Cole Jarman

72/80 Leather Lane, London

Noise Assessment Report

Report 16/0440/R1

72/80 Leather Lane, London

Noise Assessment Report

Report 16/0440/R1

Hatton Garden Properties Ltd.

9 White Lion Street
London
N1 9PD

Revision	Description	Date	Prepared	Approved
0	1st Issue	28th October 2016	Ben Harper	Philip Hankin
1	1st revision	31st October 2016	Ben Harper	Philip Hankin

Cole Jarman Limited Reg. in England and Wales No. 7102436
Head Office +44 (0)1932 829007
John Cree House, 24B High Street, Addlestone, Surrey, KT15 1TN

info@colejarman.com www.colejarman.com
Manchester Office +44 (0)161 2093644
Peter House, 1 Oxford Street, Manchester, M1 5AN

Table of Contents

Attachments

Glossary of Acoustic Terms

16/0440/F1
Site plan showing the measurement positions and surrounding area

16/0440/F2-5
Plan showing glazing locations on proposed residential facades

16/0440/TH01
Time history illustrating the noise levels measured by the unattended meter at MP1

16/0440/SCH01
Schedule detailing the results measured during the attended noise survey at MP2

End of Section

1 Introduction

1.1 It is proposed that there be an extension built at 72-80 Leather Lane, Camden, EC1N 7TR to extend the building adding further residential. New plant equipment may also be installed to service these units, but does not form part of this application.

1.2 The building is currently used as mixed use with the basement and ground floor in retail use facing on to Leather Lane with jewellery use on ground, basement and third floors to the rear. Further to this there is an office on the third floor and the remaining floors are existing residential.

1.3 A noise assessment is required as part of the planning submission. This is to address the impact of the proposed plant on the surrounding noise sensitive receptors. The existing noise climate will be assessed to calculate the noise limit that is to be met at the proposed residential receptors.

1.4 This report details the noise survey conducted on site, and quantifies the existing noise climate. Plant noise limits have been set and levels of external noise intrusion have been assessed to demonstrate that suitable internal noise levels can be achieved inside the residences.

2 Site Description

2.1 The site is currently a six storey building at 72/80 Leather Lane, Camden EC1N 7TR. Directly to the north of the unit is public house, the east is a residential courtyard behind the unit. To the south and west there is mixed use retail and residential overlooking Leather Lane.

2.2 The surrounding area is made up of mixed use buildings, retail on the ground floor and residential on the upper floors. There is a market open on Leather Lane between the hours of 1000-1500 Monday to Friday (setting up starts well before 1000).

2.3 Further afield to the north is a busy main road, Clerkenwell Road, to the east is Hatton Garden, south is the A40 and to the west a larger residential complex on Portpool Lane that is currently having major works undertaken.

3 Noise Survey

3.1 Methodology and Instrumentation

3.1.1 Noise monitoring was undertaken on site between 10th and 12th October 2016. In addition to this, attended measurements were undertaken at a second location on 12th October 2016 in order to establish the noise incidence at the façade facing on to Leather Lane. These positions can be seen on the attached site plan 16/0440/F1 and described below:

- MP1 – Unattended free field measurement located at 6th floor level on the fire escape to the south of the site.
- MP2 – Attended free field measurement located approximately 1m from the façade of the building on Leather Lane and 1.5m above local ground level.

3.1.2 Measurements were made in the L_{Amax}, L_{Aeq} and L_{A90} indices (see the Glossary of Acoustic Terms for an explanation of the noise units used).

3.1.3 Noise measurements were performed using the equipment detailed in table T1 below.

Item	Manufacturer	Type
Sound Level Analyser	Norsonic	118
Acoustic Calibrator	Norsonic	1251
Weatherproof windshield	Norsonic	1212
Sound Level Analyser	Rion	NL-52
Acoustic Calibrator	Rion	NC-74
Weatherproof windshield	Rion	WS-15

T1 Equipment used during noise survey.

3.1.4 The microphones were fitted with windshields and the sound level meters were calibrated before and after the survey to ensure a consistent and acceptable level of accuracy was maintained throughout.

3.1.5 Weather conditions when setting up the unattended noise monitor were dry and overcast with a light breeze. Towards the end of the survey the weather was wet and cold with a light wind according to representative, publicly available data. Upon collection the weather was dry and overcast with a light breeze. This continued through the attended survey.

3.2 Results

3.2.1 The noise levels measured during the unattended and attended noise surveys are presented in attached time history graph 16/0440/TH01 and schedule 16/0440/SCH01.

