

Revised Noise Impact

Assessment

Report 12077.NIA.02

137 Euston Road, London, NW1 2AA

September 2017

Ref: 14-942





TABLE OF CONTENTS

1.	EXECUTIVE SUMMARY
2.	INTRODUCTION6
3.	PLANNING POLICY7
4.	BASELINE NOISE LEVELS
5.	INTERNAL NOISE LEVEL ASSESSMENT 11
6.	CONCLUSION
7.	APPENDIX 1: GLOSSARY OF ACOUSTIC TERMINOLOGY13
8.	APPENDIX 2: DETAILED NOISE MEASUREMENT RESULTS

Telephone: 0118 4028520















Quality Standards Control

The signatories below verify that this document has been prepared in accordance with our quality control requirements. These procedures do not affect the content and views expressed by the originator.

This document must only be treated as a draft unless it has been signed by the originators and approved by a director.

Revision	01	02	
Date	21.01.2015	12.09.2017	
Prepared by	K. Papanagiotou (on behalf of Syntegra)	D. Yates MIOA	
Checked by	E. Snape-Gormley	S.Prior	
Authorised by	A. King	D. Yates MIOA	

Syntegra House, 63 Milford Road, Reading RG1 8LG Registered Company No. 06408056

STR

GREEN BURDING Telephone: 0118 4028520

(p)

AWARDS

energy

GREEN

Email: mail@syntegragroup.com VAT Registration No. 980016044

2014

CHAMBER OF



Limitations

Syntegra Consulting Ltd ("SC") has prepared this report for the sole use of the client in accordance with the agreement under which our services were performed. No other warranty, expressed or implied, is made as to the professional advice included in this report or any other services provided by SC.

The conclusions and recommendations contained in this report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by SC has not been independently verified by SC, unless otherwise stated in the report.

The methodology adopted and the sources of information used by SC in providing its services are outlined in this report. The work described in this report was undertaken in January 2015 and September 2017 and is based on the conditions encountered and the information available during the said period of time. The scope of this report and the services are accordingly factually limited by these circumstances.

Where assessments of works or costs identified in this report are made, such assessments are based upon the information available at the time and where appropriate are subject to further investigations or information which may become available.

SC disclaim any undertaking or obligation to advise any person of any change in any matter affecting the report, which may come or be brought to SC's attention after the date of the report.

Certain statements made in the report that are not historical facts may constitute estimates, projections or other forward-looking statements and even though they are based on reasonable assumptions as of the date of the report, such forward-looking statements by their nature involve risks and uncertainties that could cause actual results to differ materially from the results predicted. SC specifically does not guarantee or warrant any estimate or projections contained in this report.

Costs may vary outside the ranges quoted. Whilst cost estimates are provided for individual issues in this report these are based upon information at the time which can be incomplete. Cost estimates for such issues may therefore vary from those provided. Where costs are supplied, these estimates should be considered in aggregate only. No reliance should be made in relation to any division of aggregate costs, including in relation to any issue, site or other subdivision.

No allowance has been made for changes in prices or exchange rates or changes in any other conditions which may result in price fluctuations in the future. Where assessments of works or costs necessary to achieve compliance have been made, these are based upon measures which, in SC's experience, could normally be negotiated with the relevant authorities under present legislation and enforcement practice, assuming a proactive and reasonable approach by site management.

Forecast cost estimates do not include such costs associated with any negotiations, appeals or other nontechnical actions associated with the agreement on measures to meet the requirements of the authorities, nor are potential business loss and interruption costs considered that may be incurred as part of any technical measures.

Copyright

© This report is the copyright of SC. Any unauthorised reproduction or usage by any person other than the addressee is strictly prohibited.

Syntegra House, 63 Milford Road, Reading RG1 8LG Registered Company No. 06408056

Telephone: 0118 4028520















1. Executive summary

An assessment has been carried out of the present noise climate at **137 Euston Road, London** and the impact of that noise on the proposed development. The proposed scheme involves the construction of one 2-bed apartment set out over three floors ($1^{st} - 3^{rd}$ floor) with an entrance foyer on the ground floor.

