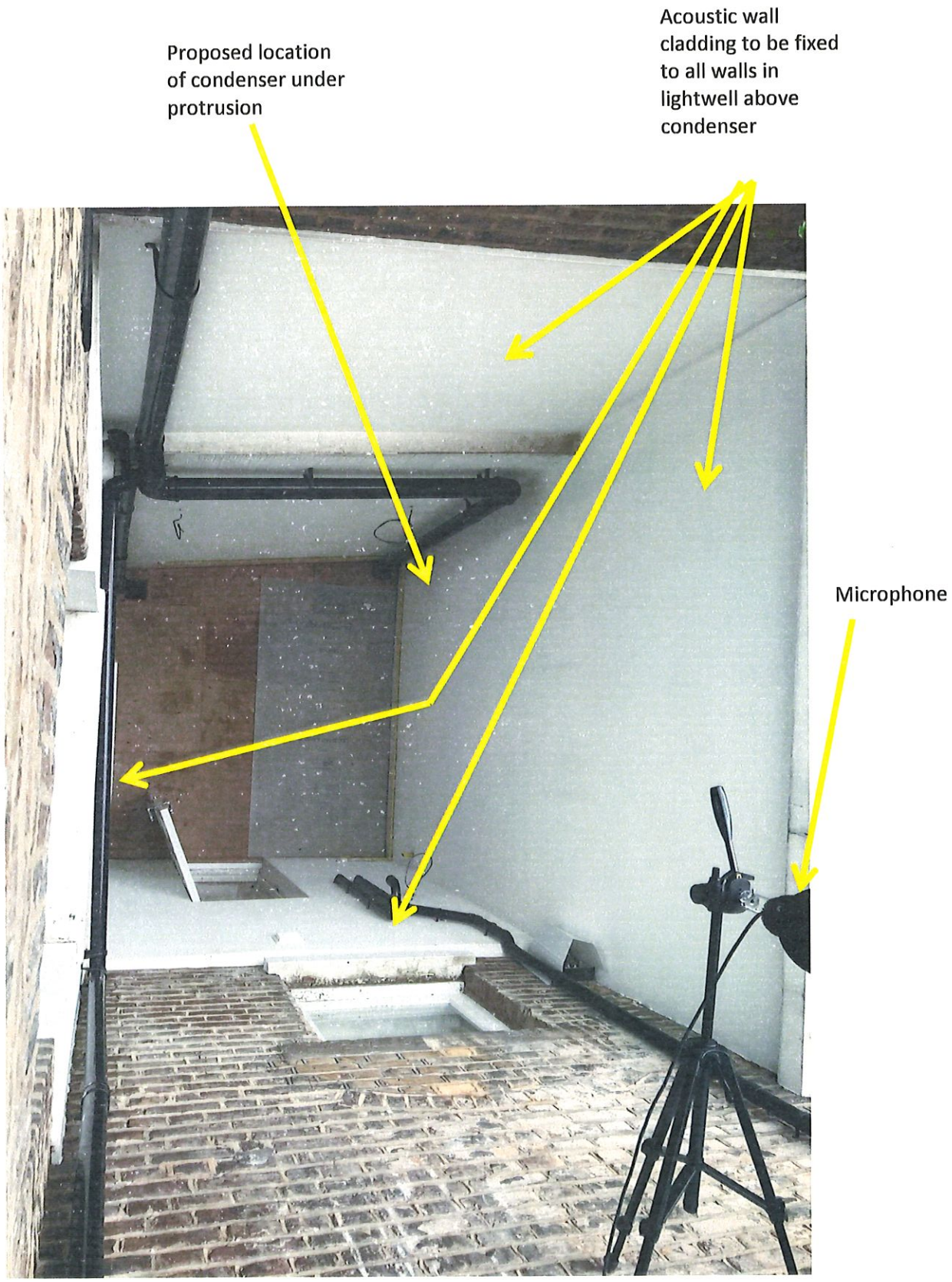
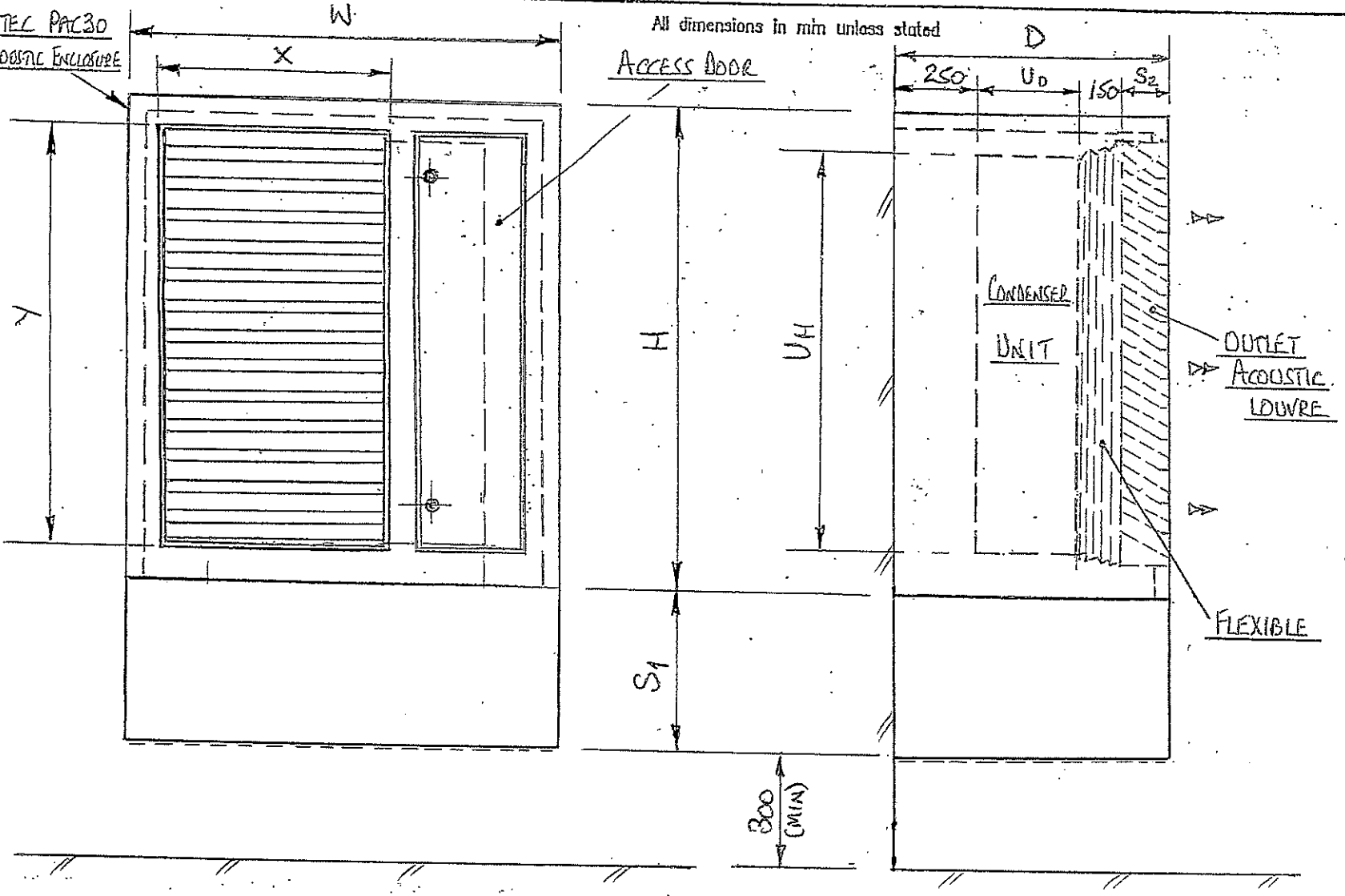


PHOTO G: Rear lightwell from first floor window



REF.	E1
UNIT	FUJITSU AJYO54LCIAH
U_W	940
U_D	320
U_H	998
W	1350
D	1020
H	1350
INLET SILENCER	RAAE/25/300S.
OUTLET ACOUSTIC LOUVRE	LAAC 30-10S.
S1	300
S2	300
X	800
Y	1200
No. OFF	1
COLOUR	TBC

TITLE: AIR COOLED CONDENSER ACOUSTIC ENCLOSURE

CLIENT: WEST HILL PROJECTS

PROJECT: 16 CLEVELAND STREET

ISSUE DATE: 29/8/2019

PF No.

STATUS: Q | A | M | I

DRAWN BY: MGR

APPROVED BY:

DESIGN AUTH: MGR.

A | B | C | D | E | F | G | H

REVISION:

SK No. QF/9884/GA1

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