3.2.2 The noise climate to the rear of the building appeared to be dominated by general traffic noise, plant and also influenced by construction noise on Portpool Lane.

3.2.3 During the attended survey the market was running. Directly in front of the building there were food stalls, one of which was playing music, and various other market stalls. Construction works were also audible during quieter periods.

3.2.4 The lowest background noise levels during the day, evening and night time periods, along with the $L_{Aeq,T}$ measured during the survey are shown in the table below:

Time Period	MP1 (Unattended)		MP2 (Attended)	
	$L_{Aeq,\ T}$	Representative L_{A90}	$L_{Aeq,\ T}$	Representative L_{A90}
Daytime $L_{Aeq,12\ hrs}$	55	49	65	49
Evening $L_{Aeq,4hrs}$	49	43	65	49
Night time $L_{Aeq,8\ hrs}$	47	40	59	40

T2 Measured noise levels

3.2.5 In table T2 above the attended measurements at MP2 are taken as a worst case over the attended survey time period. Unattended was not possible to the front of the unit, therefore we have assumed the worst case figures above from the last hour of the night period (0600-0700) and the measured data during the day time period (0700-1300).

3.2.6 It is noted that there was no survey taken over the evening period, we have therefore assumed the worst case from the daytime measurement period.

4 Assessment Criteria

4.1 Local Authority Requirements

4.1.1 This site is located within the London Borough of Camden. The *Draft Camden Local Plan 2015* sets out the planning criteria for noise and vibration used to determine permissions for planning applications in the borough. This is also reflected in the Council's core strategy.

Plant Noise

4.1.2 Section 6.105 of the *Draft Camden Local Plan 2015* states the following in regards to plant noise:

Where uses sensitive to noise and vibration are proposed close to an existing source of noise or when development that is likely to generate noise is proposed, the Council will require an acoustic report to accompany the application. In assessing applications, we will have regard to Noise and Vibration Thresholds, set out in Appendix 2, and other relevant National and Regional policy and guidance including the Noise Policy Statement for England (2010) and relevant British Standards.

4.1.3 In appendix 2, table D of the *Draft Camden Local Plan 2015* guidance on acceptable maximum noise levels from plant and machinery is given. This information has been summarised in the table below:

Noise Description	Noise Level
Noise at 1 metre external to a sensitive façade	$L_{A90,\ 15min}$ - 10dB
Noise that has a distinguishable discrete continuous note (whine, hiss, screech, hum) at 1 metre external to a sensitive façade.	$L_{A90,\ 15min}$ - 15dB
Noise that has distinct impulses (bangs, clicks, clatters, thumps) at 1 metre external to a sensitive façade.	$L_{A90,\ 15min}$ - 15dB
Noise at 1 metre external to sensitive façade where L_{A90}>60dB	55dB L_{Aeq}

T3 Summary of Appendix 2, Table D: Noise levels from plant and machinery at which planning permission will not be granted

4.1.4 It is noted that the criteria in the table above applies to daytime, evening and night time periods (for a 24hour period). Where the background noise level (L_{A90}) is used, this refers to the minimum background noise level during a relevant assessment time period.

4.1.5 Appendix 2 also states that noise limits are to be conducted not only at the façade but at the boundary of noise sensitive areas such as gardens, balconies and open spaces:

Planning permission will not normally be granted in instances where there will be a significant adverse impact on external amenity areas including gardens, balconies and open spaces unless they can be appropriately mitigated. Appendix 2 also states that noise limits are to be conducted not only at the façade but at the boundary of noise sensitive areas such as gardens, balconies and open spaces.

Internal Noise

4.1.6 Section 6.110 of *Draft Camden Local Plan 2015* states:

The Council will seek to ensure that internal noise levels of all new development are suitable and sufficient and reflect the most up to date and appropriate guidance. This will be of particular relevance to new residential developments in areas of existing noise but will also include other noise sensitive uses. Conditions may be imposed to require that suitable internal noise levels are achieved and where appropriate, post installation testing to demonstrate that the standards have been met.