The proposed development site is located on Flaxman Terrace, to the rear of 137 Euston Road. The noise climate in the area is predominantly from distant road traffic noise, which is presumed to be primarily from Euston Road.

There is also a building called "*The Place*", which is a dance and performance studio centre located adjacent to the proposed development site. There is the potential for music noise to be audible from "*The Place*" during their hours of operation, which is 0800 hrs – 2200 hrs. Due to the potential for intrusive low frequency noise from "*The Place*", the Council have requested that an assessment of the internal noise levels is carried out in order to meet specific Noise Rating (NR) criteria. The use of the NR criteria will ensure that the low frequency noise is controlled such that there would be no significant adverse impacts on the health and quality of life of future residents of the proposed development and that the existing business is reasonably protected from any potential future noise complaints.

The assessment is based on the results of a noise measurement survey that has been carried out between 14th January 2015 and 16th January 2015 at the proposed development site and detailed calculations have been carried out in order to determine whether the internal noise climate will achieve the requirements of the London Borough of Camden (LBC).

It has been identified that the requirements of the Local Authority can be achieved, subject to the following construction assumptions:

- The façade build-up will be a standard brick and block construction, or equivalent, to achieve a Sound Reduction Index (SRI) of approximately 55 dB.
- A typical double glazing system in a 4/16/4 configuration (or equivalent) will be installed to give an SRI of 34 dB R_w .
- Appropriately specified acoustic trickle vents or an alternative means of ventilation will be installed to allow adequate ventilation without the requirement to open windows.
- The roof construction is carefully considered so that it achieves an SRI of approximately 45 dB. An example construction has been provided in **Table 5.1**.

In addition to achieving the overall SRI's specified above, achieving the octave band SRI's specified in **Table 5.1** will be important to ensure that the NR criteria is achieved.

Achievement of the requirements of the Local Authority will ensure compliance with the aims of the National Planning Policy Framework (NPPF) in that it will avoid noise from giving rise to significant adverse impacts on the health or quality of life of future occupiers of the proposed development and would therefore help to protect the existing business from future noise complaints.

Telephone: 0118 4028520

energy







2. Introduction

This report has been prepared to support the planning application for the proposed development at **137 Euston Road, London**. The proposed scheme involves the construction of one 2-bed apartment set out over three floors ($1^{st} - 3^{rd}$ floor) with an entrance foyer on the ground floor.

The report assesses, through on-site noise measurements, the impact of the existing noise climate on the proposed development.

The proposed development site is located on Flaxman Terrace, to the rear of 137 Euston Road. The noise climate in the area is predominantly from distant road traffic noise, which is presumed to be primarily from Euston Road.

There is also a building called "*The Place*", which is a dance and performance studio centre, located adjacent to the proposed development site. There is the potential for music noise to be audible from "*The Place*" during their hours of operation, which is 0800 hrs – 2200 hrs. Due to the potential for intrusive low frequency noise from "*The Place*", the Council have requested that an assessment of the internal noise levels is carried out in order to meet specific Noise Rating (NR) criteria. The use of the NR criteria will ensure that the low frequency noise is controlled such that there would be no significant adverse impacts on the health and quality of life of future residents of the proposed development and that the existing business is reasonably protected from any potential future noise complaints.

Euston Road 137 Euston Road Proposed Development Site (aproximate location) The Place Dance and Performance Studios

The location of the proposed development site is provided in Figure 2.1.

Figure 2.1: Site Location

Syntegra House, 63 Milford Road, Reading RG1 8LG Registered Company No. 06408056

Telephone: 0118 4028520

energy



3. Planning Policy

3.1. National Planning Policy Framework

The National Planning Policy Framework (NPPF) was released in March 2012 and has replaced the Planning Policy Guidance which previously covered planning and pollution control and new development in England. The purpose of the planning system is to contribute to the achievement of sustainable development and to encourage good design. There are three dimensions to sustainable development: economic, social and environmental.