4.1.7 In appendix 2, table A and table B of the *Draft Camden Local Plan 2015* guidance on residential noise levels adjoining Railways and Roads are given. This information has been summarised in the table below:

Noise Description	Period	Sites adjoining railways	Sites adjoining roads
Noise at 1 metre external to a sensitive façade	Day (0700-1900)	*74 dB* $L_{Aeq,12h}$	*72 dB* $L_{Aeq,12h}$
Noise at 1 metre external to a sensitive façade	Evening (1900-2300)	*74 dB* $L_{Aeq,4h}$	*72 dB* $L_{Aeq,4h}$
Noise at 1 metre external to a sensitive façade	Night (2300-0700)	*66 dB* $L_{Aeq,8h}$	*66 dB* $L_{Aeq,8h}$

T4 Summary of Appendix 2, Table A: Noise levels on residential sites adjoining railways and roads at which planning permission will not normally be granted

Noise Description	Period	Sites adjoining railways	Sites adjoining roads
Noise at 1 metre external to a sensitive façade	Day (0700-1900)	*65 dB* $L_{Aeq,12h}$	*62 dB* $L_{Aeq,12h}$
Noise at 1 metre external to a sensitive façade	Evening (1900-2300)	*60 dB* $L_{Aeq,4h}$	*57 dB* $L_{Aeq,4h}$
Noise at 1 metre external to a sensitive façade	Night (2300-0700)	*55 dB* $L_{Aeq,8h}$	*52 dB* $L_{Aeq,8h}$
Individual noise events several times an hour	Night (2300-0700)	*>82 dB* L_{Amax} (S time weighting)	*>82 dB* L_{Amax} (S time weighting)

T5 Summary of Appendix 2, Table B: Noise levels on residential sites adjoining railways and roads at which attenuation measures will normally be required

4.1.8 It is noted that the criteria in the table above applies to daytime, evening and night time periods (for a 24hour period). Where the noise level (L_{Aeq}) is used. Further to the above, the following is also stated:

Assessments must also include consideration to vibration levels adjoining sources of vibration such as roads, railways, leisure and entertainment premises and/or plant and machinery.

4.2 Relevant standards

Plant Noise

4.2.1 BS 4142:2014 looks to determine a representative background noise level, stating the following:

In using the background sound level in the method for rating and assessing industrial and commercial sound it is important to ensure that values are reliable and suitably represent both the particular circumstances and periods of interest. For this purpose, the objective is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during particular time periods.

4.2.2 The above comments that the background noise level, L_{A90}, should not simply be a minimum noise level, but instead a representative level over the given time period.

4.2.3 BS4142 further states any audible tonality, intermittency or impulsive nature of any proposed plant will incur penalties applied in accordance with BS4142:2014.

Internal Noise

4.2.4 BS8233 provides the following guidance on suitable internal noise levels for new dwellings can be found in BS8233:2014[1] which provides guideline levels as reproduced in table T6.

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB $L_{Aeq,16hour}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

T6 Table 4 of BS 8233:2014

4.2.5 The previous edition of BS8233 (1999) included quantitative guidance with respect to night-time L_{Amax} noise levels in bedrooms. BS8233:2014 does not provide such guidance, however in paragraph 7.7.5.1.1 it is noted that the recommendations for ambient noise in hotel bedrooms are similar to those for living accommodation and Table H.3 in Annex H.3 gives example night-time L_{Amax} limits in hotel bedrooms of 45-55dB.

5 Plant Noise Limits

5.1 Requirements with regard to noise from mechanical services plant, set by the London Borough of Camden, are set out in table T3 above.

5.2 Based on the results of the noise survey and the London Borough of Camden policy, plant noise limits for the site have been devised as shown in table T7 below overleaf.

[1] British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings

Receiver Position	Plant Noise Emission Limit, dB		
	Day (0700-1900)	Evening (1900-2300)	Night (2300-0700)
Nearest residential receiver	39	33	30

T7 Plant noise emission limits at the nearest residential receiver

5.3 The plant noise limits apply to the combined effect of all plant items running during any particular time period at 1m from the nearest residential window.

5.4 The limits will need to be subdivided between the different commercial tenants (and any plant serving the residential elements as necessary), once the detail plant design for each tenancy group is completed. The sub-division should ensure that when all plant is run in combination, the limits in table T7 are not exceeded.

5.5 Plant that has a distinctive tonal or intermittent nature shall be subject to a further penalty correction in line with BS4142:2014.

5.6 Within the scheme itself, plant noise should be limited to a level no greater than 43dB(A) at 1m from any window of any residential flats within the development itself, with no audible tonality, so as to ensure that the required internal noise levels can still be achieved, even with windows partially open for ventilation. All plant should incorporate a suitable scheme of vibration isolation treatment, so as to control the generation of structureborne noise and vibration to all occupants.

6 Sound Insulation

6.1.1 The site at 72/80 Leather Lane, Camden has been assessed in accordance with the criteria set out in section 4 above which states the criteria to be met in accordance with BS8233:2014.

6.1.2 Two of the new residential facades will be facing Leather Lane, the remaining residences will be facing the courtyard to the rear. Noise levels have been calculated at the positions of the façades based on the results of the noise survey.

6.1.3 Based on the noise levels measured during the survey as set out above, daytime, evening and night time noise indices are typically 65 dB $L_{Aeq,12h}$,, 65 dB $L_{Aeq,14h}$, and up to 59 dB $L_{Aeq,8h}$ respectively.

External Façade

6.1.4 We have assumed external walls formed of cavity masonry construction, lightweight facade types would require separate consideration. We have assumed a roof formed of either a concrete slab, or a metal deck with insulation/waterproofing layers and a double layer plasterboard sound insulating ceiling on MF grid to the underside, with absorptive quilt in the void so as to provide a high level of insulation against external noise intrusion and rainfall noise.

6.1.5 The calculations are based on the typical room sizes shown in the proposed plans.

Glazing

6.1.6 Glazing performance requirements are set out below in table T8. These requirements are the minimum necessary to achieve the internal criteria set out above.

Glazing Type	Sound Reduction Index, Octave Band Centre Frequency (Hz)					
	125	250	500	1k	2k	4k
Glazing Type G1	26	27	34	40	39	46
Glazing Type G2	22	21	28	39	39	42

T8 Required sound reduction performance of glazed elements

6.1.7 The sound reduction performance of the glazing types would typically be expected to be achieved using the following glazing configurations.

Performance Reference	Typical Configuration
Glazing Type G1	10mm glass – 12mm air gap – 6mm glass
Glazing Type G2	6mm glass – 12mm air gap – 4mm glass

T9 Proposed typical glazing configuration

6.1.8 The octave band sound reduction performance for Glazing Types G1 and G2, as quoted in table T8 above must be achieved by the glazing system taken as a whole and in its installed condition. The specification therefore applies to the glazing and all seals on any openable parts of the system and any required ventilation or condensation control mechanisms. This list is not exhaustive and no part of the windows shall cause the above figures not to be achieved.

6.1.9 The typical configuration is provided in table T9 above for guidance only. It is the sound reduction figures in table T8 that must be achieved by the complete window system in this case.

6.1.10 The attached figures 16/0440/F2-F5 indicate which sections of new residential facade require each of the two glazing types throughout the building.

Ventilation

6.1.11 The mixed nature of the noise climate and high noise levels at the end of the night when the market is setting up warrant further consideration. The nature of this noise is variable and it is not wholly from anonymous sources, the voice element to the sources gives it a character that is at variance from the otherwise traffic dominated noise climate.

6.1.12 In order to provide suitable levels of amenity, it is appropriate that flats in the proposed development exposed to this noise have some alternative means of ventilation provided, in order to remove the need to rely solely upon openable windows for ventilation. This will allow low internal noise levels to be maintained and protect the amenity of future residents. Ordinary trickle vents should not be installed in the windows or facade

6.1.13 A suitable system could comprise one of the following types:

- A whole house ventilation system with ducted supply and extract to the building exterior, sometimes with heat recovery incorporated to reduce energy usage.
- Passive acoustic vents let into the façade with constant running extract to the kitchen and bathroom to provide constant air change, sometimes a boost facility is incorporated to provide temporary higher ventilation rates.

6.1.14 The system finally selected should be designed such that the level of noise generated by the system itself is controlled such that when ventilation system noise is combined with intrusive external noise, the overall internal noise levels do not exceed the BS8233 criteria (ventilation system noise means any noise from the fan and any external noise entering the flat via the ventilation system). To this end the following guideline internal noise criteria should be utilised:

- Bedrooms NR20
- Living Rooms NR25
- Bathrooms/separate kitchens NR30-35
- Corridors NR30-35

6.1.15 The system selected should be designed to achieve the above noise criteria when under normal operating conditions (background ventilation). Under the worst case boost mode for higher ventilation rates (which is used for limited periods of time for purging), we would suggest that the above criteria could be relaxed by 5dB to take into account the commentary in note 7 of table T6.

6.1.16 The following points are also relevant to consider in the design of any ventilation system:

- Some ventilation systems use a single fan ducted to several rooms and switch to boost mode when kitchens or bathrooms are in use. To this end it is strongly recommended that there is no reliance on a single fan to serve all rooms in ducted systems, it is better to use separate fans for bedrooms/living rooms and bathrooms/kitchens, to avoid an increase in noise levels throughout the dwelling when one room is used, and to give greater controllability.
- Any ventilation systems utilising heat recovery must have this element switchable, so that the heat recovery can be switched off during summer months and warm weather periods.
- Windows to properties should not be sealed, but openable for times when additional purge ventilation is required (examples given in Approved Document F include purging of fumes from burnt food when cooking or removal of fumes when painting).
- Any ducts linking the ventilation system to outside may require a silencer in them, in order to control the transfer of any external noise to the interior of the building via the duct.