Central to the NPPF, paragraph 14 states: 'At the heart of the National Planning Policy Framework is a **presumption in favour of [permitting] sustainable development** which should be seen as a golden thread running through both plan-making and decision-taking...'

'...For decision-taking this means:

- approving development proposals that accord with the development plan without delay; and
- where the development plan is absent, silent or relevant policies are out-of-date, granting permission unless:
 - any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole; or
 - specific policies in this Framework indicate development should be restricted.'

Paragraph 17 sets out core planning principles and the most relevant elements to noise are: '... be a creative exercise in finding ways to enhance and improve the places in which people live...', '... always seek to secure high quality design and a good standard of amenity for all existing and future occupants of land and buildings' and '... contribute to conserving and enhancing the natural environment and reducing pollution.'

Paragraph 109 states 'The planning system should contribute to and enhance the natural and local environment by... preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of... noise pollution...' and Paragraph 123 states: 'Planning policies and decisions should aim to:

- Avoid noise from giving rise to significant adverse impacts (see Explanatory Note to the Noise Policy Statement for England (DEFRA)) on health and quality of life as a result of new development;
- Mitigate and reduce to a minimum other adverse impacts (see Explanatory Note to the Noise Policy Statement for England (DEFRA)) on health and quality of life arising from noise from new development, including through the use of conditions;
- Recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land use since they were established (Subject to the provisions of the Environmental Protection Act 1990 and other relevant law); and
- Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.'

Syntegra House, 63 Milford Road, Reading RG1 8LG Registered Company No. 06408056 Telephone: 0118 4028520

energy





3.2. Noise Policy Statement for England

The Noise Policy Statement for England (NPSE) aims to 'through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- avoid significant adverse impacts on health and quality of life;
- mitigate and minimise adverse impacts on health and quality of life; and
- where possible, contribute to the improvement of health and quality of life'.

3.3. Local Planning Policy

The site is located within the administrative boundary of the London Borough of Camden (LBC).

Syntegra have liaised with Edward Davies, who is an Environmental Health Officer at LBC, regarding the proposed development as he was concerned about the potential for disturbance from music noise from *"The Place,"* which may jeopardise future activities at the *"The Place"* if a noise complaint is received and upheld. Accordingly, Mr. Davies advised in an email dated 11th September 2017 that the internal noise criteria for entertainment noise contained within LBC's Local Plan, published in June 2017, should be achieved.

Within Appendix 3 of LBC's Local Plan there are a number of noise thresholds to be achieved. In respect of internal noise levels from entertainment noise, the following thresholds apply:

- NR35 in habitable rooms during the day (0700 hrs 2300 hrs)
- NR25 in bedrooms at night (2300 hrs 0700 hrs)

Syntegra House, 63 Milford Road, Reading RG1 8LG Registered Company No. 06408056 Telephone: 0118 4028520















4. Baseline Noise Levels

A noise survey was undertaken at the position as shown in **Figure 4.1**. This location was chosen in order to collect data representative of the worst-case levels expected at the proposed development site due to all nearby sources.



Figure 4.1: Noise Monitoring Location

Continuous automated monitoring was undertaken for the duration of the survey between 14th January 2015 and 16th January 2015. The noise climate in the area is predominantly from distant road traffic noise, which is presumed to be primarily from Euston Road. There is the potential for music noise to be audible from *"The Place"* during their hours of operation, which is 0800 hrs – 2200 hrs.

The equipment calibration was verified before and after use and no abnormalities were observed. The equipment used was as follows:

- 1 No. Svantek Type 957 Class 1 Sound Level Meter
- B&K Type 4231 Class 1 Calibrator

Weather conditions were generally dry with light winds and therefore suitable for the measurement of environmental noise. The measurement procedure complied with ISO 1996-2:2007 Acoustics "Description, measurement and assessment of environmental noise - Part 2: Determination of environmental noise levels".