Balcony Noise Levels

6.1.17 Typical daytime external levels during the noise survey were found to be 65 dB $L_{Aeq,16h}$ across the façade of the site that is proposed to have balconies which will be facing on to Leather Lane. Noise levels closest to Leather Lane are calculated to be 65 dB $L_{Aeq,16h}$ in the worst case. This is above the 50-55 dB target for external amenity area noise levels and therefore external areas are not to be considered suitable for garden and external amenity use.

6.1.18 However, BS8233 states the following regarding high noise levels in external amenity areas:

In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.

6.1.19 In light of the above it is suggested that the inclusion of an outdoor space is more beneficial than not having one in this area.

Internal Sound Insulation

6.1.20 While the building has different uses, all of the new residential is located adjacent to or above existing residential units in the building. In terms of internal separation between the new units and the existing residential units, the requirements for airborne and impact sound insulation for party walls and floor are set out in Approved Document E of the Building Regulations.

6.1.21 The detail design of the internal structures will need to make sure that the party walls and floors meet these minimum sound insulation standards and are tested upon completion of construction to the satisfaction of the Building Control Authority for the project.

6.1.22 To this end there is no specific need to consider the sound insulation of internal building structures as there would be for a commercial adjacency to a new residential unit, as all of the new residential units lie adjacent to existing residential and not commercial spaces. Approved Document E specifically covers this requirement of design so does not need any planning consideration, as this would be a duplication of an existing legal requirement for the building design and certification before habitation was permitted.

7 Conclusions

7.1 It is proposed that there be an extension built at 72-80 Leather Lane, Camden, EC1N 7TR to extend the building by two floors, adding further residential to the building. New plant equipment will also be installed to service these units, but does not form part of this application.

7.2 The building is currently used as mixed use with the basement and ground floor in retail use facing on to Leather Lane with jewellery use on ground, basement and third floors to the rear. Further to this there is an office on the third floor and the remaining floors are existing residential.

7.3 The details of a noise survey conducted on site have been provided within this report.

7.4 Plant noise limits have been set in line with *Draft Camden Local Plan 2015* requirements.

7.5 An external noise break-in assessment has also been conducted into the proposed dwellings, taking into account internal noise level criteria set out in BS8233 as referenced by the local authority, and making recommendations for suitable external fabric and ventilation to provide suitable levels of amenity for future residents.

7.6 Aspirational external amenity area noise level targets have not been met but it is deemed acceptable to include the outdoor spaces in line guidance in with BS8233.

7.7 On this basis the proposed residential use of the building is considered acceptable subject to the requirements set out in the report being incorporated into the design.

End of Section

Glossary of Acoustic Terms

L_{Aeq}:

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

L_{Amax}:

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

L_{A10} & L_{A90}:

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

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

L_{AX}, L_{AE} or SEL

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

End of Section

Cole Jarman

Figure 16/0440/F1

Title:

Site plan illustrating the measurement positions

Measurement Positions

Project:

72/80 Leather Lane

Date:

October 2016

Revision:

-

Scale:

Not to scale

Cole Jarman Limited
t +44 (0)1932 829007 **f** +44 (0)1932 829003

John Cree House, 24B High Street, Addlestone, Surrey KT15 1TN
e info@colejarman.com **w** www.colejarman.com

Figure 16/0440/F2

GLAZING TYPE G1

GLAZING TYPE G2

Title: 3rd and upper 3rd floor plan indicating the location of different glazing types

Project: 72-80 Leather Lane, London

Date: October 2016

Scale: Not to scale

Cole Jarman Limited Reg. in England and Wales No. 7102436
Head Office +44 (0)1932 829007
John Cree House, 24B High Street, Addlestone, Surrey, KT15 1TN

info@colejarman.com www.colejarman.com
Manchester Office +44 (0)161 2093644
Peter House, 1 Oxford Street, Manchester, M1 5AN

Figure 16/0440/F3

GLAZING TYPE G1

GLAZING TYPE G2

Title: 5th and upper 5th floor plan indicating the location of different glazing types

Project: 72-80 Leather Lane, London

Date: October 2016

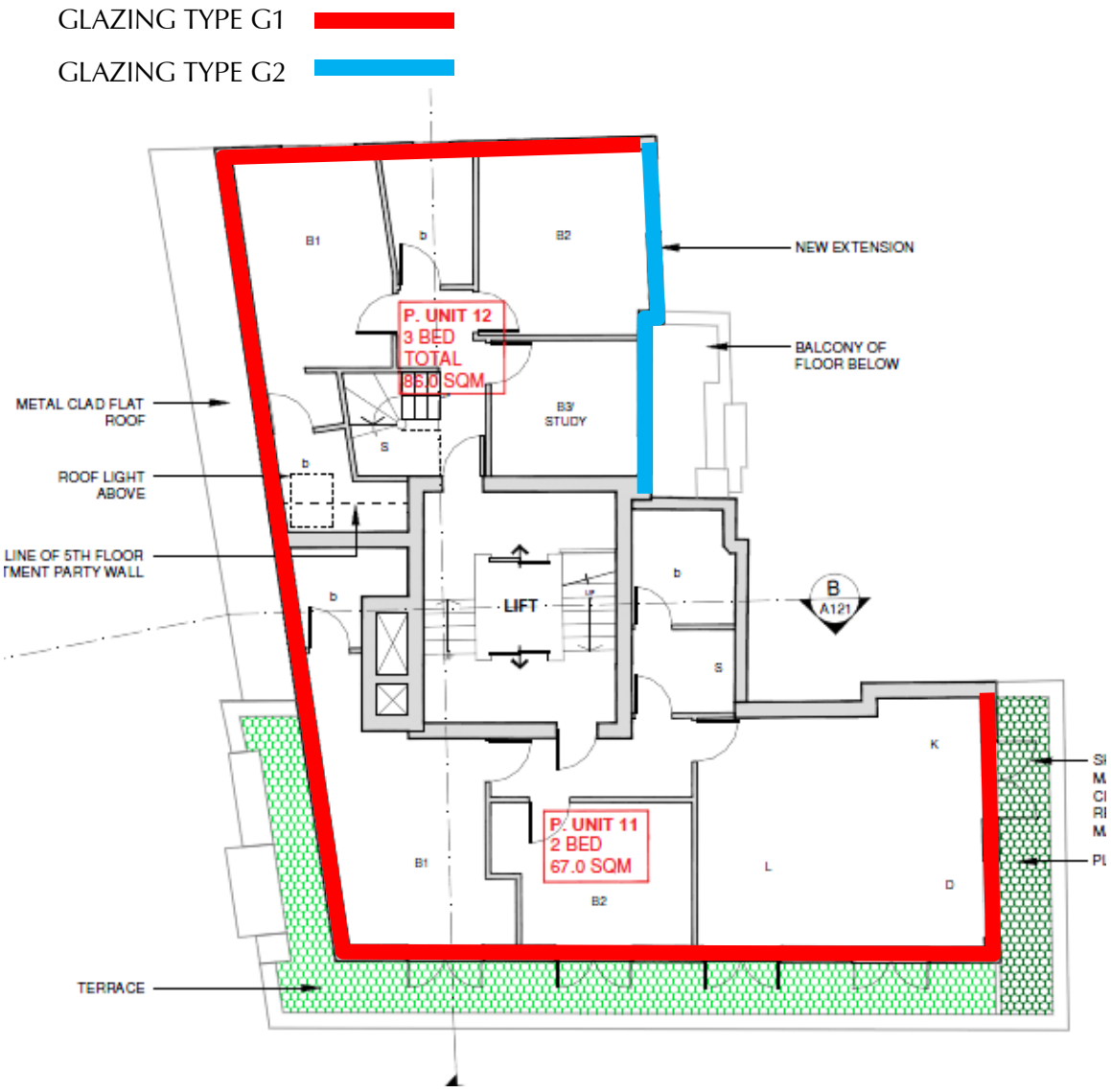
Scale: Not to scale

Cole Jarman Limited Reg. in England and Wales No. 7102436
Head Office +44 (0)1932 829007
John Cree House, 24B High Street, Addlestone, Surrey, KT15 1TN

info@colejarman.com www.colejarman.com
Manchester Office +44 (0)161 2093644
Peter House, 1 Oxford Street, Manchester, M1 5AN

Cole Jarman

Figure 16/0440/F4



Title: 6th and upper 6th floor plan indicating the location of different glazing types