The LAeq,5min, LAmax,5min, LA10,5min and LA90,5min acoustic parameters were measured throughout the duration of the survey. A summary of the measured daytime and night-time noise levels are shown in **Table 4.1**. Detailed measurement results, including a time history graph, is provided in **Appendix 2**.

Telephone: 0118 4028520







Date	Period (hours)	L _{Aeq,T} (dB)	L _{Amax} (dB)	L _{A10} (dB)	L _{A90} (dB)
14-15/01/2015	Daytime (0700 – 2300)	57.9	79.8	59.0	54.2
14-13/01/2013	Night-time (2300 – 0700)	58.9	80.0	60.0	53.6
15 16/01/2015	Daytime (0700 – 2300)	58.7	77.2	59.1	53.9
13-10/01/2013	Night-time (2300 – 0700)	53.6	69.8	54.7	50.0

Table 4.1: Summary of Free Field Semi-Permanent Noise Levels at MP1

Note: The average noise levels stated are logarithmic for L_{Aeq} and the arithmetic for L_{A10} and L_{A90}. The L_{Amax,F} noise levels stated are the arithmetic average of the hourly noise levels during the specified time periods.

It can be identified from **Table 4.1**, and the detailed results in **Appendix 2**, that the noise levels at night were much higher on the first night $(14^{th} - 15^{th} January)$ than on the second night $(15^{th} - 16^{th} January)$. A close analysis of the noise level data has shown that high noise levels were present at the site until approximately 0500 hrs on the 15^{th} January 2015. These high noise levels had a very high low frequency content, which would suggest that the noise levels are likely to have come from either music noise or potentially from overnight construction works (in this case the low frequency noise could be from a generator located in relatively close proximity to the noise measurement location).

As these noise levels are higher than the daytime noise levels, are not present on the second night, and "*The Place*" is only open between 0800 hrs and 2200 hrs, it can be assumed that these noise levels are extraneous as there is no obvious regular source of the noise and can therefore be discounted from the assessment.

The measured noise levels during both daytime periods are very similar, which suggests that these are typical noise levels. The measured noise levels on the second night show a reduction at night when compared to the daytime, which is expected due to normal diurnal patterns of road traffic (the dominant noise source in the area). The assessment of internal noise levels will therefore be based on the measurements from the second day and night of measurements ($15^{th} - 16^{th}$ January 2015) as these are likely to be typical noise levels.

Syntegra House, 63 Milford Road, Reading RG1 8LG Registered Company No. 06408056 Telephone: 0118 4028520















5. Internal Noise Level Assessment

The requirements of LBC are to achieve internal noise levels of NR35 in habitable rooms during the day and NR25 in bedrooms at night.

The internal noise levels have therefore been calculated for the top floor master bedroom within the flat as a worst case utilising the *Detailed Calculation Method* described in BS 8233:2014 "*Guidance on sound insulation and noise reduction for buildings*" based on the measured noise levels (as assessed in **Section 4**), the site layout plans and the construction assumptions outlined in **Table 5.1**.

Construction	Description	Sound Reduction Index (dB) in Octave Bands						
Element	Description	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz
Wall	Standard brick and block cavity wall	38	41	45	45	54	58	58
Window 4/16/4 double glazing		18	24	20	25	34	37	37
Roof	Tiled/slated roof, 100mm wooden beams, gaps between beams filled with mineral wool, 12.5mm plasterboard ceiling	20	24	34	40	45	49	49
Ventilation	Acoustic Trickle Ventilator	30	32	32	31	33	31	31

Table 5.1: Construction Assumptions

Whilst the precise specifications of the construction elements may be different to those outlined in **Table 5.1**, it will be important to achieve the sound reduction index indicated, or greater, in order to maintain a reasonable internal noise climate.

Table 5.2 identifies the likely LAeq internal noise levels, and compares them against the LBC criteria. It**can be identified the proposed development will achieve the identified criteria.**

Period	Noise Source	Noise Levels (dB) in Octave Bands						dB(A)	
(hours)		63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	ub(A)
Dautimo	Predicted internal noise levels	55	42	33	25	19	20	12	33
Daytime (0700 - 2200)	NR35 Criteria	63	52	45	39	35	32	30	-
(0700 - 2300)	Achievement of Criteria	✓	✓	✓	✓	~	✓	✓	-
Night tipe o	Predicted internal noise levels	50	37	29	22	14	13	1	28
(2300 - 0700)	NR25 Criteria	55	44	35	29	25	22	20	-
(2300 - 0700)	Achievement of Criteria	✓	✓	✓	✓	√	✓	✓	-

Table 5.2: Internal Noise Level Assessment

It can also be identified from **Table 5.2** that the internal noise levels are 33 dB L_{Aeq,16hr} (daytime) and 28 dB L_{Aeq,8hr} (night-time) respectively. It can therefore also be concluded that the internal noise levels at the proposed development will achieve the normal internal noise level criteria for *anonymous noise sources* (i.e. road traffic noise and other forms of environmental noise), as set out in BS 8233:2014, of no more than 35 dB L_{Aeq,16hr} during the daytime and 30 dB L_{Aeq,8hr} during the night-time.

Telephone: 0118 4028520











6. Conclusion

An assessment has been carried out of the present noise climate at **137 Euston Road, London** and the impact of that noise on the proposed development.

The assessment is based on the results of a noise measurement survey that has been carried out between 14th January 2015 and 16th January 2015 at the proposed development site and detailed calculations have been carried out in order to determine whether the internal noise climate will achieve the requirements of LBC.

It has been identified that the requirements of the Local Authority can be achieved, subject to the following construction assumptions:

- The façade build-up will be a standard brick and block construction, or equivalent, to achieve a Sound Reduction Index (SRI) of approximately 55 dB.
- A typical double glazing system in a 4/16/4 configuration (or equivalent) will be installed to give an SRI of 34 dB R_w.
- Appropriately specified acoustic trickle vents or an alternative means of ventilation will be installed to allow adequate ventilation without the requirement to open windows.
- The roof construction is carefully considered so that it achieves an SRI of approximately 45 dB. An example construction has been provided in **Table 5.1**.

In addition to achieving the overall SRI's specified above, achieving the octave band SRI's specified in **Table 5.1** will be important to ensure that the NR criteria is achieved.

Achievement of the requirements of the Local Authority will ensure compliance with the aims of the National Planning Policy Framework (NPPF) in that it will avoid noise from giving rise to significant adverse impacts on the health or quality of life of future occupiers of the proposed development and would therefore help to protect the existing business from future noise complaints.

Syntegra House, 63 Milford Road, Reading RG1 8LG Registered Company No. 06408056 Telephone: 0118 4028520











7. Appendix 1: Glossary of Acoustic Terminology

Term	Description				
'A'-Weighting	This is the main way of adjusting measured sound pressure levels to take into account human hearing, and our uneven frequency response.				
Decibel (dB)	This is a tenth (deci) of a bel. The decibel can be a measure of the magnitude of sound, changes in sound level and a measure of sound insulation. Decibels are not an absolute unit of measurement but are an expression of ratio between two quantities expressed in logarithmic form.				
L _{Aeq,T}	The equivalent steady sound level in dB containing the same acoustic energy as the actual fluctuating sound level over the given period, T. T may be as short as 1 second when used to describe a single event, or as long as 24 hours when used to describe the noise climate at a specified location. $L_{Aeq,T}$ can be measured directly with an integrating sound level meter.				
L _{A10}	The 'A'-weighted sound pressure level of the residual noise in decibels exceeded for 10 per cent of a given time and is the L_{A10T} . The L_{A10} is used to describe the levels of road traffic noise at a particular location.				
L _{A50}	The 'A'-weighted sound pressure level of the residual noise in decibels exceeded for 50 per cent of a given time and is the L_{A50T} .				
L _{A90}	The 'A'-weighted sound pressure level of the residual noise in decibels exceeded for 90 per cent of a given time and is the L_{A90T} . The L_{A90} is used to describe the background noise levels at a particular location.				
L _{Amax}	The 'A'-weighted maximum sound pressure level measured over a measurement period.				