Project: 72-80 Leather Lane, London

Date: October 2016

Scale: Not to scale

Cole Jarman Limited Reg. in England and Wales No. 7102436
Head Office +44 (0)1932 829007
John Cree House, 24B High Street, Addlestone, Surrey, KT15 1TN

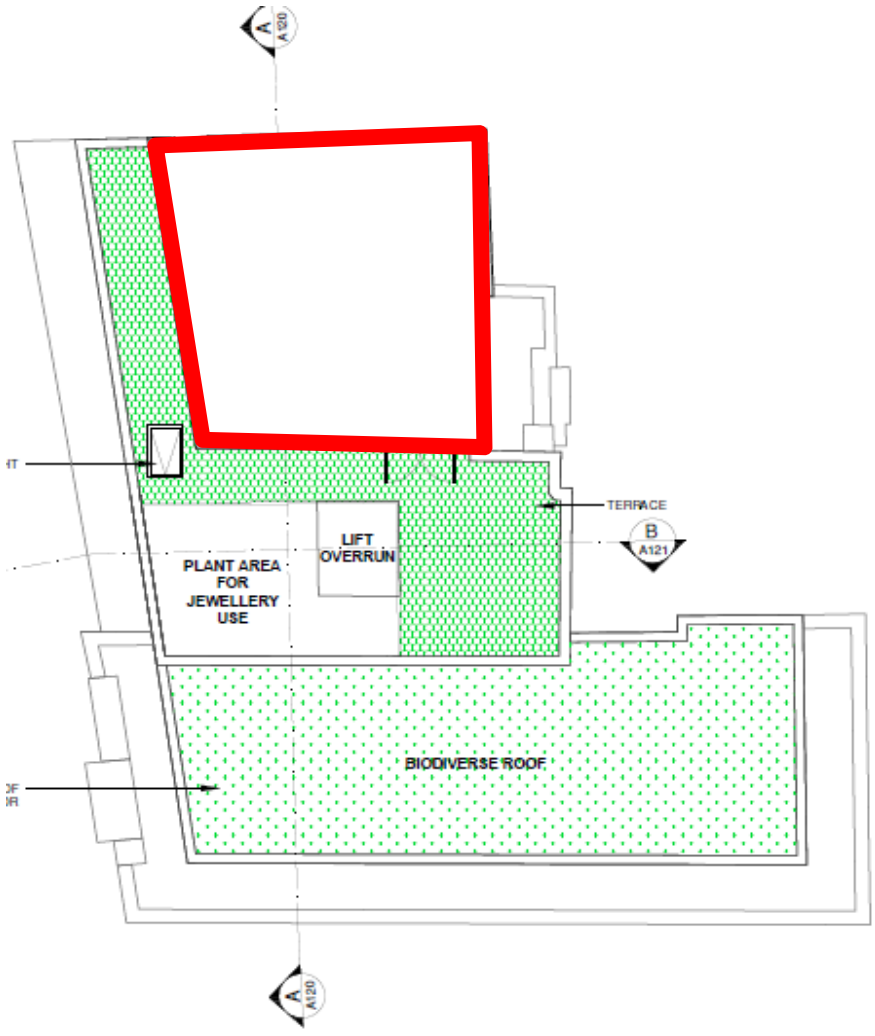
info@colejarman.com www.colejarman.com
Manchester Office +44 (0)161 2093644
Peter House, 1 Oxford Street, Manchester, M1 5AN

Cole Jarman

Figure 16/0440/F5

GLAZING TYPE G1

GLAZING TYPE G2



Title: 7th floor plan indicating the location of different glazing types

Project: 72-80 Leather Lane, London

Date: October 2016

Scale: Not to scale

Cole Jarman Limited Reg. in England and Wales No. 7102436
Head Office +44 (0)1932 829007
John Cree House, 24B High Street, Addlestone, Surrey, KT15 1TN

info@colejarman.com www.colejarman.com
Manchester Office +44 (0)161 2093644
Peter House, 1 Oxford Street, Manchester, M1 5AN