10,000 small

STROMA

Telephone: 0118 4028520

B CHAMBER 2014



8. Appendix 2: Detailed Noise Measurement Results

Measured Noise levels - 14-15/01/2015

Time	L _{Aeq,T} (dB)	L _{AF(max)} (dB)	L _{A10} (dB)	L _{A90} (dB)
1100-1200	57.3	79.6	59.0	54.0
1200-1300	59.5	82.8	60.3	54.8
1300-1400	59.0	83.6	59.8	54.6
1400-1500	58.7	81.6	60.2	54.2
1500-1600	57.0	78.7	58.0	53.8
1600-1700	57.7	77.8	58.4	54.1
1700-1800	56.8	80.2	58.1	54.2
1800-1900	55.8	74.9	57.3	53.6
1900-2000	56.5	73.6	57.8	53.8
2000-2100	58.7	83.4	59.1	54.0
2100-2200	58.6	80.0	59.8	54.1
2200-2300	57.1	76.1	58.6	54.1
2300-0000	58.8	80.3	60.3	54.4
0000-0100	59.1	84.2	60.5	53.6
0100-0200	59.2	79.3	61.1	53.3
0200-0300	58.6	82.2	60.0	53.2
0300-0400	60.8	78.7	62.9	54.7
0400-0500	59.5	85.6	58.6	52.6
0500-0600	56.3	77.3	57.4	52.4
0600-0700	57.7	72.5	58.8	55.0
0700-0800	57.5	83.0	58.6	53.2
0800-0900	58.3	84.1	59.5	54.8
0900-1000	59.0	75.7	61.0	55.1
1000-1100	58.0	82.3	59.1	54.3
0700-2300	57.9	79.8	59.0	54.2
2300-0700	58.9	80.0	60.0	53.6

Syntegra House, 63 Milford Road, Reading RG1 8LG Registered Company No. 06408056

> 10,000 small

STROMA

Telephone: 0118 4028520

Email: mail@syntegragroup.com VAT Registration No. 980016044



Measured Noise levels – 15-16/01/2015

Time	L _{Aeq,T} (dB)	L _{AF(max)} (dB)	L _{A10} (dB)	L _{A90} (dB)
1100-1200	64.6	86.1	62.4	55.2
1200-1300	60.2	83.7	60.7	55.4
1300-1400	58.0	72.6	59.8	55.2
1400-1500	57.8	73.8	59.3	54.9
1500-1600	56.8	72.0	58.2	54.3
1600-1700	58.2	77.6	59.4	54.4
1700-1800	57.0	72.9	58.5	54.1
1800-1900	56.4	72.0	57.9	53.9
1900-2000	57.6	77.9	59.0	53.7
2000-2100	56.9	78.1	58.3	53.3
2100-2200	56.9	74.4	58.6	53.1
2200-2300	55.1	75.1	56.3	52.2
2300-0000	56.4	78.7	56.9	51.9
0000-0100	54.7	72.0	56.2	51.4
0100-0200	54.6	70.8	56.2	49.9
0200-0300	51.6	69.0	53.1	48.8
0300-0400	51.1	65.5	52.8	48.9
0400-0500	51.3	66.8	52.9	49.0
0500-0600	52.4	65.4	54.0	49.6
0600-0700	53.8	70.0	55.4	50.8
0700-0800	56.8	75.6	57.6	52.2
0800-0900	56.8	75.6	57.6	52.2
0900-1000	57.3	77.5	59.1	53.6
1000-1100	60.1	86.9	60.4	53.4
0700-2300	58.7	77.2	59.1	53.9
2300-0700	53.6	69.8	54.7	50.0

Syntegra House, 63 Milford Road, Reading RG1 8LG Registered Company No. 06408056

> 10,000 small

STROMA

Telephone: 0118 4028520

Email: mail@syntegragroup.com VAT Registration No. 980016044







Syntegra House, 63 Milford Road, Reading RG1 8LG Registered Company No. 06408056 Telephone: 0118 4028520