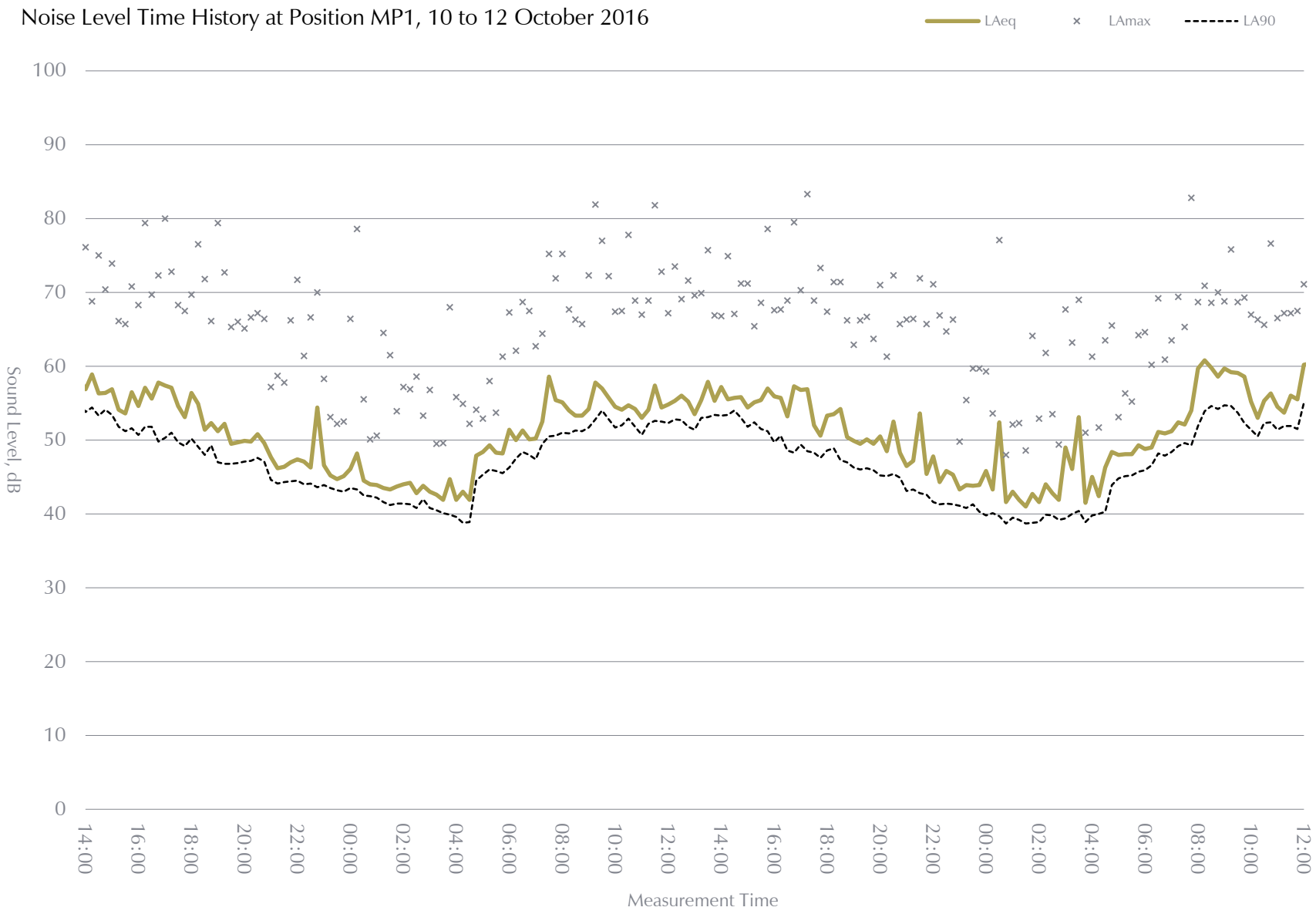


Figure 16/0440/TH01

Schedule 16/0440/SCH1

Noise Survey Results

Measurement Position 1

Period	L_{Aeq}	L_{Amax}	L_{A90}
0650-0700	58.9	82.5	48.7
0730-0745	59.0	85.2	51.1
0815-0830	60.5	82.5	53.8
0845-0900	64.4	92.1	54.1
0915-0930	66.2	90.7	54.1
0930-0945	62.0	83.5	54.7
1000-1015	65.0	97.1	53.0
1015-1030	62.0	91.1	52.5
1030-1045	58.5	86.1	51.7
0900-1000	61.1	90.2	53.6
1100-1115	62.6	83.7	56.0
1115-1130	64.0	86.8	57.6
1130-1145	65.1	89.9	59.7
1200-1215	62.7	82.6	58.6
1215-1230	63.7	80.7	60.1

Cole Jarman Limited Reg. in England and Wales No. 7102436
Head Office +44 (0)1932 829007
John Cree House, 24B High Street, Addlestone, Surrey, KT15 1TN

info@colejarman.com www.colejarman.com
Manchester Office +44 (0)161 2093644
Peter House, 1 Oxford Street, Manchester, M1 5AN